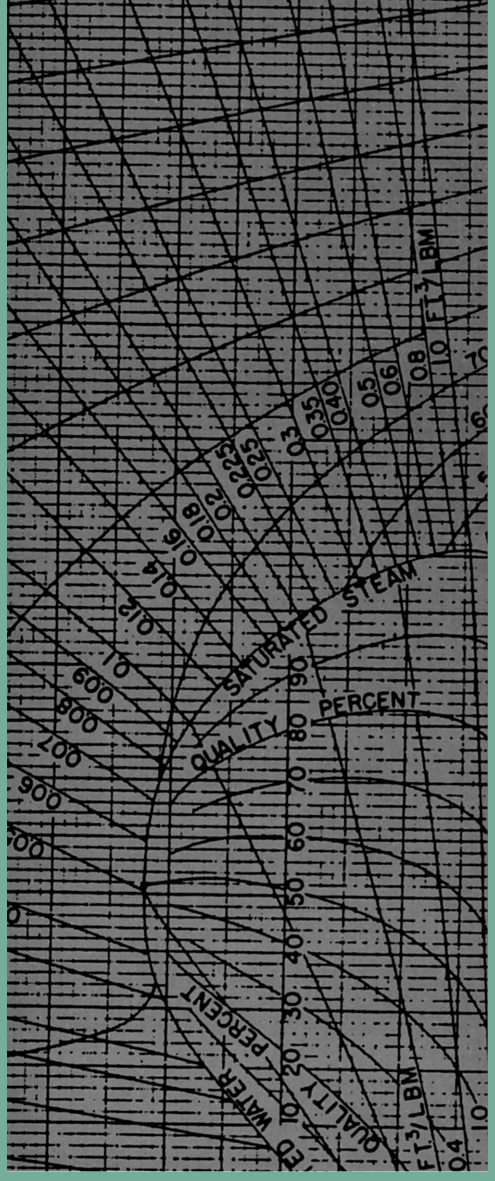

ASME International Steam Tables for Industrial Use

Third Edition

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ASME INTERNATIONAL STEAM TABLES FOR INDUSTRIAL USE

Third Edition

Based on the
IAPWS Industrial Formulation 1997
for the Thermodynamic Properties of Water and Steam (IAPWS-IF97)

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PREFACE TO FIRST EDITION

International standards for water and steam properties are set by the International Association for the Properties of Water and Steam (IAPWS). The IAPWS-IF97 formulation for thermodynamic properties used in this book was developed by an IAPWS Task Group chaired by Wolfgang Wagner of Germany. Testing of the formulation was the responsibility of a Task Group chaired by Kiyoshi Miyagawa of Japan. We begin by acknowledging the extraordinary efforts of these two groups, and especially their chairmen, in producing a formulation that is significantly improved over its predecessor in accuracy, internal consistency, and speed.

This book, like the previous *ASME Steam Tables* which date back to 1967, was produced by the efforts of the Properties of Steam Subcommittee of the ASME Research and Technology Committee on Water and Steam in Thermal Systems. In addition to the four people listed as authors, we particularly acknowledge the efforts of Subcommittee members Daniel Friend (NIST), Richard Jacobsen (University of Idaho), Johanna M. H. Levelt Sengers (NIST), Jan Sengers (University of Maryland), and Jesse Sewell (Siemens Westinghouse). Much of the programming of the ASME implementation of IAPWS-IF97 was performed by Joanne Chao (Keane). We also received logistical support from Howard Clark of the ASME Center for Research and Technology Development. Cynthia Clark and Tara Smith of the ASME Technical Publishing Department supervised the production of the book. Much of the financial support for the Subcommittee has been provided by the Electric Power Research Institute (EPRI).

One thing that became clear during this process was the necessity of retaining the knowledge of previous generations. We are grateful for support and advice we received from the surviving authors of the 1967 *ASME Steam Tables*: Ralph McClintock, George Silvestri, and especially Robert Spencer. Being able to profit from their accumulated wisdom spared us from reinventing solutions to problems they had previously solved. It is our hope that ASME will continue to maintain an infrastructure of expertise in the properties of steam to ensure that the next generation can build from this strong foundation when the time comes to revise or replace this book.

ASME Research and Technology Committee on Water and Steam
in Thermal Systems, Subcommittee on Properties of Steam

William T. Parry, Chairman
Allan H. Harvey, Secretary

September 1999

PREFACE TO SECOND EDITION

This Second Edition presents the same properties of water and steam as the First Edition (published in 2000), with two exceptions. In 2007, the International Association for the Properties of Water and Steam (IAPWS) adopted a new formulation for the high-temperature Region 5, extending the pressure range of validity of Region 5 from 10 MPa to 50 MPa in order to cover conditions that might be encountered in some proposed new power cycles. The new Region 5 formulation is reflected in new Tables S-4 and U-4. Also, in 2008, IAPWS adopted a new formulation for the viscosity of water and steam. This is reflected in new Tables S-8, S-10, U-8, and U-10, along with new Figures S-2, S-3, S-5, U-2, U-3, and U-5. We also took the opportunity to correct a few typographical errors and to update some of the background text and references.

ASME Research and Technology Committee on Water and Steam
in Thermal Systems, Subcommittee on Properties of Steam

Richard D. Harwood, Chair
Allan H. Harvey, Secretary

September 2008

PREFACE TO THIRD EDITION

The main update for this Third Edition is the incorporation of the new IAPWS formulation adopted in 2011 for the thermal conductivity of water and steam. This is reflected in new Tables S-9, S-10, U-9, and U-10, along with new Figures S-4, S-5, U-4, and U-5 and revision of Appendix B. The thermodynamic property information is unchanged from the Second Edition. We also made minor updates to some of the background text and references. We thank Prof. H.-J. Kretzschmar for his assistance with the thermal conductivity calculations.

ASME Research and Technology Committee on Water and Steam
in Thermal Systems, Subcommittee on Properties of Steam

Richard D. Harwood, Chair
Allan H. Harvey, Secretary

December 2013

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CHAPTER

1

INTRODUCTION

PURPOSE

Industrial steam tables exist to provide a standard set of properties of water and steam for manufacturers, customers, and other parties. Three desirable qualities for a set of industrial steam tables are accuracy, self-consistency, and stability. The properties must be reasonably accurate and self-consistent to support quality design of equipment. A formulation must remain the standard for many years, because the change from one standard to another is inconvenient and expensive. If the tables are represented by computer programs, those programs must be fast, since design software may call steam property routines millions of times. The *ASME International Steam Tables for Industrial Use* provide highly accurate and self-consistent steam properties, conforming to the constraint of representation by a fast computer program. They are based on the "Revised Release on the IAPWS Formulation 1997 for the Thermodynamic Properties of Water and Steam for Industrial Use," [1] adopted as an international standard by the International Association for the Properties of Water and Steam. They are suitable for calculations for current and anticipated power plants and are expected to remain the standard for at least 20 years.

HISTORY

Regnault [2] published the first steam tables in 1847. By 1921, the profusion of steam tables caused the American Society of Mechanical Engineers (ASME) to establish the ASME Research Committee on Thermal Properties of Steam. In the early 1920s, this committee was instrumental in stimulating and arranging support for fundamental research at government and university laboratories. Parallel efforts in England, Germany, Canada, and Czechoslovakia led to the First and Second International Steam-Table Conferences (London, 1929, and Berlin, 1930). These conferences constructed skeleton tables, which contained values of specific volume and enthalpy and their associated tolerances (uncertainty estimates) for each point on a coarse grid of temperatures and pressures. These values and tolerances were agreed upon by experts based on the best available data. Over the next few years, the tolerances in the skeleton tables were much reduced; a more complete skeleton table was produced by the Third International Steam Tables Conference (ASME Headquarters, New York, 1934). In 1936, Keenan and Keyes published their steam tables [3] which were based for the most part on the same data as the 1934 skeleton tables. These steam tables served as the industry standard for over 30 years.

IFC-67

At the Third International Steam Tables Conference, the need for continued research was recognized. By the 1950s, it became evident that a need existed for better thermodynamic information at higher pressures and temperatures. The tables in Keenan and Keyes have very sparse values above the critical point. New skeleton tables, extending into the higher pressure regions, were completed in 1963. At the same time, it was recognized that different methods of interpolation between points in the skeleton

tables could produce important differences in the values in the more detailed tables. Therefore, the International Formulating Committee was formed, with the task of making standard equations to be used internationally. This committee produced "The 1967 IFC Formulation for Industrial Use," abbreviated IFC-67. This formulation was used for 30 years, and was the basis for ASME Steam Tables [4] through the 6th Edition. It consisted of several sets of equations that provided values of thermodynamic properties over the range of 0.000 61 MPa to 100 MPa (0.088 psia to 14 503.8 psia) and 0.01 °C to 800 °C (32.018 °F to 1472 °F). This range of pressures and temperatures was divided into six regions; each region had a set of equations. Considerable effort was required to keep calculated values reasonably consistent at region boundaries.

Although people had developed computer programs to reproduce the values in the Keenan and Keyes steam tables, an important extension of the IFC-67 formulation was the FORTRAN computer subroutines developed by ASME [5, 6]. These subroutines were used to produce the values both in many tabulations of steam properties and directly for industrial calculations. The subroutines were publicly available and ultimately became the foundation of the computer program distributed with the 6th Edition of the ASME Steam Tables.

Another important development was the recognition that a permanent organization was needed to guide steam research and maintain the steam tables. Thus, the International Association for the Properties of Steam (IAPS) was formed. IAPS has met annually and has conducted conferences approximately every five years. The organization recognized that there was a need for a stable industrial formulation and another, parallel formulation for scientific and general use, which could be updated more frequently to maintain a state-of-the-art representation without being constrained by considerations of stability or computing time. IAPS changed its name to The International Association for the Properties of Water and Steam (IAPWS) in 1989.

NEED FOR NEW FORMULATION

At the 11th International Conference on the Properties of Steam (Prague, 1989), there were discussions of the need and possible specifications for a new industrial formulation of the properties of water and steam. Advances in computer speed had made possible increasingly complex calculations, using many more calls to steam properties. The time spent calling steam routines had not declined significantly since 1967, and improvement in speed remained important. The discontinuities at the region boundaries of IFC-67 had created difficulties in simulation programs due to oscillations at the boundaries – for example, when a routine would estimate a value in one region, during iteration it would determine that it was in a second region, and during iteration in the second region determine that it was in the first region. Inaccuracies were also becoming apparent. Another important development at the time was personal computers, which were relatively slow; a faster formulation would allow more design calculations to be performed on PCs.

SPECIFICATION FOR NEW FORMULATION

At its 1990 annual meeting in Buenos Aires, IAPWS decided to proceed with both a new formulation for general and scientific use and a new formulation for industrial use. A specification for the industrial formulation was developed at the 1991 meeting in Tokyo and modified slightly in subsequent years. The values of specific volume and enthalpy were generally to agree with the new general and scientific formulation within the tolerances given in the International Skeleton Tables of 1985, except where these tolerances were exceptionally small (e.g., liquid water below 150 °C). Other calculated values were to be within the experimental uncertainty, except where that uncertainty was extremely small (e.g., vapor pressure below 100 °C). It was recognized that the new industrial formulation would have several regions. Continuity at region boundaries was to meet and preferably exceed the requirements that had been set for IFC-67 (which, unfortunately, IFC-67 itself did not always meet, especially for enthalpy and heat capacity). The computational speed was to be faster than the ASME IFC-67 software by at least a factor of three, except in the "supercritical" region. This speed was to be achieved by having "forward"

equations that defined the values in each region in terms of its independent variables [e.g., $h(p, T)$ and $s(p, T)$], and also "backward" functions [e.g., $T(p, h)$ and $T(p, s)$], which would be so accurate that iterative checking using the corresponding forward functions would be unnecessary. The expected working life of the formulation was to be at least 20 years. The specification included a high temperature, low pressure region for combustion turbine work. Work on testing programs for speed and accuracy began immediately. From the beginning, this formulation was specified to be a computer program, usable on personal computers or mainframes, and written in FORTRAN.

DEVELOPMENT OF NEW FORMULATION

At the 1990 meeting, IAPWS formed a task group to generate the new industrial formulation. The task group consisted of twelve members from seven countries and was chaired by Prof. Wolfgang Wagner (Germany). Guidance would come from the IAPWS Industrial Calculations Working Subcommitee. Discussions of many of the challenges that faced the task group and details of their solutions may be found in the Proceedings of the 12th International Conference on the Properties of Water and Steam (Orlando, Florida, 1994) [7]. As work progressed, the task group found that the goal of three times the computational speed of IFC-67 was achievable, and the balance between speed and accuracy was reevaluated. As long as the speed was at least five times that of IFC-67, increased accuracy would be sought rather than pursuing further speed improvements. In 1995, IAPWS adopted the equations that would become the Release on the IAPWS Formulation 1995 for the Thermodynamic Properties of Ordinary Water Substance for General and Scientific Use (IAPWS-95) [8, 9], and work on the industrial formulation accelerated. By the annual meeting in 1996, a provisional version was available for testing.

TESTING

The international testing task group was led by Kiyoshi Miyagawa (Japan). The new formulation was tested against both the International Skeleton Tables of 1985 and against the IAPWS-95 Formulation for General and Scientific Use. As development and testing progressed, clarifications were made to the original specifications based on industrial input and the capabilities of preliminary formulations. One issue revealed by testing was the need for better handling of supersaturated steam (a metastable vapor state, where the equilibrium condition would be a vapor-liquid mixture, resulting from rapid expansion of steam). Ultimately, a special equation was developed to give properties believed to be the most reasonable for this region (see Chapter 3).

The final formulation met or exceeded all requirements associated with accuracy, continuity at region boundaries, and calculational speed. The accuracy and the consistency at the boundaries were both greatly improved over IFC-67. The speed of the new formulation was at least five times that of IFC-67 in the superheated steam and liquid water regions and along the saturation line. In the supercritical region, the new formulation was three times faster. The improved performance is described in detail in [10, 11].

ADOPTION

The IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and Steam [1], abbreviated IAPWS-IF97, was adopted at the 1997 IAPWS annual meeting in Erlangen, Germany. However, the increased accuracy of some of the values produced commercially significant changes in the results of power plant heat rate calculations [12]. Other differences from IFC-67 are also given in reference [12]. Due to the significant differences, particularly in heat rate calculations, IAPWS decided to recommend a waiting period before the new formulation was to be used as the basis for contracts. This waiting period (which expired at the beginning of 1999) would allow users to become familiar with the effects of the new values on their design software.

As technology advanced and designs began to be considered for combustion turbines operating at higher pressures, IAPWS recognized the need to expand the pressure range of applicability of the high-

temperature region (region 5) of IAPWS-IF97. A new region 5 formulation with an upper pressure limit of 50 MPa (increased from 10 MPa) was adopted by IAPWS in 2007 [1, 11]. The formulations for the other regions are still those of the original IAPWS-IF97.

THIS BOOK

The Subcommittee on Properties of Steam of the ASME Research and Technology Committee on Water and Steam in Thermal Systems is the United States National Committee for IAPWS. IAPWS authorizes each national committee to produce official implementations of IAPWS-IF97.

This book presents values produced from the IAPWS-IF97 formulation. Only the forward equations were used to compile the book. The backward equations are not needed to produce tables, only to compute quickly. Unlike previous versions of the ASME Steam Tables [4], this book includes both SI and U.S. customary units. Tables and figures in SI units are labeled "S-," while those in U.S. customary units are labeled "U-." It is hoped that this inclusion will promote familiarity with both sets of units in the United States and will serve an increasingly global industry.

The Subcommittee on Properties of Steam believed that essentially all important design work would use a computer. Therefore, this book should be small enough to carry in a briefcase and would be used for estimation rather than serious design. The tables have fewer points than in previous versions; they are intended for ready reference rather than precise interpolation. Each chart is limited to one page. Some of the infrequently used charts and tables from older versions of the steam tables have been omitted.

The Revised Release on the IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and Steam [1] is the consensus standard. The computer program and code [13], available from ASME, represent the properties of water and steam for industrial purposes from that standard. This book reproduces values from the computer code.

A small booklet containing abbreviated versions of the thermodynamic property tables (in both SI and U.S. customary units) has also been produced [14]. This inexpensive booklet should be useful for quick reference (for example in a plant setting) and in educational settings where more detailed tables are not necessary.

CHAPTER

2

UNITS AND CONVERSIONS

INTERNATIONAL SYSTEM OF UNITS (SI)

The dominant system of units throughout the world is the International System of Units, abbreviated as SI. The SI provides a simple and coherent system for the expression of physical quantities. Even most "traditional" units such as the foot and the Btu are now officially defined in terms of SI units, so any discussion of units must begin with the SI.

The SI contains seven "base" units; these units and their combinations are used to express all physical quantities. These SI base units are given in Table 2-1. Other physical quantities are derived from appropriate combinations of these units; for example, speed is length divided by time and has units of m/s (equivalently written as $m \cdot s^{-1}$). In some cases, these combinations are given their own names and symbols. For example, force is mass times acceleration, and a $kg \cdot m \cdot s^{-2}$ is called a newton and is given the symbol N. Prefixes may be applied to SI units to indicate powers of ten. See Table 2-2 for the prefixes from 10^{18} to 10^{-12}.

More information on the use of the SI, including guidelines for the expression of quantities in written work, may be found in *Guide for the Use of the International System of Units (SI)*, by A. Thompson and B. N. Taylor, NIST Special Publication 811 [15].

Table 2-1. SI base units

	SI Base Unit	
Base Quantity	Name	Symbol
length	meter	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol
luminous intensity	candela	cd

Table 2-2. SI prefixes

Factor	Prefix	Symbol
10^{18}	exa	E
10^{15}	peta	P
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{2}	hecto (rarely used)	h
10^{1}	deka (rarely used)	da
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p

U.S. CUSTOMARY UNITS

In the United States, non-SI units continue to be in common use both in everyday life and in industry. Engineers in the U.S. have the added challenge of being conversant in multiple sets of units. The units most commonly encountered by U.S. mechanical engineers are defined in terms of SI counterparts; some of the most important conversions are listed below. Additional conversion factors from non-SI to SI units are listed in a variety of references, including NIST Special Publication 811 [15].

Length, area, and volume. One inch is defined as exactly 2.54 cm. Other length units (feet, etc.) proceed from this definition, as do units of area and volume (cubic feet, for example). One U.S. gallon is defined as exactly 231 cubic inches.

Mass and force. The pound mass (lb_m) is exactly 0.453 592 37 kg. The pound force (lb_f) is the product of the pound mass and the standard acceleration of gravity (9.806 65 $m \cdot s^{-2}$) and is approximately equal to 4.448 222 N.

Pressure. Pressure is force per unit area; the SI unit (1 $N \cdot m^{-2}$) is the pascal (Pa). Common non-SI units include:

- the atmosphere (atm), defined as exactly 101.325 kPa
- the bar, exactly 100 kPa
- the pound force per square inch (psi or psia), approximately 6.894 757 kPa.

Pressures are occasionally expressed in terms of the weight (in standard gravity) of the particular height of fluid above a unit area, such as millimeters of mercury (mm Hg) or feet of water. Such units depend on the density of the fluid, which is a function of temperature and pressure. To avoid this complication, it is common (and we do so in this book) to use “conventional” definitions of these quantities so that the conversion factor will not change if the density of mercury or water is redetermined. The conventional millimeter of mercury (also called a torr) is defined as 1/760 atm, and the conventional millimeter of water is exactly 9.806 65 Pa.

Temperature. The kelvin is the unit of thermodynamic temperature; the temperature scale is fixed by defining the temperature of the triple point of pure water as exactly 273.16 K. For practical temperature measurements, the thermodynamic temperature must be approximated by standard procedures; the latest standard is the ITS-90 temperature scale [16]. The temperature in degrees Celsius (ºC) is defined as the temperature in kelvins minus 273.15. Absolute temperature in degrees Rankine (ºR) is the temperature in kelvins multiplied by 1.8. More common in U.S. customary usage is the degree Fahrenheit (ºF); this is related to the Celsius temperature by $t/ºC = (t/ºF - 32)/1.8$.

Energy and work. The SI unit for energy and work is the joule (J), which in base units is 1 $m^2 \cdot kg \cdot s^{-2}$. Non-SI units in common use include the calorie (cal) and the British thermal unit (Btu). While these were originally defined as the amount of heat required to raise a specific mass of water (one gram for the calorie and one pound for the Btu) by one degree (Celsius for the calorie, Fahrenheit for the Btu), they are now defined in terms of SI units. The Fifth International Conference on the Properties of Steam (London, 1956) defined the International Table calorie as 4.1868 J. The International Table Btu is obtained from this by the conversions from grams to pounds and from ºC to ºF, and is approximately 1055.056 J. It should be noted that these values differ from the "thermochemical" values often used in physical chemistry, where the thermochemical calorie is defined by $1\ cal_{th} = 4.184$ J and there is a corresponding thermochemical Btu. This can lead to confusion, especially when quantities from non-SI steam tables are combined with physicochemical data from other sources. In this book, the International Table values for calories and Btu's are used exclusively.

CONVERSION TO MOLAR UNITS

The tables in this book give properties (such as enthalpy, entropy, and volume) per unit mass. Sometimes it is necessary to have quantities on a per mole basis. This is accomplished by multiplying by the molecular weight (a more proper term is "molar mass") of water.

While for precise scientific work one must take into account variations in the isotopic composition of water when assigning a molecular weight, these variations are not important for most engineering purposes. It suffices to use a "standard" isotopic composition. The established standard for water's isotopic composition is called Vienna Standard Mean Ocean Water [17], and has a molar mass of 18.015 268 g/mol.

TABLES OF CONVERSION FACTORS

Tables 2-3 through 2-9 contain factors for converting between commonly used units for quantities likely to be of interest to users of steam tables.

In the tables, the factor given in a table cell is applied to a quantity expressed in the units given in the leftmost column in order to obtain a result in the units given in the topmost row. This direction of operation is indicated by arrows in the table. When the conversion factor in a cell is exact, it is printed in bold type. Where it is practical, exact factors are also displayed as simple ratios.

Table 2-3. Conversion Factors for Pressure (Force/Area)

To obtain ↓ multiply by →	atm	bar	psia (lb_f/in^2)	in Hg (conventional)	mm Hg (conventional)	ft H_2O (conventional)	kPa	MPa
atm	**1**	**1.013 25**	14.695 95	**760/25.4** = 29.921 26	**760**	33.898 54	**101.325**	**0.101 325**
bar	**1/(1.013 25)** = $9.869\,233\times10^{-1}$	**1**	14.503 77	29.529 99	**760/(1.013 25)** = 750.0617	33.455 26	**100**	**0.1**
psia (lb_f/in^2)	$6.804\,596\times10^{-2}$	$6.894\,757\times10^{-2}$	**1**	2.036 021	51.714 93	2.306 659	6.894 757	$6.894\,757\times10^{-3}$
in Hg (conventional)	**25.4/760** = $3.342\,105\times10^{-2}$	$3.386\,388\times10^{-2}$	$4.911\,541\times10^{-1}$	**1**	**25.4**	1.132 925	3.386 388	$3.386\,388\times10^{-3}$
mm Hg (conventional)	**1/760** = $1.315\,789\times10^{-3}$	**(1.013 25)/760** = $1.333\,224\times10^{-3}$	$1.933\,677\times10^{-2}$	**1/(25.4)** = $3.937\,008\times10^{-2}$	**1**	$4.460\,334\times10^{-2}$	**101.325/760** = $1.333\,224\times10^{-1}$	**(0.101 325)/760** = $1.333\,224\times10^{-4}$
ft H_2O (conventional)	$2.949\,980\times10^{-2}$	$2.989\,067\times10^{-2}$	$4.335\,275\times10^{-1}$	$8.826\,711\times10^{-1}$	22.419 85	**1**	2.989 067	$2.989\,067\times10^{-3}$
kPa	**1/101.325** = $9.869\,233\times10^{-3}$	**0.01**	$1.450\,377\times10^{-1}$	$2.952\,999\times10^{-1}$	**760/101.325** = 7.500 617	$3.345\,526\times10^{-1}$	**1**	**0.001**
MPa	**1/(0.101 325)** = 9.869 233	**10**	145.0377	295.2999	**760/(0.101 325)** = $7.500\,617\times10^{3}$	334.5526	**1000**	1

Table 2-4. Conversion Factors for Specific Volume (Volume/Mass)

To obtain → / multiply by ↓	ft^3/lb_m	in^3/lb_m	US gal/lb_m	liter/kg (cm^3/g)	m^3/kg
ft^3/lb_m	**1**	**1728**	**1728/231** = 7.480 519	$6.242\,796\times10^{1}$	$6.242\,796\times10^{-2}$
in^3/lb_m	**1/1728** = $5.787\,037\times10^{-4}$	**1**	**1/231** = $4.329\,004\times10^{-3}$	$3.612\,729\times10^{-2}$	$3.612\,729\times10^{-5}$
US gal/lb_m	**231/1728** = $1.336\,806\times10^{-1}$	**231**	**1**	8.345 404	$8.345\,404\times10^{-3}$
liter/kg (cm^3/g)	$1.601\,846\times10^{-2}$	$2.767\,990\times10^{1}$	$1.198\,264\times10^{-1}$	**1**	**0.001**
m^3/kg	$1.601\,846\times10^{1}$	$2.767\,990\times10^{4}$	$1.198\,264\times10^{2}$	**1000**	**1**

Table 2-5. Conversion Factors for Specific Enthalpy and Specific Energy (Energy/Mass)

To obtain → / multiply by ↓	**Btu/lbm**	**ft·lbf /lbm**	**hp·h/lbm**	**kW·h/lbm**	**psia/(lbm/ft^3)**	**cal/g**	**kJ/kg**
Btu/lbm	**1**	7.781 693×10^2	3.930 148×10^{-4}	2.930 711×10^{-4}	5.403 953	**1/1.8** = 5.555 556×10^{-1}	**4.1868/1.8 = 2.326**
ft·lbf /lbm	1.285 067×10^{-3}	**1**	**1/(1.98×10^6)** = 5.050 505×10^{-7}	3.766 161×10^{-7}	**1/144** = 6.944 444×10^{-3}	7.139 264×10^{-4}	2.989 067×10^{-3}
hp·h/lbm	2.544 434×10^3	**1.98×10^6**	**1**	7.456 999×10^{-1}	**(1.98×10^6)/144 = 1.375×10^4**	1.413 574×10^3	5.918 353×10^3
kW·h/lbm	3.412 142×10^3	2.655 224×10^6	1.341 022	**1**	1.843 905×10^4	1.895 634×10^3	7.936 641×10^3
psia/(lbm/ft^3)	1.850 497×10^{-1}	**144**	**144/(1.98×10^6)** = 7.272 727×10^{-5}	5.423 272×10^{-5}	**1**	1.028 054×10^{-1}	4.304 256×10^{-1}
cal/g	**1.8**	1.400 705×10^3	7.074 266×10^{-4}	5.275 279×10^{-4}	9.727 116	**1**	**4.1868**
kJ/kg	**1/2.326** = 4.299 226×10^{-1}	3.345 526×10^2	1.689 659×10^{-4}	1.259 979×10^{-4}	2.323 282	**1/4.1868** = 2.388 459×10^{-1}	**1**

Table 2-6. Conversion Factors for Specific Entropy, Heat Capacity, and Gas Constant (Energy/(Mass•Temperature))

To obtain → / multiply by ↓	Btu/(lbm·°R)	ft·lbf/(lbm·°R)	kW·h/(lbm·°R)	psia·ft³/(lbm·°R)	bar·cm³/(g·K)	cal/(g·K)	kJ/(kg·K)
Btu/(lbm·°R)	**1**	$7.781\,693\times10^{2}$	$2.930\,711\times10^{-4}$	5.403 953	**41.868**	**1**	**4.1868**
ft·lbf/(lbm·°R)	$1.285\,067\times10^{-3}$	**1**	$3.766\,161\times10^{-7}$	**1/144** = $6.944\,444\times10^{-3}$	$5.380\,320\times10^{-2}$	$1.285\,067\times10^{-3}$	$5.380\,320\times10^{-3}$
kW·h/(lbm·°R)	$3.412\,142\times10^{3}$	$2.655\,224\times10^{6}$	**1**	$1.843\,905\times10^{4}$	$1.428\,595\times10^{5}$	$3.412\,142\times10^{3}$	$1.428\,595\times10^{4}$
psia·ft³/(lbm·°R)	$1.850\,497\times10^{-1}$	**144**	$5.423\,272\times10^{-5}$	**1**	7.747 661	$1.850\,497\times10^{-1}$	$7.747\,661\times10^{-1}$
bar·cm³/(g·K)	**0.1/4.1868** = $2.388\,459\times10^{-2}$	$1.858\,625\times10^{1}$	$6.999\,882\times10^{-6}$	$1.290\,712\times10^{-1}$	**1**	**0.1/4.1868** = $2.388\,459\times10^{-2}$	**0.1**
cal/(g·K)	**1**	$7.781\,693\times10^{2}$	$2.930\,711\times10^{-4}$	5.403 953	**41.868**	**1**	**4.1868**
kJ/(kg·K)	**1/4.1868** = $2.388\,459\times10^{-1}$	$1.858\,625\times10^{2}$	$6.999\,882\times10^{-5}$	1.290 712	**10**	**1/4.1868** = $2.388\,459\times10^{-1}$	**1**

Table 2-7. Conversion Factors for Viscosity (Force•Time/Area = Mass•Length^{-1} • Time^{-1})

To obtain → / multiply by ↓	Pa·s (= kg·m^{-1}·s^{-1})	poise (= g·cm^{-1}·s^{-1})	centipoise (cP)	lb$_f$·s·ft^{-2}	lb$_m$·ft^{-1}·s^{-1}	lb$_m$·ft^{-1}·h^{-1}
Pa·s (= kg·m^{-1}·s^{-1})	**1**	**10**	**1000**	2.088 543×10^{-2}	6.719 690×10^{-1}	2.419 088×10^{3}
poise (= g·cm^{-1}·s^{-1})	**0.1**	**1**	**100**	2.088 543×10^{-3}	6.719 690×10^{-2}	2.419 088×10^{2}
centipoise (cP)	**0.001**	**0.01**	**1**	2.088 543×10^{-5}	6.719 690×10^{-4}	2.419 088
lb$_f$·s·ft^{-2}	4.788 026×10^{1}	4.788 026×10^{2}	4.788 026×10^{4}	**1**	3.217 405×10^{1}	1.158 266×10^{5}
lb$_m$·ft^{-1}·s^{-1}	1.488 164	1.488 164×10^{1}	1.488 164×10^{3}	3.108 095×10^{-2}	**1**	**3600**
lb$_m$·ft^{-1}·h^{-1}	4.133 789×10^{-4}	4.133 789×10^{-3}	4.133 789×10^{-1}	8.633 597×10^{-6}	**1/3600** = 2.777 778×10^{-4}	**1**

Table 2-8. Conversion Factors for Kinematic Viscosity (Area/Time)

To obtain → / multiply by ↓	m^2/s	ft^2/s	ft^2/h	stoke (= cm^2/s)	cm^2/h	m^2/h
m^2/s	**1**	**$1/(0.3048)^2$** = $1.076\,391\times10^{1}$	**$3600/(0.3048)^2$** = $3.875\,008\times10^{4}$	**10 000**	**3.6×10^{7}**	**3600**
ft^2/s	**$(0.3048)^2$ = $9.290\,304\times10^{-2}$**	**1**	**3600**	**$(30.48)^2$ = $9.290\,304\times10^{2}$**	**$(3600)(30.48)^2$** = $3.344\,509\times10^{6}$	**$(3600)(0.3048)^2$** = $3.344\,509\times10^{2}$
ft^2/h	**$(0.3048)^2/3600$ = $2.580\,64\times10^{-5}$**	**1/3600** = $2.777\,778\times10^{-4}$	**1**	**$(30.48)^2/3600$ = $2.580\,64\times10^{-1}$**	**$(30.48)^2$ = $9.290\,304\times10^{2}$**	**$(0.3048)^2$ = $9.290\,304\times10^{-2}$**
stoke (= cm^2/s)	**0.0001**	**$1/(30.48)^2$** = $1.076\,391\times10^{-3}$	**$3600/(30.48)^2$** = 3.875 008	**1**	**3600**	**$3600/(10\,000)$ = 0.36**
cm^2/h	**$1/3.6\times10^{7}$** = $2.777\,778\times10^{-8}$	**$(30.48)^{-2}(3600)^{-1}$** = $2.989\,975\times10^{-7}$	**$1/(30.48)^2$** = $1.076\,391\times10^{-3}$	**1/3600** = $2.777\,778\times10^{-4}$	**1**	**0.0001**
m^2/h	**1/3600** = $2.777\,778\times10^{-4}$	**$(0.3048)^{-2}(3600)^{-1}$** = $2.989\,975\times10^{-3}$	**$1/(0.3048)^2$** = $1.076\,391\times10^{1}$	**(10 000)/3600** = 2.777 778	**10 000**	**1**

Table 2-9. Conversion Factors for Thermal Conductivity (Energy/(Time•Length•Temperature Difference))

To obtain → / multiply by ↓	**Btu/(h·ft·°F)**	**ft·lbf /(h·ft·°F) = lbf /(h·°F)**	**W/(ft·°F)**	**W/(m·K)**	**cal/(s·cm·K)**	**kcal/(h·m·K)**
Btu/(h·ft·°F)	**1**	$7.781\ 693\times10^{2}$	$2.930\ 711\times10^{-1}$	1.730 735	$4.133\ 789\times10^{-3}$	1.488 164
ft·lbf /(h·ft·°F) = lbf /(h·°F)	$1.285\ 067\times10^{-3}$	**1**	$3.766\ 161\times10^{-4}$	$2.224\ 111\times10^{-3}$	$5.312\ 197\times10^{-6}$	$1.912\ 391\times10^{-3}$
W/(ft·°F)	3.412 142	$2.655\ 224\times10^{3}$	**1**	**1.8/(0.3048)** = 5.905 512	$1.410\ 507\times10^{-2}$	5.077 826
W/(m·K)	$5.777\ 893\times10^{-1}$	$4.496\ 179\times10^{2}$	**(0.3048)/1.8** = $1.693\ 333\times10^{-1}$	**1**	**1/(418.68)** = $2.388\ 459\times10^{-3}$	**3600/(4186.8)** = $8.598\ 452\times10^{-1}$
cal/(s·cm·K)	$2.419\ 088\times10^{2}$	$1.882\ 460\times10^{5}$	**$7.089\ 648\times10^{1}$**	**418.68**	**1**	**360**
kcal/(h·m·K)	$6.719\ 690\times10^{-1}$	$5.229\ 056\times10^{2}$	$1.969\ 347\times10^{-1}$	**(4186.8)/3600 = 1.163**	**1/360** = $2.777\ 778\times10^{-3}$	**1**

CHAPTER

3

THERMODYNAMIC PROPERTIES

THERMODYNAMIC PROPERTY FORMULATION

The thermodynamic properties in this book were calculated from the industrial formulation adopted in 1997 by the International Association for the Properties of Water and Steam (IAPWS). This formulation is the *IAPWS Formulation 1997 for the Thermodynamic Properties of Water and Steam for Industrial Use*, abbreviated as IAPWS-IF97. IAPWS-IF97 is described in more detail in Appendix A and in [1, 10, 11]; here we provide a brief overview of how the properties are calculated.

The IAPWS-IF97 formulation has a different basic equation for each of five regions of temperature T and pressure p. This structure is depicted in SI units in Fig. 3-1; Fig. 3-2 gives the equivalent information in U.S. customary units (pressure labels in Fig. 3-2 are only approximate; the regions are defined in SI units). Region 1 is the compressed liquid up to 350 °C (662 °F). Region 2 is the superheated vapor up to 800 °C (1472 °F); it is separated from Region 3 by an equation relating pressure and temperature. Region 3 includes the critical region and is at pressures above the 2-3 boundary at temperatures above 350 °C (662 °F). Region 4 is the vapor-liquid saturation boundary (pressure vs. temperature), and extends to the critical temperature of 373.946 °C (705.1028 °F). Region 5 represents high-temperature steam from 800 °C (1472 °F) to 2000 °C (3632 °F). Regions 1, 2, and 3 include pressures to 100 MPa (14 504 psia), whereas Region 5 has a maximum pressure of 50 MPa (7252 psia). Regions 1, 2, and 5 use a Gibbs free energy equation where the independent variables are pressure and temperature, whereas Region 3 uses a Helmholtz free energy equation with independent variables specific volume (or, equivalently, its reciprocal the mass density) and temperature. In either case, all other thermodynamic properties (specific volume v, enthalpy h, entropy s, etc.) may be obtained by appropriate differentiation and manipulation of the basic equation. For the enthalpy (and other quantities with dimensions of energy), and also for the entropy, only changes in the property are significant and the choice of a zero is arbitrary. This book uses the standard convention that both the internal energy u (related to the enthalpy by $h = u + pv$) and the entropy are defined to be zero for the saturated liquid at the triple-point temperature of 0.01 °C.

Because different equations are used in different regions, there can be inconsistencies at the region boundaries. In developing IAPWS-IF97, great care was exercised to minimize the discrepancies in properties calculated at these boundaries. Extensive calculations were performed to ensure that they were within tolerances; the tolerances were chosen so that the discrepancies would not have an adverse effect on iterative calculations near the boundary.

SATURATION PROPERTIES

Tables S-1 and U-1 list the saturation pressure, specific volume, entropy, and enthalpy values for saturated vapor and liquid, as well as the changes in property values between these two states, as a function of temperature. Both tables extend from the freezing point to the critical point.

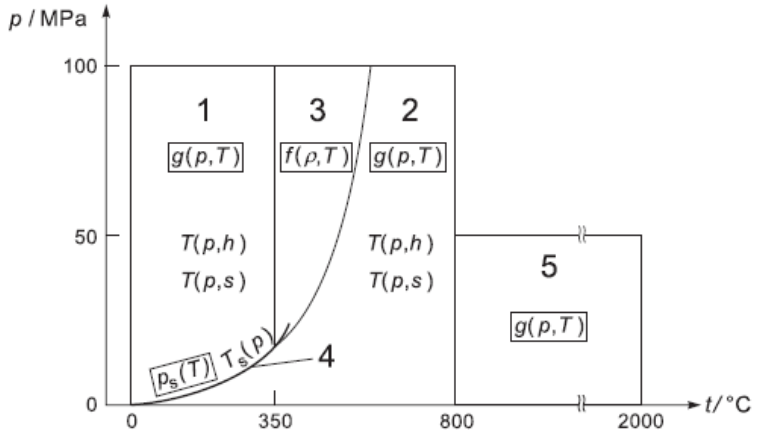

Figure 3-1. Structure of IAPWS-IF97, SI units

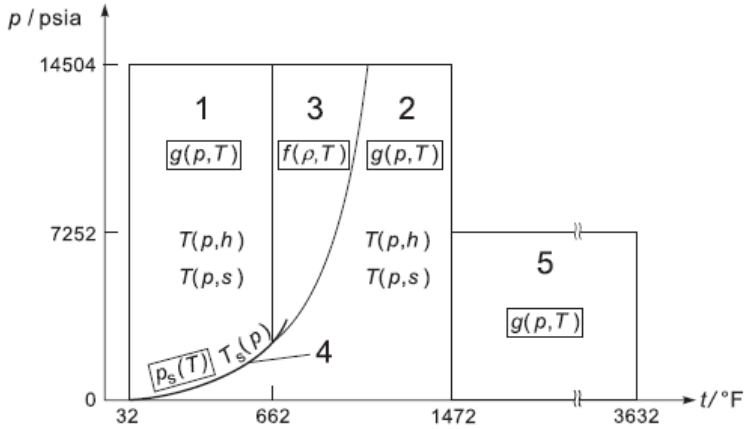

Figure 3-2. Structure of IAPWS-IF97, U.S. customary units

The saturation pressure is calculated at the given temperature using the IAPWS-IF97 equation for Region 4. This is in the form of an implicit quadratic equation so that it can be solved directly for $p(T)$ or $T(p)$. Once the saturation pressure is calculated, the saturation enthalpies, entropies, and specific volumes can be found for the liquid and vapor phases using the appropriate equations for Regions 1 and 2 for temperatures below 350 °C (662 °F). Above 350 °C, the saturation properties are described by the equations for Region 3. In Region 3, an iterative technique must be used to converge on the values of the specific volume necessary to calculate the vapor and liquid properties at the saturation temperature and pressure. These iterative procedures are contained in the software available from ASME [13].

Tables S-2 and U-2 are similar to Tables S-1 and U-1, except that pressure is the independent variable and the associated saturation temperature and values of the other properties at the given pressure are tabulated. Table U-2(Hg) is similar to Table U-2 but shows values for subatmospheric pressures in units of inches of mercury (absolute). An inverted form of the saturation equation for Region 4 is employed to obtain saturation temperature as a function of pressure. Once the temperature is obtained, the calculation technique for the remaining saturation quantities is the same as for Tables S-1 and U-1.

SUPERHEATED STEAM AND COMPRESSED WATER

Tables S-3 and U-3 present the specific volume, enthalpy, and entropy of superheated steam and compressed water as functions of temperature and pressure; these tables are arranged to provide isobaric

(constant pressure) information. Table S-3 has pressures ranging from 0.01 MPa to 100 MPa and temperatures from 0 °C to 800 °C. Similarly, Table U-3 has pressures ranging from 0.1 psia to 15 000 psia and temperatures from 32 °F to 1500 °F (note that the upper limits in Table U-3 exceed the boundaries of IAPWS-IF97; points at these conditions represent slight extrapolations). For subcritical pressures, the corresponding saturation temperature and the properties of the saturated liquid and vapor are shown at the beginning of each isobar. A horizontal line drawn between temperatures indicates the presence of a vapor-liquid transition.

The calculation procedure is to first determine the appropriate region, and then apply that region's equations to calculate all the tabulated properties. In Region 3, iterative techniques must be employed to determine properties at the given pressure and temperature.

The grid of temperatures and pressures in these tables is less dense than in previous ASME Steam Tables books. This reflects the fact that table interpolation is no longer the method of choice for design calculations; instead the tables are intended for quick estimates and it is expected that final design work will utilize a software implementation of these properties.

PROPERTIES OF STEAM AT HIGH TEMPERATURES

Tables S-4 and U-4 present the specific volume, enthalpy, and entropy for high-temperature steam as functions of temperature and pressure (mostly Region 5, although a portion of Region 2 is included). Table S-4 has pressures ranging from 0.01 MPa to 50 MPa and temperatures from 500 °C to 2000 °C. Table U-4 has pressures ranging from 1 psia to 7000 psia and temperatures from 1000 °F to 3600 °F. The calculation procedure is to use Region 2 equations up to the Region 2 upper temperature boundary of 800 °C (1472 °F), and then use the Region 5 equations to their upper bound of 2000 °C (3632 °F). This table is intended to supply properties for use with water or steam injection into high-temperature combustion gas turbines.

An important note is that IAPWS-IF97 gives properties for molecular water without any consideration of dissociation. At the high-temperature end of Region 5, dissociation can be significant, but its degree is dependent upon the hydrogen and oxygen concentrations in the fluid and would vary widely between applications. It is easier to begin with a pure substance and then correct for dissociation according to the specific conditions than to have a formulation that tries to correct for dissociation where that correction would need to be at least partially undone in many calculations. Therefore, IAPWS decided that it would be the responsibility of the user to correct for any dissociation of water in order to deal with the resulting gas solution.

SUPERSATURATED STEAM

In some cases, steam may become "supersaturated"; this is a condition where the equilibrium state would be a vapor-liquid mixture but the fluid remains in a metastable vapor state. This can occur if a slightly superheated vapor is quickly expanded (and thereby cooled) to a lower pressure where liquid would be present at equilibrium; because of the rapid expansion, the liquid phase may not have sufficient time to form. During the development of IAPWS-IF97, it was discovered that the extrapolation of the basic Region 2 equation into this metastable region gave results that did not seem reasonable. IAPWS-IF97 therefore has a special equation (described in Appendix A) for the metastable vapor at pressures below 10 MPa. Although there are no experimental data against which to compare this equation, the properties conform to turbine experience, and international experts have agreed that the equation provides a reasonable extrapolation of steam properties into this region.

Table S-5 shows the thermodynamic properties of superheated and supersaturated steam at pressures from 0.01 MPa to 10 MPa and from temperatures somewhat above saturation to a temperature corresponding to approximately 5 % equilibrium moisture (where "equilibrium moisture" is the liquid fraction that would result if the metastable fluid came to equilibrium with enthalpy and pressure fixed). Correspondingly, Table U-5 gives these properties from 1 psia to 1400 psia. The horizontal lines in the tables indicate the position of the equilibrium saturated vapor at that pressure. At temperatures above

the line, the properties are computed from the equations for Region 2. At temperatures below the line, the special equation for the metastable vapor is used.

ISOBARIC HEAT CAPACITY OF WATER AND STEAM

Tables S-6 and U-6 show the isobaric heat capacity of water and steam. This quantity is also called the specific heat at constant pressure c_p. Table S-6 shows the isobaric heat capacity in $kJ \cdot kg^{-1} \cdot K^{-1}$ for temperatures and pressures in SI units. Table U-6 has temperatures and pressures in U.S. customary units with the isobaric heat capacity in $Btu \cdot lb_m^{-1} \cdot °R^{-1}$. The reciprocal of the isobaric heat capacity is shown in graphical form in Figs. S-1 and U-1. The values of c_p are obtained from differentiation of the basic equation for the appropriate region; IAPWS-IF97 has specific subroutines for this property. Since the isobaric heat capacity involves a second derivative, it is sensitive to discrepancies at region boundaries and has small but noticeable discontinuities at some of the boundaries. These discontinuities have been graphically smoothed in the preparation of Figs. S-1 and U-1. The isobaric heat capacity is not defined within the two-phase (vapor-liquid) region.

SPEED OF SOUND IN WATER AND STEAM

Tables S-7 and U-7 show the speed of sound in water and steam as a function of pressure and temperature, using the same pressures and temperatures as Tables S-6 and U-6. The speed of sound is shown in graphical form in Figs. S-6 and U-6. These values are obtained from differentiation of the basic equation for the appropriate region; IAPWS-IF97 has specific subroutines for this property. As with the isobaric heat capacity, the speed of sound showed sensitivity to discontinuities at region boundaries and some minor smoothing was done in preparing the figures. The speed of sound is not a well-defined thermodynamic property within the two-phase region.

ISENTROPIC EXPONENT

In some calculations of fluid expansions, the quantity $\gamma = -(V/p)(\partial p/\partial V)_s$ is used. This quantity is often referred to as the isentropic exponent because, as a first approximation (and exactly for an ideal gas), pV^γ is constant for a short isentropic expansion. This quantity can be computed from the IAPWS-IF97 formulation and is shown in graphical form as a function of temperature and entropy in Figs. S-7 and U-7.

CHOKED-FLOW CALCULATIONS

An important industrial problem is the flow of fluid through nozzles, with reduction of pressure across the nozzle. Often, these flows can be considered to be isentropic. For a given upstream pressure, decreasing the downstream pressure increases the flow rate until a certain point; after that point (sometimes known as the "critical pressure," not to be confused with the critical pressure associated with the end of the vapor-liquid saturation curve), further decreases in downstream pressure do not produce more flow. At this state, the flow is said to be "choked"; the velocity of the flow at that point is called the *choking velocity*.

The determination of choked flow involves finding a condition where the velocity divided by the specific volume (a ratio proportional to the mass flow rate) is maximized. The velocity used in this maximization is determined by assuming that the change in enthalpy in isentropic expansion from stagnant upstream conditions to the choked state is converted to kinetic energy of the fluid. For expansions taking place without any phase change, the choking velocity is simply equal to the speed of sound at the choked conditions.

Figures S-8 and U-8 show the choking velocity (as a function of the enthalpy and either the pressure or the temperature) for superheated steam. Note that the variables on this chart correspond to the *choked*

conditions, not the inlet (upstream) conditions. As mentioned above, these one-phase choking velocities are equal to the speed of sound.

Figures S-9 and U-9 show the choking velocity (again at the choked conditions) for expansions where the choked state is in the two-phase (vapor-liquid) region. The method of solution is the same; however, when the expansion ends in the two-phase region, the maximization of the flow rate behaves somewhat differently. This produces a discontinuity in the choking velocity at the saturated vapor boundary, as can be seen by comparing Figs. S-8 and U-8 to Figs. S-9 and U-9. For more on choked flow in the two-phase region, see [18]. This calculation makes the simplifying assumption that the two-phase fluid is homogeneous and in equilibrium; this assumption becomes worse with increasing liquid fraction.

Figures S-10 and U-10 show the *choking mass flow rate* as a function of enthalpy and pressure; these figures are drawn as a function of *inlet* conditions (pressure and enthalpy). The choking mass flow rate is the maximum flow rate per unit area and unit pressure drop that will be obtained at choked conditions for an expansion beginning at the given inlet conditions. The unusual "humps" in the constant-pressure lines result from the transition of the choked conditions from one-phase to two-phase flow. As with the choking velocity, the calculation procedure assumes the two-phase choked flow to be homogeneous and in equilibrium.

OTHER CHARTS

In addition to the figures mentioned above and in Chapter 4, this book contains other charts of thermodynamic properties in formats that have historically been useful for industrial calculations. Figures S-11 and U-11 show the isentropic work of compression, which is the enthalpy difference between a fluid state and that of the saturated liquid at the same entropy. Figures S-12 to S-14 and Figs. U-12 to U-14 all display the main thermodynamic quantities on different coordinate axes. Figures S-12 and U-12 have pressure and enthalpy as the axes (*p*-*h* chart), Figs. S-13 and U-13 have temperature and entropy as the axes (*T*-*s* chart), and Figs. S-14 and U-14 have enthalpy and entropy as the axes (*h*-*s* or Mollier chart).

CHAPTER

4

TRANSPORT PROPERTIES

Thermal conductivity and viscosity are two of the key transport properties needed to solve many problems related to heat transfer and fluid mechanics. The International Association for the Properties of Water and Steam (IAPWS) has examined the experimental data for these properties and developed standard correlating equations to describe their behavior at different state conditions.

VISCOSITY

Tables S-8 and U-8 and Figs. S-2 and U-2 give results for the viscosity (also called the *dynamic* viscosity to distinguish it from the *kinematic* viscosity mentioned below) of water and steam according to the formulation appropriate to industrial calculations. Figures S-3 and U-3 show the kinematic viscosity, a convenient quantity in many fluid-flow calculations, which is the dynamic viscosity multiplied by the specific volume.

The calculations of the viscosity are based on the IAPWS release, *Release on the IAPWS Formulation 2008 for the Viscosity of Ordinary Water Substance* [19]. Details and background concerning the formulation for viscosity can be found in [20]. The equations used for the calculations in this book are given in Appendix B, along with information on the uncertainty of the formulation.

The viscosity surface for water is represented by a function of temperature and density that includes contributions to the fluid viscosity from the dilute-gas limit (a function of temperature only), from interactions at higher densities, and from critical-region phenomena. Because the contribution from critical phenomena is significant only in a very narrow region around the critical point of water, it can be safely ignored for industrial calculations, as indicated in the IAPWS release, and it is not incorporated in the tabular material in this book. For industrial use, the viscosity surface is valid in the following range of pressure p and temperature t:

$$p \le 100 \text{ MPa} \quad \text{for} \quad 0\ ^\circ\text{C} \le t \le 800\ ^\circ\text{C}.$$

$$p \le 50 \text{ MPa} \quad \text{for} \quad 800\ ^\circ\text{C} \le t \le 900\ ^\circ\text{C}.$$

When calculating the viscosity as a function of pressure and temperature (as given in Tables S-8 and U-8) instead of in terms of the density and temperature (the natural variables in the correlation), an equation of state must be used to determine the appropriate density. As recommended for industrial use in the IAPWS release [19], this compilation uses the IAPWS-IF97 industrial formulation for that purpose.

THERMAL CONDUCTIVITY

Tables S-9 and U-9 and Figures S-4 and U-4 give results for the thermal conductivity of water and steam according to the formulation appropriate to industrial calculations.

The calculations of the thermal conductivity are based on the IAPWS release, *Release on the IAPWS Formulation 2011 for the Thermal Conductivity of Ordinary Water Substance*, which was adopted in 2011 [21]. Details and background concerning the formulation for thermal conductivity can be found in [22]. The equations used for the calculations in this book are given in Appendix B, along with information on the uncertainty of the formulation.

The IAPWS formulation represents the thermal conductivity surface for water as a function of temperature and density, including contributions from the dilute-gas limit (a function of temperature only), from interactions at higher densities, and from the enhancement of the thermal conductivity that is manifested in a wide region around the critical point. For industrial use, the IAPWS-IF97 thermodynamic formulation is used to calculate the thermodynamic derivatives required for the critical-enhancement term.

The thermal conductivity surface for industrial use is valid in the following range of pressure p and temperature t:

$$p \le 100 \text{ MPa} \quad \text{for} \quad 0\ ^\circ\text{C} \le t \le 800\ ^\circ\text{C}$$

$$p \le 50 \text{ MPa} \quad \text{for} \quad 800\ ^\circ\text{C} < t \le 900\ ^\circ\text{C}$$

When calculating the thermal conductivity as a function of pressure and temperature (as given in Tables S-9 and U-9 and Figs. S-4 and U-4), instead of in terms of the density and temperature (the natural variables in the correlation), an equation of state must be used to determine the appropriate density. For industrial use, the IAPWS-IF97 formulation should be used for this purpose and we have done so in this book.

PRANDTL NUMBER

The Prandtl number is a dimensionless group that arises in heat-transfer problems. It is the product of the isobaric heat capacity and the dynamic viscosity divided by the thermal conductivity. The reciprocal of the Prandtl number is shown in Figs. S-5 and U-5. Some small discontinuities (due to discontinuities in the isobaric heat capacity, see Chapter 3) at the region boundaries have been smoothed in constructing these figures.

CHAPTER

5

OTHER PROPERTIES AND FORMULATIONS

SURFACE TENSION

The one property included in these tables that is not covered in the preceding chapters is the vapor-liquid surface tension. The surface tension is defined along the vapor-liquid saturation curve; therefore, only the temperature is necessary to specify the state. The surface tension, given in Tables S-11 and U-11, is computed from the IAPWS *Release on Surface Tension of Ordinary Water Substance* [23]. The surface tension σ (in mN/m) is given by the equation

$$\sigma = B\tau^{\mu}(1+b\tau) \ , \tag{5-1}$$

where
$\tau = 1 - T/T_c$
T = the absolute temperature, kelvins
T_c = 647.096 K
B = 235.8 mN/m
b = –0.625
μ = 1.256
For conversion to U.S. customary units, 1 N/m is approximately $6.852\ 18 \times 10^{-2}$ lb_f/ft.

OTHER IAPWS FORMULATIONS

In addition to the property formulations used to calculate the tables and charts in this book, the International Association for the Properties of Water and Steam (IAPWS) has a number of others, which fall into several categories.

The first category includes formulations for thermodynamic and transport properties "for general and scientific use." As discussed in Chapter 1, the formulations used in this book are "for industrial use," designed to meet the special needs of the steam power industry and other users who require computational speed. The state-of-the-art for accurate representation of water's thermodynamic properties is the *IAPWS Formulation 1995 for the Thermodynamic Properties of Ordinary Water Substance for General and Scientific Use* [8, 9]. There are also formulations "for general and scientific use" for the thermal conductivity and viscosity of water. These may all be obtained from IAPWS, as described below. Software implementing the formulations for general and scientific use is distributed by the Standard Reference Data office of NIST; more information is available under the website: http://www.nist.gov/srd/nist10.cfm

The second category includes formulations for other properties that were excluded from this book, primarily because it was felt that they would not be of sufficient interest to the mechanical engineering community. These properties are the refractive index, static dielectric constant, and ion product of water.

Also excluded from this book are IAPWS formulations for the thermodynamic properties and sublimation and melting curves of ice, and supplementary formulations correlating the thermodynamic properties of water along its vapor-liquid saturation curve and correlating properties of liquid water at 0.1 MPa pressure. IAPWS also has supplementary releases documenting various "backward" equations for fast thermodynamic calculations, consistent with IAPWS-IF97 within small tolerances, in cases where the given independent variables would require time-consuming iteration of the basic IAPWS-IF97 equations. In addition to the IAPWS website, further information on the "backward" equations and their use can be found in Ref. [24].

Finally, IAPWS has formulations for the thermodynamic properties, transport properties, and vapor-liquid surface tension of heavy water and for the thermodynamic properties of seawater.

The official documents describing the above-mentioned formulations, along with other information about the activities of IAPWS, may be obtained from the website: http://www.iapws.org.

APPENDIX A

THERMODYNAMIC PROPERTY FORMULATION

INTRODUCTION

This Appendix presents the equations used to generate the thermodynamic properties in this book. The material presented is primarily a condensed version of the material in the IAPWS release document [1] and the technical articles describing the formulation [10, 11].

Only the actual equations used, their range of validity, and their uncertainty are documented here; the above-mentioned references should be consulted for other details. Areas covered in those references but excluded from this Appendix include the level of agreement with the IAPWS-95 formulation [8, 9] to which this formulation was fit, consistency at boundaries between regions, and issues regarding computing time. We also omit the "backward" equations which allow functions such as $T(p,h)$ to be computed without iteration, though they are mentioned briefly in a later section. We do include tables of points for checking computer implementation of the formulas presented here.

NOMENCLATURE

Thermodynamic quantities

c_p = Specific isobaric heat capacity
c_v = Specific isochoric heat capacity
f = Specific Helmholtz free energy
g = Specific Gibbs free energy
h = Specific enthalpy
p = Pressure
R = Specific gas constant for water
s = Specific entropy
T = Absolute temperature on the International Temperature Scale of 1990 [16]
u = Specific internal energy
v = Specific volume
w = Speed of sound
β = Transformed pressure, Eq. (A-14a)
γ = Dimensionless Gibbs free energy, $\gamma = g/(RT)$
δ = Reduced density, $\delta = \rho/\rho^*$
η = Reduced enthalpy, $\eta = h/h^*$
θ = Reduced temperature, $\theta = T/T^*$
ϑ = Transformed temperature, Eq. (A-14b)
π = Reduced pressure, $\pi = p/p^*$
ρ = Mass density
σ = Reduced entropy, $\sigma = s/s^*$
τ = Inverse reduced temperature, $\tau = T^*/T$
ϕ = Dimensionless Helmholtz free energy, $\phi = f/(RT)$

Superscripts

° = Ideal-gas part
r = Residual part
* = Reducing quantity
′ = Saturated liquid state
″ = Saturated vapor state

Subscripts

c = Critical point
s = Saturation state
t = Triple point

STRUCTURE OF THE FORMULATION

The IAPWS Industrial Formulation 1997 consists of a set of equations for different regions which cover the following range of temperature and pressure:

$$273.15\ \text{K} \le T \le 1073.15\ \text{K} \qquad p \le 100\ \text{MPa}$$

$$1073.15\ \text{K} < T \le 2273.15\ \text{K} \qquad p \le 50\ \text{MPa}\ .$$

Figure A-1 shows the five regions into which the range of validity of IAPWS-IF97 is divided. The boundaries of the regions can be directly taken from Fig. A-1 except for the boundary between Regions 2 and 3; this boundary is defined by Eq. (A-5) below. Regions 1, 2 and 5 are each covered by an equation for the specific Gibbs free energy $g(p,T)$, Region 3 by an equation for the specific Helmholtz free energy $f(\rho,T)$, where ρ is the density, and the saturation curve (Region 4) by a saturation-pressure equation $p_s(T)$. All thermodynamic properties may be obtained from appropriate differentiation and manipulation of these equations.

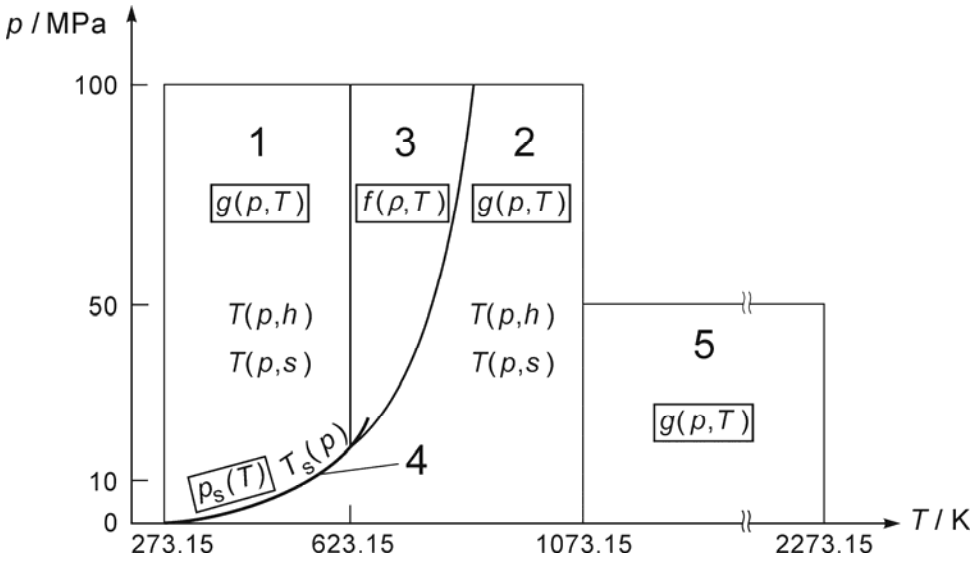

Figure A-1. Regions and equations of IAPWS-IF97.

For the specific volume v, specific enthalpy h, specific isobaric heat capacity c_p, speed of sound w, and saturation pressure p_s, the basic equations represent the corresponding values from the "IAPWS Formulation 1995 for the Thermodynamic Properties of Ordinary Water Substance for General and Scientific Use" [8, 9] (hereafter abbreviated to IAPWS-95) to within the tolerances specified for the development of the corresponding equations; details of these requirements and their fulfillment are given in the comprehensive paper on IAPWS-IF97 [10]. The basic equations for Regions 1 and 3 also yield reasonable values for the metastable states close to the stable regions. For Region 2 there is a special equation for the metastable-vapor region. Along the region boundaries, the equations are mutually consistent within specified tolerances; for details see [10].

In addition to the basic equations, the IAPWS-IF97 formulation provides *backward equations* in the form of $T(p,h)$ and $T(p,s)$ for Regions 1 and 2, and $T_s(p)$ for Region 4. These backward equations are numerically consistent with the corresponding basic equations and allow fast calculation of properties as functions of p,h and of p,s for Regions 1 and 2, and of p for Region 4. These backward equations are not included in this Appendix; for information on them, including their numerical consistency with the forward equations, see [1, 10]. Further supplementary backward equations have been adopted since the development of IAPWS-IF97; see www.iapws.org and [24] for details.

Reference Constants

The specific gas constant of ordinary water used for this formulation is

$$R = 0.461\,526 \text{ kJ}\cdot\text{kg}^{-1}\cdot\text{K}^{-1}. \tag{A-1}$$

The values of the critical parameters

$$T_c = 647.096 \text{ K} \tag{A-2}$$

$$p_c = 22.064 \text{ MPa} \tag{A-3}$$

$$\rho_c = 322 \text{ kg}\cdot\text{m}^{-3} \tag{A-4}$$

are from the corresponding IAPWS release [25].

Boundary Between Regions 2 and 3

The boundary between Regions 2 and 3 is defined by a quadratic pressure-temperature relation

$$\pi = n_1 + n_2\theta + n_3\theta^2 \quad , \tag{A-5}$$

where $\pi = p/p^*$ and $\theta = T/T^*$ with $p^* = 1$ MPa and $T^* = 1$ K. The coefficients n_1 to n_3 of Eq. (A-5) are listed in Table A-1. Alternatively, Eq. (A-5) can be expressed explicitly in temperature as

$$\theta = n_4 + \left[\left(\pi - n_5\right)/n_3\right]^{1/2} \quad , \tag{A-6}$$

with the coefficients n_3 to n_5 listed in Table A-1. Equations (A-5) and (A-6) cover the range from 623.15 K at a pressure of 16.5292 MPa to 863.15 K at 100 MPa.

For computer-program verification, Eqs. (A-5) and (A-6) must meet the following T-p point: $T = 0.623\,150\,000 \times 10^3$ K, $p = 0.165\,291\,643 \times 10^2$ MPa.

Table A-1. Numerical values of the coefficients of Eqs. (A-5) and (A-6), for defining the boundary between Regions 2 and 3

i	n_i	i	n_i
1	$0.348\,051\,856\,289\,69 \times 10^{3}$	4	$0.572\,544\,598\,627\,46 \times 10^{3}$
2	$-0.116\,718\,598\,799\,75 \times 10^{1}$	5	$0.139\,188\,397\,788\,70 \times 10^{2}$
3	$0.101\,929\,700\,393\,26 \times 10^{-2}$		

Region 1

The basic equation for this region is an equation for the specific Gibbs free energy g. This equation is expressed in dimensionless form, $\gamma = g/(RT)$, and reads

$$\frac{g(p,T)}{RT} = \gamma(\pi,\tau) = \sum_{i=1}^{34} n_i (7.1-\pi)^{I_i} (\tau - 1.222)^{J_i}, \tag{A-7}$$

where $\pi = p/p^*$ and $\tau = T^*/T$ with $p^* = 16.53$ MPa and $T^* = 1386$ K; R is given by Eq. (A-1). The coefficients n_i and exponents I_i and J_i of Eq. (A-7) are listed in Table A-2. By convention, the specific internal energy and the specific entropy of the saturated liquid at the triple point (273.16 K, 611.657 Pa) are defined to be zero. In order to meet this condition, the coefficients n_3 and n_4 in Eq. (A-7) have been adjusted accordingly.

Table A-2. Numerical values of the coefficients and exponents of the dimensionless Gibbs free energy for Region 1, Eq. (A-7)

i	I_i	J_i	n_i	i	I_i	J_i	n_i
1	0	–2	0.146 329 712 131 67	18	2	3	$-0.441\,418\,453\,308\,46 \times 10^{-5}$
2	0	–1	–0.845 481 871 691 14	19	2	17	$-0.726\,949\,962\,975\,94 \times 10^{-15}$
3	0	0	$-0.375\,636\,036\,720\,40 \times 10^{1}$	20	3	–4	$-0.316\,796\,448\,450\,54 \times 10^{-4}$
4	0	1	$0.338\,551\,691\,683\,85 \times 10^{1}$	21	3	0	$-0.282\,707\,979\,853\,12 \times 10^{-5}$
5	0	2	–0.957 919 633 878 72	22	3	6	$-0.852\,051\,281\,201\,03 \times 10^{-9}$
6	0	3	0.157 720 385 132 28	23	4	–5	$-0.224\,252\,819\,080\,00 \times 10^{-5}$
7	0	4	$-0.166\,164\,171\,995\,01 \times 10^{-1}$	24	4	–2	$-0.651\,712\,228\,956\,01 \times 10^{-6}$
8	0	5	$0.812\,146\,299\,835\,68 \times 10^{-3}$	25	4	10	$-0.143\,417\,299\,379\,24 \times 10^{-12}$
9	1	–9	$0.283\,190\,801\,238\,04 \times 10^{-3}$	26	5	–8	$-0.405\,169\,968\,601\,17 \times 10^{-6}$
10	1	–7	$-0.607\,063\,015\,658\,74 \times 10^{-3}$	27	8	–11	$-0.127\,343\,017\,416\,41 \times 10^{-8}$
11	1	–1	$-0.189\,900\,682\,184\,19 \times 10^{-1}$	28	8	–6	$-0.174\,248\,712\,306\,34 \times 10^{-9}$
12	1	0	$-0.325\,297\,487\,705\,05 \times 10^{-1}$	29	21	–29	$-0.687\,621\,312\,955\,31 \times 10^{-18}$
13	1	1	$-0.218\,417\,171\,754\,14 \times 10^{-1}$	30	23	–31	$0.144\,783\,078\,285\,21 \times 10^{-19}$
14	1	3	$-0.528\,383\,579\,699\,30 \times 10^{-4}$	31	29	–38	$0.263\,357\,816\,627\,95 \times 10^{-22}$
15	2	–3	$-0.471\,843\,210\,732\,67 \times 10^{-3}$	32	30	–39	$-0.119\,476\,226\,400\,71 \times 10^{-22}$
16	2	0	$-0.300\,017\,807\,930\,26 \times 10^{-3}$	33	31	–40	$0.182\,280\,945\,814\,04 \times 10^{-23}$
17	2	1	$0.476\,613\,939\,069\,87 \times 10^{-4}$	34	32	–41	$-0.935\,370\,872\,924\,58 \times 10^{-25}$

Table A-3. Relations of thermodynamic properties to the dimensionless Gibbs free energy γ and its derivatives[a] when using Eq. (A-7) (Region 1)

Property	Relation
Specific volume $v = \left(\partial g/\partial p\right)_T$	$v(\pi,\tau)\dfrac{p}{RT} = \pi\gamma_\pi$
Specific internal energy $u = g - T\left(\partial g/\partial T\right)_p - p(\partial g/\partial p)_T$	$\dfrac{u\left(\pi,\tau\right)}{RT} = \tau\gamma_\tau - \pi\gamma_\pi$
Specific entropy $s = -\left(\partial g/\partial T\right)_p$	$\dfrac{s\left(\pi,\tau\right)}{R} = \tau\gamma_\tau - \gamma$
Specific enthalpy $h = g - T\left(\partial g/\partial T\right)_p$	$\dfrac{h\left(\pi,\tau\right)}{RT} = \tau\gamma_\tau$
Specific isobaric heat capacity $c_p = \left(\partial h/\partial T\right)_p$	$\dfrac{c_p\left(\pi,\tau\right)}{R} = -\tau^2\gamma_{\tau\tau}$
Specific isochoric heat capacity $c_v = \left(\partial u/\partial T\right)_v$	$\dfrac{c_v\left(\pi,\tau\right)}{R} = -\tau^2\gamma_{\tau\tau} + \dfrac{(\gamma_\pi - \tau\gamma_{\pi\tau})^2}{\gamma_{\pi\pi}}$
Speed of sound $w = v\left[-(\partial p/\partial v)_s\right]^{1/2}$	$\dfrac{w^2(\pi,\tau)}{RT} = \dfrac{\gamma_\pi^2}{\dfrac{(\gamma_\pi - \tau\gamma_{\pi\tau})^2}{\tau^2\gamma_{\tau\tau}} - \gamma_{\pi\pi}}$

[a] $\gamma_\pi = \left[\dfrac{\partial\gamma}{\partial\pi}\right]_\tau$, $\gamma_{\pi\pi} = \left[\dfrac{\partial^2\gamma}{\partial\pi^2}\right]_\tau$, $\gamma_\tau = \left[\dfrac{\partial\gamma}{\partial\tau}\right]_\pi$, $\gamma_{\tau\tau} = \left[\dfrac{\partial^2\gamma}{\partial\tau^2}\right]_\pi$, $\gamma_{\pi\tau} = \left[\dfrac{\partial^2\gamma}{\partial\pi\partial\tau}\right]$

All thermodynamic properties can be derived from Eq. (A-7) from the appropriate combinations of the dimensionless Gibbs free energy and its derivatives. Relations between thermodynamic properties and γ and its derivatives are summarized in Table A-3. All required derivatives are given in Table A-4. Table A-5 contains computed values from Eq. (A-7).

Region 2

The basic equation for this region is an equation for the specific Gibbs free energy *g*. This equation is expressed in dimensionless form, $\gamma = g/(RT)$, and is separated into two parts, an ideal-gas part γ° and a residual part γ^r, so that

$$\frac{g\left(p,T\right)}{RT} = \gamma\left(\pi,\tau\right) = \gamma^{\circ}\left(\pi,\tau\right) + \gamma^{r}\left(\pi,\tau\right) \ , \tag{A-8}$$

with *R* given by Eq. (A-1).

Table A-4. The dimensionless Gibbs free energy γ and its derivatives according to Eq. (A-7) (Region 1)

$$\gamma = \sum_{i=1}^{34} n_i \left(7.1-\pi\right)^{I_i} \left(\tau-1.222\right)^{J_i}$$

$$\gamma_\pi = \sum_{i=1}^{34} -n_i I_i \left(7.1-\pi\right)^{I_i-1} \left(\tau-1.222\right)^{J_i} \qquad \gamma_{\pi\pi} = \sum_{i=1}^{34} n_i I_i \left(I_i-1\right)\left(7.1-\pi\right)^{I_i-2} \left(\tau-1.222\right)^{J_i}$$

$$\gamma_\tau = \sum_{i=1}^{34} n_i \left(7.1-\pi\right)^{I_i} J_i \left(\tau-1.222\right)^{J_i-1} \qquad \gamma_{\tau\tau} = \sum_{i=1}^{34} n_i \left(7.1-\pi\right)^{I_i} J_i \left(J_i-1\right)\left(\tau-1.222\right)^{J_i-2}$$

$$\gamma_{\pi\tau} = \sum_{i=1}^{34} -n_i I_i \left(7.1-\pi\right)^{I_i-1} J_i \left(\tau-1.222\right)^{J_i-1}$$

Table A-5. Thermodynamic property values calculated from Eq. (A-7) (Region 1) for selected values of T and p

	T = 300 K, p = 3 MPa	T = 300 K, p = 80 MPa	T = 500 K, p = 3 MPa
v / (m^3·kg^{-1})	0.100 215 168 × 10^{-2}	0.971 180 894 × 10^{-3}	0.120 241 800 × 10^{-2}
h / (kJ·kg^{-1})	0.115 331 273 × 10^3	0.184 142 828 × 10^3	0.975 542 239 × 10^3
u / (kJ·kg^{-1})	0.112 324 818 × 10^3	0.106 448 356 × 10^3	0.971 934 985 × 10^3
s / (kJ·kg^{-1}·K^{-1})	0.392 294 792	0.368 563 852	0.258 041 912 × 10^1
c_p / (kJ·kg^{-1}·K^{-1})	0.417 301 218 × 10^1	0.401 008 987 × 10^1	0.465 580 682 × 10^1
w / (m·s^{-1})	0.150 773 921 × 10^4	0.163 469 054 × 10^4	0.124 071 337 × 10^4

The equation for the ideal-gas part γ° of the dimensionless Gibbs free energy is

$$\gamma^\circ = \ln\pi + \sum_{i=1}^{9} n_i^\circ \tau^{J_i^\circ} \ , \tag{A-9}$$

where $\pi = p/p^*$ and $\tau = T^*/T$ with p^* = 1 MPa and T^* = 540 K. Table A-6 contains the coefficients n_i° and exponents J_i° of Eq. (A-9).

The form of the residual part γ^{r} of the dimensionless Gibbs free energy is as follows:

$$\gamma^{\mathrm{r}} = \sum_{i=1}^{43} n_i \pi^{I_i} \left(\tau-0.5\right)^{J_i} \ , \tag{A-10}$$

where $\pi = p/p^*$ and $\tau = T^*/T$ with p^* = 1 MPa and T^* = 540 K. The coefficients n_i and exponents I_i and J_i of Eq. (A-10) are listed in Table A-7.

All thermodynamic properties can be derived from Eq. (A-8) by using the appropriate combinations of the ideal-gas part γ°, Eq. (A-9), and the residual part γ^{r}, Eq. (A-10), of the dimensionless Gibbs free energy and their derivatives. Relations between thermodynamic properties and γ° and γ^{r} and their derivatives are summarized in Table A-8. All required derivatives of the ideal-gas part and of the residual part of the dimensionless Gibbs free energy are given in Table A-9 and Table A-10, respectively. Table A-11 contains computed properties from Eq. (A-8).

Table A-6. Numerical values of the coefficients and exponents of the ideal-gas part γ° of the dimensionless Gibbs free energy for Region 2, Eq. (A-9)[a]

i	J_i°	n_i°	i	J_i°	n_i°
1[a]	0	$-0.969\,276\,865\,002\,17 \times 10^{1}$	6	−2	$0.142\,408\,191\,714\,44 \times 10^{1}$
2[a]	1	$0.100\,866\,559\,680\,18 \times 10^{2}$	7	−1	$-0.438\,395\,113\,194\,50 \times 10^{1}$
3	−5	$-0.560\,879\,112\,830\,20 \times 10^{-2}$	8	2	−0.284 086 324 607 72
4	−4	$0.714\,527\,380\,814\,55 \times 10^{-1}$	9	3	$0.212\,684\,637\,533\,07 \times 10^{-1}$
5	−3	−0.407 104 982 239 28			

[a] If Eq. (A-9) is incorporated into Eq. (A-11), instead of the values for n_1° and n_2° given above, the following values must be used: $n_1^{\circ} = -0.969\,372\,683\,930\,49 \times 10^{1}$, $n_2^{\circ} = 0.100\,872\,759\,700\,06 \times 10^{2}$.

Supplementary Equation for Metastable Vapor

The supplementary equation for the low-pressure part of the metastable-vapor region bounding Region 2 is given in the dimensionless form of the specific Gibbs free energy, $\gamma = g/(RT)$, consisting of an ideal-gas part γ° and a residual part γ^{r}, so that

$$\frac{g(p,T)}{RT} = \gamma(\pi,\tau) = \gamma^{\circ}(\pi,\tau) + \gamma^{\mathrm{r}}(\pi,\tau) \ , \tag{A-11}$$

with R given by Eq. (A-1).

The equation for the ideal-gas part γ° is identical to Eq. (A-9) except for the values of the two coefficients n_1° and n_2°; see Table A-6.

The equation for the residual part γ^{r} is

$$\gamma^{\mathrm{r}} = \sum_{i=1}^{13} n_i \, \pi^{I_i} (\tau - 0.5)^{J_i} \ , \tag{A-12}$$

where $\pi = p/p^{*}$ and $\tau = T^{*}/T$ with $p^{*} = 1$ MPa and $T^{*} = 540$ K. The coefficients n_i and exponents I_i and J_i of Eq. (A-12) are listed in Table A-12.

All thermodynamic properties can be derived from Eq. (A-11) by using the appropriate combinations of the ideal-gas part γ°, Eq. (A-9), and the residual part γ^{r}, Eq. (A-12), of the dimensionless Gibbs free energy and their derivatives. Relations between thermodynamic properties and γ° and γ^{r} and their derivatives are summarized in Table A-8. All required derivatives of the ideal-gas part and of the residual part of the dimensionless Gibbs free energy are given in Table A-9 and Table A-13, respectively. Table A-14 contains computed values from Eq. (A-11).

Equation (A-11) is valid in the metastable-vapor region from the saturated vapor line to the 5 % equilibrium moisture line (determined from the equilibrium h' and h'' values at the pressure of interest) at pressures from the triple-point pressure to 10 MPa.

Table A-7. Numerical values of the coefficients and exponents of the residual part γ^{r} of the dimensionless Gibbs free energy for Region 2, Eq. (A-10)

i	I_i	J_i	n_i
1	1	0	$-0.177\,317\,424\,732\,13 \times 10^{-2}$
2	1	1	$-0.178\,348\,622\,923\,58 \times 10^{-1}$
3	1	2	$-0.459\,960\,136\,963\,65 \times 10^{-1}$
4	1	3	$-0.575\,812\,590\,834\,32 \times 10^{-1}$
5	1	6	$-0.503\,252\,787\,279\,30 \times 10^{-1}$
6	2	1	$-0.330\,326\,416\,702\,03 \times 10^{-4}$
7	2	2	$-0.189\,489\,875\,163\,15 \times 10^{-3}$
8	2	4	$-0.393\,927\,772\,433\,55 \times 10^{-2}$
9	2	7	$-0.437\,972\,956\,505\,73 \times 10^{-1}$
10	2	36	$-0.266\,745\,479\,140\,87 \times 10^{-4}$
11	3	0	$0.204\,817\,376\,923\,09 \times 10^{-7}$
12	3	1	$0.438\,706\,672\,844\,35 \times 10^{-6}$
13	3	3	$-0.322\,776\,772\,385\,70 \times 10^{-4}$
14	3	6	$-0.150\,339\,245\,421\,48 \times 10^{-2}$
15	3	35	$-0.406\,682\,535\,626\,49 \times 10^{-1}$
16	4	1	$-0.788\,473\,095\,593\,67 \times 10^{-9}$
17	4	2	$0.127\,907\,178\,522\,85 \times 10^{-7}$
18	4	3	$0.482\,253\,727\,185\,07 \times 10^{-6}$
19	5	7	$0.229\,220\,763\,376\,61 \times 10^{-5}$
20	6	3	$-0.167\,147\,664\,510\,61 \times 10^{-10}$
21	6	16	$-0.211\,714\,723\,213\,55 \times 10^{-2}$
22	6	35	$-0.238\,957\,419\,341\,04 \times 10^{2}$
23	7	0	$-0.590\,595\,643\,242\,70 \times 10^{-17}$
24	7	11	$-0.126\,218\,088\,991\,01 \times 10^{-5}$
25	7	25	$-0.389\,468\,424\,357\,39 \times 10^{-1}$
26	8	8	$0.112\,562\,113\,604\,59 \times 10^{-10}$
27	8	36	$-0.823\,113\,408\,979\,98 \times 10^{1}$
28	9	13	$0.198\,097\,128\,020\,88 \times 10^{-7}$
29	10	4	$0.104\,069\,652\,101\,74 \times 10^{-18}$
30	10	10	$-0.102\,347\,470\,959\,29 \times 10^{-12}$
31	10	14	$-0.100\,181\,793\,795\,11 \times 10^{-8}$
32	16	29	$-0.808\,829\,086\,469\,85 \times 10^{-10}$
33	16	50	0.106 930 318 794 09
34	18	57	−0.336 622 505 741 71
35	20	20	$0.891\,858\,453\,554\,21 \times 10^{-24}$
36	20	35	$0.306\,293\,168\,762\,32 \times 10^{-12}$
37	20	48	$-0.420\,024\,676\,982\,08 \times 10^{-5}$
38	21	21	$-0.590\,560\,296\,856\,39 \times 10^{-25}$
39	22	53	$0.378\,269\,476\,134\,57 \times 10^{-5}$
40	23	39	$-0.127\,686\,089\,346\,81 \times 10^{-14}$
41	24	26	$0.730\,876\,105\,950\,61 \times 10^{-28}$
42	24	40	$0.554\,147\,153\,507\,78 \times 10^{-16}$
43	24	58	$-0.943\,697\,072\,412\,10 \times 10^{-6}$

Table A-8. Relations of thermodynamic properties to the ideal-gas part γ° and the residual part γ^{r} of the dimensionless Gibbs free energy and their derivatives[a] when using Eqs. (A-8), (A-11) or (A-17) (Region 2, metastable vapor, or Region 5)

Property	Relation
Specific volume $v = \left(\partial g/\partial p\right)_T$	$v(\pi,\tau)\dfrac{p}{RT} = \pi\left(\gamma^{\mathrm{o}}_{\pi} + \gamma^{\mathrm{r}}_{\pi}\right)$
Specific internal energy $u = g - T\left(\partial g/\partial T\right)_p - p(\partial g/\partial p)_T$	$\dfrac{u(\pi,\tau)}{RT} = \tau\left(\gamma^{\mathrm{o}}_{\tau} + \gamma^{\mathrm{r}}_{\tau}\right) - \pi\left(\gamma^{\mathrm{o}}_{\pi} + \gamma^{\mathrm{r}}_{\pi}\right)$
Specific entropy $s = -\left(\partial g/\partial T\right)_p$	$\dfrac{s(\pi,\tau)}{R} = \tau\left(\gamma^{\mathrm{o}}_{\tau} + \gamma^{\mathrm{r}}_{\tau}\right) - \left(\gamma^{\mathrm{o}} + \gamma^{\mathrm{r}}\right)$
Specific enthalpy $h = g - T\left(\partial g/\partial T\right)_p$	$\dfrac{h(\pi,\tau)}{RT} = \tau\left(\gamma^{\mathrm{o}}_{\tau} + \gamma^{\mathrm{r}}_{\tau}\right)$
Specific isobaric heat capacity $c_p = \left(\partial h/\partial T\right)_p$	$\dfrac{c_p(\pi,\tau)}{R} = -\tau^2\left(\gamma^{\mathrm{o}}_{\tau\tau} + \gamma^{\mathrm{r}}_{\tau\tau}\right)$
Specific isochoric heat capacity $c_v = \left(\partial u/\partial T\right)_v$	$\dfrac{c_v(\pi,\tau)}{R} = -\tau^2\left(\gamma^{\mathrm{o}}_{\tau\tau} + \gamma^{\mathrm{r}}_{\tau\tau}\right) - \dfrac{(1+\pi\gamma^{\mathrm{r}}_{\pi} - \tau\pi\gamma^{\mathrm{r}}_{\pi\tau})^2}{1-\pi^2\gamma^{\mathrm{r}}_{\pi\pi}}$
Speed of sound $w = v\left[-\left(\partial p/\partial v\right)_s\right]^{1/2}$	$\dfrac{w^2(\pi,\tau)}{RT} = \dfrac{1 + 2\pi\gamma^{\mathrm{r}}_{\pi} + \pi^2\gamma^{\mathrm{r}\,2}_{\pi}}{\left(1-\pi^2\gamma^{\mathrm{r}}_{\pi\pi}\right) + \dfrac{\left(1+\pi\gamma^{\mathrm{r}}_{\pi} - \tau\pi\gamma^{\mathrm{r}}_{\pi\tau}\right)^2}{\tau^2\left(\gamma^{\mathrm{o}}_{\tau\tau} + \gamma^{\mathrm{r}}_{\tau\tau}\right)}}$

[a] $\gamma^{\mathrm{r}}_{\pi} = \left[\dfrac{\partial\gamma^{\mathrm{r}}}{\partial\pi}\right]_{\tau}$, $\gamma^{\mathrm{r}}_{\pi\pi} = \left[\dfrac{\partial^2\gamma^{\mathrm{r}}}{\partial\pi^2}\right]_{\tau}$, $\gamma^{\mathrm{r}}_{\tau} = \left[\dfrac{\partial\gamma^{\mathrm{r}}}{\partial\tau}\right]_{\pi}$, $\gamma^{\mathrm{r}}_{\tau\tau} = \left[\dfrac{\partial^2\gamma^{\mathrm{r}}}{\partial\tau^2}\right]_{\pi}$, $\gamma^{\mathrm{r}}_{\pi\tau} = \left[\dfrac{\partial^2\gamma^{\mathrm{r}}}{\partial\pi\,\partial\tau}\right]$, $\gamma^{\mathrm{o}}_{\tau} = \left[\dfrac{\partial\gamma^{\mathrm{o}}}{\partial\tau}\right]_{\pi}$, $\gamma^{\mathrm{o}}_{\tau\tau} = \left[\dfrac{\partial^2\gamma^{\mathrm{o}}}{\partial\tau^2}\right]_{\pi}$

Table A-9. The ideal-gas part γ° of the dimensionless Gibbs free energy and its derivatives according to Eq. (A-9) (Region 2)

γ^{o}	=	$\ln\pi$	+	$\displaystyle\sum_{i=1}^{9} n^{\mathrm{o}}_i \tau^{J^{\mathrm{o}}_i}$
$\gamma^{\mathrm{o}}_{\pi}$	=	$1/\pi$	+	0
$\gamma^{\mathrm{o}}_{\pi\pi}$	=	$-1/\pi^2$	+	0
$\gamma^{\mathrm{o}}_{\tau}$	=	0	+	$\displaystyle\sum_{i=1}^{9} n^{\mathrm{o}}_i J^{\mathrm{o}}_i \tau^{J^{\mathrm{o}}_i - 1}$
$\gamma^{\mathrm{o}}_{\tau\tau}$	=	0	+	$\displaystyle\sum_{i=1}^{9} n^{\mathrm{o}}_i J^{\mathrm{o}}_i \left(J^{\mathrm{o}}_i - 1\right)\tau^{J^{\mathrm{o}}_i - 2}$
$\gamma^{\mathrm{o}}_{\pi\tau}$	=	0	+	0

Table A-10. The residual part γ^{r} of the dimensionless Gibbs free energy and its derivatives according to Eq. (A-10) (Region 2)

$$\gamma^{\mathrm{r}} = \sum_{i=1}^{43} n_i \, \pi^{I_i} \left(\tau - 0.5\right)^{J_i}$$

$$\gamma^{\mathrm{r}}_{\pi} = \sum_{i=1}^{43} n_i \, I_i \, \pi^{I_i - 1} \left(\tau - 0.5\right)^{J_i} \qquad \gamma^{\mathrm{r}}_{\pi\pi} = \sum_{i=1}^{43} n_i \, I_i \left(I_i - 1\right) \pi^{I_i - 2} \left(\tau - 0.5\right)^{J_i}$$

$$\gamma^{\mathrm{r}}_{\tau} = \sum_{i=1}^{43} n_i \, \pi^{I_i} J_i \left(\tau - 0.5\right)^{J_i - 1} \qquad \gamma^{\mathrm{r}}_{\tau\tau} = \sum_{i=1}^{43} n_i \, \pi^{I_i} J_i \left(J_i - 1\right) \left(\tau - 0.5\right)^{J_i - 2}$$

$$\gamma^{\mathrm{r}}_{\pi\tau} = \sum_{i=1}^{43} n_i \, I_i \, \pi^{I_i - 1} J_i \left(\tau - 0.5\right)^{J_i - 1}$$

Table A-11. Thermodynamic property values calculated from Eq. (A-8) (Region 2) for selected values of T and p

	T = 300 K, p = 0.0035 MPa	T = 700 K, p = 0.0035 MPa	T = 700 K, p = 30 MPa
v / (m^3·kg^{-1})	$0.394\,913\,866 \times 10^{2}$	$0.923\,015\,898 \times 10^{2}$	$0.542\,946\,619 \times 10^{-2}$
h / (kJ·kg^{-1})	$0.254\,991\,145 \times 10^{4}$	$0.333\,568\,375 \times 10^{4}$	$0.263\,149\,474 \times 10^{4}$
u / (kJ·kg^{-1})	$0.241\,169\,160 \times 10^{4}$	$0.301\,262\,819 \times 10^{4}$	$0.246\,861\,076 \times 10^{4}$
s / (kJ·kg^{-1}·K^{-1})	$0.852\,238\,967 \times 10^{1}$	$0.101\,749\,996 \times 10^{2}$	$0.517\,540\,298 \times 10^{1}$
c_p / (kJ·kg^{-1}·K^{-1})	$0.191\,300\,162 \times 10^{1}$	$0.208\,141\,274 \times 10^{1}$	$0.103\,505\,092 \times 10^{2}$
w / (m·s^{-1})	$0.427\,920\,172 \times 10^{3}$	$0.644\,289\,068 \times 10^{3}$	$0.480\,386\,523 \times 10^{3}$

Table A-12. Numerical values of the coefficients and exponents of the residual part γ^{r} of the dimensionless Gibbs free energy for the metastable-vapor region, Eq. (A-12)

i	I_i	J_i	n_i
1	1	0	$-0.733\,622\,601\,865\,06 \times 10^{-2}$
2	1	2	$-0.882\,238\,319\,431\,46 \times 10^{-1}$
3	1	5	$-0.723\,345\,552\,132\,45 \times 10^{-1}$
4	1	11	$-0.408\,131\,785\,344\,55 \times 10^{-2}$
5	2	1	$0.200\,978\,033\,802\,07 \times 10^{-2}$
6	2	7	$-0.530\,459\,218\,986\,42 \times 10^{-1}$
7	2	16	$-0.761\,904\,090\,869\,70 \times 10^{-2}$
8	3	4	$-0.634\,980\,376\,573\,13 \times 10^{-2}$
9	3	16	$-0.860\,430\,930\,285\,88 \times 10^{-1}$
10	4	7	$0.753\,215\,815\,227\,70 \times 10^{-2}$
11	4	10	$-0.792\,383\,754\,461\,39 \times 10^{-2}$
12	5	9	$-0.228\,881\,607\,784\,47 \times 10^{-3}$
13	5	10	$-0.264\,565\,014\,828\,10 \times 10^{-2}$

Table A-13. The residual part γ^{r} of the dimensionless Gibbs free energy and its derivatives according to Eq. (A-12) (metastable vapor)

$$\gamma^{\mathrm{r}} = \sum_{i=1}^{13} n_i\, \pi^{I_i} \left(\tau - 0.5\right)^{J_i}$$

$$\gamma^{\mathrm{r}}_{\pi} = \sum_{i=1}^{13} n_i\, I_i\, \pi^{I_i - 1} \left(\tau - 0.5\right)^{J_i} \qquad \gamma^{\mathrm{r}}_{\pi\pi} = \sum_{i=1}^{13} n_i\, I_i \left(I_i - 1\right) \pi^{I_i - 2} \left(\tau - 0.5\right)^{J_i}$$

$$\gamma^{\mathrm{r}}_{\tau} = \sum_{i=1}^{13} n_i\, \pi^{I_i} J_i \left(\tau - 0.5\right)^{J_i - 1} \qquad \gamma^{\mathrm{r}}_{\tau\tau} = \sum_{i=1}^{13} n_i\, \pi^{I_i} J_i \left(J_i - 1\right) \left(\tau - 0.5\right)^{J_i - 2}$$

$$\gamma^{\mathrm{r}}_{\pi\tau} = \sum_{i=1}^{13} n_i\, I_i\, \pi^{I_i - 1} J_i \left(\tau - 0.5\right)^{J_i - 1}$$

Table A-14. Thermodynamic property values calculated from Eq. (A-11) (metastable vapor) for selected values of T and p

	T = 450 K, p = 1 MPa	T = 440 K, p = 1 MPa	T = 450 K, p = 1.5 MPa
v / (m^3·kg^{-1})	0.192 516 540	0.186 212 297	0.121 685 206
h / (kJ·kg^{-1})	0.276 881 115 × 10^4	0.274 015 123 × 10^4	0.272 134 539 × 10^4
u / (kJ·kg^{-1})	0.257 629 461 × 10^4	0.255 393 894 × 10^4	0.253 881 758 × 10^4
s / (kJ·kg^{-1}·K^{-1})	0.656 660 377 × 10^1	0.650 218 759 × 10^1	0.629 170 440 × 10^1
c_p / (kJ·kg^{-1}·K^{-1})	0.276 349 265 × 10^1	0.298 166 443 × 10^1	0.362 795 578 × 10^1
w / (m·s^{-1})	0.498 408 101 × 10^3	0.489 363 295 × 10^3	0.481 941 819 × 10^3

Region 3

The basic equation for this region is an equation for the specific Helmholtz free energy f. This equation is expressed in dimensionless form, $\phi = f/(RT)$, and reads

$$\frac{f(\rho,T)}{RT} = \phi(\delta,\tau) = n_1 \ln\delta + \sum_{i=2}^{40} n_i\, \delta^{I_i} \tau^{J_i}\,, \tag{A-13}$$

where $\delta = \rho/\rho^*$, $\tau = T^*/T$ with $\rho^* = \rho_c$, $T^* = T_c$ and R, T_c, and ρ_c given by Eqs. (A-1), (A-2), and (A-4). The coefficients n_i and exponents I_i and J_i of Eq. (A-13) are listed in Table A-15.

In addition to representing the thermodynamic properties in the single-phase region, Eq. (A-13) meets the phase-equilibrium condition (equality of specific Gibbs free energy for coexisting vapor and liquid states; see Table A-16) along the saturation line for $T \geq 623.15$ K to T_c. Moreover, Eq. (A-13) reproduces the critical parameters according to Eqs. (A-2) to (A-4) and yields zero for the first two pressure derivatives with respect to density at the critical point.

All thermodynamic properties can be derived from Eq. (A-13) by using the appropriate combinations of the dimensionless Helmholtz free energy and its derivatives. Relations between thermodynamic properties and ϕ and its derivatives are summarized in Table A-16. All required derivatives are given in Table A-17. Table A-18 contains computed values from Eq. (A-13).

Table A-15. Numerical values of the coefficients and exponents of the dimensionless Helmholtz free energy for Region 3, Eq. (A-13)

i	I_i	J_i	n_i	i	I_i	J_i	n_i
1	0	0	$0.106\,580\,700\,285\,13 \times 10^{1}$	21	3	4	$-0.201\,899\,150\,235\,70 \times 10^{1}$
2	0	0	$-0.157\,328\,452\,902\,39 \times 10^{2}$	22	3	16	$-0.821\,476\,371\,739\,63 \times 10^{-2}$
3	0	1	$0.209\,443\,969\,743\,07 \times 10^{2}$	23	3	26	$-0.475\,960\,357\,349\,23$
4	0	2	$-0.768\,677\,078\,787\,16 \times 10^{1}$	24	4	0	$0.439\,840\,744\,735\,00 \times 10^{-1}$
5	0	7	$0.261\,859\,477\,879\,54 \times 10^{1}$	25	4	2	$-0.444\,764\,354\,287\,39$
6	0	10	$-0.280\,807\,811\,486\,20 \times 10^{1}$	26	4	4	$0.905\,720\,707\,197\,33$
7	0	12	$0.120\,533\,696\,965\,17 \times 10^{1}$	27	4	26	$0.705\,224\,500\,879\,67$
8	0	23	$-0.845\,668\,128\,125\,02 \times 10^{-2}$	28	5	1	$0.107\,705\,126\,263\,32$
9	1	2	$-0.126\,543\,154\,777\,14 \times 10^{1}$	29	5	3	$-0.329\,136\,232\,589\,54$
10	1	6	$-0.115\,244\,078\,066\,81 \times 10^{1}$	30	5	26	$-0.508\,710\,620\,411\,58$
11	1	15	$0.885\,210\,439\,843\,18$	31	6	0	$-0.221\,754\,008\,730\,96 \times 10^{-1}$
12	1	17	$-0.642\,077\,651\,816\,07$	32	6	2	$0.942\,607\,516\,650\,92 \times 10^{-1}$
13	2	0	$0.384\,934\,601\,866\,71$	33	6	26	$0.164\,362\,784\,479\,61$
14	2	2	$-0.852\,147\,088\,242\,06$	34	7	2	$-0.135\,033\,722\,413\,48 \times 10^{-1}$
15	2	6	$0.489\,722\,815\,418\,77 \times 10^{1}$	35	8	26	$-0.148\,343\,453\,524\,72 \times 10^{-1}$
16	2	7	$-0.305\,026\,172\,569\,65 \times 10^{1}$	36	9	2	$0.579\,229\,536\,280\,84 \times 10^{-3}$
17	2	22	$0.394\,205\,368\,791\,54 \times 10^{-1}$	37	9	26	$0.323\,089\,047\,037\,11 \times 10^{-2}$
18	2	26	$0.125\,584\,084\,243\,08$	38	10	0	$0.809\,648\,029\,962\,15 \times 10^{-4}$
19	3	0	$-0.279\,993\,296\,987\,10$	39	10	1	$-0.165\,576\,797\,950\,37 \times 10^{-3}$
20	3	2	$0.138\,997\,995\,694\,60 \times 10^{1}$	40	11	26	$-0.449\,238\,990\,618\,15 \times 10^{-4}$

Region 4

The saturation line is described by an implicit quadratic equation which can be directly solved with regard to both saturation pressure p_s and saturation temperature T_s. This equation reads

$$\beta^2\vartheta^2 + n_1\beta^2\vartheta + n_2\beta^2 + n_3\beta\vartheta^2 + n_4\beta\vartheta + n_5\beta + n_6\vartheta^2 + n_7\vartheta + n_8 = 0\,, \tag{A-14}$$

where

$$\beta = \left(p_s / p^*\right)^{1/4} \tag{A-14a}$$

and

$$\vartheta = \frac{T_s}{T^*} + \frac{n_9}{\left(T_s / T^*\right) - n_{10}} \tag{A-14b}$$

with $p^* = 1$ MPa and $T^* = 1$ K; for the coefficients n_1 to n_{10} see Table A-19.

Table A-16. Relations of thermodynamic properties to the dimensionless Helmholtz free energy ϕ and its derivatives[a] when using Eq. (A-13) (Region 3)

Property	Relation
Pressure $p = \rho^2 \left(\partial f/\partial\rho\right)_T$	$\dfrac{p(\delta,\tau)}{\rho RT} = \delta\phi_\delta$
Specific internal energy $u = f - T\left(\partial f/\partial T\right)_\rho$	$\dfrac{u(\delta,\tau)}{RT} = \tau\phi_\tau$
Specific entropy $s = -\left(\partial f/\partial T\right)_\rho$	$\dfrac{s(\delta,\tau)}{R} = \tau\phi_\tau - \phi$
Specific enthalpy $h = f - T\left(\partial f/\partial T\right)_\rho + \rho\left(\partial f/\partial\rho\right)_T$	$\dfrac{h(\delta,\tau)}{RT} = \tau\phi_\tau + \delta\phi_\delta$
Specific isochoric heat capacity $c_v = \left(\partial u/\partial T\right)_\rho$	$\dfrac{c_v(\delta,\tau)}{R} = -\tau^2\phi_{\tau\tau}$
Specific isobaric heat capacity $c_p = \left(\partial h/\partial T\right)_p$	$\dfrac{c_p(\delta,\tau)}{R} = -\tau^2\phi_{\tau\tau} + \dfrac{\left(\delta\phi_\delta - \delta\tau\phi_{\delta\tau}\right)^2}{2\delta\phi_\delta + \delta^2\phi_{\delta\delta}}$
Speed of sound $w = \left(\partial p/\partial\rho\right)_s^{1/2}$	$\dfrac{w^2(\delta,\tau)}{RT} = 2\delta\phi_\delta + \delta^2\phi_{\delta\delta} - \dfrac{\left(\delta\phi_\delta - \delta\tau\phi_{\delta\tau}\right)^2}{\tau^2\phi_{\tau\tau}}$
Phase-equilibrium condition (Maxwell criterion)	$\dfrac{p_s}{RT\rho'} = \delta'\phi_\delta(\delta',\tau) \quad ; \quad \dfrac{p_s}{RT\rho''} = \delta''\phi_\delta(\delta'',\tau)$ $\dfrac{p_s}{RT}\left(\dfrac{1}{\rho''} - \dfrac{1}{\rho'}\right) = \phi(\delta',\tau) - \phi(\delta'',\tau)$

[a] $\phi_\delta = \left[\dfrac{\partial\phi}{\partial\delta}\right]_\tau$, $\phi_{\delta\delta} = \left[\dfrac{\partial^2\phi}{\partial\delta^2}\right]_\tau$, $\phi_\tau = \left[\dfrac{\partial\phi}{\partial\tau}\right]_\delta$, $\phi_{\tau\tau} = \left[\dfrac{\partial^2\phi}{\partial\tau^2}\right]_\delta$, $\phi_{\delta\tau} = \left[\dfrac{\partial^2\phi}{\partial\delta\,\partial\tau}\right]$

The solution of Eq. (A-14) with regard to saturation pressure is as follows:

$$\frac{p_s}{p^*} = \left[\frac{2C}{-B + \left(B^2 - 4AC\right)^{1/2}}\right]^4, \tag{A-15}$$

where $p^* = 1$ MPa and

$$A = \vartheta^2 + n_1\vartheta + n_2$$
$$B = n_3\vartheta^2 + n_4\vartheta + n_5$$
$$C = n_6\vartheta^2 + n_7\vartheta + n_8,$$

with ϑ according to Eq. (A-14b). The coefficients n_i are listed in Table A-19. These were constrained so that the saturation equation exactly reproduced the p-T values at the triple point, the normal boiling point, and the critical point.

Table A-17. The dimensionless Helmholtz free energy equation and its derivatives according to Eq. (A-13) (Region 3)

$$\phi = n_1 \ln\delta + \sum_{i=2}^{40} n_i\ \delta^{I_i}\ \tau^{J_i}$$

$$\phi_\delta = n_1/\delta + \sum_{i=2}^{40} n_i\ I_i\ \delta^{I_i-1}\ \tau^{J_i} \qquad \phi_{\delta\delta} = -n_1/\delta^2 + \sum_{i=2}^{40} n_i\ I_i\,(I_i-1)\,\delta^{I_i-2}\ \tau^{J_i}$$

$$\phi_\tau = 0 + \sum_{i=2}^{40} n_i\ \delta^{I_i}\ J_i\ \tau^{J_i-1} \qquad \phi_{\tau\tau} = 0 + \sum_{i=2}^{40} n_i\ \delta^{I_i}\ J_i\,(J_i-1)\,\tau^{J_i-2}$$

$$\phi_{\delta\tau} = 0 + \sum_{i=2}^{40} n_i\ I_i\ \delta^{I_i-1}\ J_i\ \tau^{J_i-1}$$

Table A-18. Thermodynamic property values calculated from Eq. (A-13) (Region 3) for selected values of T and ρ

	T = 650 K, ρ = 500 kg·m^{-3}	T = 650 K, ρ = 200 kg·m^{-3}	T = 750 K, ρ = 500 kg·m^{-3}
p / MPa	$0.255\,837\,018 \times 10^{2}$	$0.222\,930\,643 \times 10^{2}$	$0.783\,095\,639 \times 10^{2}$
h / (kJ·kg^{-1})	$0.186\,343\,019 \times 10^{4}$	$0.237\,512\,401 \times 10^{4}$	$0.225\,868\,845 \times 10^{4}$
u / (kJ·kg^{-1})	$0.181\,226\,279 \times 10^{4}$	$0.226\,365\,868 \times 10^{4}$	$0.210\,206\,932 \times 10^{4}$
s / (kJ·kg^{-1}·K^{-1})	$0.405\,427\,273 \times 10^{1}$	$0.485\,438\,792 \times 10^{1}$	$0.446\,971\,906 \times 10^{1}$
c_p / (kJ·kg^{-1}·K^{-1})	$0.138\,935\,717 \times 10^{2}$	$0.446\,579\,342 \times 10^{2}$	$0.634\,165\,359 \times 10^{1}$
w / (m·s^{-1})	$0.502\,005\,554 \times 10^{3}$	$0.383\,444\,594 \times 10^{3}$	$0.760\,696\,041 \times 10^{3}$

Table A-19. Numerical values of the coefficients of the dimensionless saturation equations (Region 4), Eqs. (A-14) to (A-16)

i	n_i	i	n_i
1	$0.116\,705\,214\,527\,67 \times 10^{4}$	6	$0.149\,151\,086\,135\,30 \times 10^{2}$
2	$-0.724\,213\,167\,032\,06 \times 10^{6}$	7	$-0.482\,326\,573\,615\,91 \times 10^{4}$
3	$-0.170\,738\,469\,400\,92 \times 10^{2}$	8	$0.405\,113\,405\,420\,57 \times 10^{6}$
4	$0.120\,208\,247\,024\,70 \times 10^{5}$	9	$-0.238\,555\,575\,678\,49$
5	$-0.323\,255\,503\,223\,33 \times 10^{7}$	10	$0.650\,175\,348\,447\,98 \times 10^{3}$

Table A-20. Saturation pressures calculated from Eq. (A-15) for selected values of T

T/K	p_s/MPa
300	$0.353\,658\,941 \times 10^{-2}$
500	$0.263\,889\,776 \times 10^{1}$
600	$0.123\,443\,146 \times 10^{2}$

Table A-21. Saturation temperatures calculated from Eq. (A-16) for selected values of p

p/MPa	T_s/K
0.1	$0.372\,755\,919 \times 10^{3}$
1	$0.453\,035\,632 \times 10^{3}$
10	$0.584\,149\,488 \times 10^{3}$

The saturation-temperature solution of Eq. (A-14) is

$$\frac{T_s}{T^*} = \frac{n_{10} + D - \left[\left(n_{10} + D\right)^2 - 4\left(n_9 + n_{10}D\right)\right]^{1/2}}{2}, \tag{A-16}$$

where $T^* = 1$ K and

$$D = \frac{2G}{-F - \left(F^2 - 4EG\right)^{1/2}}$$

with

$$E = \beta^2 + n_3\beta + n_6$$
$$F = n_1\beta^2 + n_4\beta + n_7$$
$$G = n_2\beta^2 + n_5\beta + n_8$$

and β according to Eq. (A-14a). The coefficients n_i of Eq. (A-16) are listed in Table A-19. Tables A-20 and A-21 contain computed values from Eqs. (A-15) and (A-16), respectively.

Table A-22. Numerical values of the coefficients and exponents of the ideal-gas part γ^{o} of the dimensionless Gibbs free energy for Region 5, Eq. (A-18)

i	J_i^o	n_i^o	i	J_i^o	n_i^o
1	0	$-0.131\,799\,836\,742\,01 \times 10^{2}$	4	–2	0.369 015 349 803 33
2	1	$0.685\,408\,416\,344\,34 \times 10^{1}$	5	–1	$-0.311\,613\,182\,139\,25 \times 10^{1}$
3	–3	$-0.248\,051\,489\,334\,66 \times 10^{-1}$	6	2	–0.329 616 265 389 17

Table A-23. Numerical values of the coefficients and exponents of the residual part γ^{r} of the dimensionless Gibbs free energy for Region 5, Eq. (A-19)

i	I_i	J_i	n_i
1	1	1	$0.157\,364\,048\,552\,59 \times 10^{-2}$
2	1	2	$0.901\,537\,616\,739\,44 \times 10^{-3}$
3	1	3	$-0.502\,700\,776\,776\,48 \times 10^{-2}$
4	2	3	$0.224\,400\,374\,094\,85 \times 10^{-5}$
5	2	9	$-0.411\,632\,754\,534\,71 \times 10^{-5}$
6	3	7	$0.379\,194\,548\,229\,55 \times 10^{-7}$

Region 5

The basic equation for this high-temperature region is an equation for the specific Gibbs free energy g. This equation is expressed in dimensionless form, $\gamma = g/(RT)$, and is separated into two parts, an ideal-gas part γ^{o} and a residual part γ^{r}, so that

$$\frac{g(p,T)}{RT} = \gamma(\pi,\tau) = \gamma^{o}(\pi,\tau) + \gamma^{r}(\pi,\tau) \ , \tag{A-17}$$

with R given by Eq. (A-1).

The equation for the ideal-gas part γ^{o} of the dimensionless Gibbs free energy is

$$\gamma^{o} = \ln\pi + \sum_{i=1}^{6} n_i^{o} \tau^{J_i^{o}} \ , \tag{A-18}$$

where $\pi = p/p^*$ and $\tau = T^*/T$ with $p^* = 1$ MPa and $T^* = 1000$ K. Table A-22 contains the coefficients n_i^{o} and exponents J_i^{o} of Eq. (A-18).

The form of the residual part γ^{r} of the dimensionless Gibbs free energy is as follows:

$$\gamma^{r} = \sum_{i=1}^{6} n_i \pi^{I_i} \tau^{J_i} \ , \tag{A-19}$$

where $\pi = p/p^*$ and $\tau = T^*/T$ with $p^* = 1$ MPa and $T^* = 1000$ K. The coefficients n_i and exponents I_i and J_i of Eq. (A-19) are listed in Table A-23.

Since Eq. (A-17) is identical in form to the Region 2 Eq. (A-8), thermodynamic properties for Region 5 are computed according to the relationships given in Table A-8. All required derivatives of the ideal-gas part and of the residual part of the dimensionless Gibbs free energy are given in Table A-24 and Table A-25, respectively. Table A-26 contains computed properties from Eq. (A-17).

Table A-24. The ideal-gas part γ° of the dimensionless Gibbs free energy and its derivatives according to Eq. (A-18) (Region 5)

γ°	=	$\ln \pi$	+	$\sum_{i=1}^{6} n_i^{\circ} \tau^{J_i^{\circ}}$
γ_{π}°	=	$1/\pi$	+	0
$\gamma_{\pi\pi}^{\circ}$	=	$-1/\pi^2$	+	0
γ_{τ}°	=	0	+	$\sum_{i=1}^{6} n_i^{\circ} J_i^{\circ} \tau^{J_i^{\circ}-1}$
$\gamma_{\tau\tau}^{\circ}$	=	0	+	$\sum_{i=1}^{6} n_i^{\circ} J_i^{\circ} \left(J_i^{\circ}-1\right) \tau^{J_i^{\circ}-2}$
$\gamma_{\pi\tau}^{\circ}$	=	0	+	0

Table A-25. The residual part γ^{r} of the dimensionless Gibbs free energy and its derivatives according to Eq. (A-19) (Region 5)

$$\gamma^{\mathrm{r}} = \sum_{i=1}^{6} n_i \, \pi^{I_i} \, \tau^{J_i}$$

$$\gamma_{\pi}^{\mathrm{r}} = \sum_{i=1}^{6} n_i \, I_i \, \pi^{I_i-1} \, \tau^{J_i} \qquad \gamma_{\pi\pi}^{\mathrm{r}} = \sum_{i=1}^{6} n_i \, I_i \left(I_i-1\right) \pi^{I_i-2} \, \tau^{J_i}$$

$$\gamma_{\tau}^{\mathrm{r}} = \sum_{i=1}^{6} n_i \, \pi^{I_i} J_i \, \tau^{J_i-1} \qquad \gamma_{\tau\tau}^{\mathrm{r}} = \sum_{i=1}^{6} n_i \, \pi^{I_i} J_i \left(J_i-1\right) \tau^{J_i-2}$$

$$\gamma_{\pi\tau}^{\mathrm{r}} = \sum_{i=1}^{6} n_i \, I_i \, \pi^{I_i-1} J_i \, \tau^{J_i-1}$$

Table A-26. Thermodynamic property values calculated from Eq. (A-17) (Region 5) for selected values of T and p

	T = 1500 K, p = 0.5 MPa	T = 1500 K, p = 30 MPa	T = 2000 K, p = 30 MPa
v / (m^3·kg^{-1})	$0.138\,455\,090 \times 10^{1}$	$0.230\,761\,299 \times 10^{-1}$	$0.311\,385\,219 \times 10^{-1}$
h / (kJ·kg^{-1})	$0.521\,976\,855 \times 10^{4}$	$0.516\,723\,514 \times 10^{4}$	$0.657\,122\,604 \times 10^{4}$
u / (kJ·kg^{-1})	$0.452\,749\,310 \times 10^{4}$	$0.447\,495\,124 \times 10^{4}$	$0.563\,707\,038 \times 10^{4}$
s / (kJ·kg^{-1}·K^{-1})	$0.965\,408\,875 \times 10^{1}$	$0.772\,970\,133 \times 10^{1}$	$0.853\,640\,523 \times 10^{1}$
c_p / (kJ·kg^{-1}·K^{-1})	$0.261\,609\,445 \times 10^{1}$	$0.272\,724\,317 \times 10^{1}$	$0.288\,569\,882 \times 10^{1}$
w / (m·s^{-1})	$0.917\,068\,690 \times 10^{3}$	$0.928\,548\,002 \times 10^{3}$	$0.106\,736\,948 \times 10^{4}$

ESTIMATES OF UNCERTAINTIES

Estimates have been made of the uncertainty of the specific volume, specific isobaric heat capacity, speed of sound, and saturation pressure when calculated from the corresponding equations of IAPWS-IF97. These estimates were derived from the uncertainties of IAPWS-95 [8,9], from which the input values for fitting the IAPWS-IF97 equations were calculated, and by taking into account the deviations between the corresponding values calculated from IAPWS-IF97 and IAPWS-95. Since there is no reasonable basis for estimating the uncertainty of specific enthalpy (because specific enthalpy is dependent on the selection of the zero point, only enthalpy differences are of interest), no uncertainty is given for this property. However, the relative uncertainty of isobaric enthalpy differences is smaller than the relative uncertainty in the isobaric heat capacity along the path of the enthalpy change. Further information about the uncertainty of enthalpy calculations with IAPWS-IF97 may be found in [26].

For the single-phase region, tolerances are indicated in Figs. A-2 to A-4 which give the estimated uncertainties in various areas. As used here, "tolerance" means the range of possible values as judged by IAPWS, and no statistical significance can be attached to it. With regard to the uncertainty for the speed of sound and the specific isobaric heat capacity, it should be noted that the uncertainties for these properties increase drastically when approaching the critical point. The statement "no definitive uncertainty estimates possible" for temperatures above 1273 K is based on the fact that this range is beyond the range of validity of IAPWS-95 and the corresponding input values for IAPWS-IF97 were extrapolated from IAPWS-95. From various tests of IAPWS-95 [9], it is expected that these extrapolations yield reasonable values.

For the saturation pressure, the estimate of uncertainty is shown in Fig. A-5.

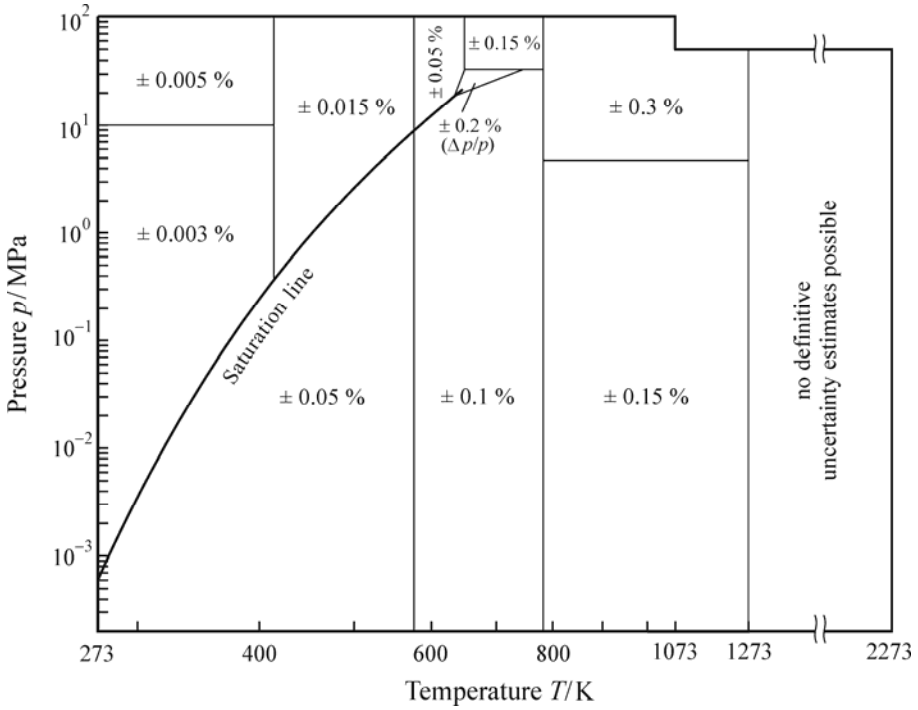

Figure A-2. Uncertainties in specific volume, $\Delta v/v$, estimated for the corresponding equations of IAPWS-IF97. In the enlarged critical region (triangle), the uncertainty is given as percentage uncertainty in pressure, $\Delta p/p$. This region is bordered by the two isochores $0.0019\ m^3 \cdot kg^{-1}$ and $0.0069\ m^3 \cdot kg^{-1}$ and by the 30 MPa isobar. The positions of the lines separating the uncertainty regions are approximate.

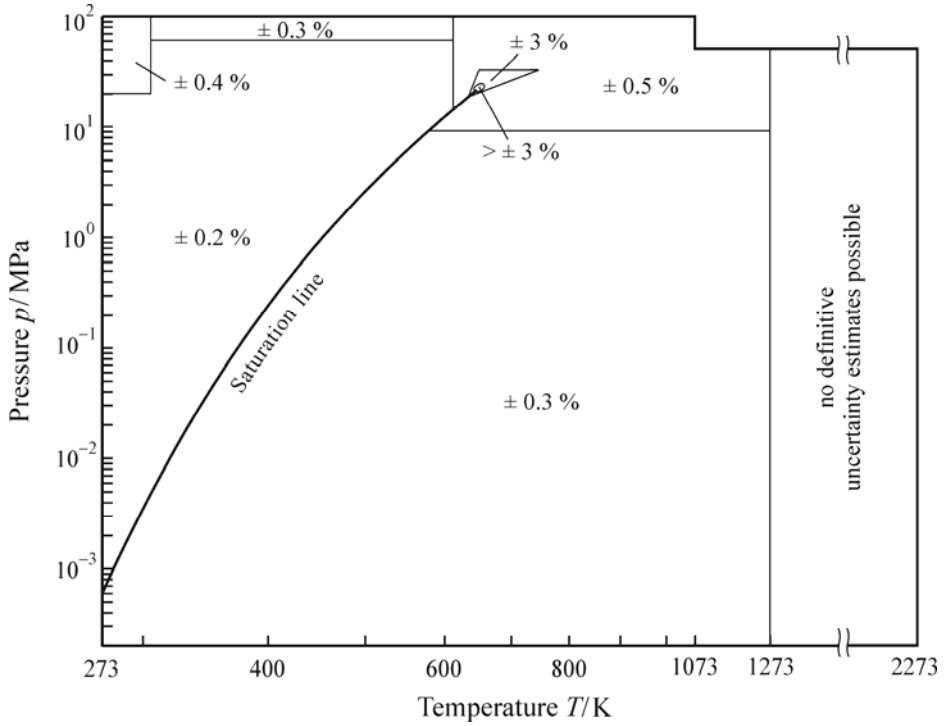

Figure A-3. Uncertainties in specific isobaric heat capacity, $\Delta c_p/c_p$, estimated for the corresponding equations of IAPWS-IF97. For the definition of the triangle around the critical point, see Fig. A-2. The positions of the lines separating the uncertainty regions are approximate.

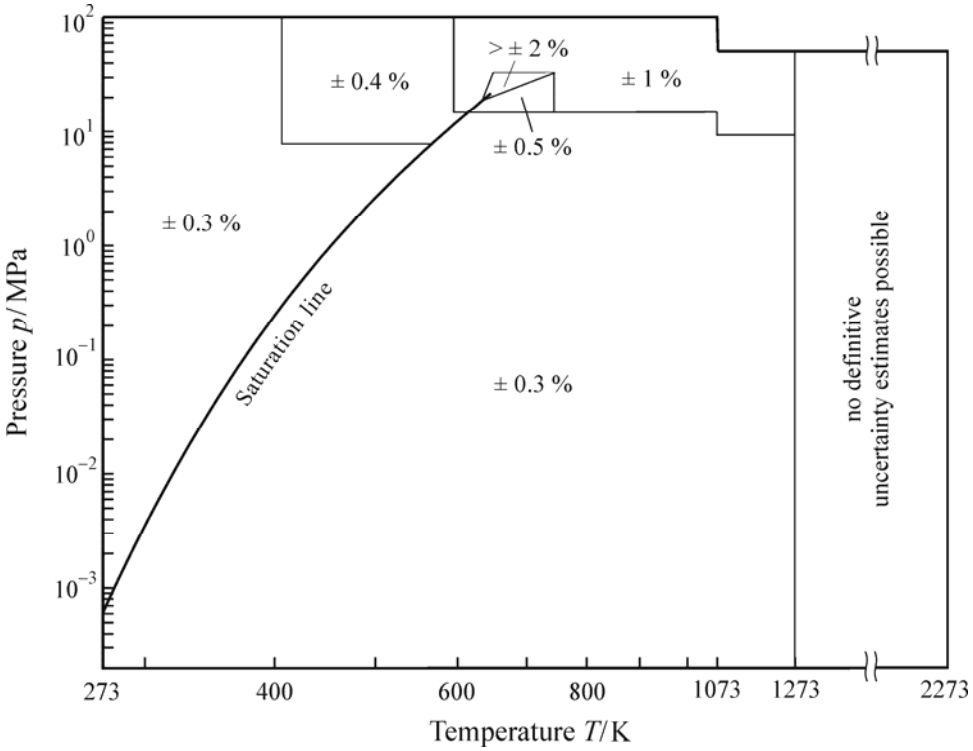

Figure A-4. Uncertainties in speed of sound, $\Delta w/w$, estimated for the corresponding equations of IAPWS-IF97. For the definition of the triangle around the critical point, see Fig. A-2. The positions of the lines separating the uncertainty regions are approximate.

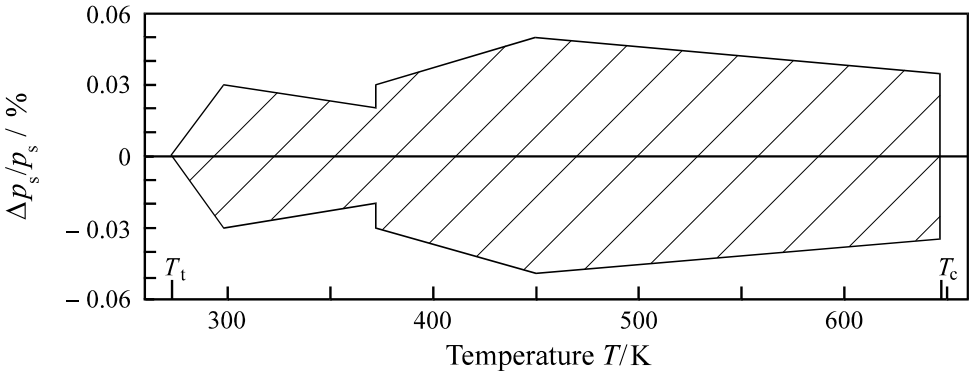

Figure A-5. Uncertainties in saturation pressure, $\Delta p_s/p_s$, estimated for the saturation-pressure equation [Eq. (A-15)].

APPENDIX B

TRANSPORT PROPERTY FORMULATIONS

INTRODUCTION

This Appendix presents the equations used to generate the viscosity and the thermal conductivity in this book. The material presented is primarily a condensed version of the material in the IAPWS release documents [19, 21]; more information may be found in the technical articles describing the formulations [20, 22].

Only the actual equations used, their range of validity, and their uncertainty are documented here; the references mentioned above should be consulted for other details.

NOMENCLATURE

p = Pressure

T = Absolute temperature on the International Temperature Scale of 1990 [16]

λ = Thermal conductivity

μ = Viscosity

ρ = Mass density

VISCOSITY FORMULATION

The following reference constants are defined for the viscosity formulation:

Reference temperature: $T^* = 647.096$ K (B-1)

Reference density: $\rho^* = 322.0$ kg·m^{-3} (B-2)

Reference viscosity: $\mu^* = 1 \times 10^{-6}$ Pa·s (B-3)

The two reference constants T^* and ρ^* are identical to the critical constants.

The viscosity is represented by the equation

$$\overline{\mu} = \overline{\mu}_0(\overline{T}) \times \overline{\mu}_1(\overline{T}, \overline{\rho}), \quad \text{(B-4)}$$

where $\overline{\mu} = \mu/\mu^*$, $\overline{T} = T/T^*$, and $\overline{\rho} = \rho/\rho^*$.

The first term of the product gives the viscosity of steam in the dilute-gas limit and has the form

$$\bar{\mu}_0(\bar{T}) = \frac{100\bar{T}^{0.5}}{\sum_{i=0}^{3} \frac{H_i}{\bar{T}^i}}, \tag{B-5}$$

with the coefficients H_i given in Table B-1. The second multiplicative factor is

$$\bar{\mu}_1(\bar{T}, \bar{\rho}) = \exp\left[\bar{\rho} \sum_{i=0}^{5} \left(\frac{1}{\bar{T}} - 1 \right)^i \sum_{j=0}^{6} H_{ij} (\bar{\rho} - 1)^j \right] \tag{B-6}$$

with the coefficients H_{ij} given in Table B-2.

Table B-1. Coefficients H_i for $\bar{\mu}_0(\bar{T})$, Eq. (B-5)

i	H_i
0	1.677 52
1	2.204 62
2	0.636 656 4
3	–0.241 605

VALIDITY RANGE AND UNCERTAINTY FOR VISCOSITY

For industrial use, Eq. (B-4) may be used for the viscosity in the following range of pressures p and (Celsius) temperatures t:

$p \le 100$ MPa for $0\ °C \le t \le 800\ °C$.

$p \le 50$ MPa for $800\ °C \le t \le 900\ °C$.

This pressure limit is the limit of the IAPWS-IF97 thermodynamic property formulation (see Appendix A); the viscosity surface itself was derived to cover data at higher pressures and may be used in a wider range (as specified in the IAPWS release [19]) if an equation of state valid for that range is available.

The uncertainty (combined expanded uncertainty with coverage factor of two) of the viscosity of water has been determined by IAPWS as described in the release [19]. In general, these uncertainties are about 1 % for the liquid phase below 300 °C, 2 % for the vapor at low and moderate temperatures and for the liquid above 300 °C, and 3 % for temperatures above 500 °C (for pressures below 45 MPa) or above 340 °C (for pressures above 45 MPa) and for high-pressure liquids that exist below 0 °C. The IAPWS release [19] should be consulted for more complete information.

Table B-2. Coefficients H_{ij} for $\bar{\mu}_1(\bar{T}, \bar{\rho})$, Eq. (B-6)

i	j	H_{ij}
0	0	0.520 094
1	0	0.085 089 5
2	0	–1.083 74
3	0	–0.289 555
0	1	0.222 531
1	1	0.999 115
2	1	1.887 97
3	1	1.266 13
5	1	0.120 573
0	2	–0.281 378
1	2	–0.906 851
2	2	–0.772 479
3	2	–0.489 837
4	2	–0.257 040
0	3	0.161 913
1	3	0.257 399
0	4	–0.032 537 2
3	4	0.069 845 2
4	5	0.008 721 02
3	6	–0.004 356 73
5	6	–0.000 593 264

Note: Coefficients H_{ij} omitted from the table are all equal to zero identically.

THERMAL CONDUCTIVITY FORMULATION

The following reference constants are defined for the thermal conductivity formulation:

Reference temperature: $T^* = 647.096$ K (B-7)

Reference density: $\rho^* = 322.0$ kg·m^{-3} (B-8)

Reference pressure: $p^* = 22.064$ MPa (B-9)

Reference thermal conductivity: $\lambda^* = 1\times10^{-3}$ W·m^{-1}·K^{-1} (B-10)

Specific gas constant: $R = 0.461\ 518\ 05$ kJ·kg^{-1}·K^{-1} (B-11)

The reference constants T^*, p^*, and ρ^* are identical to the critical constants.

The thermal conductivity is represented by the equation

$$\bar{\lambda} = \bar{\lambda}_0(\bar{T}) \times \bar{\lambda}_1(\bar{\rho}) + \bar{\lambda}_2(\bar{T}, \bar{\rho}), \quad \text{(B-12)}$$

where $\bar{\lambda} = \lambda / \lambda^*$, $\bar{T} = T / T^*$, and $\bar{\rho} = \rho / \rho^*$.

Table B-3. Coefficients L_k in Eq. (B-13) for $\bar{\lambda}_0\left(\bar{T}\right)$

k	L_k
0	$2.443\,221\times10^{-3}$
1	$1.323\,095\times10^{-2}$
2	$6.770\,357\times10^{-3}$
3	$-3.454\,586\times10^{-3}$
4	$4.096\,266\times10^{-4}$

Table B-4. Coefficients L_{ij} in Eq. (B-14) for $\bar{\lambda}_1\left(\bar{T},\bar{\rho}\right)$

j / i	0	1	2	3	4	5
0	1.603 973 57	–0.646 013 523	0.111 443 906	0.102 997 357	–0.050 412 363 4	0.006 098 592 58
1	2.337 718 42	–2.788 437 78	1.536 161 67	–0.463 045 512	0.083 282 701 9	–0.007 192 012 45
2	2.196 505 29	–4.545 807 85	3.557 772 44	–1.409 449 78	0.275 418 278	–0.020 593 881 6
3	–1.210 513 78	1.608 129 89	–0.621 178 141	0.071 637 322 4	0	0
4	–2.720 337 0	4.575 863 31	–3.183 692 45	1.116 834 8	–0.192 683 05	0.012 913 842

The function $\bar{\lambda}_0(\bar{T})$ represents the thermal conductivity of steam in the dilute-gas limit and has the form

$$\bar{\lambda}_0\left(\bar{T}\right)=\frac{\sqrt{\bar{T}}}{\sum_{k=0}^{4}\frac{L_k}{\bar{T}^k}}, \tag{B-13}$$

with the coefficients L_k given in Table B-3.

The function $\bar{\lambda}_1(\bar{\rho})$ is defined by

$$\bar{\lambda}_1(\bar{T},\bar{\rho})=\exp\left[\bar{\rho}\sum_{i=0}^{4}\left(\left(\frac{1}{\bar{T}}-1\right)^i\sum_{j=0}^{5}L_{ij}(\bar{\rho}-1)^j\right)\right], \tag{B-14}$$

with coefficients L_{ij} given in Table B-4.

The function $\bar{\lambda}_2(\bar{T},\bar{\rho})$ is defined by

$$\bar{\lambda}_2\left(\bar{T},\bar{\rho}\right)=\Lambda\frac{\bar{\rho}\bar{c}_p\bar{T}}{\bar{\mu}}Z\left(y\right), \tag{B-15}$$

where Λ is a numerical constant, $\bar{c}_p$ is the reduced specific isobaric heat capacity $\bar{c}_p = c_p/R$, and $\bar{\mu}$ is the reduced viscosity calculated by Eq. (B-4). The function $Z(y)$ is defined by

$$Z\left(y\right)=\frac{2}{\pi y}\left\{\left[\left(1-\kappa^{-1}\right)\arctan\left(y\right)+\kappa^{-1}y\right]-\left[1-\exp\left(\frac{-1}{y^{-1}+y^2/3\bar{\rho}^2}\right)\right]\right\}, \tag{B-16}$$

where $\kappa = c_p/c_v$ with c_v the specific isochoric heat capacity and

$$y = \overline{q}_{\mathrm{D}} \xi \left(\overline{T}, \overline{\rho} \right). \tag{B-17}$$

In Eq. (B-17), $\overline{q}_{\mathrm{D}}$ is a reference wave number and ξ a correlation length, so that y is a dimensionless variable. To avoid numerical truncation issues in Eq. (B-16) for small values of y, the function $Z(y)$ is subject to the condition

$$Z(y) = 0 \ \text{ for } \ y < 1.2 \times 10^{-7}. \tag{B-18}$$

The correlation length ξ in Eq. (B-17) is calculated from:

$$\xi = \xi_0 \left(\frac{\Delta \overline{\chi}}{\Gamma_0} \right)^{\nu/\gamma} \tag{B-19}$$

in terms of $\Delta \overline{\chi}$ (≥ 0) defined by

$$\Delta \overline{\chi} \left(\overline{T}, \overline{\rho} \right) = \overline{\rho} \left[\zeta \left(\overline{T}, \overline{\rho} \right) - \zeta \left(\overline{T}_{\mathrm{R}}, \overline{\rho} \right) \frac{\overline{T}_{\mathrm{R}}}{\overline{T}} \right], \tag{B-20}$$

with

$$\zeta = \left(\frac{\partial \overline{\rho}}{\partial \overline{p}} \right)_{\overline{T}}, \tag{B-21}$$

where ξ_0, Γ_0, ν, and γ are constants. When $\Delta \overline{\chi}$ calculated from Eq. (B-20) is less than zero, it must be set to zero for calculations to proceed.

The constants needed to compute the critical enhancement, $\overline{\lambda}_2$, are provided in Table B-5.

Table B-5. Critical-region constants

Constant	Value
Λ	177.8514
$\overline{q}_{\mathrm{D}}^{-1}$	0.40 nm
ν	0.630
γ	1.239
ξ_0	0.13 nm
Γ_0	0.06
$\overline{T}_{\mathrm{R}}$	1.5

For industrial use, the dimensionless isobaric specific heat capacity, $\overline{c}_p$, in Eq. (B-15), the heat-capacity ratio, κ, in Eq. (B-16), and the dimensionless isothermal compressibility, ζ, defined by Eq. (B-21), should be calculated from the IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and Steam [1].

However, the function $\zeta \left(\overline{T}_{\mathrm{R}}, \overline{\rho} \right)$ in Eq. (B-20) should be calculated from

$$\zeta \left(\overline{T}_{\mathrm{R}}, \overline{\rho} \right) = \frac{1}{\sum_{i=0}^{5} A_{ij} \overline{\rho}^{i}}, \tag{B-22}$$

with coefficients A_{ij} given in Table B-6.

Table B-6. Coefficients A_{ij} in Eq. (B-22) for $\zeta\left(\overline{T}_{\mathrm{R}}, \overline{\rho}\right)$

	$j = 0$	$j = 1$	$j = 2$
$i = 0$	6.53786807199516	6.52717759281799	5.35500529896124
$i = 1$	–5.61149954923348	–6.30816983387575	–3.96415689925446
$i = 2$	3.39624167361325	8.08379285492595	8.91990208918795
$i = 3$	–2.27492629730878	–9.82240510197603	–12.0338729505790
$i = 4$	10.2631854662709	12.1358413791395	9.19494865194302
$i = 5$	1.97815050331519	–5.54349664571295	–2.16866274479712

	$j = 3$	$j = 4$
$i = 0$	1.55225959906681	1.11999926419994
$i = 1$	0.464621290821181	0.595748562571649
$i = 2$	8.93237374861479	9.88952565078920
$i = 3$	–11.0321960061126	–10.3255051147040
$i = 4$	6.16780999933360	4.66861294457414
$i = 5$	–0.965458722086812	–0.503243546373828

The subscript j in Table B-6 denotes ranges defined as:

$j = 0$: $\overline{\rho} \leq 0.310559006$

$j = 1$: $0.310559006 < \overline{\rho} \leq 0.776397516$

$j = 2$: $0.776397516 < \overline{\rho} \leq 1.242236025$

$j = 3$: $1.242236025 < \overline{\rho} \leq 1.863354037$

$j = 4$: $1.863354037 < \overline{\rho}$

In Region 5 of the IAPWS-IF97 thermodynamic formulation, $\overline{\lambda}_2 = 0$, so in that region the last term in Eq. (B-12) should be omitted.

VALIDITY RANGE AND UNCERTAINTY FOR THERMAL CONDUCTIVITY

IAPWS endorses the validity of Eq. (B-12) for the thermal conductivity for industrial use in the following range of pressures p and (Celsius) temperatures t:

$p \leq 100$ MPa for $0\ ^\circ\mathrm{C} \leq t \leq 800\ ^\circ\mathrm{C}$

$p \leq 50$ MPa for $800\ ^\circ\mathrm{C} < t \leq 900\ ^\circ\mathrm{C}$

The uncertainty (combined expanded uncertainty with coverage factor of two) of the thermal conductivity of water has been determined by IAPWS as described in the release [21]. In general, these uncertainties are about 1.5 % for the liquid phase below 250 °C and 50 MPa, 2 % for the vapor at low and moderate temperatures and for the liquid above 250 °C and/or above 50 MPa, 4 % for temperatures between 426 °C and 551 °C, and 6 % for temperatures above 551 °C. The IAPWS release [21] should be consulted for more complete information.

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TABLES AND CHARTS OF PROPERTIES IN SI UNITS

Table S-1. Properties of Saturated Water and Steam (Temperature)

t (°C)	Pressure MPa	Volume, m^3/kg v_L	Δv	v_V	Enthalpy, kJ/kg h_L	Δh	h_V	Entropy, kJ/(kg·K) s_L	Δs	s_V	t (°C)
0	**0.000 611 2*	*0.001 000 2*	*206.14*	*206.14*	*-0.042*	*2500.9*	*2500.9*	*-0.0002*	*9.1559*	*9.1558*	**0**
0.01	0.000 611 7	0.001 000 2	206.00	206.00	0.001	2500.9	2500.9	0.0000	9.1555	9.1555	**0.01**
1	0.000 657 1	0.001 000 1	192.44	192.44	4.177	2498.6	2502.7	0.0153	9.1138	9.1291	**1**
2	0.000 706 0	0.001 000 1	179.76	179.76	8.392	2496.2	2504.6	0.0306	9.0721	9.1027	**2**
3	0.000 758 1	0.001 000 1	168.01	168.01	12.604	2493.8	2506.4	0.0459	9.0306	9.0765	**3**
4	0.000 813 5	0.001 000 1	157.12	157.12	16.813	2491.4	2508.2	0.0611	8.9895	9.0506	**4**
5	0.000 872 6	0.001 000 1	147.02	147.02	21.019	2489.1	2510.1	0.0763	8.9486	9.0249	**5**
6	0.000 935 4	0.001 000 1	137.64	137.64	25.224	2486.7	2511.9	0.0913	8.9081	8.9994	**6**
7	0.001 002	0.001 000 1	128.93	128.93	29.426	2484.3	2513.7	0.1064	8.8678	8.9742	**7**
8	0.001 073	0.001 000 2	120.83	120.83	33.626	2481.9	2515.6	0.1213	8.8278	8.9492	**8**
9	0.001 148	0.001 000 3	113.31	113.31	37.824	2479.6	2517.4	0.1362	8.7882	8.9244	**9**
10	0.001 228	0.001 000 3	106.31	106.31	42.021	2477.2	2519.2	0.1511	8.7488	8.8998	**10**
11	0.001 313	0.001 000 4	99.792	99.793	46.216	2474.8	2521.1	0.1659	8.7096	8.8755	**11**
12	0.001 403	0.001 000 5	93.723	93.724	50.410	2472.5	2522.9	0.1806	8.6708	8.8514	**12**
13	0.001 498	0.001 000 7	88.069	88.070	54.602	2470.1	2524.7	0.1953	8.6322	8.8275	**13**
14	0.001 599	0.001 000 8	82.797	82.798	58.794	2467.7	2526.5	0.2099	8.5939	8.8038	**14**
15	0.001 706	0.001 000 9	77.880	77.881	62.984	2465.4	2528.4	0.2245	8.5559	8.7804	**15**
16	0.001 819	0.001 001 1	73.290	73.291	67.173	2463.0	2530.2	0.2390	8.5181	8.7571	**16**
17	0.001 938	0.001 001 3	69.005	69.006	71.361	2460.6	2532.0	0.2534	8.4806	8.7341	**17**
18	0.002 065	0.001 001 5	65.002	65.003	75.548	2458.3	2533.8	0.2678	8.4434	8.7112	**18**
19	0.002 198	0.001 001 6	61.260	61.261	79.734	2455.9	2535.7	0.2822	8.4064	8.6886	**19**
20	0.002 339	0.001 001 8	57.760	57.761	83.920	2453.5	2537.5	0.2965	8.3696	8.6661	**20**
21	0.002 488	0.001 002 1	54.486	54.487	88.105	2451.2	2539.3	0.3108	8.3331	8.6439	**21**
22	0.002 645	0.001 002 3	51.421	51.422	92.289	2448.8	2541.1	0.3250	8.2969	8.6218	**22**
23	0.002 811	0.001 002 5	48.551	48.552	96.473	2446.4	2542.9	0.3391	8.2609	8.6000	**23**
24	0.002 986	0.001 002 8	45.862	45.863	100.66	2444.1	2544.7	0.3532	8.2251	8.5783	**24**
25	0.003 170	0.001 003 0	43.340	43.341	104.84	2441.7	2546.5	0.3673	8.1895	8.5568	**25**
26	0.003 364	0.001 003 3	40.976	40.977	109.02	2439.3	2548.4	0.3813	8.1542	8.5355	**26**
27	0.003 568	0.001 003 5	38.757	38.758	113.20	2437.0	2550.2	0.3952	8.1192	8.5144	**27**
28	0.003 783	0.001 003 8	36.674	36.675	117.38	2434.6	2552.0	0.4091	8.0843	8.4934	**28**
29	0.004 009	0.001 004 1	34.718	34.719	121.56	2432.2	2553.8	0.4230	8.0497	8.4727	**29**
30	0.004 247	0.001 004 4	32.881	32.882	125.75	2429.8	2555.6	0.4368	8.0153	8.4521	**30**
31	0.004 497	0.001 004 7	31.153	31.154	129.93	2427.5	2557.4	0.4506	7.9812	8.4317	**31**
32	0.004 759	0.001 005 0	29.528	29.529	134.11	2425.1	2559.2	0.4643	7.9472	8.4115	**32**
33	0.005 035	0.001 005 4	28.000	28.001	138.29	2422.7	2561.0	0.4780	7.9135	8.3914	**33**
34	0.005 325	0.001 005 7	26.561	26.562	142.47	2420.3	2562.8	0.4916	7.8800	8.3715	**34**
35	0.005 629	0.001 006 0	25.207	25.208	146.64	2417.9	2564.6	0.5052	7.8467	8.3518	**35**
36	0.005 947	0.001 006 4	23.931	23.932	150.82	2415.6	2566.4	0.5187	7.8136	8.3323	**36**
37	0.006 282	0.001 006 8	22.728	22.729	155.00	2413.2	2568.2	0.5322	7.7807	8.3129	**37**
38	0.006 632	0.001 007 1	21.594	21.595	159.18	2410.8	2570.0	0.5457	7.7480	8.2936	**38**
39	0.007 000	0.001 007 5	20.525	20.526	163.36	2408.4	2571.8	0.5591	7.7155	8.2746	**39**
40	0.007 384	0.001 007 9	19.516	19.517	167.54	2406.0	2573.5	0.5724	7.6832	8.2557	**40**
41	0.007 787	0.001 008 3	18.564	18.565	171.72	2403.6	2575.3	0.5858	7.6512	8.2369	**41**
42	0.008 209	0.001 008 7	17.664	17.665	175.90	2401.2	2577.1	0.5990	7.6193	8.2183	**42**
43	0.008 650	0.001 009 1	16.815	16.816	180.08	2398.8	2578.9	0.6123	7.5876	8.1999	**43**
44	0.009 112	0.001 009 5	16.012	16.013	184.26	2396.4	2580.7	0.6255	7.5561	8.1816	**44**
45	0.009 594	0.001 009 9	15.252	15.253	188.44	2394.0	2582.5	0.6386	7.5248	8.1634	**45**
46	0.010 099	0.001 010 3	14.534	14.535	192.62	2391.6	2584.2	0.6517	7.4937	8.1454	**46**
47	0.010 626	0.001 010 8	13.855	13.856	196.80	2389.2	2586.0	0.6648	7.4628	8.1276	**47**
48	0.011 176	0.001 011 2	13.212	13.213	200.98	2386.8	2587.8	0.6778	7.4320	8.1099	**48**
49	0.011 751	0.001 011 7	12.603	12.604	205.16	2384.4	2589.5	0.6908	7.4015	8.0923	**49**
50	0.012 351	0.001 012 1	12.027	12.028	209.34	2382.0	2591.3	0.7038	7.3711	8.0749	**50**
51	0.012 977	0.001 012 6	11.481	11.482	213.52	2379.6	2593.1	0.7167	7.3409	8.0576	**51**
52	0.013 631	0.001 013 1	10.963	10.964	217.70	2377.1	2594.8	0.7296	7.3109	8.0405	**52**
53	0.014 312	0.001 013 6	10.472	10.473	221.88	2374.7	2596.6	0.7424	7.2811	8.0235	**53**
54	0.015 022	0.001 014 0	10.006	10.007	226.06	2372.3	2598.4	0.7552	7.2514	8.0066	**54**
55	0.015 761	0.001 014 5	9.5639	9.5649	230.24	2369.9	2600.1	0.7680	7.2219	7.9899	**55**

**Values in italics indicate points where the thermodynamic equilibrium state is a solid; computed values are for the metastable liquid.*

Table S-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°C)	Pressure MPa	Volume, m^3/kg v_L	Δv	v_V	Enthalpy, kJ/kg h_L	Δh	h_V	Entropy, kJ/(kg·K) s_L	Δs	s_V	t (°C)
56	0.016 532	0.001 015 0	9.1444	9.1454	234.42	2367.4	2601.9	0.7807	7.1926	7.9733	**56**
57	0.017 335	0.001 015 5	8.7461	8.7471	238.61	2365.0	2603.6	0.7934	7.1634	7.9568	**57**
58	0.018 171	0.001 016 1	8.3678	8.3688	242.79	2362.6	2605.4	0.8060	7.1344	7.9405	**58**
59	0.019 041	0.001 016 6	8.0083	8.0093	246.97	2360.1	2607.1	0.8186	7.1056	7.9243	**59**
60	0.019 946	0.001 017 1	7.6666	7.6677	251.15	2357.7	2608.8	0.8312	7.0770	7.9082	**60**
61	0.020 887	0.001 017 6	7.3418	7.3428	255.34	2355.2	2610.6	0.8438	7.0485	7.8922	**61**
62	0.021 866	0.001 018 2	7.0328	7.0338	259.52	2352.8	2612.3	0.8563	7.0201	7.8764	**62**
63	0.022 884	0.001 018 7	6.7389	6.7399	263.71	2350.3	2614.1	0.8687	6.9919	7.8607	**63**
64	0.023 942	0.001 019 3	6.4591	6.4601	267.89	2347.9	2615.8	0.8811	6.9639	7.8451	**64**
65	0.025 041	0.001 019 9	6.1928	6.1938	272.08	2345.4	2617.5	0.8935	6.9361	7.8296	**65**
66	0.026 183	0.001 020 4	5.9392	5.9402	276.27	2343.0	2619.2	0.9059	6.9083	7.8142	**66**
67	0.027 368	0.001 021 0	5.6976	5.6986	280.45	2340.5	2621.0	0.9182	6.8808	7.7990	**67**
68	0.028 599	0.001 021 6	5.4674	5.4684	284.64	2338.0	2622.7	0.9305	6.8534	7.7839	**68**
69	0.029 876	0.001 022 2	5.2479	5.2490	288.83	2335.6	2624.4	0.9428	6.8261	7.7689	**69**
70	0.031 201	0.001 022 8	5.0387	5.0397	293.02	2333.1	2626.1	0.9550	6.7990	7.7540	**70**
71	0.032 575	0.001 023 4	4.8392	4.8402	297.21	2330.6	2627.8	0.9672	6.7720	7.7392	**71**
72	0.034 000	0.001 024 0	4.6488	4.6498	301.40	2328.1	2629.5	0.9793	6.7452	7.7245	**72**
73	0.035 478	0.001 024 6	4.4671	4.4681	305.59	2325.6	2631.2	0.9915	6.7185	7.7100	**73**
74	0.037 009	0.001 025 2	4.2937	4.2947	309.78	2323.1	2632.9	1.0035	6.6920	7.6955	**74**
75	0.038 595	0.001 025 8	4.1281	4.1291	313.97	2320.6	2634.6	1.0156	6.6656	7.6812	**75**
76	0.040 239	0.001 026 5	3.9699	3.9709	318.17	2318.1	2636.3	1.0276	6.6393	7.6669	**76**
77	0.041 941	0.001 027 1	3.8188	3.8198	322.36	2315.6	2638.0	1.0396	6.6132	7.6528	**77**
78	0.043 703	0.001 027 7	3.6743	3.6754	326.56	2313.1	2639.7	1.0516	6.5872	7.6388	**78**
79	0.045 527	0.001 028 4	3.5363	3.5373	330.75	2310.6	2641.3	1.0635	6.5613	7.6248	**79**
80	0.047 415	0.001 029 0	3.4042	3.4053	334.95	2308.1	2643.0	1.0754	6.5356	7.6110	**80**
81	0.049 368	0.001 029 7	3.2780	3.2790	339.15	2305.5	2644.7	1.0873	6.5100	7.5973	**81**
82	0.051 387	0.001 030 4	3.1572	3.1582	343.34	2303.0	2646.4	1.0991	6.4846	7.5837	**82**
83	0.053 476	0.001 031 0	3.0415	3.0426	347.54	2300.5	2648.0	1.1109	6.4592	7.5701	**83**
84	0.055 636	0.001 031 7	2.9309	2.9319	351.74	2297.9	2649.7	1.1227	6.4340	7.5567	**84**
85	0.057 867	0.001 032 4	2.8249	2.8259	355.95	2295.4	2651.3	1.1344	6.4090	7.5434	**85**
86	0.060 174	0.001 033 1	2.7234	2.7244	360.15	2292.8	2653.0	1.1461	6.3840	7.5301	**86**
87	0.062 556	0.001 033 8	2.6262	2.6272	364.35	2290.3	2654.6	1.1578	6.3592	7.5170	**87**
88	0.065 017	0.001 034 5	2.5330	2.5341	368.56	2287.7	2656.3	1.1694	6.3345	7.5039	**88**
89	0.067 559	0.001 035 2	2.4437	2.4448	372.76	2285.1	2657.9	1.1811	6.3099	7.4909	**89**
90	0.070 182	0.001 035 9	2.3581	2.3591	376.97	2282.6	2659.5	1.1927	6.2854	7.4781	**90**
91	0.072 890	0.001 036 7	2.2760	2.2771	381.18	2280.0	2661.2	1.2042	6.2611	7.4653	**91**
92	0.075 685	0.001 037 4	2.1973	2.1983	385.38	2277.4	2662.8	1.2158	6.2368	7.4526	**92**
93	0.078 568	0.001 038 1	2.1217	2.1228	389.59	2274.8	2664.4	1.2273	6.2127	7.4400	**93**
94	0.081 542	0.001 038 9	2.0492	2.0502	393.81	2272.2	2666.0	1.2387	6.1887	7.4275	**94**
95	0.084 609	0.001 039 6	1.9796	1.9806	398.02	2269.6	2667.6	1.2502	6.1648	7.4150	**95**
96	0.087 771	0.001 040 4	1.9128	1.9138	402.23	2267.0	2669.2	1.2616	6.1411	7.4027	**96**
97	0.091 031	0.001 041 1	1.8486	1.8497	406.45	2264.4	2670.8	1.2730	6.1174	7.3904	**97**
98	0.094 390	0.001 041 9	1.7870	1.7880	410.66	2261.7	2672.4	1.2844	6.0938	7.3782	**98**
99	0.097 852	0.001 042 7	1.7277	1.7288	414.88	2259.1	2674.0	1.2957	6.0704	7.3661	**99**
100	0.101 42	0.001 043 5	1.6708	1.6719	419.10	2256.5	2675.6	1.3070	6.0471	7.3541	**100**
101	0.105 09	0.001 044 2	1.6161	1.6171	423.32	2253.8	2677.1	1.3183	6.0238	7.3421	**101**
102	0.108 87	0.001 045 0	1.5635	1.5645	427.54	2251.2	2678.7	1.3296	6.0007	7.3303	**102**
103	0.112 77	0.001 045 8	1.5129	1.5140	431.76	2248.5	2680.3	1.3408	5.9777	7.3185	**103**
104	0.116 78	0.001 046 6	1.4642	1.4653	435.99	2245.9	2681.8	1.3520	5.9548	7.3068	**104**
105	0.120 90	0.001 047 4	1.4174	1.4185	440.21	2243.2	2683.4	1.3632	5.9320	7.2951	**105**
106	0.125 15	0.001 048 3	1.3724	1.3734	444.44	2240.5	2684.9	1.3743	5.9092	7.2836	**106**
107	0.129 51	0.001 049 1	1.3290	1.3301	448.67	2237.8	2686.5	1.3854	5.8866	7.2721	**107**
108	0.134 01	0.001 049 9	1.2873	1.2883	452.90	2235.1	2688.0	1.3965	5.8641	7.2607	**108**
109	0.138 63	0.001 050 7	1.2471	1.2481	457.13	2232.4	2689.5	1.4076	5.8417	7.2493	**109**
110	0.143 38	0.001 051 6	1.2083	1.2094	461.36	2229.7	2691.1	1.4187	5.8194	7.2380	**110**
111	0.148 26	0.001 052 4	1.1710	1.1721	465.60	2227.0	2692.6	1.4297	5.7972	7.2268	**111**
112	0.153 28	0.001 053 3	1.1351	1.1362	469.83	2224.3	2694.1	1.4407	5.7750	7.2157	**112**
113	0.158 43	0.001 054 1	1.1005	1.1015	474.07	2221.5	2695.6	1.4517	5.7530	7.2047	**113**
114	0.163 73	0.001 055 0	1.0671	1.0681	478.31	2218.8	2697.1	1.4626	5.7310	7.1937	**114**
115	0.169 18	0.001 055 9	1.0349	1.0359	482.55	2216.0	2698.6	1.4735	5.7092	7.1827	**115**

Table S-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°C)	Pressure MPa	Volume, m³/kg v_L	Δv	v_V	Enthalpy, kJ/kg h_L	Δh	h_V	Entropy, kJ/(kg·K) s_L	Δs	s_V	t (°C)
116	0.174 77	0.001 056 8	1.0038	1.0049	486.80	2213.3	2700.1	1.4844	5.6874	7.1719	**116**
117	0.180 51	0.001 057 6	0.973 90	0.974 95	491.04	2210.5	2701.5	1.4953	5.6658	7.1611	**117**
118	0.186 40	0.001 058 5	0.945 01	0.946 07	495.29	2207.7	2703.0	1.5062	5.6442	7.1504	**118**
119	0.192 45	0.001 059 4	0.917 14	0.918 20	499.53	2204.9	2704.5	1.5170	5.6227	7.1397	**119**
120	0.198 67	0.001 060 3	0.890 24	0.891 30	503.78	2202.1	2705.9	1.5278	5.6013	7.1291	**120**
121	0.205 04	0.001 061 2	0.864 28	0.865 34	508.04	2199.3	2707.4	1.5386	5.5800	7.1186	**121**
122	0.211 58	0.001 062 2	0.839 21	0.840 28	512.29	2196.5	2708.8	1.5494	5.5587	7.1081	**122**
123	0.218 29	0.001 063 1	0.815 01	0.816 07	516.55	2193.7	2710.3	1.5601	5.5376	7.0977	**123**
124	0.225 17	0.001 064 0	0.791 63	0.792 69	520.80	2190.9	2711.7	1.5708	5.5165	7.0873	**124**
125	0.232 22	0.001 064 9	0.769 05	0.770 11	525.06	2188.0	2713.1	1.5815	5.4955	7.0770	**125**
126	0.239 46	0.001 065 9	0.747 23	0.748 29	529.32	2185.2	2714.5	1.5922	5.4746	7.0668	**126**
127	0.246 88	0.001 066 8	0.726 14	0.727 21	533.59	2182.3	2715.9	1.6028	5.4538	7.0566	**127**
128	0.254 48	0.001 067 8	0.705 76	0.706 83	537.85	2179.5	2717.3	1.6134	5.4330	7.0465	**128**
129	0.262 27	0.001 068 7	0.686 06	0.687 13	542.12	2176.6	2718.7	1.6240	5.4124	7.0364	**129**
130	0.270 26	0.001 069 7	0.667 01	0.668 08	546.39	2173.7	2720.1	1.6346	5.3918	7.0264	**130**
131	0.278 44	0.001 070 7	0.648 59	0.649 66	550.66	2170.8	2721.5	1.6452	5.3713	7.0165	**131**
132	0.286 82	0.001 071 7	0.630 78	0.631 85	554.93	2167.9	2722.8	1.6557	5.3508	7.0066	**132**
133	0.295 41	0.001 072 7	0.613 54	0.614 61	559.21	2165.0	2724.2	1.6662	5.3305	6.9967	**133**
134	0.304 20	0.001 073 6	0.596 87	0.597 94	563.49	2162.0	2725.5	1.6767	5.3102	6.9869	**134**
135	0.313 20	0.001 074 7	0.580 73	0.581 80	567.77	2159.1	2726.9	1.6872	5.2900	6.9772	**135**
136	0.322 42	0.001 075 7	0.565 11	0.566 18	572.05	2156.2	2728.2	1.6977	5.2698	6.9675	**136**
137	0.331 85	0.001 076 7	0.549 99	0.551 06	576.33	2153.2	2729.5	1.7081	5.2498	6.9579	**137**
138	0.341 51	0.001 077 7	0.535 35	0.536 42	580.62	2150.2	2730.8	1.7185	5.2298	6.9483	**138**
139	0.351 39	0.001 078 7	0.521 17	0.522 25	584.91	2147.2	2732.1	1.7289	5.2098	6.9388	**139**
140	0.361 50	0.001 079 8	0.507 44	0.508 52	589.20	2144.2	2733.4	1.7393	5.1900	6.9293	**140**
141	0.371 85	0.001 080 8	0.494 14	0.495 22	593.49	2141.2	2734.7	1.7496	5.1702	6.9198	**141**
142	0.382 43	0.001 081 9	0.481 25	0.482 33	597.79	2138.2	2736.0	1.7600	5.1505	6.9105	**142**
143	0.393 25	0.001 082 9	0.468 77	0.469 85	602.09	2135.2	2737.3	1.7703	5.1308	6.9011	**143**
144	0.404 32	0.001 084 0	0.456 66	0.457 75	606.39	2132.2	2738.5	1.7806	5.1112	6.8918	**144**
145	0.415 63	0.001 085 0	0.444 93	0.446 02	610.69	2129.1	2739.8	1.7909	5.0917	6.8826	**145**
146	0.427 21	0.001 086 1	0.433 56	0.434 65	615.00	2126.0	2741.0	1.8011	5.0723	6.8734	**146**
147	0.439 03	0.001 087 2	0.422 54	0.423 62	619.31	2123.0	2742.3	1.8114	5.0529	6.8642	**147**
148	0.451 12	0.001 088 3	0.411 84	0.412 93	623.62	2119.9	2743.5	1.8216	5.0335	6.8551	**148**
149	0.463 48	0.001 089 4	0.401 47	0.402 56	627.93	2116.8	2744.7	1.8318	5.0143	6.8461	**149**
150	0.476 10	0.001 090 5	0.391 41	0.392 50	632.25	2113.7	2745.9	1.8420	4.9951	6.8370	**150**
152	0.502 18	0.001 092 7	0.372 18	0.373 27	640.89	2107.4	2748.3	1.8623	4.9569	6.8191	**152**
154	0.529 38	0.001 095 0	0.354 07	0.355 16	649.55	2101.1	2750.6	1.8825	4.9189	6.8014	**154**
156	0.557 76	0.001 097 3	0.337 00	0.338 09	658.21	2094.7	2752.9	1.9027	4.8811	6.7838	**156**
158	0.587 33	0.001 099 6	0.320 90	0.322 00	666.89	2088.3	2755.2	1.9228	4.8436	6.7664	**158**
160	0.618 14	0.001 102 0	0.305 72	0.306 82	675.57	2081.9	2757.4	1.9428	4.8063	6.7491	**160**
162	0.650 22	0.001 104 4	0.291 38	0.292 49	684.28	2075.3	2759.6	1.9627	4.7693	6.7320	**162**
164	0.683 62	0.001 106 8	0.277 84	0.278 95	692.99	2068.8	2761.7	1.9826	4.7324	6.7150	**164**
166	0.718 36	0.001 109 3	0.265 05	0.266 16	701.71	2062.1	2763.8	2.0025	4.6957	6.6982	**166**
168	0.754 50	0.001 111 7	0.252 95	0.254 06	710.45	2055.4	2765.9	2.0222	4.6593	6.6815	**168**
170	0.792 05	0.001 114 3	0.241 50	0.242 62	719.21	2048.7	2767.9	2.0419	4.6230	6.6649	**170**
172	0.831 08	0.001 116 8	0.230 67	0.231 78	727.97	2041.9	2769.9	2.0616	4.5870	6.6485	**172**
174	0.871 61	0.001 119 4	0.220 41	0.221 53	736.75	2035.0	2771.8	2.0811	4.5511	6.6322	**174**
176	0.913 68	0.001 122 0	0.210 69	0.211 81	745.55	2028.1	2773.6	2.1007	4.5154	6.6161	**176**
178	0.957 34	0.001 124 7	0.201 47	0.202 60	754.36	2021.1	2775.4	2.1201	4.4799	6.6000	**178**
180	1.0026	0.001 127 4	0.192 73	0.193 86	763.19	2014.0	2777.2	2.1395	4.4445	6.5841	**180**
182	1.0496	0.001 130 1	0.184 44	0.185 57	772.03	2006.9	2778.9	2.1589	4.4094	6.5682	**182**
184	1.0983	0.001 132 9	0.176 57	0.177 70	780.89	1999.7	2780.6	2.1782	4.3743	6.5525	**184**
186	1.1487	0.001 135 7	0.169 09	0.170 23	789.76	1992.5	2782.2	2.1974	4.3395	6.5369	**186**
188	1.2009	0.001 138 6	0.161 99	0.163 13	798.66	1985.1	2783.8	2.2166	4.3048	6.5214	**188**
190	1.2550	0.001 141 4	0.155 24	0.156 38	807.57	1977.7	2785.3	2.2358	4.2702	6.5060	**190**
192	1.3110	0.001 144 4	0.148 81	0.149 96	816.49	1970.3	2786.8	2.2549	4.2358	6.4907	**192**
194	1.3689	0.001 147 3	0.142 70	0.143 85	825.44	1962.7	2788.2	2.2739	4.2015	6.4755	**194**
196	1.4288	0.001 150 4	0.136 88	0.138 03	834.40	1955.1	2789.5	2.2929	4.1674	6.4603	**196**
198	1.4907	0.001 153 4	0.131 34	0.132 50	843.39	1947.4	2790.8	2.3119	4.1334	6.4453	**198**
200	1.5547	0.001 156 5	0.126 07	0.127 22	852.39	1939.7	2792.1	2.3308	4.0995	6.4303	**200**

Table S-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°C)	Pressure MPa	Volume, m^3/kg v_L	Δv	v_V	Enthalpy, kJ/kg h_L	Δh	h_V	Entropy, kJ/(kg·K) s_L	Δs	s_V	t (°C)
202	1.6208	0.001 160	0.121 04	0.122 20	861.42	1931.8	2793.2	2.3497	4.0657	6.4154	**202**
204	1.6891	0.001 163	0.116 24	0.117 40	870.46	1923.9	2794.4	2.3685	4.0321	6.4006	**204**
206	1.7596	0.001 166	0.111 66	0.112 83	879.53	1915.9	2795.4	2.3873	3.9985	6.3858	**206**
208	1.8323	0.001 169	0.107 30	0.108 47	888.62	1907.8	2796.4	2.4060	3.9651	6.3711	**208**
210	1.9074	0.001 173	0.103 13	0.104 30	897.73	1899.6	2797.4	2.4248	3.9318	6.3565	**210**
212	1.9848	0.001 176	0.099 15	0.100 32	906.86	1891.4	2798.2	2.4434	3.8985	6.3420	**212**
214	2.0647	0.001 180	0.095 345	0.096 525	916.02	1883.0	2799.0	2.4621	3.8654	6.3275	**214**
216	2.1470	0.001 183	0.091 710	0.092 893	925.20	1874.6	2799.8	2.4807	3.8323	6.3130	**216**
218	2.2319	0.001 187	0.088 235	0.089 421	934.41	1866.0	2800.4	2.4993	3.7993	6.2986	**218**
220	2.3193	0.001 190	0.084 911	0.086 101	943.64	1857.4	2801.1	2.5178	3.7664	6.2842	**220**
222	2.4093	0.001 194	0.081 730	0.082 924	952.90	1848.7	2801.6	2.5363	3.7336	6.2699	**222**
224	2.5020	0.001 198	0.078 685	0.079 883	962.19	1839.9	2802.1	2.5548	3.7008	6.2557	**224**
226	2.5975	0.001 201	0.075 770	0.076 971	971.50	1830.9	2802.4	2.5733	3.6681	6.2414	**226**
228	2.6957	0.001 205	0.072 977	0.074 182	980.84	1821.9	2802.8	2.5917	3.6355	6.2272	**228**
230	2.7968	0.001 209	0.070 301	0.071 510	990.21	1812.8	2803.0	2.6102	3.6029	6.2131	**230**
232	2.9008	0.001 213	0.067 736	0.068 949	999.61	1803.6	2803.2	2.6285	3.5704	6.1989	**232**
234	3.0077	0.001 217	0.065 277	0.066 494	1009.0	1794.2	2803.3	2.6469	3.5379	6.1848	**234**
236	3.1176	0.001 221	0.062 917	0.064 138	1018.5	1784.8	2803.3	2.6653	3.5054	6.1707	**236**
238	3.2306	0.001 225	0.060 654	0.061 879	1028.0	1775.2	2803.2	2.6836	3.4730	6.1566	**238**
240	3.3467	0.001 229	0.058 481	0.059 710	1037.5	1765.5	2803.1	2.7019	3.4406	6.1425	**240**
242	3.4659	0.001 234	0.056 394	0.057 628	1047.1	1755.7	2802.8	2.7203	3.4082	6.1285	**242**
244	3.5884	0.001 238	0.054 390	0.055 628	1056.7	1745.8	2802.5	2.7385	3.3759	6.1144	**244**
246	3.7142	0.001 243	0.052 465	0.053 707	1066.3	1735.8	2802.1	2.7568	3.3435	6.1003	**246**
248	3.8434	0.001 247	0.050 614	0.051 861	1076.0	1725.6	2801.6	2.7751	3.3112	6.0863	**248**
250	3.9759	0.001 252	0.048 835	0.050 087	1085.7	1715.3	2801.0	2.7934	3.2788	6.0722	**250**
252	4.1120	0.001 256	0.047 124	0.048 380	1095.4	1704.9	2800.3	2.8117	3.2465	6.0582	**252**
254	4.2515	0.001 261	0.045 477	0.046 739	1105.2	1694.3	2799.6	2.8299	3.2141	6.0441	**254**
256	4.3947	0.001 266	0.043 893	0.045 159	1115.0	1683.6	2798.7	2.8482	3.1818	6.0300	**256**
258	4.5415	0.001 271	0.042 368	0.043 639	1124.9	1672.8	2797.7	2.8664	3.1494	6.0158	**258**
260	4.6921	0.001 276	0.040 899	0.042 175	1134.8	1661.8	2796.6	2.8847	3.1170	6.0017	**260**
262	4.8464	0.001 281	0.039 485	0.040 766	1144.8	1650.7	2795.5	2.9030	3.0845	5.9875	**262**
264	5.0046	0.001 287	0.038 122	0.039 408	1154.8	1639.4	2794.2	2.9213	3.0520	5.9733	**264**
266	5.1667	0.001 292	0.036 808	0.038 100	1164.8	1628.0	2792.8	2.9396	3.0195	5.9590	**266**
268	5.3327	0.001 297	0.035 541	0.036 839	1174.9	1616.4	2791.3	2.9579	2.9869	5.9448	**268**
270	5.5028	0.001 303	0.034 319	0.035 622	1185.1	1604.6	2789.7	2.9762	2.9542	5.9304	**270**
272	5.6771	0.001 309	0.033 141	0.034 450	1195.3	1592.7	2788.0	2.9945	2.9215	5.9160	**272**
274	5.8555	0.001 315	0.032 003	0.033 318	1205.6	1580.6	2786.1	3.0129	2.8887	5.9016	**274**
276	6.0381	0.001 321	0.030 905	0.032 226	1215.9	1568.3	2784.1	3.0312	2.8558	5.8871	**276**
278	6.2251	0.001 327	0.029 845	0.031 172	1226.2	1555.8	2782.0	3.0496	2.8228	5.8725	**278**
280	6.4165	0.001 333	0.028 821	0.030 154	1236.7	1543.2	2779.8	3.0681	2.7898	5.8578	**280**
282	6.6123	0.001 339	0.027 832	0.029 171	1247.2	1530.3	2777.5	3.0865	2.7566	5.8431	**282**
284	6.8126	0.001 346	0.026 875	0.028 221	1257.7	1517.3	2775.0	3.1050	2.7232	5.8283	**284**
286	7.0176	0.001 352	0.025 950	0.027 303	1268.3	1504.0	2772.3	3.1236	2.6898	5.8134	**286**
288	7.2272	0.001 359	0.025 056	0.026 415	1279.0	1490.5	2769.6	3.1421	2.6562	5.7984	**288**
290	7.4416	0.001 366	0.024 191	0.025 557	1289.8	1476.8	2766.6	3.1608	2.6225	5.7832	**290**
292	7.6609	0.001 373	0.023 353	0.024 727	1300.6	1462.9	2763.6	3.1794	2.5886	5.7680	**292**
294	7.8850	0.001 381	0.022 542	0.023 923	1311.5	1448.8	2760.3	3.1982	2.5545	5.7526	**294**
296	8.1142	0.001 388	0.021 757	0.023 145	1322.5	1434.4	2756.9	3.2170	2.5202	5.7372	**296**
298	8.3484	0.001 396	0.020 996	0.022 392	1333.6	1419.7	2753.3	3.2358	2.4857	5.7215	**298**
300	8.5877	0.001 404	0.020 259	0.021 663	1344.8	1404.8	2749.6	3.2547	2.4510	5.7058	**300**
302	8.8323	0.001 412	0.019 544	0.020 956	1356.0	1389.6	2745.6	3.2737	2.4161	5.6898	**302**
304	9.0822	0.001 421	0.018 851	0.020 272	1367.4	1374.1	2741.5	3.2928	2.3809	5.6737	**304**
306	9.3375	0.001 430	0.018 178	0.019 608	1378.8	1358.4	2737.2	3.3120	2.3455	5.6575	**306**
308	9.5983	0.001 439	0.017 525	0.018 964	1390.4	1342.3	2732.7	3.3312	2.3098	5.6410	**308**
310	9.8647	0.001 448	0.016 891	0.018 339	1402.0	1325.9	2727.9	3.3506	2.2737	5.6243	**310**
312	10.137	0.001 457	0.016 275	0.017 732	1413.8	1309.2	2723.0	3.3700	2.2374	5.6074	**312**
314	10.415	0.001 467	0.015 676	0.017 144	1425.6	1292.1	2717.8	3.3896	2.2007	5.5903	**314**
316	10.698	0.001 478	0.015 094	0.016 572	1437.6	1274.7	2712.3	3.4093	2.1636	5.5729	**316**
318	10.988	0.001 488	0.014 528	0.016 016	1449.8	1256.8	2706.6	3.4291	2.1261	5.5553	**318**
320	11.284	0.001 499	0.013 977	0.015 476	1462.1	1238.6	2700.7	3.4491	2.0882	5.5373	**320**

Table S-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°C)	Pressure MPa	Volume, m^3/kg v_L	Δv	v_V	Enthalpy, kJ/kg h_L	Δh	h_V	Entropy, kJ/(kg·K) s_L	Δs	s_V	t (°C)
322	11.586	0.001 510	0.013 440	0.014 951	1474.5	1220.0	2694.4	3.4692	2.0498	5.5191	**322**
324	11.894	0.001 522	0.012 917	0.014 439	1487.0	1200.8	2687.9	3.4895	2.0110	5.5005	**324**
326	12.209	0.001 534	0.012 407	0.013 941	1499.8	1181.3	2681.0	3.5100	1.9715	5.4816	**326**
328	12.530	0.001 547	0.011 909	0.013 457	1512.7	1161.2	2673.8	3.5307	1.9316	5.4622	**328**
330	12.858	0.001 561	0.011 423	0.012 984	1525.7	1140.5	2666.2	3.5516	1.8909	5.4425	**330**
332	13.192	0.001 575	0.010 949	0.012 523	1539.0	1119.3	2658.3	3.5727	1.8496	5.4223	**332**
334	13.533	0.001 589	0.010 484	0.012 073	1552.5	1097.4	2649.9	3.5940	1.8075	5.4016	**334**
336	13.882	0.001 604	0.010 029	0.011 634	1566.2	1074.9	2641.1	3.6157	1.7646	5.3803	**336**
338	14.237	0.001 621	0.009 584	0.011 204	1580.2	1051.7	2631.9	3.6376	1.7208	5.3584	**338**
340	14.600	0.001 638	0.009 146	0.010 784	1594.4	1027.6	2622.1	3.6599	1.6760	5.3359	**340**
342	14.970	0.001 655	0.008 717	0.010 372	1609.0	1002.7	2611.7	3.6826	1.6300	5.3127	**342**
344	15.348	0.001 675	0.008 294	0.009 969	1623.9	976.87	2600.7	3.7058	1.5829	5.2886	**344**
346	15.734	0.001 695	0.007 878	0.009 573	1639.1	950.00	2589.1	3.7294	1.5344	5.2637	**346**
348	16.127	0.001 717	0.007 467	0.009 184	1654.8	921.99	2576.7	3.7535	1.4843	5.2378	**348**
350	16.529	0.001 740	0.007 061	0.008 801	1670.9	892.73	2563.6	3.7783	1.4326	5.2109	**350**
352	16.939	0.001 765	0.006 659	0.008 424	1687.5	862.02	2549.6	3.8039	1.3789	5.1828	**352**
354	17.358	0.001 793	0.006 258	0.008 051	1704.8	829.63	2534.4	3.8302	1.3229	5.1531	**354**
356	17.785	0.001 823	0.005 858	0.007 681	1722.8	795.33	2518.1	3.8577	1.2641	5.1218	**356**
358	18.221	0.001 857	0.005 456	0.007 313	1741.6	758.77	2500.4	3.8863	1.2022	5.0885	**358**
360	18.666	0.001 895	0.005 050	0.006 945	1761.5	719.50	2481.0	3.9164	1.1364	5.0527	**360**
361	18.893	0.001 915	0.004 845	0.006 760	1771.9	698.65	2470.5	3.9321	1.1017	5.0338	**361**
362	19.121	0.001 937	0.004 637	0.006 574	1782.6	676.87	2459.5	3.9483	1.0657	5.0140	**362**
363	19.352	0.001 961	0.004 425	0.006 387	1793.8	654.01	2447.8	3.9651	1.0281	4.9932	**363**
364	19.586	0.001 987	0.004 210	0.006 197	1805.4	629.93	2435.3	3.9827	0.9887	4.9714	**364**
365	19.822	0.002 016	0.003 989	0.006 004	1817.6	604.41	2422.0	4.0011	0.9471	4.9482	**365**
366	20.061	0.002 047	0.003 761	0.005 808	1830.4	577.19	2407.6	4.0204	0.9031	4.9235	**366**
367	20.302	0.002 082	0.003 524	0.005 606	1844.1	547.89	2392.0	4.0410	0.8559	4.8968	**367**
368	20.546	0.002 122	0.003 276	0.005 398	1858.8	515.99	2374.8	4.0631	0.8048	4.8679	**368**
369	20.793	0.002 167	0.003 012	0.005 179	1874.8	480.72	2355.5	4.0872	0.7486	4.8358	**369**
370	21.043	0.002 222	0.002 724	0.004 946	1892.6	440.86	2333.5	4.1142	0.6855	4.7996	**370**
371	21.296	0.002 290	0.002 401	0.004 691	1913.3	394.20	2307.5	4.1453	0.6120	4.7573	**371**
372	21.553	0.002 382	0.002 017	0.004 398	1938.5	336.15	2274.7	4.1836	0.5210	4.7046	**372**
373	21.813	0.002 526	0.001 495	0.004 021	1974.1	253.42	2227.6	4.2377	0.3922	4.6299	**373**
373.5	21.945	0.002 658	0.001 087	0.003 745	2003.0	186.19	2189.1	4.2818	0.2879	4.5697	**373.5**
T_c	22.064	0.003 106	0.	0.003 106	2087.5	0.	2087.5	4.4120	0.	4.4120	T_c

T_c = 373.946 °C

Table S-2. Properties of Saturated Water and Steam (Pressure)

p		Volume, m^3/kg			Enthalpy, kJ/kg			Entropy, kJ/(kg·K)			p
MPa	t (°C)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**MPa**
$*p_t$	0.010	0.001 000 2	206.00	206.00	0.001	2500.9	2500.9	0.0000	9.1555	9.1555	$*p_t$
0.0007	1.881	0.001 000 1	181.22	181.22	7.890	2496.5	2504.3	0.0288	9.0770	9.1058	**0.0007**
0.0008	3.761	0.001 000 1	159.65	159.65	15.809	2492.0	2507.8	0.0575	8.9992	9.0567	**0.0008**
0.0009	5.444	0.001 000 1	142.76	142.76	22.888	2488.0	2510.9	0.0830	8.9305	9.0135	**0.0009**
0.0010	6.970	0.001 000 1	129.18	129.18	29.298	2484.4	2513.7	0.1059	8.8690	8.9749	**0.0010**
0.0012	9.654	0.001 000 3	108.67	108.67	40.569	2478.0	2518.6	0.1460	8.7624	8.9083	**0.0012**
0.0014	11.969	0.001 000 5	93.902	93.903	50.282	2472.5	2522.8	0.1802	8.6720	8.8521	**0.0014**
0.0016	14.010	0.001 000 8	82.745	82.746	58.836	2467.7	2526.6	0.2101	8.5935	8.8036	**0.0016**
0.0018	15.838	0.001 001 1	74.013	74.014	66.494	2463.4	2529.9	0.2366	8.5242	8.7609	**0.0018**
0.0020	17.495	0.001 001 4	66.989	66.990	73.435	2459.5	2532.9	0.2606	8.4621	8.7227	**0.0020**
0.0022	19.013	0.001 001 6	61.212	61.213	79.790	2455.9	2535.7	0.2824	8.4059	8.6883	**0.0022**
0.0024	20.415	0.001 001 9	56.376	56.377	85.656	2452.6	2538.2	0.3024	8.3545	8.6569	**0.0024**
0.0026	21.718	0.001 002 2	52.266	52.267	91.108	2449.5	2540.6	0.3210	8.3071	8.6280	**0.0026**
0.0028	22.936	0.001 002 5	48.730	48.731	96.204	2446.6	2542.8	0.3382	8.2632	8.6014	**0.0028**
0.0030	24.080	0.001 002 8	45.654	45.655	100.99	2443.9	2544.9	0.3543	8.2222	8.5766	**0.0030**
0.0032	25.159	0.001 003 0	42.953	42.954	105.51	2441.3	2546.8	0.3695	8.1839	8.5534	**0.0032**
0.0034	26.182	0.001 003 3	40.562	40.563	109.78	2438.9	2548.7	0.3838	8.1479	8.5316	**0.0034**
0.0036	27.153	0.001 003 6	38.431	38.432	113.84	2436.6	2550.4	0.3973	8.1138	8.5112	**0.0036**
0.0038	28.078	0.001 003 8	36.518	36.519	117.71	2434.4	2552.1	0.4102	8.0816	8.4918	**0.0038**
0.0040	28.962	0.001 004 1	34.791	34.792	121.40	2432.3	2553.7	0.4224	8.0510	8.4735	**0.0040**
0.0042	29.808	0.001 004 4	33.225	33.226	124.94	2430.3	2555.2	0.4341	8.0219	8.4561	**0.0042**
0.0044	30.619	0.001 004 6	31.798	31.799	128.33	2428.4	2556.7	0.4453	7.9941	8.4395	**0.0044**
0.0046	31.400	0.001 004 8	30.492	30.493	131.60	2426.5	2558.1	0.4560	7.9676	8.4236	**0.0046**
0.0048	32.151	0.001 005 1	29.292	29.293	134.74	2424.7	2559.5	0.4663	7.9421	8.4084	**0.0048**
0.0050	32.875	0.001 005 3	28.185	28.186	137.77	2423.0	2560.8	0.4763	7.9177	8.3939	**0.0050**
0.0055	34.583	0.001 005 9	25.762	25.763	144.90	2418.9	2563.8	0.4995	7.8605	8.3600	**0.0055**
0.0060	36.160	0.001 006 4	23.733	23.734	151.49	2415.2	2566.7	0.5209	7.8083	8.3291	**0.0060**
0.0065	37.628	0.001 007 0	22.009	22.010	157.63	2411.7	2569.3	0.5407	7.7601	8.3008	**0.0065**
0.0070	39.001	0.001 007 5	20.524	20.525	163.37	2408.4	2571.8	0.5591	7.7155	8.2746	**0.0070**
0.0075	40.292	0.001 008 0	19.233	19.234	168.76	2405.3	2574.1	0.5763	7.6739	8.2502	**0.0075**
0.0080	41.510	0.001 008 5	18.098	18.099	173.85	2402.4	2576.2	0.5925	7.6349	8.2274	**0.0080**
0.0085	42.665	0.001 008 9	17.094	17.095	178.68	2399.6	2578.3	0.6078	7.5982	8.2060	**0.0085**
0.0090	43.762	0.001 009 4	16.199	16.200	183.26	2397.0	2580.3	0.6223	7.5636	8.1859	**0.0090**
0.0095	44.808	0.001 009 8	15.395	15.396	187.63	2394.5	2582.1	0.6361	7.5308	8.1669	**0.0095**
0.010	45.808	0.001 010 3	14.670	14.671	191.81	2392.1	2583.9	0.6492	7.4997	8.1489	**0.010**
0.011	47.684	0.001 011 1	13.411	13.412	199.66	2387.6	2587.2	0.6737	7.4417	8.1155	**0.011**
0.012	49.420	0.001 011 9	12.358	12.359	206.91	2383.4	2590.3	0.6963	7.3887	8.0850	**0.012**
0.013	51.035	0.001 012 6	11.462	11.463	213.66	2379.5	2593.1	0.7172	7.3399	8.0570	**0.013**
0.014	52.548	0.001 013 3	10.690	10.691	219.99	2375.8	2595.8	0.7366	7.2945	8.0312	**0.014**
0.015	53.970	0.001 014 0	10.019	10.020	225.94	2372.4	2598.3	0.7548	7.2523	8.0071	**0.015**
0.016	55.314	0.001 014 7	9.4299	9.4309	231.55	2369.1	2600.7	0.7720	7.2127	7.9847	**0.016**
0.017	56.588	0.001 015 3	8.9079	8.9089	236.88	2366.0	2602.9	0.7882	7.1754	7.9636	**0.017**
0.018	57.799	0.001 016 0	8.4423	8.4433	241.95	2363.1	2605.0	0.8035	7.1403	7.9437	**0.018**
0.019	58.954	0.001 016 6	8.0244	8.0254	246.78	2360.2	2607.0	0.8181	7.1069	7.9250	**0.019**
0.020	60.059	0.001 017 1	7.6471	7.6482	251.40	2357.5	2608.9	0.8320	7.0753	7.9072	**0.020**
0.022	62.133	0.001 018 3	6.9927	6.9938	260.08	2352.5	2612.6	0.8579	7.0164	7.8743	**0.022**
0.024	64.054	0.001 019 3	6.4445	6.4455	268.12	2347.8	2615.9	0.8818	6.9624	7.8442	**0.024**
0.026	65.843	0.001 020 3	5.9783	5.9793	275.61	2343.4	2619.0	0.9040	6.9127	7.8167	**0.026**
0.028	67.518	0.001 021 3	5.5769	5.5779	282.62	2339.2	2621.8	0.9246	6.8666	7.7912	**0.028**
0.030	69.095	0.001 022 2	5.2275	5.2286	289.23	2335.3	2624.6	0.9439	6.8235	7.7675	**0.030**
0.032	70.586	0.001 023 1	4.9206	4.9216	295.47	2331.6	2627.1	0.9621	6.7832	7.7453	**0.032**
0.034	72.000	0.001 024 0	4.6488	4.6498	301.40	2328.1	2629.5	0.9793	6.7452	7.7245	**0.034**
0.036	73.345	0.001 024 8	4.4063	4.4073	307.04	2324.8	2631.8	0.9956	6.7093	7.7050	**0.036**
0.038	74.629	0.001 025 6	4.1886	4.1897	312.42	2321.6	2634.0	1.0111	6.6754	7.6865	**0.038**
0.040	75.857	0.001 026 4	3.9921	3.9931	317.57	2318.5	2636.1	1.0259	6.6431	7.6690	**0.040**

$*p_t$ = 611.657 Pa

Table S-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, m^3/kg			Enthalpy, kJ/kg			Entropy, kJ/(kg·K)			p
MPa	t (°C)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**MPa**
0.042	77.034	0.001 027 1	3.8137	3.8147	322.50	2315.5	2638.0	1.0400	6.6123	7.6523	**0.042**
0.044	78.165	0.001 027 8	3.6511	3.6521	327.25	2312.7	2639.9	1.0535	6.5829	7.6365	**0.044**
0.046	79.254	0.001 028 6	3.5022	3.5032	331.82	2309.9	2641.8	1.0665	6.5548	7.6213	**0.046**
0.048	80.303	0.001 029 2	3.3653	3.3664	336.22	2307.3	2643.5	1.0790	6.5279	7.6068	**0.048**
0.050	81.317	0.001 029 9	3.2391	3.2401	340.48	2304.7	2645.2	1.0910	6.5020	7.5930	**0.050**
0.055	83.709	0.001 031 5	2.9626	2.9636	350.52	2298.7	2649.2	1.1192	6.4414	7.5606	**0.055**
0.060	85.926	0.001 033 1	2.7308	2.7318	359.84	2293.0	2652.9	1.1452	6.3859	7.5311	**0.060**
0.065	87.993	0.001 034 5	2.5337	2.5347	368.53	2287.7	2656.2	1.1694	6.3346	7.5040	**0.065**
0.070	89.932	0.001 035 9	2.3639	2.3649	376.68	2282.7	2659.4	1.1919	6.2871	7.4790	**0.070**
0.075	91.758	0.001 037 2	2.2160	2.2171	384.37	2278.0	2662.4	1.2130	6.2427	7.4557	**0.075**
0.080	93.485	0.001 038 5	2.0862	2.0872	391.64	2273.5	2665.2	1.2328	6.2011	7.4339	**0.080**
0.085	95.125	0.001 039 7	1.9711	1.9721	398.55	2269.3	2667.8	1.2516	6.1618	7.4135	**0.085**
0.090	96.687	0.001 040 9	1.8684	1.8695	405.13	2265.2	2670.3	1.2694	6.1248	7.3942	**0.090**
0.095	98.178	0.001 042 0	1.7762	1.7773	411.42	2261.3	2672.7	1.2864	6.0897	7.3760	**0.095**
0.10	99.606	0.001 043 1	1.6930	1.6940	417.44	2257.5	2674.9	1.3026	6.0562	7.3588	**0.10**
0.11	102.292	0.001 045 3	1.5485	1.5496	428.77	2250.4	2679.2	1.3328	5.9940	7.3268	**0.11**
0.12	104.784	0.001 047 3	1.4274	1.4284	439.30	2243.8	2683.1	1.3608	5.9369	7.2976	**0.12**
0.13	107.109	0.001 049 2	1.3244	1.3254	449.13	2237.5	2686.6	1.3867	5.8842	7.2708	**0.13**
0.14	109.292	0.001 051 0	1.2356	1.2366	458.37	2231.6	2690.0	1.4109	5.8352	7.2460	**0.14**
0.15	111.350	0.001 052 7	1.1583	1.1594	467.08	2226.0	2693.1	1.4335	5.7894	7.2229	**0.15**
0.16	113.298	0.001 054 4	1.0904	1.0914	475.34	2220.7	2696.0	1.4549	5.7464	7.2014	**0.16**
0.17	115.149	0.001 056 0	1.0302	1.0312	483.18	2215.6	2698.8	1.4752	5.7059	7.1811	**0.17**
0.18	116.912	0.001 057 6	0.976 48	0.977 53	490.67	2210.7	2701.4	1.4944	5.6677	7.1620	**0.18**
0.19	118.597	0.001 059 1	0.928 24	0.929 30	497.82	2206.1	2703.9	1.5127	5.6313	7.1440	**0.19**
0.20	120.212	0.001 060 5	0.884 67	0.885 74	504.68	2201.6	2706.2	1.5301	5.5968	7.1269	**0.20**
0.21	121.761	0.001 061 9	0.845 13	0.846 19	511.27	2197.2	2708.5	1.5468	5.5638	7.1106	**0.21**
0.22	123.251	0.001 063 3	0.809 06	0.810 12	517.62	2193.0	2710.6	1.5628	5.5323	7.0951	**0.22**
0.23	124.688	0.001 064 6	0.776 02	0.777 09	523.73	2188.9	2712.7	1.5782	5.5021	7.0802	**0.23**
0.24	126.074	0.001 065 9	0.745 65	0.746 72	529.64	2185.0	2714.6	1.5930	5.4731	7.0660	**0.24**
0.25	127.414	0.001 067 2	0.717 63	0.718 70	535.35	2181.2	2716.5	1.6072	5.4452	7.0524	**0.25**
0.26	128.711	0.001 068 5	0.691 69	0.692 76	540.88	2177.4	2718.3	1.6210	5.4183	7.0393	**0.26**
0.27	129.968	0.001 069 7	0.667 62	0.668 69	546.25	2173.8	2720.0	1.6343	5.3924	7.0267	**0.27**
0.28	131.188	0.001 070 9	0.645 20	0.646 27	551.46	2170.3	2721.7	1.6472	5.3674	7.0146	**0.28**
0.29	132.373	0.001 072 0	0.624 28	0.625 36	556.53	2166.8	2723.3	1.6597	5.3432	7.0029	**0.29**
0.30	133.525	0.001 073 2	0.604 71	0.605 79	561.46	2163.4	2724.9	1.6718	5.3198	6.9916	**0.30**
0.31	134.647	0.001 074 3	0.586 36	0.587 44	566.26	2160.1	2726.4	1.6835	5.2971	6.9806	**0.31**
0.32	135.740	0.001 075 4	0.569 12	0.570 20	570.93	2156.9	2727.9	1.6950	5.2751	6.9700	**0.32**
0.33	136.806	0.001 076 5	0.552 89	0.553 97	575.50	2153.8	2729.3	1.7061	5.2537	6.9597	**0.33**
0.34	137.845	0.001 077 5	0.537 58	0.538 66	579.96	2150.7	2730.6	1.7169	5.2329	6.9498	**0.34**
0.35	138.861	0.001 078 6	0.523 12	0.524 20	584.31	2147.7	2732.0	1.7275	5.2126	6.9401	**0.35**
0.36	139.853	0.001 079 6	0.509 43	0.510 51	588.57	2144.7	2733.3	1.7378	5.1929	6.9307	**0.36**
0.37	140.823	0.001 080 6	0.496 46	0.497 54	592.74	2141.8	2734.5	1.7478	5.1737	6.9215	**0.37**
0.38	141.773	0.001 081 6	0.484 15	0.485 23	596.81	2138.9	2735.7	1.7576	5.1550	6.9126	**0.38**
0.39	142.702	0.001 082 6	0.472 44	0.473 53	600.81	2136.1	2736.9	1.7672	5.1367	6.9039	**0.39**
0.40	143.613	0.001 083 6	0.461 31	0.462 39	604.72	2133.3	2738.1	1.7766	5.1188	6.8954	**0.40**
0.42	145.380	0.001 085 5	0.440 57	0.441 66	612.33	2127.9	2740.3	1.7948	5.0843	6.8791	**0.42**
0.44	147.081	0.001 087 3	0.421 66	0.422 75	619.66	2122.7	2742.4	1.8122	5.0513	6.8635	**0.44**
0.46	148.721	0.001 089 1	0.404 34	0.405 43	626.73	2117.6	2744.4	1.8289	5.0197	6.8486	**0.46**
0.48	150.305	0.001 090 8	0.388 41	0.389 50	633.57	2112.7	2746.3	1.8450	4.9892	6.8343	**0.48**
0.50	151.836	0.001 092 6	0.373 71	0.374 80	640.19	2107.9	2748.1	1.8606	4.9600	6.8206	**0.50**
0.52	153.320	0.001 094 2	0.360 11	0.361 20	646.60	2103.2	2749.9	1.8756	4.9318	6.8074	**0.52**
0.54	154.758	0.001 095 9	0.347 48	0.348 57	652.83	2098.7	2751.5	1.8901	4.9045	6.7947	**0.54**
0.56	156.155	0.001 097 5	0.335 72	0.336 82	658.88	2094.2	2753.1	1.9042	4.8782	6.7824	**0.56**
0.58	157.512	0.001 099 1	0.324 74	0.325 84	664.77	2089.9	2754.7	1.9179	4.8528	6.7706	**0.58**
0.60	158.832	0.001 100 6	0.314 47	0.315 58	670.50	2085.6	2756.1	1.9311	4.8281	6.7592	**0.60**
0.62	160.118	0.001 102 1	0.304 85	0.305 95	676.09	2081.5	2757.6	1.9440	4.8041	6.7481	**0.62**
0.64	161.371	0.001 103 6	0.295 80	0.296 90	681.54	2077.4	2758.9	1.9565	4.7809	6.7374	**0.64**
0.66	162.594	0.001 105 1	0.287 28	0.288 39	686.86	2073.4	2760.2	1.9686	4.7583	6.7269	**0.66**
0.68	163.787	0.001 106 5	0.279 25	0.280 35	692.06	2069.5	2761.5	1.9805	4.7363	6.7168	**0.68**
0.70	164.953	0.001 108 0	0.271 66	0.272 76	697.14	2065.6	2762.7	1.9921	4.7149	6.7070	**0.70**

Table S-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, m^3/kg			Enthalpy, kJ/kg			Entropy, kJ/(kg·K)			p
MPa	t (°C)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**MPa**
0.72	166.092	0.001 109 4	0.264 47	0.265 58	702.12	2061.8	2763.9	2.0034	4.6940	6.6974	**0.72**
0.74	167.207	0.001 110 8	0.257 66	0.258 77	706.99	2058.1	2765.1	2.0144	4.6737	6.6881	**0.74**
0.76	168.298	0.001 112 1	0.251 20	0.252 31	711.76	2054.4	2766.2	2.0252	4.6539	6.6790	**0.76**
0.78	169.366	0.001 113 5	0.245 06	0.246 17	716.43	2050.8	2767.3	2.0357	4.6345	6.6702	**0.78**
0.80	170.414	0.001 114 8	0.239 21	0.240 33	721.02	2047.3	2768.3	2.0460	4.6156	6.6615	**0.80**
0.82	171.440	0.001 116 1	0.233 64	0.234 76	725.52	2043.8	2769.3	2.0561	4.5970	6.6531	**0.82**
0.84	172.447	0.001 117 4	0.228 33	0.229 44	729.93	2040.4	2770.3	2.0659	4.5789	6.6449	**0.84**
0.86	173.435	0.001 118 7	0.223 25	0.224 37	734.27	2037.0	2771.2	2.0756	4.5612	6.6368	**0.86**
0.88	174.405	0.001 119 9	0.218 40	0.219 52	738.53	2033.6	2772.1	2.0851	4.5438	6.6289	**0.88**
0.90	175.358	0.001 121 2	0.213 75	0.214 87	742.72	2030.3	2773.0	2.0944	4.5268	6.6212	**0.90**
0.92	176.294	0.001 122 4	0.209 30	0.210 42	746.85	2027.1	2773.9	2.1035	4.5102	6.6137	**0.92**
0.94	177.214	0.001 123 6	0.205 03	0.206 16	750.90	2023.8	2774.7	2.1125	4.4938	6.6063	**0.94**
0.96	178.119	0.001 124 9	0.200 94	0.202 06	754.89	2020.7	2775.6	2.1213	4.4778	6.5991	**0.96**
0.98	179.010	0.001 126 0	0.197 00	0.198 13	758.82	2017.5	2776.3	2.1299	4.4620	6.5919	**0.98**
1.00	179.886	0.001 127 2	0.193 22	0.194 35	762.68	2014.4	2777.1	2.1384	4.4465	6.5850	**1.00**
1.05	182.017	0.001 130 1	0.184 37	0.185 50	772.10	2006.8	2779.0	2.1591	4.4091	6.5681	**1.05**
1.10	184.070	0.001 133 0	0.176 30	0.177 44	781.20	1999.5	2780.7	2.1789	4.3731	6.5520	**1.10**
1.15	186.050	0.001 135 8	0.168 91	0.170 05	789.99	1992.3	2782.3	2.1979	4.3386	6.5365	**1.15**
1.20	187.965	0.001 138 5	0.162 11	0.163 25	798.50	1985.3	2783.8	2.2163	4.3054	6.5217	**1.20**
1.25	189.817	0.001 141 2	0.155 84	0.156 98	806.75	1978.4	2785.2	2.2340	4.2734	6.5074	**1.25**
1.30	191.613	0.001 143 8	0.150 03	0.151 17	814.76	1971.7	2786.5	2.2512	4.2425	6.4936	**1.30**
1.35	193.355	0.001 146 4	0.144 64	0.145 79	822.55	1965.2	2787.7	2.2678	4.2126	6.4804	**1.35**
1.40	195.047	0.001 148 9	0.139 62	0.140 77	830.13	1958.8	2788.9	2.2839	4.1836	6.4675	**1.40**
1.45	196.693	0.001 151 4	0.134 93	0.136 08	837.52	1952.5	2790.0	2.2995	4.1556	6.4551	**1.45**
1.50	198.295	0.001 153 9	0.130 55	0.131 70	844.72	1946.3	2791.0	2.3147	4.1284	6.4431	**1.50**
1.55	199.856	0.001 156 3	0.126 44	0.127 59	851.74	1940.2	2792.0	2.3294	4.1019	6.4314	**1.55**
1.60	201.378	0.001 158 7	0.122 57	0.123 73	858.61	1934.3	2792.9	2.3438	4.0762	6.4200	**1.60**
1.65	202.864	0.001 161 0	0.118 94	0.120 10	865.32	1928.4	2793.7	2.3578	4.0512	6.4090	**1.65**
1.70	204.315	0.001 163 4	0.115 50	0.116 67	871.89	1922.6	2794.5	2.3715	4.0268	6.3983	**1.70**
1.75	205.733	0.001 165 7	0.112 26	0.113 43	878.32	1917.0	2795.3	2.3848	4.0030	6.3878	**1.75**
1.80	207.120	0.001 167 9	0.109 19	0.110 36	884.61	1911.4	2796.0	2.3978	3.9798	6.3776	**1.80**
1.85	208.477	0.001 170 2	0.106 29	0.107 46	890.79	1905.9	2796.6	2.4105	3.9571	6.3676	**1.85**
1.90	209.806	0.001 172 4	0.103 53	0.104 70	896.84	1900.4	2797.3	2.4229	3.9350	6.3579	**1.90**
1.95	211.108	0.001 174 6	0.100 90	0.102 08	902.79	1895.1	2797.8	2.4351	3.9133	6.3484	**1.95**
2.0	212.385	0.001 176 8	0.098 404	0.099 581	908.62	1889.8	2798.4	2.4470	3.8921	6.3392	**2.0**
2.1	214.865	0.001 181 0	0.093 753	0.094 934	919.99	1879.4	2799.4	2.4701	3.8511	6.3212	**2.1**
2.2	217.256	0.001 185 2	0.089 510	0.090 695	930.98	1869.2	2800.2	2.4924	3.8116	6.3040	**2.2**
2.3	219.564	0.001 189 4	0.085 623	0.086 812	941.63	1859.3	2800.9	2.5138	3.7736	6.2874	**2.3**
2.4	221.795	0.001 193 4	0.082 049	0.083 242	951.95	1849.6	2801.5	2.5344	3.7370	6.2714	**2.4**
2.5	223.956	0.001 197 4	0.078 750	0.079 947	961.98	1840.1	2802.0	2.5544	3.7015	6.2560	**2.5**
2.6	226.052	0.001 201 4	0.075 696	0.076 897	971.74	1830.7	2802.5	2.5738	3.6673	6.2411	**2.6**
2.7	228.086	0.001 205 3	0.072 860	0.074 065	981.24	1821.5	2802.8	2.5925	3.6341	6.2266	**2.7**
2.8	230.063	0.001 209 1	0.070 219	0.071 428	990.50	1812.5	2803.0	2.6107	3.6019	6.2126	**2.8**
2.9	231.986	0.001 212 9	0.067 754	0.068 967	999.54	1803.6	2803.2	2.6284	3.5706	6.1990	**2.9**
3.0	233.858	0.001 216 7	0.065 447	0.066 664	1008.4	1794.9	2803.3	2.6456	3.5402	6.1858	**3.0**
3.1	235.684	0.001 220 4	0.063 284	0.064 504	1017.0	1786.3	2803.3	2.6624	3.5105	6.1729	**3.1**
3.2	237.464	0.001 224 1	0.061 251	0.062 475	1025.5	1777.8	2803.2	2.6787	3.4817	6.1604	**3.2**
3.3	239.203	0.001 227 8	0.059 336	0.060 564	1033.7	1769.4	2803.1	2.6946	3.4535	6.1481	**3.3**
3.4	240.901	0.001 231 4	0.057 530	0.058 761	1041.8	1761.1	2803.0	2.7102	3.4260	6.1362	**3.4**
3.5	242.562	0.001 235 0	0.055 823	0.057 058	1049.8	1753.0	2802.7	2.7254	3.3991	6.1245	**3.5**
3.6	244.186	0.001 238 5	0.054 208	0.055 446	1057.6	1744.9	2802.5	2.7403	3.3728	6.1131	**3.6**
3.7	245.776	0.001 242 1	0.052 676	0.053 918	1065.2	1736.9	2802.1	2.7548	3.3471	6.1019	**3.7**
3.8	247.334	0.001 245 6	0.051 222	0.052 468	1072.8	1729.0	2801.8	2.7690	3.3219	6.0910	**3.8**
3.9	248.861	0.001 249 1	0.049 840	0.051 089	1080.2	1721.2	2801.4	2.7830	3.2973	6.0802	**3.9**
4.0	250.358	0.001 252 6	0.048 524	0.049 777	1087.4	1713.5	2800.9	2.7967	3.2731	6.0697	**4.0**
4.1	251.826	0.001 256 0	0.047 270	0.048 526	1094.6	1705.8	2800.4	2.8101	3.2493	6.0594	**4.1**
4.2	253.267	0.001 259 5	0.046 073	0.047 333	1101.6	1698.2	2799.9	2.8232	3.2260	6.0492	**4.2**
4.3	254.683	0.001 262 9	0.044 930	0.046 193	1108.6	1690.7	2799.3	2.8362	3.2031	6.0393	**4.3**
4.4	256.073	0.001 266 3	0.043 836	0.045 103	1115.4	1683.2	2798.7	2.8488	3.1806	6.0294	**4.4**
4.5	257.439	0.001 269 7	0.042 790	0.044 059	1122.1	1675.9	2798.0	2.8613	3.1585	6.0198	**4.5**

Table S-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, m^3/kg			Enthalpy, kJ/kg			Entropy, kJ/(kg·K)			p
MPa	t (°C)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**MPa**
4.6	258.783	0.001 273	0.041 787	0.043 060	1128.8	1668.5	2797.3	2.8736	3.1367	6.0103	**4.6**
4.7	260.104	0.001 276	0.040 825	0.042 101	1135.3	1661.2	2796.6	2.8857	3.1153	6.0010	**4.7**
4.8	261.404	0.001 280	0.039 901	0.041 181	1141.8	1654.0	2795.8	2.8975	3.0942	5.9917	**4.8**
4.9	262.683	0.001 283	0.039 013	0.040 296	1148.2	1646.8	2795.0	2.9092	3.0734	5.9827	**4.9**
5.0	263.943	0.001 286	0.038 160	0.039 446	1154.5	1639.7	2794.2	2.9207	3.0530	5.9737	**5.0**
5.1	265.183	0.001 290	0.037 338	0.038 628	1160.7	1632.7	2793.4	2.9321	3.0328	5.9649	**5.1**
5.2	266.405	0.001 293	0.036 547	0.037 840	1166.9	1625.6	2792.5	2.9433	3.0129	5.9562	**5.2**
5.3	267.610	0.001 296	0.035 785	0.037 081	1173.0	1618.6	2791.6	2.9543	2.9933	5.9475	**5.3**
5.4	268.797	0.001 300	0.035 049	0.036 349	1179.0	1611.7	2790.7	2.9652	2.9739	5.9390	**5.4**
5.5	269.967	0.001 303	0.034 339	0.035 642	1184.9	1604.8	2789.7	2.9759	2.9548	5.9307	**5.5**
5.6	271.121	0.001 306	0.033 654	0.034 960	1190.8	1597.9	2788.7	2.9865	2.9359	5.9224	**5.6**
5.7	272.260	0.001 309	0.032 991	0.034 300	1196.6	1591.1	2787.7	2.9969	2.9173	5.9141	**5.7**
5.8	273.383	0.001 313	0.032 350	0.033 663	1202.4	1584.3	2786.7	3.0072	2.8988	5.9060	**5.8**
5.9	274.492	0.001 316	0.031 730	0.033 046	1208.1	1577.6	2785.6	3.0174	2.8806	5.8980	**5.9**
6.0	275.586	0.001 319	0.031 129	0.032 449	1213.7	1570.8	2784.6	3.0274	2.8626	5.8901	**6.0**
6.1	276.667	0.001 323	0.030 548	0.031 870	1219.3	1564.1	2783.5	3.0374	2.8448	5.8822	**6.1**
6.2	277.734	0.001 326	0.029 984	0.031 310	1224.9	1557.5	2782.3	3.0472	2.8272	5.8744	**6.2**
6.3	278.788	0.001 329	0.029 437	0.030 766	1230.3	1550.8	2781.2	3.0569	2.8098	5.8667	**6.3**
6.4	279.830	0.001 332	0.028 907	0.030 239	1235.8	1544.2	2780.0	3.0665	2.7926	5.8591	**6.4**
6.5	280.859	0.001 336	0.028 392	0.029 728	1241.2	1537.7	2778.8	3.0760	2.7755	5.8515	**6.5**
6.6	281.876	0.001 339	0.027 892	0.029 231	1246.5	1531.1	2777.6	3.0854	2.7586	5.8440	**6.6**
6.7	282.881	0.001 342	0.027 406	0.028 748	1251.8	1524.6	2776.4	3.0947	2.7419	5.8366	**6.7**
6.8	283.875	0.001 345	0.026 934	0.028 279	1257.1	1518.1	2775.1	3.1039	2.7253	5.8292	**6.8**
6.9	284.858	0.001 349	0.026 475	0.027 823	1262.3	1511.6	2773.9	3.1130	2.7089	5.8219	**6.9**
7.0	285.830	0.001 352	0.026 028	0.027 380	1267.4	1505.1	2772.6	3.1220	2.6926	5.8146	**7.0**
7.1	286.791	0.001 355	0.025 593	0.026 948	1272.6	1498.7	2771.3	3.1309	2.6765	5.8074	**7.1**
7.2	287.743	0.001 358	0.025 169	0.026 528	1277.7	1492.3	2769.9	3.1398	2.6605	5.8003	**7.2**
7.3	288.684	0.001 362	0.024 757	0.026 119	1282.7	1485.9	2768.6	3.1485	2.6447	5.7932	**7.3**
7.4	289.615	0.001 365	0.024 355	0.025 720	1287.7	1479.5	2767.2	3.1572	2.6290	5.7862	**7.4**
7.5	290.537	0.001 368	0.023 963	0.025 331	1292.7	1473.1	2765.8	3.1658	2.6134	5.7792	**7.5**
7.6	291.449	0.001 371	0.023 581	0.024 952	1297.6	1466.8	2764.4	3.1743	2.5979	5.7722	**7.6**
7.7	292.352	0.001 375	0.023 208	0.024 583	1302.5	1460.4	2763.0	3.1827	2.5826	5.7653	**7.7**
7.8	293.247	0.001 378	0.022 845	0.024 223	1307.4	1454.1	2761.5	3.1911	2.5673	5.7584	**7.8**
7.9	294.132	0.001 381	0.022 490	0.023 871	1312.3	1447.8	2760.1	3.1994	2.5522	5.7516	**7.9**
8.0	295.009	0.001 385	0.022 143	0.023 528	1317.1	1441.5	2758.6	3.2077	2.5372	5.7448	**8.0**
8.1	295.878	0.001 388	0.021 804	0.023 192	1321.9	1435.3	2757.1	3.2158	2.5223	5.7381	**8.1**
8.2	296.738	0.001 391	0.021 473	0.022 865	1326.6	1429.0	2755.6	3.2239	2.5075	5.7314	**8.2**
8.3	297.591	0.001 395	0.021 150	0.022 545	1331.3	1422.7	2754.1	3.2320	2.4928	5.7247	**8.3**
8.4	298.435	0.001 398	0.020 834	0.022 232	1336.0	1416.5	2752.5	3.2399	2.4782	5.7181	**8.4**
8.5	299.272	0.001 401	0.020 525	0.021 926	1340.7	1410.3	2751.0	3.2478	2.4637	5.7115	**8.5**
8.6	300.102	0.001 405	0.020 222	0.021 627	1345.3	1404.0	2749.4	3.2557	2.4493	5.7050	**8.6**
8.7	300.924	0.001 408	0.019 926	0.021 334	1350.0	1397.8	2747.8	3.2635	2.4349	5.6984	**8.7**
8.8	301.738	0.001 411	0.019 636	0.021 048	1354.5	1391.6	2746.2	3.2712	2.4207	5.6919	**8.8**
8.9	302.546	0.001 415	0.019 353	0.020 767	1359.1	1385.4	2744.5	3.2789	2.4065	5.6855	**8.9**
9.0	303.347	0.001 418	0.019 075	0.020 493	1363.7	1379.2	2742.9	3.2866	2.3924	5.6790	**9.0**
9.1	304.141	0.001 422	0.018 803	0.020 224	1368.2	1373.0	2741.2	3.2942	2.3784	5.6726	**9.1**
9.2	304.928	0.001 425	0.018 536	0.019 961	1372.7	1366.9	2739.5	3.3017	2.3645	5.6662	**9.2**
9.3	305.709	0.001 428	0.018 275	0.019 703	1377.1	1360.7	2737.8	3.3092	2.3507	5.6598	**9.3**
9.4	306.483	0.001 432	0.018 019	0.019 450	1381.6	1354.5	2736.1	3.3166	2.3369	5.6535	**9.4**
9.5	307.251	0.001 435	0.017 767	0.019 203	1386.0	1348.4	2734.4	3.3240	2.3232	5.6472	**9.5**
9.6	308.013	0.001 439	0.017 521	0.018 960	1390.4	1342.2	2732.6	3.3313	2.3095	5.6409	**9.6**
9.7	308.768	0.001 442	0.017 279	0.018 721	1394.8	1336.1	2730.9	3.3386	2.2960	5.6346	**9.7**
9.8	309.518	0.001 446	0.017 042	0.018 488	1399.2	1329.9	2729.1	3.3459	2.2824	5.6283	**9.8**
9.9	310.262	0.001 449	0.016 809	0.018 259	1403.5	1323.8	2727.3	3.3531	2.2690	5.6221	**9.9**
10.0	310.999	0.001 453	0.016 581	0.018 034	1407.9	1317.6	2725.5	3.3603	2.2556	5.6159	**10.0**
10.2	312.458	0.001 460	0.016 136	0.017 596	1416.5	1305.3	2721.8	3.3745	2.2290	5.6035	**10.2**
10.4	313.895	0.001 467	0.015 707	0.017 174	1425.0	1293.0	2718.0	3.3886	2.2026	5.5912	**10.4**
10.6	315.311	0.001 474	0.015 293	0.016 767	1433.5	1280.7	2714.2	3.4025	2.1764	5.5789	**10.6**
10.8	316.706	0.001 481	0.014 893	0.016 374	1441.9	1268.4	2710.3	3.4163	2.1504	5.5667	**10.8**
11.0	318.081	0.001 489	0.014 505	0.015 994	1450.3	1256.1	2706.4	3.4300	2.1246	5.5545	**11.0**

Table S-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, m^3/kg			Enthalpy, kJ/kg			Entropy, kJ/(kg·K)			p
MPa	t (°C)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**MPa**
11.2	319.437	0.001 496	0.014 130	0.015 626	1458.6	1243.8	2702.4	3.4435	2.0989	5.5424	**11.2**
11.4	320.774	0.001 503	0.013 767	0.015 271	1466.8	1231.4	2698.3	3.4569	2.0734	5.5303	**11.4**
11.6	322.093	0.001 511	0.013 415	0.014 926	1475.0	1219.1	2694.1	3.4702	2.0480	5.5182	**11.6**
11.8	323.394	0.001 519	0.013 074	0.014 593	1483.2	1206.7	2689.9	3.4834	2.0228	5.5062	**11.8**
12.0	324.678	0.001 526	0.012 743	0.014 269	1491.3	1194.3	2685.6	3.4965	1.9977	5.4941	**12.0**
12.2	325.946	0.001 534	0.012 421	0.013 955	1499.4	1181.8	2681.2	3.5095	1.9726	5.4821	**12.2**
12.4	327.197	0.001 542	0.012 108	0.013 650	1507.5	1169.3	2676.7	3.5224	1.9477	5.4700	**12.4**
12.6	328.432	0.001 550	0.011 803	0.013 354	1515.5	1156.7	2672.2	3.5352	1.9228	5.4580	**12.6**
12.8	329.652	0.001 558	0.011 507	0.013 065	1523.4	1144.1	2667.6	3.5479	1.8980	5.4459	**12.8**
13.0	330.857	0.001 566	0.011 219	0.012 785	1531.4	1131.5	2662.9	3.5606	1.8733	5.4339	**13.0**
13.2	332.047	0.001 575	0.010 937	0.012 512	1539.3	1118.8	2658.1	3.5732	1.8486	5.4218	**13.2**
13.4	333.223	0.001 583	0.010 663	0.012 247	1547.2	1106.0	2653.2	3.5857	1.8240	5.4097	**13.4**
13.6	334.385	0.001 592	0.010 396	0.011 988	1555.1	1093.1	2648.3	3.5982	1.7993	5.3975	**13.6**
13.8	335.534	0.001 601	0.010 134	0.011 735	1563.0	1080.2	2643.2	3.6106	1.7747	5.3853	**13.8**
14.0	336.669	0.001 610	0.009 879	0.011 489	1570.9	1067.2	2638.1	3.6230	1.7500	5.3730	**14.0**
14.2	337.792	0.001 619	0.009 630	0.011 248	1578.7	1054.1	2632.9	3.6353	1.7254	5.3607	**14.2**
14.4	338.902	0.001 628	0.009 385	0.011 014	1586.6	1040.9	2627.5	3.6477	1.7007	5.3484	**14.4**
14.6	339.999	0.001 638	0.009 147	0.010 784	1594.4	1027.6	2622.1	3.6599	1.6760	5.3359	**14.6**
14.8	341.084	0.001 647	0.008 912	0.010 560	1602.3	1014.2	2616.5	3.6722	1.6512	5.3234	**14.8**
15.0	342.158	0.001 657	0.008 683	0.010 340	1610.2	1000.7	2610.9	3.6844	1.6264	5.3108	**15.0**
15.2	343.220	0.001 667	0.008 458	0.010 125	1618.0	987.07	2605.1	3.6967	1.6014	5.2981	**15.2**
15.4	344.270	0.001 677	0.008 237	0.009 915	1625.9	973.30	2599.2	3.7089	1.5764	5.2853	**15.4**
15.6	345.310	0.001 688	0.008 021	0.009 709	1633.8	959.39	2593.2	3.7212	1.5513	5.2724	**15.6**
15.8	346.339	0.001 699	0.007 808	0.009 506	1641.7	945.34	2587.1	3.7334	1.5260	5.2594	**15.8**
16.0	347.357	0.001 710	0.007 599	0.009 308	1649.7	931.13	2580.8	3.7457	1.5006	5.2463	**16.0**
16.2	348.364	0.001 721	0.007 393	0.009 114	1657.6	916.76	2574.4	3.7580	1.4750	5.2330	**16.2**
16.4	349.361	0.001 732	0.007 190	0.008 923	1665.7	902.22	2567.9	3.7703	1.4493	5.2196	**16.4**
16.6	350.349	0.001 744	0.006 991	0.008 736	1673.8	887.50	2561.2	3.7827	1.4234	5.2061	**16.6**
16.8	351.326	0.001 757	0.006 794	0.008 551	1681.9	872.55	2554.4	3.7952	1.3973	5.1924	**16.8**
17.0	352.293	0.001 769	0.006 600	0.008 369	1690.0	857.38	2547.4	3.8077	1.3708	5.1785	**17.0**
17.2	353.252	0.001 782	0.006 408	0.008 190	1698.3	841.96	2540.2	3.8203	1.3441	5.1644	**17.2**
17.4	354.200	0.001 796	0.006 218	0.008 014	1706.6	826.29	2532.9	3.8329	1.3171	5.1501	**17.4**
17.6	355.140	0.001 810	0.006 030	0.007 840	1715.0	810.34	2525.3	3.8457	1.2898	5.1355	**17.6**
17.8	356.070	0.001 824	0.005 844	0.007 668	1723.4	794.09	2517.5	3.8586	1.2620	5.1206	**17.8**
18.0	356.992	0.001 839	0.005 659	0.007 499	1732.0	777.51	2509.5	3.8717	1.2339	5.1055	**18.0**
18.2	357.905	0.001 855	0.005 476	0.007 331	1740.7	760.57	2501.3	3.8849	1.2052	5.0901	**18.2**
18.4	358.809	0.001 872	0.005 293	0.007 164	1749.5	743.24	2492.8	3.8982	1.1761	5.0743	**18.4**
18.6	359.704	0.001 889	0.005 111	0.006 999	1758.5	725.49	2484.0	3.9118	1.1464	5.0582	**18.6**
18.8	360.592	0.001 907	0.004 929	0.006 836	1767.6	707.27	2474.9	3.9256	1.1160	5.0416	**18.8**
19.0	361.471	0.001 925	0.004 747	0.006 673	1776.9	688.52	2465.4	3.9396	1.0849	5.0246	**19.0**
19.2	362.342	0.001 945	0.004 565	0.006 510	1786.4	669.18	2455.6	3.9540	1.0530	5.0070	**19.2**
19.4	363.205	0.001 966	0.004 381	0.006 348	1796.1	649.19	2445.3	3.9687	1.0202	4.9888	**19.4**
19.6	364.060	0.001 989	0.004 197	0.006 186	1806.1	628.46	2434.6	3.9838	0.9863	4.9700	**19.6**
19.8	364.907	0.002 013	0.004 010	0.006 022	1816.4	606.87	2423.3	3.9993	0.9511	4.9504	**19.8**
20.0	365.746	0.002 039	0.003 820	0.005 858	1827.1	584.29	2411.4	4.0154	0.9145	4.9299	**20.0**
20.2	366.577	0.002 067	0.003 626	0.005 692	1838.2	560.55	2398.8	4.0321	0.8762	4.9083	**20.2**
20.4	367.401	0.002 097	0.003 426	0.005 523	1849.8	535.43	2385.3	4.0496	0.8359	4.8855	**20.4**
20.6	368.218	0.002 131	0.003 220	0.005 351	1862.1	508.63	2370.8	4.0681	0.7930	4.8612	**20.6**
20.8	369.026	0.002 169	0.003 004	0.005 173	1875.2	479.74	2355.0	4.0879	0.7471	4.8349	**20.8**
21.0	369.827	0.002 212	0.002 776	0.004 988	1889.4	448.15	2337.5	4.1093	0.6970	4.8062	**21.0**
21.2	370.621	0.002 262	0.002 529	0.004 791	1905.0	412.91	2317.9	4.1328	0.6414	4.7742	**21.2**
21.4	371.406	0.002 324	0.002 255	0.004 579	1922.8	372.44	2295.2	4.1597	0.5778	4.7375	**21.4**
21.6	372.182	0.002 403	0.001 936	0.004 338	1944.0	323.61	2267.6	4.1918	0.5015	4.6933	**21.6**
21.8	372.950	0.002 517	0.001 527	0.004 044	1971.9	258.69	2230.6	4.2343	0.4004	4.6347	**21.8**
22.0	373.707	0.002 750	0.000 826	0.003 577	2021.9	142.27	2164.2	4.3109	0.2199	4.5308	**22.0**
p_c	373.946	0.003 106	0	0.003 106	2087.5	0	2087.5	4.4120	0	4.4120	p_c

p_c = 22.064 MPa

Table S-3. Properties of Superheated Steam and Compressed Water

t (°C)	**0.001 MPa** (t_{sat} = 6.97 °C)			**0.002 MPa** (t_{sat} = 17.50 °C)			**0.003 MPa** (t_{sat} = 24.08 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 000 1	29.30	0.1059	0.001 001 4	73.43	0.2606	0.001 002 8	100.99	0.3543	Sat. Liq.
Sat. Vap.	129.18	2513.7	8.9749	66.990	2532.9	8.7227	45.655	2544.9	8.5766	Sat. Vap.
0	0.001 000 2	-0.04	-0.0002	0.001 000 2	-0.04	-0.0002	0.001 000 2	-0.04	-0.0002	**0**
5	0.001 000 1	21.02	0.0763	0.001 000 1	21.02	0.0763	0.001 000 1	21.02	0.0763	**5**
10	130.59	2519.4	8.9953	0.001 000 3	42.02	0.1511	0.001 000 3	42.02	0.1511	**10**
15	132.91	2528.8	9.0282	0.001 000 9	62.98	0.2245	0.001 000 9	62.98	0.2245	**15**
20	135.22	2538.2	9.0604	67.572	2537.7	8.7390	0.001 001 8	83.92	0.2965	**20**
25	137.54	2547.6	9.0921	68.733	2547.1	8.7710	45.798	2546.6	8.5825	**25**
30	139.85	2556.9	9.1233	69.893	2556.5	8.8023	46.574	2556.1	8.6141	**30**
35	142.16	2566.3	9.1539	71.052	2565.9	8.8331	47.348	2565.6	8.6450	**35**
40	144.47	2575.7	9.1841	72.210	2575.3	8.8634	48.122	2575.0	8.6754	**40**
45	146.79	2585.0	9.2138	73.368	2584.7	8.8931	48.895	2584.5	8.7053	**45**
50	149.10	2594.4	9.2430	74.525	2594.1	8.9224	49.668	2593.9	8.7347	**50**
55	151.41	2603.8	9.2718	75.682	2603.5	8.9513	50.440	2603.3	8.7636	**55**
60	153.72	2613.2	9.3002	76.839	2613.0	8.9798	51.212	2612.7	8.7921	**60**
65	156.03	2622.6	9.3282	77.995	2622.4	9.0078	51.984	2622.2	8.8202	**65**
70	158.34	2632.0	9.3558	79.151	2631.8	9.0354	52.756	2631.6	8.8479	**70**
75	160.65	2641.4	9.3830	80.307	2641.2	9.0627	53.527	2641.0	8.8752	**75**
80	162.96	2650.8	9.4099	81.463	2650.6	9.0896	54.298	2650.5	8.9021	**80**
85	165.27	2660.2	9.4364	82.618	2660.1	9.1161	55.069	2659.9	8.9286	**85**
90	167.58	2669.6	9.4625	83.774	2669.5	9.1423	55.840	2669.4	8.9549	**90**
95	169.88	2679.1	9.4883	84.929	2679.0	9.1681	56.611	2678.8	8.9807	**95**
100	172.19	2688.5	9.5138	86.084	2688.4	9.1937	57.381	2688.3	9.0063	**100**
105	174.50	2698.0	9.5390	87.239	2697.9	9.2189	58.152	2697.8	9.0315	**105**
110	176.81	2707.5	9.5639	88.394	2707.4	9.2438	58.922	2707.3	9.0564	**110**
115	179.12	2717.0	9.5885	89.549	2716.9	9.2684	59.692	2716.7	9.0810	**115**
120	181.43	2726.4	9.6128	90.704	2726.3	9.2927	60.462	2726.3	9.1054	**120**
125	183.74	2735.9	9.6368	91.859	2735.9	9.3167	61.233	2735.8	9.1294	**125**
130	186.05	2745.5	9.6606	93.013	2745.4	9.3405	62.003	2745.3	9.1532	**130**
135	188.35	2755.0	9.6841	94.168	2754.9	9.3640	62.773	2754.8	9.1767	**135**
140	190.66	2764.5	9.7073	95.323	2764.5	9.3872	63.543	2764.4	9.2000	**140**
145	192.97	2774.1	9.7303	96.477	2774.0	9.4102	64.313	2773.9	9.2230	**145**
150	195.28	2783.6	9.7530	97.631	2783.6	9.4330	65.082	2783.5	9.2457	**150**
155	197.59	2793.2	9.7755	98.786	2793.2	9.4555	65.852	2793.1	9.2682	**155**
160	199.90	2802.8	9.7978	99.940	2802.7	9.4777	66.622	2802.7	9.2905	**160**
165	202.20	2812.4	9.8198	101.09	2812.4	9.4998	67.392	2812.3	9.3126	**165**
170	204.51	2822.0	9.8416	102.25	2822.0	9.5216	68.161	2821.9	9.3344	**170**
175	206.82	2831.7	9.8632	103.40	2831.6	9.5432	68.931	2831.5	9.3560	**175**
180	209.13	2841.3	9.8846	104.56	2841.2	9.5646	69.701	2841.2	9.3774	**180**
185	211.44	2851.0	9.9058	105.71	2850.9	9.5858	70.470	2850.8	9.3986	**185**
190	213.74	2860.6	9.9268	106.87	2860.6	9.6068	71.240	2860.5	9.4196	**190**
195	216.05	2870.3	9.9476	108.02	2870.3	9.6276	72.010	2870.2	9.4404	**195**
200	218.36	2880.0	9.9682	109.17	2880.0	9.6482	72.779	2879.9	9.4610	**200**
205	220.67	2889.7	9.9886	110.33	2889.7	9.6686	73.549	2889.6	9.4814	**205**
210	222.98	2899.4	10.009	111.48	2899.4	9.6889	74.318	2899.3	9.5017	**210**
215	225.28	2909.2	10.029	112.64	2909.1	9.7089	75.088	2909.1	9.5217	**215**
220	227.59	2918.9	10.049	113.79	2918.9	9.7288	75.857	2918.8	9.5416	**220**
225	229.90	2928.7	10.068	114.95	2928.6	9.7485	76.627	2928.6	9.5613	**225**
230	232.21	2938.5	10.088	116.10	2938.4	9.7680	77.396	2938.4	9.5809	**230**
235	234.52	2948.3	10.107	117.25	2948.2	9.7874	78.166	2948.2	9.6002	**235**
240	236.82	2958.1	10.127	118.41	2958.0	9.8066	78.935	2958.0	9.6194	**240**
245	239.13	2967.9	10.146	119.56	2967.9	9.8257	79.705	2967.8	9.6385	**245**
250	241.44	2977.7	10.165	120.72	2977.7	9.8446	80.474	2977.7	9.6574	**250**
255	243.75	2987.6	10.183	121.87	2987.6	9.8633	81.244	2987.5	9.6762	**255**
260	246.05	2997.5	10.202	123.02	2997.4	9.8819	82.013	2997.4	9.6948	**260**
265	248.36	3007.3	10.220	124.18	3007.3	9.9004	82.782	3007.3	9.7132	**265**
270	250.67	3017.2	10.239	125.33	3017.2	9.9187	83.552	3017.2	9.7315	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.004 MPa** (t_{sat} = 28.96 °C)			**0.005 MPa** (t_{sat} = 32.88 °C)			**0.006 MPa** (t_{sat} = 36.16 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 004 1	121.40	0.4224	0.001 005 3	137.77	0.4763	0.001 006 4	151.49	0.5209	Sat. Liq.
Sat. Vap.	34.792	2553.7	8.4735	28.186	2560.8	8.3939	23.734	2566.7	8.3291	Sat. Vap.
0	0.001 000 2	-0.04	-0.0002	0.001 000 2	-0.04	-0.0002	0.001 000 2	-0.04	-0.0002	**0**
5	0.001 000 1	21.02	0.0763	0.001 000 1	21.02	0.0763	0.001 000 1	21.02	0.0763	**5**
10	0.001 000 3	42.02	0.1511	0.001 000 3	42.02	0.1511	0.001 000 3	42.03	0.1511	**10**
15	0.001 000 9	62.99	0.2245	0.001 000 9	62.99	0.2245	0.001 000 9	62.99	0.2245	**15**
20	0.001 001 8	83.92	0.2965	0.001 001 8	83.92	0.2965	0.001 001 8	83.92	0.2965	**20**
25	0.001 003 0	104.84	0.3673	0.001 003 0	104.84	0.3673	0.001 003 0	104.84	0.3673	**25**
30	34.914	2555.7	8.4801	0.001 004 4	125.75	0.4368	0.001 004 4	125.75	0.4368	**30**
35	35.496	2565.2	8.5112	28.385	2564.8	8.4072	0.001 006 0	146.65	0.5052	**35**
40	36.078	2574.7	8.5418	28.851	2574.4	8.4379	24.033	2574.0	8.3528	**40**
45	36.659	2584.2	8.5717	29.317	2583.9	8.4680	24.422	2583.6	8.3831	**45**
50	37.239	2593.6	8.6012	29.782	2593.4	8.4976	24.811	2593.1	8.4127	**50**
55	37.819	2603.1	8.6302	30.247	2602.8	8.5266	25.198	2602.6	8.4419	**55**
60	38.399	2612.5	8.6588	30.711	2612.3	8.5553	25.586	2612.1	8.4706	**60**
65	38.979	2622.0	8.6869	31.175	2621.8	8.5834	25.973	2621.6	8.4988	**65**
70	39.558	2631.4	8.7146	31.639	2631.2	8.6112	26.360	2631.0	8.5266	**70**
75	40.137	2640.9	8.7420	32.103	2640.7	8.6386	26.747	2640.5	8.5540	**75**
80	40.716	2650.3	8.7689	32.566	2650.1	8.6656	27.133	2650.0	8.5811	**80**
85	41.294	2659.8	8.7955	33.030	2659.6	8.6922	27.520	2659.5	8.6077	**85**
90	41.873	2669.2	8.8218	33.493	2669.1	8.7185	27.906	2668.9	8.6340	**90**
95	42.451	2678.7	8.8477	33.956	2678.6	8.7444	28.292	2678.4	8.6600	**95**
100	43.030	2688.2	8.8732	34.419	2688.0	8.7700	28.678	2687.9	8.6856	**100**
105	43.608	2697.7	8.8985	34.881	2697.5	8.7953	29.064	2697.4	8.7109	**105**
110	44.186	2707.1	8.9234	35.344	2707.0	8.8202	29.450	2706.9	8.7358	**110**
115	44.764	2716.6	8.9481	35.807	2716.5	8.8449	29.835	2716.4	8.7605	**115**
120	45.342	2726.2	8.9724	36.269	2726.1	8.8692	30.221	2726.0	8.7849	**120**
125	45.920	2735.7	8.9965	36.732	2735.6	8.8933	30.606	2735.5	8.8090	**125**
130	46.497	2745.2	9.0203	37.194	2745.1	8.9171	30.992	2745.0	8.8328	**130**
135	47.075	2754.7	9.0438	37.656	2754.7	8.9406	31.377	2754.6	8.8563	**135**
140	47.653	2764.3	9.0670	38.119	2764.2	8.9639	31.763	2764.1	8.8796	**140**
145	48.230	2773.9	9.0900	38.581	2773.8	8.9869	32.148	2773.7	8.9026	**145**
150	48.808	2783.4	9.1128	39.043	2783.4	9.0097	32.533	2783.3	8.9254	**150**
155	49.385	2793.0	9.1353	39.505	2793.0	9.0322	32.918	2792.9	8.9480	**155**
160	49.963	2802.6	9.1576	39.967	2802.6	9.0545	33.304	2802.5	8.9703	**160**
165	50.540	2812.2	9.1797	40.429	2812.2	9.0766	33.689	2812.1	8.9923	**165**
170	51.118	2821.9	9.2015	40.891	2821.8	9.0984	34.074	2821.7	9.0142	**170**
175	51.695	2831.5	9.2231	41.353	2831.4	9.1201	34.459	2831.4	9.0358	**175**
180	52.272	2841.1	9.2445	41.815	2841.1	9.1415	34.844	2841.0	9.0572	**180**
185	52.850	2850.8	9.2657	42.277	2850.7	9.1627	35.229	2850.7	9.0784	**185**
190	53.427	2860.5	9.2867	42.739	2860.4	9.1837	35.614	2860.4	9.0995	**190**
195	54.004	2870.2	9.3075	43.201	2870.1	9.2045	35.999	2870.1	9.1203	**195**
200	54.582	2879.9	9.3282	43.663	2879.8	9.2251	36.384	2879.8	9.1409	**200**
205	55.159	2889.6	9.3486	44.125	2889.5	9.2455	36.769	2889.5	9.1613	**205**
210	55.736	2899.3	9.3688	44.587	2899.3	9.2658	37.154	2899.2	9.1816	**210**
215	56.313	2909.0	9.3889	45.049	2909.0	9.2858	37.539	2909.0	9.2016	**215**
220	56.891	2918.8	9.4088	45.511	2918.8	9.3057	37.924	2918.7	9.2215	**220**
225	57.468	2928.6	9.4285	45.972	2928.5	9.3254	38.309	2928.5	9.2412	**225**
230	58.045	2938.4	9.4480	46.434	2938.3	9.3450	38.694	2938.3	9.2608	**230**
235	58.622	2948.2	9.4674	46.896	2948.1	9.3644	39.078	2948.1	9.2802	**235**
240	59.199	2958.0	9.4866	47.358	2957.9	9.3836	39.463	2957.9	9.2994	**240**
245	59.776	2967.8	9.5057	47.819	2967.8	9.4026	39.848	2967.7	9.3185	**245**
250	60.354	2977.6	9.5246	48.281	2977.6	9.4216	40.233	2977.6	9.3374	**250**
255	60.931	2987.5	9.5433	48.743	2987.5	9.4403	40.618	2987.4	9.3561	**255**
260	61.508	2997.4	9.5619	49.205	2997.3	9.4589	41.003	2997.3	9.3747	**260**
265	62.085	3007.3	9.5804	49.666	3007.2	9.4774	41.387	3007.2	9.3932	**265**
270	62.662	3017.2	9.5987	50.128	3017.1	9.4957	41.772	3017.1	9.4115	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.004 MPa** (t_{sat} = 28.96 °C)			**0.005 MPa** (t_{sat} = 32.88 °C)			**0.006 MPa** (t_{sat} = 36.16 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	63.239	3027.1	9.6169	50.590	3027.0	9.5139	42.157	3027.0	9.4297	**275**
280	63.816	3037.0	9.6349	51.052	3037.0	9.5319	42.542	3036.9	9.4477	**280**
285	64.393	3046.9	9.6528	51.513	3046.9	9.5498	42.927	3046.9	9.4656	**285**
290	64.970	3056.9	9.6706	51.975	3056.9	9.5676	43.311	3056.9	9.4834	**290**
295	65.547	3066.9	9.6882	52.437	3066.9	9.5852	43.696	3066.8	9.5010	**295**
300	66.125	3076.9	9.7057	52.898	3076.9	9.6027	44.081	3076.8	9.5185	**300**
310	67.279	3096.9	9.7404	53.822	3096.9	9.6374	44.850	3096.9	9.5532	**310**
320	68.433	3117.0	9.7745	54.745	3117.0	9.6715	45.620	3117.0	9.5874	**320**
330	69.587	3137.2	9.8082	55.668	3137.1	9.7052	46.389	3137.1	9.6211	**330**
340	70.741	3157.4	9.8415	56.592	3157.4	9.7385	47.159	3157.3	9.6543	**340**
350	71.895	3177.7	9.8743	57.515	3177.6	9.7713	47.928	3177.6	9.6871	**350**
360	73.049	3198.0	9.9067	58.438	3198.0	9.8037	48.698	3198.0	9.7195	**360**
370	74.203	3218.4	9.9387	59.361	3218.4	9.8357	49.467	3218.4	9.7515	**370**
380	75.357	3238.9	9.9703	60.285	3238.9	9.8673	50.237	3238.9	9.7831	**380**
390	76.511	3259.4	10.001	61.208	3259.4	9.8985	51.006	3259.4	9.8143	**390**
400	77.665	3280.0	10.032	62.131	3280.0	9.9293	51.775	3280.0	9.8451	**400**
410	78.819	3300.7	10.063	63.054	3300.7	9.9598	52.545	3300.7	9.8756	**410**
420	79.973	3321.4	10.093	63.978	3321.4	9.9899	53.314	3321.4	9.9058	**420**
430	81.127	3342.2	10.123	64.901	3342.2	10.020	54.083	3342.2	9.9356	**430**
440	82.281	3363.1	10.152	65.824	3363.1	10.049	54.853	3363.1	9.9650	**440**
450	83.435	3384.0	10.181	66.747	3384.0	10.078	55.622	3384.0	9.9942	**450**
460	84.589	3405.0	10.210	67.670	3405.0	10.107	56.391	3405.0	10.023	**460**
470	85.743	3426.1	10.239	68.594	3426.1	10.136	57.161	3426.1	10.052	**470**
480	86.897	3447.3	10.267	69.517	3447.2	10.164	57.930	3447.2	10.080	**480**
490	88.051	3468.5	10.295	70.440	3468.5	10.192	58.699	3468.4	10.108	**490**
500	89.205	3489.7	10.323	71.363	3489.7	10.220	59.469	3489.7	10.136	**500**
510	90.358	3511.1	10.350	72.286	3511.1	10.247	60.238	3511.1	10.163	**510**
520	91.512	3532.5	10.377	73.209	3532.5	10.274	61.007	3532.5	10.190	**520**
530	92.666	3554.0	10.404	74.133	3554.0	10.301	61.777	3554.0	10.217	**530**
540	93.820	3575.5	10.431	75.056	3575.5	10.328	62.546	3575.5	10.244	**540**
550	94.974	3597.2	10.457	75.979	3597.1	10.354	63.315	3597.1	10.270	**550**
560	96.128	3618.8	10.483	76.902	3618.8	10.380	64.085	3618.8	10.296	**560**
570	97.282	3640.6	10.509	77.825	3640.6	10.406	64.854	3640.6	10.322	**570**
580	98.436	3662.4	10.535	78.748	3662.4	10.432	65.623	3662.4	10.348	**580**
590	99.590	3684.3	10.561	79.671	3684.3	10.458	66.392	3684.3	10.374	**590**
600	100.74	3706.3	10.586	80.594	3706.3	10.483	67.162	3706.3	10.399	**600**
610	101.90	3728.4	10.611	81.518	3728.4	10.508	67.931	3728.3	10.424	**610**
620	103.05	3750.5	10.636	82.441	3750.5	10.533	68.700	3750.5	10.449	**620**
630	104.21	3772.7	10.661	83.364	3772.7	10.558	69.470	3772.6	10.474	**630**
640	105.36	3794.9	10.685	84.287	3794.9	10.582	70.239	3794.9	10.498	**640**
650	106.51	3817.2	10.710	85.210	3817.2	10.607	71.008	3817.2	10.522	**650**
660	107.67	3839.6	10.734	86.133	3839.6	10.631	71.777	3839.6	10.547	**660**
670	108.82	3862.1	10.758	87.056	3862.1	10.655	72.547	3862.1	10.570	**670**
680	109.97	3884.7	10.781	87.979	3884.6	10.678	73.316	3884.6	10.594	**680**
690	111.13	3907.3	10.805	88.902	3907.3	10.702	74.085	3907.2	10.618	**690**
700	112.28	3929.9	10.828	89.826	3929.9	10.725	74.854	3929.9	10.641	**700**
710	113.44	3952.7	10.852	90.749	3952.7	10.749	75.624	3952.7	10.665	**710**
720	114.59	3975.5	10.875	91.672	3975.5	10.772	76.393	3975.5	10.688	**720**
730	115.74	3998.4	10.898	92.595	3998.4	10.795	77.162	3998.4	10.711	**730**
740	116.90	4021.4	10.920	93.518	4021.4	10.817	77.931	4021.4	10.733	**740**
750	118.05	4044.4	10.943	94.441	4044.4	10.840	78.701	4044.4	10.756	**750**
760	119.21	4067.5	10.966	95.364	4067.5	10.863	79.470	4067.5	10.778	**760**
770	120.36	4090.7	10.988	96.287	4090.7	10.885	80.239	4090.7	10.801	**770**
780	121.51	4113.9	11.010	97.210	4113.9	10.907	81.008	4113.9	10.823	**780**
790	122.67	4137.3	11.032	98.133	4137.3	10.929	81.778	4137.2	10.845	**790**
800	123.82	4160.7	11.054	99.056	4160.7	10.951	82.547	4160.7	10.867	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.008 MPa** (t_{sat} = 41.51 °C)			**0.010 MPa** (t_{sat} = 45.81 °C)			**0.012 MPa** (t_{sat} = 49.42 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 008 5	173.85	0.5925	0.001 010 3	191.81	0.6492	0.001 011 9	206.91	0.6963	Sat. Liq.
Sat. Vap.	18.099	2576.2	8.2274	14.671	2583.9	8.1489	12.359	2590.3	8.0850	Sat. Vap.
0	0.001 000 2	-0.03	-0.0002	0.001 000 2	-0.03	-0.0002	0.001 000 2	-0.03	-0.0002	**0**
5	0.001 000 1	21.03	0.0763	0.001 000 1	21.03	0.0763	0.001 000 1	21.03	0.0763	**5**
10	0.001 000 3	42.03	0.1511	0.001 000 3	42.03	0.1511	0.001 000 3	42.03	0.1511	**10**
15	0.001 000 9	62.99	0.2245	0.001 000 9	62.99	0.2245	0.001 000 9	62.99	0.2245	**15**
20	0.001 001 8	83.93	0.2965	0.001 001 8	83.93	0.2965	0.001 001 8	83.93	0.2965	**20**
25	0.001 003 0	104.84	0.3673	0.001 003 0	104.84	0.3673	0.001 003 0	104.85	0.3673	**25**
30	0.001 004 4	125.75	0.4368	0.001 004 4	125.75	0.4368	0.001 004 4	125.75	0.4368	**30**
35	0.001 006 0	146.65	0.5052	0.001 006 0	146.65	0.5052	0.001 006 0	146.65	0.5052	**35**
40	0.001 007 9	167.54	0.5724	0.001 007 9	167.54	0.5724	0.001 007 9	167.55	0.5724	**40**
45	18.304	2583.0	8.2487	0.001 009 9	188.44	0.6386	0.001 009 9	188.44	0.6386	**45**
50	18.596	2592.6	8.2786	14.867	2592.0	8.1741	12.381	2591.4	8.0885	**50**
55	18.888	2602.1	8.3079	15.102	2601.6	8.2037	12.577	2601.1	8.1182	**55**
60	19.179	2611.6	8.3367	15.335	2611.2	8.2326	12.773	2610.7	8.1473	**60**
65	19.470	2621.1	8.3651	15.569	2620.7	8.2611	12.967	2620.3	8.1759	**65**
70	19.761	2630.6	8.3930	15.802	2630.3	8.2891	13.162	2629.9	8.2040	**70**
75	20.052	2640.2	8.4205	16.035	2639.8	8.3167	13.357	2639.5	8.2317	**75**
80	20.342	2649.7	8.4476	16.267	2649.3	8.3438	13.551	2649.0	8.2589	**80**
85	20.632	2659.2	8.4743	16.500	2658.9	8.3706	13.745	2658.6	8.2858	**85**
90	20.922	2668.7	8.5006	16.732	2668.4	8.3970	13.939	2668.1	8.3122	**90**
95	21.212	2678.2	8.5266	16.965	2677.9	8.4231	14.133	2677.6	8.3383	**95**
100	21.502	2687.7	8.5523	17.197	2687.4	8.4488	14.326	2687.2	8.3641	**100**
105	21.792	2697.2	8.5776	17.429	2697.0	8.4741	14.520	2696.7	8.3895	**105**
110	22.082	2706.7	8.6026	17.661	2706.5	8.4992	14.713	2706.3	8.4146	**110**
115	22.371	2716.2	8.6273	17.893	2716.0	8.5239	14.907	2715.8	8.4394	**115**
120	22.661	2725.8	8.6517	18.124	2725.6	8.5484	15.100	2725.4	8.4638	**120**
125	22.950	2735.3	8.6759	18.356	2735.1	8.5725	15.293	2735.0	8.4880	**125**
130	23.239	2744.9	8.6997	18.588	2744.7	8.5964	15.487	2744.5	8.5119	**130**
135	23.528	2754.4	8.7233	18.819	2754.3	8.6200	15.680	2754.1	8.5355	**135**
140	23.818	2764.0	8.7466	19.051	2763.8	8.6433	15.873	2763.7	8.5588	**140**
145	24.107	2773.6	8.7696	19.282	2773.4	8.6663	16.066	2773.3	8.5819	**145**
150	24.396	2783.2	8.7924	19.514	2783.0	8.6892	16.259	2782.9	8.6048	**150**
155	24.685	2792.8	8.8149	19.745	2792.6	8.7117	16.452	2792.5	8.6273	**155**
160	24.974	2802.4	8.8373	19.976	2802.2	8.7340	16.644	2802.1	8.6497	**160**
165	25.263	2812.0	8.8593	20.208	2811.9	8.7561	16.837	2811.7	8.6718	**165**
170	25.552	2821.6	8.8812	20.439	2821.5	8.7780	17.030	2821.4	8.6937	**170**
175	25.841	2831.3	8.9029	20.670	2831.2	8.7997	17.223	2831.0	8.7153	**175**
180	26.130	2840.9	8.9243	20.901	2840.8	8.8211	17.416	2840.7	8.7368	**180**
185	26.419	2850.6	8.9455	21.133	2850.5	8.8423	17.608	2850.4	8.7580	**185**
190	26.708	2860.3	8.9665	21.364	2860.2	8.8634	17.801	2860.1	8.7791	**190**
195	26.996	2870.0	8.9873	21.595	2869.9	8.8842	17.994	2869.8	8.7999	**195**
200	27.285	2879.7	9.0080	21.826	2879.6	8.9048	18.186	2879.5	8.8205	**200**
205	27.574	2889.4	9.0284	22.057	2889.3	8.9253	18.379	2889.2	8.8410	**205**
210	27.863	2899.1	9.0487	22.288	2899.1	8.9455	18.572	2899.0	8.8613	**210**
215	28.152	2908.9	9.0687	22.519	2908.8	8.9656	18.764	2908.7	8.8813	**215**
220	28.440	2918.6	9.0886	22.750	2918.6	8.9855	18.957	2918.5	8.9013	**220**
225	28.729	2928.4	9.1083	22.981	2928.3	9.0052	19.150	2928.3	8.9210	**225**
230	29.018	2938.2	9.1279	23.212	2938.1	9.0248	19.342	2938.1	8.9406	**230**
235	29.307	2948.0	9.1473	23.443	2947.9	9.0442	19.535	2947.9	8.9600	**235**
240	29.595	2957.8	9.1665	23.674	2957.8	9.0634	19.727	2957.7	8.9792	**240**
245	29.884	2967.7	9.1856	23.905	2967.6	9.0825	19.920	2967.5	8.9983	**245**
250	30.173	2977.5	9.2045	24.136	2977.4	9.1014	20.112	2977.4	9.0172	**250**
255	30.461	2987.4	9.2233	24.367	2987.3	9.1202	20.305	2987.2	9.0359	**255**
260	30.750	2997.2	9.2419	24.598	2997.2	9.1388	20.497	2997.1	9.0546	**260**
265	31.039	3007.1	9.2603	24.829	3007.1	9.1573	20.690	3007.0	9.0730	**265**
270	31.327	3017.0	9.2786	25.060	3017.0	9.1756	20.882	3016.9	9.0914	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.008 MPa** (t_{sat} = 41.51 °C)			**0.010 MPa** (t_{sat} = 45.81 °C)			**0.012 MPa** (t_{sat} = 49.42 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	31.616	3027.0	9.2968	25.291	3026.9	9.1938	21.075	3026.8	9.1095	**275**
280	31.905	3036.9	9.3149	25.522	3036.8	9.2118	21.267	3036.8	9.1276	**280**
285	32.193	3046.8	9.3328	25.753	3046.8	9.2297	21.460	3046.7	9.1455	**285**
290	32.482	3056.8	9.3505	25.984	3056.8	9.2475	21.652	3056.7	9.1633	**290**
295	32.770	3066.8	9.3682	26.215	3066.7	9.2651	21.845	3066.7	9.1809	**295**
300	33.059	3076.8	9.3857	26.446	3076.7	9.2827	22.037	3076.7	9.1984	**300**
310	33.636	3096.8	9.4204	26.908	3096.8	9.3173	22.422	3096.7	9.2331	**310**
320	34.214	3116.9	9.4545	27.370	3116.9	9.3515	22.807	3116.8	9.2673	**320**
330	34.791	3137.1	9.4882	27.831	3137.0	9.3852	23.192	3137.0	9.3010	**330**
340	35.368	3157.3	9.5215	28.293	3157.3	9.4185	23.577	3157.2	9.3343	**340**
350	35.945	3177.6	9.5543	28.755	3177.5	9.4513	23.962	3177.5	9.3671	**350**
360	36.522	3197.9	9.5867	29.217	3197.9	9.4837	24.346	3197.9	9.3995	**360**
370	37.099	3218.3	9.6187	29.678	3218.3	9.5157	24.731	3218.3	9.4315	**370**
380	37.676	3238.8	9.6503	30.140	3238.8	9.5473	25.116	3238.8	9.4631	**380**
390	38.253	3259.4	9.6815	30.602	3259.3	9.5785	25.501	3259.3	9.4943	**390**
400	38.830	3280.0	9.7123	31.064	3279.9	9.6093	25.886	3279.9	9.5251	**400**
410	39.408	3300.6	9.7428	31.525	3300.6	9.6398	26.270	3300.6	9.5556	**410**
420	39.985	3321.4	9.7730	31.987	3321.3	9.6699	26.655	3321.3	9.5858	**420**
430	40.562	3342.2	9.8028	32.449	3342.2	9.6997	27.040	3342.1	9.6156	**430**
440	41.139	3363.1	9.8322	32.910	3363.0	9.7292	27.425	3363.0	9.6450	**440**
450	41.716	3384.0	9.8614	33.372	3384.0	9.7584	27.809	3383.9	9.6742	**450**
460	42.293	3405.0	9.8902	33.834	3405.0	9.7872	28.194	3404.9	9.7030	**460**
470	42.870	3426.1	9.9188	34.295	3426.0	9.8158	28.579	3426.0	9.7316	**470**
480	43.447	3447.2	9.9470	34.757	3447.2	9.8440	28.964	3447.2	9.7599	**480**
490	44.024	3468.4	9.9750	35.219	3468.4	9.8720	29.348	3468.4	9.7878	**490**
500	44.601	3489.7	10.003	35.680	3489.7	9.8997	29.733	3489.7	9.8155	**500**
510	45.178	3511.0	10.030	36.142	3511.0	9.9271	30.118	3511.0	9.8430	**510**
520	45.755	3532.5	10.057	36.603	3532.4	9.9543	30.502	3532.4	9.8701	**520**
530	46.332	3553.9	10.084	37.065	3553.9	9.9812	30.887	3553.9	9.8971	**530**
540	46.909	3575.5	10.111	37.527	3575.5	10.008	31.272	3575.5	9.9237	**540**
550	47.486	3597.1	10.137	37.988	3597.1	10.034	31.657	3597.1	9.9502	**550**
560	48.063	3618.8	10.164	38.450	3618.8	10.061	32.041	3618.8	9.9764	**560**
570	48.640	3640.6	10.189	38.911	3640.6	10.086	32.426	3640.5	10.002	**570**
580	49.217	3662.4	10.215	39.373	3662.4	10.112	32.811	3662.4	10.028	**580**
590	49.794	3684.3	10.241	39.835	3684.3	10.138	33.195	3684.3	10.054	**590**
600	50.371	3706.3	10.266	40.296	3706.3	10.163	33.580	3706.3	10.079	**600**
610	50.948	3728.3	10.291	40.758	3728.3	10.188	33.965	3728.3	10.104	**610**
620	51.525	3750.4	10.316	41.219	3750.4	10.213	34.349	3750.4	10.129	**620**
630	52.102	3772.6	10.341	41.681	3772.6	10.238	34.734	3772.6	10.154	**630**
640	52.679	3794.9	10.365	42.143	3794.9	10.262	35.119	3794.9	10.178	**640**
650	53.256	3817.2	10.390	42.604	3817.2	10.287	35.503	3817.2	10.202	**650**
660	53.833	3839.6	10.414	43.066	3839.6	10.311	35.888	3839.6	10.227	**660**
670	54.410	3862.1	10.438	43.527	3862.1	10.335	36.273	3862.1	10.251	**670**
680	54.987	3884.6	10.461	43.989	3884.6	10.358	36.657	3884.6	10.274	**680**
690	55.563	3907.2	10.485	44.451	3907.2	10.382	37.042	3907.2	10.298	**690**
700	56.140	3929.9	10.508	44.912	3929.9	10.405	37.427	3929.9	10.321	**700**
710	56.717	3952.7	10.532	45.374	3952.7	10.429	37.811	3952.6	10.345	**710**
720	57.294	3975.5	10.555	45.835	3975.5	10.452	38.196	3975.5	10.368	**720**
730	57.871	3998.4	10.578	46.297	3998.4	10.475	38.580	3998.4	10.391	**730**
740	58.448	4021.4	10.601	46.758	4021.3	10.498	38.965	4021.3	10.413	**740**
750	59.025	4044.4	10.623	47.220	4044.4	10.520	39.350	4044.4	10.436	**750**
760	59.602	4067.5	10.646	47.682	4067.5	10.543	39.734	4067.5	10.459	**760**
770	60.179	4090.7	10.668	48.143	4090.7	10.565	40.119	4090.7	10.481	**770**
780	60.756	4113.9	10.690	48.605	4113.9	10.587	40.504	4113.9	10.503	**780**
790	61.333	4137.2	10.712	49.066	4137.2	10.609	40.888	4137.2	10.525	**790**
800	61.910	4160.6	10.734	49.528	4160.6	10.631	41.273	4160.6	10.547	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.014 MPa** (t_{sat} = 52.55 °C)			**0.016 MPa** (t_{sat} = 55.31 °C)			**0.018 MPa** (t_{sat} = 57.80 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 013 3	219.99	0.7366	0.001 014 7	231.55	0.7720	0.001 016 0	241.95	0.8035	Sat. Liq.
Sat. Vap.	10.691	2595.8	8.0312	9.4309	2600.7	7.9847	8.4433	2605.0	7.9437	Sat. Vap.
0	0.001 000 2	-0.03	-0.0002	0.001 000 2	-0.03	-0.0002	0.001 000 2	-0.02	-0.0002	**0**
5	0.001 000 1	21.03	0.0763	0.001 000 1	21.03	0.0763	0.001 000 1	21.04	0.0763	**5**
10	0.001 000 3	42.03	0.1511	0.001 000 3	42.04	0.1511	0.001 000 3	42.04	0.1511	**10**
15	0.001 000 9	63.00	0.2245	0.001 000 9	63.00	0.2245	0.001 000 9	63.00	0.2245	**15**
20	0.001 001 8	83.93	0.2965	0.001 001 8	83.93	0.2965	0.001 001 8	83.93	0.2965	**20**
25	0.001 003 0	104.85	0.3673	0.001 003 0	104.85	0.3673	0.001 003 0	104.85	0.3673	**25**
30	0.001 004 4	125.75	0.4368	0.001 004 4	125.76	0.4368	0.001 004 4	125.76	0.4368	**30**
35	0.001 006 0	146.65	0.5052	0.001 006 0	146.65	0.5052	0.001 006 0	146.66	0.5052	**35**
40	0.001 007 9	167.55	0.5724	0.001 007 9	167.55	0.5724	0.001 007 9	167.55	0.5724	**40**
45	0.001 009 9	188.44	0.6386	0.001 009 9	188.44	0.6386	0.001 009 9	188.44	0.6386	**45**
50	0.001 012 1	209.34	0.7038	0.001 012 1	209.34	0.7038	0.001 012 1	209.34	0.7038	**50**
55	10.774	2600.6	8.0458	0.001 014 5	230.24	0.7680	0.001 014 5	230.24	0.7680	**55**
60	10.942	2610.3	8.0751	9.5690	2609.8	8.0123	8.5011	2609.3	7.9567	**60**
65	11.110	2619.9	8.1038	9.7160	2619.5	8.0411	8.6321	2619.1	7.9857	**65**
70	11.277	2629.5	8.1320	9.8626	2629.1	8.0694	8.7628	2628.7	8.0142	**70**
75	11.444	2639.1	8.1597	10.009	2638.7	8.0973	8.8931	2638.4	8.0421	**75**
80	11.611	2648.7	8.1870	10.155	2648.3	8.1247	9.0233	2648.0	8.0696	**80**
85	11.777	2658.2	8.2140	10.301	2657.9	8.1516	9.1533	2657.6	8.0966	**85**
90	11.944	2667.8	8.2405	10.447	2667.5	8.1782	9.2832	2667.2	8.1232	**90**
95	12.110	2677.4	8.2666	10.593	2677.1	8.2044	9.4129	2676.8	8.1495	**95**
100	12.276	2686.9	8.2924	10.738	2686.7	8.2303	9.5425	2686.4	8.1754	**100**
105	12.442	2696.5	8.3179	10.884	2696.3	8.2558	9.6720	2696.0	8.2009	**105**
110	12.608	2706.1	8.3430	11.029	2705.8	8.2809	9.8013	2705.6	8.2261	**110**
115	12.774	2715.6	8.3678	11.175	2715.4	8.3058	9.9306	2715.2	8.2510	**115**
120	12.940	2725.2	8.3923	11.320	2725.0	8.3303	10.060	2724.8	8.2755	**120**
125	13.106	2734.8	8.4165	11.465	2734.6	8.3545	10.189	2734.4	8.2998	**125**
130	13.271	2744.3	8.4404	11.610	2744.2	8.3784	10.318	2744.0	8.3238	**130**
135	13.437	2753.9	8.4640	11.755	2753.8	8.4021	10.447	2753.6	8.3474	**135**
140	13.603	2763.5	8.4874	11.900	2763.4	8.4255	10.576	2763.2	8.3708	**140**
145	13.768	2773.1	8.5105	12.045	2773.0	8.4486	10.705	2772.8	8.3940	**145**
150	13.934	2782.7	8.5334	12.190	2782.6	8.4715	10.834	2782.5	8.4169	**150**
155	14.099	2792.4	8.5560	12.335	2792.2	8.4941	10.963	2792.1	8.4395	**155**
160	14.265	2802.0	8.5783	12.480	2801.9	8.5165	11.091	2801.7	8.4619	**160**
165	14.430	2811.6	8.6004	12.624	2811.5	8.5386	11.220	2811.4	8.4840	**165**
170	14.595	2821.3	8.6223	12.769	2821.2	8.5605	11.349	2821.0	8.5059	**170**
175	14.761	2830.9	8.6440	12.914	2830.8	8.5822	11.478	2830.7	8.5276	**175**
180	14.926	2840.6	8.6655	13.059	2840.5	8.6037	11.606	2840.4	8.5491	**180**
185	15.091	2850.3	8.6867	13.203	2850.2	8.6249	11.735	2850.1	8.5704	**185**
190	15.256	2860.0	8.7078	13.348	2859.9	8.6460	11.863	2859.8	8.5915	**190**
195	15.422	2869.7	8.7286	13.492	2869.6	8.6668	11.992	2869.5	8.6123	**195**
200	15.587	2879.4	8.7493	13.637	2879.3	8.6875	12.121	2879.2	8.6330	**200**
205	15.752	2889.1	8.7697	13.782	2889.1	8.7080	12.249	2889.0	8.6535	**205**
210	15.917	2898.9	8.7900	13.926	2898.8	8.7282	12.378	2898.7	8.6737	**210**
215	16.082	2908.6	8.8101	14.071	2908.6	8.7483	12.506	2908.5	8.6938	**215**
220	16.247	2918.4	8.8300	14.215	2918.3	8.7682	12.635	2918.3	8.7138	**220**
225	16.413	2928.2	8.8497	14.360	2928.1	8.7880	12.763	2928.0	8.7335	**225**
230	16.578	2938.0	8.8693	14.504	2937.9	8.8076	12.892	2937.8	8.7531	**230**
235	16.743	2947.8	8.8887	14.649	2947.7	8.8270	13.020	2947.7	8.7725	**235**
240	16.908	2957.6	8.9079	14.793	2957.6	8.8462	13.149	2957.5	8.7918	**240**
245	17.073	2967.5	8.9270	14.938	2967.4	8.8653	13.277	2967.3	8.8108	**245**
250	17.238	2977.3	8.9459	15.082	2977.3	8.8842	13.405	2977.2	8.8298	**250**
255	17.403	2987.2	8.9647	15.227	2987.1	8.9030	13.534	2987.1	8.8486	**255**
260	17.568	2997.1	8.9833	15.371	2997.0	8.9216	13.662	2996.9	8.8672	**260**
265	17.733	3007.0	9.0018	15.516	3006.9	8.9401	13.791	3006.8	8.8857	**265**
270	17.898	3016.9	9.0201	15.660	3016.8	8.9584	13.919	3016.8	8.9040	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.014 MPa** (t_{sat} = 52.55 °C)			**0.016 MPa** (t_{sat} = 55.31 °C)			**0.018 MPa** (t_{sat} = 57.80 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	18.063	3026.8	9.0383	15.804	3026.7	8.9766	14.048	3026.7	8.9222	**275**
280	18.228	3036.7	9.0564	15.949	3036.7	8.9947	14.176	3036.6	8.9402	**280**
285	18.393	3046.7	9.0743	16.093	3046.6	9.0126	14.304	3046.6	8.9582	**285**
290	18.558	3056.7	9.0921	16.238	3056.6	9.0304	14.433	3056.6	8.9759	**290**
295	18.723	3066.6	9.1097	16.382	3066.6	9.0480	14.561	3066.5	8.9936	**295**
300	18.888	3076.6	9.1272	16.526	3076.6	9.0655	14.689	3076.5	9.0111	**300**
310	19.218	3096.7	9.1619	16.815	3096.6	9.1002	14.946	3096.6	9.0458	**310**
320	19.548	3116.8	9.1961	17.104	3116.7	9.1344	15.203	3116.7	9.0800	**320**
330	19.878	3136.9	9.2298	17.393	3136.9	9.1681	15.459	3136.9	9.1137	**330**
340	20.208	3157.2	9.2631	17.681	3157.1	9.2014	15.716	3157.1	9.1470	**340**
350	20.538	3177.5	9.2959	17.970	3177.4	9.2342	15.973	3177.4	9.1798	**350**
360	20.868	3197.8	9.3283	18.259	3197.8	9.2666	16.229	3197.7	9.2122	**360**
370	21.198	3218.2	9.3603	18.547	3218.2	9.2986	16.486	3218.2	9.2442	**370**
380	21.527	3238.7	9.3919	18.836	3238.7	9.3302	16.743	3238.7	9.2758	**380**
390	21.857	3259.3	9.4231	19.125	3259.2	9.3614	16.999	3259.2	9.3070	**390**
400	22.187	3279.9	9.4540	19.413	3279.8	9.3923	17.256	3279.8	9.3379	**400**
410	22.517	3300.5	9.4844	19.702	3300.5	9.4228	17.512	3300.5	9.3684	**410**
420	22.847	3321.3	9.5146	19.990	3321.3	9.4529	17.769	3321.2	9.3985	**420**
430	23.177	3342.1	9.5444	20.279	3342.1	9.4827	18.025	3342.0	9.4283	**430**
440	23.506	3363.0	9.5739	20.568	3362.9	9.5122	18.282	3362.9	9.4578	**440**
450	23.836	3383.9	9.6030	20.856	3383.9	9.5414	18.539	3383.9	9.4870	**450**
460	24.166	3404.9	9.6319	21.145	3404.9	9.5702	18.795	3404.9	9.5158	**460**
470	24.496	3426.0	9.6604	21.433	3426.0	9.5988	19.052	3425.9	9.5444	**470**
480	24.826	3447.1	9.6887	21.722	3447.1	9.6270	19.308	3447.1	9.5727	**480**
490	25.155	3468.4	9.7167	22.011	3468.3	9.6550	19.565	3468.3	9.6006	**490**
500	25.485	3489.6	9.7444	22.299	3489.6	9.6827	19.821	3489.6	9.6283	**500**
510	25.815	3511.0	9.7718	22.588	3511.0	9.7102	20.078	3510.9	9.6558	**510**
520	26.145	3532.4	9.7990	22.876	3532.4	9.7373	20.334	3532.4	9.6830	**520**
530	26.474	3553.9	9.8259	23.165	3553.9	9.7643	20.591	3553.8	9.7099	**530**
540	26.804	3575.4	9.8526	23.453	3575.4	9.7909	20.847	3575.4	9.7365	**540**
550	27.134	3597.1	9.8790	23.742	3597.0	9.8174	21.104	3597.0	9.7630	**550**
560	27.464	3618.8	9.9052	24.030	3618.7	9.8436	21.360	3618.7	9.7892	**560**
570	27.793	3640.5	9.9312	24.319	3640.5	9.8695	21.617	3640.5	9.8151	**570**
580	28.123	3662.4	9.9569	24.607	3662.3	9.8953	21.873	3662.3	9.8409	**580**
590	28.453	3684.3	9.9824	24.896	3684.2	9.9208	22.130	3684.2	9.8664	**590**
600	28.783	3706.2	10.008	25.184	3706.2	9.9461	22.386	3706.2	9.8917	**600**
610	29.112	3728.3	10.033	25.473	3728.3	9.9712	22.642	3728.3	9.9168	**610**
620	29.442	3750.4	10.058	25.762	3750.4	9.9961	22.899	3750.4	9.9417	**620**
630	29.772	3772.6	10.082	26.050	3772.6	10.021	23.155	3772.6	9.9665	**630**
640	30.101	3794.8	10.107	26.339	3794.8	10.045	23.412	3794.8	9.9910	**640**
650	30.431	3817.2	10.131	26.627	3817.2	10.070	23.668	3817.2	10.015	**650**
660	30.761	3839.6	10.155	26.916	3839.6	10.094	23.925	3839.6	10.039	**660**
670	31.091	3862.0	10.179	27.204	3862.0	10.118	24.181	3862.0	10.063	**670**
680	31.420	3884.6	10.203	27.493	3884.6	10.142	24.438	3884.6	10.087	**680**
690	31.750	3907.2	10.227	27.781	3907.2	10.165	24.694	3907.2	10.111	**690**
700	32.080	3929.9	10.250	28.070	3929.9	10.189	24.951	3929.9	10.134	**700**
710	32.409	3952.6	10.273	28.358	3952.6	10.212	25.207	3952.6	10.157	**710**
720	32.739	3975.5	10.297	28.647	3975.5	10.235	25.463	3975.4	10.181	**720**
730	33.069	3998.4	10.319	28.935	3998.3	10.258	25.720	3998.3	10.203	**730**
740	33.399	4021.3	10.342	29.224	4021.3	10.281	25.976	4021.3	10.226	**740**
750	33.728	4044.4	10.365	29.512	4044.3	10.303	26.233	4044.3	10.249	**750**
760	34.058	4067.5	10.387	29.801	4067.5	10.326	26.489	4067.4	10.271	**760**
770	34.388	4090.6	10.410	30.089	4090.6	10.348	26.746	4090.6	10.294	**770**
780	34.717	4113.9	10.432	30.378	4113.9	10.370	27.002	4113.9	10.316	**780**
790	35.047	4137.2	10.454	30.666	4137.2	10.392	27.259	4137.2	10.338	**790**
800	35.377	4160.6	10.476	30.955	4160.6	10.414	27.515	4160.6	10.360	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.020 MPa** (t_{sat} = 60.06 °C)			**0.025 MPa** (t_{sat} = 64.96 °C)			**0.030 MPa** (t_{sat} = 69.10 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 017 1	251.40	0.8320	0.001 019 8	271.93	0.8931	0.001 022 2	289.23	0.9439	Sat. Liq.
Sat. Vap.	7.6482	2608.9	7.9072	6.2034	2617.4	7.8302	5.2286	2624.6	7.7675	Sat. Vap.
0	0.001 000 2	-0.02	-0.0002	0.001 000 2	-0.02	-0.0002	0.001 000 2	-0.01	-0.0002	**0**
5	0.001 000 1	21.04	0.0763	0.001 000 1	21.04	0.0763	0.001 000 1	21.05	0.0763	**5**
10	0.001 000 3	42.04	0.1511	0.001 000 3	42.04	0.1511	0.001 000 3	42.05	0.1511	**10**
15	0.001 000 9	63.00	0.2245	0.001 000 9	63.01	0.2245	0.001 000 9	63.01	0.2245	**15**
20	0.001 001 8	83.94	0.2965	0.001 001 8	83.94	0.2965	0.001 001 8	83.95	0.2965	**20**
25	0.001 003 0	104.85	0.3673	0.001 003 0	104.86	0.3673	0.001 003 0	104.86	0.3672	**25**
30	0.001 004 4	125.76	0.4368	0.001 004 4	125.76	0.4368	0.001 004 4	125.77	0.4368	**30**
35	0.001 006 0	146.66	0.5052	0.001 006 0	146.66	0.5052	0.001 006 0	146.67	0.5052	**35**
40	0.001 007 9	167.55	0.5724	0.001 007 9	167.56	0.5724	0.001 007 9	167.56	0.5724	**40**
45	0.001 009 9	188.45	0.6386	0.001 009 9	188.45	0.6386	0.001 009 9	188.46	0.6386	**45**
50	0.001 012 1	209.34	0.7038	0.001 012 1	209.35	0.7038	0.001 012 1	209.35	0.7038	**50**
55	0.001 014 5	230.24	0.7680	0.001 014 5	230.25	0.7680	0.001 014 5	230.25	0.7680	**55**
60	0.001 017 1	251.15	0.8312	0.001 017 1	251.16	0.8312	0.001 017 1	251.16	0.8312	**60**
65	7.7650	2618.6	7.9361	6.2041	2617.5	7.8304	0.001 019 9	272.08	0.8935	**65**
70	7.8828	2628.3	7.9646	6.2989	2627.4	7.8593	5.2429	2626.3	7.7727	**70**
75	8.0004	2638.0	7.9926	6.3935	2637.1	7.8875	5.3221	2636.2	7.8012	**75**
80	8.1178	2647.7	8.0202	6.4878	2646.9	7.9153	5.4011	2646.0	7.8292	**80**
85	8.2350	2657.3	8.0473	6.5819	2656.6	7.9426	5.4799	2655.8	7.8567	**85**
90	8.3520	2667.0	8.0740	6.6759	2666.2	7.9694	5.5585	2665.5	7.8837	**90**
95	8.4689	2676.6	8.1003	6.7697	2675.9	7.9958	5.6369	2675.2	7.9102	**95**
100	8.5857	2686.2	8.1262	6.8634	2685.6	8.0219	5.7153	2684.9	7.9364	**100**
105	8.7023	2695.8	8.1518	6.9570	2695.2	8.0476	5.7935	2694.6	7.9622	**105**
110	8.8189	2705.4	8.1770	7.0505	2704.9	8.0729	5.8716	2704.3	7.9876	**110**
115	8.9354	2715.0	8.2019	7.1439	2714.5	8.0979	5.9496	2714.0	8.0127	**115**
120	9.0518	2724.6	8.2265	7.2372	2724.1	8.1226	6.0275	2723.6	8.0374	**120**
125	9.1681	2734.2	8.2508	7.3305	2733.8	8.1469	6.1054	2733.3	8.0619	**125**
130	9.2843	2743.8	8.2748	7.4237	2743.4	8.1710	6.1832	2743.0	8.0860	**130**
135	9.4005	2753.4	8.2985	7.5168	2753.0	8.1947	6.2609	2752.6	8.1098	**135**
140	9.5167	2763.1	8.3219	7.6099	2762.7	8.2182	6.3386	2762.3	8.1333	**140**
145	9.6328	2772.7	8.3451	7.7029	2772.3	8.2414	6.4163	2771.9	8.1566	**145**
150	9.7488	2782.3	8.3680	7.7958	2782.0	8.2643	6.4939	2781.6	8.1796	**150**
155	9.8648	2792.0	8.3906	7.8888	2791.6	8.2870	6.5714	2791.3	8.2023	**155**
160	9.9808	2801.6	8.4130	7.9817	2801.3	8.3095	6.6489	2801.0	8.2248	**160**
165	10.097	2811.3	8.4352	8.0745	2811.0	8.3317	6.7264	2810.7	8.2470	**165**
170	10.213	2820.9	8.4571	8.1673	2820.6	8.3536	6.8038	2820.3	8.2690	**170**
175	10.328	2830.6	8.4788	8.2601	2830.3	8.3754	6.8812	2830.0	8.2907	**175**
180	10.444	2840.3	8.5003	8.3529	2840.0	8.3969	6.9586	2839.8	8.3123	**180**
185	10.560	2850.0	8.5216	8.4456	2849.7	8.4182	7.0360	2849.5	8.3336	**185**
190	10.676	2859.7	8.5427	8.5383	2859.4	8.4393	7.1133	2859.2	8.3547	**190**
195	10.792	2869.4	8.5635	8.6310	2869.2	8.4602	7.1906	2868.9	8.3756	**195**
200	10.907	2879.1	8.5842	8.7237	2878.9	8.4809	7.2679	2878.7	8.3964	**200**
205	11.023	2888.9	8.6047	8.8164	2888.7	8.5014	7.3452	2888.4	8.4169	**205**
210	11.139	2898.6	8.6250	8.9090	2898.4	8.5217	7.4224	2898.2	8.4372	**210**
215	11.255	2908.4	8.6451	9.0016	2908.2	8.5418	7.4997	2908.0	8.4573	**215**
220	11.370	2918.2	8.6650	9.0942	2918.0	8.5617	7.5769	2917.8	8.4773	**220**
225	11.486	2928.0	8.6848	9.1868	2927.8	8.5815	7.6541	2927.6	8.4971	**225**
230	11.602	2937.8	8.7044	9.2794	2937.6	8.6011	7.7313	2937.4	8.5167	**230**
235	11.717	2947.6	8.7238	9.3720	2947.4	8.6205	7.8085	2947.2	8.5361	**235**
240	11.833	2957.4	8.7430	9.4646	2957.3	8.6398	7.8857	2957.1	8.5554	**240**
245	11.949	2967.3	8.7621	9.5571	2967.1	8.6589	7.9628	2966.9	8.5745	**245**
250	12.064	2977.1	8.7811	9.6496	2977.0	8.6778	8.0400	2976.8	8.5935	**250**
255	12.180	2987.0	8.7998	9.7422	2986.8	8.6966	8.1171	2986.7	8.6123	**255**
260	12.295	2996.9	8.8185	9.8347	2996.7	8.7153	8.1943	2996.6	8.6309	**260**
265	12.411	3006.8	8.8369	9.9272	3006.6	8.7338	8.2714	3006.5	8.6494	**265**
270	12.526	3016.7	8.8553	10.020	3016.6	8.7521	8.3485	3016.4	8.6678	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.020 MPa** (t_{sat} = 60.06 °C)			**0.025 MPa** (t_{sat} = 64.96 °C)			**0.030 MPa** (t_{sat} = 69.10 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	12.642	3026.6	8.8735	10.112	3026.5	8.7703	8.4256	3026.3	8.6860	**275**
280	12.758	3036.6	8.8915	10.205	3036.4	8.7884	8.5027	3036.3	8.7040	**280**
285	12.873	3046.5	8.9095	10.297	3046.4	8.8063	8.5798	3046.3	8.7220	**285**
290	12.989	3056.5	8.9273	10.390	3056.4	8.8241	8.6569	3056.2	8.7398	**290**
295	13.104	3066.5	8.9449	10.482	3066.4	8.8418	8.7340	3066.2	8.7575	**295**
300	13.220	3076.5	8.9624	10.575	3076.4	8.8593	8.8111	3076.2	8.7750	**300**
310	13.451	3096.5	8.9971	10.760	3096.4	8.8940	8.9652	3096.3	8.8097	**310**
320	13.682	3116.7	9.0313	10.944	3116.5	8.9282	9.1194	3116.4	8.8439	**320**
330	13.913	3136.8	9.0650	11.129	3136.7	8.9619	9.2735	3136.6	8.8776	**330**
340	14.144	3157.1	9.0983	11.314	3157.0	8.9952	9.4276	3156.9	8.9109	**340**
350	14.375	3177.4	9.1311	11.499	3177.3	9.0280	9.5816	3177.2	8.9438	**350**
360	14.606	3197.7	9.1635	11.684	3197.6	9.0605	9.7357	3197.5	8.9762	**360**
370	14.837	3218.1	9.1956	11.869	3218.0	9.0925	9.8898	3218.0	9.0082	**370**
380	15.068	3238.6	9.2272	12.053	3238.5	9.1241	10.044	3238.4	9.0398	**380**
390	15.299	3259.2	9.2584	12.238	3259.1	9.1553	10.198	3259.0	9.0711	**390**
400	15.530	3279.8	9.2892	12.423	3279.7	9.1862	10.352	3279.6	9.1019	**400**
410	15.761	3300.5	9.3197	12.608	3300.4	9.2167	10.506	3300.3	9.1324	**410**
420	15.992	3321.2	9.3499	12.793	3321.1	9.2468	10.660	3321.1	9.1626	**420**
430	16.223	3342.0	9.3797	12.977	3341.9	9.2766	10.814	3341.9	9.1924	**430**
440	16.453	3362.9	9.4092	13.162	3362.8	9.3061	10.968	3362.8	9.2219	**440**
450	16.684	3383.8	9.4383	13.347	3383.8	9.3353	11.122	3383.7	9.2511	**450**
460	16.915	3404.8	9.4672	13.532	3404.8	9.3641	11.276	3404.7	9.2799	**460**
470	17.146	3425.9	9.4957	13.716	3425.9	9.3927	11.430	3425.8	9.3085	**470**
480	17.377	3447.1	9.5240	13.901	3447.0	9.4210	11.584	3447.0	9.3368	**480**
490	17.608	3468.3	9.5520	14.086	3468.2	9.4489	11.738	3468.2	9.3647	**490**
500	17.839	3489.6	9.5797	14.270	3489.5	9.4767	11.892	3489.5	9.3925	**500**
510	18.070	3510.9	9.6071	14.455	3510.9	9.5041	12.046	3510.8	9.4199	**510**
520	18.300	3532.3	9.6343	14.640	3532.3	9.5313	12.199	3532.2	9.4471	**520**
530	18.531	3553.8	9.6612	14.825	3553.8	9.5582	12.353	3553.7	9.4740	**530**
540	18.762	3575.4	9.6879	15.009	3575.3	9.5849	12.507	3575.3	9.5007	**540**
550	18.993	3597.0	9.7143	15.194	3597.0	9.6113	12.661	3596.9	9.5271	**550**
560	19.224	3618.7	9.7405	15.379	3618.7	9.6375	12.815	3618.6	9.5533	**560**
570	19.455	3640.5	9.7665	15.563	3640.4	9.6635	12.969	3640.4	9.5793	**570**
580	19.686	3662.3	9.7923	15.748	3662.3	9.6892	13.123	3662.2	9.6050	**580**
590	19.916	3684.2	9.8178	15.933	3684.2	9.7148	13.277	3684.1	9.6306	**590**
600	20.147	3706.2	9.8431	16.117	3706.2	9.7401	13.431	3706.1	9.6559	**600**
610	20.378	3728.2	9.8682	16.302	3728.2	9.7652	13.585	3728.2	9.6810	**610**
620	20.609	3750.4	9.8931	16.487	3750.3	9.7901	13.739	3750.3	9.7059	**620**
630	20.840	3772.5	9.9178	16.671	3772.5	9.8148	13.893	3772.5	9.7306	**630**
640	21.071	3794.8	9.9423	16.856	3794.8	9.8393	14.046	3794.7	9.7551	**640**
650	21.301	3817.1	9.9666	17.041	3817.1	9.8636	14.200	3817.1	9.7795	**650**
660	21.532	3839.5	9.9908	17.225	3839.5	9.8878	14.354	3839.5	9.8036	**660**
670	21.763	3862.0	10.015	17.410	3862.0	9.9117	14.508	3861.9	9.8275	**670**
680	21.994	3884.6	10.039	17.595	3884.5	9.9355	14.662	3884.5	9.8513	**680**
690	22.225	3907.2	10.062	17.779	3907.1	9.9591	14.816	3907.1	9.8749	**690**
700	22.455	3929.8	10.086	17.964	3929.8	9.9825	14.970	3929.8	9.8984	**700**
710	22.686	3952.6	10.109	18.149	3952.6	10.006	15.124	3952.5	9.9216	**710**
720	22.917	3975.4	10.132	18.333	3975.4	10.029	15.278	3975.4	9.9447	**720**
730	23.148	3998.3	10.155	18.518	3998.3	10.052	15.431	3998.3	9.9677	**730**
740	23.379	4021.3	10.178	18.703	4021.3	10.075	15.585	4021.2	9.9904	**740**
750	23.609	4044.3	10.200	18.887	4044.3	10.097	15.739	4044.3	10.013	**750**
760	23.840	4067.4	10.223	19.072	4067.4	10.120	15.893	4067.4	10.036	**760**
770	24.071	4090.6	10.245	19.257	4090.6	10.142	16.047	4090.6	10.058	**770**
780	24.302	4113.9	10.267	19.441	4113.8	10.164	16.201	4113.8	10.080	**780**
790	24.533	4137.2	10.289	19.626	4137.2	10.186	16.355	4137.1	10.102	**790**
800	24.763	4160.6	10.311	19.811	4160.6	10.208	16.509	4160.5	10.124	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.035 MPa** (t_{sat} = 72.68 °C)			**0.040 MPa** (t_{sat} = 75.86 °C)			**0.045 MPa** (t_{sat} = 78.71 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 024 4	304.25	0.9876	0.001 026 4	317.57	1.0259	0.001 028 2	329.55	1.0601	Sat. Liq.
Sat. Vap.	4.5252	2630.7	7.7146	3.9931	2636.1	7.6690	3.5761	2640.9	7.6288	Sat. Vap.
0	0.001 000 2	-0.01	-0.0002	0.001 000 2	0.00	-0.0002	0.001 000 2	0.00	-0.0002	**0**
5	0.001 000 1	21.05	0.0763	0.001 000 1	21.06	0.0763	0.001 000 1	21.06	0.0763	**5**
10	0.001 000 3	42.05	0.1511	0.001 000 3	42.06	0.1511	0.001 000 3	42.06	0.1511	**10**
15	0.001 000 9	63.02	0.2245	0.001 000 9	63.02	0.2245	0.001 000 9	63.03	0.2245	**15**
20	0.001 001 8	83.95	0.2965	0.001 001 8	83.96	0.2965	0.001 001 8	83.96	0.2965	**20**
25	0.001 003 0	104.87	0.3672	0.001 003 0	104.87	0.3672	0.001 003 0	104.88	0.3672	**25**
30	0.001 004 4	125.77	0.4368	0.001 004 4	125.78	0.4368	0.001 004 4	125.78	0.4368	**30**
35	0.001 006 0	146.67	0.5052	0.001 006 0	146.68	0.5052	0.001 006 0	146.68	0.5052	**35**
40	0.001 007 9	167.57	0.5724	0.001 007 9	167.57	0.5724	0.001 007 9	167.57	0.5724	**40**
45	0.001 009 9	188.46	0.6386	0.001 009 9	188.46	0.6386	0.001 009 9	188.47	0.6386	**45**
50	0.001 012 1	209.36	0.7038	0.001 012 1	209.36	0.7038	0.001 012 1	209.36	0.7038	**50**
55	0.001 014 5	230.26	0.7680	0.001 014 5	230.26	0.7680	0.001 014 5	230.27	0.7680	**55**
60	0.001 017 1	251.17	0.8312	0.001 017 1	251.17	0.8312	0.001 017 1	251.18	0.8312	**60**
65	0.001 019 8	272.09	0.8935	0.001 019 8	272.09	0.8935	0.001 019 8	272.10	0.8935	**65**
70	0.001 022 8	293.02	0.9550	0.001 022 8	293.03	0.9550	0.001 022 8	293.03	0.9550	**70**
75	4.5569	2635.3	7.7279	0.001 025 8	313.97	1.0156	0.001 025 8	313.98	1.0156	**75**
80	4.6249	2645.2	7.7561	4.0427	2644.3	7.6925	3.5898	2643.4	7.6361	**80**
85	4.6927	2655.0	7.7838	4.1022	2654.2	7.7203	3.6430	2653.4	7.6642	**85**
90	4.7603	2664.8	7.8109	4.1616	2664.1	7.7477	3.6960	2663.3	7.6917	**90**
95	4.8278	2674.6	7.8376	4.2209	2673.9	7.7745	3.7488	2673.2	7.7187	**95**
100	4.8951	2684.3	7.8639	4.2800	2683.7	7.8009	3.8015	2683.0	7.7452	**100**
105	4.9623	2694.0	7.8898	4.3390	2693.4	7.8269	3.8541	2692.8	7.7713	**105**
110	5.0295	2703.8	7.9153	4.3979	2703.2	7.8525	3.9066	2702.6	7.7970	**110**
115	5.0965	2713.5	7.9405	4.4567	2712.9	7.8778	3.9590	2712.4	7.8224	**115**
120	5.1635	2723.1	7.9653	4.5154	2722.7	7.9027	4.0113	2722.2	7.8473	**120**
125	5.2304	2732.8	7.9898	4.5740	2732.4	7.9273	4.0636	2731.9	7.8720	**125**
130	5.2972	2742.5	8.0140	4.6326	2742.1	7.9515	4.1157	2741.6	7.8963	**130**
135	5.3639	2752.2	8.0379	4.6911	2751.8	7.9754	4.1679	2751.4	7.9203	**135**
140	5.4306	2761.9	8.0614	4.7496	2761.5	7.9991	4.2199	2761.1	7.9440	**140**
145	5.4973	2771.6	8.0847	4.8080	2771.2	8.0224	4.2719	2770.8	7.9674	**145**
150	5.5639	2781.3	8.1078	4.8664	2780.9	8.0455	4.3239	2780.6	7.9905	**150**
155	5.6304	2791.0	8.1305	4.9247	2790.6	8.0683	4.3758	2790.3	8.0133	**155**
160	5.6969	2800.6	8.1530	4.9830	2800.3	8.0908	4.4276	2800.0	8.0359	**160**
165	5.7634	2810.3	8.1753	5.0412	2810.0	8.1131	4.4795	2809.7	8.0582	**165**
170	5.8299	2820.1	8.1973	5.0994	2819.8	8.1352	4.5313	2819.5	8.0803	**170**
175	5.8963	2829.8	8.2191	5.1576	2829.5	8.1570	4.5831	2829.2	8.1022	**175**
180	5.9627	2839.5	8.2407	5.2158	2839.2	8.1786	4.6348	2839.0	8.1238	**180**
185	6.0291	2849.2	8.2620	5.2739	2849.0	8.2000	4.6865	2848.7	8.1452	**185**
190	6.0954	2859.0	8.2832	5.3320	2858.7	8.2212	4.7382	2858.5	8.1664	**190**
195	6.1617	2868.7	8.3041	5.3901	2868.5	8.2421	4.7899	2868.2	8.1874	**195**
200	6.2280	2878.5	8.3248	5.4481	2878.2	8.2629	4.8415	2878.0	8.2081	**200**
205	6.2943	2888.2	8.3454	5.5062	2888.0	8.2834	4.8932	2887.8	8.2287	**205**
210	6.3606	2898.0	8.3657	5.5642	2897.8	8.3038	4.9448	2897.6	8.2491	**210**
215	6.4268	2907.8	8.3859	5.6222	2907.6	8.3239	4.9964	2907.4	8.2693	**215**
220	6.4931	2917.6	8.4059	5.6802	2917.4	8.3439	5.0480	2917.2	8.2893	**220**
225	6.5593	2927.4	8.4256	5.7382	2927.2	8.3637	5.0996	2927.0	8.3091	**225**
230	6.6255	2937.2	8.4453	5.7962	2937.0	8.3834	5.1511	2936.9	8.3287	**230**
235	6.6917	2947.1	8.4647	5.8541	2946.9	8.4028	5.2027	2946.7	8.3482	**235**
240	6.7579	2956.9	8.4840	5.9121	2956.7	8.4221	5.2542	2956.6	8.3675	**240**
245	6.8241	2966.8	8.5031	5.9700	2966.6	8.4413	5.3057	2966.4	8.3867	**245**
250	6.8902	2976.6	8.5221	6.0279	2976.5	8.4602	5.3572	2976.3	8.4056	**250**
255	6.9564	2986.5	8.5409	6.0858	2986.4	8.4791	5.4087	2986.2	8.4245	**255**
260	7.0225	2996.4	8.5596	6.1437	2996.3	8.4977	5.4602	2996.1	8.4431	**260**
265	7.0887	3006.3	8.5781	6.2016	3006.2	8.5162	5.5117	3006.0	8.4617	**265**
270	7.1548	3016.3	8.5964	6.2595	3016.1	8.5346	5.5632	3016.0	8.4800	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.035 MPa** (t_{sat} = 72.68 °C)			**0.040 MPa** (t_{sat} = 75.86 °C)			**0.045 MPa** (t_{sat} = 78.71 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	7.2209	3026.2	8.6146	6.3174	3026.1	8.5528	5.6147	3025.9	8.4983	**275**
280	7.2871	3036.2	8.6327	6.3753	3036.0	8.5709	5.6661	3035.9	8.5164	**280**
285	7.3532	3046.1	8.6507	6.4332	3046.0	8.5889	5.7176	3045.9	8.5343	**285**
290	7.4193	3056.1	8.6685	6.4910	3056.0	8.6067	5.7691	3055.9	8.5521	**290**
295	7.4854	3066.1	8.6861	6.5489	3066.0	8.6244	5.8205	3065.9	8.5698	**295**
300	7.5515	3076.1	8.7037	6.6067	3076.0	8.6419	5.8719	3075.9	8.5874	**300**
310	7.6836	3096.2	8.7384	6.7224	3096.1	8.6766	5.9748	3096.0	8.6221	**310**
320	7.8158	3116.3	8.7726	6.8381	3116.2	8.7109	6.0777	3116.1	8.6564	**320**
330	7.9479	3136.5	8.8064	6.9537	3136.4	8.7446	6.1805	3136.3	8.6901	**330**
340	8.0800	3156.8	8.8397	7.0694	3156.7	8.7779	6.2833	3156.6	8.7234	**340**
350	8.2121	3177.1	8.8725	7.1850	3177.0	8.8108	6.3861	3176.9	8.7563	**350**
360	8.3442	3197.4	8.9050	7.3006	3197.3	8.8432	6.4889	3197.3	8.7888	**360**
370	8.4763	3217.9	8.9370	7.4162	3217.8	8.8752	6.5916	3217.7	8.8208	**370**
380	8.6083	3238.4	8.9686	7.5317	3238.3	8.9069	6.6944	3238.2	8.8524	**380**
390	8.7404	3258.9	8.9998	7.6473	3258.8	8.9381	6.7971	3258.8	8.8837	**390**
400	8.8724	3279.5	9.0307	7.7629	3279.5	8.9690	6.8999	3279.4	8.9145	**400**
410	9.0045	3300.2	9.0612	7.8784	3300.2	8.9995	7.0026	3300.1	8.9451	**410**
420	9.1365	3321.0	9.0914	7.9940	3320.9	9.0297	7.1053	3320.8	8.9752	**420**
430	9.2685	3341.8	9.1212	8.1095	3341.7	9.0595	7.2080	3341.7	9.0051	**430**
440	9.4005	3362.7	9.1507	8.2250	3362.6	9.0890	7.3107	3362.6	9.0346	**440**
450	9.5325	3383.6	9.1799	8.3405	3383.6	9.1182	7.4134	3383.5	9.0637	**450**
460	9.6645	3404.7	9.2087	8.4560	3404.6	9.1470	7.5161	3404.5	9.0926	**460**
470	9.7965	3425.7	9.2373	8.5715	3425.7	9.1756	7.6188	3425.6	9.1212	**470**
480	9.9285	3446.9	9.2656	8.6870	3446.8	9.2039	7.7215	3446.8	9.1495	**480**
490	10.060	3468.1	9.2935	8.8025	3468.1	9.2319	7.8242	3468.0	9.1774	**490**
500	10.192	3489.4	9.3213	8.9180	3489.4	9.2596	7.9268	3489.3	9.2052	**500**
510	10.324	3510.8	9.3487	9.0335	3510.7	9.2870	8.0295	3510.7	9.2326	**510**
520	10.456	3532.2	9.3759	9.1490	3532.1	9.3142	8.1321	3532.1	9.2598	**520**
530	10.588	3553.7	9.4028	9.2645	3553.6	9.3411	8.2348	3553.6	9.2867	**530**
540	10.720	3575.2	9.4295	9.3799	3575.2	9.3678	8.3375	3575.1	9.3134	**540**
550	10.852	3596.9	9.4559	9.4954	3596.8	9.3943	8.4401	3596.8	9.3399	**550**
560	10.984	3618.6	9.4821	9.6109	3618.5	9.4205	8.5427	3618.5	9.3661	**560**
570	11.116	3640.3	9.5081	9.7263	3640.3	9.4464	8.6454	3640.3	9.3921	**570**
580	11.248	3662.2	9.5339	9.8418	3662.1	9.4722	8.7480	3662.1	9.4178	**580**
590	11.380	3684.1	9.5594	9.9572	3684.1	9.4977	8.8506	3684.0	9.4433	**590**
600	11.512	3706.1	9.5847	10.073	3706.0	9.5231	8.9533	3706.0	9.4687	**600**
610	11.644	3728.1	9.6098	10.188	3728.1	9.5482	9.0559	3728.1	9.4938	**610**
620	11.776	3750.2	9.6347	10.304	3750.2	9.5731	9.1585	3750.2	9.5187	**620**
630	11.908	3772.4	9.6594	10.419	3772.4	9.5978	9.2612	3772.4	9.5434	**630**
640	12.040	3794.7	9.6840	10.534	3794.7	9.6223	9.3638	3794.6	9.5679	**640**
650	12.172	3817.0	9.7083	10.650	3817.0	9.6466	9.4664	3817.0	9.5922	**650**
660	12.303	3839.4	9.7324	10.765	3839.4	9.6708	9.5690	3839.4	9.6164	**660**
670	12.435	3861.9	9.7564	10.881	3861.9	9.6947	9.6716	3861.9	9.6403	**670**
680	12.567	3884.5	9.7802	10.996	3884.4	9.7185	9.7742	3884.4	9.6641	**680**
690	12.699	3907.1	9.8038	11.112	3907.0	9.7421	9.8768	3907.0	9.6877	**690**
700	12.831	3929.8	9.8272	11.227	3929.7	9.7655	9.9795	3929.7	9.7112	**700**
710	12.963	3952.5	9.8505	11.342	3952.5	9.7888	10.082	3952.5	9.7344	**710**
720	13.095	3975.3	9.8736	11.458	3975.3	9.8119	10.185	3975.3	9.7575	**720**
730	13.227	3998.2	9.8965	11.573	3998.2	9.8349	10.287	3998.2	9.7805	**730**
740	13.359	4021.2	9.9193	11.689	4021.2	9.8576	10.390	4021.2	9.8033	**740**
750	13.491	4044.3	9.9419	11.804	4044.2	9.8803	10.492	4044.2	9.8259	**750**
760	13.623	4067.4	9.9644	11.920	4067.3	9.9027	10.595	4067.3	9.8484	**760**
770	13.754	4090.5	9.9867	12.035	4090.5	9.9251	10.698	4090.5	9.8707	**770**
780	13.886	4113.8	10.009	12.150	4113.8	9.9473	10.800	4113.7	9.8929	**780**
790	14.018	4137.1	10.031	12.266	4137.1	9.9693	10.903	4137.1	9.9149	**790**
800	14.150	4160.5	10.053	12.381	4160.5	9.9912	11.005	4160.5	9.9368	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.05 MPa** (t_{sat} = 81.32 °C)			**0.06 MPa** (t_{sat} = 85.93 °C)			**0.07 MPa** (t_{sat} = 89.93 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 029 9	340.48	1.0910	0.001 033 1	359.84	1.1452	0.001 035 9	376.68	1.1919	Sat. Liq.
Sat. Vap.	3.2401	2645.2	7.5930	2.7318	2652.9	7.5311	2.3649	2659.4	7.4790	Sat. Vap.
0	0.001 000 2	0.01	-0.0002	0.001 000 2	0.02	-0.0002	0.001 000 2	0.03	-0.0001	**0**
5	0.001 000 1	21.07	0.0763	0.001 000 1	21.08	0.0763	0.001 000 0	21.09	0.0763	**5**
10	0.001 000 3	42.07	0.1511	0.001 000 3	42.08	0.1511	0.001 000 3	42.09	0.1511	**10**
15	0.001 000 9	63.03	0.2245	0.001 000 9	63.04	0.2245	0.001 000 9	63.05	0.2245	**15**
20	0.001 001 8	83.96	0.2965	0.001 001 8	83.97	0.2965	0.001 001 8	83.98	0.2965	**20**
25	0.001 003 0	104.88	0.3672	0.001 003 0	104.89	0.3672	0.001 003 0	104.90	0.3672	**25**
30	0.001 004 4	125.79	0.4368	0.001 004 4	125.80	0.4368	0.001 004 4	125.81	0.4368	**30**
35	0.001 006 0	146.68	0.5052	0.001 006 0	146.69	0.5051	0.001 006 0	146.70	0.5051	**35**
40	0.001 007 9	167.58	0.5724	0.001 007 9	167.59	0.5724	0.001 007 9	167.60	0.5724	**40**
45	0.001 009 9	188.47	0.6386	0.001 009 9	188.48	0.6386	0.001 009 9	188.49	0.6386	**45**
50	0.001 012 1	209.37	0.7038	0.001 012 1	209.38	0.7038	0.001 012 1	209.39	0.7038	**50**
55	0.001 014 5	230.27	0.7680	0.001 014 5	230.28	0.7680	0.001 014 5	230.29	0.7680	**55**
60	0.001 017 1	251.18	0.8312	0.001 017 1	251.19	0.8312	0.001 017 1	251.20	0.8312	**60**
65	0.001 019 8	272.10	0.8935	0.001 019 8	272.11	0.8935	0.001 019 8	272.12	0.8935	**65**
70	0.001 022 7	293.03	0.9550	0.001 022 7	293.04	0.9550	0.001 022 7	293.05	0.9550	**70**
75	0.001 025 8	313.98	1.0156	0.001 025 8	313.99	1.0156	0.001 025 8	314.00	1.0156	**75**
80	0.001 029 0	334.95	1.0754	0.001 029 0	334.96	1.0754	0.001 029 0	334.97	1.0754	**80**
85	3.2756	2652.6	7.6137	0.001 032 4	355.95	1.1344	0.001 032 4	355.96	1.1344	**85**
90	3.3235	2662.6	7.6414	2.7646	2661.1	7.5539	2.3654	2659.6	7.4793	**90**
95	3.3712	2672.5	7.6685	2.8047	2671.1	7.5814	2.4000	2669.7	7.5071	**95**
100	3.4188	2682.4	7.6952	2.8446	2681.1	7.6083	2.4344	2679.8	7.5343	**100**
105	3.4663	2692.2	7.7214	2.8844	2691.0	7.6347	2.4688	2689.8	7.5610	**105**
110	3.5136	2702.1	7.7472	2.9241	2700.9	7.6608	2.5030	2699.8	7.5872	**110**
115	3.5609	2711.9	7.7727	2.9637	2710.8	7.6864	2.5371	2709.8	7.6130	**115**
120	3.6081	2721.7	7.7977	3.0032	2720.7	7.7116	2.5711	2719.7	7.6384	**120**
125	3.6552	2731.4	7.8224	3.0426	2730.5	7.7364	2.6050	2729.6	7.6634	**125**
130	3.7022	2741.2	7.8468	3.0820	2740.3	7.7609	2.6389	2739.4	7.6880	**130**
135	3.7492	2751.0	7.8709	3.1213	2750.1	7.7851	2.6727	2749.3	7.7123	**135**
140	3.7962	2760.7	7.8946	3.1605	2759.9	7.8089	2.7065	2759.1	7.7363	**140**
145	3.8430	2770.5	7.9180	3.1997	2769.7	7.8325	2.7402	2768.9	7.7599	**145**
150	3.8899	2780.2	7.9412	3.2388	2779.5	7.8557	2.7738	2778.8	7.7833	**150**
155	3.9366	2789.9	7.9641	3.2779	2789.3	7.8787	2.8074	2788.6	7.8063	**155**
160	3.9834	2799.7	7.9867	3.3170	2799.0	7.9014	2.8410	2798.4	7.8291	**160**
165	4.0301	2809.4	8.0091	3.3560	2808.8	7.9239	2.8745	2808.2	7.8516	**165**
170	4.0768	2819.2	8.0312	3.3950	2818.6	7.9460	2.9080	2818.0	7.8739	**170**
175	4.1234	2828.9	8.0531	3.4339	2828.4	7.9680	2.9415	2827.8	7.8959	**175**
180	4.1700	2838.7	8.0747	3.4729	2838.1	7.9897	2.9749	2837.6	7.9176	**180**
185	4.2166	2848.4	8.0962	3.5118	2847.9	8.0112	3.0083	2847.4	7.9391	**185**
190	4.2632	2858.2	8.1174	3.5507	2857.7	8.0324	3.0417	2857.2	7.9604	**190**
195	4.3097	2868.0	8.1384	3.5895	2867.5	8.0534	3.0751	2867.0	7.9815	**195**
200	4.3563	2877.8	8.1591	3.6283	2877.3	8.0743	3.1084	2876.9	8.0024	**200**
205	4.4028	2887.6	8.1797	3.6672	2887.1	8.0949	3.1417	2886.7	8.0230	**205**
210	4.4493	2897.4	8.2001	3.7060	2896.9	8.1153	3.1750	2896.5	8.0435	**210**
215	4.4957	2907.2	8.2203	3.7447	2906.8	8.1355	3.2083	2906.4	8.0638	**215**
220	4.5422	2917.0	8.2403	3.7835	2916.6	8.1556	3.2416	2916.2	8.0838	**220**
225	4.5886	2926.8	8.2602	3.8223	2926.5	8.1755	3.2749	2926.1	8.1037	**225**
230	4.6351	2936.7	8.2798	3.8610	2936.3	8.1951	3.3081	2935.9	8.1234	**230**
235	4.6815	2946.5	8.2993	3.8997	2946.2	8.2147	3.3413	2945.8	8.1430	**235**
240	4.7279	2956.4	8.3186	3.9385	2956.0	8.2340	3.3746	2955.7	8.1623	**240**
245	4.7743	2966.3	8.3378	3.9772	2965.9	8.2532	3.4078	2965.6	8.1815	**245**
250	4.8207	2976.2	8.3568	4.0159	2975.8	8.2722	3.4410	2975.5	8.2006	**250**
255	4.8671	2986.1	8.3756	4.0545	2985.7	8.2910	3.4742	2985.4	8.2195	**255**
260	4.9134	2996.0	8.3943	4.0932	2995.7	8.3097	3.5074	2995.4	8.2382	**260**
265	4.9598	3005.9	8.4128	4.1319	3005.6	8.3283	3.5405	3005.3	8.2567	**265**
270	5.0061	3015.8	8.4312	4.1705	3015.6	8.3467	3.5737	3015.3	8.2751	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.05 MPa** (t_{sat} = 81.32 °C)			**0.06 MPa** (t_{sat} = 85.93 °C)			**0.07 MPa** (t_{sat} = 89.93 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	5.0525	3025.8	8.4495	4.2092	3025.5	8.3649	3.6069	3025.2	8.2934	**275**
280	5.0988	3035.8	8.4676	4.2478	3035.5	8.3831	3.6400	3035.2	8.3115	**280**
285	5.1452	3045.7	8.4855	4.2865	3045.5	8.4010	3.6731	3045.2	8.3295	**285**
290	5.1915	3055.7	8.5034	4.3251	3055.5	8.4189	3.7063	3055.2	8.3474	**290**
295	5.2378	3065.7	8.5210	4.3637	3065.5	8.4366	3.7394	3065.2	8.3651	**295**
300	5.2841	3075.8	8.5386	4.4024	3075.5	8.4541	3.7725	3075.3	8.3827	**300**
310	5.3767	3095.8	8.5733	4.4796	3095.6	8.4889	3.8388	3095.4	8.4175	**310**
320	5.4693	3116.0	8.6076	4.5568	3115.8	8.5232	3.9050	3115.5	8.4518	**320**
330	5.5619	3136.2	8.6414	4.6340	3136.0	8.5570	3.9712	3135.8	8.4856	**330**
340	5.6544	3156.5	8.6747	4.7112	3156.3	8.5903	4.0374	3156.1	8.5189	**340**
350	5.7470	3176.8	8.7076	4.7883	3176.6	8.6232	4.1035	3176.4	8.5518	**350**
360	5.8395	3197.2	8.7400	4.8655	3197.0	8.6557	4.1697	3196.8	8.5843	**360**
370	5.9320	3217.6	8.7721	4.9426	3217.4	8.6877	4.2358	3217.3	8.6164	**370**
380	6.0245	3238.1	8.8037	5.0197	3237.9	8.7194	4.3020	3237.8	8.6480	**380**
390	6.1170	3258.7	8.8349	5.0968	3258.5	8.7506	4.3681	3258.4	8.6793	**390**
400	6.2095	3279.3	8.8658	5.1739	3279.2	8.7815	4.4342	3279.0	8.7102	**400**
410	6.3020	3300.0	8.8964	5.2510	3299.9	8.8120	4.5003	3299.7	8.7407	**410**
420	6.3944	3320.8	8.9265	5.3281	3320.6	8.8422	4.5664	3320.5	8.7709	**420**
430	6.4869	3341.6	8.9564	5.4051	3341.5	8.8721	4.6325	3341.3	8.8008	**430**
440	6.5793	3362.5	8.9859	5.4822	3362.4	8.9016	4.6985	3362.2	8.8303	**440**
450	6.6718	3383.5	9.0150	5.5593	3383.3	8.9308	4.7646	3383.2	8.8595	**450**
460	6.7642	3404.5	9.0439	5.6363	3404.4	8.9596	4.8307	3404.2	8.8884	**460**
470	6.8566	3425.6	9.0725	5.7133	3425.4	8.9882	4.8967	3425.3	8.9170	**470**
480	6.9490	3446.7	9.1008	5.7904	3446.6	9.0165	4.9628	3446.5	8.9453	**480**
490	7.0415	3468.0	9.1288	5.8674	3467.8	9.0445	5.0288	3467.7	8.9733	**490**
500	7.1339	3489.2	9.1565	5.9444	3489.1	9.0722	5.0949	3489.0	9.0010	**500**
510	7.2263	3510.6	9.1839	6.0215	3510.5	9.0997	5.1609	3510.4	9.0285	**510**
520	7.3187	3532.0	9.2111	6.0985	3531.9	9.1269	5.2269	3531.8	9.0556	**520**
530	7.4111	3553.5	9.2381	6.1755	3553.4	9.1538	5.2929	3553.3	9.0826	**530**
540	7.5035	3575.1	9.2648	6.2525	3575.0	9.1805	5.3590	3574.9	9.1093	**540**
550	7.5959	3596.7	9.2912	6.3295	3596.6	9.2070	5.4250	3596.6	9.1357	**550**
560	7.6882	3618.4	9.3174	6.4065	3618.4	9.2332	5.4910	3618.3	9.1620	**560**
570	7.7806	3640.2	9.3434	6.4835	3640.1	9.2592	5.5570	3640.0	9.1879	**570**
580	7.8730	3662.1	9.3691	6.5605	3662.0	9.2849	5.6230	3661.9	9.2137	**580**
590	7.9654	3684.0	9.3947	6.6375	3683.9	9.3105	5.6890	3683.8	9.2392	**590**
600	8.0578	3706.0	9.4200	6.7145	3705.9	9.3358	5.7550	3705.8	9.2646	**600**
610	8.1501	3728.0	9.4451	6.7915	3727.9	9.3609	5.8210	3727.9	9.2897	**610**
620	8.2425	3750.1	9.4700	6.8685	3750.1	9.3858	5.8870	3750.0	9.3146	**620**
630	8.3349	3772.3	9.4947	6.9454	3772.3	9.4105	5.9530	3772.2	9.3393	**630**
640	8.4272	3794.6	9.5193	7.0224	3794.5	9.4351	6.0190	3794.5	9.3639	**640**
650	8.5196	3816.9	9.5436	7.0994	3816.9	9.4594	6.0850	3816.8	9.3882	**650**
660	8.6120	3839.3	9.5677	7.1764	3839.3	9.4835	6.1510	3839.2	9.4123	**660**
670	8.7043	3861.8	9.5917	7.2534	3861.8	9.5075	6.2170	3861.7	9.4363	**670**
680	8.7967	3884.4	9.6155	7.3303	3884.3	9.5313	6.2829	3884.2	9.4601	**680**
690	8.8890	3907.0	9.6391	7.4073	3906.9	9.5549	6.3489	3906.9	9.4837	**690**
700	8.9814	3929.7	9.6625	7.4843	3929.6	9.5783	6.4149	3929.6	9.5071	**700**
710	9.0737	3952.4	9.6858	7.5612	3952.4	9.6016	6.4809	3952.3	9.5304	**710**
720	9.1661	3975.3	9.7089	7.6382	3975.2	9.6247	6.5469	3975.2	9.5535	**720**
730	9.2584	3998.2	9.7318	7.7152	3998.1	9.6476	6.6128	3998.1	9.5764	**730**
740	9.3508	4021.1	9.7546	7.7921	4021.1	9.6704	6.6788	4021.0	9.5992	**740**
750	9.4431	4044.2	9.7772	7.8691	4044.1	9.6931	6.7448	4044.1	9.6219	**750**
760	9.5355	4067.3	9.7997	7.9460	4067.2	9.7155	6.8107	4067.2	9.6444	**760**
770	9.6278	4090.5	9.8220	8.0230	4090.4	9.7379	6.8767	4090.4	9.6667	**770**
780	9.7201	4113.7	9.8442	8.1000	4113.7	9.7601	6.9427	4113.6	9.6889	**780**
790	9.8125	4137.0	9.8663	8.1769	4137.0	9.7821	7.0087	4137.0	9.7109	**790**
800	9.9048	4160.5	9.8882	8.2539	4160.4	9.8040	7.0746	4160.4	9.7328	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (ºC)	**0.08 MPa** (t_{sat} = 93.49 ºC)			**0.09 MPa** (t_{sat} = 96.69 ºC)			**0.10 MPa** (t_{sat} = 99.61 ºC)			t (ºC)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 038 5	391.64	1.2328	0.001 040 9	405.13	1.2694	0.001 043 1	417.44	1.3026	Sat. Liq.
Sat. Vap.	2.0872	2665.2	7.4339	1.8695	2670.3	7.3942	1.6940	2674.9	7.3588	Sat. Vap.
0	0.001 000 2	0.04	-0.0001	0.001 000 2	0.05	-0.0001	0.001 000 2	0.06	-0.0001	**0**
5	0.001 000 0	21.10	0.0763	0.001 000 0	21.11	0.0763	0.001 000 0	21.12	0.0763	**5**
10	0.001 000 3	42.10	0.1511	0.001 000 3	42.11	0.1511	0.001 000 3	42.12	0.1511	**10**
15	0.001 000 9	63.06	0.2245	0.001 000 9	63.07	0.2245	0.001 000 9	63.08	0.2245	**15**
20	0.001 001 8	83.99	0.2965	0.001 001 8	84.00	0.2965	0.001 001 8	84.01	0.2965	**20**
25	0.001 003 0	104.91	0.3672	0.001 003 0	104.92	0.3672	0.001 003 0	104.93	0.3672	**25**
30	0.001 004 4	125.81	0.4368	0.001 004 4	125.82	0.4368	0.001 004 4	125.83	0.4368	**30**
35	0.001 006 0	146.71	0.5051	0.001 006 0	146.72	0.5051	0.001 006 0	146.73	0.5051	**35**
40	0.001 007 8	167.61	0.5724	0.001 007 8	167.61	0.5724	0.001 007 8	167.62	0.5724	**40**
45	0.001 009 9	188.50	0.6386	0.001 009 9	188.51	0.6386	0.001 009 9	188.52	0.6386	**45**
50	0.001 012 1	209.39	0.7038	0.001 012 1	209.40	0.7038	0.001 012 1	209.41	0.7038	**50**
55	0.001 014 5	230.30	0.7679	0.001 014 5	230.30	0.7679	0.001 014 5	230.31	0.7679	**55**
60	0.001 017 1	251.20	0.8312	0.001 017 1	251.21	0.8312	0.001 017 1	251.22	0.8312	**60**
65	0.001 019 8	272.12	0.8935	0.001 019 8	272.13	0.8935	0.001 019 8	272.14	0.8935	**65**
70	0.001 022 7	293.06	0.9550	0.001 022 7	293.07	0.9550	0.001 022 7	293.07	0.9550	**70**
75	0.001 025 8	314.01	1.0156	0.001 025 8	314.02	1.0156	0.001 025 8	314.02	1.0156	**75**
80	0.001 029 0	334.97	1.0754	0.001 029 0	334.98	1.0754	0.001 029 0	334.99	1.0754	**80**
85	0.001 032 4	355.96	1.1344	0.001 032 4	355.97	1.1344	0.001 032 4	355.98	1.1344	**85**
90	0.001 035 9	376.98	1.1927	0.001 035 9	376.98	1.1926	0.001 035 9	376.99	1.1926	**90**
95	2.0964	2668.3	7.4423	0.001 039 6	398.02	1.2502	0.001 039 6	398.03	1.2502	**95**
100	2.1268	2678.5	7.4698	1.8875	2677.1	7.4126	1.6960	2675.8	7.3610	**100**
105	2.1570	2688.6	7.4968	1.9145	2687.3	7.4398	1.7205	2686.1	7.3885	**105**
110	2.1871	2698.7	7.5232	1.9414	2697.5	7.4664	1.7448	2696.3	7.4154	**110**
115	2.2171	2708.7	7.5492	1.9682	2707.6	7.4926	1.7691	2706.5	7.4417	**115**
120	2.2470	2718.7	7.5747	1.9949	2717.6	7.5183	1.7932	2716.6	7.4676	**120**
125	2.2768	2728.6	7.5999	2.0216	2727.6	7.5436	1.8173	2726.7	7.4931	**125**
130	2.3066	2738.5	7.6247	2.0481	2737.6	7.5685	1.8413	2736.7	7.5181	**130**
135	2.3363	2748.4	7.6491	2.0746	2747.6	7.5931	1.8653	2746.7	7.5428	**135**
140	2.3659	2758.3	7.6732	2.1010	2757.5	7.6173	1.8891	2756.7	7.5671	**140**
145	2.3955	2768.2	7.6969	2.1274	2767.4	7.6411	1.9130	2766.7	7.5911	**145**
150	2.4250	2778.0	7.7203	2.1538	2777.3	7.6646	1.9367	2776.6	7.6147	**150**
155	2.4545	2787.9	7.7435	2.1800	2787.2	7.6879	1.9605	2786.5	7.6380	**155**
160	2.4840	2797.7	7.7663	2.2063	2797.1	7.7108	1.9841	2796.4	7.6610	**160**
165	2.5134	2807.6	7.7889	2.2325	2806.9	7.7334	2.0078	2806.3	7.6837	**165**
170	2.5428	2817.4	7.8112	2.2587	2816.8	7.7558	2.0314	2816.2	7.7062	**170**
175	2.5721	2827.2	7.8333	2.2848	2826.7	7.7779	2.0550	2826.1	7.7283	**175**
180	2.6014	2837.1	7.8551	2.3109	2836.5	7.7998	2.0785	2836.0	7.7503	**180**
185	2.6307	2846.9	7.8767	2.3370	2846.4	7.8214	2.1021	2845.8	7.7719	**185**
190	2.6600	2856.7	7.8980	2.3631	2856.2	7.8428	2.1256	2855.7	7.7934	**190**
195	2.6892	2866.6	7.9191	2.3891	2866.1	7.8640	2.1490	2865.6	7.8146	**195**
200	2.7184	2876.4	7.9400	2.4151	2875.9	7.8849	2.1725	2875.5	7.8356	**200**
205	2.7477	2886.2	7.9607	2.4411	2885.8	7.9057	2.1959	2885.4	7.8563	**205**
210	2.7768	2896.1	7.9812	2.4671	2895.7	7.9262	2.2194	2895.2	7.8769	**210**
215	2.8060	2906.0	8.0015	2.4931	2905.5	7.9465	2.2428	2905.1	7.8973	**215**
220	2.8352	2915.8	8.0216	2.5190	2915.4	7.9667	2.2661	2915.0	7.9174	**220**
225	2.8643	2925.7	8.0415	2.5450	2925.3	7.9866	2.2895	2924.9	7.9374	**225**
230	2.8934	2935.6	8.0613	2.5709	2935.2	8.0064	2.3129	2934.8	7.9572	**230**
235	2.9225	2945.5	8.0808	2.5968	2945.1	8.0259	2.3362	2944.7	7.9768	**235**
240	2.9516	2955.4	8.1002	2.6227	2955.0	8.0454	2.3596	2954.7	7.9962	**240**
245	2.9807	2965.3	8.1194	2.6486	2964.9	8.0646	2.3829	2964.6	8.0155	**245**
250	3.0098	2975.2	8.1385	2.6745	2974.9	8.0837	2.4062	2974.5	8.0346	**250**
255	3.0389	2985.1	8.1574	2.7003	2984.8	8.1026	2.4295	2984.5	8.0535	**255**
260	3.0680	2995.1	8.1761	2.7262	2994.8	8.1213	2.4528	2994.4	8.0723	**260**
265	3.0970	3005.0	8.1947	2.7520	3004.7	8.1399	2.4761	3004.4	8.0909	**265**
270	3.1261	3015.0	8.2131	2.7779	3014.7	8.1584	2.4994	3014.4	8.1094	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.08 MPa** (t_{sat} = 93.49 °C)			**0.09 MPa** (t_{sat} = 96.69 °C)			**0.10 MPa** (t_{sat} = 99.61 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	3.1551	3025.0	8.2314	2.8037	3024.7	8.1767	2.5226	3024.4	8.1277	**275**
280	3.1841	3034.9	8.2496	2.8295	3034.7	8.1948	2.5459	3034.4	8.1458	**280**
285	3.2131	3044.9	8.2676	2.8554	3044.7	8.2128	2.5691	3044.4	8.1639	**285**
290	3.2422	3055.0	8.2854	2.8812	3054.7	8.2307	2.5924	3054.4	8.1818	**290**
295	3.2712	3065.0	8.3031	2.9070	3064.7	8.2485	2.6156	3064.5	8.1995	**295**
300	3.3002	3075.0	8.3207	2.9328	3074.8	8.2661	2.6389	3074.5	8.2171	**300**
310	3.3582	3095.2	8.3555	2.9844	3094.9	8.3009	2.6853	3094.7	8.2520	**310**
320	3.4162	3115.3	8.3899	3.0359	3115.1	8.3352	2.7318	3114.9	8.2863	**320**
330	3.4741	3135.6	8.4237	3.0875	3135.4	8.3691	2.7782	3135.1	8.3202	**330**
340	3.5320	3155.9	8.4570	3.1390	3155.7	8.4024	2.8246	3155.5	8.3536	**340**
350	3.5900	3176.2	8.4900	3.1905	3176.0	8.4354	2.8710	3175.8	8.3865	**350**
360	3.6479	3196.6	8.5225	3.2420	3196.4	8.4679	2.9173	3196.2	8.4190	**360**
370	3.7058	3217.1	8.5545	3.2935	3216.9	8.5000	2.9637	3216.7	8.4511	**370**
380	3.7637	3237.6	8.5862	3.3450	3237.4	8.5317	3.0101	3237.3	8.4828	**380**
390	3.8215	3258.2	8.6175	3.3965	3258.0	8.5629	3.0564	3257.9	8.5141	**390**
400	3.8794	3278.9	8.6484	3.4479	3278.7	8.5939	3.1027	3278.5	8.5451	**400**
410	3.9373	3299.6	8.6789	3.4994	3299.4	8.6244	3.1490	3299.3	8.5756	**410**
420	3.9951	3320.3	8.7091	3.5508	3320.2	8.6546	3.1954	3320.1	8.6059	**420**
430	4.0530	3341.2	8.7390	3.6022	3341.1	8.6845	3.2417	3340.9	8.6357	**430**
440	4.1108	3362.1	8.7685	3.6537	3362.0	8.7140	3.2879	3361.8	8.6653	**440**
450	4.1686	3383.1	8.7977	3.7051	3382.9	8.7432	3.3342	3382.8	8.6945	**450**
460	4.2264	3404.1	8.8266	3.7565	3404.0	8.7721	3.3805	3403.9	8.7234	**460**
470	4.2842	3425.2	8.8552	3.8079	3425.1	8.8007	3.4268	3425.0	8.7520	**470**
480	4.3421	3446.4	8.8835	3.8593	3446.3	8.8290	3.4731	3446.2	8.7803	**480**
490	4.3999	3467.6	8.9115	3.9107	3467.5	8.8571	3.5193	3467.4	8.8083	**490**
500	4.4577	3488.9	8.9393	3.9621	3488.8	8.8848	3.5656	3488.7	8.8361	**500**
510	4.5154	3510.3	8.9667	4.0134	3510.2	8.9123	3.6118	3510.1	8.8635	**510**
520	4.5732	3531.7	8.9939	4.0648	3531.6	8.9395	3.6581	3531.5	8.8907	**520**
530	4.6310	3553.2	9.0209	4.1162	3553.1	8.9664	3.7043	3553.0	8.9177	**530**
540	4.6888	3574.8	9.0476	4.1676	3574.7	8.9931	3.7506	3574.6	8.9444	**540**
550	4.7466	3596.5	9.0740	4.2189	3596.4	9.0196	3.7968	3596.3	8.9709	**550**
560	4.8043	3618.2	9.1002	4.2703	3618.1	9.0458	3.8430	3618.0	8.9971	**560**
570	4.8621	3640.0	9.1262	4.3216	3639.9	9.0718	3.8893	3639.8	9.0231	**570**
580	4.9199	3661.8	9.1520	4.3730	3661.7	9.0976	3.9355	3661.6	9.0489	**580**
590	4.9776	3683.7	9.1775	4.4244	3683.7	9.1231	3.9817	3683.6	9.0744	**590**
600	5.0354	3705.7	9.2029	4.4757	3705.6	9.1485	4.0279	3705.6	9.0998	**600**
610	5.0932	3727.8	9.2280	4.5271	3727.7	9.1736	4.0742	3727.6	9.1249	**610**
620	5.1509	3749.9	9.2529	4.5784	3749.8	9.1985	4.1204	3749.8	9.1498	**620**
630	5.2087	3772.1	9.2776	4.6297	3772.1	9.2232	4.1666	3772.0	9.1745	**630**
640	5.2664	3794.4	9.3022	4.6811	3794.3	9.2477	4.2128	3794.3	9.1991	**640**
650	5.3242	3816.7	9.3265	4.7324	3816.7	9.2721	4.2590	3816.6	9.2234	**650**
660	5.3819	3839.1	9.3506	4.7838	3839.1	9.2962	4.3052	3839.0	9.2476	**660**
670	5.4397	3861.6	9.3746	4.8351	3861.6	9.3202	4.3514	3861.5	9.2715	**670**
680	5.4974	3884.2	9.3984	4.8864	3884.1	9.3440	4.3976	3884.1	9.2953	**680**
690	5.5551	3906.8	9.4220	4.9377	3906.7	9.3676	4.4438	3906.7	9.3189	**690**
700	5.6129	3929.5	9.4455	4.9891	3929.4	9.3910	4.4900	3929.4	9.3424	**700**
710	5.6706	3952.3	9.4687	5.0404	3952.2	9.4143	4.5362	3952.1	9.3656	**710**
720	5.7283	3975.1	9.4918	5.0917	3975.0	9.4374	4.5824	3975.0	9.3888	**720**
730	5.7861	3998.0	9.5148	5.1430	3997.9	9.4604	4.6286	3997.9	9.4117	**730**
740	5.8438	4021.0	9.5376	5.1944	4020.9	9.4832	4.6748	4020.9	9.4345	**740**
750	5.9015	4044.0	9.5602	5.2457	4044.0	9.5058	4.7210	4043.9	9.4571	**750**
760	5.9593	4067.1	9.5827	5.2970	4067.1	9.5283	4.7672	4067.0	9.4796	**760**
770	6.0170	4090.3	9.6050	5.3483	4090.3	9.5506	4.8134	4090.2	9.5020	**770**
780	6.0747	4113.6	9.6272	5.3996	4113.5	9.5728	4.8596	4113.5	9.5241	**780**
790	6.1325	4136.9	9.6493	5.4510	4136.9	9.5949	4.9058	4136.8	9.5462	**790**
800	6.1902	4160.3	9.6712	5.5023	4160.3	9.6168	4.9520	4160.2	9.5681	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.11 MPa** (t_{sat} = 102.29 °C)			**0.12 MPa** (t_{sat} = 104.78 °C)			**0.13 MPa** (t_{sat} = 107.11 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 045 3	428.77	1.3328	0.001 047 3	439.30	1.3608	0.001 049 2	449.13	1.3867	Sat. Liq.
Sat. Vap.	1.5496	2679.2	7.3268	1.4284	2683.1	7.2976	1.3254	2686.6	7.2708	Sat. Vap.
0	0.001 000 2	0.07	-0.0001	0.001 000 1	0.08	-0.0001	0.001 000 1	0.09	-0.0001	**0**
5	0.001 000 0	21.13	0.0762	0.001 000 0	21.14	0.0762	0.001 000 0	21.15	0.0762	**5**
10	0.001 000 3	42.13	0.1511	0.001 000 3	42.14	0.1511	0.001 000 3	42.15	0.1511	**10**
15	0.001 000 9	63.09	0.2245	0.001 000 9	63.10	0.2245	0.001 000 9	63.11	0.2245	**15**
20	0.001 001 8	84.02	0.2965	0.001 001 8	84.03	0.2965	0.001 001 8	84.04	0.2965	**20**
25	0.001 003 0	104.94	0.3672	0.001 003 0	104.95	0.3672	0.001 002 9	104.96	0.3672	**25**
30	0.001 004 4	125.84	0.4368	0.001 004 4	125.85	0.4368	0.001 004 4	125.86	0.4368	**30**
35	0.001 006 0	146.74	0.5051	0.001 006 0	146.75	0.5051	0.001 006 0	146.76	0.5051	**35**
40	0.001 007 8	167.63	0.5724	0.001 007 8	167.64	0.5724	0.001 007 8	167.65	0.5724	**40**
45	0.001 009 9	188.52	0.6386	0.001 009 9	188.53	0.6386	0.001 009 9	188.54	0.6386	**45**
50	0.001 012 1	209.42	0.7037	0.001 012 1	209.43	0.7037	0.001 012 1	209.44	0.7037	**50**
55	0.001 014 5	230.32	0.7679	0.001 014 5	230.33	0.7679	0.001 014 5	230.34	0.7679	**55**
60	0.001 017 1	251.23	0.8312	0.001 017 1	251.24	0.8312	0.001 017 1	251.25	0.8312	**60**
65	0.001 019 8	272.15	0.8935	0.001 019 8	272.16	0.8935	0.001 019 8	272.17	0.8935	**65**
70	0.001 022 7	293.08	0.9549	0.001 022 7	293.09	0.9549	0.001 022 7	293.10	0.9549	**70**
75	0.001 025 8	314.03	1.0156	0.001 025 8	314.04	1.0155	0.001 025 8	314.05	1.0155	**75**
80	0.001 029 0	335.00	1.0754	0.001 029 0	335.01	1.0753	0.001 029 0	335.01	1.0753	**80**
85	0.001 032 4	355.99	1.1344	0.001 032 4	355.99	1.1344	0.001 032 4	356.00	1.1344	**85**
90	0.001 035 9	377.00	1.1926	0.001 035 9	377.01	1.1926	0.001 035 9	377.01	1.1926	**90**
95	0.001 039 6	398.04	1.2502	0.001 039 6	398.05	1.2502	0.001 039 6	398.05	1.2502	**95**
100	0.001 043 5	419.11	1.3070	0.001 043 4	419.11	1.3070	0.001 043 4	419.12	1.3070	**100**
105	1.5617	2684.8	7.3418	1.4293	2683.5	7.2988	0.001 047 4	440.22	1.3632	**105**
110	1.5840	2695.1	7.3689	1.4499	2693.9	7.3262	1.3364	2692.7	7.2867	**110**
115	1.6061	2705.4	7.3955	1.4703	2704.3	7.3530	1.3554	2703.1	7.3137	**115**
120	1.6282	2715.6	7.4215	1.4907	2714.5	7.3793	1.3743	2713.5	7.3402	**120**
125	1.6502	2725.7	7.4472	1.5109	2724.7	7.4051	1.3931	2723.7	7.3661	**125**
130	1.6721	2735.8	7.4724	1.5311	2734.9	7.4304	1.4118	2733.9	7.3916	**130**
135	1.6940	2745.9	7.4971	1.5512	2745.0	7.4553	1.4304	2744.1	7.4167	**135**
140	1.7157	2755.9	7.5216	1.5712	2755.1	7.4798	1.4490	2754.2	7.4413	**140**
145	1.7375	2765.9	7.5456	1.5912	2765.1	7.5040	1.4675	2764.3	7.4656	**145**
150	1.7592	2775.9	7.5693	1.6112	2775.1	7.5278	1.4859	2774.4	7.4895	**150**
155	1.7808	2785.8	7.5927	1.6311	2785.1	7.5513	1.5044	2784.4	7.5131	**155**
160	1.8024	2795.8	7.6158	1.6509	2795.1	7.5745	1.5227	2794.4	7.5363	**160**
165	1.8239	2805.7	7.6386	1.6707	2805.1	7.5973	1.5411	2804.4	7.5593	**165**
170	1.8454	2815.6	7.6611	1.6905	2815.0	7.6199	1.5593	2814.4	7.5819	**170**
175	1.8669	2825.5	7.6834	1.7102	2824.9	7.6422	1.5776	2824.4	7.6043	**175**
180	1.8884	2835.4	7.7053	1.7299	2834.9	7.6642	1.5958	2834.3	7.6264	**180**
185	1.9098	2845.3	7.7271	1.7496	2844.8	7.6860	1.6141	2844.3	7.6482	**185**
190	1.9312	2855.2	7.7485	1.7693	2854.7	7.7076	1.6322	2854.2	7.6698	**190**
195	1.9526	2865.1	7.7698	1.7889	2864.6	7.7289	1.6504	2864.1	7.6911	**195**
200	1.9740	2875.0	7.7908	1.8085	2874.5	7.7499	1.6685	2874.1	7.7122	**200**
205	1.9953	2884.9	7.8116	1.8281	2884.5	7.7708	1.6866	2884.0	7.7331	**205**
210	2.0166	2894.8	7.8322	1.8477	2894.4	7.7914	1.7047	2893.9	7.7538	**210**
215	2.0379	2904.7	7.8526	1.8672	2904.3	7.8118	1.7228	2903.9	7.7742	**215**
220	2.0592	2914.6	7.8728	1.8868	2914.2	7.8321	1.7409	2913.8	7.7945	**220**
225	2.0805	2924.5	7.8928	1.9063	2924.2	7.8521	1.7589	2923.8	7.8146	**225**
230	2.1018	2934.5	7.9126	1.9258	2934.1	7.8719	1.7770	2933.7	7.8344	**230**
235	2.1230	2944.4	7.9323	1.9453	2944.0	7.8916	1.7950	2943.7	7.8541	**235**
240	2.1442	2954.3	7.9517	1.9648	2954.0	7.9111	1.8130	2953.6	7.8736	**240**
245	2.1655	2964.3	7.9710	1.9843	2963.9	7.9304	1.8310	2963.6	7.8929	**245**
250	2.1867	2974.2	7.9901	2.0038	2973.9	7.9495	1.8490	2973.6	7.9121	**250**
255	2.2079	2984.2	8.0091	2.0232	2983.9	7.9685	1.8670	2983.5	7.9311	**255**
260	2.2291	2994.1	8.0279	2.0427	2993.8	7.9873	1.8849	2993.5	7.9499	**260**
265	2.2503	3004.1	8.0465	2.0621	3003.8	8.0059	1.9029	3003.5	7.9686	**265**
270	2.2715	3014.1	8.0650	2.0815	3013.8	8.0244	1.9209	3013.5	7.9871	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.11 MPa** (t_{sat} = 102.29 °C)			**0.12 MPa** (t_{sat} = 104.78 °C)			**0.13 MPa** (t_{sat} = 107.11 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	2.2926	3024.1	8.0833	2.1010	3023.8	8.0428	1.9388	3023.6	8.0054	**275**
280	2.3138	3034.1	8.1015	2.1204	3033.9	8.0610	1.9567	3033.6	8.0237	**280**
285	2.3350	3044.2	8.1195	2.1398	3043.9	8.0790	1.9747	3043.6	8.0417	**285**
290	2.3561	3054.2	8.1374	2.1592	3053.9	8.0969	1.9926	3053.7	8.0596	**290**
295	2.3773	3064.2	8.1552	2.1786	3064.0	8.1147	2.0105	3063.7	8.0774	**295**
300	2.3984	3074.3	8.1728	2.1980	3074.1	8.1323	2.0284	3073.8	8.0951	**300**
310	2.4407	3094.5	8.2077	2.2368	3094.2	8.1672	2.0642	3094.0	8.1300	**310**
320	2.4829	3114.7	8.2421	2.2755	3114.4	8.2016	2.1000	3114.2	8.1644	**320**
330	2.5251	3134.9	8.2759	2.3142	3134.7	8.2355	2.1358	3134.5	8.1983	**330**
340	2.5673	3155.2	8.3093	2.3529	3155.0	8.2689	2.1715	3154.8	8.2318	**340**
350	2.6095	3175.6	8.3423	2.3916	3175.4	8.3019	2.2073	3175.2	8.2648	**350**
360	2.6517	3196.1	8.3748	2.4303	3195.9	8.3345	2.2430	3195.7	8.2973	**360**
370	2.6939	3216.5	8.4069	2.4690	3216.4	8.3666	2.2787	3216.2	8.3294	**370**
380	2.7360	3237.1	8.4387	2.5076	3236.9	8.3983	2.3144	3236.8	8.3612	**380**
390	2.7782	3257.7	8.4700	2.5463	3257.6	8.4296	2.3501	3257.4	8.3925	**390**
400	2.8203	3278.4	8.5009	2.5849	3278.2	8.4606	2.3858	3278.1	8.4235	**400**
410	2.8624	3299.1	8.5315	2.6236	3299.0	8.4912	2.4214	3298.8	8.4541	**410**
420	2.9045	3319.9	8.5617	2.6622	3319.8	8.5214	2.4571	3319.6	8.4843	**420**
430	2.9466	3340.8	8.5916	2.7008	3340.6	8.5513	2.4928	3340.5	8.5142	**430**
440	2.9887	3361.7	8.6211	2.7394	3361.6	8.5808	2.5284	3361.4	8.5438	**440**
450	3.0308	3382.7	8.6504	2.7780	3382.6	8.6101	2.5640	3382.4	8.5730	**450**
460	3.0729	3403.7	8.6793	2.8166	3403.6	8.6390	2.5997	3403.5	8.6019	**460**
470	3.1150	3424.9	8.7079	2.8552	3424.7	8.6676	2.6353	3424.6	8.6305	**470**
480	3.1571	3446.0	8.7362	2.8937	3445.9	8.6959	2.6709	3445.8	8.6589	**480**
490	3.1991	3467.3	8.7642	2.9323	3467.2	8.7240	2.7065	3467.1	8.6869	**490**
500	3.2412	3488.6	8.7920	2.9709	3488.5	8.7517	2.7421	3488.4	8.7147	**500**
510	3.2833	3510.0	8.8195	3.0094	3509.9	8.7792	2.7777	3509.8	8.7422	**510**
520	3.3253	3531.4	8.8467	3.0480	3531.3	8.8064	2.8133	3531.2	8.7694	**520**
530	3.3674	3553.0	8.8736	3.0865	3552.9	8.8334	2.8489	3552.8	8.7963	**530**
540	3.4094	3574.5	8.9003	3.1251	3574.4	8.8601	2.8845	3574.3	8.8231	**540**
550	3.4514	3596.2	8.9268	3.1636	3596.1	8.8866	2.9201	3596.0	8.8495	**550**
560	3.4935	3617.9	8.9530	3.2022	3617.8	8.9128	2.9557	3617.7	8.8758	**560**
570	3.5355	3639.7	8.9790	3.2407	3639.6	8.9388	2.9913	3639.5	8.9018	**570**
580	3.5775	3661.6	9.0048	3.2793	3661.5	8.9646	3.0268	3661.4	8.9276	**580**
590	3.6196	3683.5	9.0304	3.3178	3683.4	8.9901	3.0624	3683.3	8.9531	**590**
600	3.6616	3705.5	9.0557	3.3563	3705.4	9.0155	3.0980	3705.3	8.9785	**600**
610	3.7036	3727.6	9.0808	3.3948	3727.5	9.0406	3.1336	3727.4	9.0036	**610**
620	3.7456	3749.7	9.1058	3.4334	3749.6	9.0655	3.1691	3749.6	9.0285	**620**
630	3.7877	3771.9	9.1305	3.4719	3771.8	9.0903	3.2047	3771.8	9.0533	**630**
640	3.8297	3794.2	9.1550	3.5104	3794.1	9.1148	3.2403	3794.0	9.0778	**640**
650	3.8717	3816.5	9.1794	3.5489	3816.5	9.1391	3.2758	3816.4	9.1021	**650**
660	3.9137	3839.0	9.2035	3.5874	3838.9	9.1633	3.3114	3838.8	9.1263	**660**
670	3.9557	3861.4	9.2275	3.6260	3861.4	9.1873	3.3469	3861.3	9.1503	**670**
680	3.9977	3884.0	9.2513	3.6645	3883.9	9.2111	3.3825	3883.9	9.1741	**680**
690	4.0397	3906.6	9.2749	3.7030	3906.6	9.2347	3.4180	3906.5	9.1977	**690**
700	4.0817	3929.3	9.2983	3.7415	3929.3	9.2581	3.4536	3929.2	9.2211	**700**
710	4.1237	3952.1	9.3216	3.7800	3952.0	9.2814	3.4891	3952.0	9.2444	**710**
720	4.1657	3974.9	9.3447	3.8185	3974.9	9.3045	3.5247	3974.8	9.2675	**720**
730	4.2077	3997.8	9.3677	3.8570	3997.8	9.3275	3.5602	3997.7	9.2905	**730**
740	4.2497	4020.8	9.3905	3.8955	4020.8	9.3503	3.5958	4020.7	9.3133	**740**
750	4.2917	4043.9	9.4131	3.9340	4043.8	9.3729	3.6313	4043.8	9.3359	**750**
760	4.3337	4067.0	9.4356	3.9725	4066.9	9.3954	3.6668	4066.9	9.3584	**760**
770	4.3757	4090.2	9.4579	4.0110	4090.1	9.4177	3.7024	4090.1	9.3808	**770**
780	4.4177	4113.4	9.4801	4.0495	4113.4	9.4399	3.7379	4113.3	9.4030	**780**
790	4.4597	4136.8	9.5022	4.0880	4136.7	9.4620	3.7735	4136.7	9.4250	**790**
800	4.5017	4160.2	9.5241	4.1265	4160.1	9.4839	3.8090	4160.1	9.4469	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.14 MPa** (t_{sat} = 109.29 °C)			**0.15 MPa** (t_{sat} = 111.35 °C)			**0.16 MPa** (t_{sat} = 113.30 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 051 0	458.37	1.4109	0.001 052 7	467.08	1.4335	0.001 054 4	475.34	1.4549	Sat. Liq.
Sat. Vap.	1.2366	2690.0	7.2460	1.1594	2693.1	7.2229	1.0914	2696.0	7.2014	Sat. Vap.
0	0.001 000 1	0.10	-0.0001	0.001 000 1	0.11	-0.0001	0.001 000 1	0.12	-0.0001	**0**
5	0.001 000 0	21.16	0.0762	0.001 000 0	21.17	0.0762	0.001 000 0	21.18	0.0762	**5**
10	0.001 000 3	42.16	0.1511	0.001 000 3	42.17	0.1511	0.001 000 3	42.18	0.1511	**10**
15	0.001 000 9	63.12	0.2245	0.001 000 9	63.13	0.2244	0.001 000 9	63.14	0.2244	**15**
20	0.001 001 8	84.05	0.2965	0.001 001 8	84.06	0.2965	0.001 001 8	84.07	0.2965	**20**
25	0.001 002 9	104.97	0.3672	0.001 002 9	104.97	0.3672	0.001 002 9	104.98	0.3672	**25**
30	0.001 004 3	125.87	0.4368	0.001 004 3	125.88	0.4367	0.001 004 3	125.89	0.4367	**30**
35	0.001 006 0	146.77	0.5051	0.001 006 0	146.77	0.5051	0.001 006 0	146.78	0.5051	**35**
40	0.001 007 8	167.66	0.5724	0.001 007 8	167.67	0.5724	0.001 007 8	167.68	0.5724	**40**
45	0.001 009 9	188.55	0.6386	0.001 009 9	188.56	0.6386	0.001 009 8	188.57	0.6386	**45**
50	0.001 012 1	209.45	0.7037	0.001 012 1	209.45	0.7037	0.001 012 1	209.46	0.7037	**50**
55	0.001 014 5	230.35	0.7679	0.001 014 5	230.36	0.7679	0.001 014 5	230.36	0.7679	**55**
60	0.001 017 1	251.26	0.8312	0.001 017 1	251.26	0.8311	0.001 017 0	251.27	0.8311	**60**
65	0.001 019 8	272.17	0.8935	0.001 019 8	272.18	0.8935	0.001 019 8	272.19	0.8935	**65**
70	0.001 022 7	293.11	0.9549	0.001 022 7	293.12	0.9549	0.001 022 7	293.12	0.9549	**70**
75	0.001 025 8	314.06	1.0155	0.001 025 8	314.06	1.0155	0.001 025 8	314.07	1.0155	**75**
80	0.001 029 0	335.02	1.0753	0.001 029 0	335.03	1.0753	0.001 029 0	335.04	1.0753	**80**
85	0.001 032 4	356.01	1.1343	0.001 032 4	356.02	1.1343	0.001 032 4	356.03	1.1343	**85**
90	0.001 035 9	377.02	1.1926	0.001 035 9	377.03	1.1926	0.001 035 9	377.04	1.1926	**90**
95	0.001 039 6	398.06	1.2501	0.001 039 6	398.07	1.2501	0.001 039 6	398.08	1.2501	**95**
100	0.001 043 4	419.13	1.3070	0.001 043 4	419.14	1.3070	0.001 043 4	419.14	1.3070	**100**
105	0.001 047 4	440.23	1.3632	0.001 047 4	440.23	1.3631	0.001 047 4	440.24	1.3631	**105**
110	1.2392	2691.5	7.2499	0.001 051 6	461.37	1.4187	0.001 051 6	461.38	1.4187	**110**
115	1.2569	2702.0	7.2772	1.1715	2700.8	7.2430	1.0968	2699.7	7.2107	**115**
120	1.2745	2712.4	7.3038	1.1880	2711.3	7.2698	1.1123	2710.3	7.2378	**120**
125	1.2920	2722.7	7.3300	1.2045	2721.7	7.2961	1.1278	2720.7	7.2643	**125**
130	1.3095	2733.0	7.3556	1.2208	2732.1	7.3219	1.1432	2731.1	7.2902	**130**
135	1.3268	2743.2	7.3808	1.2371	2742.3	7.3472	1.1586	2741.5	7.3157	**135**
140	1.3442	2753.4	7.4055	1.2533	2752.6	7.3721	1.1738	2751.7	7.3407	**140**
145	1.3614	2763.5	7.4299	1.2695	2762.7	7.3966	1.1890	2762.0	7.3653	**145**
150	1.3786	2773.6	7.4539	1.2856	2772.9	7.4207	1.2042	2772.1	7.3895	**150**
155	1.3957	2783.7	7.4776	1.3016	2783.0	7.4445	1.2193	2782.3	7.4134	**155**
160	1.4129	2793.8	7.5009	1.3176	2793.1	7.4679	1.2343	2792.4	7.4369	**160**
165	1.4299	2803.8	7.5239	1.3336	2803.1	7.4910	1.2493	2802.5	7.4600	**165**
170	1.4470	2813.8	7.5467	1.3495	2813.2	7.5138	1.2643	2812.6	7.4829	**170**
175	1.4639	2823.8	7.5691	1.3654	2823.2	7.5362	1.2792	2822.6	7.5054	**175**
180	1.4809	2833.8	7.5912	1.3813	2833.2	7.5584	1.2941	2832.6	7.5277	**180**
185	1.4979	2843.7	7.6131	1.3971	2843.2	7.5804	1.3090	2842.7	7.5497	**185**
190	1.5148	2853.7	7.6347	1.4130	2853.2	7.6021	1.3239	2852.7	7.5714	**190**
195	1.5317	2863.7	7.6561	1.4288	2863.2	7.6235	1.3387	2862.7	7.5929	**195**
200	1.5485	2873.6	7.6773	1.4445	2873.1	7.6447	1.3535	2872.7	7.6141	**200**
205	1.5654	2883.6	7.6982	1.4603	2883.1	7.6657	1.3683	2882.7	7.6351	**205**
210	1.5822	2893.5	7.7189	1.4760	2893.1	7.6864	1.3831	2892.6	7.6559	**210**
215	1.5990	2903.5	7.7394	1.4917	2903.1	7.7069	1.3978	2902.6	7.6765	**215**
220	1.6158	2913.4	7.7597	1.5074	2913.0	7.7272	1.4126	2912.6	7.6968	**220**
225	1.6326	2923.4	7.7798	1.5231	2923.0	7.7474	1.4273	2922.6	7.7170	**225**
230	1.6494	2933.3	7.7997	1.5388	2933.0	7.7673	1.4420	2932.6	7.7369	**230**
235	1.6661	2943.3	7.8194	1.5544	2942.9	7.7870	1.4567	2942.6	7.7567	**235**
240	1.6829	2953.3	7.8389	1.5701	2952.9	7.8066	1.4714	2952.6	7.7763	**240**
245	1.6996	2963.2	7.8582	1.5857	2962.9	7.8259	1.4861	2962.6	7.7956	**245**
250	1.7163	2973.2	7.8774	1.6013	2972.9	7.8451	1.5007	2972.6	7.8149	**250**
255	1.7330	2983.2	7.8964	1.6170	2982.9	7.8641	1.5154	2982.6	7.8339	**255**
260	1.7497	2993.2	7.9153	1.6326	2992.9	7.8830	1.5300	2992.6	7.8528	**260**
265	1.7664	3003.2	7.9340	1.6482	3002.9	7.9017	1.5447	3002.6	7.8715	**265**
270	1.7831	3013.2	7.9525	1.6637	3013.0	7.9202	1.5593	3012.7	7.8901	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.14 MPa** (t_{sat} = 109.29 °C)			**0.15 MPa** (t_{sat} = 111.35 °C)			**0.16 MPa** (t_{sat} = 113.30 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	1.7998	3023.3	7.9709	1.6793	3023.0	7.9386	1.5739	3022.7	7.9085	**275**
280	1.8165	3033.3	7.9891	1.6949	3033.0	7.9569	1.5885	3032.8	7.9267	**280**
285	1.8331	3043.4	8.0072	1.7105	3043.1	7.9750	1.6031	3042.8	7.9448	**285**
290	1.8498	3053.4	8.0251	1.7260	3053.2	7.9929	1.6177	3052.9	7.9628	**290**
295	1.8664	3063.5	8.0429	1.7416	3063.2	8.0107	1.6323	3063.0	7.9806	**295**
300	1.8831	3073.6	8.0606	1.7571	3073.3	8.0284	1.6469	3073.1	7.9983	**300**
310	1.9164	3093.8	8.0955	1.7882	3093.5	8.0634	1.6760	3093.3	8.0333	**310**
320	1.9496	3114.0	8.1299	1.8192	3113.8	8.0978	1.7052	3113.6	8.0677	**320**
330	1.9828	3134.3	8.1639	1.8503	3134.1	8.1318	1.7343	3133.9	8.1017	**330**
340	2.0161	3154.6	8.1973	1.8813	3154.4	8.1652	1.7634	3154.2	8.1352	**340**
350	2.0493	3175.0	8.2303	1.9123	3174.9	8.1983	1.7925	3174.7	8.1682	**350**
360	2.0824	3195.5	8.2629	1.9433	3195.3	8.2308	1.8215	3195.1	8.2008	**360**
370	2.1156	3216.0	8.2950	1.9743	3215.8	8.2630	1.8506	3215.7	8.2330	**370**
380	2.1488	3236.6	8.3268	2.0052	3236.4	8.2947	1.8796	3236.3	8.2648	**380**
390	2.1819	3257.2	8.3581	2.0362	3257.1	8.3261	1.9087	3256.9	8.2961	**390**
400	2.2151	3277.9	8.3891	2.0671	3277.8	8.3571	1.9377	3277.6	8.3271	**400**
410	2.2482	3298.7	8.4197	2.0981	3298.5	8.3877	1.9667	3298.4	8.3577	**410**
420	2.2813	3319.5	8.4499	2.1290	3319.3	8.4180	1.9957	3319.2	8.3880	**420**
430	2.3144	3340.4	8.4798	2.1599	3340.2	8.4479	2.0247	3340.1	8.4179	**430**
440	2.3476	3361.3	8.5094	2.1908	3361.2	8.4774	2.0537	3361.0	8.4475	**440**
450	2.3807	3382.3	8.5387	2.2217	3382.2	8.5067	2.0827	3382.0	8.4768	**450**
460	2.4138	3403.4	8.5676	2.2526	3403.2	8.5356	2.1116	3403.1	8.5057	**460**
470	2.4468	3424.5	8.5962	2.2835	3424.4	8.5643	2.1406	3424.3	8.5344	**470**
480	2.4799	3445.7	8.6245	2.3144	3445.6	8.5926	2.1696	3445.5	8.5627	**480**
490	2.5130	3467.0	8.6526	2.3453	3466.8	8.6206	2.1985	3466.7	8.5907	**490**
500	2.5461	3488.3	8.6804	2.3762	3488.2	8.6484	2.2275	3488.1	8.6185	**500**
510	2.5791	3509.7	8.7079	2.4070	3509.6	8.6759	2.2564	3509.5	8.6460	**510**
520	2.6122	3531.1	8.7351	2.4379	3531.0	8.7031	2.2854	3530.9	8.6733	**520**
530	2.6453	3552.7	8.7621	2.4687	3552.6	8.7301	2.3143	3552.5	8.7002	**530**
540	2.6783	3574.3	8.7888	2.4996	3574.2	8.7568	2.3432	3574.1	8.7270	**540**
550	2.7114	3595.9	8.8153	2.5305	3595.8	8.7833	2.3722	3595.7	8.7535	**550**
560	2.7444	3617.6	8.8415	2.5613	3617.6	8.8096	2.4011	3617.5	8.7797	**560**
570	2.7775	3639.4	8.8675	2.5922	3639.4	8.8356	2.4300	3639.3	8.8057	**570**
580	2.8105	3661.3	8.8933	2.6230	3661.2	8.8614	2.4589	3661.2	8.8315	**580**
590	2.8435	3683.3	8.9188	2.6538	3683.2	8.8869	2.4879	3683.1	8.8571	**590**
600	2.8766	3705.3	8.9442	2.6847	3705.2	8.9123	2.5168	3705.1	8.8824	**600**
610	2.9096	3727.3	8.9693	2.7155	3727.3	8.9374	2.5457	3727.2	8.9076	**610**
620	2.9426	3749.5	8.9943	2.7463	3749.4	8.9624	2.5746	3749.3	8.9325	**620**
630	2.9757	3771.7	9.0190	2.7772	3771.6	8.9871	2.6035	3771.6	8.9573	**630**
640	3.0087	3794.0	9.0435	2.8080	3793.9	9.0116	2.6324	3793.8	8.9818	**640**
650	3.0417	3816.3	9.0679	2.8388	3816.3	9.0360	2.6613	3816.2	9.0061	**650**
660	3.0747	3838.8	9.0920	2.8696	3838.7	9.0602	2.6902	3838.6	9.0303	**660**
670	3.1078	3861.2	9.1160	2.9005	3861.2	9.0841	2.7191	3861.1	9.0543	**670**
680	3.1408	3883.8	9.1398	2.9313	3883.8	9.1079	2.7480	3883.7	9.0781	**680**
690	3.1738	3906.4	9.1634	2.9621	3906.4	9.1316	2.7769	3906.3	9.1017	**690**
700	3.2068	3929.1	9.1869	2.9929	3929.1	9.1550	2.8058	3929.0	9.1252	**700**
710	3.2398	3951.9	9.2102	3.0237	3951.9	9.1783	2.8347	3951.8	9.1485	**710**
720	3.2728	3974.8	9.2333	3.0546	3974.7	9.2014	2.8636	3974.7	9.1716	**720**
730	3.3058	3997.7	9.2562	3.0854	3997.6	9.2244	2.8925	3997.6	9.1945	**730**
740	3.3388	4020.7	9.2790	3.1162	4020.6	9.2472	2.9213	4020.6	9.2173	**740**
750	3.3718	4043.7	9.3017	3.1470	4043.7	9.2698	2.9502	4043.6	9.2400	**750**
760	3.4048	4066.8	9.3242	3.1778	4066.8	9.2923	2.9791	4066.7	9.2625	**760**
770	3.4379	4090.0	9.3465	3.2086	4090.0	9.3146	3.0080	4089.9	9.2848	**770**
780	3.4709	4113.3	9.3687	3.2394	4113.2	9.3368	3.0369	4113.2	9.3070	**780**
790	3.5039	4136.6	9.3908	3.2702	4136.6	9.3589	3.0658	4136.5	9.3291	**790**
800	3.5369	4160.0	9.4127	3.3010	4160.0	9.3808	3.0946	4160.0	9.3510	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.18 MPa** (t_{sat} = 116.91 °C)			**0.20 MPa** (t_{sat} = 120.21 °C)			**0.22 MPa** (t_{sat} = 123.25 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 057 6	490.67	1.4944	0.001 060 5	504.68	1.5301	0.001 063 3	517.62	1.5628	Sat. Liq.
Sat. Vap.	0.977 53	2701.4	7.1620	0.885 74	2706.2	7.1269	0.810 12	2710.6	7.0951	Sat. Vap.
0	0.001 000 1	0.14	-0.0001	0.001 000 1	0.16	-0.0001	0.001 000 1	0.18	-0.0001	**0**
5	0.001 000 0	21.20	0.0762	0.001 000 0	21.22	0.0762	0.001 000 0	21.24	0.0762	**5**
10	0.001 000 3	42.20	0.1511	0.001 000 3	42.21	0.1511	0.001 000 2	42.23	0.1511	**10**
15	0.001 000 9	63.15	0.2244	0.001 000 9	63.17	0.2244	0.001 000 8	63.19	0.2244	**15**
20	0.001 001 8	84.09	0.2965	0.001 001 8	84.11	0.2965	0.001 001 7	84.12	0.2965	**20**
25	0.001 002 9	105.00	0.3672	0.001 002 9	105.02	0.3672	0.001 002 9	105.04	0.3672	**25**
30	0.001 004 3	125.91	0.4367	0.001 004 3	125.92	0.4367	0.001 004 3	125.94	0.4367	**30**
35	0.001 006 0	146.80	0.5051	0.001 006 0	146.82	0.5051	0.001 005 9	146.84	0.5051	**35**
40	0.001 007 8	167.69	0.5724	0.001 007 8	167.71	0.5724	0.001 007 8	167.73	0.5723	**40**
45	0.001 009 8	188.59	0.6386	0.001 009 8	188.60	0.6385	0.001 009 8	188.62	0.6385	**45**
50	0.001 012 1	209.48	0.7037	0.001 012 1	209.50	0.7037	0.001 012 0	209.52	0.7037	**50**
55	0.001 014 5	230.38	0.7679	0.001 014 5	230.40	0.7679	0.001 014 4	230.41	0.7679	**55**
60	0.001 017 0	251.29	0.8311	0.001 017 0	251.31	0.8311	0.001 017 0	251.32	0.8311	**60**
65	0.001 019 8	272.21	0.8935	0.001 019 8	272.22	0.8934	0.001 019 8	272.24	0.8934	**65**
70	0.001 022 7	293.14	0.9549	0.001 022 7	293.16	0.9549	0.001 022 7	293.17	0.9549	**70**
75	0.001 025 8	314.09	1.0155	0.001 025 7	314.10	1.0155	0.001 025 7	314.12	1.0155	**75**
80	0.001 029 0	335.05	1.0753	0.001 029 0	335.07	1.0753	0.001 029 0	335.09	1.0753	**80**
85	0.001 032 4	356.04	1.1343	0.001 032 3	356.06	1.1343	0.001 032 3	356.07	1.1343	**85**
90	0.001 035 9	377.05	1.1926	0.001 035 9	377.07	1.1926	0.001 035 9	377.08	1.1925	**90**
95	0.001 039 6	398.09	1.2501	0.001 039 6	398.11	1.2501	0.001 039 6	398.12	1.2501	**95**
100	0.001 043 4	419.16	1.3070	0.001 043 4	419.17	1.3069	0.001 043 4	419.19	1.3069	**100**
105	0.001 047 4	440.26	1.3631	0.001 047 4	440.27	1.3631	0.001 047 4	440.29	1.3631	**105**
110	0.001 051 6	461.39	1.4186	0.001 051 6	461.40	1.4186	0.001 051 5	461.42	1.4186	**110**
115	0.001 055 9	482.56	1.4735	0.001 055 9	482.57	1.4735	0.001 055 8	482.59	1.4735	**115**
120	0.986 18	2708.0	7.1790	0.001 060 3	503.79	1.5278	0.001 060 3	503.80	1.5278	**120**
125	1.0001	2718.7	7.2058	0.897 86	2716.6	7.1530	0.814 18	2714.4	7.1047	**125**
130	1.0139	2729.2	7.2321	0.910 41	2727.3	7.1796	0.825 71	2725.3	7.1317	**130**
135	1.0276	2739.7	7.2579	0.922 88	2737.8	7.2057	0.837 15	2736.0	7.1581	**135**
140	1.0413	2750.0	7.2831	0.935 28	2748.3	7.2312	0.848 52	2746.6	7.1839	**140**
145	1.0549	2760.3	7.3080	0.947 62	2758.7	7.2563	0.859 81	2757.1	7.2092	**145**
150	1.0685	2770.6	7.3324	0.959 89	2769.1	7.2809	0.871 05	2767.5	7.2341	**150**
155	1.0820	2780.8	7.3564	0.972 12	2779.4	7.3051	0.882 24	2777.9	7.2585	**155**
160	1.0954	2791.0	7.3801	0.984 30	2789.7	7.3290	0.893 38	2788.3	7.2825	**160**
165	1.1088	2801.2	7.4034	0.996 44	2799.9	7.3524	0.904 47	2798.6	7.3061	**165**
170	1.1222	2811.3	7.4264	1.0085	2810.1	7.3756	0.915 53	2808.8	7.3294	**170**
175	1.1356	2821.4	7.4491	1.0206	2820.3	7.3984	0.926 55	2819.1	7.3524	**175**
180	1.1489	2831.5	7.4714	1.0326	2830.4	7.4209	0.937 55	2829.3	7.3750	**180**
185	1.1622	2841.6	7.4935	1.0447	2840.5	7.4431	0.948 51	2839.4	7.3973	**185**
190	1.1754	2851.7	7.5154	1.0566	2850.6	7.4650	0.959 44	2849.6	7.4193	**190**
195	1.1886	2861.7	7.5369	1.0686	2860.7	7.4867	0.970 35	2859.7	7.4411	**195**
200	1.2019	2871.7	7.5583	1.0805	2870.8	7.5081	0.981 23	2869.8	7.4626	**200**
205	1.2151	2881.8	7.5793	1.0924	2880.8	7.5293	0.992 10	2879.9	7.4838	**205**
210	1.2282	2891.8	7.6002	1.1043	2890.9	7.5502	1.0029	2890.0	7.5048	**210**
215	1.2414	2901.8	7.6208	1.1162	2901.0	7.5709	1.0138	2900.1	7.5256	**215**
220	1.2545	2911.8	7.6412	1.1281	2911.0	7.5914	1.0246	2910.2	7.5461	**220**
225	1.2676	2921.8	7.6614	1.1399	2921.0	7.6116	1.0354	2920.3	7.5665	**225**
230	1.2807	2931.8	7.6814	1.1517	2931.1	7.6317	1.0462	2930.3	7.5866	**230**
235	1.2938	2941.9	7.7012	1.1635	2941.1	7.6515	1.0569	2940.4	7.6065	**235**
240	1.3069	2951.9	7.7209	1.1753	2951.2	7.6712	1.0677	2950.5	7.6262	**240**
245	1.3200	2961.9	7.7403	1.1871	2961.2	7.6907	1.0784	2960.5	7.6457	**245**
250	1.3331	2971.9	7.7596	1.1989	2971.3	7.7100	1.0892	2970.6	7.6651	**250**
255	1.3461	2982.0	7.7786	1.2107	2981.3	7.7291	1.0999	2980.7	7.6842	**255**
260	1.3591	2992.0	7.7976	1.2224	2991.4	7.7481	1.1106	2990.7	7.7032	**260**
265	1.3722	3002.0	7.8163	1.2342	3001.4	7.7669	1.1213	3000.8	7.7220	**265**
270	1.3852	3012.1	7.8349	1.2459	3011.5	7.7855	1.1320	3010.9	7.7407	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.18 MPa** (t_{sat} = 116.91 °C)			**0.20 MPa** (t_{sat} = 120.21 °C)			**0.22 MPa** (t_{sat} = 123.25 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	1.3982	3022.1	7.8533	1.2577	3021.6	7.8039	1.1427	3021.0	7.7592	**275**
280	1.4112	3032.2	7.8716	1.2694	3031.7	7.8223	1.1533	3031.1	7.7775	**280**
285	1.4242	3042.3	7.8898	1.2811	3041.8	7.8404	1.1640	3041.2	7.7957	**285**
290	1.4372	3052.4	7.9078	1.2928	3051.9	7.8584	1.1747	3051.3	7.8138	**290**
295	1.4502	3062.5	7.9256	1.3045	3062.0	7.8763	1.1853	3061.5	7.8317	**295**
300	1.4632	3072.6	7.9433	1.3162	3072.1	7.8940	1.1960	3071.6	7.8494	**300**
310	1.4891	3092.8	7.9783	1.3396	3092.4	7.9291	1.2173	3091.9	7.8845	**310**
320	1.5151	3113.1	8.0128	1.3630	3112.7	7.9636	1.2385	3112.2	7.9191	**320**
330	1.5410	3133.5	8.0468	1.3863	3133.0	7.9977	1.2598	3132.6	7.9532	**330**
340	1.5669	3153.8	8.0804	1.4097	3153.4	8.0312	1.2810	3153.0	7.9868	**340**
350	1.5927	3174.3	8.1134	1.4330	3173.9	8.0643	1.3022	3173.5	8.0199	**350**
360	1.6186	3194.8	8.1460	1.4563	3194.4	8.0970	1.3234	3194.0	8.0526	**360**
370	1.6445	3215.3	8.1782	1.4795	3215.0	8.1292	1.3446	3214.6	8.0848	**370**
380	1.6703	3235.9	8.2100	1.5028	3235.6	8.1610	1.3658	3235.2	8.1166	**380**
390	1.6961	3256.6	8.2414	1.5261	3256.3	8.1924	1.3870	3255.9	8.1481	**390**
400	1.7219	3277.3	8.2724	1.5493	3277.0	8.2235	1.4081	3276.7	8.1791	**400**
410	1.7477	3298.1	8.3031	1.5726	3297.8	8.2541	1.4293	3297.5	8.2098	**410**
420	1.7735	3318.9	8.3333	1.5958	3318.6	8.2844	1.4504	3318.3	8.2401	**420**
430	1.7993	3339.8	8.3633	1.6190	3339.5	8.3144	1.4715	3339.3	8.2701	**430**
440	1.8251	3360.8	8.3929	1.6423	3360.5	8.3440	1.4927	3360.2	8.2997	**440**
450	1.8509	3381.8	8.4221	1.6655	3381.5	8.3733	1.5138	3381.3	8.3290	**450**
460	1.8767	3402.9	8.4511	1.6887	3402.6	8.4022	1.5349	3402.4	8.3580	**460**
470	1.9024	3424.0	8.4798	1.7119	3423.8	8.4309	1.5560	3423.5	8.3867	**470**
480	1.9282	3445.2	8.5081	1.7351	3445.0	8.4593	1.5771	3444.8	8.4150	**480**
490	1.9539	3466.5	8.5362	1.7583	3466.3	8.4873	1.5982	3466.1	8.4431	**490**
500	1.9797	3487.9	8.5640	1.7814	3487.6	8.5151	1.6192	3487.4	8.4709	**500**
510	2.0054	3509.3	8.5915	1.8046	3509.1	8.5426	1.6403	3508.8	8.4985	**510**
520	2.0312	3530.7	8.6187	1.8278	3530.5	8.5699	1.6614	3530.3	8.5257	**520**
530	2.0569	3552.3	8.6457	1.8510	3552.1	8.5969	1.6825	3551.9	8.5527	**530**
540	2.0826	3573.9	8.6724	1.8741	3573.7	8.6236	1.7035	3573.5	8.5795	**540**
550	2.1083	3595.6	8.6989	1.8973	3595.4	8.6501	1.7246	3595.2	8.6060	**550**
560	2.1341	3617.3	8.7252	1.9204	3617.1	8.6764	1.7457	3616.9	8.6323	**560**
570	2.1598	3639.1	8.7512	1.9436	3638.9	8.7024	1.7667	3638.8	8.6583	**570**
580	2.1855	3661.0	8.7770	1.9667	3660.8	8.7282	1.7878	3660.7	8.6841	**580**
590	2.2112	3682.9	8.8026	1.9899	3682.8	8.7538	1.8088	3682.6	8.7097	**590**
600	2.2369	3704.9	8.8279	2.0130	3704.8	8.7792	1.8299	3704.6	8.7351	**600**
610	2.2626	3727.0	8.8531	2.0362	3726.9	8.8043	1.8509	3726.7	8.7602	**610**
620	2.2883	3749.2	8.8780	2.0593	3749.0	8.8293	1.8720	3748.9	8.7852	**620**
630	2.3140	3771.4	8.9028	2.0825	3771.3	8.8540	1.8930	3771.1	8.8099	**630**
640	2.3397	3793.7	8.9273	2.1056	3793.6	8.8786	1.9140	3793.4	8.8345	**640**
650	2.3654	3816.1	8.9517	2.1287	3815.9	8.9029	1.9351	3815.8	8.8588	**650**
660	2.3911	3838.5	8.9758	2.1519	3838.4	8.9271	1.9561	3838.2	8.8830	**660**
670	2.4168	3861.0	8.9998	2.1750	3860.9	8.9511	1.9771	3860.7	8.9070	**670**
680	2.4425	3883.6	9.0236	2.1981	3883.4	8.9749	1.9982	3883.3	8.9308	**680**
690	2.4682	3906.2	9.0473	2.2212	3906.1	8.9985	2.0192	3906.0	8.9545	**690**
700	2.4939	3928.9	9.0707	2.2444	3928.8	9.0220	2.0402	3928.7	8.9779	**700**
710	2.5196	3951.7	9.0940	2.2675	3951.6	9.0453	2.0612	3951.5	9.0012	**710**
720	2.5453	3974.5	9.1171	2.2906	3974.4	9.0684	2.0823	3974.3	9.0243	**720**
730	2.5709	3997.5	9.1401	2.3137	3997.4	9.0914	2.1033	3997.2	9.0473	**730**
740	2.5966	4020.5	9.1629	2.3368	4020.3	9.1142	2.1243	4020.2	9.0701	**740**
750	2.6223	4043.5	9.1855	2.3600	4043.4	9.1368	2.1453	4043.3	9.0928	**750**
760	2.6480	4066.6	9.2080	2.3831	4066.5	9.1593	2.1663	4066.4	9.1153	**760**
770	2.6737	4089.8	9.2304	2.4062	4089.7	9.1817	2.1874	4089.6	9.1376	**770**
780	2.6993	4113.1	9.2526	2.4293	4113.0	9.2039	2.2084	4112.9	9.1598	**780**
790	2.7250	4136.4	9.2746	2.4524	4136.3	9.2259	2.2294	4136.3	9.1819	**790**
800	2.7507	4159.9	9.2966	2.4755	4159.8	9.2479	2.2504	4159.7	9.2038	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.24 MPa** (t_{sat} = 126.07 °C)			**0.26 MPa** (t_{sat} = 128.71 °C)			**0.28 MPa** (t_{sat} = 131.19 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 065 9	529.64	1.5930	0.001 068 5	540.88	1.6210	0.001 070 9	551.46	1.6472	Sat. Liq.
Sat. Vap.	0.746 72	2714.6	7.0660	0.692 76	2718.3	7.0393	0.646 27	2721.7	7.0146	Sat. Vap.
0	0.001 000 1	0.20	-0.0001	0.001 000 1	0.22	-0.0001	0.001 000 1	0.24	-0.0001	**0**
5	0.001 000 0	21.26	0.0762	0.001 000 0	21.28	0.0762	0.000 999 9	21.30	0.0762	**5**
10	0.001 000 2	42.25	0.1511	0.001 000 2	42.27	0.1511	0.001 000 2	42.29	0.1511	**10**
15	0.001 000 8	63.21	0.2244	0.001 000 8	63.23	0.2244	0.001 000 8	63.25	0.2244	**15**
20	0.001 001 7	84.14	0.2965	0.001 001 7	84.16	0.2964	0.001 001 7	84.18	0.2964	**20**
25	0.001 002 9	105.06	0.3672	0.001 002 9	105.08	0.3672	0.001 002 9	105.09	0.3672	**25**
30	0.001 004 3	125.96	0.4367	0.001 004 3	125.98	0.4367	0.001 004 3	126.00	0.4367	**30**
35	0.001 005 9	146.86	0.5051	0.001 005 9	146.87	0.5051	0.001 005 9	146.89	0.5051	**35**
40	0.001 007 8	167.75	0.5723	0.001 007 8	167.76	0.5723	0.001 007 8	167.78	0.5723	**40**
45	0.001 009 8	188.64	0.6385	0.001 009 8	188.66	0.6385	0.001 009 8	188.67	0.6385	**45**
50	0.001 012 0	209.53	0.7037	0.001 012 0	209.55	0.7037	0.001 012 0	209.57	0.7037	**50**
55	0.001 014 4	230.43	0.7679	0.001 014 4	230.45	0.7679	0.001 014 4	230.47	0.7678	**55**
60	0.001 017 0	251.34	0.8311	0.001 017 0	251.36	0.8311	0.001 017 0	251.37	0.8311	**60**
65	0.001 019 8	272.26	0.8934	0.001 019 7	272.27	0.8934	0.001 019 7	272.29	0.8934	**65**
70	0.001 022 7	293.19	0.9549	0.001 022 7	293.21	0.9549	0.001 022 6	293.22	0.9548	**70**
75	0.001 025 7	314.14	1.0155	0.001 025 7	314.15	1.0155	0.001 025 7	314.17	1.0154	**75**
80	0.001 028 9	335.10	1.0753	0.001 028 9	335.12	1.0753	0.001 028 9	335.13	1.0752	**80**
85	0.001 032 3	356.09	1.1343	0.001 032 3	356.10	1.1343	0.001 032 3	356.12	1.1342	**85**
90	0.001 035 9	377.10	1.1925	0.001 035 8	377.12	1.1925	0.001 035 8	377.13	1.1925	**90**
95	0.001 039 5	398.14	1.2501	0.001 039 5	398.15	1.2501	0.001 039 5	398.17	1.2500	**95**
100	0.001 043 4	419.20	1.3069	0.001 043 4	419.22	1.3069	0.001 043 4	419.23	1.3069	**100**
105	0.001 047 4	440.30	1.3631	0.001 047 4	440.32	1.3631	0.001 047 4	440.33	1.3630	**105**
110	0.001 051 5	461.43	1.4186	0.001 051 5	461.45	1.4186	0.001 051 5	461.46	1.4186	**110**
115	0.001 055 8	482.60	1.4735	0.001 055 8	482.62	1.4735	0.001 055 8	482.63	1.4734	**115**
120	0.001 060 3	503.81	1.5278	0.001 060 3	503.83	1.5278	0.001 060 3	503.84	1.5277	**120**
125	0.001 064 9	525.07	1.5815	0.001 064 9	525.08	1.5815	0.001 064 9	525.09	1.5815	**125**
130	0.755 10	2723.2	7.0875	0.695 33	2721.2	7.0464	0.001 069 7	546.39	1.6346	**130**
135	0.765 69	2734.1	7.1142	0.705 20	2732.2	7.0736	0.653 33	2730.2	7.0355	**135**
140	0.776 19	2744.8	7.1404	0.714 98	2743.0	7.1000	0.662 50	2741.2	7.0623	**140**
145	0.786 63	2755.4	7.1659	0.724 69	2753.8	7.1258	0.671 58	2752.1	7.0884	**145**
150	0.797 00	2766.0	7.1910	0.734 33	2764.4	7.1511	0.680 61	2762.8	7.1139	**150**
155	0.807 32	2776.5	7.2156	0.743 92	2775.0	7.1759	0.689 57	2773.5	7.1390	**155**
160	0.817 60	2786.9	7.2398	0.753 46	2785.5	7.2003	0.698 48	2784.0	7.1635	**160**
165	0.827 82	2797.2	7.2636	0.762 96	2795.9	7.2243	0.707 35	2794.6	7.1877	**165**
170	0.838 01	2807.6	7.2870	0.772 41	2806.3	7.2479	0.716 18	2805.0	7.2114	**170**
175	0.848 17	2817.9	7.3101	0.781 83	2816.6	7.2711	0.724 97	2815.4	7.2348	**175**
180	0.858 29	2828.1	7.3329	0.791 22	2827.0	7.2940	0.733 72	2825.8	7.2578	**180**
185	0.868 38	2838.3	7.3553	0.800 57	2837.2	7.3165	0.742 45	2836.1	7.2804	**185**
190	0.878 44	2848.5	7.3774	0.809 90	2847.5	7.3388	0.751 15	2846.4	7.3028	**190**
195	0.888 48	2858.7	7.3993	0.819 20	2857.7	7.3607	0.759 82	2856.7	7.3248	**195**
200	0.898 49	2868.9	7.4209	0.828 48	2867.9	7.3824	0.768 46	2866.9	7.3466	**200**
205	0.908 49	2879.0	7.4422	0.837 73	2878.1	7.4038	0.777 09	2877.1	7.3681	**205**
210	0.918 46	2889.1	7.4633	0.846 97	2888.2	7.4249	0.785 69	2887.4	7.3893	**210**
215	0.928 42	2899.3	7.4841	0.856 19	2898.4	7.4458	0.794 28	2897.5	7.4103	**215**
220	0.938 35	2909.4	7.5047	0.865 39	2908.5	7.4665	0.802 84	2907.7	7.4310	**220**
225	0.948 28	2919.5	7.5251	0.874 57	2918.7	7.4870	0.811 40	2917.9	7.4515	**225**
230	0.958 18	2929.6	7.5453	0.883 74	2928.8	7.5072	0.819 93	2928.0	7.4718	**230**
235	0.968 08	2939.7	7.5652	0.892 90	2938.9	7.5272	0.828 45	2938.2	7.4919	**235**
240	0.977 96	2949.8	7.5850	0.902 04	2949.0	7.5470	0.836 96	2948.3	7.5118	**240**
245	0.987 83	2959.8	7.6046	0.911 17	2959.2	7.5666	0.845 46	2958.5	7.5314	**245**
250	0.997 69	2969.9	7.6240	0.920 29	2969.3	7.5861	0.853 95	2968.6	7.5509	**250**
255	1.0075	2980.0	7.6432	0.929 40	2979.4	7.6053	0.862 42	2978.7	7.5702	**255**
260	1.0174	2990.1	7.6622	0.938 50	2989.5	7.6244	0.870 89	2988.9	7.5893	**260**
265	1.0272	3000.2	7.6810	0.947 59	2999.6	7.6433	0.879 35	2999.0	7.6082	**265**
270	1.0370	3010.3	7.6997	0.956 67	3009.7	7.6620	0.887 79	3009.2	7.6270	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.24 MPa** (t_{sat} = 126.07 °C)			**0.26 MPa** (t_{sat} = 128.71 °C)			**0.28 MPa** (t_{sat} = 131.19 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	1.0468	3020.4	7.7183	0.965 74	3019.9	7.6805	0.896 23	3019.3	7.6456	**275**
280	1.0566	3030.6	7.7366	0.974 81	3030.0	7.6989	0.904 67	3029.5	7.6640	**280**
285	1.0664	3040.7	7.7548	0.983 87	3040.1	7.7172	0.913 09	3039.6	7.6823	**285**
290	1.0762	3050.8	7.7729	0.992 92	3050.3	7.7353	0.921 51	3049.8	7.7004	**290**
295	1.0860	3060.9	7.7908	1.0020	3060.4	7.7532	0.929 92	3059.9	7.7184	**295**
300	1.0958	3071.1	7.8086	1.0110	3070.6	7.7710	0.938 33	3070.1	7.7362	**300**
310	1.1153	3091.4	7.8438	1.0291	3090.9	7.8062	0.955 12	3090.5	7.7714	**310**
320	1.1348	3111.8	7.8784	1.0471	3111.3	7.8409	0.971 89	3110.9	7.8061	**320**
330	1.1543	3132.2	7.9125	1.0651	3131.8	7.8750	0.988 64	3131.3	7.8403	**330**
340	1.1738	3152.6	7.9461	1.0831	3152.2	7.9087	1.0054	3151.8	7.8740	**340**
350	1.1933	3173.1	7.9793	1.1011	3172.7	7.9419	1.0221	3172.3	7.9072	**350**
360	1.2127	3193.7	8.0120	1.1191	3193.3	7.9746	1.0388	3192.9	7.9400	**360**
370	1.2322	3214.3	8.0442	1.1370	3213.9	8.0069	1.0555	3213.5	7.9723	**370**
380	1.2516	3234.9	8.0761	1.1550	3234.6	8.0388	1.0722	3234.2	8.0042	**380**
390	1.2710	3255.6	8.1076	1.1729	3255.3	8.0703	1.0888	3255.0	8.0357	**390**
400	1.2904	3276.4	8.1386	1.1909	3276.0	8.1013	1.1055	3275.7	8.0668	**400**
410	1.3098	3297.2	8.1693	1.2088	3296.9	8.1321	1.1222	3296.6	8.0975	**410**
420	1.3292	3318.0	8.1996	1.2267	3317.8	8.1624	1.1388	3317.5	8.1279	**420**
430	1.3486	3339.0	8.2296	1.2446	3338.7	8.1924	1.1554	3338.4	8.1579	**430**
440	1.3680	3360.0	8.2593	1.2625	3359.7	8.2220	1.1721	3359.4	8.1876	**440**
450	1.3873	3381.0	8.2886	1.2804	3380.8	8.2514	1.1887	3380.5	8.2169	**450**
460	1.4067	3402.1	8.3176	1.2982	3401.9	8.2804	1.2053	3401.6	8.2459	**460**
470	1.4261	3423.3	8.3463	1.3161	3423.1	8.3091	1.2219	3422.8	8.2746	**470**
480	1.4454	3444.5	8.3746	1.3340	3444.3	8.3375	1.2385	3444.1	8.3030	**480**
490	1.4647	3465.8	8.4027	1.3519	3465.6	8.3656	1.2551	3465.4	8.3312	**490**
500	1.4841	3487.2	8.4306	1.3697	3487.0	8.3934	1.2717	3486.8	8.3590	**500**
510	1.5034	3508.6	8.4581	1.3876	3508.4	8.4210	1.2883	3508.2	8.3866	**510**
520	1.5227	3530.1	8.4854	1.4054	3529.9	8.4482	1.3048	3529.7	8.4138	**520**
530	1.5421	3551.7	8.5124	1.4233	3551.5	8.4753	1.3214	3551.3	8.4409	**530**
540	1.5614	3573.3	8.5391	1.4411	3573.1	8.5020	1.3380	3572.9	8.4677	**540**
550	1.5807	3595.0	8.5657	1.4589	3594.8	8.5286	1.3546	3594.6	8.4942	**550**
560	1.6000	3616.8	8.5919	1.4768	3616.6	8.5548	1.3711	3616.4	8.5205	**560**
570	1.6193	3638.6	8.6180	1.4946	3638.4	8.5809	1.3877	3638.3	8.5465	**570**
580	1.6386	3660.5	8.6438	1.5124	3660.3	8.6067	1.4042	3660.2	8.5724	**580**
590	1.6579	3682.5	8.6694	1.5302	3682.3	8.6323	1.4208	3682.1	8.5980	**590**
600	1.6772	3704.5	8.6948	1.5481	3704.3	8.6577	1.4374	3704.2	8.6233	**600**
610	1.6965	3726.6	8.7199	1.5659	3726.4	8.6829	1.4539	3726.3	8.6485	**610**
620	1.7158	3748.7	8.7449	1.5837	3748.6	8.7078	1.4704	3748.5	8.6735	**620**
630	1.7351	3771.0	8.7696	1.6015	3770.8	8.7326	1.4870	3770.7	8.6983	**630**
640	1.7544	3793.3	8.7942	1.6193	3793.2	8.7571	1.5035	3793.0	8.7228	**640**
650	1.7737	3815.7	8.8186	1.6371	3815.5	8.7815	1.5201	3815.4	8.7472	**650**
660	1.7930	3838.1	8.8427	1.6549	3838.0	8.8057	1.5366	3837.8	8.7714	**660**
670	1.8123	3860.6	8.8667	1.6727	3860.5	8.8297	1.5532	3860.4	8.7954	**670**
680	1.8315	3883.2	8.8906	1.6905	3883.1	8.8535	1.5697	3882.9	8.8192	**680**
690	1.8508	3905.8	8.9142	1.7083	3905.7	8.8772	1.5862	3905.6	8.8429	**690**
700	1.8701	3928.6	8.9377	1.7261	3928.4	8.9006	1.6027	3928.3	8.8663	**700**
710	1.8894	3951.4	8.9610	1.7439	3951.2	8.9239	1.6193	3951.1	8.8896	**710**
720	1.9086	3974.2	8.9841	1.7617	3974.1	8.9471	1.6358	3974.0	8.9128	**720**
730	1.9279	3997.1	9.0071	1.7795	3997.0	8.9700	1.6523	3996.9	8.9358	**730**
740	1.9472	4020.1	9.0299	1.7973	4020.0	8.9929	1.6689	4019.9	8.9586	**740**
750	1.9665	4043.2	9.0525	1.8151	4043.1	9.0155	1.6854	4043.0	8.9812	**750**
760	1.9857	4066.3	9.0750	1.8329	4066.2	9.0380	1.7019	4066.1	9.0037	**760**
770	2.0050	4089.5	9.0974	1.8507	4089.4	9.0604	1.7184	4089.4	9.0261	**770**
780	2.0243	4112.8	9.1196	1.8685	4112.7	9.0826	1.7349	4112.6	9.0483	**780**
790	2.0435	4136.2	9.1417	1.8863	4136.1	9.1046	1.7515	4136.0	9.0704	**790**
800	2.0628	4159.6	9.1636	1.9040	4159.5	9.1266	1.7680	4159.4	9.0923	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.30 MPa** (t_{sat} = 133.53 °C)			**0.34 MPa** (t_{sat} = 137.85 °C)			**0.38 MPa** (t_{sat} = 141.77 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 073 2	561.46	1.6718	0.001 077 5	579.96	1.7169	0.001 081 6	596.81	1.7576	Sat. Liq.
Sat. Vap.	0.605 79	2724.9	6.9916	0.538 66	2730.6	6.9498	0.485 23	2735.7	6.9126	Sat. Vap.
0	0.001 000 1	0.26	-0.0001	0.001 000 0	0.30	-0.0001	0.001 000 0	0.34	-0.0001	**0**
5	0.000 999 9	21.32	0.0762	0.000 999 9	21.36	0.0762	0.000 999 9	21.40	0.0762	**5**
10	0.001 000 2	42.31	0.1511	0.001 000 2	42.35	0.1511	0.001 000 2	42.39	0.1511	**10**
15	0.001 000 8	63.27	0.2244	0.001 000 8	63.31	0.2244	0.001 000 8	63.35	0.2244	**15**
20	0.001 001 7	84.20	0.2964	0.001 001 7	84.24	0.2964	0.001 001 7	84.28	0.2964	**20**
25	0.001 002 9	105.11	0.3672	0.001 002 9	105.15	0.3672	0.001 002 8	105.19	0.3672	**25**
30	0.001 004 3	126.01	0.4367	0.001 004 3	126.05	0.4367	0.001 004 2	126.09	0.4367	**30**
35	0.001 005 9	146.91	0.5051	0.001 005 9	146.95	0.5051	0.001 005 9	146.98	0.5050	**35**
40	0.001 007 7	167.80	0.5723	0.001 007 7	167.84	0.5723	0.001 007 7	167.87	0.5723	**40**
45	0.001 009 8	188.69	0.6385	0.001 009 8	188.73	0.6385	0.001 009 7	188.76	0.6385	**45**
50	0.001 012 0	209.58	0.7037	0.001 012 0	209.62	0.7036	0.001 012 0	209.65	0.7036	**50**
55	0.001 014 4	230.48	0.7678	0.001 014 4	230.52	0.7678	0.001 014 4	230.55	0.7678	**55**
60	0.001 017 0	251.39	0.8311	0.001 017 0	251.42	0.8310	0.001 017 0	251.46	0.8310	**60**
65	0.001 019 7	272.31	0.8934	0.001 019 7	272.34	0.8934	0.001 019 7	272.37	0.8933	**65**
70	0.001 022 6	293.24	0.9548	0.001 022 6	293.27	0.9548	0.001 022 6	293.30	0.9548	**70**
75	0.001 025 7	314.18	1.0154	0.001 025 7	314.22	1.0154	0.001 025 7	314.25	1.0154	**75**
80	0.001 028 9	335.15	1.0752	0.001 028 9	335.18	1.0752	0.001 028 9	335.21	1.0752	**80**
85	0.001 032 3	356.14	1.1342	0.001 032 3	356.17	1.1342	0.001 032 3	356.20	1.1342	**85**
90	0.001 035 8	377.15	1.1925	0.001 035 8	377.18	1.1925	0.001 035 8	377.21	1.1924	**90**
95	0.001 039 5	398.18	1.2500	0.001 039 5	398.21	1.2500	0.001 039 5	398.24	1.2500	**95**
100	0.001 043 4	419.25	1.3069	0.001 043 3	419.28	1.3068	0.001 043 3	419.31	1.3068	**100**
105	0.001 047 3	440.35	1.3630	0.001 047 3	440.38	1.3630	0.001 047 3	440.40	1.3630	**105**
110	0.001 051 5	461.48	1.4185	0.001 051 5	461.51	1.4185	0.001 051 5	461.54	1.4185	**110**
115	0.001 055 8	482.65	1.4734	0.001 055 8	482.67	1.4734	0.001 055 8	482.70	1.4734	**115**
120	0.001 060 3	503.86	1.5277	0.001 060 2	503.88	1.5277	0.001 060 2	503.91	1.5277	**120**
125	0.001 064 9	525.11	1.5814	0.001 064 9	525.14	1.5814	0.001 064 9	525.16	1.5814	**125**
130	0.001 069 7	546.41	1.6346	0.001 069 7	546.44	1.6346	0.001 069 6	546.46	1.6345	**130**
135	0.608 35	2728.2	6.9997	0.001 074 6	567.78	1.6872	0.001 074 6	567.81	1.6872	**135**
140	0.616 99	2739.4	7.0269	0.542 00	2735.6	6.9617	0.001 079 7	589.21	1.7393	**140**
145	0.625 55	2750.3	7.0533	0.549 69	2746.8	6.9888	0.489 75	2743.2	6.9305	**145**
150	0.634 03	2761.2	7.0791	0.557 29	2757.9	7.0151	0.496 67	2754.5	6.9574	**150**
155	0.642 46	2771.9	7.1043	0.564 83	2768.8	7.0408	0.503 51	2765.7	6.9836	**155**
160	0.650 83	2782.6	7.1291	0.572 31	2779.7	7.0660	0.510 30	2776.7	7.0093	**160**
165	0.659 15	2793.2	7.1534	0.579 75	2790.4	7.0907	0.517 03	2787.6	7.0343	**165**
170	0.667 44	2803.7	7.1773	0.587 14	2801.1	7.1149	0.523 72	2798.4	7.0589	**170**
175	0.675 68	2814.2	7.2008	0.594 49	2811.7	7.1387	0.530 37	2809.2	7.0830	**175**
180	0.683 89	2824.6	7.2239	0.601 80	2822.3	7.1621	0.536 98	2819.9	7.1067	**180**
185	0.692 07	2835.0	7.2467	0.609 08	2832.7	7.1851	0.543 55	2830.5	7.1299	**185**
190	0.700 22	2845.4	7.2692	0.616 33	2843.2	7.2078	0.550 09	2841.0	7.1529	**190**
195	0.708 34	2855.7	7.2913	0.623 56	2853.6	7.2302	0.556 61	2851.5	7.1754	**195**
200	0.716 44	2866.0	7.3132	0.630 76	2864.0	7.2522	0.563 10	2862.0	7.1977	**200**
205	0.724 52	2876.2	7.3348	0.637 94	2874.3	7.2740	0.569 57	2872.4	7.2196	**205**
210	0.732 58	2886.5	7.3561	0.645 09	2884.6	7.2954	0.576 02	2882.8	7.2412	**210**
215	0.740 62	2896.7	7.3771	0.652 23	2894.9	7.3166	0.582 44	2893.2	7.2626	**215**
220	0.748 64	2906.9	7.3979	0.659 35	2905.2	7.3376	0.588 85	2903.5	7.2837	**220**
225	0.756 64	2917.1	7.4185	0.666 45	2915.5	7.3583	0.595 24	2913.9	7.3045	**225**
230	0.764 63	2927.3	7.4388	0.673 54	2925.7	7.3787	0.601 62	2924.2	7.3251	**230**
235	0.772 60	2937.4	7.4590	0.680 61	2935.9	7.3990	0.607 98	2934.4	7.3454	**235**
240	0.780 56	2947.6	7.4789	0.687 67	2946.2	7.4190	0.614 32	2944.7	7.3655	**240**
245	0.788 51	2957.8	7.4986	0.694 71	2956.4	7.4388	0.620 66	2955.0	7.3854	**245**
250	0.796 45	2967.9	7.5181	0.701 75	2966.6	7.4584	0.626 98	2965.2	7.4051	**250**
255	0.804 38	2978.1	7.5374	0.708 77	2976.8	7.4778	0.633 29	2975.5	7.4246	**255**
260	0.812 30	2988.2	7.5566	0.715 79	2987.0	7.4970	0.639 59	2985.7	7.4439	**260**
265	0.820 20	2998.4	7.5755	0.722 79	2997.2	7.5161	0.645 88	2996.0	7.4630	**265**
270	0.828 10	3008.6	7.5943	0.729 79	3007.4	7.5349	0.652 16	3006.2	7.4820	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.30 MPa** (t_{sat} = 133.53 °C)			**0.34 MPa** (t_{sat} = 137.85 °C)			**0.38 MPa** (t_{sat} = 141.77 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.835 99	3018.7	7.6129	0.736 77	3017.6	7.5536	0.658 44	3016.4	7.5007	**275**
280	0.843 88	3028.9	7.6314	0.743 75	3027.8	7.5721	0.664 70	3026.7	7.5193	**280**
285	0.851 75	3039.1	7.6497	0.750 72	3038.0	7.5905	0.670 96	3036.9	7.5377	**285**
290	0.859 62	3049.2	7.6679	0.757 69	3048.2	7.6087	0.677 21	3047.1	7.5560	**290**
295	0.867 48	3059.4	7.6859	0.764 65	3058.4	7.6268	0.683 46	3057.4	7.5741	**295**
300	0.875 34	3069.6	7.7037	0.771 60	3068.6	7.6447	0.689 69	3067.6	7.5920	**300**
310	0.891 03	3090.0	7.7390	0.785 48	3089.1	7.6800	0.702 15	3088.1	7.6275	**310**
320	0.906 71	3110.4	7.7737	0.799 35	3109.5	7.7148	0.714 59	3108.6	7.6624	**320**
330	0.922 36	3130.9	7.8079	0.813 19	3130.0	7.7491	0.727 01	3129.2	7.6967	**330**
340	0.938 00	3151.4	7.8417	0.827 02	3150.6	7.7829	0.739 41	3149.8	7.7306	**340**
350	0.953 62	3172.0	7.8749	0.840 83	3171.2	7.8162	0.751 79	3170.4	7.7640	**350**
360	0.969 23	3192.6	7.9077	0.854 63	3191.8	7.8491	0.764 16	3191.1	7.7969	**360**
370	0.984 82	3213.2	7.9400	0.868 42	3212.5	7.8815	0.776 52	3211.8	7.8293	**370**
380	1.0004	3233.9	7.9720	0.882 19	3233.2	7.9134	0.788 86	3232.5	7.8613	**380**
390	1.0160	3254.6	8.0035	0.895 95	3254.0	7.9450	0.801 19	3253.3	7.8929	**390**
400	1.0315	3275.4	8.0346	0.909 70	3274.8	7.9762	0.813 52	3274.2	7.9241	**400**
410	1.0471	3296.3	8.0654	0.923 44	3295.7	8.0069	0.825 83	3295.1	7.9550	**410**
420	1.0626	3317.2	8.0957	0.937 18	3316.6	8.0374	0.838 13	3316.0	7.9854	**420**
430	1.0782	3338.1	8.1258	0.950 90	3337.6	8.0674	0.850 43	3337.0	8.0155	**430**
440	1.0937	3359.2	8.1554	0.964 62	3358.6	8.0971	0.862 72	3358.1	8.0452	**440**
450	1.1092	3380.2	8.1848	0.978 33	3379.7	8.1265	0.875 00	3379.2	8.0746	**450**
460	1.1247	3401.4	8.2138	0.992 03	3400.9	8.1556	0.887 27	3400.4	8.1037	**460**
470	1.1402	3422.6	8.2426	1.0057	3422.1	8.1843	0.899 54	3421.6	8.1325	**470**
480	1.1557	3443.8	8.2710	1.0194	3443.4	8.2128	0.911 80	3442.9	8.1610	**480**
490	1.1712	3465.2	8.2991	1.0331	3464.7	8.2409	0.924 06	3464.3	8.1891	**490**
500	1.1867	3486.6	8.3269	1.0468	3486.1	8.2688	0.936 31	3485.7	8.2170	**500**
510	1.2022	3508.0	8.3545	1.0605	3507.6	8.2964	0.948 56	3507.2	8.2446	**510**
520	1.2177	3529.5	8.3818	1.0741	3529.1	8.3237	0.960 80	3528.7	8.2720	**520**
530	1.2332	3551.1	8.4089	1.0878	3550.7	8.3507	0.973 04	3550.3	8.2990	**530**
540	1.2486	3572.8	8.4356	1.1015	3572.4	8.3775	0.985 28	3572.0	8.3258	**540**
550	1.2641	3594.5	8.4622	1.1151	3594.1	8.4041	0.997 51	3593.7	8.3524	**550**
560	1.2796	3616.2	8.4885	1.1288	3615.9	8.4304	1.0097	3615.5	8.3787	**560**
570	1.2950	3638.1	8.5145	1.1424	3637.7	8.4565	1.0220	3637.4	8.4048	**570**
580	1.3105	3660.0	8.5404	1.1561	3659.7	8.4823	1.0342	3659.3	8.4307	**580**
590	1.3260	3682.0	8.5660	1.1697	3681.7	8.5079	1.0464	3681.3	8.4563	**590**
600	1.3414	3704.0	8.5914	1.1834	3703.7	8.5333	1.0586	3703.4	8.4817	**600**
610	1.3569	3726.1	8.6165	1.1970	3725.8	8.5585	1.0708	3725.5	8.5069	**610**
620	1.3723	3748.3	8.6415	1.2107	3748.0	8.5835	1.0830	3747.7	8.5319	**620**
630	1.3877	3770.6	8.6663	1.2243	3770.3	8.6083	1.0952	3770.0	8.5567	**630**
640	1.4032	3792.9	8.6909	1.2379	3792.6	8.6329	1.1074	3792.3	8.5813	**640**
650	1.4186	3815.3	8.7152	1.2516	3815.0	8.6573	1.1196	3814.7	8.6057	**650**
660	1.4341	3837.7	8.7394	1.2652	3837.5	8.6815	1.1318	3837.2	8.6299	**660**
670	1.4495	3860.2	8.7634	1.2788	3860.0	8.7055	1.1440	3859.7	8.6539	**670**
680	1.4649	3882.8	8.7873	1.2924	3882.6	8.7293	1.1562	3882.3	8.6778	**680**
690	1.4804	3905.5	8.8109	1.3061	3905.2	8.7530	1.1684	3905.0	8.7014	**690**
700	1.4958	3928.2	8.8344	1.3197	3928.0	8.7764	1.1806	3927.7	8.7249	**700**
710	1.5112	3951.0	8.8577	1.3333	3950.8	8.7998	1.1928	3950.6	8.7482	**710**
720	1.5267	3973.9	8.8808	1.3469	3973.7	8.8229	1.2050	3973.4	8.7714	**720**
730	1.5421	3996.8	8.9038	1.3605	3996.6	8.8459	1.2172	3996.4	8.7944	**730**
740	1.5575	4019.8	8.9266	1.3742	4019.6	8.8687	1.2294	4019.4	8.8172	**740**
750	1.5729	4042.9	8.9493	1.3878	4042.7	8.8914	1.2416	4042.5	8.8399	**750**
760	1.5884	4066.0	8.9718	1.4014	4065.8	8.9139	1.2538	4065.6	8.8624	**760**
770	1.6038	4089.3	8.9942	1.4150	4089.1	8.9363	1.2659	4088.9	8.8848	**770**
780	1.6192	4112.5	9.0164	1.4286	4112.3	8.9585	1.2781	4112.2	8.9070	**780**
790	1.6346	4135.9	9.0385	1.4422	4135.7	8.9806	1.2903	4135.5	8.9291	**790**
800	1.6501	4159.3	9.0604	1.4558	4159.1	9.0025	1.3025	4159.0	8.9510	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

	0.42 MPa (t_{sat} = 145.38 ºC)			**0.46 MPa** (t_{sat} = 148.72 ºC)			**0.50 MPa** (t_{sat} = 151.84 ºC)			
t **(ºC)**	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	***t*** **(ºC)**
Sat. Liq.	0.001 085 5	612.33	1.7948	0.001 089 1	626.73	1.8289	0.001 092 6	640.19	1.8606	Sat. Liq.
Sat. Vap.	0.441 66	2740.3	6.8791	0.405 43	2744.4	6.8486	0.374 80	2748.1	6.8206	Sat. Vap.
0	0.001 000 0	0.39	-0.0001	0.001 000 0	0.43	-0.0001	0.001 000 0	0.47	-0.0001	**0**
5	0.000 999 9	21.44	0.0762	0.000 999 9	21.48	0.0762	0.000 999 8	21.52	0.0762	**5**
10	0.001 000 1	42.43	0.1510	0.001 000 1	42.47	0.1510	0.001 000 1	42.51	0.1510	**10**
15	0.001 000 8	63.38	0.2244	0.001 000 7	63.42	0.2244	0.001 000 7	63.46	0.2244	**15**
20	0.001 001 7	84.31	0.2964	0.001 001 6	84.35	0.2964	0.001 001 6	84.39	0.2964	**20**
25	0.001 002 8	105.22	0.3671	0.001 002 8	105.26	0.3671	0.001 002 8	105.30	0.3671	**25**
30	0.001 004 2	126.12	0.4367	0.001 004 2	126.16	0.4367	0.001 004 2	126.20	0.4366	**30**
35	0.001 005 9	147.02	0.5050	0.001 005 8	147.05	0.5050	0.001 005 8	147.09	0.5050	**35**
40	0.001 007 7	167.91	0.5723	0.001 007 7	167.94	0.5723	0.001 007 7	167.98	0.5722	**40**
45	0.001 009 7	188.80	0.6384	0.001 009 7	188.83	0.6384	0.001 009 7	188.87	0.6384	**45**
50	0.001 012 0	209.69	0.7036	0.001 011 9	209.72	0.7036	0.001 011 9	209.76	0.7036	**50**
55	0.001 014 4	230.59	0.7678	0.001 014 3	230.62	0.7678	0.001 014 3	230.65	0.7677	**55**
60	0.001 016 9	251.49	0.8310	0.001 016 9	251.52	0.8310	0.001 016 9	251.56	0.8310	**60**
65	0.001 019 7	272.41	0.8933	0.001 019 7	272.44	0.8933	0.001 019 6	272.47	0.8933	**65**
70	0.001 022 6	293.34	0.9548	0.001 022 6	293.37	0.9547	0.001 022 5	293.40	0.9547	**70**
75	0.001 025 6	314.28	1.0154	0.001 025 6	314.31	1.0153	0.001 025 6	314.35	1.0153	**75**
80	0.001 028 9	335.25	1.0751	0.001 028 8	335.28	1.0751	0.001 028 8	335.31	1.0751	**80**
85	0.001 032 2	356.23	1.1342	0.001 032 2	356.26	1.1341	0.001 032 2	356.29	1.1341	**85**
90	0.001 035 8	377.24	1.1924	0.001 035 8	377.27	1.1924	0.001 035 7	377.30	1.1923	**90**
95	0.001 039 5	398.27	1.2499	0.001 039 4	398.30	1.2499	0.001 039 4	398.34	1.2499	**95**
100	0.001 043 3	419.34	1.3068	0.001 043 3	419.37	1.3067	0.001 043 3	419.40	1.3067	**100**
105	0.001 047 3	440.43	1.3629	0.001 047 3	440.46	1.3629	0.001 047 2	440.49	1.3629	**105**
110	0.001 051 4	461.56	1.4184	0.001 051 4	461.59	1.4184	0.001 051 4	461.62	1.4184	**110**
115	0.001 055 7	482.73	1.4733	0.001 055 7	482.76	1.4733	0.001 055 7	482.79	1.4733	**115**
120	0.001 060 2	503.94	1.5276	0.001 060 2	503.97	1.5276	0.001 060 2	504.00	1.5275	**120**
125	0.001 064 8	525.19	1.5813	0.001 064 8	525.22	1.5813	0.001 064 8	525.25	1.5813	**125**
130	0.001 069 6	546.49	1.6345	0.001 069 6	546.52	1.6344	0.001 069 6	546.54	1.6344	**130**
135	0.001 074 6	567.84	1.6871	0.001 074 6	567.86	1.6871	0.001 074 5	567.89	1.6870	**135**
140	0.001 079 7	589.24	1.7392	0.001 079 7	589.26	1.7392	0.001 079 7	589.29	1.7391	**140**
145	0.001 085 0	610.70	1.7909	0.001 085 0	610.72	1.7908	0.001 085 0	610.75	1.7908	**145**
150	0.447 55	2751.0	6.9046	0.406 94	2747.4	6.8558	0.001 090 5	632.27	1.8419	**150**
155	0.453 85	2762.4	6.9314	0.412 79	2759.1	6.8832	0.378 26	2755.7	6.8383	**155**
160	0.460 07	2773.7	6.9575	0.418 56	2770.6	6.9098	0.383 66	2767.4	6.8655	**160**
165	0.466 24	2784.8	6.9830	0.424 27	2781.8	6.9357	0.388 99	2778.9	6.8919	**165**
170	0.472 36	2795.7	7.0079	0.429 92	2793.0	6.9610	0.394 25	2790.2	6.9176	**170**
175	0.478 44	2806.6	7.0323	0.435 53	2804.0	6.9858	0.399 48	2801.4	6.9427	**175**
180	0.484 48	2817.4	7.0563	0.441 11	2815.0	7.0100	0.404 66	2812.4	6.9672	**180**
185	0.490 49	2828.1	7.0798	0.446 64	2825.8	7.0339	0.409 80	2823.4	6.9913	**185**
190	0.496 46	2838.8	7.1030	0.452 14	2836.6	7.0573	0.414 91	2834.3	7.0150	**190**
195	0.502 40	2849.4	7.1258	0.457 62	2847.3	7.0803	0.419 98	2845.1	7.0382	**195**
200	0.508 32	2860.0	7.1482	0.463 06	2858.0	7.1029	0.425 03	2855.9	7.0611	**200**
205	0.514 22	2870.5	7.1703	0.468 48	2868.6	7.1252	0.430 06	2866.6	7.0836	**205**
210	0.520 09	2881.0	7.1921	0.473 88	2879.1	7.1472	0.435 06	2877.2	7.1057	**210**
215	0.525 94	2891.4	7.2136	0.479 26	2889.6	7.1688	0.440 04	2887.8	7.1275	**215**
220	0.531 77	2901.8	7.2348	0.484 62	2900.1	7.1902	0.445 00	2898.4	7.1491	**220**
225	0.537 59	2912.2	7.2558	0.489 96	2910.6	7.2113	0.449 94	2908.9	7.1703	**225**
230	0.543 39	2922.6	7.2765	0.495 28	2921.0	7.2321	0.454 87	2919.4	7.1912	**230**
235	0.549 17	2932.9	7.2970	0.500 59	2931.4	7.2527	0.459 78	2929.9	7.2119	**235**
240	0.554 94	2943.3	7.3172	0.505 89	2941.8	7.2730	0.464 68	2940.3	7.2324	**240**
245	0.560 70	2953.6	7.3372	0.511 17	2952.2	7.2931	0.469 56	2950.7	7.2526	**245**
250	0.566 45	2963.9	7.3570	0.516 44	2962.5	7.3130	0.474 43	2961.1	7.2726	**250**
255	0.572 18	2974.2	7.3766	0.521 70	2972.8	7.3327	0.479 29	2971.5	7.2923	**255**
260	0.577 90	2984.5	7.3959	0.526 94	2983.2	7.3521	0.484 14	2981.9	7.3119	**260**
265	0.583 62	2994.7	7.4151	0.532 18	2993.5	7.3714	0.488 97	2992.2	7.3312	**265**
270	0.589 32	3005.0	7.4341	0.537 41	3003.8	7.3905	0.493 80	3002.6	7.3503	**270**

UNITS: *v* in m^3/kg ; *h* in kJ/kg ; *s* in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.42 MPa** (t_{sat} = 145.38 °C)			**0.46 MPa** (t_{sat} = 148.72 °C)			**0.50 MPa** (t_{sat} = 151.84 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.595 02	3015.3	7.4529	0.542 63	3014.1	7.4094	0.498 62	3012.9	7.3693	**275**
280	0.600 71	3025.5	7.4716	0.547 84	3024.4	7.4281	0.503 43	3023.3	7.3881	**280**
285	0.606 39	3035.8	7.4901	0.553 05	3034.7	7.4466	0.508 24	3033.6	7.4067	**285**
290	0.612 06	3046.1	7.5084	0.558 24	3045.0	7.4650	0.513 03	3043.9	7.4251	**290**
295	0.617 73	3056.3	7.5265	0.563 43	3055.3	7.4832	0.517 82	3054.3	7.4433	**295**
300	0.623 39	3066.6	7.5445	0.568 61	3065.6	7.5012	0.522 60	3064.6	7.4614	**300**
310	0.634 69	3087.2	7.5801	0.578 96	3086.2	7.5369	0.532 15	3085.3	7.4972	**310**
320	0.645 97	3107.7	7.6151	0.589 29	3106.8	7.5719	0.541 67	3105.9	7.5323	**320**
330	0.657 23	3128.3	7.6495	0.599 60	3127.5	7.6065	0.551 18	3126.6	7.5669	**330**
340	0.668 48	3149.0	7.6834	0.609 89	3148.1	7.6404	0.560 67	3147.3	7.6010	**340**
350	0.679 71	3169.6	7.7168	0.620 16	3168.8	7.6739	0.570 14	3168.1	7.6345	**350**
360	0.690 92	3190.3	7.7498	0.630 42	3189.6	7.7069	0.579 59	3188.8	7.6676	**360**
370	0.702 12	3211.1	7.7823	0.640 66	3210.3	7.7395	0.589 04	3209.6	7.7002	**370**
380	0.713 31	3231.8	7.8144	0.650 89	3231.2	7.7716	0.598 47	3230.5	7.7323	**380**
390	0.724 48	3252.7	7.8460	0.661 12	3252.0	7.8033	0.607 89	3251.4	7.7641	**390**
400	0.735 65	3273.5	7.8773	0.671 33	3272.9	7.8346	0.617 29	3272.3	7.7954	**400**
410	0.746 81	3294.5	7.9081	0.681 53	3293.9	7.8655	0.626 69	3293.3	7.8263	**410**
420	0.757 96	3315.4	7.9386	0.691 72	3314.9	7.8960	0.636 08	3314.3	7.8569	**420**
430	0.769 09	3336.5	7.9687	0.701 90	3335.9	7.9261	0.645 46	3335.4	7.8871	**430**
440	0.780 23	3357.6	7.9985	0.712 08	3357.0	7.9559	0.654 84	3356.5	7.9169	**440**
450	0.791 35	3378.7	8.0279	0.722 25	3378.2	7.9854	0.664 21	3377.7	7.9464	**450**
460	0.802 47	3399.9	8.0570	0.732 41	3399.4	8.0145	0.673 57	3398.9	7.9756	**460**
470	0.813 58	3421.2	8.0858	0.742 57	3420.7	8.0434	0.682 92	3420.2	8.0044	**470**
480	0.824 69	3442.5	8.1143	0.752 72	3442.0	8.0719	0.692 27	3441.5	8.0329	**480**
490	0.835 79	3463.8	8.1425	0.762 86	3463.4	8.1001	0.701 61	3462.9	8.0612	**490**
500	0.846 88	3485.3	8.1704	0.773 00	3484.8	8.1280	0.710 95	3484.4	8.0891	**500**
510	0.857 97	3506.8	8.1980	0.783 14	3506.3	8.1556	0.720 28	3505.9	8.1168	**510**
520	0.869 06	3528.3	8.2254	0.793 27	3527.9	8.1830	0.729 61	3527.5	8.1442	**520**
530	0.880 14	3549.9	8.2525	0.803 40	3549.6	8.2101	0.738 93	3549.2	8.1713	**530**
540	0.891 22	3571.6	8.2793	0.813 52	3571.2	8.2370	0.748 25	3570.9	8.1981	**540**
550	0.902 29	3593.4	8.3059	0.823 64	3593.0	8.2636	0.757 57	3592.6	8.2247	**550**
560	0.913 36	3615.2	8.3322	0.833 75	3614.8	8.2899	0.766 88	3614.5	8.2511	**560**
570	0.924 43	3637.1	8.3583	0.843 86	3636.7	8.3160	0.776 19	3636.4	8.2772	**570**
580	0.935 49	3659.0	8.3842	0.853 97	3658.7	8.3419	0.785 49	3658.3	8.3031	**580**
590	0.946 55	3681.0	8.4098	0.864 08	3680.7	8.3676	0.794 80	3680.4	8.3288	**590**
600	0.957 61	3703.1	8.4353	0.874 18	3702.8	8.3930	0.804 10	3702.5	8.3543	**600**
610	0.968 67	3725.2	8.4605	0.884 28	3724.9	8.4182	0.813 39	3724.6	8.3795	**610**
620	0.979 72	3747.4	8.4855	0.894 38	3747.1	8.4432	0.822 69	3746.8	8.4045	**620**
630	0.990 77	3769.7	8.5103	0.904 47	3769.4	8.4681	0.831 98	3769.1	8.4293	**630**
640	1.0018	3792.0	8.5349	0.914 56	3791.8	8.4927	0.841 27	3791.5	8.4539	**640**
650	1.0129	3814.5	8.5593	0.924 65	3814.2	8.5171	0.850 56	3813.9	8.4784	**650**
660	1.0239	3836.9	8.5835	0.934 74	3836.7	8.5413	0.859 84	3836.4	8.5026	**660**
670	1.0349	3859.5	8.6075	0.944 83	3859.2	8.5653	0.869 12	3859.0	8.5266	**670**
680	1.0460	3882.1	8.6314	0.954 91	3881.8	8.5892	0.878 41	3881.6	8.5505	**680**
690	1.0570	3904.8	8.6551	0.964 99	3904.5	8.6129	0.887 69	3904.3	8.5742	**690**
700	1.0681	3927.5	8.6785	0.975 07	3927.3	8.6364	0.896 96	3927.0	8.5977	**700**
710	1.0791	3950.3	8.7019	0.985 15	3950.1	8.6597	0.906 24	3949.9	8.6210	**710**
720	1.0901	3973.2	8.7250	0.995 23	3973.0	8.6829	0.915 52	3972.8	8.6442	**720**
730	1.1012	3996.2	8.7480	1.0053	3996.0	8.7059	0.924 79	3995.7	8.6672	**730**
740	1.1122	4019.2	8.7709	1.0154	4019.0	8.7287	0.934 06	4018.8	8.6901	**740**
750	1.1232	4042.3	8.7935	1.0255	4042.1	8.7514	0.943 33	4041.9	8.7128	**750**
760	1.1342	4065.4	8.8161	1.0355	4065.2	8.7739	0.952 60	4065.0	8.7353	**760**
770	1.1453	4088.7	8.8384	1.0456	4088.5	8.7963	0.961 87	4088.3	8.7577	**770**
780	1.1563	4112.0	8.8607	1.0557	4111.8	8.8185	0.971 14	4111.6	8.7799	**780**
790	1.1673	4135.3	8.8828	1.0657	4135.1	8.8406	0.980 40	4135.0	8.8020	**790**
800	1.1784	4158.8	8.9047	1.0758	4158.6	8.8626	0.989 67	4158.4	8.8240	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.55 MPa** (t_{sat} = 155.46 °C)			**0.60 MPa** (t_{sat} = 158.83 °C)			**0.65 MPa** (t_{sat} = 161.99 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 096 7	655.88	1.8972	0.001 100 6	670.50	1.9311	0.001 104 4	684.22	1.9626	Sat. Liq.
Sat. Vap.	0.342 59	2752.3	6.7885	0.315 58	2756.1	6.7592	0.292 58	2759.6	6.7321	Sat. Vap.
0	0.000 999 9	0.52	-0.0001	0.000 999 9	0.57	-0.0001	0.000 999 9	0.62	-0.0001	**0**
5	0.000 999 8	21.57	0.0762	0.000 999 8	21.62	0.0762	0.000 999 8	21.67	0.0762	**5**
10	0.001 000 1	42.56	0.1510	0.001 000 1	42.60	0.1510	0.001 000 0	42.65	0.1510	**10**
15	0.001 000 7	63.51	0.2244	0.001 000 7	63.56	0.2244	0.001 000 6	63.60	0.2244	**15**
20	0.001 001 6	84.44	0.2964	0.001 001 6	84.48	0.2964	0.001 001 5	84.53	0.2964	**20**
25	0.001 002 8	105.34	0.3671	0.001 002 7	105.39	0.3671	0.001 002 7	105.44	0.3671	**25**
30	0.001 004 2	126.24	0.4366	0.001 004 1	126.29	0.4366	0.001 004 1	126.33	0.4366	**30**
35	0.001 005 8	147.13	0.5050	0.001 005 8	147.18	0.5050	0.001 005 8	147.22	0.5049	**35**
40	0.001 007 6	168.02	0.5722	0.001 007 6	168.07	0.5722	0.001 007 6	168.11	0.5722	**40**
45	0.001 009 7	188.91	0.6384	0.001 009 7	188.95	0.6384	0.001 009 6	189.00	0.6384	**45**
50	0.001 011 9	209.80	0.7035	0.001 011 9	209.84	0.7035	0.001 011 9	209.89	0.7035	**50**
55	0.001 014 3	230.70	0.7677	0.001 014 3	230.74	0.7677	0.001 014 3	230.78	0.7677	**55**
60	0.001 016 9	251.60	0.8309	0.001 016 9	251.64	0.8309	0.001 016 8	251.68	0.8309	**60**
65	0.001 019 6	272.51	0.8932	0.001 019 6	272.56	0.8932	0.001 019 6	272.60	0.8932	**65**
70	0.001 022 5	293.44	0.9547	0.001 022 5	293.48	0.9547	0.001 022 5	293.52	0.9546	**70**
75	0.001 025 6	314.39	1.0153	0.001 025 6	314.43	1.0152	0.001 025 5	314.47	1.0152	**75**
80	0.001 028 8	335.35	1.0751	0.001 028 8	335.39	1.0750	0.001 028 8	335.43	1.0750	**80**
85	0.001 032 2	356.33	1.1341	0.001 032 2	356.37	1.1340	0.001 032 1	356.41	1.1340	**85**
90	0.001 035 7	377.34	1.1923	0.001 035 7	377.38	1.1923	0.001 035 7	377.42	1.1922	**90**
95	0.001 039 4	398.37	1.2498	0.001 039 4	398.41	1.2498	0.001 039 3	398.45	1.2498	**95**
100	0.001 043 2	419.44	1.3067	0.001 043 2	419.47	1.3066	0.001 043 2	419.51	1.3066	**100**
105	0.001 047 2	440.53	1.3628	0.001 047 2	440.57	1.3628	0.001 047 2	440.60	1.3627	**105**
110	0.001 051 4	461.66	1.4183	0.001 051 3	461.70	1.4183	0.001 051 3	461.73	1.4182	**110**
115	0.001 055 7	482.83	1.4732	0.001 055 6	482.86	1.4732	0.001 055 6	482.90	1.4731	**115**
120	0.001 060 1	504.03	1.5275	0.001 060 1	504.07	1.5275	0.001 060 1	504.10	1.5274	**120**
125	0.001 064 8	525.28	1.5812	0.001 064 7	525.32	1.5812	0.001 064 7	525.35	1.5811	**125**
130	0.001 069 5	546.58	1.6344	0.001 069 5	546.61	1.6343	0.001 069 5	546.64	1.6343	**130**
135	0.001 074 5	567.92	1.6870	0.001 074 5	567.96	1.6869	0.001 074 4	567.99	1.6869	**135**
140	0.001 079 6	589.32	1.7391	0.001 079 6	589.35	1.7390	0.001 079 6	589.39	1.7390	**140**
145	0.001 085 0	610.78	1.7907	0.001 084 9	610.81	1.7907	0.001 084 9	610.84	1.7906	**145**
150	0.001 090 5	632.30	1.8419	0.001 090 4	632.33	1.8418	0.001 090 4	632.36	1.8418	**150**
155	0.001 096 1	653.88	1.8926	0.001 096 1	653.91	1.8925	0.001 096 1	653.94	1.8925	**155**
160	0.347 14	2763.3	6.8139	0.316 67	2759.0	6.7658	0.001 102 0	675.59	1.9427	**160**
165	0.352 07	2775.1	6.8410	0.321 28	2771.1	6.7936	0.295 20	2767.1	6.7493	**165**
170	0.356 94	2786.6	6.8672	0.325 82	2783.0	6.8205	0.299 47	2779.2	6.7768	**170**
175	0.361 76	2798.0	6.8928	0.330 31	2794.6	6.8466	0.303 68	2791.1	6.8034	**175**
180	0.366 53	2809.3	6.9177	0.334 74	2806.0	6.8720	0.307 83	2802.7	6.8293	**180**
185	0.371 26	2820.4	6.9422	0.339 14	2817.4	6.8968	0.311 94	2814.2	6.8545	**185**
190	0.375 96	2831.5	6.9662	0.343 50	2828.6	6.9211	0.316 01	2825.6	6.8792	**190**
195	0.380 63	2842.4	6.9897	0.347 82	2839.7	6.9450	0.320 05	2836.8	6.9033	**195**
200	0.385 27	2853.3	7.0128	0.352 12	2850.7	6.9684	0.324 06	2848.0	6.9270	**200**
205	0.389 88	2864.1	7.0356	0.356 38	2861.6	6.9913	0.328 03	2859.1	6.9503	**205**
210	0.394 47	2874.9	7.0579	0.360 63	2872.5	7.0139	0.331 99	2870.0	6.9731	**210**
215	0.399 03	2885.6	7.0800	0.364 85	2883.3	7.0362	0.335 92	2880.9	6.9956	**215**
220	0.403 58	2896.2	7.1017	0.369 05	2894.0	7.0581	0.339 83	2891.8	7.0177	**220**
225	0.408 10	2906.8	7.1231	0.373 23	2904.7	7.0797	0.343 72	2902.6	7.0395	**225**
230	0.412 61	2917.4	7.1442	0.377 39	2915.4	7.1010	0.347 59	2913.3	7.0609	**230**
235	0.417 11	2927.9	7.1651	0.381 54	2926.0	7.1220	0.351 44	2924.0	7.0821	**235**
240	0.421 59	2938.4	7.1856	0.385 67	2936.6	7.1427	0.355 28	2934.7	7.1029	**240**
245	0.426 05	2948.9	7.2060	0.389 79	2947.1	7.1632	0.359 11	2945.3	7.1235	**245**
250	0.430 51	2959.4	7.2261	0.393 90	2957.7	7.1834	0.362 92	2955.9	7.1439	**250**
255	0.434 95	2969.8	7.2459	0.397 99	2968.2	7.2034	0.366 72	2966.5	7.1640	**255**
260	0.439 38	2980.3	7.2656	0.402 07	2978.6	7.2231	0.370 51	2977.0	7.1839	**260**
265	0.443 80	2990.7	7.2850	0.406 15	2989.1	7.2427	0.374 29	2987.5	7.2035	**265**
270	0.448 21	3001.1	7.3043	0.410 21	2999.6	7.2620	0.378 05	2998.0	7.2229	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.55 MPa** (t_{sat} = 155.46 °C)			**0.60 MPa** (t_{sat} = 158.83 °C)			**0.65 MPa** (t_{sat} = 161.99 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.452 61	3011.5	7.3233	0.414 26	3010.0	7.2811	0.381 81	3008.5	7.2421	**275**
280	0.457 00	3021.9	7.3422	0.418 31	3020.4	7.3001	0.385 56	3019.0	7.2612	**280**
285	0.461 39	3032.2	7.3608	0.422 34	3030.8	7.3188	0.389 30	3029.4	7.2800	**285**
290	0.465 76	3042.6	7.3793	0.426 37	3041.3	7.3374	0.393 04	3039.9	7.2986	**290**
295	0.470 13	3053.0	7.3977	0.430 39	3051.7	7.3558	0.396 77	3050.3	7.3171	**295**
300	0.474 50	3063.3	7.4158	0.434 41	3062.1	7.3740	0.400 49	3060.8	7.3354	**300**
310	0.483 21	3084.1	7.4517	0.442 42	3082.9	7.4100	0.407 91	3081.6	7.3715	**310**
320	0.491 89	3104.8	7.4869	0.450 41	3103.7	7.4453	0.415 31	3102.5	7.4070	**320**
330	0.500 56	3125.5	7.5216	0.458 38	3124.5	7.4801	0.422 68	3123.4	7.4418	**330**
340	0.509 21	3146.3	7.5557	0.466 33	3145.3	7.5143	0.430 04	3144.2	7.4761	**340**
350	0.517 84	3167.1	7.5894	0.474 26	3166.1	7.5480	0.437 39	3165.1	7.5099	**350**
360	0.526 46	3187.9	7.6225	0.482 18	3187.0	7.5812	0.444 71	3186.0	7.5432	**360**
370	0.535 06	3208.7	7.6552	0.490 09	3207.8	7.6140	0.452 03	3206.9	7.5760	**370**
380	0.543 66	3229.6	7.6874	0.497 98	3228.8	7.6463	0.459 33	3227.9	7.6083	**380**
390	0.552 24	3250.5	7.7192	0.505 86	3249.7	7.6781	0.466 62	3248.9	7.6402	**390**
400	0.560 81	3271.5	7.7505	0.513 73	3270.7	7.7095	0.473 90	3269.9	7.6717	**400**
410	0.569 37	3292.5	7.7815	0.521 59	3291.8	7.7405	0.481 17	3291.0	7.7028	**410**
420	0.577 92	3313.6	7.8121	0.529 44	3312.8	7.7712	0.488 43	3312.1	7.7335	**420**
430	0.586 46	3334.7	7.8423	0.537 29	3334.0	7.8014	0.495 68	3333.3	7.7638	**430**
440	0.594 99	3355.8	7.8722	0.545 12	3355.1	7.8314	0.502 92	3354.5	7.7937	**440**
450	0.603 52	3377.0	7.9017	0.552 95	3376.4	7.8609	0.510 16	3375.7	7.8233	**450**
460	0.612 04	3398.3	7.9309	0.560 77	3397.7	7.8901	0.517 39	3397.0	7.8526	**460**
470	0.620 56	3419.6	7.9598	0.568 59	3419.0	7.9190	0.524 62	3418.4	7.8815	**470**
480	0.629 07	3441.0	7.9884	0.576 40	3440.4	7.9476	0.531 83	3439.8	7.9101	**480**
490	0.637 57	3462.4	8.0166	0.584 20	3461.8	7.9759	0.539 05	3461.3	7.9384	**490**
500	0.646 07	3483.9	8.0446	0.592 00	3483.3	8.0039	0.546 25	3482.8	7.9665	**500**
510	0.654 56	3505.4	8.0723	0.599 80	3504.9	8.0316	0.553 46	3504.4	7.9942	**510**
520	0.663 05	3527.0	8.0997	0.607 59	3526.5	8.0591	0.560 65	3526.0	8.0216	**520**
530	0.671 53	3548.7	8.1268	0.615 37	3548.2	8.0862	0.567 85	3547.7	8.0488	**530**
540	0.680 02	3570.4	8.1537	0.623 15	3569.9	8.1131	0.575 04	3569.5	8.0757	**540**
550	0.688 49	3592.2	8.1803	0.630 93	3591.7	8.1398	0.582 22	3591.3	8.1024	**550**
560	0.696 97	3614.0	8.2067	0.638 70	3613.6	8.1662	0.589 41	3613.2	8.1288	**560**
570	0.705 43	3635.9	8.2329	0.646 47	3635.5	8.1923	0.596 59	3635.1	8.1550	**570**
580	0.713 90	3657.9	8.2588	0.654 24	3657.5	8.2183	0.603 76	3657.1	8.1809	**580**
590	0.722 37	3680.0	8.2845	0.662 01	3679.6	8.2439	0.610 93	3679.2	8.2067	**590**
600	0.730 83	3702.1	8.3099	0.669 77	3701.7	8.2694	0.618 10	3701.3	8.2321	**600**
610	0.739 28	3724.2	8.3352	0.677 53	3723.9	8.2947	0.625 27	3723.5	8.2574	**610**
620	0.747 74	3746.5	8.3602	0.685 28	3746.1	8.3197	0.632 43	3745.7	8.2825	**620**
630	0.756 19	3768.8	8.3850	0.693 04	3768.4	8.3446	0.639 60	3768.1	8.3073	**630**
640	0.764 64	3791.1	8.4097	0.700 79	3790.8	8.3692	0.646 76	3790.5	8.3320	**640**
650	0.773 09	3813.6	8.4341	0.708 54	3813.2	8.3937	0.653 91	3812.9	8.3564	**650**
660	0.781 54	3836.1	8.4583	0.716 28	3835.8	8.4179	0.661 07	3835.4	8.3807	**660**
670	0.789 98	3858.6	8.4824	0.724 03	3858.3	8.4420	0.668 22	3858.0	8.4048	**670**
680	0.798 42	3881.3	8.5063	0.731 77	3881.0	8.4659	0.675 37	3880.7	8.4287	**680**
690	0.806 86	3904.0	8.5300	0.739 51	3903.7	8.4896	0.682 52	3903.4	8.4524	**690**
700	0.815 30	3926.8	8.5535	0.747 25	3926.5	8.5131	0.689 67	3926.2	8.4759	**700**
710	0.823 74	3949.6	8.5768	0.754 99	3949.3	8.5364	0.696 82	3949.0	8.4993	**710**
720	0.832 18	3972.5	8.6000	0.762 73	3972.2	8.5596	0.703 96	3971.9	8.5225	**720**
730	0.840 61	3995.5	8.6230	0.770 46	3995.2	8.5827	0.711 11	3994.9	8.5455	**730**
740	0.849 04	4018.5	8.6459	0.778 20	4018.2	8.6055	0.718 25	4018.0	8.5684	**740**
750	0.857 48	4041.6	8.6686	0.785 93	4041.4	8.6282	0.725 39	4041.1	8.5911	**750**
760	0.865 91	4064.8	8.6911	0.793 66	4064.5	8.6508	0.732 53	4064.3	8.6136	**760**
770	0.874 33	4088.0	8.7135	0.801 39	4087.8	8.6732	0.739 67	4087.5	8.6360	**770**
780	0.882 76	4111.3	8.7358	0.809 12	4111.1	8.6954	0.746 80	4110.9	8.6583	**780**
790	0.891 19	4134.7	8.7578	0.816 84	4134.5	8.7175	0.753 94	4134.3	8.6804	**790**
800	0.899 62	4158.2	8.7798	0.824 58	4158.0	8.7395	0.761 08	4157.7	8.7024	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.70 MPa** (t_{sat} = 164.95 °C)			**0.75 MPa** (t_{sat} = 167.76 °C)			**0.80 MPa** (t_{sat} = 170.41 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 108 0	697.14	1.9921	0.001 111 4	709.38	2.0198	0.001 114 8	721.02	2.0460	Sat. Liq.
Sat. Vap.	0.272 76	2762.7	6.7070	0.255 50	2765.6	6.6835	0.240 33	2768.3	6.6615	Sat. Vap.
0	0.000 999 9	0.67	-0.0001	0.000 999 8	0.72	-0.0001	0.000 999 8	0.77	-0.0001	**0**
5	0.000 999 7	21.72	0.0762	0.000 999 7	21.76	0.0762	0.000 999 7	21.81	0.0762	**5**
10	0.001 000 0	42.70	0.1510	0.001 000 0	42.75	0.1510	0.001 000 0	42.80	0.1510	**10**
15	0.001 000 6	63.65	0.2244	0.001 000 6	63.70	0.2244	0.001 000 6	63.75	0.2243	**15**
20	0.001 001 5	84.58	0.2964	0.001 001 5	84.62	0.2963	0.001 001 5	84.67	0.2963	**20**
25	0.001 002 7	105.48	0.3671	0.001 002 7	105.53	0.3671	0.001 002 6	105.58	0.3671	**25**
30	0.001 004 1	126.38	0.4366	0.001 004 1	126.43	0.4366	0.001 004 1	126.47	0.4366	**30**
35	0.001 005 7	147.27	0.5049	0.001 005 7	147.31	0.5049	0.001 005 7	147.36	0.5049	**35**
40	0.001 007 6	168.15	0.5722	0.001 007 5	168.20	0.5721	0.001 007 5	168.24	0.5721	**40**
45	0.001 009 6	189.04	0.6383	0.001 009 6	189.08	0.6383	0.001 009 6	189.13	0.6383	**45**
50	0.001 011 8	209.93	0.7035	0.001 011 8	209.97	0.7035	0.001 011 8	210.02	0.7034	**50**
55	0.001 014 2	230.82	0.7676	0.001 014 2	230.87	0.7676	0.001 014 2	230.91	0.7676	**55**
60	0.001 016 8	251.73	0.8309	0.001 016 8	251.77	0.8308	0.001 016 8	251.81	0.8308	**60**
65	0.001 019 5	272.64	0.8932	0.001 019 5	272.68	0.8931	0.001 019 5	272.72	0.8931	**65**
70	0.001 022 5	293.56	0.9546	0.001 022 4	293.61	0.9546	0.001 022 4	293.65	0.9545	**70**
75	0.001 025 5	314.51	1.0152	0.001 025 5	314.55	1.0152	0.001 025 5	314.59	1.0151	**75**
80	0.001 028 7	335.47	1.0750	0.001 028 7	335.51	1.0749	0.001 028 7	335.55	1.0749	**80**
85	0.001 032 1	356.45	1.1340	0.001 032 1	356.49	1.1339	0.001 032 1	356.53	1.1339	**85**
90	0.001 035 6	377.46	1.1922	0.001 035 6	377.49	1.1922	0.001 035 6	377.53	1.1921	**90**
95	0.001 039 3	398.49	1.2497	0.001 039 3	398.53	1.2497	0.001 039 3	398.56	1.2496	**95**
100	0.001 043 2	419.55	1.3065	0.001 043 1	419.59	1.3065	0.001 043 1	419.62	1.3065	**100**
105	0.001 047 1	440.64	1.3627	0.001 047 1	440.68	1.3627	0.001 047 1	440.72	1.3626	**105**
110	0.001 051 3	461.77	1.4182	0.001 051 3	461.80	1.4182	0.001 051 2	461.84	1.4181	**110**
115	0.001 055 6	482.93	1.4731	0.001 055 6	482.97	1.4730	0.001 055 5	483.00	1.4730	**115**
120	0.001 060 0	504.14	1.5274	0.001 060 0	504.17	1.5273	0.001 060 0	504.21	1.5273	**120**
125	0.001 064 7	525.38	1.5811	0.001 064 6	525.42	1.5810	0.001 064 6	525.45	1.5810	**125**
130	0.001 069 5	546.68	1.6342	0.001 069 4	546.71	1.6342	0.001 069 4	546.75	1.6341	**130**
135	0.001 074 4	568.02	1.6868	0.001 074 4	568.06	1.6868	0.001 074 4	568.09	1.6867	**135**
140	0.001 079 5	589.42	1.7389	0.001 079 5	589.45	1.7389	0.001 079 5	589.48	1.7388	**140**
145	0.001 084 9	610.87	1.7906	0.001 084 8	610.91	1.7905	0.001 084 8	610.94	1.7904	**145**
150	0.001 090 4	632.39	1.8417	0.001 090 3	632.42	1.8416	0.001 090 3	632.45	1.8416	**150**
155	0.001 096 0	653.97	1.8924	0.001 096 0	654.00	1.8923	0.001 096 0	654.03	1.8923	**155**
160	0.001 101 9	675.62	1.9427	0.001 101 9	675.65	1.9426	0.001 101 9	675.68	1.9426	**160**
165	0.272 80	2762.9	6.7073	0.001 108 0	697.38	1.9925	0.001 107 9	697.41	1.9924	**165**
170	0.276 85	2775.4	6.7356	0.257 23	2771.4	6.6965	0.001 114 3	719.21	2.0419	**170**
175	0.280 83	2787.5	6.7628	0.261 01	2783.8	6.7244	0.243 64	2780.0	6.6878	**175**
180	0.284 74	2799.4	6.7892	0.264 72	2795.9	6.7513	0.247 18	2792.4	6.7154	**180**
185	0.288 61	2811.1	6.8149	0.268 38	2807.8	6.7775	0.250 67	2804.6	6.7420	**185**
190	0.292 44	2822.6	6.8399	0.272 00	2819.6	6.8029	0.254 11	2816.5	6.7678	**190**
195	0.296 23	2834.0	6.8644	0.275 58	2831.1	6.8277	0.257 50	2828.2	6.7930	**195**
200	0.299 99	2845.3	6.8884	0.279 13	2842.5	6.8520	0.260 87	2839.8	6.8176	**200**
205	0.303 73	2856.5	6.9119	0.282 65	2853.9	6.8758	0.264 20	2851.2	6.8417	**205**
210	0.307 43	2867.6	6.9350	0.286 14	2865.1	6.8991	0.267 51	2862.6	6.8653	**210**
215	0.311 11	2878.6	6.9577	0.289 61	2876.2	6.9221	0.270 79	2873.8	6.8885	**215**
220	0.314 77	2889.5	6.9800	0.293 05	2887.3	6.9446	0.274 04	2885.0	6.9112	**220**
225	0.318 41	2900.4	7.0019	0.296 48	2898.3	6.9667	0.277 28	2896.1	6.9336	**225**
230	0.322 03	2911.3	7.0236	0.299 88	2909.2	6.9885	0.280 50	2907.1	6.9555	**230**
235	0.325 64	2922.0	7.0449	0.303 27	2920.0	7.0100	0.283 70	2918.0	6.9772	**235**
240	0.329 23	2932.8	7.0659	0.306 64	2930.8	7.0312	0.286 88	2928.9	6.9985	**240**
245	0.332 80	2943.5	7.0867	0.310 00	2941.6	7.0521	0.290 05	2939.7	7.0196	**245**
250	0.336 36	2954.1	7.1071	0.313 34	2952.3	7.0727	0.293 20	2950.5	7.0403	**250**
255	0.339 91	2964.8	7.1273	0.316 68	2963.0	7.0930	0.296 34	2961.3	7.0608	**255**
260	0.343 45	2975.4	7.1473	0.319 99	2973.7	7.1131	0.299 47	2972.0	7.0810	**260**
265	0.346 97	2985.9	7.1671	0.323 30	2984.3	7.1330	0.302 59	2982.7	7.1009	**265**
270	0.350 49	2996.5	7.1866	0.326 60	2994.9	7.1526	0.305 69	2993.4	7.1206	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.70 MPa** (t_{sat} = 164.95 °C)			**0.75 MPa** (t_{sat} = 167.76 °C)			**0.80 MPa** (t_{sat} = 170.41 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.354 00	3007.0	7.2059	0.329 89	3005.5	7.1720	0.308 79	3004.0	7.1401	**275**
280	0.357 49	3017.5	7.2250	0.333 17	3016.1	7.1912	0.311 88	3014.6	7.1594	**280**
285	0.360 98	3028.0	7.2439	0.336 44	3026.6	7.2102	0.314 96	3025.2	7.1785	**285**
290	0.364 47	3038.5	7.2626	0.339 70	3037.2	7.2290	0.318 03	3035.8	7.1974	**290**
295	0.367 94	3049.0	7.2812	0.342 96	3047.7	7.2476	0.321 09	3046.4	7.2160	**295**
300	0.371 41	3059.5	7.2995	0.346 20	3058.2	7.2660	0.324 15	3056.9	7.2345	**300**
310	0.378 32	3080.4	7.3357	0.352 68	3079.2	7.3023	0.330 25	3078.0	7.2710	**310**
320	0.385 22	3101.4	7.3713	0.359 14	3100.2	7.3380	0.336 32	3099.1	7.3068	**320**
330	0.392 09	3122.3	7.4063	0.365 57	3121.2	7.3731	0.342 37	3120.1	7.3420	**330**
340	0.398 94	3143.2	7.4407	0.371 98	3142.2	7.4076	0.348 40	3141.1	7.3765	**340**
350	0.405 78	3164.1	7.4745	0.378 38	3163.1	7.4415	0.354 41	3162.2	7.4106	**350**
360	0.412 60	3185.1	7.5079	0.384 76	3184.1	7.4749	0.360 41	3183.2	7.4441	**360**
370	0.419 41	3206.1	7.5408	0.391 13	3205.1	7.5079	0.366 39	3204.2	7.4771	**370**
380	0.426 20	3227.0	7.5732	0.397 49	3226.2	7.5403	0.372 36	3225.3	7.5096	**380**
390	0.432 98	3248.1	7.6051	0.403 83	3247.3	7.5723	0.378 32	3246.4	7.5416	**390**
400	0.439 76	3269.1	7.6366	0.410 17	3268.4	7.6039	0.384 27	3267.6	7.5733	**400**
410	0.446 52	3290.2	7.6678	0.416 49	3289.5	7.6351	0.390 21	3288.7	7.6045	**410**
420	0.453 27	3311.4	7.6985	0.422 80	3310.7	7.6659	0.396 14	3309.9	7.6353	**420**
430	0.460 02	3332.6	7.7288	0.429 11	3331.9	7.6962	0.402 06	3331.2	7.6657	**430**
440	0.466 75	3353.8	7.7588	0.435 41	3353.1	7.7263	0.407 98	3352.5	7.6958	**440**
450	0.473 48	3375.1	7.7884	0.441 70	3374.4	7.7559	0.413 88	3373.8	7.7255	**450**
460	0.480 21	3396.4	7.8177	0.447 98	3395.8	7.7853	0.419 78	3395.2	7.7548	**460**
470	0.486 92	3417.8	7.8467	0.454 26	3417.2	7.8143	0.425 68	3416.6	7.7839	**470**
480	0.493 64	3439.2	7.8753	0.460 53	3438.6	7.8429	0.431 56	3438.1	7.8126	**480**
490	0.500 34	3460.7	7.9037	0.466 80	3460.2	7.8713	0.437 44	3459.6	7.8410	**490**
500	0.507 04	3482.3	7.9317	0.473 06	3481.7	7.8994	0.443 32	3481.2	7.8690	**500**
510	0.513 74	3503.8	7.9595	0.479 31	3503.3	7.9271	0.449 19	3502.8	7.8969	**510**
520	0.520 43	3525.5	7.9870	0.485 56	3525.0	7.9546	0.455 06	3524.5	7.9244	**520**
530	0.527 11	3547.2	8.0142	0.491 81	3546.7	7.9819	0.460 92	3546.2	7.9516	**530**
540	0.533 80	3569.0	8.0411	0.498 05	3568.5	8.0088	0.466 78	3568.0	7.9786	**540**
550	0.540 48	3590.8	8.0678	0.504 29	3590.4	8.0355	0.472 63	3589.9	8.0053	**550**
560	0.547 15	3612.7	8.0942	0.510 53	3612.3	8.0620	0.478 49	3611.8	8.0318	**560**
570	0.553 82	3634.7	8.1204	0.516 76	3634.2	8.0882	0.484 33	3633.8	8.0580	**570**
580	0.560 49	3656.7	8.1464	0.522 99	3656.3	8.1142	0.490 18	3655.8	8.0840	**580**
590	0.567 16	3678.8	8.1721	0.529 22	3678.4	8.1399	0.496 02	3678.0	8.1098	**590**
600	0.573 82	3700.9	8.1976	0.535 44	3700.5	8.1654	0.501 86	3700.1	8.1353	**600**
610	0.580 48	3723.1	8.2229	0.541 66	3722.7	8.1907	0.507 69	3722.3	8.1606	**610**
620	0.587 14	3745.4	8.2480	0.547 88	3745.0	8.2158	0.513 53	3744.6	8.1857	**620**
630	0.593 79	3767.7	8.2728	0.554 09	3767.4	8.2407	0.519 36	3767.0	8.2106	**630**
640	0.600 44	3790.1	8.2975	0.560 31	3789.8	8.2654	0.525 19	3789.4	8.2353	**640**
650	0.607 09	3812.6	8.3220	0.566 52	3812.2	8.2898	0.531 01	3811.9	8.2598	**650**
660	0.613 74	3835.1	8.3462	0.572 73	3834.8	8.3141	0.536 84	3834.4	8.2841	**660**
670	0.620 39	3857.7	8.3703	0.578 93	3857.4	8.3382	0.542 66	3857.1	8.3082	**670**
680	0.627 03	3880.4	8.3942	0.585 14	3880.0	8.3621	0.548 48	3879.7	8.3321	**680**
690	0.633 68	3903.1	8.4179	0.591 34	3902.8	8.3859	0.554 30	3902.5	8.3558	**690**
700	0.640 32	3925.9	8.4415	0.597 54	3925.6	8.4094	0.560 11	3925.3	8.3794	**700**
710	0.646 96	3948.7	8.4649	0.603 74	3948.5	8.4328	0.565 93	3948.2	8.4028	**710**
720	0.653 59	3971.7	8.4881	0.609 94	3971.4	8.4560	0.571 74	3971.1	8.4260	**720**
730	0.660 23	3994.7	8.5111	0.616 14	3994.4	8.4790	0.577 55	3994.1	8.4490	**730**
740	0.666 86	4017.7	8.5340	0.622 33	4017.5	8.5019	0.583 36	4017.2	8.4719	**740**
750	0.673 50	4040.8	8.5567	0.628 52	4040.6	8.5246	0.589 17	4040.3	8.4947	**750**
760	0.680 13	4064.0	8.5792	0.634 72	4063.8	8.5472	0.594 98	4063.5	8.5172	**760**
770	0.686 76	4087.3	8.6017	0.640 91	4087.1	8.5696	0.600 79	4086.8	8.5397	**770**
780	0.693 39	4110.6	8.6239	0.647 10	4110.4	8.5919	0.606 59	4110.2	8.5619	**780**
790	0.700 02	4134.0	8.6460	0.653 29	4133.8	8.6140	0.612 40	4133.6	8.5840	**790**
800	0.706 65	4157.5	8.6680	0.659 48	4157.3	8.6360	0.618 21	4157.1	8.6060	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.9 MPa** (t_{sat} = 175.36 °C)			**1.0 MPa** (t_{sat} = 179.89 °C)			**1.1 MPa** (t_{sat} = 184.07 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 121 2	742.72	2.0944	0.001 127 2	762.68	2.1384	0.001 133 0	781.20	2.1789	Sat. Liq.
Sat. Vap.	0.214 87	2773.0	6.6212	0.194 35	2777.1	6.5850	0.177 44	2780.7	6.5520	Sat. Vap.
0	0.000 999 7	0.87	-0.0001	0.000 999 7	0.98	-0.0001	0.000 999 6	1.08	-0.0001	**0**
5	0.000 999 6	21.91	0.0762	0.000 999 6	22.01	0.0762	0.000 999 5	22.11	0.0762	**5**
10	0.000 999 9	42.90	0.1510	0.000 999 9	42.99	0.1510	0.000 999 8	43.09	0.1510	**10**
15	0.001 000 5	63.84	0.2243	0.001 000 5	63.94	0.2243	0.001 000 4	64.03	0.2243	**15**
20	0.001 001 4	84.76	0.2963	0.001 001 4	84.86	0.2963	0.001 001 3	84.95	0.2963	**20**
25	0.001 002 6	105.67	0.3670	0.001 002 6	105.76	0.3670	0.001 002 5	105.85	0.3670	**25**
30	0.001 004 0	126.56	0.4365	0.001 004 0	126.65	0.4365	0.001 003 9	126.74	0.4365	**30**
35	0.001 005 6	147.45	0.5049	0.001 005 6	147.54	0.5048	0.001 005 6	147.63	0.5048	**35**
40	0.001 007 5	168.33	0.5721	0.001 007 4	168.42	0.5720	0.001 007 4	168.51	0.5720	**40**
45	0.001 009 5	189.22	0.6382	0.001 009 5	189.30	0.6382	0.001 009 4	189.39	0.6382	**45**
50	0.001 011 7	210.10	0.7034	0.001 011 7	210.19	0.7033	0.001 011 7	210.27	0.7033	**50**
55	0.001 014 1	230.99	0.7675	0.001 014 1	231.08	0.7675	0.001 014 1	231.16	0.7674	**55**
60	0.001 016 7	251.89	0.8307	0.001 016 7	251.98	0.8307	0.001 016 6	252.06	0.8306	**60**
65	0.001 019 5	272.80	0.8930	0.001 019 4	272.89	0.8930	0.001 019 4	272.97	0.8929	**65**
70	0.001 022 4	293.73	0.9545	0.001 022 3	293.81	0.9544	0.001 022 3	293.89	0.9544	**70**
75	0.001 025 4	314.67	1.0151	0.001 025 4	314.75	1.0150	0.001 025 3	314.83	1.0149	**75**
80	0.001 028 6	335.63	1.0748	0.001 028 6	335.71	1.0748	0.001 028 5	335.79	1.0747	**80**
85	0.001 032 0	356.61	1.1338	0.001 032 0	356.69	1.1338	0.001 031 9	356.76	1.1337	**85**
90	0.001 035 5	377.61	1.1921	0.001 035 5	377.69	1.1920	0.001 035 4	377.77	1.1919	**90**
95	0.001 039 2	398.64	1.2496	0.001 039 2	398.72	1.2495	0.001 039 1	398.79	1.2494	**95**
100	0.001 043 0	419.70	1.3064	0.001 043 0	419.77	1.3063	0.001 042 9	419.85	1.3062	**100**
105	0.001 047 0	440.79	1.3625	0.001 047 0	440.86	1.3625	0.001 046 9	440.94	1.3624	**105**
110	0.001 051 2	461.91	1.4180	0.001 051 1	461.99	1.4179	0.001 051 1	462.06	1.4179	**110**
115	0.001 055 5	483.08	1.4729	0.001 055 4	483.15	1.4728	0.001 055 4	483.22	1.4727	**115**
120	0.001 059 9	504.28	1.5272	0.001 059 9	504.35	1.5271	0.001 059 8	504.42	1.5270	**120**
125	0.001 064 6	525.52	1.5809	0.001 064 5	525.59	1.5808	0.001 064 4	525.66	1.5807	**125**
130	0.001 069 3	546.81	1.6340	0.001 069 3	546.88	1.6339	0.001 069 2	546.95	1.6338	**130**
135	0.001 074 3	568.15	1.6866	0.001 074 2	568.22	1.6865	0.001 074 2	568.29	1.6864	**135**
140	0.001 079 4	589.55	1.7387	0.001 079 4	589.61	1.7386	0.001 079 3	589.68	1.7385	**140**
145	0.001 084 7	611.00	1.7903	0.001 084 7	611.06	1.7902	0.001 084 6	611.13	1.7901	**145**
150	0.001 090 2	632.51	1.8415	0.001 090 2	632.57	1.8414	0.001 090 1	632.64	1.8413	**150**
155	0.001 095 9	654.09	1.8922	0.001 095 8	654.15	1.8921	0.001 095 8	654.21	1.8919	**155**
160	0.001 101 8	675.74	1.9424	0.001 101 7	675.80	1.9423	0.001 101 6	675.86	1.9422	**160**
165	0.001 107 9	697.46	1.9923	0.001 107 8	697.52	1.9922	0.001 107 7	697.58	1.9921	**165**
170	0.001 114 2	719.27	2.0418	0.001 114 1	719.32	2.0417	0.001 114 0	719.37	2.0415	**170**
175	0.001 120 7	741.15	2.0909	0.001 120 6	741.21	2.0908	0.001 120 5	741.26	2.0906	**175**
180	0.217 91	2785.2	6.6481	0.194 42	2777.4	6.5857	0.001 127 3	763.24	2.1394	**180**
185	0.221 10	2797.8	6.6758	0.197 40	2790.7	6.6148	0.177 95	2783.2	6.5576	**185**
190	0.224 25	2810.1	6.7026	0.200 32	2803.5	6.6426	0.180 70	2796.7	6.5867	**190**
195	0.227 34	2822.2	6.7286	0.203 18	2816.0	6.6695	0.183 38	2809.6	6.6146	**195**
200	0.230 40	2834.1	6.7538	0.206 00	2828.3	6.6955	0.186 01	2822.3	6.6414	**200**
205	0.233 43	2845.8	6.7785	0.208 79	2840.3	6.7208	0.188 60	2834.6	6.6675	**205**
210	0.236 43	2857.4	6.8027	0.211 54	2852.2	6.7455	0.191 16	2846.8	6.6928	**210**
215	0.239 40	2868.9	6.8263	0.214 27	2863.9	6.7697	0.193 68	2858.8	6.7175	**215**
220	0.242 34	2880.3	6.8495	0.216 97	2875.6	6.7934	0.196 18	2870.7	6.7417	**220**
225	0.245 27	2891.6	6.8723	0.219 64	2887.0	6.8166	0.198 66	2882.4	6.7654	**225**
230	0.248 17	2902.8	6.8947	0.222 30	2898.4	6.8393	0.201 11	2894.0	6.7885	**230**
235	0.251 06	2913.9	6.9167	0.224 93	2909.8	6.8617	0.203 55	2905.5	6.8113	**235**
240	0.253 93	2925.0	6.9383	0.227 55	2921.0	6.8837	0.205 96	2916.9	6.8336	**240**
245	0.256 78	2936.0	6.9596	0.230 15	2932.1	6.9053	0.208 36	2928.2	6.8556	**245**
250	0.259 62	2946.9	6.9806	0.232 74	2943.2	6.9266	0.210 74	2939.5	6.8772	**250**
255	0.262 44	2957.8	7.0014	0.235 31	2954.3	6.9476	0.213 11	2950.7	6.8984	**255**
260	0.265 25	2968.6	7.0218	0.237 87	2965.2	6.9683	0.215 46	2961.8	6.9193	**260**
265	0.268 05	2979.5	7.0420	0.240 42	2976.2	6.9887	0.217 80	2972.8	6.9400	**265**
270	0.270 84	2990.2	7.0619	0.242 96	2987.0	7.0088	0.220 13	2983.8	6.9603	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**0.9 MPa** (t_{sat} = 175.36 °C)			**1.0 MPa** (t_{sat} = 179.89 °C)			**1.1 MPa** (t_{sat} = 184.07 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.273 62	3001.0	7.0816	0.245 48	2997.9	7.0287	0.222 45	2994.8	6.9804	**275**
280	0.276 39	3011.7	7.1010	0.248 00	3008.7	7.0484	0.224 76	3005.7	7.0003	**280**
285	0.279 15	3022.4	7.1203	0.250 51	3019.5	7.0678	0.227 06	3016.6	7.0198	**285**
290	0.281 91	3033.0	7.1393	0.253 00	3030.3	7.0870	0.229 35	3027.4	7.0392	**290**
295	0.284 65	3043.7	7.1581	0.255 50	3041.0	7.1059	0.231 64	3038.3	7.0583	**295**
300	0.287 39	3054.3	7.1768	0.257 98	3051.7	7.1247	0.233 91	3049.1	7.0773	**300**
310	0.292 85	3075.5	7.2135	0.262 93	3073.1	7.1617	0.238 44	3070.6	7.1145	**310**
320	0.298 28	3096.7	7.2495	0.267 85	3094.4	7.1979	0.242 95	3092.0	7.1510	**320**
330	0.303 69	3117.9	7.2849	0.272 75	3115.7	7.2335	0.247 43	3113.4	7.1868	**330**
340	0.309 08	3139.0	7.3196	0.277 63	3136.9	7.2685	0.251 89	3134.8	7.2219	**340**
350	0.314 46	3160.2	7.3538	0.282 49	3158.2	7.3028	0.256 34	3156.2	7.2564	**350**
360	0.319 82	3181.3	7.3875	0.287 34	3179.4	7.3366	0.260 77	3177.5	7.2904	**360**
370	0.325 16	3202.4	7.4206	0.292 17	3200.6	7.3699	0.265 18	3198.8	7.3238	**370**
380	0.330 49	3223.6	7.4532	0.296 99	3221.9	7.4026	0.269 58	3220.1	7.3567	**380**
390	0.335 81	3244.8	7.4854	0.301 80	3243.1	7.4349	0.273 97	3241.4	7.3891	**390**
400	0.341 12	3266.0	7.5172	0.306 59	3264.4	7.4668	0.278 35	3262.8	7.4210	**400**
410	0.346 42	3287.2	7.5485	0.311 38	3285.7	7.4982	0.282 71	3284.2	7.4525	**410**
420	0.351 71	3308.5	7.5794	0.316 16	3307.0	7.5292	0.287 07	3305.5	7.4836	**420**
430	0.356 99	3329.8	7.6099	0.320 93	3328.4	7.5598	0.291 42	3327.0	7.5143	**430**
440	0.362 26	3351.1	7.6400	0.325 69	3349.8	7.5900	0.295 76	3348.4	7.5446	**440**
450	0.367 53	3372.5	7.6698	0.330 44	3371.2	7.6198	0.300 10	3369.9	7.5745	**450**
460	0.372 78	3393.9	7.6992	0.335 19	3392.7	7.6493	0.304 42	3391.4	7.6040	**460**
470	0.378 04	3415.4	7.7283	0.339 93	3414.2	7.6785	0.308 74	3413.0	7.6332	**470**
480	0.383 28	3436.9	7.7571	0.344 66	3435.7	7.7073	0.313 06	3434.6	7.6621	**480**
490	0.388 52	3458.5	7.7855	0.349 39	3457.3	7.7358	0.317 37	3456.2	7.6907	**490**
500	0.393 76	3480.1	7.8136	0.354 11	3479.0	7.7640	0.321 67	3477.9	7.7189	**500**
510	0.398 99	3501.8	7.8415	0.358 83	3500.7	7.7919	0.325 97	3499.7	7.7469	**510**
520	0.404 22	3523.5	7.8691	0.363 54	3522.5	7.8195	0.330 26	3521.5	7.7745	**520**
530	0.409 44	3545.3	7.8963	0.368 25	3544.3	7.8468	0.334 55	3543.3	7.8019	**530**
540	0.414 66	3567.1	7.9234	0.372 96	3566.2	7.8739	0.338 84	3565.2	7.8290	**540**
550	0.419 87	3589.0	7.9501	0.377 66	3588.1	7.9007	0.343 12	3587.2	7.8558	**550**
560	0.425 08	3610.9	7.9766	0.382 35	3610.1	7.9272	0.347 40	3609.2	7.8824	**560**
570	0.430 29	3632.9	8.0029	0.387 05	3632.1	7.9535	0.351 67	3631.2	7.9087	**570**
580	0.435 49	3655.0	8.0289	0.391 74	3654.2	7.9795	0.355 94	3653.4	7.9348	**580**
590	0.440 69	3677.1	8.0547	0.396 43	3676.3	8.0054	0.360 21	3675.5	7.9607	**590**
600	0.445 89	3699.3	8.0803	0.401 11	3698.6	8.0309	0.364 48	3697.8	7.9863	**600**
610	0.451 08	3721.6	8.1056	0.405 79	3720.8	8.0563	0.368 74	3720.1	8.0117	**610**
620	0.456 27	3743.9	8.1307	0.410 47	3743.2	8.0815	0.373 00	3742.4	8.0368	**620**
630	0.461 46	3766.3	8.1556	0.415 15	3765.6	8.1064	0.377 26	3764.9	8.0618	**630**
640	0.466 65	3788.7	8.1803	0.419 82	3788.0	8.1311	0.381 51	3787.3	8.0866	**640**
650	0.471 84	3811.2	8.2049	0.424 50	3810.5	8.1557	0.385 76	3809.9	8.1111	**650**
660	0.477 02	3833.8	8.2292	0.429 17	3833.1	8.1800	0.390 01	3832.5	8.1355	**660**
670	0.482 20	3856.4	8.2533	0.433 84	3855.8	8.2041	0.394 26	3855.1	8.1596	**670**
680	0.487 38	3879.1	8.2772	0.438 50	3878.5	8.2281	0.398 51	3877.9	8.1836	**680**
690	0.492 56	3901.9	8.3010	0.443 17	3901.3	8.2519	0.402 76	3900.7	8.2074	**690**
700	0.497 73	3924.7	8.3246	0.447 83	3924.1	8.2755	0.407 00	3923.5	8.2310	**700**
710	0.502 91	3947.6	8.3480	0.452 49	3947.0	8.2989	0.411 24	3946.5	8.2544	**710**
720	0.508 08	3970.6	8.3712	0.457 15	3970.0	8.3221	0.415 48	3969.4	8.2777	**720**
730	0.513 25	3993.6	8.3943	0.461 81	3993.0	8.3452	0.419 72	3992.5	8.3008	**730**
740	0.518 42	4016.7	8.4172	0.466 47	4016.1	8.3681	0.423 96	4015.6	8.3237	**740**
750	0.523 59	4039.8	8.4399	0.471 12	4039.3	8.3909	0.428 19	4038.8	8.3465	**750**
760	0.528 76	4063.0	8.4625	0.475 77	4062.5	8.4135	0.432 43	4062.0	8.3691	**760**
770	0.533 92	4086.3	8.4849	0.480 43	4085.8	8.4359	0.436 66	4085.4	8.3916	**770**
780	0.539 09	4109.7	8.5072	0.485 08	4109.2	8.4582	0.440 89	4108.7	8.4139	**780**
790	0.544 25	4133.1	8.5293	0.489 73	4132.6	8.4804	0.445 12	4132.2	8.4360	**790**
800	0.549 42	4156.6	8.5513	0.494 39	4156.2	8.5024	0.449 36	4155.7	8.4580	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**1.2 MPa** (t_{sat} = 187.96 °C)			**1.3 MPa** (t_{sat} = 191.61 °C)			**1.4 MPa** (t_{sat} = 195.05 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 138 5	798.50	2.2163	0.001 143 8	814.76	2.2512	0.001 148 9	830.13	2.2839	Sat. Liq.
Sat. Vap.	0.163 25	2783.8	6.5217	0.151 17	2786.5	6.4936	0.140 77	2788.9	6.4675	Sat. Vap.
0	0.000 999 6	1.18	-0.0001	0.000 999 5	1.28	-0.0001	0.000 999 5	1.38	-0.0001	**0**
5	0.000 999 5	22.21	0.0762	0.000 999 4	22.31	0.0762	0.000 999 4	22.41	0.0762	**5**
10	0.000 999 8	43.19	0.1510	0.000 999 7	43.29	0.1510	0.000 999 7	43.38	0.1510	**10**
15	0.001 000 4	64.13	0.2243	0.001 000 3	64.23	0.2243	0.001 000 3	64.32	0.2243	**15**
20	0.001 001 3	85.05	0.2963	0.001 001 2	85.14	0.2962	0.001 001 2	85.23	0.2962	**20**
25	0.001 002 5	105.95	0.3669	0.001 002 4	106.04	0.3669	0.001 002 4	106.13	0.3669	**25**
30	0.001 003 9	126.84	0.4364	0.001 003 8	126.93	0.4364	0.001 003 8	127.02	0.4364	**30**
35	0.001 005 5	147.72	0.5048	0.001 005 5	147.81	0.5047	0.001 005 4	147.90	0.5047	**35**
40	0.001 007 3	168.60	0.5720	0.001 007 3	168.69	0.5719	0.001 007 3	168.77	0.5719	**40**
45	0.001 009 4	189.48	0.6381	0.001 009 3	189.56	0.6381	0.001 009 3	189.65	0.6380	**45**
50	0.001 011 6	210.36	0.7032	0.001 011 6	210.45	0.7032	0.001 011 5	210.53	0.7032	**50**
55	0.001 014 0	231.25	0.7674	0.001 014 0	231.33	0.7673	0.001 013 9	231.42	0.7673	**55**
60	0.001 016 6	252.15	0.8306	0.001 016 5	252.23	0.8305	0.001 016 5	252.31	0.8305	**60**
65	0.001 019 3	273.05	0.8929	0.001 019 3	273.14	0.8928	0.001 019 2	273.22	0.8928	**65**
70	0.001 022 2	293.97	0.9543	0.001 022 2	294.06	0.9542	0.001 022 1	294.14	0.9542	**70**
75	0.001 025 3	314.91	1.0149	0.001 025 2	314.99	1.0148	0.001 025 2	315.07	1.0147	**75**
80	0.001 028 5	335.87	1.0746	0.001 028 4	335.95	1.0746	0.001 028 4	336.03	1.0745	**80**
85	0.001 031 9	356.84	1.1336	0.001 031 8	356.92	1.1335	0.001 031 8	357.00	1.1335	**85**
90	0.001 035 4	377.84	1.1918	0.001 035 3	377.92	1.1918	0.001 035 3	378.00	1.1917	**90**
95	0.001 039 1	398.87	1.2493	0.001 039 0	398.95	1.2493	0.001 039 0	399.02	1.2492	**95**
100	0.001 042 9	419.92	1.3062	0.001 042 8	420.00	1.3061	0.001 042 8	420.07	1.3060	**100**
105	0.001 046 9	441.01	1.3623	0.001 046 8	441.09	1.3622	0.001 046 8	441.16	1.3621	**105**
110	0.001 051 0	462.13	1.4178	0.001 051 0	462.21	1.4177	0.001 050 9	462.28	1.4176	**110**
115	0.001 055 3	483.29	1.4726	0.001 055 3	483.36	1.4726	0.001 055 2	483.43	1.4725	**115**
120	0.001 059 8	504.49	1.5269	0.001 059 7	504.56	1.5268	0.001 059 7	504.63	1.5267	**120**
125	0.001 064 4	525.73	1.5806	0.001 064 3	525.80	1.5805	0.001 064 3	525.87	1.5804	**125**
130	0.001 069 2	547.02	1.6337	0.001 069 1	547.08	1.6336	0.001 069 0	547.15	1.6335	**130**
135	0.001 074 1	568.35	1.6863	0.001 074 0	568.42	1.6862	0.001 074 0	568.49	1.6861	**135**
140	0.001 079 2	589.74	1.7384	0.001 079 2	589.81	1.7383	0.001 079 1	589.87	1.7382	**140**
145	0.001 084 5	611.19	1.7900	0.001 084 5	611.25	1.7899	0.001 084 4	611.32	1.7898	**145**
150	0.001 090 0	632.70	1.8411	0.001 089 9	632.76	1.8410	0.001 089 9	632.82	1.8409	**150**
155	0.001 095 7	654.27	1.8918	0.001 095 6	654.33	1.8917	0.001 095 6	654.39	1.8916	**155**
160	0.001 101 6	675.91	1.9421	0.001 101 5	675.97	1.9420	0.001 101 4	676.03	1.9418	**160**
165	0.001 107 6	697.63	1.9919	0.001 107 6	697.69	1.9918	0.001 107 5	697.74	1.9917	**165**
170	0.001 113 9	719.43	2.0414	0.001 113 9	719.48	2.0413	0.001 113 8	719.54	2.0411	**170**
175	0.001 120 5	741.31	2.0905	0.001 120 4	741.36	2.0904	0.001 120 3	741.42	2.0902	**175**
180	0.001 127 2	763.29	2.1393	0.001 127 1	763.34	2.1391	0.001 127 1	763.39	2.1390	**180**
185	0.001 134 2	785.36	2.1877	0.001 134 1	785.41	2.1876	0.001 134 0	785.46	2.1874	**185**
190	0.164 30	2789.4	6.5340	0.001 141 4	807.59	2.2357	0.001 141 3	807.63	2.2356	**190**
195	0.166 84	2803.0	6.5630	0.152 81	2796.0	6.5141	0.001 148 8	829.92	2.2834	**195**
200	0.169 32	2816.1	6.5908	0.155 17	2809.6	6.5430	0.143 01	2803.0	6.4975	**200**
205	0.171 76	2828.8	6.6177	0.157 48	2822.8	6.5707	0.145 21	2816.6	6.5262	**205**
210	0.174 15	2841.3	6.6437	0.159 74	2835.7	6.5975	0.147 37	2829.9	6.5537	**210**
215	0.176 51	2853.6	6.6690	0.161 97	2848.3	6.6234	0.149 48	2842.8	6.5803	**215**
220	0.178 85	2865.7	6.6937	0.164 17	2860.7	6.6487	0.151 57	2855.5	6.6062	**220**
225	0.181 16	2877.7	6.7178	0.166 34	2872.9	6.6733	0.153 62	2867.9	6.6313	**225**
230	0.183 45	2889.5	6.7414	0.168 48	2884.9	6.6973	0.155 65	2880.2	6.6559	**230**
235	0.185 71	2901.2	6.7645	0.170 61	2896.8	6.7209	0.157 65	2892.4	6.6798	**235**
240	0.187 96	2912.8	6.7872	0.172 71	2908.6	6.7440	0.159 64	2904.3	6.7033	**240**
245	0.190 18	2924.3	6.8095	0.174 80	2920.3	6.7666	0.161 60	2916.2	6.7263	**245**
250	0.192 40	2935.7	6.8314	0.176 87	2931.8	6.7888	0.163 55	2927.9	6.7488	**250**
255	0.194 59	2947.0	6.8530	0.178 92	2943.3	6.8106	0.165 48	2939.6	6.7710	**255**
260	0.196 78	2958.3	6.8742	0.180 96	2954.7	6.8321	0.167 40	2951.1	6.7927	**260**
265	0.198 95	2969.4	6.8950	0.182 99	2966.0	6.8532	0.169 30	2962.6	6.8141	**265**
270	0.201 11	2980.6	6.9156	0.185 00	2977.3	6.8740	0.171 19	2973.9	6.8352	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**1.2 MPa** (t_{sat} = 187.96 °C)			**1.3 MPa** (t_{sat} = 191.61 °C)			**1.4 MPa** (t_{sat} = 195.05 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.203 25	2991.6	6.9359	0.187 00	2988.5	6.8946	0.173 07	2985.3	6.8559	**275**
280	0.205 39	3002.7	6.9559	0.189 00	2999.6	6.9148	0.174 94	2996.5	6.8763	**280**
285	0.207 52	3013.7	6.9757	0.190 98	3010.7	6.9347	0.176 80	3007.7	6.8965	**285**
290	0.209 64	3024.6	6.9952	0.192 95	3021.7	6.9544	0.178 65	3018.8	6.9163	**290**
295	0.211 75	3035.5	7.0145	0.194 92	3032.7	6.9739	0.180 49	3029.9	6.9360	**295**
300	0.213 85	3046.4	7.0336	0.196 87	3043.7	6.9931	0.182 32	3041.0	6.9553	**300**
310	0.218 03	3068.1	7.0711	0.200 76	3065.6	7.0309	0.185 96	3063.0	6.9934	**310**
320	0.222 19	3089.7	7.1078	0.204 63	3087.3	7.0679	0.189 57	3084.9	7.0306	**320**
330	0.226 33	3111.2	7.1438	0.208 47	3109.0	7.1041	0.193 16	3106.7	7.0671	**330**
340	0.230 44	3132.7	7.1792	0.212 29	3130.6	7.1396	0.196 73	3128.4	7.1028	**340**
350	0.234 54	3154.1	7.2138	0.216 09	3152.1	7.1745	0.200 28	3150.1	7.1378	**350**
360	0.238 62	3175.6	7.2479	0.219 88	3173.6	7.2087	0.203 82	3171.7	7.1722	**360**
370	0.242 69	3197.0	7.2815	0.223 65	3195.1	7.2424	0.207 33	3193.3	7.2061	**370**
380	0.246 74	3218.4	7.3145	0.227 41	3216.6	7.2756	0.210 84	3214.9	7.2394	**380**
390	0.250 78	3239.8	7.3470	0.231 15	3238.1	7.3082	0.214 33	3236.4	7.2721	**390**
400	0.254 81	3261.2	7.3791	0.234 89	3259.6	7.3404	0.217 81	3258.0	7.3044	**400**
410	0.258 82	3282.6	7.4107	0.238 61	3281.1	7.3721	0.221 28	3279.5	7.3362	**410**
420	0.262 83	3304.1	7.4419	0.242 32	3302.6	7.4033	0.224 74	3301.1	7.3675	**420**
430	0.266 83	3325.5	7.4726	0.246 03	3324.1	7.4342	0.228 19	3322.7	7.3985	**430**
440	0.270 82	3347.0	7.5030	0.249 72	3345.7	7.4646	0.231 64	3344.3	7.4290	**440**
450	0.274 81	3368.6	7.5330	0.253 41	3367.3	7.4947	0.235 07	3366.0	7.4591	**450**
460	0.278 79	3390.2	7.5626	0.257 09	3388.9	7.5244	0.238 50	3387.6	7.4889	**460**
470	0.282 76	3411.8	7.5919	0.260 77	3410.5	7.5537	0.241 92	3409.3	7.5183	**470**
480	0.286 72	3433.4	7.6208	0.264 44	3432.2	7.5827	0.245 34	3431.1	7.5473	**480**
490	0.290 68	3455.1	7.6494	0.268 10	3454.0	7.6114	0.248 75	3452.8	7.5761	**490**
500	0.294 64	3476.8	7.6777	0.271 76	3475.7	7.6397	0.252 15	3474.7	7.6045	**500**
510	0.298 58	3498.6	7.7057	0.275 41	3497.6	7.6678	0.255 55	3496.5	7.6325	**510**
520	0.302 53	3520.4	7.7334	0.279 06	3519.4	7.6955	0.258 95	3518.4	7.6603	**520**
530	0.306 47	3542.3	7.7608	0.282 71	3541.3	7.7230	0.262 34	3540.4	7.6878	**530**
540	0.310 40	3564.3	7.7880	0.286 35	3563.3	7.7501	0.265 73	3562.4	7.7151	**540**
550	0.314 34	3586.2	7.8148	0.289 98	3585.3	7.7770	0.269 11	3584.4	7.7420	**550**
560	0.318 27	3608.3	7.8414	0.293 62	3607.4	7.8037	0.272 49	3606.5	7.7687	**560**
570	0.322 19	3630.4	7.8678	0.297 24	3629.5	7.8301	0.275 86	3628.7	7.7951	**570**
580	0.326 11	3652.5	7.8939	0.300 87	3651.7	7.8562	0.279 24	3650.9	7.8213	**580**
590	0.330 03	3674.7	7.9198	0.304 49	3673.9	7.8821	0.282 60	3673.1	7.8472	**590**
600	0.333 95	3697.0	7.9454	0.308 11	3696.2	7.9078	0.285 97	3695.4	7.8729	**600**
610	0.337 86	3719.3	7.9709	0.311 73	3718.6	7.9333	0.289 33	3717.8	7.8984	**610**
620	0.341 77	3741.7	7.9961	0.315 35	3741.0	7.9585	0.292 70	3740.2	7.9236	**620**
630	0.345 68	3764.1	8.0210	0.318 96	3763.4	7.9835	0.296 05	3762.7	7.9487	**630**
640	0.349 58	3786.6	8.0458	0.322 57	3785.9	8.0083	0.299 41	3785.2	7.9735	**640**
650	0.353 49	3809.2	8.0704	0.326 17	3808.5	8.0329	0.302 76	3807.8	7.9981	**650**
660	0.357 39	3831.8	8.0948	0.329 78	3831.2	8.0573	0.306 12	3830.5	8.0225	**660**
670	0.361 29	3854.5	8.1190	0.333 38	3853.9	8.0815	0.309 47	3853.2	8.0468	**670**
680	0.365 18	3877.3	8.1429	0.336 98	3876.6	8.1055	0.312 81	3876.0	8.0708	**680**
690	0.369 08	3900.1	8.1668	0.340 58	3899.5	8.1293	0.316 16	3898.9	8.0946	**690**
700	0.372 97	3922.9	8.1904	0.344 18	3922.4	8.1530	0.319 50	3921.8	8.1183	**700**
710	0.376 87	3945.9	8.2138	0.347 78	3945.3	8.1764	0.322 85	3944.7	8.1418	**710**
720	0.380 76	3968.9	8.2371	0.351 37	3968.3	8.1997	0.326 19	3967.8	8.1651	**720**
730	0.384 64	3992.0	8.2602	0.354 97	3991.4	8.2229	0.329 53	3990.9	8.1882	**730**
740	0.388 53	4015.1	8.2832	0.358 56	4014.6	8.2458	0.332 87	4014.0	8.2112	**740**
750	0.392 42	4038.3	8.3059	0.362 15	4037.8	8.2686	0.336 20	4037.2	8.2340	**750**
760	0.396 30	4061.5	8.3286	0.365 74	4061.0	8.2912	0.339 54	4060.5	8.2567	**760**
770	0.400 19	4084.9	8.3510	0.369 33	4084.4	8.3137	0.342 87	4083.9	8.2791	**770**
780	0.404 07	4108.3	8.3734	0.372 91	4107.8	8.3360	0.346 21	4107.3	8.3015	**780**
790	0.407 95	4131.7	8.3955	0.376 50	4131.2	8.3582	0.349 54	4130.8	8.3237	**790**
800	0.411 84	4155.2	8.4175	0.380 09	4154.8	8.3803	0.352 88	4154.3	8.3457	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (ºC)	**1.5 MPa** (t_{sat} = 198.30 ºC)			**1.6 MPa** (t_{sat} = 201.38 ºC)			**1.7 MPa** (t_{sat} = 204.31 ºC)			t (ºC)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 153 9	844.72	2.3147	0.001 158 7	858.61	2.3438	0.001 163 4	871.89	2.3715	Sat. Liq.
Sat. Vap.	0.131 70	2791.0	6.4431	0.123 73	2792.9	6.4200	0.116 67	2794.5	6.3983	Sat. Vap.
0	0.000 999 4	1.48	-0.0001	0.000 999 4	1.59	-0.0001	0.000 999 3	1.69	0.0000	**0**
5	0.000 999 3	22.51	0.0762	0.000 999 3	22.61	0.0762	0.000 999 2	22.71	0.0762	**5**
10	0.000 999 6	43.48	0.1510	0.000 999 6	43.58	0.1509	0.000 999 5	43.68	0.1509	**10**
15	0.001 000 2	64.42	0.2242	0.001 000 2	64.51	0.2242	0.001 000 2	64.61	0.2242	**15**
20	0.001 001 2	85.33	0.2962	0.001 001 1	85.42	0.2962	0.001 001 1	85.52	0.2961	**20**
25	0.001 002 3	106.22	0.3669	0.001 002 3	106.32	0.3668	0.001 002 2	106.41	0.3668	**25**
30	0.001 003 7	127.11	0.4363	0.001 003 7	127.20	0.4363	0.001 003 7	127.29	0.4363	**30**
35	0.001 005 4	147.99	0.5046	0.001 005 3	148.08	0.5046	0.001 005 3	148.17	0.5046	**35**
40	0.001 007 2	168.86	0.5719	0.001 007 2	168.95	0.5718	0.001 007 1	169.04	0.5718	**40**
45	0.001 009 3	189.74	0.6380	0.001 009 2	189.83	0.6379	0.001 009 2	189.91	0.6379	**45**
50	0.001 011 5	210.62	0.7031	0.001 011 4	210.71	0.7031	0.001 011 4	210.79	0.7030	**50**
55	0.001 013 9	231.50	0.7672	0.001 013 8	231.59	0.7672	0.001 013 8	231.67	0.7671	**55**
60	0.001 016 4	252.40	0.8304	0.001 016 4	252.48	0.8304	0.001 016 4	252.57	0.8303	**60**
65	0.001 019 2	273.30	0.8927	0.001 019 1	273.38	0.8927	0.001 019 1	273.47	0.8926	**65**
70	0.001 022 1	294.22	0.9541	0.001 022 0	294.30	0.9541	0.001 022 0	294.38	0.9540	**70**
75	0.001 025 1	315.15	1.0147	0.001 025 1	315.23	1.0146	0.001 025 0	315.31	1.0146	**75**
80	0.001 028 4	336.10	1.0744	0.001 028 3	336.18	1.0744	0.001 028 3	336.26	1.0743	**80**
85	0.001 031 7	357.08	1.1334	0.001 031 7	357.16	1.1333	0.001 031 6	357.24	1.1333	**85**
90	0.001 035 2	378.07	1.1916	0.001 035 2	378.15	1.1916	0.001 035 1	378.23	1.1915	**90**
95	0.001 038 9	399.10	1.2491	0.001 038 9	399.17	1.2490	0.001 038 8	399.25	1.2490	**95**
100	0.001 042 7	420.15	1.3059	0.001 042 7	420.23	1.3058	0.001 042 6	420.30	1.3058	**100**
105	0.001 046 7	441.23	1.3620	0.001 046 7	441.31	1.3620	0.001 046 6	441.38	1.3619	**105**
110	0.001 050 9	462.35	1.4175	0.001 050 8	462.42	1.4174	0.001 050 8	462.50	1.4174	**110**
115	0.001 055 1	483.51	1.4724	0.001 055 1	483.58	1.4723	0.001 055 0	483.65	1.4722	**115**
120	0.001 059 6	504.70	1.5266	0.001 059 5	504.77	1.5265	0.001 059 5	504.84	1.5265	**120**
125	0.001 064 2	525.94	1.5803	0.001 064 1	526.01	1.5802	0.001 064 1	526.07	1.5801	**125**
130	0.001 069 0	547.22	1.6334	0.001 068 9	547.29	1.6333	0.001 068 9	547.36	1.6332	**130**
135	0.001 073 9	568.55	1.6860	0.001 073 9	568.62	1.6859	0.001 073 8	568.69	1.6858	**135**
140	0.001 079 0	589.94	1.7381	0.001 079 0	590.00	1.7380	0.001 078 9	590.07	1.7379	**140**
145	0.001 084 3	611.38	1.7897	0.001 084 3	611.44	1.7896	0.001 084 2	611.51	1.7895	**145**
150	0.001 089 8	632.88	1.8408	0.001 089 7	632.95	1.8407	0.001 089 7	633.01	1.8406	**150**
155	0.001 095 5	654.45	1.8915	0.001 095 4	654.51	1.8914	0.001 095 3	654.57	1.8912	**155**
160	0.001 101 3	676.09	1.9417	0.001 101 3	676.15	1.9416	0.001 101 2	676.21	1.9415	**160**
165	0.001 107 4	697.80	1.9916	0.001 107 3	697.86	1.9914	0.001 107 3	697.91	1.9913	**165**
170	0.001 113 7	719.59	2.0410	0.001 113 6	719.65	2.0409	0.001 113 6	719.70	2.0408	**170**
175	0.001 120 2	741.47	2.0901	0.001 120 1	741.52	2.0900	0.001 120 1	741.58	2.0898	**175**
180	0.001 127 0	763.44	2.1389	0.001 126 9	763.49	2.1387	0.001 126 8	763.54	2.1386	**180**
185	0.001 134 0	785.51	2.1873	0.001 133 9	785.55	2.1871	0.001 133 8	785.60	2.1870	**185**
190	0.001 141 2	807.68	2.2354	0.001 141 1	807.72	2.2353	0.001 141 0	807.77	2.2351	**190**
195	0.001 148 7	829.96	2.2833	0.001 148 6	830.01	2.2831	0.001 148 6	830.05	2.2830	**195**
200	0.132 44	2796.0	6.4537	0.001 156 5	852.41	2.3307	0.001 156 4	852.45	2.3306	**200**
205	0.134 56	2810.2	6.4835	0.125 21	2803.6	6.4425	0.116 94	2796.6	6.4026	**205**
210	0.136 62	2823.9	6.5120	0.127 20	2817.7	6.4720	0.118 87	2811.4	6.4333	**210**
215	0.138 65	2837.2	6.5394	0.129 15	2831.4	6.5002	0.120 75	2825.5	6.4625	**215**
220	0.140 63	2850.2	6.5658	0.131 05	2844.8	6.5273	0.122 58	2839.2	6.4904	**220**
225	0.142 58	2862.9	6.5915	0.132 92	2857.8	6.5536	0.124 37	2852.6	6.5173	**225**
230	0.144 51	2875.5	6.6166	0.134 76	2870.6	6.5792	0.126 14	2865.6	6.5434	**230**
235	0.146 41	2887.8	6.6410	0.136 57	2883.2	6.6041	0.127 88	2878.5	6.5688	**235**
240	0.148 30	2900.0	6.6649	0.138 36	2895.6	6.6284	0.129 59	2891.1	6.5936	**240**
245	0.150 16	2912.0	6.6882	0.140 13	2907.8	6.6521	0.131 28	2903.6	6.6177	**245**
250	0.152 00	2924.0	6.7111	0.141 89	2919.9	6.6754	0.132 95	2915.9	6.6413	**250**
255	0.153 83	2935.8	6.7336	0.143 62	2931.9	6.6981	0.134 61	2928.0	6.6644	**255**
260	0.155 64	2947.5	6.7556	0.145 34	2943.8	6.7205	0.136 25	2940.0	6.6870	**260**
265	0.157 43	2959.1	6.7773	0.147 05	2955.5	6.7424	0.137 87	2951.9	6.7093	**265**
270	0.159 22	2970.6	6.7986	0.148 74	2967.2	6.7639	0.139 48	2963.7	6.7311	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**1.5 MPa** (t_{sat} = 198.30 °C)			**1.6 MPa** (t_{sat} = 201.38 °C)			**1.7 MPa** (t_{sat} = 204.31 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.160 99	2982.0	6.8195	0.150 42	2978.7	6.7851	0.141 08	2975.4	6.7525	**275**
280	0.162 75	2993.4	6.8402	0.152 08	2990.2	6.8060	0.142 67	2987.0	6.7736	**280**
285	0.164 50	3004.7	6.8605	0.153 74	3001.6	6.8265	0.144 24	2998.5	6.7943	**285**
290	0.166 24	3015.9	6.8806	0.155 39	3013.0	6.8468	0.145 81	3010.0	6.8148	**290**
295	0.167 98	3027.1	6.9004	0.157 03	3024.3	6.8668	0.147 36	3021.4	6.8349	**295**
300	0.169 70	3038.3	6.9199	0.158 66	3035.5	6.8865	0.148 91	3032.7	6.8548	**300**
310	0.173 12	3060.4	6.9582	0.161 89	3057.9	6.9251	0.151 98	3055.3	6.8938	**310**
320	0.176 52	3082.5	6.9957	0.165 10	3080.0	6.9628	0.155 02	3077.6	6.9318	**320**
330	0.179 89	3104.4	7.0324	0.168 28	3102.1	6.9997	0.158 03	3099.8	6.9689	**330**
340	0.183 25	3126.3	7.0683	0.171 44	3124.1	7.0359	0.161 03	3121.9	7.0052	**340**
350	0.186 58	3148.0	7.1035	0.174 58	3146.0	7.0713	0.164 00	3143.9	7.0408	**350**
360	0.189 89	3169.8	7.1381	0.177 71	3167.8	7.1060	0.166 96	3165.8	7.0757	**360**
370	0.193 19	3191.4	7.1721	0.180 82	3189.6	7.1401	0.169 90	3187.7	7.1100	**370**
380	0.196 48	3213.1	7.2055	0.183 91	3211.3	7.1737	0.172 82	3209.5	7.1437	**380**
390	0.199 75	3234.7	7.2384	0.186 99	3233.0	7.2067	0.175 73	3231.3	7.1768	**390**
400	0.203 01	3256.4	7.2708	0.190 06	3254.7	7.2392	0.178 64	3253.1	7.2094	**400**
410	0.206 26	3278.0	7.3027	0.193 12	3276.4	7.2712	0.181 53	3274.9	7.2415	**410**
420	0.209 50	3299.6	7.3341	0.196 17	3298.2	7.3027	0.184 41	3296.7	7.2731	**420**
430	0.212 74	3321.3	7.3651	0.199 21	3319.9	7.3338	0.187 28	3318.4	7.3043	**430**
440	0.215 96	3343.0	7.3957	0.202 24	3341.6	7.3645	0.190 14	3340.2	7.3351	**440**
450	0.219 18	3364.7	7.4259	0.205 27	3363.3	7.3948	0.192 99	3362.0	7.3654	**450**
460	0.222 38	3386.4	7.4558	0.208 28	3385.1	7.4247	0.195 84	3383.8	7.3954	**460**
470	0.225 59	3408.1	7.4852	0.211 29	3406.9	7.4542	0.198 68	3405.7	7.4250	**470**
480	0.228 78	3429.9	7.5143	0.214 30	3428.7	7.4834	0.201 52	3427.5	7.4542	**480**
490	0.231 97	3451.7	7.5431	0.217 30	3450.6	7.5122	0.204 35	3449.4	7.4831	**490**
500	0.235 16	3473.6	7.5716	0.220 29	3472.5	7.5407	0.207 17	3471.4	7.5117	**500**
510	0.238 34	3495.5	7.5997	0.223 28	3494.4	7.5689	0.209 99	3493.4	7.5399	**510**
520	0.241 52	3517.4	7.6275	0.226 26	3516.4	7.5968	0.212 80	3515.4	7.5678	**520**
530	0.244 69	3539.4	7.6551	0.229 24	3538.4	7.6244	0.215 61	3537.4	7.5955	**530**
540	0.247 85	3561.4	7.6823	0.232 22	3560.5	7.6517	0.218 42	3559.5	7.6228	**540**
550	0.251 02	3583.5	7.7093	0.235 19	3582.6	7.6787	0.221 22	3581.6	7.6499	**550**
560	0.254 18	3605.6	7.7360	0.238 15	3604.7	7.7054	0.224 02	3603.8	7.6766	**560**
570	0.257 33	3627.8	7.7625	0.241 12	3626.9	7.7319	0.226 81	3626.1	7.7032	**570**
580	0.260 48	3650.0	7.7887	0.244 08	3649.2	7.7582	0.229 60	3648.3	7.7295	**580**
590	0.263 63	3672.3	7.8147	0.247 03	3671.5	7.7842	0.232 39	3670.7	7.7555	**590**
600	0.266 78	3694.6	7.8404	0.249 99	3693.9	7.8099	0.235 17	3693.1	7.7813	**600**
610	0.269 92	3717.0	7.8659	0.252 94	3716.3	7.8355	0.237 96	3715.5	7.8068	**610**
620	0.273 07	3739.5	7.8912	0.255 89	3738.7	7.8608	0.240 73	3738.0	7.8321	**620**
630	0.276 20	3762.0	7.9162	0.258 84	3761.3	7.8858	0.243 51	3760.6	7.8573	**630**
640	0.279 34	3784.6	7.9411	0.261 78	3783.9	7.9107	0.246 29	3783.2	7.8821	**640**
650	0.282 48	3807.2	7.9657	0.264 72	3806.5	7.9354	0.249 06	3805.8	7.9068	**650**
660	0.285 61	3829.9	7.9902	0.267 66	3829.2	7.9598	0.251 83	3828.5	7.9313	**660**
670	0.288 74	3852.6	8.0144	0.270 60	3852.0	7.9841	0.254 60	3851.3	7.9556	**670**
680	0.291 87	3875.4	8.0384	0.273 54	3874.8	8.0082	0.257 36	3874.2	7.9797	**680**
690	0.294 99	3898.3	8.0623	0.276 47	3897.7	8.0320	0.260 13	3897.1	8.0036	**690**
700	0.298 12	3921.2	8.0860	0.279 40	3920.6	8.0557	0.262 89	3920.0	8.0273	**700**
710	0.301 24	3944.2	8.1095	0.282 33	3943.6	8.0792	0.265 65	3943.0	8.0508	**710**
720	0.304 36	3967.2	8.1328	0.285 26	3966.7	8.1026	0.268 41	3966.1	8.0742	**720**
730	0.307 48	3990.3	8.1560	0.288 19	3989.8	8.1258	0.271 17	3989.2	8.0973	**730**
740	0.310 60	4013.5	8.1789	0.291 12	4013.0	8.1488	0.273 93	4012.4	8.1204	**740**
750	0.313 72	4036.7	8.2018	0.294 04	4036.2	8.1716	0.276 68	4035.7	8.1432	**750**
760	0.316 83	4060.0	8.2244	0.296 96	4059.5	8.1943	0.279 43	4059.0	8.1659	**760**
770	0.319 95	4083.4	8.2469	0.299 89	4082.9	8.2168	0.282 19	4082.4	8.1884	**770**
780	0.323 06	4106.8	8.2693	0.302 81	4106.3	8.2391	0.284 94	4105.9	8.2108	**780**
790	0.326 17	4130.3	8.2915	0.305 73	4129.8	8.2613	0.287 69	4129.4	8.2330	**790**
800	0.329 29	4153.9	8.3135	0.308 65	4153.4	8.2834	0.290 44	4153.0	8.2551	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**1.8 MPa** (t_{sat} = 207.12 °C)			**2.0 MPa** (t_{sat} = 212.38 °C)			**2.2 MPa** (t_{sat} = 217.26 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 167 9	884.61	2.3978	0.001 176 8	908.62	2.4470	0.001 185 2	930.98	2.4924	Sat. Liq.
Sat. Vap.	0.110 36	2796.0	6.3776	0.099 58	2798.4	6.3392	0.090 70	2800.2	6.3040	Sat. Vap.
0	0.000 999 3	1.79	0.0000	0.000 999 2	1.99	0.0000	0.000 999 1	2.20	0.0000	**0**
5	0.000 999 2	22.81	0.0762	0.000 999 1	23.01	0.0762	0.000 999 0	23.21	0.0762	**5**
10	0.000 999 5	43.77	0.1509	0.000 999 4	43.97	0.1509	0.000 999 3	44.16	0.1509	**10**
15	0.001 000 1	64.70	0.2242	0.001 000 0	64.89	0.2242	0.000 999 9	65.09	0.2241	**15**
20	0.001 001 0	85.61	0.2961	0.001 000 9	85.80	0.2961	0.001 000 8	85.99	0.2960	**20**
25	0.001 002 2	106.50	0.3668	0.001 002 1	106.69	0.3667	0.001 002 0	106.87	0.3667	**25**
30	0.001 003 6	127.38	0.4362	0.001 003 5	127.56	0.4362	0.001 003 4	127.75	0.4361	**30**
35	0.001 005 2	148.26	0.5045	0.001 005 2	148.44	0.5045	0.001 005 1	148.62	0.5044	**35**
40	0.001 007 1	169.13	0.5717	0.001 007 0	169.31	0.5717	0.001 006 9	169.48	0.5716	**40**
45	0.001 009 1	190.00	0.6379	0.001 009 0	190.18	0.6378	0.001 008 9	190.35	0.6377	**45**
50	0.001 011 3	210.88	0.7030	0.001 011 3	211.05	0.7029	0.001 011 2	211.22	0.7028	**50**
55	0.001 013 7	231.76	0.7671	0.001 013 7	231.93	0.7670	0.001 013 6	232.10	0.7669	**55**
60	0.001 016 3	252.65	0.8303	0.001 016 2	252.82	0.8302	0.001 016 1	252.98	0.8301	**60**
65	0.001 019 0	273.55	0.8925	0.001 019 0	273.72	0.8924	0.001 018 9	273.88	0.8923	**65**
70	0.001 021 9	294.46	0.9539	0.001 021 9	294.63	0.9538	0.001 021 8	294.79	0.9537	**70**
75	0.001 025 0	315.39	1.0145	0.001 024 9	315.56	1.0144	0.001 024 8	315.72	1.0142	**75**
80	0.001 028 2	336.34	1.0742	0.001 028 1	336.50	1.0741	0.001 028 0	336.66	1.0740	**80**
85	0.001 031 6	357.31	1.1332	0.001 031 5	357.47	1.1331	0.001 031 4	357.63	1.1329	**85**
90	0.001 035 1	378.31	1.1914	0.001 035 0	378.46	1.1913	0.001 034 9	378.62	1.1911	**90**
95	0.001 038 8	399.33	1.2489	0.001 038 7	399.48	1.2487	0.001 038 6	399.63	1.2486	**95**
100	0.001 042 6	420.38	1.3057	0.001 042 5	420.53	1.3055	0.001 042 4	420.68	1.3054	**100**
105	0.001 046 6	441.46	1.3618	0.001 046 5	441.60	1.3616	0.001 046 4	441.75	1.3615	**105**
110	0.001 050 7	462.57	1.4173	0.001 050 6	462.71	1.4171	0.001 050 5	462.86	1.4169	**110**
115	0.001 055 0	483.72	1.4721	0.001 054 9	483.86	1.4719	0.001 054 8	484.01	1.4718	**115**
120	0.001 059 4	504.91	1.5264	0.001 059 3	505.05	1.5262	0.001 059 2	505.19	1.5260	**120**
125	0.001 064 0	526.14	1.5800	0.001 063 9	526.28	1.5798	0.001 063 8	526.42	1.5797	**125**
130	0.001 068 8	547.42	1.6331	0.001 068 7	547.56	1.6329	0.001 068 6	547.69	1.6328	**130**
135	0.001 073 7	568.75	1.6857	0.001 073 6	568.88	1.6855	0.001 073 5	569.02	1.6853	**135**
140	0.001 078 9	590.13	1.7378	0.001 078 7	590.26	1.7376	0.001 078 6	590.39	1.7374	**140**
145	0.001 084 1	611.57	1.7894	0.001 084 0	611.70	1.7892	0.001 083 9	611.82	1.7889	**145**
150	0.001 089 6	633.07	1.8405	0.001 089 5	633.19	1.8403	0.001 089 3	633.32	1.8400	**150**
155	0.001 095 3	654.63	1.8911	0.001 095 1	654.75	1.8909	0.001 095 0	654.87	1.8907	**155**
160	0.001 101 1	676.26	1.9414	0.001 101 0	676.38	1.9411	0.001 100 8	676.50	1.9409	**160**
165	0.001 107 2	697.97	1.9912	0.001 107 0	698.08	1.9909	0.001 106 9	698.20	1.9907	**165**
170	0.001 113 5	719.76	2.0406	0.001 113 3	719.87	2.0404	0.001 113 2	719.98	2.0401	**170**
175	0.001 120 0	741.63	2.0897	0.001 119 8	741.73	2.0894	0.001 119 7	741.84	2.0892	**175**
180	0.001 126 7	763.59	2.1384	0.001 126 5	763.69	2.1382	0.001 126 4	763.79	2.1379	**180**
185	0.001 133 7	785.65	2.1869	0.001 133 5	785.75	2.1866	0.001 133 3	785.84	2.1863	**185**
190	0.001 140 9	807.81	2.2350	0.001 140 8	807.91	2.2347	0.001 140 6	808.00	2.2344	**190**
195	0.001 148 5	830.09	2.2828	0.001 148 3	830.18	2.2825	0.001 148 1	830.27	2.2822	**195**
200	0.001 156 3	852.49	2.3304	0.001 156 1	852.57	2.3301	0.001 155 9	852.65	2.3298	**200**
205	0.001 164 4	875.02	2.3778	0.001 164 2	875.10	2.3774	0.001 164 0	875.17	2.3771	**205**
210	0.111 44	2804.8	6.3958	0.001 172 6	897.76	2.4246	0.001 172 4	897.83	2.4243	**210**
215	0.113 26	2819.4	6.4260	0.100 49	2806.6	6.3560	0.001 181 2	920.64	2.4712	**215**
220	0.115 03	2833.5	6.4548	0.102 17	2821.7	6.3868	0.091 58	2809.0	6.3219	**220**
225	0.116 77	2847.2	6.4824	0.103 80	2836.1	6.4160	0.093 14	2824.5	6.3531	**225**
230	0.118 47	2860.6	6.5091	0.105 39	2850.2	6.4440	0.094 66	2839.3	6.3826	**230**
235	0.120 14	2873.7	6.5350	0.106 95	2863.8	6.4710	0.096 14	2853.6	6.4109	**235**
240	0.121 78	2886.6	6.5602	0.108 49	2877.2	6.4972	0.097 58	2867.5	6.4382	**240**
245	0.123 41	2899.2	6.5848	0.110 00	2890.3	6.5226	0.099 00	2881.1	6.4646	**245**
250	0.125 01	2911.7	6.6087	0.111 48	2903.2	6.5474	0.100 39	2894.5	6.4903	**250**
255	0.126 59	2924.0	6.6322	0.112 95	2915.9	6.5716	0.101 77	2907.6	6.5152	**255**
260	0.128 16	2936.2	6.6551	0.114 40	2928.5	6.5952	0.103 12	2920.5	6.5396	**260**
265	0.129 72	2948.3	6.6776	0.115 83	2940.9	6.6183	0.104 46	2933.3	6.5633	**265**
270	0.131 25	2960.2	6.6997	0.117 25	2953.1	6.6410	0.105 78	2945.8	6.5866	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**1.8 MPa** (t_{sat} = 207.12 °C)			**2.0 MPa** (t_{sat} = 212.38 °C)			**2.2 MPa** (t_{sat} = 217.26 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.132 78	2972.0	6.7214	0.118 65	2965.2	6.6632	0.107 08	2958.2	6.6093	**275**
280	0.134 29	2983.8	6.7427	0.120 05	2977.2	6.6850	0.108 38	2970.5	6.6316	**280**
285	0.135 79	2995.4	6.7637	0.121 43	2989.1	6.7064	0.109 66	2982.6	6.6535	**285**
290	0.137 29	3007.0	6.7843	0.122 79	3000.9	6.7274	0.110 93	2994.7	6.6749	**290**
295	0.138 77	3018.5	6.8047	0.124 15	3012.6	6.7481	0.112 18	3006.6	6.6961	**295**
300	0.140 24	3029.9	6.8247	0.125 50	3024.3	6.7685	0.113 43	3018.5	6.7168	**300**
310	0.143 16	3052.6	6.8640	0.128 17	3047.3	6.8084	0.115 90	3041.9	6.7574	**310**
320	0.146 06	3075.1	6.9022	0.130 82	3070.2	6.8472	0.118 34	3065.1	6.7968	**320**
330	0.148 92	3097.5	6.9396	0.133 43	3092.8	6.8851	0.120 75	3088.1	6.8352	**330**
340	0.151 77	3119.7	6.9761	0.136 02	3115.3	6.9221	0.123 14	3110.8	6.8726	**340**
350	0.154 59	3141.8	7.0119	0.138 59	3137.6	6.9582	0.125 50	3133.4	6.9091	**350**
360	0.157 40	3163.9	7.0470	0.141 15	3159.9	6.9937	0.127 85	3155.9	6.9449	**360**
370	0.160 19	3185.8	7.0814	0.143 68	3182.1	7.0284	0.130 18	3178.3	6.9800	**370**
380	0.162 96	3207.8	7.1153	0.146 20	3204.2	7.0625	0.132 49	3200.5	7.0144	**380**
390	0.165 73	3229.6	7.1485	0.148 71	3226.2	7.0960	0.134 79	3222.8	7.0481	**390**
400	0.168 48	3251.5	7.1812	0.151 21	3248.2	7.1290	0.137 08	3244.9	7.0813	**400**
410	0.171 22	3273.3	7.2134	0.153 69	3270.2	7.1614	0.139 35	3267.1	7.1139	**410**
420	0.173 95	3295.2	7.2452	0.156 17	3292.2	7.1933	0.141 62	3289.2	7.1461	**420**
430	0.176 67	3317.0	7.2764	0.158 63	3314.1	7.2248	0.143 87	3311.3	7.1777	**430**
440	0.179 38	3338.8	7.3073	0.161 09	3336.1	7.2558	0.146 12	3333.3	7.2089	**440**
450	0.182 08	3360.7	7.3377	0.163 54	3358.1	7.2863	0.148 36	3355.4	7.2396	**450**
460	0.184 78	3382.6	7.3677	0.165 98	3380.0	7.3165	0.150 59	3377.5	7.2699	**460**
470	0.187 47	3404.5	7.3974	0.168 41	3402.0	7.3463	0.152 82	3399.5	7.2998	**470**
480	0.190 16	3426.4	7.4267	0.170 84	3424.0	7.3757	0.155 04	3421.6	7.3294	**480**
490	0.192 83	3448.3	7.4556	0.173 26	3446.0	7.4048	0.157 25	3443.8	7.3585	**490**
500	0.195 51	3470.3	7.4842	0.175 68	3468.1	7.4335	0.159 46	3465.9	7.3873	**500**
510	0.198 18	3492.3	7.5125	0.178 09	3490.2	7.4619	0.161 66	3488.1	7.4158	**510**
520	0.200 84	3514.3	7.5405	0.180 50	3512.3	7.4899	0.163 86	3510.2	7.4440	**520**
530	0.203 50	3536.4	7.5682	0.182 90	3534.5	7.5177	0.166 05	3532.5	7.4718	**530**
540	0.206 15	3558.6	7.5955	0.185 30	3556.6	7.5451	0.168 24	3554.7	7.4994	**540**
550	0.208 80	3580.7	7.6226	0.187 69	3578.9	7.5723	0.170 42	3577.0	7.5266	**550**
560	0.211 45	3602.9	7.6495	0.190 09	3601.2	7.5992	0.172 61	3599.4	7.5536	**560**
570	0.214 09	3625.2	7.6760	0.192 47	3623.5	7.6258	0.174 78	3621.7	7.5803	**570**
580	0.216 73	3647.5	7.7023	0.194 86	3645.8	7.6522	0.176 96	3644.2	7.6067	**580**
590	0.219 37	3669.9	7.7284	0.197 24	3668.2	7.6783	0.179 13	3666.6	7.6329	**590**
600	0.222 00	3692.3	7.7542	0.199 61	3690.7	7.7042	0.181 30	3689.1	7.6588	**600**
610	0.224 63	3714.7	7.7798	0.201 99	3713.2	7.7298	0.183 46	3711.7	7.6845	**610**
620	0.227 26	3737.3	7.8051	0.204 36	3735.8	7.7552	0.185 62	3734.3	7.7100	**620**
630	0.229 89	3759.8	7.8303	0.206 73	3758.4	7.7804	0.187 78	3757.0	7.7352	**630**
640	0.232 51	3782.5	7.8552	0.209 10	3781.1	7.8054	0.189 94	3779.7	7.7602	**640**
650	0.235 13	3805.1	7.8799	0.211 46	3803.8	7.8301	0.192 10	3802.4	7.7850	**650**
660	0.237 75	3827.9	7.9044	0.213 83	3826.6	7.8547	0.194 25	3825.2	7.8096	**660**
670	0.240 37	3850.7	7.9287	0.216 19	3849.4	7.8790	0.196 40	3848.1	7.8340	**670**
680	0.242 99	3873.5	7.9528	0.218 55	3872.3	7.9032	0.198 55	3871.0	7.8582	**680**
690	0.245 60	3896.4	7.9767	0.220 90	3895.2	7.9271	0.200 70	3894.0	7.8821	**690**
700	0.248 21	3919.4	8.0004	0.223 26	3918.2	7.9509	0.202 84	3917.1	7.9059	**700**
710	0.250 82	3942.5	8.0240	0.225 61	3941.3	7.9744	0.204 99	3940.2	7.9295	**710**
720	0.253 43	3965.5	8.0473	0.227 97	3964.4	7.9978	0.207 13	3963.3	7.9530	**720**
730	0.256 04	3988.7	8.0705	0.230 32	3987.6	8.0211	0.209 27	3986.5	7.9762	**730**
740	0.258 64	4011.9	8.0936	0.232 67	4010.9	8.0441	0.211 41	4009.8	7.9993	**740**
750	0.261 25	4035.2	8.1164	0.235 01	4034.2	8.0670	0.213 55	4033.1	8.0222	**750**
760	0.263 85	4058.5	8.1391	0.237 36	4057.5	8.0897	0.215 69	4056.5	8.0450	**760**
770	0.266 45	4081.9	8.1617	0.239 71	4080.9	8.1123	0.217 82	4080.0	8.0676	**770**
780	0.269 05	4105.4	8.1841	0.242 05	4104.4	8.1347	0.219 96	4103.5	8.0900	**780**
790	0.271 65	4128.9	8.2063	0.244 39	4128.0	8.1570	0.222 09	4127.0	8.1123	**790**
800	0.274 26	4152.5	8.2284	0.246 74	4151.6	8.1791	0.224 23	4150.7	8.1344	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**2.4 MPa** (t_{sat} = 221.80 °C)			**2.6 MPa** (t_{sat} = 226.05 °C)			**2.8 MPa** (t_{sat} = 230.06 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 193 4	951.95	2.5344	0.001 201	971.74	2.5738	0.001 209	990.50	2.6107	Sat. Liq.
Sat. Vap.	0.083 24	2801.5	6.2714	0.076 90	2802.5	6.2411	0.071 43	2803.0	6.2126	Sat. Vap.
0	0.000 999 0	2.40	0.0000	0.000 998 9	2.60	0.0000	0.000 998 8	2.80	0.0000	**0**
5	0.000 998 9	23.40	0.0762	0.000 998 8	23.60	0.0762	0.000 998 7	23.80	0.0762	**5**
10	0.000 999 2	44.36	0.1509	0.000 999 1	44.55	0.1508	0.000 999 0	44.75	0.1508	**10**
15	0.000 999 8	65.28	0.2241	0.000 999 7	65.47	0.2241	0.000 999 6	65.66	0.2240	**15**
20	0.001 000 7	86.17	0.2960	0.001 000 7	86.36	0.2960	0.001 000 6	86.55	0.2959	**20**
25	0.001 001 9	107.06	0.3666	0.001 001 8	107.24	0.3666	0.001 001 7	107.43	0.3665	**25**
30	0.001 003 3	127.93	0.4361	0.001 003 3	128.11	0.4360	0.001 003 2	128.29	0.4359	**30**
35	0.001 005 0	148.80	0.5043	0.001 004 9	148.98	0.5043	0.001 004 8	149.15	0.5042	**35**
40	0.001 006 8	169.66	0.5715	0.001 006 7	169.84	0.5714	0.001 006 6	170.01	0.5713	**40**
45	0.001 008 9	190.53	0.6376	0.001 008 8	190.70	0.6375	0.001 008 7	190.88	0.6374	**45**
50	0.001 011 1	211.39	0.7027	0.001 011 0	211.57	0.7026	0.001 010 9	211.74	0.7025	**50**
55	0.001 013 5	232.27	0.7668	0.001 013 4	232.44	0.7667	0.001 013 3	232.61	0.7666	**55**
60	0.001 016 0	253.15	0.8300	0.001 016 0	253.32	0.8298	0.001 015 9	253.49	0.8297	**60**
65	0.001 018 8	274.05	0.8922	0.001 018 7	274.21	0.8921	0.001 018 6	274.38	0.8920	**65**
70	0.001 021 7	294.95	0.9536	0.001 021 6	295.12	0.9535	0.001 021 5	295.28	0.9533	**70**
75	0.001 024 7	315.88	1.0141	0.001 024 6	316.04	1.0140	0.001 024 5	316.20	1.0139	**75**
80	0.001 027 9	336.82	1.0738	0.001 027 8	336.98	1.0737	0.001 027 7	337.14	1.0736	**80**
85	0.001 031 3	357.78	1.1328	0.001 031 2	357.94	1.1326	0.001 031 1	358.10	1.1325	**85**
90	0.001 034 8	378.77	1.1910	0.001 034 7	378.93	1.1908	0.001 034 6	379.08	1.1907	**90**
95	0.001 038 5	399.78	1.2484	0.001 038 4	399.94	1.2483	0.001 038 3	400.09	1.2481	**95**
100	0.001 042 3	420.83	1.3052	0.001 042 2	420.98	1.3051	0.001 042 1	421.13	1.3049	**100**
105	0.001 046 3	441.90	1.3613	0.001 046 2	442.05	1.3612	0.001 046 0	442.20	1.3610	**105**
110	0.001 050 4	463.01	1.4168	0.001 050 3	463.15	1.4166	0.001 050 2	463.30	1.4164	**110**
115	0.001 054 7	484.15	1.4716	0.001 054 5	484.29	1.4714	0.001 054 4	484.44	1.4712	**115**
120	0.001 059 1	505.33	1.5258	0.001 059 0	505.47	1.5256	0.001 058 9	505.61	1.5255	**120**
125	0.001 063 7	526.56	1.5795	0.001 063 6	526.70	1.5793	0.001 063 5	526.84	1.5791	**125**
130	0.001 068 4	547.83	1.6326	0.001 068 3	547.97	1.6324	0.001 068 2	548.10	1.6322	**130**
135	0.001 073 4	569.15	1.6851	0.001 073 3	569.28	1.6849	0.001 073 1	569.42	1.6847	**135**
140	0.001 078 5	590.52	1.7372	0.001 078 4	590.65	1.7370	0.001 078 2	590.78	1.7368	**140**
145	0.001 083 8	611.95	1.7887	0.001 083 6	612.08	1.7885	0.001 083 5	612.21	1.7883	**145**
150	0.001 089 2	633.44	1.8398	0.001 089 1	633.56	1.8396	0.001 088 9	633.69	1.8394	**150**
155	0.001 094 9	654.99	1.8904	0.001 094 7	655.11	1.8902	0.001 094 6	655.24	1.8900	**155**
160	0.001 100 7	676.62	1.9407	0.001 100 6	676.73	1.9404	0.001 100 4	676.85	1.9402	**160**
165	0.001 106 7	698.31	1.9905	0.001 106 6	698.43	1.9902	0.001 106 4	698.54	1.9900	**165**
170	0.001 113 0	720.09	2.0399	0.001 112 9	720.20	2.0396	0.001 112 7	720.31	2.0394	**170**
175	0.001 119 5	741.94	2.0889	0.001 119 3	742.05	2.0887	0.001 119 2	742.16	2.0884	**175**
180	0.001 126 2	763.89	2.1376	0.001 126 0	764.00	2.1373	0.001 125 9	764.10	2.1371	**180**
185	0.001 133 2	785.94	2.1860	0.001 133 0	786.04	2.1857	0.001 132 8	786.13	2.1854	**185**
190	0.001 140 4	808.09	2.2341	0.001 140 2	808.18	2.2338	0.001 140 0	808.27	2.2335	**190**
195	0.001 147 9	830.35	2.2819	0.001 147 7	830.44	2.2816	0.001 147 5	830.53	2.2813	**195**
200	0.001 155 7	852.73	2.3295	0.001 155 5	852.82	2.3291	0.001 155 2	852.90	2.3288	**200**
205	0.001 163 7	875.25	2.3768	0.001 163 5	875.32	2.3765	0.001 163 3	875.40	2.3761	**205**
210	0.001 172 2	897.90	2.4239	0.001 171 9	897.97	2.4236	0.001 171 7	898.03	2.4232	**210**
215	0.001 180 9	920.70	2.4709	0.001 180 7	920.76	2.4705	0.001 180 4	920.82	2.4701	**215**
220	0.001 190 1	943.66	2.5177	0.001 189 8	943.72	2.5173	0.001 189 6	943.77	2.5169	**220**
225	0.084 21	2812.1	6.2926	0.001 199 3	966.85	2.5640	0.001 199 1	966.90	2.5636	**225**
230	0.085 67	2827.8	6.3241	0.078 02	2815.7	6.2675	0.001 209	990.21	2.6101	**230**
235	0.087 08	2842.9	6.3539	0.079 39	2831.7	6.2991	0.072 75	2819.9	6.2460	**235**
240	0.088 46	2857.5	6.3824	0.080 71	2847.0	6.3291	0.074 04	2836.1	6.2776	**240**
245	0.089 81	2871.6	6.4099	0.082 01	2861.8	6.3578	0.075 29	2851.6	6.3077	**245**
250	0.091 13	2885.5	6.4365	0.083 27	2876.2	6.3854	0.076 51	2866.5	6.3365	**250**
255	0.092 43	2899.0	6.4623	0.084 50	2890.2	6.4121	0.077 69	2881.1	6.3642	**255**
260	0.093 70	2912.4	6.4874	0.085 72	2904.0	6.4380	0.078 85	2895.3	6.3910	**260**
265	0.094 96	2925.5	6.5118	0.086 91	2917.4	6.4632	0.079 99	2909.2	6.4169	**265**
270	0.096 20	2938.4	6.5357	0.088 09	2930.7	6.4877	0.081 11	2922.9	6.4422	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**2.4 MPa** (t_{sat} = 221.80 °C)			**2.6 MPa** (t_{sat} = 226.05 °C)			**2.8 MPa** (t_{sat} = 230.06 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.097 43	2951.1	6.5590	0.089 24	2943.8	6.5117	0.082 22	2936.3	6.4668	**275**
280	0.098 64	2963.6	6.5818	0.090 39	2956.6	6.5350	0.083 31	2949.5	6.4907	**280**
285	0.099 84	2976.1	6.6042	0.091 52	2969.3	6.5579	0.084 38	2962.5	6.5141	**285**
290	0.101 02	2988.4	6.6261	0.092 64	2981.9	6.5803	0.085 44	2975.3	6.5370	**290**
295	0.102 20	3000.5	6.6476	0.093 74	2994.3	6.6023	0.086 49	2988.0	6.5594	**295**
300	0.103 36	3012.6	6.6688	0.094 84	3006.6	6.6238	0.087 52	3000.5	6.5814	**300**
310	0.105 67	3036.5	6.7101	0.097 00	3030.9	6.6658	0.089 57	3025.2	6.6242	**310**
320	0.107 94	3060.0	6.7501	0.099 13	3054.8	6.7064	0.091 57	3049.5	6.6654	**320**
330	0.110 18	3083.2	6.7890	0.101 23	3078.4	6.7459	0.093 55	3073.5	6.7054	**330**
340	0.112 39	3106.3	6.8268	0.103 30	3101.7	6.7842	0.095 50	3097.1	6.7443	**340**
350	0.114 59	3129.1	6.8638	0.105 35	3124.8	6.8216	0.097 42	3120.5	6.7821	**350**
360	0.116 76	3151.8	6.9000	0.107 38	3147.8	6.8582	0.099 33	3143.6	6.8190	**360**
370	0.118 92	3174.4	6.9353	0.109 39	3170.6	6.8939	0.101 22	3166.7	6.8551	**370**
380	0.121 06	3196.9	6.9700	0.111 38	3193.2	6.9289	0.103 09	3189.5	6.8904	**380**
390	0.123 18	3219.3	7.0041	0.113 36	3215.8	6.9632	0.104 94	3212.3	6.9250	**390**
400	0.125 30	3241.6	7.0375	0.115 33	3238.3	6.9968	0.106 78	3234.9	6.9589	**400**
410	0.127 40	3263.9	7.0703	0.117 29	3260.7	7.0299	0.108 61	3257.5	6.9922	**410**
420	0.129 49	3286.1	7.1026	0.119 23	3283.1	7.0624	0.110 43	3280.0	7.0249	**420**
430	0.131 57	3308.4	7.1345	0.121 17	3305.4	7.0944	0.112 24	3302.5	7.0571	**430**
440	0.133 65	3330.5	7.1658	0.123 09	3327.8	7.1259	0.114 04	3325.0	7.0888	**440**
450	0.135 71	3352.7	7.1967	0.125 01	3350.0	7.1570	0.115 84	3347.4	7.1200	**450**
460	0.137 77	3374.9	7.2271	0.126 92	3372.3	7.1876	0.117 62	3369.7	7.1507	**460**
470	0.139 82	3397.1	7.2572	0.128 82	3394.6	7.2177	0.119 40	3392.1	7.1810	**470**
480	0.141 87	3419.3	7.2868	0.130 72	3416.9	7.2475	0.121 17	3414.5	7.2109	**480**
490	0.143 91	3441.5	7.3161	0.132 61	3439.2	7.2769	0.122 93	3436.9	7.2405	**490**
500	0.145 94	3463.7	7.3450	0.134 50	3461.5	7.3060	0.124 69	3459.3	7.2696	**500**
510	0.147 97	3485.9	7.3736	0.136 38	3483.8	7.3346	0.126 45	3481.7	7.2984	**510**
520	0.149 99	3508.2	7.4019	0.138 25	3506.1	7.3630	0.128 19	3504.1	7.3268	**520**
530	0.152 01	3530.5	7.4298	0.140 12	3528.5	7.3910	0.129 94	3526.5	7.3549	**530**
540	0.154 02	3552.8	7.4574	0.141 99	3550.9	7.4187	0.131 68	3549.0	7.3827	**540**
550	0.156 03	3575.2	7.4848	0.143 85	3573.3	7.4461	0.133 41	3571.5	7.4102	**550**
560	0.158 04	3597.6	7.5118	0.145 71	3595.8	7.4732	0.135 15	3594.0	7.4374	**560**
570	0.160 04	3620.0	7.5386	0.147 57	3618.3	7.5001	0.136 88	3616.5	7.4643	**570**
580	0.162 04	3642.5	7.5651	0.149 42	3640.8	7.5266	0.138 60	3639.1	7.4909	**580**
590	0.164 04	3665.0	7.5913	0.151 27	3663.4	7.5529	0.140 32	3661.7	7.5173	**590**
600	0.166 03	3687.6	7.6173	0.153 11	3686.0	7.5790	0.142 04	3684.4	7.5434	**600**
610	0.168 02	3710.2	7.6430	0.154 96	3708.6	7.6048	0.143 76	3707.1	7.5692	**610**
620	0.170 01	3732.8	7.6686	0.156 80	3731.3	7.6303	0.145 47	3729.8	7.5949	**620**
630	0.171 99	3755.5	7.6938	0.158 63	3754.1	7.6557	0.147 18	3752.6	7.6202	**630**
640	0.173 98	3778.3	7.7189	0.160 47	3776.9	7.6808	0.148 89	3775.5	7.6454	**640**
650	0.175 96	3801.1	7.7437	0.162 30	3799.7	7.7056	0.150 60	3798.4	7.6703	**650**
660	0.177 94	3823.9	7.7683	0.164 13	3822.6	7.7303	0.152 30	3821.3	7.6950	**660**
670	0.179 91	3846.8	7.7928	0.165 96	3845.6	7.7548	0.154 00	3844.3	7.7195	**670**
680	0.181 89	3869.8	7.8170	0.167 79	3868.6	7.7790	0.155 70	3867.3	7.7438	**680**
690	0.183 86	3892.8	7.8410	0.169 61	3891.6	7.8031	0.157 40	3890.4	7.7679	**690**
700	0.185 83	3915.9	7.8648	0.171 44	3914.7	7.8269	0.159 10	3913.5	7.7918	**700**
710	0.187 80	3939.0	7.8885	0.173 26	3937.9	7.8506	0.160 79	3936.7	7.8155	**710**
720	0.189 77	3962.2	7.9119	0.175 08	3961.1	7.8741	0.162 48	3960.0	7.8390	**720**
730	0.191 74	3985.4	7.9352	0.176 90	3984.3	7.8974	0.164 18	3983.3	7.8624	**730**
740	0.193 70	4008.7	7.9583	0.178 71	4007.7	7.9206	0.165 87	4006.6	7.8855	**740**
750	0.195 66	4032.1	7.9813	0.180 53	4031.1	7.9435	0.167 56	4030.0	7.9085	**750**
760	0.197 63	4055.5	8.0040	0.182 34	4054.5	7.9663	0.169 24	4053.5	7.9314	**760**
770	0.199 59	4079.0	8.0267	0.184 16	4078.0	7.9890	0.170 93	4077.0	7.9540	**770**
780	0.201 55	4102.5	8.0491	0.185 97	4101.6	8.0114	0.172 61	4100.6	7.9765	**780**
790	0.203 51	4126.1	8.0714	0.187 78	4125.2	8.0338	0.174 30	4124.2	7.9989	**790**
800	0.205 47	4149.8	8.0936	0.189 59	4148.9	8.0559	0.175 99	4148.0	8.0210	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**3.0 MPa** (t_{sat} = 233.86 °C)			**3.4 MPa** (t_{sat} = 240.90 °C)			**3.8 MPa** (t_{sat} = 247.33 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 217	1008.4	2.6456	0.001 231	1041.8	2.7102	0.001 246	1072.8	2.7690	Sat. Liq.
Sat. Vap.	0.066 66	2803.3	6.1858	0.058 76	2803.0	6.1362	0.052 47	2801.8	6.0910	Sat. Vap.
0	0.000 998 7	3.01	0.0000	0.000 998 5	3.41	0.0001	0.000 998 3	3.82	0.0001	**0**
5	0.000 998 6	24.00	0.0762	0.000 998 4	24.40	0.0762	0.000 998 2	24.79	0.0762	**5**
10	0.000 998 9	44.94	0.1508	0.000 998 7	45.33	0.1508	0.000 998 5	45.72	0.1507	**10**
15	0.000 999 6	65.85	0.2240	0.000 999 4	66.23	0.2239	0.000 999 2	66.61	0.2239	**15**
20	0.001 000 5	86.74	0.2959	0.001 000 3	87.11	0.2958	0.001 000 1	87.49	0.2957	**20**
25	0.001 001 7	107.61	0.3665	0.001 001 5	107.98	0.3664	0.001 001 3	108.35	0.3663	**25**
30	0.001 003 1	128.47	0.4359	0.001 002 9	128.84	0.4358	0.001 002 7	129.20	0.4356	**30**
35	0.001 004 7	149.33	0.5041	0.001 004 5	149.69	0.5040	0.001 004 4	150.05	0.5038	**35**
40	0.001 006 6	170.19	0.5713	0.001 006 4	170.55	0.5711	0.001 006 2	170.90	0.5710	**40**
45	0.001 008 6	191.05	0.6373	0.001 008 4	191.40	0.6372	0.001 008 2	191.75	0.6370	**45**
50	0.001 010 8	211.91	0.7024	0.001 010 6	212.26	0.7022	0.001 010 5	212.60	0.7020	**50**
55	0.001 013 2	232.78	0.7665	0.001 013 0	233.12	0.7663	0.001 012 9	233.46	0.7661	**55**
60	0.001 015 8	253.66	0.8296	0.001 015 6	253.99	0.8294	0.001 015 4	254.33	0.8292	**60**
65	0.001 018 5	274.54	0.8919	0.001 018 3	274.88	0.8916	0.001 018 1	275.21	0.8914	**65**
70	0.001 021 4	295.45	0.9532	0.001 021 2	295.77	0.9530	0.001 021 0	296.10	0.9527	**70**
75	0.001 024 4	316.36	1.0137	0.001 024 3	316.69	1.0135	0.001 024 1	317.01	1.0132	**75**
80	0.001 027 6	337.30	1.0734	0.001 027 5	337.62	1.0732	0.001 027 3	337.94	1.0729	**80**
85	0.001 031 0	358.26	1.1324	0.001 030 8	358.57	1.1321	0.001 030 6	358.88	1.1318	**85**
90	0.001 034 5	379.24	1.1905	0.001 034 3	379.55	1.1903	0.001 034 1	379.86	1.1900	**90**
95	0.001 038 2	400.24	1.2480	0.001 038 0	400.55	1.2477	0.001 037 8	400.85	1.2474	**95**
100	0.001 042 0	421.28	1.3048	0.001 041 8	421.58	1.3044	0.001 041 6	421.88	1.3041	**100**
105	0.001 045 9	442.34	1.3608	0.001 045 7	442.64	1.3605	0.001 045 5	442.94	1.3602	**105**
110	0.001 050 1	463.44	1.4163	0.001 049 9	463.73	1.4159	0.001 049 6	464.03	1.4156	**110**
115	0.001 054 3	484.58	1.4711	0.001 054 1	484.87	1.4707	0.001 053 9	485.15	1.4704	**115**
120	0.001 058 8	505.76	1.5253	0.001 058 5	506.04	1.5249	0.001 058 3	506.32	1.5246	**120**
125	0.001 063 3	526.97	1.5789	0.001 063 1	527.25	1.5785	0.001 062 9	527.53	1.5782	**125**
130	0.001 068 1	548.24	1.6320	0.001 067 9	548.51	1.6316	0.001 067 6	548.78	1.6312	**130**
135	0.001 073 0	569.55	1.6845	0.001 072 8	569.81	1.6841	0.001 072 5	570.08	1.6837	**135**
140	0.001 078 1	590.91	1.7365	0.001 077 9	591.17	1.7361	0.001 077 6	591.43	1.7357	**140**
145	0.001 083 4	612.33	1.7881	0.001 083 1	612.59	1.7877	0.001 082 8	612.84	1.7872	**145**
150	0.001 088 8	633.81	1.8391	0.001 088 5	634.06	1.8387	0.001 088 3	634.31	1.8383	**150**
155	0.001 094 4	655.36	1.8898	0.001 094 2	655.60	1.8893	0.001 093 9	655.84	1.8888	**155**
160	0.001 100 3	676.97	1.9399	0.001 100 0	677.20	1.9395	0.001 099 7	677.44	1.9390	**160**
165	0.001 106 3	698.65	1.9897	0.001 106 0	698.88	1.9892	0.001 105 7	699.11	1.9887	**165**
170	0.001 112 5	720.42	2.0391	0.001 112 2	720.64	2.0386	0.001 111 9	720.86	2.0381	**170**
175	0.001 119 0	742.26	2.0881	0.001 118 7	742.47	2.0876	0.001 118 4	742.69	2.0871	**175**
180	0.001 125 7	764.20	2.1368	0.001 125 4	764.40	2.1363	0.001 125 0	764.61	2.1357	**180**
185	0.001 132 6	786.23	2.1852	0.001 132 3	786.42	2.1846	0.001 131 9	786.62	2.1840	**185**
190	0.001 139 8	808.37	2.2332	0.001 139 5	808.55	2.2326	0.001 139 1	808.74	2.2320	**190**
195	0.001 147 3	830.61	2.2810	0.001 146 9	830.79	2.2804	0.001 146 5	830.96	2.2798	**195**
200	0.001 155 0	852.98	2.3285	0.001 154 6	853.14	2.3279	0.001 154 2	853.31	2.3272	**200**
205	0.001 163 1	875.47	2.3758	0.001 162 7	875.62	2.3751	0.001 162 3	875.78	2.3745	**205**
210	0.001 171 5	898.10	2.4229	0.001 171 0	898.24	2.4222	0.001 170 6	898.38	2.4215	**210**
215	0.001 180 2	920.88	2.4698	0.001 179 7	921.01	2.4691	0.001 179 3	921.13	2.4684	**215**
220	0.001 189 3	943.83	2.5165	0.001 188 8	943.94	2.5158	0.001 188 3	944.05	2.5151	**220**
225	0.001 198 8	966.94	2.5632	0.001 198 3	967.04	2.5624	0.001 197 7	967.13	2.5616	**225**
230	0.001 209	990.25	2.6097	0.001 208	990.32	2.6089	0.001 208	990.40	2.6081	**230**
235	0.066 96	2807.4	6.1938	0.001 219	1013.8	2.6554	0.001 218	1013.9	2.6545	**235**
240	0.068 23	2824.6	6.2275	0.001 229	1037.5	2.7018	0.001 229	1037.6	2.7009	**240**
245	0.069 44	2840.9	6.2592	0.059 73	2818.0	6.1653	0.001 240	1061.5	2.7473	**245**
250	0.070 62	2856.5	6.2893	0.060 86	2835.3	6.1986	0.053 06	2812.1	6.1107	**250**
255	0.071 77	2871.7	6.3181	0.061 95	2851.9	6.2301	0.054 13	2830.4	6.1456	**255**
260	0.072 89	2886.4	6.3458	0.063 01	2867.8	6.2600	0.055 15	2847.8	6.1783	**260**
265	0.073 98	2900.8	6.3727	0.064 04	2883.2	6.2888	0.056 13	2864.4	6.2094	**265**
270	0.075 06	2914.8	6.3987	0.065 05	2898.1	6.3164	0.057 09	2880.4	6.2390	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**3.0 MPa** (t_{sat} = 233.86 °C)			**3.4 MPa** (t_{sat} = 240.90 °C)			**3.8 MPa** (t_{sat} = 247.33 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.076 12	2928.6	6.4239	0.066 03	2912.7	6.3432	0.058 03	2896.0	6.2675	**275**
280	0.077 16	2942.2	6.4485	0.067 00	2927.0	6.3692	0.058 94	2911.1	6.2950	**280**
285	0.078 18	2955.5	6.4725	0.067 94	2941.0	6.3944	0.059 83	2925.9	6.3216	**285**
290	0.079 19	2968.6	6.4959	0.068 88	2954.8	6.4189	0.060 70	2940.4	6.3474	**290**
295	0.080 19	2981.6	6.5188	0.069 79	2968.3	6.4428	0.061 56	2954.5	6.3724	**295**
300	0.081 18	2994.3	6.5412	0.070 70	2981.6	6.4662	0.062 40	2968.4	6.3968	**300**
310	0.083 12	3019.5	6.5847	0.072 48	3007.8	6.5114	0.064 05	2995.6	6.4438	**310**
320	0.085 02	3044.2	6.6267	0.074 21	3033.3	6.5547	0.065 66	3022.0	6.4887	**320**
330	0.086 89	3068.5	6.6673	0.075 91	3058.3	6.5966	0.067 23	3047.8	6.5319	**330**
340	0.088 74	3092.4	6.7066	0.077 59	3082.9	6.6370	0.068 77	3073.1	6.5734	**340**
350	0.090 56	3116.1	6.7449	0.079 23	3107.1	6.6762	0.070 28	3098.0	6.6137	**350**
360	0.092 35	3139.5	6.7822	0.080 86	3131.1	6.7143	0.071 77	3122.5	6.6527	**360**
370	0.094 13	3162.7	6.8186	0.082 46	3154.8	6.7515	0.073 24	3146.7	6.6906	**370**
380	0.095 90	3185.8	6.8542	0.084 05	3178.3	6.7877	0.074 68	3170.6	6.7275	**380**
390	0.097 64	3208.7	6.8891	0.085 62	3201.6	6.8232	0.076 11	3194.3	6.7635	**390**
400	0.099 38	3231.6	6.9233	0.087 17	3224.8	6.8579	0.077 53	3217.9	6.7988	**400**
410	0.101 10	3254.3	6.9568	0.088 72	3247.8	6.8919	0.078 93	3241.3	6.8333	**410**
420	0.102 81	3277.0	6.9897	0.090 25	3270.8	6.9252	0.080 33	3264.5	6.8671	**420**
430	0.104 51	3299.6	7.0221	0.091 77	3293.7	6.9580	0.081 71	3287.7	6.9003	**430**
440	0.106 20	3322.1	7.0540	0.093 28	3316.5	6.9902	0.083 08	3310.7	6.9328	**440**
450	0.107 88	3344.7	7.0853	0.094 78	3339.2	7.0219	0.084 44	3333.7	6.9649	**450**
460	0.109 56	3367.2	7.1162	0.096 28	3361.9	7.0531	0.085 79	3356.7	6.9964	**460**
470	0.111 23	3389.6	7.1467	0.097 77	3384.6	7.0838	0.087 14	3379.6	7.0274	**470**
480	0.112 89	3412.1	7.1767	0.099 25	3407.3	7.1141	0.088 48	3402.4	7.0580	**480**
490	0.114 54	3434.6	7.2063	0.100 72	3429.9	7.1440	0.089 81	3425.3	7.0881	**490**
500	0.116 19	3457.0	7.2356	0.102 19	3452.6	7.1735	0.091 14	3448.1	7.1178	**500**
510	0.117 84	3479.5	7.2645	0.103 66	3475.2	7.2026	0.092 46	3470.9	7.1471	**510**
520	0.119 48	3502.0	7.2930	0.105 12	3497.9	7.2313	0.093 78	3493.7	7.1760	**520**
530	0.121 11	3524.5	7.3212	0.106 57	3520.5	7.2597	0.095 09	3516.5	7.2046	**530**
540	0.122 74	3547.0	7.3491	0.108 02	3543.2	7.2877	0.096 40	3539.3	7.2328	**540**
550	0.124 37	3569.6	7.3767	0.109 47	3565.9	7.3154	0.097 70	3562.1	7.2607	**550**
560	0.125 99	3592.2	7.4039	0.110 91	3588.6	7.3429	0.099 00	3584.9	7.2882	**560**
570	0.127 61	3614.8	7.4309	0.112 35	3611.3	7.3700	0.100 29	3607.8	7.3155	**570**
580	0.129 22	3637.4	7.4576	0.113 78	3634.0	7.3968	0.101 59	3630.6	7.3424	**580**
590	0.130 84	3660.1	7.4840	0.115 21	3656.8	7.4233	0.102 88	3653.5	7.3691	**590**
600	0.132 44	3682.8	7.5102	0.116 64	3679.6	7.4496	0.104 16	3676.4	7.3955	**600**
610	0.134 05	3705.6	7.5361	0.118 07	3702.5	7.4756	0.105 44	3699.4	7.4216	**610**
620	0.135 65	3728.4	7.5617	0.119 49	3725.4	7.5014	0.106 72	3722.4	7.4475	**620**
630	0.137 26	3751.2	7.5872	0.120 91	3748.3	7.5269	0.108 00	3745.4	7.4731	**630**
640	0.138 85	3774.1	7.6124	0.122 33	3771.3	7.5522	0.109 28	3768.4	7.4985	**640**
650	0.140 45	3797.0	7.6373	0.123 74	3794.3	7.5773	0.110 55	3791.5	7.5237	**650**
660	0.142 05	3820.0	7.6621	0.125 15	3817.3	7.6021	0.111 82	3814.7	7.5486	**660**
670	0.143 64	3843.0	7.6866	0.126 57	3840.4	7.6267	0.113 09	3837.8	7.5733	**670**
680	0.145 23	3866.1	7.7109	0.127 98	3863.5	7.6511	0.114 36	3861.0	7.5978	**680**
690	0.146 82	3889.2	7.7351	0.129 38	3886.7	7.6753	0.115 62	3884.3	7.6220	**690**
700	0.148 40	3912.3	7.7590	0.130 79	3910.0	7.6993	0.116 88	3907.6	7.6461	**700**
710	0.149 99	3935.6	7.7828	0.132 19	3933.3	7.7232	0.118 14	3930.9	7.6700	**710**
720	0.151 57	3958.8	7.8063	0.133 60	3956.6	7.7468	0.119 40	3954.3	7.6937	**720**
730	0.153 15	3982.2	7.8297	0.135 00	3980.0	7.7702	0.120 66	3977.8	7.7172	**730**
740	0.154 73	4005.6	7.8529	0.136 40	4003.4	7.7935	0.121 92	4001.3	7.7405	**740**
750	0.156 31	4029.0	7.8759	0.137 79	4026.9	7.8165	0.123 17	4024.8	7.7636	**750**
760	0.157 89	4052.5	7.8987	0.139 19	4050.5	7.8394	0.124 43	4048.4	7.7865	**760**
770	0.159 47	4076.0	7.9214	0.140 59	4074.1	7.8622	0.125 68	4072.1	7.8093	**770**
780	0.161 04	4099.6	7.9440	0.141 98	4097.7	7.8847	0.126 93	4095.8	7.8319	**780**
790	0.162 62	4123.3	7.9663	0.143 37	4121.4	7.9071	0.128 18	4119.6	7.8544	**790**
800	0.164 19	4147.0	7.9885	0.144 77	4145.2	7.9294	0.129 43	4143.4	7.8767	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**4.2 MPa** (t_{sat} = 253.27 °C)			**4.6 MPa** (t_{sat} = 258.78 °C)			**5.0 MPa** (t_{sat} = 263.94 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 259	1101.6	2.8232	0.001 273	1128.8	2.8736	0.001 286	1154.5	2.9207	Sat. Liq.
Sat. Vap.	0.047 33	2799.9	6.0492	0.043 06	2797.3	6.0103	0.039 45	2794.2	5.9737	Sat. Vap.
0	0.000 998 1	4.22	0.0001	0.000 997 9	4.63	0.0001	0.000 997 7	5.03	0.0001	**0**
5	0.000 998 0	25.19	0.0762	0.000 997 8	25.58		0.000 997 6	25.98	0.0761	**5**
10	0.000 998 4	46.11	0.1507	0.000 998 2	46.49	0.1507	0.000 998 0	46.88	0.1506	**10**
15	0.000 999 0	66.99	0.2238	0.000 998 8	67.38	0.2238	0.000 998 6	67.76	0.2237	**15**
20	0.000 999 9	87.86	0.2956	0.000 999 7	88.24	0.2955	0.000 999 6	88.61	0.2955	**20**
25	0.001 001 1	108.72	0.3662	0.001 000 9	109.09	0.3661	0.001 000 8	109.46	0.3660	**25**
30	0.001 002 5	129.57	0.4355	0.001 002 4	129.93	0.4354	0.001 002 2	130.29	0.4353	**30**
35	0.001 004 2	150.41	0.5037	0.001 004 0	150.77	0.5036	0.001 003 8	151.13	0.5034	**35**
40	0.001 006 0	171.25	0.5708	0.001 005 9	171.61	0.5706	0.001 005 7	171.96	0.5705	**40**
45	0.001 008 1	192.10	0.6368	0.001 007 9	192.45	0.6367	0.001 007 7	192.80	0.6365	**45**
50	0.001 010 3	212.95	0.7019	0.001 010 1	213.29	0.7017	0.001 009 9	213.63	0.7015	**50**
55	0.001 012 7	233.80	0.7659	0.001 012 5	234.14	0.7657	0.001 012 3	234.48	0.7655	**55**
60	0.001 015 2	254.66	0.8290	0.001 015 1	255.00	0.8288	0.001 014 9	255.33	0.8286	**60**
65	0.001 018 0	275.54	0.8912	0.001 017 8	275.87	0.8910	0.001 017 6	276.20	0.8907	**65**
70	0.001 020 9	296.43	0.9525	0.001 020 7	296.75	0.9523	0.001 020 5	297.08	0.9520	**70**
75	0.001 023 9	317.33	1.0130	0.001 023 7	317.65	1.0127	0.001 023 5	317.98	1.0125	**75**
80	0.001 027 1	338.25	1.0727	0.001 026 9	338.57	1.0724	0.001 026 7	338.89	1.0721	**80**
85	0.001 030 4	359.20	1.1316	0.001 030 2	359.51	1.1313	0.001 030 1	359.83	1.1310	**85**
90	0.001 033 9	380.17	1.1897	0.001 033 7	380.48	1.1894	0.001 033 5	380.78	1.1891	**90**
95	0.001 037 6	401.16	1.2471	0.001 037 4	401.46	1.2468	0.001 037 2	401.77	1.2465	**95**
100	0.001 041 4	422.18	1.3038	0.001 041 2	422.48	1.3035	0.001 041 0	422.78	1.3032	**100**
105	0.001 045 3	443.23	1.3599	0.001 045 1	443.53	1.3595	0.001 044 9	443.83	1.3592	**105**
110	0.001 049 4	464.32	1.4153	0.001 049 2	464.61	1.4149	0.001 049 0	464.90	1.4146	**110**
115	0.001 053 7	485.44	1.4700	0.001 053 5	485.73	1.4697	0.001 053 3	486.01	1.4693	**115**
120	0.001 058 1	506.60	1.5242	0.001 057 9	506.88	1.5238	0.001 057 7	507.17	1.5235	**120**
125	0.001 062 7	527.80	1.5778	0.001 062 4	528.08	1.5774	0.001 062 2	528.36	1.5770	**125**
130	0.001 067 4	549.05	1.6308	0.001 067 2	549.32	1.6304	0.001 066 9	549.60	1.6301	**130**
135	0.001 072 3	570.35	1.6833	0.001 072 0	570.61	1.6829	0.001 071 8	570.88	1.6825	**135**
140	0.001 077 4	591.69	1.7353	0.001 077 1	591.96	1.7349	0.001 076 9	592.22	1.7345	**140**
145	0.001 082 6	613.10	1.7868	0.001 082 3	613.35	1.7864	0.001 082 1	613.61	1.7859	**145**
150	0.001 088 0	634.56	1.8378	0.001 087 7	634.81	1.8374	0.001 087 5	635.06	1.8369	**150**
155	0.001 093 6	656.08	1.8884	0.001 093 3	656.32	1.8879	0.001 093 1	656.57	1.8875	**155**
160	0.001 099 4	677.67	1.9385	0.001 099 1	677.91	1.9380	0.001 098 8	678.14	1.9376	**160**
165	0.001 105 4	699.34	1.9882	0.001 105 1	699.56	1.9878	0.001 104 8	699.79	1.9873	**165**
170	0.001 111 6	721.08	2.0376	0.001 111 3	721.30	2.0371	0.001 111 0	721.52	2.0366	**170**
175	0.001 118 0	742.90	2.0866	0.001 117 7	743.11	2.0860	0.001 117 4	743.33	2.0855	**175**
180	0.001 124 7	764.81	2.1352	0.001 124 4	765.01	2.1346	0.001 124 0	765.22	2.1341	**180**
185	0.001 131 6	786.82	2.1835	0.001 131 2	787.01	2.1829	0.001 130 9	787.21	2.1823	**185**
190	0.001 138 7	808.92	2.2315	0.001 138 4	809.11	2.2309	0.001 138 0	809.29	2.2303	**190**
195	0.001 146 1	831.14	2.2792	0.001 145 8	831.31	2.2786	0.001 145 4	831.49	2.2780	**195**
200	0.001 153 8	853.47	2.3266	0.001 153 4	853.63	2.3260	0.001 153 0	853.80	2.3254	**200**
205	0.001 161 8	875.93	2.3738	0.001 161 4	876.08	2.3732	0.001 161 0	876.24	2.3725	**205**
210	0.001 170 1	898.52	2.4208	0.001 169 7	898.66	2.4202	0.001 169 3	898.80	2.4195	**210**
215	0.001 178 8	921.26	2.4677	0.001 178 3	921.39	2.4670	0.001 177 9	921.52	2.4663	**215**
220	0.001 187 8	944.16	2.5143	0.001 187 3	944.27	2.5136	0.001 186 8	944.38	2.5129	**220**
225	0.001 197 2	967.23	2.5609	0.001 196 7	967.32	2.5601	0.001 196 2	967.42	2.5593	**225**
230	0.001 207	990.48	2.6073	0.001 206	990.56	2.6065	0.001 206	990.64	2.6057	**230**
235	0.001 217	1013.9	2.6537	0.001 217	1014.0	2.6529	0.001 216	1014.1	2.6520	**235**
240	0.001 228	1037.6	2.7000	0.001 227	1037.6	2.6992	0.001 227	1037.7	2.6983	**240**
245	0.001 239	1061.5	2.7464	0.001 239	1061.5	2.7455	0.001 238	1061.5	2.7446	**245**
250	0.001 251	1085.7	2.7928	0.001 251	1085.7	2.7919	0.001 250	1085.7	2.7909	**250**
255	0.047 70	2806.9	6.0625	0.001 263	1110.1	2.8383	0.001 262	1110.1	2.8373	**255**
260	0.048 71	2826.1	6.0989	0.043 30	2802.5	6.0200	0.001 275	1134.8	2.8839	**260**
265	0.049 67	2844.3	6.1328	0.044 27	2822.6	6.0576	0.039 65	2798.9	5.9823	**265**
270	0.050 60	2861.7	6.1649	0.045 18	2841.5	6.0926	0.040 57	2819.8	6.0211	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**4.2 MPa** (t_{sat} = 253.27 °C)			**4.6 MPa** (t_{sat} = 258.78 °C)			**5.0 MPa** (t_{sat} = 263.94 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.051 50	2878.3	6.1954	0.046 06	2859.5	6.1256	0.041 44	2839.5	6.0571	**275**
280	0.052 37	2894.4	6.2246	0.046 91	2876.8	6.1569	0.042 27	2858.1	6.0909	**280**
285	0.053 22	2910.1	6.2528	0.047 73	2893.4	6.1869	0.043 08	2875.9	6.1229	**285**
290	0.054 05	2925.3	6.2800	0.048 53	2909.5	6.2156	0.043 86	2893.0	6.1535	**290**
295	0.054 87	2940.2	6.3063	0.049 31	2925.2	6.2433	0.044 61	2909.6	6.1828	**295**
300	0.055 66	2954.7	6.3318	0.050 07	2940.5	6.2701	0.045 35	2925.6	6.2109	**300**
310	0.057 22	2983.0	6.3808	0.051 55	2970.0	6.3212	0.046 77	2956.6	6.2645	**310**
320	0.058 72	3010.4	6.4273	0.052 97	2998.5	6.3696	0.048 13	2986.2	6.3148	**320**
330	0.060 19	3037.1	6.4719	0.054 36	3026.1	6.4157	0.049 45	3014.7	6.3625	**330**
340	0.061 62	3063.1	6.5147	0.055 71	3052.9	6.4598	0.050 73	3042.4	6.4080	**340**
350	0.063 03	3088.6	6.5560	0.057 02	3079.1	6.5021	0.051 97	3069.3	6.4515	**350**
360	0.064 40	3113.7	6.5959	0.058 31	3104.7	6.5430	0.053 19	3095.6	6.4934	**360**
370	0.065 76	3138.4	6.6346	0.059 58	3130.0	6.5826	0.054 38	3121.4	6.5339	**370**
380	0.067 10	3162.8	6.6722	0.060 83	3154.9	6.6210	0.055 55	3146.8	6.5731	**380**
390	0.068 42	3186.9	6.7089	0.062 05	3179.5	6.6583	0.056 70	3171.9	6.6111	**390**
400	0.069 72	3210.9	6.7447	0.063 27	3203.8	6.6947	0.057 84	3196.6	6.6481	**400**
410	0.071 01	3234.6	6.7797	0.064 46	3227.9	6.7303	0.058 96	3221.1	6.6842	**410**
420	0.072 29	3258.2	6.8140	0.065 65	3251.8	6.7650	0.060 07	3245.3	6.7194	**420**
430	0.073 56	3281.6	6.8476	0.066 82	3275.5	6.7990	0.061 16	3269.4	6.7539	**430**
440	0.074 82	3305.0	6.8805	0.067 99	3299.1	6.8324	0.062 25	3293.3	6.7877	**440**
450	0.076 06	3328.2	6.9129	0.069 14	3322.7	6.8651	0.063 32	3317.0	6.8208	**450**
460	0.077 30	3351.4	6.9447	0.070 29	3346.1	6.8973	0.064 39	3340.7	6.8532	**460**
470	0.078 53	3374.5	6.9761	0.071 42	3369.4	6.9289	0.065 45	3364.2	6.8851	**470**
480	0.079 76	3397.6	7.0069	0.072 55	3392.7	6.9600	0.066 50	3387.7	6.9165	**480**
490	0.080 98	3420.6	7.0372	0.073 68	3415.9	6.9906	0.067 54	3411.1	6.9474	**490**
500	0.082 19	3443.6	7.0672	0.074 80	3439.0	7.0208	0.068 58	3434.5	6.9778	**500**
510	0.083 40	3466.5	7.0967	0.075 91	3462.2	7.0505	0.069 62	3457.8	7.0078	**510**
520	0.084 60	3489.5	7.1258	0.077 01	3485.3	7.0798	0.070 64	3481.1	7.0373	**520**
530	0.085 79	3512.4	7.1546	0.078 12	3508.4	7.1087	0.071 66	3504.3	7.0664	**530**
540	0.086 99	3535.4	7.1830	0.079 21	3531.5	7.1373	0.072 68	3527.5	7.0952	**540**
550	0.088 17	3558.3	7.2110	0.080 30	3554.6	7.1655	0.073 69	3550.8	7.1235	**550**
560	0.089 36	3581.3	7.2387	0.081 39	3577.6	7.1934	0.074 70	3574.0	7.1516	**560**
570	0.090 54	3604.2	7.2661	0.082 48	3600.7	7.2209	0.075 71	3597.2	7.1793	**570**
580	0.091 72	3627.2	7.2932	0.083 56	3623.8	7.2482	0.076 71	3620.4	7.2066	**580**
590	0.092 89	3650.2	7.3200	0.084 64	3646.9	7.2751	0.077 71	3643.6	7.2337	**590**
600	0.094 06	3673.2	7.3465	0.085 71	3670.0	7.3017	0.078 70	3666.8	7.2604	**600**
610	0.095 23	3696.3	7.3728	0.086 79	3693.2	7.3281	0.079 69	3690.1	7.2869	**610**
620	0.096 39	3719.4	7.3987	0.087 85	3716.4	7.3542	0.080 68	3713.3	7.3131	**620**
630	0.097 55	3742.5	7.4245	0.088 92	3739.6	7.3800	0.081 67	3736.6	7.3390	**630**
640	0.098 71	3765.6	7.4499	0.089 99	3762.8	7.4056	0.082 65	3759.9	7.3647	**640**
650	0.099 87	3788.8	7.4752	0.091 05	3786.0	7.4309	0.083 64	3783.3	7.3901	**650**
660	0.101 03	3812.0	7.5002	0.092 11	3809.3	7.4560	0.084 62	3806.6	7.4153	**660**
670	0.102 18	3835.2	7.5250	0.093 16	3832.6	7.4809	0.085 59	3830.0	7.4402	**670**
680	0.103 33	3858.5	7.5495	0.094 22	3856.0	7.5055	0.086 57	3853.5	7.4650	**680**
690	0.104 48	3881.9	7.5739	0.095 27	3879.4	7.5299	0.087 54	3876.9	7.4894	**690**
700	0.105 63	3905.2	7.5980	0.096 33	3902.8	7.5541	0.088 51	3900.5	7.5137	**700**
710	0.106 77	3928.6	7.6220	0.097 38	3926.3	7.5781	0.089 48	3924.0	7.5378	**710**
720	0.107 92	3952.1	7.6457	0.098 43	3949.8	7.6019	0.090 45	3947.6	7.5617	**720**
730	0.109 06	3975.6	7.6692	0.099 47	3973.4	7.6255	0.091 42	3971.2	7.5853	**730**
740	0.110 20	3999.2	7.6926	0.100 52	3997.0	7.6490	0.092 39	3994.9	7.6088	**740**
750	0.111 34	4022.8	7.7158	0.101 56	4020.7	7.6722	0.093 35	4018.6	7.6321	**750**
760	0.112 48	4046.4	7.7388	0.102 61	4044.4	7.6953	0.094 31	4042.4	7.6552	**760**
770	0.113 61	4070.1	7.7616	0.103 65	4068.1	7.7181	0.095 27	4066.2	7.6781	**770**
780	0.114 75	4093.9	7.7843	0.104 69	4091.9	7.7409	0.096 23	4090.0	7.7009	**780**
790	0.115 89	4117.7	7.8068	0.105 73	4115.8	7.7634	0.097 19	4113.9	7.7235	**790**
800	0.117 02	4141.5	7.8291	0.106 77	4139.7	7.7858	0.098 15	4137.9	7.7459	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**5.5 MPa** (t_{sat} = 269.97 °C)			**6.0 MPa** (t_{sat} = 275.59 °C)			**6.5 MPa** (t_{sat} = 280.86 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 303	1184.9	2.9759	0.001 319	1213.7	3.0274	0.001 336	1241.2	3.0760	Sat. Liq.
Sat. Vap.	0.035 64	2789.7	5.9307	0.032 45	2784.6	5.8901	0.029 73	2778.8	5.8515	Sat. Vap.
0	0.000 997 4	5.54	0.0002	0.000 997 2	6.04	0.0002	0.000 996 9	6.55	0.0002	**0**
5	0.000 997 4	26.47	0.0761	0.000 997 2	26.97	0.0761	0.000 996 9	27.46	0.0761	**5**
10	0.000 997 7	47.37	0.1506	0.000 997 5	47.85	0.1505	0.000 997 3	48.34	0.1505	**10**
15	0.000 998 4	68.23	0.2236	0.000 998 2	68.71	0.2235	0.000 997 9	69.18	0.2235	**15**
20	0.000 999 3	89.08	0.2953	0.000 999 1	89.55	0.2952	0.000 998 9	90.02	0.2951	**20**
25	0.001 000 5	109.92	0.3658	0.001 000 3	110.38	0.3657	0.001 000 1	110.84	0.3656	**25**
30	0.001 002 0	130.75	0.4351	0.001 001 7	131.20	0.4350	0.001 001 5	131.66	0.4348	**30**
35	0.001 003 6	151.58	0.5033	0.001 003 4	152.02	0.5031	0.001 003 2	152.47	0.5029	**35**
40	0.001 005 5	172.40	0.5703	0.001 005 2	172.84	0.5701	0.001 005 0	173.29	0.5699	**40**
45	0.001 007 5	193.23	0.6363	0.001 007 3	193.67	0.6361	0.001 007 1	194.10	0.6359	**45**
50	0.001 009 7	214.06	0.7013	0.001 009 5	214.49	0.7010	0.001 009 3	214.92	0.7008	**50**
55	0.001 012 1	234.90	0.7653	0.001 011 9	235.33	0.7650	0.001 011 7	235.75	0.7648	**55**
60	0.001 014 7	255.75	0.8283	0.001 014 4	256.17	0.8280	0.001 014 2	256.59	0.8278	**60**
65	0.001 017 4	276.61	0.8905	0.001 017 2	277.03	0.8902	0.001 016 9	277.44	0.8899	**65**
70	0.001 020 3	297.49	0.9517	0.001 020 0	297.90	0.9514	0.001 019 8	298.31	0.9512	**70**
75	0.001 023 3	318.38	1.0122	0.001 023 1	318.78	1.0119	0.001 022 8	319.19	1.0116	**75**
80	0.001 026 5	339.29	1.0718	0.001 026 2	339.69	1.0715	0.001 026 0	340.08	1.0712	**80**
85	0.001 029 8	360.22	1.1307	0.001 029 6	360.61	1.1303	0.001 029 3	361.00	1.1300	**85**
90	0.001 033 3	381.17	1.1888	0.001 033 1	381.56	1.1884	0.001 032 8	381.95	1.1881	**90**
95	0.001 036 9	402.15	1.2461	0.001 036 7	402.53	1.2458	0.001 036 5	402.91	1.2454	**95**
100	0.001 040 7	423.16	1.3028	0.001 040 5	423.53	1.3024	0.001 040 2	423.91	1.3020	**100**
105	0.001 044 7	444.20	1.3588	0.001 044 4	444.57	1.3584	0.001 044 2	444.94	1.3580	**105**
110	0.001 048 7	465.27	1.4142	0.001 048 5	465.63	1.4138	0.001 048 2	466.00	1.4133	**110**
115	0.001 053 0	486.37	1.4689	0.001 052 7	486.73	1.4685	0.001 052 5	487.09	1.4680	**115**
120	0.001 057 4	507.52	1.5230	0.001 057 1	507.87	1.5226	0.001 056 8	508.22	1.5221	**120**
125	0.001 061 9	528.70	1.5766	0.001 061 6	529.05	1.5761	0.001 061 4	529.40	1.5757	**125**
130	0.001 066 6	549.94	1.6296	0.001 066 3	550.28	1.6291	0.001 066 1	550.62	1.6286	**130**
135	0.001 071 5	571.21	1.6820	0.001 071 2	571.55	1.6815	0.001 070 9	571.88	1.6810	**135**
140	0.001 076 5	592.54	1.7340	0.001 076 2	592.87	1.7335	0.001 075 9	593.20	1.7329	**140**
145	0.001 081 8	613.93	1.7854	0.001 081 4	614.25	1.7849	0.001 081 1	614.56	1.7844	**145**
150	0.001 087 2	635.37	1.8364	0.001 086 8	635.68	1.8358	0.001 086 5	635.99	1.8353	**150**
155	0.001 092 7	656.87	1.8869	0.001 092 4	657.17	1.8863	0.001 092 0	657.48	1.8858	**155**
160	0.001 098 5	678.44	1.9370	0.001 098 1	678.73	1.9364	0.001 097 8	679.03	1.9358	**160**
165	0.001 104 5	700.08	1.9867	0.001 104 1	700.37	1.9861	0.001 103 7	700.65	1.9855	**165**
170	0.001 110 6	721.80	2.0359	0.001 110 2	722.07	2.0353	0.001 109 9	722.35	2.0347	**170**
175	0.001 117 0	743.59	2.0849	0.001 116 6	743.86	2.0842	0.001 116 2	744.13	2.0836	**175**
180	0.001 123 6	765.48	2.1334	0.001 123 2	765.73	2.1327	0.001 122 8	765.99	2.1321	**180**
185	0.001 130 5	787.45	2.1816	0.001 130 0	787.70	2.1810	0.001 129 6	787.95	2.1803	**185**
190	0.001 137 6	809.53	2.2296	0.001 137 1	809.76	2.2289	0.001 136 7	810.00	2.2281	**190**
195	0.001 144 9	831.71	2.2772	0.001 144 4	831.93	2.2765	0.001 144 0	832.16	2.2757	**195**
200	0.001 152 5	854.01	2.3246	0.001 152 1	854.22	2.3238	0.001 151 6	854.43	2.3230	**200**
205	0.001 160 5	876.43	2.3717	0.001 160 0	876.62	2.3709	0.001 159 4	876.82	2.3701	**205**
210	0.001 168 7	898.98	2.4186	0.001 168 2	899.16	2.4178	0.001 167 6	899.34	2.4170	**210**
215	0.001 177 3	921.68	2.4654	0.001 176 7	921.84	2.4645	0.001 176 1	922.00	2.4636	**215**
220	0.001 186 2	944.53	2.5119	0.001 185 6	944.67	2.5110	0.001 185 0	944.82	2.5101	**220**
225	0.001 195 5	967.54	2.5584	0.001 194 9	967.67	2.5574	0.001 194 2	967.79	2.5565	**225**
230	0.001 205	990.74	2.6047	0.001 205	990.84	2.6037	0.001 204	990.95	2.6027	**230**
235	0.001 215	1014.1	2.6510	0.001 215	1014.2	2.6499	0.001 214	1014.3	2.6489	**235**
240	0.001 226	1037.7	2.6972	0.001 225	1037.8	2.6961	0.001 225	1037.8	2.6950	**240**
245	0.001 237	1061.6	2.7434	0.001 236	1061.6	2.7423	0.001 236	1061.6	2.7411	**245**
250	0.001 249	1085.7	2.7897	0.001 248	1085.7	2.7885	0.001 247	1085.6	2.7873	**250**
255	0.001 261	1110.0	2.8360	0.001 260	1110.0	2.8348	0.001 259	1109.9	2.8335	**255**
260	0.001 274	1134.7	2.8825	0.001 273	1134.6	2.8812	0.001 272	1134.5	2.8799	**260**
265	0.001 288	1159.7	2.9292	0.001 287	1159.6	2.9278	0.001 286	1159.5	2.9264	**265**
270	0.035 65	2789.9	5.9309	0.001 302	1184.9	2.9747	0.001 301	1184.8	2.9732	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**5.5 MPa** (t_{sat} = 269.97 °C)			**6.0 MPa** (t_{sat} = 275.59 °C)			**6.5 MPa** (t_{sat} = 280.86 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.036 53	2812.2	5.9718	0.001 317	1210.7	3.0219	0.001 316	1210.5	3.0203	**275**
280	0.037 37	2832.9	6.0094	0.033 20	2805.2	5.9276	0.001 333	1236.6	3.0678	**280**
285	0.038 16	2852.4	6.0446	0.034 00	2827.0	5.9668	0.030 41	2799.2	5.8881	**285**
290	0.038 93	2871.1	6.0779	0.034 76	2847.5	6.0033	0.031 18	2822.0	5.9287	**290**
295	0.039 66	2888.9	6.1094	0.035 49	2866.9	6.0377	0.031 91	2843.3	5.9664	**295**
300	0.040 37	2906.2	6.1396	0.036 19	2885.5	6.0702	0.032 61	2863.5	6.0018	**300**
310	0.041 74	2939.0	6.1965	0.037 52	2920.6	6.1309	0.033 92	2901.1	6.0670	**310**
320	0.043 04	2970.2	6.2495	0.038 78	2953.5	6.1870	0.035 15	2936.1	6.1265	**320**
330	0.044 30	3000.1	6.2994	0.039 98	2984.9	6.2393	0.036 32	2969.1	6.1816	**330**
340	0.045 50	3028.9	6.3468	0.041 14	3014.9	6.2887	0.037 43	3000.5	6.2332	**340**
350	0.046 68	3056.8	6.3919	0.042 25	3043.9	6.3356	0.038 50	3030.6	6.2819	**350**
360	0.047 82	3083.9	6.4352	0.043 34	3072.0	6.3803	0.039 53	3059.6	6.3282	**360**
370	0.048 94	3110.5	6.4768	0.044 39	3099.3	6.4232	0.040 54	3087.9	6.3724	**370**
380	0.050 03	3136.6	6.5170	0.045 42	3126.1	6.4645	0.041 51	3115.4	6.4149	**380**
390	0.051 10	3162.2	6.5560	0.046 43	3152.4	6.5044	0.042 47	3142.3	6.4558	**390**
400	0.052 16	3187.5	6.5938	0.047 42	3178.2	6.5431	0.043 41	3168.7	6.4953	**400**
410	0.053 20	3212.4	6.6306	0.048 40	3203.6	6.5806	0.044 33	3194.7	6.5336	**410**
420	0.054 23	3237.1	6.6665	0.049 36	3228.8	6.6171	0.045 23	3220.3	6.5709	**420**
430	0.055 24	3261.6	6.7015	0.050 31	3253.7	6.6528	0.046 13	3245.7	6.6071	**430**
440	0.056 25	3285.8	6.7358	0.051 24	3278.3	6.6876	0.047 00	3270.7	6.6425	**440**
450	0.057 24	3309.9	6.7693	0.052 17	3302.8	6.7216	0.047 87	3295.5	6.6771	**450**
460	0.058 23	3333.9	6.8022	0.053 08	3327.0	6.7550	0.048 73	3320.1	6.7109	**460**
470	0.059 20	3357.7	6.8345	0.053 99	3351.2	6.7877	0.049 58	3344.6	6.7440	**470**
480	0.060 17	3381.5	6.8663	0.054 89	3375.2	6.8198	0.050 43	3368.9	6.7765	**480**
490	0.061 13	3405.1	6.8975	0.055 79	3399.1	6.8513	0.051 26	3393.1	6.8084	**490**
500	0.062 09	3428.7	6.9282	0.056 67	3422.9	6.8824	0.052 09	3417.1	6.8397	**500**
510	0.063 04	3452.3	6.9584	0.057 55	3446.7	6.9129	0.052 91	3441.1	6.8705	**510**
520	0.063 98	3475.7	6.9882	0.058 43	3470.4	6.9429	0.053 73	3465.0	6.9008	**520**
530	0.064 92	3499.2	7.0176	0.059 30	3494.0	6.9726	0.054 54	3488.8	6.9307	**530**
540	0.065 85	3522.6	7.0466	0.060 16	3517.6	7.0018	0.055 34	3512.6	6.9601	**540**
550	0.066 78	3546.0	7.0751	0.061 02	3541.2	7.0306	0.056 15	3536.4	6.9892	**550**
560	0.067 71	3569.4	7.1034	0.061 88	3564.7	7.0590	0.056 94	3560.1	7.0178	**560**
570	0.068 63	3592.7	7.1312	0.062 73	3588.2	7.0870	0.057 74	3583.8	7.0460	**570**
580	0.069 55	3616.1	7.1588	0.063 58	3611.8	7.1148	0.058 53	3607.4	7.0739	**580**
590	0.070 46	3639.4	7.1860	0.064 42	3635.3	7.1421	0.059 31	3631.1	7.1015	**590**
600	0.071 37	3662.8	7.2129	0.065 26	3658.8	7.1692	0.060 10	3654.7	7.1287	**600**
610	0.072 28	3686.2	7.2395	0.066 10	3682.3	7.1960	0.060 88	3678.3	7.1556	**610**
620	0.073 19	3709.6	7.2659	0.066 94	3705.8	7.2224	0.061 65	3702.0	7.1822	**620**
630	0.074 09	3733.0	7.2919	0.067 77	3729.3	7.2486	0.062 43	3725.6	7.2085	**630**
640	0.074 99	3756.4	7.3177	0.068 60	3752.8	7.2745	0.063 20	3749.2	7.2346	**640**
650	0.075 89	3779.8	7.3432	0.069 43	3776.4	7.3002	0.063 97	3772.9	7.2603	**650**
660	0.076 78	3803.3	7.3685	0.070 26	3799.9	7.3256	0.064 73	3796.6	7.2859	**660**
670	0.077 68	3826.8	7.3936	0.071 08	3823.5	7.3507	0.065 50	3820.3	7.3111	**670**
680	0.078 57	3850.3	7.4184	0.071 90	3847.1	7.3756	0.066 26	3844.0	7.3361	**680**
690	0.079 46	3873.9	7.4430	0.072 72	3870.8	7.4003	0.067 02	3867.7	7.3609	**690**
700	0.080 35	3897.5	7.4673	0.073 54	3894.5	7.4248	0.067 78	3891.5	7.3854	**700**
710	0.081 23	3921.1	7.4915	0.074 36	3918.2	7.4490	0.068 54	3915.3	7.4098	**710**
720	0.082 12	3944.8	7.5154	0.075 17	3941.9	7.4730	0.069 30	3939.1	7.4339	**720**
730	0.083 00	3968.5	7.5392	0.075 99	3965.7	7.4969	0.070 05	3962.9	7.4578	**730**
740	0.083 88	3992.2	7.5627	0.076 80	3989.5	7.5205	0.070 80	3986.8	7.4815	**740**
750	0.084 76	4016.0	7.5861	0.077 61	4013.4	7.5439	0.071 55	4010.7	7.5050	**750**
760	0.085 64	4039.8	7.6093	0.078 42	4037.3	7.5672	0.072 30	4034.7	7.5283	**760**
770	0.086 52	4063.7	7.6323	0.079 23	4061.2	7.5902	0.073 05	4058.7	7.5514	**770**
780	0.087 40	4087.6	7.6551	0.080 03	4085.2	7.6131	0.073 80	4082.8	7.5743	**780**
790	0.088 27	4111.6	7.6777	0.080 84	4109.2	7.6358	0.074 55	4106.8	7.5971	**790**
800	0.089 15	4135.6	7.7002	0.081 64	4133.3	7.6583	0.075 29	4131.0	7.6196	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**7.0 MPa** (t_{sat} = 285.83 °C)			**7.5 MPa** (t_{sat} = 290.54 °C)			**8.0 MPa** (t_{sat} = 295.01 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 352	1267.4	3.1220	0.001 368	1292.7	3.1658	0.001 385	1317.1	3.2077	Sat. Liq.
Sat. Vap.	0.027 38	2772.6	5.8146	0.025 33	2765.8	5.7792	0.023 53	2758.6	5.7448	Sat. Vap.
0	0.000 996 7	7.05	0.0002	0.000 996 4	7.56	0.0002	0.000 996 2	8.06	0.0003	**0**
5	0.000 996 7	27.96	0.0761	0.000 996 4	28.45	0.0760	0.000 996 2	28.94	0.0760	**5**
10	0.000 997 0	48.82	0.1504	0.000 996 8	49.30	0.1504	0.000 996 6	49.79	0.1503	**10**
15	0.000 997 7	69.66	0.2234	0.000 997 5	70.14	0.2233	0.000 997 3	70.61	0.2232	**15**
20	0.000 998 7	90.48	0.2950	0.000 998 4	90.95	0.2949	0.000 998 2	91.42	0.2948	**20**
25	0.000 999 9	111.30	0.3654	0.000 999 6	111.76	0.3653	0.000 999 4	112.22	0.3652	**25**
30	0.001 001 3	132.11	0.4346	0.001 001 1	132.56	0.4345	0.001 000 9	133.02	0.4343	**30**
35	0.001 003 0	152.92	0.5027	0.001 002 7	153.37	0.5026	0.001 002 5	153.81	0.5024	**35**
40	0.001 004 8	173.73	0.5697	0.001 004 6	174.17	0.5695	0.001 004 4	174.61	0.5693	**40**
45	0.001 006 8	194.54	0.6356	0.001 006 6	194.97	0.6354	0.001 006 4	195.41	0.6352	**45**
50	0.001 009 1	215.36	0.7006	0.001 008 8	215.79	0.7003	0.001 008 6	216.22	0.7001	**50**
55	0.001 011 4	236.18	0.7645	0.001 011 2	236.60	0.7643	0.001 011 0	237.03	0.7640	**55**
60	0.001 014 0	257.01	0.8275	0.001 013 8	257.43	0.8273	0.001 013 6	257.85	0.8270	**60**
65	0.001 016 7	277.86	0.8896	0.001 016 5	278.27	0.8893	0.001 016 3	278.68	0.8891	**65**
70	0.001 019 6	298.71	0.9509	0.001 019 4	299.12	0.9506	0.001 019 1	299.53	0.9503	**70**
75	0.001 022 6	319.59	1.0112	0.001 022 4	319.99	1.0109	0.001 022 2	320.40	1.0106	**75**
80	0.001 025 8	340.48	1.0708	0.001 025 6	340.88	1.0705	0.001 025 3	341.28	1.0702	**80**
85	0.001 029 1	361.40	1.1296	0.001 028 9	361.79	1.1293	0.001 028 6	362.18	1.1290	**85**
90	0.001 032 6	382.33	1.1877	0.001 032 3	382.72	1.1873	0.001 032 1	383.11	1.1870	**90**
95	0.001 036 2	403.30	1.2450	0.001 036 0	403.68	1.2447	0.001 035 7	404.06	1.2443	**95**
100	0.001 040 0	424.29	1.3017	0.001 039 7	424.66	1.3013	0.001 039 5	425.04	1.3009	**100**
105	0.001 043 9	445.31	1.3576	0.001 043 6	445.68	1.3572	0.001 043 4	446.05	1.3568	**105**
110	0.001 048 0	466.36	1.4129	0.001 047 7	466.73	1.4125	0.001 047 4	467.09	1.4121	**110**
115	0.001 052 2	487.45	1.4676	0.001 051 9	487.81	1.4672	0.001 051 7	488.17	1.4668	**115**
120	0.001 056 6	508.58	1.5217	0.001 056 3	508.93	1.5213	0.001 056 0	509.28	1.5208	**120**
125	0.001 061 1	529.75	1.5752	0.001 060 8	530.09	1.5747	0.001 060 5	530.44	1.5743	**125**
130	0.001 065 8	550.96	1.6281	0.001 065 5	551.30	1.6277	0.001 065 2	551.64	1.6272	**130**
135	0.001 070 6	572.22	1.6805	0.001 070 3	572.55	1.6801	0.001 070 0	572.88	1.6796	**135**
140	0.001 075 6	593.52	1.7324	0.001 075 3	593.85	1.7319	0.001 075 0	594.18	1.7314	**140**
145	0.001 080 8	614.88	1.7838	0.001 080 5	615.20	1.7833	0.001 080 2	615.53	1.7828	**145**
150	0.001 086 2	636.30	1.8347	0.001 085 8	636.62	1.8342	0.001 085 5	636.93	1.8337	**150**
155	0.001 091 7	657.78	1.8852	0.001 091 4	658.09	1.8846	0.001 091 0	658.39	1.8841	**155**
160	0.001 097 4	679.33	1.9352	0.001 097 1	679.62	1.9347	0.001 096 7	679.92	1.9341	**160**
165	0.001 103 4	700.94	1.9849	0.001 103 0	701.23	1.9843	0.001 102 6	701.52	1.9837	**165**
170	0.001 109 5	722.63	2.0341	0.001 109 1	722.91	2.0334	0.001 108 7	723.19	2.0328	**170**
175	0.001 115 8	744.40	2.0829	0.001 115 4	744.67	2.0823	0.001 115 0	744.94	2.0816	**175**
180	0.001 122 4	766.25	2.1314	0.001 122 0	766.51	2.1307	0.001 121 6	766.77	2.1301	**180**
185	0.001 129 2	788.19	2.1796	0.001 128 8	788.44	2.1789	0.001 128 3	788.69	2.1782	**185**
190	0.001 136 2	810.23	2.2274	0.001 135 8	810.47	2.2267	0.001 135 3	810.71	2.2260	**190**
195	0.001 143 5	832.38	2.2750	0.001 143 0	832.60	2.2742	0.001 142 6	832.83	2.2735	**195**
200	0.001 151 1	854.64	2.3223	0.001 150 6	854.85	2.3215	0.001 150 1	855.06	2.3207	**200**
205	0.001 158 9	877.01	2.3693	0.001 158 4	877.21	2.3685	0.001 157 9	877.41	2.3677	**205**
210	0.001 167 1	899.52	2.4161	0.001 166 5	899.70	2.4153	0.001 166 0	899.89	2.4145	**210**
215	0.001 175 6	922.17	2.4628	0.001 175 0	922.33	2.4619	0.001 174 4	922.50	2.4610	**215**
220	0.001 184 4	944.96	2.5092	0.001 183 8	945.11	2.5083	0.001 183 2	945.26	2.5074	**220**
225	0.001 193 6	967.92	2.5555	0.001 193 0	968.05	2.5546	0.001 192 3	968.18	2.5537	**225**
230	0.001 203	991.05	2.6018	0.001 203	991.16	2.6008	0.001 202	991.27	2.5998	**230**
235	0.001 213	1014.4	2.6479	0.001 213	1014.5	2.6469	0.001 212	1014.5	2.6458	**235**
240	0.001 224	1037.9	2.6939	0.001 223	1038.0	2.6929	0.001 222	1038.0	2.6918	**240**
245	0.001 235	1061.7	2.7400	0.001 234	1061.7	2.7389	0.001 233	1061.7	2.7378	**245**
250	0.001 246	1085.6	2.7861	0.001 245	1085.7	2.7849	0.001 245	1085.7	2.7837	**250**
255	0.001 258	1109.9	2.8323	0.001 258	1109.9	2.8310	0.001 257	1109.9	2.8298	**255**
260	0.001 271	1134.5	2.8785	0.001 270	1134.4	2.8772	0.001 269	1134.3	2.8759	**260**
265	0.001 285	1159.4	2.9250	0.001 284	1159.2	2.9236	0.001 283	1159.1	2.9222	**265**
270	0.001 299	1184.6	2.9717	0.001 298	1184.4	2.9702	0.001 297	1184.3	2.9687	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**7.0 MPa** (t_{sat} = 285.83 °C)			**7.5 MPa** (t_{sat} = 290.54 °C)			**8.0 MPa** (t_{sat} = 295.01 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 315	1210.2	3.0187	0.001 313	1210.0	3.0171	0.001 312	1209.8	3.0155	**275**
280	0.001 331	1236.3	3.0661	0.001 330	1236.1	3.0644	0.001 328	1235.8	3.0627	**280**
285	0.001 349	1263.0	3.1140	0.001 347	1262.6	3.1122	0.001 346	1262.3	3.1104	**285**
290	0.028 04	2794.0	5.8528	0.001 366	1289.7	3.1605	0.001 364	1289.3	3.1586	**290**
295	0.028 79	2817.7	5.8947	0.026 02	2789.7	5.8214	0.001 385	1317.0	3.2076	**295**
300	0.029 49	2839.8	5.9335	0.026 74	2814.3	5.8644	0.024 28	2786.4	5.7935	**300**
310	0.030 80	2880.6	6.0040	0.028 07	2858.7	5.9412	0.025 63	2835.3	5.8781	**310**
320	0.032 01	2917.9	6.0674	0.029 27	2898.6	6.0092	0.026 84	2878.4	5.9514	**320**
330	0.033 15	2952.6	6.1255	0.030 39	2935.5	6.0708	0.027 96	2917.5	6.0169	**330**
340	0.034 23	2985.5	6.1796	0.031 45	2970.0	6.1275	0.028 99	2953.9	6.0766	**340**
350	0.035 27	3016.8	6.2303	0.032 45	3002.7	6.1805	0.029 98	2988.1	6.1319	**350**
360	0.036 26	3047.0	6.2783	0.033 41	3034.0	6.2303	0.030 92	3020.6	6.1837	**360**
370	0.037 22	3076.1	6.3240	0.034 34	3064.1	6.2774	0.031 82	3051.7	6.2325	**370**
380	0.038 16	3104.4	6.3677	0.035 24	3093.2	6.3224	0.032 68	3081.8	6.2789	**380**
390	0.039 07	3132.1	6.4096	0.036 12	3121.6	6.3655	0.033 53	3110.9	6.3232	**390**
400	0.039 96	3159.1	6.4501	0.036 97	3149.3	6.4070	0.034 35	3139.3	6.3657	**400**
410	0.040 84	3185.6	6.4892	0.037 80	3176.4	6.4470	0.035 15	3167.0	6.4066	**410**
420	0.041 69	3211.8	6.5272	0.038 62	3203.1	6.4857	0.035 93	3194.2	6.4461	**420**
430	0.042 54	3237.5	6.5641	0.039 43	3229.3	6.5233	0.036 70	3220.9	6.4843	**430**
440	0.043 37	3263.0	6.6000	0.040 22	3255.2	6.5598	0.037 45	3247.3	6.5215	**440**
450	0.044 19	3288.2	6.6351	0.040 99	3280.7	6.5954	0.038 20	3273.2	6.5577	**450**
460	0.045 00	3313.1	6.6694	0.041 76	3306.1	6.6302	0.038 93	3298.9	6.5929	**460**
470	0.045 80	3337.9	6.7029	0.042 52	3331.1	6.6642	0.039 65	3324.3	6.6274	**470**
480	0.046 59	3362.5	6.7358	0.043 27	3356.0	6.6974	0.040 36	3349.5	6.6611	**480**
490	0.047 38	3386.9	6.7681	0.044 02	3380.8	6.7300	0.041 07	3374.5	6.6940	**490**
500	0.048 16	3411.3	6.7997	0.044 75	3405.3	6.7620	0.041 77	3399.4	6.7264	**500**
510	0.048 93	3435.5	6.8308	0.045 48	3429.8	6.7935	0.042 46	3424.1	6.7581	**510**
520	0.049 70	3459.6	6.8614	0.046 20	3454.1	6.8244	0.043 15	3448.6	6.7893	**520**
530	0.050 46	3483.6	6.8916	0.046 92	3478.4	6.8547	0.043 83	3473.1	6.8199	**530**
540	0.051 21	3507.6	6.9212	0.047 63	3502.6	6.8847	0.044 50	3497.5	6.8501	**540**
550	0.051 97	3531.5	6.9505	0.048 34	3526.7	6.9141	0.045 17	3521.8	6.8798	**550**
560	0.052 71	3555.4	6.9793	0.049 05	3550.7	6.9432	0.045 84	3546.0	6.9091	**560**
570	0.053 46	3579.2	7.0078	0.049 75	3574.7	6.9718	0.046 50	3570.2	6.9379	**570**
580	0.054 20	3603.1	7.0358	0.050 44	3598.7	7.0001	0.047 16	3594.3	6.9663	**580**
590	0.054 93	3626.8	7.0635	0.051 13	3622.6	7.0280	0.047 81	3618.4	6.9944	**590**
600	0.055 66	3650.6	7.0909	0.051 82	3646.5	7.0555	0.048 46	3642.4	7.0221	**600**
610	0.056 39	3674.4	7.1180	0.052 51	3670.4	7.0827	0.049 11	3666.4	7.0495	**610**
620	0.057 12	3698.1	7.1447	0.053 19	3694.3	7.1096	0.049 75	3690.5	7.0765	**620**
630	0.057 84	3721.9	7.1712	0.053 87	3718.2	7.1362	0.050 40	3714.5	7.1032	**630**
640	0.058 57	3745.6	7.1973	0.054 55	3742.0	7.1625	0.051 04	3738.4	7.1296	**640**
650	0.059 28	3769.4	7.2232	0.055 23	3765.9	7.1885	0.051 67	3762.4	7.1557	**650**
660	0.060 00	3793.2	7.2488	0.055 90	3789.8	7.2142	0.052 31	3786.4	7.1816	**660**
670	0.060 72	3817.0	7.2742	0.056 57	3813.7	7.2397	0.052 94	3810.4	7.2072	**670**
680	0.061 43	3840.8	7.2993	0.057 24	3837.6	7.2649	0.053 57	3834.4	7.2325	**680**
690	0.062 14	3864.6	7.3242	0.057 90	3861.5	7.2898	0.054 20	3858.4	7.2575	**690**
700	0.062 85	3888.5	7.3488	0.058 57	3885.4	7.3145	0.054 83	3882.4	7.2823	**700**
710	0.063 55	3912.3	7.3732	0.059 23	3909.4	7.3390	0.055 45	3906.5	7.3069	**710**
720	0.064 26	3936.2	7.3974	0.059 89	3933.4	7.3633	0.056 07	3930.5	7.3313	**720**
730	0.064 96	3960.2	7.4214	0.060 55	3957.4	7.3874	0.056 69	3954.6	7.3554	**730**
740	0.065 66	3984.1	7.4452	0.061 21	3981.4	7.4112	0.057 31	3978.7	7.3793	**740**
750	0.066 37	4008.1	7.4687	0.061 87	4005.5	7.4348	0.057 93	4002.9	7.4030	**750**
760	0.067 06	4032.2	7.4921	0.062 52	4029.6	7.4583	0.058 55	4027.0	7.4265	**760**
770	0.067 76	4056.2	7.5153	0.063 18	4053.7	7.4815	0.059 17	4051.2	7.4498	**770**
780	0.068 46	4080.3	7.5383	0.063 83	4077.9	7.5046	0.059 78	4075.5	7.4729	**780**
790	0.069 15	4104.5	7.5611	0.064 48	4102.1	7.5275	0.060 39	4099.7	7.4959	**790**
800	0.069 85	4128.6	7.5837	0.065 13	4126.3	7.5501	0.061 01	4124.0	7.5186	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**8.5 MPa** (t_{sat} = 299.27 °C)			**9.0 MPa** (t_{sat} = 303.35 °C)			**9.5 MPa** (t_{sat} = 307.25 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 401	1340.7	3.2478	0.001 418	1363.7	3.2866	0.001 435	1386.0	3.3240	Sat. Liq.
Sat. Vap.	0.021 93	2751.0	5.7115	0.020 49	2742.9	5.6790	0.019 20	2734.4	5.6472	Sat. Vap.
0	0.000 995 9	8.56	0.0003	0.000 995 7	9.06	0.0003	0.000 995 4	9.57	0.0003	**0**
5	0.000 996 0	29.43	0.0760	0.000 995 7	29.93	0.0760	0.000 995 5	30.42	0.0760	**5**
10	0.000 996 3	50.27	0.1503	0.000 996 1	50.75	0.1502	0.000 995 9	51.24	0.1501	**10**
15	0.000 997 0	71.08	0.2231	0.000 996 8	71.56	0.2230	0.000 996 6	72.03	0.2230	**15**
20	0.000 998 0	91.89	0.2947	0.000 997 8	92.35	0.2946	0.000 997 5	92.82	0.2945	**20**
25	0.000 999 2	112.68	0.3650	0.000 999 0	113.14	0.3649	0.000 998 8	113.60	0.3648	**25**
30	0.001 000 6	133.47	0.4342	0.001 000 4	133.92	0.4340	0.001 000 2	134.38	0.4339	**30**
35	0.001 002 3	154.26	0.5022	0.001 002 1	154.71	0.5020	0.001 001 9	155.15	0.5019	**35**
40	0.001 004 1	175.05	0.5691	0.001 003 9	175.49	0.5689	0.001 003 7	175.93	0.5687	**40**
45	0.001 006 2	195.85	0.6350	0.001 006 0	196.28	0.6348	0.001 005 8	196.72	0.6346	**45**
50	0.001 008 4	216.64	0.6999	0.001 008 2	217.07	0.6996	0.001 008 0	217.50	0.6994	**50**
55	0.001 010 8	237.45	0.7638	0.001 010 6	237.88	0.7635	0.001 010 4	238.30	0.7633	**55**
60	0.001 013 3	258.27	0.8267	0.001 013 1	258.69	0.8265	0.001 012 9	259.11	0.8262	**60**
65	0.001 016 0	279.10	0.8888	0.001 015 8	279.51	0.8885	0.001 015 6	279.93	0.8882	**65**
70	0.001 018 9	299.94	0.9500	0.001 018 7	300.35	0.9497	0.001 018 5	300.76	0.9494	**70**
75	0.001 021 9	320.80	1.0103	0.001 021 7	321.20	1.0100	0.001 021 5	321.61	1.0097	**75**
80	0.001 025 1	341.68	1.0699	0.001 024 9	342.08	1.0695	0.001 024 6	342.47	1.0692	**80**
85	0.001 028 4	362.58	1.1286	0.001 028 2	362.97	1.1283	0.001 027 9	363.36	1.1279	**85**
90	0.001 031 9	383.50	1.1866	0.001 031 6	383.88	1.1863	0.001 031 4	384.27	1.1859	**90**
95	0.001 035 5	404.44	1.2439	0.001 035 2	404.83	1.2436	0.001 035 0	405.21	1.2432	**95**
100	0.001 039 2	425.42	1.3005	0.001 039 0	425.79	1.3001	0.001 038 7	426.17	1.2997	**100**
105	0.001 043 1	446.42	1.3564	0.001 042 9	446.79	1.3560	0.001 042 6	447.16	1.3556	**105**
110	0.001 047 2	467.46	1.4117	0.001 046 9	467.82	1.4113	0.001 046 7	468.19	1.4109	**110**
115	0.001 051 4	488.53	1.4663	0.001 051 1	488.89	1.4659	0.001 050 9	489.25	1.4655	**115**
120	0.001 055 7	509.64	1.5204	0.001 055 5	509.99	1.5199	0.001 055 2	510.35	1.5195	**120**
125	0.001 060 2	530.79	1.5738	0.001 060 0	531.14	1.5734	0.001 059 7	531.48	1.5729	**125**
130	0.001 064 9	551.98	1.6267	0.001 064 6	552.32	1.6262	0.001 064 3	552.66	1.6258	**130**
135	0.001 069 7	573.22	1.6791	0.001 069 4	573.55	1.6786	0.001 069 1	573.89	1.6781	**135**
140	0.001 074 7	594.51	1.7309	0.001 074 4	594.83	1.7304	0.001 074 1	595.16	1.7299	**140**
145	0.001 079 9	615.85	1.7823	0.001 079 6	616.17	1.7817	0.001 079 2	616.49	1.7812	**145**
150	0.001 085 2	637.24	1.8331	0.001 084 9	637.56	1.8326	0.001 084 5	637.87	1.8320	**150**
155	0.001 090 7	658.70	1.8835	0.001 090 4	659.00	1.8830	0.001 090 0	659.31	1.8824	**155**
160	0.001 096 4	680.22	1.9335	0.001 096 0	680.52	1.9329	0.001 095 7	680.81	1.9323	**160**
165	0.001 102 3	701.81	1.9831	0.001 101 9	702.10	1.9825	0.001 101 6	702.38	1.9819	**165**
170	0.001 108 4	723.47	2.0322	0.001 108 0	723.75	2.0316	0.001 107 6	724.03	2.0310	**170**
175	0.001 114 7	745.21	2.0810	0.001 114 3	745.48	2.0804	0.001 113 9	745.75	2.0797	**175**
180	0.001 121 2	767.03	2.1294	0.001 120 8	767.29	2.1288	0.001 120 4	767.55	2.1281	**180**
185	0.001 127 9	788.94	2.1775	0.001 127 5	789.19	2.1768	0.001 127 1	789.44	2.1761	**185**
190	0.001 134 9	810.95	2.2253	0.001 134 4	811.19	2.2246	0.001 134 0	811.42	2.2239	**190**
195	0.001 142 1	833.06	2.2728	0.001 141 7	833.28	2.2720	0.001 141 2	833.51	2.2713	**195**
200	0.001 149 6	855.27	2.3200	0.001 149 1	855.49	2.3192	0.001 148 7	855.70	2.3184	**200**
205	0.001 157 4	877.61	2.3669	0.001 156 9	877.81	2.3661	0.001 156 4	878.01	2.3653	**205**
210	0.001 165 5	900.07	2.4137	0.001 164 9	900.26	2.4128	0.001 164 4	900.44	2.4120	**210**
215	0.001 173 9	922.67	2.4602	0.001 173 3	922.84	2.4593	0.001 172 8	923.01	2.4585	**215**
220	0.001 182 6	945.41	2.5065	0.001 182 0	945.57	2.5057	0.001 181 4	945.72	2.5048	**220**
225	0.001 191 7	968.31	2.5527	0.001 191 1	968.45	2.5518	0.001 190 5	968.58	2.5509	**225**
230	0.001 201	991.38	2.5988	0.001 201	991.50	2.5979	0.001 199 9	991.61	2.5969	**230**
235	0.001 211	1014.6	2.6448	0.001 210	1014.7	2.6438	0.001 210	1014.8	2.6428	**235**
240	0.001 221	1038.1	2.6907	0.001 221	1038.2	2.6897	0.001 220	1038.2	2.6886	**240**
245	0.001 232	1061.8	2.7367	0.001 232	1061.8	2.7355	0.001 231	1061.9	2.7344	**245**
250	0.001 244	1085.7	2.7826	0.001 243	1085.7	2.7814	0.001 242	1085.7	2.7802	**250**
255	0.001 256	1109.8	2.8285	0.001 255	1109.8	2.8273	0.001 254	1109.8	2.8261	**255**
260	0.001 268	1134.3	2.8746	0.001 267	1134.2	2.8733	0.001 266	1134.2	2.8720	**260**
265	0.001 282	1159.0	2.9208	0.001 281	1158.9	2.9195	0.001 279	1158.9	2.9181	**265**
270	0.001 296	1184.1	2.9673	0.001 295	1184.0	2.9658	0.001 293	1183.9	2.9644	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**8.5 MPa** (t_{sat} = 299.27 °C)			**9.0 MPa** (t_{sat} = 303.35 °C)			**9.5 MPa** (t_{sat} = 307.25 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 311	1209.6	3.0140	0.001 310	1209.4	3.0124	0.001 308	1209.3	3.0109	**275**
280	0.001 327	1235.5	3.0610	0.001 325	1235.3	3.0594	0.001 324	1235.1	3.0577	**280**
285	0.001 344	1262.0	3.1086	0.001 342	1261.6	3.1068	0.001 341	1261.3	3.1050	**285**
290	0.001 363	1288.9	3.1566	0.001 361	1288.5	3.1547	0.001 359	1288.1	3.1528	**290**
295	0.001 383	1316.5	3.2054	0.001 381	1316.0	3.2034	0.001 379	1315.5	3.2013	**295**
300	0.022 04	2755.4	5.7193	0.001 402	1344.3	3.2529	0.001 400	1343.7	3.2506	**300**
310	0.023 44	2810.0	5.8138	0.021 45	2782.6	5.7475	0.019 61	2752.4	5.6781	**310**
320	0.024 67	2856.8	5.8934	0.022 71	2833.9	5.8348	0.020 92	2809.3	5.7749	**320**
330	0.025 78	2898.7	5.9634	0.023 83	2878.9	5.9100	0.022 06	2857.9	5.8562	**330**
340	0.026 82	2937.1	6.0265	0.024 86	2919.6	5.9769	0.023 10	2901.3	5.9275	**340**
350	0.027 78	2972.9	6.0845	0.025 82	2957.2	6.0378	0.024 05	2940.9	5.9917	**350**
360	0.028 70	3006.8	6.1384	0.026 72	2992.5	6.0940	0.024 94	2977.8	6.0504	**360**
370	0.029 58	3039.0	6.1890	0.027 58	3026.0	6.1465	0.025 78	3012.6	6.1049	**370**
380	0.030 42	3070.1	6.2368	0.028 40	3058.0	6.1959	0.026 59	3045.7	6.1560	**380**
390	0.031 24	3100.0	6.2824	0.029 20	3088.9	6.2428	0.027 36	3077.5	6.2043	**390**
400	0.032 03	3129.1	6.3259	0.029 96	3118.8	6.2875	0.028 11	3108.2	6.2502	**400**
410	0.032 80	3157.5	6.3678	0.030 71	3147.8	6.3303	0.028 84	3137.9	6.2941	**410**
420	0.033 55	3185.3	6.4081	0.031 44	3176.1	6.3715	0.029 54	3166.9	6.3362	**420**
430	0.034 29	3212.5	6.4471	0.032 15	3203.9	6.4113	0.030 23	3195.2	6.3767	**430**
440	0.035 01	3239.2	6.4849	0.032 84	3231.1	6.4497	0.030 90	3222.9	6.4159	**440**
450	0.035 73	3265.6	6.5216	0.033 53	3257.9	6.4871	0.031 56	3250.2	6.4538	**450**
460	0.036 43	3291.7	6.5574	0.034 20	3284.4	6.5234	0.032 21	3277.0	6.4907	**460**
470	0.037 12	3317.4	6.5923	0.034 86	3310.5	6.5588	0.032 84	3303.5	6.5265	**470**
480	0.037 80	3343.0	6.6264	0.035 51	3336.3	6.5933	0.033 47	3329.6	6.5615	**480**
490	0.038 47	3368.3	6.6598	0.036 16	3361.9	6.6271	0.034 09	3355.5	6.5957	**490**
500	0.039 14	3393.4	6.6925	0.036 80	3387.3	6.6601	0.034 70	3381.2	6.6291	**500**
510	0.039 80	3418.3	6.7245	0.037 43	3412.5	6.6925	0.035 30	3406.7	6.6618	**510**
520	0.040 45	3443.1	6.7560	0.038 05	3437.6	6.7243	0.035 90	3431.9	6.6939	**520**
530	0.041 10	3467.8	6.7869	0.038 67	3462.5	6.7555	0.036 49	3457.1	6.7254	**530**
540	0.041 74	3492.4	6.8173	0.039 28	3487.2	6.7861	0.037 08	3482.1	6.7563	**540**
550	0.042 37	3516.9	6.8473	0.039 89	3511.9	6.8163	0.037 66	3506.9	6.7867	**550**
560	0.043 01	3541.3	6.8767	0.040 49	3536.5	6.8460	0.038 24	3531.7	6.8166	**560**
570	0.043 63	3565.6	6.9058	0.041 09	3561.0	6.8752	0.038 81	3556.4	6.8461	**570**
580	0.044 26	3589.9	6.9344	0.041 68	3585.4	6.9040	0.039 38	3581.0	6.8751	**580**
590	0.044 88	3614.1	6.9626	0.042 27	3609.8	6.9324	0.039 94	3605.5	6.9037	**590**
600	0.045 50	3638.3	6.9905	0.042 86	3634.2	6.9605	0.040 50	3630.0	6.9319	**600**
610	0.046 11	3662.5	7.0180	0.043 44	3658.5	6.9881	0.041 06	3654.4	6.9597	**610**
620	0.046 72	3686.6	7.0452	0.044 03	3682.7	7.0155	0.041 61	3678.8	6.9872	**620**
630	0.047 33	3710.7	7.0720	0.044 60	3707.0	7.0424	0.042 16	3703.2	7.0143	**630**
640	0.047 94	3734.8	7.0986	0.045 18	3731.2	7.0691	0.042 71	3727.5	7.0411	**640**
650	0.048 54	3758.9	7.1248	0.045 75	3755.4	7.0955	0.043 26	3751.9	7.0676	**650**
660	0.049 14	3783.0	7.1508	0.046 32	3779.6	7.1216	0.043 80	3776.2	7.0937	**660**
670	0.049 74	3807.1	7.1764	0.046 89	3803.8	7.1473	0.044 35	3800.5	7.1196	**670**
680	0.050 33	3831.2	7.2019	0.047 46	3828.0	7.1728	0.044 89	3824.7	7.1453	**680**
690	0.050 93	3855.3	7.2270	0.048 02	3852.2	7.1981	0.045 42	3849.0	7.1706	**690**
700	0.051 52	3879.4	7.2519	0.048 59	3876.4	7.2231	0.045 96	3873.3	7.1957	**700**
710	0.052 11	3903.5	7.2766	0.049 15	3900.6	7.2478	0.046 49	3897.6	7.2205	**710**
720	0.052 70	3927.7	7.3010	0.049 71	3924.8	7.2724	0.047 02	3921.9	7.2451	**720**
730	0.053 29	3951.8	7.3252	0.050 26	3949.0	7.2967	0.047 56	3946.2	7.2695	**730**
740	0.053 88	3976.0	7.3492	0.050 82	3973.3	7.3207	0.048 08	3970.6	7.2936	**740**
750	0.054 46	4000.2	7.3730	0.051 37	3997.6	7.3446	0.048 61	3994.9	7.3176	**750**
760	0.055 04	4024.5	7.3966	0.051 93	4021.9	7.3682	0.049 14	4019.3	7.3413	**760**
770	0.055 63	4048.7	7.4199	0.052 48	4046.2	7.3916	0.049 66	4043.7	7.3648	**770**
780	0.056 21	4073.0	7.4431	0.053 03	4070.6	7.4149	0.050 19	4068.1	7.3881	**780**
790	0.056 79	4097.3	7.4661	0.053 58	4095.0	7.4379	0.050 71	4092.6	7.4112	**790**
800	0.057 36	4121.7	7.4889	0.054 13	4119.4	7.4608	0.051 23	4117.0	7.4341	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**10 MPa** (t_{sat} = 311.00 °C)			**11 MPa** (t_{sat} = 318.08 °C)			**12 MPa** (t_{sat} = 324.68 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 453	1407.9	3.3603	0.001 489	1450.3	3.4300	0.001 526	1491.3	3.4965	Sat. Liq.
Sat. Vap.	0.018 03	2725.5	5.6159	0.015 99	2706.4	5.5545	0.014 27	2685.6	5.4941	Sat. Vap.
0	0.000 995 2	10.07	0.0003	0.000 994 7	11.07	0.0004	0.000 994 2	12.07	0.0004	**0**
5	0.000 995 2	30.91	0.0759	0.000 994 8	31.89	0.0759	0.000 994 3	32.87	0.0758	**5**
10	0.000 995 6	51.72	0.1501	0.000 995 2	52.68	0.1500	0.000 994 7	53.64	0.1499	**10**
15	0.000 996 3	72.51	0.2229	0.000 995 9	73.45	0.2227	0.000 995 4	74.40	0.2225	**15**
20	0.000 997 3	93.29	0.2944	0.000 996 9	94.22	0.2941	0.000 996 4	95.15	0.2939	**20**
25	0.000 998 5	114.06	0.3646	0.000 998 1	114.98	0.3644	0.000 997 7	115.90	0.3641	**25**
30	0.001 000 0	134.83	0.4337	0.000 999 6	135.74	0.4334	0.000 999 1	136.64	0.4331	**30**
35	0.001 001 6	155.60	0.5017	0.001 001 2	156.49	0.5013	0.001 000 8	157.39	0.5010	**35**
40	0.001 003 5	176.37	0.5685	0.001 003 1	177.26	0.5682	0.001 002 6	178.14	0.5678	**40**
45	0.001 005 5	197.15	0.6344	0.001 005 1	198.02	0.6339	0.001 004 7	198.89	0.6335	**45**
50	0.001 007 8	217.93	0.6992	0.001 007 3	218.79	0.6987	0.001 006 9	219.65	0.6983	**50**
55	0.001 010 1	238.72	0.7630	0.001 009 7	239.57	0.7625	0.001 009 3	240.42	0.7620	**55**
60	0.001 012 7	259.53	0.8259	0.001 012 2	260.36	0.8254	0.001 011 8	261.20	0.8249	**60**
65	0.001 015 4	280.34	0.8880	0.001 014 9	281.17	0.8874	0.001 014 5	281.99	0.8868	**65**
70	0.001 018 2	301.17	0.9491	0.001 017 8	301.98	0.9485	0.001 017 3	302.80	0.9479	**70**
75	0.001 021 2	322.01	1.0094	0.001 020 8	322.82	1.0088	0.001 020 3	323.62	1.0082	**75**
80	0.001 024 4	342.87	1.0689	0.001 023 9	343.67	1.0682	0.001 023 5	344.46	1.0676	**80**
85	0.001 027 7	363.75	1.1276	0.001 027 2	364.54	1.1269	0.001 026 8	365.33	1.1263	**85**
90	0.001 031 2	384.66	1.1856	0.001 030 7	385.43	1.1849	0.001 030 2	386.21	1.1842	**90**
95	0.001 034 8	405.59	1.2428	0.001 034 3	406.35	1.2421	0.001 033 8	407.12	1.2414	**95**
100	0.001 038 5	426.55	1.2994	0.001 038 0	427.30	1.2986	0.001 037 5	428.06	1.2978	**100**
105	0.001 042 4	447.54	1.3552	0.001 041 9	448.28	1.3544	0.001 041 4	449.02	1.3537	**105**
110	0.001 046 4	468.56	1.4105	0.001 045 9	469.29	1.4096	0.001 045 4	470.02	1.4088	**110**
115	0.001 050 6	489.61	1.4650	0.001 050 1	490.33	1.4642	0.001 049 5	491.05	1.4634	**115**
120	0.001 054 9	510.70	1.5190	0.001 054 4	511.41	1.5182	0.001 053 9	512.12	1.5173	**120**
125	0.001 059 4	531.83	1.5724	0.001 058 9	532.53	1.5715	0.001 058 3	533.23	1.5706	**125**
130	0.001 064 0	553.00	1.6253	0.001 063 5	553.69	1.6244	0.001 062 9	554.37	1.6234	**130**
135	0.001 068 8	574.22	1.6776	0.001 068 3	574.89	1.6766	0.001 067 7	575.57	1.6757	**135**
140	0.001 073 8	595.49	1.7294	0.001 073 2	596.15	1.7284	0.001 072 6	596.81	1.7274	**140**
145	0.001 078 9	616.81	1.7807	0.001 078 3	617.45	1.7796	0.001 077 7	618.10	1.7786	**145**
150	0.001 084 2	638.18	1.8315	0.001 083 6	638.81	1.8304	0.001 082 9	639.44	1.8294	**150**
155	0.001 089 7	659.62	1.8819	0.001 089 0	660.23	1.8807	0.001 088 4	660.85	1.8796	**155**
160	0.001 095 4	681.11	1.9318	0.001 094 7	681.71	1.9306	0.001 094 0	682.31	1.9295	**160**
165	0.001 101 2	702.67	1.9813	0.001 100 5	703.26	1.9801	0.001 099 8	703.84	1.9789	**165**
170	0.001 107 2	724.31	2.0304	0.001 106 5	724.87	2.0291	0.001 105 8	725.44	2.0279	**170**
175	0.001 113 5	746.02	2.0791	0.001 112 7	746.56	2.0778	0.001 112 0	747.11	2.0765	**175**
180	0.001 120 0	767.81	2.1274	0.001 119 2	768.34	2.1261	0.001 118 4	768.86	2.1248	**180**
185	0.001 126 6	789.69	2.1755	0.001 125 8	790.20	2.1741	0.001 125 0	790.70	2.1727	**185**
190	0.001 133 6	811.66	2.2232	0.001 132 7	812.15	2.2217	0.001 131 8	812.63	2.2204	**190**
195	0.001 140 7	833.74	2.2706	0.001 139 8	834.20	2.2691	0.001 138 9	834.66	2.2677	**195**
200	0.001 148 2	855.92	2.3177	0.001 147 2	856.35	2.3162	0.001 146 3	856.79	2.3147	**200**
205	0.001 155 9	878.21	2.3646	0.001 154 9	878.62	2.3630	0.001 153 9	879.03	2.3614	**205**
210	0.001 163 9	900.63	2.4112	0.001 162 8	901.01	2.4096	0.001 161 8	901.39	2.4080	**210**
215	0.001 172 2	923.18	2.4576	0.001 171 1	923.53	2.4559	0.001 170 0	923.88	2.4543	**215**
220	0.001 180 8	945.87	2.5039	0.001 179 7	946.19	2.5021	0.001 178 5	946.51	2.5004	**220**
225	0.001 189 8	968.72	2.5500	0.001 188 6	969.00	2.5481	0.001 187 4	969.28	2.5463	**225**
230	0.001 199 2	991.73	2.5959	0.001 197 9	991.97	2.5940	0.001 196 6	992.21	2.5921	**230**
235	0.001 209	1014.9	2.6418	0.001 208	1015.1	2.6398	0.001 206	1015.3	2.6378	**235**
240	0.001 219	1038.3	2.6876	0.001 218	1038.5	2.6855	0.001 216	1038.6	2.6834	**240**
245	0.001 230	1061.9	2.7333	0.001 228	1062.0	2.7312	0.001 227	1062.1	2.7290	**245**
250	0.001 241	1085.7	2.7791	0.001 239	1085.8	2.7768	0.001 238	1085.8	2.7745	**250**
255	0.001 253	1109.8	2.8249	0.001 251	1109.8	2.8225	0.001 249	1109.8	2.8201	**255**
260	0.001 265	1134.1	2.8708	0.001 263	1134.0	2.8682	0.001 262	1134.0	2.8657	**260**
265	0.001 278	1158.8	2.9168	0.001 276	1158.6	2.9141	0.001 274	1158.5	2.9114	**265**
270	0.001 292	1183.7	2.9629	0.001 290	1183.5	2.9601	0.001 288	1183.3	2.9573	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**10 MPa** (t_{sat} = 311.00 °C)			**11 MPa** (t_{sat} = 318.08 °C)			**12 MPa** (t_{sat} = 324.68 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 307	1209.1	3.0094	0.001 305	1208.7	3.0064	0.001 302	1208.4	3.0034	**275**
280	0.001 323	1234.8	3.0561	0.001 320	1234.4	3.0529	0.001 317	1233.9	3.0498	**280**
285	0.001 339	1261.0	3.1033	0.001 336	1260.4	3.0998	0.001 333	1259.9	3.0965	**285**
290	0.001 357	1287.7	3.1510	0.001 354	1287.0	3.1473	0.001 351	1286.3	3.1436	**290**
295	0.001 377	1315.1	3.1993	0.001 373	1314.2	3.1953	0.001 370	1313.3	3.1913	**295**
300	0.001 398	1343.1	3.2484	0.001 394	1342.0	3.2440	0.001 390	1340.9	3.2397	**300**
310	0.001 447	1401.8	3.3498	0.001 442	1400.1	3.3445	0.001 436	1398.5	3.3393	**310**
320	0.019 27	2782.7	5.7131	0.016 28	2721.1	5.5793	0.001 494	1460.3	3.4444	**320**
330	0.020 45	2835.7	5.8017	0.017 57	2786.4	5.6885	0.015 02	2728.1	5.5650	**330**
340	0.021 49	2882.1	5.8780	0.018 66	2840.4	5.7775	0.016 21	2793.5	5.6725	**340**
350	0.022 44	2924.0	5.9458	0.019 63	2887.8	5.8541	0.017 22	2848.0	5.7607	**350**
360	0.023 33	2962.6	6.0073	0.020 51	2930.5	5.9221	0.018 12	2895.9	5.8369	**360**
370	0.024 16	2998.8	6.0641	0.021 33	2969.9	5.9839	0.018 94	2939.1	5.9047	**370**
380	0.024 95	3033.1	6.1170	0.022 10	3006.8	6.0408	0.019 71	2979.1	5.9664	**380**
390	0.025 71	3065.9	6.1668	0.022 84	3041.8	6.0939	0.020 43	3016.5	6.0232	**390**
400	0.026 44	3097.4	6.2139	0.023 54	3075.1	6.1438	0.021 11	3051.9	6.0762	**400**
410	0.027 14	3127.8	6.2589	0.024 21	3107.2	6.1911	0.021 76	3085.7	6.1261	**410**
420	0.027 83	3157.5	6.3019	0.024 87	3138.1	6.2361	0.022 39	3118.2	6.1733	**420**
430	0.028 50	3186.3	6.3432	0.025 50	3168.2	6.2792	0.022 99	3149.6	6.2182	**430**
440	0.029 15	3214.6	6.3831	0.026 11	3197.6	6.3206	0.023 58	3180.1	6.2613	**440**
450	0.029 78	3242.3	6.4217	0.026 72	3226.2	6.3605	0.024 15	3209.8	6.3027	**450**
460	0.030 41	3269.5	6.4591	0.027 30	3254.3	6.3991	0.024 71	3238.8	6.3425	**460**
470	0.031 02	3296.4	6.4955	0.027 88	3282.0	6.4366	0.025 25	3267.3	6.3811	**470**
480	0.031 63	3322.9	6.5310	0.028 45	3309.2	6.4730	0.025 79	3295.2	6.4185	**480**
490	0.032 23	3349.1	6.5655	0.029 00	3336.1	6.5084	0.026 31	3322.8	6.4548	**490**
500	0.032 81	3375.1	6.5993	0.029 55	3362.6	6.5430	0.026 83	3350.0	6.4902	**500**
510	0.033 39	3400.8	6.6324	0.030 09	3388.9	6.5767	0.027 34	3376.8	6.5247	**510**
520	0.033 97	3426.3	6.6648	0.030 63	3414.9	6.6098	0.027 84	3403.4	6.5584	**520**
530	0.034 54	3451.7	6.6965	0.031 15	3440.7	6.6421	0.028 33	3429.7	6.5914	**530**
540	0.035 10	3476.9	6.7277	0.031 68	3466.4	6.6738	0.028 82	3455.8	6.6237	**540**
550	0.035 66	3501.9	6.7584	0.032 19	3491.9	6.7050	0.029 30	3481.7	6.6553	**550**
560	0.036 21	3526.9	6.7885	0.032 70	3517.2	6.7356	0.029 78	3507.4	6.6864	**560**
570	0.036 76	3551.8	6.8182	0.033 21	3542.4	6.7657	0.030 26	3533.0	6.7169	**570**
580	0.037 30	3576.5	6.8474	0.033 71	3567.5	6.7953	0.030 72	3558.4	6.7469	**580**
590	0.037 84	3601.2	6.8761	0.034 21	3592.5	6.8244	0.031 19	3583.8	6.7764	**590**
600	0.038 38	3625.8	6.9045	0.034 71	3617.5	6.8531	0.031 65	3609.0	6.8055	**600**
610	0.038 91	3650.4	6.9325	0.035 20	3642.3	6.8814	0.032 11	3634.2	6.8341	**610**
620	0.039 44	3674.9	6.9601	0.035 69	3667.1	6.9094	0.032 56	3659.2	6.8624	**620**
630	0.039 97	3699.4	6.9874	0.036 18	3691.9	6.9369	0.033 02	3684.2	6.8902	**630**
640	0.040 49	3723.9	7.0143	0.036 66	3716.6	6.9641	0.033 46	3709.2	6.9177	**640**
650	0.041 02	3748.3	7.0409	0.037 14	3741.2	6.9910	0.033 91	3734.1	6.9448	**650**
660	0.041 54	3772.7	7.0672	0.037 62	3765.8	7.0175	0.034 35	3758.9	6.9716	**660**
670	0.042 05	3797.1	7.0932	0.038 09	3790.4	7.0437	0.034 80	3783.7	6.9980	**670**
680	0.042 57	3821.5	7.1189	0.038 57	3815.0	7.0696	0.035 23	3808.5	7.0241	**680**
690	0.043 08	3845.9	7.1444	0.039 04	3839.6	7.0953	0.035 67	3833.3	7.0500	**690**
700	0.043 59	3870.3	7.1696	0.039 51	3864.2	7.1207	0.036 11	3858.0	7.0756	**700**
710	0.044 10	3894.7	7.1945	0.039 98	3888.7	7.1458	0.036 54	3882.8	7.1008	**710**
720	0.044 61	3919.0	7.2192	0.040 44	3913.3	7.1706	0.036 97	3907.5	7.1259	**720**
730	0.045 12	3943.4	7.2436	0.040 91	3937.8	7.1952	0.037 40	3932.2	7.1506	**730**
740	0.045 62	3967.9	7.2678	0.041 37	3962.4	7.2196	0.037 83	3956.9	7.1751	**740**
750	0.046 13	3992.3	7.2918	0.041 83	3987.0	7.2437	0.038 26	3981.6	7.1994	**750**
760	0.046 63	4016.7	7.3156	0.042 29	4011.6	7.2676	0.038 68	4006.4	7.2235	**760**
770	0.047 13	4041.2	7.3392	0.042 75	4036.2	7.2913	0.039 11	4031.1	7.2473	**770**
780	0.047 63	4065.7	7.3625	0.043 21	4060.8	7.3148	0.039 53	4055.9	7.2709	**780**
790	0.048 13	4090.2	7.3857	0.043 67	4085.4	7.3381	0.039 95	4080.6	7.2943	**790**
800	0.048 62	4114.7	7.4086	0.044 12	4110.1	7.3612	0.040 37	4105.4	7.3175	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**13 MPa** (t_{sat} = 330.86 °C)			**14 MPa** (t_{sat} = 336.67 °C)			**15 MPa** (t_{sat} = 342.16 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 566	1531.4	3.5606	0.001 610	1570.9	3.6230	0.001 657	1610.2	3.6844	Sat. Liq.
Sat. Vap.	0.012 79	2662.9	5.4339	0.011 49	2638.1	5.3730	0.010 34	2610.9	5.3108	Sat. Vap.
0	0.000 993 7	13.07	0.0004	0.000 993 2	14.07	0.0004	0.000 992 8	15.07	0.0004	**0**
5	0.000 993 8	33.85	0.0758	0.000 993 3	34.83	0.0757	0.000 992 9	35.81	0.0757	**5**
10	0.000 994 3	54.60	0.1497	0.000 993 8	55.56	0.1496	0.000 993 3	56.52	0.1495	**10**
15	0.000 995 0	75.35	0.2224	0.000 994 5	76.29	0.2222	0.000 994 1	77.23	0.2220	**15**
20	0.000 996 0	96.08	0.2937	0.000 995 5	97.01	0.2935	0.000 995 1	97.94	0.2932	**20**
25	0.000 997 2	116.81	0.3638	0.000 996 8	117.73	0.3636	0.000 996 4	118.64	0.3633	**25**
30	0.000 998 7	137.54	0.4328	0.000 998 3	138.45	0.4325	0.000 997 8	139.35	0.4322	**30**
35	0.001 000 4	158.28	0.5006	0.000 999 9	159.17	0.5003	0.000 999 5	160.06	0.4999	**35**
40	0.001 002 2	179.02	0.5674	0.001 001 8	179.90	0.5670	0.001 001 4	180.78	0.5666	**40**
45	0.001 004 2	199.76	0.6331	0.001 003 8	200.63	0.6327	0.001 003 4	201.50	0.6322	**45**
50	0.001 006 5	220.51	0.6978	0.001 006 0	221.37	0.6973	0.001 005 6	222.23	0.6969	**50**
55	0.001 008 8	241.27	0.7616	0.001 008 4	242.12	0.7611	0.001 008 0	242.96	0.7606	**55**
60	0.001 011 4	262.04	0.8244	0.001 010 9	262.88	0.8238	0.001 010 5	263.71	0.8233	**60**
65	0.001 014 1	282.82	0.8863	0.001 013 6	283.65	0.8857	0.001 013 2	284.47	0.8852	**65**
70	0.001 016 9	303.62	0.9473	0.001 016 5	304.43	0.9468	0.001 016 0	305.25	0.9462	**70**
75	0.001 019 9	324.43	1.0075	0.001 019 5	325.24	1.0069	0.001 019 0	326.04	1.0063	**75**
80	0.001 023 0	345.26	1.0670	0.001 022 6	346.06	1.0663	0.001 022 1	346.85	1.0657	**80**
85	0.001 026 3	366.11	1.1256	0.001 025 9	366.90	1.1249	0.001 025 4	367.68	1.1242	**85**
90	0.001 029 7	386.99	1.1835	0.001 029 3	387.76	1.1828	0.001 028 8	388.54	1.1821	**90**
95	0.001 033 3	407.89	1.2406	0.001 032 8	408.65	1.2399	0.001 032 4	409.42	1.2392	**95**
100	0.001 037 0	428.81	1.2971	0.001 036 5	429.57	1.2963	0.001 036 1	430.32	1.2956	**100**
105	0.001 040 9	449.77	1.3529	0.001 040 4	450.51	1.3521	0.001 039 9	451.25	1.3513	**105**
110	0.001 044 9	470.75	1.4080	0.001 044 4	471.49	1.4072	0.001 043 9	472.22	1.4064	**110**
115	0.001 049 0	491.77	1.4625	0.001 048 5	492.49	1.4617	0.001 048 0	493.22	1.4608	**115**
120	0.001 053 3	512.83	1.5164	0.001 052 8	513.54	1.5155	0.001 052 3	514.25	1.5147	**120**
125	0.001 057 8	533.92	1.5697	0.001 057 2	534.62	1.5688	0.001 056 7	535.32	1.5679	**125**
130	0.001 062 3	555.06	1.6225	0.001 061 8	555.75	1.6215	0.001 061 2	556.43	1.6206	**130**
135	0.001 067 1	576.24	1.6747	0.001 066 5	576.91	1.6737	0.001 065 9	577.59	1.6728	**135**
140	0.001 072 0	597.47	1.7264	0.001 071 4	598.13	1.7254	0.001 070 8	598.79	1.7244	**140**
145	0.001 077 1	618.74	1.7776	0.001 076 5	619.39	1.7765	0.001 075 9	620.04	1.7755	**145**
150	0.001 082 3	640.07	1.8283	0.001 081 7	640.71	1.8272	0.001 081 0	641.34	1.8262	**150**
155	0.001 087 7	661.46	1.8785	0.001 087 1	662.08	1.8774	0.001 086 4	662.70	1.8763	**155**
160	0.001 093 3	682.91	1.9283	0.001 092 6	683.51	1.9272	0.001 092 0	684.12	1.9261	**160**
165	0.001 099 1	704.42	1.9777	0.001 098 4	705.01	1.9765	0.001 097 7	705.60	1.9754	**165**
170	0.001 105 0	726.00	2.0267	0.001 104 3	726.57	2.0255	0.001 103 6	727.14	2.0243	**170**
175	0.001 111 2	747.66	2.0753	0.001 110 5	748.21	2.0740	0.001 109 7	748.76	2.0728	**175**
180	0.001 117 6	769.39	2.1235	0.001 116 8	769.93	2.1222	0.001 116 0	770.46	2.1209	**180**
185	0.001 124 2	791.21	2.1714	0.001 123 3	791.72	2.1701	0.001 122 5	792.24	2.1687	**185**
190	0.001 131 0	813.12	2.2190	0.001 130 1	813.61	2.2176	0.001 129 3	814.10	2.2162	**190**
195	0.001 138 0	835.12	2.2662	0.001 137 2	835.59	2.2648	0.001 136 3	836.06	2.2634	**195**
200	0.001 145 3	857.23	2.3132	0.001 144 4	857.67	2.3117	0.001 143 5	858.12	2.3102	**200**
205	0.001 152 9	879.44	2.3599	0.001 151 9	879.86	2.3583	0.001 151 0	880.28	2.3568	**205**
210	0.001 160 8	901.78	2.4064	0.001 159 8	902.17	2.4048	0.001 158 7	902.56	2.4032	**210**
215	0.001 168 9	924.24	2.4526	0.001 167 9	924.60	2.4509	0.001 166 8	924.96	2.4493	**215**
220	0.001 177 4	946.83	2.4986	0.001 176 3	947.16	2.4969	0.001 175 1	947.49	2.4952	**220**
225	0.001 186 2	969.57	2.5445	0.001 185 0	969.86	2.5427	0.001 183 8	970.16	2.5410	**225**
230	0.001 195 4	992.47	2.5903	0.001 194 1	992.72	2.5884	0.001 192 9	992.99	2.5865	**230**
235	0.001 205	1015.5	2.6359	0.001 204	1015.7	2.6339	0.001 202	1016.0	2.6320	**235**
240	0.001 215	1038.8	2.6814	0.001 213	1039.0	2.6794	0.001 212	1039.1	2.6774	**240**
245	0.001 225	1062.2	2.7269	0.001 224	1062.3	2.7247	0.001 222	1062.5	2.7226	**245**
250	0.001 236	1085.9	2.7723	0.001 235	1086.0	2.7701	0.001 233	1086.0	2.7679	**250**
255	0.001 248	1109.8	2.8177	0.001 246	1109.8	2.8154	0.001 244	1109.8	2.8131	**255**
260	0.001 260	1133.9	2.8632	0.001 258	1133.9	2.8608	0.001 256	1133.8	2.8584	**260**
265	0.001 272	1158.3	2.9088	0.001 270	1158.2	2.9062	0.001 268	1158.1	2.9037	**265**
270	0.001 286	1183.0	2.9546	0.001 283	1182.9	2.9518	0.001 281	1182.7	2.9491	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**13 MPa** (t_{sat} = 330.86 °C)			**14 MPa** (t_{sat} = 336.67 °C)			**15 MPa** (t_{sat} = 342.16 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 300	1208.1	3.0005	0.001 297	1207.8	2.9976	0.001 295	1207.6	2.9947	**275**
280	0.001 315	1233.5	3.0466	0.001 312	1233.1	3.0436	0.001 310	1232.8	3.0406	**280**
285	0.001 331	1259.4	3.0931	0.001 328	1258.9	3.0899	0.001 325	1258.4	3.0867	**285**
290	0.001 348	1285.7	3.1401	0.001 345	1285.0	3.1366	0.001 342	1284.5	3.1331	**290**
295	0.001 366	1312.5	3.1875	0.001 363	1311.7	3.1837	0.001 359	1311.0	3.1800	**295**
300	0.001 386	1339.9	3.2355	0.001 382	1339.0	3.2315	0.001 378	1338.1	3.2275	**300**
310	0.001 431	1397.0	3.3342	0.001 426	1395.6	3.3293	0.001 421	1394.2	3.3246	**310**
320	0.001 487	1458.0	3.4380	0.001 480	1455.9	3.4319	0.001 473	1453.8	3.4260	**320**
330	0.001 559	1525.2	3.5503	0.001 549	1521.8	3.5421	0.001 539	1518.6	3.5343	**330**
340	0.014 03	2738.9	5.5589	0.012 00	2672.4	5.4291	0.001 631	1592.3	3.6553	**340**
350	0.015 12	2803.6	5.6635	0.013 23	2752.9	5.5595	0.011 48	2693.0	5.4435	**350**
360	0.016 05	2858.1	5.7503	0.014 23	2816.4	5.6605	0.012 58	2769.6	5.5654	**360**
370	0.016 89	2906.1	5.8255	0.015 09	2870.4	5.7452	0.013 49	2831.4	5.6624	**370**
380	0.017 65	2949.6	5.8927	0.015 87	2918.3	5.8190	0.014 29	2884.6	5.7445	**380**
390	0.018 36	2989.9	5.9539	0.016 58	2961.8	5.8853	0.015 01	2932.1	5.8166	**390**
400	0.019 03	3027.6	6.0104	0.017 24	3002.2	5.9457	0.015 67	2975.5	5.8817	**400**
410	0.019 67	3063.4	6.0631	0.017 87	3040.2	6.0017	0.016 29	3015.9	5.9412	**410**
420	0.020 28	3097.5	6.1127	0.018 46	3076.1	6.0539	0.016 88	3053.9	5.9965	**420**
430	0.020 86	3130.4	6.1598	0.019 03	3110.5	6.1032	0.017 43	3090.0	6.0482	**430**
440	0.021 43	3162.1	6.2046	0.019 58	3143.6	6.1499	0.017 96	3124.6	6.0970	**440**
450	0.021 98	3192.9	6.2475	0.020 10	3175.6	6.1945	0.018 48	3157.8	6.1433	**450**
460	0.022 51	3222.9	6.2887	0.020 62	3206.7	6.2371	0.018 97	3190.0	6.1875	**460**
470	0.023 03	3252.3	6.3285	0.021 12	3236.9	6.2782	0.019 46	3221.3	6.2298	**470**
480	0.023 54	3281.0	6.3669	0.021 60	3266.5	6.3177	0.019 92	3251.8	6.2706	**480**
490	0.024 04	3309.3	6.4042	0.022 08	3295.6	6.3560	0.020 38	3281.6	6.3099	**490**
500	0.024 52	3337.1	6.4404	0.022 55	3324.1	6.3931	0.020 83	3310.8	6.3479	**500**
510	0.025 01	3364.6	6.4757	0.023 00	3352.1	6.4292	0.021 27	3339.5	6.3848	**510**
520	0.025 48	3391.7	6.5101	0.023 45	3379.8	6.4643	0.021 70	3367.8	6.4207	**520**
530	0.025 94	3418.5	6.5437	0.023 90	3407.2	6.4986	0.022 12	3395.7	6.4556	**530**
540	0.026 41	3445.1	6.5765	0.024 33	3434.2	6.5320	0.022 54	3423.2	6.4897	**540**
550	0.026 86	3471.4	6.6087	0.024 76	3461.0	6.5648	0.022 95	3450.5	6.5230	**550**
560	0.027 31	3497.5	6.6403	0.025 19	3487.5	6.5968	0.023 35	3477.5	6.5556	**560**
570	0.027 75	3523.5	6.6713	0.025 61	3513.9	6.6283	0.023 75	3504.2	6.5875	**570**
580	0.028 19	3549.3	6.7017	0.026 02	3540.1	6.6591	0.024 14	3530.8	6.6188	**580**
590	0.028 63	3575.0	6.7316	0.026 44	3566.1	6.6894	0.024 53	3557.1	6.6496	**590**
600	0.029 06	3600.5	6.7610	0.026 84	3591.9	6.7192	0.024 92	3583.3	6.6797	**600**
610	0.029 49	3626.0	6.7900	0.027 25	3617.7	6.7486	0.025 30	3609.4	6.7094	**610**
620	0.029 92	3651.3	6.8185	0.027 65	3643.3	6.7774	0.025 68	3635.3	6.7386	**620**
630	0.030 34	3676.6	6.8467	0.028 05	3668.8	6.8058	0.026 06	3661.1	6.7673	**630**
640	0.030 76	3701.8	6.8744	0.028 44	3694.3	6.8339	0.026 43	3686.8	6.7956	**640**
650	0.031 18	3726.9	6.9018	0.028 83	3719.7	6.8615	0.026 80	3712.4	6.8235	**650**
660	0.031 59	3752.0	6.9288	0.029 22	3745.0	6.8888	0.027 17	3737.9	6.8510	**660**
670	0.032 00	3777.0	6.9555	0.029 61	3770.2	6.9157	0.027 54	3763.4	6.8782	**670**
680	0.032 41	3802.0	6.9818	0.030 00	3795.4	6.9422	0.027 90	3788.8	6.9050	**680**
690	0.032 82	3826.9	7.0079	0.030 38	3820.6	6.9685	0.028 26	3814.2	6.9314	**690**
700	0.033 23	3851.9	7.0336	0.030 76	3845.7	6.9944	0.028 62	3839.5	6.9576	**700**
710	0.033 63	3876.8	7.0591	0.031 14	3870.8	7.0201	0.028 98	3864.8	6.9834	**710**
720	0.034 03	3901.7	7.0843	0.031 51	3895.8	7.0455	0.029 33	3890.0	7.0090	**720**
730	0.034 43	3926.6	7.1092	0.031 89	3920.9	7.0705	0.029 68	3915.2	7.0342	**730**
740	0.034 83	3951.4	7.1339	0.032 26	3945.9	7.0954	0.030 04	3940.4	7.0592	**740**
750	0.035 23	3976.3	7.1583	0.032 64	3970.9	7.1200	0.030 39	3965.6	7.0839	**750**
760	0.035 63	4001.2	7.1825	0.033 01	3995.9	7.1443	0.030 74	3990.7	7.1084	**760**
770	0.036 02	4026.0	7.2065	0.033 38	4021.0	7.1684	0.031 08	4015.9	7.1326	**770**
780	0.036 41	4050.9	7.2302	0.033 74	4046.0	7.1922	0.031 43	4041.0	7.1566	**780**
790	0.036 81	4075.8	7.2537	0.034 11	4071.0	7.2159	0.031 77	4066.2	7.1804	**790**
800	0.037 20	4100.7	7.2771	0.034 48	4096.0	7.2393	0.032 12	4091.3	7.2039	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**16 MPa** (t_{sat} = 347.36 °C)			**18 MPa** (t_{sat} = 356.99 °C)			**20 MPa** (t_{sat} = 365.75 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.001 710	1649.7	3.7457	0.001 839	1732.0	3.8717	0.002 039	1827.1	4.0154	Sat. Liq.
Sat. Vap.	0.009 308	2580.8	5.2463	0.007 499	2509.5	5.1055	0.005 858	2411.4	4.9299	Sat. Vap.
0	0.000 992 3	16.07	0.0005	0.000 991 3	18.05	0.0005	0.000 990 4	20.03	0.0005	**0**
5	0.000 992 4	36.78	0.0756	0.000 991 5	38.73	0.0755	0.000 990 6	40.67	0.0753	**5**
10	0.000 992 9	57.48	0.1494	0.000 992 0	59.40	0.1491	0.000 991 1	61.30	0.1489	**10**
15	0.000 993 6	78.18	0.2218	0.000 992 8	80.06	0.2215	0.000 991 9	81.94	0.2211	**15**
20	0.000 994 7	98.87	0.2930	0.000 993 8	100.72	0.2926	0.000 992 9	102.57	0.2921	**20**
25	0.000 995 9	119.56	0.3630	0.000 995 1	121.39	0.3625	0.000 994 2	123.21	0.3619	**25**
30	0.000 997 4	140.25	0.4318	0.000 996 5	142.06	0.4312	0.000 995 7	143.86	0.4306	**30**
35	0.000 999 1	160.95	0.4996	0.000 998 2	162.73	0.4989	0.000 997 4	164.51	0.4981	**35**
40	0.001 000 9	181.66	0.5662	0.001 000 1	183.41	0.5654	0.000 999 2	185.17	0.5646	**40**
45	0.001 003 0	202.37	0.6318	0.001 002 1	204.10	0.6310	0.001 001 3	205.83	0.6301	**45**
50	0.001 005 2	223.08	0.6964	0.001 004 3	224.80	0.6955	0.001 003 5	226.51	0.6946	**50**
55	0.001 007 5	243.81	0.7601	0.001 006 7	245.50	0.7591	0.001 005 8	247.19	0.7581	**55**
60	0.001 010 1	264.55	0.8228	0.001 009 2	266.22	0.8218	0.001 008 4	267.89	0.8207	**60**
65	0.001 012 8	285.30	0.8846	0.001 011 9	286.95	0.8835	0.001 011 0	288.60	0.8824	**65**
70	0.001 015 6	306.07	0.9456	0.001 014 7	307.70	0.9444	0.001 013 8	309.33	0.9433	**70**
75	0.001 018 6	326.85	1.0057	0.001 017 7	328.46	1.0045	0.001 016 8	330.07	1.0033	**75**
80	0.001 021 7	347.65	1.0650	0.001 020 8	349.24	1.0638	0.001 019 9	350.83	1.0625	**80**
85	0.001 024 9	368.47	1.1236	0.001 024 0	370.04	1.1223	0.001 023 1	371.62	1.1209	**85**
90	0.001 028 3	389.31	1.1814	0.001 027 4	390.87	1.1800	0.001 026 5	392.42	1.1786	**90**
95	0.001 031 9	410.18	1.2384	0.001 031 0	411.71	1.2370	0.001 030 0	413.25	1.2356	**95**
100	0.001 035 6	431.08	1.2948	0.001 034 6	432.59	1.2933	0.001 033 7	434.10	1.2918	**100**
105	0.001 039 4	452.00	1.3505	0.001 038 4	453.49	1.3490	0.001 037 4	454.98	1.3474	**105**
110	0.001 043 4	472.95	1.4056	0.001 042 4	474.42	1.4040	0.001 041 4	475.89	1.4024	**110**
115	0.001 047 5	493.94	1.4600	0.001 046 4	495.39	1.4583	0.001 045 4	496.83	1.4567	**115**
120	0.001 051 7	514.96	1.5138	0.001 050 7	516.39	1.5121	0.001 049 6	517.81	1.5104	**120**
125	0.001 056 1	536.02	1.5670	0.001 055 0	537.42	1.5652	0.001 054 0	538.82	1.5635	**125**
130	0.001 060 7	557.12	1.6197	0.001 059 6	558.50	1.6178	0.001 058 5	559.88	1.6160	**130**
135	0.001 065 4	578.26	1.6718	0.001 064 2	579.61	1.6699	0.001 063 1	580.97	1.6680	**135**
140	0.001 070 2	599.45	1.7234	0.001 069 1	600.78	1.7214	0.001 067 9	602.11	1.7195	**140**
145	0.001 075 2	620.69	1.7745	0.001 074 0	621.99	1.7725	0.001 072 8	623.29	1.7705	**145**
150	0.001 080 4	641.97	1.8251	0.001 079 2	643.25	1.8230	0.001 077 9	644.52	1.8209	**150**
155	0.001 085 8	663.32	1.8753	0.001 084 5	664.56	1.8731	0.001 083 2	665.81	1.8709	**155**
160	0.001 091 3	684.72	1.9250	0.001 090 0	685.93	1.9227	0.001 088 6	687.15	1.9205	**160**
165	0.001 097 0	706.18	1.9742	0.001 095 6	707.37	1.9719	0.001 094 3	708.55	1.9696	**165**
170	0.001 102 9	727.72	2.0231	0.001 101 5	728.86	2.0207	0.001 100 0	730.02	2.0183	**170**
175	0.001 109 0	749.32	2.0716	0.001 107 5	750.43	2.0691	0.001 106 0	751.55	2.0667	**175**
180	0.001 115 2	770.99	2.1197	0.001 113 7	772.07	2.1171	0.001 112 2	773.16	2.1146	**180**
185	0.001 121 7	792.75	2.1674	0.001 120 1	793.79	2.1648	0.001 118 6	794.84	2.1622	**185**
190	0.001 128 4	814.60	2.2148	0.001 126 8	815.59	2.2121	0.001 125 1	816.60	2.2094	**190**
195	0.001 135 4	836.53	2.2619	0.001 133 7	837.49	2.2591	0.001 132 0	838.45	2.2563	**195**
200	0.001 142 6	858.57	2.3088	0.001 140 8	859.47	2.3058	0.001 139 0	860.39	2.3030	**200**
205	0.001 150 0	880.71	2.3553	0.001 148 1	881.56	2.3523	0.001 146 3	882.43	2.3493	**205**
210	0.001 157 7	902.96	2.4016	0.001 155 8	903.76	2.3985	0.001 153 8	904.58	2.3954	**210**
215	0.001 165 7	925.33	2.4477	0.001 163 7	926.08	2.4444	0.001 161 6	926.84	2.4412	**215**
220	0.001 174 0	947.83	2.4935	0.001 171 8	948.52	2.4902	0.001 169 7	949.22	2.4868	**220**
225	0.001 182 7	970.47	2.5392	0.001 180 4	971.09	2.5357	0.001 178 1	971.73	2.5323	**225**
230	0.001 191 6	993.25	2.5847	0.001 189 2	993.81	2.5811	0.001 186 8	994.38	2.5775	**230**
235	0.001 201	1016.2	2.6301	0.001 198 4	1016.7	2.6263	0.001 195 9	1017.2	2.6226	**235**
240	0.001 211	1039.3	2.6754	0.001 208	1039.7	2.6714	0.001 205	1040.1	2.6675	**240**
245	0.001 221	1062.6	2.7206	0.001 218	1062.9	2.7164	0.001 215	1063.3	2.7124	**245**
250	0.001 231	1086.1	2.7657	0.001 228	1086.3	2.7614	0.001 225	1086.6	2.7572	**250**
255	0.001 243	1109.8	2.8108	0.001 239	1110.0	2.8063	0.001 236	1110.1	2.8019	**255**
260	0.001 254	1133.8	2.8560	0.001 251	1133.8	2.8513	0.001 247	1133.8	2.8466	**260**
265	0.001 266	1158.0	2.9012	0.001 263	1157.9	2.8962	0.001 259	1157.8	2.8914	**265**
270	0.001 279	1182.5	2.9465	0.001 275	1182.2	2.9413	0.001 271	1182.0	2.9362	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**16 MPa** (t_{sat} = 347.36 °C)			**18 MPa** (t_{sat} = 356.99 °C)			**20 MPa** (t_{sat} = 365.75 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 293	1207.3	2.9919	0.001 288	1206.9	2.9864	0.001 284	1206.5	2.9810	**275**
280	0.001 307	1232.5	3.0376	0.001 302	1231.8	3.0317	0.001 298	1231.3	3.0261	**280**
285	0.001 322	1258.0	3.0835	0.001 317	1257.1	3.0773	0.001 312	1256.4	3.0713	**285**
290	0.001 339	1283.9	3.1297	0.001 333	1282.8	3.1231	0.001 328	1281.9	3.1167	**290**
295	0.001 356	1310.3	3.1764	0.001 350	1309.0	3.1693	0.001 344	1307.8	3.1625	**295**
300	0.001 375	1337.2	3.2236	0.001 368	1335.6	3.2160	0.001 361	1334.1	3.2087	**300**
310	0.001 417	1392.9	3.3200	0.001 408	1390.6	3.3110	0.001 400	1388.4	3.3025	**310**
320	0.001 467	1451.9	3.4203	0.001 456	1448.4	3.4095	0.001 445	1445.3	3.3993	**320**
330	0.001 530	1515.7	3.5269	0.001 514	1510.4	3.5131	0.001 500	1505.8	3.5004	**330**
340	0.001 616	1587.3	3.6445	0.001 591	1578.7	3.6253	0.001 569	1571.5	3.6085	**340**
350	0.009 766	2617.0	5.3045	0.001 703	1658.7	3.7546	0.001 665	1646.0	3.7288	**350**
360	0.011 06	2715.6	5.4616	0.008 110	2566.0	5.1950	0.001 825	1740.1	3.8787	**360**
370	0.012 05	2788.3	5.5755	0.009 451	2683.7	5.3795	0.006 924	2526.5	5.1095	**370**
380	0.012 88	2848.3	5.6680	0.010 42	2764.9	5.5048	0.008 258	2659.2	5.3144	**380**
390	0.013 61	2900.5	5.7474	0.011 22	2830.2	5.6041	0.009 190	2747.2	5.4482	**390**
400	0.014 28	2947.5	5.8177	0.011 91	2886.3	5.6881	0.009 950	2816.8	5.5525	**400**
410	0.014 90	2990.6	5.8814	0.012 54	2936.3	5.7618	0.010 61	2876.1	5.6398	**410**
420	0.015 48	3030.9	5.9399	0.013 12	2981.9	5.8281	0.011 20	2928.5	5.7160	**420**
430	0.016 03	3068.9	5.9943	0.013 66	3024.2	5.8887	0.011 74	2976.2	5.7843	**430**
440	0.016 55	3105.0	6.0453	0.014 17	3064.0	5.9448	0.012 25	3020.3	5.8466	**440**
450	0.017 05	3139.6	6.0935	0.014 65	3101.7	5.9973	0.012 72	3061.5	5.9041	**450**
460	0.017 53	3173.0	6.1393	0.015 12	3137.7	6.0468	0.013 17	3100.6	5.9577	**460**
470	0.018 00	3205.3	6.1831	0.015 56	3172.3	6.0936	0.013 60	3137.8	6.0081	**470**
480	0.018 45	3236.7	6.2251	0.015 99	3205.7	6.1383	0.014 01	3173.4	6.0558	**480**
490	0.018 89	3267.3	6.2655	0.016 41	3238.1	6.1811	0.014 41	3207.9	6.1012	**490**
500	0.019 32	3297.3	6.3045	0.016 81	3269.7	6.2222	0.014 79	3241.2	6.1445	**500**
510	0.019 74	3326.7	6.3423	0.017 20	3300.5	6.2618	0.015 17	3273.6	6.1862	**510**
520	0.020 16	3355.6	6.3790	0.017 59	3330.7	6.3002	0.015 53	3305.2	6.2263	**520**
530	0.020 56	3384.1	6.4146	0.017 97	3360.4	6.3373	0.015 88	3336.1	6.2650	**530**
540	0.020 96	3412.1	6.4494	0.018 33	3389.5	6.3734	0.016 23	3366.4	6.3026	**540**
550	0.021 35	3439.8	6.4832	0.018 70	3418.3	6.4085	0.016 57	3396.2	6.3390	**550**
560	0.021 74	3467.3	6.5164	0.019 05	3446.6	6.4427	0.016 90	3425.6	6.3744	**560**
570	0.022 12	3494.4	6.5488	0.019 41	3474.6	6.4762	0.017 23	3454.5	6.4089	**570**
580	0.022 50	3521.4	6.5805	0.019 75	3502.4	6.5089	0.017 55	3483.0	6.4426	**580**
590	0.022 87	3548.1	6.6117	0.020 09	3529.8	6.5408	0.017 87	3511.3	6.4755	**590**
600	0.023 24	3574.6	6.6422	0.020 43	3557.0	6.5722	0.018 18	3539.2	6.5077	**600**
610	0.023 60	3601.0	6.6722	0.020 76	3584.1	6.6030	0.018 49	3566.9	6.5392	**610**
620	0.023 96	3627.2	6.7018	0.021 09	3610.9	6.6332	0.018 80	3594.4	6.5701	**620**
630	0.024 32	3653.3	6.7308	0.021 42	3637.5	6.6629	0.019 10	3621.6	6.6005	**630**
640	0.024 67	3679.2	6.7594	0.021 74	3664.0	6.6920	0.019 40	3648.7	6.6303	**640**
650	0.025 03	3705.1	6.7876	0.022 06	3690.4	6.7208	0.019 69	3675.6	6.6596	**650**
660	0.025 37	3730.9	6.8153	0.022 38	3716.7	6.7491	0.019 99	3702.3	6.6884	**660**
670	0.025 72	3756.6	6.8427	0.022 70	3742.8	6.7769	0.020 28	3729.0	6.7168	**670**
680	0.026 07	3782.2	6.8697	0.023 01	3768.9	6.8044	0.020 56	3755.5	6.7447	**680**
690	0.026 41	3807.8	6.8964	0.023 32	3794.8	6.8315	0.020 85	3781.9	6.7723	**690**
700	0.026 75	3833.3	6.9228	0.023 63	3820.7	6.8583	0.021 13	3808.2	6.7994	**700**
710	0.027 09	3858.7	6.9488	0.023 93	3846.6	6.8847	0.021 41	3834.4	6.8262	**710**
720	0.027 42	3884.1	6.9745	0.024 24	3872.3	6.9107	0.021 69	3860.5	6.8527	**720**
730	0.027 76	3909.5	6.9999	0.024 54	3898.1	6.9365	0.021 97	3886.6	6.8788	**730**
740	0.028 09	3934.9	7.0251	0.024 84	3923.7	6.9620	0.022 25	3912.6	6.9046	**740**
750	0.028 42	3960.2	7.0499	0.025 14	3949.4	6.9872	0.022 52	3938.5	6.9301	**750**
760	0.028 75	3985.5	7.0746	0.025 44	3975.0	7.0121	0.022 79	3964.4	6.9553	**760**
770	0.029 08	4010.8	7.0989	0.025 74	4000.6	7.0367	0.023 06	3990.3	6.9802	**770**
780	0.029 41	4036.1	7.1231	0.026 03	4026.1	7.0611	0.023 33	4016.1	7.0048	**780**
790	0.029 73	4061.3	7.1469	0.026 33	4051.7	7.0852	0.023 60	4041.9	7.0292	**790**
800	0.030 06	4086.6	7.1706	0.026 62	4077.2	7.1091	0.023 87	4067.7	7.0534	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	**22 MPa** (t_{sat} = 373.71 °C)			**24 MPa**			**26 MPa**			t (°C)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.002 750	2021.9	4.3109							Sat. Liq.
Sat. Vap.	0.003 577	2164.2	4.5308							Sat. Vap.
0	0.000 989 4	22.01	0.0005	0.000 988 5	23.98	0.0004	0.000 987 5	25.95	0.0004	**0**
5	0.000 989 6	42.61	0.0752	0.000 988 7	44.54	0.0750	0.000 987 8	46.47	0.0749	**5**
10	0.000 990 2	63.21	0.1486	0.000 989 3	65.11	0.1483	0.000 988 4	67.01	0.1480	**10**
15	0.000 991 0	83.81	0.2207	0.000 990 1	85.68	0.2203	0.000 989 3	87.55	0.2199	**15**
20	0.000 992 1	104.42	0.2916	0.000 991 2	106.26	0.2911	0.000 990 3	108.10	0.2907	**20**
25	0.000 993 3	125.03	0.3613	0.000 992 5	126.85	0.3608	0.000 991 7	128.67	0.3602	**25**
30	0.000 994 8	145.65	0.4299	0.000 994 0	147.45	0.4293	0.000 993 2	149.24	0.4287	**30**
35	0.000 996 5	166.28	0.4974	0.000 995 7	168.05	0.4967	0.000 994 9	169.83	0.4960	**35**
40	0.000 998 4	186.92	0.5639	0.000 997 6	188.67	0.5631	0.000 996 7	190.42	0.5623	**40**
45	0.001 000 4	207.56	0.6293	0.000 999 6	209.29	0.6284	0.000 998 8	211.02	0.6276	**45**
50	0.001 002 6	228.22	0.6937	0.001 001 8	229.93	0.6928	0.001 001 0	231.64	0.6919	**50**
55	0.001 005 0	248.89	0.7571	0.001 004 2	250.57	0.7562	0.001 003 3	252.26	0.7552	**55**
60	0.001 007 5	269.56	0.8197	0.001 006 7	271.23	0.8187	0.001 005 8	272.90	0.8176	**60**
65	0.001 010 2	290.25	0.8813	0.001 009 3	291.91	0.8802	0.001 008 5	293.56	0.8792	**65**
70	0.001 013 0	310.96	0.9421	0.001 012 1	312.59	0.9410	0.001 011 3	314.22	0.9398	**70**
75	0.001 015 9	331.68	1.0021	0.001 015 1	333.30	1.0009	0.001 014 2	334.91	0.9997	**75**
80	0.001 019 0	352.43	1.0612	0.001 018 1	354.02	1.0600	0.001 017 3	355.61	1.0587	**80**
85	0.001 022 2	373.19	1.1196	0.001 021 3	374.76	1.1183	0.001 020 5	376.34	1.1170	**85**
90	0.001 025 6	393.97	1.1772	0.001 024 7	395.53	1.1759	0.001 023 8	397.08	1.1745	**90**
95	0.001 029 1	414.78	1.2341	0.001 028 2	416.31	1.2327	0.001 027 2	417.85	1.2313	**95**
100	0.001 032 7	435.61	1.2904	0.001 031 8	437.13	1.2889	0.001 030 8	438.64	1.2874	**100**
105	0.001 036 5	456.47	1.3459	0.001 035 5	457.97	1.3444	0.001 034 6	459.46	1.3428	**105**
110	0.001 040 4	477.36	1.4008	0.001 039 4	478.84	1.3992	0.001 038 4	480.31	1.3976	**110**
115	0.001 044 4	498.28	1.4550	0.001 043 4	499.74	1.4534	0.001 042 4	501.19	1.4517	**115**
120	0.001 048 6	519.24	1.5087	0.001 047 6	520.67	1.5070	0.001 046 6	522.10	1.5053	**120**
125	0.001 052 9	540.23	1.5617	0.001 051 9	541.64	1.5600	0.001 050 8	543.05	1.5582	**125**
130	0.001 057 4	561.26	1.6142	0.001 056 3	562.64	1.6124	0.001 055 2	564.03	1.6106	**130**
135	0.001 062 0	582.33	1.6661	0.001 060 9	583.69	1.6643	0.001 059 8	585.05	1.6624	**135**
140	0.001 066 8	603.44	1.7175	0.001 065 6	604.78	1.7156	0.001 064 5	606.12	1.7137	**140**
145	0.001 071 7	624.60	1.7685	0.001 070 5	625.91	1.7665	0.001 069 3	627.22	1.7645	**145**
150	0.001 076 7	645.80	1.8189	0.001 075 5	647.09	1.8168	0.001 074 3	648.38	1.8148	**150**
155	0.001 082 0	667.06	1.8688	0.001 080 7	668.32	1.8667	0.001 079 5	669.58	1.8646	**155**
160	0.001 087 4	688.37	1.9183	0.001 086 1	689.60	1.9161	0.001 084 8	690.84	1.9140	**160**
165	0.001 092 9	709.75	1.9674	0.001 091 6	710.94	1.9651	0.001 090 3	712.15	1.9629	**165**
170	0.001 098 7	731.18	2.0160	0.001 097 3	732.35	2.0137	0.001 095 9	733.52	2.0114	**170**
175	0.001 105	752.68	2.0642	0.001 103	753.81	2.0618	0.001 102	754.95	2.0595	**175**
180	0.001 111	774.25	2.1121	0.001 109	775.35	2.1096	0.001 108	776.45	2.1072	**180**
185	0.001 117	795.89	2.1596	0.001 115	796.95	2.1570	0.001 114	798.02	2.1545	**185**
190	0.001 124	817.61	2.2068	0.001 122	818.64	2.2041	0.001 120	819.67	2.2015	**190**
195	0.001 130	839.42	2.2536	0.001 129	840.41	2.2509	0.001 127	841.40	2.2482	**195**
200	0.001 137	861.32	2.3001	0.001 135	862.26	2.2973	0.001 134	863.21	2.2945	**200**
205	0.001 144	883.31	2.3464	0.001 143	884.21	2.3434	0.001 141	885.11	2.3406	**205**
210	0.001 152	905.41	2.3923	0.001 150	906.26	2.3893	0.001 148	907.12	2.3863	**210**
215	0.001 160	927.62	2.4381	0.001 158	928.41	2.4349	0.001 156	929.22	2.4319	**215**
220	0.001 168	949.94	2.4836	0.001 166	950.68	2.4803	0.001 163	951.44	2.4771	**220**
225	0.001 176	972.39	2.5289	0.001 174	973.07	2.5255	0.001 172	973.77	2.5222	**225**
230	0.001 184	994.98	2.5740	0.001 182	995.59	2.5705	0.001 180	996.23	2.5671	**230**
235	0.001 193	1017.7	2.6189	0.001 191	1018.3	2.6153	0.001 189	1018.8	2.6117	**235**
240	0.001 203	1040.6	2.6637	0.001 200	1041.1	2.6600	0.001 198	1041.6	2.6563	**240**
245	0.001 212	1063.6	2.7084	0.001 210	1064.0	2.7045	0.001 207	1064.4	2.7007	**245**
250	0.001 222	1086.9	2.7530	0.001 220	1087.2	2.7490	0.001 217	1087.5	2.7449	**250**
255	0.001 233	1110.3	2.7976	0.001 230	1110.5	2.7933	0.001 227	1110.7	2.7891	**255**
260	0.001 244	1133.9	2.8421	0.001 241	1134.0	2.8376	0.001 237	1134.2	2.8333	**260**
265	0.001 255	1157.7	2.8866	0.001 252	1157.7	2.8820	0.001 249	1157.8	2.8774	**265**
270	0.001 267	1181.8	2.9312	0.001 264	1181.7	2.9263	0.001 260	1181.6	2.9215	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	22 MPa (t_{sat} = 373.71 °C)			24 MPa			26 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 280	1206.2	2.9758	0.001 276	1205.9	2.9707	0.001 272	1205.7	2.9657	**275**
280	0.001 293	1230.8	3.0205	0.001 289	1230.4	3.0151	0.001 285	1230.1	3.0099	**280**
285	0.001 307	1255.8	3.0654	0.001 303	1255.2	3.0597	0.001 298	1254.7	3.0542	**285**
290	0.001 322	1281.1	3.1105	0.001 317	1280.3	3.1045	0.001 312	1279.6	3.0987	**290**
295	0.001 338	1306.7	3.1559	0.001 333	1305.8	3.1495	0.001 327	1304.9	3.1433	**295**
300	0.001 355	1332.8	3.2016	0.001 349	1331.6	3.1948	0.001 343	1330.5	3.1882	**300**
310	0.001 392	1386.4	3.2944	0.001 385	1384.7	3.2866	0.001 378	1383.1	3.2791	**310**
320	0.001 435	1442.5	3.3896	0.001 426	1439.9	3.3805	0.001 417	1437.6	3.3718	**320**
330	0.001 487	1501.7	3.4886	0.001 475	1498.0	3.4776	0.001 464	1494.7	3.4672	**330**
340	0.001 551	1565.3	3.5933	0.001 534	1559.9	3.5794	0.001 519	1555.2	3.5667	**340**
350	0.001 635	1635.9	3.7074	0.001 610	1627.6	3.6888	0.001 588	1620.4	3.6723	**350**
360	0.001 760	1719.5	3.8404	0.001 715	1704.7	3.8116	0.001 681	1693.2	3.7880	**360**
370	0.002 029	1842.6	4.0333	0.001 891	1802.5	3.9649	0.001 818	1779.6	3.9234	**370**
380	0.006 125	2504.6	5.0556	0.002 612	2025.2	4.3076	0.002 087	1901.1	4.1107	**380**
390	0.007 377	2643.7	5.2671	0.005 613	2500.8	5.0320	0.003 552	2242.7	4.6290	**390**
400	0.008 255	2735.8	5.4050	0.006 731	2637.4	5.2366	0.005 287	2510.6	5.0304	**400**
410	0.008 970	2808.4	5.5121	0.007 540	2730.8	5.3744	0.006 256	2639.5	5.2206	**410**
420	0.009 588	2869.9	5.6015	0.008 205	2804.9	5.4821	0.006 990	2731.8	5.3548	**420**
430	0.010 14	2924.3	5.6794	0.008 781	2867.8	5.5723	0.007 602	2806.1	5.4612	**430**
440	0.010 65	2973.6	5.7491	0.009 299	2923.5	5.6509	0.008 137	2869.7	5.5510	**440**
450	0.011 12	3019.0	5.8124	0.009 774	2974.0	5.7212	0.008 619	2926.1	5.6296	**450**
460	0.011 56	3061.6	5.8708	0.010 21	3020.5	5.7852	0.009 062	2977.3	5.7000	**460**
470	0.011 98	3101.7	5.9252	0.010 63	3064.0	5.8441	0.009 474	3024.6	5.7640	**470**
480	0.012 38	3139.9	5.9763	0.011 02	3105.1	5.8990	0.009 861	3068.8	5.8231	**480**
490	0.012 77	3176.5	6.0246	0.011 39	3144.1	5.9504	0.010 23	3110.5	5.8781	**490**
500	0.013 14	3211.8	6.0704	0.011 75	3181.4	5.9991	0.010 58	3150.2	5.9298	**500**
510	0.013 49	3245.9	6.1143	0.012 10	3217.4	6.0453	0.010 91	3188.1	5.9785	**510**
520	0.013 84	3279.0	6.1563	0.012 43	3252.2	6.0894	0.011 24	3224.6	6.0249	**520**
530	0.014 18	3311.3	6.1968	0.012 75	3285.9	6.1317	0.011 55	3259.9	6.0691	**530**
540	0.014 51	3342.9	6.2358	0.013 07	3318.8	6.1723	0.011 85	3294.2	6.1115	**540**
550	0.014 83	3373.8	6.2736	0.013 38	3350.9	6.2116	0.012 14	3327.6	6.1523	**550**
560	0.015 14	3404.1	6.3103	0.013 67	3382.3	6.2496	0.012 43	3360.2	6.1917	**560**
570	0.015 45	3434.0	6.3459	0.013 97	3413.2	6.2864	0.012 71	3392.1	6.2297	**570**
580	0.015 75	3463.4	6.3806	0.014 25	3443.5	6.3222	0.012 99	3423.4	6.2666	**580**
590	0.016 05	3492.5	6.4145	0.014 54	3473.4	6.3570	0.013 25	3454.1	6.3025	**590**
600	0.016 35	3521.2	6.4475	0.014 81	3502.9	6.3910	0.013 52	3484.4	6.3374	**600**
610	0.016 64	3549.6	6.4798	0.015 09	3532.0	6.4241	0.013 78	3514.3	6.3714	**610**
620	0.016 92	3577.7	6.5115	0.015 36	3560.8	6.4565	0.014 03	3543.8	6.4046	**620**
630	0.017 20	3605.5	6.5425	0.015 62	3589.3	6.4883	0.014 28	3572.9	6.4371	**630**
640	0.017 48	3633.2	6.5730	0.015 88	3617.6	6.5194	0.014 53	3601.8	6.4688	**640**
650	0.017 76	3660.6	6.6029	0.016 14	3645.6	6.5499	0.014 77	3630.4	6.5000	**650**
660	0.018 03	3687.9	6.6322	0.016 40	3673.3	6.5798	0.015 02	3658.7	6.5305	**660**
670	0.018 30	3715.0	6.6611	0.016 65	3700.9	6.6092	0.015 25	3686.8	6.5604	**670**
680	0.018 56	3742.0	6.6896	0.016 90	3728.4	6.6381	0.015 49	3714.7	6.5899	**680**
690	0.018 83	3768.8	6.7176	0.017 15	3755.6	6.6666	0.015 72	3742.4	6.6188	**690**
700	0.019 09	3795.5	6.7451	0.017 39	3782.8	6.6946	0.015 95	3770.0	6.6473	**700**
710	0.019 35	3822.1	6.7723	0.017 63	3809.8	6.7222	0.016 18	3797.4	6.6753	**710**
720	0.019 61	3848.6	6.7992	0.017 88	3836.6	6.7494	0.016 41	3824.6	6.7029	**720**
730	0.019 87	3875.0	6.8256	0.018 12	3863.4	6.7763	0.016 63	3851.8	6.7301	**730**
740	0.020 12	3901.4	6.8518	0.018 35	3890.1	6.8027	0.016 86	3878.8	6.7569	**740**
750	0.020 38	3927.6	6.8776	0.018 59	3916.7	6.8289	0.017 08	3905.8	6.7833	**750**
760	0.020 63	3953.8	6.9031	0.018 82	3943.2	6.8547	0.017 30	3932.6	6.8094	**760**
770	0.020 88	3980.0	6.9283	0.019 06	3969.7	6.8801	0.017 52	3959.4	6.8352	**770**
780	0.021 13	4006.1	6.9532	0.019 29	3996.1	6.9053	0.017 73	3986.1	6.8607	**780**
790	0.021 37	4032.2	6.9778	0.019 52	4022.4	6.9302	0.017 95	4012.7	6.8858	**790**
800	0.021 62	4058.2	7.0022	0.019 75	4048.8	6.9549	0.018 16	4039.3	6.9107	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	28 MPa			30 MPa			32 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
0	0.000 986 6	27.91	0.0003	0.000 985 7	29.86	0.0003	0.000 984 7	31.81	0.0002	**0**
5	0.000 986 9	48.40	0.0747	0.000 986 0	50.32	0.0745	0.000 985 1	52.23	0.0743	**5**
10	0.000 987 5	68.90	0.1477	0.000 986 6	70.79	0.1474	0.000 985 8	72.67	0.1471	**10**
15	0.000 988 4	89.41	0.2196	0.000 987 5	91.27	0.2192	0.000 986 7	93.13	0.2187	**15**
20	0.000 989 5	109.94	0.2902	0.000 988 7	111.78	0.2897	0.000 987 8	113.61	0.2892	**20**
25	0.000 990 8	130.48	0.3597	0.000 990 0	132.29	0.3591	0.000 989 2	134.10	0.3585	**25**
30	0.000 992 3	151.03	0.4280	0.000 991 5	152.82	0.4274	0.000 990 7	154.60	0.4267	**30**
35	0.000 994 0	171.59	0.4953	0.000 993 2	173.36	0.4946	0.000 992 4	175.12	0.4939	**35**
40	0.000 995 9	192.17	0.5615	0.000 995 1	193.91	0.5607	0.000 994 3	195.65	0.5599	**40**
45	0.000 998 0	212.75	0.6267	0.000 997 1	214.47	0.6259	0.000 996 3	216.20	0.6250	**45**
50	0.001 000 2	233.34	0.6910	0.000 999 3	235.05	0.6900	0.000 998 5	236.75	0.6891	**50**
55	0.001 002 5	253.95	0.7542	0.001 001 7	255.64	0.7533	0.001 000 9	257.32	0.7523	**55**
60	0.001 005 0	274.57	0.8166	0.001 004 2	276.24	0.8156	0.001 003 4	277.90	0.8145	**60**
65	0.001 007 6	295.20	0.8781	0.001 006 8	296.85	0.8770	0.001 006 0	298.50	0.8759	**65**
70	0.001 010 4	315.85	0.9387	0.001 009 6	317.48	0.9376	0.001 008 7	319.11	0.9364	**70**
75	0.001 013 3	336.52	0.9985	0.001 012 5	338.13	0.9973	0.001 011 6	339.74	0.9961	**75**
80	0.001 016 4	357.20	1.0575	0.001 015 5	358.80	1.0562	0.001 014 7	360.39	1.0550	**80**
85	0.001 019 6	377.91	1.1157	0.001 018 7	379.48	1.1144	0.001 017 8	381.06	1.1131	**85**
90	0.001 022 9	398.63	1.1732	0.001 022 0	400.19	1.1718	0.001 021 1	401.74	1.1705	**90**
95	0.001 026 3	419.38	1.2299	0.001 025 4	420.92	1.2285	0.001 024 5	422.46	1.2271	**95**
100	0.001 029 9	440.16	1.2859	0.001 029 0	441.67	1.2845	0.001 028 1	443.19	1.2830	**100**
105	0.001 033 6	460.96	1.3413	0.001 032 7	462.45	1.3398	0.001 031 8	463.95	1.3383	**105**
110	0.001 037 5	481.79	1.3960	0.001 036 5	483.26	1.3945	0.001 035 6	484.74	1.3929	**110**
115	0.001 041 4	502.64	1.4501	0.001 040 5	504.10	1.4485	0.001 039 5	505.56	1.4469	**115**
120	0.001 045 6	523.53	1.5036	0.001 044 6	524.97	1.5019	0.001 043 6	526.41	1.5003	**120**
125	0.001 049 8	544.46	1.5565	0.001 048 8	545.87	1.5548	0.001 047 8	547.29	1.5531	**125**
130	0.001 054 2	565.42	1.6088	0.001 053 1	566.81	1.6070	0.001 052 1	568.20	1.6053	**130**
135	0.001 058 7	586.42	1.6606	0.001 057 6	587.79	1.6587	0.001 056 6	589.16	1.6569	**135**
140	0.001 063 4	607.46	1.7118	0.001 062 3	608.80	1.7099	0.001 061 2	610.15	1.7080	**140**
145	0.001 068 2	628.54	1.7625	0.001 067 0	629.86	1.7606	0.001 065 9	631.18	1.7586	**145**
150	0.001 073 1	649.67	1.8128	0.001 072 0	650.96	1.8107	0.001 070 8	652.26	1.8088	**150**
155	0.001 078 3	670.85	1.8625	0.001 077 0	672.11	1.8604	0.001 075 8	673.39	1.8584	**155**
160	0.001 083 5	692.07	1.9118	0.001 082 3	693.31	1.9097	0.001 081 0	694.56	1.9076	**160**
165	0.001 089 0	713.36	1.9607	0.001 087 7	714.57	1.9585	0.001 086 4	715.79	1.9563	**165**
170	0.001 094 6	734.70	2.0091	0.001 093 2	735.88	2.0068	0.001 091 9	737.07	2.0046	**170**
175	0.001 100	756.10	2.0571	0.001 099 0	757.25	2.0548	0.001 097 6	758.41	2.0525	**175**
180	0.001 106	777.56	2.1047	0.001 105	778.68	2.1023	0.001 103	779.81	2.0999	**180**
185	0.001 112	799.10	2.1520	0.001 111	800.19	2.1495	0.001 110	801.28	2.1471	**185**
190	0.001 119	820.71	2.1989	0.001 117	821.76	2.1964	0.001 116	822.81	2.1938	**190**
195	0.001 125	842.40	2.2455	0.001 124	843.41	2.2429	0.001 122	844.43	2.2402	**195**
200	0.001 132	864.17	2.2918	0.001 130	865.14	2.2890	0.001 129	866.12	2.2863	**200**
205	0.001 139	886.03	2.3377	0.001 137	886.96	2.3349	0.001 136	887.90	2.3321	**205**
210	0.001 146	907.99	2.3834	0.001 144	908.87	2.3805	0.001 143	909.76	2.3776	**210**
215	0.001 154	930.04	2.4288	0.001 152	930.87	2.4258	0.001 150	931.72	2.4228	**215**
220	0.001 161	952.20	2.4740	0.001 159	952.99	2.4709	0.001 158	953.78	2.4678	**220**
225	0.001 169	974.48	2.5189	0.001 167	975.21	2.5157	0.001 165	975.95	2.5125	**225**
230	0.001 178	996.88	2.5637	0.001 176	997.55	2.5603	0.001 173	998.24	2.5570	**230**
235	0.001 186	1019.4	2.6082	0.001 184	1020.0	2.6048	0.001 182	1020.6	2.6013	**235**
240	0.001 195	1042.1	2.6526	0.001 193	1042.6	2.6490	0.001 190	1043.2	2.6455	**240**
245	0.001 204	1064.9	2.6969	0.001 202	1065.4	2.6931	0.001 199	1065.9	2.6894	**245**
250	0.001 214	1087.9	2.7410	0.001 211	1088.3	2.7371	0.001 209	1088.7	2.7333	**250**
255	0.001 224	1111.0	2.7850	0.001 221	1111.3	2.7810	0.001 218	1111.7	2.7770	**255**
260	0.001 234	1134.3	2.8290	0.001 231	1134.6	2.8248	0.001 228	1134.8	2.8206	**260**
265	0.001 245	1157.9	2.8729	0.001 242	1158.0	2.8685	0.001 239	1158.2	2.8642	**265**
270	0.001 257	1181.6	2.9168	0.001 253	1181.6	2.9122	0.001 250	1181.7	2.9077	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	28 MPa			30 MPa			32 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 268	1205.6	2.9607	0.001 265	1205.5	2.9559	0.001 261	1205.4	2.9512	**275**
280	0.001 281	1229.8	3.0047	0.001 277	1229.6	2.9997	0.001 273	1229.4	2.9947	**280**
285	0.001 294	1254.3	3.0488	0.001 290	1253.9	3.0435	0.001 286	1253.6	3.0383	**285**
290	0.001 308	1279.0	3.0929	0.001 303	1278.5	3.0874	0.001 299	1278.1	3.0819	**290**
295	0.001 322	1304.1	3.1373	0.001 317	1303.4	3.1314	0.001 313	1302.8	3.1257	**295**
300	0.001 338	1329.5	3.1818	0.001 332	1328.7	3.1756	0.001 327	1327.9	3.1696	**300**
310	0.001 371	1381.6	3.2718	0.001 365	1380.2	3.2648	0.001 359	1379.0	3.2581	**310**
320	0.001 409	1435.5	3.3634	0.001 401	1433.5	3.3554	0.001 394	1431.7	3.3477	**320**
330	0.001 453	1491.7	3.4574	0.001 444	1488.9	3.4481	0.001 435	1486.4	3.4392	**330**
340	0.001 506	1550.9	3.5548	0.001 493	1547.1	3.5437	0.001 482	1543.6	3.5332	**340**
350	0.001 570	1614.3	3.6573	0.001 553	1608.8	3.6435	0.001 538	1603.9	3.6308	**350**
360	0.001 652	1683.6	3.7677	0.001 628	1675.6	3.7498	0.001 607	1668.6	3.7336	**360**
370	0.001 766	1763.1	3.8922	0.001 727	1750.2	3.8667	0.001 695	1739.6	3.8449	**370**
380	0.001 952	1862.4	4.0454	0.001 873	1838.3	4.0026	0.001 817	1820.5	3.9698	**380**
390	0.002 398	2022.3	4.2882	0.002 133	1955.2	4.1802	0.002 006	1919.4	4.1199	**390**
400	0.003 855	2334.4	4.7552	0.002 796	2152.4	4.4750	0.002 367	2056.8	4.3255	**400**
410	0.005 071	2529.1	5.0424	0.003 984	2395.8	4.8342	0.003 127	2258.5	4.6228	**410**
420	0.005 904	2648.5	5.2160	0.004 921	2552.9	5.0625	0.004 053	2446.5	4.8961	**420**
430	0.006 563	2738.1	5.3444	0.005 638	2662.8	5.2201	0.004 812	2579.9	5.0873	**430**
440	0.007 123	2811.6	5.4483	0.006 228	2748.9	5.3416	0.005 434	2681.2	5.2303	**440**
450	0.007 617	2875.1	5.5367	0.006 738	2820.9	5.4419	0.005 961	2763.3	5.3448	**450**
460	0.008 065	2931.8	5.6145	0.007 193	2883.8	5.5284	0.006 426	2833.5	5.4411	**460**
470	0.008 477	2983.4	5.6845	0.007 608	2940.3	5.6049	0.006 845	2895.4	5.5251	**470**
480	0.008 862	3031.1	5.7483	0.007 992	2992.0	5.6740	0.007 229	2951.4	5.5999	**480**
490	0.009 224	3075.8	5.8072	0.008 352	3039.9	5.7372	0.007 586	3002.9	5.6678	**490**
500	0.009 568	3117.9	5.8621	0.008 690	3084.8	5.7956	0.007 922	3050.7	5.7301	**500**
510	0.009 895	3158.1	5.9136	0.009 012	3127.2	5.8502	0.008 239	3095.7	5.7879	**510**
520	0.010 21	3196.5	5.9624	0.009 320	3167.7	5.9015	0.008 540	3138.3	5.8419	**520**
530	0.010 51	3233.4	6.0087	0.009 615	3206.4	5.9500	0.008 829	3178.9	5.8928	**530**
540	0.010 81	3269.2	6.0529	0.009 899	3243.7	5.9962	0.009 107	3217.8	5.9410	**540**
550	0.011 09	3303.9	6.0953	0.010 17	3279.8	6.0403	0.009 375	3255.3	5.9868	**550**
560	0.011 37	3337.7	6.1361	0.010 44	3314.8	6.0826	0.009 634	3291.7	6.0307	**560**
570	0.011 63	3370.6	6.1755	0.010 70	3348.9	6.1233	0.009 886	3327.0	6.0728	**570**
580	0.011 90	3402.9	6.2136	0.010 95	3382.3	6.1626	0.010 13	3361.4	6.1134	**580**
590	0.012 15	3434.6	6.2505	0.011 20	3414.9	6.2006	0.010 37	3394.9	6.1525	**590**
600	0.012 41	3465.7	6.2863	0.011 44	3446.9	6.2374	0.010 60	3427.8	6.1904	**600**
610	0.012 65	3496.4	6.3212	0.011 68	3478.3	6.2732	0.010 83	3460.1	6.2271	**610**
620	0.012 90	3526.6	6.3552	0.011 91	3509.3	6.3081	0.011 06	3491.8	6.2629	**620**
630	0.013 14	3556.4	6.3885	0.012 14	3539.8	6.3421	0.011 28	3523.0	6.2976	**630**
640	0.013 37	3585.9	6.4209	0.012 37	3569.9	6.3752	0.011 49	3553.8	6.3315	**640**
650	0.013 60	3615.1	6.4527	0.012 59	3599.7	6.4077	0.011 70	3584.2	6.3646	**650**
660	0.013 83	3643.9	6.4838	0.012 81	3629.1	6.4394	0.011 91	3614.2	6.3969	**660**
670	0.014 06	3672.6	6.5143	0.013 02	3658.3	6.4705	0.012 12	3643.9	6.4286	**670**
680	0.014 28	3701.0	6.5442	0.013 24	3687.2	6.5009	0.012 32	3673.3	6.4596	**680**
690	0.014 50	3729.1	6.5737	0.013 45	3715.8	6.5308	0.012 52	3702.4	6.4900	**690**
700	0.014 72	3757.1	6.6026	0.013 65	3744.2	6.5602	0.012 72	3731.3	6.5198	**700**
710	0.014 94	3784.9	6.6310	0.013 86	3772.5	6.5891	0.012 92	3760.0	6.5491	**710**
720	0.015 15	3812.6	6.6590	0.014 06	3800.5	6.6175	0.013 11	3788.4	6.5779	**720**
730	0.015 36	3840.1	6.6866	0.014 26	3828.4	6.6454	0.013 30	3816.7	6.6063	**730**
740	0.015 57	3867.5	6.7137	0.014 46	3856.2	6.6729	0.013 49	3844.8	6.6341	**740**
750	0.015 78	3894.8	6.7405	0.014 66	3883.8	6.7000	0.013 68	3872.8	6.6616	**750**
760	0.015 99	3921.9	6.7669	0.014 86	3911.3	6.7268	0.013 87	3900.6	6.6887	**760**
770	0.016 20	3949.0	6.7930	0.015 05	3938.7	6.7532	0.014 05	3928.3	6.7153	**770**
780	0.016 40	3976.0	6.8188	0.015 25	3965.9	6.7792	0.014 24	3955.9	6.7416	**780**
790	0.016 60	4002.9	6.8442	0.015 44	3993.1	6.8049	0.014 42	3983.3	6.7676	**790**
800	0.016 80	4029.7	6.8693	0.015 63	4020.2	6.8303	0.014 60	4010.7	6.7932	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	35 MPa			40 MPa			45 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
0	0.000 983 4	34.72	0.0001	0.000 981 1	39.56	-0.0002	0.000 978 9	44.36	-0.0006	**0**
5	0.000 983 8	55.09	0.0740	0.000 981 6	59.85	0.0734	0.000 979 4	64.57	0.0727	**5**
10	0.000 984 5	75.49	0.1466	0.000 982 3	80.17	0.1458	0.000 980 2	84.83	0.1449	**10**
15	0.000 985 4	95.91	0.2181	0.000 983 3	100.52	0.2171	0.000 981 3	105.12	0.2160	**15**
20	0.000 986 6	116.35	0.2884	0.000 984 5	120.90	0.2872	0.000 982 5	125.44	0.2859	**20**
25	0.000 987 9	136.81	0.3576	0.000 985 9	141.30	0.3562	0.000 983 9	145.78	0.3547	**25**
30	0.000 989 5	157.28	0.4257	0.000 987 4	161.72	0.4241	0.000 985 5	166.15	0.4224	**30**
35	0.000 991 2	177.77	0.4928	0.000 989 2	182.16	0.4910	0.000 987 2	186.54	0.4891	**35**
40	0.000 993 1	198.27	0.5588	0.000 991 1	202.61	0.5568	0.000 989 1	206.94	0.5548	**40**
45	0.000 995 1	218.78	0.6238	0.000 993 1	223.08	0.6216	0.000 991 1	227.36	0.6195	**45**
50	0.000 997 3	239.31	0.6878	0.000 995 3	243.56	0.6855	0.000 993 3	247.80	0.6832	**50**
55	0.000 999 6	259.85	0.7508	0.000 997 6	264.05	0.7484	0.000 995 7	268.25	0.7460	**55**
60	0.001 002 1	280.40	0.8130	0.001 000 1	284.56	0.8105	0.000 998 1	288.71	0.8079	**60**
65	0.001 004 7	300.97	0.8743	0.001 002 7	305.08	0.8716	0.001 000 7	309.19	0.8690	**65**
70	0.001 007 5	321.56	0.9347	0.001 005 4	325.62	0.9319	0.001 003 4	329.69	0.9291	**70**
75	0.001 010 4	342.16	0.9943	0.001 008 3	346.18	0.9914	0.001 006 3	350.20	0.9885	**75**
80	0.001 013 4	362.78	1.0531	0.001 011 3	366.76	1.0501	0.001 009 2	370.74	1.0470	**80**
85	0.001 016 5	383.42	1.1112	0.001 014 4	387.35	1.1080	0.001 012 3	391.29	1.1048	**85**
90	0.001 019 8	404.08	1.1685	0.001 017 6	407.97	1.1651	0.001 015 5	411.86	1.1619	**90**
95	0.001 023 2	424.76	1.2250	0.001 021 0	428.60	1.2216	0.001 018 8	432.45	1.2182	**95**
100	0.001 026 7	445.47	1.2809	0.001 024 5	449.27	1.2773	0.001 022 3	453.07	1.2738	**100**
105	0.001 030 4	466.20	1.3361	0.001 028 1	469.95	1.3324	0.001 025 9	473.71	1.3287	**105**
110	0.001 034 1	486.96	1.3906	0.001 031 8	490.66	1.3868	0.001 029 5	494.37	1.3830	**110**
115	0.001 038 1	507.75	1.4445	0.001 035 7	511.40	1.4406	0.001 033 3	515.06	1.4367	**115**
120	0.001 042 1	528.56	1.4978	0.001 039 7	532.17	1.4937	0.001 037 3	535.78	1.4897	**120**
125	0.001 046 2	549.42	1.5505	0.001 043 8	552.97	1.5463	0.001 041 3	556.53	1.5422	**125**
130	0.001 050 5	570.30	1.6026	0.001 048 0	573.80	1.5983	0.001 045 5	577.31	1.5940	**130**
135	0.001 055 0	591.22	1.6542	0.001 052 4	594.67	1.6497	0.001 049 8	598.13	1.6454	**135**
140	0.001 059 5	612.18	1.7052	0.001 056 9	615.57	1.7006	0.001 054 2	618.98	1.6961	**140**
145	0.001 064 2	633.18	1.7558	0.001 061 5	636.51	1.7510	0.001 058 8	639.86	1.7464	**145**
150	0.001 069 1	654.22	1.8058	0.001 066 3	657.49	1.8009	0.001 063 5	660.78	1.7961	**150**
155	0.001 074 1	675.30	1.8553	0.001 071 2	678.52	1.8503	0.001 068 3	681.75	1.8454	**155**
160	0.001 079 2	696.44	1.9044	0.001 076 2	699.59	1.8992	0.001 073 3	702.76	1.8941	**160**
165	0.001 084 5	717.62	1.9530	0.001 081 4	720.70	1.9477	0.001 078 4	723.81	1.9425	**165**
170	0.001 090 0	738.86	2.0012	0.001 086 8	741.87	1.9957	0.001 083 7	744.91	1.9904	**170**
175	0.001 095 6	760.15	2.0490	0.001 092 3	763.09	2.0434	0.001 089 1	766.06	2.0378	**175**
180	0.001 101	781.51	2.0964	0.001 098 0	784.37	2.0906	0.001 094 6	787.27	2.0849	**180**
185	0.001 107	802.93	2.1434	0.001 104	805.71	2.1374	0.001 100	808.53	2.1315	**185**
190	0.001 113	824.41	2.1900	0.001 110	827.11	2.1839	0.001 106	829.85	2.1778	**190**
195	0.001 120	845.97	2.2363	0.001 116	848.58	2.2300	0.001 112	851.24	2.2238	**195**
200	0.001 126	867.61	2.2823	0.001 122	870.12	2.2758	0.001 119	872.69	2.2693	**200**
205	0.001 133	889.32	2.3280	0.001 129	891.74	2.3212	0.001 125	894.22	2.3146	**205**
210	0.001 140	911.12	2.3733	0.001 136	913.44	2.3663	0.001 132	915.82	2.3595	**210**
215	0.001 147	933.01	2.4184	0.001 143	935.22	2.4112	0.001 138	937.50	2.4042	**215**
220	0.001 155	955.00	2.4632	0.001 150	957.10	2.4558	0.001 145	959.27	2.4485	**220**
225	0.001 162	977.09	2.5078	0.001 157	979.07	2.5001	0.001 153	981.12	2.4926	**225**
230	0.001 170	999.30	2.5521	0.001 165	1001.1	2.5442	0.001 160	1003.1	2.5365	**230**
235	0.001 178	1021.6	2.5963	0.001 173	1023.3	2.5881	0.001 168	1025.1	2.5801	**235**
240	0.001 187	1044.1	2.6402	0.001 181	1045.6	2.6317	0.001 176	1047.3	2.6235	**240**
245	0.001 196	1066.6	2.6840	0.001 190	1068.0	2.6752	0.001 184	1069.6	2.6667	**245**
250	0.001 205	1089.4	2.7276	0.001 199	1090.6	2.7185	0.001 193	1092.0	2.7097	**250**
255	0.001 214	1112.2	2.7711	0.001 208	1113.3	2.7617	0.001 202	1114.5	2.7525	**255**
260	0.001 224	1135.2	2.8145	0.001 217	1136.1	2.8047	0.001 211	1137.1	2.7952	**260**
265	0.001 234	1158.4	2.8579	0.001 227	1159.1	2.8476	0.001 220	1159.9	2.8378	**265**
270	0.001 245	1181.8	2.9011	0.001 237	1182.3	2.8905	0.001 230	1182.9	2.8803	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	35 MPa			40 MPa			45 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 256	1205.4	2.9443	0.001 248	1205.6	2.9332	0.001 240	1206.0	2.9226	**275**
280	0.001 268	1229.2	2.9875	0.001 259	1229.1	2.9760	0.001 251	1229.3	2.9649	**280**
285	0.001 280	1253.2	3.0307	0.001 271	1252.9	3.0187	0.001 262	1252.8	3.0072	**285**
290	0.001 292	1277.5	3.0740	0.001 283	1276.8	3.0614	0.001 273	1276.4	3.0494	**290**
295	0.001 306	1302.0	3.1174	0.001 295	1301.0	3.1041	0.001 285	1300.3	3.0916	**295**
300	0.001 320	1326.8	3.1608	0.001 308	1325.4	3.1469	0.001 298	1324.4	3.1338	**300**
310	0.001 350	1377.4	3.2483	0.001 337	1375.1	3.2329	0.001 324	1373.3	3.2185	**310**
320	0.001 384	1429.4	3.3367	0.001 368	1426.0	3.3195	0.001 354	1423.3	3.3035	**320**
330	0.001 422	1483.1	3.4265	0.001 403	1478.4	3.4070	0.001 386	1474.6	3.3892	**330**
340	0.001 466	1539.0	3.5184	0.001 443	1532.5	3.4960	0.001 423	1527.3	3.4758	**340**
350	0.001 517	1597.5	3.6131	0.001 488	1588.7	3.5870	0.001 464	1581.7	3.5638	**350**
360	0.001 579	1659.6	3.7119	0.001 542	1647.6	3.6807	0.001 511	1638.2	3.6538	**360**
370	0.001 656	1726.6	3.8169	0.001 605	1709.9	3.7783	0.001 565	1697.3	3.7464	**370**
380	0.001 755	1800.5	3.9309	0.001 682	1776.7	3.8814	0.001 630	1759.6	3.8425	**380**
390	0.001 893	1885.3	4.0597	0.001 780	1849.6	3.9921	0.001 707	1826.0	3.9433	**390**
400	0.002 106	1988.4	4.2140	0.001 911	1931.1	4.1141	0.001 804	1897.6	4.0505	**400**
410	0.002 474	2123.6	4.4133	0.002 093	2025.2	4.2527	0.001 926	1976.0	4.1661	**410**
420	0.003 082	2291.3	4.6570	0.002 361	2136.3	4.4142	0.002 088	2063.3	4.2930	**420**
430	0.003 782	2447.7	4.8811	0.002 742	2263.8	4.5969	0.002 302	2160.9	4.4327	**430**
440	0.004 413	2571.6	5.0561	0.003 210	2394.0	4.7807	0.002 581	2267.5	4.5833	**440**
450	0.004 959	2671.0	5.1945	0.003 693	2511.8	4.9447	0.002 915	2377.3	4.7362	**450**
460	0.005 436	2753.5	5.3079	0.004 149	2613.3	5.0842	0.003 278	2482.6	4.8808	**460**
470	0.005 861	2824.8	5.4045	0.004 567	2700.7	5.2026	0.003 642	2579.0	5.0114	**470**
480	0.006 246	2888.1	5.4890	0.004 950	2777.2	5.3048	0.003 992	2665.4	5.1269	**480**
490	0.006 602	2945.3	5.5646	0.005 300	2845.2	5.3946	0.004 324	2743.1	5.2294	**490**
500	0.006 933	2998.0	5.6331	0.005 625	2906.7	5.4746	0.004 634	2813.4	5.3209	**500**
510	0.007 245	3047.0	5.6961	0.005 928	2963.1	5.5471	0.004 925	2877.3	5.4030	**510**
520	0.007 540	3093.1	5.7546	0.006 213	3015.4	5.6135	0.005 199	2936.1	5.4776	**520**
530	0.007 821	3136.7	5.8092	0.006 483	3064.4	5.6749	0.005 458	2990.7	5.5461	**530**
540	0.008 089	3178.2	5.8606	0.006 740	3110.7	5.7322	0.005 704	3041.9	5.6094	**540**
550	0.008 348	3218.1	5.9093	0.006 985	3154.6	5.7859	0.005 938	3090.2	5.6685	**550**
560	0.008 597	3256.5	5.9557	0.007 221	3196.7	5.8366	0.006 163	3136.0	5.7238	**560**
570	0.008 838	3293.6	6.0000	0.007 449	3237.0	5.8848	0.006 379	3179.8	5.7761	**570**
580	0.009 073	3329.6	6.0425	0.007 669	3276.0	5.9308	0.006 587	3221.8	5.8256	**580**
590	0.009 301	3364.7	6.0834	0.007 882	3313.8	5.9747	0.006 788	3262.3	5.8728	**590**
600	0.009 523	3399.0	6.1229	0.008 089	3350.4	6.0170	0.006 983	3301.5	5.9179	**600**
610	0.009 740	3432.6	6.1611	0.008 291	3386.2	6.0577	0.007 172	3339.5	5.9612	**610**
620	0.009 953	3465.5	6.1981	0.008 488	3421.1	6.0970	0.007 357	3376.5	6.0029	**620**
630	0.010 16	3497.8	6.2341	0.008 681	3455.3	6.1351	0.007 537	3412.6	6.0431	**630**
640	0.010 37	3529.6	6.2691	0.008 869	3488.8	6.1720	0.007 713	3447.9	6.0820	**640**
650	0.010 57	3560.9	6.3032	0.009 054	3521.8	6.2079	0.007 885	3482.5	6.1197	**650**
660	0.010 76	3591.8	6.3365	0.009 235	3554.2	6.2428	0.008 053	3516.5	6.1562	**660**
670	0.010 96	3622.3	6.3690	0.009 413	3586.1	6.2768	0.008 219	3549.9	6.1918	**670**
680	0.011 15	3652.5	6.4008	0.009 589	3617.6	6.3100	0.008 381	3582.7	6.2265	**680**
690	0.011 34	3682.3	6.4320	0.009 761	3648.7	6.3425	0.008 541	3615.1	6.2602	**690**
700	0.011 52	3711.9	6.4625	0.009 931	3679.4	6.3743	0.008 698	3647.0	6.2932	**700**
710	0.011 71	3741.2	6.4925	0.010 10	3709.8	6.4053	0.008 853	3678.5	6.3254	**710**
720	0.011 89	3770.3	6.5219	0.010 26	3740.0	6.4358	0.009 005	3709.7	6.3570	**720**
730	0.012 07	3799.1	6.5508	0.010 43	3769.8	6.4657	0.009 156	3740.5	6.3879	**730**
740	0.012 25	3827.8	6.5793	0.010 59	3799.4	6.4951	0.009 304	3771.1	6.4182	**740**
750	0.012 42	3856.3	6.6072	0.010 75	3828.8	6.5239	0.009 451	3801.3	6.4479	**750**
760	0.012 60	3884.6	6.6348	0.010 91	3857.9	6.5523	0.009 596	3831.4	6.4771	**760**
770	0.012 77	3912.7	6.6619	0.011 06	3886.9	6.5802	0.009 739	3861.1	6.5058	**770**
780	0.012 94	3940.8	6.6887	0.011 22	3915.7	6.6077	0.009 881	3890.7	6.5340	**780**
790	0.013 11	3968.7	6.7150	0.011 37	3944.3	6.6347	0.010 02	3920.1	6.5618	**790**
800	0.013 28	3996.5	6.7411	0.011 52	3972.8	6.6614	0.010 16	3949.3	6.5891	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	50 MPa			55 MPa			60 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
0	0.000 976 7	49.13	-0.0010	0.000 974 6	53.87	-0.0015	0.000 972 5	58.59	-0.0021	**0**
5	0.000 977 3	69.27	0.0720	0.000 975 2	73.94	0.0713	0.000 973 2	78.59	0.0705	**5**
10	0.000 978 2	89.46	0.1440	0.000 976 1	94.07	0.1430	0.000 974 1	98.66	0.1420	**10**
15	0.000 979 2	109.69	0.2148	0.000 977 2	114.24	0.2136	0.000 975 2	118.78	0.2124	**15**
20	0.000 980 5	129.96	0.2845	0.000 978 5	134.46	0.2832	0.000 976 5	138.94	0.2818	**20**
25	0.000 981 9	150.25	0.3532	0.000 979 9	154.70	0.3517	0.000 978 0	159.14	0.3501	**25**
30	0.000 983 5	170.57	0.4208	0.000 981 6	174.97	0.4191	0.000 979 6	179.36	0.4174	**30**
35	0.000 985 2	190.91	0.4873	0.000 983 3	195.26	0.4855	0.000 981 4	199.61	0.4836	**35**
40	0.000 987 2	211.27	0.5528	0.000 985 2	215.58	0.5509	0.000 983 3	219.88	0.5489	**40**
45	0.000 989 2	231.64	0.6174	0.000 987 3	235.91	0.6153	0.000 985 4	240.17	0.6132	**45**
50	0.000 991 4	252.03	0.6810	0.000 989 5	256.26	0.6787	0.000 987 6	260.47	0.6765	**50**
55	0.000 993 7	272.44	0.7437	0.000 991 8	276.62	0.7413	0.000 989 9	280.80	0.7389	**55**
60	0.000 996 2	292.86	0.8054	0.000 994 2	297.00	0.8029	0.000 992 3	301.13	0.8004	**60**
65	0.000 998 7	313.30	0.8663	0.000 996 8	317.40	0.8637	0.000 994 9	321.49	0.8611	**65**
70	0.001 001 4	333.75	0.9264	0.000 999 5	337.81	0.9236	0.000 997 5	341.86	0.9209	**70**
75	0.001 004 3	354.22	0.9856	0.001 002 3	358.24	0.9827	0.001 000 3	362.25	0.9799	**75**
80	0.001 007 2	374.71	1.0440	0.001 005 2	378.69	1.0410	0.001 003 2	382.66	1.0381	**80**
85	0.001 010 2	395.22	1.1017	0.001 008 2	399.16	1.0986	0.001 006 2	403.09	1.0955	**85**
90	0.001 013 4	415.75	1.1586	0.001 011 4	419.64	1.1554	0.001 009 3	423.54	1.1522	**90**
95	0.001 016 7	436.30	1.2148	0.001 014 6	440.15	1.2115	0.001 012 6	444.00	1.2082	**95**
100	0.001 020 1	456.87	1.2703	0.001 018 0	460.68	1.2669	0.001 015 9	464.49	1.2634	**100**
105	0.001 023 7	477.47	1.3251	0.001 021 5	481.23	1.3216	0.001 019 4	485.00	1.3180	**105**
110	0.001 027 3	498.09	1.3793	0.001 025 1	501.81	1.3756	0.001 022 9	505.53	1.3720	**110**
115	0.001 031 1	518.73	1.4328	0.001 028 8	522.41	1.4290	0.001 026 6	526.09	1.4253	**115**
120	0.001 034 9	539.41	1.4858	0.001 032 6	543.04	1.4818	0.001 030 4	546.67	1.4780	**120**
125	0.001 038 9	560.11	1.5381	0.001 036 6	563.69	1.5341	0.001 034 3	567.28	1.5301	**125**
130	0.001 043 1	580.84	1.5898	0.001 040 7	584.37	1.5857	0.001 038 3	587.92	1.5816	**130**
135	0.001 047 3	601.60	1.6410	0.001 044 8	605.09	1.6367	0.001 042 4	608.58	1.6325	**135**
140	0.001 051 7	622.40	1.6917	0.001 049 1	625.83	1.6873	0.001 046 7	629.28	1.6829	**140**
145	0.001 056 2	643.23	1.7418	0.001 053 6	646.61	1.7373	0.001 051 0	650.01	1.7328	**145**
150	0.001 060 8	664.10	1.7914	0.001 058 1	667.42	1.7867	0.001 055 5	670.77	1.7822	**150**
155	0.001 065 5	685.00	1.8405	0.001 062 8	688.28	1.8357	0.001 060 1	691.57	1.8310	**155**
160	0.001 070 4	705.95	1.8891	0.001 067 6	709.17	1.8842	0.001 064 9	712.40	1.8794	**160**
165	0.001 075 5	726.94	1.9373	0.001 072 6	730.10	1.9323	0.001 069 8	733.27	1.9273	**165**
170	0.001 080 6	747.98	1.9851	0.001 077 7	751.07	1.9799	0.001 074 8	754.19	1.9748	**170**
175	0.001 085 9	769.06	2.0324	0.001 082 9	772.09	2.0270	0.001 079 9	775.15	2.0218	**175**
180	0.001 091 4	790.20	2.0793	0.001 088 2	793.16	2.0738	0.001 085 2	796.15	2.0684	**180**
185	0.001 097 0	811.39	2.1258	0.001 093 8	814.28	2.1201	0.001 090 6	817.20	2.1146	**185**
190	0.001 103	832.64	2.1719	0.001 099 4	835.45	2.1661	0.001 096 1	838.31	2.1604	**190**
195	0.001 109	853.94	2.2177	0.001 105	856.68	2.2117	0.001 102	859.46	2.2059	**195**
200	0.001 115	875.31	2.2631	0.001 111	877.97	2.2569	0.001 108	880.67	2.2509	**200**
205	0.001 121	896.75	2.3081	0.001 117	899.33	2.3018	0.001 114	901.95	2.2956	**205**
210	0.001 128	918.26	2.3529	0.001 124	920.75	2.3464	0.001 120	923.28	2.3400	**210**
215	0.001 134	939.84	2.3973	0.001 130	942.24	2.3906	0.001 126	944.69	2.3841	**215**
220	0.001 141	961.50	2.4415	0.001 137	963.80	2.4346	0.001 133	966.16	2.4279	**220**
225	0.001 148	983.25	2.4854	0.001 144	985.45	2.4783	0.001 140	987.71	2.4713	**225**
230	0.001 156	1005.1	2.5290	0.001 151	1007.2	2.5217	0.001 147	1009.3	2.5145	**230**
235	0.001 163	1027.0	2.5724	0.001 158	1029.0	2.5648	0.001 154	1031.0	2.5575	**235**
240	0.001 171	1049.0	2.6155	0.001 166	1050.9	2.6077	0.001 161	1052.8	2.6002	**240**
245	0.001 179	1071.2	2.6584	0.001 174	1072.9	2.6504	0.001 169	1074.7	2.6426	**245**
250	0.001 187	1093.4	2.7012	0.001 182	1095.0	2.6929	0.001 176	1096.7	2.6848	**250**
255	0.001 196	1115.8	2.7437	0.001 190	1117.2	2.7352	0.001 184	1118.8	2.7269	**255**
260	0.001 204	1138.3	2.7861	0.001 198	1139.6	2.7773	0.001 193	1141.0	2.7687	**260**
265	0.001 214	1160.9	2.8283	0.001 207	1162.1	2.8192	0.001 201	1163.3	2.8103	**265**
270	0.001 223	1183.7	2.8704	0.001 216	1184.6	2.8610	0.001 210	1185.7	2.8518	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	50 MPa			55 MPa			60 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 233	1206.6	2.9124	0.001 226	1207.4	2.9026	0.001 219	1208.3	2.8932	**275**
280	0.001 243	1229.7	2.9543	0.001 236	1230.2	2.9442	0.001 229	1231.0	2.9344	**280**
285	0.001 254	1252.9	2.9962	0.001 246	1253.3	2.9856	0.001 239	1253.8	2.9755	**285**
290	0.001 265	1276.3	3.0379	0.001 256	1276.5	3.0270	0.001 249	1276.8	3.0165	**290**
295	0.001 276	1299.9	3.0797	0.001 267	1299.8	3.0683	0.001 259	1299.9	3.0574	**295**
300	0.001 288	1323.7	3.1214	0.001 279	1323.4	3.1095	0.001 270	1323.3	3.0982	**300**
310	0.001 313	1372.0	3.2049	0.001 303	1371.0	3.1920	0.001 293	1370.4	3.1797	**310**
320	0.001 341	1421.2	3.2885	0.001 329	1419.6	3.2745	0.001 318	1418.3	3.2612	**320**
330	0.001 371	1471.5	3.3726	0.001 358	1469.0	3.3572	0.001 345	1467.0	3.3427	**330**
340	0.001 405	1523.1	3.4574	0.001 389	1519.6	3.4403	0.001 374	1516.7	3.4244	**340**
350	0.001 442	1576.0	3.5430	0.001 424	1571.3	3.5240	0.001 407	1567.4	3.5064	**350**
360	0.001 485	1630.6	3.6300	0.001 462	1624.4	3.6086	0.001 442	1619.3	3.5890	**360**
370	0.001 533	1687.3	3.7189	0.001 506	1679.3	3.6945	0.001 482	1672.6	3.6726	**370**
380	0.001 588	1746.5	3.8101	0.001 555	1736.1	3.7821	0.001 526	1727.6	3.7573	**380**
390	0.001 654	1808.6	3.9045	0.001 611	1795.1	3.8718	0.001 576	1784.3	3.8435	**390**
400	0.001 731	1874.3	4.0028	0.001 676	1856.9	3.9642	0.001 633	1843.1	3.9316	**400**
410	0.001 825	1944.5	4.1063	0.001 753	1921.8	4.0600	0.001 698	1904.4	4.0219	**410**
420	0.001 940	2020.1	4.2161	0.001 844	1990.4	4.1597	0.001 774	1968.4	4.1149	**420**
430	0.002 085	2102.0	4.3334	0.001 953	2063.4	4.2642	0.001 861	2035.5	4.2111	**430**
440	0.002 266	2190.5	4.4585	0.002 084	2140.9	4.3737	0.001 964	2106.0	4.3106	**440**
450	0.002 487	2284.4	4.5892	0.002 242	2222.8	4.4877	0.002 085	2179.8	4.4134	**450**
460	0.002 745	2380.5	4.7212	0.002 426	2308.1	4.6048	0.002 224	2256.6	4.5188	**460**
470	0.003 027	2474.7	4.8488	0.002 636	2394.6	4.7220	0.002 384	2335.4	4.6256	**470**
480	0.003 319	2563.9	4.9680	0.002 864	2480.1	4.8363	0.002 561	2415.0	4.7319	**480**
490	0.003 609	2646.6	5.0770	0.003 103	2562.5	4.9450	0.002 752	2493.8	4.8358	**490**
500	0.003 889	2722.5	5.1759	0.003 344	2640.6	5.0467	0.002 952	2570.4	4.9356	**500**
510	0.004 160	2792.7	5.2661	0.003 583	2713.6	5.1405	0.003 156	2644.0	5.0302	**510**
520	0.004 417	2857.4	5.3482	0.003 817	2782.2	5.2276	0.003 361	2713.9	5.1189	**520**
530	0.004 662	2917.2	5.4232	0.004 043	2846.3	5.3078	0.003 563	2780.2	5.2020	**530**
540	0.004 896	2973.2	5.4924	0.004 261	2906.2	5.3820	0.003 762	2842.9	5.2796	**540**
550	0.005 118	3025.7	5.5566	0.004 470	2962.5	5.4508	0.003 955	2902.1	5.3519	**550**
560	0.005 332	3075.4	5.6166	0.004 671	3015.7	5.5150	0.004 142	2958.1	5.4195	**560**
570	0.005 537	3122.6	5.6729	0.004 865	3066.1	5.5752	0.004 323	3011.3	5.4830	**570**
580	0.005 734	3167.7	5.7261	0.005 051	3114.1	5.6318	0.004 499	3062.0	5.5428	**580**
590	0.005 924	3210.9	5.7765	0.005 231	3160.1	5.6854	0.004 669	3110.5	5.5993	**590**
600	0.006 109	3252.6	5.8245	0.005 406	3204.3	5.7363	0.004 834	3157.0	5.6528	**600**
610	0.006 288	3292.9	5.8705	0.005 575	3246.8	5.7848	0.004 993	3201.7	5.7038	**610**
620	0.006 461	3332.0	5.9145	0.005 739	3288.0	5.8311	0.005 149	3244.8	5.7524	**620**
630	0.006 631	3370.1	5.9569	0.005 899	3328.0	5.8756	0.005 300	3286.7	5.7989	**630**
640	0.006 796	3407.2	5.9977	0.006 055	3366.9	5.9185	0.005 447	3327.3	5.8436	**640**
650	0.006 957	3443.5	6.0372	0.006 207	3404.8	5.9598	0.005 591	3366.8	5.8867	**650**
660	0.007 115	3479.0	6.0755	0.006 356	3441.8	5.9997	0.005 731	3405.3	5.9282	**660**
670	0.007 270	3513.8	6.1126	0.006 502	3478.1	6.0383	0.005 869	3443.0	5.9683	**670**
680	0.007 422	3548.0	6.1487	0.006 644	3513.6	6.0758	0.006 003	3479.8	6.0072	**680**
690	0.007 571	3581.6	6.1838	0.006 784	3548.5	6.1122	0.006 136	3515.9	6.0449	**690**
700	0.007 718	3614.8	6.2180	0.006 922	3582.8	6.1477	0.006 265	3551.4	6.0815	**700**
710	0.007 862	3647.4	6.2514	0.007 057	3616.6	6.1822	0.006 392	3586.3	6.1172	**710**
720	0.008 004	3679.6	6.2840	0.007 190	3649.9	6.2159	0.006 518	3620.6	6.1519	**720**
730	0.008 143	3711.5	6.3159	0.007 321	3682.7	6.2488	0.006 641	3654.4	6.1857	**730**
740	0.008 281	3743.0	6.3471	0.007 450	3715.1	6.2809	0.006 762	3687.7	6.2188	**740**
750	0.008 417	3774.1	6.3777	0.007 577	3747.2	6.3124	0.006 882	3720.6	6.2512	**750**
760	0.008 552	3805.0	6.4078	0.007 703	3778.9	6.3432	0.007 000	3753.2	6.2828	**760**
770	0.008 685	3835.6	6.4372	0.007 827	3810.3	6.3735	0.007 116	3785.4	6.3138	**770**
780	0.008 816	3865.9	6.4662	0.007 949	3841.4	6.4032	0.007 231	3817.3	6.3442	**780**
790	0.008 946	3896.0	6.4946	0.008 070	3872.3	6.4323	0.007 345	3848.8	6.3741	**790**
800	0.009 074	3926.0	6.5226	0.008 190	3902.9	6.4610	0.007 457	3880.2	6.4034	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	65 MPa			70 MPa			75 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
0	0.000 970 4	63.27	-0.0027	0.000 968 3	67.93	-0.0034	0.000 966 3	72.57	-0.0041	**0**
5	0.000 971 2	83.22	0.0696	0.000 969 2	87.82	0.0688	0.000 967 2	92.40	0.0678	**5**
10	0.000 972 1	103.23	0.1410	0.000 970 2	107.77	0.1399	0.000 968 2	112.30	0.1387	**10**
15	0.000 973 3	123.29	0.2112	0.000 971 4	127.79	0.2099	0.000 969 5	132.27	0.2086	**15**
20	0.000 974 6	143.41	0.2804	0.000 972 7	147.86	0.2790	0.000 970 9	152.29	0.2775	**20**
25	0.000 976 1	163.55	0.3486	0.000 974 2	167.96	0.3470	0.000 972 4	172.35	0.3454	**25**
30	0.000 977 8	183.73	0.4157	0.000 975 9	188.10	0.4140	0.000 974 1	192.44	0.4122	**30**
35	0.000 979 6	203.94	0.4818	0.000 977 7	208.26	0.4799	0.000 975 9	212.57	0.4781	**35**
40	0.000 981 5	224.17	0.5469	0.000 979 6	228.45	0.5449	0.000 977 8	232.72	0.5429	**40**
45	0.000 983 5	244.41	0.6110	0.000 981 7	248.65	0.6089	0.000 979 9	252.88	0.6068	**45**
50	0.000 985 7	264.68	0.6742	0.000 983 9	268.88	0.6720	0.000 982 0	273.07	0.6698	**50**
55	0.000 988 0	284.96	0.7365	0.000 986 2	289.13	0.7342	0.000 984 3	293.28	0.7318	**55**
60	0.000 990 4	305.26	0.7979	0.000 988 6	309.39	0.7955	0.000 986 7	313.50	0.7930	**60**
65	0.000 993 0	325.58	0.8585	0.000 991 1	329.67	0.8559	0.000 989 3	333.75	0.8533	**65**
70	0.000 995 6	345.91	0.9182	0.000 993 7	349.96	0.9155	0.000 991 9	354.00	0.9128	**70**
75	0.000 998 4	366.27	0.9770	0.000 996 5	370.28	0.9742	0.000 994 6	374.28	0.9714	**75**
80	0.001 001 3	386.64	1.0351	0.000 999 3	390.61	1.0322	0.000 997 4	394.57	1.0293	**80**
85	0.001 004 2	407.02	1.0925	0.001 002 3	410.96	1.0894	0.001 000 4	414.89	1.0864	**85**
90	0.001 007 3	427.43	1.1490	0.001 005 4	431.32	1.1459	0.001 003 4	435.22	1.1428	**90**
95	0.001 010 5	447.86	1.2049	0.001 008 5	451.71	1.2017	0.001 006 6	455.57	1.1984	**95**
100	0.001 013 8	468.30	1.2601	0.001 011 8	472.12	1.2567	0.001 009 8	475.94	1.2534	**100**
105	0.001 017 3	488.77	1.3146	0.001 015 2	492.55	1.3111	0.001 013 2	496.32	1.3077	**105**
110	0.001 020 8	509.26	1.3684	0.001 018 7	513.00	1.3648	0.001 016 6	516.74	1.3613	**110**
115	0.001 024 4	529.78	1.4216	0.001 022 3	533.47	1.4179	0.001 020 2	537.17	1.4143	**115**
120	0.001 028 2	550.32	1.4742	0.001 026 0	553.97	1.4704	0.001 023 8	557.62	1.4667	**120**
125	0.001 032 0	570.88	1.5261	0.001 029 8	574.49	1.5223	0.001 027 6	578.10	1.5184	**125**
130	0.001 036 0	591.47	1.5775	0.001 033 7	595.04	1.5735	0.001 031 5	598.61	1.5696	**130**
135	0.001 040 1	612.09	1.6284	0.001 037 7	615.61	1.6243	0.001 035 5	619.14	1.6202	**135**
140	0.001 044 3	632.74	1.6786	0.001 041 9	636.21	1.6744	0.001 039 5	639.69	1.6703	**140**
145	0.001 048 6	653.42	1.7284	0.001 046 1	656.84	1.7241	0.001 043 7	660.28	1.7198	**145**
150	0.001 053 0	674.13	1.7776	0.001 050 5	677.50	1.7732	0.001 048 0	680.89	1.7688	**150**
155	0.001 057 5	694.87	1.8264	0.001 055 0	698.20	1.8218	0.001 052 5	701.54	1.8173	**155**
160	0.001 062 2	715.65	1.8746	0.001 059 6	718.93	1.8699	0.001 057 0	722.21	1.8653	**160**
165	0.001 067 0	736.47	1.9224	0.001 064 3	739.69	1.9176	0.001 061 6	742.92	1.9128	**165**
170	0.001 071 9	757.33	1.9697	0.001 069 1	760.49	1.9648	0.001 066 4	763.67	1.9599	**170**
175	0.001 077 0	778.23	2.0166	0.001 074 1	781.33	2.0116	0.001 071 3	784.45	2.0066	**175**
180	0.001 082 1	799.17	2.0631	0.001 079 2	802.21	2.0579	0.001 076 3	805.28	2.0528	**180**
185	0.001 087 5	820.15	2.1092	0.001 084 4	823.14	2.1038	0.001 081 5	826.14	2.0986	**185**
190	0.001 092 9	841.19	2.1548	0.001 089 8	844.11	2.1493	0.001 086 8	847.05	2.1440	**190**
195	0.001 098 5	862.28	2.2001	0.001 095 3	865.12	2.1945	0.001 092 2	868.00	2.1890	**195**
200	0.001 104	883.42	2.2450	0.001 101	886.19	2.2392	0.001 097 7	889.01	2.2336	**200**
205	0.001 110	904.61	2.2896	0.001 107	907.32	2.2837	0.001 103	910.06	2.2778	**205**
210	0.001 116	925.87	2.3338	0.001 113	928.50	2.3277	0.001 109	931.16	2.3217	**210**
215	0.001 123	947.19	2.3777	0.001 119	949.74	2.3715	0.001 115	952.33	2.3653	**215**
220	0.001 129	968.57	2.4213	0.001 125	971.04	2.4149	0.001 121	973.55	2.4086	**220**
225	0.001 136	990.03	2.4646	0.001 132	992.40	2.4580	0.001 128	994.83	2.4515	**225**
230	0.001 142	1011.6	2.5076	0.001 138	1013.8	2.5008	0.001 134	1016.2	2.4942	**230**
235	0.001 149	1033.2	2.5503	0.001 145	1035.4	2.5433	0.001 141	1037.6	2.5365	**235**
240	0.001 156	1054.9	2.5928	0.001 152	1056.9	2.5856	0.001 148	1059.1	2.5786	**240**
245	0.001 164	1076.6	2.6350	0.001 159	1078.6	2.6276	0.001 155	1080.7	2.6204	**245**
250	0.001 171	1098.5	2.6770	0.001 167	1100.4	2.6694	0.001 162	1102.3	2.6620	**250**
255	0.001 179	1120.5	2.7188	0.001 174	1122.2	2.7110	0.001 169	1124.0	2.7034	**255**
260	0.001 187	1142.5	2.7604	0.001 182	1144.1	2.7523	0.001 177	1145.9	2.7445	**260**
265	0.001 196	1164.7	2.8018	0.001 190	1166.2	2.7935	0.001 185	1167.8	2.7854	**265**
270	0.001 204	1187.0	2.8430	0.001 198	1188.3	2.8344	0.001 193	1189.8	2.8261	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	65 MPa			70 MPa			75 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 213	1209.4	2.8840	0.001 207	1210.6	2.8752	0.001 201	1211.9	2.8666	**275**
280	0.001 222	1231.9	2.9250	0.001 216	1232.9	2.9158	0.001 210	1234.1	2.9070	**280**
285	0.001 232	1254.6	2.9657	0.001 225	1255.4	2.9563	0.001 219	1256.5	2.9472	**285**
290	0.001 241	1277.3	3.0064	0.001 234	1278.1	2.9966	0.001 228	1278.9	2.9872	**290**
295	0.001 251	1300.3	3.0469	0.001 244	1300.8	3.0368	0.001 237	1301.5	3.0271	**295**
300	0.001 262	1323.4	3.0874	0.001 254	1323.7	3.0769	0.001 247	1324.2	3.0669	**300**
310	0.001 284	1370.0	3.1681	0.001 275	1369.9	3.1569	0.001 267	1370.0	3.1461	**310**
320	0.001 308	1417.4	3.2486	0.001 298	1416.7	3.2365	0.001 289	1416.4	3.2250	**320**
330	0.001 333	1465.5	3.3290	0.001 322	1464.3	3.3160	0.001 312	1463.4	3.3036	**330**
340	0.001 361	1514.4	3.4094	0.001 349	1512.5	3.3953	0.001 337	1511.0	3.3820	**340**
350	0.001 391	1564.2	3.4900	0.001 377	1561.6	3.4747	0.001 364	1559.4	3.4602	**350**
360	0.001 424	1615.0	3.5709	0.001 408	1611.5	3.5541	0.001 394	1608.5	3.5384	**360**
370	0.001 461	1667.1	3.6525	0.001 442	1662.5	3.6341	0.001 425	1658.6	3.6169	**370**
380	0.001 501	1720.5	3.7350	0.001 480	1714.7	3.7146	0.001 460	1709.7	3.6958	**380**
390	0.001 547	1775.5	3.8184	0.001 521	1768.1	3.7957	0.001 498	1761.9	3.7750	**390**
400	0.001 597	1832.1	3.9031	0.001 566	1822.9	3.8778	0.001 540	1815.2	3.8548	**400**
410	0.001 654	1890.5	3.9894	0.001 617	1879.2	3.9609	0.001 586	1869.9	3.9354	**410**
420	0.001 719	1951.2	4.0775	0.001 674	1937.3	4.0453	0.001 637	1925.9	4.0168	**420**
430	0.001 793	2014.3	4.1678	0.001 738	1997.3	4.1312	0.001 693	1983.5	4.0994	**430**
440	0.001 877	2079.8	4.2604	0.001 810	2059.3	4.2188	0.001 757	2042.8	4.1830	**440**
450	0.001 975	2148.0	4.3554	0.001 892	2123.4	4.3080	0.001 827	2103.7	4.2679	**450**
460	0.002 086	2218.6	4.4524	0.001 984	2189.5	4.3987	0.001 906	2166.3	4.3539	**460**
470	0.002 212	2291.3	4.5507	0.002 087	2257.3	4.4906	0.001 993	2230.4	4.4407	**470**
480	0.002 352	2365.1	4.6495	0.002 202	2326.4	4.5830	0.002 089	2295.7	4.5280	**480**
490	0.002 505	2439.3	4.7473	0.002 327	2396.3	4.6752	0.002 194	2361.9	4.6153	**490**
500	0.002 669	2512.8	4.8430	0.002 463	2466.2	4.7662	0.002 308	2428.5	4.7019	**500**
510	0.002 841	2584.7	4.9354	0.002 607	2535.5	4.8552	0.002 430	2494.9	4.7873	**510**
520	0.003 017	2654.3	5.0236	0.002 757	2603.4	4.9413	0.002 558	2560.6	4.8707	**520**
530	0.003 194	2721.1	5.1073	0.002 911	2669.5	5.0242	0.002 691	2625.2	4.9517	**530**
540	0.003 372	2785.0	5.1864	0.003 067	2733.4	5.1032	0.002 827	2688.3	5.0298	**540**
550	0.003 547	2845.9	5.2609	0.003 223	2795.0	5.1786	0.002 966	2749.6	5.1047	**550**
560	0.003 718	2903.9	5.3309	0.003 378	2854.1	5.2499	0.003 105	2809.1	5.1765	**560**
570	0.003 886	2959.2	5.3970	0.003 532	2910.7	5.3175	0.003 244	2866.4	5.2448	**570**
580	0.004 050	3012.1	5.4593	0.003 683	2965.1	5.3816	0.003 382	2921.6	5.3100	**580**
590	0.004 209	3062.7	5.5182	0.003 830	3017.3	5.4424	0.003 518	2974.9	5.3721	**590**
600	0.004 363	3111.2	5.5741	0.003 975	3067.5	5.5003	0.003 652	3026.4	5.4313	**600**
610	0.004 514	3157.9	5.6273	0.004 116	3115.8	5.5553	0.003 784	3076.0	5.4878	**610**
620	0.004 660	3202.9	5.6779	0.004 254	3162.4	5.6078	0.003 913	3123.9	5.5418	**620**
630	0.004 803	3246.4	5.7264	0.004 388	3207.5	5.6579	0.004 039	3170.3	5.5934	**630**
640	0.004 942	3288.6	5.7729	0.004 520	3251.2	5.7060	0.004 163	3215.2	5.6429	**640**
650	0.005 078	3329.6	5.8176	0.004 648	3293.6	5.7522	0.004 285	3258.9	5.6904	**650**
660	0.005 211	3369.6	5.8606	0.004 774	3334.8	5.7967	0.004 403	3301.3	5.7362	**660**
670	0.005 341	3408.6	5.9022	0.004 897	3375.1	5.8396	0.004 520	3342.7	5.7803	**670**
680	0.005 469	3446.7	5.9424	0.005 018	3414.4	5.8810	0.004 634	3383.1	5.8229	**680**
690	0.005 594	3484.0	5.9813	0.005 136	3452.8	5.9211	0.004 746	3422.6	5.8641	**690**
700	0.005 716	3520.6	6.0191	0.005 252	3490.5	5.9600	0.004 856	3461.2	5.9040	**700**
710	0.005 836	3556.5	6.0558	0.005 366	3527.4	5.9978	0.004 964	3499.1	5.9427	**710**
720	0.005 955	3591.8	6.0915	0.005 478	3563.6	6.0344	0.005 071	3536.2	5.9803	**720**
730	0.006 071	3626.5	6.1263	0.005 588	3599.3	6.0702	0.005 175	3572.7	6.0169	**730**
740	0.006 186	3660.8	6.1603	0.005 697	3634.4	6.1050	0.005 278	3608.6	6.0525	**740**
750	0.006 299	3694.5	6.1935	0.005 804	3669.0	6.1390	0.005 380	3644.0	6.0873	**750**
760	0.006 410	3727.9	6.2259	0.005 909	3703.1	6.1722	0.005 480	3678.9	6.1212	**760**
770	0.006 520	3760.9	6.2577	0.006 013	3736.8	6.2046	0.005 578	3713.3	6.1544	**770**
780	0.006 628	3793.5	6.2888	0.006 115	3770.1	6.2364	0.005 676	3747.3	6.1868	**780**
790	0.006 735	3825.8	6.3193	0.006 217	3803.1	6.2676	0.005 772	3781.0	6.2186	**790**
800	0.006 841	3857.8	6.3493	0.006 317	3835.8	6.2982	0.005 866	3814.3	6.2498	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	80 MPa			90 MPa			100 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
0	0.000 964 3	77.18	-0.0049	0.000 960 5	86.33	-0.0066	0.000 956 7	95.39	-0.0086	**0**
5	0.000 965 3	96.95	0.0668	0.000 961 5	106.00	0.0647	0.000 957 8	114.97	0.0625	**5**
10	0.000 966 3	116.81	0.1376	0.000 962 6	125.77	0.1352	0.000 959 0	134.65	0.1326	**10**
15	0.000 967 6	136.73	0.2073	0.000 963 9	145.60	0.2046	0.000 960 4	154.41	0.2018	**15**
20	0.000 969 0	156.71	0.2761	0.000 965 4	165.50	0.2730	0.000 961 9	174.23	0.2700	**20**
25	0.000 970 6	176.73	0.3438	0.000 967 0	185.44	0.3405	0.000 963 5	194.10	0.3372	**25**
30	0.000 972 3	196.78	0.4105	0.000 968 7	205.42	0.4069	0.000 965 2	214.00	0.4034	**30**
35	0.000 974 1	216.86	0.4762	0.000 970 5	225.43	0.4724	0.000 967 1	233.94	0.4686	**35**
40	0.000 976 0	236.97	0.5409	0.000 972 5	245.46	0.5369	0.000 969 1	253.91	0.5329	**40**
45	0.000 978 1	257.11	0.6047	0.000 974 6	265.52	0.6005	0.000 971 1	273.90	0.5962	**45**
50	0.000 980 2	277.26	0.6675	0.000 976 7	285.60	0.6631	0.000 973 3	293.92	0.6586	**50**
55	0.000 982 5	297.43	0.7295	0.000 979 0	305.70	0.7248	0.000 975 6	313.95	0.7202	**55**
60	0.000 984 9	317.62	0.7905	0.000 981 4	325.82	0.7857	0.000 977 9	334.00	0.7808	**60**
65	0.000 987 4	337.82	0.8507	0.000 983 9	345.96	0.8456	0.000 980 4	354.07	0.8406	**65**
70	0.000 990 0	358.04	0.9101	0.000 986 5	366.11	0.9048	0.000 983 0	374.16	0.8996	**70**
75	0.000 992 8	378.28	0.9687	0.000 989 1	386.28	0.9632	0.000 985 6	394.26	0.9577	**75**
80	0.000 995 6	398.54	1.0264	0.000 991 9	406.47	1.0207	0.000 988 3	414.38	1.0151	**80**
85	0.000 998 5	418.82	1.0834	0.000 994 8	426.67	1.0776	0.000 991 2	434.52	1.0717	**85**
90	0.001 001 5	439.11	1.1397	0.000 997 8	446.90	1.1336	0.000 994 1	454.68	1.1276	**90**
95	0.001 004 6	459.42	1.1953	0.001 000 8	467.14	1.1890	0.000 997 1	474.85	1.1828	**95**
100	0.001 007 8	479.75	1.2501	0.001 004 0	487.39	1.2436	0.001 000 2	495.04	1.2373	**100**
105	0.001 011 2	500.11	1.3043	0.001 007 3	507.67	1.2976	0.001 003 4	515.25	1.2911	**105**
110	0.001 014 6	520.48	1.3578	0.001 010 6	527.97	1.3509	0.001 006 7	535.47	1.3442	**110**
115	0.001 018 1	540.87	1.4107	0.001 014 1	548.29	1.4036	0.001 010 1	555.72	1.3967	**115**
120	0.001 021 7	561.29	1.4630	0.001 017 6	568.62	1.4557	0.001 013 6	575.98	1.4486	**120**
125	0.001 025 5	581.72	1.5146	0.001 021 2	588.98	1.5071	0.001 017 2	596.27	1.4998	**125**
130	0.001 029 3	602.19	1.5657	0.001 025 0	609.37	1.5580	0.001 020 8	616.57	1.5505	**130**
135	0.001 033 2	622.67	1.6162	0.001 028 8	629.77	1.6083	0.001 024 6	636.90	1.6006	**135**
140	0.001 037 2	643.19	1.6661	0.001 032 8	650.20	1.6581	0.001 028 4	657.24	1.6502	**140**
145	0.001 041 4	663.72	1.7156	0.001 036 8	670.65	1.7073	0.001 032 4	677.62	1.6992	**145**
150	0.001 045 6	684.29	1.7645	0.001 041 0	691.13	1.7560	0.001 036 4	698.01	1.7477	**150**
155	0.001 050 0	704.89	1.8128	0.001 045 2	711.63	1.8041	0.001 040 6	718.43	1.7956	**155**
160	0.001 054 5	725.52	1.8607	0.001 049 6	732.17	1.8518	0.001 044 8	738.87	1.8431	**160**
165	0.001 059 1	746.18	1.9082	0.001 054 0	752.73	1.8990	0.001 049 2	759.34	1.8901	**165**
170	0.001 063 8	766.87	1.9551	0.001 058 6	773.33	1.9458	0.001 053 6	779.84	1.9366	**170**
175	0.001 068 6	787.60	2.0016	0.001 063 3	793.95	1.9920	0.001 058 2	800.37	1.9827	**175**
180	0.001 073 5	808.37	2.0477	0.001 068 1	814.61	2.0379	0.001 062 8	820.93	2.0283	**180**
185	0.001 078 6	829.17	2.0934	0.001 073 0	835.31	2.0833	0.001 067 6	841.53	2.0735	**185**
190	0.001 083 8	850.02	2.1387	0.001 078 0	856.04	2.1283	0.001 072 5	862.15	2.1183	**190**
195	0.001 089 1	870.91	2.1835	0.001 083 1	876.81	2.1729	0.001 077 5	882.81	2.1627	**195**
200	0.001 094 5	891.85	2.2280	0.001 088 4	897.63	2.2171	0.001 082 6	903.51	2.2066	**200**
205	0.001 100	912.83	2.2721	0.001 093 8	918.48	2.2610	0.001 087 8	924.25	2.2502	**205**
210	0.001 106	933.87	2.3159	0.001 099 3	939.39	2.3045	0.001 093 1	945.03	2.2935	**210**
215	0.001 112	954.96	2.3593	0.001 105	960.34	2.3476	0.001 098 6	965.86	2.3364	**215**
220	0.001 118	976.10	2.4024	0.001 111	981.34	2.3904	0.001 104	986.72	2.3789	**220**
225	0.001 124	997.31	2.4452	0.001 117	1002.4	2.4329	0.001 110	1007.6	2.4211	**225**
230	0.001 130	1018.6	2.4877	0.001 123	1023.5	2.4751	0.001 116	1028.6	2.4630	**230**
235	0.001 137	1039.9	2.5299	0.001 129	1044.7	2.5169	0.001 122	1049.6	2.5045	**235**
240	0.001 143	1061.3	2.5718	0.001 136	1065.9	2.5585	0.001 128	1070.7	2.5458	**240**
245	0.001 150	1082.8	2.6134	0.001 142	1087.2	2.5998	0.001 134	1091.8	2.5868	**245**
250	0.001 157	1104.3	2.6548	0.001 149	1108.6	2.6408	0.001 141	1113.0	2.6275	**250**
255	0.001 165	1126.0	2.6959	0.001 156	1130.0	2.6816	0.001 147	1134.3	2.6679	**255**
260	0.001 172	1147.7	2.7368	0.001 163	1151.5	2.7221	0.001 154	1155.6	2.7081	**260**
265	0.001 180	1169.5	2.7775	0.001 170	1173.1	2.7624	0.001 161	1177.0	2.7481	**265**
270	0.001 188	1191.4	2.8180	0.001 178	1194.7	2.8025	0.001 168	1198.5	2.7878	**270**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-3 (continued). Properties of Superheated Steam and Compressed Water

t (°C)	80 MPa			90 MPa			100 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
275	0.001 196	1213.3	2.8583	0.001 185	1216.5	2.8424	0.001 175	1220.0	2.8272	**275**
280	0.001 204	1235.4	2.8984	0.001 193	1238.3	2.8820	0.001 183	1241.6	2.8665	**280**
285	0.001 213	1257.6	2.9384	0.001 201	1260.3	2.9215	0.001 191	1263.3	2.9055	**285**
290	0.001 221	1279.9	2.9781	0.001 209	1282.3	2.9608	0.001 198	1285.1	2.9444	**290**
295	0.001 230	1302.3	3.0178	0.001 218	1304.4	2.9999	0.001 207	1307.0	2.9830	**295**
300	0.001 240	1324.9	3.0572	0.001 227	1326.6	3.0388	0.001 215	1328.9	3.0215	**300**
310	0.001 259	1370.3	3.1358	0.001 245	1371.4	3.1163	0.001 232	1373.1	3.0980	**310**
320	0.001 280	1416.3	3.2140	0.001 265	1416.6	3.1931	0.001 250	1417.7	3.1738	**320**
330	0.001 303	1462.8	3.2918	0.001 285	1462.3	3.2695	0.001 270	1462.7	3.2490	**330**
340	0.001 327	1509.9	3.3693	0.001 307	1508.5	3.3455	0.001 290	1508.1	3.3236	**340**
350	0.001 352	1557.7	3.4465	0.001 331	1555.2	3.4211	0.001 312	1553.9	3.3978	**350**
360	0.001 380	1606.1	3.5236	0.001 356	1602.5	3.4963	0.001 335	1600.2	3.4715	**360**
370	0.001 410	1655.4	3.6008	0.001 383	1650.4	3.5714	0.001 359	1647.1	3.5449	**370**
380	0.001 443	1705.6	3.6783	0.001 412	1699.1	3.6465	0.001 385	1694.5	3.6181	**380**
390	0.001 478	1756.7	3.7559	0.001 443	1748.4	3.7215	0.001 413	1742.5	3.6910	**390**
400	0.001 516	1808.8	3.8339	0.001 476	1798.6	3.7965	0.001 443	1791.1	3.7638	**400**
410	0.001 558	1861.9	3.9123	0.001 513	1849.5	3.8716	0.001 475	1840.4	3.8364	**410**
420	0.001 605	1916.3	3.9913	0.001 552	1901.3	3.9469	0.001 509	1890.3	3.9089	**420**
430	0.001 656	1972.0	4.0711	0.001 594	1954.1	4.0225	0.001 546	1940.9	3.9814	**430**
440	0.001 712	2029.1	4.1517	0.001 641	2007.9	4.0984	0.001 586	1992.3	4.0540	**440**
450	0.001 774	2087.6	4.2331	0.001 691	2062.7	4.1747	0.001 628	2044.5	4.1267	**450**
460	0.001 842	2147.4	4.3153	0.001 746	2118.5	4.2514	0.001 674	2097.4	4.1994	**460**
470	0.001 918	2208.6	4.3982	0.001 805	2175.3	4.3284	0.001 723	2151.2	4.2722	**470**
480	0.002 001	2270.8	4.4814	0.001 870	2233.0	4.4055	0.001 776	2205.6	4.3450	**480**
490	0.002 091	2333.9	4.5646	0.001 939	2291.4	4.4825	0.001 833	2260.7	4.4176	**490**
500	0.002 188	2397.6	4.6474	0.002 014	2350.3	4.5593	0.001 893	2316.2	4.4899	**500**
510	0.002 292	2461.3	4.7294	0.002 094	2409.6	4.6355	0.001 957	2372.1	4.5618	**510**
520	0.002 403	2524.8	4.8099	0.002 179	2469.0	4.7108	0.002 025	2428.3	4.6330	**520**
530	0.002 518	2587.6	4.8886	0.002 268	2528.2	4.7850	0.002 097	2484.4	4.7033	**530**
540	0.002 638	2649.4	4.9651	0.002 361	2587.0	4.8578	0.002 172	2540.4	4.7726	**540**
550	0.002 760	2709.9	5.0391	0.002 458	2645.2	4.9288	0.002 250	2596.1	4.8407	**550**
560	0.002 885	2769.0	5.1103	0.002 557	2702.5	4.9981	0.002 330	2651.3	4.9074	**560**
570	0.003 010	2826.4	5.1789	0.002 658	2758.9	5.0653	0.002 413	2706.0	4.9726	**570**
580	0.003 135	2882.0	5.2445	0.002 761	2814.1	5.1304	0.002 498	2759.9	5.0361	**580**
590	0.003 260	2935.9	5.3072	0.002 865	2868.1	5.1933	0.002 585	2812.9	5.0980	**590**
600	0.003 384	2988.1	5.3674	0.002 970	2920.8	5.2540	0.002 672	2865.1	5.1580	**600**
610	0.003 506	3038.6	5.4249	0.003 074	2972.2	5.3125	0.002 761	2916.4	5.2165	**610**
620	0.003 626	3087.6	5.4800	0.003 177	3022.2	5.3689	0.002 850	2966.7	5.2731	**620**
630	0.003 744	3135.0	5.5328	0.003 280	3070.9	5.4231	0.002 938	3015.9	5.3279	**630**
640	0.003 861	3181.0	5.5835	0.003 382	3118.3	5.4753	0.003 026	3063.8	5.3806	**640**
650	0.003 975	3225.7	5.6321	0.003 482	3164.4	5.5255	0.003 114	3110.6	5.4316	**650**
660	0.004 087	3269.2	5.6790	0.003 582	3209.4	5.5741	0.003 202	3156.4	5.4809	**660**
670	0.004 197	3311.6	5.7242	0.003 680	3253.4	5.6209	0.003 289	3201.3	5.5288	**670**
680	0.004 306	3352.9	5.7678	0.003 777	3296.4	5.6663	0.003 376	3245.3	5.5752	**680**
690	0.004 412	3393.4	5.8100	0.003 872	3338.4	5.7101	0.003 461	3288.4	5.6202	**690**
700	0.004 516	3432.9	5.8509	0.003 966	3379.5	5.7526	0.003 546	3330.8	5.6640	**700**
710	0.004 619	3471.7	5.8905	0.004 059	3419.8	5.7938	0.003 630	3372.3	5.7064	**710**
720	0.004 720	3509.7	5.9290	0.004 150	3459.3	5.8337	0.003 712	3413.0	5.7476	**720**
730	0.004 819	3547.0	5.9663	0.004 240	3498.0	5.8725	0.003 794	3452.9	5.7876	**730**
740	0.004 917	3583.6	6.0027	0.004 329	3536.1	5.9103	0.003 874	3492.1	5.8265	**740**
750	0.005 013	3619.7	6.0382	0.004 416	3573.5	5.9470	0.003 953	3530.7	5.8644	**750**
760	0.005 108	3655.3	6.0728	0.004 502	3610.4	5.9829	0.004 031	3568.6	5.9013	**760**
770	0.005 202	3690.4	6.1066	0.004 587	3646.7	6.0179	0.004 109	3606.0	5.9373	**770**
780	0.005 295	3725.1	6.1397	0.004 671	3682.5	6.0521	0.004 185	3642.8	5.9724	**780**
790	0.005 386	3759.4	6.1721	0.004 754	3718.0	6.0856	0.004 261	3679.2	6.0068	**790**
800	0.005 476	3793.3	6.2039	0.004 836	3753.0	6.1184	0.004 336	3715.2	6.0405	**800**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4. Properties of Steam at High Temperatures

t (°C)	0.01 MPa			0.05 MPa			0.1 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	35.680	3489.7	9.8997	7.1339	3489.2	9.1565	3.5656	3488.7	8.8361	**500**
525	36.834	3543.2	9.9678	7.3649	3542.8	9.2246	3.6812	3542.3	8.9043	**525**
550	37.988	3597.1	10.034	7.5959	3596.7	9.2912	3.7968	3596.3	8.9709	**550**
575	39.142	3651.5	10.099	7.8268	3651.1	9.3563	3.9124	3650.7	9.0360	**575**
600	40.296	3706.3	10.163	8.0578	3706.0	9.4200	4.0279	3705.6	9.0998	**600**
625	41.450	3761.5	10.225	8.2887	3761.2	9.4824	4.1435	3760.9	9.1622	**625**
650	42.604	3817.2	10.287	8.5196	3816.9	9.5436	4.2590	3816.6	9.2234	**650**
675	43.758	3873.3	10.347	8.7505	3873.1	9.6036	4.3745	3872.8	9.2834	**675**
700	44.912	3929.9	10.405	8.9814	3929.7	9.6625	4.4900	3929.4	9.3424	**700**
725	46.066	3986.9	10.463	9.2123	3986.7	9.7204	4.6055	3986.4	9.4003	**725**
750	47.220	4044.4	10.520	9.4431	4044.2	9.7772	4.7210	4043.9	9.4571	**750**
775	48.374	4102.3	10.576	9.6740	4102.1	9.8332	4.8365	4101.8	9.5131	**775**
800	49.528	4160.6	10.631	9.9048	4160.5	9.8882	4.9520	4160.2	9.5681	**800**
825	50.682	4219.4	10.685	10.136	4219.3	9.9424	5.0674	4219.1	9.6223	**825**
850	51.836	4278.7	10.739	10.367	4278.5	9.9957	5.1829	4278.3	9.6757	**850**
875	52.989	4338.3	10.791	10.597	4338.2	10.048	5.2983	4338.0	9.7282	**875**
900	54.143	4398.4	10.843	10.828	4398.2	10.100	5.4138	4398.1	9.7800	**900**
925	55.297	4458.9	10.894	11.059	4458.7	10.151	5.5292	4458.6	9.8310	**925**
950	56.451	4519.8	10.944	11.290	4519.6	10.201	5.6447	4519.5	9.8813	**950**
975	57.605	4581.1	10.994	11.521	4581.0	10.251	5.7601	4580.8	9.9309	**975**
1000	58.759	4642.8	11.043	11.751	4642.7	10.300	5.8755	4642.5	9.9799	**1000**
1025	59.913	4704.9	11.091	11.982	4704.8	10.348	5.9910	4704.7	10.028	**1025**
1050	61.067	4767.4	11.139	12.213	4767.3	10.396	6.1064	4767.2	10.076	**1050**
1075	62.220	4830.4	11.186	12.444	4830.3	10.443	6.2218	4830.1	10.123	**1075**
1100	63.374	4893.7	11.232	12.675	4893.6	10.490	6.3372	4893.5	10.170	**1100**
1125	64.528	4957.4	11.278	12.905	4957.3	10.536	6.4527	4957.2	10.216	**1125**
1150	65.682	5021.4	11.324	13.136	5021.3	10.581	6.5681	5021.2	10.261	**1150**
1175	66.836	5085.9	11.369	13.367	5085.8	10.626	6.6835	5085.7	10.306	**1175**
1200	67.990	5150.7	11.413	13.598	5150.6	10.670	6.7989	5150.5	10.350	**1200**
1225	69.143	5215.8	11.457	13.829	5215.7	10.714	6.9143	5215.7	10.394	**1225**
1250	70.297	5281.3	11.500	14.059	5281.3	10.757	7.0297	5281.2	10.438	**1250**
1275	71.451	5347.2	11.543	14.290	5347.1	10.800	7.1451	5347.0	10.480	**1275**
1300	72.605	5413.4	11.586	14.521	5413.3	10.843	7.2605	5413.2	10.523	**1300**
1325	73.759	5479.9	11.628	14.752	5479.8	10.885	7.3760	5479.7	10.565	**1325**
1350	74.913	5546.7	11.669	14.983	5546.6	10.926	7.4914	5546.6	10.606	**1350**
1375	76.067	5613.8	11.710	15.213	5613.8	10.967	7.6068	5613.7	10.647	**1375**
1400	77.220	5681.3	11.751	15.444	5681.2	11.008	7.7222	5681.2	10.688	**1400**
1425	78.374	5749.0	11.791	15.675	5749.0	11.048	7.8376	5748.9	10.728	**1425**
1450	79.528	5817.1	11.831	15.906	5817.0	11.088	7.9530	5817.0	10.768	**1450**
1475	80.682	5885.4	11.870	16.137	5885.4	11.127	8.0684	5885.3	10.807	**1475**
1500	81.836	5954.0	11.909	16.367	5954.0	11.166	8.1838	5953.9	10.846	**1500**
1525	82.990	6022.9	11.948	16.598	6022.9	11.205	8.2992	6022.8	10.885	**1525**
1550	84.143	6092.1	11.986	16.829	6092.0	11.243	8.4146	6092.0	10.923	**1550**
1575	85.297	6161.5	12.024	17.060	6161.5	11.281	8.5300	6161.4	10.961	**1575**
1600	86.451	6231.2	12.061	17.290	6231.1	11.318	8.6454	6231.1	10.998	**1600**
1650	88.759	6371.3	12.135	17.752	6371.2	11.392	8.8762	6371.2	11.072	**1650**
1700	91.066	6512.3	12.207	18.214	6512.3	11.464	9.1069	6512.3	11.145	**1700**
1750	93.374	6654.3	12.278	18.675	6654.3	11.536	9.3377	6654.3	11.216	**1750**
1800	95.682	6797.2	12.348	19.137	6797.2	11.605	9.5685	6797.1	11.285	**1800**
1850	97.989	6940.9	12.417	19.598	6940.9	11.674	9.7993	6940.9	11.354	**1850**
1900	100.30	7085.5	12.484	20.060	7085.5	11.741	10.030	7085.4	11.421	**1900**
1950	102.60	7230.8	12.550	20.521	7230.8	11.807	10.261	7230.8	11.487	**1950**
2000	104.91	7377.0	12.615	20.983	7377.0	11.872	10.492	7377.0	11.552	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4 (continued). Properties of Steam at High Temperatures

t (°C)	0.2 MPa			0.4 MPa			0.6 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	1.7814	3487.6	8.5151	0.889 36	3485.5	8.1931	0.592 00	3483.3	8.0039	**500**
525	1.8394	3541.3	8.5834	0.918 45	3539.3	8.2617	0.611 48	3537.3	8.0727	**525**
550	1.8973	3595.4	8.6501	0.947 52	3593.6	8.3286	0.630 93	3591.7	8.1398	**550**
575	1.9552	3649.9	8.7154	0.976 56	3648.2	8.3940	0.650 36	3646.5	8.2053	**575**
600	2.0130	3704.8	8.7792	1.0056	3703.2	8.4579	0.669 77	3701.7	8.2694	**600**
625	2.0709	3760.1	8.8417	1.0346	3758.7	8.5205	0.689 16	3757.3	8.3322	**625**
650	2.1287	3815.9	8.9029	1.0636	3814.6	8.5819	0.708 54	3813.2	8.3937	**650**
675	2.1866	3872.1	8.9630	1.0926	3870.9	8.6421	0.727 90	3869.6	8.4539	**675**
700	2.2444	3928.8	9.0220	1.1215	3927.6	8.7012	0.747 25	3926.5	8.5131	**700**
725	2.3022	3985.9	9.0799	1.1505	3984.8	8.7592	0.766 59	3983.7	8.5712	**725**
750	2.3600	4043.4	9.1368	1.1794	4042.4	8.8161	0.785 93	4041.4	8.6282	**750**
775	2.4177	4101.4	9.1928	1.2084	4100.4	8.8722	0.805 25	4099.4	8.6843	**775**
800	2.4755	4159.8	9.2479	1.2373	4158.9	8.9273	0.824 58	4158.0	8.7395	**800**
825	2.5333	4218.6	9.3021	1.2662	4217.8	8.9815	0.843 89	4216.9	8.7938	**825**
850	2.5911	4277.9	9.3555	1.2952	4277.1	9.0350	0.863 20	4276.3	8.8472	**850**
875	2.6488	4337.6	9.4080	1.3241	4336.8	9.0876	0.882 50	4336.1	8.8999	**875**
900	2.7066	4397.7	9.4598	1.3530	4397.0	9.1394	0.901 79	4396.2	8.9517	**900**
925	2.7643	4458.2	9.5108	1.3819	4457.5	9.1905	0.921 09	4456.8	9.0028	**925**
950	2.8221	4519.1	9.5612	1.4108	4518.5	9.2408	0.940 38	4517.8	9.0532	**950**
975	2.8798	4580.5	9.6108	1.4397	4579.9	9.2905	0.959 66	4579.3	9.1029	**975**
1000	2.9376	4642.2	9.6598	1.4686	4641.7	9.3395	0.978 94	4641.1	9.1520	**1000**
1025	2.9953	4704.4	9.7082	1.4975	4703.8	9.3879	0.998 22	4703.3	9.2004	**1025**
1050	3.0531	4766.9	9.7559	1.5264	4766.4	9.4356	1.0175	4765.9	9.2481	**1050**
1075	3.1108	4829.9	9.8030	1.5553	4829.4	9.4828	1.0368	4828.9	9.2953	**1075**
1100	3.1685	4893.2	9.8496	1.5842	4892.8	9.5293	1.0560	4892.3	9.3419	**1100**
1125	3.2263	4956.9	9.8955	1.6130	4956.5	9.5753	1.0753	4956.0	9.3879	**1125**
1150	3.2840	5021.0	9.9410	1.6419	5020.6	9.6208	1.0946	5020.2	9.4334	**1150**
1175	3.3417	5085.5	9.9859	1.6708	5085.1	9.6657	1.1138	5084.7	9.4783	**1175**
1200	3.3994	5150.3	10.030	1.6997	5149.9	9.7101	1.1331	5149.5	9.5227	**1200**
1225	3.4571	5215.5	10.074	1.7286	5215.1	9.7540	1.1524	5214.7	9.5666	**1225**
1250	3.5149	5281.0	10.117	1.7574	5280.7	9.7974	1.1716	5280.3	9.6100	**1250**
1275	3.5726	5346.9	10.160	1.7863	5346.5	9.8403	1.1909	5346.2	9.6529	**1275**
1300	3.6303	5413.1	10.203	1.8152	5412.7	9.8827	1.2101	5412.4	9.6953	**1300**
1325	3.6880	5479.6	10.245	1.8440	5479.3	9.9246	1.2294	5479.0	9.7373	**1325**
1350	3.7457	5546.4	10.286	1.8729	5546.1	9.9662	1.2486	5545.9	9.7788	**1350**
1375	3.8034	5613.6	10.327	1.9018	5613.3	10.007	1.2679	5613.1	9.8199	**1375**
1400	3.8612	5681.0	10.368	1.9307	5680.8	10.048	1.2872	5680.5	9.8606	**1400**
1425	3.9189	5748.8	10.408	1.9595	5748.6	10.088	1.3064	5748.3	9.9008	**1425**
1450	3.9766	5816.9	10.448	1.9884	5816.6	10.128	1.3257	5816.4	9.9406	**1450**
1475	4.0343	5885.2	10.487	2.0172	5885.0	10.167	1.3449	5884.8	9.9800	**1475**
1500	4.0920	5953.8	10.526	2.0461	5953.6	10.206	1.3641	5953.4	10.019	**1500**
1525	4.1497	6022.7	10.565	2.0750	6022.5	10.245	1.3834	6022.4	10.058	**1525**
1550	4.2074	6091.9	10.603	2.1038	6091.7	10.283	1.4026	6091.5	10.096	**1550**
1575	4.2651	6161.3	10.641	2.1327	6161.2	10.321	1.4219	6161.0	10.134	**1575**
1600	4.3228	6231.0	10.678	2.1616	6230.9	10.358	1.4411	6230.7	10.171	**1600**
1650	4.4382	6371.1	10.752	2.2193	6371.0	10.432	1.4796	6370.8	10.245	**1650**
1700	4.5536	6512.2	10.825	2.2770	6512.1	10.505	1.5181	6512.0	10.317	**1700**
1750	4.6690	6654.2	10.896	2.3347	6654.1	10.576	1.5566	6654.0	10.388	**1750**
1800	4.7845	6797.1	10.965	2.3924	6797.0	10.645	1.5951	6796.9	10.458	**1800**
1850	4.8999	6940.8	11.034	2.4501	6940.7	10.714	1.6336	6940.7	10.527	**1850**
1900	5.0153	7085.4	11.101	2.5078	7085.3	10.781	1.6720	7085.3	10.594	**1900**
1950	5.1307	7230.8	11.167	2.5655	7230.7	10.847	1.7105	7230.6	10.660	**1950**
2000	5.2460	7376.9	11.232	2.6233	7376.9	10.912	1.7490	7376.8	10.725	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4 (continued). Properties of Steam at High Temperatures

t (°C)	1.0 MPa			1.5 MPa			2.0 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	0.354 11	3479.0	7.7640	0.235 16	3473.6	7.5716	0.175 68	3468.1	7.4335	**500**
525	0.365 90	3533.4	7.8332	0.243 10	3528.4	7.6413	0.181 70	3523.4	7.5038	**525**
550	0.377 66	3588.1	7.9007	0.251 02	3583.5	7.7093	0.187 69	3578.9	7.5723	**550**
575	0.389 39	3643.1	7.9665	0.258 91	3638.9	7.7756	0.193 66	3634.6	7.6391	**575**
600	0.401 11	3698.6	8.0309	0.266 78	3694.6	7.8404	0.199 61	3690.7	7.7042	**600**
625	0.412 81	3754.4	8.0940	0.274 64	3750.7	7.9037	0.205 55	3747.1	7.7679	**625**
650	0.424 50	3810.5	8.1557	0.282 48	3807.2	7.9657	0.211 46	3803.8	7.8301	**650**
675	0.436 17	3867.1	8.2161	0.290 30	3864.0	8.0264	0.217 37	3860.8	7.8911	**675**
700	0.447 83	3924.1	8.2755	0.298 12	3921.2	8.0860	0.223 26	3918.2	7.9509	**700**
725	0.459 48	3981.5	8.3337	0.305 92	3978.8	8.1444	0.229 14	3976.0	8.0095	**725**
750	0.471 12	4039.3	8.3909	0.313 72	4036.7	8.2018	0.235 01	4034.2	8.0670	**750**
775	0.482 75	4097.5	8.4471	0.321 50	4095.1	8.2581	0.240 88	4092.7	8.1235	**775**
800	0.494 39	4156.1	8.5023	0.329 29	4153.9	8.3135	0.246 74	4151.6	8.1790	**800**
825	0.506 01	4215.2	8.5568	0.337 06	4213.0	8.3680	0.252 59	4210.9	8.2337	**825**
850	0.517 62	4274.7	8.6103	0.344 83	4272.6	8.4217	0.258 44	4270.6	8.2874	**850**
875	0.529 23	4334.5	8.6630	0.352 60	4332.6	8.4745	0.264 28	4330.7	8.3403	**875**
900	0.540 83	4394.8	8.7149	0.360 36	4393.0	8.5265	0.270 12	4391.2	8.3925	**900**
925	0.552 44	4455.5	8.7661	0.368 11	4453.8	8.5778	0.275 95	4452.0	8.4438	**925**
950	0.564 03	4516.6	8.8166	0.375 86	4514.9	8.6283	0.281 77	4513.3	8.4944	**950**
975	0.575 62	4578.0	8.8663	0.383 61	4576.5	8.6781	0.287 60	4575.0	8.5443	**975**
1000	0.587 21	4639.9	8.9154	0.391 35	4638.5	8.7273	0.293 42	4637.0	8.5935	**1000**
1025	0.598 80	4702.2	8.9639	0.399 09	4700.8	8.7758	0.299 24	4699.4	8.6421	**1025**
1050	0.610 38	4764.9	9.0117	0.406 83	4763.5	8.8237	0.305 05	4762.2	8.6900	**1050**
1075	0.621 97	4827.9	9.0589	0.414 56	4826.7	8.8709	0.310 86	4825.4	8.7373	**1075**
1100	0.633 54	4891.3	9.1055	0.422 30	4890.2	8.9176	0.316 67	4889.0	8.7840	**1100**
1125	0.645 12	4955.1	9.1515	0.430 03	4954.0	8.9637	0.322 48	4952.9	8.8302	**1125**
1150	0.656 69	5019.3	9.1970	0.437 75	5018.3	9.0092	0.328 29	5017.2	8.8757	**1150**
1175	0.668 27	5083.9	9.2420	0.445 48	5082.9	9.0542	0.334 09	5081.9	8.9208	**1175**
1200	0.679 84	5148.8	9.2864	0.453 21	5147.8	9.0987	0.339 89	5146.9	8.9653	**1200**
1225	0.691 41	5214.0	9.3304	0.460 93	5213.1	9.1426	0.345 69	5212.2	9.0093	**1225**
1250	0.702 97	5279.6	9.3738	0.468 65	5278.8	9.1861	0.351 49	5277.9	9.0527	**1250**
1275	0.714 54	5345.5	9.4167	0.476 37	5344.7	9.2290	0.357 28	5343.9	9.0957	**1275**
1300	0.726 10	5411.8	9.4592	0.484 09	5411.0	9.2715	0.363 08	5410.3	9.1382	**1300**
1325	0.737 67	5478.4	9.5012	0.491 80	5477.7	9.3136	0.368 87	5476.9	9.1803	**1325**
1350	0.749 23	5545.3	9.5427	0.499 52	5544.6	9.3551	0.374 67	5543.9	9.2219	**1350**
1375	0.760 79	5612.5	9.5838	0.507 24	5611.9	9.3962	0.380 46	5611.2	9.2630	**1375**
1400	0.772 35	5680.0	9.6245	0.514 95	5679.4	9.4369	0.386 25	5678.8	9.3037	**1400**
1425	0.783 91	5747.9	9.6647	0.522 66	5747.3	9.4772	0.392 04	5746.7	9.3440	**1425**
1450	0.795 47	5816.0	9.7045	0.530 37	5815.4	9.5170	0.397 83	5814.8	9.3838	**1450**
1475	0.807 02	5884.4	9.7439	0.538 08	5883.8	9.5564	0.403 61	5883.3	9.4233	**1475**
1500	0.818 58	5953.0	9.7829	0.545 79	5952.5	9.5954	0.409 40	5952.0	9.4623	**1500**
1525	0.830 13	6022.0	9.8215	0.553 50	6021.5	9.6341	0.415 19	6021.0	9.5010	**1525**
1550	0.841 69	6091.2	9.8597	0.561 21	6090.7	9.6723	0.420 97	6090.3	9.5392	**1550**
1575	0.853 24	6160.6	9.8976	0.568 92	6160.2	9.7102	0.426 76	6159.8	9.5771	**1575**
1600	0.864 80	6230.4	9.9351	0.576 63	6230.0	9.7476	0.432 54	6229.6	9.6146	**1600**
1650	0.887 90	6370.6	10.009	0.592 04	6370.2	9.8215	0.444 11	6369.8	9.6885	**1650**
1700	0.911 00	6511.7	10.081	0.607 45	6511.4	9.8940	0.455 67	6511.1	9.7610	**1700**
1750	0.934 10	6653.8	10.152	0.622 86	6653.5	9.9651	0.467 23	6653.2	9.8321	**1750**
1800	0.957 20	6796.7	10.222	0.638 26	6796.5	10.035	0.478 79	6796.2	9.9019	**1800**
1850	0.980 30	6940.5	10.291	0.653 67	6940.3	10.103	0.490 35	6940.1	9.9705	**1850**
1900	1.0034	7085.1	10.358	0.669 07	7084.9	10.171	0.501 91	7084.7	10.038	**1900**
1950	1.0265	7230.5	10.424	0.684 47	7230.4	10.237	0.513 47	7230.2	10.104	**1950**
2000	1.0496	7376.7	10.489	0.699 87	7376.6	10.302	0.525 02	7376.5	10.169	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4 (continued). Properties of Steam at High Temperatures

t (°C)	3 MPa			4 MPa			5 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	0.116 19	3457.0	7.2356	0.086 44	3445.8	7.0919	0.068 58	3434.5	6.9778	**500**
525	0.120 29	3513.3	7.3072	0.089 58	3503.0	7.1647	0.071 15	3492.7	7.0519	**525**
550	0.124 37	3569.6	7.3767	0.092 70	3560.2	7.2353	0.073 69	3550.8	7.1235	**550**
575	0.128 42	3626.1	7.4443	0.095 79	3617.5	7.3038	0.076 21	3608.8	7.1930	**575**
600	0.132 44	3682.8	7.5102	0.098 86	3674.8	7.3704	0.078 70	3666.8	7.2604	**600**
625	0.136 46	3739.8	7.5745	0.101 91	3732.4	7.4354	0.081 18	3725.0	7.3261	**625**
650	0.140 45	3797.0	7.6373	0.104 94	3790.2	7.4989	0.083 64	3783.3	7.3901	**650**
675	0.144 43	3854.5	7.6988	0.107 96	3848.2	7.5608	0.086 08	3841.8	7.4526	**675**
700	0.148 40	3912.3	7.7590	0.110 97	3906.4	7.6215	0.088 51	3900.5	7.5137	**700**
725	0.152 36	3970.5	7.8180	0.113 97	3965.0	7.6809	0.090 94	3959.4	7.5735	**725**
750	0.156 31	4029.0	7.8759	0.116 96	4023.8	7.7391	0.093 35	4018.6	7.6321	**750**
775	0.160 25	4087.8	7.9327	0.119 94	4083.0	7.7962	0.095 75	4078.1	7.6896	**775**
800	0.164 19	4147.0	7.9885	0.122 92	4142.4	7.8523	0.098 16	4137.8	7.7458	**800**
825	0.168 12	4206.6	8.0434	0.125 89	4202.3	7.9074	0.100 55	4197.9	7.8012	**825**
850	0.172 05	4266.5	8.0973	0.128 85	4262.4	7.9616	0.102 93	4258.4	7.8556	**850**
875	0.175 96	4326.8	8.1504	0.131 81	4323.0	8.0149	0.105 31	4319.1	7.9091	**875**
900	0.179 88	4387.5	8.2027	0.134 76	4383.9	8.0674	0.107 69	4380.3	7.9618	**900**
925	0.183 78	4448.6	8.2543	0.137 70	4445.2	8.1191	0.110 06	4441.7	8.0136	**925**
950	0.187 69	4510.0	8.3050	0.140 65	4506.8	8.1700	0.112 42	4503.5	8.0647	**950**
975	0.191 59	4571.9	8.3550	0.143 59	4568.8	8.2201	0.114 78	4565.7	8.1150	**975**
1000	0.195 49	4634.1	8.4044	0.146 52	4631.2	8.2696	0.117 14	4628.2	8.1646	**1000**
1025	0.199 38	4696.7	8.4531	0.149 46	4693.9	8.3184	0.119 50	4691.1	8.2136	**1025**
1050	0.203 27	4759.6	8.5011	0.152 39	4757.0	8.3666	0.121 85	4754.4	8.2618	**1050**
1075	0.207 16	4822.9	8.5485	0.155 31	4820.5	8.4141	0.124 20	4818.0	8.3094	**1075**
1100	0.211 05	4886.6	8.5953	0.158 24	4884.3	8.4610	0.126 55	4881.9	8.3564	**1100**
1125	0.214 93	4950.7	8.6415	0.161 16	4948.4	8.5073	0.128 90	4946.2	8.4028	**1125**
1150	0.218 82	5015.1	8.6872	0.164 08	5013.0	8.5530	0.131 24	5010.8	8.4486	**1150**
1175	0.222 70	5079.8	8.7323	0.167 00	5077.8	8.5982	0.133 58	5075.8	8.4939	**1175**
1200	0.226 57	5144.9	8.7769	0.169 92	5143.0	8.6429	0.135 92	5141.1	8.5386	**1200**
1225	0.230 45	5210.4	8.8209	0.172 83	5208.6	8.6870	0.138 26	5206.8	8.5828	**1225**
1250	0.234 33	5276.2	8.8645	0.175 75	5274.4	8.7306	0.140 60	5272.7	8.6265	**1250**
1275	0.238 20	5342.3	8.9075	0.178 66	5340.6	8.7737	0.142 93	5339.0	8.6696	**1275**
1300	0.242 07	5408.7	8.9501	0.181 57	5407.2	8.8163	0.145 27	5405.6	8.7123	**1300**
1325	0.245 94	5475.4	8.9922	0.184 48	5474.0	8.8584	0.147 60	5472.5	8.7545	**1325**
1350	0.249 81	5542.5	9.0338	0.187 39	5541.1	8.9001	0.149 93	5539.7	8.7962	**1350**
1375	0.253 68	5609.9	9.0750	0.190 29	5608.5	8.9413	0.152 26	5607.2	8.8375	**1375**
1400	0.257 55	5677.5	9.1157	0.193 20	5676.3	8.9821	0.154 59	5675.0	8.8783	**1400**
1425	0.261 42	5745.5	9.1561	0.196 10	5744.3	9.0225	0.156 92	5743.1	8.9187	**1425**
1450	0.265 28	5813.7	9.1959	0.199 01	5812.6	9.0624	0.159 25	5811.4	8.9587	**1450**
1475	0.269 15	5882.2	9.2354	0.201 91	5881.1	9.1019	0.161 57	5880.1	8.9982	**1475**
1500	0.273 01	5951.0	9.2745	0.204 81	5950.0	9.1410	0.163 90	5949.0	9.0373	**1500**
1525	0.276 87	6020.0	9.3132	0.207 72	6019.1	9.1797	0.166 22	6018.1	9.0761	**1525**
1550	0.280 74	6089.4	9.3514	0.210 62	6088.5	9.2180	0.168 55	6087.5	9.1144	**1550**
1575	0.284 60	6158.9	9.3893	0.213 52	6158.1	9.2559	0.170 87	6157.2	9.1524	**1575**
1600	0.288 46	6228.7	9.4269	0.216 42	6227.9	9.2935	0.173 19	6227.1	9.1899	**1600**
1650	0.296 18	6369.1	9.5008	0.222 21	6368.4	9.3675	0.177 83	6367.7	9.2640	**1650**
1700	0.303 90	6510.4	9.5733	0.228 01	6509.8	9.4401	0.182 48	6509.2	9.3366	**1700**
1750	0.311 61	6652.6	9.6445	0.233 80	6652.1	9.5113	0.187 11	6651.5	9.4078	**1750**
1800	0.319 33	6795.7	9.7144	0.239 59	6795.2	9.5812	0.191 75	6794.7	9.4778	**1800**
1850	0.327 04	6939.6	9.7830	0.245 38	6939.2	9.6498	0.196 39	6938.8	9.5464	**1850**
1900	0.334 75	7084.4	9.8504	0.251 17	7084.0	9.7172	0.201 02	7083.7	9.6139	**1900**
1950	0.342 46	7229.9	9.9166	0.256 96	7229.6	9.7835	0.205 65	7229.3	9.6801	**1950**
2000	0.350 17	7376.2	9.9817	0.262 74	7376.0	9.8486	0.210 29	7375.7	9.7453	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4 (continued). Properties of Steam at High Temperatures

t (°C)	6 MPa			7 MPa			8 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	0.056 67	3422.9	6.8824	0.048 16	3411.3	6.7997	0.041 77	3399.4	6.7264	**500**
525	0.058 86	3482.2	6.9578	0.050 08	3471.6	6.8766	0.043 49	3460.9	6.8047	**525**
550	0.061 02	3541.2	7.0306	0.051 97	3531.5	6.9505	0.045 17	3521.8	6.8798	**550**
575	0.063 15	3600.0	7.1009	0.053 83	3591.2	7.0218	0.046 83	3582.2	6.9522	**575**
600	0.065 26	3658.8	7.1692	0.055 66	3650.6	7.0909	0.048 46	3642.4	7.0221	**600**
625	0.067 36	3717.5	7.2356	0.057 48	3710.0	7.1580	0.050 08	3702.5	7.0899	**625**
650	0.069 43	3776.4	7.3002	0.059 28	3769.4	7.2232	0.051 67	3762.4	7.1557	**650**
675	0.071 49	3835.3	7.3632	0.061 07	3828.9	7.2868	0.053 26	3822.4	7.2198	**675**
700	0.073 54	3894.5	7.4248	0.062 85	3888.5	7.3488	0.054 83	3882.4	7.2823	**700**
725	0.075 58	3953.8	7.4850	0.064 61	3948.2	7.4094	0.056 38	3942.6	7.3434	**725**
750	0.077 61	4013.4	7.5439	0.066 37	4008.1	7.4687	0.057 93	4002.9	7.4030	**750**
775	0.079 63	4073.2	7.6017	0.068 11	4068.3	7.5268	0.059 47	4063.3	7.4614	**775**
800	0.081 65	4133.2	7.6582	0.069 85	4128.6	7.5836	0.061 01	4123.9	7.5185	**800**
825	0.083 65	4193.6	7.7139	0.071 59	4189.2	7.6395	0.062 54	4184.9	7.5746	**825**
850	0.085 65	4254.3	7.7685	0.073 31	4250.2	7.6944	0.064 06	4246.1	7.6297	**850**
875	0.087 65	4315.3	7.8222	0.075 03	4311.4	7.7483	0.065 57	4307.5	7.6839	**875**
900	0.089 64	4376.6	7.8751	0.076 75	4373.0	7.8013	0.067 08	4369.3	7.7371	**900**
925	0.091 62	4438.3	7.9271	0.078 46	4434.8	7.8535	0.068 59	4431.4	7.7894	**925**
950	0.093 61	4500.3	7.9783	0.080 17	4497.0	7.9049	0.070 09	4493.8	7.8410	**950**
975	0.095 58	4562.6	8.0288	0.081 87	4559.6	7.9555	0.071 58	4556.5	7.8917	**975**
1000	0.097 56	4625.3	8.0785	0.083 57	4622.4	8.0053	0.073 08	4619.5	7.9417	**1000**
1025	0.099 53	4688.4	8.1275	0.085 27	4685.6	8.0545	0.074 57	4682.8	7.9910	**1025**
1050	0.101 50	4751.8	8.1759	0.086 96	4749.1	8.1030	0.076 06	4746.5	8.0396	**1050**
1075	0.103 46	4815.5	8.2236	0.088 65	4813.0	8.1508	0.077 54	4810.5	8.0875	**1075**
1100	0.105 43	4879.6	8.2707	0.090 34	4877.2	8.1980	0.079 02	4874.9	8.1348	**1100**
1125	0.107 39	4944.0	8.3172	0.092 03	4941.7	8.2446	0.080 50	4939.5	8.1814	**1125**
1150	0.109 35	5008.7	8.3631	0.093 71	5006.6	8.2905	0.081 98	5004.5	8.2275	**1150**
1175	0.111 31	5073.8	8.4084	0.095 39	5071.8	8.3359	0.083 46	5069.8	8.2730	**1175**
1200	0.113 26	5139.2	8.4532	0.097 07	5137.3	8.3808	0.084 93	5135.4	8.3179	**1200**
1225	0.115 21	5205.0	8.4975	0.098 75	5203.1	8.4251	0.086 41	5201.3	8.3623	**1225**
1250	0.117 17	5271.0	8.5412	0.100 43	5269.3	8.4689	0.087 88	5267.6	8.4061	**1250**
1275	0.119 12	5337.4	8.5844	0.102 11	5335.7	8.5122	0.089 35	5334.1	8.4495	**1275**
1300	0.121 07	5404.1	8.6271	0.103 78	5402.5	8.5550	0.090 82	5401.0	8.4923	**1300**
1325	0.123 01	5471.0	8.6694	0.105 45	5469.6	8.5973	0.092 28	5468.1	8.5347	**1325**
1350	0.124 96	5538.3	8.7111	0.107 13	5536.9	8.6391	0.093 75	5535.5	8.5765	**1350**
1375	0.126 91	5605.9	8.7525	0.108 80	5604.6	8.6804	0.095 21	5603.3	8.6179	**1375**
1400	0.128 85	5673.8	8.7933	0.110 47	5672.5	8.7213	0.096 68	5671.3	8.6589	**1400**
1425	0.130 79	5741.9	8.8337	0.112 13	5740.7	8.7618	0.098 14	5739.5	8.6994	**1425**
1450	0.132 74	5810.3	8.8737	0.113 80	5809.2	8.8018	0.099 60	5808.1	8.7394	**1450**
1475	0.134 68	5879.0	8.9133	0.115 47	5877.9	8.8414	0.101 06	5876.9	8.7791	**1475**
1500	0.136 62	5948.0	8.9525	0.117 14	5947.0	8.8806	0.102 52	5945.9	8.8183	**1500**
1525	0.138 56	6017.2	8.9912	0.118 80	6016.2	8.9194	0.103 98	6015.3	8.8571	**1525**
1550	0.140 50	6086.6	9.0296	0.120 47	6085.7	8.9578	0.105 44	6084.8	8.8956	**1550**
1575	0.142 44	6156.4	9.0676	0.122 13	6155.5	8.9958	0.106 90	6154.7	8.9336	**1575**
1600	0.144 38	6226.3	9.1052	0.123 79	6225.5	9.0335	0.108 36	6224.7	8.9713	**1600**
1650	0.148 25	6367.0	9.1793	0.127 12	6366.3	9.1076	0.111 27	6365.5	9.0454	**1650**
1700	0.152 12	6508.5	9.2520	0.130 44	6507.9	9.1803	0.114 18	6507.3	9.1182	**1700**
1750	0.155 99	6651.0	9.3232	0.133 76	6650.4	9.2516	0.117 09	6649.9	9.1896	**1750**
1800	0.159 86	6794.3	9.3932	0.137 08	6793.8	9.3216	0.119 99	6793.3	9.2596	**1800**
1850	0.163 73	6938.4	9.4619	0.140 39	6938.0	9.3904	0.122 90	6937.6	9.3284	**1850**
1900	0.167 59	7083.3	9.5294	0.143 71	7082.9	9.4579	0.125 80	7082.6	9.3959	**1900**
1950	0.171 45	7229.0	9.5957	0.147 02	7228.7	9.5242	0.128 70	7228.4	9.4622	**1950**
2000	0.175 32	7375.5	9.6608	0.150 34	7375.2	9.5894	0.131 60	7375.0	9.5274	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4 (continued). Properties of Steam at High Temperatures

t (°C)	10 MPa			15 MPa			20 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	0.032 81	3375.1	6.5993	0.020 83	3310.8	6.3479	0.014 793	3241.2	6.1445	**500**
525	0.034 25	3439.0	6.6807	0.021 91	3381.8	6.4383	0.015 708	3320.7	6.2458	**525**
550	0.035 66	3501.9	6.7584	0.022 95	3450.5	6.5230	0.016 571	3396.2	6.3390	**550**
575	0.037 03	3564.1	6.8328	0.023 95	3517.5	6.6033	0.017 393	3468.8	6.4258	**575**
600	0.038 38	3625.8	6.9045	0.024 92	3583.3	6.6797	0.018 184	3539.2	6.5077	**600**
625	0.039 71	3687.2	6.9738	0.025 87	3648.2	6.7530	0.018 950	3608.0	6.5854	**625**
650	0.041 02	3748.3	7.0409	0.026 80	3712.4	6.8235	0.019 694	3675.6	6.6596	**650**
675	0.042 31	3809.3	7.1061	0.027 72	3776.1	6.8916	0.020 42	3742.2	6.7308	**675**
700	0.043 59	3870.3	7.1696	0.028 62	3839.5	6.9576	0.021 13	3808.2	6.7994	**700**
725	0.044 87	3931.2	7.2314	0.029 51	3902.6	7.0216	0.021 83	3873.5	6.8658	**725**
750	0.046 13	3992.3	7.2918	0.030 39	3965.6	7.0839	0.022 52	3938.5	6.9301	**750**
775	0.047 38	4053.4	7.3509	0.031 26	4028.5	7.1447	0.023 20	4003.2	6.9925	**775**
800	0.048 63	4114.6	7.4085	0.032 12	4091.2	7.2038	0.023 87	4067.7	7.0532	**800**
825	0.049 87	4176.1	7.4652	0.032 98	4154.2	7.2618	0.024 53	4132.1	7.1126	**825**
850	0.051 10	4237.8	7.5207	0.033 82	4217.2	7.3185	0.025 19	4196.5	7.1705	**850**
875	0.052 32	4299.8	7.5753	0.034 67	4280.4	7.3741	0.025 84	4260.9	7.2273	**875**
900	0.053 55	4362.0	7.6289	0.035 50	4343.7	7.4287	0.026 48	4325.4	7.2828	**900**
925	0.054 76	4424.5	7.6816	0.036 33	4407.2	7.4823	0.027 12	4389.9	7.3373	**925**
950	0.055 98	4487.2	7.7334	0.037 16	4470.9	7.5349	0.027 76	4454.6	7.3907	**950**
975	0.057 18	4550.3	7.7845	0.037 99	4534.9	7.5867	0.028 39	4519.5	7.4432	**975**
1000	0.058 39	4613.7	7.8347	0.038 81	4599.1	7.6376	0.029 02	4584.5	7.4948	**1000**
1025	0.059 59	4677.3	7.8843	0.039 63	4663.5	7.6877	0.029 65	4649.8	7.5456	**1025**
1050	0.060 79	4741.3	7.9331	0.040 44	4728.2	7.7371	0.030 27	4715.2	7.5955	**1050**
1075	0.061 99	4805.6	7.9812	0.041 25	4793.2	7.7857	0.030 89	4780.9	7.6447	**1075**
1100	0.063 18	4870.2	8.0287	0.042 06	4858.4	7.8337	0.031 51	4846.8	7.6931	**1100**
1125	0.064 37	4935.1	8.0755	0.042 87	4924.0	7.8810	0.032 12	4912.9	7.7408	**1125**
1150	0.065 56	5000.3	8.1217	0.043 67	4989.7	7.9276	0.032 73	4979.3	7.7879	**1150**
1175	0.066 75	5065.8	8.1674	0.044 48	5055.8	7.9736	0.033 34	5045.9	7.8343	**1175**
1200	0.067 94	5131.6	8.2124	0.045 28	5122.1	8.0190	0.033 95	5112.7	7.8800	**1200**
1225	0.069 12	5197.7	8.2569	0.046 08	5188.7	8.0639	0.034 56	5179.8	7.9252	**1225**
1250	0.070 30	5264.2	8.3009	0.046 88	5255.6	8.1081	0.035 16	5247.2	7.9698	**1250**
1275	0.071 49	5330.9	8.3444	0.047 67	5322.8	8.1519	0.035 77	5314.8	8.0138	**1275**
1300	0.072 67	5397.9	8.3873	0.048 47	5390.2	8.1951	0.036 37	5382.6	8.0573	**1300**
1325	0.073 84	5465.2	8.4297	0.049 26	5457.9	8.2378	0.036 97	5450.7	8.1002	**1325**
1350	0.075 02	5532.8	8.4717	0.050 05	5525.9	8.2800	0.037 57	5519.0	8.1426	**1350**
1375	0.076 20	5600.6	8.5132	0.050 85	5594.1	8.3217	0.038 17	5587.6	8.1846	**1375**
1400	0.077 37	5668.8	8.5542	0.051 64	5662.6	8.3629	0.038 77	5656.4	8.2260	**1400**
1425	0.078 55	5737.2	8.5948	0.052 43	5731.3	8.4037	0.039 37	5725.5	8.2670	**1425**
1450	0.079 72	5805.8	8.6349	0.053 22	5800.3	8.4440	0.039 96	5794.8	8.3075	**1450**
1475	0.080 89	5874.8	8.6746	0.054 00	5869.5	8.4839	0.040 56	5864.3	8.3475	**1475**
1500	0.082 06	5943.9	8.7139	0.054 79	5939.0	8.5234	0.041 15	5934.0	8.3871	**1500**
1525	0.083 24	6013.4	8.7528	0.055 58	6008.7	8.5624	0.041 75	6004.0	8.4263	**1525**
1550	0.084 41	6083.1	8.7913	0.056 36	6078.6	8.6010	0.042 34	6074.2	8.4651	**1550**
1575	0.085 58	6153.0	8.8294	0.057 15	6148.8	8.6392	0.042 93	6144.6	8.5035	**1575**
1600	0.086 74	6223.1	8.8671	0.057 93	6219.2	8.6771	0.043 52	6215.2	8.5414	**1600**
1650	0.089 08	6364.1	8.9414	0.059 50	6360.6	8.7516	0.044 71	6357.1	8.6162	**1650**
1700	0.091 41	6506.0	9.0142	0.061 06	6502.9	8.8246	0.045 88	6499.8	8.6894	**1700**
1750	0.093 74	6648.8	9.0857	0.062 62	6646.0	8.8963	0.047 06	6643.4	8.7612	**1750**
1800	0.096 07	6792.3	9.1558	0.064 18	6790.0	8.9665	0.048 24	6787.6	8.8317	**1800**
1850	0.098 40	6936.7	9.2246	0.065 74	6934.7	9.0355	0.049 41	6932.7	8.9008	**1850**
1900	0.100 73	7081.9	9.2922	0.067 30	7080.1	9.1032	0.050 58	7078.4	8.9687	**1900**
1950	0.103 05	7227.8	9.3586	0.068 85	7226.4	9.1698	0.051 75	7224.9	9.0353	**1950**
2000	0.105 38	7374.5	9.4238	0.070 41	7373.3	9.2351	0.052 92	7372.1	9.1008	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-4 (continued). Properties of Steam at High Temperatures

t (°C)	30 MPa			40 MPa			50 MPa			t (°C)
	v	h	s	v	h	s	v	h	s	
500	0.008 690	3084.8	5.7956	0.005 625	2906.7	5.4746	0.003 889	2722.5	5.1759	**500**
525	0.009 469	3187.2	5.9261	0.006 350	3040.3	5.6448	0.004 541	2887.8	5.3865	**525**
550	0.010 175	3279.8	6.0403	0.006 985	3154.6	5.7859	0.005 118	3025.7	5.5566	**550**
575	0.010 829	3365.7	6.1431	0.007 559	3256.7	5.9080	0.005 636	3145.4	5.6999	**575**
600	0.011 444	3446.9	6.2374	0.008 089	3350.4	6.0170	0.006 109	3252.6	5.8245	**600**
625	0.012 029	3524.6	6.3252	0.008 585	3438.3	6.1162	0.006 547	3351.2	5.9359	**625**
650	0.012 590	3599.7	6.4077	0.009 054	3521.8	6.2079	0.006 957	3443.5	6.0372	**650**
675	0.013 130	3672.7	6.4858	0.009 501	3601.9	6.2935	0.007 346	3531.0	6.1308	**675**
700	0.013 654	3744.2	6.5602	0.009 931	3679.4	6.3743	0.007 718	3614.8	6.2180	**700**
725	0.014 164	3814.5	6.6315	0.010 346	3754.9	6.4508	0.008 074	3695.6	6.3000	**725**
750	0.014 662	3883.8	6.7000	0.010 748	3828.8	6.5239	0.008 417	3774.1	6.3777	**750**
775	0.015 150	3952.3	6.7662	0.011 140	3901.3	6.5940	0.008 750	3850.8	6.4518	**775**
800	0.015 629	4020.3	6.8302	0.011 522	3972.9	6.6614	0.009 073	3926.1	6.5227	**800**
825	0.016 100	4087.8	6.8924	0.011 897	4043.6	6.7266	0.009 389	4000.1	6.5908	**825**
850	0.016 564	4155.0	6.9529	0.012 264	4113.7	6.7897	0.009 697	4073.1	6.6566	**850**
875	0.017 022	4222.0	7.0119	0.012 625	4183.3	6.8510	0.010 000	4145.3	6.7202	**875**
900	0.017 475	4288.8	7.0695	0.012 981	4252.5	6.9106	0.010 297	4216.9	6.7819	**900**
925	0.017 922	4355.5	7.1257	0.013 332	4321.5	6.9687	0.010 589	4288.0	6.8419	**925**
950	0.018 366	4422.2	7.1808	0.013 679	4390.2	7.0255	0.010 876	4358.7	6.9003	**950**
975	0.018 805	4488.9	7.2348	0.014 021	4458.7	7.0810	0.011 160	4429.1	6.9573	**975**
1000	0.019 241	4555.7	7.2878	0.014 360	4527.2	7.1353	0.011 441	4499.3	7.0129	**1000**
1025	0.019 674	4622.5	7.3398	0.014 696	4595.6	7.1885	0.011 718	4569.3	7.0674	**1025**
1050	0.020 10	4689.4	7.3908	0.015 029	4664.0	7.2407	0.011 992	4639.2	7.1207	**1050**
1075	0.020 53	4756.5	7.4410	0.015 359	4732.5	7.2920	0.012 264	4709.0	7.1730	**1075**
1100	0.020 95	4823.7	7.4904	0.015 687	4801.0	7.3423	0.012 533	4778.8	7.2242	**1100**
1125	0.021 38	4891.0	7.5390	0.016 012	4869.5	7.3918	0.012 800	4848.5	7.2746	**1125**
1150	0.021 80	4958.6	7.5869	0.016 336	4938.2	7.4405	0.013 065	4918.3	7.3240	**1150**
1175	0.022 21	5026.2	7.6340	0.016 657	5007.0	7.4884	0.013 328	4988.1	7.3727	**1175**
1200	0.022 63	5094.1	7.6805	0.016 977	5075.9	7.5355	0.013 590	5058.0	7.4205	**1200**
1225	0.023 05	5162.2	7.7263	0.017 295	5144.9	7.5820	0.013 849	5128.0	7.4676	**1225**
1250	0.023 46	5230.5	7.7715	0.017 611	5214.1	7.6278	0.014 107	5198.1	7.5140	**1250**
1275	0.023 87	5298.9	7.8161	0.017 926	5283.4	7.6729	0.014 364	5268.2	7.5597	**1275**
1300	0.024 28	5367.6	7.8601	0.018 239	5352.9	7.7175	0.014 620	5338.5	7.6047	**1300**
1325	0.024 69	5436.5	7.9035	0.018 552	5422.5	7.7614	0.014 874	5408.9	7.6492	**1325**
1350	0.025 10	5505.5	7.9464	0.018 863	5492.3	7.8047	0.015 127	5479.5	7.6929	**1350**
1375	0.025 50	5574.8	7.9888	0.019 173	5562.3	7.8475	0.015 379	5550.1	7.7362	**1375**
1400	0.025 91	5644.3	8.0306	0.019 482	5632.5	7.8898	0.015 630	5620.9	7.7788	**1400**
1425	0.026 31	5714.0	8.0720	0.019 790	5702.8	7.9315	0.015 880	5691.9	7.8209	**1425**
1450	0.026 72	5783.9	8.1129	0.020 10	5773.3	7.9727	0.016 129	5763.0	7.8625	**1450**
1475	0.027 12	5854.0	8.1532	0.020 40	5844.0	8.0134	0.016 378	5834.3	7.9035	**1475**
1500	0.027 52	5924.3	8.1932	0.020 71	5914.9	8.0537	0.016 625	5905.7	7.9441	**1500**
1525	0.027 92	5994.8	8.2327	0.021 01	5985.9	8.0935	0.016 872	5977.2	7.9841	**1525**
1550	0.028 32	6065.6	8.2717	0.021 32	6057.1	8.1328	0.017 118	6048.9	8.0237	**1550**
1575	0.028 72	6136.5	8.3103	0.021 62	6128.5	8.1717	0.017 364	6120.8	8.0629	**1575**
1600	0.029 12	6207.6	8.3486	0.021 92	6200.1	8.2101	0.017 609	6192.8	8.1016	**1600**
1650	0.029 92	6350.3	8.4238	0.022 53	6343.7	8.2858	0.018 097	6337.3	8.1777	**1650**
1700	0.030 71	6493.8	8.4975	0.023 13	6488.0	8.3599	0.018 582	6482.4	8.2522	**1700**
1750	0.031 51	6638.1	8.5697	0.023 73	6633.0	8.4325	0.019 066	6628.1	8.3252	**1750**
1800	0.032 30	6783.1	8.6404	0.024 33	6778.7	8.5036	0.019 549	6774.5	8.3966	**1800**
1850	0.033 08	6928.8	8.7099	0.024 92	6925.0	8.5733	0.020 03	6921.4	8.4666	**1850**
1900	0.033 87	7075.1	8.7780	0.025 52	7072.0	8.6417	0.020 51	7068.9	8.5353	**1900**
1950	0.034 66	7222.2	8.8449	0.026 11	7219.5	8.7089	0.020 99	7217.1	8.6027	**1950**
2000	0.035 44	7369.9	8.9106	0.026 70	7367.8	8.7748	0.021 46	7365.8	8.6689	**2000**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

Table S-5. Properties of Superheated and Metastable Steam

t (°C)	**0.01 MPa** (t_{sat} = 45.81 °C)			**0.02 MPa** (t_{sat} = 60.06 °C)			**0.04 MPa** (t_{sat} = 75.86 °C)			**0.06 MPa** (t_{sat} = 85.93 °C)			*t* (°C)
	v	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	
Sat. Vap.	14.671	2583.9	8.1489	7.6482	2608.9	7.9072	3.9931	2636.1	7.6690	2.7318	2652.9	7.5311	Sat. Vap.
90	16.732	2668.4	8.3970	8.3520	2667.0	8.0740	4.1616	2664.1	7.7477	2.7646	2661.1	7.5539	**90**
85	16.500	2658.9	8.3706	8.2350	2657.3	8.0473	4.1022	2654.2	7.7203	2.7243	2651.0	7.5259	**85**
80	16.267	2649.3	8.3438	8.1178	2647.7	8.0202	4.0427	2644.3	7.6925	2.6838	2640.7	7.4971	**80**
75	16.035	2639.8	8.3167	8.0004	2638.0	7.9926	3.9828	2634.4	7.6641	2.6430	2630.4	7.4675	**75**
70	15.802	2630.3	8.2891	7.8828	2628.3	7.9646	3.9227	2624.3	7.6349	2.6020	2619.9	7.4371	**70**
65	15.569	2620.7	8.2611	7.7650	2618.6	7.9361	3.8623	2614.1	7.6051	2.5605	2609.2	7.4058	**65**
60	15.335	2611.2	8.2326	7.6467	2608.9	7.9069	3.8015	2603.8	7.5743	2.5187	2598.3	7.3732	**60**
55	15.102	2601.6	8.2037	7.5281	2599.0	7.8771	3.7402	2593.3	7.5427	2.4762	2587.1	7.3393	**55**
50	14.867	2592.0	8.1741	7.4090	2589.1	7.8466	3.6784	2582.7	7.5100	2.4331	2575.5	7.3037	**50**
45	14.632	2582.3	8.1440	7.2894	2579.0	7.8153	3.6159	2571.7	7.4759	2.3890	2563.4	7.2661	**45**
40	14.397	2572.6	8.1132	7.1692	2568.9	7.7831	3.5525	2560.5	7.4403	2.3438	2550.7	7.2258	**40**
35	14.161	2562.8	8.0816	7.0481	2558.5	7.7499	3.4879	2548.8	7.4027	*2.2970*	*2537.1*	*7.1822*	**35**
30	13.924	2552.9	8.0493	6.9259	2548.0	7.7154	3.4219	2536.6	7.3626				**30**
25	13.686	2543.0	8.0161	6.8025	2537.2	7.6795	3.3540	2523.6	7.3193				**25**
20	13.447	2532.8	7.9819	6.6773	2526.1	7.6419	*3.2835*	*2509.6*	*7.2720*				**20**
15	13.206	2522.5	7.9464	6.5500	2514.5	7.6020							**15**
10	12.962	2512.0	7.9095	6.4197	2502.3	7.5592							**10**
5	12.716	2501.1	7.8708	*6.2855*	*2489.2*	*7.5128*							**5**
0	12.466	2489.8	7.8299										**0**
-5	12.211	2478.0	7.7861										**-5**
-10	11.950	2465.4	7.7387										**-10**
-15	*11.679*	*2451.8*	*7.6864*										**-15**

t (°C)	**0.08 MPa** (t_{sat} = 93.49 °C)			**0.10 MPa** (t_{sat} = 99.61 °C)			**0.12 MPa** (t_{sat} = 104.78 °C)			**0.14 MPa** (t_{sat} = 109.29 °C)			*t* (°C)
	v	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	
Sat. Vap.	2.0872	2665.2	7.4339	1.6940	2674.9	7.3588	1.4284	2683.1	7.2976	1.2366	2690.0	7.2460	Sat. Vap.
110	2.1871	2698.7	7.5232	1.7448	2696.3	7.4154	1.4499	2693.9	7.3262	1.2392	2691.5	7.2499	**110**
105	2.1570	2688.6	7.4968	1.7205	2686.1	7.3885	1.4293	2683.5	7.2988	1.2212	2680.8	7.2218	**105**
100	2.1268	2678.5	7.4698	1.6960	2675.8	7.3610	1.4085	2672.9	7.2706	1.2031	2669.9	7.1929	**100**
95	2.0964	2668.3	7.4423	1.6712	2665.3	7.3328	1.3876	2662.1	7.2416	1.1849	2658.9	7.1631	**95**
90	2.0658	2658.0	7.4142	1.6463	2654.7	7.3037	1.3664	2651.2	7.2116	1.1664	2647.6	7.1322	**90**
85	2.0350	2647.5	7.3852	1.6212	2643.9	7.2738	1.3451	2640.0	7.1807	1.1476	2636.0	7.1000	**85**
80	2.0040	2636.9	7.3554	1.5958	2632.9	7.2428	1.3234	2628.6	7.1485	1.1285	2624.0	7.0663	**80**
75	1.9727	2626.1	7.3246	1.5701	2621.6	7.2107	1.3013	2616.8	7.1148	1.1089	2611.5	7.0308	**75**
70	1.9410	2615.1	7.2928	1.5439	2610.0	7.1772	1.2787	2604.5	7.0792	1.0888	2598.5	6.9930	**70**
65	1.9089	2603.8	7.2596	1.5173	2598.0	7.1419	1.2556	2591.6	7.0415	1.0680	2584.6	6.9523	**65**
60	1.8763	2592.2	7.2249	1.4900	2585.5	7.1045	1.2316	2578.0	7.0008	*1.0463*	*2569.7*	*6.9078*	**60**
55	1.8430	2580.1	7.1882	1.4619	2572.2	7.0644	*1.2067*	*2563.3*	*6.9565*				**55**
50	1.8088	2567.3	7.1490	*1.4326*	*2558.0*	*7.0207*							**50**
45	1.7734	2553.7	7.1067										**45**
40	*1.7365*	*2539.1*	*7.0604*										**40**

UNITS: *v* in m^3/kg ; *h* in kJ/kg ; *s* in kJ/(kg·K)

NOTE: *Points in italics are extrapolations beyond 5 % equilibrium moisture limit; see Chapter 3.*

Table S-5 (continued). Properties of Superheated and Metastable Steam

t (°C)	**0.16 MPa** (t_{sat} = 113.30 °C)			**0.18 MPa** (t_{sat} = 116.91 °C)			**0.20 MPa** (t_{sat} = 120.21 °C)			**0.22 MPa** (t_{sat} = 123.25 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	1.0914	2696.0	7.2014	0.9775	2701.4	7.1620	0.8857	2706.2	7.1269	0.8101	2710.6	7.0951	Sat. Vap.
125	1.1278	2720.7	7.2643	1.0001	2718.7	7.2058	0.8979	2716.6	7.1530	0.8142	2714.4	7.1047	**125**
120	1.1123	2710.3	7.2378	0.9862	2708.0	7.1790	0.8851	2705.8	7.1256	0.8025	2703.4	7.0767	**120**
115	1.0968	2699.7	7.2107	0.9721	2697.2	7.1513	0.8723	2694.7	7.0974	0.7906	2692.1	7.0479	**115**
110	1.0810	2688.9	7.1828	0.9579	2686.2	7.1228	0.8594	2683.5	7.0682	0.7787	2680.6	7.0181	**110**
105	1.0651	2678.0	7.1541	0.9435	2675.0	7.0933	0.8462	2672.0	7.0381	0.7665	2668.8	6.9872	**105**
100	1.0490	2666.8	7.1244	0.9290	2663.6	7.0629	0.8329	2660.2	7.0067	0.7542	2656.7	6.9549	**100**
95	1.0327	2655.4	7.0937	0.9142	2651.8	7.0312	0.8193	2648.1	6.9740	0.7415	2644.1	6.9209	**95**
90	1.0161	2643.7	7.0617	0.8991	2639.7	6.9980	0.8054	2635.5	6.9395	0.7285	2631.0	6.8850	**90**
85	0.9993	2631.7	7.0282	0.8837	2627.1	6.9630	0.7911	2622.3	6.9029	0.7151	2617.1	6.8466	**85**
80	0.9820	2619.1	6.9929	0.8679	2613.9	6.9259	0.7763	2608.3	6.8636	0.7011	2602.3	6.8050	**80**
75	0.9643	2605.9	6.9553	0.8515	2599.9	6.8859	*0.7609*	*2593.4*	*6.8210*	*0.6865*	*2586.3*	*6.7593*	**75**
70	0.9459	2591.9	6.9149	*0.8343*	*2584.8*	*6.8424*							**70**
65	*0.9267*	*2576.9*	*6.8707*										**65**

t (°C)	**0.25 MPa** (t_{sat} = 127.41 °C)			**0.30 MPa** (t_{sat} = 133.53 °C)			**0.35 MPa** (t_{sat} = 138.86 °C)			**0.40 MPa** (t_{sat} = 143.61 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.7187	2716.5	7.0524	0.6058	2724.9	6.9916	0.5242	2732.0	6.9401	0.4624	2738.1	6.8954	Sat. Vap.
145	0.7544	2754.6	7.1455	0.6255	2750.3	7.0533	0.5334	2745.9	6.9737	0.4643	2741.3	6.9032	**145**
140	0.7444	2743.9	7.1198	0.6170	2739.4	7.0269	0.5259	2734.6	6.9464	0.4575	2729.5	6.8747	**140**
135	0.7342	2733.1	7.0935	0.6084	2728.2	6.9997	0.5183	2722.9	6.9181	0.4506	2717.4	6.8453	**135**
130	0.7240	2722.2	7.0666	0.5995	2716.8	6.9716	0.5105	2711.0	6.8888	0.4436	2705.0	6.8147	**130**
125	0.7136	2711.1	7.0388	0.5907	2705.1	6.9425	0.5027	2698.8	6.8583	0.4365	2692.2	6.7828	**125**
120	0.7032	2699.7	7.0101	0.5816	2693.2	6.9123	0.4946	2686.3	6.8266	0.4292	2678.9	6.7491	**120**
115	0.6926	2688.1	6.9803	0.5725	2680.9	6.8809	0.4864	2673.2	6.7932	0.4217	2664.9	6.7135	**115**
110	0.6818	2676.2	6.9495	0.5631	2668.3	6.8480	0.4780	2659.6	6.7579	0.4139	2650.2	6.6754	**110**
105	0.6708	2663.9	6.9172	0.5534	2655.0	6.8133	0.4692	2645.3	6.7202	0.4057	2634.6	6.6342	**105**
100	0.6595	2651.2	6.8834	0.5435	2641.1	6.7763	0.4601	2630.0	6.6795	*0.3972*	*2617.6*	*6.5890*	**100**
95	0.6480	2637.9	6.8475	0.5332	2626.4	6.7366	*0.4506*	*2613.5*	*6.6350*				**95**
90	0.6360	2623.8	6.8091	*0.5224*	*2610.6*	*6.6933*							**90**
85	0.6236	2608.9	6.7675										**85**
80	*0.6105*	*2592.6*	*6.7219*										**80**

t (°C)	**0.5 MPa** (t_{sat} = 151.84 °C)			**0.6 MPa** (t_{sat} = 158.83 °C)			**0.7 MPa** (t_{sat} = 164.95 °C)			**0.8 MPa** (t_{sat} = 170.41 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.3748	2748.1	6.8206	0.3156	2756.1	6.7592	0.2728	2762.7	6.7070	0.2403	2768.3	6.6615	Sat. Vap.
175	0.3995	2801.4	6.9427	0.3303	2794.6	6.8466	0.2808	2787.5	6.7628	0.2436	2780.0	6.6878	**175**
170	0.3943	2790.2	6.9176	0.3258	2783.0	6.8205	0.2769	2775.4	6.7356	0.2400	2767.2	6.6591	**170**
165	0.3890	2778.9	6.8919	0.3213	2771.1	6.7936	0.2728	2762.9	6.7073	0.2363	2754.0	6.6291	**165**
160	0.3837	2767.4	6.8655	0.3167	2759.0	6.7658	0.2687	2750.0	6.6776	0.2326	2740.3	6.5977	**160**
155	0.3783	2755.7	6.8383	0.3120	2746.5	6.7368	0.2644	2736.7	6.6468	0.2287	2726.1	6.5647	**155**
150	0.3728	2743.6	6.8100	0.3072	2733.6	6.7066	0.2601	2722.9	6.6144	0.2247	2711.3	6.5299	**150**
145	0.3672	2731.3	6.7806	0.3022	2720.4	6.6750	0.2557	2708.6	6.5803	0.2205	2695.7	6.4928	**145**
140	0.3615	2718.6	6.7501	0.2972	2706.6	6.6419	0.2510	2693.5	6.5441	0.2162	2679.1	6.4530	**140**
135	0.3557	2705.4	6.7181	0.2920	2692.2	6.6068	0.2462	2677.6	6.5053	*0.2116*	*2661.4*	*6.4097*	**135**
130	0.3497	2691.8	6.6845	0.2866	2677.0	6.5694	0.2412	2660.5	6.4633				**130**
125	0.3435	2677.5	6.6488	0.2810	2660.9	6.5292	*0.2359*	*2642.1*	*6.4173*				**125**
120	0.3371	2662.4	6.6107	*0.2751*	*2643.5*	*6.4853*							**120**
115	0.3304	2646.3	6.5695										**115**
110	*0.3234*	*2628.9*	*6.5243*										**110**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

NOTE: *Points in italics are extrapolations beyond 5 % equilibrium moisture limit; see Chapter 3.*

Table S-5 (continued). Properties of Superheated and Metastable Steam

t (°C)	**1.0 MPa** (t_{sat} = 179.89 °C)			**1.2 MPa** (t_{sat} = 187.96 °C)			**1.4 MPa** (t_{sat} = 195.05 °C)			**1.6 MPa** (t_{sat} = 201.38 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.1943	2777.1	6.5850	0.1632	2783.8	6.5217	0.1408	2788.9	6.4675	0.1237	2792.9	6.4200	Sat. Vap.
205	0.2088	2840.3	6.7208	0.1718	2828.8	6.6177	0.1452	2816.6	6.5262	0.1252	2803.6	6.4425	**205**
200	0.2060	2828.3	6.6955	0.1693	2816.1	6.5908	0.1430	2803.0	6.4975	0.1232	2788.7	6.4113	**200**
195	0.2032	2816.0	6.6695	0.1668	2803.0	6.5630	0.1408	2788.8	6.4673	0.1211	2773.3	6.3784	**195**
190	0.2003	2803.5	6.6426	0.1643	2789.4	6.5340	0.1384	2774.0	6.4354	0.1189	2757.1	6.3437	**190**
185	0.1974	2790.7	6.6148	0.1617	2775.4	6.5034	0.1360	2758.5	6.4020	0.1166	2740.2	6.3069	**185**
180	0.1944	2777.4	6.5857	0.1590	2760.7	6.4713	0.1335	2742.4	6.3666	0.1142	2722.2	6.2675	**180**
175	0.1914	2763.7	6.5551	0.1563	2745.5	6.4375	0.1310	2725.4	6.3289	0.1117	2703.1	6.2251	**175**
170	0.1882	2749.4	6.5232	0.1534	2729.6	6.4018	0.1283	2707.4	6.2884	*0.1091*	*2682.5*	*6.1790*	**170**
165	0.1850	2734.6	6.4895	0.1504	2712.7	6.3636	*0.1254*	*2688.1*	*6.2446*				**165**
160	0.1817	2719.1	6.4539	0.1473	2694.9	6.3225							**160**
155	0.1782	2702.7	6.4158	*0.1440*	*2675.6*	*6.2779*							**155**
150	0.1746	2685.2	6.3748										**150**
145	*0.1707*	*2666.5*	*6.3302*										**145**

t (°C)	**2.0 MPa** (t_{sat} = 212.38 °C)			**2.5 MPa** (t_{sat} = 223.96 °C)			**3.0 MPa** (t_{sat} = 233.86 °C)			**4.0 MPa** (t_{sat} = 250.36 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.099 58	2798.4	6.3392	0.079 95	2802.0	6.2560	0.066 66	2803.3	6.1858	0.049 78	2800.9	6.0697	Sat. Vap.
255	0.1130	2915.9	6.5716	0.088 31	2894.7	6.4369	0.071 77	2871.7	6.3181	0.050 76	2818.9	6.1040	**255**
250	0.1115	2903.2	6.5474	0.087 04	2880.9	6.4106	0.070 62	2856.5	6.2893	0.049 70	2799.5	6.0669	**250**
245	0.1100	2890.3	6.5226	0.085 75	2866.8	6.3836	0.069 44	2840.9	6.2592	0.048 58	2778.7	6.0271	**245**
240	0.1085	2877.2	6.4972	0.084 44	2852.3	6.3555	0.068 23	2824.6	6.2275	0.047 39	2756.6	5.9842	**240**
235	0.1070	2863.8	6.4710	0.083 09	2837.4	6.3263	0.066 96	2807.4	6.1938	0.046 13	2732.7	5.9375	**235**
230	0.1054	2850.2	6.4440	0.081 70	2821.9	6.2956	0.065 64	2789.1	6.1578	*0.044 77*	*2706.9*	*5.8863*	**230**
225	0.1038	2836.1	6.4160	0.080 26	2805.6	6.2631	0.064 26	2769.9	6.1193				**225**
220	0.1022	2821.7	6.3868	0.078 76	2788.4	6.2284	0.062 81	2749.5	6.0782				**220**
215	0.1005	2806.6	6.3560	0.077 20	2770.3	6.1916	0.061 27	2727.6	6.0337				**215**
210	0.098 75	2790.7	6.3234	0.075 57	2751.3	6.1524	*0.059 64*	*2704.1*	*5.9852*				**210**
205	0.096 95	2774.2	6.2889	0.073 86	2731.0	6.1102							**205**
200	0.095 07	2756.8	6.2523	*0.072 04*	*2709.3*	*6.0645*							**200**
195	0.093 12	2738.4	6.2133										**195**
190	0.091 07	2718.9	6.1713										**190**
185	*0.088 90*	*2697.9*	*6.1259*										**185**

t (°C)	**5 MPa** (t_{sat} = 263.94 °C)			**6 MPa** (t_{sat} = 275.59 °C)			**8 MPa** (t_{sat} = 295.01 °C)			**10 MPa** (t_{sat} = 311.00 °C)			t (°C)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.039 45	2794.2	5.9737	0.032 45	2784.6	5.8901	0.023 53	2758.6	5.7448	0.018 03	2725.5	5.6159	Sat. Vap.
315	0.047 45	2971.5	6.2900	0.038 16	2937.3	6.1595	0.026 25	2857.4	5.9159	0.018 61	2752.4	5.6619	**315**
310	0.046 77	2956.6	6.2645	0.037 52	2920.6	6.1309	0.025 63	2835.3	5.8781	0.017 88	2718.3	5.6036	**310**
305	0.046 06	2941.3	6.2381	0.036 87	2903.3	6.1012	0.024 98	2811.7	5.8375	0.017 06	2679.2	5.5362	**305**
300	0.045 35	2925.6	6.2109	0.036 19	2885.5	6.0702	0.024 28	2786.4	5.7935	*0.016 11*	*2633.7*	*5.4572*	**300**
295	0.044 61	2909.6	6.1828	0.035 49	2866.9	6.0377	0.023 53	2758.6	5.7447				**295**
290	0.043 86	2893.0	6.1535	0.034 76	2847.5	6.0033	0.022 70	2727.3	5.6896				**290**
285	0.043 08	2875.9	6.1229	0.034 00	2827.0	5.9668	0.021 77	2692.2	5.6268				**285**
280	0.042 27	2858.1	6.0909	0.033 20	2805.2	5.9276	*0.020 73*	*2652.1*	*5.5547*				**280**
275	0.041 44	2839.5	6.0571	0.032 34	2781.7	5.8849							**275**
270	0.040 57	2819.8	6.0211	0.031 42	2756.0	5.8377							**270**
265	0.039 65	2798.9	5.9823	0.030 43	2727.8	5.7855							**265**
260	0.038 67	2776.3	5.9401	*0.029 34*	*2696.6*	*5.7273*							**260**
255	0.037 63	2751.9	5.8942										**255**
250	0.036 50	2725.3	5.8437										**250**
245	*0.035 28*	*2696.2*	*5.7878*										**245**

UNITS: v in m^3/kg ; h in kJ/kg ; s in kJ/(kg·K)

NOTE: *Points in italics are extrapolations beyond 5 % equilibrium moisture limit; see Chapter 3.*

Table S-6. Isobaric Heat Capacity of Water and Steam ($kJ \cdot kg^{-1} \cdot K^{-1}$)

	Pressure (MPa)													
t **(°C)**	**0.01**	**0.02**	**0.05**	**0.1**	**0.2**	**0.5**	**1**	**2**	**5**	**10**	**20**	**50**	**75**	**100**
Sat. Liq.	4.179	4.183	4.197	4.216	4.247	4.315	4.405	4.562	5.032	6.127	23.20			
Sat. Vap.	1.941	1.966	2.016	2.076	2.175	2.413	2.715	3.190	4.438	7.147	45.68			
0	4.220	4.220	4.220	4.219	4.219	4.217	4.215	4.210	4.196	4.172	4.129	4.022	3.956	3.906
10	4.196	4.196	4.196	4.195	4.195	4.194	4.192	4.188	4.177	4.160	4.126	4.042	3.988	3.945
20	4.185	4.185	4.185	4.185	4.184	4.184	4.182	4.179	4.170	4.155	4.127	4.056	4.008	3.969
25	4.182	4.182	4.182	4.182	4.182	4.181	4.179	4.176	4.168	4.154	4.128	4.061	4.016	3.978
30	4.180	4.180	4.180	4.180	4.180	4.179	4.178	4.175	4.167	4.154	4.130	4.066	4.022	3.985
40	4.179	4.179	4.179	4.179	4.178	4.178	4.176	4.174	4.167	4.155	4.133	4.073	4.032	3.996
50	1.927	4.180	4.180	4.180	4.179	4.179	4.177	4.175	4.168	4.157	4.136	4.080	4.040	4.005
60	1.912	4.183	4.183	4.183	4.183	4.182	4.181	4.179	4.172	4.161	4.141	4.086	4.047	4.012
70	1.907	1.940	4.188	4.188	4.188	4.187	4.186	4.184	4.178	4.167	4.147	4.093	4.054	4.019
80	1.905	1.930	4.196	4.196	4.195	4.195	4.194	4.191	4.185	4.174	4.154	4.100	4.061	4.026
90	1.905	1.925	1.990	4.205	4.205	4.204	4.203	4.201	4.194	4.184	4.163	4.108	4.068	4.033
100	1.906	1.922	1.973	2.074	4.216	4.216	4.215	4.212	4.206	4.194	4.173	4.117	4.076	4.040
110	1.907	1.921	1.963	2.040	4.230	4.230	4.228	4.226	4.219	4.207	4.185	4.127	4.084	4.047
120	1.910	1.921	1.956	2.019	4.246	4.246	4.244	4.242	4.234	4.222	4.199	4.137	4.093	4.055
130	1.913	1.922	1.952	2.004	2.123	4.264	4.263	4.260	4.252	4.239	4.214	4.149	4.103	4.063
140	1.916	1.924	1.949	1.993	2.090	4.286	4.284	4.281	4.273	4.258	4.232	4.163	4.114	4.072
150	1.920	1.927	1.948	1.986	2.067	4.310	4.309	4.305	4.296	4.281	4.252	4.177	4.126	4.081
160	1.924	1.930	1.949	1.980	2.049	2.318	4.337	4.333	4.323	4.306	4.274	4.194	4.139	4.092
170	1.929	1.934	1.950	1.977	2.036	2.250	4.369	4.365	4.353	4.334	4.300	4.212	4.153	4.103
180	1.934	1.938	1.952	1.976	2.026	2.205	2.712	4.401	4.388	4.367	4.328	4.232	4.169	4.115
190	1.938	1.942	1.954	1.975	2.019	2.171	2.529	4.443	4.428	4.404	4.361	4.255	4.186	4.129
200	1.944	1.947	1.958	1.976	2.014	2.145	2.429	4.491	4.474	4.447	4.398	4.281	4.205	4.144
220	1.954	1.957	1.965	1.979	2.009	2.108	2.310	2.949	4.590	4.553	4.489	4.341	4.250	4.179
240	1.965	1.968	1.974	1.985	2.009	2.086	2.238	2.648	4.749	4.697	4.608	4.417	4.306	4.221
260	1.977	1.979	1.984	1.993	2.012	2.073	2.191	2.491	4.976	4.897	4.769	4.512	4.373	4.271
280	1.989	1.990	1.995	2.002	2.018	2.067	2.160	2.389	3.635	5.193	4.991	4.631	4.455	4.331
300	2.001	2.002	2.006	2.012	2.025	2.066	2.141	2.320	3.171	5.682	5.317	4.782	4.553	4.400
320	2.013	2.014	2.017	2.023	2.034	2.068	2.130	2.273	2.903	5.747	5.849	4.974	4.669	4.478
340	2.026	2.026	2.029	2.034	2.043	2.072	2.124	2.242	2.727	4.389	6.924	5.220	4.801	4.562
360	2.038	2.039	2.041	2.045	2.054	2.079	2.123	2.221	2.606	3.732	11.460	5.562	4.960	4.654
380	2.051	2.052	2.054	2.057	2.065	2.086	2.124	2.207	2.520	3.347	10.221	6.053	5.162	4.774
400	2.064	2.065	2.067	2.070	2.076	2.095	2.128	2.200	2.459	3.096	6.360	6.778	5.395	4.892
420	2.077	2.078	2.079	2.082	2.088	2.105	2.134	2.196	2.415	2.922	4.982	7.864	5.681	5.025
440	2.091	2.091	2.093	2.095	2.100	2.115	2.141	2.196	2.383	2.796	4.257	9.160	6.011	5.178
460	2.104	2.104	2.106	2.108	2.113	2.126	2.149	2.198	2.360	2.704	3.806	9.578	6.337	5.336
480	2.118	2.118	2.119	2.121	2.125	2.138	2.158	2.202	2.344	2.635	3.501	8.609	6.582	5.477
500	2.131	2.132	2.133	2.135	2.138	2.149	2.168	2.207	2.333	2.583	3.284	7.309	6.658	5.576
520	2.145	2.145	2.146	2.148	2.151	2.162	2.179	2.214	2.326	2.544	3.125	6.213	6.524	5.615
540	2.159	2.159	2.160	2.162	2.165	2.174	2.189	2.221	2.322	2.513	3.005	5.414	6.226	5.588
560	2.173	2.173	2.174	2.175	2.178	2.187	2.201	2.230	2.321	2.490	2.912	4.837	5.837	5.495
580	2.187	2.187	2.188	2.189	2.192	2.200	2.213	2.239	2.321	2.473	2.839	4.413	5.425	5.351
600	2.201	2.201	2.202	2.203	2.205	2.213	2.224	2.249	2.324	2.460	2.781	4.097	5.051	5.171
620	2.215	2.215	2.216	2.217	2.219	2.226	2.237	2.259	2.328	2.451	2.735	3.856	4.712	4.977
640	2.229	2.229	2.230	2.231	2.233	2.239	2.249	2.270	2.332	2.444	2.698	3.667	4.427	4.734
660	2.243	2.244	2.244	2.245	2.247	2.253	2.262	2.281	2.338	2.440	2.668	3.515	4.191	4.532
680	2.258	2.258	2.258	2.259	2.261	2.266	2.275	2.292	2.345	2.438	2.644	3.391	3.992	4.358
700	2.272	2.272	2.272	2.273	2.275	2.280	2.287	2.303	2.353	2.438	2.625	3.288	3.824	4.191
720	2.286	2.286	2.287	2.287	2.289	2.293	2.300	2.315	2.361	2.439	2.610	3.203	3.682	4.032
740	2.300	2.300	2.301	2.301	2.303	2.307	2.314	2.327	2.369	2.442	2.598	3.132	3.563	3.888
760	2.314	2.314	2.315	2.315	2.317	2.320	2.327	2.339	2.378	2.445	2.589	3.072	3.465	3.764
780	2.328	2.328	2.329	2.329	2.331	2.334	2.340	2.352	2.388	2.450	2.582	3.023	3.383	3.661
800	2.344	2.344	2.344	2.345	2.346	2.349	2.354	2.365	2.397	2.454	2.578	2.981	3.316	3.576

Table S-7. Speed of Sound in Water and Steam ($m \cdot s^{-1}$)

	Pressure (MPa)													
t **(°C)**	**0.01**	**0.02**	**0.05**	**0.1**	**0.2**	**0.5**	**1**	**2**	**5**	**10**	**20**	**50**	**75**	**100**
Sat. Liq.	1540.0	1553.8	1556.6	1545.5	1520.7	1462.0	1391.6	1290.6	1088.4	847.7	422.2			
Sat. Vap.	440.5	449.5	462.2	472.1	481.9	493.8	500.9	504.7	498.2	472.4	384.5			
0	1402.3	1402.3	1402.4	1402.4	1402.6	1403.1	1403.8	1405.4	1410.2	1418.2	1434.5	1485.9	1530.6	1575.5
10	1447.4	1447.4	1447.5	1447.6	1447.7	1448.2	1449.0	1450.6	1455.3	1463.3	1479.6	1530.0	1573.3	1616.8
20	1483.3	1483.3	1483.3	1483.4	1483.6	1484.0	1484.8	1486.4	1491.2	1499.2	1515.3	1564.9	1607.2	1649.6
25	1498.0	1498.0	1498.1	1498.2	1498.3	1498.8	1499.6	1501.2	1506.0	1514.0	1530.1	1579.5	1621.4	1663.4
30	1510.8	1510.9	1510.9	1511.0	1511.1	1511.6	1512.4	1514.0	1518.8	1526.8	1543.0	1592.3	1634.1	1675.8
40	1531.2	1531.2	1531.2	1531.3	1531.5	1531.9	1532.8	1534.4	1539.2	1547.4	1563.7	1613.3	1655.0	1696.4
50	443.7	1545.2	1545.2	1545.3	1545.5	1546.0	1546.8	1548.5	1553.5	1561.8	1578.4	1628.7	1670.8	1712.2
60	450.7	1553.7	1553.8	1553.9	1554.0	1554.5	1555.4	1557.1	1562.3	1570.8	1587.9	1639.3	1682.0	1723.7
70	457.5	456.7	1557.5	1557.6	1557.8	1558.3	1559.2	1561.0	1566.3	1575.2	1592.9	1645.6	1689.1	1731.3
80	464.1	463.4	1557.0	1557.1	1557.2	1557.8	1558.7	1560.6	1566.2	1575.4	1593.7	1648.1	1692.6	1735.4
90	470.5	470.0	468.3	1552.8	1553.0	1553.5	1554.5	1556.5	1562.3	1571.9	1591.0	1647.2	1692.8	1736.3
100	476.9	476.4	475.0	472.3	1545.3	1545.9	1546.9	1549.0	1555.1	1565.1	1585.0	1643.2	1690.1	1734.4
110	483.1	482.7	481.4	479.3	1534.6	1535.2	1536.3	1538.4	1544.8	1555.4	1576.2	1636.5	1684.8	1730.0
120	489.2	488.9	487.8	485.9	1521.0	1521.7	1522.8	1525.1	1531.8	1543.0	1564.7	1627.4	1677.1	1723.4
130	495.3	495.0	494.0	492.3	488.8	1505.6	1506.8	1509.2	1516.3	1528.0	1550.8	1616.0	1667.4	1714.7
140	501.2	500.9	500.1	498.6	495.5	1487.0	1488.3	1490.8	1498.4	1510.7	1534.7	1602.5	1655.6	1704.3
150	507.1	506.8	506.0	504.7	502.0	1466.0	1467.4	1470.1	1478.1	1491.2	1516.5	1587.2	1642.2	1692.1
160	512.8	512.6	511.9	510.7	508.3	500.2	1444.3	1447.2	1455.7	1469.6	1496.2	1570.1	1627.1	1678.5
170	518.5	518.3	517.7	516.6	514.4	507.3	1418.9	1422.0	1431.1	1445.8	1474.0	1551.4	1610.4	1663.6
180	524.1	523.9	523.4	522.4	520.4	514.1	501.0	1394.6	1404.3	1420.1	1450.0	1531.0	1592.4	1647.3
190	529.7	529.5	529.0	528.1	526.3	520.6	509.7	1365.0	1375.4	1392.2	1424.0	1509.1	1572.9	1629.8
200	535.1	535.0	534.5	533.7	532.0	526.8	517.3	1333.2	1344.3	1362.3	1396.2	1485.8	1552.2	1611.2
220	545.8	545.7	545.3	544.6	543.2	538.9	531.2	512.6	1275.4	1296.1	1334.8	1434.7	1506.9	1570.7
240	556.3	556.2	555.9	555.3	554.1	550.4	544.0	529.5	1197.1	1221.1	1265.7	1378.0	1457.1	1526.2
260	566.6	566.5	566.2	565.6	564.6	561.5	556.1	544.1	1107.7	1136.3	1188.5	1316.0	1402.9	1478.1
280	576.6	576.5	576.2	575.8	574.9	572.2	567.5	557.4	518.9	1038.9	1102.1	1249.0	1345.1	1426.9
300	586.4	586.3	586.1	585.7	584.9	582.6	578.5	569.9	538.8	922.8	1004.3	1177.3	1284.3	1373.4
320	596.0	595.9	595.7	595.4	594.7	592.6	589.1	581.7	555.8	491.7	890.3	1101.5	1221.3	1318.5
340	605.4	605.3	605.1	604.8	604.2	602.4	599.3	592.9	570.9	522.2	751.1	1021.7	1157.0	1263.0
360	614.6	614.5	614.4	614.1	613.6	612.0	609.2	603.6	584.8	545.5	542.7	936.0	1091.6	1207.4
380	623.7	623.6	623.5	623.2	622.8	621.3	618.9	613.9	597.6	565.0	461.3	846.8	1023.5	1150.7
400	632.6	632.5	632.4	632.2	631.8	630.5	628.3	623.9	609.6	582.0	507.3	755.1	955.9	1093.3
420	641.3	641.3	641.2	641.0	640.6	639.4	637.5	633.5	620.9	597.3	538.7	666.1	890.2	1037.2
440	649.9	649.9	649.8	649.6	649.2	648.2	646.5	642.9	631.7	611.3	563.4	593.6	828.7	983.7
460	658.4	658.3	658.2	658.1	657.8	656.8	655.3	652.1	642.1	624.2	584.1	556.7	774.3	934.4
480	666.7	666.6	666.6	666.4	666.1	665.3	663.9	661.0	652.1	636.4	602.3	554.8	730.1	890.4
500	674.9	674.8	674.8	674.6	674.4	673.6	672.3	669.8	661.8	647.9	618.6	568.9	698.6	852.7
520	682.9	682.9	682.8	682.7	682.5	681.8	680.7	678.3	671.2	658.8	633.5	588.1	680.3	821.9
540	690.9	690.9	690.8	690.7	690.5	689.9	688.8	686.7	680.3	669.3	647.2	607.7	673.0	798.0
560	698.7	698.7	698.6	698.6	698.4	697.8	696.9	694.9	689.2	679.4	660.1	626.2	674.1	781.0
580	706.4	706.4	706.4	706.3	706.1	705.6	704.8	703.0	697.8	689.1	672.2	643.4	679.5	770.0
600	714.1	714.1	714.0	713.9	713.8	713.3	712.5	711.0	706.3	698.5	683.7	659.2	687.4	766.5
620	721.6	721.6	721.5	721.5	721.3	720.9	720.2	718.8	714.6	707.7	694.7	673.9	697.2	762.8
640	729.0	729.0	729.0	728.9	728.8	728.4	727.8	726.5	722.8	716.6	705.2	687.7	707.9	764.7
660	736.4	736.3	736.3	736.3	736.1	735.8	735.2	734.1	730.7	725.3	715.3	700.7	718.9	770.5
680	743.6	743.6	743.6	743.5	743.4	743.1	742.6	741.6	738.6	733.7	725.0	713.1	730.0	777.3
700	750.8	750.7	750.7	750.7	750.6	750.3	749.9	749.0	746.3	742.0	734.5	725.0	741.0	784.1
720	757.8	757.8	757.8	757.8	757.7	757.4	757.0	756.2	753.9	750.1	743.6	736.3	751.9	790.9
740	764.8	764.8	764.8	764.8	764.7	764.5	764.1	763.4	761.3	758.1	752.6	747.2	762.5	797.9
760	771.8	771.8	771.7	771.7	771.6	771.4	771.1	770.5	768.7	765.9	761.2	757.7	772.8	805.2
780	778.6	778.6	778.6	778.6	778.5	778.3	778.1	777.5	776.0	773.6	769.7	767.7	782.6	812.8
800	785.3	785.3	785.3	785.3	785.2	785.1	784.9	784.4	783.2	781.3	778.0	777.4	791.8	821.0

Table S-8. Dynamic Viscosity of Water and Steam (μPa·s)

	Pressure (MPa)													
t **(°C)**	**0.01**	**0.02**	**0.05**	**0.1**	**0.2**	**0.5**	**1**	**2**	**5**	**10**	**20**	**50**	**75**	**100**
Sat. Liq.	587.3	465.6	348.3	282.8	231.6	180.2	150.5	126.4	100.1	81.7	56.2			
Sat. Vap.	10.4	10.9	11.6	12.2	12.9	14.0	15.0	16.1	18.0	20.2	27.4			
0	1792.0	1791.9	1791.9	1791.8	1791.5	1790.9	1789.7	1787.5	1781.0	1770.6	1751.2	1704.7	1677.9	1660.6
10	1306.0	1306.0	1305.9	1305.9	1305.8	1305.5	1305.1	1304.2	1301.6	1297.4	1289.8	1272.2	1263.3	1259.3
20	1001.6	1001.6	1001.6	1001.6	1001.6	1001.5	1001.3	1001.0	1000.1	998.8	996.4	992.0	991.3	993.1
25	890.0	890.0	890.0	890.0	890.0	890.0	889.9	889.8	889.4	888.8	887.9	887.2	888.8	892.4
30	797.2	797.2	797.2	797.2	797.2	797.2	797.2	797.2	797.2	797.1	797.3	799.2	802.5	807.1
40	652.7	652.7	652.7	652.7	652.7	652.8	652.8	653.0	653.4	654.0	655.5	660.6	665.8	671.8
50	10.5	546.5	546.5	546.5	546.5	546.6	546.7	546.9	547.5	548.5	550.6	557.4	563.5	570.1
60	10.9	466.0	466.0	466.0	466.1	466.1	466.3	466.5	467.2	468.4	470.9	478.4	484.9	491.7
70	11.2	11.2	403.5	403.6	403.6	403.7	403.8	404.0	404.8	406.1	408.7	416.6	423.3	430.1
80	11.6	11.6	354.0	354.1	354.1	354.2	354.3	354.6	355.4	356.7	359.4	367.4	374.1	380.8
90	12.0	11.9	11.9	314.2	314.2	314.3	314.4	314.7	315.5	316.9	319.5	327.5	334.1	340.7
100	12.3	12.3	12.3	12.2	281.6	281.7	281.8	282.1	282.9	284.2	286.9	294.8	301.3	307.7
110	12.7	12.7	12.7	12.6	254.6	254.7	254.8	255.1	255.9	257.2	259.9	267.6	274.0	280.2
120	13.1	13.1	13.1	13.0	232.0	232.1	232.2	232.5	233.3	234.6	237.2	244.8	251.0	257.1
130	13.5	13.5	13.4	13.4	13.3	213.0	213.1	213.4	214.2	215.5	218.0	225.5	231.5	237.5
140	13.9	13.8	13.8	13.8	13.7	196.7	196.8	197.1	197.8	199.1	201.6	209.0	214.9	220.7
150	14.2	14.2	14.2	14.2	14.1	182.6	182.7	183.0	183.8	185.0	187.5	194.7	200.5	206.2
160	14.6	14.6	14.6	14.6	14.5	14.4	170.5	170.8	171.5	172.8	175.2	182.3	188.0	193.5
170	15.0	15.0	15.0	15.0	14.9	14.8	159.8	160.1	160.8	162.1	164.5	171.5	177.1	182.5
180	15.4	15.4	15.4	15.4	15.4	15.2	15.0	150.6	151.4	152.6	155.0	162.0	167.5	172.8
190	15.8	15.8	15.8	15.8	15.8	15.6	15.4	142.2	143.0	144.2	146.6	153.5	159.0	164.2
200	16.2	16.2	16.2	16.2	16.2	16.1	15.9	134.7	135.5	136.7	139.1	146.0	151.4	156.5
220	17.0	17.0	17.0	17.0	17.0	16.9	16.8	16.5	122.5	123.8	126.2	133.1	138.4	143.5
240	17.9	17.9	17.9	17.8	17.8	17.7	17.6	17.4	111.5	112.9	115.5	122.5	127.8	132.8
260	18.7	18.7	18.7	18.7	18.6	18.6	18.5	18.3	101.9	103.4	106.2	113.5	118.9	123.8
280	19.5	19.5	19.5	19.5	19.5	19.4	19.3	19.2	18.8	94.8	97.8	105.7	111.2	116.2
300	20.3	20.3	20.3	20.3	20.3	20.3	20.2	20.1	19.8	86.4	90.1	98.7	104.5	109.6
320	21.1	21.1	21.1	21.1	21.1	21.1	21.1	21.0	20.8	20.7	82.4	92.3	98.4	103.7
340	22.0	22.0	22.0	22.0	22.0	21.9	21.9	21.8	21.7	21.7	74.2	86.2	92.9	98.4
360	22.8	22.8	22.8	22.8	22.8	22.8	22.8	22.7	22.6	22.7	62.8	80.3	87.6	93.5
380	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.6	23.5	23.6	25.8	74.3	82.7	88.9
400	24.5	24.5	24.5	24.5	24.5	24.4	24.4	24.4	24.4	24.6	26.1	68.1	77.8	84.6
420	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.3	25.5	26.8	61.4	73.1	80.5
440	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.1	26.2	26.4	27.6	54.4	68.5	76.6
460	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	27.0	27.2	28.4	47.9	64.0	72.8
480	27.7	27.7	27.7	27.7	27.7	27.8	27.8	27.8	27.9	28.1	29.2	43.4	59.8	69.2
500	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	29.0	30.0	40.9	56.1	65.8
520	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.8	30.8	39.6	52.9	62.8
540	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.4	30.7	31.6	39.1	50.4	60.1
560	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.1	31.2	31.5	32.4	38.9	48.6	57.8
580	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.9	32.0	32.3	33.2	39.0	47.4	55.9
600	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.7	32.8	33.1	34.0	39.2	46.5	54.3
620	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.5	33.6	33.9	34.8	39.5	46.0	53.1
640	34.2	34.2	34.2	34.2	34.2	34.2	34.2	34.3	34.4	34.7	35.5	39.9	45.7	52.2
660	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.1	35.2	35.5	36.3	40.4	45.6	51.5
680	35.8	35.8	35.8	35.8	35.8	35.8	35.8	35.9	36.0	36.3	37.1	40.9	45.6	51.0
700	36.6	36.6	36.6	36.6	36.6	36.6	36.6	36.7	36.8	37.1	37.9	41.5	45.8	50.7
720	37.3	37.3	37.3	37.3	37.4	37.4	37.4	37.4	37.6	37.9	38.6	42.0	46.0	50.5
740	38.1	38.1	38.1	38.1	38.1	38.1	38.2	38.2	38.4	38.7	39.4	42.6	46.3	50.5
760	38.9	38.9	38.9	38.9	38.9	38.9	38.9	39.0	39.1	39.4	40.1	43.2	46.6	50.5
780	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.8	39.9	40.2	40.9	43.8	47.0	50.6
800	40.4	40.4	40.4	40.4	40.4	40.5	40.5	40.5	40.7	40.9	41.6	44.4	47.4	50.8

Table S-9. Thermal Conductivity of Water and Steam ($mW \cdot m^{-1} \cdot K^{-1}$)

	Pressure (MPa)													
t **(°C)**	**0.01**	**0.02**	**0.05**	**0.1**	**0.2**	**0.5**	**1**	**2**	**5**	**10**	**20**	**50**	**75**	**100**
Sat. Liq.	635.7	651.0	667.8	677.1	682.3	680.6	671.3	651.3	601.2	535.3	432.4			
Sat. Vap.	19.9	21.0	22.8	24.5	26.7	30.6	34.8	40.9	54.8	78.3	250.8			
0	555.6	555.6	555.6	555.7	555.7	556.0	556.3	557.1	559.3	563.0	570.1	589.6	603.9	616.6
10	578.7	578.7	578.7	578.8	578.8	579.0	579.4	580.0	581.9	585.1	591.3	608.4	621.1	632.7
20	598.0	598.0	598.0	598.0	598.1	598.2	598.5	599.1	600.9	603.7	609.3	625.0	636.9	647.9
25	606.5	606.5	606.5	606.5	606.6	606.7	607.0	607.6	609.3	612.0	617.4	632.7	644.3	655.1
30	614.3	614.4	614.4	614.4	614.4	614.6	614.9	615.4	617.1	619.8	625.0	639.9	651.4	662.1
40	628.4	628.5	628.5	628.5	628.5	628.7	629.0	629.5	631.1	633.7	638.8	653.3	664.7	675.3
50	20.3	640.6	640.6	640.6	640.7	640.8	641.1	641.6	643.2	645.7	650.8	665.3	676.6	687.4
60	21.0	651.0	651.0	651.0	651.1	651.2	651.5	652.0	653.6	656.1	661.2	675.8	687.3	698.3
70	21.8	21.8	659.7	659.8	659.8	660.0	660.2	660.8	662.3	664.9	670.1	684.9	696.7	708.0
80	22.6	22.6	667.0	667.0	667.1	667.2	667.5	668.0	669.6	672.3	677.5	692.7	704.8	716.5
90	23.4	23.4	23.5	672.8	672.9	673.0	673.3	673.8	675.5	678.2	683.6	699.2	711.7	723.7
100	24.2	24.2	24.4	24.6	677.3	677.4	677.7	678.3	680.0	682.8	688.3	704.5	717.4	729.8
110	25.0	25.1	25.2	25.4	680.4	680.6	680.9	681.4	683.2	686.1	691.8	708.5	721.8	734.7
120	25.9	25.9	26.0	26.2	682.2	682.4	682.7	683.3	685.1	688.1	694.1	711.3	725.1	738.4
130	26.7	26.8	26.9	27.1	27.5	683.1	683.4	684.0	685.9	689.0	695.2	713.0	727.3	741.1
140	27.6	27.7	27.8	28.0	28.4	682.6	682.9	683.6	685.5	688.8	695.1	713.7	728.4	742.7
150	28.5	28.6	28.7	28.8	29.2	681.0	681.4	682.1	684.1	687.4	694.1	713.3	728.6	743.4
160	29.4	29.5	29.6	29.7	30.1	31.2	679.0	679.7	681.6	685.1	691.9	711.9	727.7	743.0
170	30.3	30.4	30.5	30.6	31.0	32.1	675.7	676.4	678.5	682.1	689.0	709.5	726.0	741.8
180	31.3	31.3	31.4	31.6	31.9	32.9	34.8	672.0	674.3	678.0	685.3	706.3	723.3	739.7
190	32.2	32.2	32.3	32.5	32.8	33.8	35.6	666.7	669.1	673.0	680.6	702.5	719.9	736.8
200	33.2	33.2	33.3	33.4	33.7	34.6	36.3	660.4	662.9	667.0	675.0	697.9	715.6	733.1
220	35.1	35.2	35.2	35.4	35.6	36.4	37.9	41.3	647.7	652.3	661.1	686.1	705.5	723.9
240	37.1	37.1	37.2	37.3	37.6	38.3	39.6	42.5	628.9	634.0	643.8	671.3	692.3	712.2
260	39.2	39.2	39.3	39.4	39.6	40.2	41.4	43.9	606.1	612.0	623.2	653.6	676.5	697.9
280	41.3	41.3	41.3	41.4	41.6	42.2	43.2	45.4	54.2	586.0	598.9	633.1	658.3	681.4
300	43.4	43.4	43.4	43.5	43.7	44.2	45.1	47.0	54.3	555.1	570.8	610.0	637.7	662.8
320	45.5	45.6	45.6	45.7	45.8	46.3	47.1	48.8	55.0	74.1	537.9	584.2	615.0	642.4
340	47.7	47.8	47.8	47.9	48.0	48.4	49.2	50.7	56.0	70.0	497.8	555.5	590.3	620.2
360	50.0	50.0	50.0	50.1	50.2	50.6	51.3	52.6	57.4	68.6	443.9	523.8	563.6	596.5
380	52.3	52.3	52.3	52.4	52.5	52.8	53.4	54.7	58.9	68.3	126.7	488.4	535.1	571.5
400	54.6	54.6	54.6	54.6	54.8	55.1	55.6	56.8	60.6	68.7	103.7	448.3	504.8	545.3
420	56.9	56.9	56.9	57.0	57.1	57.4	57.9	58.9	62.4	69.6	95.5	402.2	472.7	518.3
440	59.3	59.3	59.3	59.3	59.4	59.7	60.2	61.2	64.4	70.8	91.8	348.6	438.9	490.6
460	61.6	61.7	61.7	61.7	61.8	62.1	62.5	63.4	66.4	72.3	90.2	291.0	403.9	462.5
480	64.1	64.1	64.1	64.1	64.2	64.5	64.9	65.8	68.6	74.0	89.7	241.0	368.4	434.3
500	66.5	66.5	66.5	66.6	66.7	66.9	67.3	68.1	70.8	75.9	90.0	206.0	333.8	406.6
520	69.0	69.0	69.0	69.1	69.1	69.4	69.7	70.5	73.1	77.9	90.9	183.4	302.1	379.9
540	71.5	71.5	71.5	71.6	71.6	71.8	72.2	73.0	75.4	80.1	92.1	169.0	274.8	354.9
560	74.0	74.0	74.0	74.1	74.1	74.4	74.7	75.5	77.9	82.3	93.7	159.9	252.4	332.1
580	76.5	76.6	76.6	76.6	76.7	76.9	77.3	78.0	80.3	84.7	95.5	154.0	235.0	311.9
600	79.1	79.1	79.1	79.2	79.2	79.5	79.8	80.5	82.8	87.1	97.4	150.4	221.7	294.5
620	81.7	81.7	81.7	81.8	81.8	82.0	82.4	83.1	85.4	89.6	99.6	148.2	211.8	279.8
640	84.3	84.3	84.3	84.4	84.4	84.6	85.0	85.7	88.0	92.1	101.9	147.2	204.5	267.7
660	86.9	86.9	86.9	87.0	87.1	87.3	87.6	88.3	90.6	94.7	104.3	146.9	199.2	257.9
680	89.6	89.6	89.6	89.6	89.7	89.9	90.3	91.0	93.3	97.3	106.7	147.3	195.4	249.9
700	92.2	92.2	92.2	92.3	92.4	92.6	92.9	93.7	95.9	100.0	109.3	148.0	192.5	242.9
720	94.9	94.9	94.9	95.0	95.0	95.2	95.6	96.3	98.6	102.7	112.0	149.4	191.4	238.8
740	97.6	97.6	97.6	97.6	97.7	97.9	98.3	99.1	101.4	105.5	114.7	151.1	191.1	235.9
760	100.3	100.3	100.3	100.4	100.4	100.7	101.0	101.8	104.1	108.3	117.5	153.1	191.3	234.0
780	103.0	103.0	103.0	103.1	103.2	103.4	103.8	104.5	106.9	111.1	120.3	155.2	192.0	232.8
800	105.7	105.7	105.8	105.8	105.9	106.1	106.5	107.3	109.7	113.9	123.1	157.5	193.1	232.2

Table S-10. Prandtl Number of Water and Steam

	Pressure (MPa)													
t **(°C)**	**0.01**	**0.02**	**0.05**	**0.1**	**0.2**	**0.5**	**1**	**2**	**5**	**10**	**20**	**50**	**75**	**100**
Sat. Liq.	3.86	2.99	2.19	1.76	1.44	1.14	0.99	0.89	0.84	0.94	3.02			
Sat. Vap.	1.01	1.01	1.02	1.03	1.05	1.11	1.17	1.25	1.46	1.84	4.99			
0	13.61	13.61	13.61	13.61	13.60	13.59	13.56	13.51	13.36	13.12	12.68	11.63	10.99	10.52
10	9.47	9.47	9.47	9.47	9.46	9.46	9.44	9.42	9.34	9.22	9.00	8.45	8.11	7.85
20	7.01	7.01	7.01	7.01	7.01	7.00	7.00	6.98	6.94	6.87	6.75	6.44	6.24	6.08
25	6.14	6.14	6.14	6.14	6.14	6.13	6.13	6.12	6.08	6.03	5.94	5.70	5.54	5.42
30	5.42	5.42	5.42	5.42	5.42	5.42	5.42	5.41	5.38	5.34	5.27	5.08	4.95	4.86
40	4.34	4.34	4.34	4.34	4.34	4.34	4.33	4.33	4.31	4.29	4.24	4.12	4.04	3.98
50	1.00	3.57	3.57	3.57	3.57	3.56	3.56	3.56	3.55	3.53	3.50	3.42	3.36	3.32
60	0.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.98	2.97	2.95	2.89	2.86	2.83
70	0.98	1.00	2.56	2.56	2.56	2.56	2.56	2.56	2.55	2.55	2.53	2.49	2.46	2.44
80	0.98	0.99	2.23	2.23	2.23	2.23	2.23	2.22	2.22	2.21	2.20	2.17	2.15	2.14
90	0.97	0.98	1.01	1.96	1.96	1.96	1.96	1.96	1.96	1.95	1.95	1.92	1.91	1.90
100	0.97	0.98	1.00	1.03	1.75	1.75	1.75	1.75	1.75	1.75	1.74	1.72	1.71	1.70
110	0.97	0.97	0.99	1.01	1.58	1.58	1.58	1.58	1.58	1.58	1.57	1.56	1.55	1.54
120	0.97	0.97	0.98	1.00	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.42	1.42	1.41
130	0.96	0.97	0.98	0.99	1.03	1.33	1.33	1.33	1.33	1.33	1.32	1.31	1.31	1.30
140	0.96	0.96	0.97	0.98	1.01	1.23	1.23	1.23	1.23	1.23	1.23	1.22	1.21	1.21
150	0.96	0.96	0.97	0.98	1.00	1.16	1.16	1.16	1.15	1.15	1.15	1.14	1.14	1.13
160	0.96	0.96	0.96	0.97	0.99	1.07	1.09	1.09	1.09	1.09	1.08	1.07	1.07	1.07
170	0.96	0.96	0.96	0.97	0.98	1.04	1.03	1.03	1.03	1.03	1.03	1.02	1.01	1.01
180	0.95	0.96	0.96	0.96	0.98	1.02	1.17	0.99	0.99	0.98	0.98	0.97	0.97	0.96
190	0.95	0.95	0.96	0.96	0.97	1.01	1.10	0.95	0.95	0.94	0.94	0.93	0.92	0.92
200	0.95	0.95	0.95	0.96	0.97	0.99	1.06	0.92	0.91	0.91	0.91	0.90	0.89	0.88
220	0.95	0.95	0.95	0.95	0.96	0.98	1.02	1.17	0.87	0.86	0.86	0.84	0.83	0.83
240	0.95	0.95	0.95	0.95	0.95	0.97	1.00	1.08	0.84	0.84	0.83	0.81	0.79	0.79
260	0.94	0.94	0.94	0.95	0.95	0.96	0.98	1.04	0.84	0.83	0.81	0.78	0.77	0.76
280	0.94	0.94	0.94	0.94	0.94	0.95	0.97	1.01	1.26	0.84	0.82	0.77	0.75	0.74
300	0.94	0.94	0.94	0.94	0.94	0.95	0.96	0.99	1.16	0.88	0.84	0.77	0.75	0.73
320	0.93	0.93	0.94	0.94	0.94	0.94	0.95	0.98	1.10	1.60	0.90	0.79	0.75	0.72
340	0.93	0.93	0.93	0.93	0.93	0.94	0.95	0.97	1.06	1.36	1.03	0.81	0.76	0.72
360	0.93	0.93	0.93	0.93	0.93	0.94	0.94	0.96	1.03	1.23	1.62	0.85	0.77	0.73
380	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.95	1.01	1.16	2.08	0.92	0.80	0.74
400	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.95	0.99	1.11	1.60	1.03	0.83	0.76
420	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.94	0.98	1.07	1.40	1.20	0.88	0.78
440	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.94	0.97	1.04	1.28	1.43	0.94	0.81
460	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.96	1.02	1.20	1.58	1.00	0.84
480	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.95	1.00	1.14	1.55	1.07	0.87
500	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.95	0.99	1.09	1.45	1.12	0.90
520	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.94	0.97	1.06	1.34	1.14	0.93
540	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.93	0.96	1.03	1.25	1.14	0.95
560	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.93	0.95	1.01	1.18	1.12	0.96
580	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.93	0.94	0.99	1.12	1.09	0.96
600	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.94	0.97	1.07	1.06	0.95
620	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.93	0.95	1.03	1.02	0.94
640	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.92	0.94	1.00	0.99	0.92
660	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.92	0.93	0.97	0.96	0.91
680	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.92	0.94	0.93	0.89
700	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.92	0.91	0.88
720	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.88	0.85
740	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.88	0.86	0.83
760	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.88	0.87	0.84	0.81
780	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.89	0.88	0.85	0.83	0.80
800	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.88	0.87	0.84	0.81	0.78

Table S-11. Vapor-Liquid Surface Tension of Water and Steam (mN·m^{-1})

t (ºC)	Surf. Tension
0.01	75.65
5	74.94
10	74.22
15	73.49
20	72.74
25	71.97
30	71.19
35	70.40
40	69.60
45	68.78
50	67.94
55	67.10
60	66.24
65	65.37
70	64.48
75	63.58
80	62.67
85	61.75
90	60.82
95	59.87
100	58.91
105	57.94
110	56.96
115	55.97
120	54.97
125	53.96
130	52.93
135	51.90
140	50.86
145	49.80
150	48.74
155	47.67
160	46.59
165	45.50
170	44.41
175	43.30
180	42.19
185	41.07
190	39.95
195	38.81

t (ºC)	Surf. Tension
200	37.67
205	36.53
210	35.38
215	34.23
220	33.07
225	31.90
230	30.74
235	29.57
240	28.39
245	27.22
250	26.04
255	24.87
260	23.69
265	22.51
270	21.34
275	20.16
280	18.99
285	17.83
290	16.66
295	15.51
300	14.36
305	13.22
310	12.09
315	10.97
320	9.86
325	8.77
330	7.70
335	6.65
340	5.63
345	4.63
350	3.67
355	2.74
360	1.88
365	1.08
370	0.39
373.946	0

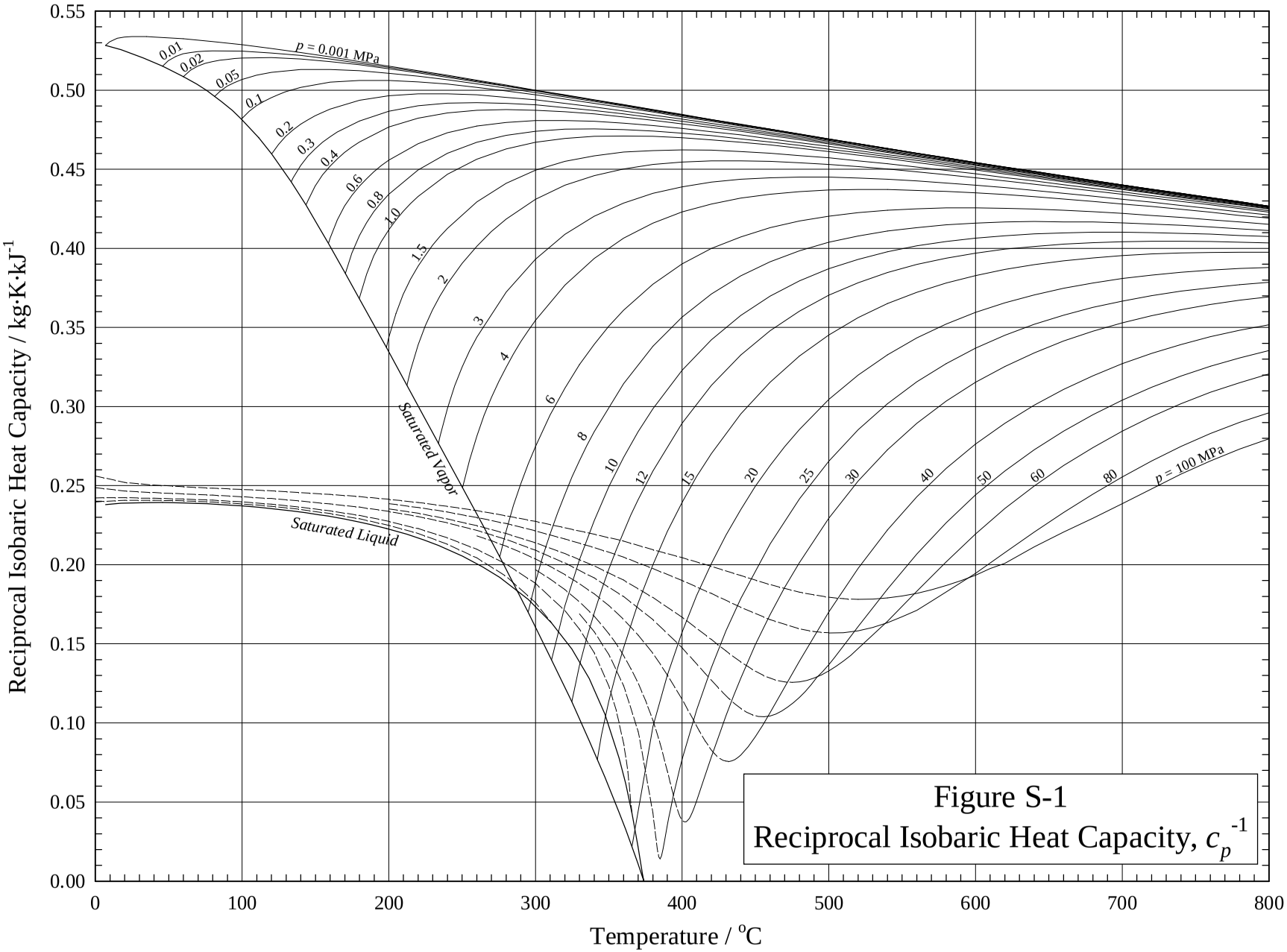


Figure S-1
Reciprocal Isobaric Heat Capacity, c_p^{-1}

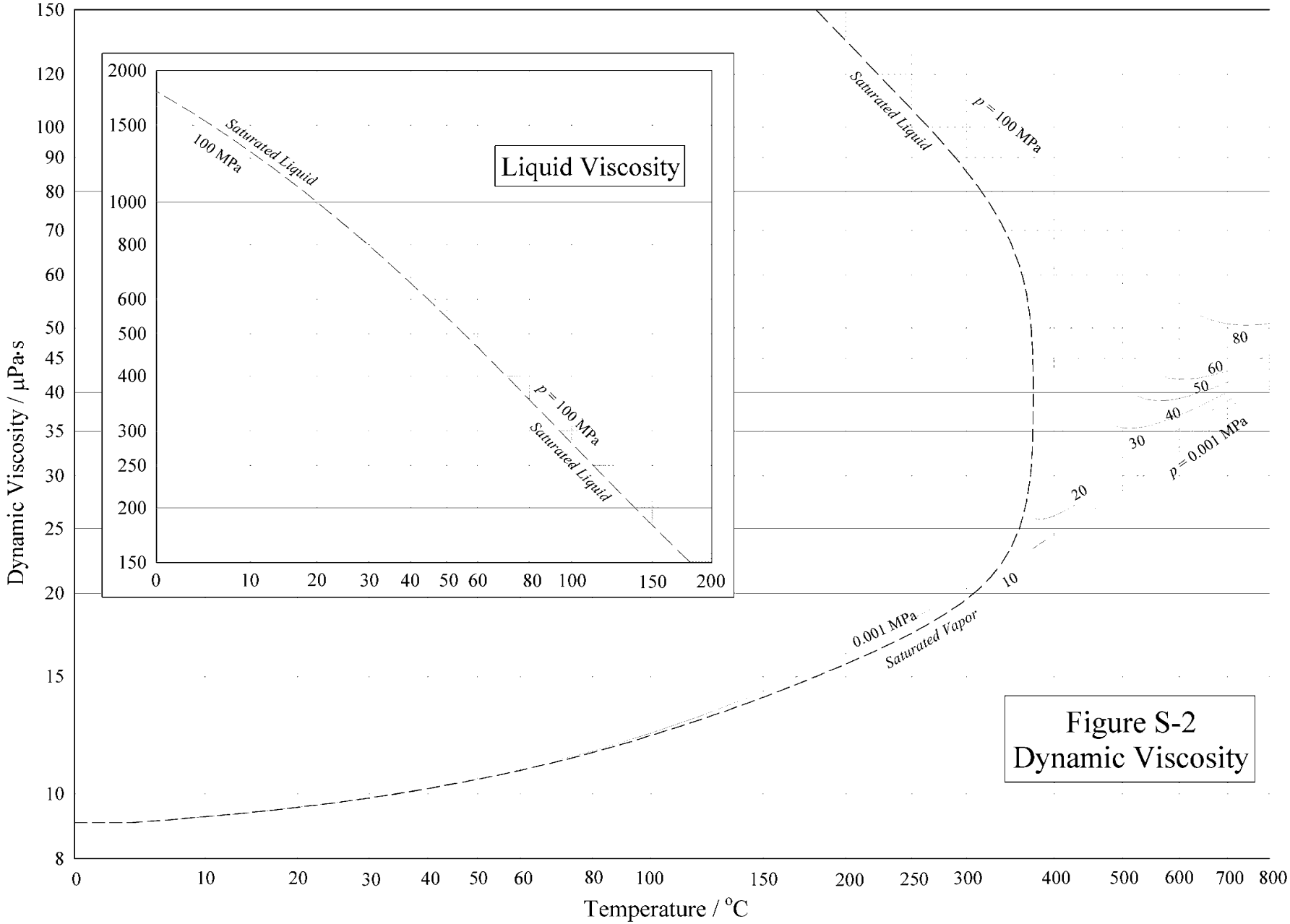


Figure S-2
Dynamic Viscosity

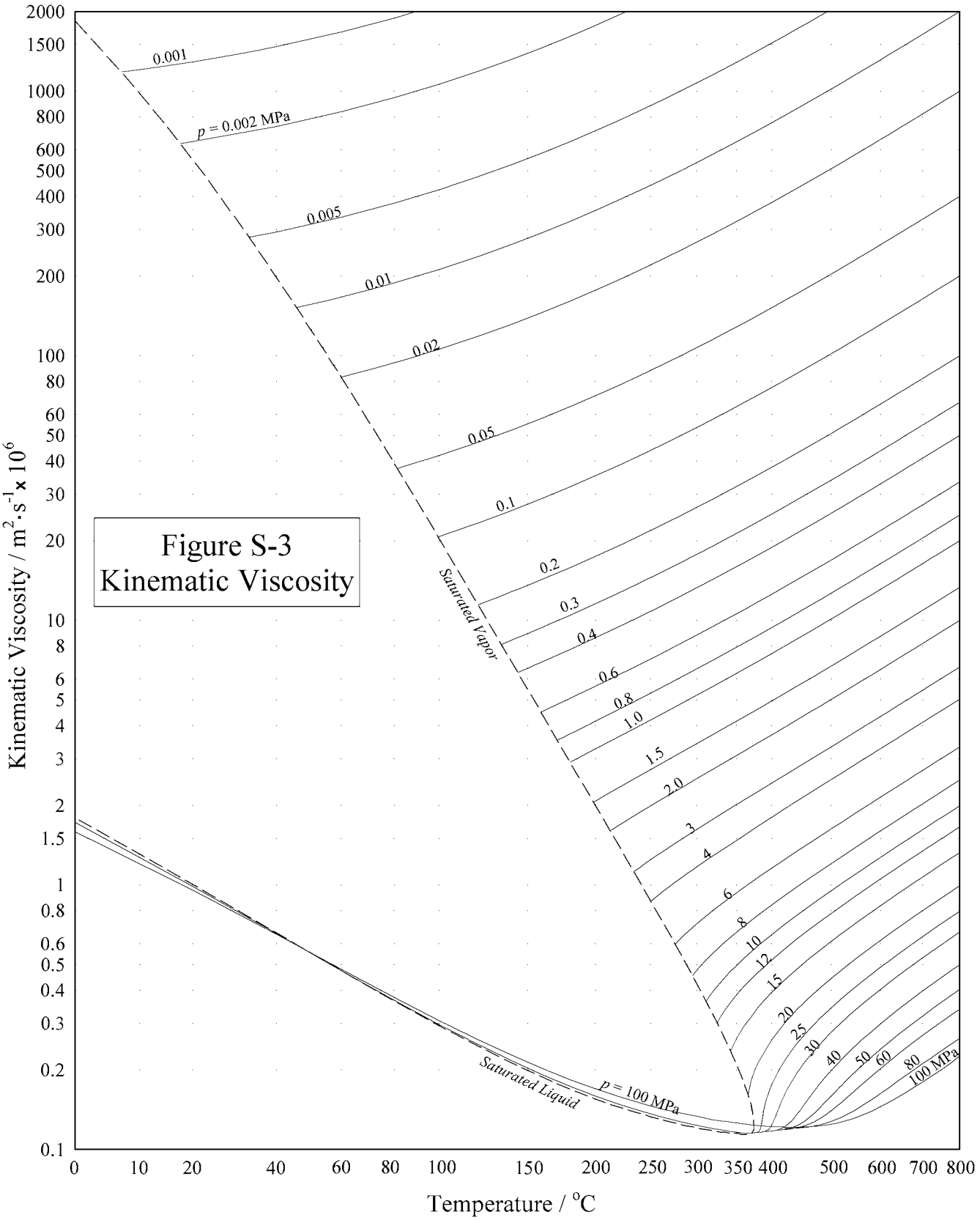


Figure S-3
Kinematic Viscosity
Kinematic Viscosity / m^2·s^{-1} x 10^6
Temperature / °C
0.001
p = 0.002 MPa
0.005
0.01
0.02
0.05
0.1
0.2
0.3
0.4
0.6
0.8
1.0
1.5
2.0
3
4
6
8
10
12
15
20
25
30
40
50
60
80
100 MPa
Saturated Vapor
Saturated Liquid
p = 100 MPa
2000
1500
1000
800
600
500
400
300
200
100
80
60
50
40
30
20
10
8
6
5
4
3
2
1.5
1
0.8
0.6
0.5
0.4
0.3
0.2
0.1
0
10
20
40
60
80
100
150
200
250
300
350
400
500
600
700
800

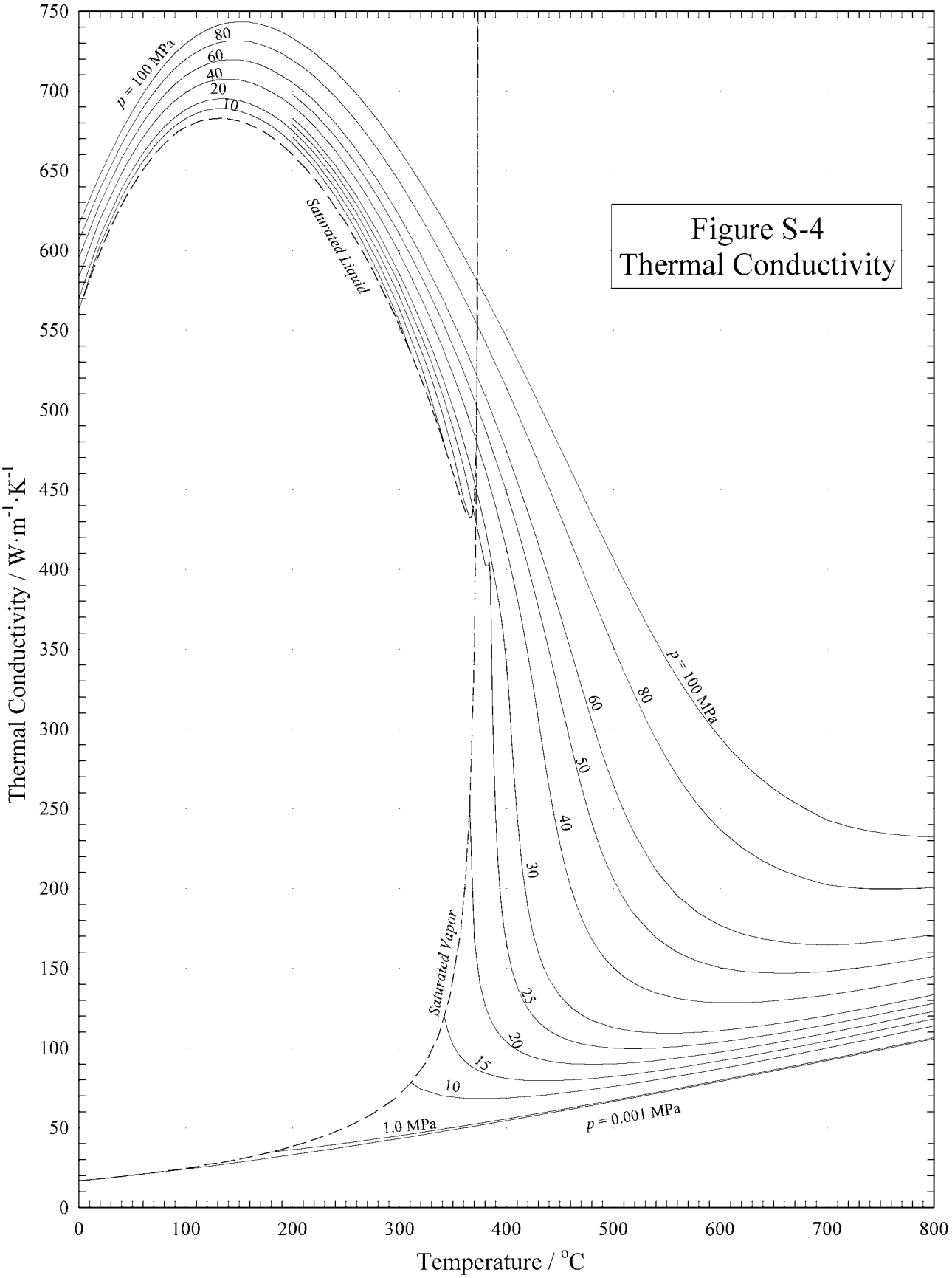
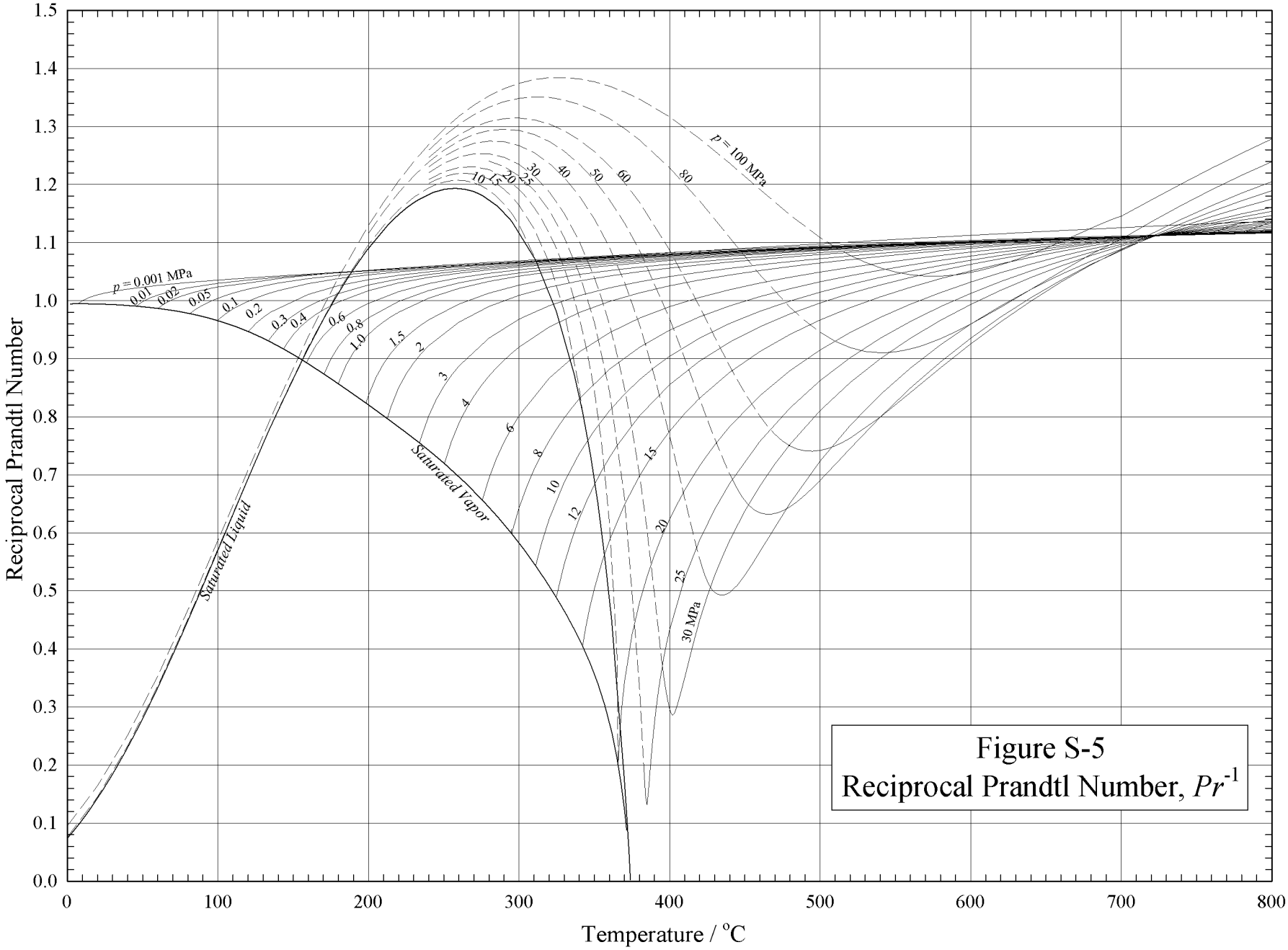


Figure S-4
Thermal Conductivity
Thermal Conductivity / W·m⁻¹·K⁻¹
Temperature / °C
p = 100 MPa
80
60
40
20
10
Saturated Liquid
Saturated Vapor
60
80
50
40
30
25
20
15
10
1.0 MPa
p = 0.001 MPa
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
0
100
200
300
400
500
600
700
800


Reciprocal Prandtl Number
Temperature / °C
p = 0.001 MPa
0.01
0.02
0.05
0.1
0.2
0.3
0.4
0.6
0.8
1.0
1.5
2
3
4
6
8
10
12
15
20
25
30 MPa
40
50
60
80
p = 100 MPa
Saturated Liquid
Saturated Vapor
Figure S-5
Reciprocal Prandtl Number, Pr-1

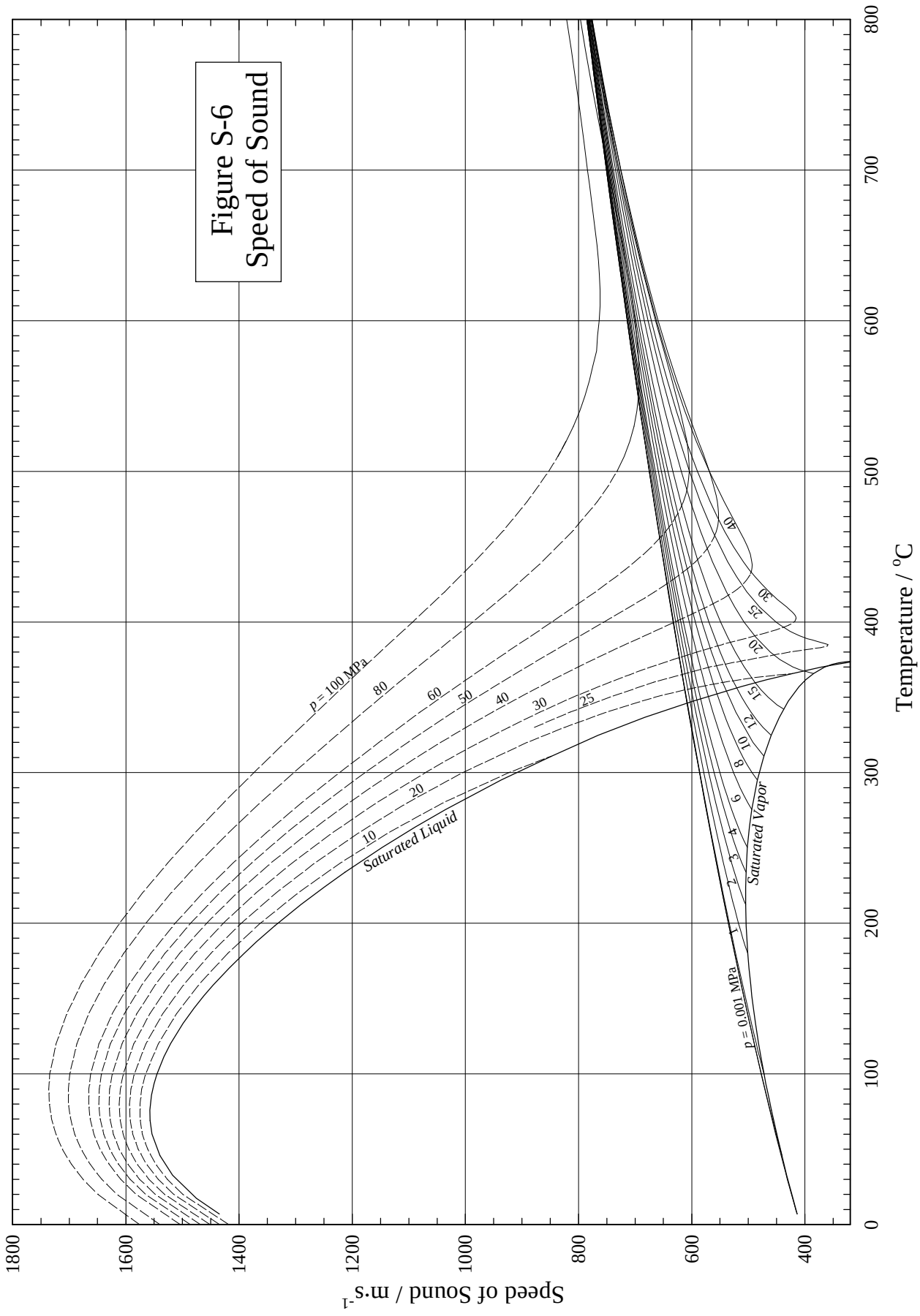


Figure S-6
Speed of Sound
Speed of Sound / m·s-1
Temperature / °C
p = 100 MPa
80
60
50
40
30
25
20
15
12
10
8
6
4
3
2
1
p = 0.001 MPa
Saturated Liquid
Saturated Vapor
40
30
25
20
15
12
10
8
6
4
3
2
1
0
100
200
300
400
500
600
700
800
400
600
800
1000
1200
1400
1600
1800

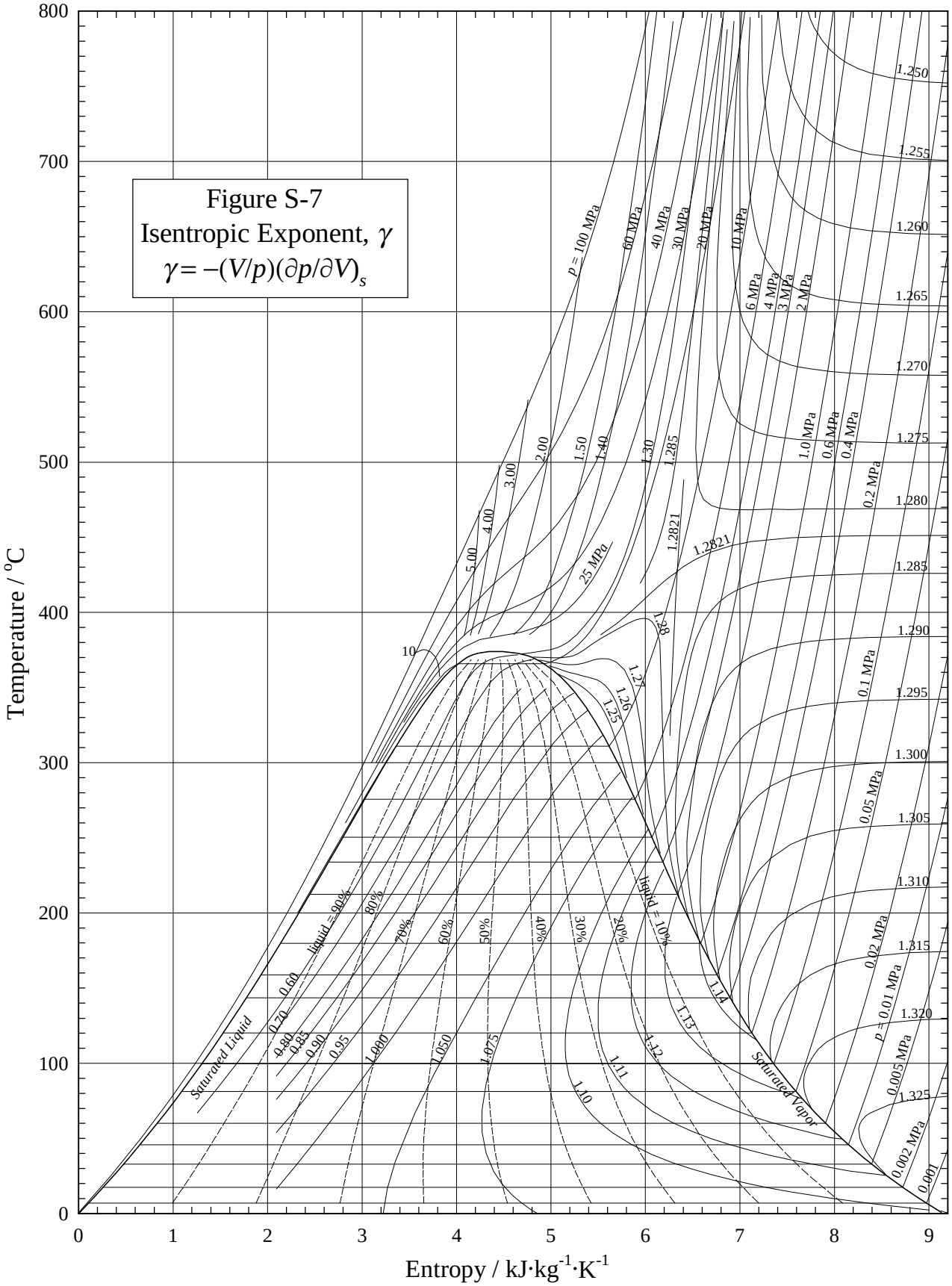


Figure S-7
Isentropic Exponent, γ
γ = −(V/p)(∂p/∂V)s
Temperature / °C
Entropy / kJ·kg-1·K-1
Saturated Liquid
Saturated Vapor
liquid = 90%
liquid = 10%
p = 100 MPa
60 MPa
40 MPa
30 MPa
20 MPa
10 MPa
6 MPa
4 MPa
3 MPa
2 MPa
1.0 MPa
0.6 MPa
0.4 MPa
0.2 MPa
0.1 MPa
0.05 MPa
0.02 MPa
p = 0.01 MPa
0.005 MPa
0.002 MPa
0.001
25 MPa
10
5.00
4.00
3.00
2.00
1.50
1.40
1.30
1.285
1.2821
1.28
1.27
1.26
1.25
1.250
1.255
1.260
1.265
1.270
1.275
1.280
1.285
1.290
1.295
1.300
1.305
1.310
1.315
1.320
1.325
1.14
1.13
1.12
1.11
1.10
1.075
1.050
1.000
0.95
0.90
0.85
0.80
0.70
0.60
90%
80%
70%
60%
50%
40%
30%
20%

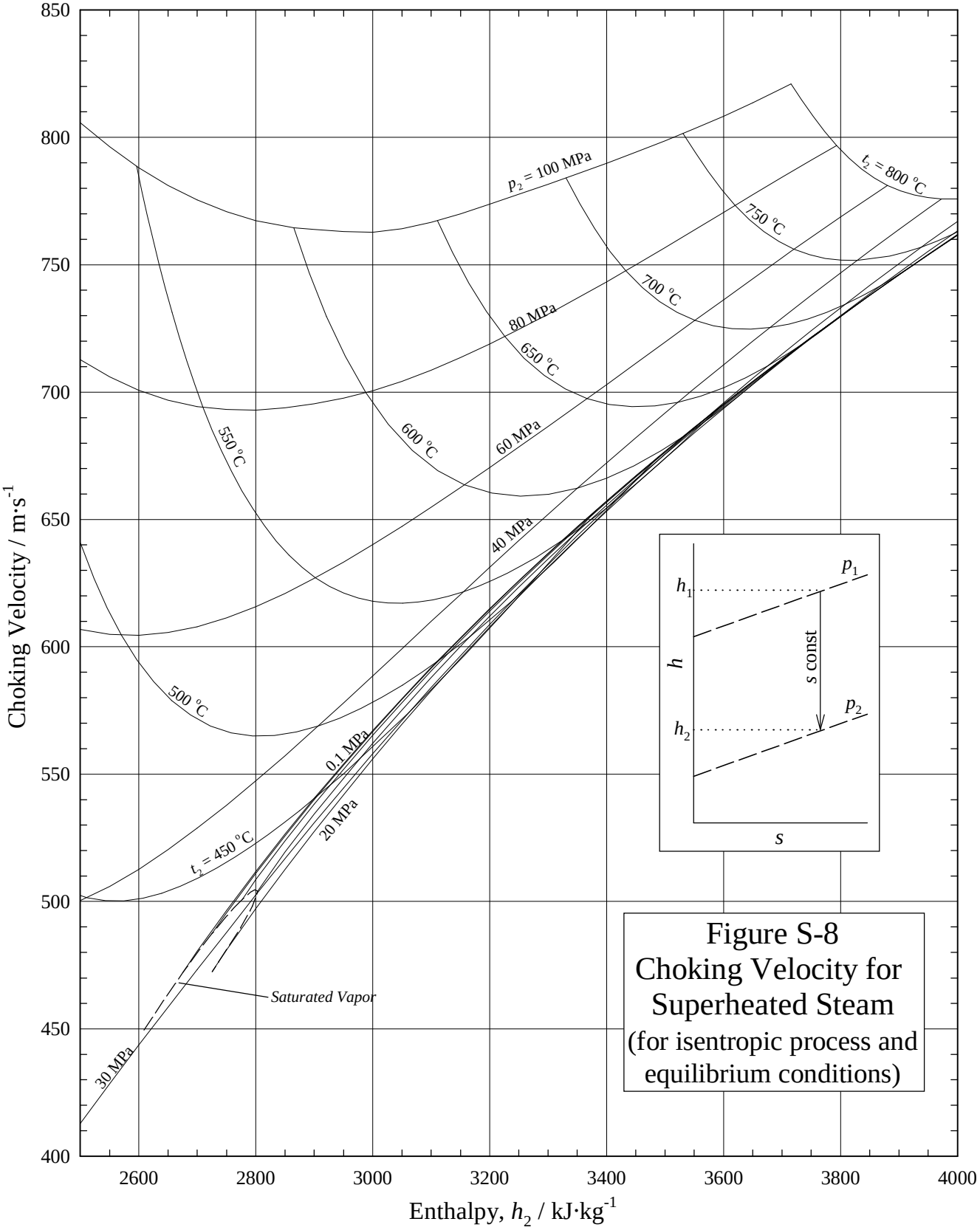


Figure S-8
Choking Velocity for Superheated Steam
(for isentropic process and equilibrium conditions)

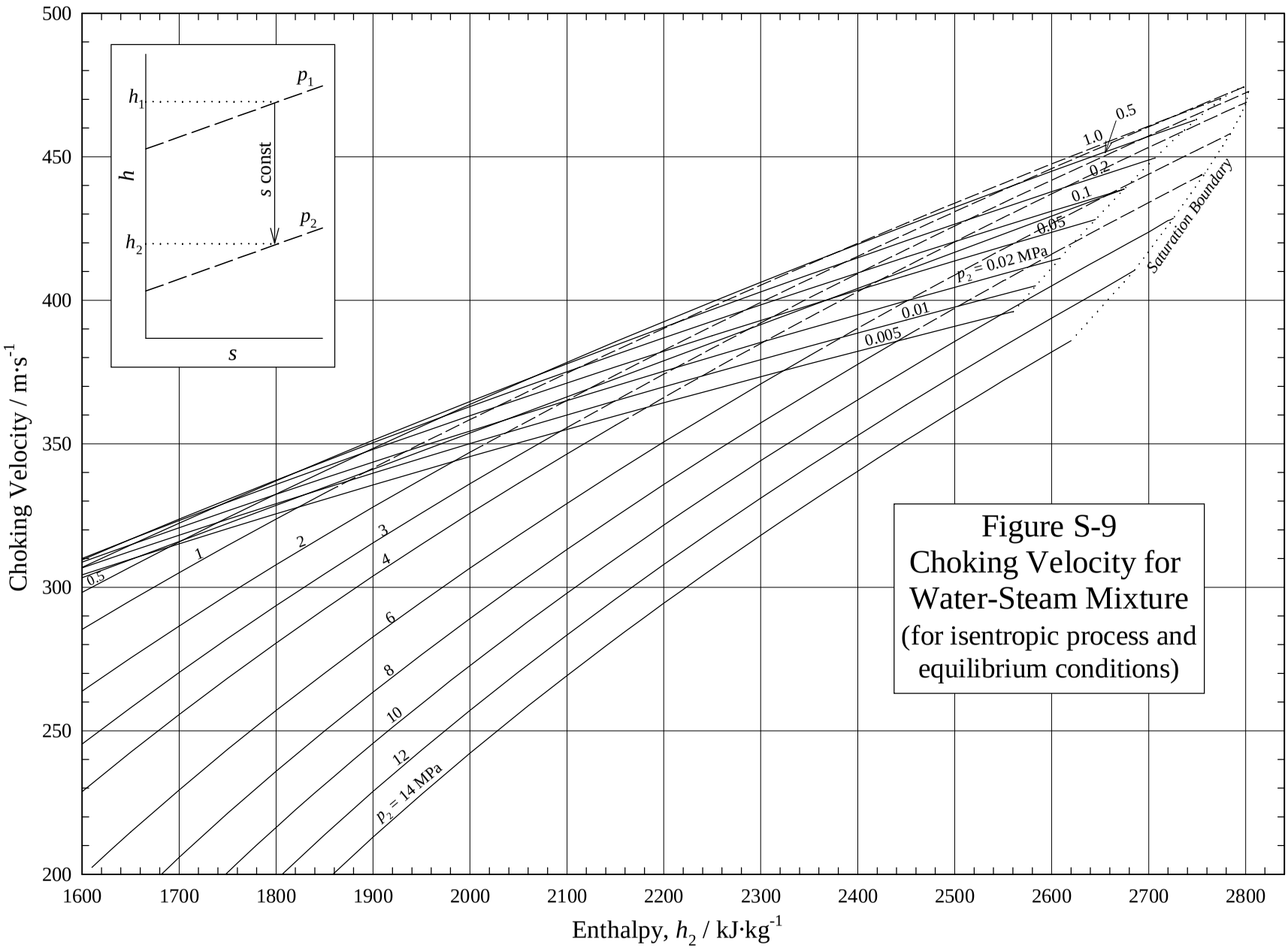


Figure S-9
Choking Velocity for
Water-Steam Mixture
(for isentropic process and
equilibrium conditions)

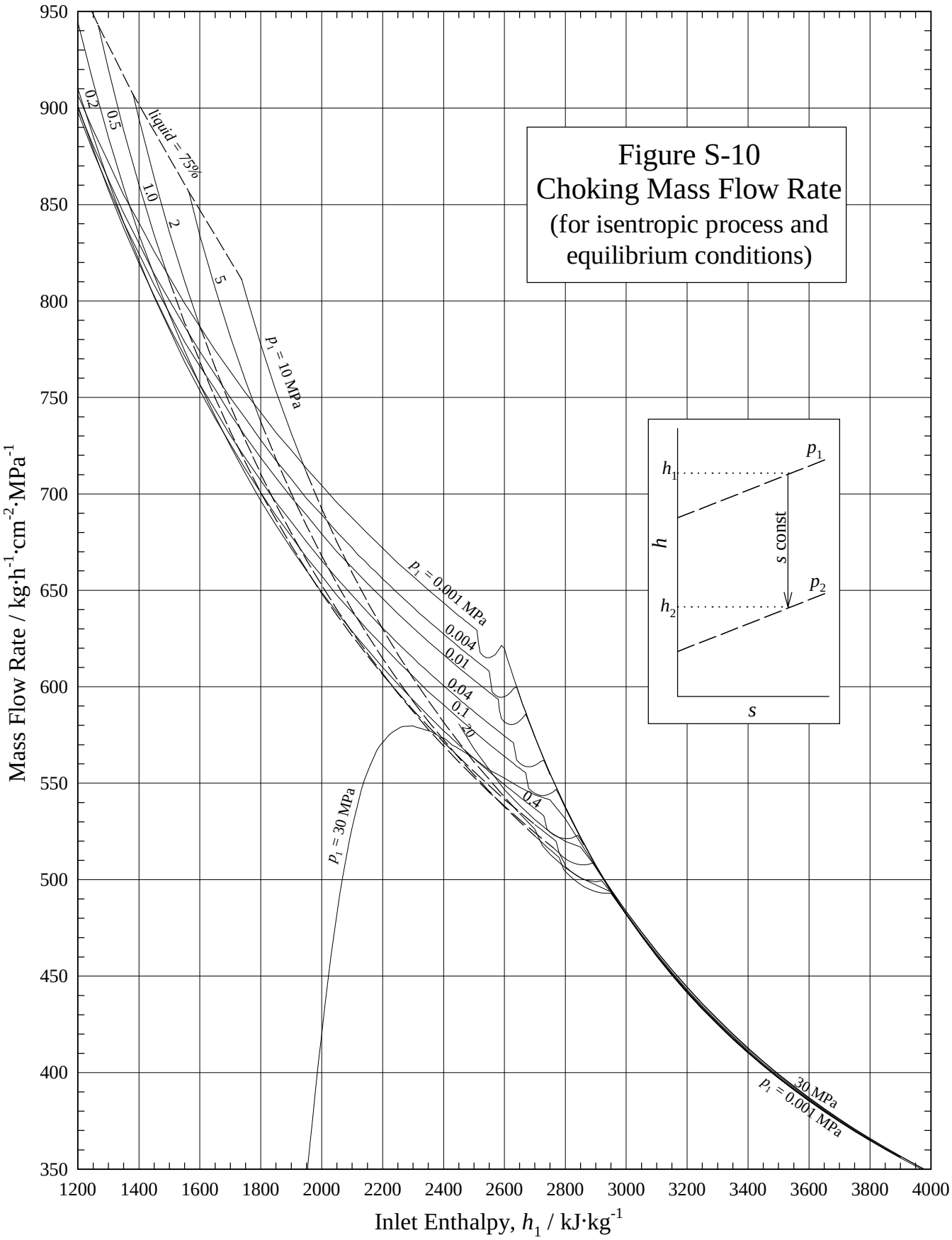


Figure S-10
Choking Mass Flow Rate
(for isentropic process and equilibrium conditions)
Mass Flow Rate / kg·h-1·cm-2·MPa-1
Inlet Enthalpy, h1 / kJ·kg-1
liquid = 75%
0.2
0.5
1.0
2
5
p1 = 10 MPa
p1 = 0.001 MPa
0.004
0.01
0.04
0.1
0.2
0.4
p1 = 30 MPa
30 MPa
p1 = 0.001 MPa
h1
h2
h
s const
p1
p2
s

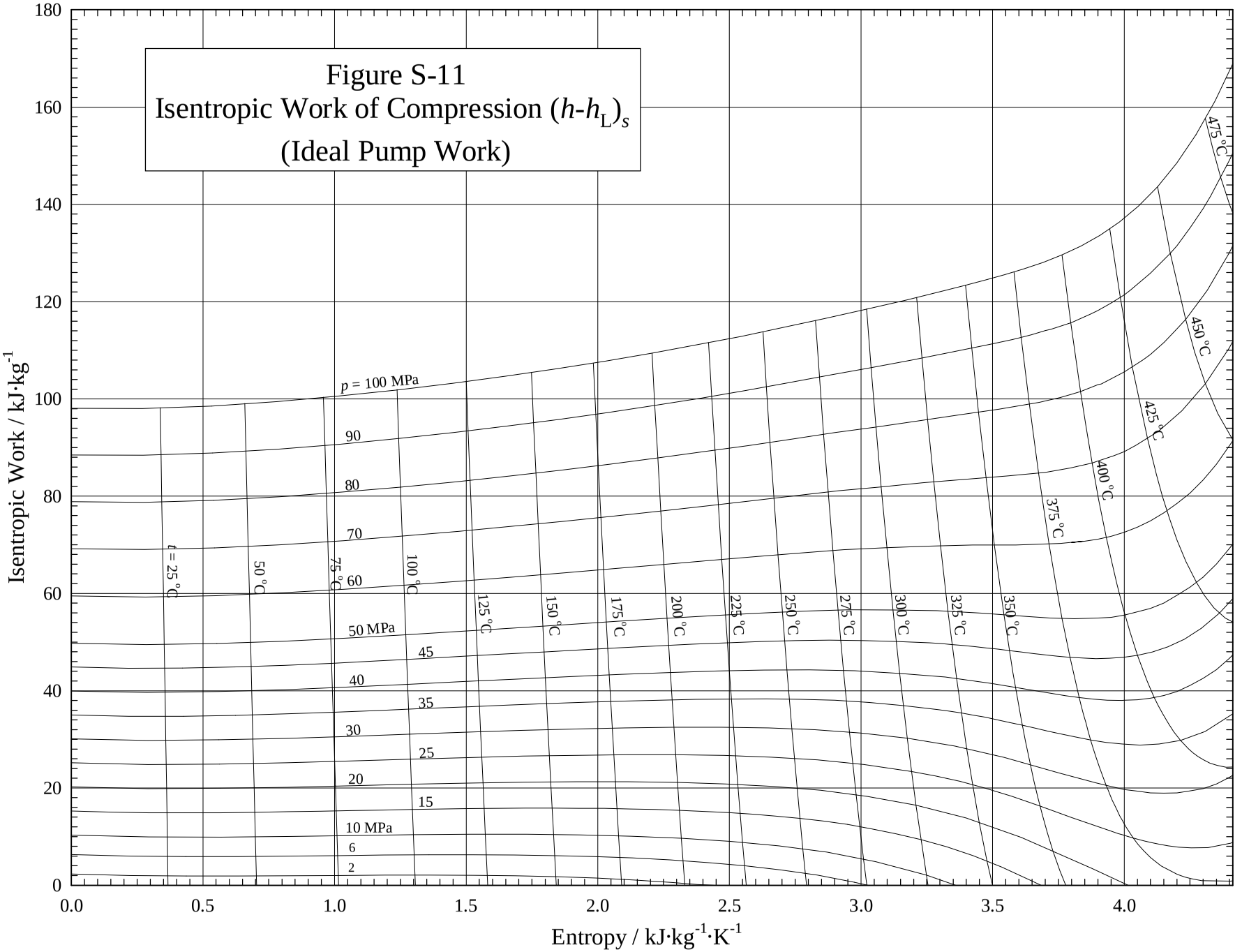


Figure S-11
Isentropic Work of Compression $(h\text{-}h_L)_s$
(Ideal Pump Work)
Isentropic Work / kJ·kg^{-1}
Entropy / kJ·kg^{-1}·K^{-1}
0
20
40
60
80
100
120
140
160
180
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
p = 100 MPa
90
80
70
60
50 MPa
45
40
35
30
25
20
15
10 MPa
6
2
t = 25 °C
50 °C
75 °C
100 °C
125 °C
150 °C
175 °C
200 °C
225 °C
250 °C
275 °C
300 °C
325 °C
350 °C
375 °C
400 °C
425 °C
450 °C
475 °C

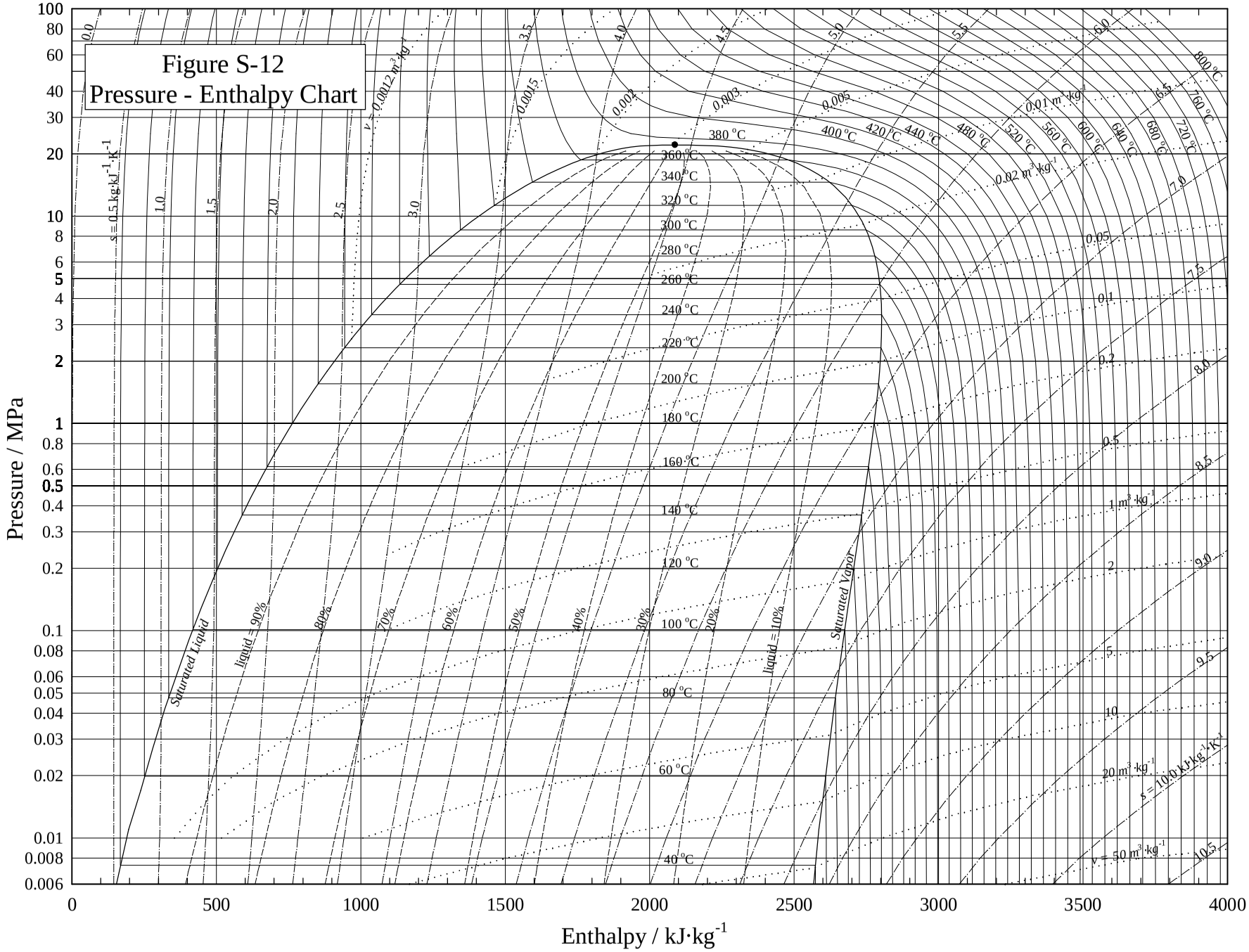


Figure S-12
Pressure - Enthalpy Chart
Pressure / MPa
Enthalpy / kJ·kg-1
Saturated Liquid
Saturated Vapor
liquid = 90%
liquid = 10%
380 °C
360 °C
340 °C
320 °C
300 °C
280 °C
260 °C
240 °C
220 °C
200 °C
180 °C
160 °C
140 °C
120 °C
100 °C
80 °C
60 °C
40 °C

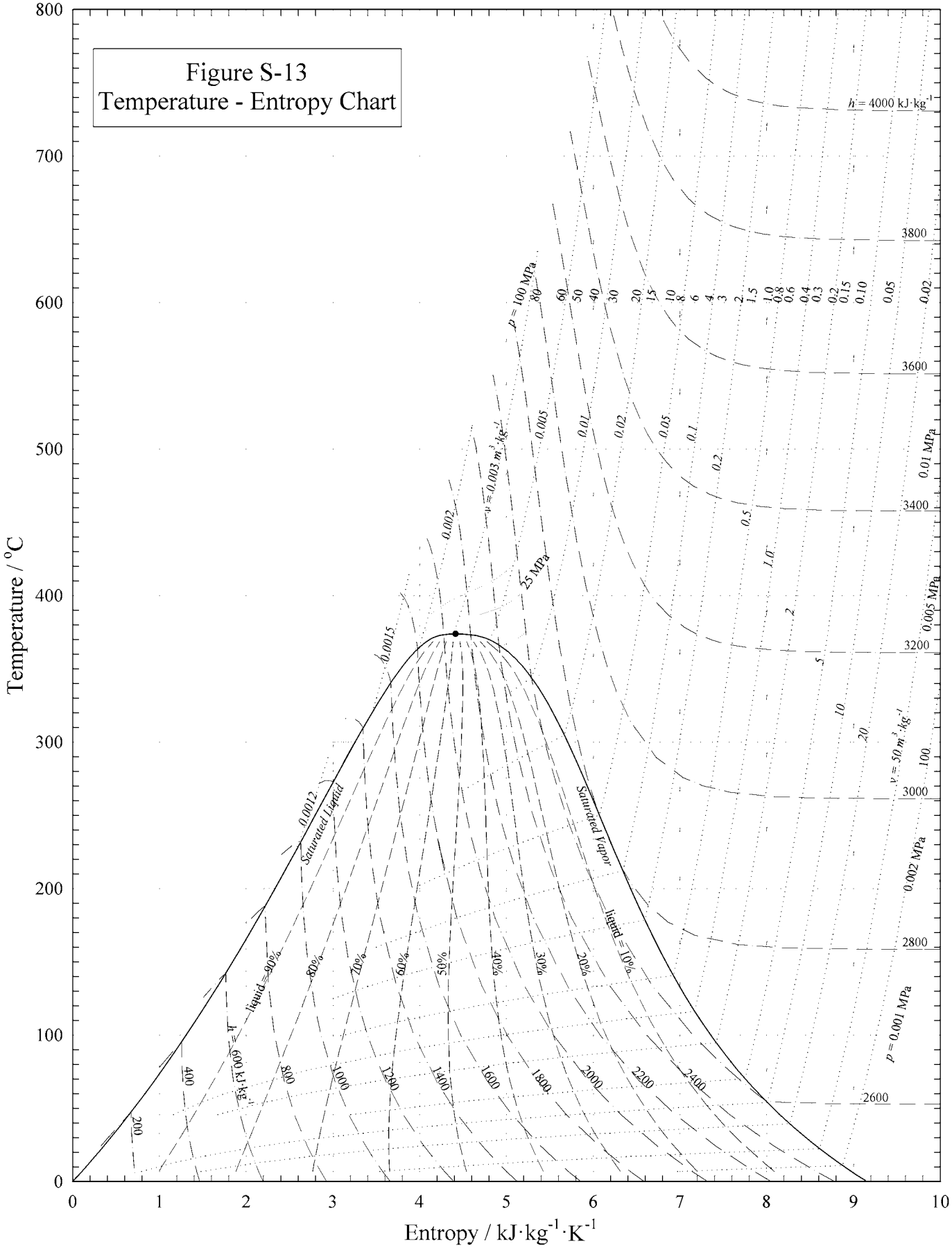


Figure S-13
Temperature - Entropy Chart
Temperature / °C
Entropy / kJ·kg⁻¹·K⁻¹
Saturated Liquid
Saturated Vapor
liquid = 10%
liquid = 90%
h = 4000 kJ·kg⁻¹
3800
3600
3400
3200
3000
2800
2600
p = 100 MPa
80
60
50
40
30
20
15
10
8
6
4
3
2
1.5
1.0
0.8
0.6
0.4
0.3
0.2
0.15
0.10
0.05
0.02
0.01 MPa
0.005 MPa
0.002 MPa
p = 0.001 MPa
v = 0.003 m³·kg⁻¹
0.005
0.01
0.02
0.05
0.1
0.2
0.5
1.0
2
5
10
20
50
100
v = 50 m³·kg⁻¹
25 MPa
0.002
0.0015
0.0012
200
400
600 kJ·kg⁻¹
800
1000
1200
1400
1600
1800
2000
2200
2400
10%
20%
30%
40%
50%
60%
70%
80%
90%

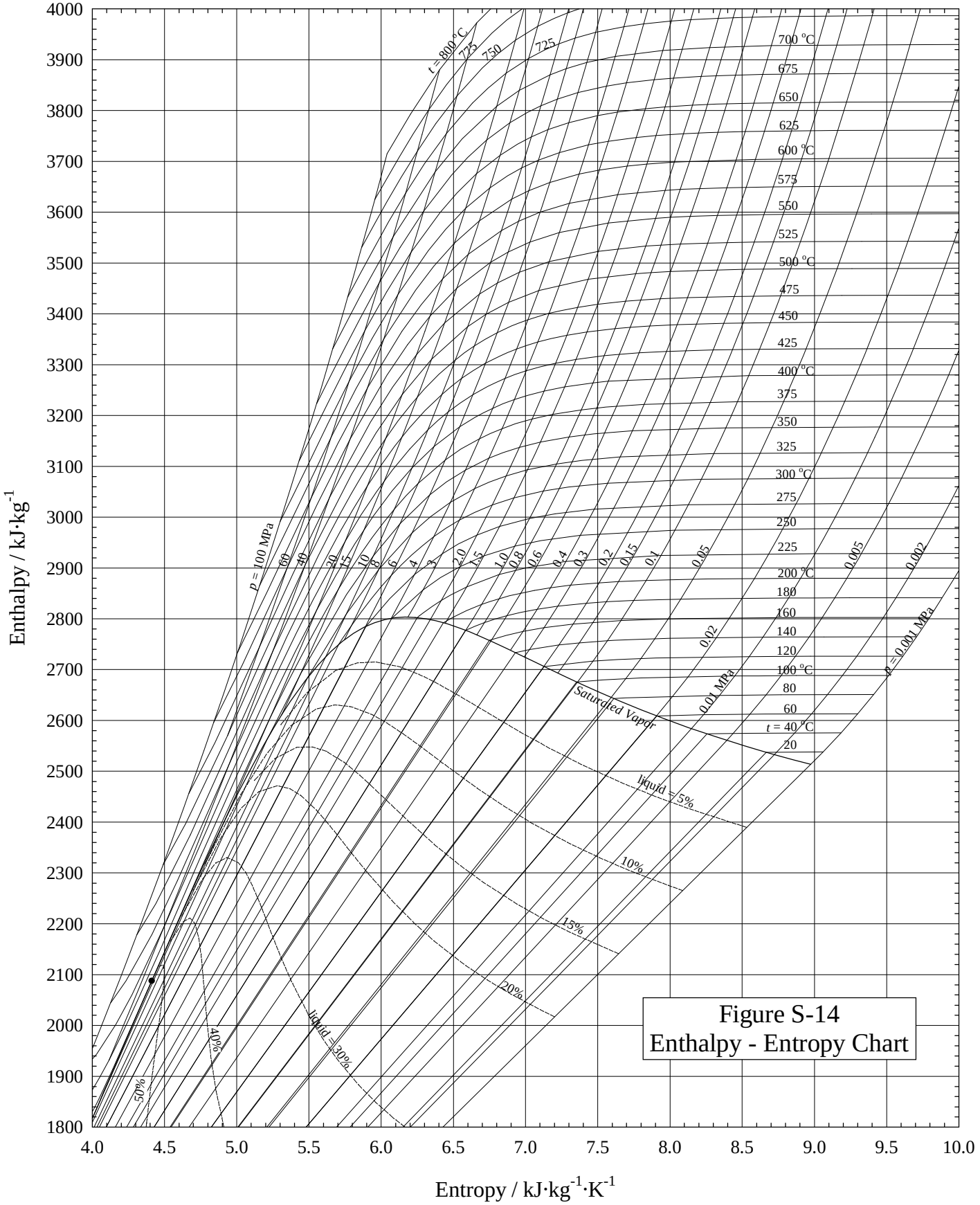


Figure S-14
Enthalpy - Entropy Chart

TABLES AND CHARTS
OF PROPERTIES IN
U.S. CUSTOMARY UNITS

Table U-1. Properties of Saturated Water and Steam (Temperature)

t (°F)	Pressure psia	Volume, ft³/lb$_m$ v_L	Δv	v_V	Enthalpy, Btu/lb$_m$ h_L	Δh	h_V	Entropy, Btu/(lb$_m$·°R) s_L	Δs	s_V	t (°F)
32	**0.088 65*	*0.016 022*	*3302.0*	*3302.0*	*-0.018*	*1075.2*	*1075.2*	*-0.000 04*	*2.1869*	*2.1868*	**32**
32.018	0.088 71	0.016 022	3299.7	3299.8	0.0003	1075.2	1075.2	0.0000	2.1868	2.1868	**32.018**
34	0.096 07	0.016 021	3059.3	3059.3	1.997	1074.1	1076.1	0.0041	2.1757	2.1797	**34**
36	0.104 03	0.016 020	2836.5	2836.5	4.010	1072.9	1076.9	0.0081	2.1646	2.1727	**36**
38	0.112 58	0.016 020	2631.7	2631.7	6.022	1071.8	1077.8	0.0122	2.1536	2.1658	**38**
40	0.121 73	0.016 020	2443.4	2443.4	8.032	1070.7	1078.7	0.0162	2.1427	2.1590	**40**
42	0.131 55	0.016 020	2270.1	2270.1	10.041	1069.5	1079.6	0.0202	2.1319	2.1522	**42**
44	0.142 05	0.016 021	2110.6	2110.6	12.049	1068.4	1080.5	0.0242	2.1212	2.1454	**44**
46	0.153 28	0.016 021	1963.6	1963.6	14.055	1067.3	1081.3	0.0282	2.1106	2.1388	**46**
48	0.165 30	0.016 023	1828.0	1828.0	16.061	1066.1	1082.2	0.0321	2.1001	2.1322	**48**
50	0.178 13	0.016 024	1702.9	1702.9	18.066	1065.0	1083.1	0.0361	2.0896	2.1257	**50**
52	0.191 84	0.016 026	1587.4	1587.4	20.070	1063.9	1083.9	0.0400	2.0792	2.1192	**52**
54	0.206 46	0.016 028	1480.6	1480.6	22.073	1062.7	1084.8	0.0439	2.0689	2.1129	**54**
56	0.222 06	0.016 030	1381.9	1381.9	24.075	1061.6	1085.7	0.0478	2.0587	2.1065	**56**
58	0.238 68	0.016 032	1290.6	1290.6	26.077	1060.5	1086.6	0.0517	2.0486	2.1003	**58**
60	0.256 39	0.016 035	1206.0	1206.1	28.079	1059.4	1087.4	0.0555	2.0385	2.0941	**60**
62	0.275 24	0.016 038	1127.7	1127.7	30.079	1058.2	1088.3	0.0594	2.0285	2.0879	**62**
64	0.295 29	0.016 041	1055.1	1055.1	32.080	1057.1	1089.2	0.0632	2.0186	2.0818	**64**
66	0.316 62	0.016 044	987.75	987.77	34.080	1056.0	1090.0	0.0670	2.0088	2.0758	**66**
68	0.339 27	0.016 048	925.23	925.25	36.079	1054.8	1090.9	0.0708	1.9990	2.0699	**68**
70	0.363 34	0.016 052	867.17	867.19	38.078	1053.7	1091.8	0.0746	1.9894	2.0640	**70**
72	0.388 89	0.016 056	813.21	813.23	40.077	1052.6	1092.7	0.0784	1.9798	2.0581	**72**
74	0.415 99	0.016 060	763.04	763.06	42.075	1051.4	1093.5	0.0821	1.9702	2.0523	**74**
76	0.444 73	0.016 064	716.36	716.38	44.073	1050.3	1094.4	0.0859	1.9607	2.0466	**76**
78	0.475 18	0.016 069	672.91	672.92	46.071	1049.2	1095.2	0.0896	1.9513	2.0409	**78**
80	0.507 44	0.016 074	632.43	632.44	48.069	1048.0	1096.1	0.0933	1.9420	2.0353	**80**
82	0.541 59	0.016 079	594.70	594.72	50.066	1046.9	1097.0	0.0970	1.9328	2.0297	**82**
84	0.577 72	0.016 084	559.52	559.54	52.064	1045.8	1097.8	0.1007	1.9236	2.0242	**84**
86	0.615 93	0.016 089	526.70	526.71	54.061	1044.6	1098.7	0.1043	1.9144	2.0188	**86**
88	0.656 32	0.016 095	496.05	496.07	56.058	1043.5	1099.6	0.1080	1.9054	2.0133	**88**
90	0.698 99	0.016 100	467.43	467.45	58.054	1042.4	1100.4	0.1116	1.8964	2.0080	**90**
92	0.744 05	0.016 106	440.68	440.70	60.051	1041.2	1101.3	0.1152	1.8874	2.0027	**92**
94	0.791 61	0.016 112	415.67	415.68	62.048	1040.1	1102.1	0.1189	1.8786	1.9974	**94**
96	0.841 78	0.016 118	392.27	392.28	64.044	1039.0	1103.0	0.1225	1.8697	1.9922	**96**
98	0.894 68	0.016 125	370.37	370.38	66.041	1037.8	1103.9	0.1260	1.8610	1.9870	**98**
100	0.950 44	0.016 131	349.85	349.87	68.037	1036.7	1104.7	0.1296	1.8523	1.9819	**100**
102	1.0092	0.016 138	330.63	330.65	70.033	1035.5	1105.6	0.1332	1.8437	1.9769	**102**
104	1.0710	0.016 145	312.62	312.63	72.030	1034.4	1106.4	0.1367	1.8351	1.9718	**104**
106	1.1361	0.016 152	295.72	295.73	74.026	1033.3	1107.3	0.1403	1.8266	1.9669	**106**
108	1.2046	0.016 159	279.86	279.88	76.022	1032.1	1108.1	0.1438	1.8181	1.9619	**108**
110	1.2766	0.016 166	264.97	264.99	78.019	1031.0	1109.0	0.1473	1.8098	1.9570	**110**
112	1.3523	0.016 173	250.99	251.01	80.015	1029.8	1109.8	0.1508	1.8014	1.9522	**112**
114	1.4318	0.016 181	237.85	237.87	82.012	1028.7	1110.7	0.1543	1.7931	1.9474	**114**
116	1.5153	0.016 189	225.50	225.52	84.008	1027.5	1111.5	0.1577	1.7849	1.9427	**116**
118	1.6030	0.016 197	213.88	213.90	86.005	1026.4	1112.4	0.1612	1.7767	1.9380	**118**
120	1.6949	0.016 205	202.95	202.96	88.002	1025.2	1113.2	0.1647	1.7686	1.9333	**120**
122	1.7914	0.016 213	192.65	192.67	89.998	1024.1	1114.1	0.1681	1.7606	1.9287	**122**
124	1.8925	0.016 221	182.96	182.97	91.995	1022.9	1114.9	0.1715	1.7526	1.9241	**124**
126	1.9985	0.016 230	173.82	173.84	93.992	1021.8	1115.7	0.1749	1.7446	1.9195	**126**
128	2.1096	0.016 238	165.21	165.22	95.990	1020.6	1116.6	0.1783	1.7367	1.9150	**128**
130	2.2258	0.016 247	157.09	157.10	97.987	1019.4	1117.4	0.1817	1.7288	1.9106	**130**
132	2.3475	0.016 256	149.42	149.44	99.985	1018.3	1118.3	0.1851	1.7210	1.9061	**132**
134	2.4749	0.016 265	142.19	142.21	101.98	1017.1	1119.1	0.1885	1.7133	1.9018	**134**
136	2.6081	0.016 274	135.36	135.38	103.98	1016.0	1119.9	0.1918	1.7056	1.8974	**136**
138	2.7473	0.016 283	128.91	128.92	105.98	1014.8	1120.8	0.1952	1.6979	1.8931	**138**
140	2.8929	0.016 293	122.81	122.82	107.98	1013.6	1121.6	0.1985	1.6903	1.8888	**140**

**Values in italics indicate points where the thermodynamic equilibrium state is a solid; computed values are for the metastable liquid.*

Table U-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°F)	Pressure psia	Volume, ft^3/lb_m v_L	Δv	v_V	Enthalpy, Btu/lb_m h_L	Δh	h_V	Entropy, $Btu/(lb_m \cdot °R)$ s_L	Δs	s_V	t (°F)
142	3.0450	0.016 302	117.04	117.06	109.98	1012.5	1122.4	0.2019	1.6827	1.8846	**142**
144	3.2038	0.016 312	111.59	111.60	111.97	1011.3	1123.3	0.2052	1.6752	1.8804	**144**
146	3.3696	0.016 322	106.43	106.44	113.97	1010.1	1124.1	0.2085	1.6678	1.8762	**146**
148	3.5426	0.016 331	101.54	101.56	115.97	1008.9	1124.9	0.2118	1.6603	1.8721	**148**
150	3.7231	0.016 342	96.918	96.934	117.97	1007.8	1125.7	0.2151	1.6530	1.8680	**150**
152	3.9114	0.016 352	92.536	92.552	119.97	1006.6	1126.6	0.2183	1.6456	1.8640	**152**
154	4.1076	0.016 362	88.383	88.400	121.97	1005.4	1127.4	0.2216	1.6384	1.8599	**154**
156	4.3122	0.016 372	84.446	84.463	123.97	1004.2	1128.2	0.2249	1.6311	1.8560	**156**
158	4.5253	0.016 383	80.712	80.729	125.98	1003.0	1129.0	0.2281	1.6239	1.8520	**158**
160	4.7472	0.016 394	77.170	77.186	127.98	1001.9	1129.8	0.2313	1.6168	1.8481	**160**
162	4.9783	0.016 405	73.808	73.824	129.98	1000.7	1130.6	0.2346	1.6096	1.8442	**162**
164	5.2187	0.016 415	70.616	70.632	131.98	999.48	1131.5	0.2378	1.6026	1.8403	**164**
166	5.4689	0.016 427	67.584	67.600	133.98	998.29	1132.3	0.2410	1.5955	1.8365	**166**
168	5.7292	0.016 438	64.703	64.720	135.99	997.09	1133.1	0.2442	1.5886	1.8327	**168**
170	5.9998	0.016 449	61.965	61.982	137.99	995.90	1133.9	0.2474	1.5816	1.8290	**170**
172	6.2810	0.016 460	59.362	59.379	139.99	994.70	1134.7	0.2505	1.5747	1.8252	**172**
174	6.5733	0.016 472	56.886	56.903	142.00	993.49	1135.5	0.2537	1.5678	1.8215	**174**
176	6.8769	0.016 484	54.531	54.547	144.00	992.29	1136.3	0.2569	1.5610	1.8179	**176**
178	7.1922	0.016 495	52.289	52.305	146.01	991.08	1137.1	0.2600	1.5542	1.8142	**178**
180	7.5196	0.016 507	50.154	50.171	148.01	989.87	1137.9	0.2631	1.5475	1.8106	**180**
182	7.8593	0.016 519	48.121	48.138	150.02	988.66	1138.7	0.2663	1.5408	1.8070	**182**
184	8.2118	0.016 532	46.185	46.201	152.03	987.44	1139.5	0.2694	1.5341	1.8035	**184**
186	8.5775	0.016 544	44.339	44.355	154.03	986.23	1140.3	0.2725	1.5274	1.7999	**186**
188	8.9566	0.016 556	42.579	42.596	156.04	985.01	1141.0	0.2756	1.5208	1.7964	**188**
190	9.3497	0.016 569	40.901	40.918	158.05	983.78	1141.8	0.2787	1.5143	1.7930	**190**
192	9.7570	0.016 581	39.301	39.317	160.06	982.55	1142.6	0.2818	1.5077	1.7895	**192**
194	10.179	0.016 594	37.773	37.790	162.07	981.32	1143.4	0.2849	1.5012	1.7861	**194**
196	10.616	0.016 607	36.316	36.332	164.08	980.09	1144.2	0.2879	1.4948	1.7827	**196**
198	11.069	0.016 620	34.924	34.940	166.09	978.86	1144.9	0.2910	1.4884	1.7793	**198**
200	11.538	0.016 633	33.594	33.611	168.10	977.62	1145.7	0.2940	1.4820	1.7760	**200**
202	12.023	0.016 646	32.324	32.341	170.11	976.37	1146.5	0.2971	1.4756	1.7727	**202**
204	12.525	0.016 660	31.110	31.127	172.12	975.13	1147.3	0.3001	1.4693	1.7694	**204**
206	13.044	0.016 673	29.950	29.967	174.14	973.88	1148.0	0.3031	1.4630	1.7661	**206**
208	13.581	0.016 687	28.840	28.857	176.15	972.62	1148.8	0.3062	1.4567	1.7629	**208**
210	14.136	0.016 701	27.779	27.796	178.17	971.37	1149.5	0.3092	1.4505	1.7597	**210**
212	14.709	0.016 715	26.764	26.781	180.18	970.11	1150.3	0.3122	1.4443	1.7565	**212**
214	15.302	0.016 729	25.792	25.809	182.20	968.85	1151.0	0.3152	1.4382	1.7533	**214**
216	15.915	0.016 743	24.862	24.879	184.21	967.58	1151.8	0.3182	1.4320	1.7502	**216**
218	16.548	0.016 757	23.971	23.988	186.23	966.31	1152.5	0.3211	1.4259	1.7471	**218**
220	17.201	0.016 771	23.118	23.135	188.25	965.03	1153.3	0.3241	1.4198	1.7440	**220**
222	17.875	0.016 786	22.301	22.317	190.27	963.75	1154.0	0.3271	1.4138	1.7409	**222**
224	18.571	0.016 800	21.517	21.534	192.29	962.47	1154.8	0.3300	1.4078	1.7378	**224**
226	19.290	0.016 815	20.766	20.783	194.31	961.19	1155.5	0.3330	1.4018	1.7348	**226**
228	20.031	0.016 830	20.046	20.063	196.33	959.89	1156.2	0.3359	1.3959	1.7318	**228**
230	20.795	0.016 845	19.356	19.373	198.35	958.60	1157.0	0.3388	1.3899	1.7288	**230**
232	21.583	0.016 860	18.693	18.710	200.37	957.30	1157.7	0.3418	1.3840	1.7258	**232**
234	22.395	0.016 875	18.057	18.074	202.40	956.00	1158.4	0.3447	1.3782	1.7229	**234**
236	23.233	0.016 890	17.447	17.464	204.42	954.69	1159.1	0.3476	1.3723	1.7199	**236**
238	24.096	0.016 906	16.861	16.878	206.45	953.38	1159.8	0.3505	1.3665	1.7170	**238**
240	24.985	0.016 921	16.299	16.316	208.47	952.06	1160.5	0.3534	1.3607	1.7141	**240**
242	25.901	0.016 937	15.758	15.775	210.50	950.74	1161.2	0.3563	1.3550	1.7113	**242**
244	26.844	0.016 953	15.239	15.256	212.53	949.42	1161.9	0.3592	1.3492	1.7084	**244**
246	27.815	0.016 969	14.740	14.757	214.56	948.09	1162.6	0.3620	1.3435	1.7056	**246**
248	28.814	0.016 985	14.260	14.277	216.59	946.75	1163.3	0.3649	1.3378	1.7028	**248**
250	29.843	0.017 001	13.799	13.816	218.62	945.41	1164.0	0.3678	1.3322	1.7000	**250**
252	30.901	0.017 017	13.356	13.373	220.65	944.07	1164.7	0.3706	1.3266	1.6972	**252**
254	31.990	0.017 034	12.929	12.946	222.68	942.72	1165.4	0.3735	1.3209	1.6944	**254**
256	33.110	0.017 050	12.518	12.535	224.72	941.37	1166.1	0.3763	1.3154	1.6917	**256**
258	34.261	0.017 067	12.123	12.140	226.75	940.01	1166.8	0.3792	1.3098	1.6890	**258**
260	35.445	0.017 084	11.743	11.760	228.79	938.65	1167.4	0.3820	1.3043	1.6862	**260**

Table U-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°F)	Pressure psia	Volume, ft^3/lb_m v_L	Δv	v_V	Enthalpy, Btu/lb_m h_L	Δh	h_V	Entropy, $Btu/(lb_m \cdot °R)$ s_L	Δs	s_V	t (°F)
262	36.662	0.017 101	11.377	11.394	230.83	937.28	1168.1	0.3848	1.2988	1.6836	**262**
264	37.913	0.017 118	11.024	11.041	232.87	935.90	1168.8	0.3876	1.2933	1.6809	**264**
266	39.198	0.017 135	10.685	10.702	234.90	934.52	1169.4	0.3904	1.2878	1.6782	**266**
268	40.518	0.017 152	10.357	10.374	236.94	933.14	1170.1	0.3932	1.2824	1.6756	**268**
270	41.874	0.017 170	10.042	10.059	238.99	931.75	1170.7	0.3960	1.2769	1.6730	**270**
272	43.267	0.017 188	9.7380	9.7552	241.03	930.35	1171.4	0.3988	1.2715	1.6704	**272**
274	44.697	0.017 205	9.4449	9.4621	243.07	928.95	1172.0	0.4016	1.2662	1.6678	**274**
276	46.165	0.017 223	9.1624	9.1796	245.12	927.54	1172.7	0.4044	1.2608	1.6652	**276**
278	47.671	0.017 241	8.8898	8.9071	247.16	926.13	1173.3	0.4071	1.2555	1.6626	**278**
280	49.218	0.017 259	8.6269	8.6442	249.21	924.71	1173.9	0.4099	1.2502	1.6601	**280**
282	50.804	0.017 278	8.3732	8.3905	251.26	923.29	1174.5	0.4127	1.2449	1.6575	**282**
284	52.431	0.017 296	8.1284	8.1457	253.31	921.86	1175.2	0.4154	1.2396	1.6550	**284**
286	54.100	0.017 315	7.8921	7.9094	255.36	920.42	1175.8	0.4182	1.2344	1.6525	**286**
288	55.812	0.017 333	7.6639	7.6813	257.41	918.98	1176.4	0.4209	1.2291	1.6500	**288**
290	57.567	0.017 352	7.4436	7.4610	259.47	917.53	1177.0	0.4236	1.2239	1.6476	**290**
292	59.366	0.017 371	7.2308	7.2482	261.52	916.08	1177.6	0.4264	1.2187	1.6451	**292**
294	61.210	0.017 390	7.0253	7.0427	263.58	914.62	1178.2	0.4291	1.2136	1.6427	**294**
296	63.100	0.017 410	6.8266	6.8441	265.64	913.15	1178.8	0.4318	1.2084	1.6402	**296**
298	65.037	0.017 429	6.6347	6.6521	267.70	911.68	1179.4	0.4345	1.2033	1.6378	**298**
300	67.021	0.017 449	6.4492	6.4666	269.76	910.20	1180.0	0.4372	1.1982	1.6354	**300**
302	69.053	0.017 468	6.2698	6.2873	271.82	908.71	1180.5	0.4399	1.1931	1.6330	**302**
304	71.134	0.017 488	6.0964	6.1139	273.88	907.22	1181.1	0.4426	1.1880	1.6306	**304**
306	73.265	0.017 508	5.9287	5.9462	275.95	905.72	1181.7	0.4453	1.1829	1.6282	**306**
308	75.447	0.017 528	5.7664	5.7839	278.01	904.22	1182.2	0.4480	1.1779	1.6259	**308**
310	77.680	0.017 548	5.6094	5.6270	280.08	902.70	1182.8	0.4507	1.1728	1.6235	**310**
312	79.966	0.017 569	5.4576	5.4751	282.15	901.18	1183.3	0.4534	1.1678	1.6212	**312**
314	82.306	0.017 589	5.3106	5.3282	284.22	899.66	1183.9	0.4560	1.1628	1.6189	**314**
316	84.699	0.017 610	5.1683	5.1859	286.29	898.12	1184.4	0.4587	1.1579	1.6166	**316**
318	87.148	0.017 631	5.0305	5.0481	288.37	896.58	1185.0	0.4614	1.1529	1.6143	**318**
320	89.654	0.017 652	4.8971	4.9148	290.44	895.04	1185.5	0.4640	1.1480	1.6120	**320**
322	92.216	0.017 673	4.7679	4.7856	292.52	893.48	1186.0	0.4667	1.1430	1.6097	**322**
324	94.836	0.017 695	4.6428	4.6605	294.60	891.92	1186.5	0.4693	1.1381	1.6075	**324**
326	97.515	0.017 716	4.5215	4.5392	296.68	890.35	1187.0	0.4720	1.1332	1.6052	**326**
328	100.25	0.017 738	4.4040	4.4218	298.76	888.77	1187.5	0.4746	1.1284	1.6030	**328**
330	103.05	0.017 760	4.2902	4.3079	300.85	887.19	1188.0	0.4772	1.1235	1.6007	**330**
332	105.91	0.017 782	4.1798	4.1976	302.93	885.60	1188.5	0.4799	1.1186	1.5985	**332**
334	108.84	0.017 804	4.0728	4.0906	305.02	884.00	1189.0	0.4825	1.1138	1.5963	**334**
336	111.83	0.017 826	3.9691	3.9869	307.11	882.39	1189.5	0.4851	1.1090	1.5941	**336**
338	114.88	0.017 849	3.8685	3.8863	309.20	880.78	1190.0	0.4877	1.1042	1.5919	**338**
340	118.00	0.017 871	3.7709	3.7888	311.30	879.15	1190.5	0.4903	1.0994	1.5897	**340**
342	121.18	0.017 894	3.6762	3.6941	313.39	877.52	1190.9	0.4929	1.0946	1.5875	**342**
344	124.43	0.017 917	3.5844	3.6023	315.49	875.88	1191.4	0.4955	1.0899	1.5854	**344**
346	127.75	0.017 940	3.4953	3.5132	317.59	874.24	1191.8	0.4981	1.0851	1.5832	**346**
348	131.14	0.017 964	3.4088	3.4267	319.69	872.58	1192.3	0.5007	1.0804	1.5811	**348**
350	134.60	0.017 987	3.3248	3.3428	321.79	870.92	1192.7	0.5033	1.0757	1.5789	**350**
352	138.14	0.018 011	3.2433	3.2613	323.90	869.25	1193.1	0.5059	1.0709	1.5768	**352**
354	141.74	0.018 035	3.1642	3.1822	326.00	867.57	1193.6	0.5084	1.0662	1.5747	**354**
356	145.42	0.018 059	3.0873	3.1054	328.11	865.88	1194.0	0.5110	1.0616	1.5726	**356**
358	149.17	0.018 083	3.0127	3.0307	330.22	864.18	1194.4	0.5136	1.0569	1.5705	**358**
360	153.00	0.018 108	2.9401	2.9582	332.34	862.47	1194.8	0.5162	1.0522	1.5684	**360**
362	156.91	0.018 132	2.8697	2.8878	334.45	860.76	1195.2	0.5187	1.0476	1.5663	**362**
364	160.89	0.018 157	2.8012	2.8194	336.57	859.03	1195.6	0.5213	1.0429	1.5642	**364**
366	164.96	0.018 182	2.7347	2.7529	338.69	857.30	1196.0	0.5238	1.0383	1.5621	**366**
368	169.10	0.018 207	2.6700	2.6882	340.81	855.56	1196.4	0.5264	1.0337	1.5601	**368**
370	173.33	0.018 233	2.6072	2.6254	342.94	853.81	1196.7	0.5289	1.0291	1.5580	**370**
372	177.63	0.018 258	2.5461	2.5643	345.06	852.05	1197.1	0.5315	1.0245	1.5560	**372**
374	182.02	0.018 284	2.4866	2.5049	347.19	850.28	1197.5	0.5340	1.0199	1.5539	**374**
376	186.50	0.018 310	2.4288	2.4471	349.32	848.50	1197.8	0.5365	1.0154	1.5519	**376**
378	191.06	0.018 336	2.3726	2.3910	351.46	846.71	1198.2	0.5391	1.0108	1.5499	**378**
380	195.71	0.018 363	2.3179	2.3363	353.59	844.91	1198.5	0.5416	1.0062	1.5478	**380**

Table U-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°F)	Pressure psia	Volume, ft^3/lb_m v_L	Δv	v_V	Enthalpy, Btu/lb_m h_L	Δh	h_V	Entropy, $Btu/(lb_m \cdot °R)$ s_L	Δs	s_V	t (°F)
382	200.45	0.018 389	2.2647	2.2831	355.73	843.10	1198.8	0.5441	1.0017	1.5458	**382**
384	205.27	0.018 416	2.2130	2.2314	357.87	841.28	1199.2	0.5466	0.9972	1.5438	**384**
386	210.19	0.018 443	2.1626	2.1810	360.02	839.45	1199.5	0.5492	0.9927	1.5418	**386**
388	215.19	0.018 470	2.1136	2.1320	362.16	837.62	1199.8	0.5517	0.9881	1.5398	**388**
390	220.29	0.018 498	2.0658	2.0843	364.31	835.77	1200.1	0.5542	0.9836	1.5378	**390**
392	225.49	0.018 526	2.0194	2.0379	366.46	833.91	1200.4	0.5567	0.9791	1.5358	**392**
394	230.77	0.018 553	1.9741	1.9927	368.62	832.04	1200.7	0.5592	0.9747	1.5339	**394**
396	236.16	0.018 582	1.9301	1.9487	370.77	830.16	1200.9	0.5617	0.9702	1.5319	**396**
398	241.64	0.018 610	1.8872	1.9058	372.93	828.27	1201.2	0.5642	0.9657	1.5299	**398**
400	247.22	0.018 639	1.8454	1.8640	375.10	826.37	1201.5	0.5667	0.9613	1.5280	**400**
402	252.90	0.018 667	1.8047	1.8233	377.26	824.45	1201.7	0.5692	0.9568	1.5260	**402**
404	258.68	0.018 696	1.7650	1.7837	379.43	822.53	1202.0	0.5717	0.9524	1.5241	**404**
406	264.57	0.018 726	1.7264	1.7451	381.60	820.59	1202.2	0.5742	0.9479	1.5221	**406**
408	270.55	0.018 755	1.6887	1.7074	383.78	818.65	1202.4	0.5767	0.9435	1.5202	**408**
410	276.64	0.018 785	1.6520	1.6708	385.95	816.69	1202.6	0.5791	0.9391	1.5182	**410**
412	282.84	0.018 815	1.6162	1.6350	388.13	814.72	1202.9	0.5816	0.9347	1.5163	**412**
414	289.15	0.018 845	1.5813	1.6001	390.32	812.74	1203.1	0.5841	0.9303	1.5144	**414**
416	295.56	0.018 876	1.5473	1.5662	392.50	810.75	1203.3	0.5866	0.9259	1.5124	**416**
418	302.08	0.018 907	1.5141	1.5330	394.69	808.75	1203.4	0.5890	0.9215	1.5105	**418**
420	308.71	0.018 938	1.4818	1.5007	396.89	806.73	1203.6	0.5915	0.9171	1.5086	**420**
422	315.46	0.018 969	1.4502	1.4692	399.08	804.70	1203.8	0.5940	0.9127	1.5067	**422**
424	322.32	0.019 001	1.4195	1.4385	401.28	802.66	1203.9	0.5964	0.9083	1.5048	**424**
426	329.29	0.019 032	1.3894	1.4085	403.49	800.61	1204.1	0.5989	0.9040	1.5029	**426**
428	336.38	0.019 064	1.3601	1.3792	405.69	798.54	1204.2	0.6014	0.8996	1.5010	**428**
430	343.59	0.019 097	1.3316	1.3507	407.90	796.46	1204.4	0.6038	0.8952	1.4991	**430**
432	350.92	0.019 130	1.3037	1.3228	410.12	794.37	1204.5	0.6063	0.8909	1.4972	**432**
434	358.36	0.019 163	1.2764	1.2956	412.33	792.27	1204.6	0.6087	0.8865	1.4953	**434**
436	365.93	0.019 196	1.2499	1.2691	414.55	790.15	1204.7	0.6112	0.8822	1.4934	**436**
438	373.62	0.019 229	1.2239	1.2431	416.78	788.02	1204.8	0.6136	0.8779	1.4915	**438**
440	381.44	0.019 263	1.1986	1.2179	419.01	785.88	1204.9	0.6161	0.8735	1.4896	**440**
442	389.38	0.019 297	1.1739	1.1932	421.24	783.72	1205.0	0.6185	0.8692	1.4877	**442**
444	397.45	0.019 332	1.1497	1.1690	423.47	781.55	1205.0	0.6210	0.8649	1.4858	**444**
446	405.64	0.019 366	1.1261	1.1455	425.71	779.36	1205.1	0.6234	0.8605	1.4840	**446**
448	413.97	0.019 402	1.1031	1.1225	427.96	777.16	1205.1	0.6259	0.8562	1.4821	**448**
450	422.42	0.019 437	1.0806	1.1000	430.20	774.95	1205.2	0.6283	0.8519	1.4802	**450**
452	431.01	0.019 473	1.0586	1.0781	432.46	772.72	1205.2	0.6307	0.8476	1.4783	**452**
454	439.73	0.019 509	1.0371	1.0566	434.71	770.48	1205.2	0.6332	0.8433	1.4765	**454**
456	448.59	0.019 545	1.0161	1.0356	436.97	768.22	1205.2	0.6356	0.8390	1.4746	**456**
458	457.58	0.019 582	0.9956	1.0152	439.24	765.95	1205.2	0.6381	0.8347	1.4727	**458**
460	466.71	0.019 619	0.9755	0.9952	441.50	763.66	1205.2	0.6405	0.8304	1.4709	**460**
462	475.98	0.019 656	0.9559	0.9756	443.78	761.36	1205.1	0.6429	0.8261	1.4690	**462**
464	485.39	0.019 694	0.9368	0.9565	446.05	759.04	1205.1	0.6453	0.8218	1.4671	**464**
466	494.94	0.019 732	0.9180	0.9378	448.34	756.71	1205.0	0.6478	0.8175	1.4653	**466**
468	504.64	0.019 771	0.8997	0.9195	450.62	754.36	1205.0	0.6502	0.8132	1.4634	**468**
470	514.48	0.019 810	0.8818	0.9016	452.91	752.00	1204.9	0.6526	0.8089	1.4615	**470**
472	524.47	0.019 849	0.8643	0.8841	455.21	749.61	1204.8	0.6551	0.8046	1.4597	**472**
474	534.61	0.019 888	0.8472	0.8670	457.51	747.22	1204.7	0.6575	0.8003	1.4578	**474**
476	544.89	0.019 928	0.8304	0.8503	459.82	744.80	1204.6	0.6599	0.7960	1.4559	**476**
478	555.33	0.019 969	0.8140	0.8340	462.13	742.37	1204.5	0.6623	0.7917	1.4541	**478**
480	565.92	0.020 01	0.7980	0.8180	464.44	739.92	1204.4	0.6648	0.7874	1.4522	**480**
482	576.66	0.020 05	0.7823	0.8023	466.76	737.46	1204.2	0.6672	0.7831	1.4503	**482**
484	587.56	0.020 09	0.7669	0.7870	469.09	734.97	1204.1	0.6696	0.7788	1.4485	**484**
486	598.62	0.020 13	0.7519	0.7720	471.42	732.47	1203.9	0.6720	0.7746	1.4466	**486**
488	609.83	0.020 18	0.7372	0.7573	473.75	729.95	1203.7	0.6745	0.7703	1.4447	**488**
490	621.20	0.020 22	0.7228	0.7430	476.10	727.42	1203.5	0.6769	0.7660	1.4429	**490**
492	632.74	0.020 26	0.7087	0.7289	478.44	724.86	1203.3	0.6793	0.7617	1.4410	**492**
494	644.44	0.020 31	0.6949	0.7152	480.80	722.29	1203.1	0.6817	0.7574	1.4391	**494**
496	656.30	0.020 35	0.6813	0.7017	483.15	719.70	1202.8	0.6842	0.7531	1.4372	**496**
498	668.33	0.020 40	0.6681	0.6885	485.52	717.08	1202.6	0.6866	0.7488	1.4354	**498**
500	680.53	0.020 44	0.6551	0.6756	487.89	714.45	1202.3	0.6890	0.7445	1.4335	**500**

Table U-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°F)	Pressure psia	Volume, ft^3/lb_m v_L	Δv	v_V	Enthalpy, Btu/lb_m h_L	Δh	h_V	Entropy, $Btu/(lb_m \cdot °R)$ s_L	Δs	s_V	t (°F)
502	692.89	0.020 49	0.6425	0.6629	490.26	711.80	1202.1	0.6914	0.7402	1.4316	**502**
504	705.43	0.020 53	0.6300	0.6506	492.65	709.13	1201.8	0.6939	0.7359	1.4297	**504**
506	718.14	0.020 58	0.6178	0.6384	495.03	706.44	1201.5	0.6963	0.7316	1.4278	**506**
508	731.03	0.020 63	0.6059	0.6265	497.43	703.73	1201.2	0.6987	0.7272	1.4259	**508**
510	744.09	0.020 68	0.5942	0.6149	499.83	701.00	1200.8	0.7011	0.7229	1.4241	**510**
512	757.32	0.020 72	0.5828	0.6035	502.24	698.24	1200.5	0.7036	0.7186	1.4222	**512**
514	770.74	0.020 77	0.5715	0.5923	504.65	695.47	1200.1	0.7060	0.7143	1.4203	**514**
516	784.34	0.020 82	0.5605	0.5814	507.07	692.67	1199.7	0.7084	0.7099	1.4184	**516**
518	798.12	0.020 87	0.5497	0.5706	509.50	689.85	1199.4	0.7108	0.7056	1.4165	**518**
520	812.08	0.020 92	0.5392	0.5601	511.93	687.01	1198.9	0.7133	0.7013	1.4145	**520**
522	826.23	0.020 97	0.5288	0.5498	514.37	684.15	1198.5	0.7157	0.6969	1.4126	**522**
524	840.57	0.021 03	0.5186	0.5397	516.82	681.26	1198.1	0.7181	0.6926	1.4107	**524**
526	855.10	0.021 08	0.5087	0.5298	519.28	678.35	1197.6	0.7206	0.6882	1.4088	**526**
528	869.81	0.021 13	0.4989	0.5200	521.74	675.42	1197.2	0.7230	0.6838	1.4069	**528**
530	884.73	0.021 18	0.4893	0.5105	524.21	672.46	1196.7	0.7255	0.6795	1.4049	**530**
532	899.83	0.021 24	0.4799	0.5012	526.69	669.48	1196.2	0.7279	0.6751	1.4030	**532**
534	915.13	0.021 29	0.4707	0.4920	529.18	666.47	1195.6	0.7304	0.6707	1.4011	**534**
536	930.63	0.021 35	0.4617	0.4830	531.67	663.44	1195.1	0.7328	0.6663	1.3991	**536**
538	946.33	0.021 41	0.4528	0.4742	534.18	660.38	1194.6	0.7352	0.6619	1.3972	**538**
540	962.23	0.021 46	0.4441	0.4656	536.69	657.29	1194.0	0.7377	0.6575	1.3952	**540**
542	978.33	0.021 52	0.4355	0.4571	539.21	654.18	1193.4	0.7402	0.6531	1.3932	**542**
544	994.64	0.021 58	0.4272	0.4487	541.73	651.04	1192.8	0.7426	0.6487	1.3913	**544**
546	1011.2	0.021 64	0.4189	0.4406	544.27	647.88	1192.1	0.7451	0.6442	1.3893	**546**
548	1027.9	0.021 70	0.4109	0.4326	546.82	644.68	1191.5	0.7475	0.6398	1.3873	**548**
550	1044.8	0.021 76	0.4029	0.4247	549.37	641.46	1190.8	0.7500	0.6353	1.3853	**550**
552	1062.0	0.021 82	0.3951	0.4170	551.94	638.21	1190.1	0.7525	0.6308	1.3833	**552**
554	1079.3	0.021 89	0.3875	0.4094	554.51	634.93	1189.4	0.7549	0.6264	1.3813	**554**
556	1096.9	0.021 95	0.3800	0.4019	557.10	631.61	1188.7	0.7574	0.6219	1.3793	**556**
558	1114.7	0.022 01	0.3726	0.3946	559.69	628.27	1188.0	0.7599	0.6174	1.3773	**558**
560	1132.7	0.022 08	0.3654	0.3875	562.29	624.90	1187.2	0.7624	0.6128	1.3752	**560**
562	1150.9	0.022 15	0.3583	0.3804	564.91	621.49	1186.4	0.7649	0.6083	1.3732	**562**
564	1169.4	0.022 21	0.3513	0.3735	567.53	618.05	1185.6	0.7674	0.6038	1.3711	**564**
566	1188.1	0.022 28	0.3444	0.3667	570.17	614.58	1184.8	0.7699	0.5992	1.3691	**566**
568	1207.0	0.022 35	0.3377	0.3600	572.82	611.07	1183.9	0.7724	0.5946	1.3670	**568**
570	1226.2	0.022 42	0.3310	0.3535	575.48	607.53	1183.0	0.7749	0.5900	1.3649	**570**
572	1245.5	0.022 49	0.3245	0.3470	578.15	603.96	1182.1	0.7774	0.5854	1.3628	**572**
574	1265.2	0.022 57	0.3181	0.3407	580.83	600.34	1181.2	0.7799	0.5808	1.3607	**574**
576	1285.0	0.022 64	0.3118	0.3345	583.52	596.69	1180.2	0.7824	0.5761	1.3586	**576**
578	1305.1	0.022 72	0.3056	0.3283	586.23	593.01	1179.2	0.7850	0.5715	1.3564	**578**
580	1325.4	0.022 79	0.2995	0.3223	588.95	589.28	1178.2	0.7875	0.5668	1.3543	**580**
582	1346.0	0.022 87	0.2936	0.3164	591.68	585.52	1177.2	0.7900	0.5621	1.3521	**582**
584	1366.8	0.022 95	0.2877	0.3106	594.43	581.71	1176.1	0.7926	0.5574	1.3500	**584**
586	1387.9	0.023 03	0.2819	0.3049	597.19	577.86	1175.1	0.7951	0.5526	1.3478	**586**
588	1409.2	0.023 11	0.2762	0.2993	599.96	573.98	1173.9	0.7977	0.5479	1.3456	**588**
590	1430.8	0.023 19	0.2706	0.2938	602.75	570.04	1172.8	0.8003	0.5431	1.3433	**590**
592	1452.6	0.023 28	0.2651	0.2883	605.56	566.07	1171.6	0.8029	0.5383	1.3411	**592**
594	1474.7	0.023 36	0.2596	0.2830	608.38	562.04	1170.4	0.8054	0.5334	1.3389	**594**
596	1497.0	0.023 45	0.2543	0.2777	611.21	557.98	1169.2	0.8080	0.5286	1.3366	**596**
598	1519.6	0.023 54	0.2490	0.2726	614.06	553.86	1167.9	0.8106	0.5237	1.3343	**598**
600	1542.5	0.023 63	0.2438	0.2675	616.93	549.69	1166.6	0.8133	0.5187	1.3320	**600**
602	1565.6	0.023 72	0.2387	0.2625	619.81	545.48	1165.3	0.8159	0.5138	1.3297	**602**
604	1589.0	0.023 82	0.2337	0.2575	622.71	541.21	1163.9	0.8185	0.5088	1.3273	**604**
606	1612.6	0.023 91	0.2288	0.2527	625.63	536.89	1162.5	0.8212	0.5038	1.3250	**606**
608	1636.6	0.024 01	0.2239	0.2479	628.57	532.51	1161.1	0.8238	0.4988	1.3226	**608**
610	1660.8	0.024 11	0.2191	0.2432	631.53	528.08	1159.6	0.8265	0.4937	1.3202	**610**
612	1685.3	0.024 22	0.2143	0.2386	634.50	523.58	1158.1	0.8292	0.4886	1.3177	**612**
614	1710.1	0.024 32	0.2097	0.2340	637.50	519.03	1156.5	0.8318	0.4834	1.3153	**614**
616	1735.1	0.024 43	0.2051	0.2295	640.52	514.42	1154.9	0.8345	0.4782	1.3128	**616**
618	1760.5	0.024 54	0.2005	0.2251	643.56	509.74	1153.3	0.8373	0.4730	1.3103	**618**
620	1786.1	0.024 65	0.1961	0.2207	646.62	504.99	1151.6	0.8400	0.4677	1.3077	**620**

Table U-1 (continued). Properties of Saturated Water and Steam (Temperature)

t (°F)	Pressure psia	Volume, ft^3/lb_m v_L	Δv	v_V	Enthalpy, Btu/lb_m h_L	Δh	h_V	Entropy, $Btu/(lb_m \cdot °R)$ s_L	Δs	s_V	t (°F)
622	1812.1	0.024 76	0.1916	0.2164	649.70	500.18	1149.9	0.8427	0.4624	1.3051	**622**
624	1838.3	0.024 88	0.1873	0.2122	652.81	495.29	1148.1	0.8455	0.4570	1.3025	**624**
626	1864.8	0.025 00	0.1830	0.2080	655.95	490.33	1146.3	0.8483	0.4516	1.2999	**626**
628	1891.7	0.025 12	0.1787	0.2039	659.11	485.29	1144.4	0.8511	0.4462	1.2972	**628**
630	1918.8	0.025 25	0.1745	0.1998	662.30	480.18	1142.5	0.8539	0.4407	1.2945	**630**
632	1946.2	0.025 38	0.1704	0.1958	665.52	474.97	1140.5	0.8567	0.4351	1.2918	**632**
634	1974.0	0.025 51	0.1663	0.1918	668.76	469.69	1138.4	0.8596	0.4295	1.2890	**634**
636	2002.1	0.025 64	0.1623	0.1879	672.04	464.31	1136.3	0.8624	0.4238	1.2862	**636**
638	2030.5	0.025 78	0.1583	0.1840	675.35	458.83	1134.2	0.8653	0.4180	1.2833	**638**
640	2059.2	0.025 93	0.1543	0.1802	678.69	453.26	1132.0	0.8683	0.4122	1.2804	**640**
642	2088.2	0.026 08	0.1504	0.1765	682.07	447.58	1129.7	0.8712	0.4063	1.2775	**642**
644	2117.6	0.026 23	0.1465	0.1727	685.49	441.80	1127.3	0.8742	0.4003	1.2745	**644**
646	2147.3	0.026 39	0.1427	0.1691	688.95	435.90	1124.8	0.8772	0.3942	1.2714	**646**
648	2177.3	0.026 55	0.1389	0.1654	692.44	429.88	1122.3	0.8802	0.3881	1.2683	**648**
650	2207.7	0.026 72	0.1351	0.1618	695.99	423.73	1119.7	0.8833	0.3819	1.2651	**650**
652	2238.4	0.026 90	0.1314	0.1583	699.58	417.45	1117.0	0.8863	0.3755	1.2619	**652**
654	2269.5	0.027 08	0.1277	0.1547	703.22	411.03	1114.3	0.8895	0.3691	1.2586	**654**
656	2300.9	0.027 26	0.1240	0.1513	706.91	404.47	1111.4	0.8927	0.3625	1.2552	**656**
658	2332.7	0.027 46	0.1203	0.1478	710.66	397.75	1108.4	0.8959	0.3559	1.2517	**658**
660	2364.8	0.027 66	0.1167	0.1444	714.47	390.86	1105.3	0.8991	0.3491	1.2482	**660**
662	2397.4	0.027 87	0.1131	0.1410	718.35	383.81	1102.2	0.9024	0.3422	1.2446	**662**
664	2430.2	0.028 10	0.1095	0.1376	722.30	376.55	1098.9	0.9058	0.3351	1.2409	**664**
666	2463.5	0.028 33	0.1060	0.1343	726.32	369.09	1095.4	0.9092	0.3279	1.2371	**666**
668	2497.1	0.028 57	0.1024	0.1310	730.43	361.41	1091.8	0.9127	0.3205	1.2332	**668**
670	2531.2	0.028 83	0.0988	0.1276	734.63	353.48	1088.1	0.9163	0.3129	1.2292	**670**
672	2565.6	0.029 09	0.0953	0.1244	738.92	345.29	1084.2	0.9199	0.3051	1.2250	**672**
674	2600.4	0.029 38	0.0917	0.1211	743.33	336.81	1080.1	0.9236	0.2971	1.2207	**674**
676	2635.6	0.029 68	0.0881	0.1178	747.85	328.01	1075.9	0.9274	0.2888	1.2163	**676**
678	2671.3	0.030 00	0.0845	0.1145	752.50	318.87	1071.4	0.9314	0.2803	1.2116	**678**
680	2707.3	0.030 35	0.0809	0.1112	757.30	309.33	1066.6	0.9354	0.2714	1.2068	**680**
682	2743.8	0.030 72	0.0772	0.1080	762.28	299.35	1061.6	0.9396	0.2622	1.2018	**682**
684	2780.7	0.031 12	0.0735	0.1046	767.44	288.86	1056.3	0.9439	0.2526	1.1965	**684**
686	2818.1	0.031 55	0.0697	0.1013	772.83	277.79	1050.6	0.9484	0.2425	1.1909	**686**
688	2855.9	0.032 03	0.065 87	0.097 90	778.48	266.03	1044.5	0.9532	0.2318	1.1850	**688**
690	2894.2	0.032 56	0.061 88	0.094 44	784.45	253.45	1037.9	0.9582	0.2205	1.1786	**690**
692	2932.9	0.033 15	0.057 74	0.090 89	790.82	239.86	1030.7	0.9635	0.2083	1.1718	**692**
694	2972.1	0.033 83	0.053 38	0.087 22	797.68	224.99	1022.7	0.9692	0.1950	1.1643	**694**
696	3011.8	0.034 63	0.048 73	0.083 36	805.21	208.44	1013.7	0.9755	0.1804	1.1559	**696**
698	3052.1	0.035 59	0.043 64	0.079 23	813.69	189.53	1003.2	0.9826	0.1637	1.1464	**698**
700	3092.9	0.036 83	0.037 84	0.074 66	823.64	167.00	990.64	0.9910	0.1440	1.1350	**700**
701	3113.5	0.037 60	0.034 51	0.072 12	829.49	153.59	983.08	0.9959	0.1323	1.1282	**701**
702	3134.3	0.038 56	0.030 72	0.069 28	836.28	137.90	974.18	1.0016	0.1187	1.1204	**702**
703	3155.3	0.039 82	0.026 14	0.065 96	844.65	118.46	963.11	1.0087	0.1019	1.1106	**703**
704	3176.5	0.041 72	0.019 95	0.061 67	856.26	91.37	947.62	1.0186	0.0785	1.0971	**704**
705	3197.9	0.046 62	0.006 77	0.053 38	882.44	31.46	913.89	1.0409	0.0270	1.0679	**705**
T_c	3200.1	0.049 75	0	0.049 75	897.48	0	897.48	1.0538	0	1.0538	T_c

T_c = 705.1028 °F

Table U-2(Hg). Properties of Saturated Water and Steam (Pressure, inches Hg absolute)

Pressure in Hg	psia	t (°F)	Volume, ft^3/lb$_m$ v_L	Δv	v_V	Enthalpy, Btu/lb$_m$ h_L	Δh	h_V	Entropy, Btu/(lb$_m$·°R) s_L	Δs	s_V	p in Hg
0.20	0.098 23	34.557	0.016 021	2995.3	2995.3	2.558	1073.8	1076.3	0.0052	2.1726	2.1778	**0.20**
0.25	0.122 79	40.221	0.016 020	2423.5	2423.5	8.255	1070.5	1078.8	0.0166	2.1415	2.1582	**0.25**
0.30	0.147 35	44.960	0.016 021	2038.5	2038.6	13.012	1067.9	1080.9	0.0261	2.1161	2.1422	**0.30**
0.35	0.171 90	49.046	0.016 023	1761.3	1761.3	17.109	1065.5	1082.7	0.0342	2.0946	2.1288	**0.35**
0.40	0.196 46	52.646	0.016 026	1551.9	1552.0	20.717	1063.5	1084.2	0.0413	2.0759	2.1172	**0.40**
0.45	0.221 02	55.870	0.016 030	1388.1	1388.1	23.946	1061.7	1085.6	0.0476	2.0594	2.1069	**0.45**
0.5	0.245 58	58.794	0.016 033	1256.3	1256.3	26.872	1060.0	1086.9	0.0532	2.0446	2.0978	**0.5**
0.6	0.294 69	63.942	0.016 041	1057.1	1057.2	32.022	1057.1	1089.2	0.0631	2.0189	2.0820	**0.6**
0.7	0.343 81	68.386	0.016 049	913.69	913.71	36.465	1054.6	1091.1	0.0715	1.9972	2.0687	**0.7**
0.8	0.392 92	72.305	0.016 056	805.31	805.33	40.382	1052.4	1092.8	0.0789	1.9783	2.0572	**0.8**
0.9	0.442 04	75.818	0.016 064	720.48	720.49	43.891	1050.4	1094.3	0.0855	1.9616	2.0471	**0.9**
1.0	0.491 15	79.005	0.016 071	652.21	652.23	47.075	1048.6	1095.7	0.0914	1.9467	2.0381	**1.0**
1.1	0.540 27	81.925	0.016 078	596.07	596.09	49.991	1047.0	1096.9	0.0968	1.9331	2.0299	**1.1**
1.2	0.589 38	84.623	0.016 085	549.06	549.08	52.685	1045.4	1098.1	0.1018	1.9207	2.0225	**1.2**
1.3	0.638 50	87.131	0.016 092	509.11	509.12	55.190	1044.0	1099.2	0.1064	1.9093	2.0157	**1.3**
1.4	0.687 62	89.477	0.016 099	474.72	474.74	57.533	1042.7	1100.2	0.1107	1.8987	2.0094	**1.4**
1.5	0.736 73	91.682	0.016 105	444.81	444.83	59.734	1041.4	1101.1	0.1147	1.8888	2.0035	**1.5**
1.6	0.785 85	93.763	0.016 111	418.54	418.56	61.811	1040.2	1102.0	0.1184	1.8796	1.9980	**1.6**
1.7	0.834 96	95.734	0.016 117	395.29	395.30	63.779	1039.1	1102.9	0.1220	1.8709	1.9929	**1.7**
1.8	0.884 08	97.607	0.016 123	374.55	374.57	65.649	1038.0	1103.7	0.1253	1.8627	1.9880	**1.8**
1.9	0.933 19	99.392	0.016 129	355.94	355.96	67.431	1037.0	1104.5	0.1285	1.8549	1.9835	**1.9**
2.0	0.982 31	101.098	0.016 135	339.15	339.16	69.133	1036.1	1105.2	0.1316	1.8476	1.9791	**2.0**
2.2	1.0805	104.299	0.016 146	310.02	310.04	72.328	1034.2	1106.6	0.1373	1.8338	1.9711	**2.2**
2.4	1.1788	107.258	0.016 156	285.63	285.65	75.281	1032.5	1107.8	0.1425	1.8213	1.9638	**2.4**
2.6	1.2770	110.011	0.016 166	264.90	264.91	78.030	1031.0	1109.0	0.1473	1.8097	1.9570	**2.6**
2.8	1.3752	112.587	0.016 176	247.05	247.06	80.602	1029.5	1110.1	0.1518	1.7990	1.9508	**2.8**
3.0	1.4735	115.010	0.016 185	231.52	231.53	83.020	1028.1	1111.1	0.1560	1.7890	1.9450	**3.0**
3.5	1.7190	120.509	0.016 207	200.27	200.28	88.510	1024.9	1113.4	0.1655	1.7666	1.9321	**3.5**
4.0	1.9646	125.370	0.016 227	176.64	176.66	93.363	1022.1	1115.5	0.1739	1.7471	1.9210	**4.0**
4.5	2.2102	129.736	0.016 246	158.13	158.15	97.724	1019.6	1117.3	0.1813	1.7299	1.9112	**4.5**
5.0	2.4558	133.705	0.016 263	143.23	143.25	101.69	1017.3	1119.0	0.1880	1.7144	1.9024	**5.0**
5.5	2.7013	137.349	0.016 280	130.97	130.98	105.33	1015.2	1120.5	0.1941	1.7004	1.8945	**5.5**
6.0	2.9469	140.721	0.016 296	120.69	120.71	108.70	1013.2	1121.9	0.1997	1.6876	1.8873	**6.0**
6.5	3.1925	143.861	0.016 311	111.96	111.97	111.84	1011.4	1123.2	0.2049	1.6757	1.8807	**6.5**
7.0	3.4381	146.802	0.016 326	104.44	104.45	114.78	1009.6	1124.4	0.2098	1.6648	1.8746	**7.0**
7.5	3.6837	149.570	0.016 339	97.891	97.908	117.54	1008.0	1125.6	0.2144	1.6545	1.8689	**7.5**
8.0	3.9292	152.185	0.016 353	92.141	92.158	120.16	1006.5	1126.6	0.2186	1.6450	1.8636	**8.0**
8.5	4.1748	154.666	0.016 365	87.049	87.065	122.64	1005.0	1127.7	0.2227	1.6359	1.8586	**8.5**
9.0	4.4204	157.026	0.016 378	82.507	82.523	125.00	1003.6	1128.6	0.2265	1.6274	1.8539	**9.0**
9.5	4.6660	159.277	0.016 390	78.429	78.445	127.25	1002.3	1129.5	0.2302	1.6193	1.8495	**9.5**
10.0	4.9115	161.431	0.016 401	74.747	74.763	129.41	1001.0	1130.4	0.2336	1.6117	1.8453	**10.0**
11	5.4027	165.478	0.016 424	68.360	68.376	133.46	998.60	1132.1	0.2401	1.5974	1.8375	**11**
12	5.8938	169.226	0.016 445	63.008	63.024	137.21	996.36	1133.6	0.2461	1.5843	1.8304	**12**
13	6.3850	172.720	0.016 465	58.456	58.473	140.71	994.26	1135.0	0.2517	1.5722	1.8239	**13**
14	6.8762	175.995	0.016 484	54.536	54.553	144.00	992.29	1136.3	0.2568	1.5610	1.8179	**14**
15	7.3673	179.079	0.016 502	51.124	51.141	147.09	990.43	1137.5	0.2617	1.5506	1.8123	**15**
16	7.8585	181.995	0.016 519	48.126	48.143	150.01	988.66	1138.7	0.2663	1.5408	1.8070	**16**
17	8.3496	184.762	0.016 536	45.470	45.487	152.79	986.98	1139.8	0.2706	1.5315	1.8021	**17**
18	8.8408	187.397	0.016 553	43.101	43.118	155.43	985.37	1140.8	0.2747	1.5228	1.7975	**18**
19	9.3319	189.911	0.016 568	40.974	40.991	157.96	983.84	1141.8	0.2786	1.5146	1.7931	**19**
20	9.8231	192.318	0.016 583	39.053	39.070	160.38	982.36	1142.7	0.2823	1.5067	1.7890	**20**
21	10.314	194.626	0.016 598	37.310	37.327	162.70	980.94	1143.6	0.2858	1.4992	1.7850	**21**
22	10.805	196.844	0.016 613	35.720	35.737	164.93	979.57	1144.5	0.2892	1.4921	1.7813	**22**
23	11.297	198.980	0.016 627	34.265	34.281	167.07	978.25	1145.3	0.2925	1.4852	1.7777	**23**
24	11.788	201.040	0.016 640	32.927	32.943	169.14	976.97	1146.1	0.2956	1.4787	1.7743	**24**
25	12.279	203.029	0.016 653	31.692	31.709	171.15	975.73	1146.9	0.2986	1.4724	1.7710	**25**
26	12.770	204.954	0.016 666	30.550	30.567	173.08	974.53	1147.6	0.3016	1.4663	1.7678	**26**
27	13.261	206.818	0.016 679	29.490	29.507	174.96	973.37	1148.3	0.3044	1.4604	1.7648	**27**
28	13.752	208.626	0.016 691	28.503	28.520	176.78	972.23	1149.0	0.3071	1.4548	1.7619	**28**
29	14.243	210.381	0.016 703	27.582	27.599	178.55	971.13	1149.7	0.3097	1.4493	1.7591	**29**
30	14.735	212.086	0.016 715	26.721	26.738	180.27	970.05	1150.3	0.3123	1.4440	1.7564	**30**

Table U-2. Properties of Saturated Water and Steam (Pressure)

p		Volume, ft^3/lb_m			Enthalpy, Btu/lb_m			Entropy, $Btu/(lb_m \cdot {}^oR)$			p
psia	t (^{o}F)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**psia**
0.1	35.005	0.016 020	2945.0	2945.0	3.009	1073.5	1076.5	0.0061	2.1701	2.1762	**0.1**
0.12	39.632	0.016 020	2476.9	2476.9	7.662	1070.9	1078.5	0.0155	2.1447	2.1602	**0.12**
0.14	43.620	0.016 020	2139.9	2139.9	11.668	1068.6	1080.3	0.0235	2.1233	2.1467	**0.14**
0.16	47.134	0.016 022	1885.3	1885.3	15.193	1066.6	1081.8	0.0304	2.1046	2.1351	**0.16**
0.2	53.132	0.016 027	1525.9	1525.9	21.204	1063.2	1084.4	0.0422	2.0734	2.1156	**0.2**
0.25	59.293	0.016 034	1235.2	1235.2	27.371	1059.8	1087.1	0.0542	2.0421	2.0962	**0.25**
0.3	64.452	0.016 042	1039.4	1039.4	32.532	1056.8	1089.4	0.0641	2.0164	2.0805	**0.3**
0.35	68.906	0.016 050	898.40	898.41	36.985	1054.3	1091.3	0.0725	1.9947	2.0672	**0.35**
0.4	72.834	0.016 057	791.84	791.86	40.911	1052.1	1093.0	0.0799	1.9758	2.0557	**0.4**
0.45	76.355	0.016 065	708.43	708.44	44.428	1050.1	1094.5	0.0865	1.9591	2.0456	**0.45**
0.5	79.549	0.016 073	641.31	641.32	47.618	1048.3	1095.9	0.0925	1.9441	2.0366	**0.5**
0.6	85.180	0.016 087	539.89	539.90	53.242	1045.1	1098.3	0.1028	1.9182	2.0210	**0.6**
0.7	90.046	0.016 100	466.80	466.81	58.100	1042.3	1100.4	0.1117	1.8962	2.0079	**0.7**
0.8	94.342	0.016 113	411.56	411.57	62.389	1039.9	1102.3	0.1195	1.8770	1.9965	**0.8**
0.9	98.195	0.016 125	368.30	368.32	66.236	1037.7	1103.9	0.1264	1.8601	1.9865	**0.9**
1.0	101.694	0.016 137	333.49	333.51	69.728	1035.7	1105.4	0.1326	1.8450	1.9776	**1.0**
1.2	107.869	0.016 158	280.87	280.89	75.892	1032.2	1108.1	0.1435	1.8187	1.9623	**1.2**
1.4	113.212	0.016 178	242.93	242.95	81.225	1029.1	1110.3	0.1529	1.7964	1.9493	**1.4**
1.6	117.934	0.016 196	214.25	214.27	85.939	1026.4	1112.3	0.1611	1.7770	1.9381	**1.6**
1.8	122.174	0.016 214	191.79	191.80	90.172	1024.0	1114.1	0.1684	1.7599	1.9283	**1.8**
2.0	126.027	0.016 230	173.70	173.72	94.019	1021.7	1115.8	0.1750	1.7445	1.9195	**2.0**
2.2	129.563	0.016 245	158.82	158.84	97.551	1019.7	1117.2	0.1810	1.7305	1.9115	**2.2**
2.4	132.835	0.016 260	146.35	146.37	100.82	1017.8	1118.6	0.1865	1.7178	1.9043	**2.4**
2.6	135.881	0.016 273	135.75	135.77	103.86	1016.0	1119.9	0.1916	1.7060	1.8977	**2.6**
2.8	138.734	0.016 287	126.63	126.65	106.71	1014.4	1121.1	0.1964	1.6951	1.8915	**2.8**
3.0	141.418	0.016 299	118.69	118.70	109.39	1012.8	1122.2	0.2009	1.6849	1.8858	**3.0**
3.5	147.515	0.016 329	102.70	102.72	115.49	1009.2	1124.7	0.2110	1.6621	1.8731	**3.5**
4.0	152.913	0.016 356	90.612	90.628	120.89	1006.1	1126.9	0.2198	1.6423	1.8621	**4.0**
4.5	157.767	0.016 382	81.137	81.154	125.74	1003.2	1128.9	0.2277	1.6247	1.8525	**4.5**
5.0	162.184	0.016 406	73.507	73.523	130.16	1000.6	1130.7	0.2349	1.6090	1.8438	**5.0**
5.5	166.243	0.016 428	67.226	67.242	134.23	998.14	1132.4	0.2414	1.5947	1.8361	**5.5**
6.0	170.002	0.016 449	61.963	61.979	137.99	995.90	1133.9	0.2474	1.5816	1.8290	**6.0**
6.5	173.505	0.016 469	57.487	57.503	141.50	993.79	1135.3	0.2529	1.5695	1.8224	**6.5**
7.0	176.790	0.016 488	53.632	53.649	144.79	991.81	1136.6	0.2581	1.5583	1.8164	**7.0**
7.5	179.883	0.016 507	50.277	50.293	147.90	989.94	1137.8	0.2630	1.5479	1.8108	**7.5**
8.0	182.807	0.016 524	47.328	47.345	150.83	988.17	1139.0	0.2675	1.5381	1.8056	**8.0**
8.5	185.582	0.016 541	44.717	44.733	153.61	986.48	1140.1	0.2719	1.5288	1.8007	**8.5**
9.0	188.224	0.016 558	42.387	42.404	156.27	984.87	1141.1	0.2760	1.5201	1.7961	**9.0**
9.5	190.746	0.016 573	40.295	40.312	158.80	983.32	1142.1	0.2799	1.5118	1.7917	**9.5**
10.0	193.160	0.016 589	38.406	38.423	161.22	981.84	1143.1	0.2836	1.5040	1.7875	**10.0**
10.5	195.475	0.016 604	36.692	36.708	163.55	980.42	1144.0	0.2871	1.4965	1.7836	**10.5**
11.0	197.700	0.016 618	35.128	35.145	165.79	979.04	1144.8	0.2905	1.4893	1.7799	**11.0**
11.5	199.842	0.016 632	33.697	33.714	167.94	977.71	1145.7	0.2938	1.4825	1.7763	**11.5**
12.0	201.908	0.016 646	32.381	32.398	170.02	976.43	1146.4	0.2969	1.4759	1.7728	**12.0**
12.5	203.904	0.016 659	31.167	31.184	172.03	975.19	1147.2	0.3000	1.4696	1.7696	**12.5**
13.0	205.834	0.016 672	30.044	30.061	173.97	973.98	1148.0	0.3029	1.4635	1.7664	**13.0**
13.5	207.704	0.016 685	29.002	29.018	175.85	972.81	1148.7	0.3057	1.4577	1.7634	**13.5**
14.0	209.517	0.016 697	28.031	28.048	177.68	971.67	1149.4	0.3084	1.4520	1.7605	**14.0**
14.696	211.954	0.016 714	26.787	26.804	180.13	970.14	1150.3	0.3121	1.4445	1.7566	**14.696**
15	212.988	0.016 721	26.278	26.295	181.18	969.48	1150.7	0.3137	1.4413	1.7549	**15**
16	216.273	0.016 745	24.738	24.755	184.49	967.40	1151.9	0.3186	1.4312	1.7497	**16**
17	219.392	0.016 767	23.374	23.390	187.63	965.42	1153.1	0.3232	1.4217	1.7449	**17**
18	222.363	0.016 788	22.156	22.173	190.63	963.52	1154.2	0.3276	1.4127	1.7403	**18**
19	225.201	0.016 809	21.063	21.079	193.50	961.70	1155.2	0.3318	1.4042	1.7360	**19**
20	227.918	0.016 829	20.075	20.092	196.25	959.95	1156.2	0.3358	1.3961	1.7319	**20**
21	230.526	0.016 849	19.179	19.196	198.88	958.26	1157.1	0.3396	1.3884	1.7280	**21**
22	233.034	0.016 868	18.361	18.378	201.42	956.63	1158.0	0.3433	1.3810	1.7243	**22**
23	235.450	0.016 886	17.613	17.629	203.86	955.05	1158.9	0.3468	1.3739	1.7207	**23**
24	237.781	0.016 904	16.924	16.941	206.23	953.52	1159.7	0.3502	1.3671	1.7173	**24**
25	240.034	0.016 922	16.289	16.306	208.51	952.04	1160.5	0.3534	1.3606	1.7141	**25**

Table U-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, ft^3/lb_m			Enthalpy, Btu/lb_m			Entropy, $Btu/(lb_m \cdot {}^\circ R)$			p
psia	t (°F)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	psia
26	242.214	0.016 939	15.702	15.719	210.72	950.60	1161.3	0.3566	1.3544	1.7109	**26**
27	244.326	0.016 955	15.156	15.173	212.86	949.20	1162.1	0.3596	1.3483	1.7079	**27**
28	246.376	0.016 972	14.649	14.665	214.94	947.84	1162.8	0.3626	1.3425	1.7050	**28**
29	248.366	0.016 988	14.175	14.192	216.96	946.51	1163.5	0.3654	1.3368	1.7022	**29**
30	250.301	0.017 003	13.731	13.748	218.93	945.21	1164.1	0.3682	1.3313	1.6995	**30**
31	252.184	0.017 019	13.316	13.333	220.84	943.95	1164.8	0.3709	1.3260	1.6969	**31**
32	254.019	0.017 034	12.925	12.942	222.70	942.71	1165.4	0.3735	1.3209	1.6944	**32**
33	255.807	0.017 049	12.557	12.574	224.52	941.50	1166.0	0.3760	1.3159	1.6919	**33**
34	257.551	0.017 063	12.211	12.228	226.30	940.31	1166.6	0.3785	1.3110	1.6896	**34**
35	259.255	0.017 078	11.883	11.900	228.03	939.15	1167.2	0.3809	1.3063	1.6873	**35**
36	260.919	0.017 092	11.573	11.590	229.73	938.02	1167.7	0.3833	1.3017	1.6850	**36**
37	262.546	0.017 105	11.279	11.296	231.38	936.90	1168.3	0.3856	1.2973	1.6828	**37**
38	264.138	0.017 119	11.000	11.018	233.01	935.81	1168.8	0.3878	1.2929	1.6807	**38**
39	265.696	0.017 133	10.735	10.753	234.59	934.73	1169.3	0.3900	1.2886	1.6786	**39**
40	267.222	0.017 146	10.483	10.500	236.15	933.68	1169.8	0.3921	1.2845	1.6766	**40**
41	268.717	0.017 159	10.243	10.260	237.68	932.64	1170.3	0.3942	1.2804	1.6746	**41**
42	270.183	0.017 172	10.014	10.031	239.17	931.62	1170.8	0.3963	1.2764	1.6727	**42**
43	271.621	0.017 184	9.7948	9.8119	240.64	930.62	1171.3	0.3983	1.2726	1.6708	**43**
44	273.032	0.017 197	9.5854	9.6026	242.08	929.63	1171.7	0.4002	1.2688	1.6690	**44**
45	274.417	0.017 209	9.3851	9.4023	243.50	928.66	1172.2	0.4022	1.2650	1.6672	**45**
46	275.778	0.017 221	9.1932	9.2104	244.89	927.70	1172.6	0.4041	1.2614	1.6655	**46**
47	277.115	0.017 233	9.0092	9.0264	246.26	926.76	1173.0	0.4059	1.2578	1.6638	**47**
48	278.429	0.017 245	8.8326	8.8498	247.60	925.83	1173.4	0.4077	1.2543	1.6621	**48**
49	279.722	0.017 257	8.6629	8.6802	248.93	924.91	1173.8	0.4095	1.2509	1.6604	**49**
50	280.993	0.017 268	8.4998	8.5171	250.23	924.01	1174.2	0.4113	1.2475	1.6588	**50**
52	283.475	0.017 291	8.1918	8.2091	252.77	922.23	1175.0	0.4147	1.2410	1.6557	**52**
54	285.881	0.017 314	7.9059	7.9232	255.24	920.51	1175.7	0.4180	1.2347	1.6527	**54**
56	288.216	0.017 335	7.6397	7.6570	257.64	918.82	1176.5	0.4212	1.2286	1.6498	**56**
58	290.486	0.017 357	7.3913	7.4086	259.97	917.18	1177.1	0.4243	1.2227	1.6470	**58**
60	292.693	0.017 378	7.1588	7.1762	262.24	915.57	1177.8	0.4273	1.2169	1.6443	**60**
62	294.841	0.017 398	6.9409	6.9583	264.45	914.00	1178.4	0.4302	1.2114	1.6416	**62**
64	296.935	0.017 419	6.7361	6.7535	266.60	912.46	1179.1	0.4331	1.2060	1.6391	**64**
66	298.977	0.017 438	6.5433	6.5607	268.70	910.96	1179.7	0.4359	1.2008	1.6366	**66**
68	300.970	0.017 458	6.3614	6.3789	270.76	909.48	1180.2	0.4386	1.1957	1.6342	**68**
70	302.916	0.017 477	6.1896	6.2071	272.76	908.03	1180.8	0.4412	1.1907	1.6319	**70**
72	304.819	0.017 496	6.0271	6.0446	274.73	906.61	1181.3	0.4437	1.1859	1.6296	**72**
74	306.679	0.017 515	5.8730	5.8905	276.65	905.21	1181.9	0.4462	1.1812	1.6274	**74**
76	308.500	0.017 533	5.7267	5.7442	278.53	903.84	1182.4	0.4487	1.1766	1.6253	**76**
78	310.283	0.017 551	5.5877	5.6052	280.37	902.49	1182.9	0.4511	1.1721	1.6232	**78**
80	312.029	0.017 569	5.4554	5.4730	282.18	901.16	1183.3	0.4534	1.1678	1.6212	**80**
82	313.741	0.017 587	5.3293	5.3469	283.95	899.86	1183.8	0.4557	1.1635	1.6192	**82**
84	315.420	0.017 604	5.2090	5.2266	285.69	898.57	1184.3	0.4579	1.1593	1.6172	**84**
86	317.068	0.017 621	5.0942	5.1118	287.40	897.30	1184.7	0.4601	1.1552	1.6154	**86**
88	318.685	0.017 638	4.9843	5.0020	289.08	896.06	1185.1	0.4623	1.1512	1.6135	**88**
90	320.273	0.017 655	4.8792	4.8969	290.73	894.83	1185.6	0.4644	1.1473	1.6117	**90**
92	321.833	0.017 672	4.7785	4.7962	292.35	893.61	1186.0	0.4665	1.1435	1.6099	**92**
94	323.367	0.017 688	4.6820	4.6996	293.94	892.42	1186.4	0.4685	1.1397	1.6082	**94**
96	324.875	0.017 704	4.5893	4.6070	295.51	891.23	1186.7	0.4705	1.1360	1.6065	**96**
98	326.358	0.017 720	4.5002	4.5180	297.05	890.07	1187.1	0.4724	1.1324	1.6048	**98**
100	327.817	0.017 736	4.4146	4.4324	298.57	888.92	1187.5	0.4744	1.1288	1.6032	**100**
102	329.253	0.017 752	4.3323	4.3500	300.07	887.78	1187.9	0.4762	1.1253	1.6016	**102**
104	330.667	0.017 767	4.2530	4.2708	301.54	886.66	1188.2	0.4781	1.1219	1.6000	**104**
106	332.059	0.017 782	4.1766	4.1944	303.00	885.55	1188.5	0.4799	1.1185	1.5984	**106**
108	333.431	0.017 798	4.1029	4.1207	304.43	884.45	1188.9	0.4817	1.1152	1.5969	**108**
110	334.783	0.017 813	4.0318	4.0496	305.84	883.37	1189.2	0.4835	1.1119	1.5954	**110**
112	336.116	0.017 828	3.9632	3.9810	307.23	882.30	1189.5	0.4852	1.1087	1.5940	**112**
114	337.429	0.017 842	3.8969	3.9147	308.61	881.24	1189.8	0.4870	1.1056	1.5925	**114**
116	338.725	0.017 857	3.8328	3.8506	309.96	880.19	1190.2	0.4887	1.1025	1.5911	**116**
118	340.003	0.017 871	3.7708	3.7886	311.30	879.15	1190.5	0.4903	1.0994	1.5897	**118**
120	341.264	0.017 886	3.7107	3.7286	312.62	878.12	1190.7	0.4920	1.0964	1.5883	**120**

Table U-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, ft^3/lb_m			Enthalpy, Btu/lb_m			Entropy, $Btu/(lb_m \cdot {}^oR)$			p
psia	t (^oF)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**psia**
122	342.508	0.017 900	3.6526	3.6705	313.92	877.11	1191.0	0.4936	1.0934	1.5870	**122**
124	343.737	0.017 914	3.5963	3.6142	315.21	876.10	1191.3	0.4952	1.0905	1.5857	**124**
126	344.950	0.017 928	3.5417	3.5597	316.48	875.10	1191.6	0.4967	1.0876	1.5844	**126**
128	346.148	0.017 942	3.4888	3.5067	317.74	874.12	1191.9	0.4983	1.0848	1.5831	**128**
130	347.331	0.017 956	3.4374	3.4554	318.98	873.14	1192.1	0.4998	1.0820	1.5818	**130**
132	348.499	0.017 970	3.3876	3.4056	320.21	872.17	1192.4	0.5013	1.0792	1.5805	**132**
134	349.654	0.017 983	3.3392	3.3571	321.43	871.21	1192.6	0.5028	1.0765	1.5793	**134**
136	350.796	0.017 997	3.2921	3.3101	322.63	870.25	1192.9	0.5043	1.0738	1.5781	**136**
138	351.924	0.018 010	3.2464	3.2644	323.82	869.31	1193.1	0.5058	1.0711	1.5769	**138**
140	353.039	0.018 023	3.2019	3.2199	324.99	868.37	1193.4	0.5072	1.0685	1.5757	**140**
142	354.142	0.018 037	3.1586	3.1767	326.15	867.45	1193.6	0.5086	1.0659	1.5745	**142**
144	355.233	0.018 050	3.1165	3.1346	327.30	866.53	1193.8	0.5100	1.0634	1.5734	**144**
146	356.312	0.018 063	3.0755	3.0936	328.44	865.61	1194.1	0.5114	1.0608	1.5722	**146**
148	357.379	0.018 076	3.0356	3.0537	329.57	864.71	1194.3	0.5128	1.0583	1.5711	**148**
150	358.435	0.018 089	2.9967	3.0148	330.68	863.81	1194.5	0.5141	1.0559	1.5700	**150**
155	361.027	0.018 120	2.9037	2.9218	333.42	861.59	1195.0	0.5175	1.0498	1.5673	**155**
160	363.555	0.018 152	2.8163	2.8345	336.10	859.42	1195.5	0.5207	1.0440	1.5647	**160**
165	366.021	0.018 182	2.7340	2.7522	338.71	857.28	1196.0	0.5239	1.0383	1.5621	**165**
170	368.429	0.018 213	2.6564	2.6746	341.27	855.18	1196.5	0.5269	1.0327	1.5596	**170**
175	370.782	0.018 243	2.5831	2.6013	343.77	853.12	1196.9	0.5299	1.0273	1.5572	**175**
180	373.082	0.018 272	2.5137	2.5320	346.21	851.09	1197.3	0.5328	1.0220	1.5549	**180**
185	375.334	0.018 301	2.4479	2.4662	348.61	849.09	1197.7	0.5357	1.0169	1.5526	**185**
190	377.538	0.018 330	2.3855	2.4038	350.96	847.12	1198.1	0.5385	1.0118	1.5503	**190**
195	379.697	0.018 359	2.3261	2.3445	353.27	845.18	1198.5	0.5412	1.0069	1.5482	**195**
200	381.813	0.018 387	2.2696	2.2880	355.53	843.27	1198.8	0.5439	1.0021	1.5460	**200**
205	383.889	0.018 415	2.2158	2.2342	357.75	841.38	1199.1	0.5465	0.9974	1.5439	**205**
210	385.925	0.018 442	2.1645	2.1829	359.94	839.52	1199.5	0.5491	0.9928	1.5419	**210**
215	387.923	0.018 469	2.1154	2.1339	362.08	837.69	1199.8	0.5516	0.9883	1.5399	**215**
220	389.886	0.018 496	2.0685	2.0870	364.19	835.87	1200.1	0.5541	0.9839	1.5379	**220**
225	391.814	0.018 523	2.0236	2.0422	366.26	834.08	1200.3	0.5565	0.9796	1.5360	**225**
230	393.709	0.018 549	1.9806	1.9992	368.30	832.31	1200.6	0.5588	0.9753	1.5342	**230**
235	395.573	0.018 576	1.9394	1.9580	370.31	830.56	1200.9	0.5612	0.9711	1.5323	**235**
240	397.405	0.018 601	1.8998	1.9184	372.29	828.83	1201.1	0.5635	0.9670	1.5305	**240**
245	399.208	0.018 627	1.8618	1.8804	374.24	827.12	1201.4	0.5657	0.9630	1.5287	**245**
250	400.983	0.018 653	1.8252	1.8439	376.16	825.43	1201.6	0.5679	0.9591	1.5270	**250**
255	402.730	0.018 678	1.7901	1.8087	378.05	823.75	1201.8	0.5701	0.9552	1.5253	**255**
260	404.451	0.018 703	1.7562	1.7749	379.92	822.09	1202.0	0.5723	0.9514	1.5236	**260**
265	406.146	0.018 728	1.7236	1.7423	381.76	820.45	1202.2	0.5744	0.9476	1.5220	**265**
270	407.817	0.018 753	1.6921	1.7108	383.58	818.83	1202.4	0.5764	0.9439	1.5203	**270**
275	409.464	0.018 777	1.6617	1.6805	385.37	817.22	1202.6	0.5785	0.9403	1.5187	**275**
280	411.087	0.018 801	1.6324	1.6512	387.14	815.62	1202.8	0.5805	0.9367	1.5172	**280**
285	412.689	0.018 825	1.6041	1.6229	388.89	814.04	1202.9	0.5825	0.9332	1.5156	**285**
290	414.268	0.018 849	1.5767	1.5955	390.61	812.48	1203.1	0.5844	0.9297	1.5141	**290**
295	415.827	0.018 873	1.5502	1.5691	392.32	810.92	1203.2	0.5864	0.9262	1.5126	**295**
300	417.366	0.018 897	1.5245	1.5434	394.00	809.38	1203.4	0.5883	0.9229	1.5111	**300**
310	420.384	0.018 944	1.4757	1.4946	397.31	806.34	1203.6	0.5920	0.9162	1.5082	**310**
320	423.327	0.018 990	1.4297	1.4487	400.54	803.35	1203.9	0.5956	0.9098	1.5054	**320**
330	426.201	0.019 036	1.3865	1.4055	403.71	800.40	1204.1	0.5992	0.9035	1.5027	**330**
340	429.007	0.019 081	1.3457	1.3647	406.81	797.50	1204.3	0.6026	0.8974	1.5000	**340**
350	431.751	0.019 125	1.3071	1.3262	409.84	794.63	1204.5	0.6060	0.8914	1.4974	**350**
360	434.435	0.019 170	1.2706	1.2898	412.82	791.81	1204.6	0.6093	0.8856	1.4949	**360**
370	437.062	0.019 214	1.2360	1.2552	415.73	789.02	1204.8	0.6125	0.8799	1.4924	**370**
380	439.634	0.019 257	1.2032	1.2224	418.60	786.27	1204.9	0.6156	0.8743	1.4900	**380**
390	442.155	0.019 300	1.1720	1.1913	421.41	783.55	1205.0	0.6187	0.8689	1.4876	**390**
400	444.627	0.019 343	1.1423	1.1616	424.18	780.87	1205.0	0.6217	0.8635	1.4853	**400**
410	447.051	0.019 385	1.1139	1.1333	426.89	778.21	1205.1	0.6247	0.8583	1.4830	**410**
420	449.431	0.019 427	1.0869	1.1064	429.56	775.58	1205.1	0.6276	0.8531	1.4807	**420**
430	451.767	0.019 468	1.0611	1.0806	432.19	772.98	1205.2	0.6305	0.8481	1.4786	**430**
440	454.062	0.019 510	1.0364	1.0560	434.78	770.41	1205.2	0.6333	0.8431	1.4764	**440**
450	456.316	0.019 551	1.0128	1.0324	437.33	767.87	1205.2	0.6360	0.8383	1.4743	**450**

Table U-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, ft^3/lb_m			Enthalpy, Btu/lb_m			Entropy, $Btu/(lb_m \cdot {}^oR)$			p
psia	t (^oF)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**psia**
460	458.533	0.019 592	0.9902	1.0098	439.84	765.34	1205.2	0.6387	0.8335	1.4722	**460**
470	460.713	0.019 632	0.9685	0.9881	442.31	762.85	1205.2	0.6414	0.8288	1.4702	**470**
480	462.858	0.019 672	0.9477	0.9673	444.75	760.37	1205.1	0.6440	0.8242	1.4682	**480**
490	464.969	0.019 712	0.9276	0.9474	447.16	757.92	1205.1	0.6465	0.8197	1.4662	**490**
500	467.047	0.019 752	0.9084	0.9282	449.53	755.48	1205.0	0.6490	0.8152	1.4643	**500**
510	469.093	0.019 792	0.8899	0.9097	451.87	753.07	1204.9	0.6515	0.8108	1.4624	**510**
520	471.108	0.019 831	0.8720	0.8919	454.19	750.68	1204.9	0.6540	0.8065	1.4605	**520**
530	473.095	0.019 870	0.8549	0.8747	456.47	748.30	1204.8	0.6564	0.8022	1.4586	**530**
540	475.052	0.019 909	0.8383	0.8582	458.72	745.95	1204.7	0.6588	0.7980	1.4568	**540**
550	476.982	0.019 948	0.8223	0.8422	460.95	743.61	1204.6	0.6611	0.7939	1.4550	**550**
560	478.886	0.019 987	0.8068	0.8268	463.15	741.29	1204.4	0.6634	0.7898	1.4532	**560**
570	480.763	0.020 03	0.7919	0.8119	465.33	738.98	1204.3	0.6657	0.7858	1.4515	**570**
580	482.616	0.020 06	0.7775	0.7976	467.48	736.69	1204.2	0.6679	0.7818	1.4498	**580**
590	484.444	0.020 10	0.7635	0.7836	469.60	734.42	1204.0	0.6702	0.7779	1.4480	**590**
600	486.249	0.020 14	0.7500	0.7702	471.71	732.16	1203.9	0.6723	0.7740	1.4464	**600**
610	488.030	0.020 18	0.7369	0.7571	473.79	729.92	1203.7	0.6745	0.7702	1.4447	**610**
620	489.790	0.020 22	0.7243	0.7445	475.85	727.69	1203.5	0.6766	0.7664	1.4430	**620**
630	491.528	0.020 25	0.7120	0.7322	477.89	725.47	1203.4	0.6787	0.7627	1.4414	**630**
640	493.245	0.020 29	0.7000	0.7203	479.91	723.26	1203.2	0.6808	0.7590	1.4398	**640**
650	494.941	0.020 33	0.6885	0.7088	481.90	721.07	1203.0	0.6829	0.7554	1.4382	**650**
660	496.618	0.020 37	0.6772	0.6976	483.88	718.89	1202.8	0.6849	0.7518	1.4367	**660**
670	498.275	0.020 40	0.6663	0.6867	485.84	716.72	1202.6	0.6869	0.7482	1.4351	**670**
680	499.914	0.020 44	0.6557	0.6761	487.79	714.57	1202.4	0.6889	0.7447	1.4336	**680**
690	501.534	0.020 48	0.6454	0.6659	489.71	712.42	1202.1	0.6909	0.7412	1.4320	**690**
700	503.137	0.020 51	0.6354	0.6559	491.62	710.29	1201.9	0.6928	0.7377	1.4305	**700**
710	504.722	0.020 55	0.6256	0.6461	493.51	708.16	1201.7	0.6947	0.7343	1.4290	**710**
720	506.290	0.020 59	0.6161	0.6367	495.38	706.05	1201.4	0.6966	0.7309	1.4276	**720**
730	507.842	0.020 62	0.6068	0.6275	497.24	703.94	1201.2	0.6985	0.7276	1.4261	**730**
740	509.377	0.020 66	0.5978	0.6185	499.08	701.85	1200.9	0.7004	0.7243	1.4246	**740**
750	510.897	0.020 70	0.5890	0.6097	500.91	699.76	1200.7	0.7022	0.7210	1.4232	**750**
760	512.401	0.020 73	0.5805	0.6012	502.72	697.69	1200.4	0.7040	0.7177	1.4218	**760**
770	513.890	0.020 77	0.5721	0.5929	504.52	695.62	1200.1	0.7059	0.7145	1.4204	**770**
780	515.365	0.020 81	0.5640	0.5848	506.30	693.56	1199.9	0.7076	0.7113	1.4190	**780**
790	516.825	0.020 84	0.5561	0.5769	508.07	691.51	1199.6	0.7094	0.7082	1.4176	**790**
800	518.271	0.020 88	0.5483	0.5692	509.83	689.47	1199.3	0.7112	0.7050	1.4162	**800**
810	519.703	0.020 92	0.5407	0.5616	511.57	687.43	1199.0	0.7129	0.7019	1.4148	**810**
820	521.122	0.020 95	0.5333	0.5543	513.30	685.41	1198.7	0.7146	0.6988	1.4135	**820**
830	522.528	0.020 99	0.5261	0.5471	515.02	683.39	1198.4	0.7164	0.6958	1.4121	**830**
840	523.921	0.021 02	0.5190	0.5401	516.73	681.38	1198.1	0.7181	0.6927	1.4108	**840**
850	525.301	0.021 06	0.5121	0.5332	518.42	679.37	1197.8	0.7197	0.6897	1.4095	**850**
860	526.669	0.021 10	0.5054	0.5265	520.10	677.37	1197.5	0.7214	0.6868	1.4082	**860**
870	528.025	0.021 13	0.4988	0.5199	521.77	675.38	1197.2	0.7231	0.6838	1.4068	**870**
880	529.369	0.021 17	0.4923	0.5135	523.43	673.40	1196.8	0.7247	0.6809	1.4056	**880**
890	530.701	0.021 20	0.4860	0.5072	525.08	671.42	1196.5	0.7263	0.6779	1.4043	**890**
900	532.022	0.021 24	0.4798	0.5011	526.72	669.44	1196.2	0.7279	0.6751	1.4030	**900**
910	533.332	0.021 28	0.4738	0.4950	528.35	667.48	1195.8	0.7295	0.6722	1.4017	**910**
920	534.631	0.021 31	0.4678	0.4892	529.96	665.52	1195.5	0.7311	0.6693	1.4005	**920**
930	535.919	0.021 35	0.4620	0.4834	531.57	663.56	1195.1	0.7327	0.6665	1.3992	**930**
940	537.197	0.021 38	0.4563	0.4777	533.17	661.61	1194.8	0.7343	0.6637	1.3980	**940**
950	538.464	0.021 42	0.4508	0.4722	534.76	659.66	1194.4	0.7358	0.6609	1.3967	**950**
960	539.721	0.021 46	0.4453	0.4667	536.34	657.72	1194.1	0.7374	0.6581	1.3955	**960**
970	540.969	0.021 49	0.4399	0.4614	537.91	655.79	1193.7	0.7389	0.6554	1.3943	**970**
980	542.206	0.021 53	0.4347	0.4562	539.47	653.86	1193.3	0.7404	0.6526	1.3930	**980**
990	543.434	0.021 56	0.4295	0.4511	541.02	651.93	1193.0	0.7419	0.6499	1.3918	**990**
1000	544.652	0.021 60	0.4245	0.4461	542.56	650.01	1192.6	0.7434	0.6472	1.3906	**1000**
1020	547.061	0.021 67	0.4146	0.4363	545.62	646.19	1191.8	0.7464	0.6419	1.3882	**1020**
1040	549.434	0.021 74	0.4052	0.4269	548.65	642.37	1191.0	0.7493	0.6366	1.3859	**1040**
1060	551.773	0.021 82	0.3960	0.4178	551.65	638.58	1190.2	0.7522	0.6314	1.3835	**1060**
1080	554.078	0.021 89	0.3872	0.4091	554.61	634.80	1189.4	0.7550	0.6262	1.3812	**1080**
1100	556.351	0.021 96	0.3787	0.4006	557.55	631.03	1188.6	0.7578	0.6211	1.3789	**1100**

Table U-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, ft^3/lb_m			Enthalpy, Btu/lb_m			Entropy, $Btu/(lb_m \cdot {}^\circ R)$			p
psia	t (°F)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**psia**
1120	558.592	0.022 03	0.3705	0.3925	560.46	627.28	1187.7	0.7606	0.6160	1.3767	**1120**
1140	560.802	0.022 11	0.3625	0.3846	563.34	623.53	1186.9	0.7634	0.6110	1.3744	**1140**
1160	562.984	0.022 18	0.3548	0.3770	566.20	619.80	1186.0	0.7661	0.6061	1.3722	**1160**
1180	565.136	0.022 25	0.3474	0.3696	569.03	616.08	1185.1	0.7688	0.6012	1.3699	**1180**
1200	567.261	0.022 33	0.3401	0.3625	571.84	612.37	1184.2	0.7714	0.5963	1.3677	**1200**
1220	569.359	0.022 40	0.3331	0.3555	574.62	608.67	1183.3	0.7741	0.5915	1.3656	**1220**
1240	571.431	0.022 47	0.3264	0.3488	577.39	604.98	1182.4	0.7767	0.5867	1.3634	**1240**
1260	573.477	0.022 55	0.3198	0.3423	580.13	601.29	1181.4	0.7792	0.5820	1.3612	**1260**
1280	575.498	0.022 62	0.3134	0.3360	582.85	597.61	1180.5	0.7818	0.5773	1.3591	**1280**
1300	577.495	0.022 70	0.3072	0.3299	585.55	593.94	1179.5	0.7843	0.5727	1.3570	**1300**
1320	579.469	0.022 77	0.3011	0.3239	588.23	590.28	1178.5	0.7868	0.5680	1.3549	**1320**
1340	581.419	0.022 85	0.2953	0.3181	590.89	586.61	1177.5	0.7893	0.5635	1.3528	**1340**
1360	583.348	0.022 92	0.2896	0.3125	593.53	582.96	1176.5	0.7917	0.5589	1.3507	**1360**
1380	585.255	0.023 00	0.2840	0.3070	596.16	579.30	1175.5	0.7942	0.5544	1.3486	**1380**
1400	587.140	0.023 07	0.2786	0.3017	598.77	575.65	1174.4	0.7966	0.5499	1.3465	**1400**
1420	589.005	0.023 15	0.2733	0.2965	601.36	572.01	1173.4	0.7990	0.5455	1.3444	**1420**
1440	590.850	0.023 23	0.2682	0.2914	603.94	568.36	1172.3	0.8014	0.5410	1.3424	**1440**
1460	592.675	0.023 31	0.2632	0.2865	606.51	564.71	1171.2	0.8037	0.5366	1.3403	**1460**
1480	594.480	0.023 38	0.2583	0.2817	609.05	561.07	1170.1	0.8061	0.5323	1.3383	**1480**
1500	596.267	0.023 46	0.2536	0.2770	611.59	557.43	1169.0	0.8084	0.5279	1.3363	**1500**
1520	598.036	0.023 54	0.2489	0.2725	614.11	553.78	1167.9	0.8107	0.5236	1.3343	**1520**
1540	599.787	0.023 62	0.2444	0.2680	616.62	550.14	1166.8	0.8130	0.5193	1.3322	**1540**
1560	601.520	0.023 70	0.2400	0.2637	619.12	546.49	1165.6	0.8152	0.5150	1.3302	**1560**
1580	603.235	0.023 78	0.2356	0.2594	621.60	542.85	1164.4	0.8175	0.5107	1.3282	**1580**
1600	604.934	0.023 86	0.2314	0.2553	624.07	539.20	1163.3	0.8197	0.5065	1.3262	**1600**
1620	606.617	0.023 94	0.2273	0.2512	626.54	535.54	1162.1	0.8220	0.5022	1.3242	**1620**
1640	608.283	0.024 03	0.2232	0.2472	628.99	531.88	1160.9	0.8242	0.4980	1.3222	**1640**
1660	609.934	0.024 11	0.2192	0.2434	631.43	528.22	1159.7	0.8264	0.4938	1.3202	**1660**
1680	611.569	0.024 19	0.2154	0.2396	633.86	524.56	1158.4	0.8286	0.4897	1.3182	**1680**
1700	613.189	0.024 28	0.2116	0.2358	636.28	520.88	1157.2	0.8307	0.4855	1.3163	**1700**
1720	614.794	0.024 36	0.2078	0.2322	638.70	517.21	1155.9	0.8329	0.4814	1.3143	**1720**
1740	616.385	0.024 45	0.2042	0.2286	641.10	513.52	1154.6	0.8351	0.4772	1.3123	**1740**
1760	617.961	0.024 53	0.2006	0.2252	643.50	509.83	1153.3	0.8372	0.4731	1.3103	**1760**
1780	619.524	0.024 62	0.1971	0.2217	645.89	506.13	1152.0	0.8393	0.4690	1.3083	**1780**
1800	621.072	0.024 71	0.1937	0.2184	648.27	502.42	1150.7	0.8415	0.4649	1.3063	**1800**
1820	622.607	0.024 80	0.1903	0.2151	650.65	498.70	1149.3	0.8436	0.4608	1.3044	**1820**
1840	624.129	0.024 89	0.1870	0.2119	653.02	494.97	1148.0	0.8457	0.4567	1.3024	**1840**
1860	625.638	0.024 98	0.1838	0.2087	655.38	491.23	1146.6	0.8478	0.4526	1.3004	**1860**
1880	627.134	0.025 07	0.1806	0.2056	657.74	487.48	1145.2	0.8499	0.4485	1.2984	**1880**
1900	628.617	0.025 16	0.1774	0.2026	660.09	483.72	1143.8	0.8519	0.4445	1.2964	**1900**
1920	630.088	0.025 25	0.1744	0.1996	662.44	479.95	1142.4	0.8540	0.4404	1.2944	**1920**
1940	631.547	0.025 35	0.1713	0.1967	664.78	476.16	1140.9	0.8561	0.4364	1.2924	**1940**
1960	632.994	0.025 44	0.1684	0.1938	667.13	472.36	1139.5	0.8581	0.4323	1.2904	**1960**
1980	634.430	0.025 54	0.1654	0.1910	669.46	468.54	1138.0	0.8602	0.4282	1.2884	**1980**
2000	635.853	0.025 63	0.1626	0.1882	671.80	464.70	1136.5	0.8622	0.4242	1.2864	**2000**
2020	637.266	0.025 73	0.1597	0.1855	674.13	460.85	1135.0	0.8643	0.4201	1.2844	**2020**
2040	638.667	0.025 83	0.1569	0.1828	676.46	456.99	1133.4	0.8663	0.4161	1.2824	**2040**
2060	640.057	0.025 93	0.1542	0.1801	678.79	453.10	1131.9	0.8683	0.4120	1.2803	**2060**
2080	641.437	0.026 04	0.1515	0.1775	681.12	449.19	1130.3	0.8704	0.4079	1.2783	**2080**
2100	642.806	0.026 14	0.1488	0.1750	683.44	445.27	1128.7	0.8724	0.4039	1.2763	**2100**
2120	644.164	0.026 24	0.1462	0.1724	685.77	441.32	1127.1	0.8744	0.3998	1.2742	**2120**
2140	645.512	0.026 35	0.1436	0.1700	688.10	437.35	1125.4	0.8764	0.3957	1.2722	**2140**
2160	646.850	0.026 46	0.1411	0.1675	690.43	433.35	1123.8	0.8784	0.3916	1.2701	**2160**
2180	648.178	0.026 57	0.1385	0.1651	692.76	429.34	1122.1	0.8805	0.3875	1.2680	**2180**
2200	649.496	0.026 68	0.1361	0.1627	695.09	425.29	1120.4	0.8825	0.3834	1.2659	**2200**
2220	650.804	0.026 79	0.1336	0.1604	697.42	421.22	1118.6	0.8845	0.3793	1.2638	**2220**
2240	652.103	0.026 90	0.1312	0.1581	699.76	417.13	1116.9	0.8865	0.3752	1.2617	**2240**
2260	653.392	0.027 02	0.1288	0.1558	702.11	413.00	1115.1	0.8885	0.3710	1.2596	**2260**
2280	654.672	0.027 14	0.1264	0.1536	704.45	408.85	1113.3	0.8905	0.3669	1.2574	**2280**
2300	655.942	0.027 26	0.1241	0.1514	706.80	404.66	1111.5	0.8926	0.3627	1.2553	**2300**

Table U-2 (continued). Properties of Saturated Water and Steam (Pressure)

p		Volume, ft^3/lb_m			Enthalpy, Btu/lb_m			Entropy, $Btu/(lb_m \cdot {}^\circ R)$			p
psia	t (°F)	v_L	Δv	v_V	h_L	Δh	h_V	s_L	Δs	s_V	**psia**
2320	657.204	0.027 38	0.1218	0.1492	709.16	400.44	1109.6	0.8946	0.3585	1.2531	**2320**
2340	658.456	0.027 50	0.1195	0.1470	711.52	396.19	1107.7	0.8966	0.3543	1.2509	**2340**
2360	659.700	0.027 63	0.1173	0.1449	713.89	391.91	1105.8	0.8986	0.3501	1.2487	**2360**
2380	660.935	0.027 76	0.1150	0.1428	716.27	387.59	1103.9	0.9007	0.3459	1.2465	**2380**
2400	662.162	0.027 89	0.1128	0.1407	718.67	383.23	1101.9	0.9027	0.3416	1.2443	**2400**
2420	663.380	0.028 03	0.1106	0.1387	721.07	378.83	1099.9	0.9048	0.3373	1.2421	**2420**
2440	664.589	0.028 16	0.1085	0.1366	723.48	374.38	1097.9	0.9068	0.3330	1.2398	**2440**
2460	665.791	0.028 30	0.1063	0.1346	725.90	369.88	1095.8	0.9089	0.3286	1.2375	**2460**
2480	666.984	0.028 44	0.1042	0.1326	728.33	365.34	1093.7	0.9109	0.3243	1.2352	**2480**
2500	668.169	0.028 59	0.1021	0.1307	730.78	360.74	1091.5	0.9130	0.3199	1.2329	**2500**
2520	669.346	0.028 74	0.1000	0.1287	733.25	356.10	1089.3	0.9151	0.3154	1.2305	**2520**
2540	670.515	0.028 89	0.0979	0.1268	735.72	351.39	1087.1	0.9172	0.3109	1.2281	**2540**
2560	671.677	0.029 05	0.0958	0.1249	738.22	346.63	1084.9	0.9193	0.3064	1.2257	**2560**
2580	672.830	0.029 21	0.0938	0.1230	740.74	341.80	1082.5	0.9214	0.3018	1.2233	**2580**
2600	673.976	0.029 38	0.0917	0.1211	743.27	336.91	1080.2	0.9236	0.2972	1.2208	**2600**
2620	675.115	0.029 55	0.0897	0.1192	745.83	331.95	1077.8	0.9257	0.2925	1.2183	**2620**
2640	676.246	0.029 72	0.0877	0.1174	748.41	326.91	1075.3	0.9279	0.2878	1.2157	**2640**
2660	677.370	0.029 90	0.0857	0.1156	751.02	321.79	1072.8	0.9301	0.2830	1.2131	**2660**
2680	678.486	0.030 08	0.0836	0.1137	753.65	316.59	1070.2	0.9323	0.2782	1.2105	**2680**
2700	679.595	0.030 28	0.0816	0.1119	756.32	311.29	1067.6	0.9346	0.2732	1.2078	**2700**
2720	680.697	0.030 47	0.0796	0.1101	759.02	305.90	1064.9	0.9368	0.2682	1.2051	**2720**
2740	681.792	0.030 68	0.0776	0.1083	761.75	300.41	1062.2	0.9391	0.2632	1.2023	**2740**
2760	682.880	0.030 89	0.0756	0.1065	764.52	294.80	1059.3	0.9415	0.2580	1.1995	**2760**
2780	683.961	0.031 11	0.0736	0.1047	767.34	289.07	1056.4	0.9438	0.2528	1.1966	**2780**
2800	685.035	0.031 34	0.0716	0.1029	770.20	283.21	1053.4	0.9462	0.2474	1.1936	**2800**
2820	686.102	0.031 58	0.0695	0.1011	773.11	277.21	1050.3	0.9487	0.2419	1.1906	**2820**
2840	687.162	0.031 82	0.067 50	0.099 33	776.08	271.04	1047.1	0.9512	0.2363	1.1875	**2840**
2860	688.216	0.032 08	0.065 45	0.097 53	779.11	264.71	1043.8	0.9537	0.2306	1.1843	**2860**
2880	689.263	0.032 36	0.063 37	0.095 72	782.21	258.19	1040.4	0.9563	0.2247	1.1810	**2880**
2900	690.304	0.032 64	0.061 26	0.093 91	785.39	251.46	1036.8	0.9590	0.2187	1.1776	**2900**
2920	691.337	0.032 95	0.059 13	0.092 08	788.66	244.49	1033.1	0.9617	0.2124	1.1741	**2920**
2940	692.364	0.033 27	0.056 96	0.090 23	792.03	237.25	1029.3	0.9645	0.2059	1.1705	**2940**
2960	693.385	0.033 61	0.054 75	0.088 36	795.51	229.72	1025.2	0.9674	0.1992	1.1667	**2960**
2980	694.399	0.033 98	0.052 48	0.086 46	799.12	221.84	1021.0	0.9704	0.1922	1.1627	**2980**
3000	695.407	0.034 38	0.050 15	0.084 53	802.90	213.56	1016.5	0.9736	0.1849	1.1585	**3000**
3020	696.408	0.034 81	0.047 73	0.082 54	806.85	204.81	1011.7	0.9769	0.1772	1.1541	**3020**
3040	697.402	0.035 28	0.045 22	0.080 50	811.03	195.49	1006.5	0.9804	0.1690	1.1494	**3040**
3060	698.390	0.035 81	0.042 57	0.078 38	815.49	185.48	1001.0	0.9842	0.1602	1.1443	**3060**
3080	699.371	0.036 40	0.039 76	0.076 16	820.30	174.59	994.90	0.9882	0.1506	1.1388	**3080**
3100	700.346	0.037 08	0.036 73	0.073 81	825.57	162.57	988.14	0.9926	0.1401	1.1328	**3100**
3120	701.313	0.037 88	0.033 39	0.071 27	831.49	148.98	980.47	0.9976	0.1283	1.1259	**3120**
3140	702.272	0.038 87	0.029 57	0.068 44	838.36	133.08	971.44	1.0034	0.1145	1.1179	**3140**
3160	703.223	0.040 17	0.024 95	0.065 12	846.86	113.31	960.17	1.0106	0.0974	1.1080	**3160**
3180	704.166	0.042 16	0.018 61	0.060 77	858.81	85.41	944.22	1.0207	0.0734	1.0941	**3180**
3190	704.633	0.043 87	0.013 76	0.057 62	868.24	63.53	931.77	1.0288	0.0546	1.0833	**3190**
3200	705.098	0.048 97	0.001 55	0.050 52	893.85	7.22	901.07	1.0507	0.0062	1.0569	**3200**
p_c	705.1028	0.049 75	0	0.049 75	897.48	0	897.48	1.0538	0	1.0538	p_c

$p_c \approx 3200.11$ psia

Table U-3. Properties of Superheated Steam and Compressed Water

t (°F)	**0.1 psia** (t_{sat} = 35.00 °F)			**0.2 psia** (t_{sat} = 53.13 °F)			**0.3 psia** (t_{sat} = 64.45 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 020	3.009	0.0061	0.016 027	21.204	0.0422	0.016 042	32.532	0.0641	Sat. Liq.
Sat. Vap.	2945.0	1076.5	2.1762	1525.9	1084.4	2.1156	1039.4	1089.4	2.0805	Sat. Vap.
32	0.016 022	-0.018	0.0000	0.016 022	-0.018	0.0000	0.016 022	-0.017	0.0000	**32**
40	2974.9	1078.8	2.1807	0.016 020	8.032	0.0162	0.016 020	8.033	0.0162	**40**
50	3034.7	1083.2	2.1896	0.016 024	18.066	0.0361	0.016 024	18.066	0.0361	**50**
60	3094.4	1087.7	2.1983	1546.5	1087.5	2.1216	0.016 035	28.079	0.0555	**60**
70	3154.1	1092.2	2.2068	1576.4	1092.0	2.1302	1050.6	1091.9	2.0853	**70**
80	3213.7	1096.6	2.2152	1606.3	1096.5	2.1386	1070.5	1096.4	2.0937	**80**
90	3273.4	1101.1	2.2234	1636.2	1101.0	2.1468	1090.5	1100.9	2.1020	**90**
100	3333.1	1105.6	2.2314	1666.1	1105.5	2.1549	1110.4	1105.4	2.1101	**100**
110	3392.7	1110.1	2.2394	1695.9	1110.0	2.1628	1130.4	1109.9	2.1180	**110**
120	3452.3	1114.5	2.2471	1725.8	1114.5	2.1706	1150.3	1114.4	2.1258	**120**
130	3512.0	1119.0	2.2548	1755.6	1118.9	2.1783	1170.2	1118.9	2.1335	**130**
140	3571.6	1123.5	2.2623	1785.5	1123.4	2.1858	1190.1	1123.4	2.1411	**140**
150	3631.2	1128.0	2.2698	1815.3	1127.9	2.1933	1210.0	1127.9	2.1485	**150**
160	3690.8	1132.5	2.2771	1845.1	1132.4	2.2006	1229.9	1132.4	2.1558	**160**
170	3750.4	1137.0	2.2843	1874.9	1136.9	2.2078	1249.8	1136.9	2.1630	**170**
180	3810.0	1141.5	2.2913	1904.8	1141.4	2.2149	1269.7	1141.4	2.1701	**180**
190	3869.6	1146.0	2.2983	1934.6	1145.9	2.2219	1289.6	1145.9	2.1771	**190**
200	3929.2	1150.5	2.3052	1964.4	1150.4	2.2288	1309.4	1150.4	2.1840	**200**
210	3988.8	1155.0	2.3120	1994.2	1154.9	2.2355	1329.3	1154.9	2.1908	**210**
220	4048.4	1159.5	2.3187	2024.0	1159.5	2.2422	1349.2	1159.4	2.1975	**220**
230	4108.0	1164.0	2.3253	2053.8	1164.0	2.2489	1369.1	1164.0	2.2041	**230**
240	4167.6	1168.5	2.3318	2083.6	1168.5	2.2554	1389.0	1168.5	2.2107	**240**
250	4227.2	1173.1	2.3383	2113.4	1173.1	2.2618	1408.8	1173.0	2.2171	**250**
260	4286.7	1177.6	2.3446	2143.2	1177.6	2.2682	1428.7	1177.6	2.2235	**260**
270	4346.3	1182.2	2.3509	2173.0	1182.1	2.2745	1448.6	1182.1	2.2297	**270**
280	4405.9	1186.7	2.3571	2202.8	1186.7	2.2807	1468.4	1186.7	2.2359	**280**
290	4465.5	1191.3	2.3632	2232.6	1191.3	2.2868	1488.3	1191.2	2.2421	**290**
300	4525.1	1195.8	2.3693	2262.4	1195.8	2.2928	1508.2	1195.8	2.2481	**300**
310	4584.7	1200.4	2.3752	2292.2	1200.4	2.2988	1528.1	1200.4	2.2541	**310**
320	4644.2	1205.0	2.3812	2322.0	1205.0	2.3047	1547.9	1205.0	2.2600	**320**
330	4703.8	1209.6	2.3870	2351.8	1209.6	2.3106	1567.8	1209.6	2.2659	**330**
340	4763.4	1214.2	2.3928	2381.6	1214.2	2.3164	1587.7	1214.1	2.2716	**340**
350	4823.0	1218.8	2.3985	2411.4	1218.8	2.3221	1607.5	1218.7	2.2774	**350**
360	4882.6	1223.4	2.4041	2441.2	1223.4	2.3277	1627.4	1223.4	2.2830	**360**
370	4942.1	1228.0	2.4097	2471.0	1228.0	2.3333	1647.2	1228.0	2.2886	**370**
380	5001.7	1232.6	2.4153	2500.8	1232.6	2.3389	1667.1	1232.6	2.2942	**380**
390	5061.3	1237.3	2.4208	2530.6	1237.2	2.3443	1687.0	1237.2	2.2996	**390**
400	5120.9	1241.9	2.4262	2560.3	1241.9	2.3498	1706.8	1241.9	2.3051	**400**
410	5180.4	1246.5	2.4316	2590.1	1246.5	2.3551	1726.7	1246.5	2.3104	**410**
420	5240.0	1251.2	2.4369	2619.9	1251.2	2.3605	1746.6	1251.2	2.3158	**420**
430	5299.6	1255.8	2.4421	2649.7	1255.8	2.3657	1766.4	1255.8	2.3210	**430**
440	5359.2	1260.5	2.4474	2679.5	1260.5	2.3709	1786.3	1260.5	2.3262	**440**
450	5418.7	1265.2	2.4525	2709.3	1265.2	2.3761	1806.1	1265.2	2.3314	**450**
460	5478.3	1269.9	2.4576	2739.1	1269.9	2.3812	1826.0	1269.9	2.3365	**460**
470	5537.9	1274.6	2.4627	2768.9	1274.6	2.3863	1845.9	1274.5	2.3416	**470**
480	5597.5	1279.3	2.4677	2798.7	1279.2	2.3913	1865.7	1279.2	2.3466	**480**
490	5657.0	1284.0	2.4727	2828.4	1284.0	2.3963	1885.6	1283.9	2.3516	**490**
500	5716.6	1288.7	2.4777	2858.2	1288.7	2.4013	1905.5	1288.7	2.3565	**500**
510	5776.2	1293.4	2.4826	2888.0	1293.4	2.4061	1925.3	1293.4	2.3614	**510**
520	5835.7	1298.1	2.4874	2917.8	1298.1	2.4110	1945.2	1298.1	2.3663	**520**
530	5895.3	1302.9	2.4922	2947.6	1302.9	2.4158	1965.0	1302.9	2.3711	**530**
540	5954.9	1307.6	2.4970	2977.4	1307.6	2.4206	1984.9	1307.6	2.3759	**540**
550	6014.5	1312.4	2.5017	3007.2	1312.4	2.4253	2004.8	1312.4	2.3806	**550**
560	6074.0	1317.1	2.5064	3037.0	1317.1	2.4300	2024.6	1317.1	2.3853	**560**
570	6133.6	1321.9	2.5111	3066.8	1321.9	2.4347	2044.5	1321.9	2.3900	**570**
580	6193.2	1326.7	2.5157	3096.5	1326.7	2.4393	2064.3	1326.7	2.3946	**580**
590	6252.8	1331.5	2.5203	3126.3	1331.5	2.4439	2084.2	1331.5	2.3992	**590**
600	6312.3	1336.3	2.5248	3156.1	1336.3	2.4484	2104.0	1336.2	2.4037	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**0.4 psia** (t_{sat} = 72.83 °F)			**0.5 psia** (t_{sat} = 79.55 °F)			**0.6 psia** (t_{sat} = 85.18 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 057	40.911	0.0799	0.016 073	47.618	0.0925	0.016 087	53.242	0.1028	Sat. Liq.
Sat. Vap.	791.86	1093.0	2.0557	641.32	1095.9	2.0366	539.90	1098.3	2.0210	Sat. Vap.
32	0.016 022	-0.017	0.0000	0.016 022	-0.017	0.0000	0.016 022	-0.016	0.0000	**32**
40	0.016 020	8.033	0.0162	0.016 020	8.033	0.0162	0.016 020	8.034	0.0162	**40**
50	0.016 024	18.066	0.0361	0.016 024	18.067	0.0361	0.016 024	18.067	0.0361	**50**
60	0.016 035	28.079	0.0555	0.016 035	28.079	0.0555	0.016 035	28.080	0.0555	**60**
70	0.016 052	38.078	0.0746	0.016 052	38.079	0.0746	0.016 052	38.079	0.0746	**70**
80	802.62	1096.3	2.0618	641.87	1096.1	2.0369	0.016 074	48.069	0.0933	**80**
90	817.62	1100.8	2.0701	653.89	1100.7	2.0453	544.74	1100.6	2.0250	**90**
100	832.60	1105.3	2.0782	665.90	1105.2	2.0535	554.76	1105.1	2.0332	**100**
110	847.56	1109.8	2.0862	677.89	1109.7	2.0614	564.77	1109.6	2.0412	**110**
120	862.52	1114.3	2.0940	689.86	1114.2	2.0693	574.76	1114.1	2.0491	**120**
130	877.47	1118.8	2.1017	701.84	1118.7	2.0770	584.75	1118.7	2.0568	**130**
140	892.41	1123.3	2.1093	713.80	1123.2	2.0846	594.73	1123.2	2.0644	**140**
150	907.35	1127.8	2.1167	725.76	1127.7	2.0920	604.70	1127.7	2.0719	**150**
160	922.28	1132.3	2.1240	737.71	1132.2	2.0994	614.67	1132.2	2.0792	**160**
170	937.21	1136.8	2.1312	749.66	1136.8	2.1066	624.63	1136.7	2.0864	**170**
180	952.14	1141.3	2.1384	761.61	1141.3	2.1137	634.59	1141.2	2.0935	**180**
190	967.06	1145.8	2.1454	773.56	1145.8	2.1207	644.55	1145.7	2.1005	**190**
200	981.98	1150.3	2.1523	785.50	1150.3	2.1276	654.51	1150.3	2.1075	**200**
210	996.90	1154.9	2.1591	797.44	1154.8	2.1344	664.46	1154.8	2.1143	**210**
220	1011.8	1159.4	2.1658	809.37	1159.4	2.1411	674.41	1159.3	2.1210	**220**
230	1026.7	1163.9	2.1724	821.31	1163.9	2.1477	684.36	1163.9	2.1276	**230**
240	1041.6	1168.5	2.1789	833.24	1168.4	2.1543	694.31	1168.4	2.1341	**240**
250	1056.5	1173.0	2.1853	845.17	1173.0	2.1607	704.25	1172.9	2.1406	**250**
260	1071.5	1177.5	2.1917	857.10	1177.5	2.1671	714.20	1177.5	2.1470	**260**
270	1086.4	1182.1	2.1980	869.03	1182.1	2.1734	724.14	1182.0	2.1532	**270**
280	1101.3	1186.7	2.2042	880.96	1186.6	2.1796	734.08	1186.6	2.1594	**280**
290	1116.2	1191.2	2.2103	892.88	1191.2	2.1857	744.03	1191.2	2.1656	**290**
300	1131.1	1195.8	2.2164	904.81	1195.8	2.1918	753.97	1195.7	2.1716	**300**
310	1146.0	1200.4	2.2224	916.73	1200.3	2.1977	763.90	1200.3	2.1776	**310**
320	1160.9	1204.9	2.2283	928.66	1204.9	2.2037	773.84	1204.9	2.1835	**320**
330	1175.8	1209.5	2.2341	940.58	1209.5	2.2095	783.78	1209.5	2.1894	**330**
340	1190.7	1214.1	2.2399	952.51	1214.1	2.2153	793.72	1214.1	2.1952	**340**
350	1205.6	1218.7	2.2456	964.43	1218.7	2.2210	803.66	1218.7	2.2009	**350**
360	1220.5	1223.3	2.2513	976.35	1223.3	2.2267	813.59	1223.3	2.2066	**360**
370	1235.4	1228.0	2.2569	988.27	1227.9	2.2323	823.53	1227.9	2.2122	**370**
380	1250.3	1232.6	2.2624	1000.2	1232.6	2.2378	833.46	1232.6	2.2177	**380**
390	1265.2	1237.2	2.2679	1012.1	1237.2	2.2433	843.40	1237.2	2.2232	**390**
400	1280.1	1241.9	2.2733	1024.0	1241.8	2.2487	853.33	1241.8	2.2286	**400**
410	1295.0	1246.5	2.2787	1036.0	1246.5	2.2541	863.27	1246.5	2.2340	**410**
420	1309.9	1251.2	2.2840	1047.9	1251.1	2.2594	873.20	1251.1	2.2393	**420**
430	1324.8	1255.8	2.2893	1059.8	1255.8	2.2647	883.13	1255.8	2.2446	**430**
440	1339.7	1260.5	2.2945	1071.7	1260.5	2.2699	893.07	1260.5	2.2498	**440**
450	1354.6	1265.2	2.2997	1083.6	1265.1	2.2751	903.00	1265.1	2.2550	**450**
460	1369.5	1269.8	2.3048	1095.5	1269.8	2.2802	912.93	1269.8	2.2601	**460**
470	1384.4	1274.5	2.3099	1107.5	1274.5	2.2853	922.87	1274.5	2.2652	**470**
480	1399.3	1279.2	2.3149	1119.4	1279.2	2.2903	932.80	1279.2	2.2702	**480**
490	1414.2	1283.9	2.3199	1131.3	1283.9	2.2953	942.73	1283.9	2.2752	**490**
500	1429.1	1288.7	2.3248	1143.2	1288.6	2.3002	952.66	1288.6	2.2801	**500**
510	1444.0	1293.4	2.3297	1155.1	1293.4	2.3051	962.59	1293.4	2.2850	**510**
520	1458.8	1298.1	2.3346	1167.1	1298.1	2.3100	972.53	1298.1	2.2899	**520**
530	1473.7	1302.8	2.3394	1179.0	1302.8	2.3148	982.46	1302.8	2.2947	**530**
540	1488.6	1307.6	2.3442	1190.9	1307.6	2.3196	992.39	1307.6	2.2995	**540**
550	1503.5	1312.3	2.3489	1202.8	1312.3	2.3243	1002.3	1312.3	2.3042	**550**
560	1518.4	1317.1	2.3536	1214.7	1317.1	2.3290	1012.3	1317.1	2.3089	**560**
570	1533.3	1321.9	2.3582	1226.6	1321.9	2.3336	1022.2	1321.9	2.3135	**570**
580	1548.2	1326.7	2.3629	1238.6	1326.7	2.3383	1032.1	1326.6	2.3182	**580**
590	1563.1	1331.4	2.3674	1250.5	1331.4	2.3428	1042.0	1331.4	2.3227	**590**
600	1578.0	1336.2	2.3720	1262.4	1336.2	2.3474	1052.0	1336.2	2.3273	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**0.8 psia** (t_{sat} = 94.34 °F)			**1.0 psia** (t_{sat} = 101.69 °F)			**1.2 psia** (t_{sat} = 107.87 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 113	62.389	0.1195	0.016 137	69.728	0.1326	0.016 158	75.892	0.1435	Sat. Liq.
Sat. Vap.	411.57	1102.3	1.9965	333.51	1105.4	1.9776	280.89	1108.1	1.9623	Sat. Vap.
32	0.016 022	-0.016	0.0000	0.016 022	-0.015	0.0000	0.016 022	-0.015	0.0000	**32**
40	0.016 020	8.034	0.0162	0.016 020	8.035	0.0162	0.016 020	8.035	0.0162	**40**
50	0.016 024	18.068	0.0361	0.016 024	18.068	0.0361	0.016 024	18.069	0.0361	**50**
60	0.016 035	28.080	0.0555	0.016 035	28.081	0.0555	0.016 035	28.081	0.0555	**60**
70	0.016 052	38.079	0.0746	0.016 052	38.080	0.0746	0.016 052	38.080	0.0746	**70**
80	0.016 074	48.070	0.0933	0.016 074	48.070	0.0933	0.016 074	48.071	0.0933	**80**
90	0.016 100	58.055	0.1116	0.016 100	58.055	0.1116	0.016 100	58.056	0.1116	**90**
100	415.84	1104.9	2.0012	0.016 131	68.037	0.1296	0.016 131	68.038	0.1296	**100**
110	423.37	1109.4	2.0092	338.52	1109.3	1.9844	281.96	1109.1	1.9640	**110**
120	430.88	1114.0	2.0171	344.55	1113.8	1.9923	287.00	1113.6	1.9720	**120**
130	438.38	1118.5	2.0249	350.57	1118.4	2.0001	292.02	1118.2	1.9798	**130**
140	445.88	1123.0	2.0325	356.58	1122.9	2.0077	297.04	1122.8	1.9874	**140**
150	453.37	1127.6	2.0400	362.58	1127.4	2.0152	302.05	1127.3	1.9950	**150**
160	460.86	1132.1	2.0473	368.58	1132.0	2.0226	307.05	1131.9	2.0024	**160**
170	468.34	1136.6	2.0546	374.57	1136.5	2.0299	312.05	1136.4	2.0096	**170**
180	475.82	1141.1	2.0617	380.56	1141.0	2.0370	317.05	1140.9	2.0168	**180**
190	483.30	1145.7	2.0687	386.55	1145.6	2.0440	322.05	1145.5	2.0238	**190**
200	490.77	1150.2	2.0757	392.53	1150.1	2.0510	327.04	1150.0	2.0308	**200**
210	498.24	1154.7	2.0825	398.51	1154.6	2.0578	332.03	1154.6	2.0376	**210**
220	505.71	1159.3	2.0892	404.49	1159.2	2.0645	337.01	1159.1	2.0443	**220**
230	513.18	1163.8	2.0958	410.47	1163.7	2.0712	342.00	1163.7	2.0510	**230**
240	520.65	1168.3	2.1024	416.45	1168.3	2.0777	346.98	1168.2	2.0575	**240**
250	528.11	1172.9	2.1088	422.42	1172.8	2.0842	351.96	1172.8	2.0640	**250**
260	535.57	1177.4	2.1152	428.40	1177.4	2.0905	356.94	1177.3	2.0704	**260**
270	543.03	1182.0	2.1215	434.37	1181.9	2.0968	361.92	1181.9	2.0767	**270**
280	550.49	1186.6	2.1277	440.34	1186.5	2.1030	366.90	1186.5	2.0829	**280**
290	557.95	1191.1	2.1338	446.31	1191.1	2.1092	371.88	1191.0	2.0890	**290**
300	565.41	1195.7	2.1399	452.28	1195.7	2.1152	376.85	1195.6	2.0951	**300**
310	572.87	1200.3	2.1459	458.24	1200.2	2.1212	381.83	1200.2	2.1011	**310**
320	580.32	1204.9	2.1518	464.21	1204.8	2.1272	386.80	1204.8	2.1070	**320**
330	587.78	1209.5	2.1577	470.18	1209.4	2.1330	391.78	1209.4	2.1129	**330**
340	595.23	1214.1	2.1634	476.14	1214.0	2.1388	396.75	1214.0	2.1187	**340**
350	602.69	1218.7	2.1692	482.11	1218.6	2.1445	401.72	1218.6	2.1244	**350**
360	610.14	1223.3	2.1748	488.07	1223.2	2.1502	406.70	1223.2	2.1301	**360**
370	617.60	1227.9	2.1804	494.04	1227.9	2.1558	411.67	1227.8	2.1357	**370**
380	625.05	1232.5	2.1860	500.00	1232.5	2.1613	416.64	1232.5	2.1412	**380**
390	632.50	1237.2	2.1915	505.97	1237.1	2.1668	421.61	1237.1	2.1467	**390**
400	639.96	1241.8	2.1969	511.93	1241.8	2.1723	426.58	1241.7	2.1521	**400**
410	647.41	1246.4	2.2023	517.89	1246.4	2.1776	431.55	1246.4	2.1575	**410**
420	654.86	1251.1	2.2076	523.86	1251.1	2.1830	436.52	1251.1	2.1628	**420**
430	662.31	1255.8	2.2129	529.82	1255.7	2.1882	441.49	1255.7	2.1681	**430**
440	669.76	1260.4	2.2181	535.78	1260.4	2.1935	446.46	1260.4	2.1733	**440**
450	677.21	1265.1	2.2232	541.74	1265.1	2.1986	451.43	1265.1	2.1785	**450**
460	684.66	1269.8	2.2284	547.70	1269.8	2.2038	456.40	1269.8	2.1836	**460**
470	692.12	1274.5	2.2334	553.66	1274.5	2.2088	461.36	1274.5	2.1887	**470**
480	699.57	1279.2	2.2385	559.63	1279.2	2.2139	466.33	1279.2	2.1937	**480**
490	707.02	1283.9	2.2435	565.59	1283.9	2.2188	471.30	1283.9	2.1987	**490**
500	714.47	1288.6	2.2484	571.55	1288.6	2.2238	476.27	1288.6	2.2037	**500**
510	721.92	1293.3	2.2533	577.51	1293.3	2.2287	481.24	1293.3	2.2086	**510**
520	729.37	1298.1	2.2581	583.47	1298.1	2.2335	486.20	1298.0	2.2134	**520**
530	736.82	1302.8	2.2630	589.43	1302.8	2.2383	491.17	1302.8	2.2182	**530**
540	744.26	1307.6	2.2677	595.39	1307.5	2.2431	496.14	1307.5	2.2230	**540**
550	751.71	1312.3	2.2725	601.35	1312.3	2.2479	501.11	1312.3	2.2277	**550**
560	759.16	1317.1	2.2772	607.31	1317.1	2.2526	506.07	1317.0	2.2324	**560**
570	766.61	1321.8	2.2818	613.27	1321.8	2.2572	511.04	1321.8	2.2371	**570**
580	774.06	1326.6	2.2864	619.23	1326.6	2.2618	516.01	1326.6	2.2417	**580**
590	781.51	1331.4	2.2910	625.19	1331.4	2.2664	520.97	1331.4	2.2463	**590**
600	788.96	1336.2	2.2956	631.15	1336.2	2.2710	525.94	1336.2	2.2509	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**0.8 psia** (t_{sat} = 94.34 °F)			**1.0 psia** (t_{sat} = 101.69 °F)			**1.2 psia** (t_{sat} = 107.87 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	796.41	1341.0	2.3001	637.11	1341.0	2.2755	530.91	1341.0	2.2554	**610**
620	803.86	1345.8	2.3046	643.07	1345.8	2.2800	535.87	1345.8	2.2598	**620**
630	811.30	1350.7	2.3090	649.03	1350.6	2.2844	540.84	1350.6	2.2643	**630**
640	818.75	1355.5	2.3134	654.99	1355.5	2.2888	545.81	1355.5	2.2687	**640**
650	826.20	1360.3	2.3178	660.94	1360.3	2.2932	550.77	1360.3	2.2731	**650**
660	833.65	1365.2	2.3221	666.90	1365.2	2.2975	555.74	1365.1	2.2774	**660**
670	841.10	1370.0	2.3265	672.86	1370.0	2.3019	560.71	1370.0	2.2817	**670**
680	848.55	1374.9	2.3307	678.82	1374.9	2.3061	565.67	1374.9	2.2860	**680**
690	855.99	1379.8	2.3350	684.78	1379.7	2.3104	570.64	1379.7	2.2903	**690**
700	863.44	1384.6	2.3392	690.74	1384.6	2.3146	575.60	1384.6	2.2945	**700**
710	870.89	1389.5	2.3434	696.70	1389.5	2.3188	580.57	1389.5	2.2987	**710**
720	878.34	1394.4	2.3476	702.66	1394.4	2.3230	585.54	1394.4	2.3029	**720**
730	885.79	1399.3	2.3517	708.61	1399.3	2.3271	590.50	1399.3	2.3070	**730**
740	893.23	1404.2	2.3558	714.57	1404.2	2.3312	595.47	1404.2	2.3111	**740**
750	900.68	1409.2	2.3599	720.53	1409.2	2.3353	600.43	1409.1	2.3152	**750**
760	908.13	1414.1	2.3640	726.49	1414.1	2.3394	605.40	1414.1	2.3193	**760**
770	915.58	1419.0	2.3680	732.45	1419.0	2.3434	610.36	1419.0	2.3233	**770**
780	923.02	1424.0	2.3720	738.41	1424.0	2.3474	615.33	1424.0	2.3273	**780**
790	930.47	1428.9	2.3760	744.37	1428.9	2.3514	620.29	1428.9	2.3313	**790**
800	937.92	1433.9	2.3800	750.32	1433.9	2.3554	625.26	1433.9	2.3353	**800**
820	952.81	1443.9	2.3878	762.24	1443.9	2.3632	635.19	1443.9	2.3431	**820**
840	967.71	1453.9	2.3956	774.16	1453.9	2.3710	645.12	1453.9	2.3509	**840**
860	982.60	1463.9	2.4032	786.07	1463.9	2.3786	655.05	1463.9	2.3585	**860**
880	997.50	1474.0	2.4108	797.99	1474.0	2.3862	664.98	1474.0	2.3661	**880**
900	1012.4	1484.1	2.4183	809.91	1484.1	2.3937	674.91	1484.1	2.3736	**900**
920	1027.3	1494.2	2.4257	821.82	1494.2	2.4011	684.84	1494.2	2.3810	**920**
940	1042.2	1504.4	2.4330	833.74	1504.4	2.4084	694.77	1504.4	2.3883	**940**
960	1057.1	1514.6	2.4403	845.65	1514.6	2.4157	704.70	1514.6	2.3956	**960**
980	1072.0	1524.8	2.4474	857.57	1524.8	2.4228	714.63	1524.8	2.4027	**980**
1000	1086.9	1535.1	2.4545	869.48	1535.1	2.4299	724.56	1535.1	2.4098	**1000**
1020	1101.8	1545.5	2.4616	881.40	1545.5	2.4370	734.49	1545.4	2.4169	**1020**
1040	1116.7	1555.8	2.4685	893.31	1555.8	2.4439	744.42	1555.8	2.4238	**1040**
1060	1131.5	1566.2	2.4754	905.23	1566.2	2.4508	754.35	1566.2	2.4307	**1060**
1080	1146.4	1576.7	2.4822	917.15	1576.6	2.4576	764.28	1576.6	2.4375	**1080**
1100	1161.3	1587.1	2.4890	929.06	1587.1	2.4644	774.21	1587.1	2.4443	**1100**
1120	1176.2	1597.6	2.4957	940.98	1597.6	2.4711	784.14	1597.6	2.4510	**1120**
1140	1191.1	1608.2	2.5023	952.89	1608.2	2.4777	794.07	1608.2	2.4576	**1140**
1160	1206.0	1618.8	2.5089	964.81	1618.8	2.4843	804.00	1618.8	2.4642	**1160**
1180	1220.9	1629.4	2.5154	976.72	1629.4	2.4908	813.93	1629.4	2.4707	**1180**
1200	1235.8	1640.0	2.5219	988.64	1640.0	2.4973	823.86	1640.0	2.4772	**1200**
1220	1250.7	1650.7	2.5283	1000.6	1650.7	2.5037	833.79	1650.7	2.4836	**1220**
1240	1265.6	1661.5	2.5346	1012.5	1661.5	2.5100	843.72	1661.5	2.4899	**1240**
1260	1280.5	1672.3	2.5409	1024.4	1672.2	2.5163	853.65	1672.2	2.4962	**1260**
1280	1295.4	1683.1	2.5472	1036.3	1683.1	2.5226	863.58	1683.1	2.5025	**1280**
1300	1310.3	1693.9	2.5534	1048.2	1693.9	2.5288	873.50	1693.9	2.5087	**1300**
1320	1325.2	1704.8	2.5595	1060.1	1704.8	2.5349	883.43	1704.8	2.5148	**1320**
1340	1340.1	1715.7	2.5656	1072.0	1715.7	2.5410	893.36	1715.7	2.5209	**1340**
1360	1354.9	1726.7	2.5717	1084.0	1726.7	2.5471	903.29	1726.7	2.5270	**1360**
1380	1369.8	1737.7	2.5777	1095.9	1737.7	2.5531	913.22	1737.7	2.5330	**1380**
1400	1384.7	1748.7	2.5837	1107.8	1748.7	2.5591	923.15	1748.7	2.5390	**1400**
1420	1399.6	1759.8	2.5896	1119.7	1759.8	2.5650	933.08	1759.8	2.5449	**1420**
1440	1414.5	1770.9	2.5955	1131.6	1770.9	2.5709	943.01	1770.9	2.5508	**1440**
1460	1429.4	1782.0	2.6013	1143.5	1782.0	2.5767	952.94	1782.0	2.5566	**1460**
1480	1444.3	1793.2	2.6071	1155.4	1793.2	2.5825	962.87	1793.2	2.5624	**1480**
1500	1459.2	1804.5	2.6129	1167.4	1804.5	2.5883	972.79	1804.5	2.5682	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1.4 psia** (t_{sat} = 113.21 °F)			**1.6 psia** (t_{sat} = 117.93 °F)			**1.8 psia** (t_{sat} = 122.17 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 178	81.225	0.1529	0.016 196	85.939	0.1611	0.016 214	90.172	0.1684	Sat. Liq.
Sat. Vap.	242.95	1110.3	1.9493	214.27	1112.3	1.9381	191.80	1114.1	1.9283	Sat. Vap.
32	0.016 022	-0.014	0.0000	0.016 022	-0.013	0.0000	0.016 022	-0.013	0.0000	**32**
40	0.016 020	8.036	0.0162	0.016 020	8.036	0.0162	0.016 020	8.037	0.0162	**40**
50	0.016 024	18.069	0.0361	0.016 024	18.070	0.0361	0.016 024	18.071	0.0361	**50**
60	0.016 035	28.082	0.0555	0.016 035	28.082	0.0555	0.016 035	28.083	0.0555	**60**
70	0.016 052	38.081	0.0746	0.016 052	38.082	0.0746	0.016 052	38.082	0.0746	**70**
80	0.016 074	48.071	0.0933	0.016 074	48.072	0.0933	0.016 074	48.072	0.0933	**80**
90	0.016 100	58.056	0.1116	0.016 100	58.057	0.1116	0.016 100	58.057	0.1116	**90**
100	0.016 131	68.038	0.1296	0.016 131	68.039	0.1296	0.016 131	68.039	0.1296	**100**
110	0.016 166	78.019	0.1473	0.016 166	78.020	0.1473	0.016 166	78.020	0.1473	**110**
120	245.89	1113.5	1.9547	215.05	1113.3	1.9398	0.016 205	88.002	0.1647	**120**
130	250.20	1118.1	1.9626	218.84	1117.9	1.9477	194.44	1117.8	1.9345	**130**
140	254.51	1122.6	1.9703	222.61	1122.5	1.9554	197.81	1122.4	1.9422	**140**
150	258.81	1127.2	1.9778	226.38	1127.1	1.9629	201.16	1127.0	1.9498	**150**
160	263.11	1131.8	1.9852	230.15	1131.6	1.9704	204.51	1131.5	1.9572	**160**
170	267.40	1136.3	1.9925	233.91	1136.2	1.9777	207.86	1136.1	1.9645	**170**
180	271.69	1140.9	1.9997	237.67	1140.8	1.9848	211.20	1140.7	1.9717	**180**
190	275.97	1145.4	2.0067	241.42	1145.3	1.9919	214.54	1145.2	1.9788	**190**
200	280.26	1149.9	2.0137	245.17	1149.9	1.9989	217.88	1149.8	1.9858	**200**
210	284.54	1154.5	2.0205	248.92	1154.4	2.0057	221.21	1154.3	1.9926	**210**
220	288.81	1159.0	2.0273	252.66	1159.0	2.0125	224.55	1158.9	1.9994	**220**
230	293.09	1163.6	2.0339	256.41	1163.5	2.0191	227.88	1163.5	2.0061	**230**
240	297.36	1168.2	2.0405	260.15	1168.1	2.0257	231.21	1168.0	2.0126	**240**
250	301.64	1172.7	2.0469	263.89	1172.7	2.0322	234.53	1172.6	2.0191	**250**
260	305.91	1177.3	2.0533	267.63	1177.2	2.0385	237.86	1177.2	2.0255	**260**
270	310.18	1181.8	2.0596	271.37	1181.8	2.0449	241.18	1181.7	2.0318	**270**
280	314.45	1186.4	2.0659	275.11	1186.4	2.0511	244.51	1186.3	2.0381	**280**
290	318.71	1191.0	2.0720	278.84	1191.0	2.0572	247.83	1190.9	2.0442	**290**
300	322.98	1195.6	2.0781	282.58	1195.5	2.0633	251.15	1195.5	2.0503	**300**
310	327.25	1200.2	2.0841	286.31	1200.1	2.0693	254.47	1200.1	2.0563	**310**
320	331.51	1204.8	2.0900	290.04	1204.7	2.0752	257.79	1204.7	2.0622	**320**
330	335.78	1209.4	2.0959	293.78	1209.3	2.0811	261.11	1209.3	2.0681	**330**
340	340.04	1214.0	2.1017	297.51	1213.9	2.0869	264.43	1213.9	2.0739	**340**
350	344.30	1218.6	2.1074	301.24	1218.5	2.0926	267.75	1218.5	2.0796	**350**
360	348.57	1223.2	2.1131	304.97	1223.2	2.0983	271.06	1223.1	2.0853	**360**
370	352.83	1227.8	2.1187	308.70	1227.8	2.1039	274.38	1227.8	2.0909	**370**
380	357.09	1232.4	2.1242	312.43	1232.4	2.1095	277.70	1232.4	2.0965	**380**
390	361.35	1237.1	2.1297	316.16	1237.1	2.1150	281.01	1237.0	2.1019	**390**
400	365.61	1241.7	2.1351	319.89	1241.7	2.1204	284.33	1241.7	2.1074	**400**
410	369.88	1246.4	2.1405	323.62	1246.3	2.1258	287.64	1246.3	2.1128	**410**
420	374.14	1251.0	2.1458	327.35	1251.0	2.1311	290.96	1251.0	2.1181	**420**
430	378.40	1255.7	2.1511	331.08	1255.7	2.1364	294.27	1255.7	2.1234	**430**
440	382.66	1260.4	2.1563	334.81	1260.3	2.1416	297.59	1260.3	2.1286	**440**
450	386.92	1265.1	2.1615	338.53	1265.0	2.1468	300.90	1265.0	2.1338	**450**
460	391.18	1269.7	2.1666	342.26	1269.7	2.1519	304.22	1269.7	2.1389	**460**
470	395.44	1274.4	2.1717	345.99	1274.4	2.1570	307.53	1274.4	2.1440	**470**
480	399.69	1279.1	2.1767	349.72	1279.1	2.1620	310.84	1279.1	2.1490	**480**
490	403.95	1283.8	2.1817	353.44	1283.8	2.1670	314.16	1283.8	2.1540	**490**
500	408.21	1288.6	2.1867	357.17	1288.5	2.1719	317.47	1288.5	2.1589	**500**
510	412.47	1293.3	2.1916	360.90	1293.3	2.1768	320.78	1293.3	2.1638	**510**
520	416.73	1298.0	2.1964	364.62	1298.0	2.1817	324.10	1298.0	2.1687	**520**
530	420.99	1302.8	2.2012	368.35	1302.7	2.1865	327.41	1302.7	2.1735	**530**
540	425.25	1307.5	2.2060	372.08	1307.5	2.1913	330.72	1307.5	2.1783	**540**
550	429.50	1312.3	2.2107	375.80	1312.3	2.1960	334.03	1312.2	2.1830	**550**
560	433.76	1317.0	2.2154	379.53	1317.0	2.2007	337.35	1317.0	2.1877	**560**
570	438.02	1321.8	2.2201	383.25	1321.8	2.2054	340.66	1321.8	2.1924	**570**
580	442.28	1326.6	2.2247	386.98	1326.6	2.2100	343.97	1326.6	2.1970	**580**
590	446.54	1331.4	2.2293	390.71	1331.4	2.2146	347.28	1331.3	2.2016	**590**
600	450.79	1336.2	2.2339	394.43	1336.2	2.2191	350.60	1336.1	2.2061	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1.4 psia** (t_{sat} = 113.21 °F)			**1.6 psia** (t_{sat} = 117.93 °F)			**1.8 psia** (t_{sat} = 122.17 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	455.05	1341.0	2.2384	398.16	1341.0	2.2236	353.91	1341.0	2.2106	**610**
620	459.31	1345.8	2.2428	401.88	1345.8	2.2281	357.22	1345.8	2.2151	**620**
630	463.57	1350.6	2.2473	405.61	1350.6	2.2326	360.53	1350.6	2.2196	**630**
640	467.82	1355.4	2.2517	409.33	1355.4	2.2370	363.84	1355.4	2.2240	**640**
650	472.08	1360.3	2.2561	413.06	1360.3	2.2414	367.15	1360.3	2.2284	**650**
660	476.34	1365.1	2.2604	416.78	1365.1	2.2457	370.47	1365.1	2.2327	**660**
670	480.59	1370.0	2.2647	420.51	1370.0	2.2500	373.78	1370.0	2.2370	**670**
680	484.85	1374.8	2.2690	424.23	1374.8	2.2543	377.09	1374.8	2.2413	**680**
690	489.11	1379.7	2.2733	427.96	1379.7	2.2586	380.40	1379.7	2.2456	**690**
700	493.36	1384.6	2.2775	431.68	1384.6	2.2628	383.71	1384.6	2.2498	**700**
710	497.62	1389.5	2.2817	435.41	1389.5	2.2670	387.02	1389.5	2.2540	**710**
720	501.88	1394.4	2.2859	439.13	1394.4	2.2712	390.33	1394.4	2.2582	**720**
730	506.13	1399.3	2.2900	442.86	1399.3	2.2753	393.64	1399.3	2.2623	**730**
740	510.39	1404.2	2.2941	446.58	1404.2	2.2794	396.96	1404.2	2.2664	**740**
750	514.65	1409.1	2.2982	450.31	1409.1	2.2835	400.27	1409.1	2.2705	**750**
760	518.90	1414.1	2.3023	454.03	1414.1	2.2876	403.58	1414.0	2.2746	**760**
770	523.16	1419.0	2.3063	457.76	1419.0	2.2916	406.89	1419.0	2.2786	**770**
780	527.42	1424.0	2.3103	461.48	1424.0	2.2956	410.20	1423.9	2.2826	**780**
790	531.67	1428.9	2.3143	465.21	1428.9	2.2996	413.51	1428.9	2.2866	**790**
800	535.93	1433.9	2.3183	468.93	1433.9	2.3036	416.82	1433.9	2.2906	**800**
820	544.44	1443.8	2.3261	476.38	1443.8	2.3114	423.44	1443.8	2.2984	**820**
840	552.95	1453.8	2.3339	483.83	1453.8	2.3191	430.06	1453.8	2.3062	**840**
860	561.47	1463.9	2.3415	491.28	1463.9	2.3268	436.68	1463.9	2.3138	**860**
880	569.98	1473.9	2.3491	498.73	1473.9	2.3344	443.31	1473.9	2.3214	**880**
900	578.49	1484.0	2.3566	506.17	1484.0	2.3419	449.93	1484.0	2.3289	**900**
920	587.00	1494.2	2.3640	513.62	1494.2	2.3493	456.55	1494.2	2.3363	**920**
940	595.51	1504.4	2.3713	521.07	1504.4	2.3566	463.17	1504.4	2.3436	**940**
960	604.03	1514.6	2.3786	528.52	1514.6	2.3638	469.79	1514.6	2.3509	**960**
980	612.54	1524.8	2.3857	535.97	1524.8	2.3710	476.41	1524.8	2.3580	**980**
1000	621.05	1535.1	2.3928	543.41	1535.1	2.3781	483.03	1535.1	2.3651	**1000**
1020	629.56	1545.4	2.3999	550.86	1545.4	2.3851	489.65	1545.4	2.3721	**1020**
1040	638.07	1555.8	2.4068	558.31	1555.8	2.3921	496.27	1555.8	2.3791	**1040**
1060	646.58	1566.2	2.4137	565.76	1566.2	2.3990	502.89	1566.2	2.3860	**1060**
1080	655.09	1576.6	2.4205	573.20	1576.6	2.4058	509.51	1576.6	2.3928	**1080**
1100	663.61	1587.1	2.4273	580.65	1587.1	2.4126	516.13	1587.1	2.3996	**1100**
1120	672.12	1597.6	2.4340	588.10	1597.6	2.4193	522.75	1597.6	2.4063	**1120**
1140	680.63	1608.2	2.4406	595.55	1608.2	2.4259	529.37	1608.2	2.4129	**1140**
1160	689.14	1618.8	2.4472	602.99	1618.7	2.4325	535.99	1618.7	2.4195	**1160**
1180	697.65	1629.4	2.4537	610.44	1629.4	2.4390	542.61	1629.4	2.4260	**1180**
1200	706.16	1640.0	2.4602	617.89	1640.0	2.4454	549.23	1640.0	2.4325	**1200**
1220	714.67	1650.7	2.4666	625.34	1650.7	2.4519	555.85	1650.7	2.4389	**1220**
1240	723.18	1661.5	2.4729	632.78	1661.5	2.4582	562.47	1661.5	2.4452	**1240**
1260	731.69	1672.2	2.4792	640.23	1672.2	2.4645	569.09	1672.2	2.4515	**1260**
1280	740.20	1683.1	2.4855	647.68	1683.0	2.4708	575.71	1683.0	2.4578	**1280**
1300	748.72	1693.9	2.4917	655.12	1693.9	2.4770	582.33	1693.9	2.4640	**1300**
1320	757.23	1704.8	2.4978	662.57	1704.8	2.4831	588.95	1704.8	2.4701	**1320**
1340	765.74	1715.7	2.5039	670.02	1715.7	2.4892	595.57	1715.7	2.4762	**1340**
1360	774.25	1726.7	2.5100	677.46	1726.7	2.4953	602.19	1726.7	2.4823	**1360**
1380	782.76	1737.7	2.5160	684.91	1737.7	2.5013	608.81	1737.7	2.4883	**1380**
1400	791.27	1748.7	2.5220	692.36	1748.7	2.5072	615.43	1748.7	2.4943	**1400**
1420	799.78	1759.8	2.5279	699.81	1759.8	2.5132	622.05	1759.8	2.5002	**1420**
1440	808.29	1770.9	2.5338	707.25	1770.9	2.5191	628.67	1770.9	2.5061	**1440**
1460	816.80	1782.0	2.5396	714.70	1782.0	2.5249	635.29	1782.0	2.5119	**1460**
1480	825.31	1793.2	2.5454	722.15	1793.2	2.5307	641.91	1793.2	2.5177	**1480**
1500	833.82	1804.5	2.5512	729.59	1804.5	2.5365	648.53	1804.5	2.5235	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**2.0 psia** (t_{sat} = 126.03 °F)			**2.2 psia** (t_{sat} = 129.56 °F)			**2.4 psia** (t_{sat} = 132.83 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 230	94.019	0.1750	0.016 245	97.551	0.1810	0.016 260	100.82	0.1865	Sat. Liq.
Sat. Vap.	173.72	1115.8	1.9195	158.84	1117.2	1.9115	146.37	1118.6	1.9043	Sat. Vap.
32	0.016 022	-0.012	0.0000	0.016 022	-0.012	0.0000	0.016 022	-0.011	0.0000	**32**
40	0.016 020	8.038	0.0162	0.016 020	8.038	0.0162	0.016 020	8.039	0.0162	**40**
50	0.016 024	18.071	0.0361	0.016 024	18.072	0.0361	0.016 024	18.072	0.0361	**50**
60	0.016 035	28.084	0.0555	0.016 035	28.084	0.0555	0.016 035	28.085	0.0555	**60**
70	0.016 052	38.083	0.0746	0.016 052	38.083	0.0746	0.016 052	38.084	0.0746	**70**
80	0.016 074	48.073	0.0933	0.016 074	48.074	0.0933	0.016 074	48.074	0.0933	**80**
90	0.016 100	58.058	0.1116	0.016 100	58.058	0.1116	0.016 100	58.059	0.1116	**90**
100	0.016 131	68.040	0.1296	0.016 131	68.040	0.1296	0.016 131	68.041	0.1296	**100**
110	0.016 166	78.021	0.1473	0.016 166	78.021	0.1473	0.016 166	78.022	0.1473	**110**
120	0.016 205	88.002	0.1647	0.016 205	88.003	0.1647	0.016 205	88.003	0.1647	**120**
130	174.93	1117.6	1.9226	158.96	1117.4	1.9119	0.016 247	97.987	0.1817	**130**
140	177.96	1122.2	1.9304	161.72	1122.1	1.9197	148.19	1122.0	1.9099	**140**
150	180.99	1126.8	1.9380	164.48	1126.7	1.9273	150.72	1126.6	1.9176	**150**
160	184.01	1131.4	1.9455	167.23	1131.3	1.9348	153.24	1131.2	1.9251	**160**
170	187.02	1136.0	1.9528	169.97	1135.9	1.9422	155.76	1135.8	1.9324	**170**
180	190.03	1140.6	1.9600	172.71	1140.5	1.9494	158.28	1140.4	1.9397	**180**
190	193.04	1145.1	1.9671	175.45	1145.1	1.9565	160.79	1145.0	1.9468	**190**
200	196.05	1149.7	1.9741	178.19	1149.6	1.9635	163.30	1149.5	1.9538	**200**
210	199.05	1154.3	1.9809	180.92	1154.2	1.9703	165.81	1154.1	1.9607	**210**
220	202.05	1158.8	1.9877	183.65	1158.8	1.9771	168.31	1158.7	1.9674	**220**
230	205.05	1163.4	1.9944	186.38	1163.3	1.9838	170.82	1163.3	1.9741	**230**
240	208.05	1168.0	2.0009	189.11	1167.9	1.9904	173.32	1167.9	1.9807	**240**
250	211.05	1172.5	2.0074	191.83	1172.5	1.9969	175.82	1172.4	1.9872	**250**
260	214.04	1177.1	2.0138	194.56	1177.1	2.0033	178.32	1177.0	1.9936	**260**
270	217.04	1181.7	2.0202	197.28	1181.6	2.0096	180.81	1181.6	1.9999	**270**
280	220.03	1186.3	2.0264	200.00	1186.2	2.0158	183.31	1186.2	2.0062	**280**
290	223.02	1190.9	2.0325	202.72	1190.8	2.0220	185.80	1190.8	2.0124	**290**
300	226.01	1195.5	2.0386	205.44	1195.4	2.0281	188.30	1195.4	2.0184	**300**
310	229.00	1200.0	2.0446	208.16	1200.0	2.0341	190.79	1200.0	2.0245	**310**
320	231.99	1204.6	2.0506	210.88	1204.6	2.0400	193.28	1204.6	2.0304	**320**
330	234.98	1209.2	2.0564	213.59	1209.2	2.0459	195.78	1209.2	2.0363	**330**
340	237.96	1213.9	2.0622	216.31	1213.8	2.0517	198.27	1213.8	2.0421	**340**
350	240.95	1218.5	2.0680	219.03	1218.4	2.0574	200.76	1218.4	2.0478	**350**
360	243.94	1223.1	2.0736	221.74	1223.1	2.0631	203.25	1223.0	2.0535	**360**
370	246.92	1227.7	2.0793	224.46	1227.7	2.0687	205.74	1227.7	2.0591	**370**
380	249.91	1232.4	2.0848	227.17	1232.3	2.0743	208.23	1232.3	2.0647	**380**
390	252.89	1237.0	2.0903	229.89	1237.0	2.0798	210.71	1236.9	2.0702	**390**
400	255.88	1241.6	2.0957	232.60	1241.6	2.0852	213.20	1241.6	2.0756	**400**
410	258.86	1246.3	2.1011	235.31	1246.3	2.0906	215.69	1246.3	2.0810	**410**
420	261.85	1251.0	2.1065	238.03	1250.9	2.0959	218.18	1250.9	2.0863	**420**
430	264.83	1255.6	2.1117	240.74	1255.6	2.1012	220.67	1255.6	2.0916	**430**
440	267.81	1260.3	2.1170	243.45	1260.3	2.1064	223.15	1260.3	2.0968	**440**
450	270.80	1265.0	2.1221	246.17	1265.0	2.1116	225.64	1264.9	2.1020	**450**
460	273.78	1269.7	2.1273	248.88	1269.7	2.1167	228.13	1269.6	2.1071	**460**
470	276.76	1274.4	2.1323	251.59	1274.4	2.1218	230.61	1274.3	2.1122	**470**
480	279.75	1279.1	2.1374	254.30	1279.1	2.1269	233.10	1279.0	2.1172	**480**
490	282.73	1283.8	2.1424	257.01	1283.8	2.1318	235.59	1283.8	2.1222	**490**
500	285.71	1288.5	2.1473	259.73	1288.5	2.1368	238.07	1288.5	2.1272	**500**
510	288.69	1293.2	2.1522	262.44	1293.2	2.1417	240.56	1293.2	2.1321	**510**
520	291.68	1298.0	2.1571	265.15	1298.0	2.1465	243.04	1297.9	2.1369	**520**
530	294.66	1302.7	2.1619	267.86	1302.7	2.1514	245.53	1302.7	2.1418	**530**
540	297.64	1307.5	2.1667	270.57	1307.4	2.1561	248.01	1307.4	2.1465	**540**
550	300.62	1312.2	2.1714	273.28	1312.2	2.1609	250.50	1312.2	2.1513	**550**
560	303.60	1317.0	2.1761	275.99	1317.0	2.1656	252.98	1317.0	2.1560	**560**
570	306.58	1321.8	2.1807	278.70	1321.7	2.1702	255.47	1321.7	2.1606	**570**
580	309.56	1326.5	2.1854	281.41	1326.5	2.1749	257.95	1326.5	2.1653	**580**
590	312.55	1331.3	2.1900	284.12	1331.3	2.1794	260.44	1331.3	2.1698	**590**
600	315.53	1336.1	2.1945	286.83	1336.1	2.1840	262.92	1336.1	2.1744	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**2.0 psia** (t_{sat} = 126.03 °F)			**2.2 psia** (t_{sat} = 129.56 °F)			**2.4 psia** (t_{sat} = 132.83 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	318.51	1340.9	2.1990	289.54	1340.9	2.1885	265.41	1340.9	2.1789	**610**
620	321.49	1345.8	2.2035	292.25	1345.7	2.1930	267.89	1345.7	2.1834	**620**
630	324.47	1350.6	2.2079	294.96	1350.6	2.1974	270.38	1350.6	2.1878	**630**
640	327.45	1355.4	2.2124	297.67	1355.4	2.2018	272.86	1355.4	2.1922	**640**
650	330.43	1360.2	2.2167	300.38	1360.2	2.2062	275.35	1360.2	2.1966	**650**
660	333.41	1365.1	2.2211	303.09	1365.1	2.2106	277.83	1365.1	2.2010	**660**
670	336.39	1370.0	2.2254	305.80	1369.9	2.2149	280.31	1369.9	2.2053	**670**
680	339.37	1374.8	2.2297	308.51	1374.8	2.2192	282.80	1374.8	2.2096	**680**
690	342.35	1379.7	2.2340	311.22	1379.7	2.2234	285.28	1379.7	2.2138	**690**
700	345.33	1384.6	2.2382	313.93	1384.6	2.2277	287.77	1384.6	2.2181	**700**
710	348.31	1389.5	2.2424	316.64	1389.5	2.2319	290.25	1389.4	2.2223	**710**
720	351.29	1394.4	2.2465	319.35	1394.4	2.2360	292.73	1394.3	2.2264	**720**
730	354.27	1399.3	2.2507	322.06	1399.3	2.2402	295.22	1399.2	2.2306	**730**
740	357.25	1404.2	2.2548	324.77	1404.2	2.2443	297.70	1404.2	2.2347	**740**
750	360.23	1409.1	2.2589	327.48	1409.1	2.2484	300.18	1409.1	2.2388	**750**
760	363.21	1414.0	2.2630	330.19	1414.0	2.2524	302.67	1414.0	2.2428	**760**
770	366.19	1419.0	2.2670	332.90	1419.0	2.2565	305.15	1419.0	2.2469	**770**
780	369.17	1423.9	2.2710	335.61	1423.9	2.2605	307.63	1423.9	2.2509	**780**
790	372.15	1428.9	2.2750	338.32	1428.9	2.2645	310.12	1428.9	2.2549	**790**
800	375.13	1433.9	2.2789	341.02	1433.9	2.2684	312.60	1433.8	2.2588	**800**
820	381.09	1443.8	2.2868	346.44	1443.8	2.2763	317.57	1443.8	2.2667	**820**
840	387.05	1453.8	2.2945	351.86	1453.8	2.2840	322.53	1453.8	2.2744	**840**
860	393.01	1463.9	2.3022	357.28	1463.8	2.2917	327.50	1463.8	2.2821	**860**
880	398.97	1473.9	2.3098	362.70	1473.9	2.2993	332.47	1473.9	2.2897	**880**
900	404.93	1484.0	2.3173	368.11	1484.0	2.3068	337.43	1484.0	2.2972	**900**
920	410.89	1494.2	2.3247	373.53	1494.2	2.3142	342.40	1494.2	2.3046	**920**
940	416.85	1504.3	2.3320	378.95	1504.3	2.3215	347.37	1504.3	2.3119	**940**
960	422.81	1514.6	2.3392	384.37	1514.6	2.3287	352.33	1514.5	2.3191	**960**
980	428.76	1524.8	2.3464	389.78	1524.8	2.3359	357.30	1524.8	2.3263	**980**
1000	434.72	1535.1	2.3535	395.20	1535.1	2.3430	362.26	1535.1	2.3334	**1000**
1020	440.68	1545.4	2.3605	400.62	1545.4	2.3500	367.23	1545.4	2.3404	**1020**
1040	446.64	1555.8	2.3675	406.03	1555.8	2.3570	372.19	1555.8	2.3474	**1040**
1060	452.60	1566.2	2.3744	411.45	1566.2	2.3639	377.16	1566.2	2.3543	**1060**
1080	458.56	1576.6	2.3812	416.87	1576.6	2.3707	382.13	1576.6	2.3611	**1080**
1100	464.51	1587.1	2.3880	422.28	1587.1	2.3774	387.09	1587.1	2.3679	**1100**
1120	470.47	1597.6	2.3947	427.70	1597.6	2.3841	392.06	1597.6	2.3745	**1120**
1140	476.43	1608.2	2.4013	433.12	1608.1	2.3908	397.02	1608.1	2.3812	**1140**
1160	482.39	1618.7	2.4079	438.53	1618.7	2.3974	401.99	1618.7	2.3878	**1160**
1180	488.35	1629.4	2.4144	443.95	1629.4	2.4039	406.95	1629.4	2.3943	**1180**
1200	494.31	1640.0	2.4208	449.37	1640.0	2.4103	411.92	1640.0	2.4007	**1200**
1220	500.26	1650.7	2.4273	454.78	1650.7	2.4167	416.88	1650.7	2.4072	**1220**
1240	506.22	1661.5	2.4336	460.20	1661.5	2.4231	421.85	1661.5	2.4135	**1240**
1260	512.18	1672.2	2.4399	465.62	1672.2	2.4294	426.81	1672.2	2.4198	**1260**
1280	518.14	1683.0	2.4462	471.03	1683.0	2.4357	431.78	1683.0	2.4261	**1280**
1300	524.09	1693.9	2.4524	476.45	1693.9	2.4419	436.74	1693.9	2.4323	**1300**
1320	530.05	1704.8	2.4585	481.86	1704.8	2.4480	441.71	1704.8	2.4384	**1320**
1340	536.01	1715.7	2.4646	487.28	1715.7	2.4541	446.67	1715.7	2.4445	**1340**
1360	541.97	1726.7	2.4707	492.70	1726.7	2.4602	451.64	1726.7	2.4506	**1360**
1380	547.93	1737.7	2.4767	498.11	1737.7	2.4662	456.60	1737.7	2.4566	**1380**
1400	553.88	1748.7	2.4826	503.53	1748.7	2.4721	461.57	1748.7	2.4625	**1400**
1420	559.84	1759.8	2.4886	508.94	1759.8	2.4781	466.53	1759.8	2.4685	**1420**
1440	565.80	1770.9	2.4945	514.36	1770.9	2.4839	471.50	1770.9	2.4744	**1440**
1460	571.76	1782.0	2.5003	519.78	1782.0	2.4898	476.46	1782.0	2.4802	**1460**
1480	577.71	1793.2	2.5061	525.19	1793.2	2.4956	481.43	1793.2	2.4860	**1480**
1500	583.67	1804.5	2.5119	530.61	1804.5	2.5013	486.39	1804.4	2.4918	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**2.6 psia** (t_{sat} = 135.88 °F)			**2.8 psia** (t_{sat} = 138.73 °F)			**3.0 psia** (t_{sat} = 141.42 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 273	103.86	0.1916	0.016 287	106.71	0.1964	0.016 299	109.39	0.2009	Sat. Liq.
Sat. Vap.	135.77	1119.9	1.8977	126.65	1121.1	1.8915	118.70	1122.2	1.8858	Sat. Vap.
32	0.016 022	-0.010	0.0000	0.016 022	-0.010	0.0000	0.016 022	-0.009	0.0000	**32**
40	0.016 020	8.039	0.0162	0.016 020	8.040	0.0162	0.016 020	8.041	0.0162	**40**
50	0.016 024	18.073	0.0361	0.016 024	18.073	0.0361	0.016 024	18.074	0.0361	**50**
60	0.016 035	28.085	0.0555	0.016 035	28.086	0.0555	0.016 035	28.086	0.0555	**60**
70	0.016 052	38.084	0.0746	0.016 052	38.085	0.0746	0.016 052	38.085	0.0746	**70**
80	0.016 074	48.075	0.0933	0.016 074	48.075	0.0933	0.016 074	48.076	0.0933	**80**
90	0.016 100	58.060	0.1116	0.016 100	58.060	0.1116	0.016 100	58.061	0.1116	**90**
100	0.016 131	68.041	0.1296	0.016 131	68.042	0.1296	0.016 131	68.042	0.1296	**100**
110	0.016 166	78.022	0.1473	0.016 166	78.023	0.1473	0.016 166	78.023	0.1473	**110**
120	0.016 205	88.004	0.1647	0.016 205	88.004	0.1647	0.016 205	88.005	0.1647	**120**
130	0.016 247	97.988	0.1817	0.016 247	97.988	0.1817	0.016 247	97.989	0.1817	**130**
140	136.74	1121.8	1.9009	126.92	1121.7	1.8925	0.016 293	107.98	0.1985	**140**
150	139.08	1126.5	1.9086	129.10	1126.3	1.9002	120.45	1126.2	1.8925	**150**
160	141.41	1131.1	1.9161	131.27	1131.0	1.9078	122.48	1130.9	1.9000	**160**
170	143.74	1135.7	1.9235	133.43	1135.6	1.9152	124.50	1135.5	1.9074	**170**
180	146.07	1140.3	1.9307	135.60	1140.2	1.9224	126.52	1140.1	1.9147	**180**
190	148.39	1144.9	1.9378	137.75	1144.8	1.9296	128.54	1144.7	1.9219	**190**
200	150.71	1149.5	1.9448	139.91	1149.4	1.9366	130.55	1149.3	1.9289	**200**
210	153.02	1154.0	1.9517	142.06	1154.0	1.9435	132.56	1153.9	1.9358	**210**
220	155.34	1158.6	1.9585	144.21	1158.6	1.9503	134.57	1158.5	1.9426	**220**
230	157.65	1163.2	1.9652	146.36	1163.1	1.9570	136.58	1163.1	1.9493	**230**
240	159.96	1167.8	1.9718	148.51	1167.7	1.9636	138.58	1167.7	1.9559	**240**
250	162.27	1172.4	1.9783	150.65	1172.3	1.9701	140.59	1172.3	1.9624	**250**
260	164.58	1177.0	1.9847	152.80	1176.9	1.9765	142.59	1176.9	1.9689	**260**
270	166.88	1181.5	1.9911	154.94	1181.5	1.9828	144.59	1181.4	1.9752	**270**
280	169.19	1186.1	1.9973	157.08	1186.1	1.9891	146.59	1186.0	1.9814	**280**
290	171.49	1190.7	2.0035	159.22	1190.7	1.9953	148.59	1190.6	1.9876	**290**
300	173.79	1195.3	2.0096	161.36	1195.3	2.0014	150.59	1195.2	1.9937	**300**
310	176.10	1199.9	2.0156	163.50	1199.9	2.0074	152.58	1199.8	1.9997	**310**
320	178.40	1204.5	2.0215	165.64	1204.5	2.0133	154.58	1204.5	2.0057	**320**
330	180.70	1209.1	2.0274	167.78	1209.1	2.0192	156.58	1209.1	2.0116	**330**
340	183.00	1213.8	2.0332	169.91	1213.7	2.0250	158.57	1213.7	2.0174	**340**
350	185.30	1218.4	2.0390	172.05	1218.3	2.0308	160.56	1218.3	2.0231	**350**
360	187.60	1223.0	2.0446	174.18	1223.0	2.0364	162.56	1222.9	2.0288	**360**
370	189.90	1227.6	2.0503	176.32	1227.6	2.0421	164.55	1227.6	2.0344	**370**
380	192.19	1232.3	2.0558	178.45	1232.2	2.0476	166.54	1232.2	2.0400	**380**
390	194.49	1236.9	2.0613	180.59	1236.9	2.0531	168.54	1236.9	2.0455	**390**
400	196.79	1241.6	2.0668	182.72	1241.5	2.0586	170.53	1241.5	2.0509	**400**
410	199.09	1246.2	2.0721	184.85	1246.2	2.0639	172.52	1246.2	2.0563	**410**
420	201.38	1250.9	2.0775	186.99	1250.9	2.0693	174.51	1250.8	2.0617	**420**
430	203.68	1255.6	2.0828	189.12	1255.5	2.0746	176.50	1255.5	2.0669	**430**
440	205.98	1260.2	2.0880	191.25	1260.2	2.0798	178.49	1260.2	2.0722	**440**
450	208.27	1264.9	2.0932	193.39	1264.9	2.0850	180.48	1264.9	2.0773	**450**
460	210.57	1269.6	2.0983	195.52	1269.6	2.0901	182.47	1269.6	2.0825	**460**
470	212.86	1274.3	2.1034	197.65	1274.3	2.0952	184.46	1274.3	2.0876	**470**
480	215.16	1279.0	2.1084	199.78	1279.0	2.1002	186.45	1279.0	2.0926	**480**
490	217.45	1283.7	2.1134	201.91	1283.7	2.1052	188.44	1283.7	2.0976	**490**
500	219.75	1288.5	2.1183	204.04	1288.4	2.1102	190.43	1288.4	2.1025	**500**
510	222.04	1293.2	2.1232	206.17	1293.2	2.1151	192.42	1293.1	2.1074	**510**
520	224.34	1297.9	2.1281	208.31	1297.9	2.1199	194.41	1297.9	2.1123	**520**
530	226.63	1302.7	2.1329	210.44	1302.6	2.1247	196.40	1302.6	2.1171	**530**
540	228.93	1307.4	2.1377	212.57	1307.4	2.1295	198.39	1307.4	2.1219	**540**
550	231.22	1312.2	2.1424	214.70	1312.2	2.1343	200.38	1312.1	2.1266	**550**
560	233.52	1316.9	2.1471	216.83	1316.9	2.1390	202.37	1316.9	2.1313	**560**
570	235.81	1321.7	2.1518	218.96	1321.7	2.1436	204.35	1321.7	2.1360	**570**
580	238.10	1326.5	2.1564	221.09	1326.5	2.1482	206.34	1326.5	2.1406	**580**
590	240.40	1331.3	2.1610	223.22	1331.3	2.1528	208.33	1331.3	2.1452	**590**
600	242.69	1336.1	2.1656	225.35	1336.1	2.1574	210.32	1336.1	2.1498	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**2.6 psia** (t_{sat} = 135.88 °F)			**2.8 psia** (t_{sat} = 138.73 °F)			**3.0 psia** (t_{sat} = 141.42 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	244.98	1340.9	2.1701	227.48	1340.9	2.1619	212.31	1340.9	2.1543	**610**
620	247.28	1345.7	2.1746	229.61	1345.7	2.1664	214.30	1345.7	2.1588	**620**
630	249.57	1350.5	2.1790	231.74	1350.5	2.1708	216.28	1350.5	2.1632	**630**
640	251.87	1355.4	2.1834	233.87	1355.4	2.1752	218.27	1355.3	2.1676	**640**
650	254.16	1360.2	2.1878	236.00	1360.2	2.1796	220.26	1360.2	2.1720	**650**
660	256.45	1365.1	2.1921	238.13	1365.1	2.1840	222.25	1365.0	2.1764	**660**
670	258.74	1369.9	2.1965	240.26	1369.9	2.1883	224.23	1369.9	2.1807	**670**
680	261.04	1374.8	2.2008	242.39	1374.8	2.1926	226.22	1374.8	2.1850	**680**
690	263.33	1379.7	2.2050	244.52	1379.6	2.1968	228.21	1379.6	2.1892	**690**
700	265.62	1384.5	2.2092	246.65	1384.5	2.2011	230.20	1384.5	2.1935	**700**
710	267.92	1389.4	2.2134	248.77	1389.4	2.2053	232.18	1389.4	2.1977	**710**
720	270.21	1394.3	2.2176	250.90	1394.3	2.2094	234.17	1394.3	2.2018	**720**
730	272.50	1399.2	2.2218	253.03	1399.2	2.2136	236.16	1399.2	2.2060	**730**
740	274.80	1404.2	2.2259	255.16	1404.1	2.2177	238.15	1404.1	2.2101	**740**
750	277.09	1409.1	2.2300	257.29	1409.1	2.2218	240.13	1409.1	2.2142	**750**
760	279.38	1414.0	2.2340	259.42	1414.0	2.2258	242.12	1414.0	2.2182	**760**
770	281.67	1419.0	2.2381	261.55	1418.9	2.2299	244.11	1418.9	2.2223	**770**
780	283.97	1423.9	2.2421	263.68	1423.9	2.2339	246.10	1423.9	2.2263	**780**
790	286.26	1428.9	2.2460	265.81	1428.9	2.2379	248.08	1428.8	2.2303	**790**
800	288.55	1433.8	2.2500	267.94	1433.8	2.2418	250.07	1433.8	2.2342	**800**
820	293.14	1443.8	2.2579	272.19	1443.8	2.2497	254.04	1443.8	2.2421	**820**
840	297.72	1453.8	2.2656	276.45	1453.8	2.2574	258.02	1453.8	2.2498	**840**
860	302.30	1463.8	2.2733	280.71	1463.8	2.2651	261.99	1463.8	2.2575	**860**
880	306.89	1473.9	2.2808	284.96	1473.9	2.2727	265.96	1473.9	2.2651	**880**
900	311.47	1484.0	2.2883	289.22	1484.0	2.2802	269.94	1484.0	2.2725	**900**
920	316.06	1494.2	2.2957	293.48	1494.1	2.2876	273.91	1494.1	2.2800	**920**
940	320.64	1504.3	2.3031	297.74	1504.3	2.2949	277.88	1504.3	2.2873	**940**
960	325.23	1514.5	2.3103	301.99	1514.5	2.3021	281.86	1514.5	2.2945	**960**
980	329.81	1524.8	2.3175	306.25	1524.8	2.3093	285.83	1524.8	2.3017	**980**
1000	334.39	1535.1	2.3246	310.51	1535.1	2.3164	289.80	1535.1	2.3088	**1000**
1020	338.98	1545.4	2.3316	314.76	1545.4	2.3234	293.78	1545.4	2.3158	**1020**
1040	343.56	1555.8	2.3386	319.02	1555.8	2.3304	297.75	1555.8	2.3228	**1040**
1060	348.14	1566.2	2.3454	323.28	1566.2	2.3373	301.72	1566.2	2.3297	**1060**
1080	352.73	1576.6	2.3523	327.53	1576.6	2.3441	305.69	1576.6	2.3365	**1080**
1100	357.31	1587.1	2.3590	331.79	1587.1	2.3509	309.67	1587.1	2.3432	**1100**
1120	361.90	1597.6	2.3657	336.04	1597.6	2.3576	313.64	1597.6	2.3499	**1120**
1140	366.48	1608.1	2.3724	340.30	1608.1	2.3642	317.61	1608.1	2.3566	**1140**
1160	371.06	1618.7	2.3789	344.56	1618.7	2.3708	321.58	1618.7	2.3632	**1160**
1180	375.65	1629.4	2.3855	348.81	1629.3	2.3773	325.56	1629.3	2.3697	**1180**
1200	380.23	1640.0	2.3919	353.07	1640.0	2.3837	329.53	1640.0	2.3761	**1200**
1220	384.81	1650.7	2.3983	357.32	1650.7	2.3902	333.50	1650.7	2.3825	**1220**
1240	389.40	1661.4	2.4047	361.58	1661.4	2.3965	337.47	1661.4	2.3889	**1240**
1260	393.98	1672.2	2.4110	365.84	1672.2	2.4028	341.45	1672.2	2.3952	**1260**
1280	398.56	1683.0	2.4172	370.09	1683.0	2.4091	345.42	1683.0	2.4015	**1280**
1300	403.15	1693.9	2.4234	374.35	1693.9	2.4153	349.39	1693.9	2.4077	**1300**
1320	407.73	1704.8	2.4296	378.60	1704.8	2.4214	353.36	1704.8	2.4138	**1320**
1340	412.31	1715.7	2.4357	382.86	1715.7	2.4275	357.33	1715.7	2.4199	**1340**
1360	416.89	1726.7	2.4417	387.11	1726.6	2.4336	361.31	1726.6	2.4260	**1360**
1380	421.48	1737.7	2.4478	391.37	1737.6	2.4396	365.28	1737.6	2.4320	**1380**
1400	426.06	1748.7	2.4537	395.63	1748.7	2.4456	369.25	1748.7	2.4379	**1400**
1420	430.64	1759.8	2.4596	399.88	1759.8	2.4515	373.22	1759.8	2.4439	**1420**
1440	435.23	1770.9	2.4655	404.14	1770.9	2.4574	377.19	1770.9	2.4497	**1440**
1460	439.81	1782.0	2.4714	408.39	1782.0	2.4632	381.17	1782.0	2.4556	**1460**
1480	444.39	1793.2	2.4772	412.65	1793.2	2.4690	385.14	1793.2	2.4614	**1480**
1500	448.97	1804.4	2.4829	416.90	1804.4	2.4748	389.11	1804.4	2.4671	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**3.5 psia** (t_{sat} = 147.52 °F)			**4.0 psia** (t_{sat} = 152.91 °F)			**4.5 psia** (t_{sat} = 157.77 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 329	115.49	0.2110	0.016 356	120.89	0.2198	0.016 382	125.74	0.2277	Sat. Liq.
Sat. Vap.	102.72	1124.7	1.8731	90.628	1126.9	1.8621	81.154	1128.9	1.8525	Sat. Vap.
32	0.016 022	-0.008	0.0000	0.016 022	-0.006	0.0000	0.016 022	-0.005	0.0000	**32**
40	0.016 019	8.042	0.0162	0.016 019	8.044	0.0162	0.016 019	8.045	0.0162	**40**
50	0.016 024	18.075	0.0361	0.016 024	18.077	0.0361	0.016 024	18.078	0.0361	**50**
60	0.016 035	28.088	0.0555	0.016 035	28.089	0.0555	0.016 035	28.091	0.0555	**60**
70	0.016 052	38.087	0.0746	0.016 052	38.088	0.0746	0.016 052	38.090	0.0746	**70**
80	0.016 074	48.077	0.0933	0.016 074	48.078	0.0933	0.016 073	48.080	0.0933	**80**
90	0.016 100	58.062	0.1116	0.016 100	58.063	0.1116	0.016 100	58.065	0.1116	**90**
100	0.016 131	68.044	0.1296	0.016 131	68.045	0.1296	0.016 131	68.046	0.1296	**100**
110	0.016 166	78.025	0.1473	0.016 166	78.026	0.1473	0.016 166	78.027	0.1473	**110**
120	0.016 205	88.006	0.1647	0.016 205	88.007	0.1647	0.016 205	88.009	0.1647	**120**
130	0.016 247	97.990	0.1817	0.016 247	97.992	0.1817	0.016 247	97.993	0.1817	**130**
140	0.016 293	107.98	0.1985	0.016 293	107.98	0.1985	0.016 293	107.98	0.1985	**140**
150	103.15	1125.9	1.8750	0.016 342	117.97	0.2151	0.016 341	117.97	0.2151	**150**
160	104.90	1130.6	1.8827	91.715	1130.3	1.8676	81.459	1130.0	1.8542	**160**
170	106.64	1135.2	1.8901	93.243	1135.0	1.8750	82.822	1134.7	1.8617	**170**
180	108.38	1139.9	1.8974	94.767	1139.6	1.8824	84.181	1139.4	1.8691	**180**
190	110.11	1144.5	1.9046	96.288	1144.3	1.8896	85.536	1144.0	1.8763	**190**
200	111.84	1149.1	1.9116	97.805	1148.9	1.8967	86.888	1148.7	1.8834	**200**
210	113.57	1153.7	1.9186	99.320	1153.5	1.9036	88.238	1153.3	1.8904	**210**
220	115.29	1158.3	1.9254	100.83	1158.1	1.9105	89.585	1158.0	1.8973	**220**
230	117.02	1162.9	1.9321	102.34	1162.8	1.9172	90.930	1162.6	1.9040	**230**
240	118.74	1167.5	1.9387	103.85	1167.4	1.9239	92.273	1167.2	1.9107	**240**
250	120.46	1172.1	1.9453	105.36	1172.0	1.9304	93.615	1171.8	1.9173	**250**
260	122.18	1176.7	1.9517	106.86	1176.6	1.9368	94.955	1176.5	1.9237	**260**
270	123.89	1181.3	1.9581	108.37	1181.2	1.9432	96.294	1181.1	1.9301	**270**
280	125.61	1185.9	1.9643	109.87	1185.8	1.9495	97.632	1185.7	1.9364	**280**
290	127.32	1190.5	1.9705	111.37	1190.4	1.9557	98.969	1190.3	1.9426	**290**
300	129.04	1195.1	1.9766	112.88	1195.0	1.9618	100.30	1194.9	1.9487	**300**
310	130.75	1199.7	1.9826	114.38	1199.6	1.9678	101.64	1199.5	1.9547	**310**
320	132.46	1204.4	1.9886	115.88	1204.3	1.9738	102.97	1204.2	1.9607	**320**
330	134.17	1209.0	1.9945	117.37	1208.9	1.9797	104.31	1208.8	1.9666	**330**
340	135.89	1213.6	2.0003	118.87	1213.5	1.9855	105.64	1213.4	1.9724	**340**
350	137.60	1218.2	2.0061	120.37	1218.1	1.9913	106.97	1218.1	1.9782	**350**
360	139.31	1222.9	2.0117	121.87	1222.8	1.9970	108.30	1222.7	1.9839	**360**
370	141.02	1227.5	2.0174	123.36	1227.4	2.0026	109.64	1227.4	1.9895	**370**
380	142.72	1232.1	2.0229	124.86	1232.1	2.0081	110.97	1232.0	1.9951	**380**
390	144.43	1236.8	2.0284	126.36	1236.7	2.0137	112.30	1236.7	2.0006	**390**
400	146.14	1241.5	2.0339	127.85	1241.4	2.0191	113.63	1241.3	2.0061	**400**
410	147.85	1246.1	2.0393	129.35	1246.1	2.0245	114.96	1246.0	2.0115	**410**
420	149.56	1250.8	2.0446	130.84	1250.7	2.0298	116.29	1250.7	2.0168	**420**
430	151.26	1255.5	2.0499	132.34	1255.4	2.0351	117.62	1255.3	2.0221	**430**
440	152.97	1260.1	2.0551	133.83	1260.1	2.0404	118.94	1260.0	2.0273	**440**
450	154.68	1264.8	2.0603	135.33	1264.8	2.0455	120.27	1264.7	2.0325	**450**
460	156.39	1269.5	2.0654	136.82	1269.5	2.0507	121.60	1269.4	2.0377	**460**
470	158.09	1274.2	2.0705	138.31	1274.2	2.0558	122.93	1274.1	2.0427	**470**
480	159.80	1278.9	2.0756	139.81	1278.9	2.0608	124.26	1278.8	2.0478	**480**
490	161.50	1283.6	2.0806	141.30	1283.6	2.0658	125.59	1283.6	2.0528	**490**
500	163.21	1288.4	2.0855	142.79	1288.3	2.0708	126.91	1288.3	2.0577	**500**
510	164.92	1293.1	2.0904	144.29	1293.1	2.0757	128.24	1293.0	2.0626	**510**
520	166.62	1297.8	2.0953	145.78	1297.8	2.0805	129.57	1297.8	2.0675	**520**
530	168.33	1302.6	2.1001	147.27	1302.5	2.0853	130.90	1302.5	2.0723	**530**
540	170.03	1307.3	2.1049	148.76	1307.3	2.0901	132.22	1307.3	2.0771	**540**
550	171.74	1312.1	2.1096	150.26	1312.1	2.0949	133.55	1312.0	2.0819	**550**
560	173.44	1316.9	2.1143	151.75	1316.8	2.0996	134.88	1316.8	2.0866	**560**
570	175.15	1321.7	2.1190	153.24	1321.6	2.1042	136.20	1321.6	2.0912	**570**
580	176.85	1326.4	2.1236	154.73	1326.4	2.1089	137.53	1326.4	2.0959	**580**
590	178.56	1331.2	2.1282	156.22	1331.2	2.1135	138.86	1331.2	2.1004	**590**
600	180.26	1336.0	2.1327	157.72	1336.0	2.1180	140.18	1336.0	2.1050	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**3.5 psia** (t_{sat} = 147.52 °F)			**4.0 psia** (t_{sat} = 152.91 °F)			**4.5 psia** (t_{sat} = 157.77 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	181.97	1340.8	2.1373	159.21	1340.8	2.1225	141.51	1340.8	2.1095	**610**
620	183.67	1345.7	2.1417	160.70	1345.6	2.1270	142.83	1345.6	2.1140	**620**
630	185.37	1350.5	2.1462	162.19	1350.5	2.1315	144.16	1350.4	2.1185	**630**
640	187.08	1355.3	2.1506	163.68	1355.3	2.1359	145.49	1355.3	2.1229	**640**
650	188.78	1360.2	2.1550	165.17	1360.1	2.1403	146.81	1360.1	2.1273	**650**
660	190.49	1365.0	2.1593	166.67	1365.0	2.1446	148.14	1365.0	2.1316	**660**
670	192.19	1369.9	2.1637	168.16	1369.8	2.1489	149.46	1369.8	2.1359	**670**
680	193.89	1374.7	2.1680	169.65	1374.7	2.1532	150.79	1374.7	2.1402	**680**
690	195.60	1379.6	2.1722	171.14	1379.6	2.1575	152.12	1379.6	2.1445	**690**
700	197.30	1384.5	2.1764	172.63	1384.5	2.1617	153.44	1384.4	2.1487	**700**
710	199.01	1389.4	2.1806	174.12	1389.4	2.1659	154.77	1389.3	2.1529	**710**
720	200.71	1394.3	2.1848	175.61	1394.3	2.1701	156.09	1394.2	2.1571	**720**
730	202.41	1399.2	2.1890	177.10	1399.2	2.1742	157.42	1399.1	2.1612	**730**
740	204.12	1404.1	2.1931	178.59	1404.1	2.1783	158.74	1404.1	2.1653	**740**
750	205.82	1409.0	2.1972	180.08	1409.0	2.1824	160.07	1409.0	2.1694	**750**
760	207.52	1414.0	2.2012	181.58	1414.0	2.1865	161.39	1413.9	2.1735	**760**
770	209.23	1418.9	2.2053	183.07	1418.9	2.1905	162.72	1418.9	2.1775	**770**
780	210.93	1423.9	2.2093	184.56	1423.8	2.1945	164.04	1423.8	2.1815	**780**
790	212.63	1428.8	2.2133	186.05	1428.8	2.1985	165.37	1428.8	2.1855	**790**
800	214.34	1433.8	2.2172	187.54	1433.8	2.2025	166.69	1433.8	2.1895	**800**
820	217.74	1443.8	2.2251	190.52	1443.7	2.2103	169.34	1443.7	2.1973	**820**
840	221.15	1453.8	2.2328	193.50	1453.7	2.2181	171.99	1453.7	2.2051	**840**
860	224.56	1463.8	2.2405	196.48	1463.8	2.2258	174.64	1463.8	2.2128	**860**
880	227.96	1473.9	2.2481	199.46	1473.9	2.2333	177.29	1473.8	2.2203	**880**
900	231.37	1484.0	2.2555	202.44	1484.0	2.2408	179.94	1483.9	2.2278	**900**
920	234.77	1494.1	2.2630	205.42	1494.1	2.2482	182.59	1494.1	2.2352	**920**
940	238.18	1504.3	2.2703	208.40	1504.3	2.2556	185.24	1504.3	2.2426	**940**
960	241.59	1514.5	2.2775	211.38	1514.5	2.2628	187.89	1514.5	2.2498	**960**
980	244.99	1524.8	2.2847	214.36	1524.8	2.2700	190.54	1524.7	2.2570	**980**
1000	248.40	1535.1	2.2918	217.34	1535.0	2.2771	193.19	1535.0	2.2641	**1000**
1020	251.80	1545.4	2.2988	220.32	1545.4	2.2841	195.84	1545.4	2.2711	**1020**
1040	255.21	1555.7	2.3058	223.30	1555.7	2.2911	198.49	1555.7	2.2781	**1040**
1060	258.61	1566.1	2.3127	226.28	1566.1	2.2979	201.14	1566.1	2.2850	**1060**
1080	262.02	1576.6	2.3195	229.26	1576.6	2.3048	203.79	1576.6	2.2918	**1080**
1100	265.42	1587.1	2.3263	232.24	1587.0	2.3115	206.43	1587.0	2.2985	**1100**
1120	268.83	1597.6	2.3329	235.22	1597.6	2.3182	209.08	1597.5	2.3052	**1120**
1140	272.23	1608.1	2.3396	238.20	1608.1	2.3249	211.73	1608.1	2.3119	**1140**
1160	275.64	1618.7	2.3462	241.18	1618.7	2.3314	214.38	1618.7	2.3184	**1160**
1180	279.04	1629.3	2.3527	244.16	1629.3	2.3380	217.03	1629.3	2.3250	**1180**
1200	282.45	1640.0	2.3591	247.14	1640.0	2.3444	219.68	1640.0	2.3314	**1200**
1220	285.85	1650.7	2.3656	250.12	1650.7	2.3508	222.33	1650.7	2.3378	**1220**
1240	289.26	1661.4	2.3719	253.10	1661.4	2.3572	224.97	1661.4	2.3442	**1240**
1260	292.66	1672.2	2.3782	256.08	1672.2	2.3635	227.62	1672.2	2.3505	**1260**
1280	296.07	1683.0	2.3845	259.06	1683.0	2.3697	230.27	1683.0	2.3567	**1280**
1300	299.47	1693.9	2.3907	262.04	1693.9	2.3759	232.92	1693.8	2.3629	**1300**
1320	302.88	1704.8	2.3968	265.02	1704.7	2.3821	235.57	1704.7	2.3691	**1320**
1340	306.28	1715.7	2.4029	268.00	1715.7	2.3882	238.22	1715.7	2.3752	**1340**
1360	309.69	1726.6	2.4090	270.97	1726.6	2.3942	240.86	1726.6	2.3813	**1360**
1380	313.09	1737.6	2.4150	273.95	1737.6	2.4003	243.51	1737.6	2.3873	**1380**
1400	316.50	1748.7	2.4210	276.93	1748.7	2.4062	246.16	1748.7	2.3932	**1400**
1420	319.90	1759.7	2.4269	279.91	1759.7	2.4122	248.81	1759.7	2.3992	**1420**
1440	323.31	1770.9	2.4328	282.89	1770.9	2.4180	251.46	1770.8	2.4050	**1440**
1460	326.71	1782.0	2.4386	285.87	1782.0	2.4239	254.11	1782.0	2.4109	**1460**
1480	330.12	1793.2	2.4444	288.85	1793.2	2.4297	256.75	1793.2	2.4167	**1480**
1500	333.52	1804.4	2.4502	291.83	1804.4	2.4354	259.40	1804.4	2.4224	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**5 psia** (t_{sat} = 162.18 °F)			**6 psia** (t_{sat} = 170.00 °F)			**7 psia** (t_{sat} = 176.79 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 406	130.16	0.2349	0.016 449	137.99	0.2474	0.016 488	144.79	0.2581	Sat. Liq.
Sat. Vap.	73.523	1130.7	1.8438	61.979	1133.9	1.8290	53.649	1136.6	1.8164	Sat. Vap.
32	0.016 022	-0.003	0.0000	0.016 021	0.000	0.0000	0.016 021	0.003	0.0000	**32**
40	0.016 019	8.047	0.0162	0.016 019	8.049	0.0162	0.016 019	8.052	0.0162	**40**
50	0.016 024	18.080	0.0361	0.016 024	18.083	0.0361	0.016 024	18.086	0.0361	**50**
60	0.016 035	28.092	0.0555	0.016 035	28.095	0.0555	0.016 035	28.098	0.0555	**60**
70	0.016 052	38.091	0.0746	0.016 051	38.094	0.0746	0.016 051	38.097	0.0746	**70**
80	0.016 073	48.081	0.0933	0.016 073	48.084	0.0933	0.016 073	48.087	0.0933	**80**
90	0.016 100	58.066	0.1116	0.016 100	58.069	0.1116	0.016 100	58.071	0.1116	**90**
100	0.016 131	68.048	0.1296	0.016 131	68.050	0.1296	0.016 131	68.053	0.1296	**100**
110	0.016 166	78.028	0.1473	0.016 166	78.031	0.1473	0.016 166	78.034	0.1473	**110**
120	0.016 205	88.010	0.1647	0.016 204	88.013	0.1647	0.016 204	88.015	0.1647	**120**
130	0.016 247	97.994	0.1817	0.016 247	97.997	0.1817	0.016 247	97.999	0.1817	**130**
140	0.016 292	107.98	0.1985	0.016 292	107.98	0.1985	0.016 292	107.99	0.1985	**140**
150	0.016 341	117.98	0.2151	0.016 341	117.98	0.2151	0.016 341	117.98	0.2151	**150**
160	0.016 394	127.98	0.2313	0.016 394	127.98	0.2313	0.016 394	127.98	0.2313	**160**
170	74.486	1134.4	1.8498	0.016 449	137.99	0.2474	0.016 449	137.99	0.2474	**170**
180	75.712	1139.1	1.8572	63.008	1138.6	1.8365	53.933	1138.1	1.8188	**180**
190	76.935	1143.8	1.8644	64.033	1143.4	1.8438	54.817	1142.9	1.8262	**190**
200	78.155	1148.5	1.8716	65.055	1148.1	1.8510	55.697	1147.7	1.8335	**200**
210	79.372	1153.1	1.8786	66.074	1152.8	1.8580	56.574	1152.4	1.8406	**210**
220	80.587	1157.8	1.8855	67.090	1157.4	1.8650	57.449	1157.1	1.8475	**220**
230	81.800	1162.4	1.8922	68.104	1162.1	1.8718	58.322	1161.8	1.8544	**230**
240	83.011	1167.1	1.8989	69.117	1166.8	1.8785	59.192	1166.4	1.8611	**240**
250	84.220	1171.7	1.9055	70.128	1171.4	1.8851	60.062	1171.1	1.8678	**250**
260	85.428	1176.3	1.9120	71.137	1176.0	1.8916	60.929	1175.8	1.8743	**260**
270	86.635	1180.9	1.9183	72.145	1180.7	1.8980	61.796	1180.4	1.8807	**270**
280	87.840	1185.6	1.9246	73.152	1185.3	1.9043	62.661	1185.1	1.8870	**280**
290	89.045	1190.2	1.9308	74.158	1190.0	1.9105	63.525	1189.7	1.8933	**290**
300	90.248	1194.8	1.9370	75.163	1194.6	1.9167	64.388	1194.4	1.8995	**300**
310	91.451	1199.4	1.9430	76.168	1199.2	1.9227	65.251	1199.0	1.9055	**310**
320	92.653	1204.1	1.9490	77.171	1203.9	1.9287	66.112	1203.7	1.9115	**320**
330	93.854	1208.7	1.9549	78.174	1208.5	1.9346	66.973	1208.3	1.9175	**330**
340	95.054	1213.3	1.9607	79.176	1213.2	1.9405	67.833	1213.0	1.9233	**340**
350	96.254	1218.0	1.9665	80.177	1217.8	1.9463	68.693	1217.7	1.9291	**350**
360	97.454	1222.6	1.9722	81.178	1222.5	1.9520	69.552	1222.3	1.9348	**360**
370	98.653	1227.3	1.9778	82.178	1227.1	1.9576	70.411	1227.0	1.9405	**370**
380	99.851	1231.9	1.9834	83.178	1231.8	1.9632	71.269	1231.6	1.9461	**380**
390	101.05	1236.6	1.9889	84.178	1236.5	1.9687	72.127	1236.3	1.9516	**390**
400	102.25	1241.3	1.9944	85.177	1241.1	1.9742	72.984	1241.0	1.9571	**400**
410	103.44	1245.9	1.9998	86.176	1245.8	1.9796	73.841	1245.7	1.9625	**410**
420	104.64	1250.6	2.0051	87.174	1250.5	1.9849	74.698	1250.4	1.9678	**420**
430	105.84	1255.3	2.0104	88.173	1255.2	1.9902	75.554	1255.1	1.9731	**430**
440	107.04	1260.0	2.0157	89.171	1259.9	1.9955	76.410	1259.7	1.9784	**440**
450	108.23	1264.7	2.0209	90.168	1264.6	2.0007	77.266	1264.5	1.9836	**450**
460	109.43	1269.4	2.0260	91.166	1269.3	2.0058	78.122	1269.2	1.9887	**460**
470	110.62	1274.1	2.0311	92.163	1274.0	2.0109	78.977	1273.9	1.9938	**470**
480	111.82	1278.8	2.0361	93.160	1278.7	2.0160	79.832	1278.6	1.9989	**480**
490	113.01	1283.5	2.0411	94.157	1283.4	2.0210	80.687	1283.3	2.0039	**490**
500	114.21	1288.2	2.0461	95.154	1288.1	2.0259	81.542	1288.1	2.0089	**500**
510	115.40	1293.0	2.0510	96.150	1292.9	2.0308	82.397	1292.8	2.0138	**510**
520	116.60	1297.7	2.0559	97.146	1297.6	2.0357	83.252	1297.5	2.0186	**520**
530	117.79	1302.5	2.0607	98.143	1302.4	2.0405	84.106	1302.3	2.0235	**530**
540	118.99	1307.2	2.0655	99.139	1307.1	2.0453	84.960	1307.1	2.0283	**540**
550	120.18	1312.0	2.0702	100.13	1311.9	2.0501	85.814	1311.8	2.0330	**550**
560	121.38	1316.8	2.0749	101.13	1316.7	2.0548	86.668	1316.6	2.0377	**560**
570	122.57	1321.5	2.0796	102.13	1321.5	2.0594	87.522	1321.4	2.0424	**570**
580	123.77	1326.3	2.0842	103.12	1326.3	2.0641	88.376	1326.2	2.0470	**580**
590	124.96	1331.1	2.0888	104.12	1331.1	2.0687	89.229	1331.0	2.0516	**590**
600	126.15	1335.9	2.0934	105.11	1335.9	2.0732	90.083	1335.8	2.0562	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**5 psia** (t_{sat} = 162.18 °F)			**6 psia** (t_{sat} = 170.00 °F)			**7 psia** (t_{sat} = 176.79 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	127.35	1340.7	2.0979	106.11	1340.7	2.0777	90.937	1340.6	2.0607	**610**
620	128.54	1345.6	2.1024	107.10	1345.5	2.0822	91.790	1345.4	2.0652	**620**
630	129.74	1350.4	2.1068	108.10	1350.3	2.0867	92.643	1350.3	2.0696	**630**
640	130.93	1355.2	2.1112	109.09	1355.2	2.0911	93.496	1355.1	2.0741	**640**
650	132.12	1360.1	2.1156	110.09	1360.0	2.0955	94.350	1360.0	2.0784	**650**
660	133.32	1364.9	2.1200	111.08	1364.9	2.0998	95.203	1364.8	2.0828	**660**
670	134.51	1369.8	2.1243	112.08	1369.7	2.1042	96.056	1369.7	2.0871	**670**
680	135.70	1374.7	2.1286	113.07	1374.6	2.1085	96.909	1374.5	2.0914	**680**
690	136.90	1379.5	2.1328	114.07	1379.5	2.1127	97.761	1379.4	2.0957	**690**
700	138.09	1384.4	2.1371	115.06	1384.4	2.1169	98.614	1384.3	2.0999	**700**
710	139.28	1389.3	2.1413	116.06	1389.3	2.1211	99.467	1389.2	2.1041	**710**
720	140.48	1394.2	2.1455	117.05	1394.2	2.1253	100.32	1394.1	2.1083	**720**
730	141.67	1399.1	2.1496	118.05	1399.1	2.1295	101.17	1399.0	2.1124	**730**
740	142.86	1404.0	2.1537	119.04	1404.0	2.1336	102.02	1403.9	2.1166	**740**
750	144.05	1409.0	2.1578	120.03	1408.9	2.1377	102.88	1408.9	2.1207	**750**
760	145.25	1413.9	2.1619	121.03	1413.9	2.1417	103.73	1413.8	2.1247	**760**
770	146.44	1418.8	2.1659	122.02	1418.8	2.1458	104.58	1418.8	2.1288	**770**
780	147.63	1423.8	2.1699	123.02	1423.8	2.1498	105.43	1423.7	2.1328	**780**
790	148.83	1428.8	2.1739	124.01	1428.7	2.1538	106.29	1428.7	2.1368	**790**
800	150.02	1433.7	2.1779	125.01	1433.7	2.1577	107.14	1433.7	2.1407	**800**
820	152.40	1443.7	2.1857	126.99	1443.7	2.1656	108.84	1443.6	2.1486	**820**
840	154.79	1453.7	2.1935	128.98	1453.7	2.1734	110.55	1453.6	2.1563	**840**
860	157.17	1463.7	2.2011	130.97	1463.7	2.1810	112.25	1463.7	2.1640	**860**
880	159.56	1473.8	2.2087	132.96	1473.8	2.1886	113.96	1473.7	2.1716	**880**
900	161.94	1483.9	2.2162	134.95	1483.9	2.1961	115.66	1483.9	2.1791	**900**
920	164.33	1494.1	2.2236	136.93	1494.0	2.2035	117.36	1494.0	2.1865	**920**
940	166.71	1504.3	2.2309	138.92	1504.2	2.2108	119.07	1504.2	2.1938	**940**
960	169.10	1514.5	2.2382	140.91	1514.4	2.2181	120.77	1514.4	2.2011	**960**
980	171.48	1524.7	2.2454	142.90	1524.7	2.2252	122.48	1524.7	2.2082	**980**
1000	173.87	1535.0	2.2525	144.88	1535.0	2.2323	124.18	1535.0	2.2153	**1000**
1020	176.25	1545.3	2.2595	146.87	1545.3	2.2394	125.88	1545.3	2.2224	**1020**
1040	178.64	1555.7	2.2664	148.86	1555.7	2.2463	127.59	1555.7	2.2293	**1040**
1060	181.02	1566.1	2.2733	150.84	1566.1	2.2532	129.29	1566.1	2.2362	**1060**
1080	183.40	1576.5	2.2802	152.83	1576.5	2.2600	130.99	1576.5	2.2430	**1080**
1100	185.79	1587.0	2.2869	154.82	1587.0	2.2668	132.70	1587.0	2.2498	**1100**
1120	188.17	1597.5	2.2936	156.80	1597.5	2.2735	134.40	1597.5	2.2565	**1120**
1140	190.56	1608.1	2.3003	158.79	1608.1	2.2801	136.10	1608.0	2.2631	**1140**
1160	192.94	1618.7	2.3068	160.78	1618.7	2.2867	137.81	1618.6	2.2697	**1160**
1180	195.32	1629.3	2.3133	162.77	1629.3	2.2932	139.51	1629.3	2.2762	**1180**
1200	197.71	1640.0	2.3198	164.75	1639.9	2.2997	141.21	1639.9	2.2827	**1200**
1220	200.09	1650.7	2.3262	166.74	1650.6	2.3061	142.92	1650.6	2.2891	**1220**
1240	202.47	1661.4	2.3326	168.72	1661.4	2.3125	144.62	1661.4	2.2955	**1240**
1260	204.86	1672.2	2.3389	170.71	1672.2	2.3188	146.32	1672.1	2.3018	**1260**
1280	207.24	1683.0	2.3451	172.70	1683.0	2.3250	148.02	1683.0	2.3080	**1280**
1300	209.63	1693.8	2.3513	174.68	1693.8	2.3312	149.73	1693.8	2.3142	**1300**
1320	212.01	1704.7	2.3575	176.67	1704.7	2.3374	151.43	1704.7	2.3204	**1320**
1340	214.39	1715.7	2.3636	178.66	1715.6	2.3435	153.13	1715.6	2.3265	**1340**
1360	216.78	1726.6	2.3696	180.64	1726.6	2.3495	154.83	1726.6	2.3325	**1360**
1380	219.16	1737.6	2.3757	182.63	1737.6	2.3556	156.54	1737.6	2.3386	**1380**
1400	221.54	1748.7	2.3816	184.62	1748.6	2.3615	158.24	1748.6	2.3445	**1400**
1420	223.93	1759.7	2.3875	186.60	1759.7	2.3674	159.94	1759.7	2.3504	**1420**
1440	226.31	1770.8	2.3934	188.59	1770.8	2.3733	161.65	1770.8	2.3563	**1440**
1460	228.69	1782.0	2.3993	190.58	1782.0	2.3792	163.35	1782.0	2.3622	**1460**
1480	231.08	1793.2	2.4051	192.56	1793.2	2.3850	165.05	1793.2	2.3680	**1480**
1500	233.46	1804.4	2.4108	194.55	1804.4	2.3907	166.75	1804.4	2.3737	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**8 psia** (t_{sat} = 182.81 °F)			**9 psia** (t_{sat} = 188.22 °F)			**10 psia** (t_{sat} = 193.16 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 524	150.83	0.2675	0.016 558	156.27	0.2760	0.016 589	161.22	0.2836	Sat. Liq.
Sat. Vap.	47.345	1139.0	1.8056	42.404	1141.1	1.7961	38.423	1143.1	1.7875	Sat. Vap.
32	0.016 021	0.006	0.0000	0.016 021	0.009	0.0000	0.016 021	0.012	0.0000	**32**
40	0.016 019	8.055	0.0162	0.016 019	8.058	0.0162	0.016 019	8.061	0.0162	**40**
50	0.016 024	18.088	0.0361	0.016 024	18.091	0.0361	0.016 023	18.094	0.0361	**50**
60	0.016 035	28.101	0.0555	0.016 035	28.103	0.0555	0.016 034	28.106	0.0555	**60**
70	0.016 051	38.099	0.0746	0.016 051	38.102	0.0746	0.016 051	38.105	0.0746	**70**
80	0.016 073	48.089	0.0933	0.016 073	48.092	0.0933	0.016 073	48.095	0.0933	**80**
90	0.016 100	58.074	0.1116	0.016 100	58.077	0.1116	0.016 100	58.079	0.1116	**90**
100	0.016 131	68.056	0.1296	0.016 131	68.058	0.1296	0.016 131	68.061	0.1296	**100**
110	0.016 166	78.036	0.1473	0.016 166	78.039	0.1473	0.016 166	78.041	0.1473	**110**
120	0.016 204	88.018	0.1647	0.016 204	88.020	0.1647	0.016 204	88.023	0.1647	**120**
130	0.016 247	98.002	0.1817	0.016 247	98.004	0.1817	0.016 247	98.007	0.1817	**130**
140	0.016 292	107.99	0.1985	0.016 292	107.99	0.1985	0.016 292	107.99	0.1985	**140**
150	0.016 341	117.98	0.2151	0.016 341	117.99	0.2151	0.016 341	117.99	0.2151	**150**
160	0.016 394	127.98	0.2313	0.016 393	127.99	0.2313	0.016 393	127.99	0.2313	**160**
170	0.016 449	137.99	0.2474	0.016 449	138.00	0.2474	0.016 449	138.00	0.2473	**170**
180	0.016 507	148.01	0.2631	0.016 507	148.02	0.2631	0.016 507	148.02	0.2631	**180**
190	47.904	1142.5	1.8109	42.527	1142.0	1.7974	0.016 569	158.05	0.2787	**190**
200	48.678	1147.2	1.8182	43.219	1146.8	1.8047	38.851	1146.4	1.7926	**200**
210	49.449	1152.0	1.8254	43.907	1151.6	1.8119	39.473	1151.2	1.7999	**210**
220	50.218	1156.7	1.8324	44.593	1156.4	1.8190	40.094	1156.0	1.8069	**220**
230	50.984	1161.4	1.8393	45.277	1161.1	1.8259	40.711	1160.8	1.8139	**230**
240	51.749	1166.1	1.8461	45.959	1165.8	1.8327	41.327	1165.5	1.8207	**240**
250	52.512	1170.8	1.8527	46.640	1170.5	1.8394	41.942	1170.2	1.8275	**250**
260	53.273	1175.5	1.8593	47.318	1175.2	1.8460	42.554	1175.0	1.8341	**260**
270	54.033	1180.2	1.8657	47.996	1179.9	1.8525	43.166	1179.7	1.8406	**270**
280	54.792	1184.9	1.8721	48.672	1184.6	1.8588	43.776	1184.4	1.8470	**280**
290	55.550	1189.5	1.8783	49.347	1189.3	1.8651	44.385	1189.1	1.8533	**290**
300	56.307	1194.2	1.8845	50.021	1194.0	1.8713	44.993	1193.8	1.8595	**300**
310	57.063	1198.8	1.8906	50.695	1198.6	1.8774	45.600	1198.4	1.8656	**310**
320	57.818	1203.5	1.8966	51.367	1203.3	1.8835	46.206	1203.1	1.8717	**320**
330	58.573	1208.2	1.9026	52.039	1208.0	1.8894	46.812	1207.8	1.8776	**330**
340	59.327	1212.8	1.9084	52.710	1212.7	1.8953	47.417	1212.5	1.8835	**340**
350	60.080	1217.5	1.9142	53.381	1217.3	1.9011	48.022	1217.2	1.8893	**350**
360	60.833	1222.2	1.9200	54.051	1222.0	1.9068	48.625	1221.8	1.8951	**360**
370	61.585	1226.8	1.9256	54.720	1226.7	1.9125	49.229	1226.5	1.9008	**370**
380	62.337	1231.5	1.9312	55.390	1231.4	1.9181	49.832	1231.2	1.9064	**380**
390	63.088	1236.2	1.9368	56.058	1236.0	1.9237	50.434	1235.9	1.9119	**390**
400	63.839	1240.9	1.9422	56.727	1240.7	1.9291	51.036	1240.6	1.9174	**400**
410	64.590	1245.6	1.9477	57.394	1245.4	1.9346	51.638	1245.3	1.9228	**410**
420	65.340	1250.2	1.9530	58.062	1250.1	1.9399	52.240	1250.0	1.9282	**420**
430	66.090	1254.9	1.9583	58.729	1254.8	1.9453	52.841	1254.7	1.9335	**430**
440	66.840	1259.6	1.9636	59.396	1259.5	1.9505	53.442	1259.4	1.9388	**440**
450	67.589	1264.3	1.9688	60.063	1264.2	1.9557	54.042	1264.1	1.9440	**450**
460	68.339	1269.1	1.9739	60.730	1269.0	1.9609	54.643	1268.8	1.9492	**460**
470	69.088	1273.8	1.9790	61.396	1273.7	1.9660	55.243	1273.6	1.9543	**470**
480	69.837	1278.5	1.9841	62.062	1278.4	1.9710	55.843	1278.3	1.9593	**480**
490	70.585	1283.2	1.9891	62.728	1283.1	1.9761	56.442	1283.0	1.9644	**490**
500	71.334	1288.0	1.9941	63.394	1287.9	1.9810	57.042	1287.8	1.9693	**500**
510	72.082	1292.7	1.9990	64.059	1292.6	1.9859	57.641	1292.5	1.9743	**510**
520	72.830	1297.5	2.0039	64.725	1297.4	1.9908	58.241	1297.3	1.9791	**520**
530	73.578	1302.2	2.0087	65.390	1302.1	1.9957	58.840	1302.1	1.9840	**530**
540	74.326	1307.0	2.0135	66.055	1306.9	2.0004	59.439	1306.8	1.9888	**540**
550	75.074	1311.8	2.0182	66.720	1311.7	2.0052	60.037	1311.6	1.9935	**550**
560	75.822	1316.5	2.0229	67.385	1316.5	2.0099	60.636	1316.4	1.9982	**560**
570	76.569	1321.3	2.0276	68.050	1321.3	2.0146	61.235	1321.2	2.0029	**570**
580	77.316	1326.1	2.0323	68.715	1326.1	2.0192	61.833	1326.0	2.0076	**580**
590	78.064	1330.9	2.0368	69.379	1330.9	2.0238	62.431	1330.8	2.0122	**590**
600	78.811	1335.7	2.0414	70.044	1335.7	2.0284	63.030	1335.6	2.0167	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**8 psia** (t_{sat} = 182.81 °F)			**9 psia** (t_{sat} = 188.22 °F)			**10 psia** (t_{sat} = 193.16 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	79.558	1340.6	2.0459	70.708	1340.5	2.0329	63.628	1340.4	2.0212	**610**
620	80.305	1345.4	2.0504	71.372	1345.3	2.0374	64.226	1345.2	2.0257	**620**
630	81.052	1350.2	2.0549	72.036	1350.1	2.0419	64.824	1350.1	2.0302	**630**
640	81.799	1355.0	2.0593	72.700	1355.0	2.0463	65.422	1354.9	2.0346	**640**
650	82.545	1359.9	2.0637	73.365	1359.8	2.0507	66.020	1359.8	2.0390	**650**
660	83.292	1364.8	2.0680	74.028	1364.7	2.0550	66.618	1364.6	2.0434	**660**
670	84.039	1369.6	2.0724	74.692	1369.6	2.0594	67.215	1369.5	2.0477	**670**
680	84.785	1374.5	2.0767	75.356	1374.4	2.0636	67.813	1374.4	2.0520	**680**
690	85.532	1379.4	2.0809	76.020	1379.3	2.0679	68.410	1379.3	2.0563	**690**
700	86.278	1384.3	2.0852	76.684	1384.2	2.0721	69.008	1384.2	2.0605	**700**
710	87.025	1389.2	2.0894	77.347	1389.1	2.0764	69.605	1389.1	2.0647	**710**
720	87.771	1394.1	2.0935	78.011	1394.0	2.0805	70.203	1394.0	2.0689	**720**
730	88.517	1399.0	2.0977	78.674	1398.9	2.0847	70.800	1398.9	2.0730	**730**
740	89.263	1403.9	2.1018	79.338	1403.9	2.0888	71.397	1403.8	2.0772	**740**
750	90.010	1408.8	2.1059	80.001	1408.8	2.0929	71.995	1408.7	2.0813	**750**
760	90.756	1413.8	2.1100	80.665	1413.7	2.0970	72.592	1413.7	2.0853	**760**
770	91.502	1418.7	2.1140	81.328	1418.7	2.1010	73.189	1418.6	2.0894	**770**
780	92.248	1423.7	2.1180	81.991	1423.6	2.1050	73.786	1423.6	2.0934	**780**
790	92.994	1428.6	2.1220	82.655	1428.6	2.1090	74.383	1428.6	2.0974	**790**
800	93.740	1433.6	2.1260	83.318	1433.6	2.1130	74.980	1433.5	2.1013	**800**
820	95.232	1443.6	2.1338	84.644	1443.5	2.1208	76.174	1443.5	2.1092	**820**
840	96.723	1453.6	2.1416	85.970	1453.6	2.1286	77.368	1453.5	2.1170	**840**
860	98.215	1463.6	2.1493	87.296	1463.6	2.1363	78.562	1463.6	2.1246	**860**
880	99.706	1473.7	2.1568	88.622	1473.7	2.1438	79.755	1473.6	2.1322	**880**
900	101.20	1483.8	2.1643	89.948	1483.8	2.1513	80.949	1483.8	2.1397	**900**
920	102.69	1494.0	2.1717	91.274	1493.9	2.1587	82.142	1493.9	2.1471	**920**
940	104.18	1504.2	2.1791	92.600	1504.1	2.1661	83.335	1504.1	2.1544	**940**
960	105.67	1514.4	2.1863	93.925	1514.4	2.1733	84.529	1514.3	2.1617	**960**
980	107.16	1524.6	2.1935	95.251	1524.6	2.1805	85.722	1524.6	2.1689	**980**
1000	108.65	1534.9	2.2006	96.576	1534.9	2.1876	86.915	1534.9	2.1760	**1000**
1020	110.14	1545.3	2.2076	97.901	1545.2	2.1946	88.107	1545.2	2.1830	**1020**
1040	111.63	1555.6	2.2146	99.226	1555.6	2.2016	89.300	1555.6	2.1900	**1040**
1060	113.12	1566.0	2.2215	100.55	1566.0	2.2085	90.493	1566.0	2.1969	**1060**
1080	114.62	1576.5	2.2283	101.88	1576.5	2.2153	91.686	1576.4	2.2037	**1080**
1100	116.11	1587.0	2.2351	103.20	1586.9	2.2221	92.878	1586.9	2.2105	**1100**
1120	117.60	1597.5	2.2418	104.53	1597.4	2.2288	94.071	1597.4	2.2172	**1120**
1140	119.09	1608.0	2.2484	105.85	1608.0	2.2354	95.264	1608.0	2.2238	**1140**
1160	120.58	1618.6	2.2550	107.18	1618.6	2.2420	96.456	1618.6	2.2304	**1160**
1180	122.07	1629.2	2.2615	108.50	1629.2	2.2485	97.649	1629.2	2.2369	**1180**
1200	123.56	1639.9	2.2680	109.83	1639.9	2.2550	98.841	1639.9	2.2434	**1200**
1220	125.05	1650.6	2.2744	111.15	1650.6	2.2614	100.03	1650.6	2.2498	**1220**
1240	126.54	1661.3	2.2807	112.48	1661.3	2.2677	101.23	1661.3	2.2561	**1240**
1260	128.03	1672.1	2.2870	113.80	1672.1	2.2741	102.42	1672.1	2.2624	**1260**
1280	129.52	1682.9	2.2933	115.12	1682.9	2.2803	103.61	1682.9	2.2687	**1280**
1300	131.01	1693.8	2.2995	116.45	1693.8	2.2865	104.80	1693.8	2.2749	**1300**
1320	132.50	1704.7	2.3057	117.77	1704.7	2.2927	105.99	1704.6	2.2810	**1320**
1340	133.99	1715.6	2.3118	119.10	1715.6	2.2988	107.19	1715.6	2.2871	**1340**
1360	135.48	1726.6	2.3178	120.42	1726.6	2.3048	108.38	1726.5	2.2932	**1360**
1380	136.97	1737.6	2.3238	121.75	1737.6	2.3108	109.57	1737.5	2.2992	**1380**
1400	138.46	1748.6	2.3298	123.07	1748.6	2.3168	110.76	1748.6	2.3052	**1400**
1420	139.95	1759.7	2.3357	124.40	1759.7	2.3227	111.96	1759.7	2.3111	**1420**
1440	141.44	1770.8	2.3416	125.72	1770.8	2.3286	113.15	1770.8	2.3170	**1440**
1460	142.93	1781.9	2.3474	127.05	1781.9	2.3345	114.34	1781.9	2.3228	**1460**
1480	144.42	1793.1	2.3532	128.37	1793.1	2.3403	115.53	1793.1	2.3286	**1480**
1500	145.91	1804.4	2.3590	129.69	1804.4	2.3460	116.72	1804.4	2.3344	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**11 psia** (t_{sat} = 197.70 °F)			**12 psia** (t_{sat} = 201.91 °F)			**13 psia** (t_{sat} = 205.83 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 618	165.79	0.2905	0.016 646	170.02	0.2969	0.016 672	173.97	0.3029	Sat. Liq.
Sat. Vap.	35.145	1144.8	1.7799	32.398	1146.4	1.7728	30.061	1148.0	1.7664	Sat. Vap.
32	0.016 021	0.015	0.0000	0.016 021	0.018	0.0000	0.016 021	0.021	0.0000	**32**
40	0.016 019	8.064	0.0162	0.016 019	8.067	0.0162	0.016 019	8.070	0.0162	**40**
50	0.016 023	18.097	0.0361	0.016 023	18.100	0.0361	0.016 023	18.103	0.0361	**50**
60	0.016 034	28.109	0.0555	0.016 034	28.112	0.0555	0.016 034	28.115	0.0555	**60**
70	0.016 051	38.108	0.0746	0.016 051	38.110	0.0746	0.016 051	38.113	0.0746	**70**
80	0.016 073	48.098	0.0933	0.016 073	48.100	0.0933	0.016 073	48.103	0.0933	**80**
90	0.016 100	58.082	0.1116	0.016 100	58.085	0.1116	0.016 100	58.087	0.1116	**90**
100	0.016 131	68.064	0.1296	0.016 131	68.066	0.1296	0.016 131	68.069	0.1296	**100**
110	0.016 166	78.044	0.1473	0.016 166	78.047	0.1473	0.016 165	78.049	0.1473	**110**
120	0.016 204	88.025	0.1647	0.016 204	88.028	0.1647	0.016 204	88.031	0.1647	**120**
130	0.016 247	98.009	0.1817	0.016 246	98.012	0.1817	0.016 246	98.014	0.1817	**130**
140	0.016 292	108.00	0.1985	0.016 292	108.00	0.1985	0.016 292	108.00	0.1985	**140**
150	0.016 341	117.99	0.2151	0.016 341	117.99	0.2151	0.016 341	118.00	0.2151	**150**
160	0.016 393	127.99	0.2313	0.016 393	127.99	0.2313	0.016 393	128.00	0.2313	**160**
170	0.016 449	138.00	0.2473	0.016 449	138.00	0.2473	0.016 449	138.01	0.2473	**170**
180	0.016 507	148.02	0.2631	0.016 507	148.02	0.2631	0.016 507	148.03	0.2631	**180**
190	0.016 569	158.05	0.2787	0.016 569	158.06	0.2787	0.016 569	158.06	0.2787	**190**
200	35.276	1146.0	1.7816	0.016 633	168.10	0.2940	0.016 633	168.10	0.2940	**200**
210	35.845	1150.8	1.7889	32.822	1150.4	1.7788	30.263	1150.0	1.7695	**210**
220	36.412	1155.6	1.7960	33.343	1155.3	1.7860	30.747	1154.9	1.7767	**220**
230	36.976	1160.4	1.8030	33.862	1160.1	1.7930	31.228	1159.7	1.7838	**230**
240	37.537	1165.2	1.8099	34.379	1164.9	1.7999	31.706	1164.6	1.7907	**240**
250	38.098	1169.9	1.8166	34.894	1169.6	1.8067	32.184	1169.3	1.7975	**250**
260	38.656	1174.7	1.8233	35.408	1174.4	1.8134	32.659	1174.1	1.8042	**260**
270	39.214	1179.4	1.8298	35.920	1179.1	1.8199	33.133	1178.9	1.8108	**270**
280	39.770	1184.1	1.8362	36.431	1183.9	1.8263	33.606	1183.6	1.8173	**280**
290	40.325	1188.8	1.8425	36.941	1188.6	1.8327	34.078	1188.4	1.8236	**290**
300	40.879	1193.5	1.8487	37.450	1193.3	1.8389	34.549	1193.1	1.8299	**300**
310	41.432	1198.2	1.8549	37.958	1198.0	1.8451	35.018	1197.8	1.8361	**310**
320	41.984	1202.9	1.8610	38.465	1202.7	1.8512	35.488	1202.5	1.8422	**320**
330	42.535	1207.6	1.8669	38.972	1207.4	1.8572	35.956	1207.3	1.8482	**330**
340	43.086	1212.3	1.8728	39.477	1212.1	1.8631	36.423	1212.0	1.8541	**340**
350	43.637	1217.0	1.8787	39.982	1216.8	1.8689	36.890	1216.7	1.8599	**350**
360	44.186	1221.7	1.8844	40.487	1221.5	1.8747	37.357	1221.4	1.8657	**360**
370	44.736	1226.4	1.8901	40.991	1226.2	1.8804	37.823	1226.1	1.8714	**370**
380	45.284	1231.1	1.8957	41.495	1230.9	1.8860	38.288	1230.8	1.8771	**380**
390	45.833	1235.8	1.9013	41.998	1235.6	1.8916	38.754	1235.5	1.8826	**390**
400	46.381	1240.5	1.9068	42.501	1240.3	1.8971	39.218	1240.2	1.8881	**400**
410	46.928	1245.2	1.9122	43.004	1245.0	1.9025	39.683	1244.9	1.8936	**410**
420	47.476	1249.9	1.9176	43.506	1249.8	1.9079	40.147	1249.6	1.8990	**420**
430	48.023	1254.6	1.9229	44.008	1254.5	1.9132	40.610	1254.4	1.9043	**430**
440	48.569	1259.3	1.9282	44.509	1259.2	1.9185	41.074	1259.1	1.9096	**440**
450	49.116	1264.0	1.9334	45.011	1263.9	1.9237	41.537	1263.8	1.9148	**450**
460	49.662	1268.7	1.9386	45.512	1268.6	1.9289	42.000	1268.5	1.9200	**460**
470	50.208	1273.5	1.9437	46.013	1273.4	1.9340	42.462	1273.3	1.9251	**470**
480	50.754	1278.2	1.9488	46.513	1278.1	1.9391	42.925	1278.0	1.9302	**480**
490	51.299	1283.0	1.9538	47.014	1282.9	1.9441	43.387	1282.8	1.9352	**490**
500	51.845	1287.7	1.9588	47.514	1287.6	1.9491	43.849	1287.5	1.9402	**500**
510	52.390	1292.5	1.9637	48.014	1292.4	1.9540	44.311	1292.3	1.9451	**510**
520	52.935	1297.2	1.9686	48.514	1297.1	1.9589	44.773	1297.0	1.9500	**520**
530	53.480	1302.0	1.9734	49.014	1301.9	1.9638	45.235	1301.8	1.9549	**530**
540	54.025	1306.7	1.9782	49.514	1306.7	1.9686	45.696	1306.6	1.9597	**540**
550	54.570	1311.5	1.9830	50.013	1311.5	1.9733	46.158	1311.4	1.9644	**550**
560	55.114	1316.3	1.9877	50.512	1316.2	1.9780	46.619	1316.2	1.9692	**560**
570	55.659	1321.1	1.9924	51.012	1321.0	1.9827	47.080	1321.0	1.9738	**570**
580	56.203	1325.9	1.9970	51.511	1325.8	1.9874	47.541	1325.8	1.9785	**580**
590	56.747	1330.7	2.0016	52.010	1330.6	1.9920	48.002	1330.6	1.9831	**590**
600	57.291	1335.5	2.0062	52.509	1335.5	1.9965	48.463	1335.4	1.9877	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**11 psia** (t_{sat} = 197.70 °F)			**12 psia** (t_{sat} = 201.91 °F)			**13 psia** (t_{sat} = 205.83 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	57.835	1340.4	2.0107	53.008	1340.3	2.0011	48.923	1340.2	1.9922	**610**
620	58.379	1345.2	2.0152	53.507	1345.1	2.0056	49.384	1345.1	1.9967	**620**
630	58.923	1350.0	2.0197	54.005	1350.0	2.0100	49.844	1349.9	2.0012	**630**
640	59.467	1354.9	2.0241	54.504	1354.8	2.0144	50.305	1354.7	2.0056	**640**
650	60.010	1359.7	2.0285	55.003	1359.7	2.0188	50.765	1359.6	2.0100	**650**
660	60.554	1364.6	2.0328	55.501	1364.5	2.0232	51.226	1364.5	2.0143	**660**
670	61.098	1369.5	2.0372	56.000	1369.4	2.0275	51.686	1369.3	2.0187	**670**
680	61.641	1374.3	2.0415	56.498	1374.3	2.0318	52.146	1374.2	2.0230	**680**
690	62.184	1379.2	2.0457	56.996	1379.2	2.0361	52.606	1379.1	2.0272	**690**
700	62.728	1384.1	2.0500	57.494	1384.1	2.0403	53.066	1384.0	2.0315	**700**
710	63.271	1389.0	2.0542	57.993	1389.0	2.0445	53.526	1388.9	2.0357	**710**
720	63.814	1393.9	2.0583	58.491	1393.9	2.0487	53.986	1393.8	2.0399	**720**
730	64.358	1398.8	2.0625	58.989	1398.8	2.0529	54.446	1398.7	2.0440	**730**
740	64.901	1403.8	2.0666	59.487	1403.7	2.0570	54.906	1403.7	2.0482	**740**
750	65.444	1408.7	2.0707	59.985	1408.6	2.0611	55.366	1408.6	2.0522	**750**
760	65.987	1413.6	2.0748	60.483	1413.6	2.0652	55.825	1413.5	2.0563	**760**
770	66.530	1418.6	2.0788	60.981	1418.5	2.0692	56.285	1418.5	2.0604	**770**
780	67.073	1423.5	2.0828	61.478	1423.5	2.0732	56.745	1423.5	2.0644	**780**
790	67.616	1428.5	2.0868	61.976	1428.5	2.0772	57.204	1428.4	2.0684	**790**
800	68.159	1433.5	2.0908	62.474	1433.4	2.0812	57.664	1433.4	2.0723	**800**
820	69.244	1443.5	2.0987	63.469	1443.4	2.0890	58.583	1443.4	2.0802	**820**
840	70.330	1453.5	2.1064	64.465	1453.4	2.0968	59.502	1453.4	2.0880	**840**
860	71.415	1463.5	2.1141	65.460	1463.5	2.1045	60.420	1463.5	2.0956	**860**
880	72.500	1473.6	2.1217	66.455	1473.6	2.1121	61.339	1473.5	2.1032	**880**
900	73.586	1483.7	2.1292	67.450	1483.7	2.1196	62.258	1483.7	2.1107	**900**
920	74.671	1493.9	2.1366	68.444	1493.8	2.1270	63.176	1493.8	2.1181	**920**
940	75.756	1504.1	2.1439	69.439	1504.0	2.1343	64.094	1504.0	2.1255	**940**
960	76.840	1514.3	2.1512	70.434	1514.3	2.1416	65.013	1514.2	2.1327	**960**
980	77.925	1524.6	2.1584	71.428	1524.5	2.1487	65.931	1524.5	2.1399	**980**
1000	79.010	1534.8	2.1655	72.423	1534.8	2.1558	66.849	1534.8	2.1470	**1000**
1020	80.094	1545.2	2.1725	73.417	1545.2	2.1629	67.767	1545.1	2.1540	**1020**
1040	81.179	1555.6	2.1794	74.411	1555.5	2.1698	68.685	1555.5	2.1610	**1040**
1060	82.263	1566.0	2.1863	75.405	1565.9	2.1767	69.602	1565.9	2.1679	**1060**
1080	83.348	1576.4	2.1932	76.400	1576.4	2.1836	70.520	1576.4	2.1747	**1080**
1100	84.432	1586.9	2.1999	77.394	1586.9	2.1903	71.438	1586.8	2.1815	**1100**
1120	85.517	1597.4	2.2066	78.388	1597.4	2.1970	72.356	1597.4	2.1882	**1120**
1140	86.601	1608.0	2.2133	79.382	1607.9	2.2037	73.273	1607.9	2.1948	**1140**
1160	87.685	1618.5	2.2199	80.376	1618.5	2.2103	74.191	1618.5	2.2014	**1160**
1180	88.769	1629.2	2.2264	81.369	1629.2	2.2168	75.108	1629.1	2.2079	**1180**
1200	89.853	1639.8	2.2328	82.363	1639.8	2.2232	76.026	1639.8	2.2144	**1200**
1220	90.937	1650.5	2.2393	83.357	1650.5	2.2297	76.943	1650.5	2.2208	**1220**
1240	92.021	1661.3	2.2456	84.351	1661.3	2.2360	77.861	1661.3	2.2272	**1240**
1260	93.105	1672.1	2.2519	85.345	1672.0	2.2423	78.778	1672.0	2.2335	**1260**
1280	94.189	1682.9	2.2582	86.338	1682.9	2.2486	79.695	1682.8	2.2397	**1280**
1300	95.273	1693.7	2.2644	87.332	1693.7	2.2548	80.613	1693.7	2.2459	**1300**
1320	96.357	1704.6	2.2705	88.326	1704.6	2.2609	81.530	1704.6	2.2521	**1320**
1340	97.441	1715.6	2.2766	89.319	1715.5	2.2670	82.447	1715.5	2.2582	**1340**
1360	98.525	1726.5	2.2827	90.313	1726.5	2.2731	83.364	1726.5	2.2643	**1360**
1380	99.609	1737.5	2.2887	91.306	1737.5	2.2791	84.281	1737.5	2.2703	**1380**
1400	100.69	1748.6	2.2947	92.300	1748.5	2.2851	85.199	1748.5	2.2762	**1400**
1420	101.78	1759.6	2.3006	93.293	1759.6	2.2910	86.116	1759.6	2.2822	**1420**
1440	102.86	1770.8	2.3065	94.287	1770.7	2.2969	87.033	1770.7	2.2881	**1440**
1460	103.94	1781.9	2.3123	95.280	1781.9	2.3027	87.950	1781.9	2.2939	**1460**
1480	105.03	1793.1	2.3181	96.274	1793.1	2.3085	88.867	1793.1	2.2997	**1480**
1500	106.11	1804.3	2.3239	97.267	1804.3	2.3143	89.784	1804.3	2.3055	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**14 psia** (t_{sat} = 209.52 °F)			**15 psia** (t_{sat} = 212.99 °F)			**16 psia** (t_{sat} = 216.27 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 697	177.68	0.3084	0.016 721	181.18	0.3137	0.016 745	184.49	0.3186	Sat. Liq.
Sat. Vap.	28.048	1149.4	1.7605	26.295	1150.7	1.7549	24.755	1151.9	1.7497	Sat. Vap.
32	0.016 021	0.024	0.0000	0.016 021	0.027	0.0000	0.016 021	0.030	0.0000	**32**
40	0.016 019	8.073	0.0162	0.016 019	8.076	0.0162	0.016 019	8.079	0.0162	**40**
50	0.016 023	18.106	0.0361	0.016 023	18.109	0.0361	0.016 023	18.112	0.0361	**50**
60	0.016 034	28.118	0.0555	0.016 034	28.120	0.0555	0.016 034	28.123	0.0555	**60**
70	0.016 051	38.116	0.0746	0.016 051	38.119	0.0746	0.016 051	38.122	0.0746	**70**
80	0.016 073	48.106	0.0933	0.016 073	48.109	0.0933	0.016 073	48.111	0.0933	**80**
90	0.016 100	58.090	0.1116	0.016 100	58.093	0.1116	0.016 100	58.096	0.1116	**90**
100	0.016 131	68.071	0.1296	0.016 130	68.074	0.1296	0.016 130	68.077	0.1296	**100**
110	0.016 165	78.052	0.1473	0.016 165	78.054	0.1473	0.016 165	78.057	0.1473	**110**
120	0.016 204	88.033	0.1647	0.016 204	88.036	0.1646	0.016 204	88.038	0.1646	**120**
130	0.016 246	98.017	0.1817	0.016 246	98.019	0.1817	0.016 246	98.022	0.1817	**130**
140	0.016 292	108.00	0.1985	0.016 292	108.01	0.1985	0.016 292	108.01	0.1985	**140**
150	0.016 341	118.00	0.2151	0.016 341	118.00	0.2150	0.016 341	118.00	0.2150	**150**
160	0.016 393	128.00	0.2313	0.016 393	128.00	0.2313	0.016 393	128.00	0.2313	**160**
170	0.016 449	138.01	0.2473	0.016 449	138.01	0.2473	0.016 448	138.01	0.2473	**170**
180	0.016 507	148.03	0.2631	0.016 507	148.03	0.2631	0.016 507	148.03	0.2631	**180**
190	0.016 569	158.06	0.2787	0.016 568	158.06	0.2787	0.016 568	158.06	0.2787	**190**
200	0.016 633	168.10	0.2940	0.016 633	168.11	0.2940	0.016 633	168.11	0.2940	**200**
210	28.070	1149.6	1.7608	0.016 701	178.17	0.3092	0.016 701	178.17	0.3092	**210**
220	28.521	1154.5	1.7681	26.591	1154.1	1.7601	24.903	1153.7	1.7525	**220**
230	28.969	1159.4	1.7752	27.012	1159.0	1.7672	25.299	1158.7	1.7597	**230**
240	29.415	1164.2	1.7822	27.430	1163.9	1.7742	25.692	1163.6	1.7667	**240**
250	29.860	1169.0	1.7890	27.846	1168.7	1.7811	26.084	1168.4	1.7736	**250**
260	30.303	1173.8	1.7958	28.261	1173.6	1.7878	26.474	1173.3	1.7804	**260**
270	30.744	1178.6	1.8023	28.674	1178.4	1.7945	26.862	1178.1	1.7871	**270**
280	31.185	1183.4	1.8088	29.086	1183.1	1.8010	27.249	1182.9	1.7936	**280**
290	31.624	1188.1	1.8152	29.497	1187.9	1.8074	27.635	1187.7	1.8000	**290**
300	32.062	1192.9	1.8215	29.906	1192.7	1.8137	28.020	1192.4	1.8063	**300**
310	32.499	1197.6	1.8277	30.315	1197.4	1.8199	28.405	1197.2	1.8125	**310**
320	32.935	1202.3	1.8338	30.723	1202.1	1.8260	28.788	1202.0	1.8187	**320**
330	33.371	1207.1	1.8398	31.131	1206.9	1.8320	29.170	1206.7	1.8247	**330**
340	33.806	1211.8	1.8457	31.537	1211.6	1.8380	29.552	1211.4	1.8307	**340**
350	34.240	1216.5	1.8516	31.943	1216.3	1.8438	29.933	1216.2	1.8366	**350**
360	34.674	1221.2	1.8574	32.349	1221.1	1.8496	30.314	1220.9	1.8424	**360**
370	35.107	1225.9	1.8631	32.754	1225.8	1.8554	30.694	1225.6	1.8481	**370**
380	35.540	1230.6	1.8688	33.158	1230.5	1.8610	31.074	1230.4	1.8538	**380**
390	35.972	1235.4	1.8743	33.562	1235.2	1.8666	31.453	1235.1	1.8594	**390**
400	36.404	1240.1	1.8799	33.966	1239.9	1.8721	31.832	1239.8	1.8649	**400**
410	36.836	1244.8	1.8853	34.369	1244.7	1.8776	32.210	1244.5	1.8704	**410**
420	37.267	1249.5	1.8907	34.772	1249.4	1.8830	32.588	1249.3	1.8758	**420**
430	37.698	1254.2	1.8961	35.174	1254.1	1.8884	32.966	1254.0	1.8811	**430**
440	38.129	1259.0	1.9013	35.577	1258.9	1.8936	33.344	1258.7	1.8864	**440**
450	38.559	1263.7	1.9066	35.979	1263.6	1.8989	33.721	1263.5	1.8917	**450**
460	38.990	1268.4	1.9117	36.381	1268.3	1.9041	34.098	1268.2	1.8969	**460**
470	39.420	1273.2	1.9169	36.782	1273.1	1.9092	34.475	1273.0	1.9020	**470**
480	39.849	1277.9	1.9220	37.184	1277.8	1.9143	34.851	1277.7	1.9071	**480**
490	40.279	1282.7	1.9270	37.585	1282.6	1.9193	35.228	1282.5	1.9121	**490**
500	40.708	1287.4	1.9320	37.986	1287.3	1.9243	35.604	1287.2	1.9171	**500**
510	41.137	1292.2	1.9369	38.387	1292.1	1.9292	35.980	1292.0	1.9220	**510**
520	41.567	1297.0	1.9418	38.787	1296.9	1.9341	36.356	1296.8	1.9269	**520**
530	41.995	1301.7	1.9466	39.188	1301.6	1.9390	36.732	1301.6	1.9318	**530**
540	42.424	1306.5	1.9514	39.588	1306.4	1.9438	37.107	1306.4	1.9366	**540**
550	42.853	1311.3	1.9562	39.989	1311.2	1.9485	37.483	1311.1	1.9414	**550**
560	43.281	1316.1	1.9609	40.389	1316.0	1.9533	37.858	1315.9	1.9461	**560**
570	43.710	1320.9	1.9656	40.789	1320.8	1.9580	38.233	1320.7	1.9508	**570**
580	44.138	1325.7	1.9703	41.189	1325.6	1.9626	38.608	1325.6	1.9554	**580**
590	44.566	1330.5	1.9749	41.589	1330.4	1.9672	38.983	1330.4	1.9601	**590**
600	44.994	1335.3	1.9794	41.988	1335.3	1.9718	39.358	1335.2	1.9646	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**14 psia** (t_{sat} = 209.52 °F)			**15 psia** (t_{sat} = 212.99 °F)			**16 psia** (t_{sat} = 216.27 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	45.422	1340.2	1.9840	42.388	1340.1	1.9763	39.733	1340.0	1.9692	**610**
620	45.850	1345.0	1.9885	42.787	1344.9	1.9808	40.108	1344.9	1.9737	**620**
630	46.278	1349.8	1.9929	43.187	1349.8	1.9853	40.482	1349.7	1.9781	**630**
640	46.706	1354.7	1.9974	43.586	1354.6	1.9897	40.857	1354.6	1.9826	**640**
650	47.133	1359.5	2.0018	43.985	1359.5	1.9941	41.231	1359.4	1.9870	**650**
660	47.561	1364.4	2.0061	44.385	1364.4	1.9985	41.606	1364.3	1.9913	**660**
670	47.988	1369.3	2.0105	44.784	1369.2	2.0028	41.980	1369.2	1.9957	**670**
680	48.416	1374.2	2.0148	45.183	1374.1	2.0071	42.354	1374.1	2.0000	**680**
690	48.843	1379.1	2.0190	45.582	1379.0	2.0114	42.728	1378.9	2.0043	**690**
700	49.270	1383.9	2.0233	45.981	1383.9	2.0156	43.102	1383.8	2.0085	**700**
710	49.698	1388.9	2.0275	46.380	1388.8	2.0199	43.477	1388.8	2.0127	**710**
720	50.125	1393.8	2.0317	46.779	1393.7	2.0240	43.851	1393.7	2.0169	**720**
730	50.552	1398.7	2.0358	47.177	1398.6	2.0282	44.225	1398.6	2.0210	**730**
740	50.979	1403.6	2.0400	47.576	1403.6	2.0323	44.598	1403.5	2.0252	**740**
750	51.406	1408.6	2.0441	47.975	1408.5	2.0364	44.972	1408.5	2.0293	**750**
760	51.833	1413.5	2.0481	48.373	1413.5	2.0405	45.346	1413.4	2.0333	**760**
770	52.260	1418.5	2.0522	48.772	1418.4	2.0445	45.720	1418.4	2.0374	**770**
780	52.687	1423.4	2.0562	49.171	1423.4	2.0486	46.094	1423.3	2.0414	**780**
790	53.114	1428.4	2.0602	49.569	1428.3	2.0525	46.467	1428.3	2.0454	**790**
800	53.541	1433.4	2.0641	49.968	1433.3	2.0565	46.841	1433.3	2.0494	**800**
820	54.394	1443.3	2.0720	50.764	1443.3	2.0644	47.588	1443.3	2.0572	**820**
840	55.248	1453.4	2.0798	51.561	1453.3	2.0721	48.335	1453.3	2.0650	**840**
860	56.101	1463.4	2.0875	52.358	1463.4	2.0798	49.082	1463.3	2.0727	**860**
880	56.954	1473.5	2.0950	53.154	1473.5	2.0874	49.829	1473.4	2.0803	**880**
900	57.807	1483.6	2.1025	53.950	1483.6	2.0949	50.576	1483.6	2.0878	**900**
920	58.660	1493.8	2.1100	54.747	1493.7	2.1023	51.322	1493.7	2.0952	**920**
940	59.513	1504.0	2.1173	55.543	1503.9	2.1097	52.069	1503.9	2.1025	**940**
960	60.366	1514.2	2.1245	56.339	1514.2	2.1169	52.815	1514.1	2.1098	**960**
980	61.219	1524.5	2.1317	57.135	1524.4	2.1241	53.561	1524.4	2.1170	**980**
1000	62.071	1534.8	2.1388	57.931	1534.7	2.1312	54.308	1534.7	2.1241	**1000**
1020	62.924	1545.1	2.1459	58.726	1545.1	2.1382	55.054	1545.0	2.1311	**1020**
1040	63.776	1555.5	2.1528	59.522	1555.4	2.1452	55.800	1555.4	2.1381	**1040**
1060	64.628	1565.9	2.1597	60.318	1565.9	2.1521	56.546	1565.8	2.1450	**1060**
1080	65.481	1576.3	2.1665	61.113	1576.3	2.1589	57.292	1576.3	2.1518	**1080**
1100	66.333	1586.8	2.1733	61.909	1586.8	2.1657	58.038	1586.8	2.1586	**1100**
1120	67.185	1597.3	2.1800	62.704	1597.3	2.1724	58.783	1597.3	2.1653	**1120**
1140	68.037	1607.9	2.1867	63.500	1607.9	2.1790	59.529	1607.8	2.1719	**1140**
1160	68.889	1618.5	2.1932	64.295	1618.5	2.1856	60.275	1618.4	2.1785	**1160**
1180	69.742	1629.1	2.1998	65.090	1629.1	2.1921	61.021	1629.1	2.1850	**1180**
1200	70.594	1639.8	2.2062	65.886	1639.8	2.1986	61.766	1639.7	2.1915	**1200**
1220	71.446	1650.5	2.2126	66.681	1650.5	2.2050	62.512	1650.5	2.1979	**1220**
1240	72.297	1661.2	2.2190	67.476	1661.2	2.2114	63.257	1661.2	2.2043	**1240**
1260	73.149	1672.0	2.2253	68.271	1672.0	2.2177	64.003	1672.0	2.2106	**1260**
1280	74.001	1682.8	2.2316	69.066	1682.8	2.2239	64.748	1682.8	2.2168	**1280**
1300	74.853	1693.7	2.2378	69.861	1693.7	2.2302	65.494	1693.7	2.2230	**1300**
1320	75.705	1704.6	2.2439	70.657	1704.6	2.2363	66.239	1704.5	2.2292	**1320**
1340	76.557	1715.5	2.2500	71.452	1715.5	2.2424	66.985	1715.5	2.2353	**1340**
1360	77.408	1726.5	2.2561	72.247	1726.5	2.2485	67.730	1726.4	2.2414	**1360**
1380	78.260	1737.5	2.2621	73.042	1737.5	2.2545	68.475	1737.4	2.2474	**1380**
1400	79.112	1748.5	2.2681	73.837	1748.5	2.2605	69.221	1748.5	2.2533	**1400**
1420	79.963	1759.6	2.2740	74.631	1759.6	2.2664	69.966	1759.6	2.2593	**1420**
1440	80.815	1770.7	2.2799	75.426	1770.7	2.2723	70.711	1770.7	2.2651	**1440**
1460	81.667	1781.9	2.2857	76.221	1781.9	2.2781	71.456	1781.8	2.2710	**1460**
1480	82.518	1793.1	2.2915	77.016	1793.1	2.2839	72.202	1793.0	2.2768	**1480**
1500	83.370	1804.3	2.2973	77.811	1804.3	2.2897	72.947	1804.3	2.2826	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**18 psia** (t_{sat} = 222.36 °F)			**20 psia** (t_{sat} = 227.92 °F)			**22 psia** (t_{sat} = 233.03 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 788	190.63	0.3276	0.016 829	196.25	0.3358	0.016 868	201.42	0.3433	Sat. Liq.
Sat. Vap.	22.173	1154.2	1.7403	20.092	1156.2	1.7319	18.378	1158.0	1.7243	Sat. Vap.
32	0.016 021	0.036	0.0000	0.016 021	0.042	0.0000	0.016 021	0.048	0.0000	**32**
40	0.016 019	8.085	0.0162	0.016 019	8.091	0.0162	0.016 018	8.097	0.0162	**40**
50	0.016 023	18.117	0.0361	0.016 023	18.123	0.0361	0.016 023	18.129	0.0361	**50**
60	0.016 034	28.129	0.0555	0.016 034	28.135	0.0555	0.016 034	28.140	0.0555	**60**
70	0.016 051	38.127	0.0746	0.016 051	38.133	0.0746	0.016 051	38.138	0.0746	**70**
80	0.016 073	48.117	0.0933	0.016 073	48.122	0.0933	0.016 073	48.128	0.0933	**80**
90	0.016 099	58.101	0.1116	0.016 099	58.106	0.1116	0.016 099	58.112	0.1116	**90**
100	0.016 130	68.082	0.1296	0.016 130	68.087	0.1296	0.016 130	68.093	0.1296	**100**
110	0.016 165	78.062	0.1473	0.016 165	78.067	0.1473	0.016 165	78.073	0.1473	**110**
120	0.016 204	88.043	0.1646	0.016 204	88.048	0.1646	0.016 204	88.054	0.1646	**120**
130	0.016 246	98.027	0.1817	0.016 246	98.032	0.1817	0.016 246	98.037	0.1817	**130**
140	0.016 292	108.01	0.1985	0.016 292	108.02	0.1985	0.016 292	108.02	0.1985	**140**
150	0.016 341	118.01	0.2150	0.016 341	118.01	0.2150	0.016 341	118.02	0.2150	**150**
160	0.016 393	128.01	0.2313	0.016 393	128.01	0.2313	0.016 393	128.02	0.2313	**160**
170	0.016 448	138.02	0.2473	0.016 448	138.02	0.2473	0.016 448	138.03	0.2473	**170**
180	0.016 507	148.04	0.2631	0.016 507	148.04	0.2631	0.016 507	148.05	0.2631	**180**
190	0.016 568	158.07	0.2787	0.016 568	158.07	0.2787	0.016 568	158.08	0.2787	**190**
200	0.016 633	168.11	0.2940	0.016 633	168.12	0.2940	0.016 633	168.12	0.2940	**200**
210	0.016 700	178.17	0.3092	0.016 700	178.18	0.3092	0.016 700	178.18	0.3092	**210**
220	0.016 771	188.25	0.3241	0.016 771	188.25	0.3241	0.016 771	188.26	0.3241	**220**
230	22.444	1158.0	1.7459	20.159	1157.2	1.7334	0.016 845	198.35	0.3388	**230**
240	22.796	1162.9	1.7530	20.479	1162.3	1.7406	18.582	1161.6	1.7293	**240**
250	23.147	1167.8	1.7600	20.796	1167.2	1.7477	18.873	1166.6	1.7365	**250**
260	23.495	1172.7	1.7668	21.112	1172.1	1.7546	19.162	1171.5	1.7434	**260**
270	23.843	1177.6	1.7735	21.427	1177.0	1.7613	19.450	1176.5	1.7502	**270**
280	24.189	1182.4	1.7801	21.740	1181.9	1.7679	19.736	1181.4	1.7569	**280**
290	24.533	1187.2	1.7865	22.051	1186.7	1.7744	20.021	1186.3	1.7634	**290**
300	24.877	1192.0	1.7929	22.362	1191.6	1.7808	20.304	1191.1	1.7698	**300**
310	25.220	1196.8	1.7991	22.672	1196.4	1.7871	20.587	1195.9	1.7762	**310**
320	25.562	1201.6	1.8053	22.981	1201.2	1.7933	20.869	1200.8	1.7824	**320**
330	25.903	1206.3	1.8114	23.289	1205.9	1.7994	21.150	1205.6	1.7885	**330**
340	26.244	1211.1	1.8174	23.597	1210.7	1.8054	21.431	1210.4	1.7946	**340**
350	26.583	1215.8	1.8233	23.903	1215.5	1.8113	21.711	1215.2	1.8005	**350**
360	26.923	1220.6	1.8291	24.210	1220.3	1.8172	21.990	1219.9	1.8064	**360**
370	27.262	1225.3	1.8348	24.515	1225.0	1.8230	22.269	1224.7	1.8122	**370**
380	27.600	1230.1	1.8405	24.821	1229.8	1.8286	22.547	1229.5	1.8179	**380**
390	27.938	1234.8	1.8461	25.126	1234.5	1.8343	22.825	1234.2	1.8235	**390**
400	28.275	1239.5	1.8517	25.430	1239.3	1.8398	23.102	1239.0	1.8291	**400**
410	28.612	1244.3	1.8572	25.734	1244.0	1.8453	23.379	1243.8	1.8346	**410**
420	28.949	1249.0	1.8626	26.038	1248.8	1.8508	23.656	1248.5	1.8400	**420**
430	29.286	1253.8	1.8680	26.341	1253.5	1.8561	23.932	1253.3	1.8454	**430**
440	29.622	1258.5	1.8733	26.644	1258.3	1.8615	24.208	1258.1	1.8508	**440**
450	29.958	1263.3	1.8785	26.947	1263.0	1.8667	24.484	1262.8	1.8560	**450**
460	30.293	1268.0	1.8837	27.250	1267.8	1.8719	24.759	1267.6	1.8612	**460**
470	30.629	1272.8	1.8888	27.552	1272.6	1.8771	25.035	1272.4	1.8664	**470**
480	30.964	1277.5	1.8939	27.854	1277.3	1.8822	25.310	1277.1	1.8715	**480**
490	31.299	1282.3	1.8990	28.156	1282.1	1.8872	25.585	1281.9	1.8766	**490**
500	31.634	1287.1	1.9040	28.458	1286.9	1.8922	25.859	1286.7	1.8816	**500**
510	31.969	1291.8	1.9089	28.759	1291.7	1.8972	26.134	1291.5	1.8865	**510**
520	32.303	1296.6	1.9138	29.061	1296.4	1.9021	26.408	1296.3	1.8915	**520**
530	32.637	1301.4	1.9187	29.362	1301.2	1.9070	26.682	1301.1	1.8963	**530**
540	32.972	1306.2	1.9235	29.663	1306.0	1.9118	26.956	1305.9	1.9011	**540**
550	33.306	1311.0	1.9283	29.964	1310.8	1.9166	27.230	1310.7	1.9059	**550**
560	33.640	1315.8	1.9330	30.265	1315.6	1.9213	27.504	1315.5	1.9107	**560**
570	33.974	1320.6	1.9377	30.566	1320.5	1.9260	27.778	1320.3	1.9154	**570**
580	34.307	1325.4	1.9424	30.867	1325.3	1.9306	28.051	1325.1	1.9200	**580**
590	34.641	1330.2	1.9470	31.167	1330.1	1.9353	28.325	1330.0	1.9247	**590**
600	34.974	1335.1	1.9516	31.467	1334.9	1.9398	28.598	1334.8	1.9292	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**18 psia** (t_{sat} = 222.36 °F)			**20 psia** (t_{sat} = 227.92 °F)			**22 psia** (t_{sat} = 233.03 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	35.308	1339.9	1.9561	31.768	1339.8	1.9444	28.871	1339.6	1.9338	**610**
620	35.641	1344.7	1.9606	32.068	1344.6	1.9489	29.145	1344.5	1.9383	**620**
630	35.974	1349.6	1.9651	32.368	1349.5	1.9534	29.418	1349.3	1.9428	**630**
640	36.308	1354.4	1.9695	32.668	1354.3	1.9578	29.691	1354.2	1.9472	**640**
650	36.641	1359.3	1.9739	32.968	1359.2	1.9622	29.964	1359.1	1.9516	**650**
660	36.974	1364.2	1.9783	33.268	1364.1	1.9666	30.236	1364.0	1.9560	**660**
670	37.307	1369.1	1.9826	33.568	1368.9	1.9709	30.509	1368.8	1.9604	**670**
680	37.640	1373.9	1.9869	33.868	1373.8	1.9752	30.782	1373.7	1.9647	**680**
690	37.972	1378.8	1.9912	34.168	1378.7	1.9795	31.055	1378.6	1.9689	**690**
700	38.305	1383.7	1.9954	34.467	1383.6	1.9838	31.327	1383.5	1.9732	**700**
710	38.638	1388.7	1.9997	34.767	1388.5	1.9880	31.600	1388.4	1.9774	**710**
720	38.970	1393.6	2.0038	35.066	1393.5	1.9922	31.872	1393.4	1.9816	**720**
730	39.303	1398.5	2.0080	35.366	1398.4	1.9963	32.145	1398.3	1.9858	**730**
740	39.636	1403.4	2.0121	35.665	1403.3	2.0005	32.417	1403.2	1.9899	**740**
750	39.968	1408.4	2.0162	35.965	1408.3	2.0046	32.689	1408.2	1.9940	**750**
760	40.301	1413.3	2.0203	36.264	1413.2	2.0086	32.962	1413.1	1.9981	**760**
770	40.633	1418.3	2.0244	36.563	1418.2	2.0127	33.234	1418.1	2.0021	**770**
780	40.965	1423.2	2.0284	36.863	1423.2	2.0167	33.506	1423.1	2.0062	**780**
790	41.298	1428.2	2.0324	37.162	1428.1	2.0207	33.778	1428.0	2.0102	**790**
800	41.630	1433.2	2.0363	37.461	1433.1	2.0247	34.050	1433.0	2.0141	**800**
820	42.294	1443.2	2.0442	38.059	1443.1	2.0326	34.594	1443.0	2.0220	**820**
840	42.959	1453.2	2.0520	38.658	1453.1	2.0403	35.138	1453.1	2.0298	**840**
860	43.623	1463.3	2.0597	39.256	1463.2	2.0480	35.682	1463.1	2.0375	**860**
880	44.287	1473.4	2.0673	39.853	1473.3	2.0556	36.226	1473.2	2.0451	**880**
900	44.951	1483.5	2.0748	40.451	1483.4	2.0631	36.770	1483.4	2.0526	**900**
920	45.615	1493.6	2.0822	41.049	1493.6	2.0705	37.313	1493.5	2.0600	**920**
940	46.278	1503.8	2.0895	41.646	1503.8	2.0779	37.856	1503.7	2.0673	**940**
960	46.942	1514.1	2.0968	42.244	1514.0	2.0851	38.400	1514.0	2.0746	**960**
980	47.606	1524.3	2.1040	42.841	1524.3	2.0923	38.943	1524.2	2.0818	**980**
1000	48.269	1534.7	2.1111	43.438	1534.6	2.0994	39.486	1534.5	2.0889	**1000**
1020	48.933	1545.0	2.1181	44.036	1544.9	2.1065	40.029	1544.9	2.0959	**1020**
1040	49.596	1555.4	2.1251	44.633	1555.3	2.1134	40.572	1555.3	2.1029	**1040**
1060	50.259	1565.8	2.1320	45.230	1565.7	2.1203	41.115	1565.7	2.1098	**1060**
1080	50.922	1576.2	2.1388	45.827	1576.2	2.1272	41.658	1576.1	2.1166	**1080**
1100	51.586	1586.7	2.1456	46.424	1586.7	2.1339	42.201	1586.6	2.1234	**1100**
1120	52.249	1597.2	2.1523	47.021	1597.2	2.1406	42.744	1597.2	2.1301	**1120**
1140	52.912	1607.8	2.1589	47.618	1607.8	2.1473	43.286	1607.7	2.1367	**1140**
1160	53.575	1618.4	2.1655	48.215	1618.4	2.1539	43.829	1618.3	2.1433	**1160**
1180	54.238	1629.0	2.1720	48.811	1629.0	2.1604	44.372	1629.0	2.1499	**1180**
1200	54.901	1639.7	2.1785	49.408	1639.7	2.1669	44.914	1639.6	2.1563	**1200**
1220	55.563	1650.4	2.1849	50.005	1650.4	2.1733	45.457	1650.3	2.1627	**1220**
1240	56.226	1661.2	2.1913	50.601	1661.1	2.1796	45.999	1661.1	2.1691	**1240**
1260	56.889	1671.9	2.1976	51.198	1671.9	2.1859	46.542	1671.9	2.1754	**1260**
1280	57.552	1682.8	2.2038	51.794	1682.7	2.1922	47.084	1682.7	2.1817	**1280**
1300	58.214	1693.6	2.2100	52.391	1693.6	2.1984	47.626	1693.5	2.1879	**1300**
1320	58.877	1704.5	2.2162	52.987	1704.5	2.2046	48.169	1704.4	2.1940	**1320**
1340	59.540	1715.4	2.2223	53.584	1715.4	2.2107	48.711	1715.4	2.2001	**1340**
1360	60.202	1726.4	2.2284	54.180	1726.4	2.2167	49.253	1726.3	2.2062	**1360**
1380	60.865	1737.4	2.2344	54.777	1737.4	2.2227	49.795	1737.4	2.2122	**1380**
1400	61.528	1748.5	2.2403	55.373	1748.4	2.2287	50.338	1748.4	2.2182	**1400**
1420	62.190	1759.5	2.2463	55.970	1759.5	2.2346	50.880	1759.5	2.2241	**1420**
1440	62.853	1770.7	2.2521	56.566	1770.6	2.2405	51.422	1770.6	2.2300	**1440**
1460	63.515	1781.8	2.2580	57.162	1781.8	2.2464	51.964	1781.8	2.2358	**1460**
1480	64.178	1793.0	2.2638	57.759	1793.0	2.2522	52.507	1793.0	2.2417	**1480**
1500	64.840	1804.2	2.2696	58.355	1804.2	2.2579	53.049	1804.2	2.2474	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**24 psia** (t_{sat} = 237.78 °F)			**26 psia** (t_{sat} = 242.21 °F)			**28 psia** (t_{sat} = 246.38 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.016 904	206.23	0.3502	0.016 939	210.72	0.3566	0.016 972	214.94	0.3626	Sat. Liq.
Sat. Vap.	16.941	1159.7	1.7173	15.719	1161.3	1.7109	14.665	1162.8	1.7050	Sat. Vap.
32	0.016 020	0.054	0.0000	0.016 020	0.060	0.0000	0.016 020	0.066	0.0000	**32**
40	0.016 018	8.103	0.0162	0.016 018	8.109	0.0162	0.016 018	8.115	0.0162	**40**
50	0.016 023	18.135	0.0361	0.016 023	18.140	0.0361	0.016 023	18.146	0.0361	**50**
60	0.016 034	28.146	0.0555	0.016 034	28.152	0.0555	0.016 034	28.157	0.0555	**60**
70	0.016 051	38.144	0.0746	0.016 050	38.149	0.0746	0.016 050	38.155	0.0746	**70**
80	0.016 073	48.133	0.0933	0.016 072	48.139	0.0933	0.016 072	48.144	0.0933	**80**
90	0.016 099	58.117	0.1116	0.016 099	58.122	0.1116	0.016 099	58.128	0.1116	**90**
100	0.016 130	68.098	0.1296	0.016 130	68.103	0.1296	0.016 130	68.108	0.1296	**100**
110	0.016 165	78.078	0.1473	0.016 165	78.083	0.1473	0.016 165	78.088	0.1473	**110**
120	0.016 204	88.059	0.1646	0.016 204	88.064	0.1646	0.016 203	88.069	0.1646	**120**
130	0.016 246	98.042	0.1817	0.016 246	98.047	0.1817	0.016 246	98.052	0.1817	**130**
140	0.016 292	108.03	0.1985	0.016 291	108.03	0.1985	0.016 291	108.04	0.1985	**140**
150	0.016 341	118.02	0.2150	0.016 340	118.03	0.2150	0.016 340	118.03	0.2150	**150**
160	0.016 393	128.02	0.2313	0.016 393	128.03	0.2313	0.016 393	128.03	0.2313	**160**
170	0.016 448	138.03	0.2473	0.016 448	138.04	0.2473	0.016 448	138.04	0.2473	**170**
180	0.016 507	148.05	0.2631	0.016 506	148.06	0.2631	0.016 506	148.06	0.2631	**180**
190	0.016 568	158.08	0.2787	0.016 568	158.09	0.2787	0.016 568	158.09	0.2787	**190**
200	0.016 633	168.13	0.2940	0.016 632	168.13	0.2940	0.016 632	168.14	0.2940	**200**
210	0.016 700	178.19	0.3092	0.016 700	178.19	0.3092	0.016 700	178.20	0.3092	**210**
220	0.016 771	188.26	0.3241	0.016 771	188.27	0.3241	0.016 771	188.27	0.3241	**220**
230	0.016 845	198.36	0.3388	0.016 844	198.36	0.3388	0.016 844	198.37	0.3388	**230**
240	17.001	1160.9	1.7190	0.016 921	208.48	0.3534	0.016 921	208.48	0.3534	**240**
250	17.270	1165.9	1.7261	15.913	1165.3	1.7166	14.750	1164.6	1.7077	**250**
260	17.537	1171.0	1.7332	16.161	1170.4	1.7237	14.982	1169.8	1.7148	**260**
270	17.802	1175.9	1.7400	16.408	1175.4	1.7306	15.212	1174.8	1.7218	**270**
280	18.066	1180.9	1.7467	16.652	1180.3	1.7374	15.441	1179.8	1.7286	**280**
290	18.328	1185.8	1.7533	16.896	1185.3	1.7440	15.668	1184.8	1.7353	**290**
300	18.589	1190.7	1.7598	17.138	1190.2	1.7505	15.894	1189.7	1.7419	**300**
310	18.850	1195.5	1.7661	17.380	1195.1	1.7569	16.119	1194.7	1.7483	**310**
320	19.109	1200.4	1.7724	17.620	1200.0	1.7632	16.343	1199.5	1.7546	**320**
330	19.368	1205.2	1.7786	17.860	1204.8	1.7694	16.567	1204.4	1.7608	**330**
340	19.626	1210.0	1.7846	18.099	1209.6	1.7754	16.789	1209.3	1.7669	**340**
350	19.883	1214.8	1.7906	18.337	1214.5	1.7814	17.011	1214.1	1.7729	**350**
360	20.140	1219.6	1.7965	18.575	1219.3	1.7873	17.233	1219.0	1.7789	**360**
370	20.396	1224.4	1.8023	18.812	1224.1	1.7932	17.454	1223.8	1.7847	**370**
380	20.652	1229.2	1.8080	19.048	1228.9	1.7989	17.674	1228.6	1.7905	**380**
390	20.907	1234.0	1.8137	19.285	1233.7	1.8046	17.894	1233.4	1.7962	**390**
400	21.162	1238.7	1.8193	19.520	1238.5	1.8102	18.113	1238.2	1.8018	**400**
410	21.416	1243.5	1.8248	19.756	1243.3	1.8157	18.332	1243.0	1.8073	**410**
420	21.671	1248.3	1.8302	19.991	1248.0	1.8212	18.551	1247.8	1.8128	**420**
430	21.924	1253.1	1.8356	20.226	1252.8	1.8266	18.769	1252.6	1.8182	**430**
440	22.178	1257.8	1.8410	20.460	1257.6	1.8320	18.987	1257.4	1.8236	**440**
450	22.431	1262.6	1.8463	20.694	1262.4	1.8373	19.205	1262.2	1.8289	**450**
460	22.684	1267.4	1.8515	20.928	1267.2	1.8425	19.423	1267.0	1.8341	**460**
470	22.937	1272.2	1.8566	21.162	1272.0	1.8477	19.640	1271.8	1.8393	**470**
480	23.189	1276.9	1.8618	21.395	1276.7	1.8528	19.857	1276.6	1.8445	**480**
490	23.442	1281.7	1.8668	21.628	1281.5	1.8579	20.074	1281.3	1.8495	**490**
500	23.694	1286.5	1.8718	21.861	1286.3	1.8629	20.291	1286.1	1.8546	**500**
510	23.946	1291.3	1.8768	22.094	1291.1	1.8678	20.507	1291.0	1.8595	**510**
520	24.198	1296.1	1.8817	22.327	1295.9	1.8728	20.724	1295.8	1.8645	**520**
530	24.449	1300.9	1.8866	22.560	1300.7	1.8777	20.940	1300.6	1.8694	**530**
540	24.701	1305.7	1.8914	22.792	1305.5	1.8825	21.156	1305.4	1.8742	**540**
550	24.952	1310.5	1.8962	23.024	1310.4	1.8873	21.372	1310.2	1.8790	**550**
560	25.203	1315.3	1.9010	23.256	1315.2	1.8920	21.588	1315.0	1.8838	**560**
570	25.454	1320.2	1.9057	23.488	1320.0	1.8967	21.803	1319.9	1.8885	**570**
580	25.705	1325.0	1.9103	23.720	1324.8	1.9014	22.019	1324.7	1.8931	**580**
590	25.956	1329.8	1.9150	23.952	1329.7	1.9060	22.234	1329.5	1.8978	**590**
600	26.207	1334.7	1.9196	24.184	1334.5	1.9106	22.450	1334.4	1.9024	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**24 psia** (t_{sat} = 237.78 °F)			**26 psia** (t_{sat} = 242.21 °F)			**28 psia** (t_{sat} = 246.38 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	26.458	1339.5	1.9241	24.415	1339.4	1.9152	22.665	1339.2	1.9069	**610**
620	26.708	1344.4	1.9286	24.647	1344.2	1.9197	22.880	1344.1	1.9115	**620**
630	26.959	1349.2	1.9331	24.878	1349.1	1.9242	23.095	1349.0	1.9159	**630**
640	27.209	1354.1	1.9376	25.110	1354.0	1.9286	23.310	1353.8	1.9204	**640**
650	27.460	1359.0	1.9420	25.341	1358.8	1.9331	23.525	1358.7	1.9248	**650**
660	27.710	1363.8	1.9463	25.572	1363.7	1.9374	23.740	1363.6	1.9292	**660**
670	27.960	1368.7	1.9507	25.803	1368.6	1.9418	23.955	1368.5	1.9335	**670**
680	28.210	1373.6	1.9550	26.034	1373.5	1.9461	24.169	1373.4	1.9379	**680**
690	28.460	1378.5	1.9593	26.265	1378.4	1.9504	24.384	1378.3	1.9422	**690**
700	28.710	1383.4	1.9635	26.496	1383.3	1.9546	24.598	1383.2	1.9464	**700**
710	28.960	1388.3	1.9678	26.727	1388.2	1.9589	24.813	1388.1	1.9506	**710**
720	29.210	1393.3	1.9719	26.958	1393.2	1.9631	25.027	1393.1	1.9548	**720**
730	29.460	1398.2	1.9761	27.189	1398.1	1.9672	25.242	1398.0	1.9590	**730**
740	29.710	1403.1	1.9802	27.420	1403.0	1.9714	25.456	1403.0	1.9631	**740**
750	29.960	1408.1	1.9844	27.650	1408.0	1.9755	25.671	1407.9	1.9672	**750**
760	30.210	1413.0	1.9884	27.881	1413.0	1.9796	25.885	1412.9	1.9713	**760**
770	30.459	1418.0	1.9925	28.111	1417.9	1.9836	26.099	1417.8	1.9754	**770**
780	30.709	1423.0	1.9965	28.342	1422.9	1.9876	26.313	1422.8	1.9794	**780**
790	30.958	1428.0	2.0005	28.572	1427.9	1.9916	26.527	1427.8	1.9834	**790**
800	31.208	1432.9	2.0045	28.803	1432.9	1.9956	26.741	1432.8	1.9874	**800**
820	31.707	1442.9	2.0124	29.264	1442.9	2.0035	27.169	1442.8	1.9953	**820**
840	32.206	1453.0	2.0201	29.724	1452.9	2.0113	27.597	1452.8	2.0031	**840**
860	32.704	1463.0	2.0278	30.185	1463.0	2.0190	28.025	1462.9	2.0108	**860**
880	33.203	1473.1	2.0354	30.645	1473.1	2.0266	28.453	1473.0	2.0184	**880**
900	33.702	1483.3	2.0429	31.106	1483.2	2.0341	28.880	1483.1	2.0259	**900**
920	34.200	1493.5	2.0504	31.566	1493.4	2.0415	29.308	1493.3	2.0333	**920**
940	34.698	1503.7	2.0577	32.026	1503.6	2.0488	29.735	1503.5	2.0406	**940**
960	35.196	1513.9	2.0650	32.486	1513.8	2.0561	30.162	1513.8	2.0479	**960**
980	35.694	1524.2	2.0722	32.946	1524.1	2.0633	30.590	1524.1	2.0551	**980**
1000	36.192	1534.5	2.0793	33.406	1534.4	2.0704	31.017	1534.4	2.0622	**1000**
1020	36.690	1544.8	2.0863	33.865	1544.8	2.0775	31.444	1544.7	2.0693	**1020**
1040	37.188	1555.2	2.0933	34.325	1555.2	2.0844	31.871	1555.1	2.0762	**1040**
1060	37.686	1565.6	2.1002	34.785	1565.6	2.0913	32.298	1565.5	2.0831	**1060**
1080	38.184	1576.1	2.1070	35.244	1576.0	2.0982	32.724	1576.0	2.0900	**1080**
1100	38.682	1586.6	2.1138	35.704	1586.5	2.1049	33.151	1586.5	2.0967	**1100**
1120	39.179	1597.1	2.1205	36.163	1597.1	2.1116	33.578	1597.0	2.1035	**1120**
1140	39.677	1607.7	2.1271	36.622	1607.6	2.1183	34.005	1607.6	2.1101	**1140**
1160	40.174	1618.3	2.1337	37.082	1618.2	2.1249	34.431	1618.2	2.1167	**1160**
1180	40.672	1628.9	2.1403	37.541	1628.9	2.1314	34.858	1628.8	2.1232	**1180**
1200	41.169	1639.6	2.1467	38.000	1639.5	2.1379	35.284	1639.5	2.1297	**1200**
1220	41.667	1650.3	2.1531	38.460	1650.3	2.1443	35.711	1650.2	2.1361	**1220**
1240	42.164	1661.0	2.1595	38.919	1661.0	2.1507	36.137	1661.0	2.1425	**1240**
1260	42.661	1671.8	2.1658	39.378	1671.8	2.1570	36.564	1671.8	2.1488	**1260**
1280	43.158	1682.7	2.1721	39.837	1682.6	2.1632	36.990	1682.6	2.1550	**1280**
1300	43.656	1693.5	2.1783	40.296	1693.5	2.1694	37.416	1693.4	2.1612	**1300**
1320	44.153	1704.4	2.1844	40.755	1704.4	2.1756	37.843	1704.3	2.1674	**1320**
1340	44.650	1715.3	2.1905	41.214	1715.3	2.1817	38.269	1715.3	2.1735	**1340**
1360	45.147	1726.3	2.1966	41.673	1726.3	2.1878	38.695	1726.3	2.1796	**1360**
1380	45.644	1737.3	2.2026	42.132	1737.3	2.1938	39.121	1737.3	2.1856	**1380**
1400	46.142	1748.4	2.2086	42.591	1748.3	2.1998	39.547	1748.3	2.1916	**1400**
1420	46.639	1759.5	2.2145	43.050	1759.4	2.2057	39.974	1759.4	2.1975	**1420**
1440	47.136	1770.6	2.2204	43.509	1770.5	2.2116	40.400	1770.5	2.2034	**1440**
1460	47.633	1781.7	2.2262	43.967	1781.7	2.2174	40.826	1781.7	2.2092	**1460**
1480	48.130	1792.9	2.2321	44.426	1792.9	2.2232	41.252	1792.9	2.2150	**1480**
1500	48.627	1804.2	2.2378	44.885	1804.1	2.2290	41.678	1804.1	2.2208	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**30 psia** (t_{sat} = 250.30 °F)			**32 psia** (t_{sat} = 254.02 °F)			**34 psia** (t_{sat} = 257.55 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.017 003	218.93	0.3682	0.017 034	222.70	0.3735	0.017 063	226.30	0.3785	Sat. Liq.
Sat. Vap.	13.748	1164.1	1.6995	12.942	1165.4	1.6944	12.228	1166.6	1.6896	Sat. Vap.
32	0.016 020	0.072	0.0000	0.016 020	0.078	0.0000	0.016 020	0.085	0.0000	**32**
40	0.016 018	8.120	0.0162	0.016 018	8.126	0.0162	0.016 018	8.132	0.0162	**40**
50	0.016 022	18.152	0.0361	0.016 022	18.158	0.0361	0.016 022	18.164	0.0361	**50**
60	0.016 033	28.163	0.0555	0.016 033	28.169	0.0555	0.016 033	28.174	0.0555	**60**
70	0.016 050	38.161	0.0746	0.016 050	38.166	0.0746	0.016 050	38.172	0.0746	**70**
80	0.016 072	48.149	0.0933	0.016 072	48.155	0.0933	0.016 072	48.160	0.0933	**80**
90	0.016 099	58.133	0.1116	0.016 099	58.138	0.1116	0.016 099	58.144	0.1116	**90**
100	0.016 130	68.114	0.1296	0.016 130	68.119	0.1296	0.016 130	68.124	0.1296	**100**
110	0.016 165	78.094	0.1473	0.016 165	78.099	0.1473	0.016 164	78.104	0.1473	**110**
120	0.016 203	88.074	0.1646	0.016 203	88.079	0.1646	0.016 203	88.084	0.1646	**120**
130	0.016 246	98.057	0.1817	0.016 245	98.062	0.1817	0.016 245	98.067	0.1817	**130**
140	0.016 291	108.04	0.1985	0.016 291	108.05	0.1985	0.016 291	108.05	0.1985	**140**
150	0.016 340	118.04	0.2150	0.016 340	118.04	0.2150	0.016 340	118.05	0.2150	**150**
160	0.016 392	128.04	0.2313	0.016 392	128.04	0.2313	0.016 392	128.05	0.2313	**160**
170	0.016 448	138.05	0.2473	0.016 448	138.05	0.2473	0.016 448	138.06	0.2473	**170**
180	0.016 506	148.07	0.2631	0.016 506	148.07	0.2631	0.016 506	148.07	0.2631	**180**
190	0.016 568	158.10	0.2787	0.016 568	158.10	0.2787	0.016 567	158.11	0.2787	**190**
200	0.016 632	168.14	0.2940	0.016 632	168.15	0.2940	0.016 632	168.15	0.2940	**200**
210	0.016 700	178.20	0.3092	0.016 700	178.20	0.3092	0.016 700	178.21	0.3091	**210**
220	0.016 770	188.28	0.3241	0.016 770	188.28	0.3241	0.016 770	188.29	0.3241	**220**
230	0.016 844	198.37	0.3388	0.016 844	198.37	0.3388	0.016 844	198.38	0.3388	**230**
240	0.016 921	208.48	0.3534	0.016 921	208.49	0.3534	0.016 921	208.49	0.3534	**240**
250	0.017 001	218.62	0.3678	0.017 001	218.62	0.3678	0.017 001	218.63	0.3678	**250**
260	13.960	1169.2	1.7066	13.065	1168.5	1.6987	12.275	1167.9	1.6914	**260**
270	14.176	1174.3	1.7136	13.269	1173.7	1.7059	12.469	1173.1	1.6985	**270**
280	14.391	1179.3	1.7205	13.472	1178.8	1.7128	12.660	1178.2	1.7055	**280**
290	14.604	1184.3	1.7272	13.673	1183.8	1.7195	12.851	1183.3	1.7123	**290**
300	14.816	1189.3	1.7338	13.872	1188.8	1.7262	13.040	1188.3	1.7190	**300**
310	15.027	1194.2	1.7402	14.071	1193.8	1.7327	13.227	1193.3	1.7255	**310**
320	15.237	1199.1	1.7466	14.269	1198.7	1.7391	13.414	1198.3	1.7320	**320**
330	15.446	1204.0	1.7528	14.466	1203.6	1.7453	13.600	1203.3	1.7383	**330**
340	15.655	1208.9	1.7590	14.662	1208.5	1.7515	13.786	1208.2	1.7444	**340**
350	15.863	1213.8	1.7650	14.857	1213.4	1.7576	13.970	1213.1	1.7505	**350**
360	16.070	1218.6	1.7710	15.052	1218.3	1.7635	14.154	1218.0	1.7565	**360**
370	16.277	1223.5	1.7768	15.247	1223.1	1.7694	14.338	1222.8	1.7624	**370**
380	16.483	1228.3	1.7826	15.440	1228.0	1.7752	14.521	1227.7	1.7683	**380**
390	16.688	1233.1	1.7883	15.634	1232.8	1.7809	14.703	1232.5	1.7740	**390**
400	16.894	1237.9	1.7939	15.827	1237.7	1.7866	14.885	1237.4	1.7797	**400**
410	17.099	1242.7	1.7995	16.019	1242.5	1.7922	15.067	1242.2	1.7853	**410**
420	17.303	1247.5	1.8050	16.211	1247.3	1.7977	15.248	1247.0	1.7908	**420**
430	17.507	1252.3	1.8104	16.403	1252.1	1.8031	15.429	1251.9	1.7962	**430**
440	17.711	1257.1	1.8158	16.595	1256.9	1.8085	15.609	1256.7	1.8016	**440**
450	17.915	1261.9	1.8211	16.786	1261.7	1.8138	15.790	1261.5	1.8069	**450**
460	18.118	1266.7	1.8264	16.977	1266.5	1.8191	15.970	1266.3	1.8122	**460**
470	18.321	1271.6	1.8316	17.168	1271.3	1.8243	16.149	1271.1	1.8174	**470**
480	18.524	1276.4	1.8367	17.358	1276.2	1.8294	16.329	1276.0	1.8226	**480**
490	18.727	1281.2	1.8418	17.548	1281.0	1.8345	16.508	1280.8	1.8277	**490**
500	18.930	1286.0	1.8468	17.739	1285.8	1.8396	16.688	1285.6	1.8327	**500**
510	19.132	1290.8	1.8518	17.928	1290.6	1.8446	16.867	1290.4	1.8377	**510**
520	19.334	1295.6	1.8567	18.118	1295.4	1.8495	17.045	1295.2	1.8427	**520**
530	19.536	1300.4	1.8616	18.308	1300.2	1.8544	17.224	1300.1	1.8476	**530**
540	19.738	1305.2	1.8665	18.497	1305.1	1.8592	17.403	1304.9	1.8524	**540**
550	19.940	1310.1	1.8713	18.687	1309.9	1.8641	17.581	1309.7	1.8573	**550**
560	20.141	1314.9	1.8760	18.876	1314.7	1.8688	17.759	1314.6	1.8620	**560**
570	20.343	1319.7	1.8808	19.065	1319.6	1.8735	17.937	1319.4	1.8668	**570**
580	20.544	1324.6	1.8854	19.254	1324.4	1.8782	18.115	1324.3	1.8714	**580**
590	20.745	1329.4	1.8901	19.443	1329.3	1.8829	18.293	1329.1	1.8761	**590**
600	20.947	1334.3	1.8947	19.631	1334.1	1.8875	18.471	1334.0	1.8807	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**30 psia** (t_{sat} = 250.30 °F)			**32 psia** (t_{sat} = 254.02 °F)			**34 psia** (t_{sat} = 257.55 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	21.148	1339.1	1.8992	19.820	1339.0	1.8920	18.649	1338.8	1.8853	**610**
620	21.349	1344.0	1.9038	20.009	1343.8	1.8966	18.826	1343.7	1.8898	**620**
630	21.550	1348.8	1.9083	20.197	1348.7	1.9011	19.004	1348.6	1.8943	**630**
640	21.750	1353.7	1.9127	20.386	1353.6	1.9055	19.181	1353.5	1.8987	**640**
650	21.951	1358.6	1.9171	20.574	1358.5	1.9099	19.359	1358.4	1.9032	**650**
660	22.152	1363.5	1.9215	20.762	1363.4	1.9143	19.536	1363.3	1.9076	**660**
670	22.352	1368.4	1.9259	20.950	1368.3	1.9187	19.713	1368.2	1.9119	**670**
680	22.553	1373.3	1.9302	21.138	1373.2	1.9230	19.890	1373.1	1.9162	**680**
690	22.753	1378.2	1.9345	21.326	1378.1	1.9273	20.068	1378.0	1.9205	**690**
700	22.954	1383.1	1.9387	21.514	1383.0	1.9316	20.245	1382.9	1.9248	**700**
710	23.154	1388.0	1.9430	21.702	1387.9	1.9358	20.422	1387.8	1.9290	**710**
720	23.354	1393.0	1.9472	21.890	1392.9	1.9400	20.598	1392.8	1.9332	**720**
730	23.555	1397.9	1.9513	22.078	1397.8	1.9442	20.775	1397.7	1.9374	**730**
740	23.755	1402.9	1.9555	22.266	1402.8	1.9483	20.952	1402.7	1.9416	**740**
750	23.955	1407.8	1.9596	22.454	1407.7	1.9524	21.129	1407.6	1.9457	**750**
760	24.155	1412.8	1.9637	22.641	1412.7	1.9565	21.306	1412.6	1.9498	**760**
770	24.355	1417.7	1.9677	22.829	1417.7	1.9606	21.482	1417.6	1.9538	**770**
780	24.555	1422.7	1.9718	23.016	1422.6	1.9646	21.659	1422.5	1.9579	**780**
790	24.755	1427.7	1.9758	23.204	1427.6	1.9686	21.836	1427.5	1.9619	**790**
800	24.955	1432.7	1.9797	23.391	1432.6	1.9726	22.012	1432.5	1.9658	**800**
820	25.354	1442.7	1.9876	23.766	1442.6	1.9805	22.365	1442.5	1.9737	**820**
840	25.754	1452.8	1.9954	24.141	1452.7	1.9883	22.718	1452.6	1.9815	**840**
860	26.153	1462.8	2.0031	24.516	1462.8	1.9960	23.071	1462.7	1.9892	**860**
880	26.553	1472.9	2.0107	24.890	1472.9	2.0036	23.423	1472.8	1.9968	**880**
900	26.952	1483.1	2.0182	25.265	1483.0	2.0111	23.776	1482.9	2.0044	**900**
920	27.351	1493.3	2.0257	25.639	1493.2	2.0185	24.128	1493.1	2.0118	**920**
940	27.750	1503.5	2.0330	26.013	1503.4	2.0259	24.480	1503.3	2.0191	**940**
960	28.149	1513.7	2.0403	26.387	1513.7	2.0331	24.832	1513.6	2.0264	**960**
980	28.548	1524.0	2.0475	26.761	1523.9	2.0403	25.185	1523.9	2.0336	**980**
1000	28.946	1534.3	2.0546	27.135	1534.3	2.0474	25.537	1534.2	2.0407	**1000**
1020	29.345	1544.7	2.0616	27.509	1544.6	2.0545	25.889	1544.6	2.0478	**1020**
1040	29.744	1555.1	2.0686	27.883	1555.0	2.0615	26.240	1555.0	2.0548	**1040**
1060	30.142	1565.5	2.0755	28.256	1565.4	2.0684	26.592	1565.4	2.0617	**1060**
1080	30.541	1575.9	2.0823	28.630	1575.9	2.0752	26.944	1575.8	2.0685	**1080**
1100	30.939	1586.4	2.0891	29.003	1586.4	2.0820	27.296	1586.3	2.0753	**1100**
1120	31.337	1597.0	2.0958	29.377	1596.9	2.0887	27.647	1596.9	2.0820	**1120**
1140	31.736	1607.5	2.1025	29.750	1607.5	2.0953	27.999	1607.5	2.0886	**1140**
1160	32.134	1618.1	2.1091	30.124	1618.1	2.1019	28.350	1618.1	2.0952	**1160**
1180	32.532	1628.8	2.1156	30.497	1628.7	2.1085	28.702	1628.7	2.1018	**1180**
1200	32.930	1639.5	2.1221	30.871	1639.4	2.1149	29.053	1639.4	2.1082	**1200**
1220	33.328	1650.2	2.1285	31.244	1650.1	2.1214	29.405	1650.1	2.1147	**1220**
1240	33.726	1660.9	2.1349	31.617	1660.9	2.1277	29.756	1660.9	2.1210	**1240**
1260	34.125	1671.7	2.1412	31.990	1671.7	2.1340	30.107	1671.6	2.1273	**1260**
1280	34.523	1682.5	2.1474	32.364	1682.5	2.1403	30.459	1682.5	2.1336	**1280**
1300	34.920	1693.4	2.1536	32.737	1693.4	2.1465	30.810	1693.3	2.1398	**1300**
1320	35.318	1704.3	2.1598	33.110	1704.3	2.1527	31.161	1704.2	2.1460	**1320**
1340	35.716	1715.2	2.1659	33.483	1715.2	2.1588	31.512	1715.2	2.1521	**1340**
1360	36.114	1726.2	2.1720	33.856	1726.2	2.1648	31.863	1726.2	2.1581	**1360**
1380	36.512	1737.2	2.1780	34.229	1737.2	2.1709	32.214	1737.2	2.1642	**1380**
1400	36.910	1748.3	2.1840	34.602	1748.3	2.1768	32.566	1748.2	2.1701	**1400**
1420	37.308	1759.4	2.1899	34.975	1759.3	2.1828	32.917	1759.3	2.1761	**1420**
1440	37.705	1770.5	2.1958	35.348	1770.5	2.1886	33.268	1770.4	2.1819	**1440**
1460	38.103	1781.6	2.2016	35.721	1781.6	2.1945	33.619	1781.6	2.1878	**1460**
1480	38.501	1792.9	2.2074	36.094	1792.8	2.2003	33.970	1792.8	2.1936	**1480**
1500	38.899	1804.1	2.2132	36.467	1804.1	2.2061	34.321	1804.0	2.1994	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**36 psia** (t_{sat} = 260.92 °F)			**38 psia** (t_{sat} = 264.14 °F)			**40 psia** (t_{sat} = 267.22 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.017 092	229.73	0.3833	0.017 119	233.01	0.3878	0.017 146	236.15	0.3921	Sat. Liq.
Sat. Vap.	11.590	1167.7	1.6850	11.018	1168.8	1.6807	10.500	1169.8	1.6766	Sat. Vap.
32	0.016 020	0.091	0.0000	0.016 020	0.097	0.0000	0.016 020	0.103	0.0000	**32**
40	0.016 018	8.138	0.0162	0.016 018	8.144	0.0162	0.016 018	8.150	0.0162	**40**
50	0.016 022	18.169	0.0361	0.016 022	18.175	0.0361	0.016 022	18.181	0.0361	**50**
60	0.016 033	28.180	0.0555	0.016 033	28.186	0.0555	0.016 033	28.191	0.0555	**60**
70	0.016 050	38.177	0.0746	0.016 050	38.183	0.0746	0.016 050	38.188	0.0746	**70**
80	0.016 072	48.166	0.0933	0.016 072	48.171	0.0933	0.016 072	48.177	0.0933	**80**
90	0.016 099	58.149	0.1116	0.016 098	58.155	0.1116	0.016 098	58.160	0.1116	**90**
100	0.016 129	68.130	0.1296	0.016 129	68.135	0.1296	0.016 129	68.140	0.1296	**100**
110	0.016 164	78.109	0.1473	0.016 164	78.114	0.1473	0.016 164	78.120	0.1473	**110**
120	0.016 203	88.090	0.1646	0.016 203	88.095	0.1646	0.016 203	88.100	0.1646	**120**
130	0.016 245	98.072	0.1817	0.016 245	98.077	0.1817	0.016 245	98.082	0.1817	**130**
140	0.016 291	108.06	0.1985	0.016 291	108.06	0.1985	0.016 291	108.07	0.1985	**140**
150	0.016 340	118.05	0.2150	0.016 340	118.06	0.2150	0.016 340	118.06	0.2150	**150**
160	0.016 392	128.05	0.2313	0.016 392	128.06	0.2313	0.016 392	128.06	0.2313	**160**
170	0.016 447	138.06	0.2473	0.016 447	138.07	0.2473	0.016 447	138.07	0.2473	**170**
180	0.016 506	148.08	0.2631	0.016 506	148.08	0.2631	0.016 506	148.09	0.2631	**180**
190	0.016 567	158.11	0.2787	0.016 567	158.12	0.2787	0.016 567	158.12	0.2787	**190**
200	0.016 632	168.15	0.2940	0.016 632	168.16	0.2940	0.016 632	168.16	0.2940	**200**
210	0.016 699	178.21	0.3091	0.016 699	178.22	0.3091	0.016 699	178.22	0.3091	**210**
220	0.016 770	188.29	0.3241	0.016 770	188.29	0.3241	0.016 770	188.30	0.3241	**220**
230	0.016 844	198.38	0.3388	0.016 844	198.39	0.3388	0.016 844	198.39	0.3388	**230**
240	0.016 921	208.50	0.3534	0.016 921	208.50	0.3534	0.016 920	208.51	0.3534	**240**
250	0.017 001	218.63	0.3678	0.017 000	218.64	0.3678	0.017 000	218.64	0.3678	**250**
260	0.017 084	228.79	0.3820	0.017 084	228.79	0.3820	0.017 084	228.80	0.3820	**260**
270	11.757	1172.5	1.6916	11.120	1171.9	1.6850	10.547	1171.3	1.6787	**270**
280	11.939	1177.7	1.6986	11.294	1177.1	1.6921	10.713	1176.6	1.6858	**280**
290	12.120	1182.8	1.7055	11.466	1182.3	1.6990	10.878	1181.8	1.6928	**290**
300	12.299	1187.9	1.7122	11.637	1187.4	1.7058	11.041	1186.9	1.6996	**300**
310	12.478	1192.9	1.7188	11.807	1192.5	1.7124	11.203	1192.0	1.7063	**310**
320	12.655	1197.9	1.7252	11.975	1197.5	1.7189	11.363	1197.0	1.7128	**320**
330	12.831	1202.9	1.7316	12.143	1202.5	1.7252	11.523	1202.1	1.7192	**330**
340	13.007	1207.8	1.7378	12.310	1207.4	1.7315	11.683	1207.0	1.7254	**340**
350	13.182	1212.7	1.7439	12.476	1212.4	1.7376	11.841	1212.0	1.7316	**350**
360	13.356	1217.6	1.7499	12.642	1217.3	1.7436	11.999	1217.0	1.7377	**360**
370	13.530	1222.5	1.7558	12.807	1222.2	1.7496	12.156	1221.9	1.7436	**370**
380	13.703	1227.4	1.7617	12.971	1227.1	1.7554	12.313	1226.8	1.7495	**380**
390	13.876	1232.2	1.7674	13.135	1232.0	1.7612	12.469	1231.7	1.7553	**390**
400	14.048	1237.1	1.7731	13.299	1236.8	1.7669	12.625	1236.5	1.7610	**400**
410	14.220	1241.9	1.7787	13.462	1241.7	1.7725	12.780	1241.4	1.7667	**410**
420	14.391	1246.8	1.7843	13.625	1246.5	1.7781	12.935	1246.3	1.7722	**420**
430	14.563	1251.6	1.7897	13.788	1251.4	1.7836	13.090	1251.1	1.7777	**430**
440	14.733	1256.5	1.7951	13.950	1256.2	1.7890	13.244	1256.0	1.7831	**440**
450	14.904	1261.3	1.8005	14.112	1261.1	1.7943	13.398	1260.8	1.7885	**450**
460	15.074	1266.1	1.8057	14.273	1265.9	1.7996	13.552	1265.7	1.7938	**460**
470	15.244	1270.9	1.8110	14.435	1270.7	1.8048	13.706	1270.5	1.7990	**470**
480	15.414	1275.8	1.8161	14.596	1275.6	1.8100	13.859	1275.4	1.8042	**480**
490	15.584	1280.6	1.8212	14.757	1280.4	1.8151	14.012	1280.2	1.8093	**490**
500	15.753	1285.4	1.8263	14.918	1285.2	1.8202	14.165	1285.0	1.8144	**500**
510	15.923	1290.2	1.8313	15.078	1290.1	1.8252	14.318	1289.9	1.8194	**510**
520	16.092	1295.1	1.8362	15.238	1294.9	1.8302	14.471	1294.7	1.8244	**520**
530	16.261	1299.9	1.8412	15.399	1299.7	1.8351	14.623	1299.6	1.8293	**530**
540	16.429	1304.7	1.8460	15.559	1304.6	1.8399	14.775	1304.4	1.8342	**540**
550	16.598	1309.6	1.8508	15.719	1309.4	1.8448	14.927	1309.3	1.8390	**550**
560	16.767	1314.4	1.8556	15.879	1314.3	1.8495	15.079	1314.1	1.8438	**560**
570	16.935	1319.3	1.8603	16.038	1319.1	1.8543	15.231	1319.0	1.8485	**570**
580	17.103	1324.1	1.8650	16.198	1324.0	1.8590	15.383	1323.8	1.8532	**580**
590	17.272	1329.0	1.8697	16.357	1328.8	1.8636	15.535	1328.7	1.8579	**590**
600	17.440	1333.9	1.8743	16.517	1333.7	1.8682	15.686	1333.6	1.8625	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**36 psia** (t_{sat} = 260.92 °F)			**38 psia** (t_{sat} = 264.14 °F)			**40 psia** (t_{sat} = 267.22 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	17.608	1338.7	1.8789	16.676	1338.6	1.8728	15.838	1338.5	1.8671	**610**
620	17.775	1343.6	1.8834	16.835	1343.5	1.8774	15.989	1343.3	1.8716	**620**
630	17.943	1348.5	1.8879	16.994	1348.3	1.8819	16.140	1348.2	1.8761	**630**
640	18.111	1353.4	1.8924	17.153	1353.2	1.8863	16.291	1353.1	1.8806	**640**
650	18.279	1358.2	1.8968	17.312	1358.1	1.8908	16.442	1358.0	1.8850	**650**
660	18.446	1363.1	1.9012	17.471	1363.0	1.8952	16.593	1362.9	1.8894	**660**
670	18.614	1368.1	1.9055	17.630	1367.9	1.8995	16.744	1367.8	1.8938	**670**
680	18.781	1373.0	1.9099	17.789	1372.9	1.9038	16.895	1372.7	1.8981	**680**
690	18.948	1377.9	1.9142	17.947	1377.8	1.9081	17.046	1377.7	1.9024	**690**
700	19.116	1382.8	1.9184	18.106	1382.7	1.9124	17.197	1382.6	1.9067	**700**
710	19.283	1387.7	1.9227	18.264	1387.6	1.9166	17.348	1387.5	1.9109	**710**
720	19.450	1392.7	1.9269	18.423	1392.6	1.9209	17.498	1392.5	1.9151	**720**
730	19.617	1397.6	1.9311	18.581	1397.5	1.9250	17.649	1397.4	1.9193	**730**
740	19.784	1402.6	1.9352	18.740	1402.5	1.9292	17.799	1402.4	1.9235	**740**
750	19.951	1407.5	1.9393	18.898	1407.4	1.9333	17.950	1407.3	1.9276	**750**
760	20.118	1412.5	1.9434	19.056	1412.4	1.9374	18.100	1412.3	1.9317	**760**
770	20.285	1417.5	1.9475	19.214	1417.4	1.9415	18.251	1417.3	1.9357	**770**
780	20.452	1422.5	1.9515	19.373	1422.4	1.9455	18.401	1422.3	1.9398	**780**
790	20.619	1427.5	1.9555	19.531	1427.4	1.9495	18.551	1427.3	1.9438	**790**
800	20.786	1432.4	1.9595	19.689	1432.4	1.9535	18.702	1432.3	1.9478	**800**
820	21.119	1442.5	1.9674	20.005	1442.4	1.9614	19.002	1442.3	1.9557	**820**
840	21.453	1452.5	1.9752	20.321	1452.4	1.9692	19.302	1452.4	1.9635	**840**
860	21.786	1462.6	1.9829	20.637	1462.5	1.9769	19.602	1462.5	1.9712	**860**
880	22.119	1472.7	1.9905	20.952	1472.7	1.9845	19.902	1472.6	1.9788	**880**
900	22.452	1482.9	1.9980	21.268	1482.8	1.9920	20.202	1482.7	1.9863	**900**
920	22.785	1493.1	2.0055	21.584	1493.0	1.9995	20.502	1492.9	1.9938	**920**
940	23.118	1503.3	2.0128	21.899	1503.2	2.0068	20.802	1503.2	2.0011	**940**
960	23.451	1513.5	2.0201	22.214	1513.5	2.0141	21.101	1513.4	2.0084	**960**
980	23.783	1523.8	2.0273	22.529	1523.8	2.0213	21.401	1523.7	2.0156	**980**
1000	24.116	1534.1	2.0344	22.845	1534.1	2.0284	21.700	1534.0	2.0227	**1000**
1020	24.448	1544.5	2.0414	23.160	1544.5	2.0355	22.000	1544.4	2.0298	**1020**
1040	24.781	1554.9	2.0484	23.475	1554.8	2.0424	22.299	1554.8	2.0368	**1040**
1060	25.113	1565.3	2.0553	23.789	1565.3	2.0493	22.598	1565.2	2.0437	**1060**
1080	25.445	1575.8	2.0622	24.104	1575.7	2.0562	22.898	1575.7	2.0505	**1080**
1100	25.777	1586.3	2.0690	24.419	1586.2	2.0630	23.197	1586.2	2.0573	**1100**
1120	26.110	1596.8	2.0757	24.734	1596.8	2.0697	23.496	1596.7	2.0640	**1120**
1140	26.442	1607.4	2.0823	25.049	1607.4	2.0763	23.795	1607.3	2.0707	**1140**
1160	26.774	1618.0	2.0889	25.363	1618.0	2.0829	24.094	1617.9	2.0773	**1160**
1180	27.106	1628.7	2.0954	25.678	1628.6	2.0895	24.393	1628.6	2.0838	**1180**
1200	27.438	1639.3	2.1019	25.992	1639.3	2.0959	24.691	1639.3	2.0903	**1200**
1220	27.770	1650.1	2.1083	26.307	1650.0	2.1024	24.990	1650.0	2.0967	**1220**
1240	28.102	1660.8	2.1147	26.621	1660.8	2.1087	25.289	1660.7	2.1031	**1240**
1260	28.433	1671.6	2.1210	26.936	1671.6	2.1150	25.588	1671.5	2.1094	**1260**
1280	28.765	1682.4	2.1273	27.250	1682.4	2.1213	25.887	1682.4	2.1156	**1280**
1300	29.097	1693.3	2.1335	27.564	1693.3	2.1275	26.185	1693.2	2.1218	**1300**
1320	29.429	1704.2	2.1396	27.879	1704.2	2.1337	26.484	1704.1	2.1280	**1320**
1340	29.760	1715.2	2.1458	28.193	1715.1	2.1398	26.782	1715.1	2.1341	**1340**
1360	30.092	1726.1	2.1518	28.507	1726.1	2.1459	27.081	1726.1	2.1402	**1360**
1380	30.424	1737.1	2.1578	28.822	1737.1	2.1519	27.380	1737.1	2.1462	**1380**
1400	30.755	1748.2	2.1638	29.136	1748.2	2.1578	27.678	1748.1	2.1522	**1400**
1420	31.087	1759.3	2.1697	29.450	1759.3	2.1638	27.977	1759.2	2.1581	**1420**
1440	31.419	1770.4	2.1756	29.764	1770.4	2.1697	28.275	1770.3	2.1640	**1440**
1460	31.750	1781.6	2.1815	30.078	1781.5	2.1755	28.574	1781.5	2.1698	**1460**
1480	32.082	1792.8	2.1873	30.393	1792.7	2.1813	28.872	1792.7	2.1757	**1480**
1500	32.413	1804.0	2.1931	30.707	1804.0	2.1871	29.171	1804.0	2.1814	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**45 psia** (t_{sat} = 274.42 °F)			**50 psia** (t_{sat} = 280.99 °F)			**55 psia** (t_{sat} = 287.06 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.017 209	243.50	0.4022	0.017 268	250.23	0.4113	0.017 325	256.45	0.4196	Sat. Liq.
Sat. Vap.	9.4023	1172.2	1.6672	8.5171	1174.2	1.6588	7.7878	1176.1	1.6512	Sat. Vap.
32	0.016 019	0.118	0.0000	0.016 019	0.133	0.0000	0.016 019	0.148	0.0000	**32**
40	0.016 017	8.165	0.0162	0.016 017	8.180	0.0162	0.016 017	8.194	0.0162	**40**
50	0.016 022	18.195	0.0361	0.016 021	18.210	0.0361	0.016 021	18.224	0.0361	**50**
60	0.016 033	28.205	0.0555	0.016 032	28.220	0.0555	0.016 032	28.234	0.0555	**60**
70	0.016 050	38.202	0.0746	0.016 049	38.216	0.0746	0.016 049	38.230	0.0746	**70**
80	0.016 071	48.190	0.0933	0.016 071	48.204	0.0933	0.016 071	48.218	0.0933	**80**
90	0.016 098	58.173	0.1116	0.016 098	58.187	0.1116	0.016 098	58.200	0.1116	**90**
100	0.016 129	68.153	0.1296	0.016 129	68.167	0.1296	0.016 129	68.180	0.1296	**100**
110	0.016 164	78.133	0.1473	0.016 164	78.146	0.1473	0.016 163	78.159	0.1473	**110**
120	0.016 203	88.113	0.1646	0.016 202	88.125	0.1646	0.016 202	88.138	0.1646	**120**
130	0.016 245	98.095	0.1817	0.016 245	98.108	0.1817	0.016 244	98.120	0.1817	**130**
140	0.016 290	108.08	0.1985	0.016 290	108.09	0.1985	0.016 290	108.11	0.1985	**140**
150	0.016 339	118.07	0.2150	0.016 339	118.09	0.2150	0.016 339	118.10	0.2150	**150**
160	0.016 392	128.07	0.2313	0.016 391	128.09	0.2313	0.016 391	128.10	0.2313	**160**
170	0.016 447	138.08	0.2473	0.016 447	138.09	0.2473	0.016 446	138.11	0.2473	**170**
180	0.016 505	148.10	0.2631	0.016 505	148.11	0.2631	0.016 505	148.12	0.2631	**180**
190	0.016 567	158.13	0.2787	0.016 567	158.14	0.2787	0.016 566	158.15	0.2786	**190**
200	0.016 631	168.18	0.2940	0.016 631	168.19	0.2940	0.016 631	168.20	0.2940	**200**
210	0.016 699	178.23	0.3091	0.016 699	178.25	0.3091	0.016 698	178.26	0.3091	**210**
220	0.016 770	188.31	0.3241	0.016 769	188.32	0.3241	0.016 769	188.33	0.3241	**220**
230	0.016 843	198.40	0.3388	0.016 843	198.41	0.3388	0.016 843	198.42	0.3388	**230**
240	0.016 920	208.52	0.3534	0.016 920	208.53	0.3534	0.016 919	208.54	0.3534	**240**
250	0.017 000	218.65	0.3678	0.017 000	218.66	0.3677	0.016 999	218.67	0.3677	**250**
260	0.017 083	228.81	0.3820	0.017 083	228.82	0.3820	0.017 083	228.83	0.3819	**260**
270	0.017 170	238.99	0.3960	0.017 169	239.00	0.3960	0.017 169	239.01	0.3960	**270**
280	9.4860	1175.2	1.6713	0.017 259	249.21	0.4099	0.017 259	249.22	0.4099	**280**
290	9.6345	1180.5	1.6784	8.6394	1179.1	1.6654	7.8246	1177.7	1.6534	**290**
300	9.7814	1185.7	1.6854	8.7735	1184.5	1.6724	7.9484	1183.2	1.6606	**300**
310	9.9271	1190.9	1.6921	8.9063	1189.7	1.6793	8.0707	1188.5	1.6676	**310**
320	10.072	1196.0	1.6987	9.0379	1194.9	1.6860	8.1918	1193.8	1.6744	**320**
330	10.215	1201.1	1.7052	9.1685	1200.0	1.6926	8.3118	1199.0	1.6810	**330**
340	10.358	1206.1	1.7115	9.2983	1205.1	1.6990	8.4309	1204.2	1.6875	**340**
350	10.500	1211.1	1.7178	9.4273	1210.2	1.7053	8.5492	1209.3	1.6939	**350**
360	10.642	1216.1	1.7239	9.5556	1215.2	1.7115	8.6668	1214.4	1.7001	**360**
370	10.782	1221.1	1.7299	9.6833	1220.2	1.7175	8.7838	1219.4	1.7063	**370**
380	10.923	1226.0	1.7358	9.8104	1225.2	1.7235	8.9002	1224.5	1.7123	**380**
390	11.063	1230.9	1.7417	9.9370	1230.2	1.7294	9.0161	1229.5	1.7182	**390**
400	11.202	1235.9	1.7474	10.063	1235.1	1.7352	9.1315	1234.4	1.7240	**400**
410	11.341	1240.8	1.7531	10.189	1240.1	1.7409	9.2464	1239.4	1.7298	**410**
420	11.479	1245.6	1.7587	10.314	1245.0	1.7465	9.3610	1244.4	1.7354	**420**
430	11.617	1250.5	1.7642	10.439	1249.9	1.7521	9.4752	1249.3	1.7410	**430**
440	11.755	1255.4	1.7696	10.564	1254.8	1.7575	9.5891	1254.2	1.7465	**440**
450	11.893	1260.3	1.7750	10.688	1259.7	1.7629	9.7027	1259.1	1.7520	**450**
460	12.030	1265.1	1.7803	10.812	1264.6	1.7683	9.8160	1264.1	1.7573	**460**
470	12.167	1270.0	1.7856	10.936	1269.5	1.7736	9.9291	1269.0	1.7626	**470**
480	12.304	1274.9	1.7908	11.060	1274.4	1.7788	10.042	1273.9	1.7679	**480**
490	12.441	1279.7	1.7959	11.183	1279.2	1.7840	10.154	1278.7	1.7731	**490**
500	12.577	1284.6	1.8010	11.306	1284.1	1.7891	10.267	1283.6	1.7782	**500**
510	12.713	1289.4	1.8061	11.429	1289.0	1.7941	10.379	1288.5	1.7833	**510**
520	12.849	1294.3	1.8111	11.552	1293.9	1.7991	10.491	1293.4	1.7883	**520**
530	12.985	1299.2	1.8160	11.675	1298.7	1.8041	10.603	1298.3	1.7932	**530**
540	13.121	1304.0	1.8209	11.797	1303.6	1.8090	10.715	1303.2	1.7981	**540**
550	13.256	1308.9	1.8257	11.920	1308.5	1.8138	10.826	1308.1	1.8030	**550**
560	13.392	1313.7	1.8305	12.042	1313.4	1.8186	10.937	1313.0	1.8078	**560**
570	13.527	1318.6	1.8353	12.164	1318.2	1.8234	11.049	1317.9	1.8126	**570**
580	13.662	1323.5	1.8400	12.286	1323.1	1.8281	11.160	1322.8	1.8173	**580**
590	13.798	1328.4	1.8446	12.408	1328.0	1.8328	11.271	1327.7	1.8220	**590**
600	13.933	1333.2	1.8493	12.530	1332.9	1.8374	11.382	1332.6	1.8267	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**45 psia** (t_{sat} = 274.42 °F)			**50 psia** (t_{sat} = 280.99 °F)			**55 psia** (t_{sat} = 287.06 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	14.067	1338.1	1.8539	12.651	1337.8	1.8420	11.493	1337.5	1.8313	**610**
620	14.202	1343.0	1.8584	12.773	1342.7	1.8466	11.604	1342.4	1.8358	**620**
630	14.337	1347.9	1.8629	12.894	1347.6	1.8511	11.714	1347.3	1.8404	**630**
640	14.472	1352.8	1.8674	13.016	1352.5	1.8556	11.825	1352.2	1.8449	**640**
650	14.606	1357.7	1.8718	13.137	1357.4	1.8600	11.935	1357.1	1.8493	**650**
660	14.741	1362.6	1.8762	13.258	1362.3	1.8644	12.046	1362.0	1.8537	**660**
670	14.875	1367.5	1.8806	13.380	1367.3	1.8688	12.156	1367.0	1.8581	**670**
680	15.009	1372.5	1.8850	13.501	1372.2	1.8732	12.266	1371.9	1.8625	**680**
690	15.144	1377.4	1.8893	13.622	1377.1	1.8775	12.376	1376.9	1.8668	**690**
700	15.278	1382.3	1.8935	13.743	1382.1	1.8818	12.487	1381.8	1.8711	**700**
710	15.412	1387.3	1.8978	13.864	1387.0	1.8860	12.597	1386.8	1.8753	**710**
720	15.546	1392.2	1.9020	13.984	1392.0	1.8902	12.707	1391.7	1.8796	**720**
730	15.680	1397.2	1.9062	14.105	1396.9	1.8944	12.817	1396.7	1.8838	**730**
740	15.814	1402.1	1.9103	14.226	1401.9	1.8986	12.927	1401.7	1.8879	**740**
750	15.948	1407.1	1.9145	14.347	1406.9	1.9027	13.037	1406.6	1.8921	**750**
760	16.082	1412.1	1.9186	14.467	1411.9	1.9068	13.146	1411.6	1.8962	**760**
770	16.216	1417.1	1.9226	14.588	1416.9	1.9109	13.256	1416.6	1.9002	**770**
780	16.350	1422.1	1.9267	14.709	1421.9	1.9149	13.366	1421.6	1.9043	**780**
790	16.483	1427.1	1.9307	14.829	1426.9	1.9189	13.476	1426.6	1.9083	**790**
800	16.617	1432.1	1.9347	14.950	1431.9	1.9229	13.585	1431.7	1.9123	**800**
820	16.884	1442.1	1.9426	15.190	1441.9	1.9309	13.804	1441.7	1.9202	**820**
840	17.152	1452.2	1.9504	15.431	1452.0	1.9387	14.023	1451.8	1.9281	**840**
860	17.419	1462.3	1.9581	15.672	1462.1	1.9464	14.242	1461.9	1.9358	**860**
880	17.686	1472.4	1.9657	15.912	1472.2	1.9540	14.461	1472.1	1.9434	**880**
900	17.952	1482.6	1.9733	16.153	1482.4	1.9615	14.680	1482.2	1.9509	**900**
920	18.219	1492.8	1.9807	16.393	1492.6	1.9690	14.898	1492.4	1.9584	**920**
940	18.486	1503.0	1.9881	16.633	1502.8	1.9764	15.117	1502.7	1.9658	**940**
960	18.752	1513.3	1.9953	16.873	1513.1	1.9836	15.335	1513.0	1.9731	**960**
980	19.019	1523.6	2.0025	17.113	1523.4	1.9909	15.554	1523.3	1.9803	**980**
1000	19.285	1533.9	2.0097	17.353	1533.8	1.9980	15.772	1533.6	1.9874	**1000**
1020	19.551	1544.3	2.0167	17.593	1544.1	2.0050	15.990	1544.0	1.9945	**1020**
1040	19.818	1554.7	2.0237	17.832	1554.5	2.0120	16.208	1554.4	2.0015	**1040**
1060	20.084	1565.1	2.0306	18.072	1565.0	2.0189	16.426	1564.8	2.0084	**1060**
1080	20.350	1575.6	2.0375	18.312	1575.5	2.0258	16.644	1575.3	2.0152	**1080**
1100	20.616	1586.1	2.0442	18.551	1586.0	2.0326	16.862	1585.8	2.0220	**1100**
1120	20.882	1596.6	2.0510	18.791	1596.5	2.0393	17.080	1596.4	2.0287	**1120**
1140	21.148	1607.2	2.0576	19.030	1607.1	2.0460	17.298	1607.0	2.0354	**1140**
1160	21.414	1617.8	2.0642	19.270	1617.7	2.0526	17.515	1617.6	2.0420	**1160**
1180	21.679	1628.5	2.0708	19.509	1628.4	2.0591	17.733	1628.3	2.0485	**1180**
1200	21.945	1639.2	2.0772	19.748	1639.1	2.0656	17.951	1639.0	2.0550	**1200**
1220	22.211	1649.9	2.0837	19.987	1649.8	2.0720	18.168	1649.7	2.0614	**1220**
1240	22.477	1660.7	2.0900	20.227	1660.6	2.0784	18.386	1660.5	2.0678	**1240**
1260	22.742	1671.4	2.0963	20.466	1671.4	2.0847	18.603	1671.3	2.0741	**1260**
1280	23.008	1682.3	2.1026	20.705	1682.2	2.0910	18.821	1682.1	2.0804	**1280**
1300	23.273	1693.2	2.1088	20.944	1693.1	2.0972	19.038	1693.0	2.0866	**1300**
1320	23.539	1704.1	2.1150	21.183	1704.0	2.1033	19.256	1703.9	2.0928	**1320**
1340	23.805	1715.0	2.1211	21.422	1714.9	2.1094	19.473	1714.8	2.0989	**1340**
1360	24.070	1726.0	2.1272	21.661	1725.9	2.1155	19.690	1725.8	2.1050	**1360**
1380	24.336	1737.0	2.1332	21.900	1736.9	2.1215	19.908	1736.9	2.1110	**1380**
1400	24.601	1748.1	2.1392	22.139	1748.0	2.1275	20.125	1747.9	2.1170	**1400**
1420	24.866	1759.2	2.1451	22.378	1759.1	2.1335	20.342	1759.0	2.1229	**1420**
1440	25.132	1770.3	2.1510	22.617	1770.2	2.1393	20.560	1770.1	2.1288	**1440**
1460	25.397	1781.4	2.1568	22.856	1781.4	2.1452	20.777	1781.3	2.1347	**1460**
1480	25.663	1792.7	2.1626	23.095	1792.6	2.1510	20.994	1792.5	2.1405	**1480**
1500	25.928	1803.9	2.1684	23.334	1803.8	2.1568	21.211	1803.8	2.1462	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**60 psia** (t_{sat} = 292.69 °F)			**65 psia** (t_{sat} = 297.96 °F)			**70 psia** (t_{sat} = 302.92 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.017 378	262.24	0.4273	0.017 429	267.66	0.4345	0.017 477	272.76	0.4412	Sat. Liq.
Sat. Vap.	7.1762	1177.8	1.6443	6.6557	1179.4	1.6378	6.2071	1180.8	1.6319	Sat. Vap.
32	0.016 018	0.163	0.0000	0.016 018	0.178	0.0000	0.016 018	0.193	0.0000	**32**
40	0.016 016	8.209	0.0162	0.016 016	8.224	0.0162	0.016 016	8.239	0.0162	**40**
50	0.016 021	18.239	0.0361	0.016 021	18.253	0.0361	0.016 020	18.268	0.0361	**50**
60	0.016 032	28.248	0.0555	0.016 032	28.262	0.0555	0.016 031	28.276	0.0555	**60**
70	0.016 049	38.244	0.0746	0.016 048	38.258	0.0746	0.016 048	38.272	0.0746	**70**
80	0.016 071	48.231	0.0933	0.016 070	48.245	0.0933	0.016 070	48.259	0.0933	**80**
90	0.016 097	58.214	0.1116	0.016 097	58.227	0.1116	0.016 097	58.241	0.1116	**90**
100	0.016 128	68.193	0.1296	0.016 128	68.206	0.1296	0.016 128	68.220	0.1296	**100**
110	0.016 163	78.172	0.1473	0.016 163	78.185	0.1472	0.016 163	78.198	0.1472	**110**
120	0.016 202	88.151	0.1646	0.016 202	88.164	0.1646	0.016 201	88.177	0.1646	**120**
130	0.016 244	98.133	0.1817	0.016 244	98.146	0.1817	0.016 244	98.158	0.1817	**130**
140	0.016 290	108.12	0.1985	0.016 289	108.13	0.1985	0.016 289	108.14	0.1985	**140**
150	0.016 339	118.11	0.2150	0.016 338	118.12	0.2150	0.016 338	118.14	0.2150	**150**
160	0.016 391	128.11	0.2313	0.016 391	128.12	0.2313	0.016 390	128.13	0.2313	**160**
170	0.016 446	138.12	0.2473	0.016 446	138.13	0.2473	0.016 446	138.14	0.2473	**170**
180	0.016 505	148.14	0.2631	0.016 504	148.15	0.2631	0.016 504	148.16	0.2631	**180**
190	0.016 566	158.17	0.2786	0.016 566	158.18	0.2786	0.016 566	158.19	0.2786	**190**
200	0.016 631	168.21	0.2940	0.016 630	168.22	0.2940	0.016 630	168.23	0.2940	**200**
210	0.016 698	178.27	0.3091	0.016 698	178.28	0.3091	0.016 698	178.29	0.3091	**210**
220	0.016 769	188.34	0.3240	0.016 768	188.35	0.3240	0.016 768	188.36	0.3240	**220**
230	0.016 842	198.44	0.3388	0.016 842	198.45	0.3388	0.016 842	198.46	0.3388	**230**
240	0.016 919	208.55	0.3533	0.016 919	208.56	0.3533	0.016 919	208.57	0.3533	**240**
250	0.016 999	218.68	0.3677	0.016 999	218.69	0.3677	0.016 998	218.70	0.3677	**250**
260	0.017 082	228.84	0.3819	0.017 082	228.85	0.3819	0.017 082	228.86	0.3819	**260**
270	0.017 169	239.02	0.3960	0.017 168	239.03	0.3960	0.017 168	239.04	0.3960	**270**
280	0.017 259	249.23	0.4099	0.017 258	249.24	0.4099	0.017 258	249.25	0.4099	**280**
290	0.017 352	259.47	0.4236	0.017 352	259.48	0.4236	0.017 351	259.49	0.4236	**290**
300	7.2604	1181.9	1.6496	6.6776	1180.5	1.6394	0.017 448	269.76	0.4372	**300**
310	7.3741	1187.3	1.6567	6.7842	1186.1	1.6466	6.2782	1184.8	1.6371	**310**
320	7.4864	1192.7	1.6637	6.8892	1191.5	1.6537	6.3770	1190.4	1.6443	**320**
330	7.5976	1198.0	1.6704	6.9930	1196.9	1.6605	6.4746	1195.8	1.6512	**330**
340	7.7079	1203.2	1.6770	7.0958	1202.2	1.6672	6.5710	1201.2	1.6580	**340**
350	7.8173	1208.4	1.6834	7.1978	1207.4	1.6737	6.6666	1206.5	1.6646	**350**
360	7.9260	1213.5	1.6897	7.2990	1212.6	1.6800	6.7614	1211.7	1.6710	**360**
370	8.0341	1218.6	1.6959	7.3995	1217.7	1.6863	6.8555	1216.9	1.6773	**370**
380	8.1415	1223.7	1.7020	7.4995	1222.9	1.6924	6.9490	1222.1	1.6835	**380**
390	8.2485	1228.7	1.7079	7.5989	1227.9	1.6984	7.0420	1227.2	1.6896	**390**
400	8.3549	1233.7	1.7138	7.6978	1233.0	1.7043	7.1344	1232.3	1.6955	**400**
410	8.4609	1238.7	1.7196	7.7962	1238.0	1.7102	7.2263	1237.3	1.7014	**410**
420	8.5666	1243.7	1.7253	7.8942	1243.0	1.7159	7.3179	1242.4	1.7071	**420**
430	8.6718	1248.7	1.7309	7.9919	1248.0	1.7215	7.4091	1247.4	1.7128	**430**
440	8.7767	1253.6	1.7364	8.0892	1253.0	1.7271	7.4999	1252.4	1.7184	**440**
450	8.8813	1258.6	1.7419	8.1862	1258.0	1.7326	7.5904	1257.4	1.7239	**450**
460	8.9856	1263.5	1.7473	8.2829	1262.9	1.7380	7.6806	1262.4	1.7294	**460**
470	9.0897	1268.4	1.7526	8.3794	1267.9	1.7434	7.7705	1267.4	1.7348	**470**
480	9.1935	1273.3	1.7579	8.4756	1272.8	1.7487	7.8602	1272.3	1.7401	**480**
490	9.2971	1278.3	1.7631	8.5715	1277.8	1.7539	7.9496	1277.3	1.7453	**490**
500	9.4004	1283.2	1.7682	8.6673	1282.7	1.7590	8.0389	1282.2	1.7505	**500**
510	9.5036	1288.1	1.7733	8.7629	1287.6	1.7641	8.1279	1287.2	1.7556	**510**
520	9.6066	1293.0	1.7783	8.8582	1292.5	1.7692	8.2168	1292.1	1.7607	**520**
530	9.7094	1297.9	1.7833	8.9535	1297.5	1.7742	8.3055	1297.0	1.7657	**530**
540	9.8121	1302.8	1.7883	9.0485	1302.4	1.7791	8.3940	1302.0	1.7706	**540**
550	9.9147	1307.7	1.7931	9.1434	1307.3	1.7840	8.4823	1306.9	1.7755	**550**
560	10.017	1312.6	1.7980	9.2382	1312.2	1.7889	8.5706	1311.8	1.7804	**560**
570	10.119	1317.5	1.8027	9.3328	1317.1	1.7937	8.6587	1316.7	1.7852	**570**
580	10.221	1322.4	1.8075	9.4273	1322.0	1.7984	8.7467	1321.7	1.7900	**580**
590	10.323	1327.3	1.8122	9.5218	1327.0	1.8031	8.8345	1326.6	1.7947	**590**
600	10.425	1332.2	1.8168	9.6160	1331.9	1.8078	8.9223	1331.5	1.7994	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**60 psia** (t_{sat} = 292.69 °F)			**65 psia** (t_{sat} = 297.96 °F)			**70 psia** (t_{sat} = 302.92 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	10.527	1337.1	1.8215	9.7102	1336.8	1.8124	9.0099	1336.5	1.8040	**610**
620	10.629	1342.0	1.8260	9.8043	1341.7	1.8170	9.0975	1341.4	1.8086	**620**
630	10.731	1347.0	1.8306	9.8983	1346.7	1.8215	9.1850	1346.3	1.8132	**630**
640	10.832	1351.9	1.8351	9.9923	1351.6	1.8260	9.2724	1351.3	1.8177	**640**
650	10.934	1356.8	1.8395	10.086	1356.5	1.8305	9.3596	1356.2	1.8221	**650**
660	11.035	1361.8	1.8440	10.180	1361.5	1.8349	9.4469	1361.2	1.8266	**660**
670	11.136	1366.7	1.8484	10.274	1366.4	1.8393	9.5340	1366.1	1.8310	**670**
680	11.238	1371.6	1.8527	10.367	1371.4	1.8437	9.6211	1371.1	1.8354	**680**
690	11.339	1376.6	1.8570	10.461	1376.3	1.8480	9.7081	1376.1	1.8397	**690**
700	11.440	1381.5	1.8613	10.554	1381.3	1.8523	9.7951	1381.0	1.8440	**700**
710	11.541	1386.5	1.8656	10.648	1386.3	1.8566	9.8819	1386.0	1.8483	**710**
720	11.642	1391.5	1.8698	10.741	1391.2	1.8608	9.9688	1391.0	1.8525	**720**
730	11.743	1396.5	1.8740	10.834	1396.2	1.8650	10.056	1396.0	1.8567	**730**
740	11.844	1401.4	1.8782	10.928	1401.2	1.8692	10.142	1401.0	1.8609	**740**
750	11.945	1406.4	1.8823	11.021	1406.2	1.8734	10.229	1405.9	1.8650	**750**
760	12.046	1411.4	1.8864	11.114	1411.2	1.8775	10.316	1411.0	1.8692	**760**
770	12.146	1416.4	1.8905	11.207	1416.2	1.8816	10.402	1416.0	1.8733	**770**
780	12.247	1421.4	1.8946	11.300	1421.2	1.8856	10.489	1421.0	1.8773	**780**
790	12.348	1426.4	1.8986	11.393	1426.2	1.8896	10.575	1426.0	1.8814	**790**
800	12.448	1431.4	1.9026	11.486	1431.2	1.8937	10.662	1431.0	1.8854	**800**
820	12.649	1441.5	1.9105	11.672	1441.3	1.9016	10.834	1441.1	1.8933	**820**
840	12.850	1451.6	1.9183	11.858	1451.4	1.9094	11.007	1451.2	1.9011	**840**
860	13.051	1461.7	1.9261	12.043	1461.5	1.9172	11.180	1461.4	1.9089	**860**
880	13.252	1471.9	1.9337	12.229	1471.7	1.9248	11.352	1471.5	1.9165	**880**
900	13.453	1482.1	1.9413	12.414	1481.9	1.9323	11.524	1481.7	1.9241	**900**
920	13.653	1492.3	1.9487	12.600	1492.1	1.9398	11.696	1492.0	1.9315	**920**
940	13.854	1502.5	1.9561	12.785	1502.4	1.9472	11.868	1502.2	1.9389	**940**
960	14.054	1512.8	1.9634	12.970	1512.7	1.9545	12.040	1512.5	1.9462	**960**
980	14.254	1523.1	1.9706	13.155	1523.0	1.9617	12.212	1522.8	1.9535	**980**
1000	14.454	1533.5	1.9777	13.340	1533.3	1.9688	12.384	1533.2	1.9606	**1000**
1020	14.655	1543.9	1.9848	13.524	1543.7	1.9759	12.556	1543.6	1.9677	**1020**
1040	14.855	1554.3	1.9918	13.709	1554.1	1.9829	12.727	1554.0	1.9747	**1040**
1060	15.054	1564.7	1.9987	13.894	1564.6	1.9898	12.899	1564.5	1.9816	**1060**
1080	15.254	1575.2	2.0056	14.079	1575.1	1.9967	13.071	1575.0	1.9885	**1080**
1100	15.454	1585.7	2.0124	14.263	1585.6	2.0035	13.242	1585.5	1.9953	**1100**
1120	15.654	1596.3	2.0191	14.448	1596.2	2.0102	13.413	1596.1	2.0020	**1120**
1140	15.854	1606.9	2.0258	14.632	1606.8	2.0169	13.585	1606.7	2.0087	**1140**
1160	16.053	1617.5	2.0324	14.816	1617.4	2.0235	13.756	1617.3	2.0153	**1160**
1180	16.253	1628.2	2.0389	15.001	1628.1	2.0300	13.927	1628.0	2.0218	**1180**
1200	16.453	1638.9	2.0454	15.185	1638.8	2.0365	14.099	1638.7	2.0283	**1200**
1220	16.652	1649.6	2.0518	15.369	1649.5	2.0429	14.270	1649.4	2.0347	**1220**
1240	16.852	1660.4	2.0582	15.554	1660.3	2.0493	14.441	1660.2	2.0411	**1240**
1260	17.051	1671.2	2.0645	15.738	1671.1	2.0556	14.612	1671.0	2.0474	**1260**
1280	17.251	1682.0	2.0708	15.922	1681.9	2.0619	14.783	1681.8	2.0537	**1280**
1300	17.450	1692.9	2.0770	16.106	1692.8	2.0681	14.954	1692.7	2.0599	**1300**
1320	17.649	1703.8	2.0832	16.290	1703.7	2.0743	15.125	1703.6	2.0661	**1320**
1340	17.849	1714.8	2.0893	16.474	1714.7	2.0804	15.296	1714.6	2.0722	**1340**
1360	18.048	1725.8	2.0954	16.658	1725.7	2.0865	15.467	1725.6	2.0783	**1360**
1380	18.247	1736.8	2.1014	16.842	1736.7	2.0925	15.638	1736.6	2.0843	**1380**
1400	18.447	1747.8	2.1074	17.026	1747.8	2.0985	15.809	1747.7	2.0903	**1400**
1420	18.646	1758.9	2.1133	17.210	1758.9	2.1044	15.980	1758.8	2.0962	**1420**
1440	18.845	1770.1	2.1192	17.394	1770.0	2.1103	16.151	1769.9	2.1021	**1440**
1460	19.044	1781.2	2.1250	17.578	1781.2	2.1162	16.321	1781.1	2.1080	**1460**
1480	19.243	1792.5	2.1308	17.762	1792.4	2.1220	16.492	1792.3	2.1138	**1480**
1500	19.443	1803.7	2.1366	17.946	1803.6	2.1278	16.663	1803.6	2.1196	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**80 psia** (t_{sat} = 312.03 °F)			**90 psia** (t_{sat} = 320.27 °F)			**100 psia** (t_{sat} = 327.82 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.017 569	282.18	0.4534	0.017 655	290.73	0.4644	0.017 736	298.57	0.4744	Sat. Liq.
Sat. Vap.	5.4730	1183.3	1.6212	4.8969	1185.6	1.6117	4.4324	1187.5	1.6032	Sat. Vap.
32	0.016 017	0.223	0.0000	0.016 017	0.254	0.0000	0.016 016	0.284	0.0000	**32**
40	0.016 015	8.268	0.0162	0.016 015	8.298	0.0162	0.016 014	8.327	0.0162	**40**
50	0.016 020	18.297	0.0361	0.016 019	18.325	0.0361	0.016 019	18.354	0.0361	**50**
60	0.016 031	28.305	0.0555	0.016 030	28.333	0.0555	0.016 030	28.361	0.0555	**60**
70	0.016 048	38.299	0.0746	0.016 047	38.327	0.0746	0.016 047	38.355	0.0746	**70**
80	0.016 070	48.286	0.0932	0.016 069	48.313	0.0932	0.016 069	48.341	0.0932	**80**
90	0.016 096	58.267	0.1116	0.016 096	58.294	0.1116	0.016 095	58.321	0.1116	**90**
100	0.016 127	68.246	0.1296	0.016 127	68.272	0.1296	0.016 126	68.299	0.1296	**100**
110	0.016 162	78.224	0.1472	0.016 162	78.250	0.1472	0.016 161	78.276	0.1472	**110**
120	0.016 201	88.202	0.1646	0.016 200	88.228	0.1646	0.016 200	88.254	0.1646	**120**
130	0.016 243	98.184	0.1817	0.016 243	98.209	0.1817	0.016 242	98.234	0.1817	**130**
140	0.016 289	108.17	0.1985	0.016 288	108.19	0.1985	0.016 288	108.22	0.1984	**140**
150	0.016 338	118.16	0.2150	0.016 337	118.18	0.2150	0.016 337	118.21	0.2150	**150**
160	0.016 390	128.16	0.2313	0.016 389	128.18	0.2312	0.016 389	128.21	0.2312	**160**
170	0.016 445	138.17	0.2473	0.016 445	138.19	0.2473	0.016 444	138.21	0.2473	**170**
180	0.016 504	148.18	0.2631	0.016 503	148.21	0.2630	0.016 503	148.23	0.2630	**180**
190	0.016 565	158.21	0.2786	0.016 564	158.24	0.2786	0.016 564	158.26	0.2786	**190**
200	0.016 629	168.25	0.2940	0.016 629	168.28	0.2939	0.016 628	168.30	0.2939	**200**
210	0.016 697	178.31	0.3091	0.016 696	178.33	0.3091	0.016 696	178.36	0.3091	**210**
220	0.016 768	188.39	0.3240	0.016 767	188.41	0.3240	0.016 766	188.43	0.3240	**220**
230	0.016 841	198.48	0.3388	0.016 841	198.50	0.3387	0.016 840	198.52	0.3387	**230**
240	0.016 918	208.59	0.3533	0.016 917	208.61	0.3533	0.016 917	208.63	0.3533	**240**
250	0.016 998	218.72	0.3677	0.016 997	218.74	0.3677	0.016 997	218.76	0.3677	**250**
260	0.017 081	228.88	0.3819	0.017 080	228.90	0.3819	0.017 080	228.92	0.3819	**260**
270	0.017 167	239.06	0.3960	0.017 167	239.08	0.3959	0.017 166	239.10	0.3959	**270**
280	0.017 257	249.27	0.4099	0.017 257	249.29	0.4098	0.017 256	249.31	0.4098	**280**
290	0.017 351	259.51	0.4236	0.017 350	259.53	0.4236	0.017 349	259.55	0.4236	**290**
300	0.017 448	269.78	0.4372	0.017 447	269.80	0.4372	0.017 446	269.82	0.4372	**300**
310	0.017 548	280.09	0.4507	0.017 548	280.10	0.4507	0.017 547	280.12	0.4507	**310**
320	5.5439	1187.9	1.6271	0.017 652	290.45	0.4640	0.017 651	290.46	0.4640	**320**
330	5.6314	1193.6	1.6343	4.9747	1191.2	1.6189	4.4485	1188.8	1.6048	**330**
340	5.7177	1199.1	1.6412	5.0533	1196.9	1.6261	4.5211	1194.7	1.6123	**340**
350	5.8030	1204.5	1.6480	5.1307	1202.5	1.6330	4.5923	1200.4	1.6194	**350**
360	5.8875	1209.9	1.6545	5.2072	1208.0	1.6397	4.6625	1206.1	1.6263	**360**
370	5.9712	1215.2	1.6610	5.2829	1213.4	1.6463	4.7319	1211.6	1.6330	**370**
380	6.0542	1220.4	1.6673	5.3579	1218.7	1.6527	4.8005	1217.0	1.6395	**380**
390	6.1367	1225.6	1.6734	5.4323	1224.0	1.6590	4.8684	1222.4	1.6459	**390**
400	6.2186	1230.8	1.6795	5.5061	1229.3	1.6651	4.9358	1227.8	1.6521	**400**
410	6.3001	1235.9	1.6854	5.5794	1234.5	1.6712	5.0026	1233.1	1.6583	**410**
420	6.3811	1241.0	1.6913	5.6523	1239.7	1.6771	5.0690	1238.3	1.6643	**420**
430	6.4618	1246.1	1.6970	5.7248	1244.8	1.6829	5.1350	1243.5	1.6702	**430**
440	6.5420	1251.2	1.7027	5.7969	1250.0	1.6886	5.2006	1248.7	1.6759	**440**
450	6.6220	1256.2	1.7082	5.8686	1255.1	1.6943	5.2658	1253.9	1.6816	**450**
460	6.7016	1261.3	1.7137	5.9401	1260.1	1.6998	5.3307	1259.0	1.6873	**460**
470	6.7810	1266.3	1.7192	6.0112	1265.2	1.7053	5.3953	1264.1	1.6928	**470**
480	6.8601	1271.3	1.7245	6.0821	1270.2	1.7107	5.4596	1269.2	1.6982	**480**
490	6.9390	1276.3	1.7298	6.1528	1275.3	1.7160	5.5237	1274.3	1.7036	**490**
500	7.0176	1281.3	1.7350	6.2232	1280.3	1.7213	5.5875	1279.3	1.7089	**500**
510	7.0960	1286.2	1.7402	6.2934	1285.3	1.7265	5.6512	1284.4	1.7141	**510**
520	7.1743	1291.2	1.7453	6.3634	1290.3	1.7316	5.7146	1289.4	1.7193	**520**
530	7.2524	1296.2	1.7503	6.4332	1295.3	1.7367	5.7779	1294.4	1.7244	**530**
540	7.3303	1301.1	1.7553	6.5029	1300.3	1.7417	5.8409	1299.4	1.7294	**540**
550	7.4081	1306.1	1.7602	6.5724	1305.3	1.7466	5.9039	1304.5	1.7344	**550**
560	7.4857	1311.0	1.7651	6.6418	1310.3	1.7516	5.9667	1309.5	1.7394	**560**
570	7.5632	1316.0	1.7699	6.7110	1315.2	1.7564	6.0293	1314.5	1.7442	**570**
580	7.6405	1320.9	1.7747	6.7801	1320.2	1.7612	6.0918	1319.5	1.7491	**580**
590	7.7178	1325.9	1.7795	6.8491	1325.2	1.7660	6.1542	1324.5	1.7539	**590**
600	7.7949	1330.8	1.7842	6.9180	1330.1	1.7707	6.2165	1329.5	1.7586	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**80 psia** (t_{sat} = 312.03 °F)			**90 psia** (t_{sat} = 320.27 °F)			**100 psia** (t_{sat} = 327.82 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	7.8719	1335.8	1.7888	6.9868	1335.1	1.7754	6.2786	1334.4	1.7633	**610**
620	7.9489	1340.7	1.7934	7.0555	1340.1	1.7800	6.3407	1339.4	1.7679	**620**
630	8.0257	1345.7	1.7980	7.1240	1345.1	1.7846	6.4027	1344.4	1.7725	**630**
640	8.1025	1350.7	1.8025	7.1925	1350.0	1.7891	6.4645	1349.4	1.7771	**640**
650	8.1791	1355.6	1.8070	7.2609	1355.0	1.7936	6.5263	1354.4	1.7816	**650**
660	8.2557	1360.6	1.8115	7.3293	1360.0	1.7981	6.5881	1359.4	1.7861	**660**
670	8.3322	1365.6	1.8159	7.3975	1365.0	1.8025	6.6497	1364.4	1.7905	**670**
680	8.4087	1370.5	1.8203	7.4657	1370.0	1.8069	6.7113	1369.4	1.7950	**680**
690	8.4851	1375.5	1.8246	7.5338	1375.0	1.8113	6.7728	1374.4	1.7993	**690**
700	8.5614	1380.5	1.8289	7.6019	1380.0	1.8156	6.8342	1379.4	1.8037	**700**
710	8.6376	1385.5	1.8332	7.6698	1385.0	1.8199	6.8956	1384.4	1.8080	**710**
720	8.7138	1390.5	1.8375	7.7378	1390.0	1.8242	6.9569	1389.5	1.8122	**720**
730	8.7900	1395.5	1.8417	7.8056	1395.0	1.8284	7.0182	1394.5	1.8165	**730**
740	8.8661	1400.5	1.8459	7.8735	1400.0	1.8326	7.0794	1399.5	1.8207	**740**
750	8.9421	1405.5	1.8500	7.9412	1405.0	1.8368	7.1405	1404.5	1.8249	**750**
760	9.0181	1410.5	1.8542	8.0089	1410.0	1.8409	7.2016	1409.6	1.8290	**760**
770	9.0940	1415.5	1.8583	8.0766	1415.1	1.8450	7.2627	1414.6	1.8331	**770**
780	9.1699	1420.5	1.8623	8.1443	1420.1	1.8491	7.3237	1419.7	1.8372	**780**
790	9.2458	1425.6	1.8664	8.2118	1425.1	1.8531	7.3847	1424.7	1.8413	**790**
800	9.3216	1430.6	1.8704	8.2794	1430.2	1.8572	7.4456	1429.8	1.8453	**800**
820	9.4731	1440.7	1.8783	8.4144	1440.3	1.8651	7.5673	1439.9	1.8533	**820**
840	9.6245	1450.8	1.8862	8.5492	1450.5	1.8730	7.6889	1450.1	1.8612	**840**
860	9.7757	1461.0	1.8939	8.6839	1460.6	1.8808	7.8104	1460.3	1.8689	**860**
880	9.9269	1471.2	1.9016	8.8184	1470.8	1.8884	7.9317	1470.5	1.8766	**880**
900	10.078	1481.4	1.9092	8.9529	1481.0	1.8960	8.0529	1480.7	1.8842	**900**
920	10.229	1491.6	1.9167	9.0873	1491.3	1.9035	8.1740	1491.0	1.8917	**920**
940	10.380	1501.9	1.9240	9.2215	1501.6	1.9109	8.2951	1501.3	1.8991	**940**
960	10.530	1512.2	1.9314	9.3557	1511.9	1.9182	8.4160	1511.6	1.9064	**960**
980	10.681	1522.5	1.9386	9.4897	1522.2	1.9255	8.5368	1522.0	1.9137	**980**
1000	10.831	1532.9	1.9457	9.6237	1532.6	1.9326	8.6576	1532.3	1.9209	**1000**
1020	10.982	1543.3	1.9528	9.7576	1543.0	1.9397	8.7782	1542.8	1.9279	**1020**
1040	11.132	1553.7	1.9598	9.8914	1553.5	1.9467	8.8988	1553.2	1.9350	**1040**
1060	11.283	1564.2	1.9668	10.025	1564.0	1.9536	9.0194	1563.7	1.9419	**1060**
1080	11.433	1574.7	1.9736	10.159	1574.5	1.9605	9.1398	1574.2	1.9488	**1080**
1100	11.583	1585.3	1.9804	10.293	1585.0	1.9673	9.2602	1584.8	1.9556	**1100**
1120	11.733	1595.8	1.9872	10.426	1595.6	1.9741	9.3806	1595.4	1.9623	**1120**
1140	11.883	1606.4	1.9938	10.560	1606.2	1.9807	9.5009	1606.0	1.9690	**1140**
1160	12.033	1617.1	2.0004	10.693	1616.9	1.9874	9.6212	1616.7	1.9756	**1160**
1180	12.183	1627.8	2.0070	10.827	1627.5	1.9939	9.7414	1627.3	1.9822	**1180**
1200	12.333	1638.5	2.0135	10.960	1638.3	2.0004	9.8615	1638.1	1.9887	**1200**
1220	12.483	1649.2	2.0199	11.093	1649.0	2.0069	9.9816	1648.8	1.9951	**1220**
1240	12.633	1660.0	2.0263	11.227	1659.8	2.0132	10.102	1659.6	2.0015	**1240**
1260	12.783	1670.8	2.0326	11.360	1670.6	2.0196	10.222	1670.4	2.0079	**1260**
1280	12.933	1681.7	2.0389	11.493	1681.5	2.0258	10.342	1681.3	2.0142	**1280**
1300	13.082	1692.6	2.0451	11.626	1692.4	2.0321	10.462	1692.2	2.0204	**1300**
1320	13.232	1703.5	2.0513	11.760	1703.3	2.0382	10.582	1703.1	2.0266	**1320**
1340	13.382	1714.4	2.0574	11.893	1714.3	2.0444	10.702	1714.1	2.0327	**1340**
1360	13.531	1725.4	2.0635	12.026	1725.3	2.0505	10.821	1725.1	2.0388	**1360**
1380	13.681	1736.5	2.0695	12.159	1736.3	2.0565	10.941	1736.2	2.0448	**1380**
1400	13.831	1747.5	2.0755	12.292	1747.4	2.0625	11.061	1747.2	2.0508	**1400**
1420	13.980	1758.6	2.0815	12.425	1758.5	2.0684	11.181	1758.4	2.0567	**1420**
1440	14.130	1769.8	2.0874	12.558	1769.6	2.0743	11.301	1769.5	2.0626	**1440**
1460	14.279	1781.0	2.0932	12.691	1780.8	2.0802	11.421	1780.7	2.0685	**1460**
1480	14.429	1792.2	2.0990	12.824	1792.1	2.0860	11.540	1791.9	2.0743	**1480**
1500	14.579	1803.4	2.1048	12.957	1803.3	2.0918	11.660	1803.2	2.0801	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**110 psia** (t_{sat} = 334.78 °F)			**120 psia** (t_{sat} = 341.26 °F)			**130 psia** (t_{sat} = 347.33 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.017 813	305.84	0.4835	0.017 886	312.62	0.4920	0.017 956	318.98	0.4998	Sat. Liq.
Sat. Vap.	4.0496	1189.2	1.5954	3.7286	1190.7	1.5883	3.4554	1192.1	1.5818	Sat. Vap.
32	0.016 016	0.314	0.0000	0.016 015	0.344	0.0000	0.016 014	0.374	0.0000	**32**
40	0.016 014	8.357	0.0162	0.016 013	8.387	0.0162	0.016 013	8.416	0.0162	**40**
50	0.016 018	18.383	0.0361	0.016 018	18.412	0.0361	0.016 017	18.441	0.0361	**50**
60	0.016 029	28.389	0.0555	0.016 029	28.418	0.0555	0.016 028	28.446	0.0555	**60**
70	0.016 046	38.383	0.0746	0.016 046	38.411	0.0746	0.016 045	38.438	0.0746	**70**
80	0.016 068	48.368	0.0932	0.016 068	48.395	0.0932	0.016 067	48.423	0.0932	**80**
90	0.016 095	58.348	0.1116	0.016 094	58.375	0.1116	0.016 094	58.402	0.1115	**90**
100	0.016 126	68.325	0.1295	0.016 125	68.352	0.1295	0.016 125	68.378	0.1295	**100**
110	0.016 161	78.302	0.1472	0.016 160	78.328	0.1472	0.016 160	78.354	0.1472	**110**
120	0.016 199	88.279	0.1646	0.016 199	88.305	0.1646	0.016 198	88.330	0.1646	**120**
130	0.016 242	98.259	0.1816	0.016 241	98.285	0.1816	0.016 241	98.310	0.1816	**130**
140	0.016 287	108.24	0.1984	0.016 287	108.27	0.1984	0.016 286	108.29	0.1984	**140**
150	0.016 336	118.23	0.2150	0.016 336	118.26	0.2150	0.016 335	118.28	0.2149	**150**
160	0.016 388	128.23	0.2312	0.016 388	128.25	0.2312	0.016 387	128.28	0.2312	**160**
170	0.016 444	138.24	0.2472	0.016 443	138.26	0.2472	0.016 443	138.28	0.2472	**170**
180	0.016 502	148.25	0.2630	0.016 501	148.28	0.2630	0.016 501	148.30	0.2630	**180**
190	0.016 563	158.28	0.2786	0.016 563	158.30	0.2786	0.016 562	158.33	0.2786	**190**
200	0.016 628	168.32	0.2939	0.016 627	168.35	0.2939	0.016 627	168.37	0.2939	**200**
210	0.016 695	178.38	0.3091	0.016 695	178.40	0.3090	0.016 694	178.42	0.3090	**210**
220	0.016 766	188.45	0.3240	0.016 765	188.47	0.3240	0.016 765	188.50	0.3240	**220**
230	0.016 839	198.54	0.3387	0.016 839	198.56	0.3387	0.016 838	198.59	0.3387	**230**
240	0.016 916	208.65	0.3533	0.016 916	208.67	0.3533	0.016 915	208.70	0.3532	**240**
250	0.016 996	218.79	0.3677	0.016 995	218.81	0.3676	0.016 995	218.83	0.3676	**250**
260	0.017 079	228.94	0.3819	0.017 078	228.96	0.3818	0.017 078	228.98	0.3818	**260**
270	0.017 165	239.12	0.3959	0.017 165	239.14	0.3959	0.017 164	239.16	0.3959	**270**
280	0.017 255	249.33	0.4098	0.017 255	249.35	0.4098	0.017 254	249.37	0.4098	**280**
290	0.017 348	259.57	0.4236	0.017 348	259.59	0.4235	0.017 347	259.61	0.4235	**290**
300	0.017 445	269.84	0.4372	0.017 445	269.85	0.4371	0.017 444	269.87	0.4371	**300**
310	0.017 546	280.14	0.4506	0.017 545	280.16	0.4506	0.017 544	280.18	0.4506	**310**
320	0.017 651	290.48	0.4640	0.017 650	290.50	0.4640	0.017 649	290.51	0.4639	**320**
330	0.017 759	300.86	0.4772	0.017 758	300.88	0.4772	0.017 758	300.89	0.4772	**330**
340	4.0849	1192.4	1.5994	0.017 871	311.30	0.4903	0.017 870	311.32	0.4903	**340**
350	4.1513	1198.3	1.6068	3.7832	1196.1	1.5950	3.4711	1193.8	1.5839	**350**
360	4.2165	1204.1	1.6139	3.8443	1202.0	1.6023	3.5289	1199.9	1.5914	**360**
370	4.2807	1209.7	1.6207	3.9043	1207.8	1.6093	3.5855	1205.9	1.5986	**370**
380	4.3441	1215.3	1.6274	3.9634	1213.5	1.6161	3.6411	1211.7	1.6056	**380**
390	4.4068	1220.8	1.6339	4.0219	1219.1	1.6227	3.6959	1217.4	1.6123	**390**
400	4.4689	1226.2	1.6402	4.0796	1224.6	1.6292	3.7500	1223.0	1.6189	**400**
410	4.5305	1231.6	1.6464	4.1369	1230.1	1.6355	3.8036	1228.6	1.6253	**410**
420	4.5916	1236.9	1.6525	4.1936	1235.5	1.6417	3.8566	1234.0	1.6316	**420**
430	4.6523	1242.2	1.6585	4.2498	1240.8	1.6477	3.9091	1239.5	1.6377	**430**
440	4.7125	1247.4	1.6644	4.3057	1246.1	1.6537	3.9613	1244.8	1.6437	**440**
450	4.7724	1252.6	1.6701	4.3611	1251.4	1.6595	4.0130	1250.2	1.6496	**450**
460	4.8320	1257.8	1.6758	4.4163	1256.7	1.6652	4.0644	1255.5	1.6554	**460**
470	4.8912	1263.0	1.6814	4.4711	1261.9	1.6708	4.1154	1260.7	1.6611	**470**
480	4.9502	1268.1	1.6869	4.5256	1267.0	1.6764	4.1662	1266.0	1.6667	**480**
490	5.0089	1273.2	1.6923	4.5798	1272.2	1.6819	4.2167	1271.2	1.6722	**490**
500	5.0674	1278.3	1.6976	4.6339	1277.3	1.6872	4.2670	1276.3	1.6776	**500**
510	5.1257	1283.4	1.7029	4.6877	1282.5	1.6925	4.3170	1281.5	1.6830	**510**
520	5.1837	1288.5	1.7081	4.7412	1287.6	1.6978	4.3668	1286.6	1.6882	**520**
530	5.2416	1293.5	1.7132	4.7946	1292.7	1.7030	4.4164	1291.8	1.6935	**530**
540	5.2993	1298.6	1.7183	4.8478	1297.7	1.7081	4.4658	1296.9	1.6986	**540**
550	5.3568	1303.6	1.7233	4.9009	1302.8	1.7131	4.5151	1302.0	1.7037	**550**
560	5.4142	1308.7	1.7283	4.9538	1307.9	1.7181	4.5642	1307.1	1.7087	**560**
570	5.4715	1313.7	1.7332	5.0066	1312.9	1.7230	4.6131	1312.1	1.7136	**570**
580	5.5286	1318.7	1.7380	5.0592	1318.0	1.7279	4.6620	1317.2	1.7185	**580**
590	5.5856	1323.7	1.7428	5.1117	1323.0	1.7327	4.7107	1322.3	1.7234	**590**
600	5.6424	1328.8	1.7476	5.1640	1328.1	1.7375	4.7592	1327.3	1.7282	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**110 psia** (t_{sat} = 334.78 °F)			**120 psia** (t_{sat} = 341.26 °F)			**130 psia** (t_{sat} = 347.33 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	5.6992	1333.8	1.7523	5.2163	1333.1	1.7422	4.8077	1332.4	1.7329	**610**
620	5.7559	1338.8	1.7570	5.2685	1338.1	1.7469	4.8561	1337.5	1.7376	**620**
630	5.8124	1343.8	1.7616	5.3205	1343.2	1.7516	4.9043	1342.5	1.7423	**630**
640	5.8689	1348.8	1.7662	5.3725	1348.2	1.7562	4.9525	1347.6	1.7469	**640**
650	5.9253	1353.8	1.7707	5.4244	1353.2	1.7607	5.0006	1352.6	1.7515	**650**
660	5.9816	1358.8	1.7752	5.4762	1358.2	1.7652	5.0486	1357.6	1.7560	**660**
670	6.0378	1363.8	1.7797	5.5279	1363.3	1.7697	5.0965	1362.7	1.7605	**670**
680	6.0940	1368.9	1.7841	5.5796	1368.3	1.7741	5.1443	1367.7	1.7649	**680**
690	6.1501	1373.9	1.7885	5.6312	1373.3	1.7785	5.1921	1372.8	1.7693	**690**
700	6.2061	1378.9	1.7928	5.6827	1378.4	1.7829	5.2398	1377.8	1.7737	**700**
710	6.2621	1383.9	1.7971	5.7342	1383.4	1.7872	5.2874	1382.9	1.7781	**710**
720	6.3180	1389.0	1.8014	5.7856	1388.5	1.7915	5.3350	1387.9	1.7824	**720**
730	6.3738	1394.0	1.8057	5.8369	1393.5	1.7958	5.3826	1393.0	1.7866	**730**
740	6.4296	1399.0	1.8099	5.8882	1398.5	1.8000	5.4300	1398.1	1.7909	**740**
750	6.4854	1404.1	1.8141	5.9394	1403.6	1.8042	5.4774	1403.1	1.7951	**750**
760	6.5411	1409.1	1.8182	5.9906	1408.7	1.8083	5.5248	1408.2	1.7992	**760**
770	6.5967	1414.2	1.8223	6.0417	1413.7	1.8125	5.5721	1413.3	1.8034	**770**
780	6.6523	1419.2	1.8264	6.0928	1418.8	1.8166	5.6194	1418.3	1.8075	**780**
790	6.7079	1424.3	1.8305	6.1439	1423.9	1.8207	5.6666	1423.4	1.8116	**790**
800	6.7634	1429.4	1.8345	6.1949	1428.9	1.8247	5.7138	1428.5	1.8156	**800**
820	6.8743	1439.5	1.8425	6.2968	1439.1	1.8327	5.8081	1438.7	1.8237	**820**
840	6.9851	1449.7	1.8504	6.3985	1449.3	1.8406	5.9022	1448.9	1.8316	**840**
860	7.0957	1459.9	1.8582	6.5001	1459.5	1.8484	5.9962	1459.1	1.8394	**860**
880	7.2062	1470.1	1.8659	6.6016	1469.8	1.8561	6.0900	1469.4	1.8471	**880**
900	7.3166	1480.4	1.8735	6.7030	1480.0	1.8637	6.1838	1479.7	1.8547	**900**
920	7.4269	1490.6	1.8810	6.8042	1490.3	1.8712	6.2774	1490.0	1.8622	**920**
940	7.5371	1501.0	1.8884	6.9054	1500.6	1.8787	6.3709	1500.3	1.8697	**940**
960	7.6472	1511.3	1.8958	7.0065	1511.0	1.8860	6.4643	1510.7	1.8770	**960**
980	7.7572	1521.7	1.9030	7.1074	1521.4	1.8933	6.5577	1521.1	1.8843	**980**
1000	7.8671	1532.1	1.9102	7.2083	1531.8	1.9005	6.6509	1531.5	1.8915	**1000**
1020	7.9769	1542.5	1.9173	7.3091	1542.2	1.9076	6.7441	1542.0	1.8986	**1020**
1040	8.0867	1553.0	1.9243	7.4099	1552.7	1.9146	6.8372	1552.4	1.9056	**1040**
1060	8.1964	1563.5	1.9313	7.5106	1563.2	1.9216	6.9303	1563.0	1.9126	**1060**
1080	8.3060	1574.0	1.9382	7.6112	1573.7	1.9284	7.0232	1573.5	1.9195	**1080**
1100	8.4156	1584.6	1.9450	7.7117	1584.3	1.9353	7.1162	1584.1	1.9263	**1100**
1120	8.5251	1595.1	1.9517	7.8122	1594.9	1.9420	7.2090	1594.7	1.9331	**1120**
1140	8.6346	1605.8	1.9584	7.9127	1605.6	1.9487	7.3018	1605.3	1.9398	**1140**
1160	8.7440	1616.4	1.9650	8.0131	1616.2	1.9553	7.3946	1616.0	1.9464	**1160**
1180	8.8534	1627.1	1.9716	8.1134	1626.9	1.9619	7.4873	1626.7	1.9530	**1180**
1200	8.9627	1637.9	1.9781	8.2137	1637.7	1.9684	7.5800	1637.5	1.9595	**1200**
1220	9.0720	1648.6	1.9846	8.3140	1648.4	1.9749	7.6726	1648.2	1.9660	**1220**
1240	9.1813	1659.4	1.9909	8.4142	1659.2	1.9813	7.7652	1659.1	1.9724	**1240**
1260	9.2905	1670.3	1.9973	8.5144	1670.1	1.9876	7.8577	1669.9	1.9787	**1260**
1280	9.3997	1681.1	2.0036	8.6146	1681.0	1.9939	7.9503	1680.8	1.9850	**1280**
1300	9.5088	1692.0	2.0098	8.7147	1691.9	2.0001	8.0427	1691.7	1.9912	**1300**
1320	9.6179	1703.0	2.0160	8.8148	1702.8	2.0063	8.1352	1702.6	1.9974	**1320**
1340	9.7270	1714.0	2.0221	8.9148	1713.8	2.0125	8.2276	1713.6	2.0036	**1340**
1360	9.8361	1725.0	2.0282	9.0149	1724.8	2.0185	8.3200	1724.7	2.0096	**1360**
1380	9.9451	1736.0	2.0342	9.1149	1735.9	2.0246	8.4124	1735.7	2.0157	**1380**
1400	10.054	1747.1	2.0402	9.2148	1746.9	2.0306	8.5047	1746.8	2.0217	**1400**
1420	10.163	1758.2	2.0462	9.3148	1758.1	2.0365	8.5970	1757.9	2.0276	**1420**
1440	10.272	1769.4	2.0521	9.4147	1769.2	2.0424	8.6893	1769.1	2.0335	**1440**
1460	10.381	1780.6	2.0579	9.5146	1780.4	2.0483	8.7816	1780.3	2.0394	**1460**
1480	10.490	1791.8	2.0638	9.6146	1791.7	2.0541	8.8739	1791.5	2.0452	**1480**
1500	10.599	1803.1	2.0695	9.7145	1802.9	2.0599	8.9662	1802.8	2.0510	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**140 psia** (t_{sat} = 353.04 °F)			**150 psia** (t_{sat} = 358.43 °F)			**160 psia** (t_{sat} = 363.55 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.018 023	324.99	0.5072	0.018 089	330.68	0.5141	0.018 152	336.10	0.5207	Sat. Liq.
Sat. Vap.	3.2199	1193.4	1.5757	3.0148	1194.5	1.5700	2.8345	1195.5	1.5647	Sat. Vap.
32	0.016 014	0.404	0.0000	0.016 013	0.434	0.0000	0.016 013	0.465	0.0000	**32**
40	0.016 012	8.446	0.0162	0.016 012	8.475	0.0162	0.016 011	8.505	0.0162	**40**
50	0.016 017	18.470	0.0361	0.016 016	18.499	0.0361	0.016 016	18.528	0.0361	**50**
60	0.016 028	28.474	0.0555	0.016 027	28.503	0.0555	0.016 027	28.531	0.0555	**60**
70	0.016 045	38.466	0.0745	0.016 044	38.494	0.0745	0.016 044	38.522	0.0745	**70**
80	0.016 067	48.450	0.0932	0.016 066	48.477	0.0932	0.016 066	48.504	0.0932	**80**
90	0.016 093	58.428	0.1115	0.016 093	58.455	0.1115	0.016 092	58.482	0.1115	**90**
100	0.016 124	68.405	0.1295	0.016 124	68.431	0.1295	0.016 123	68.457	0.1295	**100**
110	0.016 159	78.380	0.1472	0.016 159	78.406	0.1472	0.016 158	78.432	0.1472	**110**
120	0.016 198	88.356	0.1646	0.016 197	88.382	0.1645	0.016 197	88.407	0.1645	**120**
130	0.016 240	98.335	0.1816	0.016 240	98.360	0.1816	0.016 239	98.386	0.1816	**130**
140	0.016 286	108.32	0.1984	0.016 285	108.34	0.1984	0.016 285	108.37	0.1984	**140**
150	0.016 335	118.31	0.2149	0.016 334	118.33	0.2149	0.016 334	118.36	0.2149	**150**
160	0.016 387	128.30	0.2312	0.016 386	128.33	0.2312	0.016 386	128.35	0.2312	**160**
170	0.016 442	138.31	0.2472	0.016 442	138.33	0.2472	0.016 441	138.36	0.2472	**170**
180	0.016 500	148.32	0.2630	0.016 500	148.35	0.2630	0.016 499	148.37	0.2630	**180**
190	0.016 562	158.35	0.2785	0.016 561	158.37	0.2785	0.016 561	158.40	0.2785	**190**
200	0.016 626	168.39	0.2939	0.016 626	168.41	0.2939	0.016 625	168.44	0.2939	**200**
210	0.016 694	178.45	0.3090	0.016 693	178.47	0.3090	0.016 693	178.49	0.3090	**210**
220	0.016 764	188.52	0.3239	0.016 764	188.54	0.3239	0.016 763	188.56	0.3239	**220**
230	0.016 838	198.61	0.3387	0.016 837	198.63	0.3387	0.016 836	198.65	0.3386	**230**
240	0.016 914	208.72	0.3532	0.016 914	208.74	0.3532	0.016 913	208.76	0.3532	**240**
250	0.016 994	218.85	0.3676	0.016 993	218.87	0.3676	0.016 993	218.89	0.3676	**250**
260	0.017 077	229.00	0.3818	0.017 076	229.02	0.3818	0.017 076	229.04	0.3818	**260**
270	0.017 163	239.18	0.3959	0.017 163	239.20	0.3958	0.017 162	239.22	0.3958	**270**
280	0.017 253	249.39	0.4098	0.017 252	249.41	0.4097	0.017 252	249.43	0.4097	**280**
290	0.017 346	259.62	0.4235	0.017 346	259.64	0.4235	0.017 345	259.66	0.4235	**290**
300	0.017 443	269.89	0.4371	0.017 442	269.91	0.4371	0.017 442	269.93	0.4371	**300**
310	0.017 544	280.19	0.4506	0.017 543	280.21	0.4506	0.017 542	280.23	0.4505	**310**
320	0.017 648	290.53	0.4639	0.017 647	290.55	0.4639	0.017 647	290.57	0.4639	**320**
330	0.017 757	300.91	0.4772	0.017 756	300.93	0.4771	0.017 755	300.94	0.4771	**330**
340	0.017 870	311.33	0.4903	0.017 869	311.35	0.4902	0.017 868	311.36	0.4902	**340**
350	0.017 987	321.80	0.5033	0.017 986	321.81	0.5033	0.017 985	321.83	0.5032	**350**
360	3.2581	1197.8	1.5811	3.0230	1195.5	1.5713	0.018 107	332.35	0.5161	**360**
370	3.3118	1203.9	1.5885	3.0743	1201.8	1.5789	2.8661	1199.7	1.5697	**370**
380	3.3645	1209.8	1.5957	3.1245	1207.9	1.5862	2.9142	1206.0	1.5773	**380**
390	3.4162	1215.7	1.6025	3.1736	1213.9	1.5933	2.9611	1212.1	1.5845	**390**
400	3.4673	1221.4	1.6092	3.2220	1219.7	1.6001	3.0073	1218.0	1.5914	**400**
410	3.5177	1227.0	1.6158	3.2698	1225.4	1.6067	3.0527	1223.8	1.5982	**410**
420	3.5676	1232.6	1.6221	3.3170	1231.1	1.6132	3.0975	1229.6	1.6047	**420**
430	3.6170	1238.1	1.6283	3.3637	1236.7	1.6195	3.1419	1235.2	1.6111	**430**
440	3.6659	1243.5	1.6344	3.4099	1242.2	1.6257	3.1857	1240.8	1.6174	**440**
450	3.7145	1248.9	1.6404	3.4557	1247.6	1.6317	3.2291	1246.3	1.6235	**450**
460	3.7627	1254.3	1.6462	3.5011	1253.0	1.6376	3.2721	1251.8	1.6295	**460**
470	3.8105	1259.6	1.6520	3.5462	1258.4	1.6434	3.3148	1257.2	1.6353	**470**
480	3.8581	1264.9	1.6576	3.5910	1263.7	1.6491	3.3572	1262.6	1.6411	**480**
490	3.9054	1270.1	1.6632	3.6355	1269.0	1.6547	3.3992	1268.0	1.6467	**490**
500	3.9524	1275.3	1.6687	3.6797	1274.3	1.6602	3.4411	1273.3	1.6523	**500**
510	3.9992	1280.5	1.6740	3.7237	1279.6	1.6657	3.4826	1278.6	1.6578	**510**
520	4.0458	1285.7	1.6794	3.7675	1284.8	1.6710	3.5239	1283.8	1.6632	**520**
530	4.0921	1290.9	1.6846	3.8111	1290.0	1.6763	3.5651	1289.1	1.6685	**530**
540	4.1383	1296.0	1.6898	3.8544	1295.1	1.6815	3.6060	1294.3	1.6737	**540**
550	4.1843	1301.1	1.6949	3.8976	1300.3	1.6866	3.6468	1299.5	1.6789	**550**
560	4.2302	1306.3	1.6999	3.9407	1305.4	1.6917	3.6873	1304.6	1.6840	**560**
570	4.2759	1311.4	1.7049	3.9836	1310.6	1.6967	3.7278	1309.8	1.6890	**570**
580	4.3215	1316.5	1.7098	4.0263	1315.7	1.7017	3.7681	1314.9	1.6940	**580**
590	4.3669	1321.6	1.7147	4.0690	1320.8	1.7066	3.8082	1320.1	1.6989	**590**
600	4.4122	1326.6	1.7195	4.1115	1325.9	1.7114	3.8483	1325.2	1.7038	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**140 psia** (t_{sat} = 353.04 °F)			**150 psia** (t_{sat} = 358.43 °F)			**160 psia** (t_{sat} = 363.55 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	4.4574	1331.7	1.7243	4.1538	1331.0	1.7162	3.8882	1330.3	1.7086	**610**
620	4.5025	1336.8	1.7290	4.1961	1336.1	1.7209	3.9280	1335.4	1.7134	**620**
630	4.5475	1341.9	1.7337	4.2383	1341.2	1.7256	3.9677	1340.6	1.7181	**630**
640	4.5924	1346.9	1.7383	4.2804	1346.3	1.7303	4.0073	1345.7	1.7227	**640**
650	4.6372	1352.0	1.7429	4.3224	1351.4	1.7349	4.0468	1350.8	1.7273	**650**
660	4.6820	1357.1	1.7474	4.3643	1356.5	1.7394	4.0862	1355.9	1.7319	**660**
670	4.7266	1362.1	1.7519	4.4061	1361.5	1.7440	4.1256	1361.0	1.7365	**670**
680	4.7712	1367.2	1.7564	4.4478	1366.6	1.7484	4.1649	1366.0	1.7409	**680**
690	4.8157	1372.2	1.7608	4.4895	1371.7	1.7529	4.2041	1371.1	1.7454	**690**
700	4.8602	1377.3	1.7652	4.5311	1376.8	1.7573	4.2432	1376.2	1.7498	**700**
710	4.9045	1382.4	1.7696	4.5727	1381.8	1.7616	4.2823	1381.3	1.7542	**710**
720	4.9488	1387.4	1.7739	4.6142	1386.9	1.7659	4.3213	1386.4	1.7585	**720**
730	4.9931	1392.5	1.7782	4.6556	1392.0	1.7702	4.3602	1391.5	1.7628	**730**
740	5.0373	1397.6	1.7824	4.6969	1397.1	1.7745	4.3991	1396.6	1.7671	**740**
750	5.0815	1402.7	1.7866	4.7383	1402.2	1.7787	4.4380	1401.7	1.7713	**750**
760	5.1256	1407.7	1.7908	4.7795	1407.3	1.7829	4.4767	1406.8	1.7755	**760**
770	5.1696	1412.8	1.7949	4.8207	1412.4	1.7871	4.5155	1411.9	1.7797	**770**
780	5.2136	1417.9	1.7991	4.8619	1417.5	1.7912	4.5542	1417.0	1.7838	**780**
790	5.2576	1423.0	1.8032	4.9030	1422.6	1.7953	4.5928	1422.1	1.7879	**790**
800	5.3015	1428.1	1.8072	4.9441	1427.7	1.7994	4.6314	1427.2	1.7920	**800**
820	5.3892	1438.3	1.8153	5.0262	1437.9	1.8074	4.7085	1437.5	1.8001	**820**
840	5.4768	1448.5	1.8232	5.1081	1448.1	1.8154	4.7855	1447.7	1.8080	**840**
860	5.5642	1458.8	1.8310	5.1898	1458.4	1.8232	4.8623	1458.0	1.8159	**860**
880	5.6515	1469.0	1.8387	5.2715	1468.7	1.8309	4.9389	1468.3	1.8236	**880**
900	5.7387	1479.3	1.8464	5.3530	1479.0	1.8386	5.0155	1478.7	1.8313	**900**
920	5.8258	1489.7	1.8539	5.4344	1489.3	1.8461	5.0919	1489.0	1.8388	**920**
940	5.9128	1500.0	1.8613	5.5157	1499.7	1.8536	5.1683	1499.4	1.8463	**940**
960	5.9997	1510.4	1.8687	5.5969	1510.1	1.8609	5.2445	1509.8	1.8537	**960**
980	6.0864	1520.8	1.8760	5.6781	1520.5	1.8682	5.3207	1520.2	1.8610	**980**
1000	6.1732	1531.2	1.8832	5.7591	1530.9	1.8754	5.3968	1530.7	1.8682	**1000**
1020	6.2598	1541.7	1.8903	5.8401	1541.4	1.8826	5.4728	1541.1	1.8753	**1020**
1040	6.3464	1552.2	1.8973	5.9210	1551.9	1.8896	5.5487	1551.7	1.8824	**1040**
1060	6.4329	1562.7	1.9043	6.0018	1562.4	1.8966	5.6246	1562.2	1.8893	**1060**
1080	6.5193	1573.3	1.9112	6.0825	1573.0	1.9035	5.7004	1572.8	1.8963	**1080**
1100	6.6057	1583.8	1.9180	6.1632	1583.6	1.9103	5.7761	1583.4	1.9031	**1100**
1120	6.6920	1594.5	1.9248	6.2439	1594.2	1.9171	5.8518	1594.0	1.9099	**1120**
1140	6.7783	1605.1	1.9315	6.3245	1604.9	1.9238	5.9274	1604.7	1.9166	**1140**
1160	6.8645	1615.8	1.9381	6.4050	1615.6	1.9304	6.0030	1615.4	1.9232	**1160**
1180	6.9506	1626.5	1.9447	6.4855	1626.3	1.9370	6.0785	1626.1	1.9298	**1180**
1200	7.0368	1637.3	1.9512	6.5660	1637.1	1.9435	6.1540	1636.9	1.9363	**1200**
1220	7.1228	1648.0	1.9577	6.6464	1647.9	1.9500	6.2295	1647.7	1.9428	**1220**
1240	7.2089	1658.9	1.9641	6.7267	1658.7	1.9564	6.3049	1658.5	1.9492	**1240**
1260	7.2949	1669.7	1.9705	6.8071	1669.5	1.9628	6.3802	1669.4	1.9556	**1260**
1280	7.3809	1680.6	1.9767	6.8874	1680.4	1.9691	6.4556	1680.3	1.9619	**1280**
1300	7.4668	1691.5	1.9830	6.9676	1691.4	1.9753	6.5309	1691.2	1.9681	**1300**
1320	7.5527	1702.5	1.9892	7.0479	1702.3	1.9815	6.6061	1702.1	1.9743	**1320**
1340	7.6386	1713.5	1.9953	7.1281	1713.3	1.9876	6.6814	1713.1	1.9805	**1340**
1360	7.7244	1724.5	2.0014	7.2082	1724.3	1.9937	6.7566	1724.2	1.9866	**1360**
1380	7.8102	1735.6	2.0075	7.2884	1735.4	1.9998	6.8318	1735.3	1.9926	**1380**
1400	7.8960	1746.7	2.0135	7.3685	1746.5	2.0058	6.9069	1746.4	1.9986	**1400**
1420	7.9818	1757.8	2.0194	7.4486	1757.6	2.0117	6.9821	1757.5	2.0046	**1420**
1440	8.0675	1768.9	2.0253	7.5287	1768.8	2.0177	7.0572	1768.7	2.0105	**1440**
1460	8.1533	1780.1	2.0312	7.6087	1780.0	2.0235	7.1322	1779.9	2.0163	**1460**
1480	8.2391	1791.4	2.0370	7.6889	1791.3	2.0293	7.2074	1791.1	2.0222	**1480**
1500	8.3248	1802.7	2.0428	7.7689	1802.5	2.0351	7.2825	1802.4	2.0280	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**180 psia** (t_{sat} = 373.08 °F)			**200 psia** (t_{sat} = 381.81 °F)			**220 psia** (t_{sat} = 389.89 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.018 272	346.21	0.5328	0.018 387	355.53	0.5439	0.018 496	364.19	0.5541	Sat. Liq.
Sat. Vap.	2.5320	1197.3	1.5549	2.2880	1198.8	1.5460	2.0870	1200.1	1.5379	Sat. Vap.
32	0.016 012	0.525	0.0000	0.016 011	0.585	0.0000	0.016 009	0.645	0.0000	**32**
40	0.016 010	8.564	0.0162	0.016 009	8.623	0.0162	0.016 008	8.682	0.0162	**40**
50	0.016 015	18.585	0.0361	0.016 013	18.643	0.0361	0.016 012	18.701	0.0361	**50**
60	0.016 026	28.588	0.0555	0.016 025	28.644	0.0555	0.016 024	28.701	0.0555	**60**
70	0.016 043	38.577	0.0745	0.016 042	38.633	0.0745	0.016 041	38.688	0.0745	**70**
80	0.016 065	48.559	0.0932	0.016 064	48.614	0.0932	0.016 063	48.668	0.0932	**80**
90	0.016 091	58.536	0.1115	0.016 090	58.590	0.1115	0.016 089	58.643	0.1115	**90**
100	0.016 122	68.510	0.1295	0.016 121	68.563	0.1295	0.016 120	68.616	0.1295	**100**
110	0.016 157	78.484	0.1472	0.016 156	78.536	0.1472	0.016 155	78.588	0.1471	**110**
120	0.016 196	88.459	0.1645	0.016 195	88.510	0.1645	0.016 194	88.561	0.1645	**120**
130	0.016 238	98.436	0.1816	0.016 237	98.487	0.1816	0.016 236	98.537	0.1816	**130**
140	0.016 284	108.42	0.1984	0.016 283	108.47	0.1984	0.016 282	108.52	0.1983	**140**
150	0.016 333	118.41	0.2149	0.016 332	118.45	0.2149	0.016 331	118.50	0.2149	**150**
160	0.016 385	128.40	0.2312	0.016 384	128.45	0.2311	0.016 383	128.50	0.2311	**160**
170	0.016 440	138.40	0.2472	0.016 439	138.45	0.2471	0.016 438	138.50	0.2471	**170**
180	0.016 498	148.42	0.2629	0.016 497	148.46	0.2629	0.016 496	148.51	0.2629	**180**
190	0.016 560	158.44	0.2785	0.016 559	158.49	0.2785	0.016 558	158.54	0.2785	**190**
200	0.016 624	168.48	0.2938	0.016 623	168.53	0.2938	0.016 622	168.57	0.2938	**200**
210	0.016 691	178.54	0.3090	0.016 690	178.58	0.3089	0.016 689	178.62	0.3089	**210**
220	0.016 762	188.61	0.3239	0.016 761	188.65	0.3239	0.016 760	188.69	0.3238	**220**
230	0.016 835	198.69	0.3386	0.016 834	198.74	0.3386	0.016 833	198.78	0.3386	**230**
240	0.016 912	208.80	0.3532	0.016 911	208.84	0.3531	0.016 909	208.89	0.3531	**240**
250	0.016 992	218.93	0.3675	0.016 990	218.97	0.3675	0.016 989	219.01	0.3675	**250**
260	0.017 075	229.08	0.3818	0.017 073	229.12	0.3817	0.017 072	229.16	0.3817	**260**
270	0.017 161	239.26	0.3958	0.017 159	239.30	0.3958	0.017 158	239.34	0.3957	**270**
280	0.017 250	249.47	0.4097	0.017 249	249.50	0.4097	0.017 248	249.54	0.4096	**280**
290	0.017 343	259.70	0.4234	0.017 342	259.74	0.4234	0.017 341	259.78	0.4234	**290**
300	0.017 440	269.97	0.4370	0.017 439	270.00	0.4370	0.017 437	270.04	0.4370	**300**
310	0.017 541	280.26	0.4505	0.017 539	280.30	0.4505	0.017 538	280.34	0.4504	**310**
320	0.017 645	290.60	0.4638	0.017 643	290.64	0.4638	0.017 642	290.67	0.4638	**320**
330	0.017 753	300.98	0.4771	0.017 752	301.01	0.4770	0.017 750	301.04	0.4770	**330**
340	0.017 866	311.40	0.4902	0.017 864	311.43	0.4901	0.017 863	311.46	0.4901	**340**
350	0.017 983	321.86	0.5032	0.017 981	321.89	0.5031	0.017 980	321.92	0.5031	**350**
360	0.018 105	332.38	0.5161	0.018 103	332.40	0.5160	0.018 101	332.43	0.5160	**360**
370	0.018 232	342.94	0.5289	0.018 230	342.97	0.5289	0.018 228	343.00	0.5288	**370**
380	2.5628	1201.9	1.5604	0.018 362	353.60	0.5416	0.018 360	353.62	0.5415	**380**
390	2.6063	1208.3	1.5680	2.3215	1204.4	1.5526	2.0875	1200.1	1.5380	**390**
400	2.6487	1214.5	1.5752	2.3612	1210.9	1.5602	2.1252	1207.0	1.5461	**400**
410	2.6904	1220.6	1.5822	2.4000	1217.2	1.5675	2.1617	1213.6	1.5537	**410**
420	2.7314	1226.5	1.5890	2.4380	1223.3	1.5745	2.1974	1220.0	1.5610	**420**
430	2.7718	1232.3	1.5956	2.4754	1229.3	1.5813	2.2324	1226.2	1.5680	**430**
440	2.8117	1238.1	1.6020	2.5122	1235.2	1.5879	2.2667	1232.3	1.5748	**440**
450	2.8512	1243.7	1.6082	2.5485	1241.0	1.5943	2.3006	1238.3	1.5814	**450**
460	2.8903	1249.3	1.6144	2.5845	1246.8	1.6006	2.3340	1244.1	1.5879	**460**
470	2.9290	1254.9	1.6204	2.6200	1252.4	1.6067	2.3669	1249.9	1.5941	**470**
480	2.9673	1260.3	1.6262	2.6552	1258.0	1.6127	2.3995	1255.6	1.6002	**480**
490	3.0054	1265.8	1.6320	2.6900	1263.6	1.6186	2.4318	1261.3	1.6062	**490**
500	3.0431	1271.2	1.6377	2.7246	1269.1	1.6243	2.4638	1266.9	1.6121	**500**
510	3.0806	1276.6	1.6432	2.7589	1274.5	1.6300	2.4954	1272.5	1.6179	**510**
520	3.1179	1281.9	1.6487	2.7929	1279.9	1.6356	2.5269	1278.0	1.6235	**520**
530	3.1550	1287.2	1.6541	2.8267	1285.3	1.6410	2.5581	1283.4	1.6291	**530**
540	3.1918	1292.5	1.6594	2.8604	1290.7	1.6464	2.5890	1288.9	1.6345	**540**
550	3.2285	1297.7	1.6646	2.8938	1296.0	1.6517	2.6198	1294.3	1.6399	**550**
560	3.2650	1303.0	1.6698	2.9270	1301.3	1.6569	2.6504	1299.6	1.6452	**560**
570	3.3014	1308.2	1.6749	2.9601	1306.6	1.6621	2.6808	1305.0	1.6504	**570**
580	3.3375	1313.4	1.6799	2.9930	1311.8	1.6672	2.7111	1310.3	1.6555	**580**
590	3.3736	1318.6	1.6849	3.0258	1317.1	1.6722	2.7412	1315.6	1.6606	**590**
600	3.4095	1323.8	1.6898	3.0585	1322.3	1.6771	2.7712	1320.8	1.6656	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**180 psia** (t_{sat} = 373.08 °F)			**200 psia** (t_{sat} = 381.81 °F)			**220 psia** (t_{sat} = 389.89 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	3.4454	1328.9	1.6946	3.0910	1327.5	1.6820	2.8010	1326.1	1.6705	**610**
620	3.4810	1334.1	1.6994	3.1234	1332.7	1.6869	2.8308	1331.3	1.6754	**620**
630	3.5166	1339.2	1.7042	3.1557	1337.9	1.6917	2.8604	1336.6	1.6802	**630**
640	3.5521	1344.4	1.7089	3.1880	1343.1	1.6964	2.8899	1341.8	1.6850	**640**
650	3.5875	1349.5	1.7135	3.2201	1348.3	1.7011	2.9194	1347.0	1.6897	**650**
660	3.6229	1354.7	1.7181	3.2521	1353.4	1.7057	2.9487	1352.2	1.6944	**660**
670	3.6581	1359.8	1.7227	3.2840	1358.6	1.7103	2.9779	1357.4	1.6990	**670**
680	3.6932	1364.9	1.7272	3.3159	1363.8	1.7148	3.0071	1362.6	1.7036	**680**
690	3.7283	1370.0	1.7317	3.3477	1368.9	1.7193	3.0362	1367.8	1.7081	**690**
700	3.7633	1375.1	1.7361	3.3794	1374.1	1.7238	3.0652	1373.0	1.7126	**700**
710	3.7983	1380.3	1.7405	3.4110	1379.2	1.7282	3.0942	1378.1	1.7170	**710**
720	3.8331	1385.4	1.7449	3.4426	1384.4	1.7326	3.1231	1383.3	1.7215	**720**
730	3.8680	1390.5	1.7492	3.4741	1389.5	1.7370	3.1519	1388.5	1.7258	**730**
740	3.9027	1395.6	1.7535	3.5056	1394.6	1.7413	3.1806	1393.7	1.7301	**740**
750	3.9374	1400.8	1.7577	3.5370	1399.8	1.7455	3.2093	1398.8	1.7344	**750**
760	3.9721	1405.9	1.7620	3.5684	1404.9	1.7498	3.2380	1404.0	1.7387	**760**
770	4.0067	1411.0	1.7661	3.5997	1410.1	1.7540	3.2666	1409.2	1.7429	**770**
780	4.0413	1416.1	1.7703	3.6309	1415.2	1.7581	3.2952	1414.3	1.7471	**780**
790	4.0758	1421.3	1.7744	3.6621	1420.4	1.7623	3.3237	1419.5	1.7513	**790**
800	4.1103	1426.4	1.7785	3.6933	1425.5	1.7664	3.3521	1424.7	1.7554	**800**
820	4.1791	1436.7	1.7866	3.7555	1435.9	1.7745	3.4090	1435.0	1.7635	**820**
840	4.2478	1447.0	1.7946	3.8176	1446.2	1.7825	3.4656	1445.4	1.7716	**840**
860	4.3163	1457.3	1.8025	3.8795	1456.5	1.7904	3.5221	1455.8	1.7795	**860**
880	4.3847	1467.6	1.8102	3.9413	1466.9	1.7982	3.5785	1466.2	1.7873	**880**
900	4.4530	1478.0	1.8179	4.0030	1477.3	1.8059	3.6348	1476.6	1.7950	**900**
920	4.5212	1488.3	1.8255	4.0645	1487.7	1.8135	3.6909	1487.0	1.8026	**920**
940	4.5892	1498.7	1.8330	4.1260	1498.1	1.8210	3.7470	1497.5	1.8102	**940**
960	4.6572	1509.2	1.8404	4.1874	1508.6	1.8284	3.8029	1507.9	1.8176	**960**
980	4.7251	1519.6	1.8477	4.2486	1519.0	1.8357	3.8588	1518.4	1.8249	**980**
1000	4.7929	1530.1	1.8549	4.3098	1529.5	1.8430	3.9146	1529.0	1.8322	**1000**
1020	4.8607	1540.6	1.8620	4.3709	1540.0	1.8501	3.9703	1539.5	1.8394	**1020**
1040	4.9283	1551.1	1.8691	4.4320	1550.6	1.8572	4.0259	1550.1	1.8465	**1040**
1060	4.9959	1561.7	1.8761	4.4930	1561.2	1.8642	4.0815	1560.7	1.8535	**1060**
1080	5.0634	1572.3	1.8830	4.5539	1571.8	1.8712	4.1370	1571.3	1.8604	**1080**
1100	5.1309	1582.9	1.8899	4.6147	1582.4	1.8780	4.1924	1581.9	1.8673	**1100**
1120	5.1983	1593.5	1.8967	4.6755	1593.1	1.8848	4.2478	1592.6	1.8741	**1120**
1140	5.2657	1604.2	1.9034	4.7362	1603.8	1.8916	4.3031	1603.3	1.8808	**1140**
1160	5.3330	1614.9	1.9100	4.7969	1614.5	1.8982	4.3584	1614.1	1.8875	**1160**
1180	5.4002	1625.7	1.9166	4.8576	1625.3	1.9048	4.4136	1624.9	1.8941	**1180**
1200	5.4674	1636.5	1.9232	4.9182	1636.1	1.9114	4.4688	1635.7	1.9007	**1200**
1220	5.5346	1647.3	1.9296	4.9787	1646.9	1.9178	4.5239	1646.5	1.9072	**1220**
1240	5.6017	1658.1	1.9361	5.0392	1657.7	1.9243	4.5790	1657.4	1.9136	**1240**
1260	5.6688	1669.0	1.9424	5.0997	1668.6	1.9306	4.6341	1668.3	1.9200	**1260**
1280	5.7359	1679.9	1.9487	5.1602	1679.5	1.9370	4.6891	1679.2	1.9263	**1280**
1300	5.8029	1690.8	1.9550	5.2206	1690.5	1.9432	4.7441	1690.2	1.9326	**1300**
1320	5.8699	1701.8	1.9612	5.2809	1701.5	1.9494	4.7991	1701.1	1.9388	**1320**
1340	5.9369	1712.8	1.9673	5.3413	1712.5	1.9556	4.8540	1712.2	1.9449	**1340**
1360	6.0038	1723.9	1.9734	5.4016	1723.6	1.9617	4.9089	1723.2	1.9510	**1360**
1380	6.0707	1734.9	1.9795	5.4619	1734.6	1.9677	4.9638	1734.3	1.9571	**1380**
1400	6.1376	1746.1	1.9855	5.5222	1745.8	1.9738	5.0186	1745.5	1.9631	**1400**
1420	6.2045	1757.2	1.9915	5.5824	1756.9	1.9797	5.0734	1756.6	1.9691	**1420**
1440	6.2713	1768.4	1.9974	5.6426	1768.1	1.9856	5.1282	1767.8	1.9750	**1440**
1460	6.3381	1779.6	2.0032	5.7028	1779.3	1.9915	5.1830	1779.1	1.9809	**1460**
1480	6.4050	1790.9	2.0091	5.7631	1790.6	1.9974	5.2379	1790.3	1.9867	**1480**
1500	6.4718	1802.1	2.0149	5.8232	1801.9	2.0032	5.2926	1801.6	1.9925	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**240 psia** (t_{sat} = 397.41 °F)			**260 psia** (t_{sat} = 404.45 °F)			**280 psia** (t_{sat} = 411.09 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.018 601	372.29	0.5635	0.018 703	379.92	0.5723	0.018 801	387.14	0.5805	Sat. Liq.
Sat. Vap.	1.9184	1201.1	1.5305	1.7749	1202.0	1.5236	1.6512	1202.8	1.5172	Sat. Vap.
32	0.016 008	0.706	0.0000	0.016 007	0.766	0.0000	0.016 006	0.826	0.0000	**32**
40	0.016 007	8.741	0.0162	0.016 006	8.800	0.0162	0.016 004	8.859	0.0162	**40**
50	0.016 011	18.759	0.0361	0.016 010	18.816	0.0360	0.016 009	18.874	0.0360	**50**
60	0.016 023	28.757	0.0555	0.016 022	28.814	0.0555	0.016 021	28.870	0.0555	**60**
70	0.016 040	38.744	0.0745	0.016 039	38.799	0.0745	0.016 038	38.855	0.0745	**70**
80	0.016 062	48.723	0.0932	0.016 061	48.777	0.0932	0.016 060	48.832	0.0932	**80**
90	0.016 088	58.697	0.1115	0.016 088	58.751	0.1115	0.016 087	58.804	0.1115	**90**
100	0.016 119	68.669	0.1295	0.016 118	68.722	0.1295	0.016 117	68.774	0.1294	**100**
110	0.016 154	78.640	0.1471	0.016 153	78.692	0.1471	0.016 152	78.744	0.1471	**110**
120	0.016 193	88.612	0.1645	0.016 192	88.664	0.1645	0.016 191	88.715	0.1645	**120**
130	0.016 235	98.588	0.1815	0.016 234	98.638	0.1815	0.016 233	98.689	0.1815	**130**
140	0.016 281	108.57	0.1983	0.016 280	108.62	0.1983	0.016 279	108.67	0.1983	**140**
150	0.016 330	118.55	0.2148	0.016 329	118.60	0.2148	0.016 328	118.65	0.2148	**150**
160	0.016 382	128.54	0.2311	0.016 381	128.59	0.2311	0.016 380	128.64	0.2311	**160**
170	0.016 437	138.55	0.2471	0.016 436	138.59	0.2471	0.016 435	138.64	0.2471	**170**
180	0.016 495	148.56	0.2629	0.016 494	148.60	0.2629	0.016 493	148.65	0.2628	**180**
190	0.016 556	158.58	0.2784	0.016 555	158.63	0.2784	0.016 554	158.67	0.2784	**190**
200	0.016 621	168.62	0.2938	0.016 620	168.66	0.2937	0.016 619	168.71	0.2937	**200**
210	0.016 688	178.67	0.3089	0.016 687	178.71	0.3089	0.016 686	178.76	0.3088	**210**
220	0.016 758	188.74	0.3238	0.016 757	188.78	0.3238	0.016 756	188.83	0.3238	**220**
230	0.016 832	198.82	0.3385	0.016 831	198.87	0.3385	0.016 829	198.91	0.3385	**230**
240	0.016 908	208.93	0.3531	0.016 907	208.97	0.3531	0.016 906	209.01	0.3530	**240**
250	0.016 988	219.06	0.3675	0.016 987	219.10	0.3674	0.016 985	219.14	0.3674	**250**
260	0.017 071	229.21	0.3817	0.017 069	229.25	0.3816	0.017 068	229.29	0.3816	**260**
270	0.017 157	239.38	0.3957	0.017 155	239.42	0.3957	0.017 154	239.46	0.3956	**270**
280	0.017 246	249.58	0.4096	0.017 245	249.62	0.4096	0.017 244	249.66	0.4095	**280**
290	0.017 339	259.81	0.4233	0.017 338	259.85	0.4233	0.017 336	259.89	0.4233	**290**
300	0.017 436	270.08	0.4369	0.017 434	270.11	0.4369	0.017 433	270.15	0.4369	**300**
310	0.017 536	280.37	0.4504	0.017 534	280.41	0.4504	0.017 533	280.44	0.4503	**310**
320	0.017 640	290.70	0.4637	0.017 639	290.74	0.4637	0.017 637	290.77	0.4637	**320**
330	0.017 748	301.08	0.4769	0.017 747	301.11	0.4769	0.017 745	301.14	0.4769	**330**
340	0.017 861	311.49	0.4901	0.017 859	311.52	0.4900	0.017 857	311.56	0.4900	**340**
350	0.017 978	321.95	0.5031	0.017 976	321.98	0.5030	0.017 974	322.01	0.5030	**350**
360	0.018 099	332.46	0.5160	0.018 098	332.49	0.5159	0.018 096	332.52	0.5159	**360**
370	0.018 226	343.03	0.5288	0.018 224	343.06	0.5287	0.018 222	343.08	0.5287	**370**
380	0.018 358	353.65	0.5415	0.018 356	353.68	0.5414	0.018 354	353.70	0.5414	**380**
390	0.018 496	364.34	0.5541	0.018 493	364.36	0.5541	0.018 491	364.38	0.5540	**390**
400	1.9277	1203.0	1.5327	0.018 637	375.11	0.5667	0.018 635	375.13	0.5666	**400**
410	1.9626	1209.9	1.5407	1.7934	1206.0	1.5283	0.018 785	385.96	0.5791	**410**
420	1.9964	1216.6	1.5483	1.8259	1213.0	1.5362	1.6791	1209.3	1.5246	**420**
430	2.0295	1223.0	1.5556	1.8573	1219.7	1.5438	1.7094	1216.3	1.5325	**430**
440	2.0618	1229.3	1.5626	1.8881	1226.2	1.5510	1.7388	1223.0	1.5400	**440**
450	2.0936	1235.4	1.5694	1.9182	1232.5	1.5580	1.7676	1229.5	1.5473	**450**
460	2.1249	1241.4	1.5760	1.9478	1238.7	1.5648	1.7957	1235.9	1.5542	**460**
470	2.1558	1247.4	1.5824	1.9769	1244.8	1.5714	1.8234	1242.1	1.5610	**470**
480	2.1863	1253.2	1.5886	2.0057	1250.8	1.5778	1.8506	1248.2	1.5675	**480**
490	2.2164	1259.0	1.5948	2.0340	1256.6	1.5840	1.8775	1254.3	1.5739	**490**
500	2.2462	1264.7	1.6007	2.0620	1262.5	1.5901	1.9039	1260.2	1.5801	**500**
510	2.2758	1270.4	1.6066	2.0897	1268.2	1.5961	1.9301	1266.0	1.5862	**510**
520	2.3050	1276.0	1.6123	2.1172	1273.9	1.6019	1.9560	1271.8	1.5921	**520**
530	2.3340	1281.5	1.6180	2.1443	1279.5	1.6076	1.9816	1277.5	1.5979	**530**
540	2.3628	1287.0	1.6235	2.1713	1285.1	1.6132	2.0070	1283.2	1.6036	**540**
550	2.3914	1292.5	1.6289	2.1980	1290.7	1.6188	2.0322	1288.8	1.6092	**550**
560	2.4198	1297.9	1.6343	2.2245	1296.2	1.6242	2.0571	1294.4	1.6147	**560**
570	2.4480	1303.3	1.6396	2.2509	1301.6	1.6295	2.0819	1299.9	1.6201	**570**
580	2.4760	1308.7	1.6448	2.2771	1307.1	1.6348	2.1065	1305.4	1.6254	**580**
590	2.5040	1314.0	1.6499	2.3031	1312.5	1.6399	2.1309	1310.9	1.6306	**590**
600	2.5317	1319.4	1.6549	2.3290	1317.9	1.6450	2.1552	1316.3	1.6358	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**240 psia** (t_{sat} = 397.41 °F)			**260 psia** (t_{sat} = 404.45 °F)			**280 psia** (t_{sat} = 411.09 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	2.5593	1324.7	1.6599	2.3548	1323.2	1.6501	2.1794	1321.8	1.6409	**610**
620	2.5869	1330.0	1.6648	2.3804	1328.6	1.6550	2.2034	1327.1	1.6459	**620**
630	2.6143	1335.2	1.6697	2.4059	1333.9	1.6600	2.2273	1332.5	1.6508	**630**
640	2.6415	1340.5	1.6745	2.4313	1339.2	1.6648	2.2511	1337.9	1.6557	**640**
650	2.6687	1345.8	1.6793	2.4566	1344.5	1.6696	2.2748	1343.2	1.6605	**650**
660	2.6958	1351.0	1.6840	2.4818	1349.8	1.6743	2.2984	1348.5	1.6653	**660**
670	2.7228	1356.2	1.6886	2.5069	1355.0	1.6790	2.3219	1353.8	1.6700	**670**
680	2.7498	1361.4	1.6932	2.5320	1360.3	1.6836	2.3453	1359.1	1.6747	**680**
690	2.7766	1366.7	1.6978	2.5569	1365.5	1.6882	2.3686	1364.4	1.6793	**690**
700	2.8034	1371.9	1.7023	2.5818	1370.8	1.6928	2.3919	1369.7	1.6839	**700**
710	2.8301	1377.1	1.7068	2.6066	1376.0	1.6973	2.4150	1374.9	1.6884	**710**
720	2.8567	1382.3	1.7112	2.6314	1381.2	1.7017	2.4382	1380.2	1.6929	**720**
730	2.8833	1387.5	1.7156	2.6560	1386.5	1.7061	2.4612	1385.4	1.6973	**730**
740	2.9098	1392.7	1.7199	2.6807	1391.7	1.7105	2.4842	1390.7	1.7017	**740**
750	2.9363	1397.9	1.7242	2.7052	1396.9	1.7148	2.5071	1395.9	1.7061	**750**
760	2.9627	1403.1	1.7285	2.7297	1402.1	1.7191	2.5300	1401.2	1.7104	**760**
770	2.9890	1408.3	1.7328	2.7542	1407.3	1.7234	2.5528	1406.4	1.7146	**770**
780	3.0154	1413.4	1.7370	2.7786	1412.5	1.7276	2.5756	1411.6	1.7189	**780**
790	3.0416	1418.6	1.7411	2.8029	1417.8	1.7318	2.5983	1416.9	1.7231	**790**
800	3.0678	1423.8	1.7453	2.8272	1423.0	1.7359	2.6210	1422.1	1.7273	**800**
820	3.1201	1434.2	1.7535	2.8757	1433.4	1.7442	2.6663	1432.6	1.7355	**820**
840	3.1723	1444.6	1.7615	2.9241	1443.8	1.7523	2.7113	1443.1	1.7436	**840**
860	3.2243	1455.0	1.7695	2.9723	1454.3	1.7602	2.7563	1453.5	1.7516	**860**
880	3.2762	1465.5	1.7773	3.0204	1464.7	1.7681	2.8011	1464.0	1.7595	**880**
900	3.3279	1475.9	1.7851	3.0683	1475.2	1.7758	2.8457	1474.5	1.7673	**900**
920	3.3796	1486.4	1.7927	3.1161	1485.7	1.7835	2.8903	1485.0	1.7750	**920**
940	3.4311	1496.8	1.8002	3.1639	1496.2	1.7911	2.9348	1495.6	1.7825	**940**
960	3.4826	1507.3	1.8077	3.2115	1506.7	1.7985	2.9791	1506.1	1.7900	**960**
980	3.5339	1517.8	1.8150	3.2590	1517.3	1.8059	3.0234	1516.7	1.7974	**980**
1000	3.5852	1528.4	1.8223	3.3065	1527.8	1.8132	3.0676	1527.2	1.8047	**1000**
1020	3.6364	1539.0	1.8295	3.3538	1538.4	1.8204	3.1117	1537.9	1.8119	**1020**
1040	3.6875	1549.5	1.8366	3.4011	1549.0	1.8275	3.1557	1548.5	1.8191	**1040**
1060	3.7385	1560.2	1.8436	3.4484	1559.6	1.8346	3.1997	1559.1	1.8261	**1060**
1080	3.7895	1570.8	1.8506	3.4955	1570.3	1.8415	3.2436	1569.8	1.8331	**1080**
1100	3.8404	1581.5	1.8575	3.5426	1581.0	1.8484	3.2874	1580.5	1.8400	**1100**
1120	3.8913	1592.2	1.8643	3.5897	1591.7	1.8552	3.3312	1591.2	1.8469	**1120**
1140	3.9421	1602.9	1.8710	3.6367	1602.5	1.8620	3.3749	1602.0	1.8536	**1140**
1160	3.9929	1613.7	1.8777	3.6836	1613.2	1.8687	3.4186	1612.8	1.8603	**1160**
1180	4.0436	1624.4	1.8843	3.7305	1624.0	1.8753	3.4622	1623.6	1.8670	**1180**
1200	4.0943	1635.3	1.8909	3.7774	1634.9	1.8819	3.5058	1634.5	1.8735	**1200**
1220	4.1449	1646.1	1.8974	3.8242	1645.7	1.8884	3.5493	1645.3	1.8800	**1220**
1240	4.1955	1657.0	1.9038	3.8710	1656.6	1.8948	3.5928	1656.2	1.8865	**1240**
1260	4.2460	1667.9	1.9102	3.9177	1667.5	1.9012	3.6363	1667.2	1.8929	**1260**
1280	4.2966	1678.8	1.9165	3.9644	1678.5	1.9076	3.6797	1678.1	1.8992	**1280**
1300	4.3470	1689.8	1.9228	4.0111	1689.5	1.9138	3.7231	1689.1	1.9055	**1300**
1320	4.3975	1700.8	1.9290	4.0577	1700.5	1.9201	3.7664	1700.1	1.9117	**1320**
1340	4.4479	1711.9	1.9352	4.1043	1711.5	1.9262	3.8098	1711.2	1.9179	**1340**
1360	4.4983	1722.9	1.9413	4.1509	1722.6	1.9324	3.8531	1722.3	1.9241	**1360**
1380	4.5487	1734.0	1.9474	4.1974	1733.7	1.9384	3.8963	1733.4	1.9301	**1380**
1400	4.5990	1745.2	1.9534	4.2439	1744.9	1.9445	3.9396	1744.6	1.9362	**1400**
1420	4.6493	1756.3	1.9594	4.2904	1756.0	1.9504	3.9828	1755.8	1.9421	**1420**
1440	4.6996	1767.5	1.9653	4.3369	1767.3	1.9564	4.0260	1767.0	1.9481	**1440**
1460	4.7499	1778.8	1.9712	4.3833	1778.5	1.9623	4.0692	1778.2	1.9540	**1460**
1480	4.8002	1790.1	1.9770	4.4299	1789.8	1.9681	4.1124	1789.5	1.9598	**1480**
1500	4.8504	1801.4	1.9828	4.4763	1801.1	1.9739	4.1556	1800.8	1.9656	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**300 psia** (t_{sat} = 417.37 °F)			**320 psia** (t_{sat} = 423.33 °F)			**340 psia** (t_{sat} = 429.01 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.018 897	394.00	0.5883	0.018 990	400.54	0.5956	0.019 081	406.81	0.6026	Sat. Liq.
Sat. Vap.	1.5434	1203.4	1.5111	1.4487	1203.9	1.5054	1.3647	1204.3	1.5000	Sat. Vap.
32	0.016 005	0.886	0.0000	0.016 004	0.947	0.0000	0.016 003	1.007	0.0000	**32**
40	0.016 003	8.918	0.0162	0.016 002	8.977	0.0162	0.016 001	9.036	0.0162	**40**
50	0.016 008	18.932	0.0360	0.016 007	18.989	0.0360	0.016 006	19.047	0.0360	**50**
60	0.016 020	28.927	0.0555	0.016 019	28.983	0.0555	0.016 018	29.040	0.0555	**60**
70	0.016 037	38.910	0.0745	0.016 036	38.966	0.0745	0.016 035	39.021	0.0745	**70**
80	0.016 059	48.886	0.0932	0.016 058	48.941	0.0931	0.016 057	48.995	0.0931	**80**
90	0.016 086	58.858	0.1115	0.016 085	58.912	0.1114	0.016 084	58.965	0.1114	**90**
100	0.016 117	68.827	0.1294	0.016 116	68.880	0.1294	0.016 115	68.933	0.1294	**100**
110	0.016 151	78.796	0.1471	0.016 150	78.848	0.1471	0.016 149	78.900	0.1471	**110**
120	0.016 190	88.766	0.1644	0.016 189	88.817	0.1644	0.016 188	88.869	0.1644	**120**
130	0.016 232	98.739	0.1815	0.016 231	98.790	0.1815	0.016 230	98.840	0.1815	**130**
140	0.016 278	108.72	0.1983	0.016 277	108.77	0.1983	0.016 276	108.82	0.1982	**140**
150	0.016 327	118.70	0.2148	0.016 326	118.75	0.2148	0.016 325	118.80	0.2147	**150**
160	0.016 379	128.69	0.2310	0.016 378	128.74	0.2310	0.016 377	128.79	0.2310	**160**
170	0.016 434	138.69	0.2470	0.016 433	138.74	0.2470	0.016 432	138.78	0.2470	**170**
180	0.016 492	148.70	0.2628	0.016 491	148.75	0.2628	0.016 490	148.79	0.2628	**180**
190	0.016 553	158.72	0.2784	0.016 552	158.77	0.2783	0.016 551	158.81	0.2783	**190**
200	0.016 617	168.75	0.2937	0.016 616	168.80	0.2937	0.016 615	168.85	0.2936	**200**
210	0.016 685	178.80	0.3088	0.016 684	178.85	0.3088	0.016 682	178.89	0.3088	**210**
220	0.016 755	188.87	0.3237	0.016 754	188.91	0.3237	0.016 753	188.96	0.3237	**220**
230	0.016 828	198.95	0.3385	0.016 827	199.00	0.3384	0.016 826	199.04	0.3384	**230**
240	0.016 905	209.06	0.3530	0.016 903	209.10	0.3530	0.016 902	209.14	0.3529	**240**
250	0.016 984	219.18	0.3674	0.016 983	219.22	0.3673	0.016 982	219.26	0.3673	**250**
260	0.017 067	229.33	0.3816	0.017 066	229.37	0.3815	0.017 064	229.41	0.3815	**260**
270	0.017 153	239.50	0.3956	0.017 152	239.54	0.3956	0.017 150	239.58	0.3955	**270**
280	0.017 242	249.70	0.4095	0.017 241	249.74	0.4095	0.017 239	249.78	0.4094	**280**
290	0.017 335	259.93	0.4232	0.017 334	259.96	0.4232	0.017 332	260.00	0.4232	**290**
300	0.017 431	270.19	0.4368	0.017 430	270.22	0.4368	0.017 428	270.26	0.4367	**300**
310	0.017 531	280.48	0.4503	0.017 530	280.52	0.4502	0.017 528	280.55	0.4502	**310**
320	0.017 635	290.81	0.4636	0.017 634	290.84	0.4636	0.017 632	290.88	0.4635	**320**
330	0.017 743	301.18	0.4768	0.017 742	301.21	0.4768	0.017 740	301.24	0.4767	**330**
340	0.017 856	311.59	0.4899	0.017 854	311.62	0.4899	0.017 852	311.65	0.4898	**340**
350	0.017 972	322.05	0.5029	0.017 970	322.08	0.5029	0.017 969	322.11	0.5028	**350**
360	0.018 094	332.55	0.5158	0.018 092	332.58	0.5158	0.018 090	332.61	0.5157	**360**
370	0.018 220	343.11	0.5286	0.018 218	343.14	0.5286	0.018 216	343.17	0.5285	**370**
380	0.018 352	353.73	0.5413	0.018 350	353.75	0.5413	0.018 348	353.78	0.5412	**380**
390	0.018 489	364.41	0.5540	0.018 487	364.43	0.5539	0.018 485	364.46	0.5539	**390**
400	0.018 632	375.16	0.5666	0.018 630	375.18	0.5665	0.018 628	375.20	0.5665	**400**
410	0.018 782	385.98	0.5791	0.018 780	386.00	0.5790	0.018 777	386.02	0.5790	**410**
420	1.5514	1205.4	1.5134	0.018 936	396.90	0.5915	0.018 933	396.92	0.5914	**420**
430	1.5807	1212.7	1.5217	1.4677	1209.0	1.5112	1.3675	1205.1	1.5009	**430**
440	1.6091	1219.7	1.5295	1.4952	1216.3	1.5193	1.3944	1212.7	1.5095	**440**
450	1.6367	1226.4	1.5370	1.5219	1223.3	1.5271	1.4203	1220.0	1.5175	**450**
460	1.6637	1233.0	1.5441	1.5479	1230.0	1.5344	1.4454	1227.0	1.5251	**460**
470	1.6901	1239.4	1.5510	1.5732	1236.6	1.5415	1.4699	1233.7	1.5324	**470**
480	1.7161	1245.7	1.5577	1.5981	1243.0	1.5484	1.4939	1240.3	1.5395	**480**
490	1.7416	1251.8	1.5642	1.6226	1249.3	1.5551	1.5174	1246.8	1.5463	**490**
500	1.7668	1257.9	1.5706	1.6467	1255.5	1.5615	1.5405	1253.1	1.5529	**500**
510	1.7917	1263.8	1.5768	1.6704	1261.6	1.5678	1.5632	1259.3	1.5593	**510**
520	1.8162	1269.7	1.5828	1.6938	1267.6	1.5740	1.5856	1265.4	1.5656	**520**
530	1.8405	1275.5	1.5887	1.7169	1273.5	1.5800	1.6078	1271.4	1.5717	**530**
540	1.8645	1281.3	1.5945	1.7398	1279.3	1.5859	1.6296	1277.3	1.5777	**540**
550	1.8883	1287.0	1.6002	1.7624	1285.1	1.5916	1.6512	1283.2	1.5835	**550**
560	1.9119	1292.6	1.6057	1.7848	1290.8	1.5973	1.6726	1289.0	1.5892	**560**
570	1.9353	1298.2	1.6112	1.8070	1296.5	1.6028	1.6938	1294.8	1.5948	**570**
580	1.9586	1303.8	1.6166	1.8291	1302.1	1.6083	1.7147	1300.4	1.6003	**580**
590	1.9816	1309.3	1.6219	1.8509	1307.7	1.6136	1.7355	1306.1	1.6057	**590**
600	2.0045	1314.8	1.6271	1.8726	1313.3	1.6189	1.7562	1311.7	1.6111	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**300 psia** (t_{sat} = 417.37 °F)			**320 psia** (t_{sat} = 423.33 °F)			**340 psia** (t_{sat} = 429.01 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	2.0273	1320.3	1.6322	1.8942	1318.8	1.6241	1.7767	1317.3	1.6163	**610**
620	2.0499	1325.7	1.6373	1.9156	1324.3	1.6292	1.7971	1322.8	1.6215	**620**
630	2.0724	1331.1	1.6423	1.9369	1329.7	1.6342	1.8173	1328.3	1.6265	**630**
640	2.0948	1336.5	1.6472	1.9581	1335.2	1.6392	1.8374	1333.8	1.6315	**640**
650	2.1171	1341.9	1.6521	1.9792	1340.6	1.6441	1.8574	1339.3	1.6365	**650**
660	2.1393	1347.3	1.6569	2.0001	1346.0	1.6489	1.8773	1344.7	1.6414	**660**
670	2.1614	1352.6	1.6616	2.0210	1351.4	1.6537	1.8971	1350.1	1.6462	**670**
680	2.1834	1357.9	1.6663	2.0418	1356.7	1.6584	1.9168	1355.5	1.6509	**680**
690	2.2054	1363.2	1.6710	2.0625	1362.1	1.6631	1.9364	1360.9	1.6556	**690**
700	2.2272	1368.5	1.6756	2.0831	1367.4	1.6677	1.9560	1366.3	1.6603	**700**
710	2.2490	1373.8	1.6801	2.1037	1372.7	1.6723	1.9754	1371.6	1.6649	**710**
720	2.2707	1379.1	1.6846	2.1242	1378.1	1.6768	1.9948	1377.0	1.6694	**720**
730	2.2923	1384.4	1.6891	2.1446	1383.4	1.6813	2.0142	1382.3	1.6740	**730**
740	2.3139	1389.7	1.6935	2.1649	1388.7	1.6857	2.0334	1387.7	1.6784	**740**
750	2.3355	1395.0	1.6978	2.1852	1394.0	1.6901	2.0526	1393.0	1.6828	**750**
760	2.3569	1400.2	1.7022	2.2054	1399.3	1.6945	2.0718	1398.3	1.6872	**760**
770	2.3783	1405.5	1.7065	2.2256	1404.5	1.6988	2.0909	1403.6	1.6915	**770**
780	2.3997	1410.7	1.7107	2.2458	1409.8	1.7031	2.1099	1408.9	1.6958	**780**
790	2.4210	1416.0	1.7150	2.2658	1415.1	1.7073	2.1289	1414.2	1.7001	**790**
800	2.4423	1421.2	1.7191	2.2859	1420.4	1.7115	2.1478	1419.5	1.7043	**800**
820	2.4847	1431.8	1.7274	2.3258	1430.9	1.7198	2.1856	1430.1	1.7127	**820**
840	2.5269	1442.3	1.7356	2.3656	1441.5	1.7280	2.2232	1440.7	1.7209	**840**
860	2.5690	1452.8	1.7436	2.4052	1452.0	1.7361	2.2606	1451.3	1.7289	**860**
880	2.6110	1463.3	1.7515	2.4447	1462.6	1.7440	2.2980	1461.8	1.7369	**880**
900	2.6529	1473.8	1.7593	2.4841	1473.1	1.7518	2.3351	1472.4	1.7447	**900**
920	2.6946	1484.4	1.7670	2.5233	1483.7	1.7595	2.3722	1483.0	1.7525	**920**
940	2.7362	1494.9	1.7746	2.5625	1494.3	1.7671	2.4092	1493.6	1.7601	**940**
960	2.7777	1505.5	1.7821	2.6015	1504.9	1.7747	2.4460	1504.2	1.7676	**960**
980	2.8192	1516.1	1.7895	2.6405	1515.5	1.7821	2.4828	1514.9	1.7751	**980**
1000	2.8605	1526.7	1.7968	2.6793	1526.1	1.7894	2.5195	1525.5	1.7824	**1000**
1020	2.9018	1537.3	1.8041	2.7181	1536.8	1.7967	2.5561	1536.2	1.7897	**1020**
1040	2.9430	1548.0	1.8112	2.7568	1547.4	1.8038	2.5926	1546.9	1.7969	**1040**
1060	2.9841	1558.6	1.8183	2.7955	1558.1	1.8109	2.6291	1557.6	1.8040	**1060**
1080	3.0252	1569.3	1.8253	2.8341	1568.8	1.8179	2.6655	1568.3	1.8110	**1080**
1100	3.0662	1580.0	1.8322	2.8726	1579.6	1.8248	2.7018	1579.1	1.8179	**1100**
1120	3.1071	1590.8	1.8390	2.9111	1590.3	1.8317	2.7381	1589.9	1.8248	**1120**
1140	3.1480	1601.6	1.8458	2.9495	1601.1	1.8385	2.7743	1600.7	1.8316	**1140**
1160	3.1888	1612.4	1.8525	2.9878	1611.9	1.8452	2.8104	1611.5	1.8383	**1160**
1180	3.2296	1623.2	1.8592	3.0261	1622.8	1.8518	2.8466	1622.4	1.8450	**1180**
1200	3.2704	1634.0	1.8657	3.0644	1633.6	1.8584	2.8826	1633.2	1.8516	**1200**
1220	3.3111	1644.9	1.8723	3.1026	1644.5	1.8650	2.9187	1644.2	1.8581	**1220**
1240	3.3517	1655.8	1.8787	3.1408	1655.5	1.8714	2.9547	1655.1	1.8646	**1240**
1260	3.3924	1666.8	1.8851	3.1789	1666.4	1.8778	2.9906	1666.1	1.8710	**1260**
1280	3.4329	1677.8	1.8915	3.2170	1677.4	1.8842	3.0265	1677.1	1.8774	**1280**
1300	3.4735	1688.8	1.8978	3.2551	1688.4	1.8905	3.0624	1688.1	1.8837	**1300**
1320	3.5140	1699.8	1.9040	3.2932	1699.5	1.8967	3.0983	1699.1	1.8899	**1320**
1340	3.5545	1710.9	1.9102	3.3312	1710.6	1.9029	3.1341	1710.2	1.8961	**1340**
1360	3.5950	1722.0	1.9163	3.3691	1721.7	1.9091	3.1699	1721.3	1.9022	**1360**
1380	3.6354	1733.1	1.9224	3.4071	1732.8	1.9151	3.2057	1732.5	1.9083	**1380**
1400	3.6758	1744.3	1.9284	3.4450	1744.0	1.9212	3.2414	1743.7	1.9144	**1400**
1420	3.7162	1755.5	1.9344	3.4829	1755.2	1.9272	3.2771	1754.9	1.9204	**1420**
1440	3.7566	1766.7	1.9404	3.5208	1766.4	1.9331	3.3128	1766.1	1.9263	**1440**
1460	3.7969	1778.0	1.9463	3.5587	1777.7	1.9390	3.3485	1777.4	1.9322	**1460**
1480	3.8373	1789.3	1.9521	3.5966	1789.0	1.9449	3.3842	1788.7	1.9381	**1480**
1500	3.8776	1800.6	1.9579	3.6344	1800.3	1.9507	3.4198	1800.1	1.9439	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**360 psia** (t_{sat} = 434.43 °F)			**380 psia** (t_{sat} = 439.63 °F)			**400 psia** (t_{sat} = 444.63 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.019 170	412.82	0.6093	0.019 257	418.60	0.6156	0.019 343	424.18	0.6217	Sat. Liq.
Sat. Vap.	1.2898	1204.6	1.4949	1.2224	1204.9	1.4900	1.1616	1205.0	1.4853	Sat. Vap.
32	0.016 002	1.067	0.0000	0.016 001	1.127	0.0000	0.015 999	1.187	0.0000	**32**
40	0.016 000	9.095	0.0162	0.015 999	9.154	0.0162	0.015 998	9.213	0.0162	**40**
50	0.016 005	19.105	0.0360	0.016 004	19.162	0.0360	0.016 003	19.220	0.0360	**50**
60	0.016 017	29.096	0.0554	0.016 016	29.153	0.0554	0.016 014	29.209	0.0554	**60**
70	0.016 034	39.077	0.0745	0.016 033	39.132	0.0745	0.016 032	39.188	0.0745	**70**
80	0.016 056	49.050	0.0931	0.016 055	49.104	0.0931	0.016 054	49.159	0.0931	**80**
90	0.016 083	59.019	0.1114	0.016 082	59.072	0.1114	0.016 081	59.126	0.1114	**90**
100	0.016 114	68.986	0.1294	0.016 113	69.038	0.1294	0.016 112	69.091	0.1294	**100**
110	0.016 149	78.952	0.1470	0.016 148	79.004	0.1470	0.016 147	79.056	0.1470	**110**
120	0.016 187	88.920	0.1644	0.016 186	88.971	0.1644	0.016 185	89.022	0.1644	**120**
130	0.016 229	98.891	0.1814	0.016 228	98.941	0.1814	0.016 227	98.992	0.1814	**130**
140	0.016 275	108.87	0.1982	0.016 274	108.92	0.1982	0.016 273	108.97	0.1982	**140**
150	0.016 324	118.85	0.2147	0.016 323	118.90	0.2147	0.016 322	118.94	0.2147	**150**
160	0.016 376	128.83	0.2310	0.016 375	128.88	0.2310	0.016 374	128.93	0.2309	**160**
170	0.016 431	138.83	0.2470	0.016 430	138.88	0.2470	0.016 429	138.93	0.2469	**170**
180	0.016 489	148.84	0.2627	0.016 488	148.89	0.2627	0.016 487	148.93	0.2627	**180**
190	0.016 550	158.86	0.2783	0.016 549	158.90	0.2783	0.016 548	158.95	0.2782	**190**
200	0.016 614	168.89	0.2936	0.016 613	168.94	0.2936	0.016 612	168.98	0.2936	**200**
210	0.016 681	178.94	0.3087	0.016 680	178.98	0.3087	0.016 679	179.03	0.3087	**210**
220	0.016 752	189.00	0.3236	0.016 750	189.05	0.3236	0.016 749	189.09	0.3236	**220**
230	0.016 825	199.08	0.3384	0.016 824	199.13	0.3383	0.016 822	199.17	0.3383	**230**
240	0.016 901	209.18	0.3529	0.016 900	209.23	0.3529	0.016 899	209.27	0.3529	**240**
250	0.016 980	219.31	0.3673	0.016 979	219.35	0.3672	0.016 978	219.39	0.3672	**250**
260	0.017 063	229.45	0.3815	0.017 062	229.49	0.3814	0.017 060	229.53	0.3814	**260**
270	0.017 149	239.62	0.3955	0.017 148	239.66	0.3955	0.017 146	239.70	0.3954	**270**
280	0.017 238	249.82	0.4094	0.017 237	249.85	0.4094	0.017 235	249.89	0.4093	**280**
290	0.017 331	260.04	0.4231	0.017 329	260.08	0.4231	0.017 328	260.12	0.4230	**290**
300	0.017 427	270.30	0.4367	0.017 425	270.33	0.4367	0.017 424	270.37	0.4366	**300**
310	0.017 527	280.59	0.4502	0.017 525	280.62	0.4501	0.017 524	280.66	0.4501	**310**
320	0.017 631	290.91	0.4635	0.017 629	290.95	0.4635	0.017 627	290.98	0.4634	**320**
330	0.017 738	301.28	0.4767	0.017 737	301.31	0.4767	0.017 735	301.35	0.4766	**330**
340	0.017 850	311.69	0.4898	0.017 849	311.72	0.4898	0.017 847	311.75	0.4897	**340**
350	0.017 967	322.14	0.5028	0.017 965	322.17	0.5027	0.017 963	322.20	0.5027	**350**
360	0.018 088	332.64	0.5157	0.018 086	332.67	0.5156	0.018 084	332.70	0.5156	**360**
370	0.018 214	343.19	0.5285	0.018 212	343.22	0.5284	0.018 210	343.25	0.5284	**370**
380	0.018 345	353.81	0.5412	0.018 343	353.83	0.5411	0.018 341	353.86	0.5411	**380**
390	0.018 482	364.48	0.5538	0.018 480	364.51	0.5538	0.018 478	364.53	0.5537	**390**
400	0.018 625	375.22	0.5664	0.018 623	375.25	0.5663	0.018 621	375.27	0.5663	**400**
410	0.018 775	386.04	0.5789	0.018 772	386.06	0.5789	0.018 770	386.08	0.5788	**410**
420	0.018 931	396.93	0.5914	0.018 928	396.95	0.5913	0.018 926	396.97	0.5912	**420**
430	0.019 095	407.92	0.6038	0.019 092	407.93	0.6037	0.019 089	407.95	0.6037	**430**
440	1.3044	1209.0	1.4998	1.2234	1205.2	1.4903	0.019 260	419.02	0.6160	**440**
450	1.3297	1216.6	1.5082	1.2483	1213.1	1.4991	1.1747	1209.5	1.4901	**450**
460	1.3541	1223.8	1.5161	1.2722	1220.6	1.5073	1.1982	1217.3	1.4987	**460**
470	1.3779	1230.8	1.5236	1.2953	1227.8	1.5150	1.2208	1224.7	1.5067	**470**
480	1.4011	1237.6	1.5308	1.3178	1234.8	1.5225	1.2427	1231.9	1.5144	**480**
490	1.4237	1244.2	1.5378	1.3398	1241.5	1.5296	1.2641	1238.8	1.5217	**490**
500	1.4460	1250.6	1.5446	1.3613	1248.1	1.5365	1.2850	1245.6	1.5288	**500**
510	1.4679	1256.9	1.5511	1.3824	1254.6	1.5432	1.3054	1252.1	1.5356	**510**
520	1.4894	1263.2	1.5575	1.4032	1260.9	1.5497	1.3255	1258.6	1.5422	**520**
530	1.5106	1269.3	1.5637	1.4236	1267.1	1.5561	1.3453	1264.9	1.5487	**530**
540	1.5316	1275.3	1.5698	1.4438	1273.3	1.5622	1.3647	1271.2	1.5550	**540**
550	1.5523	1281.3	1.5757	1.4637	1279.3	1.5683	1.3839	1277.3	1.5611	**550**
560	1.5727	1287.2	1.5815	1.4834	1285.3	1.5741	1.4028	1283.4	1.5670	**560**
570	1.5930	1293.0	1.5872	1.5028	1291.2	1.5799	1.4215	1289.4	1.5729	**570**
580	1.6131	1298.7	1.5928	1.5220	1297.0	1.5855	1.4400	1295.3	1.5786	**580**
590	1.6329	1304.5	1.5982	1.5411	1302.8	1.5911	1.4583	1301.1	1.5842	**590**
600	1.6527	1310.1	1.6036	1.5600	1308.5	1.5965	1.4765	1306.9	1.5897	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**360 psia** (t_{sat} = 434.43 °F)			**380 psia** (t_{sat} = 439.63 °F)			**400 psia** (t_{sat} = 444.63 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	1.6722	1315.8	1.6089	1.5787	1314.2	1.6019	1.4945	1312.7	1.5951	**610**
620	1.6916	1321.4	1.6141	1.5973	1319.9	1.6071	1.5123	1318.4	1.6004	**620**
630	1.7109	1326.9	1.6192	1.6157	1325.5	1.6123	1.5300	1324.1	1.6056	**630**
640	1.7301	1332.5	1.6243	1.6340	1331.1	1.6174	1.5475	1329.7	1.6108	**640**
650	1.7491	1338.0	1.6293	1.6522	1336.6	1.6224	1.5650	1335.3	1.6158	**650**
660	1.7681	1343.4	1.6342	1.6703	1342.1	1.6274	1.5823	1340.8	1.6208	**660**
670	1.7869	1348.9	1.6391	1.6883	1347.6	1.6323	1.5996	1346.4	1.6258	**670**
680	1.8057	1354.3	1.6438	1.7062	1353.1	1.6371	1.6167	1351.9	1.6306	**680**
690	1.8243	1359.8	1.6486	1.7240	1358.6	1.6418	1.6337	1357.4	1.6354	**690**
700	1.8429	1365.2	1.6533	1.7418	1364.0	1.6466	1.6507	1362.9	1.6402	**700**
710	1.8614	1370.5	1.6579	1.7594	1369.4	1.6512	1.6676	1368.3	1.6448	**710**
720	1.8799	1375.9	1.6625	1.7770	1374.8	1.6558	1.6844	1373.8	1.6495	**720**
730	1.8982	1381.3	1.6670	1.7945	1380.2	1.6604	1.7011	1379.2	1.6541	**730**
740	1.9165	1386.6	1.6715	1.8119	1385.6	1.6649	1.7178	1384.6	1.6586	**740**
750	1.9348	1392.0	1.6759	1.8293	1391.0	1.6693	1.7344	1390.0	1.6631	**750**
760	1.9530	1397.3	1.6803	1.8466	1396.4	1.6738	1.7509	1395.4	1.6675	**760**
770	1.9711	1402.7	1.6847	1.8639	1401.7	1.6781	1.7674	1400.8	1.6719	**770**
780	1.9892	1408.0	1.6890	1.8811	1407.1	1.6825	1.7838	1406.1	1.6763	**780**
790	2.0072	1413.3	1.6933	1.8983	1412.4	1.6868	1.8002	1411.5	1.6806	**790**
800	2.0252	1418.6	1.6975	1.9154	1417.8	1.6910	1.8166	1416.9	1.6848	**800**
820	2.0610	1429.3	1.7059	1.9495	1428.4	1.6994	1.8491	1427.6	1.6933	**820**
840	2.0966	1439.9	1.7141	1.9834	1439.1	1.7077	1.8815	1438.3	1.7016	**840**
860	2.1321	1450.5	1.7222	2.0172	1449.7	1.7158	1.9137	1449.0	1.7097	**860**
880	2.1675	1461.1	1.7302	2.0508	1460.4	1.7238	1.9457	1459.6	1.7178	**880**
900	2.2028	1471.7	1.7381	2.0843	1471.0	1.7317	1.9777	1470.3	1.7257	**900**
920	2.2379	1482.3	1.7458	2.1177	1481.7	1.7395	2.0095	1481.0	1.7335	**920**
940	2.2729	1493.0	1.7535	2.1510	1492.3	1.7472	2.0412	1491.7	1.7412	**940**
960	2.3078	1503.6	1.7610	2.1841	1503.0	1.7547	2.0728	1502.4	1.7487	**960**
980	2.3426	1514.3	1.7685	2.2172	1513.7	1.7622	2.1044	1513.1	1.7562	**980**
1000	2.3774	1525.0	1.7758	2.2502	1524.4	1.7696	2.1358	1523.8	1.7636	**1000**
1020	2.4120	1535.6	1.7831	2.2831	1535.1	1.7769	2.1671	1534.5	1.7709	**1020**
1040	2.4466	1546.4	1.7903	2.3160	1545.8	1.7841	2.1984	1545.3	1.7781	**1040**
1060	2.4811	1557.1	1.7974	2.3488	1556.6	1.7912	2.2296	1556.1	1.7853	**1060**
1080	2.5156	1567.8	1.8044	2.3815	1567.3	1.7982	2.2608	1566.8	1.7923	**1080**
1100	2.5500	1578.6	1.8114	2.4141	1578.1	1.8052	2.2919	1577.7	1.7993	**1100**
1120	2.5843	1589.4	1.8183	2.4467	1588.9	1.8121	2.3229	1588.5	1.8062	**1120**
1140	2.6186	1600.2	1.8251	2.4792	1599.8	1.8189	2.3538	1599.3	1.8130	**1140**
1160	2.6528	1611.1	1.8318	2.5117	1610.6	1.8256	2.3848	1610.2	1.8198	**1160**
1180	2.6870	1621.9	1.8385	2.5441	1621.5	1.8323	2.4156	1621.1	1.8265	**1180**
1200	2.7211	1632.8	1.8451	2.5765	1632.4	1.8389	2.4464	1632.0	1.8331	**1200**
1220	2.7552	1643.8	1.8516	2.6089	1643.4	1.8455	2.4772	1643.0	1.8396	**1220**
1240	2.7892	1654.7	1.8581	2.6412	1654.3	1.8520	2.5080	1654.0	1.8461	**1240**
1260	2.8232	1665.7	1.8645	2.6735	1665.3	1.8584	2.5387	1665.0	1.8526	**1260**
1280	2.8572	1676.7	1.8709	2.7057	1676.3	1.8648	2.5693	1676.0	1.8590	**1280**
1300	2.8911	1687.7	1.8772	2.7379	1687.4	1.8711	2.6000	1687.0	1.8653	**1300**
1320	2.9250	1698.8	1.8835	2.7700	1698.5	1.8773	2.6306	1698.1	1.8715	**1320**
1340	2.9589	1709.9	1.8897	2.8022	1709.6	1.8836	2.6611	1709.3	1.8778	**1340**
1360	2.9928	1721.0	1.8958	2.8343	1720.7	1.8897	2.6917	1720.4	1.8839	**1360**
1380	3.0266	1732.2	1.9019	2.8664	1731.9	1.8958	2.7222	1731.6	1.8900	**1380**
1400	3.0604	1743.4	1.9080	2.8984	1743.1	1.9019	2.7527	1742.8	1.8961	**1400**
1420	3.0941	1754.6	1.9140	2.9304	1754.3	1.9079	2.7831	1754.0	1.9021	**1420**
1440	3.1279	1765.9	1.9199	2.9624	1765.6	1.9138	2.8135	1765.3	1.9081	**1440**
1460	3.1616	1777.1	1.9258	2.9944	1776.9	1.9197	2.8440	1776.6	1.9140	**1460**
1480	3.1954	1788.5	1.9317	3.0265	1788.2	1.9256	2.8744	1787.9	1.9198	**1480**
1500	3.2291	1799.8	1.9375	3.0584	1799.5	1.9314	2.9048	1799.3	1.9257	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**450 psia** (t_{sat} = 456.32 °F)			**500 psia** (t_{sat} = 467.05 °F)			**550 psia** (t_{sat} = 476.98 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.019 551	437.33	0.6360	0.019 752	449.53	0.6490	0.019 948	460.95	0.6611	Sat. Liq.
Sat. Vap.	1.0324	1205.2	1.4743	0.9282	1205.0	1.4643	0.8422	1204.6	1.4550	Sat. Vap.
32	0.015 997	1.338	0.0000	0.015 994	1.488	0.0000	0.015 991	1.638	0.0000	**32**
40	0.015 995	9.360	0.0162	0.015 993	9.507	0.0162	0.015 990	9.655	0.0162	**40**
50	0.016 000	19.364	0.0360	0.015 998	19.508	0.0360	0.015 995	19.652	0.0360	**50**
60	0.016 012	29.351	0.0554	0.016 009	29.492	0.0554	0.016 007	29.633	0.0554	**60**
70	0.016 029	39.326	0.0744	0.016 027	39.465	0.0744	0.016 024	39.603	0.0744	**70**
80	0.016 051	49.295	0.0931	0.016 049	49.431	0.0931	0.016 046	49.568	0.0930	**80**
90	0.016 078	59.260	0.1114	0.016 076	59.394	0.1114	0.016 073	59.528	0.1113	**90**
100	0.016 109	69.223	0.1293	0.016 107	69.355	0.1293	0.016 104	69.487	0.1293	**100**
110	0.016 144	79.186	0.1470	0.016 142	79.316	0.1470	0.016 139	79.446	0.1469	**110**
120	0.016 183	89.150	0.1643	0.016 180	89.278	0.1643	0.016 178	89.407	0.1642	**120**
130	0.016 225	99.118	0.1814	0.016 222	99.244	0.1813	0.016 220	99.370	0.1813	**130**
140	0.016 270	109.09	0.1981	0.016 268	109.21	0.1981	0.016 265	109.34	0.1981	**140**
150	0.016 319	119.07	0.2146	0.016 317	119.19	0.2146	0.016 314	119.31	0.2145	**150**
160	0.016 371	129.05	0.2309	0.016 369	129.17	0.2308	0.016 366	129.29	0.2308	**160**
170	0.016 426	139.05	0.2469	0.016 424	139.17	0.2468	0.016 421	139.28	0.2468	**170**
180	0.016 484	149.05	0.2627	0.016 482	149.17	0.2626	0.016 479	149.28	0.2625	**180**
190	0.016 545	159.07	0.2782	0.016 543	159.18	0.2781	0.016 540	159.30	0.2781	**190**
200	0.016 609	169.10	0.2935	0.016 607	169.21	0.2934	0.016 604	169.32	0.2934	**200**
210	0.016 676	179.14	0.3086	0.016 674	179.25	0.3086	0.016 671	179.36	0.3085	**210**
220	0.016 746	189.20	0.3235	0.016 744	189.31	0.3235	0.016 741	189.42	0.3234	**220**
230	0.016 820	199.28	0.3382	0.016 817	199.38	0.3382	0.016 814	199.49	0.3381	**230**
240	0.016 896	209.37	0.3528	0.016 893	209.48	0.3527	0.016 890	209.59	0.3526	**240**
250	0.016 975	219.49	0.3671	0.016 972	219.60	0.3671	0.016 969	219.70	0.3670	**250**
260	0.017 057	229.63	0.3813	0.017 054	229.73	0.3813	0.017 051	229.84	0.3812	**260**
270	0.017 143	239.80	0.3954	0.017 140	239.90	0.3953	0.017 136	240.00	0.3952	**270**
280	0.017 232	249.99	0.4092	0.017 229	250.09	0.4091	0.017 225	250.19	0.4091	**280**
290	0.017 324	260.21	0.4230	0.017 321	260.31	0.4229	0.017 317	260.40	0.4228	**290**
300	0.017 420	270.46	0.4365	0.017 417	270.56	0.4365	0.017 413	270.65	0.4364	**300**
310	0.017 520	280.75	0.4500	0.017 516	280.84	0.4499	0.017 512	280.93	0.4498	**310**
320	0.017 623	291.07	0.4633	0.017 620	291.16	0.4632	0.017 616	291.24	0.4631	**320**
330	0.017 731	301.43	0.4765	0.017 727	301.51	0.4764	0.017 723	301.60	0.4763	**330**
340	0.017 843	311.83	0.4896	0.017 838	311.91	0.4895	0.017 834	311.99	0.4894	**340**
350	0.017 959	322.28	0.5026	0.017 954	322.35	0.5025	0.017 950	322.43	0.5024	**350**
360	0.018 079	332.77	0.5155	0.018 075	332.85	0.5154	0.018 070	332.92	0.5152	**360**
370	0.018 205	343.32	0.5283	0.018 200	343.39	0.5281	0.018 195	343.46	0.5280	**370**
380	0.018 336	353.93	0.5410	0.018 331	353.99	0.5408	0.018 326	354.06	0.5407	**380**
390	0.018 472	364.59	0.5536	0.018 467	364.65	0.5535	0.018 461	364.71	0.5533	**390**
400	0.018 615	375.32	0.5662	0.018 609	375.38	0.5660	0.018 603	375.44	0.5659	**400**
410	0.018 763	386.13	0.5787	0.018 757	386.18	0.5785	0.018 751	386.23	0.5784	**410**
420	0.018 919	397.01	0.5911	0.018 912	397.06	0.5910	0.018 906	397.11	0.5908	**420**
430	0.019 082	407.99	0.6035	0.019 075	408.03	0.6033	0.019 068	408.06	0.6032	**430**
440	0.019 253	419.05	0.6159	0.019 245	419.08	0.6157	0.019 238	419.12	0.6155	**440**
450	0.019 433	430.22	0.6282	0.019 425	430.24	0.6280	0.019 417	430.27	0.6279	**450**
460	1.0407	1208.4	1.4777	0.019 613	441.52	0.6404	0.019 605	441.53	0.6402	**460**
470	1.0625	1216.6	1.4866	0.9344	1207.7	1.4671	0.019 803	452.92	0.6525	**470**
480	1.0834	1224.3	1.4949	0.9548	1216.2	1.4763	0.8482	1207.4	1.4580	**480**
490	1.1036	1231.7	1.5028	0.9742	1224.2	1.4848	0.8674	1216.2	1.4673	**490**
500	1.1232	1238.9	1.5103	0.9930	1231.9	1.4928	0.8856	1224.5	1.4760	**500**
510	1.1423	1245.9	1.5175	1.0112	1239.3	1.5005	0.9032	1232.4	1.4842	**510**
520	1.1610	1252.7	1.5245	1.0289	1246.5	1.5079	0.9202	1240.0	1.4921	**520**
530	1.1794	1259.3	1.5312	1.0462	1253.5	1.5150	0.9367	1247.4	1.4995	**530**
540	1.1974	1265.8	1.5378	1.0631	1260.3	1.5218	0.9527	1254.5	1.5067	**540**
550	1.2151	1272.2	1.5442	1.0797	1267.0	1.5284	0.9685	1261.5	1.5137	**550**
560	1.2326	1278.5	1.5504	1.0960	1273.5	1.5349	0.9839	1268.3	1.5204	**560**
570	1.2498	1284.7	1.5564	1.1120	1279.9	1.5412	0.9990	1275.0	1.5269	**570**
580	1.2667	1290.8	1.5623	1.1278	1286.3	1.5473	1.0138	1281.5	1.5332	**580**
590	1.2835	1296.9	1.5681	1.1434	1292.5	1.5532	1.0284	1288.0	1.5394	**590**
600	1.3001	1302.8	1.5737	1.1587	1298.6	1.5591	1.0428	1294.3	1.5454	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**450 psia** (t_{sat} = 456.32 °F)			**500 psia** (t_{sat} = 467.05 °F)			**550 psia** (t_{sat} = 476.98 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	1.3165	1308.7	1.5793	1.1739	1304.7	1.5648	1.0570	1300.6	1.5513	**610**
620	1.3328	1314.6	1.5847	1.1889	1310.7	1.5704	1.0711	1306.7	1.5570	**620**
630	1.3489	1320.4	1.5901	1.2038	1316.7	1.5758	1.0849	1312.9	1.5626	**630**
640	1.3649	1326.2	1.5953	1.2185	1322.6	1.5812	1.0987	1318.9	1.5682	**640**
650	1.3807	1331.9	1.6005	1.2331	1328.4	1.5865	1.1122	1324.9	1.5736	**650**
660	1.3964	1337.6	1.6056	1.2476	1334.2	1.5917	1.1257	1330.8	1.5789	**660**
670	1.4121	1343.2	1.6106	1.2619	1340.0	1.5968	1.1390	1336.7	1.5841	**670**
680	1.4276	1348.8	1.6156	1.2762	1345.7	1.6019	1.1522	1342.5	1.5892	**680**
690	1.4430	1354.4	1.6205	1.2903	1351.4	1.6068	1.1653	1348.3	1.5943	**690**
700	1.4584	1360.0	1.6253	1.3044	1357.0	1.6117	1.1783	1354.0	1.5993	**700**
710	1.4736	1365.5	1.6300	1.3184	1362.7	1.6166	1.1912	1359.8	1.6042	**710**
720	1.4888	1371.0	1.6347	1.3322	1368.3	1.6213	1.2041	1365.4	1.6090	**720**
730	1.5039	1376.5	1.6394	1.3461	1373.8	1.6261	1.2168	1371.1	1.6138	**730**
740	1.5189	1382.0	1.6440	1.3598	1379.4	1.6307	1.2295	1376.8	1.6185	**740**
750	1.5339	1387.5	1.6485	1.3735	1384.9	1.6353	1.2421	1382.4	1.6232	**750**
760	1.5488	1392.9	1.6530	1.3871	1390.5	1.6399	1.2547	1388.0	1.6278	**760**
770	1.5637	1398.4	1.6575	1.4006	1396.0	1.6444	1.2672	1393.5	1.6324	**770**
780	1.5785	1403.8	1.6619	1.4141	1401.5	1.6488	1.2796	1399.1	1.6369	**780**
790	1.5932	1409.2	1.6662	1.4276	1407.0	1.6532	1.2920	1404.7	1.6413	**790**
800	1.6079	1414.7	1.6705	1.4409	1412.4	1.6576	1.3043	1410.2	1.6457	**800**
820	1.6372	1425.5	1.6791	1.4676	1423.4	1.6662	1.3288	1421.2	1.6544	**820**
840	1.6662	1436.3	1.6874	1.4940	1434.2	1.6746	1.3531	1432.2	1.6629	**840**
860	1.6952	1447.0	1.6956	1.5203	1445.1	1.6829	1.3772	1443.2	1.6713	**860**
880	1.7239	1457.8	1.7037	1.5465	1456.0	1.6911	1.4012	1454.1	1.6795	**880**
900	1.7526	1468.6	1.7117	1.5725	1466.8	1.6991	1.4251	1465.0	1.6876	**900**
920	1.7811	1479.3	1.7196	1.5984	1477.6	1.7070	1.4489	1475.9	1.6956	**920**
940	1.8095	1490.1	1.7273	1.6242	1488.4	1.7148	1.4725	1486.8	1.7034	**940**
960	1.8378	1500.8	1.7349	1.6498	1499.3	1.7225	1.4960	1497.7	1.7111	**960**
980	1.8661	1511.6	1.7425	1.6754	1510.1	1.7301	1.5194	1508.6	1.7188	**980**
1000	1.8942	1522.4	1.7499	1.7009	1520.9	1.7375	1.5428	1519.5	1.7263	**1000**
1020	1.9223	1533.2	1.7572	1.7263	1531.8	1.7449	1.5660	1530.4	1.7337	**1020**
1040	1.9502	1544.0	1.7645	1.7517	1542.6	1.7522	1.5892	1541.3	1.7410	**1040**
1060	1.9781	1554.8	1.7716	1.7769	1553.5	1.7594	1.6123	1552.2	1.7482	**1060**
1080	2.0060	1565.6	1.7787	1.8021	1564.4	1.7665	1.6353	1563.1	1.7554	**1080**
1100	2.0337	1576.5	1.7857	1.8272	1575.3	1.7735	1.6583	1574.0	1.7624	**1100**
1120	2.0615	1587.3	1.7927	1.8523	1586.2	1.7805	1.6812	1585.0	1.7694	**1120**
1140	2.0891	1598.2	1.7995	1.8773	1597.1	1.7874	1.7040	1596.0	1.7763	**1140**
1160	2.1167	1609.1	1.8063	1.9023	1608.0	1.7942	1.7268	1607.0	1.7831	**1160**
1180	2.1443	1620.1	1.8130	1.9272	1619.0	1.8009	1.7496	1618.0	1.7899	**1180**
1200	2.1718	1631.0	1.8196	1.9521	1630.0	1.8076	1.7723	1629.0	1.7966	**1200**
1220	2.1993	1642.0	1.8262	1.9769	1641.0	1.8141	1.7950	1640.0	1.8032	**1220**
1240	2.2267	1653.0	1.8327	2.0017	1652.1	1.8207	1.8176	1651.1	1.8097	**1240**
1260	2.2541	1664.0	1.8392	2.0264	1663.1	1.8272	1.8402	1662.2	1.8162	**1260**
1280	2.2814	1675.1	1.8456	2.0511	1674.2	1.8336	1.8627	1673.3	1.8227	**1280**
1300	2.3088	1686.2	1.8519	2.0758	1685.3	1.8399	1.8852	1684.4	1.8290	**1300**
1320	2.3361	1697.3	1.8582	2.1005	1696.5	1.8462	1.9077	1695.6	1.8353	**1320**
1340	2.3633	1708.4	1.8644	2.1251	1707.6	1.8524	1.9301	1706.8	1.8416	**1340**
1360	2.3905	1719.6	1.8706	2.1497	1718.8	1.8586	1.9526	1718.0	1.8478	**1360**
1380	2.4178	1730.8	1.8767	2.1742	1730.0	1.8648	1.9750	1729.3	1.8539	**1380**
1400	2.4449	1742.0	1.8828	2.1987	1741.3	1.8708	1.9973	1740.5	1.8600	**1400**
1420	2.4721	1753.3	1.8888	2.2233	1752.6	1.8769	2.0197	1751.8	1.8661	**1420**
1440	2.4992	1764.6	1.8948	2.2477	1763.9	1.8829	2.0420	1763.2	1.8721	**1440**
1460	2.5263	1775.9	1.9007	2.2722	1775.2	1.8888	2.0643	1774.5	1.8780	**1460**
1480	2.5535	1787.3	1.9066	2.2967	1786.6	1.8947	2.0866	1785.9	1.8839	**1480**
1500	2.5805	1798.6	1.9124	2.3211	1798.0	1.9005	2.1088	1797.3	1.8898	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**600 psia** (t_{sat} = 486.25 °F)			**650 psia** (t_{sat} = 494.94 °F)			**700 psia** (t_{sat} = 503.14 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.020 140	471.71	0.6723	0.020 328	481.90	0.6829	0.020 514	491.62	0.6928	Sat. Liq.
Sat. Vap.	0.7702	1203.9	1.4464	0.7088	1203.0	1.4382	0.6559	1201.9	1.4305	Sat. Vap.
32	0.015 988	1.788	0.0000	0.015 986	1.938	0.0000	0.015 983	2.088	0.0000	**32**
40	0.015 987	9.802	0.0162	0.015 985	9.949	0.0162	0.015 982	10.096	0.0162	**40**
50	0.015 993	19.796	0.0360	0.015 990	19.940	0.0360	0.015 987	20.084	0.0360	**50**
60	0.016 004	29.774	0.0554	0.016 002	29.915	0.0554	0.015 999	30.056	0.0554	**60**
70	0.016 022	39.742	0.0744	0.016 019	39.880	0.0744	0.016 017	40.019	0.0743	**70**
80	0.016 044	49.704	0.0930	0.016 042	49.840	0.0930	0.016 039	49.976	0.0930	**80**
90	0.016 071	59.662	0.1113	0.016 068	59.796	0.1113	0.016 066	59.930	0.1112	**90**
100	0.016 102	69.619	0.1292	0.016 099	69.751	0.1292	0.016 097	69.883	0.1292	**100**
110	0.016 137	79.576	0.1469	0.016 134	79.706	0.1468	0.016 132	79.836	0.1468	**110**
120	0.016 175	89.535	0.1642	0.016 173	89.663	0.1642	0.016 171	89.790	0.1641	**120**
130	0.016 218	99.496	0.1813	0.016 215	99.622	0.1812	0.016 213	99.749	0.1812	**130**
140	0.016 263	109.46	0.1980	0.016 261	109.59	0.1980	0.016 258	109.71	0.1979	**140**
150	0.016 312	119.44	0.2145	0.016 309	119.56	0.2145	0.016 307	119.68	0.2144	**150**
160	0.016 364	129.41	0.2307	0.016 361	129.54	0.2307	0.016 359	129.66	0.2306	**160**
170	0.016 418	139.40	0.2467	0.016 416	139.52	0.2467	0.016 413	139.64	0.2466	**170**
180	0.016 476	149.40	0.2625	0.016 474	149.52	0.2624	0.016 471	149.64	0.2624	**180**
190	0.016 537	159.41	0.2780	0.016 535	159.53	0.2780	0.016 532	159.64	0.2779	**190**
200	0.016 601	169.44	0.2933	0.016 599	169.55	0.2933	0.016 596	169.66	0.2932	**200**
210	0.016 668	179.47	0.3084	0.016 665	179.59	0.3084	0.016 663	179.70	0.3083	**210**
220	0.016 738	189.53	0.3233	0.016 735	189.64	0.3233	0.016 732	189.75	0.3232	**220**
230	0.016 811	199.60	0.3380	0.016 808	199.71	0.3380	0.016 805	199.82	0.3379	**230**
240	0.016 887	209.69	0.3526	0.016 884	209.80	0.3525	0.016 881	209.90	0.3524	**240**
250	0.016 966	219.80	0.3669	0.016 963	219.91	0.3668	0.016 960	220.01	0.3668	**250**
260	0.017 048	229.94	0.3811	0.017 045	230.04	0.3810	0.017 041	230.14	0.3809	**260**
270	0.017 133	240.10	0.3951	0.017 130	240.20	0.3950	0.017 127	240.30	0.3950	**270**
280	0.017 222	250.28	0.4090	0.017 218	250.38	0.4089	0.017 215	250.48	0.4088	**280**
290	0.017 314	260.50	0.4227	0.017 310	260.59	0.4226	0.017 307	260.69	0.4225	**290**
300	0.017 409	270.74	0.4363	0.017 406	270.83	0.4362	0.017 402	270.93	0.4361	**300**
310	0.017 509	281.02	0.4497	0.017 505	281.11	0.4496	0.017 501	281.20	0.4495	**310**
320	0.017 612	291.33	0.4630	0.017 608	291.42	0.4629	0.017 604	291.51	0.4628	**320**
330	0.017 719	301.68	0.4762	0.017 715	301.77	0.4761	0.017 710	301.85	0.4760	**330**
340	0.017 830	312.07	0.4893	0.017 825	312.16	0.4892	0.017 821	312.24	0.4891	**340**
350	0.017 945	322.51	0.5023	0.017 941	322.59	0.5022	0.017 936	322.67	0.5020	**350**
360	0.018 065	332.99	0.5151	0.018 061	333.07	0.5150	0.018 056	333.14	0.5149	**360**
370	0.018 190	343.53	0.5279	0.018 185	343.60	0.5278	0.018 180	343.67	0.5277	**370**
380	0.018 320	354.12	0.5406	0.018 315	354.19	0.5405	0.018 310	354.26	0.5404	**380**
390	0.018 456	364.78	0.5532	0.018 450	364.84	0.5531	0.018 445	364.90	0.5530	**390**
400	0.018 597	375.50	0.5658	0.018 592	375.55	0.5656	0.018 586	375.61	0.5655	**400**
410	0.018 745	386.29	0.5782	0.018 739	386.34	0.5781	0.018 733	386.39	0.5780	**410**
420	0.018 899	397.15	0.5907	0.018 893	397.20	0.5905	0.018 886	397.25	0.5904	**420**
430	0.019 061	408.10	0.6030	0.019 054	408.15	0.6029	0.019 047	408.19	0.6027	**430**
440	0.019 231	419.15	0.6154	0.019 223	419.18	0.6152	0.019 216	419.22	0.6151	**440**
450	0.019 409	430.29	0.6277	0.019 401	430.32	0.6275	0.019 393	430.35	0.6274	**450**
460	0.019 596	441.55	0.6400	0.019 588	441.57	0.6398	0.019 579	441.59	0.6397	**460**
470	0.019 794	452.93	0.6523	0.019 785	452.94	0.6521	0.019 776	452.94	0.6519	**470**
480	0.020 003	464.44	0.6646	0.019 993	464.44	0.6644	0.019 983	464.44	0.6642	**480**
490	0.7772	1207.5	1.4502	0.020 214	476.09	0.6768	0.020 203	476.08	0.6766	**490**
500	0.7953	1216.5	1.4597	0.7178	1208.0	1.4434	0.020 437	487.88	0.6889	**500**
510	0.8124	1225.1	1.4685	0.7349	1217.3	1.4531	0.6675	1208.8	1.4377	**510**
520	0.8289	1233.2	1.4768	0.7511	1226.0	1.4620	0.6837	1218.3	1.4474	**520**
530	0.8449	1241.0	1.4848	0.7667	1234.3	1.4704	0.6991	1227.2	1.4564	**530**
540	0.8603	1248.5	1.4923	0.7817	1242.2	1.4784	0.7138	1235.6	1.4649	**540**
550	0.8754	1255.8	1.4996	0.7962	1249.9	1.4861	0.7280	1243.7	1.4730	**550**
560	0.8901	1262.9	1.5066	0.8104	1257.4	1.4934	0.7417	1251.6	1.4807	**560**
570	0.9045	1269.9	1.5134	0.8242	1264.6	1.5005	0.7551	1259.1	1.4881	**570**
580	0.9186	1276.7	1.5200	0.8377	1271.7	1.5073	0.7681	1266.5	1.4952	**580**
590	0.9324	1283.3	1.5263	0.8509	1278.6	1.5139	0.7809	1273.6	1.5021	**590**
600	0.9460	1289.9	1.5325	0.8639	1285.3	1.5203	0.7933	1280.6	1.5087	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**600 psia** (t_{sat} = 486.25 °F)			**650 psia** (t_{sat} = 494.94 °F)			**700 psia** (t_{sat} = 503.14 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.9595	1296.3	1.5386	0.8767	1292.0	1.5266	0.8055	1287.5	1.5151	**610**
620	0.9727	1302.7	1.5445	0.8892	1298.5	1.5327	0.8176	1294.2	1.5214	**620**
630	0.9857	1308.9	1.5503	0.9016	1305.0	1.5386	0.8294	1300.9	1.5275	**630**
640	0.9986	1315.1	1.5559	0.9138	1311.3	1.5444	0.8410	1307.4	1.5335	**640**
650	1.0113	1321.2	1.5615	0.9259	1317.6	1.5501	0.8524	1313.8	1.5393	**650**
660	1.0239	1327.3	1.5669	0.9378	1323.8	1.5556	0.8638	1320.1	1.5450	**660**
670	1.0364	1333.3	1.5722	0.9495	1329.9	1.5611	0.8749	1326.4	1.5505	**670**
680	1.0488	1339.2	1.5775	0.9612	1335.9	1.5664	0.8860	1332.6	1.5560	**680**
690	1.0610	1345.1	1.5826	0.9727	1342.0	1.5717	0.8969	1338.7	1.5613	**690**
700	1.0732	1351.0	1.5877	0.9841	1347.9	1.5768	0.9077	1344.8	1.5666	**700**
710	1.0852	1356.8	1.5927	0.9955	1353.8	1.5819	0.9184	1350.8	1.5718	**710**
720	1.0972	1362.6	1.5976	1.0067	1359.7	1.5869	0.9291	1356.8	1.5769	**720**
730	1.1091	1368.4	1.6025	1.0179	1365.6	1.5919	0.9396	1362.7	1.5819	**730**
740	1.1209	1374.1	1.6073	1.0289	1371.4	1.5967	0.9500	1368.6	1.5868	**740**
750	1.1326	1379.8	1.6120	1.0399	1377.1	1.6015	0.9604	1374.5	1.5917	**750**
760	1.1443	1385.4	1.6166	1.0509	1382.9	1.6062	0.9707	1380.3	1.5965	**760**
770	1.1559	1391.1	1.6213	1.0617	1388.6	1.6109	0.9810	1386.1	1.6012	**770**
780	1.1675	1396.7	1.6258	1.0725	1394.3	1.6155	0.9911	1391.8	1.6059	**780**
790	1.1789	1402.3	1.6303	1.0833	1400.0	1.6201	1.0012	1397.6	1.6105	**790**
800	1.1904	1407.9	1.6348	1.0940	1405.6	1.6246	1.0113	1403.3	1.6150	**800**
820	1.2131	1419.1	1.6436	1.1152	1416.9	1.6334	1.0312	1414.7	1.6240	**820**
840	1.2356	1430.1	1.6522	1.1362	1428.1	1.6421	1.0510	1426.0	1.6328	**840**
860	1.2580	1441.2	1.6606	1.1571	1439.2	1.6506	1.0705	1437.2	1.6413	**860**
880	1.2802	1452.2	1.6689	1.1778	1450.3	1.6590	1.0899	1448.4	1.6498	**880**
900	1.3023	1463.2	1.6770	1.1983	1461.4	1.6672	1.1092	1459.6	1.6580	**900**
920	1.3242	1474.2	1.6851	1.2188	1472.5	1.6753	1.1283	1470.7	1.6662	**920**
940	1.3461	1485.2	1.6929	1.2391	1483.5	1.6832	1.1474	1481.9	1.6742	**940**
960	1.3678	1496.1	1.7007	1.2593	1494.5	1.6910	1.1663	1492.9	1.6820	**960**
980	1.3894	1507.1	1.7084	1.2794	1505.5	1.6988	1.1851	1504.0	1.6898	**980**
1000	1.4110	1518.0	1.7159	1.2994	1516.6	1.7063	1.2038	1515.1	1.6974	**1000**
1020	1.4324	1529.0	1.7234	1.3193	1527.6	1.7138	1.2224	1526.2	1.7049	**1020**
1040	1.4538	1539.9	1.7307	1.3392	1538.6	1.7212	1.2410	1537.2	1.7124	**1040**
1060	1.4751	1550.9	1.7380	1.3590	1549.6	1.7285	1.2595	1548.3	1.7197	**1060**
1080	1.4963	1561.9	1.7452	1.3787	1560.6	1.7357	1.2779	1559.3	1.7269	**1080**
1100	1.5175	1572.8	1.7523	1.3983	1571.6	1.7428	1.2962	1570.4	1.7341	**1100**
1120	1.5386	1583.8	1.7593	1.4179	1582.7	1.7499	1.3145	1581.5	1.7411	**1120**
1140	1.5596	1594.8	1.7662	1.4374	1593.7	1.7568	1.3327	1592.6	1.7481	**1140**
1160	1.5806	1605.9	1.7730	1.4569	1604.8	1.7637	1.3509	1603.7	1.7550	**1160**
1180	1.6016	1616.9	1.7798	1.4763	1615.8	1.7705	1.3690	1614.8	1.7618	**1180**
1200	1.6225	1628.0	1.7865	1.4957	1626.9	1.7772	1.3871	1625.9	1.7686	**1200**
1220	1.6433	1639.0	1.7931	1.5150	1638.1	1.7839	1.4051	1637.1	1.7752	**1220**
1240	1.6642	1650.1	1.7997	1.5343	1649.2	1.7905	1.4231	1648.2	1.7818	**1240**
1260	1.6849	1661.3	1.8062	1.5536	1660.3	1.7970	1.4410	1659.4	1.7884	**1260**
1280	1.7057	1672.4	1.8127	1.5728	1671.5	1.8034	1.4589	1670.6	1.7949	**1280**
1300	1.7264	1683.6	1.8190	1.5920	1682.7	1.8098	1.4768	1681.8	1.8013	**1300**
1320	1.7471	1694.8	1.8254	1.6111	1693.9	1.8162	1.4946	1693.1	1.8076	**1320**
1340	1.7677	1706.0	1.8316	1.6303	1705.2	1.8225	1.5124	1704.3	1.8139	**1340**
1360	1.7883	1717.2	1.8378	1.6494	1716.4	1.8287	1.5302	1715.6	1.8202	**1360**
1380	1.8089	1728.5	1.8440	1.6684	1727.7	1.8348	1.5480	1726.9	1.8263	**1380**
1400	1.8295	1739.8	1.8501	1.6874	1739.0	1.8410	1.5657	1738.3	1.8325	**1400**
1420	1.8500	1751.1	1.8562	1.7065	1750.4	1.8470	1.5834	1749.6	1.8386	**1420**
1440	1.8705	1762.5	1.8622	1.7254	1761.7	1.8530	1.6011	1761.0	1.8446	**1440**
1460	1.8910	1773.8	1.8681	1.7444	1773.1	1.8590	1.6187	1772.4	1.8506	**1460**
1480	1.9115	1785.2	1.8740	1.7634	1784.6	1.8649	1.6364	1783.9	1.8565	**1480**
1500	1.9320	1796.7	1.8799	1.7823	1796.0	1.8708	1.6540	1795.4	1.8624	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**750 psia** (t_{sat} = 510.90 °F)			**800 psia** (t_{sat} = 518.27 °F)			**850 psia** (t_{sat} = 525.30 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.020 697	500.91	0.7022	0.020 879	509.83	0.7112	0.021 060	518.42	0.7197	Sat. Liq.
Sat. Vap.	0.6097	1200.7	1.4232	0.5692	1199.3	1.4162	0.5332	1197.8	1.4095	Sat. Vap.
32	0.015 980	2.238	0.0000	0.015 977	2.388	0.0000	0.015 974	2.537	0.0000	**32**
40	0.015 979	10.243	0.0162	0.015 976	10.390	0.0162	0.015 974	10.536	0.0162	**40**
50	0.015 985	20.227	0.0360	0.015 982	20.371	0.0360	0.015 980	20.515	0.0360	**50**
60	0.015 997	30.197	0.0553	0.015 994	30.338	0.0553	0.015 992	30.478	0.0553	**60**
70	0.016 014	40.157	0.0743	0.016 012	40.295	0.0743	0.016 009	40.434	0.0743	**70**
80	0.016 037	50.112	0.0929	0.016 034	50.248	0.0929	0.016 032	50.384	0.0929	**80**
90	0.016 064	60.064	0.1112	0.016 061	60.198	0.1112	0.016 059	60.331	0.1112	**90**
100	0.016 095	70.014	0.1292	0.016 092	70.146	0.1291	0.016 090	70.278	0.1291	**100**
110	0.016 130	79.965	0.1468	0.016 127	80.095	0.1467	0.016 125	80.225	0.1467	**110**
120	0.016 168	89.918	0.1641	0.016 166	90.046	0.1641	0.016 163	90.174	0.1640	**120**
130	0.016 210	99.875	0.1811	0.016 208	100.00	0.1811	0.016 205	100.13	0.1810	**130**
140	0.016 256	109.84	0.1979	0.016 253	109.96	0.1978	0.016 251	110.08	0.1978	**140**
150	0.016 304	119.80	0.2144	0.016 302	119.93	0.2143	0.016 299	120.05	0.2143	**150**
160	0.016 356	129.78	0.2306	0.016 353	129.90	0.2305	0.016 351	130.02	0.2305	**160**
170	0.016 411	139.76	0.2466	0.016 408	139.88	0.2465	0.016 406	140.00	0.2465	**170**
180	0.016 469	149.75	0.2623	0.016 466	149.87	0.2623	0.016 463	149.99	0.2622	**180**
190	0.016 529	159.76	0.2778	0.016 527	159.87	0.2778	0.016 524	159.99	0.2777	**190**
200	0.016 593	169.78	0.2931	0.016 590	169.89	0.2931	0.016 588	170.01	0.2930	**200**
210	0.016 660	179.81	0.3082	0.016 657	179.92	0.3082	0.016 654	180.03	0.3081	**210**
220	0.016 729	189.86	0.3231	0.016 727	189.97	0.3231	0.016 724	190.08	0.3230	**220**
230	0.016 802	199.93	0.3378	0.016 799	200.03	0.3378	0.016 796	200.14	0.3377	**230**
240	0.016 878	210.01	0.3524	0.016 875	210.12	0.3523	0.016 872	210.22	0.3522	**240**
250	0.016 956	220.12	0.3667	0.016 953	220.22	0.3666	0.016 950	220.33	0.3665	**250**
260	0.017 038	230.25	0.3809	0.017 035	230.35	0.3808	0.017 032	230.45	0.3807	**260**
270	0.017 123	240.40	0.3949	0.017 120	240.50	0.3948	0.017 117	240.60	0.3947	**270**
280	0.017 212	250.58	0.4087	0.017 208	250.67	0.4086	0.017 205	250.77	0.4086	**280**
290	0.017 303	260.78	0.4224	0.017 300	260.88	0.4224	0.017 296	260.97	0.4223	**290**
300	0.017 399	271.02	0.4360	0.017 395	271.11	0.4359	0.017 391	271.21	0.4358	**300**
310	0.017 497	281.29	0.4494	0.017 494	281.38	0.4493	0.017 490	281.47	0.4492	**310**
320	0.017 600	291.59	0.4627	0.017 596	291.68	0.4626	0.017 592	291.77	0.4625	**320**
330	0.017 706	301.94	0.4759	0.017 702	302.02	0.4758	0.017 698	302.10	0.4757	**330**
340	0.017 817	312.32	0.4890	0.017 813	312.40	0.4889	0.017 808	312.48	0.4888	**340**
350	0.017 932	322.74	0.5019	0.017 927	322.82	0.5018	0.017 923	322.90	0.5017	**350**
360	0.018 051	333.22	0.5148	0.018 047	333.29	0.5147	0.018 042	333.37	0.5146	**360**
370	0.018 176	343.74	0.5276	0.018 171	343.81	0.5274	0.018 166	343.89	0.5273	**370**
380	0.018 305	354.32	0.5402	0.018 300	354.39	0.5401	0.018 295	354.46	0.5400	**380**
390	0.018 440	364.96	0.5528	0.018 434	365.03	0.5527	0.018 429	365.09	0.5526	**390**
400	0.018 580	375.67	0.5654	0.018 574	375.73	0.5652	0.018 569	375.78	0.5651	**400**
410	0.018 727	386.44	0.5778	0.018 721	386.49	0.5777	0.018 715	386.55	0.5775	**410**
420	0.018 880	397.29	0.5902	0.018 874	397.34	0.5901	0.018 867	397.39	0.5899	**420**
430	0.019 040	408.23	0.6026	0.019 034	408.27	0.6024	0.019 027	408.31	0.6023	**430**
440	0.019 209	419.25	0.6149	0.019 201	419.29	0.6147	0.019 194	419.32	0.6146	**440**
450	0.019 385	430.37	0.6272	0.019 377	430.40	0.6270	0.019 370	430.43	0.6269	**450**
460	0.019 571	441.60	0.6395	0.019 562	441.62	0.6393	0.019 554	441.64	0.6391	**460**
470	0.019 766	452.95	0.6518	0.019 757	452.96	0.6516	0.019 748	452.98	0.6514	**470**
480	0.019 973	464.44	0.6640	0.019 964	464.44	0.6638	0.019 954	464.44	0.6636	**480**
490	0.020 192	476.06	0.6763	0.020 182	476.05	0.6761	0.020 171	476.04	0.6759	**490**
500	0.020 425	487.85	0.6887	0.020 414	487.83	0.6885	0.020 402	487.81	0.6882	**500**
510	0.020 674	499.82	0.7011	0.020 661	499.79	0.7009	0.020 649	499.75	0.7006	**510**
520	0.6246	1210.1	1.4329	0.5720	1201.2	1.4181	0.020 912	511.89	0.7131	**520**
530	0.6399	1219.7	1.4426	0.5875	1211.7	1.4288	0.5405	1203.1	1.4148	**530**
540	0.6545	1228.7	1.4517	0.6020	1221.4	1.4385	0.5552	1213.6	1.4254	**540**
550	0.6684	1237.3	1.4602	0.6159	1230.5	1.4476	0.5691	1223.4	1.4351	**550**
560	0.6819	1245.5	1.4683	0.6292	1239.2	1.4562	0.5822	1232.6	1.4442	**560**
570	0.6949	1253.4	1.4761	0.6419	1247.5	1.4643	0.5949	1241.4	1.4528	**570**
580	0.7076	1261.1	1.4835	0.6543	1255.5	1.4721	0.6070	1249.8	1.4609	**580**
590	0.7199	1268.6	1.4906	0.6663	1263.3	1.4795	0.6188	1257.9	1.4687	**590**
600	0.7319	1275.8	1.4975	0.6780	1270.8	1.4866	0.6302	1265.7	1.4761	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**750 psia** (t_{sat} = 510.90 °F)			**800 psia** (t_{sat} = 518.27 °F)			**850 psia** (t_{sat} = 525.30 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.7437	1282.9	1.5042	0.6894	1278.2	1.4935	0.6413	1273.3	1.4833	**610**
620	0.7553	1289.9	1.5106	0.7006	1285.4	1.5002	0.6522	1280.7	1.4902	**620**
630	0.7666	1296.7	1.5169	0.7115	1292.4	1.5067	0.6628	1288.0	1.4968	**630**
640	0.7777	1303.4	1.5230	0.7223	1299.3	1.5130	0.6732	1295.1	1.5033	**640**
650	0.7887	1310.0	1.5290	0.7328	1306.0	1.5191	0.6834	1302.0	1.5096	**650**
660	0.7995	1316.4	1.5348	0.7432	1312.7	1.5251	0.6934	1308.8	1.5157	**660**
670	0.8102	1322.8	1.5405	0.7534	1319.2	1.5309	0.7033	1315.5	1.5217	**670**
680	0.8207	1329.2	1.5461	0.7635	1325.7	1.5366	0.7130	1322.2	1.5275	**680**
690	0.8311	1335.4	1.5515	0.7735	1332.1	1.5422	0.7226	1328.7	1.5332	**690**
700	0.8414	1341.6	1.5569	0.7834	1338.4	1.5476	0.7320	1335.1	1.5388	**700**
710	0.8516	1347.7	1.5622	0.7931	1344.6	1.5530	0.7414	1341.5	1.5442	**710**
720	0.8617	1353.8	1.5673	0.8027	1350.8	1.5583	0.7506	1347.8	1.5496	**720**
730	0.8717	1359.8	1.5724	0.8123	1356.9	1.5634	0.7597	1354.0	1.5548	**730**
740	0.8816	1365.8	1.5774	0.8217	1363.0	1.5685	0.7688	1360.2	1.5600	**740**
750	0.8915	1371.8	1.5824	0.8311	1369.0	1.5735	0.7777	1366.3	1.5651	**750**
760	0.9012	1377.7	1.5872	0.8404	1375.0	1.5784	0.7866	1372.3	1.5701	**760**
770	0.9109	1383.5	1.5920	0.8496	1381.0	1.5833	0.7954	1378.4	1.5750	**770**
780	0.9205	1389.4	1.5967	0.8587	1386.9	1.5881	0.8041	1384.4	1.5799	**780**
790	0.9301	1395.2	1.6014	0.8678	1392.8	1.5928	0.8128	1390.3	1.5846	**790**
800	0.9396	1401.0	1.6060	0.8768	1398.6	1.5975	0.8214	1396.2	1.5894	**800**
820	0.9584	1412.5	1.6151	0.8947	1410.2	1.6066	0.8384	1408.0	1.5986	**820**
840	0.9771	1423.9	1.6239	0.9124	1421.8	1.6156	0.8553	1419.6	1.6076	**840**
860	0.9955	1435.2	1.6326	0.9298	1433.2	1.6243	0.8719	1431.2	1.6165	**860**
880	1.0138	1446.5	1.6411	0.9472	1444.6	1.6329	0.8884	1442.7	1.6251	**880**
900	1.0320	1457.8	1.6494	0.9643	1456.0	1.6413	0.9047	1454.1	1.6336	**900**
920	1.0500	1469.0	1.6576	0.9814	1467.3	1.6495	0.9209	1465.5	1.6419	**920**
940	1.0679	1480.2	1.6657	0.9983	1478.5	1.6576	0.9369	1476.8	1.6500	**940**
960	1.0857	1491.3	1.6736	1.0151	1489.7	1.6656	0.9528	1488.1	1.6581	**960**
980	1.1033	1502.5	1.6814	1.0318	1500.9	1.6734	0.9687	1499.4	1.6659	**980**
1000	1.1209	1513.6	1.6890	1.0484	1512.1	1.6812	0.9844	1510.7	1.6737	**1000**
1020	1.1384	1524.7	1.6966	1.0649	1523.3	1.6888	1.0001	1521.9	1.6814	**1020**
1040	1.1558	1535.9	1.7041	1.0814	1534.5	1.6963	1.0156	1533.1	1.6889	**1040**
1060	1.1732	1547.0	1.7114	1.0977	1545.6	1.7037	1.0311	1544.3	1.6963	**1060**
1080	1.1905	1558.1	1.7187	1.1140	1556.8	1.7110	1.0465	1555.5	1.7036	**1080**
1100	1.2077	1569.2	1.7259	1.1302	1568.0	1.7182	1.0619	1566.7	1.7109	**1100**
1120	1.2248	1580.3	1.7330	1.1464	1579.1	1.7253	1.0772	1578.0	1.7180	**1120**
1140	1.2419	1591.4	1.7400	1.1625	1590.3	1.7323	1.0924	1589.2	1.7251	**1140**
1160	1.2589	1602.6	1.7469	1.1785	1601.5	1.7392	1.1076	1600.4	1.7320	**1160**
1180	1.2759	1613.7	1.7537	1.1945	1612.7	1.7461	1.1227	1611.6	1.7389	**1180**
1200	1.2929	1624.9	1.7605	1.2105	1623.9	1.7529	1.1378	1622.8	1.7457	**1200**
1220	1.3098	1636.1	1.7672	1.2264	1635.1	1.7596	1.1528	1634.1	1.7525	**1220**
1240	1.3266	1647.3	1.7738	1.2422	1646.3	1.7663	1.1678	1645.3	1.7591	**1240**
1260	1.3434	1658.5	1.7804	1.2581	1657.5	1.7728	1.1827	1656.6	1.7657	**1260**
1280	1.3602	1669.7	1.7869	1.2738	1668.8	1.7793	1.1976	1667.9	1.7722	**1280**
1300	1.3770	1681.0	1.7933	1.2896	1680.1	1.7858	1.2125	1679.2	1.7787	**1300**
1320	1.3937	1692.2	1.7997	1.3053	1691.4	1.7922	1.2274	1690.5	1.7851	**1320**
1340	1.4103	1703.5	1.8060	1.3210	1702.7	1.7985	1.2422	1701.9	1.7914	**1340**
1360	1.4270	1714.8	1.8122	1.3367	1714.0	1.8048	1.2569	1713.2	1.7977	**1360**
1380	1.4436	1726.2	1.8184	1.3523	1725.4	1.8110	1.2717	1724.6	1.8039	**1380**
1400	1.4602	1737.5	1.8245	1.3679	1736.8	1.8171	1.2864	1736.0	1.8101	**1400**
1420	1.4768	1748.9	1.8306	1.3835	1748.2	1.8232	1.3011	1747.4	1.8162	**1420**
1440	1.4933	1760.3	1.8367	1.3990	1759.6	1.8293	1.3158	1758.9	1.8223	**1440**
1460	1.5098	1771.8	1.8427	1.4145	1771.1	1.8353	1.3305	1770.4	1.8283	**1460**
1480	1.5264	1783.2	1.8486	1.4301	1782.5	1.8412	1.3451	1781.9	1.8342	**1480**
1500	1.5428	1794.7	1.8545	1.4456	1794.0	1.8471	1.3597	1793.4	1.8401	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**900 psia** (t_{sat} = 532.02 °F)			**1000 psia** (t_{sat} = 544.65 °F)			**1100 psia** (t_{sat} = 556.35 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.021 240	526.72	0.7279	0.021 600	542.56	0.7434	0.021 961	557.55	0.7578	Sat. Liq.
Sat. Vap.	0.5011	1196.2	1.4030	0.4461	1192.6	1.3906	0.4006	1188.6	1.3789	Sat. Vap.
32	0.015 972	2.687	0.0000	0.015 966	2.986	0.0001	0.015 961	3.285	0.0001	**32**
40	0.015 971	10.683	0.0162	0.015 966	10.976	0.0162	0.015 960	11.269	0.0162	**40**
50	0.015 977	20.658	0.0359	0.015 972	20.945	0.0359	0.015 967	21.232	0.0359	**50**
60	0.015 989	30.619	0.0553	0.015 984	30.901	0.0553	0.015 979	31.182	0.0552	**60**
70	0.016 007	40.572	0.0743	0.016 002	40.848	0.0742	0.015 997	41.124	0.0742	**70**
80	0.016 029	50.520	0.0929	0.016 024	50.792	0.0928	0.016 019	51.063	0.0928	**80**
90	0.016 056	60.465	0.1111	0.016 051	60.733	0.1111	0.016 047	61.000	0.1110	**90**
100	0.016 087	70.410	0.1291	0.016 083	70.673	0.1290	0.016 078	70.936	0.1289	**100**
110	0.016 122	80.355	0.1467	0.016 118	80.614	0.1466	0.016 113	80.874	0.1465	**110**
120	0.016 161	90.302	0.1640	0.016 156	90.558	0.1639	0.016 151	90.814	0.1638	**120**
130	0.016 203	100.25	0.1810	0.016 198	100.51	0.1809	0.016 193	100.76	0.1808	**130**
140	0.016 248	110.21	0.1977	0.016 243	110.46	0.1977	0.016 239	110.71	0.1976	**140**
150	0.016 297	120.17	0.2142	0.016 292	120.42	0.2141	0.016 287	120.66	0.2140	**150**
160	0.016 348	130.14	0.2304	0.016 343	130.38	0.2303	0.016 339	130.62	0.2302	**160**
170	0.016 403	140.12	0.2464	0.016 398	140.36	0.2463	0.016 393	140.59	0.2462	**170**
180	0.016 461	150.11	0.2622	0.016 456	150.34	0.2620	0.016 451	150.58	0.2619	**180**
190	0.016 521	160.11	0.2777	0.016 516	160.34	0.2776	0.016 511	160.57	0.2774	**190**
200	0.016 585	170.12	0.2930	0.016 580	170.35	0.2928	0.016 574	170.57	0.2927	**200**
210	0.016 652	180.15	0.3080	0.016 646	180.37	0.3079	0.016 641	180.59	0.3078	**210**
220	0.016 721	190.19	0.3229	0.016 715	190.41	0.3228	0.016 710	190.63	0.3227	**220**
230	0.016 793	200.25	0.3376	0.016 788	200.47	0.3375	0.016 782	200.68	0.3374	**230**
240	0.016 869	210.33	0.3521	0.016 863	210.54	0.3520	0.016 857	210.75	0.3519	**240**
250	0.016 947	220.43	0.3665	0.016 941	220.64	0.3663	0.016 935	220.85	0.3662	**250**
260	0.017 029	230.55	0.3806	0.017 023	230.76	0.3805	0.017 016	230.96	0.3803	**260**
270	0.017 114	240.70	0.3946	0.017 107	240.90	0.3945	0.017 101	241.10	0.3943	**270**
280	0.017 202	250.87	0.4085	0.017 195	251.06	0.4083	0.017 188	251.26	0.4082	**280**
290	0.017 293	261.07	0.4222	0.017 286	261.26	0.4220	0.017 279	261.45	0.4218	**290**
300	0.017 388	271.30	0.4357	0.017 381	271.48	0.4356	0.017 373	271.67	0.4354	**300**
310	0.017 486	281.56	0.4492	0.017 479	281.74	0.4490	0.017 471	281.92	0.4488	**310**
320	0.017 588	291.86	0.4624	0.017 580	292.03	0.4623	0.017 573	292.21	0.4621	**320**
330	0.017 694	302.19	0.4756	0.017 686	302.36	0.4754	0.017 678	302.53	0.4752	**330**
340	0.017 804	312.56	0.4887	0.017 796	312.73	0.4885	0.017 787	312.89	0.4883	**340**
350	0.017 919	322.98	0.5016	0.017 910	323.14	0.5014	0.017 901	323.29	0.5012	**350**
360	0.018 037	333.44	0.5145	0.018 028	333.59	0.5142	0.018 019	333.74	0.5140	**360**
370	0.018 161	343.96	0.5272	0.018 151	344.10	0.5270	0.018 142	344.24	0.5267	**370**
380	0.018 290	354.52	0.5399	0.018 279	354.66	0.5396	0.018 269	354.79	0.5394	**380**
390	0.018 423	365.15	0.5524	0.018 413	365.28	0.5522	0.018 402	365.40	0.5519	**390**
400	0.018 563	375.84	0.5650	0.018 552	375.96	0.5647	0.018 540	376.08	0.5644	**400**
410	0.018 709	386.60	0.5774	0.018 697	386.71	0.5771	0.018 685	386.82	0.5769	**410**
420	0.018 861	397.44	0.5898	0.018 848	397.53	0.5895	0.018 836	397.63	0.5892	**420**
430	0.019 020	408.35	0.6021	0.019 007	408.44	0.6018	0.018 993	408.52	0.6015	**430**
440	0.019 187	419.36	0.6144	0.019 172	419.43	0.6141	0.019 158	419.50	0.6138	**440**
450	0.019 362	430.46	0.6267	0.019 346	430.51	0.6264	0.019 331	430.57	0.6260	**450**
460	0.019 546	441.66	0.6389	0.019 529	441.70	0.6386	0.019 513	441.75	0.6383	**460**
470	0.019 740	452.99	0.6512	0.019 722	453.01	0.6508	0.019 704	453.04	0.6505	**470**
480	0.019 944	464.44	0.6634	0.019 925	464.44	0.6631	0.019 906	464.45	0.6627	**480**
490	0.020 161	476.03	0.6757	0.020 140	476.01	0.6753	0.020 119	476.00	0.6749	**490**
500	0.020 391	487.78	0.6880	0.020 368	487.74	0.6876	0.020 346	487.70	0.6872	**500**
510	0.020 636	499.71	0.7004	0.020 611	499.64	0.6999	0.020 586	499.57	0.6995	**510**
520	0.020 898	511.84	0.7128	0.020 871	511.73	0.7123	0.020 844	511.64	0.7118	**520**
530	0.021 180	524.19	0.7254	0.021 150	524.05	0.7248	0.021 120	523.91	0.7243	**530**
540	0.5130	1205.3	1.4121	0.021 451	536.62	0.7375	0.021 417	536.44	0.7369	**540**
550	0.5269	1215.8	1.4226	0.4538	1199.1	1.3971	0.021 740	549.25	0.7497	**550**
560	0.5401	1225.6	1.4323	0.4673	1210.5	1.4084	0.4058	1193.4	1.3837	**560**
570	0.5527	1234.9	1.4414	0.4800	1221.1	1.4187	0.4189	1205.7	1.3956	**570**
580	0.5647	1243.8	1.4499	0.4920	1231.0	1.4282	0.4312	1216.9	1.4065	**580**
590	0.5763	1252.2	1.4580	0.5034	1240.3	1.4372	0.4427	1227.4	1.4165	**590**
600	0.5875	1260.4	1.4658	0.5143	1249.3	1.4457	0.4536	1237.2	1.4259	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**900 psia** (t_{sat} = 532.02 °F)			**1000 psia** (t_{sat} = 544.65 °F)			**1100 psia** (t_{sat} = 556.35 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.5984	1268.3	1.4732	0.5249	1257.8	1.4537	0.4640	1246.6	1.4347	**610**
620	0.6090	1276.0	1.4804	0.5351	1266.1	1.4614	0.4741	1255.5	1.4430	**620**
630	0.6193	1283.5	1.4872	0.5451	1274.1	1.4688	0.4837	1264.2	1.4509	**630**
640	0.6295	1290.8	1.4939	0.5547	1281.9	1.4759	0.4931	1272.5	1.4585	**640**
650	0.6394	1297.9	1.5004	0.5641	1289.4	1.4827	0.5022	1280.5	1.4658	**650**
660	0.6491	1304.9	1.5067	0.5734	1296.8	1.4893	0.5111	1288.3	1.4728	**660**
670	0.6586	1311.8	1.5128	0.5824	1304.0	1.4958	0.5197	1296.0	1.4796	**670**
680	0.6680	1318.5	1.5187	0.5912	1311.1	1.5020	0.5281	1303.4	1.4862	**680**
690	0.6772	1325.2	1.5245	0.5999	1318.1	1.5081	0.5364	1310.7	1.4925	**690**
700	0.6864	1331.8	1.5302	0.6085	1324.9	1.5140	0.5446	1317.9	1.4987	**700**
710	0.6953	1338.3	1.5358	0.6169	1331.7	1.5198	0.5525	1324.9	1.5048	**710**
720	0.7042	1344.7	1.5412	0.6252	1338.3	1.5255	0.5604	1331.8	1.5106	**720**
730	0.7130	1351.0	1.5466	0.6334	1344.9	1.5310	0.5681	1338.6	1.5164	**730**
740	0.7217	1357.3	1.5518	0.6415	1351.4	1.5364	0.5757	1345.3	1.5220	**740**
750	0.7303	1363.5	1.5570	0.6495	1357.8	1.5418	0.5833	1351.9	1.5275	**750**
760	0.7388	1369.6	1.5621	0.6574	1364.1	1.5470	0.5907	1358.5	1.5329	**760**
770	0.7472	1375.8	1.5671	0.6652	1370.4	1.5521	0.5980	1364.9	1.5382	**770**
780	0.7556	1381.8	1.5720	0.6730	1376.6	1.5572	0.6053	1371.4	1.5434	**780**
790	0.7639	1387.8	1.5768	0.6807	1382.8	1.5621	0.6124	1377.7	1.5485	**790**
800	0.7721	1393.8	1.5816	0.6883	1389.0	1.5670	0.6196	1384.0	1.5535	**800**
820	0.7884	1405.7	1.5910	0.7033	1401.1	1.5766	0.6336	1396.4	1.5633	**820**
840	0.8045	1417.5	1.6001	0.7181	1413.1	1.5859	0.6473	1408.7	1.5728	**840**
860	0.8204	1429.2	1.6090	0.7327	1425.0	1.5950	0.6609	1420.8	1.5821	**860**
880	0.8361	1440.7	1.6177	0.7471	1436.8	1.6039	0.6743	1432.8	1.5911	**880**
900	0.8516	1452.3	1.6262	0.7614	1448.5	1.6125	0.6875	1444.7	1.5999	**900**
920	0.8670	1463.7	1.6346	0.7755	1460.2	1.6210	0.7006	1456.5	1.6085	**920**
940	0.8823	1475.1	1.6428	0.7895	1471.7	1.6294	0.7135	1468.3	1.6170	**940**
960	0.8975	1486.5	1.6509	0.8034	1483.3	1.6375	0.7263	1480.0	1.6253	**960**
980	0.9126	1497.9	1.6588	0.8171	1494.7	1.6456	0.7390	1491.6	1.6334	**980**
1000	0.9275	1509.2	1.6666	0.8308	1506.2	1.6535	0.7516	1503.2	1.6414	**1000**
1020	0.9424	1520.5	1.6743	0.8443	1517.6	1.6612	0.7641	1514.7	1.6492	**1020**
1040	0.9572	1531.7	1.6819	0.8578	1529.0	1.6689	0.7765	1526.2	1.6569	**1040**
1060	0.9719	1543.0	1.6893	0.8712	1540.3	1.6764	0.7888	1537.7	1.6645	**1060**
1080	0.9865	1554.3	1.6967	0.8846	1551.7	1.6838	0.8011	1549.1	1.6720	**1080**
1100	1.0011	1565.5	1.7040	0.8978	1563.0	1.6911	0.8133	1560.6	1.6794	**1100**
1120	1.0156	1576.8	1.7111	0.9110	1574.4	1.6984	0.8254	1572.0	1.6867	**1120**
1140	1.0301	1588.0	1.7182	0.9241	1585.7	1.7055	0.8375	1583.4	1.6939	**1140**
1160	1.0445	1599.3	1.7252	0.9372	1597.1	1.7125	0.8495	1594.8	1.7010	**1160**
1180	1.0588	1610.5	1.7321	0.9503	1608.4	1.7195	0.8614	1606.2	1.7080	**1180**
1200	1.0731	1621.8	1.7389	0.9632	1619.7	1.7264	0.8733	1617.7	1.7149	**1200**
1220	1.0874	1633.1	1.7457	0.9762	1631.1	1.7332	0.8852	1629.1	1.7217	**1220**
1240	1.1016	1644.4	1.7524	0.9891	1642.4	1.7399	0.8970	1640.5	1.7285	**1240**
1260	1.1158	1655.7	1.7590	1.0019	1653.8	1.7465	0.9088	1651.9	1.7352	**1260**
1280	1.1299	1667.0	1.7655	1.0147	1665.2	1.7531	0.9205	1663.4	1.7418	**1280**
1300	1.1440	1678.3	1.7720	1.0275	1676.6	1.7596	0.9322	1674.8	1.7483	**1300**
1320	1.1581	1689.7	1.7784	1.0403	1688.0	1.7661	0.9439	1686.3	1.7548	**1320**
1340	1.1721	1701.0	1.7848	1.0530	1699.4	1.7724	0.9555	1697.7	1.7612	**1340**
1360	1.1861	1712.4	1.7911	1.0656	1710.8	1.7788	0.9671	1709.2	1.7676	**1360**
1380	1.2001	1723.8	1.7973	1.0783	1722.3	1.7850	0.9787	1720.7	1.7738	**1380**
1400	1.2140	1735.3	1.8035	1.0909	1733.7	1.7912	0.9902	1732.2	1.7801	**1400**
1420	1.2279	1746.7	1.8096	1.1035	1745.2	1.7974	1.0017	1743.8	1.7862	**1420**
1440	1.2418	1758.2	1.8157	1.1161	1756.7	1.8035	1.0132	1755.3	1.7924	**1440**
1460	1.2557	1769.7	1.8217	1.1287	1768.3	1.8095	1.0247	1766.9	1.7984	**1460**
1480	1.2696	1781.2	1.8277	1.1412	1779.8	1.8155	1.0362	1778.5	1.8044	**1480**
1500	1.2834	1792.7	1.8336	1.1537	1791.4	1.8214	1.0476	1790.1	1.8104	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1200 psia** (t_{sat} = 567.26 °F)			**1300 psia** (t_{sat} = 577.50 °F)			**1400 psia** (t_{sat} = 587.14 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.022 326	571.84	0.7714	0.022 696	585.55	0.7843	0.023 075	598.77	0.7966	Sat. Liq.
Sat. Vap.	0.3625	1184.2	1.3677	0.3299	1179.5	1.3570	0.3017	1174.4	1.3465	Sat. Vap.
32	0.015 955	3.583	0.0001	0.015 950	3.881	0.0001	0.015 944	4.179	0.0001	**32**
40	0.015 955	11.562	0.0162	0.015 950	11.854	0.0162	0.015 945	12.147	0.0162	**40**
50	0.015 961	21.518	0.0359	0.015 956	21.804	0.0359	0.015 951	22.090	0.0359	**50**
60	0.015 974	31.463	0.0552	0.015 969	31.743	0.0552	0.015 964	32.024	0.0552	**60**
70	0.015 992	41.400	0.0742	0.015 987	41.676	0.0741	0.015 982	41.952	0.0741	**70**
80	0.016 015	51.335	0.0927	0.016 010	51.606	0.0927	0.016 005	51.877	0.0926	**80**
90	0.016 042	61.267	0.1110	0.016 037	61.534	0.1109	0.016 032	61.801	0.1109	**90**
100	0.016 073	71.199	0.1289	0.016 068	71.463	0.1288	0.016 063	71.725	0.1288	**100**
110	0.016 108	81.133	0.1465	0.016 103	81.392	0.1464	0.016 098	81.651	0.1463	**110**
120	0.016 146	91.069	0.1638	0.016 142	91.325	0.1637	0.016 137	91.580	0.1636	**120**
130	0.016 188	101.01	0.1808	0.016 184	101.26	0.1807	0.016 179	101.51	0.1806	**130**
140	0.016 234	110.95	0.1975	0.016 229	111.20	0.1974	0.016 224	111.45	0.1973	**140**
150	0.016 282	120.91	0.2139	0.016 277	121.15	0.2139	0.016 272	121.40	0.2138	**150**
160	0.016 334	130.86	0.2301	0.016 329	131.11	0.2301	0.016 324	131.35	0.2300	**160**
170	0.016 388	140.83	0.2461	0.016 383	141.07	0.2460	0.016 378	141.31	0.2459	**170**
180	0.016 445	150.81	0.2618	0.016 440	151.04	0.2617	0.016 435	151.28	0.2616	**180**
190	0.016 506	160.80	0.2773	0.016 501	161.03	0.2772	0.016 495	161.26	0.2771	**190**
200	0.016 569	170.80	0.2926	0.016 564	171.03	0.2925	0.016 558	171.26	0.2924	**200**
210	0.016 635	180.82	0.3077	0.016 630	181.04	0.3075	0.016 624	181.27	0.3074	**210**
220	0.016 704	190.85	0.3225	0.016 699	191.07	0.3224	0.016 693	191.29	0.3223	**220**
230	0.016 776	200.90	0.3372	0.016 771	201.12	0.3371	0.016 765	201.33	0.3369	**230**
240	0.016 851	210.97	0.3517	0.016 845	211.18	0.3516	0.016 839	211.39	0.3514	**240**
250	0.016 929	221.06	0.3660	0.016 923	221.26	0.3659	0.016 917	221.47	0.3657	**250**
260	0.017 010	231.17	0.3802	0.017 004	231.37	0.3800	0.016 998	231.58	0.3799	**260**
270	0.017 094	241.30	0.3942	0.017 088	241.50	0.3940	0.017 081	241.70	0.3938	**270**
280	0.017 182	251.46	0.4080	0.017 175	251.65	0.4078	0.017 168	251.85	0.4077	**280**
290	0.017 272	261.64	0.4217	0.017 265	261.83	0.4215	0.017 259	262.03	0.4213	**290**
300	0.017 366	271.86	0.4352	0.017 359	272.04	0.4350	0.017 352	272.23	0.4348	**300**
310	0.017 464	282.10	0.4486	0.017 456	282.29	0.4484	0.017 449	282.47	0.4482	**310**
320	0.017 565	292.38	0.4619	0.017 557	292.56	0.4617	0.017 550	292.74	0.4615	**320**
330	0.017 670	302.70	0.4750	0.017 662	302.87	0.4748	0.017 654	303.04	0.4746	**330**
340	0.017 779	313.05	0.4880	0.017 771	313.22	0.4878	0.017 762	313.38	0.4876	**340**
350	0.017 892	323.45	0.5010	0.017 884	323.61	0.5008	0.017 875	323.77	0.5005	**350**
360	0.018 010	333.90	0.5138	0.018 001	334.05	0.5136	0.017 992	334.20	0.5133	**360**
370	0.018 132	344.39	0.5265	0.018 123	344.53	0.5263	0.018 113	344.68	0.5261	**370**
380	0.018 259	354.93	0.5391	0.018 249	355.07	0.5389	0.018 239	355.21	0.5387	**380**
390	0.018 391	365.53	0.5517	0.018 381	365.66	0.5514	0.018 370	365.79	0.5512	**390**
400	0.018 529	376.20	0.5642	0.018 518	376.31	0.5639	0.018 507	376.44	0.5637	**400**
410	0.018 673	386.93	0.5766	0.018 661	387.03	0.5763	0.018 650	387.15	0.5760	**410**
420	0.018 823	397.73	0.5889	0.018 811	397.83	0.5886	0.018 798	397.93	0.5884	**420**
430	0.018 980	408.61	0.6012	0.018 967	408.70	0.6009	0.018 953	408.78	0.6006	**430**
440	0.019 144	419.57	0.6135	0.019 130	419.65	0.6132	0.019 116	419.73	0.6129	**440**
450	0.019 316	430.63	0.6257	0.019 301	430.69	0.6254	0.019 286	430.76	0.6251	**450**
460	0.019 497	441.79	0.6379	0.019 481	441.84	0.6376	0.019 465	441.89	0.6372	**460**
470	0.019 687	453.06	0.6501	0.019 669	453.09	0.6497	0.019 652	453.13	0.6494	**470**
480	0.019 887	464.46	0.6623	0.019 868	464.47	0.6619	0.019 850	464.48	0.6615	**480**
490	0.020 099	475.99	0.6745	0.020 079	475.98	0.6741	0.020 059	475.97	0.6737	**490**
500	0.020 323	487.66	0.6867	0.020 301	487.63	0.6863	0.020 280	487.60	0.6859	**500**
510	0.020 562	499.51	0.6990	0.020 538	499.45	0.6986	0.020 514	499.39	0.6981	**510**
520	0.020 817	511.54	0.7114	0.020 791	511.45	0.7109	0.020 764	511.36	0.7104	**520**
530	0.021 090	523.78	0.7238	0.021 061	523.66	0.7233	0.021 032	523.54	0.7227	**530**
540	0.021 384	536.26	0.7363	0.021 352	536.10	0.7358	0.021 320	535.94	0.7352	**540**
550	0.021 703	549.02	0.7490	0.021 666	548.81	0.7484	0.021 630	548.60	0.7478	**550**
560	0.022 051	562.10	0.7619	0.022 009	561.83	0.7613	0.021 969	561.56	0.7606	**560**
570	0.3662	1188.1	1.3715	0.022 387	575.22	0.7743	0.022 340	574.89	0.7736	**570**
580	0.3791	1201.2	1.3842	0.3333	1183.3	1.3606	0.022 751	588.64	0.7869	**580**
590	0.3910	1213.1	1.3956	0.3458	1197.2	1.3740	0.3055	1179.0	1.3509	**590**
600	0.4020	1224.1	1.4061	0.3574	1209.8	1.3859	0.3178	1193.7	1.3649	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1200 psia** (t_{sat} = 567.26 °F)			**1300 psia** (t_{sat} = 577.50 °F)			**1400 psia** (t_{sat} = 587.14 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.4125	1234.5	1.4158	0.3681	1221.4	1.3967	0.3290	1206.9	1.3772	**610**
620	0.4225	1244.3	1.4249	0.3782	1232.2	1.4068	0.3394	1219.0	1.3885	**620**
630	0.4321	1253.6	1.4335	0.3877	1242.3	1.4162	0.3491	1230.2	1.3988	**630**
640	0.4413	1262.5	1.4416	0.3969	1252.0	1.4250	0.3583	1240.8	1.4085	**640**
650	0.4501	1271.1	1.4494	0.4057	1261.3	1.4334	0.3671	1250.8	1.4175	**650**
660	0.4588	1279.5	1.4569	0.4141	1270.1	1.4414	0.3755	1260.3	1.4261	**660**
670	0.4671	1287.5	1.4641	0.4223	1278.7	1.4490	0.3835	1269.5	1.4342	**670**
680	0.4753	1295.4	1.4710	0.4302	1287.0	1.4563	0.3913	1278.3	1.4420	**680**
690	0.4832	1303.0	1.4777	0.4380	1295.1	1.4633	0.3989	1286.8	1.4494	**690**
700	0.4910	1310.5	1.4842	0.4455	1302.9	1.4701	0.4063	1295.0	1.4566	**700**
710	0.4987	1317.9	1.4905	0.4529	1310.6	1.4767	0.4134	1303.1	1.4635	**710**
720	0.5062	1325.0	1.4966	0.4601	1318.1	1.4831	0.4204	1310.9	1.4701	**720**
730	0.5135	1332.1	1.5025	0.4672	1325.4	1.4893	0.4273	1318.6	1.4766	**730**
740	0.5208	1339.1	1.5084	0.4741	1332.7	1.4954	0.4340	1326.1	1.4829	**740**
750	0.5279	1345.9	1.5141	0.4809	1339.7	1.5012	0.4405	1333.4	1.4890	**750**
760	0.5349	1352.7	1.5196	0.4876	1346.7	1.5070	0.4470	1340.6	1.4949	**760**
770	0.5419	1359.3	1.5251	0.4943	1353.6	1.5126	0.4533	1347.7	1.5007	**770**
780	0.5487	1365.9	1.5304	0.5008	1360.4	1.5181	0.4596	1354.7	1.5064	**780**
790	0.5555	1372.5	1.5356	0.5072	1367.1	1.5235	0.4657	1361.7	1.5119	**790**
800	0.5622	1378.9	1.5408	0.5136	1373.7	1.5288	0.4718	1368.5	1.5174	**800**
820	0.5754	1391.7	1.5508	0.5261	1386.8	1.5391	0.4837	1381.9	1.5279	**820**
840	0.5883	1404.2	1.5606	0.5383	1399.6	1.5490	0.4954	1395.0	1.5381	**840**
860	0.6010	1416.6	1.5700	0.5503	1412.3	1.5587	0.5068	1407.9	1.5479	**860**
880	0.6136	1428.8	1.5792	0.5621	1424.7	1.5680	0.5180	1420.6	1.5575	**880**
900	0.6259	1440.9	1.5882	0.5738	1437.0	1.5772	0.5290	1433.1	1.5668	**900**
920	0.6381	1452.9	1.5969	0.5852	1449.2	1.5861	0.5398	1445.5	1.5758	**920**
940	0.6502	1464.8	1.6055	0.5965	1461.3	1.5947	0.5505	1457.7	1.5846	**940**
960	0.6621	1476.6	1.6139	0.6077	1473.3	1.6033	0.5611	1469.9	1.5933	**960**
980	0.6739	1488.4	1.6221	0.6188	1485.2	1.6116	0.5715	1482.0	1.6017	**980**
1000	0.6856	1500.1	1.6302	0.6298	1497.0	1.6198	0.5819	1493.9	1.6100	**1000**
1020	0.6972	1511.8	1.6381	0.6406	1508.8	1.6278	0.5921	1505.9	1.6181	**1020**
1040	0.7087	1523.4	1.6459	0.6514	1520.6	1.6357	0.6022	1517.7	1.6260	**1040**
1060	0.7202	1535.0	1.6536	0.6621	1532.3	1.6434	0.6122	1529.5	1.6339	**1060**
1080	0.7315	1546.5	1.6612	0.6727	1543.9	1.6510	0.6222	1541.3	1.6416	**1080**
1100	0.7428	1558.1	1.6686	0.6832	1555.6	1.6585	0.6321	1553.1	1.6491	**1100**
1120	0.7541	1569.6	1.6759	0.6937	1567.2	1.6659	0.6419	1564.8	1.6566	**1120**
1140	0.7652	1581.1	1.6832	0.7041	1578.8	1.6732	0.6517	1576.4	1.6639	**1140**
1160	0.7763	1592.6	1.6903	0.7144	1590.4	1.6804	0.6614	1588.1	1.6712	**1160**
1180	0.7874	1604.1	1.6974	0.7247	1601.9	1.6875	0.6710	1599.7	1.6783	**1180**
1200	0.7984	1615.6	1.7043	0.7350	1613.5	1.6945	0.6806	1611.4	1.6854	**1200**
1220	0.8094	1627.1	1.7112	0.7452	1625.0	1.7015	0.6902	1623.0	1.6923	**1220**
1240	0.8203	1638.5	1.7180	0.7553	1636.6	1.7083	0.6997	1634.6	1.6992	**1240**
1260	0.8311	1650.0	1.7247	0.7655	1648.1	1.7150	0.7092	1646.2	1.7060	**1260**
1280	0.8420	1661.5	1.7314	0.7755	1659.7	1.7217	0.7186	1657.9	1.7127	**1280**
1300	0.8528	1673.0	1.7379	0.7856	1671.3	1.7283	0.7280	1669.5	1.7194	**1300**
1320	0.8635	1684.5	1.7445	0.7956	1682.8	1.7349	0.7373	1681.1	1.7259	**1320**
1340	0.8743	1696.1	1.7509	0.8055	1694.4	1.7413	0.7466	1692.7	1.7324	**1340**
1360	0.8850	1707.6	1.7573	0.8155	1706.0	1.7477	0.7559	1704.4	1.7389	**1360**
1380	0.8956	1719.1	1.7636	0.8254	1717.6	1.7541	0.7652	1716.0	1.7452	**1380**
1400	0.9063	1730.7	1.7698	0.8353	1729.2	1.7604	0.7744	1727.7	1.7515	**1400**
1420	0.9169	1742.3	1.7760	0.8451	1740.8	1.7666	0.7836	1739.3	1.7578	**1420**
1440	0.9275	1753.9	1.7822	0.8550	1752.4	1.7727	0.7928	1751.0	1.7639	**1440**
1460	0.9381	1765.5	1.7882	0.8648	1764.1	1.7788	0.8019	1762.7	1.7701	**1460**
1480	0.9486	1777.1	1.7943	0.8746	1775.7	1.7849	0.8111	1774.4	1.7761	**1480**
1500	0.9592	1788.8	1.8002	0.8843	1787.4	1.7909	0.8202	1786.1	1.7821	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1500 psia** (t_{sat} = 596.27 °F)			**1600 psia** (t_{sat} = 604.93 °F)			**1700 psia** (t_{sat} = 613.19 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.023 46	611.59	0.8084	0.023 86	624.07	0.8197	0.024 28	636.28	0.8307	Sat. Liq.
Sat. Vap.	0.2770	1169.0	1.3363	0.2553	1163.3	1.3262	0.2358	1157.2	1.3163	Sat. Vap.
32	0.015 939	4.477	0.0001	0.015 933	4.774	0.0001	0.015 928	5.071	0.0001	**32**
40	0.015 939	12.439	0.0161	0.015 934	12.730	0.0161	0.015 929	13.022	0.0161	**40**
50	0.015 946	22.376	0.0358	0.015 941	22.662	0.0358	0.015 936	22.947	0.0358	**50**
60	0.015 959	32.304	0.0551	0.015 954	32.585	0.0551	0.015 949	32.865	0.0551	**60**
70	0.015 977	42.227	0.0740	0.015 972	42.503	0.0740	0.015 967	42.778	0.0740	**70**
80	0.016 000	52.148	0.0926	0.015 995	52.419	0.0926	0.015 990	52.690	0.0925	**80**
90	0.016 027	62.068	0.1108	0.016 023	62.335	0.1108	0.016 018	62.601	0.1107	**90**
100	0.016 059	71.988	0.1287	0.016 054	72.251	0.1286	0.016 049	72.514	0.1286	**100**
110	0.016 094	81.911	0.1463	0.016 089	82.170	0.1462	0.016 084	82.428	0.1461	**110**
120	0.016 132	91.836	0.1635	0.016 127	92.091	0.1635	0.016 123	92.346	0.1634	**120**
130	0.016 174	101.76	0.1805	0.016 169	102.02	0.1804	0.016 164	102.27	0.1804	**130**
140	0.016 219	111.70	0.1972	0.016 214	111.95	0.1971	0.016 210	112.20	0.1971	**140**
150	0.016 267	121.64	0.2137	0.016 263	121.88	0.2136	0.016 258	122.13	0.2135	**150**
160	0.016 319	131.59	0.2299	0.016 314	131.83	0.2298	0.016 309	132.07	0.2297	**160**
170	0.016 373	141.55	0.2458	0.016 368	141.78	0.2457	0.016 363	142.02	0.2456	**170**
180	0.016 430	151.51	0.2615	0.016 425	151.75	0.2614	0.016 420	151.98	0.2613	**180**
190	0.016 490	161.49	0.2770	0.016 485	161.72	0.2769	0.016 480	161.96	0.2768	**190**
200	0.016 553	171.48	0.2922	0.016 548	171.71	0.2921	0.016 543	171.94	0.2920	**200**
210	0.016 619	181.49	0.3073	0.016 614	181.71	0.3072	0.016 608	181.94	0.3071	**210**
220	0.016 688	191.51	0.3222	0.016 682	191.73	0.3220	0.016 677	191.95	0.3219	**220**
230	0.016 759	201.55	0.3368	0.016 753	201.77	0.3367	0.016 748	201.98	0.3365	**230**
240	0.016 834	211.61	0.3513	0.016 828	211.82	0.3512	0.016 822	212.03	0.3510	**240**
250	0.016 911	221.68	0.3656	0.016 905	221.89	0.3654	0.016 899	222.10	0.3653	**250**
260	0.016 992	231.78	0.3797	0.016 985	231.99	0.3796	0.016 979	232.19	0.3794	**260**
270	0.017 075	241.90	0.3937	0.017 069	242.10	0.3935	0.017 062	242.30	0.3934	**270**
280	0.017 162	252.05	0.4075	0.017 155	252.24	0.4073	0.017 149	252.44	0.4072	**280**
290	0.017 252	262.22	0.4212	0.017 245	262.41	0.4210	0.017 238	262.60	0.4208	**290**
300	0.017 345	272.42	0.4347	0.017 338	272.61	0.4345	0.017 331	272.79	0.4343	**300**
310	0.017 442	282.65	0.4481	0.017 434	282.83	0.4479	0.017 427	283.01	0.4477	**310**
320	0.017 542	292.91	0.4613	0.017 535	293.09	0.4611	0.017 527	293.27	0.4609	**320**
330	0.017 646	303.21	0.4744	0.017 638	303.38	0.4742	0.017 630	303.56	0.4740	**330**
340	0.017 754	313.55	0.4874	0.017 746	313.72	0.4872	0.017 738	313.88	0.4870	**340**
350	0.017 866	323.93	0.5003	0.017 858	324.09	0.5001	0.017 849	324.25	0.4999	**350**
360	0.017 983	334.35	0.5131	0.017 974	334.50	0.5129	0.017 965	334.66	0.5127	**360**
370	0.018 104	344.82	0.5258	0.018 094	344.97	0.5256	0.018 085	345.11	0.5254	**370**
380	0.018 229	355.34	0.5384	0.018 219	355.48	0.5382	0.018 210	355.62	0.5380	**380**
390	0.018 360	365.92	0.5510	0.018 350	366.05	0.5507	0.018 339	366.18	0.5505	**390**
400	0.018 496	376.56	0.5634	0.018 485	376.68	0.5631	0.018 474	376.80	0.5629	**400**
410	0.018 638	387.26	0.5758	0.018 626	387.37	0.5755	0.018 615	387.48	0.5752	**410**
420	0.018 786	398.03	0.5881	0.018 774	398.13	0.5878	0.018 762	398.23	0.5875	**420**
430	0.018 940	408.87	0.6003	0.018 927	408.97	0.6001	0.018 915	409.06	0.5998	**430**
440	0.019 102	419.80	0.6126	0.019 088	419.88	0.6123	0.019 075	419.96	0.6120	**440**
450	0.019 271	430.82	0.6247	0.019 257	430.89	0.6244	0.019 242	430.95	0.6241	**450**
460	0.019 449	441.94	0.6369	0.019 433	441.99	0.6366	0.019 417	442.04	0.6362	**460**
470	0.019 635	453.16	0.6490	0.019 618	453.19	0.6487	0.019 602	453.23	0.6483	**470**
480	0.019 832	464.50	0.6612	0.019 813	464.51	0.6608	0.019 796	464.53	0.6604	**480**
490	0.020 039	475.96	0.6733	0.020 019	475.96	0.6729	0.020 000	475.96	0.6725	**490**
500	0.020 258	487.57	0.6855	0.020 237	487.55	0.6850	0.020 216	487.53	0.6846	**500**
510	0.020 491	499.34	0.6977	0.020 468	499.29	0.6972	0.020 445	499.24	0.6968	**510**
520	0.020 739	511.28	0.7099	0.020 713	511.20	0.7094	0.020 688	511.13	0.7090	**520**
530	0.021 004	523.42	0.7222	0.020 976	523.31	0.7217	0.020 948	523.20	0.7212	**530**
540	0.021 288	535.78	0.7347	0.021 257	535.63	0.7341	0.021 226	535.49	0.7336	**540**
550	0.021 595	548.40	0.7472	0.021 560	548.20	0.7466	0.021 526	548.02	0.7461	**550**
560	0.021 928	561.31	0.7599	0.021 889	561.06	0.7593	0.021 851	560.82	0.7587	**560**
570	0.022 294	574.56	0.7729	0.022 249	574.25	0.7722	0.022 205	573.95	0.7715	**570**
580	0.022 697	588.23	0.7861	0.022 645	587.84	0.7853	0.022 595	587.46	0.7845	**580**
590	0.023 149	602.40	0.7997	0.023 088	601.91	0.7988	0.023 028	601.43	0.7979	**590**
600	0.2819	1175.4	1.3423	0.023 589	616.57	0.8127	0.023 517	615.97	0.8117	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1500 psia** (t_{sat} = 596.27 °F)			**1600 psia** (t_{sat} = 604.93 °F)			**1700 psia** (t_{sat} = 613.19 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.2940	1190.8	1.3568	0.2618	1172.4	1.3348	0.024 08	631.23	0.8260	**610**
620	0.3049	1204.6	1.3696	0.2736	1188.5	1.3497	0.2446	1170.1	1.3283	**620**
630	0.3149	1217.1	1.3811	0.2841	1202.7	1.3629	0.2560	1186.7	1.3436	**630**
640	0.3243	1228.7	1.3918	0.2939	1215.7	1.3747	0.2663	1201.4	1.3570	**640**
650	0.3331	1239.6	1.4016	0.3029	1227.7	1.3855	0.2757	1214.7	1.3691	**650**
660	0.3416	1249.9	1.4109	0.3114	1238.9	1.3956	0.2844	1227.0	1.3801	**660**
670	0.3496	1259.7	1.4196	0.3195	1249.4	1.4050	0.2926	1238.5	1.3903	**670**
680	0.3573	1269.1	1.4278	0.3273	1259.4	1.4138	0.3004	1249.3	1.3998	**680**
690	0.3648	1278.1	1.4357	0.3347	1269.0	1.4222	0.3078	1259.5	1.4088	**690**
700	0.3720	1286.8	1.4433	0.3418	1278.3	1.4302	0.3149	1269.3	1.4172	**700**
710	0.3790	1295.3	1.4505	0.3487	1287.1	1.4378	0.3218	1278.7	1.4253	**710**
720	0.3859	1303.5	1.4575	0.3554	1295.8	1.4452	0.3284	1287.8	1.4330	**720**
730	0.3925	1311.5	1.4642	0.3620	1304.1	1.4522	0.3348	1296.5	1.4404	**730**
740	0.3990	1319.3	1.4708	0.3683	1312.2	1.4590	0.3411	1305.0	1.4475	**740**
750	0.4054	1326.9	1.4771	0.3745	1320.2	1.4656	0.3471	1313.3	1.4544	**750**
760	0.4116	1334.4	1.4833	0.3806	1327.9	1.4720	0.3531	1321.3	1.4610	**760**
770	0.4178	1341.7	1.4893	0.3865	1335.6	1.4782	0.3589	1329.2	1.4675	**770**
780	0.4238	1349.0	1.4951	0.3924	1343.0	1.4843	0.3646	1336.9	1.4737	**780**
790	0.4297	1356.1	1.5008	0.3981	1350.4	1.4901	0.3701	1344.5	1.4798	**790**
800	0.4356	1363.1	1.5064	0.4037	1357.6	1.4959	0.3756	1351.9	1.4857	**800**
820	0.4470	1376.8	1.5173	0.4148	1371.7	1.5070	0.3863	1366.5	1.4971	**820**
840	0.4581	1390.3	1.5277	0.4255	1385.4	1.5177	0.3966	1380.6	1.5081	**840**
860	0.4690	1403.4	1.5377	0.4359	1398.9	1.5280	0.4067	1394.3	1.5186	**860**
880	0.4797	1416.4	1.5475	0.4462	1412.1	1.5379	0.4165	1407.8	1.5287	**880**
900	0.4902	1429.1	1.5569	0.4562	1425.1	1.5475	0.4262	1421.0	1.5385	**900**
920	0.5005	1441.7	1.5661	0.4660	1437.9	1.5569	0.4356	1434.0	1.5480	**920**
940	0.5106	1454.2	1.5751	0.4757	1450.5	1.5660	0.4449	1446.9	1.5573	**940**
960	0.5207	1466.5	1.5838	0.4853	1463.0	1.5748	0.4540	1459.5	1.5663	**960**
980	0.5306	1478.7	1.5924	0.4947	1475.4	1.5835	0.4630	1472.1	1.5750	**980**
1000	0.5403	1490.8	1.6007	0.5040	1487.7	1.5920	0.4719	1484.5	1.5836	**1000**
1020	0.5500	1502.9	1.6089	0.5132	1499.9	1.6003	0.4807	1496.9	1.5920	**1020**
1040	0.5596	1514.9	1.6170	0.5223	1512.0	1.6084	0.4893	1509.1	1.6002	**1040**
1060	0.5691	1526.8	1.6249	0.5313	1524.0	1.6164	0.4979	1521.3	1.6083	**1060**
1080	0.5785	1538.7	1.6326	0.5402	1536.0	1.6242	0.5064	1533.4	1.6162	**1080**
1100	0.5878	1550.5	1.6403	0.5490	1548.0	1.6319	0.5148	1545.4	1.6240	**1100**
1120	0.5971	1562.3	1.6478	0.5578	1559.9	1.6395	0.5232	1557.4	1.6316	**1120**
1140	0.6063	1574.1	1.6552	0.5665	1571.7	1.6469	0.5314	1569.4	1.6391	**1140**
1160	0.6154	1585.8	1.6625	0.5752	1583.6	1.6543	0.5397	1581.3	1.6465	**1160**
1180	0.6245	1597.6	1.6697	0.5838	1595.4	1.6615	0.5478	1593.2	1.6538	**1180**
1200	0.6335	1609.3	1.6768	0.5923	1607.2	1.6687	0.5559	1605.0	1.6610	**1200**
1220	0.6425	1621.0	1.6838	0.6008	1618.9	1.6757	0.5640	1616.9	1.6681	**1220**
1240	0.6515	1632.7	1.6907	0.6092	1630.7	1.6827	0.5720	1628.7	1.6751	**1240**
1260	0.6604	1644.3	1.6975	0.6177	1642.4	1.6896	0.5800	1640.5	1.6820	**1260**
1280	0.6692	1656.0	1.7043	0.6260	1654.2	1.6964	0.5879	1652.3	1.6888	**1280**
1300	0.6780	1667.7	1.7110	0.6343	1665.9	1.7031	0.5958	1664.1	1.6956	**1300**
1320	0.6868	1679.4	1.7176	0.6426	1677.6	1.7097	0.6037	1675.9	1.7022	**1320**
1340	0.6956	1691.0	1.7241	0.6509	1689.4	1.7162	0.6115	1687.7	1.7088	**1340**
1360	0.7043	1702.7	1.7306	0.6591	1701.1	1.7227	0.6193	1699.5	1.7153	**1360**
1380	0.7130	1714.4	1.7369	0.6673	1712.8	1.7291	0.6270	1711.3	1.7218	**1380**
1400	0.7217	1726.1	1.7433	0.6755	1724.6	1.7355	0.6348	1723.0	1.7282	**1400**
1420	0.7303	1737.8	1.7495	0.6836	1736.3	1.7418	0.6425	1734.8	1.7345	**1420**
1440	0.7389	1749.6	1.7557	0.6918	1748.1	1.7480	0.6502	1746.7	1.7407	**1440**
1460	0.7475	1761.3	1.7619	0.6999	1759.9	1.7542	0.6578	1758.5	1.7469	**1460**
1480	0.7561	1773.0	1.7680	0.7079	1771.7	1.7603	0.6655	1770.3	1.7530	**1480**
1500	0.7646	1784.8	1.7740	0.7160	1783.5	1.7663	0.6731	1782.1	1.7591	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1800 psia** (t_{sat} = 621.07 °F)			**2000 psia** (t_{sat} = 635.85 °F)			**2200 psia** (t_{sat} = 649.50 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.024 71	648.27	0.8415	0.025 63	671.80	0.8622	0.026 68	695.09	0.8825	Sat. Liq.
Sat. Vap.	0.2184	1150.7	1.3063	0.1882	1136.5	1.2864	0.1627	1120.4	1.2659	Sat. Vap.
32	0.015 923	5.367	0.0001	0.015 912	5.960	0.0001	0.015 901	6.551	0.0001	**32**
40	0.015 923	13.313	0.0161	0.015 913	13.894	0.0161	0.015 903	14.475	0.0161	**40**
50	0.015 931	23.232	0.0358	0.015 921	23.802	0.0357	0.015 910	24.370	0.0357	**50**
60	0.015 944	33.144	0.0550	0.015 934	33.703	0.0550	0.015 924	34.262	0.0549	**60**
70	0.015 962	43.053	0.0739	0.015 953	43.603	0.0739	0.015 943	44.151	0.0738	**70**
80	0.015 986	52.960	0.0925	0.015 976	53.501	0.0924	0.015 966	54.041	0.0923	**80**
90	0.016 013	62.868	0.1106	0.016 003	63.400	0.1105	0.015 994	63.932	0.1104	**90**
100	0.016 044	72.776	0.1285	0.016 035	73.301	0.1284	0.016 025	73.825	0.1283	**100**
110	0.016 079	82.687	0.1461	0.016 070	83.205	0.1459	0.016 060	83.721	0.1458	**110**
120	0.016 118	92.601	0.1633	0.016 108	93.112	0.1632	0.016 099	93.621	0.1630	**120**
130	0.016 160	102.52	0.1803	0.016 150	103.02	0.1801	0.016 141	103.53	0.1800	**130**
140	0.016 205	112.44	0.1970	0.016 195	112.94	0.1968	0.016 186	113.44	0.1966	**140**
150	0.016 253	122.37	0.2134	0.016 243	122.86	0.2132	0.016 234	123.35	0.2130	**150**
160	0.016 304	132.31	0.2296	0.016 294	132.80	0.2294	0.016 284	133.28	0.2292	**160**
170	0.016 358	142.26	0.2455	0.016 348	142.74	0.2453	0.016 338	143.21	0.2451	**170**
180	0.016 415	152.22	0.2612	0.016 405	152.69	0.2610	0.016 395	153.16	0.2607	**180**
190	0.016 475	162.19	0.2766	0.016 464	162.65	0.2764	0.016 454	163.11	0.2762	**190**
200	0.016 537	172.17	0.2919	0.016 527	172.62	0.2917	0.016 516	173.08	0.2914	**200**
210	0.016 603	182.16	0.3069	0.016 592	182.61	0.3067	0.016 581	183.06	0.3064	**210**
220	0.016 671	192.17	0.3218	0.016 660	192.62	0.3215	0.016 649	193.06	0.3213	**220**
230	0.016 742	202.20	0.3364	0.016 731	202.64	0.3361	0.016 720	203.07	0.3359	**230**
240	0.016 816	212.25	0.3509	0.016 805	212.67	0.3506	0.016 793	213.10	0.3503	**240**
250	0.016 893	222.31	0.3652	0.016 881	222.73	0.3649	0.016 870	223.15	0.3646	**250**
260	0.016 973	232.40	0.3793	0.016 961	232.81	0.3790	0.016 949	233.22	0.3787	**260**
270	0.017 056	242.50	0.3932	0.017 044	242.91	0.3929	0.017 031	243.31	0.3926	**270**
280	0.017 142	252.64	0.4070	0.017 129	253.03	0.4067	0.017 116	253.43	0.4064	**280**
290	0.017 231	262.80	0.4206	0.017 218	263.18	0.4203	0.017 205	263.57	0.4200	**290**
300	0.017 324	272.98	0.4341	0.017 310	273.36	0.4338	0.017 296	273.74	0.4335	**300**
310	0.017 420	283.20	0.4475	0.017 406	283.56	0.4471	0.017 391	283.93	0.4468	**310**
320	0.017 519	293.45	0.4607	0.017 505	293.80	0.4604	0.017 490	294.16	0.4600	**320**
330	0.017 623	303.73	0.4738	0.017 607	304.07	0.4735	0.017 592	304.42	0.4731	**330**
340	0.017 730	314.05	0.4868	0.017 713	314.38	0.4864	0.017 697	314.72	0.4860	**340**
350	0.017 841	324.41	0.4997	0.017 824	324.73	0.4993	0.017 807	325.06	0.4989	**350**
360	0.017 956	334.81	0.5125	0.017 938	335.12	0.5120	0.017 921	335.43	0.5116	**360**
370	0.018 076	345.26	0.5251	0.018 057	345.56	0.5247	0.018 039	345.85	0.5242	**370**
380	0.018 200	355.76	0.5377	0.018 180	356.04	0.5373	0.018 161	356.32	0.5368	**380**
390	0.018 329	366.31	0.5502	0.018 309	366.58	0.5497	0.018 289	366.85	0.5492	**390**
400	0.018 464	376.92	0.5626	0.018 442	377.17	0.5621	0.018 421	377.42	0.5616	**400**
410	0.018 604	387.60	0.5750	0.018 581	387.83	0.5744	0.018 559	388.06	0.5739	**410**
420	0.018 749	398.34	0.5873	0.018 726	398.55	0.5867	0.018 702	398.76	0.5862	**420**
430	0.018 902	409.15	0.5995	0.018 876	409.34	0.5989	0.018 851	409.53	0.5983	**430**
440	0.019 061	420.04	0.6117	0.019 034	420.21	0.6111	0.019 007	420.38	0.6105	**440**
450	0.019 227	431.02	0.6238	0.019 199	431.16	0.6232	0.019 171	431.31	0.6225	**450**
460	0.019 402	442.09	0.6359	0.019 371	442.21	0.6352	0.019 341	442.33	0.6346	**460**
470	0.019 585	453.27	0.6480	0.019 552	453.35	0.6473	0.019 520	453.44	0.6466	**470**
480	0.019 778	464.56	0.6601	0.019 743	464.60	0.6593	0.019 708	464.66	0.6586	**480**
490	0.019 981	475.96	0.6721	0.019 943	475.98	0.6714	0.019 906	476.00	0.6706	**490**
500	0.020 195	487.51	0.6842	0.020 154	487.48	0.6834	0.020 114	487.46	0.6826	**500**
510	0.020 422	499.20	0.6963	0.020 378	499.12	0.6955	0.020 334	499.06	0.6946	**510**
520	0.020 663	511.06	0.7085	0.020 615	510.93	0.7076	0.020 567	510.81	0.7067	**520**
530	0.020 921	523.10	0.7207	0.020 867	522.91	0.7198	0.020 815	522.73	0.7188	**530**
540	0.021 196	535.35	0.7331	0.021 137	535.09	0.7320	0.021 080	534.85	0.7310	**540**
550	0.021 492	547.84	0.7455	0.021 427	547.49	0.7444	0.021 363	547.18	0.7433	**550**
560	0.021 813	560.59	0.7581	0.021 739	560.15	0.7568	0.021 668	559.75	0.7556	**560**
570	0.022 162	573.66	0.7708	0.022 078	573.11	0.7695	0.021 998	572.59	0.7682	**570**
580	0.022 545	587.10	0.7838	0.022 450	586.41	0.7823	0.022 358	585.76	0.7809	**580**
590	0.022 970	600.97	0.7971	0.022 859	600.11	0.7954	0.022 754	599.31	0.7939	**590**
600	0.023 448	615.39	0.8107	0.023 317	614.31	0.8089	0.023 193	613.31	0.8071	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**1800 psia** (t_{sat} = 621.07 °F)			**2000 psia** (t_{sat} = 635.85 °F)			**2200 psia** (t_{sat} = 649.50 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.023 99	630.49	0.8249	0.023 84	629.12	0.8228	0.023 69	627.86	0.8208	**610**
620	0.024 63	646.49	0.8398	0.024 43	644.71	0.8373	0.024 25	643.11	0.8350	**620**
630	0.2298	1168.6	1.3228	0.025 14	661.37	0.8527	0.024 91	659.27	0.8499	**630**
640	0.2408	1185.6	1.3384	0.1939	1146.7	1.2957	0.025 71	676.70	0.8658	**640**
650	0.2507	1200.6	1.3520	0.2059	1167.5	1.3146	0.1635	1122.0	1.2673	**650**
660	0.2598	1214.3	1.3642	0.2162	1185.2	1.3304	0.1770	1148.4	1.2911	**660**
670	0.2682	1226.8	1.3754	0.2254	1200.7	1.3442	0.1879	1169.2	1.3096	**670**
680	0.2762	1238.5	1.3857	0.2338	1214.8	1.3566	0.1973	1187.0	1.3253	**680**
690	0.2836	1249.5	1.3953	0.2416	1227.7	1.3679	0.2058	1202.8	1.3390	**690**
700	0.2908	1259.9	1.4043	0.2489	1239.7	1.3783	0.2136	1217.1	1.3514	**700**
710	0.2976	1269.9	1.4129	0.2559	1251.0	1.3880	0.2208	1230.2	1.3627	**710**
720	0.3042	1279.4	1.4210	0.2625	1261.8	1.3972	0.2276	1242.4	1.3731	**720**
730	0.3105	1288.6	1.4288	0.2688	1272.0	1.4058	0.2340	1253.9	1.3828	**730**
740	0.3167	1297.5	1.4362	0.2749	1281.8	1.4140	0.2401	1264.8	1.3919	**740**
750	0.3227	1306.2	1.4434	0.2807	1291.2	1.4218	0.2459	1275.2	1.4006	**750**
760	0.3285	1314.5	1.4503	0.2864	1300.3	1.4293	0.2516	1285.2	1.4088	**760**
770	0.3342	1322.7	1.4570	0.2919	1309.2	1.4365	0.2570	1294.8	1.4166	**770**
780	0.3397	1330.7	1.4634	0.2973	1317.8	1.4435	0.2623	1304.1	1.4241	**780**
790	0.3452	1338.5	1.4697	0.3025	1326.1	1.4502	0.2674	1313.1	1.4314	**790**
800	0.3505	1346.2	1.4758	0.3076	1334.3	1.4567	0.2723	1321.8	1.4383	**800**
820	0.3609	1361.1	1.4876	0.3175	1350.1	1.4692	0.2819	1338.7	1.4516	**820**
840	0.3709	1375.6	1.4988	0.3271	1365.3	1.4810	0.2910	1354.7	1.4641	**840**
860	0.3807	1389.7	1.5095	0.3363	1380.1	1.4923	0.2998	1370.2	1.4759	**860**
880	0.3902	1403.4	1.5199	0.3452	1394.4	1.5031	0.3083	1385.2	1.4872	**880**
900	0.3994	1416.9	1.5299	0.3539	1408.5	1.5134	0.3166	1399.8	1.4980	**900**
920	0.4085	1430.1	1.5395	0.3624	1422.2	1.5234	0.3246	1414.0	1.5083	**920**
940	0.4174	1443.2	1.5489	0.3707	1435.6	1.5331	0.3325	1427.9	1.5184	**940**
960	0.4262	1456.0	1.5580	0.3789	1448.9	1.5425	0.3401	1441.6	1.5281	**960**
980	0.4348	1468.7	1.5669	0.3869	1462.0	1.5517	0.3477	1455.0	1.5375	**980**
1000	0.4433	1481.3	1.5756	0.3948	1474.9	1.5606	0.3550	1468.3	1.5466	**1000**
1020	0.4517	1493.8	1.5841	0.4026	1487.6	1.5693	0.3623	1481.4	1.5555	**1020**
1040	0.4600	1506.2	1.5924	0.4102	1500.3	1.5778	0.3694	1494.3	1.5642	**1040**
1060	0.4682	1518.5	1.6006	0.4178	1512.8	1.5861	0.3765	1507.1	1.5727	**1060**
1080	0.4763	1530.7	1.6085	0.4253	1525.3	1.5942	0.3834	1519.8	1.5810	**1080**
1100	0.4844	1542.8	1.6164	0.4327	1537.6	1.6022	0.3903	1532.4	1.5891	**1100**
1120	0.4924	1554.9	1.6241	0.4400	1549.9	1.6100	0.3971	1544.9	1.5971	**1120**
1140	0.5003	1567.0	1.6317	0.4472	1562.2	1.6177	0.4038	1557.3	1.6049	**1140**
1160	0.5081	1579.0	1.6391	0.4544	1574.4	1.6253	0.4105	1569.7	1.6126	**1160**
1180	0.5159	1591.0	1.6465	0.4615	1586.5	1.6328	0.4171	1582.0	1.6201	**1180**
1200	0.5236	1602.9	1.6537	0.4686	1598.6	1.6401	0.4236	1594.3	1.6276	**1200**
1220	0.5313	1614.8	1.6609	0.4756	1610.7	1.6473	0.4301	1606.5	1.6349	**1220**
1240	0.5389	1626.7	1.6679	0.4826	1622.7	1.6544	0.4366	1618.7	1.6421	**1240**
1260	0.5465	1638.6	1.6748	0.4895	1634.7	1.6615	0.4430	1630.8	1.6492	**1260**
1280	0.5540	1650.5	1.6817	0.4964	1646.7	1.6684	0.4493	1643.0	1.6562	**1280**
1300	0.5615	1662.3	1.6885	0.5033	1658.7	1.6752	0.4556	1655.1	1.6631	**1300**
1320	0.5690	1674.2	1.6952	0.5101	1670.7	1.6820	0.4619	1667.1	1.6699	**1320**
1340	0.5764	1686.0	1.7018	0.5169	1682.6	1.6887	0.4682	1679.2	1.6767	**1340**
1360	0.5838	1697.8	1.7083	0.5236	1694.5	1.6953	0.4744	1691.3	1.6833	**1360**
1380	0.5912	1709.7	1.7148	0.5303	1706.5	1.7018	0.4805	1703.3	1.6899	**1380**
1400	0.5986	1721.5	1.7212	0.5370	1718.4	1.7083	0.4867	1715.3	1.6964	**1400**
1420	0.6059	1733.4	1.7275	0.5437	1730.4	1.7146	0.4928	1727.3	1.7029	**1420**
1440	0.6132	1745.2	1.7338	0.5503	1742.3	1.7210	0.4989	1739.4	1.7092	**1440**
1460	0.6205	1757.1	1.7400	0.5569	1754.2	1.7272	0.5050	1751.4	1.7155	**1460**
1480	0.6277	1768.9	1.7462	0.5635	1766.2	1.7334	0.5110	1763.4	1.7217	**1480**
1500	0.6349	1780.8	1.7522	0.5701	1778.1	1.7395	0.5171	1775.5	1.7279	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**2400 psia** (t_{sat} = 662.16 °F)			**2600 psia** (t_{sat} = 673.98 °F)			**2800 psia** (t_{sat} = 685.03 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.027 89	718.67	0.9027	0.029 38	743.27	0.9236	0.031 34	770.20	0.9462	Sat. Liq.
Sat. Vap.	0.1407	1101.9	1.2443	0.1211	1080.2	1.2208	0.1029	1053.4	1.1936	Sat. Vap.
32	0.015 890	7.141	0.0001	0.015 880	7.730	0.0001	0.015 869	8.317	0.0001	**32**
40	0.015 892	15.054	0.0161	0.015 882	15.632	0.0161	0.015 872	16.210	0.0160	**40**
50	0.015 900	24.938	0.0357	0.015 890	25.505	0.0356	0.015 880	26.071	0.0356	**50**
60	0.015 914	34.819	0.0549	0.015 905	35.376	0.0548	0.015 895	35.932	0.0547	**60**
70	0.015 933	44.700	0.0737	0.015 924	45.247	0.0736	0.015 914	45.794	0.0735	**70**
80	0.015 957	54.581	0.0922	0.015 947	55.120	0.0921	0.015 938	55.658	0.0920	**80**
90	0.015 985	64.464	0.1103	0.015 975	64.995	0.1102	0.015 966	65.525	0.1101	**90**
100	0.016 016	74.349	0.1281	0.016 007	74.873	0.1280	0.015 997	75.396	0.1279	**100**
110	0.016 051	84.238	0.1457	0.016 042	84.754	0.1455	0.016 032	85.270	0.1454	**110**
120	0.016 090	94.131	0.1629	0.016 080	94.640	0.1627	0.016 071	95.149	0.1626	**120**
130	0.016 131	104.03	0.1798	0.016 122	104.53	0.1796	0.016 113	105.03	0.1795	**130**
140	0.016 176	113.93	0.1965	0.016 167	114.43	0.1963	0.016 157	114.92	0.1961	**140**
150	0.016 224	123.84	0.2128	0.016 214	124.33	0.2127	0.016 205	124.82	0.2125	**150**
160	0.016 275	133.76	0.2290	0.016 265	134.24	0.2288	0.016 255	134.73	0.2286	**160**
170	0.016 328	143.69	0.2449	0.016 319	144.16	0.2447	0.016 309	144.64	0.2445	**170**
180	0.016 385	153.63	0.2605	0.016 375	154.10	0.2603	0.016 365	154.56	0.2601	**180**
190	0.016 444	163.57	0.2760	0.016 434	164.04	0.2757	0.016 424	164.50	0.2755	**190**
200	0.016 506	173.54	0.2912	0.016 496	173.99	0.2909	0.016 485	174.45	0.2907	**200**
210	0.016 571	183.51	0.3062	0.016 560	183.96	0.3059	0.016 550	184.41	0.3057	**210**
220	0.016 638	193.50	0.3210	0.016 628	193.94	0.3207	0.016 617	194.39	0.3205	**220**
230	0.016 709	203.51	0.3356	0.016 698	203.94	0.3353	0.016 687	204.38	0.3351	**230**
240	0.016 782	213.53	0.3500	0.016 771	213.96	0.3498	0.016 759	214.39	0.3495	**240**
250	0.016 858	223.57	0.3643	0.016 846	223.99	0.3640	0.016 835	224.41	0.3637	**250**
260	0.016 937	233.63	0.3784	0.016 925	234.05	0.3781	0.016 913	234.46	0.3778	**260**
270	0.017 019	243.72	0.3923	0.017 006	244.12	0.3920	0.016 994	244.53	0.3917	**270**
280	0.017 103	253.82	0.4060	0.017 091	254.22	0.4057	0.017 078	254.62	0.4054	**280**
290	0.017 191	263.96	0.4196	0.017 178	264.34	0.4193	0.017 165	264.73	0.4190	**290**
300	0.017 283	274.11	0.4331	0.017 269	274.49	0.4328	0.017 255	274.87	0.4324	**300**
310	0.017 377	284.30	0.4464	0.017 363	284.67	0.4461	0.017 349	285.04	0.4457	**310**
320	0.017 475	294.52	0.4596	0.017 460	294.88	0.4593	0.017 446	295.24	0.4589	**320**
330	0.017 576	304.77	0.4727	0.017 561	305.12	0.4723	0.017 546	305.47	0.4719	**330**
340	0.017 681	315.06	0.4856	0.017 666	315.39	0.4852	0.017 650	315.73	0.4848	**340**
350	0.017 790	325.38	0.4985	0.017 774	325.71	0.4980	0.017 758	326.04	0.4976	**350**
360	0.017 903	335.75	0.5112	0.017 886	336.06	0.5108	0.017 869	336.38	0.5103	**360**
370	0.018 021	346.15	0.5238	0.018 003	346.46	0.5234	0.017 985	346.76	0.5229	**370**
380	0.018 142	356.61	0.5363	0.018 123	356.90	0.5359	0.018 105	357.19	0.5354	**380**
390	0.018 269	367.12	0.5488	0.018 249	367.39	0.5483	0.018 229	367.66	0.5478	**390**
400	0.018 400	377.68	0.5611	0.018 379	377.93	0.5606	0.018 359	378.19	0.5601	**400**
410	0.018 536	388.30	0.5734	0.018 515	388.53	0.5729	0.018 493	388.78	0.5724	**410**
420	0.018 679	398.98	0.5856	0.018 656	399.20	0.5851	0.018 633	399.42	0.5846	**420**
430	0.018 827	409.73	0.5978	0.018 802	409.93	0.5972	0.018 778	410.13	0.5967	**430**
440	0.018 981	420.55	0.6099	0.018 955	420.73	0.6093	0.018 930	420.92	0.6087	**440**
450	0.019 143	431.46	0.6219	0.019 115	431.61	0.6213	0.019 088	431.77	0.6207	**450**
460	0.019 312	442.45	0.6339	0.019 282	442.58	0.6333	0.019 254	442.71	0.6327	**460**
470	0.019 488	453.54	0.6459	0.019 457	453.64	0.6453	0.019 426	453.74	0.6446	**470**
480	0.019 674	464.72	0.6579	0.019 641	464.79	0.6572	0.019 608	464.87	0.6565	**480**
490	0.019 869	476.02	0.6699	0.019 833	476.06	0.6691	0.019 798	476.10	0.6684	**490**
500	0.020 074	487.45	0.6818	0.020 036	487.44	0.6811	0.019 998	487.45	0.6803	**500**
510	0.020 291	499.00	0.6938	0.020 249	498.96	0.6930	0.020 208	498.92	0.6922	**510**
520	0.020 521	510.71	0.7058	0.020 475	510.62	0.7049	0.020 431	510.54	0.7041	**520**
530	0.020 764	522.58	0.7179	0.020 715	522.43	0.7169	0.020 666	522.30	0.7160	**530**
540	0.021 024	534.63	0.7300	0.020 970	534.42	0.7290	0.020 917	534.23	0.7280	**540**
550	0.021 301	546.88	0.7422	0.021 241	546.61	0.7411	0.021 183	546.35	0.7401	**550**
560	0.021 599	559.37	0.7545	0.021 533	559.01	0.7534	0.021 468	558.68	0.7522	**560**
570	0.021 921	572.11	0.7669	0.021 847	571.66	0.7657	0.021 775	571.24	0.7645	**570**
580	0.022 271	585.16	0.7795	0.022 186	584.60	0.7782	0.022 105	584.08	0.7769	**580**
590	0.022 653	598.56	0.7924	0.022 557	597.87	0.7909	0.022 465	597.22	0.7895	**590**
600	0.023 076	612.38	0.8055	0.022 965	611.52	0.8039	0.022 859	610.72	0.8023	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**2400 psia** (t_{sat} = 662.16 °F)			**2600 psia** (t_{sat} = 673.98 °F)			**2800 psia** (t_{sat} = 685.03 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.023 55	626.70	0.8189	0.023 42	625.63	0.8171	0.023 29	624.64	0.8154	**610**
620	0.024 08	641.65	0.8328	0.023 93	640.31	0.8308	0.023 78	639.08	0.8288	**620**
630	0.024 70	657.39	0.8473	0.024 51	655.69	0.8449	0.024 33	654.15	0.8427	**630**
640	0.025 43	674.20	0.8627	0.025 19	672.00	0.8598	0.024 97	670.02	0.8572	**640**
650	0.026 34	692.57	0.8793	0.026 01	689.57	0.8757	0.025 72	686.96	0.8725	**650**
660	0.027 56	713.56	0.8982	0.027 05	709.08	0.8932	0.026 65	705.42	0.8891	**660**
670	0.1526	1128.0	1.2675	0.028 54	732.17	0.9138	0.027 87	726.39	0.9077	**670**
680	0.1643	1153.0	1.2896	0.1318	1106.4	1.2438	0.029 74	752.36	0.9306	**680**
690	0.1741	1173.4	1.3074	0.1446	1136.7	1.2703	0.1138	1083.5	1.2198	**690**
700	0.1827	1191.0	1.3226	0.1548	1160.0	1.2905	0.1280	1120.6	1.2520	**700**
710	0.1905	1206.7	1.3361	0.1635	1179.6	1.3073	0.1385	1147.1	1.2748	**710**
720	0.1976	1221.0	1.3482	0.1712	1196.8	1.3220	0.1474	1168.8	1.2932	**720**
730	0.2043	1234.1	1.3594	0.1783	1212.2	1.3350	0.1551	1187.4	1.3090	**730**
740	0.2105	1246.4	1.3697	0.1848	1226.3	1.3468	0.1621	1204.0	1.3228	**740**
750	0.2164	1258.0	1.3793	0.1909	1239.4	1.3577	0.1685	1219.0	1.3353	**750**
760	0.2221	1269.0	1.3883	0.1967	1251.7	1.3678	0.1745	1232.9	1.3467	**760**
770	0.2275	1279.6	1.3969	0.2022	1263.3	1.3772	0.1801	1245.8	1.3573	**770**
780	0.2327	1289.6	1.4051	0.2074	1274.3	1.3862	0.1854	1258.0	1.3671	**780**
790	0.2378	1299.4	1.4129	0.2124	1284.9	1.3946	0.1904	1269.5	1.3764	**790**
800	0.2426	1308.8	1.4204	0.2173	1295.0	1.4027	0.1953	1280.5	1.3852	**800**
820	0.2520	1326.7	1.4345	0.2265	1314.2	1.4179	0.2044	1301.2	1.4015	**820**
840	0.2608	1343.7	1.4478	0.2352	1332.3	1.4319	0.2130	1320.5	1.4164	**840**
860	0.2693	1360.1	1.4602	0.2434	1349.5	1.4450	0.2211	1338.6	1.4303	**860**
880	0.2775	1375.7	1.4720	0.2513	1366.0	1.4574	0.2288	1355.9	1.4433	**880**
900	0.2854	1390.9	1.4833	0.2589	1381.8	1.4692	0.2362	1372.5	1.4555	**900**
920	0.2931	1405.7	1.4940	0.2663	1397.2	1.4804	0.2433	1388.4	1.4672	**920**
940	0.3005	1420.1	1.5044	0.2734	1412.1	1.4911	0.2502	1403.9	1.4783	**940**
960	0.3078	1434.2	1.5144	0.2804	1426.6	1.5014	0.2568	1418.9	1.4890	**960**
980	0.3149	1448.0	1.5241	0.2871	1440.9	1.5114	0.2633	1433.6	1.4992	**980**
1000	0.3219	1461.6	1.5335	0.2938	1454.8	1.5210	0.2697	1447.9	1.5092	**1000**
1020	0.3287	1475.0	1.5426	0.3003	1468.6	1.5304	0.2759	1462.0	1.5187	**1020**
1040	0.3354	1488.2	1.5515	0.3066	1482.1	1.5394	0.2819	1475.9	1.5280	**1040**
1060	0.3421	1501.3	1.5601	0.3129	1495.5	1.5483	0.2879	1489.5	1.5371	**1060**
1080	0.3486	1514.3	1.5686	0.3191	1508.7	1.5569	0.2938	1503.0	1.5459	**1080**
1100	0.3550	1527.1	1.5769	0.3251	1521.7	1.5654	0.2995	1516.3	1.5545	**1100**
1120	0.3614	1539.8	1.5850	0.3311	1534.7	1.5736	0.3052	1529.5	1.5629	**1120**
1140	0.3677	1552.5	1.5929	0.3371	1547.5	1.5817	0.3108	1542.6	1.5711	**1140**
1160	0.3739	1565.0	1.6007	0.3429	1560.3	1.5896	0.3163	1555.5	1.5792	**1160**
1180	0.3800	1577.5	1.6084	0.3487	1573.0	1.5974	0.3218	1568.4	1.5870	**1180**
1200	0.3861	1589.9	1.6159	0.3544	1585.6	1.6050	0.3272	1581.2	1.5948	**1200**
1220	0.3922	1602.3	1.6233	0.3601	1598.1	1.6125	0.3326	1593.9	1.6024	**1220**
1240	0.3982	1614.7	1.6306	0.3657	1610.6	1.6199	0.3379	1606.5	1.6099	**1240**
1260	0.4041	1626.9	1.6378	0.3713	1623.0	1.6272	0.3431	1619.1	1.6172	**1260**
1280	0.4100	1639.2	1.6449	0.3768	1635.4	1.6344	0.3484	1631.6	1.6245	**1280**
1300	0.4159	1651.4	1.6519	0.3823	1647.8	1.6414	0.3535	1644.1	1.6316	**1300**
1320	0.4217	1663.6	1.6588	0.3878	1660.1	1.6484	0.3587	1656.5	1.6386	**1320**
1340	0.4275	1675.8	1.6656	0.3932	1672.4	1.6552	0.3637	1668.9	1.6456	**1340**
1360	0.4333	1687.9	1.6723	0.3986	1684.6	1.6620	0.3688	1681.3	1.6524	**1360**
1380	0.4390	1700.1	1.6789	0.4039	1696.9	1.6687	0.3738	1693.6	1.6591	**1380**
1400	0.4447	1712.2	1.6855	0.4092	1709.1	1.6753	0.3788	1706.0	1.6658	**1400**
1420	0.4504	1724.3	1.6920	0.4145	1721.3	1.6819	0.3838	1718.3	1.6724	**1420**
1440	0.4561	1736.4	1.6984	0.4198	1733.5	1.6883	0.3887	1730.6	1.6789	**1440**
1460	0.4617	1748.6	1.7047	0.4251	1745.7	1.6947	0.3937	1742.9	1.6853	**1460**
1480	0.4673	1760.7	1.7110	0.4303	1757.9	1.7010	0.3986	1755.1	1.6917	**1480**
1500	0.4729	1772.8	1.7172	0.4355	1770.1	1.7073	0.4034	1767.4	1.6980	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**3000 psia** (t_{sat} = 695.41 °F)			**3200 psia** (t_{sat} = 705.10 °F)			**3400 psia**			t (°F)
	v	h	s	v	h	s	v	h	s	
Sat. Liq.	0.034 38	802.90	0.9736	0.048 97	893.85	1.0507				Sat. Liq.
Sat. Vap.	0.084 53	1016.5	1.1585	0.050 52	901.07	1.0569				Sat. Vap.
32	0.015 859	8.904	0.0001	0.015 848	9.489	0.0001	0.015 838	10.074	0.0001	**32**
40	0.015 861	16.786	0.0160	0.015 851	17.362	0.0160	0.015 841	17.936	0.0160	**40**
50	0.015 870	26.636	0.0355	0.015 861	27.201	0.0355	0.015 851	27.764	0.0354	**50**
60	0.015 885	36.487	0.0547	0.015 875	37.042	0.0546	0.015 866	37.596	0.0545	**60**
70	0.015 905	46.340	0.0735	0.015 895	46.886	0.0734	0.015 886	47.431	0.0733	**70**
80	0.015 929	56.196	0.0919	0.015 919	56.734	0.0918	0.015 910	57.271	0.0917	**80**
90	0.015 956	66.056	0.1100	0.015 947	66.585	0.1099	0.015 938	67.114	0.1098	**90**
100	0.015 988	75.919	0.1278	0.015 979	76.441	0.1276	0.015 970	76.963	0.1275	**100**
110	0.016 023	85.786	0.1452	0.016 014	86.301	0.1451	0.016 005	86.816	0.1450	**110**
120	0.016 062	95.658	0.1624	0.016 052	96.166	0.1623	0.016 043	96.674	0.1621	**120**
130	0.016 103	105.54	0.1793	0.016 094	106.04	0.1792	0.016 085	106.54	0.1790	**130**
140	0.016 148	115.42	0.1959	0.016 138	115.91	0.1958	0.016 129	116.41	0.1956	**140**
150	0.016 195	125.31	0.2123	0.016 186	125.80	0.2121	0.016 177	126.29	0.2119	**150**
160	0.016 246	135.21	0.2284	0.016 236	135.69	0.2282	0.016 227	136.17	0.2280	**160**
170	0.016 299	145.12	0.2443	0.016 289	145.59	0.2441	0.016 280	146.07	0.2439	**170**
180	0.016 355	155.03	0.2599	0.016 345	155.50	0.2597	0.016 335	155.97	0.2595	**180**
190	0.016 414	164.96	0.2753	0.016 404	165.43	0.2751	0.016 394	165.89	0.2749	**190**
200	0.016 475	174.90	0.2905	0.016 465	175.36	0.2902	0.016 455	175.82	0.2900	**200**
210	0.016 539	184.86	0.3055	0.016 529	185.31	0.3052	0.016 519	185.76	0.3050	**210**
220	0.016 606	194.83	0.3202	0.016 596	195.27	0.3200	0.016 585	195.71	0.3197	**220**
230	0.016 676	204.81	0.3348	0.016 665	205.25	0.3346	0.016 654	205.69	0.3343	**230**
240	0.016 748	214.81	0.3492	0.016 737	215.24	0.3489	0.016 726	215.67	0.3487	**240**
250	0.016 823	224.83	0.3634	0.016 812	225.26	0.3632	0.016 800	225.68	0.3629	**250**
260	0.016 901	234.87	0.3775	0.016 889	235.29	0.3772	0.016 878	235.70	0.3769	**260**
270	0.016 982	244.93	0.3914	0.016 970	245.34	0.3911	0.016 958	245.75	0.3908	**270**
280	0.017 066	255.02	0.4051	0.017 053	255.41	0.4048	0.017 041	255.81	0.4045	**280**
290	0.017 152	265.12	0.4187	0.017 139	265.51	0.4183	0.017 126	265.90	0.4180	**290**
300	0.017 242	275.25	0.4321	0.017 229	275.64	0.4317	0.017 215	276.02	0.4314	**300**
310	0.017 335	285.41	0.4454	0.017 321	285.79	0.4450	0.017 308	286.16	0.4447	**310**
320	0.017 431	295.60	0.4585	0.017 417	295.96	0.4582	0.017 403	296.33	0.4578	**320**
330	0.017 531	305.82	0.4715	0.017 516	306.17	0.4712	0.017 501	306.53	0.4708	**330**
340	0.017 634	316.08	0.4845	0.017 619	316.42	0.4841	0.017 604	316.76	0.4837	**340**
350	0.017 741	326.37	0.4972	0.017 725	326.70	0.4968	0.017 709	327.03	0.4964	**350**
360	0.017 852	336.69	0.5099	0.017 835	337.01	0.5095	0.017 819	337.33	0.5091	**360**
370	0.017 967	347.06	0.5225	0.017 950	347.37	0.5221	0.017 932	347.68	0.5216	**370**
380	0.018 086	357.48	0.5350	0.018 068	357.77	0.5345	0.018 050	358.07	0.5341	**380**
390	0.018 210	367.94	0.5474	0.018 191	368.22	0.5469	0.018 172	368.50	0.5464	**390**
400	0.018 338	378.45	0.5597	0.018 318	378.72	0.5592	0.018 298	378.98	0.5587	**400**
410	0.018 472	389.02	0.5719	0.018 450	389.27	0.5714	0.018 429	389.52	0.5709	**410**
420	0.018 610	399.65	0.5840	0.018 588	399.88	0.5835	0.018 566	400.11	0.5830	**420**
430	0.018 754	410.34	0.5961	0.018 731	410.55	0.5956	0.018 708	410.77	0.5950	**430**
440	0.018 905	421.10	0.6081	0.018 880	421.29	0.6076	0.018 855	421.49	0.6070	**440**
450	0.019 061	431.94	0.6201	0.019 035	432.11	0.6195	0.019 009	432.28	0.6189	**450**
460	0.019 225	442.85	0.6321	0.019 197	443.00	0.6314	0.019 169	443.15	0.6308	**460**
470	0.019 396	453.86	0.6440	0.019 366	453.98	0.6433	0.019 337	454.10	0.6427	**470**
480	0.019 575	464.95	0.6558	0.019 543	465.04	0.6552	0.019 512	465.14	0.6545	**480**
490	0.019 763	476.15	0.6677	0.019 729	476.21	0.6670	0.019 696	476.28	0.6663	**490**
500	0.019 960	487.47	0.6795	0.019 924	487.49	0.6788	0.019 888	487.52	0.6781	**500**
510	0.020 168	498.90	0.6914	0.020 129	498.89	0.6906	0.020 090	498.88	0.6898	**510**
520	0.020 387	510.47	0.7033	0.020 345	510.41	0.7024	0.020 303	510.37	0.7016	**520**
530	0.020 619	522.18	0.7152	0.020 573	522.08	0.7143	0.020 528	521.99	0.7134	**530**
540	0.020 865	534.06	0.7271	0.020 814	533.90	0.7262	0.020 765	533.76	0.7252	**540**
550	0.021 126	546.11	0.7391	0.021 071	545.90	0.7381	0.021 017	545.70	0.7371	**550**
560	0.021 406	558.37	0.7512	0.021 345	558.08	0.7501	0.021 286	557.82	0.7491	**560**
570	0.021 705	570.85	0.7633	0.021 638	570.48	0.7622	0.021 572	570.14	0.7611	**570**
580	0.022 028	583.59	0.7757	0.021 952	583.13	0.7744	0.021 880	582.69	0.7732	**580**
590	0.022 377	596.61	0.7881	0.022 292	596.04	0.7868	0.022 211	595.51	0.7855	**590**
600	0.022 758	609.97	0.8008	0.022 662	609.27	0.7993	0.022 570	608.62	0.7979	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	**3000 psia** (t_{sat} = 695.41 °F)			**3200 psia** (t_{sat} = 705.10 °F)			**3400 psia**			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.023 18	623.72	0.8137	0.023 07	622.87	0.8121	0.022 96	622.07	0.8106	**610**
620	0.023 64	637.94	0.8269	0.023 51	636.89	0.8252	0.023 39	635.91	0.8234	**620**
630	0.024 17	652.74	0.8406	0.024 01	651.43	0.8386	0.023 87	650.23	0.8366	**630**
640	0.024 77	668.24	0.8547	0.024 58	666.61	0.8524	0.024 41	665.12	0.8503	**640**
650	0.025 46	684.65	0.8696	0.025 23	682.59	0.8669	0.025 02	680.72	0.8644	**650**
660	0.026 30	702.32	0.8854	0.026 00	699.62	0.8822	0.025 74	697.23	0.8792	**660**
670	0.027 36	721.87	0.9028	0.026 94	718.15	0.8986	0.026 59	714.96	0.8949	**670**
680	0.028 82	744.66	0.9229	0.028 17	739.01	0.9170	0.027 66	734.50	0.9122	**680**
690	0.031 28	774.83	0.9493	0.029 94	764.09	0.9389	0.029 09	756.92	0.9317	**690**
700	0.098 36	1059.8	1.1959	0.033 39	800.76	0.9707	0.031 28	784.93	0.9560	**700**
710	0.1140	1105.2	1.2349	0.085 59	1037.2	1.1736	0.036 46	832.11	0.9965	**710**
720	0.1249	1135.0	1.2603	0.1025	1091.2	1.2196	0.076 05	1019.5	1.1561	**720**
730	0.1338	1158.7	1.2803	0.1136	1124.1	1.2474	0.093 18	1079.3	1.2066	**730**
740	0.1415	1178.8	1.2971	0.1224	1149.6	1.2688	0.1042	1114.8	1.2362	**740**
750	0.1484	1196.4	1.3118	0.1300	1171.0	1.2866	0.1129	1141.8	1.2587	**750**
760	0.1547	1212.4	1.3249	0.1368	1189.7	1.3019	0.1203	1164.3	1.2772	**760**
770	0.1605	1226.9	1.3368	0.1429	1206.4	1.3156	0.1269	1183.8	1.2931	**770**
780	0.1659	1240.5	1.3478	0.1486	1221.6	1.3279	0.1329	1201.2	1.3072	**780**
790	0.1711	1253.2	1.3580	0.1539	1235.7	1.3392	0.1384	1217.0	1.3199	**790**
800	0.1760	1265.2	1.3675	0.1589	1248.9	1.3497	0.1435	1231.6	1.3316	**800**
820	0.1852	1287.5	1.3851	0.1681	1273.2	1.3688	0.1529	1258.1	1.3524	**820**
840	0.1937	1308.1	1.4011	0.1766	1295.3	1.3860	0.1614	1281.8	1.3708	**840**
860	0.2016	1327.4	1.4158	0.1845	1315.7	1.4016	0.1693	1303.6	1.3875	**860**
880	0.2092	1345.5	1.4295	0.1919	1334.9	1.4160	0.1767	1323.9	1.4027	**880**
900	0.2164	1362.9	1.4423	0.1990	1353.0	1.4294	0.1836	1342.9	1.4168	**900**
920	0.2233	1379.5	1.4545	0.2058	1370.3	1.4421	0.1902	1361.0	1.4300	**920**
940	0.2300	1395.5	1.4660	0.2122	1387.0	1.4541	0.1966	1378.3	1.4424	**940**
960	0.2364	1411.1	1.4770	0.2185	1403.1	1.4655	0.2027	1394.9	1.4543	**960**
980	0.2427	1426.2	1.4876	0.2245	1418.7	1.4764	0.2085	1411.0	1.4655	**980**
1000	0.2487	1441.0	1.4978	0.2304	1433.9	1.4869	0.2143	1426.6	1.4763	**1000**
1020	0.2547	1455.4	1.5076	0.2362	1448.7	1.4970	0.2198	1441.9	1.4867	**1020**
1040	0.2605	1469.6	1.5172	0.2418	1463.2	1.5067	0.2252	1456.8	1.4967	**1040**
1060	0.2662	1483.6	1.5264	0.2472	1477.5	1.5162	0.2305	1471.4	1.5063	**1060**
1080	0.2718	1497.3	1.5354	0.2526	1491.5	1.5253	0.2357	1485.7	1.5157	**1080**
1100	0.2773	1510.9	1.5442	0.2579	1505.4	1.5343	0.2407	1499.8	1.5248	**1100**
1120	0.2827	1524.3	1.5527	0.2631	1519.0	1.5430	0.2457	1513.7	1.5337	**1120**
1140	0.2881	1537.6	1.5611	0.2682	1532.5	1.5515	0.2506	1527.5	1.5423	**1140**
1160	0.2933	1550.7	1.5692	0.2732	1545.9	1.5598	0.2554	1541.0	1.5507	**1160**
1180	0.2985	1563.8	1.5772	0.2781	1559.1	1.5679	0.2602	1554.5	1.5590	**1180**
1200	0.3037	1576.7	1.5851	0.2830	1572.3	1.5759	0.2648	1567.8	1.5671	**1200**
1220	0.3087	1589.6	1.5928	0.2879	1585.3	1.5837	0.2695	1581.0	1.5750	**1220**
1240	0.3138	1602.4	1.6004	0.2927	1598.3	1.5913	0.2740	1594.1	1.5827	**1240**
1260	0.3187	1615.1	1.6078	0.2974	1611.1	1.5989	0.2786	1607.1	1.5904	**1260**
1280	0.3237	1627.8	1.6151	0.3021	1623.9	1.6063	0.2830	1620.1	1.5978	**1280**
1300	0.3286	1640.4	1.6223	0.3067	1636.7	1.6136	0.2875	1633.0	1.6052	**1300**
1320	0.3334	1653.0	1.6294	0.3113	1649.4	1.6207	0.2919	1645.8	1.6124	**1320**
1340	0.3382	1665.5	1.6364	0.3159	1662.0	1.6278	0.2962	1658.5	1.6196	**1340**
1360	0.3430	1678.0	1.6433	0.3204	1674.6	1.6347	0.3005	1671.3	1.6266	**1360**
1380	0.3478	1690.4	1.6501	0.3249	1687.2	1.6416	0.3048	1683.9	1.6335	**1380**
1400	0.3525	1702.8	1.6569	0.3294	1699.7	1.6484	0.3091	1696.6	1.6403	**1400**
1420	0.3572	1715.2	1.6635	0.3339	1712.2	1.6551	0.3133	1709.2	1.6471	**1420**
1440	0.3618	1727.6	1.6700	0.3383	1724.7	1.6617	0.3175	1721.7	1.6537	**1440**
1460	0.3665	1740.0	1.6765	0.3427	1737.1	1.6682	0.3217	1734.3	1.6603	**1460**
1480	0.3711	1752.4	1.6829	0.3470	1749.6	1.6746	0.3258	1746.8	1.6668	**1480**
1500	0.3757	1764.7	1.6893	0.3514	1762.0	1.6810	0.3299	1759.3	1.6732	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	3600 psia			4000 psia			4500 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
32	0.015 827	10.657	0.0001	0.015 807	11.820	0.0001	0.015 781	13.268	0.0001	**32**
40	0.015 831	18.509	0.0159	0.015 811	19.653	0.0159	0.015 786	21.078	0.0158	**40**
50	0.015 841	28.327	0.0354	0.015 821	29.450	0.0353	0.015 797	30.849	0.0352	**50**
60	0.015 856	38.149	0.0545	0.015 837	39.253	0.0543	0.015 814	40.629	0.0542	**60**
70	0.015 876	47.975	0.0732	0.015 857	49.062	0.0730	0.015 834	50.417	0.0728	**70**
80	0.015 900	57.807	0.0916	0.015 882	58.878	0.0914	0.015 859	60.213	0.0912	**80**
90	0.015 929	67.643	0.1097	0.015 910	68.699	0.1094	0.015 888	70.017	0.1092	**90**
100	0.015 960	77.484	0.1274	0.015 942	78.526	0.1272	0.015 920	79.826	0.1268	**100**
110	0.015 996	87.331	0.1448	0.015 977	88.359	0.1446	0.015 955	89.642	0.1442	**110**
120	0.016 034	97.182	0.1620	0.016 016	98.197	0.1617	0.015 993	99.464	0.1613	**120**
130	0.016 075	107.04	0.1788	0.016 057	108.04	0.1785	0.016 034	109.29	0.1781	**130**
140	0.016 120	116.90	0.1954	0.016 101	117.89	0.1951	0.016 079	119.13	0.1947	**140**
150	0.016 167	126.78	0.2118	0.016 149	127.75	0.2114	0.016 126	128.97	0.2109	**150**
160	0.016 217	136.66	0.2278	0.016 199	137.62	0.2275	0.016 175	138.82	0.2270	**160**
170	0.016 270	146.54	0.2437	0.016 251	147.50	0.2433	0.016 228	148.68	0.2428	**170**
180	0.016 326	156.44	0.2593	0.016 306	157.38	0.2588	0.016 282	158.56	0.2583	**180**
190	0.016 384	166.35	0.2746	0.016 364	167.28	0.2742	0.016 340	168.44	0.2736	**190**
200	0.016 445	176.27	0.2898	0.016 425	177.19	0.2893	0.016 400	178.33	0.2888	**200**
210	0.016 508	186.21	0.3047	0.016 488	187.11	0.3043	0.016 463	188.24	0.3037	**210**
220	0.016 574	196.16	0.3195	0.016 554	197.05	0.3190	0.016 528	198.16	0.3184	**220**
230	0.016 643	206.12	0.3340	0.016 622	207.00	0.3335	0.016 596	208.09	0.3329	**230**
240	0.016 715	216.10	0.3484	0.016 693	216.96	0.3479	0.016 666	218.04	0.3472	**240**
250	0.016 789	226.10	0.3626	0.016 766	226.95	0.3620	0.016 739	228.01	0.3613	**250**
260	0.016 866	236.12	0.3766	0.016 843	236.95	0.3760	0.016 814	237.99	0.3753	**260**
270	0.016 946	246.16	0.3905	0.016 922	246.97	0.3899	0.016 893	248.00	0.3891	**270**
280	0.017 028	256.21	0.4041	0.017 004	257.01	0.4035	0.016 974	258.02	0.4028	**280**
290	0.017 114	266.29	0.4177	0.017 088	267.08	0.4170	0.017 057	268.07	0.4163	**290**
300	0.017 202	276.40	0.4311	0.017 176	277.17	0.4304	0.017 144	278.13	0.4296	**300**
310	0.017 294	286.53	0.4443	0.017 267	287.28	0.4436	0.017 234	288.23	0.4428	**310**
320	0.017 389	296.69	0.4574	0.017 361	297.43	0.4567	0.017 326	298.35	0.4559	**320**
330	0.017 487	306.88	0.4704	0.017 458	307.60	0.4697	0.017 422	308.49	0.4688	**330**
340	0.017 588	317.11	0.4833	0.017 558	317.80	0.4825	0.017 521	318.67	0.4816	**340**
350	0.017 693	327.36	0.4960	0.017 662	328.03	0.4953	0.017 624	328.88	0.4943	**350**
360	0.017 802	337.66	0.5087	0.017 770	338.30	0.5079	0.017 730	339.12	0.5069	**360**
370	0.017 915	347.99	0.5212	0.017 881	348.61	0.5204	0.017 839	349.40	0.5193	**370**
380	0.018 032	358.36	0.5336	0.017 996	358.96	0.5328	0.017 953	359.72	0.5317	**380**
390	0.018 153	368.78	0.5460	0.018 116	369.36	0.5451	0.018 070	370.08	0.5439	**390**
400	0.018 278	379.25	0.5582	0.018 239	379.79	0.5573	0.018 192	380.49	0.5561	**400**
410	0.018 409	389.77	0.5704	0.018 368	390.28	0.5694	0.018 318	390.94	0.5682	**410**
420	0.018 544	400.35	0.5825	0.018 501	400.83	0.5815	0.018 449	401.44	0.5802	**420**
430	0.018 685	410.98	0.5945	0.018 639	411.43	0.5934	0.018 584	412.00	0.5922	**430**
440	0.018 831	421.69	0.6065	0.018 783	422.09	0.6054	0.018 725	422.62	0.6040	**440**
450	0.018 983	432.46	0.6184	0.018 933	432.82	0.6172	0.018 872	433.30	0.6158	**450**
460	0.019 142	443.30	0.6302	0.019 089	443.62	0.6290	0.019 024	444.05	0.6276	**460**
470	0.019 308	454.23	0.6420	0.019 251	454.50	0.6408	0.019 182	454.87	0.6393	**470**
480	0.019 481	465.24	0.6538	0.019 421	465.46	0.6525	0.019 348	465.77	0.6509	**480**
490	0.019 663	476.35	0.6656	0.019 598	476.52	0.6642	0.019 520	476.75	0.6626	**490**
500	0.019 853	487.56	0.6773	0.019 784	487.66	0.6759	0.019 700	487.83	0.6742	**500**
510	0.020 052	498.89	0.6891	0.019 978	498.92	0.6876	0.019 889	499.00	0.6858	**510**
520	0.020 262	510.33	0.7008	0.020 182	510.29	0.6992	0.020 087	510.28	0.6973	**520**
530	0.020 483	521.91	0.7126	0.020 397	521.78	0.7109	0.020 294	521.68	0.7089	**530**
540	0.020 717	533.63	0.7244	0.020 624	533.41	0.7226	0.020 513	533.20	0.7205	**540**
550	0.020 965	545.51	0.7362	0.020 863	545.18	0.7343	0.020 743	544.85	0.7321	**550**
560	0.021 228	557.57	0.7481	0.021 117	557.12	0.7461	0.020 986	556.66	0.7437	**560**
570	0.021 509	569.82	0.7600	0.021 387	569.24	0.7579	0.021 244	568.63	0.7554	**570**
580	0.021 809	582.29	0.7721	0.021 675	581.56	0.7698	0.021 517	580.77	0.7671	**580**
590	0.022 132	595.01	0.7842	0.021 983	594.10	0.7818	0.021 809	593.11	0.7790	**590**
600	0.022 481	608.00	0.7966	0.022 314	606.89	0.7939	0.022 121	605.68	0.7909	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	3600 psia			4000 psia			4500 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.022 86	621.32	0.8091	0.022 67	619.96	0.8062	0.022 46	618.48	0.8029	**610**
620	0.023 28	635.00	0.8218	0.023 06	633.35	0.8187	0.022 82	631.57	0.8151	**620**
630	0.023 74	649.12	0.8348	0.023 49	647.12	0.8314	0.023 21	644.96	0.8274	**630**
640	0.024 25	663.76	0.8482	0.023 96	661.32	0.8443	0.023 64	658.72	0.8400	**640**
650	0.024 83	679.02	0.8620	0.024 48	676.03	0.8577	0.024 11	672.89	0.8528	**650**
660	0.025 49	695.08	0.8764	0.025 08	691.38	0.8714	0.024 64	687.56	0.8660	**660**
670	0.026 28	712.18	0.8916	0.025 76	707.49	0.8858	0.025 22	702.80	0.8795	**670**
680	0.027 23	730.73	0.9080	0.026 55	724.64	0.9009	0.025 89	718.77	0.8936	**680**
690	0.028 45	751.42	0.9260	0.027 51	743.16	0.9171	0.026 67	735.66	0.9084	**690**
700	0.030 14	775.67	0.9470	0.028 72	763.62	0.9348	0.027 59	753.73	0.9240	**700**
710	0.032 90	807.38	0.9743	0.030 32	787.09	0.9549	0.028 70	773.36	0.9409	**710**
720	0.040 73	868.80	1.0265	0.032 71	815.88	0.9794	0.030 12	795.21	0.9595	**720**
730	0.069 83	1009.9	1.1456	0.037 05	856.58	1.0138	0.032 02	820.39	0.9807	**730**
740	0.085 82	1070.3	1.1962	0.047 68	927.95	1.0735	0.034 79	851.02	1.0063	**740**
750	0.096 43	1107.2	1.2269	0.063 71	1009.2	1.1409	0.039 27	890.98	1.0395	**750**
760	0.1049	1135.4	1.2501	0.075 87	1061.5	1.1840	0.046 63	943.33	1.0826	**760**
770	0.1121	1158.7	1.2691	0.085 11	1098.1	1.2139	0.056 09	998.67	1.1278	**770**
780	0.1185	1178.9	1.2855	0.092 75	1127.0	1.2373	0.065 11	1044.7	1.1651	**780**
790	0.1243	1196.9	1.2999	0.099 34	1151.1	1.2567	0.072 89	1081.2	1.1944	**790**
800	0.1296	1213.2	1.3129	0.1052	1172.1	1.2734	0.079 65	1111.1	1.2183	**800**
820	0.1392	1242.2	1.3358	0.1155	1207.8	1.3015	0.091 03	1158.9	1.2559	**820**
840	0.1478	1267.9	1.3557	0.1244	1238.0	1.3250	0.1005	1196.8	1.2853	**840**
860	0.1557	1291.1	1.3734	0.1324	1264.6	1.3453	0.1087	1228.8	1.3098	**860**
880	0.1630	1312.5	1.3895	0.1397	1288.7	1.3634	0.1161	1257.0	1.3309	**880**
900	0.1699	1332.5	1.4043	0.1465	1310.9	1.3799	0.1229	1282.3	1.3497	**900**
920	0.1764	1351.4	1.4181	0.1528	1331.6	1.3950	0.1291	1305.6	1.3667	**920**
940	0.1826	1369.4	1.4311	0.1588	1351.1	1.4090	0.1350	1327.2	1.3823	**940**
960	0.1886	1386.6	1.4433	0.1646	1369.6	1.4222	0.1405	1347.6	1.3967	**960**
980	0.1943	1403.3	1.4549	0.1701	1387.4	1.4346	0.1458	1366.8	1.4102	**980**
1000	0.1999	1419.3	1.4660	0.1754	1404.4	1.4463	0.1509	1385.3	1.4229	**1000**
1020	0.2052	1435.0	1.4767	0.1805	1420.9	1.4576	0.1557	1402.9	1.4349	**1020**
1040	0.2105	1450.2	1.4869	0.1854	1437.0	1.4683	0.1604	1420.0	1.4464	**1040**
1060	0.2156	1465.2	1.4968	0.1903	1452.6	1.4787	0.1649	1436.6	1.4574	**1060**
1080	0.2206	1479.8	1.5064	0.1950	1467.9	1.4887	0.1694	1452.7	1.4679	**1080**
1100	0.2255	1494.2	1.5157	0.1996	1482.8	1.4983	0.1737	1468.4	1.4780	**1100**
1120	0.2303	1508.4	1.5247	0.2040	1497.5	1.5077	0.1778	1483.8	1.4879	**1120**
1140	0.2350	1522.3	1.5335	0.2085	1512.0	1.5168	0.1819	1498.9	1.4973	**1140**
1160	0.2396	1536.1	1.5421	0.2128	1526.3	1.5256	0.1860	1513.7	1.5066	**1160**
1180	0.2442	1549.8	1.5504	0.2170	1540.3	1.5343	0.1899	1528.3	1.5155	**1180**
1200	0.2487	1563.3	1.5586	0.2212	1554.2	1.5427	0.1938	1542.7	1.5242	**1200**
1220	0.2531	1576.7	1.5666	0.2253	1568.0	1.5509	0.1976	1557.0	1.5328	**1220**
1240	0.2575	1589.9	1.5745	0.2294	1581.6	1.5590	0.2013	1571.0	1.5411	**1240**
1260	0.2618	1603.1	1.5822	0.2334	1595.1	1.5669	0.2050	1584.9	1.5492	**1260**
1280	0.2661	1616.2	1.5898	0.2374	1608.5	1.5746	0.2086	1598.7	1.5572	**1280**
1300	0.2704	1629.2	1.5972	0.2413	1621.7	1.5822	0.2122	1612.3	1.5650	**1300**
1320	0.2746	1642.2	1.6045	0.2452	1635.0	1.5897	0.2158	1625.9	1.5726	**1320**
1340	0.2787	1655.1	1.6117	0.2490	1648.1	1.5970	0.2193	1639.3	1.5801	**1340**
1360	0.2829	1667.9	1.6188	0.2528	1661.1	1.6042	0.2228	1652.7	1.5875	**1360**
1380	0.2869	1680.7	1.6258	0.2566	1674.1	1.6113	0.2262	1666.0	1.5948	**1380**
1400	0.2910	1693.4	1.6327	0.2603	1687.1	1.6183	0.2296	1679.2	1.6019	**1400**
1420	0.2950	1706.1	1.6395	0.2640	1700.0	1.6252	0.2330	1692.3	1.6090	**1420**
1440	0.2990	1718.8	1.6462	0.2677	1712.8	1.6320	0.2363	1705.4	1.6159	**1440**
1460	0.3030	1731.4	1.6528	0.2713	1725.7	1.6388	0.2397	1718.5	1.6227	**1460**
1480	0.3070	1744.0	1.6593	0.2749	1738.4	1.6454	0.2429	1731.5	1.6295	**1480**
1500	0.3109	1756.6	1.6658	0.2785	1751.2	1.6519	0.2462	1744.5	1.6361	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	5000 psia			5500 psia			6000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
32	0.015 756	14.709	0.0000	0.015 731	16.144	0.0000	0.015 706	17.572	-0.0001	**32**
40	0.015 761	22.497	0.0157	0.015 737	23.910	0.0156	0.015 713	25.317	0.0155	**40**
50	0.015 773	32.243	0.0350	0.015 750	33.632	0.0349	0.015 726	35.016	0.0348	**50**
60	0.015 790	42.000	0.0540	0.015 767	43.368	0.0538	0.015 744	44.731	0.0536	**60**
70	0.015 811	51.769	0.0726	0.015 788	53.116	0.0724	0.015 766	54.460	0.0722	**70**
80	0.015 836	61.546	0.0909	0.015 814	62.875	0.0907	0.015 792	64.201	0.0904	**80**
90	0.015 865	71.331	0.1089	0.015 843	72.643	0.1086	0.015 821	73.952	0.1083	**90**
100	0.015 897	81.124	0.1265	0.015 875	82.419	0.1262	0.015 853	83.711	0.1259	**100**
110	0.015 932	90.923	0.1439	0.015 910	92.202	0.1435	0.015 888	93.479	0.1432	**110**
120	0.015 971	100.73	0.1609	0.015 949	101.99	0.1606	0.015 927	103.25	0.1602	**120**
130	0.016 012	110.54	0.1777	0.015 990	111.79	0.1773	0.015 968	113.04	0.1769	**130**
140	0.016 056	120.36	0.1942	0.016 034	121.60	0.1938	0.016 011	122.83	0.1934	**140**
150	0.016 103	130.19	0.2105	0.016 080	131.41	0.2101	0.016 058	132.63	0.2096	**150**
160	0.016 152	140.03	0.2265	0.016 129	141.23	0.2260	0.016 107	142.43	0.2256	**160**
170	0.016 204	149.87	0.2423	0.016 181	151.06	0.2418	0.016 158	152.25	0.2413	**170**
180	0.016 259	159.73	0.2578	0.016 235	160.90	0.2573	0.016 212	162.08	0.2568	**180**
190	0.016 316	169.60	0.2731	0.016 292	170.76	0.2726	0.016 269	171.91	0.2720	**190**
200	0.016 376	179.47	0.2882	0.016 351	180.62	0.2876	0.016 327	181.76	0.2871	**200**
210	0.016 438	189.36	0.3031	0.016 413	190.49	0.3025	0.016 389	191.62	0.3019	**210**
220	0.016 502	199.27	0.3178	0.016 477	200.38	0.3171	0.016 452	201.50	0.3165	**220**
230	0.016 569	209.19	0.3322	0.016 544	210.28	0.3316	0.016 518	211.38	0.3310	**230**
240	0.016 639	219.12	0.3465	0.016 613	220.20	0.3459	0.016 587	221.28	0.3452	**240**
250	0.016 711	229.07	0.3607	0.016 684	230.13	0.3600	0.016 658	231.20	0.3593	**250**
260	0.016 786	239.04	0.3746	0.016 758	240.08	0.3739	0.016 731	241.13	0.3732	**260**
270	0.016 864	249.02	0.3884	0.016 835	250.05	0.3877	0.016 807	251.09	0.3869	**270**
280	0.016 944	259.03	0.4020	0.016 914	260.04	0.4013	0.016 885	261.05	0.4005	**280**
290	0.017 027	269.05	0.4155	0.016 996	270.05	0.4147	0.016 967	271.04	0.4139	**290**
300	0.017 112	279.10	0.4288	0.017 081	280.08	0.4280	0.017 050	281.05	0.4272	**300**
310	0.017 201	289.17	0.4420	0.017 169	290.13	0.4411	0.017 137	291.08	0.4403	**310**
320	0.017 292	299.27	0.4550	0.017 259	300.20	0.4541	0.017 226	301.14	0.4533	**320**
330	0.017 387	309.40	0.4679	0.017 353	310.31	0.4670	0.017 319	311.22	0.4661	**330**
340	0.017 485	319.55	0.4807	0.017 449	320.44	0.4798	0.017 414	321.33	0.4789	**340**
350	0.017 586	329.73	0.4933	0.017 549	330.59	0.4924	0.017 512	331.46	0.4915	**350**
360	0.017 690	339.95	0.5059	0.017 652	340.79	0.5049	0.017 614	341.63	0.5039	**360**
370	0.017 798	350.20	0.5183	0.017 758	351.01	0.5173	0.017 719	351.83	0.5163	**370**
380	0.017 910	360.49	0.5306	0.017 868	361.27	0.5296	0.017 827	362.06	0.5286	**380**
390	0.018 026	370.82	0.5429	0.017 982	371.57	0.5418	0.017 939	372.33	0.5407	**390**
400	0.018 145	381.19	0.5550	0.018 100	381.91	0.5539	0.018 055	382.64	0.5528	**400**
410	0.018 269	391.61	0.5670	0.018 221	392.29	0.5659	0.018 175	392.99	0.5647	**410**
420	0.018 397	402.07	0.5790	0.018 348	402.72	0.5778	0.018 299	403.38	0.5766	**420**
430	0.018 531	412.59	0.5909	0.018 478	413.20	0.5896	0.018 427	413.82	0.5884	**430**
440	0.018 669	423.17	0.6027	0.018 614	423.73	0.6014	0.018 560	424.32	0.6002	**440**
450	0.018 812	433.80	0.6145	0.018 754	434.32	0.6131	0.018 698	434.86	0.6118	**450**
460	0.018 961	444.50	0.6262	0.018 900	444.97	0.6248	0.018 840	445.47	0.6234	**460**
470	0.019 116	455.27	0.6378	0.019 051	455.69	0.6364	0.018 989	456.13	0.6349	**470**
480	0.019 277	466.11	0.6494	0.019 209	466.47	0.6479	0.019 143	466.87	0.6464	**480**
490	0.019 445	477.03	0.6610	0.019 373	477.33	0.6594	0.019 303	477.67	0.6579	**490**
500	0.019 621	488.03	0.6725	0.019 543	488.28	0.6709	0.019 469	488.55	0.6693	**500**
510	0.019 804	499.13	0.6840	0.019 722	499.30	0.6823	0.019 643	499.51	0.6806	**510**
520	0.019 995	510.33	0.6955	0.019 908	510.43	0.6937	0.019 824	510.56	0.6920	**520**
530	0.020 196	521.64	0.7070	0.020 103	521.65	0.7051	0.020 013	521.71	0.7033	**530**
540	0.020 407	533.06	0.7185	0.020 307	532.97	0.7165	0.020 210	532.95	0.7146	**540**
550	0.020 629	544.60	0.7299	0.020 521	544.42	0.7279	0.020 417	544.30	0.7259	**550**
560	0.020 863	556.28	0.7415	0.020 746	555.99	0.7393	0.020 634	555.77	0.7372	**560**
570	0.021 109	568.11	0.7530	0.020 983	567.69	0.7507	0.020 862	567.36	0.7485	**570**
580	0.021 371	580.11	0.7646	0.021 233	579.55	0.7622	0.021 103	579.08	0.7598	**580**
590	0.021 648	592.27	0.7762	0.021 497	591.56	0.7737	0.021 356	590.96	0.7712	**590**
600	0.021 943	604.64	0.7880	0.021 778	603.75	0.7852	0.021 624	602.99	0.7826	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	5000 psia			5500 psia			6000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.022 26	617.22	0.7998	0.022 08	616.13	0.7968	0.021 91	615.19	0.7941	**610**
620	0.022 60	630.04	0.8117	0.022 40	628.72	0.8086	0.022 21	627.59	0.8056	**620**
630	0.022 96	643.13	0.8238	0.022 74	641.55	0.8204	0.022 53	640.18	0.8172	**630**
640	0.023 36	656.52	0.8360	0.023 10	654.63	0.8323	0.022 88	653.01	0.8289	**640**
650	0.023 79	670.26	0.8484	0.023 50	668.01	0.8444	0.023 24	666.08	0.8408	**650**
660	0.024 26	684.39	0.8611	0.023 93	681.72	0.8567	0.023 64	679.43	0.8527	**660**
670	0.024 78	698.98	0.8741	0.024 41	695.81	0.8693	0.024 08	693.11	0.8649	**670**
680	0.025 37	714.13	0.8874	0.024 93	710.33	0.8821	0.024 55	707.15	0.8773	**680**
690	0.026 03	729.95	0.9013	0.025 50	725.38	0.8952	0.025 07	721.61	0.8899	**690**
700	0.026 78	746.59	0.9157	0.026 15	741.04	0.9088	0.025 64	736.54	0.9028	**700**
710	0.027 66	764.23	0.9308	0.026 89	757.42	0.9228	0.026 27	752.03	0.9161	**710**
720	0.028 70	783.17	0.9469	0.027 73	774.67	0.9375	0.026 99	768.16	0.9299	**720**
730	0.029 98	803.80	0.9644	0.028 71	793.00	0.9530	0.027 80	785.04	0.9441	**730**
740	0.031 60	826.76	0.9836	0.029 89	812.67	0.9695	0.028 73	802.84	0.9590	**740**
750	0.033 73	852.97	1.0053	0.031 31	834.06	0.9872	0.029 81	821.72	0.9747	**750**
760	0.036 68	883.78	1.0307	0.033 08	857.65	1.0066	0.031 10	841.92	0.9913	**760**
770	0.040 83	920.39	1.0606	0.035 34	884.01	1.0282	0.032 63	863.71	1.0091	**770**
780	0.046 38	961.90	1.0942	0.038 24	913.63	1.0521	0.034 49	887.37	1.0283	**780**
790	0.052 86	1003.8	1.1279	0.041 93	946.37	1.0785	0.036 76	913.09	1.0489	**790**
800	0.059 40	1041.9	1.1582	0.046 34	980.94	1.1060	0.039 50	940.83	1.0710	**800**
820	0.071 19	1103.6	1.2068	0.056 19	1047.3	1.1583	0.046 36	999.91	1.1176	**820**
840	0.081 13	1151.3	1.2438	0.065 69	1103.0	1.2015	0.054 22	1057.0	1.1619	**840**
860	0.089 65	1190.0	1.2734	0.074 19	1148.7	1.2364	0.062 01	1107.3	1.2002	**860**
880	0.097 16	1223.0	1.2982	0.081 73	1187.1	1.2653	0.069 24	1150.4	1.2327	**880**
900	0.1039	1252.1	1.3198	0.088 49	1220.4	1.2899	0.075 87	1187.7	1.2604	**900**
920	0.1101	1278.3	1.3389	0.094 65	1249.9	1.3115	0.081 92	1220.7	1.2844	**920**
940	0.1159	1302.3	1.3562	0.1003	1276.5	1.3307	0.087 49	1250.1	1.3056	**940**
960	0.1213	1324.7	1.3721	0.1056	1301.1	1.3481	0.092 67	1277.0	1.3246	**960**
980	0.1264	1345.7	1.3868	0.1106	1323.9	1.3640	0.097 52	1301.7	1.3420	**980**
1000	0.1313	1365.5	1.4005	0.1153	1345.4	1.3788	0.1021	1324.8	1.3579	**1000**
1020	0.1359	1384.5	1.4134	0.1198	1365.7	1.3927	0.1065	1346.6	1.3727	**1020**
1040	0.1404	1402.7	1.4256	0.1241	1385.1	1.4057	0.1106	1367.2	1.3865	**1040**
1060	0.1447	1420.3	1.4372	0.1282	1403.7	1.4180	0.1146	1386.9	1.3996	**1060**
1080	0.1489	1437.3	1.4483	0.1322	1421.6	1.4297	0.1184	1405.8	1.4119	**1080**
1100	0.1530	1453.8	1.4590	0.1361	1439.0	1.4409	0.1221	1424.0	1.4237	**1100**
1120	0.1569	1469.9	1.4693	0.1399	1455.8	1.4517	0.1257	1441.7	1.4349	**1120**
1140	0.1608	1485.7	1.4792	0.1435	1472.3	1.4620	0.1292	1458.8	1.4457	**1140**
1160	0.1646	1501.1	1.4888	0.1471	1488.4	1.4720	0.1326	1475.5	1.4561	**1160**
1180	0.1682	1516.3	1.4981	0.1506	1504.1	1.4817	0.1359	1491.9	1.4662	**1180**
1200	0.1719	1531.2	1.5071	0.1540	1519.6	1.4910	0.1391	1507.9	1.4759	**1200**
1220	0.1754	1545.9	1.5159	0.1573	1534.7	1.5001	0.1423	1523.6	1.4853	**1220**
1240	0.1789	1560.4	1.5245	0.1606	1549.7	1.5090	0.1454	1539.0	1.4944	**1240**
1260	0.1823	1574.7	1.5329	0.1638	1564.5	1.5176	0.1484	1554.2	1.5033	**1260**
1280	0.1857	1588.9	1.5411	0.1670	1579.0	1.5260	0.1514	1569.2	1.5119	**1280**
1300	0.1890	1602.9	1.5491	0.1701	1593.4	1.5343	0.1544	1583.9	1.5204	**1300**
1320	0.1923	1616.8	1.5569	0.1732	1607.7	1.5423	0.1573	1598.5	1.5286	**1320**
1340	0.1956	1630.5	1.5646	0.1762	1621.8	1.5502	0.1601	1613.0	1.5367	**1340**
1360	0.1988	1644.2	1.5722	0.1792	1635.7	1.5579	0.1629	1627.3	1.5446	**1360**
1380	0.2020	1657.8	1.5796	0.1822	1649.6	1.5655	0.1657	1641.4	1.5523	**1380**
1400	0.2051	1671.3	1.5869	0.1851	1663.4	1.5729	0.1684	1655.5	1.5599	**1400**
1420	0.2082	1684.7	1.5941	0.1880	1677.0	1.5803	0.1712	1669.4	1.5674	**1420**
1440	0.2113	1698.0	1.6011	0.1908	1690.6	1.5874	0.1738	1683.3	1.5747	**1440**
1460	0.2144	1711.3	1.6081	0.1937	1704.1	1.5945	0.1765	1697.0	1.5819	**1460**
1480	0.2174	1724.5	1.6149	0.1965	1717.6	1.6015	0.1791	1710.7	1.5890	**1480**
1500	0.2204	1737.7	1.6217	0.1993	1731.0	1.6084	0.1817	1724.3	1.5960	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	7000 psia			8000 psia			9000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
32	0.015 658	20.410	-0.0002	0.015 610	23.225	-0.0004	0.015 564	26.016	-0.0006	**32**
40	0.015 666	28.115	0.0153	0.015 619	30.893	0.0151	0.015 574	33.650	0.0148	**40**
50	0.015 680	37.770	0.0345	0.015 635	40.505	0.0342	0.015 591	43.223	0.0338	**50**
60	0.015 699	47.445	0.0533	0.015 655	50.142	0.0529	0.015 611	52.825	0.0525	**60**
70	0.015 721	57.137	0.0717	0.015 678	59.800	0.0713	0.015 635	62.449	0.0708	**70**
80	0.015 748	66.843	0.0899	0.015 705	69.473	0.0894	0.015 662	72.091	0.0888	**80**
90	0.015 777	76.561	0.1077	0.015 734	79.160	0.1072	0.015 692	81.748	0.1066	**90**
100	0.015 810	86.289	0.1253	0.015 767	88.858	0.1246	0.015 725	91.417	0.1240	**100**
110	0.015 845	96.026	0.1425	0.015 803	98.566	0.1418	0.015 761	101.10	0.1412	**110**
120	0.015 883	105.77	0.1595	0.015 841	108.28	0.1587	0.015 799	110.79	0.1580	**120**
130	0.015 924	115.53	0.1762	0.015 882	118.01	0.1754	0.015 840	120.49	0.1746	**130**
140	0.015 968	125.29	0.1926	0.015 925	127.74	0.1918	0.015 883	130.19	0.1909	**140**
150	0.016 014	135.06	0.2087	0.015 971	137.49	0.2079	0.015 928	139.91	0.2070	**150**
160	0.016 062	144.84	0.2246	0.016 019	147.24	0.2237	0.015 976	149.64	0.2228	**160**
170	0.016 113	154.63	0.2403	0.016 069	157.00	0.2394	0.016 026	159.37	0.2384	**170**
180	0.016 167	164.42	0.2558	0.016 122	166.77	0.2548	0.016 078	169.12	0.2538	**180**
190	0.016 222	174.23	0.2710	0.016 177	176.55	0.2699	0.016 132	178.87	0.2689	**190**
200	0.016 280	184.05	0.2860	0.016 234	186.34	0.2849	0.016 189	188.64	0.2838	**200**
210	0.016 341	193.88	0.3008	0.016 294	196.15	0.2996	0.016 248	198.41	0.2985	**210**
220	0.016 403	203.73	0.3154	0.016 355	205.96	0.3142	0.016 309	208.20	0.3130	**220**
230	0.016 468	213.58	0.3297	0.016 419	215.79	0.3285	0.016 372	218.00	0.3273	**230**
240	0.016 535	223.45	0.3440	0.016 486	225.63	0.3427	0.016 437	227.81	0.3415	**240**
250	0.016 605	233.34	0.3580	0.016 554	235.48	0.3567	0.016 504	237.64	0.3554	**250**
260	0.016 677	243.24	0.3718	0.016 625	245.35	0.3705	0.016 574	247.48	0.3692	**260**
270	0.016 752	253.16	0.3855	0.016 698	255.24	0.3841	0.016 646	257.33	0.3828	**270**
280	0.016 829	263.09	0.3990	0.016 774	265.14	0.3976	0.016 720	267.20	0.3962	**280**
290	0.016 908	273.05	0.4124	0.016 852	275.06	0.4109	0.016 796	277.09	0.4095	**290**
300	0.016 990	283.02	0.4256	0.016 932	285.00	0.4241	0.016 875	286.99	0.4226	**300**
310	0.017 075	293.01	0.4387	0.017 015	294.95	0.4371	0.016 956	296.91	0.4356	**310**
320	0.017 162	303.03	0.4516	0.017 100	304.93	0.4500	0.017 040	306.85	0.4484	**320**
330	0.017 253	313.06	0.4644	0.017 188	314.93	0.4627	0.017 126	316.81	0.4611	**330**
340	0.017 346	323.13	0.4771	0.017 279	324.95	0.4754	0.017 215	326.79	0.4737	**340**
350	0.017 441	333.22	0.4896	0.017 373	335.00	0.4878	0.017 306	336.80	0.4861	**350**
360	0.017 540	343.34	0.5020	0.017 469	345.07	0.5002	0.017 401	346.83	0.4984	**360**
370	0.017 643	353.48	0.5143	0.017 569	355.17	0.5125	0.017 498	356.88	0.5106	**370**
380	0.017 748	363.66	0.5265	0.017 671	365.30	0.5246	0.017 598	366.97	0.5227	**380**
390	0.017 857	373.88	0.5386	0.017 777	375.46	0.5366	0.017 700	377.08	0.5347	**390**
400	0.017 969	384.13	0.5506	0.017 886	385.65	0.5485	0.017 806	387.22	0.5465	**400**
410	0.018 085	394.41	0.5625	0.017 999	395.88	0.5604	0.017 916	397.39	0.5583	**410**
420	0.018 205	404.74	0.5743	0.018 115	406.15	0.5721	0.018 028	407.60	0.5700	**420**
430	0.018 329	415.11	0.5861	0.018 235	416.46	0.5838	0.018 145	417.85	0.5815	**430**
440	0.018 457	425.53	0.5977	0.018 358	426.81	0.5953	0.018 264	428.13	0.5930	**440**
450	0.018 589	436.00	0.6093	0.018 486	437.20	0.6068	0.018 388	438.46	0.6045	**450**
460	0.018 727	446.52	0.6208	0.018 618	447.64	0.6182	0.018 516	448.83	0.6158	**460**
470	0.018 869	457.09	0.6322	0.018 755	458.13	0.6296	0.018 647	459.25	0.6271	**470**
480	0.019 016	467.73	0.6436	0.018 897	468.68	0.6409	0.018 784	469.71	0.6383	**480**
490	0.019 169	478.43	0.6549	0.019 043	479.29	0.6521	0.018 924	480.23	0.6494	**490**
500	0.019 328	489.20	0.6662	0.019 195	489.95	0.6633	0.019 070	490.81	0.6605	**500**
510	0.019 493	500.04	0.6774	0.019 353	500.68	0.6744	0.019 221	501.44	0.6715	**510**
520	0.019 664	510.96	0.6886	0.019 516	511.48	0.6855	0.019 377	512.13	0.6825	**520**
530	0.019 843	521.96	0.6998	0.019 686	522.36	0.6965	0.019 539	522.90	0.6934	**530**
540	0.020 030	533.04	0.7110	0.019 862	533.31	0.7075	0.019 707	533.73	0.7043	**540**
550	0.020 224	544.23	0.7221	0.020 046	544.35	0.7185	0.019 881	544.63	0.7151	**550**
560	0.020 427	555.51	0.7332	0.020 237	555.47	0.7295	0.020 062	555.61	0.7260	**560**
570	0.020 640	566.90	0.7443	0.020 437	566.69	0.7404	0.020 251	566.68	0.7368	**570**
580	0.020 863	578.41	0.7554	0.020 646	578.00	0.7514	0.020 447	577.83	0.7475	**580**
590	0.021 097	590.04	0.7666	0.020 863	589.43	0.7623	0.020 651	589.08	0.7583	**590**
600	0.021 343	601.80	0.7777	0.021 092	600.96	0.7732	0.020 864	600.42	0.7691	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	7000 psia			8000 psia			9000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.021 60	613.70	0.7889	0.021 33	612.62	0.7842	0.021 09	611.87	0.7798	**610**
620	0.021 88	625.76	0.8001	0.021 58	624.40	0.7951	0.021 32	623.42	0.7906	**620**
630	0.022 16	637.98	0.8114	0.021 85	636.32	0.8061	0.021 56	635.09	0.8013	**630**
640	0.022 47	650.38	0.8227	0.022 12	648.38	0.8172	0.021 82	646.88	0.8121	**640**
650	0.022 80	662.97	0.8341	0.022 42	660.60	0.8282	0.022 09	658.80	0.8229	**650**
660	0.023 15	675.76	0.8456	0.022 73	672.98	0.8393	0.022 37	670.84	0.8337	**660**
670	0.023 52	688.80	0.8572	0.023 06	685.54	0.8505	0.022 67	683.03	0.8445	**670**
680	0.023 92	702.10	0.8689	0.023 41	698.30	0.8617	0.022 98	695.38	0.8554	**680**
690	0.024 35	715.70	0.8808	0.023 79	711.30	0.8731	0.023 32	707.92	0.8664	**690**
700	0.024 82	729.62	0.8928	0.024 19	724.53	0.8845	0.023 67	720.64	0.8774	**700**
710	0.025 33	743.91	0.9051	0.024 62	738.02	0.8961	0.024 04	733.56	0.8885	**710**
720	0.025 89	758.59	0.9176	0.025 08	751.80	0.9079	0.024 44	746.70	0.8997	**720**
730	0.026 50	773.73	0.9304	0.025 58	765.88	0.9197	0.024 87	760.06	0.9109	**730**
740	0.027 18	789.38	0.9435	0.026 12	780.30	0.9318	0.025 32	773.66	0.9223	**740**
750	0.027 93	805.61	0.9570	0.026 70	795.09	0.9441	0.025 81	787.53	0.9338	**750**
760	0.028 77	822.50	0.9709	0.027 35	810.29	0.9566	0.026 33	801.68	0.9455	**760**
770	0.029 72	840.14	0.9853	0.028 05	825.95	0.9694	0.026 89	816.14	0.9573	**770**
780	0.030 80	858.61	1.0002	0.028 82	842.09	0.9825	0.027 50	830.93	0.9693	**780**
790	0.032 04	878.02	1.0158	0.029 67	858.77	0.9959	0.028 16	846.08	0.9814	**790**
800	0.033 45	898.43	1.0321	0.030 62	876.02	1.0096	0.028 87	861.60	0.9938	**800**
820	0.036 91	942.29	1.0666	0.032 82	912.32	1.0382	0.030 49	893.81	1.0192	**820**
840	0.041 29	989.35	1.1031	0.035 51	950.97	1.0682	0.032 39	927.62	1.0454	**840**
860	0.046 45	1037.1	1.1396	0.038 74	991.47	1.0991	0.034 63	962.90	1.0723	**860**
880	0.051 99	1082.8	1.1739	0.042 46	1032.7	1.1301	0.037 20	999.29	1.0997	**880**
900	0.057 56	1124.8	1.2051	0.046 53	1073.2	1.1601	0.040 10	1036.2	1.1270	**900**
920	0.062 94	1162.7	1.2327	0.050 77	1112.0	1.1885	0.043 26	1072.7	1.1537	**920**
940	0.068 07	1197.1	1.2575	0.055 04	1148.4	1.2147	0.046 59	1108.4	1.1794	**940**
960	ê.072 90	1228.4	1.2797	0.059 23	1182.3	1.2387	0.050 01	1142.6	1.2036	**960**
980	0.077 44	1257.0	1.2997	0.063 30	1213.8	1.2607	0.053 44	1175.0	1.2263	**980**
1000	0.081 74	1283.4	1.3179	0.067 20	1243.0	1.2808	0.056 83	1205.8	1.2475	**1000**
1020	0.085 81	1308.0	1.3347	0.070 94	1270.2	1.2994	0.060 15	1234.7	1.2672	**1020**
1040	0.089 68	1331.2	1.3503	0.074 52	1295.7	1.3165	0.063 38	1262.0	1.2855	**1040**
1060	0.093 39	1353.1	1.3648	0.077 96	1319.8	1.3324	0.066 51	1287.8	1.3026	**1060**
1080	0.096 94	1374.0	1.3784	0.081 25	1342.6	1.3474	0.069 53	1312.3	1.3186	**1080**
1100	0.1004	1394.0	1.3913	0.084 42	1364.3	1.3614	0.072 45	1335.6	1.3337	**1100**
1120	0.1037	1413.3	1.4036	0.087 49	1385.2	1.3747	0.075 28	1357.9	1.3479	**1120**
1140	0.1069	1431.9	1.4153	0.090 45	1405.2	1.3873	0.078 01	1379.2	1.3613	**1140**
1160	0.1100	1449.9	1.4265	0.093 32	1424.5	1.3993	0.080 67	1399.8	1.3741	**1160**
1180	0.1130	1467.5	1.4373	0.096 11	1443.3	1.4108	0.083 25	1419.7	1.3863	**1180**
1200	0.1160	1484.6	1.4476	0.098 82	1461.5	1.4218	0.085 76	1438.9	1.3980	**1200**
1220	0.1188	1501.3	1.4577	0.1015	1479.2	1.4324	0.088 21	1457.7	1.4092	**1220**
1240	0.1216	1517.7	1.4674	0.1041	1496.5	1.4427	0.090 60	1475.9	1.4200	**1240**
1260	0.1244	1533.7	1.4768	0.1066	1513.5	1.4526	0.092 93	1493.7	1.4304	**1260**
1280	0.1271	1549.5	1.4859	0.1091	1530.1	1.4622	0.095 21	1511.1	1.4404	**1280**
1300	0.1298	1565.1	1.4948	0.1115	1546.4	1.4715	0.097 45	1528.1	1.4502	**1300**
1320	0.1324	1580.4	1.5034	0.1139	1562.4	1.4806	0.099 65	1544.8	1.4596	**1320**
1340	0.1349	1595.5	1.5119	0.1162	1578.2	1.4894	0.1018	1561.3	1.4688	**1340**
1360	0.1374	1610.4	1.5201	0.1185	1593.8	1.4980	0.1039	1577.4	1.4777	**1360**
1380	0.1399	1625.2	1.5282	0.1208	1609.1	1.5064	0.1060	1593.4	1.4865	**1380**
1400	0.1424	1639.8	1.5361	0.1230	1624.3	1.5146	0.1081	1609.1	1.4949	**1400**
1420	0.1448	1654.3	1.5438	0.1252	1639.3	1.5226	0.1101	1624.6	1.5033	**1420**
1440	0.1472	1668.6	1.5514	0.1274	1654.1	1.5305	0.1121	1640.0	1.5114	**1440**
1460	0.1496	1682.8	1.5589	0.1295	1668.9	1.5382	0.1140	1655.2	1.5193	**1460**
1480	0.1519	1697.0	1.5662	0.1316	1683.5	1.5457	0.1160	1670.2	1.5271	**1480**
1500	0.1542	1711.0	1.5734	0.1337	1697.9	1.5532	0.1179	1685.1	1.5348	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	10 000 psia			11 000 psia			12 000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
32	0.015 518	28.786	-0.0008	0.015 474	31.534	-0.0010	0.015 430	34.262	-0.0013	**32**
40	0.015 530	36.387	0.0146	0.015 486	39.105	0.0143	0.015 443	41.805	0.0139	**40**
50	0.015 547	45.924	0.0335	0.015 505	48.608	0.0331	0.015 463	51.276	0.0327	**50**
60	0.015 569	55.492	0.0521	0.015 527	58.144	0.0516	0.015 486	60.783	0.0512	**60**
70	0.015 593	65.085	0.0703	0.015 552	67.708	0.0698	0.015 512	70.318	0.0694	**70**
80	0.015 621	74.697	0.0883	0.015 580	77.292	0.0878	0.015 540	79.875	0.0872	**80**
90	0.015 651	84.326	0.1060	0.015 611	86.893	0.1054	0.015 571	89.451	0.1048	**90**
100	0.015 684	93.967	0.1234	0.015 644	96.509	0.1227	0.015 605	99.041	0.1221	**100**
110	0.015 720	103.62	0.1405	0.015 680	106.14	0.1398	0.015 640	108.64	0.1391	**110**
120	0.015 758	113.28	0.1573	0.015 718	115.77	0.1566	0.015 679	118.26	0.1558	**120**
130	0.015 799	122.96	0.1738	0.015 758	125.42	0.1731	0.015 719	127.88	0.1723	**130**
140	0.015 842	132.64	0.1901	0.015 801	135.08	0.1893	0.015 761	137.52	0.1885	**140**
150	0.015 887	142.33	0.2061	0.015 846	144.75	0.2053	0.015 806	147.16	0.2044	**150**
160	0.015 934	152.03	0.2219	0.015 893	154.42	0.2210	0.015 853	156.81	0.2201	**160**
170	0.015 984	161.74	0.2375	0.015 942	164.11	0.2365	0.015 901	166.47	0.2356	**170**
180	0.016 035	171.46	0.2528	0.015 993	173.80	0.2518	0.015 952	176.14	0.2509	**180**
190	0.016 089	181.19	0.2679	0.016 046	183.51	0.2669	0.016 004	185.82	0.2659	**190**
200	0.016 145	190.93	0.2828	0.016 101	193.22	0.2817	0.016 059	195.51	0.2807	**200**
210	0.016 203	200.68	0.2974	0.016 159	202.95	0.2963	0.016 116	205.21	0.2953	**210**
220	0.016 263	210.44	0.3119	0.016 218	212.68	0.3108	0.016 174	214.93	0.3097	**220**
230	0.016 325	220.21	0.3262	0.016 279	222.43	0.3250	0.016 234	224.65	0.3239	**230**
240	0.016 389	230.00	0.3402	0.016 342	232.19	0.3390	0.016 297	234.38	0.3379	**240**
250	0.016 455	239.79	0.3542	0.016 408	241.96	0.3529	0.016 361	244.12	0.3517	**250**
260	0.016 524	249.60	0.3679	0.016 475	251.74	0.3666	0.016 428	253.88	0.3653	**260**
270	0.016 595	259.43	0.3814	0.016 545	261.53	0.3801	0.016 496	263.65	0.3788	**270**
280	0.016 667	269.27	0.3948	0.016 616	271.34	0.3935	0.016 566	273.43	0.3921	**280**
290	0.016 743	279.12	0.4081	0.016 690	281.17	0.4067	0.016 639	283.22	0.4053	**290**
300	0.016 820	288.99	0.4211	0.016 766	291.01	0.4197	0.016 714	293.03	0.4183	**300**
310	0.016 899	298.88	0.4341	0.016 844	300.86	0.4326	0.016 790	302.86	0.4311	**310**
320	0.016 981	308.79	0.4469	0.016 925	310.73	0.4453	0.016 869	312.70	0.4438	**320**
330	0.017 066	318.71	0.4595	0.017 007	320.63	0.4579	0.016 950	322.55	0.4564	**330**
340	0.017 153	328.66	0.4720	0.017 092	330.53	0.4704	0.017 034	332.43	0.4688	**340**
350	0.017 242	338.62	0.4844	0.017 180	340.46	0.4827	0.017 119	342.32	0.4811	**350**
360	0.017 334	348.61	0.4967	0.017 270	350.41	0.4950	0.017 207	352.23	0.4933	**360**
370	0.017 429	358.62	0.5088	0.017 362	360.39	0.5071	0.017 298	362.17	0.5053	**370**
380	0.017 526	368.66	0.5208	0.017 457	370.38	0.5190	0.017 391	372.12	0.5173	**380**
390	0.017 627	378.73	0.5328	0.017 555	380.40	0.5309	0.017 486	382.10	0.5291	**390**
400	0.017 730	388.82	0.5446	0.017 656	390.45	0.5426	0.017 584	392.11	0.5408	**400**
410	0.017 836	398.94	0.5563	0.017 759	400.52	0.5543	0.017 685	402.14	0.5524	**410**
420	0.017 946	409.10	0.5679	0.017 866	410.63	0.5659	0.017 789	412.19	0.5639	**420**
430	0.018 058	419.29	0.5794	0.017 975	420.76	0.5773	0.017 896	422.28	0.5753	**430**
440	0.018 174	429.51	0.5908	0.018 088	430.93	0.5887	0.018 005	432.39	0.5866	**440**
450	0.018 294	439.77	0.6022	0.018 204	441.14	0.6000	0.018 118	442.54	0.5978	**450**
460	0.018 418	450.08	0.6134	0.018 324	451.38	0.6112	0.018 234	452.73	0.6089	**460**
470	0.018 545	460.42	0.6246	0.018 447	461.66	0.6223	0.018 353	462.95	0.6200	**470**
480	0.018 676	470.82	0.6357	0.018 574	471.98	0.6333	0.018 476	473.21	0.6310	**480**
490	0.018 812	481.26	0.6468	0.018 705	482.35	0.6443	0.018 603	483.50	0.6419	**490**
500	0.018 952	491.75	0.6578	0.018 840	492.76	0.6552	0.018 733	493.85	0.6527	**500**
510	0.019 097	502.29	0.6687	0.018 979	503.22	0.6660	0.018 867	504.23	0.6635	**510**
520	0.019 246	512.89	0.6796	0.019 123	513.74	0.6768	0.019 006	514.66	0.6742	**520**
530	0.019 401	523.55	0.6904	0.019 271	524.30	0.6876	0.019 149	525.15	0.6848	**530**
540	0.019 561	534.27	0.7012	0.019 425	534.93	0.6982	0.019 296	535.68	0.6954	**540**
550	0.019 727	545.06	0.7119	0.019 584	545.61	0.7089	0.019 448	546.27	0.7060	**550**
560	0.019 900	555.92	0.7226	0.019 748	556.36	0.7195	0.019 605	556.92	0.7164	**560**
570	0.020 078	566.85	0.7333	0.019 918	567.17	0.7300	0.019 768	567.62	0.7269	**570**
580	0.020 264	577.86	0.7439	0.020 094	578.05	0.7405	0.019 936	578.39	0.7373	**580**
590	0.020 456	588.95	0.7546	0.020 277	589.01	0.7510	0.020 109	589.22	0.7477	**590**
600	0.020 657	600.13	0.7652	0.020 466	600.03	0.7615	0.020 289	600.12	0.7580	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	10 000 psia			11 000 psia			12 000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.020 87	611.39	0.7757	0.020 66	611.14	0.7719	0.020 48	611.09	0.7683	**610**
620	0.021 08	622.75	0.7863	0.020 87	622.33	0.7823	0.020 67	622.13	0.7786	**620**
630	0.021 31	634.21	0.7969	0.021 08	633.61	0.7927	0.020 87	633.24	0.7888	**630**
640	0.021 55	645.77	0.8074	0.021 30	644.97	0.8031	0.021 08	644.44	0.7990	**640**
650	0.021 80	657.43	0.8180	0.021 53	656.42	0.8135	0.021 29	655.71	0.8093	**650**
660	0.022 06	669.21	0.8286	0.021 77	667.97	0.8238	0.021 52	667.05	0.8194	**660**
670	0.022 33	681.09	0.8391	0.022 02	679.60	0.8342	0.021 75	678.48	0.8296	**670**
680	0.022 61	693.11	0.8497	0.022 29	691.36	0.8445	0.022 00	690.01	0.8397	**680**
690	0.022 91	705.29	0.8603	0.022 56	703.23	0.8549	0.022 25	701.64	0.8499	**690**
700	0.023 23	717.62	0.8710	0.022 85	715.24	0.8653	0.022 52	713.38	0.8601	**700**
710	0.023 56	730.10	0.8817	0.023 15	727.38	0.8757	0.022 79	725.23	0.8703	**710**
720	0.023 92	742.75	0.8925	0.023 47	739.66	0.8862	0.023 08	737.20	0.8804	**720**
730	0.024 29	755.58	0.9033	0.023 80	752.07	0.8967	0.023 38	749.28	0.8906	**730**
740	0.024 68	768.60	0.9142	0.024 15	764.63	0.9072	0.023 70	761.48	0.9009	**740**
750	0.025 10	781.81	0.9252	0.024 52	777.35	0.9177	0.024 03	773.81	0.9111	**750**
760	0.025 55	795.23	0.9363	0.024 91	790.22	0.9283	0.024 38	786.26	0.9213	**760**
770	0.026 02	808.88	0.9474	0.025 32	803.28	0.9390	0.024 75	798.86	0.9316	**770**
780	0.026 53	822.77	0.9587	0.025 76	816.52	0.9497	0.025 13	811.60	0.9419	**780**
790	0.027 07	836.91	0.9700	0.026 22	829.95	0.9605	0.025 53	824.49	0.9523	**790**
800	0.027 65	851.32	0.9815	0.026 71	843.58	0.9714	0.025 96	837.54	0.9627	**800**
820	0.028 93	880.99	1.0049	0.027 78	871.48	0.9933	0.026 88	864.15	0.9837	**820**
840	0.030 40	911.79	1.0287	0.028 98	900.25	1.0156	0.027 90	891.43	1.0048	**840**
860	0.032 09	943.70	1.0531	0.030 34	929.87	1.0383	0.029 04	919.39	1.0262	**860**
880	0.034 01	976.57	1.0778	0.031 86	960.26	1.0611	0.030 29	947.98	1.0477	**880**
900	0.036 17	1010.1	1.1027	0.033 55	991.27	1.0841	0.031 68	977.11	1.0692	**900**
920	0.038 55	1043.9	1.1274	0.035 42	1022.7	1.1070	0.033 20	1006.6	1.0908	**920**
940	0.041 12	1077.6	1.1516	0.037 44	1054.3	1.1297	0.034 84	1036.4	1.1122	**940**
960	0.043 83	1110.6	1.1750	0.039 61	1085.6	1.1520	0.036 61	1066.2	1.1334	**960**
980	0.046 63	1142.7	1.1974	0.041 89	1116.6	1.1737	0.038 49	1095.8	1.1541	**980**
1000	0.049 48	1173.6	1.2188	0.044 25	1146.8	1.1945	0.040 45	1125.1	1.1743	**1000**
1020	0.052 34	1203.2	1.2389	0.046 66	1176.2	1.2145	0.042 48	1153.8	1.1938	**1020**
1040	0.055 17	1231.4	1.2578	0.049 10	1204.7	1.2336	0.044 56	1181.8	1.2126	**1040**
1060	0.057 95	1258.3	1.2756	0.051 53	1232.0	1.2517	0.046 67	1209.2	1.2308	**1060**
1080	0.060 67	1283.9	1.2924	0.053 94	1258.3	1.2689	0.048 78	1235.6	1.2480	**1080**
1100	0.063 33	1308.5	1.3083	0.056 32	1283.5	1.2852	0.050 89	1261.2	1.2646	**1100**
1120	0.065 91	1331.9	1.3232	0.058 66	1307.8	1.3007	0.052 99	1286.0	1.2803	**1120**
1140	0.068 43	1354.4	1.3374	0.060 95	1331.2	1.3154	0.055 06	1309.9	1.2954	**1140**
1160	0.070 88	1376.1	1.3508	0.063 19	1353.8	1.3294	0.057 10	1333.1	1.3098	**1160**
1180	0.073 26	1397.0	1.3636	0.065 38	1375.5	1.3427	0.059 10	1355.5	1.3235	**1180**
1200	0.075 58	1417.2	1.3759	0.067 53	1396.5	1.3555	0.061 07	1377.1	1.3366	**1200**
1220	0.077 85	1436.8	1.3877	0.069 63	1416.9	1.3677	0.063 01	1398.2	1.3493	**1220**
1240	0.080 06	1455.9	1.3989	0.071 68	1436.8	1.3794	0.064 91	1418.7	1.3614	**1240**
1260	0.082 23	1474.5	1.4098	0.073 69	1456.1	1.3907	0.066 77	1438.6	1.3730	**1260**
1280	0.084 34	1492.6	1.4203	0.075 65	1474.9	1.4016	0.068 60	1458.0	1.3842	**1280**
1300	0.086 42	1510.4	1.4304	0.077 58	1493.3	1.4121	0.070 39	1477.0	1.3951	**1300**
1320	0.088 45	1527.7	1.4403	0.079 47	1511.3	1.4223	0.072 16	1495.5	1.4056	**1320**
1340	0.090 45	1544.8	1.4498	0.081 33	1528.9	1.4321	0.073 89	1513.6	1.4157	**1340**
1360	0.092 41	1561.5	1.4590	0.083 15	1546.2	1.4417	0.075 59	1531.4	1.4255	**1360**
1380	0.094 34	1578.0	1.4681	0.084 95	1563.2	1.4510	0.077 26	1548.9	1.4351	**1380**
1400	0.096 24	1594.3	1.4768	0.086 71	1579.9	1.4600	0.078 91	1566.1	1.4444	**1400**
1420	0.098 11	1610.3	1.4854	0.088 45	1596.4	1.4689	0.080 53	1583.0	1.4534	**1420**
1440	0.099 95	1626.1	1.4938	0.090 16	1612.7	1.4775	0.082 13	1599.7	1.4623	**1440**
1460	0.1018	1641.8	1.5020	0.091 85	1628.8	1.4859	0.083 71	1616.2	1.4709	**1460**
1480	0.1036	1657.3	1.5100	0.093 52	1644.7	1.4941	0.085 26	1632.5	1.4793	**1480**
1500	0.1053	1672.6	1.5179	0.095 16	1660.4	1.5022	0.086 80	1648.6	1.4876	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	13 000 psia			14 000 psia			15 000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
32	0.015 387	36.971	-0.0016	0.015 345	39.660	-0.0019	0.015 304	42.332	-0.0022	**32**
40	0.015 401	44.488	0.0136	0.015 360	47.154	0.0132	0.015 320	49.804	0.0129	**40**
50	0.015 422	53.929	0.0323	0.015 382	56.567	0.0319	0.015 342	59.190	0.0315	**50**
60	0.015 446	63.408	0.0507	0.015 406	66.019	0.0503	0.015 367	68.618	0.0498	**60**
70	0.015 472	72.916	0.0688	0.015 433	75.503	0.0683	0.015 395	78.078	0.0678	**70**
80	0.015 501	82.448	0.0867	0.015 462	85.011	0.0861	0.015 424	87.563	0.0855	**80**
90	0.015 532	91.999	0.1042	0.015 494	94.538	0.1036	0.015 456	97.067	0.1030	**90**
100	0.015 566	101.57	0.1215	0.015 528	104.08	0.1208	0.015 490	106.59	0.1202	**100**
110	0.015 602	111.14	0.1384	0.015 564	113.64	0.1377	0.015 526	116.12	0.1370	**110**
120	0.015 640	120.74	0.1551	0.015 602	123.21	0.1544	0.015 564	125.67	0.1537	**120**
130	0.015 680	130.34	0.1715	0.015 642	132.79	0.1708	0.015 604	135.23	0.1700	**130**
140	0.015 722	139.95	0.1877	0.015 684	142.37	0.1869	0.015 646	144.80	0.1861	**140**
150	0.015 767	149.57	0.2036	0.015 728	151.97	0.2028	0.015 690	154.37	0.2019	**150**
160	0.015 813	159.20	0.2193	0.015 774	161.58	0.2184	0.015 736	163.96	0.2175	**160**
170	0.015 861	168.84	0.2347	0.015 822	171.20	0.2338	0.015 783	173.56	0.2329	**170**
180	0.015 911	178.48	0.2499	0.015 872	180.82	0.2490	0.015 833	183.16	0.2480	**180**
190	0.015 963	188.14	0.2649	0.015 923	190.46	0.2639	0.015 884	192.77	0.2629	**190**
200	0.016 017	197.81	0.2796	0.015 977	200.10	0.2786	0.015 936	202.39	0.2776	**200**
210	0.016 073	207.48	0.2942	0.016 032	209.76	0.2932	0.015 991	212.03	0.2921	**210**
220	0.016 131	217.17	0.3086	0.016 089	219.42	0.3075	0.016 048	221.67	0.3064	**220**
230	0.016 191	226.87	0.3227	0.016 148	229.09	0.3216	0.016 106	231.32	0.3205	**230**
240	0.016 252	236.57	0.3367	0.016 209	238.77	0.3356	0.016 166	240.98	0.3344	**240**
250	0.016 316	246.29	0.3505	0.016 271	248.47	0.3493	0.016 227	250.65	0.3481	**250**
260	0.016 381	256.02	0.3641	0.016 336	258.17	0.3629	0.016 291	260.33	0.3617	**260**
270	0.016 448	265.76	0.3776	0.016 402	267.89	0.3763	0.016 356	270.02	0.3751	**270**
280	0.016 518	275.52	0.3908	0.016 470	277.62	0.3895	0.016 423	279.72	0.3883	**280**
290	0.016 589	285.29	0.4039	0.016 540	287.36	0.4026	0.016 493	289.43	0.4013	**290**
300	0.016 662	295.07	0.4169	0.016 612	297.11	0.4155	0.016 563	299.16	0.4142	**300**
310	0.016 738	304.86	0.4297	0.016 686	306.87	0.4283	0.016 636	308.90	0.4269	**310**
320	0.016 815	314.67	0.4424	0.016 762	316.65	0.4409	0.016 711	318.65	0.4395	**320**
330	0.016 895	324.50	0.4549	0.016 841	326.45	0.4534	0.016 788	328.41	0.4520	**330**
340	0.016 976	334.34	0.4673	0.016 921	336.26	0.4658	0.016 866	338.19	0.4643	**340**
350	0.017 060	344.20	0.4795	0.017 003	346.09	0.4780	0.016 947	347.99	0.4764	**350**
360	0.017 147	354.07	0.4917	0.017 088	355.93	0.4901	0.017 030	357.80	0.4885	**360**
370	0.017 235	363.97	0.5037	0.017 174	365.79	0.5020	0.017 115	367.63	0.5004	**370**
380	0.017 326	373.89	0.5155	0.017 263	375.67	0.5139	0.017 202	377.48	0.5122	**380**
390	0.017 419	383.83	0.5273	0.017 355	385.57	0.5256	0.017 292	387.34	0.5239	**390**
400	0.017 515	393.79	0.5390	0.017 448	395.50	0.5372	0.017 383	397.23	0.5355	**400**
410	0.017 614	403.78	0.5505	0.017 544	405.44	0.5487	0.017 477	407.13	0.5469	**410**
420	0.017 715	413.79	0.5620	0.017 643	415.41	0.5601	0.017 574	417.06	0.5583	**420**
430	0.017 819	423.83	0.5733	0.017 744	425.41	0.5714	0.017 673	427.01	0.5695	**430**
440	0.017 925	433.89	0.5846	0.017 848	435.43	0.5826	0.017 774	436.99	0.5807	**440**
450	0.018 035	443.99	0.5957	0.017 955	445.48	0.5937	0.017 878	446.99	0.5917	**450**
460	0.018 148	454.12	0.6068	0.018 065	455.55	0.6047	0.017 985	457.02	0.6027	**460**
470	0.018 264	464.28	0.6178	0.018 177	465.66	0.6156	0.018 094	467.08	0.6136	**470**
480	0.018 383	474.48	0.6287	0.018 293	475.81	0.6265	0.018 207	477.17	0.6244	**480**
490	0.018 505	484.72	0.6395	0.018 412	485.98	0.6373	0.018 322	487.30	0.6351	**490**
500	0.018 631	494.99	0.6503	0.018 534	496.20	0.6480	0.018 441	497.45	0.6457	**500**
510	0.018 761	505.31	0.6610	0.018 660	506.45	0.6586	0.018 563	507.64	0.6563	**510**
520	0.018 895	515.67	0.6716	0.018 789	516.74	0.6692	0.018 688	517.87	0.6668	**520**
530	0.019 032	526.07	0.6822	0.018 922	527.07	0.6797	0.018 816	528.14	0.6772	**530**
540	0.019 174	536.53	0.6927	0.019 059	537.45	0.6901	0.018 948	538.44	0.6876	**540**
550	0.019 320	547.03	0.7032	0.019 199	547.87	0.7005	0.019 084	548.79	0.6979	**550**
560	0.019 471	557.58	0.7136	0.019 344	558.34	0.7108	0.019 224	559.18	0.7081	**560**
570	0.019 627	568.19	0.7239	0.019 494	568.86	0.7210	0.019 368	569.62	0.7183	**570**
580	0.019 787	578.85	0.7342	0.019 648	579.43	0.7313	0.019 516	580.10	0.7284	**580**
590	0.019 953	589.57	0.7445	0.019 806	590.05	0.7414	0.019 668	590.63	0.7385	**590**
600	0.020 125	600.36	0.7547	0.019 970	600.73	0.7515	0.019 825	601.21	0.7485	**600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-3 (continued). Properties of Superheated Steam and Compressed Water

t (°F)	13 000 psia			14 000 psia			15 000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
610	0.020 30	611.20	0.7649	0.020 14	611.46	0.7616	0.019 99	611.84	0.7585	**610**
620	0.020 49	622.11	0.7750	0.020 31	622.25	0.7717	0.020 15	622.53	0.7685	**620**
630	0.020 68	633.08	0.7851	0.020 49	633.10	0.7817	0.020 33	633.26	0.7784	**630**
640	0.020 87	644.12	0.7952	0.020 68	644.00	0.7916	0.020 50	644.05	0.7882	**640**
650	0.021 08	655.23	0.8053	0.020 87	654.97	0.8016	0.020 69	654.89	0.7980	**650**
660	0.021 29	666.41	0.8153	0.021 07	666.00	0.8115	0.020 88	665.78	0.8078	**660**
670	0.021 51	677.66	0.8253	0.021 28	677.09	0.8213	0.021 07	676.73	0.8175	**670**
680	0.021 73	688.99	0.8353	0.021 49	688.25	0.8311	0.021 27	687.74	0.8272	**680**
690	0.021 97	700.41	0.8453	0.021 72	699.49	0.8410	0.021 48	698.82	0.8369	**690**
700	0.022 22	711.93	0.8553	0.021 95	710.81	0.8508	0.021 70	709.98	0.8466	**700**
710	0.022 47	723.54	0.8652	0.022 19	722.22	0.8606	0.021 92	721.21	0.8562	**710**
720	0.022 74	735.25	0.8752	0.022 43	733.71	0.8704	0.022 16	732.51	0.8658	**720**
730	0.023 02	747.06	0.8852	0.022 69	745.29	0.8801	0.022 40	743.89	0.8754	**730**
740	0.023 31	758.96	0.8951	0.022 96	756.95	0.8899	0.022 64	755.34	0.8850	**740**
750	0.023 61	770.97	0.9051	0.023 24	768.69	0.8996	0.022 90	766.86	0.8946	**750**
760	0.023 92	783.08	0.9151	0.023 52	780.52	0.9094	0.023 17	778.45	0.9041	**760**
770	0.024 25	795.31	0.9251	0.023 82	792.45	0.9191	0.023 45	790.13	0.9137	**770**
780	0.024 60	807.66	0.9351	0.024 14	804.47	0.9288	0.023 73	801.88	0.9232	**780**
790	0.024 96	820.13	0.9451	0.024 46	816.60	0.9386	0.024 03	813.72	0.9327	**790**
800	0.025 34	832.72	0.9551	0.024 80	828.83	0.9483	0.024 34	825.65	0.9422	**800**
820	0.026 15	858.32	0.9753	0.025 53	853.62	0.9679	0.025 00	849.78	0.9612	**820**
840	0.027 04	884.47	0.9955	0.026 32	878.87	0.9874	0.025 71	874.30	0.9802	**840**
860	0.028 01	911.17	1.0159	0.027 18	904.58	1.0071	0.026 48	899.20	0.9992	**860**
880	0.029 09	938.40	1.0364	0.028 12	930.73	1.0267	0.027 31	924.48	1.0182	**880**
900	0.030 26	966.08	1.0569	0.029 13	957.27	1.0464	0.028 21	950.11	1.0372	**900**
920	0.031 53	994.13	1.0774	0.030 23	984.15	1.0660	0.029 18	976.03	1.0562	**920**
940	0.032 91	1022.4	1.0978	0.031 41	1011.3	1.0855	0.030 21	1002.2	1.0750	**940**
960	0.034 39	1050.9	1.1179	0.032 68	1038.5	1.1049	0.031 31	1028.5	1.0936	**960**
980	0.035 96	1079.3	1.1378	0.034 02	1065.9	1.1240	0.032 48	1054.9	1.1121	**980**
1000	0.037 62	1107.5	1.1573	0.035 44	1093.1	1.1428	0.033 71	1081.2	1.1303	**1000**
1020	0.039 34	1135.4	1.1762	0.036 92	1120.1	1.1612	0.035 00	1107.5	1.1481	**1020**
1040	0.041 12	1162.8	1.1947	0.038 45	1146.9	1.1791	0.036 34	1133.5	1.1656	**1040**
1060	0.042 94	1189.7	1.2125	0.040 04	1173.2	1.1966	0.037 73	1159.3	1.1827	**1060**
1080	0.044 79	1216.0	1.2297	0.041 65	1199.2	1.2135	0.039 15	1184.8	1.1994	**1080**
1100	0.046 65	1241.6	1.2462	0.043 29	1224.6	1.2299	0.040 60	1209.8	1.2155	**1100**
1120	0.048 52	1266.6	1.2621	0.044 96	1249.4	1.2458	0.042 09	1234.4	1.2312	**1120**
1140	0.050 38	1290.8	1.2773	0.046 62	1273.7	1.2611	0.043 58	1258.7	1.2464	**1140**
1160	0.052 22	1314.3	1.2919	0.048 29	1297.4	1.2758	0.045 08	1282.4	1.2612	**1160**
1180	0.054 05	1337.1	1.3059	0.049 94	1320.4	1.2899	0.046 58	1305.5	1.2753	**1180**
1200	0.055 85	1359.2	1.3193	0.051 59	1342.8	1.3035	0.048 07	1327.9	1.2890	**1200**
1220	0.057 63	1380.7	1.3322	0.053 22	1364.6	1.3165	0.049 56	1349.9	1.3021	**1220**
1240	0.059 39	1401.7	1.3446	0.054 84	1385.9	1.3291	0.051 05	1371.4	1.3148	**1240**
1260	0.061 11	1422.1	1.3566	0.056 44	1406.7	1.3413	0.052 53	1392.4	1.3271	**1260**
1280	0.062 81	1442.0	1.3681	0.058 01	1427.0	1.3531	0.053 99	1413.1	1.3391	**1280**
1300	0.064 48	1461.5	1.3792	0.059 57	1446.9	1.3644	0.055 44	1433.3	1.3506	**1300**
1320	0.066 12	1480.5	1.3900	0.061 10	1466.4	1.3754	0.056 87	1453.1	1.3618	**1320**
1340	0.067 74	1499.1	1.4004	0.062 61	1485.4	1.3860	0.058 28	1472.5	1.3727	**1340**
1360	0.069 33	1517.4	1.4104	0.064 09	1504.0	1.3963	0.059 66	1491.5	1.3832	**1360**
1380	0.070 89	1535.3	1.4202	0.065 55	1522.3	1.4063	0.061 03	1510.1	1.3933	**1380**
1400	0.072 43	1552.9	1.4297	0.066 99	1540.3	1.4161	0.062 38	1528.4	1.4032	**1400**
1420	0.073 95	1570.2	1.4390	0.068 41	1558.0	1.4255	0.063 71	1546.4	1.4129	**1420**
1440	0.075 44	1587.3	1.4480	0.069 82	1575.4	1.4347	0.065 03	1564.1	1.4222	**1440**
1460	0.076 92	1604.1	1.4569	0.071 20	1592.6	1.4437	0.066 33	1581.6	1.4314	**1460**
1480	0.078 38	1620.8	1.4655	0.072 57	1609.5	1.4525	0.067 61	1598.8	1.4403	**1480**
1500	0.079 82	1637.2	1.4739	0.073 92	1626.3	1.4611	0.068 88	1615.8	1.4490	**1500**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4. Properties of Steam at High Temperatures

t (°F)	1 psia			5 psia			10 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	869.48	1535.1	2.4299	173.87	1535.0	2.2525	86.915	1534.9	2.1760	**1000**
1050	899.27	1561.0	2.4474	179.83	1560.9	2.2699	89.897	1560.8	2.1934	**1050**
1100	929.06	1587.1	2.4644	185.79	1587.0	2.2869	92.878	1586.9	2.2105	**1100**
1150	958.85	1613.5	2.4810	191.75	1613.4	2.3035	95.860	1613.3	2.2271	**1150**
1200	988.64	1640.0	2.4973	197.71	1640.0	2.3198	98.841	1639.9	2.2434	**1200**
1250	1018.4	1666.9	2.5132	203.67	1666.8	2.3357	101.82	1666.7	2.2593	**1250**
1300	1048.2	1693.9	2.5288	209.63	1693.8	2.3513	104.80	1693.8	2.2749	**1300**
1350	1078.0	1721.2	2.5441	215.58	1721.1	2.3666	107.78	1721.0	2.2902	**1350**
1400	1107.8	1748.7	2.5591	221.54	1748.7	2.3816	110.76	1748.6	2.3052	**1400**
1450	1137.6	1776.5	2.5738	227.50	1776.4	2.3964	113.74	1776.3	2.3199	**1450**
1500	1167.4	1804.5	2.5883	233.46	1804.4	2.4108	116.72	1804.4	2.3344	**1500**
1550	1197.1	1832.7	2.6025	239.42	1832.6	2.4251	119.70	1832.6	2.3486	**1550**
1600	1226.9	1861.1	2.6165	245.38	1861.1	2.4390	122.68	1861.0	2.3626	**1600**
1650	1256.7	1889.8	2.6302	251.34	1889.8	2.4528	125.66	1889.7	2.3764	**1650**
1700	1286.5	1918.7	2.6438	257.29	1918.7	2.4663	128.64	1918.6	2.3899	**1700**
1750	1316.3	1947.8	2.6571	263.25	1947.8	2.4797	131.62	1947.7	2.4032	**1750**
1800	1346.1	1977.2	2.6702	269.21	1977.1	2.4928	134.60	1977.1	2.4164	**1800**
1850	1375.9	2006.7	2.6831	275.17	2006.7	2.5057	137.58	2006.6	2.4293	**1850**
1900	1405.6	2036.5	2.6959	281.12	2036.4	2.5185	140.56	2036.4	2.4420	**1900**
1950	1435.4	2066.4	2.7085	287.08	2066.4	2.5310	143.54	2066.4	2.4546	**1950**
2000	1465.2	2096.6	2.7209	293.04	2096.6	2.5434	146.52	2096.6	2.4670	**2000**
2050	1495.0	2127.0	2.7331	299.00	2127.0	2.5557	149.50	2127.0	2.4793	**2050**
2100	1524.8	2157.6	2.7452	304.96	2157.6	2.5677	152.48	2157.5	2.4913	**2100**
2150	1554.6	2188.4	2.7571	310.91	2188.4	2.5796	155.46	2188.3	2.5032	**2150**
2200	1584.4	2219.4	2.7688	316.87	2219.3	2.5914	158.43	2219.3	2.5150	**2200**
2250	1614.1	2250.5	2.7804	322.83	2250.5	2.6030	161.41	2250.5	2.5266	**2250**
2300	1643.9	2281.9	2.7919	328.79	2281.8	2.6145	164.39	2281.8	2.5381	**2300**
2350	1673.7	2313.4	2.8032	334.74	2313.4	2.6258	167.37	2313.4	2.5494	**2350**
2400	1703.5	2345.1	2.8144	340.70	2345.1	2.6370	170.35	2345.1	2.5606	**2400**
2450	1733.3	2377.0	2.8255	346.66	2377.0	2.6480	173.33	2376.9	2.5716	**2450**
2500	1763.1	2409.0	2.8364	352.62	2409.0	2.6590	176.31	2409.0	2.5825	**2500**
2550	1792.9	2441.2	2.8472	358.57	2441.2	2.6697	179.29	2441.2	2.5933	**2550**
2600	1822.6	2473.6	2.8578	364.53	2473.6	2.6804	182.27	2473.6	2.6040	**2600**
2650	1852.4	2506.1	2.8684	370.49	2506.1	2.6910	185.25	2506.1	2.6145	**2650**
2700	1882.2	2538.8	2.8788	376.44	2538.8	2.7014	188.22	2538.8	2.6250	**2700**
2750	1912.0	2571.6	2.8891	382.40	2571.6	2.7117	191.20	2571.6	2.6353	**2750**
2800	1941.8	2604.6	2.8993	388.36	2604.6	2.7219	194.18	2604.5	2.6455	**2800**
2850	1971.6	2637.7	2.9094	394.32	2637.7	2.7320	197.16	2637.7	2.6555	**2850**
2900	2001.4	2670.9	2.9193	400.27	2670.9	2.7419	200.14	2670.9	2.6655	**2900**
2950	2031.1	2704.3	2.9292	406.23	2704.3	2.7518	203.12	2704.3	2.6754	**2950**
3000	2060.9	2737.8	2.9390	412.19	2737.8	2.7615	206.10	2737.8	2.6851	**3000**
3050	2090.7	2771.4	2.9486	418.15	2771.4	2.7712	209.08	2771.4	2.6948	**3050**
3100	2120.5	2805.2	2.9582	424.10	2805.2	2.7807	212.05	2805.2	2.7043	**3100**
3150	2150.3	2839.1	2.9676	430.06	2839.1	2.7902	215.03	2839.1	2.7138	**3150**
3200	2180.1	2873.1	2.9770	436.02	2873.1	2.7996	218.01	2873.1	2.7231	**3200**
3250	2209.8	2907.2	2.9862	441.97	2907.2	2.8088	220.99	2907.2	2.7324	**3250**
3300	2239.6	2941.4	2.9954	447.93	2941.4	2.8180	223.97	2941.4	2.7416	**3300**
3350	2269.4	2975.8	3.0045	453.89	2975.8	2.8271	226.95	2975.8	2.7506	**3350**
3400	2299.2	3010.3	3.0135	459.85	3010.2	2.8360	229.93	3010.2	2.7596	**3400**
3450	2329.0	3044.8	3.0224	465.80	3044.8	2.8449	232.90	3044.8	2.7685	**3450**
3500	2358.8	3079.5	3.0312	471.76	3079.5	2.8538	235.88	3079.5	2.7773	**3500**
3550	2388.6	3114.3	3.0399	477.72	3114.3	2.8625	238.86	3114.3	2.7861	**3550**
3600	2418.3	3149.2	3.0485	483.67	3149.1	2.8711	241.84	3149.1	2.7947	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4 (continued). Properties of Steam at High Temperatures

t (°F)	25 psia			50 psia			75 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	34.743	1534.5	2.0748	17.353	1533.8	1.9980	11.556	1533.1	1.9529	**1000**
1050	35.938	1560.4	2.0922	17.952	1559.8	2.0155	11.957	1559.1	1.9705	**1050**
1100	37.133	1586.6	2.1093	18.551	1586.0	2.0326	12.357	1585.4	1.9876	**1100**
1150	38.327	1612.9	2.1259	19.150	1612.4	2.0493	12.757	1611.9	2.0043	**1150**
1200	39.521	1639.6	2.1422	19.748	1639.1	2.0656	13.157	1638.6	2.0206	**1200**
1250	40.715	1666.4	2.1582	20.346	1666.0	2.0815	13.557	1665.5	2.0366	**1250**
1300	41.909	1693.5	2.1738	20.944	1693.1	2.0972	13.956	1692.6	2.0523	**1300**
1350	43.102	1720.8	2.1891	21.542	1720.4	2.1125	14.355	1720.0	2.0676	**1350**
1400	44.295	1748.4	2.2041	22.139	1748.0	2.1275	14.754	1747.6	2.0827	**1400**
1450	45.488	1776.1	2.2188	22.737	1775.8	2.1423	15.153	1775.4	2.0974	**1450**
1500	46.681	1804.2	2.2333	23.334	1803.8	2.1568	15.551	1803.5	2.1119	**1500**
1550	47.874	1832.4	2.2475	23.931	1832.1	2.1710	15.950	1831.8	2.1262	**1550**
1600	49.067	1860.9	2.2615	24.528	1860.6	2.1850	16.348	1860.3	2.1402	**1600**
1650	50.259	1889.6	2.2753	25.125	1889.3	2.1988	16.747	1889.0	2.1540	**1650**
1700	51.452	1918.5	2.2888	25.722	1918.2	2.2123	17.145	1918.0	2.1675	**1700**
1750	52.644	1947.6	2.3022	26.318	1947.4	2.2257	17.543	1947.1	2.1809	**1750**
1800	53.837	1976.9	2.3153	26.915	1976.7	2.2388	17.941	1976.5	2.1940	**1800**
1850	55.029	2006.5	2.3282	27.512	2006.3	2.2518	18.339	2006.1	2.2070	**1850**
1900	56.221	2036.3	2.3410	28.108	2036.1	2.2645	18.737	2035.9	2.2197	**1900**
1950	57.413	2066.3	2.3536	28.705	2066.1	2.2771	19.135	2065.9	2.2323	**1950**
2000	58.605	2096.5	2.3660	29.301	2096.3	2.2895	19.533	2096.1	2.2447	**2000**
2050	59.797	2126.9	2.3782	29.897	2126.7	2.3017	19.931	2126.5	2.2570	**2050**
2100	60.989	2157.5	2.3903	30.494	2157.3	2.3138	20.328	2157.1	2.2691	**2100**
2150	62.181	2188.2	2.4022	31.090	2188.1	2.3257	20.726	2187.9	2.2810	**2150**
2200	63.373	2219.2	2.4140	31.686	2219.1	2.3375	21.124	2218.9	2.2927	**2200**
2250	64.565	2250.4	2.4256	32.283	2250.3	2.3491	21.522	2250.1	2.3044	**2250**
2300	65.757	2281.7	2.4370	32.879	2281.6	2.3606	21.919	2281.5	2.3158	**2300**
2350	66.949	2313.3	2.4484	33.475	2313.2	2.3719	22.317	2313.0	2.3272	**2350**
2400	68.141	2345.0	2.4595	34.071	2344.9	2.3831	22.714	2344.8	2.3384	**2400**
2450	69.333	2376.9	2.4706	34.667	2376.8	2.3941	23.112	2376.7	2.3494	**2450**
2500	70.525	2408.9	2.4815	35.263	2408.8	2.4051	23.510	2408.7	2.3603	**2500**
2550	71.716	2441.1	2.4923	35.859	2441.0	2.4159	23.907	2440.9	2.3711	**2550**
2600	72.908	2473.5	2.5030	36.455	2473.4	2.4265	24.305	2473.3	2.3818	**2600**
2650	74.100	2506.0	2.5135	37.051	2505.9	2.4371	24.702	2505.9	2.3923	**2650**
2700	75.292	2538.7	2.5239	37.648	2538.6	2.4475	25.099	2538.6	2.4028	**2700**
2750	76.483	2571.5	2.5342	38.244	2571.5	2.4578	25.497	2571.4	2.4131	**2750**
2800	77.675	2604.5	2.5444	38.840	2604.4	2.4680	25.894	2604.4	2.4233	**2800**
2850	78.867	2637.6	2.5545	39.435	2637.6	2.4781	26.292	2637.5	2.4334	**2850**
2900	80.058	2670.9	2.5645	40.031	2670.8	2.4881	26.689	2670.7	2.4433	**2900**
2950	81.250	2704.2	2.5744	40.627	2704.2	2.4979	27.087	2704.1	2.4532	**2950**
3000	82.442	2737.8	2.5841	41.223	2737.7	2.5077	27.484	2737.7	2.4630	**3000**
3050	83.633	2771.4	2.5938	41.819	2771.3	2.5173	27.881	2771.3	2.4726	**3050**
3100	84.825	2805.2	2.6033	42.415	2805.1	2.5269	28.279	2805.1	2.4822	**3100**
3150	86.017	2839.0	2.6128	43.011	2839.0	2.5363	28.676	2839.0	2.4916	**3150**
3200	87.208	2873.1	2.6221	43.607	2873.0	2.5457	29.073	2873.0	2.5010	**3200**
3250	88.400	2907.2	2.6314	44.203	2907.1	2.5550	29.471	2907.1	2.5102	**3250**
3300	89.591	2941.4	2.6406	44.799	2941.4	2.5641	29.868	2941.3	2.5194	**3300**
3350	90.783	2975.8	2.6496	45.395	2975.7	2.5732	30.265	2975.7	2.5285	**3350**
3400	91.974	3010.2	2.6586	45.991	3010.2	2.5822	30.663	3010.2	2.5375	**3400**
3450	93.166	3044.8	2.6675	46.586	3044.8	2.5911	31.060	3044.7	2.5464	**3450**
3500	94.358	3079.5	2.6763	47.182	3079.4	2.5999	31.457	3079.4	2.5552	**3500**
3550	95.549	3114.2	2.6851	47.778	3114.2	2.6086	31.854	3114.2	2.5639	**3550**
3600	96.741	3149.1	2.6937	48.374	3149.1	2.6173	32.252	3149.1	2.5726	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4 (continued). Properties of Steam at High Temperatures

t (°F)	100 psia			150 psia			200 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	8.6576	1532.3	1.9209	5.7591	1530.9	1.8754	4.3098	1529.5	1.8430	**1000**
1050	8.9591	1558.5	1.9384	5.9614	1557.2	1.8931	4.4625	1555.9	1.8607	**1050**
1100	9.2602	1584.8	1.9556	6.1632	1583.6	1.9103	4.6147	1582.4	1.8780	**1100**
1150	9.5610	1611.3	1.9723	6.3648	1610.2	1.9271	4.7666	1609.1	1.8949	**1150**
1200	9.8615	1638.1	1.9887	6.5660	1637.1	1.9435	4.9182	1636.1	1.9114	**1200**
1250	10.162	1665.0	2.0047	6.7669	1664.1	1.9596	5.0695	1663.2	1.9275	**1250**
1300	10.462	1692.2	2.0204	6.9676	1691.4	1.9753	5.2206	1690.5	1.9432	**1300**
1350	10.762	1719.6	2.0357	7.1682	1718.8	1.9907	5.3715	1718.0	1.9586	**1350**
1400	11.061	1747.2	2.0508	7.3685	1746.5	2.0058	5.5222	1745.8	1.9738	**1400**
1450	11.361	1775.1	2.0656	7.5687	1774.4	2.0206	5.6727	1773.7	1.9886	**1450**
1500	11.660	1803.2	2.0801	7.7689	1802.5	2.0351	5.8232	1801.9	2.0031	**1500**
1550	11.959	1831.5	2.0944	7.9688	1830.9	2.0494	5.9736	1830.3	2.0174	**1550**
1600	12.258	1860.0	2.1084	8.1687	1859.4	2.0634	6.1238	1858.9	2.0315	**1600**
1650	12.558	1888.8	2.1222	8.3684	1888.2	2.0773	6.2739	1887.7	2.0453	**1650**
1700	12.856	1917.7	2.1357	8.5681	1917.2	2.0908	6.4239	1916.7	2.0589	**1700**
1750	13.155	1946.9	2.1491	8.7677	1946.4	2.1042	6.5739	1945.9	2.0723	**1750**
1800	13.454	1976.3	2.1622	8.9672	1975.8	2.1174	6.7238	1975.4	2.0855	**1800**
1850	13.753	2005.9	2.1752	9.1667	2005.5	2.1303	6.8736	2005.0	2.0985	**1850**
1900	14.052	2035.7	2.1880	9.3661	2035.3	2.1431	7.0234	2034.9	2.1113	**1900**
1950	14.350	2065.7	2.2005	9.5654	2065.3	2.1557	7.1731	2065.0	2.1239	**1950**
2000	14.649	2095.9	2.2130	9.7647	2095.6	2.1681	7.3227	2095.2	2.1363	**2000**
2050	14.947	2126.4	2.2252	9.9640	2126.0	2.1804	7.4723	2125.7	2.1486	**2050**
2100	15.246	2157.0	2.2373	10.163	2156.7	2.1925	7.6219	2156.3	2.1606	**2100**
2150	15.544	2187.8	2.2492	10.362	2187.5	2.2044	7.7714	2187.2	2.1726	**2150**
2200	15.843	2218.8	2.2610	10.562	2218.5	2.2162	7.9209	2218.2	2.1844	**2200**
2250	16.141	2250.0	2.2726	10.761	2249.7	2.2278	8.0704	2249.5	2.1960	**2250**
2300	16.439	2281.4	2.2841	10.960	2281.1	2.2393	8.2198	2280.9	2.2075	**2300**
2350	16.738	2312.9	2.2954	11.159	2312.7	2.2506	8.3692	2312.5	2.2188	**2350**
2400	17.036	2344.7	2.3066	11.358	2344.4	2.2618	8.5186	2344.2	2.2300	**2400**
2450	17.334	2376.6	2.3177	11.557	2376.3	2.2729	8.6680	2376.1	2.2411	**2450**
2500	17.633	2408.6	2.3286	11.756	2408.4	2.2838	8.8173	2408.2	2.2520	**2500**
2550	17.931	2440.9	2.3394	11.955	2440.7	2.2946	8.9666	2440.5	2.2628	**2550**
2600	18.229	2473.2	2.3501	12.154	2473.1	2.3053	9.1159	2472.9	2.2735	**2600**
2650	18.527	2505.8	2.3606	12.353	2505.6	2.3158	9.2652	2505.4	2.2841	**2650**
2700	18.825	2538.5	2.3710	12.551	2538.3	2.3263	9.4144	2538.2	2.2945	**2700**
2750	19.124	2571.3	2.3813	12.750	2571.2	2.3366	9.5637	2571.0	2.3048	**2750**
2800	19.422	2604.3	2.3915	12.949	2604.2	2.3468	9.7129	2604.0	2.3150	**2800**
2850	19.720	2637.4	2.4016	13.148	2637.3	2.3569	9.8621	2637.2	2.3251	**2850**
2900	20.018	2670.7	2.4116	13.347	2670.6	2.3669	10.011	2670.4	2.3351	**2900**
2950	20.316	2704.1	2.4215	13.546	2704.0	2.3767	10.160	2703.8	2.3450	**2950**
3000	20.614	2737.6	2.4312	13.744	2737.5	2.3865	10.310	2737.4	2.3547	**3000**
3050	20.912	2771.2	2.4409	13.943	2771.1	2.3961	10.459	2771.0	2.3644	**3050**
3100	21.210	2805.0	2.4504	14.142	2804.9	2.4057	10.608	2804.8	2.3740	**3100**
3150	21.508	2838.9	2.4599	14.341	2838.8	2.4152	10.757	2838.7	2.3834	**3150**
3200	21.806	2872.9	2.4693	14.540	2872.9	2.4245	10.906	2872.8	2.3928	**3200**
3250	22.105	2907.1	2.4785	14.738	2907.0	2.4338	11.055	2906.9	2.4020	**3250**
3300	22.403	2941.3	2.4877	14.937	2941.2	2.4430	11.204	2941.2	2.4112	**3300**
3350	22.701	2975.7	2.4968	15.136	2975.6	2.4520	11.354	2975.5	2.4203	**3350**
3400	22.999	3010.1	2.5058	15.335	3010.1	2.4610	11.503	3010.0	2.4293	**3400**
3450	23.297	3044.7	2.5147	15.533	3044.7	2.4699	11.652	3044.6	2.4382	**3450**
3500	23.595	3079.4	2.5235	15.732	3079.3	2.4787	11.801	3079.3	2.4470	**3500**
3550	23.893	3114.2	2.5322	15.931	3114.1	2.4875	11.950	3114.1	2.4557	**3550**
3600	24.191	3149.1	2.5408	16.130	3149.0	2.4961	12.099	3149.0	2.4644	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4 (continued). Properties of Steam at High Temperatures

t (°F)	300 psia			400 psia			500 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	2.8605	1526.7	1.7968	2.1358	1523.8	1.7636	1.7009	1520.9	1.7375	**1000**
1050	2.9635	1553.3	1.8147	2.2140	1550.7	1.7817	1.7643	1548.0	1.7558	**1050**
1100	3.0662	1580.0	1.8322	2.2919	1577.7	1.7993	1.8272	1575.3	1.7735	**1100**
1150	3.1684	1607.0	1.8492	2.3693	1604.8	1.8164	1.8898	1602.6	1.7908	**1150**
1200	3.2704	1634.0	1.8657	2.4464	1632.0	1.8331	1.9521	1630.0	1.8076	**1200**
1250	3.3720	1661.3	1.8819	2.5233	1659.5	1.8494	2.0141	1657.6	1.8239	**1250**
1300	3.4735	1688.8	1.8978	2.6000	1687.0	1.8653	2.0758	1685.3	1.8399	**1300**
1350	3.5747	1716.4	1.9132	2.6764	1714.8	1.8808	2.1374	1713.2	1.8555	**1350**
1400	3.6758	1744.3	1.9284	2.7527	1742.8	1.8961	2.1987	1741.3	1.8708	**1400**
1450	3.7767	1772.3	1.9433	2.8288	1770.9	1.9110	2.2600	1769.5	1.8858	**1450**
1500	3.8776	1800.6	1.9579	2.9048	1799.3	1.9257	2.3211	1798.0	1.9005	**1500**
1550	3.9783	1829.0	1.9723	2.9807	1827.8	1.9400	2.3821	1826.6	1.9150	**1550**
1600	4.0789	1857.7	1.9864	3.0564	1856.6	1.9542	2.4430	1855.4	1.9291	**1600**
1650	4.1794	1886.6	2.0002	3.1321	1885.5	1.9681	2.5037	1884.4	1.9430	**1650**
1700	4.2798	1915.7	2.0138	3.2077	1914.7	1.9817	2.5644	1913.7	1.9567	**1700**
1750	4.3801	1945.0	2.0272	3.2832	1944.0	1.9952	2.6250	1943.1	1.9702	**1750**
1800	4.4803	1974.5	2.0404	3.3586	1973.6	2.0084	2.6856	1972.7	1.9834	**1800**
1850	4.5805	2004.2	2.0534	3.4339	2003.3	2.0214	2.7460	2002.5	1.9965	**1850**
1900	4.6806	2034.1	2.0663	3.5092	2033.3	2.0342	2.8064	2032.5	2.0093	**1900**
1950	4.7807	2064.2	2.0789	3.5845	2063.4	2.0469	2.8668	2062.7	2.0220	**1950**
2000	4.8807	2094.5	2.0913	3.6597	2093.8	2.0594	2.9271	2093.1	2.0345	**2000**
2050	4.9807	2125.0	2.1036	3.7348	2124.3	2.0717	2.9873	2123.7	2.0468	**2050**
2100	5.0806	2155.7	2.1157	3.8099	2155.1	2.0838	3.0476	2154.5	2.0589	**2100**
2150	5.1805	2186.6	2.1277	3.8850	2186.0	2.0957	3.1077	2185.4	2.0709	**2150**
2200	5.2803	2217.7	2.1395	3.9601	2217.1	2.1075	3.1679	2216.6	2.0827	**2200**
2250	5.3802	2248.9	2.1511	4.0351	2248.4	2.1192	3.2280	2247.9	2.0944	**2250**
2300	5.4800	2280.4	2.1626	4.1100	2279.9	2.1307	3.2881	2279.4	2.1059	**2300**
2350	5.5797	2312.0	2.1740	4.1850	2311.5	2.1421	3.3481	2311.0	2.1173	**2350**
2400	5.6795	2343.8	2.1852	4.2599	2343.3	2.1533	3.4081	2342.9	2.1285	**2400**
2450	5.7792	2375.7	2.1962	4.3348	2375.3	2.1644	3.4681	2374.9	2.1396	**2450**
2500	5.8789	2407.8	2.2072	4.4096	2407.4	2.1753	3.5281	2407.0	2.1506	**2500**
2550	5.9785	2440.1	2.2180	4.4845	2439.7	2.1862	3.5881	2439.4	2.1614	**2550**
2600	6.0782	2472.5	2.2287	4.5593	2472.2	2.1968	3.6480	2471.8	2.1721	**2600**
2650	6.1778	2505.1	2.2393	4.6341	2504.8	2.2074	3.7079	2504.5	2.1827	**2650**
2700	6.2774	2537.8	2.2497	4.7089	2537.5	2.2179	3.7678	2537.2	2.1931	**2700**
2750	6.3770	2570.7	2.2600	4.7837	2570.4	2.2282	3.8277	2570.1	2.2035	**2750**
2800	6.4766	2603.7	2.2702	4.8584	2603.5	2.2384	3.8876	2603.2	2.2137	**2800**
2850	6.5762	2636.9	2.2803	4.9332	2636.6	2.2485	3.9474	2636.4	2.2238	**2850**
2900	6.6757	2670.2	2.2903	5.0079	2669.9	2.2585	4.0073	2669.7	2.2338	**2900**
2950	6.7752	2703.6	2.3002	5.0826	2703.4	2.2684	4.0671	2703.2	2.2437	**2950**
3000	6.8748	2737.2	2.3099	5.1574	2737.0	2.2781	4.1269	2736.7	2.2535	**3000**
3050	6.9743	2770.8	2.3196	5.2321	2770.6	2.2878	4.1867	2770.4	2.2631	**3050**
3100	7.0738	2804.6	2.3292	5.3067	2804.5	2.2974	4.2465	2804.3	2.2727	**3100**
3150	7.1733	2838.6	2.3386	5.3814	2838.4	2.3068	4.3063	2838.2	2.2822	**3150**
3200	7.2728	2872.6	2.3480	5.4561	2872.4	2.3162	4.3661	2872.3	2.2915	**3200**
3250	7.3723	2906.8	2.3573	5.5307	2906.6	2.3255	4.4258	2906.5	2.3008	**3250**
3300	7.4717	2941.0	2.3664	5.6054	2940.9	2.3347	4.4856	2940.8	2.3100	**3300**
3350	7.5712	2975.4	2.3755	5.6800	2975.3	2.3438	4.5453	2975.2	2.3191	**3350**
3400	7.6707	3009.9	2.3845	5.7547	3009.8	2.3528	4.6051	3009.7	2.3281	**3400**
3450	7.7701	3044.5	2.3934	5.8293	3044.4	2.3617	4.6648	3044.3	2.3370	**3450**
3500	7.8695	3079.2	2.4023	5.9039	3079.1	2.3705	4.7245	3079.0	2.3458	**3500**
3550	7.9690	3114.0	2.4110	5.9785	3113.9	2.3792	4.7843	3113.8	2.3546	**3550**
3600	8.0684	3148.9	2.4196	6.0531	3148.8	2.3879	4.8440	3148.8	2.3632	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4 (continued). Properties of Steam at High Temperatures

t (°F)	600 psia			800 psia			1000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	1.4110	1518.0	1.7159	1.0484	1512.1	1.6812	0.830 78	1506.2	1.6535	**1000**
1050	1.4644	1545.4	1.7344	1.0895	1540.1	1.7000	0.864 54	1534.7	1.6726	**1050**
1100	1.5175	1572.8	1.7523	1.1302	1568.0	1.7182	0.897 81	1563.0	1.6911	**1100**
1150	1.5701	1600.3	1.7696	1.1705	1595.9	1.7358	0.930 69	1591.4	1.7090	**1150**
1200	1.6225	1628.0	1.7865	1.2105	1623.9	1.7529	0.963 23	1619.7	1.7264	**1200**
1250	1.6746	1655.7	1.8030	1.2502	1651.9	1.7695	0.995 49	1648.1	1.7432	**1250**
1300	1.7264	1683.6	1.8190	1.2896	1680.1	1.7858	1.0275	1676.6	1.7596	**1300**
1350	1.7780	1711.6	1.8347	1.3288	1708.4	1.8016	1.0593	1705.1	1.7756	**1350**
1400	1.8295	1739.8	1.8501	1.3679	1736.8	1.8171	1.0909	1733.7	1.7912	**1400**
1450	1.8808	1768.1	1.8652	1.4068	1765.3	1.8323	1.1224	1762.5	1.8065	**1450**
1500	1.9320	1796.6	1.8799	1.4456	1794.0	1.8471	1.1538	1791.4	1.8214	**1500**
1550	1.9831	1825.4	1.8944	1.4843	1822.9	1.8616	1.1850	1820.4	1.8360	**1550**
1600	2.0340	1854.3	1.9086	1.5228	1852.0	1.8759	1.2161	1849.6	1.8504	**1600**
1650	2.0848	1883.4	1.9225	1.5612	1881.2	1.8899	1.2471	1879.0	1.8645	**1650**
1700	2.1356	1912.6	1.9362	1.5996	1910.6	1.9037	1.2780	1908.6	1.8783	**1700**
1750	2.1863	1942.1	1.9497	1.6378	1940.2	1.9173	1.3088	1938.3	1.8919	**1750**
1800	2.2369	1971.8	1.9630	1.6760	1970.0	1.9306	1.3395	1968.2	1.9053	**1800**
1850	2.2874	2001.6	1.9761	1.7142	2000.0	1.9437	1.3702	1998.3	1.9185	**1850**
1900	2.3379	2031.7	1.9889	1.7522	2030.1	1.9566	1.4008	2028.5	1.9314	**1900**
1950	2.3883	2061.9	2.0016	1.7902	2060.4	1.9694	1.4314	2058.9	1.9442	**1950**
2000	2.4387	2092.4	2.0141	1.8282	2091.0	1.9819	1.4619	2089.6	1.9568	**2000**
2050	2.4890	2123.0	2.0265	1.8661	2121.7	1.9943	1.4924	2120.3	1.9692	**2050**
2100	2.5393	2153.8	2.0386	1.9040	2152.6	2.0064	1.5228	2151.3	1.9814	**2100**
2150	2.5896	2184.8	2.0506	1.9418	2183.6	2.0185	1.5532	2182.4	1.9934	**2150**
2200	2.6398	2216.0	2.0624	1.9796	2214.9	2.0303	1.5836	2213.8	2.0053	**2200**
2250	2.6900	2247.3	2.0741	2.0174	2246.3	2.0420	1.6139	2245.2	2.0170	**2250**
2300	2.7401	2278.9	2.0856	2.0551	2277.9	2.0536	1.6442	2276.9	2.0286	**2300**
2350	2.7902	2310.6	2.0970	2.0929	2309.6	2.0650	1.6744	2308.7	2.0400	**2350**
2400	2.8403	2342.4	2.1083	2.1305	2341.5	2.0762	1.7047	2340.7	2.0513	**2400**
2450	2.8904	2374.5	2.1194	2.1682	2373.6	2.0874	1.7349	2372.8	2.0624	**2450**
2500	2.9404	2406.6	2.1303	2.2058	2405.9	2.0983	1.7651	2405.1	2.0734	**2500**
2550	2.9905	2439.0	2.1412	2.2435	2438.2	2.1092	1.7953	2437.5	2.0843	**2550**
2600	3.0405	2471.5	2.1519	2.2810	2470.8	2.1199	1.8254	2470.1	2.0951	**2600**
2650	3.0905	2504.1	2.1625	2.3186	2503.5	2.1305	1.8555	2502.8	2.1057	**2650**
2700	3.1404	2536.9	2.1729	2.3562	2536.3	2.1410	1.8856	2535.7	2.1161	**2700**
2750	3.1904	2569.8	2.1833	2.3937	2569.3	2.1513	1.9157	2568.7	2.1265	**2750**
2800	3.2403	2602.9	2.1935	2.4313	2602.4	2.1616	1.9458	2601.8	2.1368	**2800**
2850	3.2902	2636.1	2.2036	2.4688	2635.6	2.1717	1.9759	2635.1	2.1469	**2850**
2900	3.3402	2669.5	2.2136	2.5063	2669.0	2.1817	2.0059	2668.5	2.1569	**2900**
2950	3.3901	2702.9	2.2235	2.5438	2702.5	2.1916	2.0360	2702.0	2.1668	**2950**
3000	3.4399	2736.5	2.2333	2.5812	2736.1	2.2014	2.0660	2735.7	2.1766	**3000**
3050	3.4898	2770.2	2.2430	2.6187	2769.9	2.2111	2.0960	2769.5	2.1863	**3050**
3100	3.5397	2804.1	2.2525	2.6562	2803.7	2.2207	2.1260	2803.3	2.1959	**3100**
3150	3.5895	2838.1	2.2620	2.6936	2837.7	2.2301	2.1560	2837.4	2.2054	**3150**
3200	3.6394	2872.1	2.2714	2.7310	2871.8	2.2395	2.1860	2871.5	2.2148	**3200**
3250	3.6892	2906.3	2.2807	2.7685	2906.0	2.2488	2.2160	2905.7	2.2241	**3250**
3300	3.7390	2940.6	2.2898	2.8059	2940.3	2.2580	2.2460	2940.1	2.2333	**3300**
3350	3.7889	2975.0	2.2989	2.8433	2974.8	2.2671	2.2759	2974.5	2.2424	**3350**
3400	3.8387	3009.5	2.3079	2.8807	3009.3	2.2761	2.3059	3009.1	2.2514	**3400**
3450	3.8885	3044.2	2.3168	2.9181	3044.0	2.2850	2.3359	3043.7	2.2603	**3450**
3500	3.9383	3078.9	2.3257	2.9555	3078.7	2.2938	2.3658	3078.5	2.2691	**3500**
3550	3.9881	3113.7	2.3344	2.9929	3113.6	2.3026	2.3957	3113.4	2.2779	**3550**
3600	4.0379	3148.7	2.3431	3.0302	3148.5	2.3113	2.4257	3148.4	2.2866	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4 (continued). Properties of Steam at High Temperatures

t (°F)	1500 psia			2000 psia			3000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	0.540 33	1490.8	1.6007	0.394 80	1474.9	1.5606	0.248 75	1441.0	1.4978	**1000**
1050	0.564 33	1520.8	1.6209	0.414 02	1506.6	1.5819	0.263 38	1476.6	1.5218	**1050**
1100	0.587 80	1550.5	1.6403	0.432 66	1537.6	1.6022	0.277 31	1510.9	1.5442	**1100**
1150	0.610 84	1580.0	1.6589	0.450 83	1568.3	1.6215	0.290 70	1544.2	1.5652	**1150**
1200	0.633 53	1609.3	1.6768	0.468 62	1598.6	1.6401	0.303 66	1576.7	1.5851	**1200**
1250	0.655 91	1638.5	1.6941	0.486 09	1628.7	1.6580	0.316 26	1608.8	1.6041	**1250**
1300	0.678 03	1667.7	1.7110	0.503 29	1658.7	1.6752	0.328 57	1640.4	1.6223	**1300**
1350	0.699 94	1696.9	1.7273	0.520 26	1688.6	1.6920	0.340 63	1671.7	1.6399	**1350**
1400	0.721 66	1726.1	1.7433	0.537 03	1718.4	1.7083	0.352 47	1702.8	1.6569	**1400**
1450	0.743 21	1755.4	1.7588	0.553 64	1748.3	1.7241	0.364 14	1733.8	1.6733	**1450**
1500	0.764 67	1784.8	1.7740	0.570 14	1778.1	1.7395	0.375 68	1764.7	1.6892	**1500**
1550	0.785 95	1814.2	1.7888	0.586 47	1808.0	1.7546	0.387 06	1795.5	1.7048	**1550**
1600	0.807 12	1843.9	1.8034	0.602 68	1838.0	1.7693	0.398 31	1826.4	1.7199	**1600**
1650	0.828 19	1873.6	1.8176	0.618 79	1868.2	1.7838	0.409 46	1857.3	1.7347	**1650**
1700	0.849 17	1903.5	1.8316	0.634 80	1898.4	1.7979	0.420 51	1888.2	1.7492	**1700**
1750	0.870 06	1933.5	1.8454	0.650 74	1928.7	1.8118	0.431 48	1919.2	1.7634	**1750**
1800	0.890 89	1963.7	1.8589	0.666 60	1959.2	1.8255	0.442 38	1950.2	1.7773	**1800**
1850	0.911 64	1994.0	1.8722	0.682 39	1989.8	1.8389	0.453 20	1981.4	1.7910	**1850**
1900	0.932 34	2024.5	1.8852	0.698 12	2020.6	1.8520	0.463 97	2012.6	1.8043	**1900**
1950	0.952 98	2055.2	1.8981	0.713 79	2051.5	1.8650	0.474 68	2044.0	1.8175	**1950**
2000	0.973 57	2086.0	1.9108	0.729 42	2082.5	1.8777	0.485 33	2075.5	1.8304	**2000**
2050	0.994 11	2117.0	1.9232	0.745 00	2113.7	1.8903	0.495 94	2107.1	1.8431	**2050**
2100	1.0146	2148.2	1.9355	0.760 53	2145.0	1.9027	0.506 51	2138.8	1.8557	**2100**
2150	1.0351	2179.5	1.9476	0.776 03	2176.5	1.9148	0.517 04	2170.7	1.8680	**2150**
2200	1.0555	2211.0	1.9596	0.791 49	2208.2	1.9269	0.527 54	2202.7	1.8801	**2200**
2250	1.0759	2242.6	1.9714	0.806 92	2240.0	1.9387	0.538 00	2234.8	1.8921	**2250**
2300	1.0963	2274.4	1.9830	0.822 31	2271.9	1.9504	0.548 42	2267.0	1.9039	**2300**
2350	1.1166	2306.3	1.9945	0.837 68	2304.0	1.9619	0.558 83	2299.4	1.9155	**2350**
2400	1.1369	2338.4	2.0058	0.853 02	2336.2	1.9733	0.569 20	2331.9	1.9270	**2400**
2450	1.1572	2370.7	2.0170	0.868 34	2368.6	1.9845	0.579 55	2364.5	1.9383	**2450**
2500	1.1774	2403.1	2.0280	0.883 64	2401.1	1.9956	0.589 88	2397.3	1.9494	**2500**
2550	1.1977	2435.6	2.0389	0.898 91	2433.8	2.0065	0.600 19	2430.1	1.9605	**2550**
2600	1.2179	2468.3	2.0497	0.914 16	2466.6	2.0173	0.610 47	2463.2	1.9713	**2600**
2650	1.2381	2501.2	2.0603	0.929 40	2499.5	2.0280	0.620 74	2496.3	1.9821	**2650**
2700	1.2583	2534.1	2.0709	0.944 62	2532.6	2.0386	0.630 99	2529.5	1.9927	**2700**
2750	1.2784	2567.2	2.0813	0.959 82	2565.8	2.0490	0.641 23	2562.9	2.0032	**2750**
2800	1.2986	2600.4	2.0915	0.975 01	2599.1	2.0593	0.651 45	2596.4	2.0135	**2800**
2850	1.3187	2633.8	2.1017	0.990 18	2632.5	2.0695	0.661 66	2630.0	2.0238	**2850**
2900	1.3389	2667.3	2.1117	1.0053	2666.1	2.0795	0.671 85	2663.7	2.0339	**2900**
2950	1.3590	2700.9	2.1217	1.0205	2699.8	2.0895	0.682 03	2697.6	2.0439	**2950**
3000	1.3791	2734.6	2.1315	1.0356	2733.6	2.0993	0.692 20	2731.5	2.0537	**3000**
3050	1.3992	2768.5	2.1412	1.0507	2767.5	2.1091	0.702 36	2765.6	2.0635	**3050**
3100	1.4192	2802.4	2.1508	1.0659	2801.5	2.1187	0.712 51	2799.7	2.0732	**3100**
3150	1.4393	2836.5	2.1603	1.0810	2835.7	2.1282	0.722 64	2834.0	2.0827	**3150**
3200	1.4594	2870.7	2.1697	1.0961	2869.9	2.1376	0.732 77	2868.4	2.0922	**3200**
3250	1.4794	2905.0	2.1790	1.1111	2904.3	2.1469	0.742 89	2902.8	2.1016	**3250**
3300	1.4995	2939.4	2.1882	1.1262	2938.7	2.1562	0.753 01	2937.4	2.1108	**3300**
3350	1.5195	2973.9	2.1973	1.1413	2973.3	2.1653	0.763 11	2972.1	2.1200	**3350**
3400	1.5395	3008.5	2.2064	1.1564	3007.9	2.1743	0.773 21	3006.8	2.1290	**3400**
3450	1.5596	3043.2	2.2153	1.1714	3042.7	2.1833	0.783 30	3041.7	2.1380	**3450**
3500	1.5796	3078.0	2.2242	1.1865	3077.6	2.1922	0.793 38	3076.6	2.1469	**3500**
3550	1.5996	3113.0	2.2329	1.2015	3112.5	2.2009	0.803 46	3111.7	2.1557	**3550**
3600	1.6196	3148.0	2.2416	1.2165	3147.6	2.2096	0.813 53	3146.8	2.1644	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-4 (continued). Properties of Steam at High Temperatures

t (°F)	4000 psia			5000 psia			7000 psia			t (°F)
	v	h	s	v	h	s	v	h	s	
1000	0.175 37	1404.4	1.4463	0.131 28	1365.5	1.4005	0.081 74	1283.4	1.3179	**1000**
1050	0.187 87	1444.8	1.4736	0.142 59	1411.5	1.4315	0.091 56	1342.3	1.3576	**1050**
1100	0.199 56	1482.8	1.4983	0.152 97	1453.8	1.4590	0.100 37	1394.0	1.3913	**1100**
1150	0.210 63	1519.2	1.5212	0.162 68	1493.4	1.4840	0.108 44	1441.0	1.4210	**1150**
1200	0.221 21	1554.2	1.5427	0.171 85	1531.2	1.5071	0.115 95	1484.6	1.4476	**1200**
1250	0.231 41	1588.3	1.5630	0.180 62	1567.6	1.5287	0.123 03	1525.7	1.4721	**1250**
1300	0.241 29	1621.7	1.5822	0.189 04	1602.9	1.5491	0.129 75	1565.1	1.4948	**1300**
1350	0.250 90	1654.6	1.6006	0.197 19	1637.4	1.5684	0.136 19	1603.0	1.5160	**1350**
1400	0.260 29	1687.1	1.6183	0.205 11	1671.3	1.5869	0.142 39	1639.8	1.5361	**1400**
1450	0.269 50	1719.3	1.6354	0.212 83	1704.7	1.6046	0.148 39	1675.7	1.5552	**1450**
1500	0.278 55	1751.2	1.6519	0.220 38	1737.7	1.6217	0.154 21	1711.1	1.5734	**1500**
1550	0.287 45	1783.0	1.6679	0.227 78	1770.5	1.6382	0.159 89	1745.8	1.5909	**1550**
1600	0.296 22	1814.7	1.6835	0.235 07	1803.1	1.6542	0.165 45	1780.2	1.6078	**1600**
1650	0.304 89	1846.4	1.6987	0.242 24	1835.6	1.6698	0.170 89	1814.2	1.6241	**1650**
1700	0.313 46	1878.0	1.7135	0.249 32	1867.9	1.6849	0.176 24	1848.0	1.6400	**1700**
1750	0.321 94	1909.6	1.7280	0.256 30	1900.2	1.6997	0.181 51	1881.6	1.6553	**1750**
1800	0.330 35	1941.3	1.7422	0.263 22	1932.4	1.7141	0.186 70	1915.1	1.6703	**1800**
1850	0.338 69	1973.0	1.7560	0.270 06	1964.7	1.7283	0.191 82	1948.4	1.6849	**1850**
1900	0.346 97	2004.8	1.7697	0.276 84	1997.0	1.7421	0.196 88	1981.7	1.6992	**1900**
1950	0.355 19	2036.6	1.7830	0.283 57	2029.3	1.7556	0.201 89	2014.9	1.7131	**1950**
2000	0.363 36	2068.5	1.7961	0.290 25	2061.6	1.7689	0.206 84	2048.2	1.7268	**2000**
2050	0.371 49	2100.5	1.8090	0.296 87	2094.1	1.7820	0.211 75	2081.4	1.7401	**2050**
2100	0.379 57	2132.6	1.8217	0.303 46	2126.6	1.7948	0.216 62	2114.6	1.7532	**2100**
2150	0.387 61	2164.9	1.8341	0.310 01	2159.1	1.8074	0.221 45	2147.9	1.7661	**2150**
2200	0.395 62	2197.2	1.8464	0.316 52	2191.8	1.8198	0.226 25	2181.2	1.7788	**2200**
2250	0.403 59	2229.6	1.8585	0.323 00	2224.5	1.8320	0.231 02	2214.6	1.7912	**2250**
2300	0.411 54	2262.1	1.8704	0.329 45	2257.4	1.8440	0.235 75	2248.0	1.8034	**2300**
2350	0.419 45	2294.8	1.8821	0.335 87	2290.3	1.8558	0.240 46	2281.5	1.8154	**2350**
2400	0.427 34	2327.6	1.8937	0.342 27	2323.3	1.8675	0.245 15	2315.0	1.8273	**2400**
2450	0.435 20	2360.4	1.9051	0.348 64	2356.4	1.8790	0.249 81	2348.6	1.8389	**2450**
2500	0.443 05	2393.4	1.9163	0.354 99	2389.7	1.8903	0.254 44	2382.3	1.8504	**2500**
2550	0.450 87	2426.5	1.9274	0.361 32	2423.0	1.9015	0.259 06	2416.1	1.8617	**2550**
2600	0.458 67	2459.8	1.9383	0.367 63	2456.4	1.9125	0.263 66	2449.9	1.8729	**2600**
2650	0.466 45	2493.1	1.9491	0.373 92	2490.0	1.9233	0.268 24	2483.8	1.8839	**2650**
2700	0.474 22	2526.5	1.9598	0.380 19	2523.6	1.9341	0.272 81	2517.8	1.8947	**2700**
2750	0.481 97	2560.1	1.9704	0.386 45	2557.3	1.9447	0.277 36	2551.9	1.9054	**2750**
2800	0.489 71	2593.8	1.9808	0.392 70	2591.2	1.9551	0.281 90	2586.1	1.9160	**2800**
2850	0.497 43	2627.5	1.9910	0.398 93	2625.1	1.9655	0.286 42	2620.4	1.9264	**2850**
2900	0.505 14	2661.4	2.0012	0.405 14	2659.1	1.9757	0.290 93	2654.7	1.9367	**2900**
2950	0.512 84	2695.4	2.0112	0.411 35	2693.3	1.9857	0.295 43	2689.1	1.9469	**2950**
3000	0.520 52	2729.5	2.0212	0.417 54	2727.5	1.9957	0.299 91	2723.6	1.9569	**3000**
3050	0.528 20	2763.7	2.0310	0.423 73	2761.8	2.0056	0.304 39	2758.2	1.9669	**3050**
3100	0.535 86	2798.0	2.0407	0.429 90	2796.2	2.0153	0.308 86	2792.9	1.9767	**3100**
3150	0.543 51	2832.4	2.0503	0.436 06	2830.8	2.0249	0.313 31	2827.7	1.9864	**3150**
3200	0.551 16	2866.8	2.0598	0.442 22	2865.4	2.0344	0.317 76	2862.5	1.9959	**3200**
3250	0.558 80	2901.4	2.0691	0.448 36	2900.1	2.0439	0.322 20	2897.4	2.0054	**3250**
3300	0.566 43	2936.1	2.0784	0.454 50	2934.8	2.0532	0.326 64	2932.4	2.0148	**3300**
3350	0.574 05	2970.9	2.0876	0.460 63	2969.7	2.0624	0.331 06	2967.5	2.0241	**3350**
3400	0.581 66	3005.7	2.0967	0.466 75	3004.7	2.0715	0.335 48	3002.7	2.0332	**3400**
3450	0.589 27	3040.7	2.1057	0.472 87	3039.7	2.0805	0.339 89	3037.9	2.0423	**3450**
3500	0.596 87	3075.7	2.1146	0.478 98	3074.9	2.0895	0.344 29	3073.2	2.0513	**3500**
3550	0.604 46	3110.9	2.1234	0.485 08	3110.1	2.0983	0.348 69	3108.6	2.0602	**3550**
3600	0.612 05	3146.1	2.1322	0.491 18	3145.4	2.1071	0.353 08	3144.1	2.0690	**3600**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

Table U-5. Properties of Superheated and Metastable Steam

t (°F)	**1 psia** (t_{sat} = 101.69 °F)			**2 psia** (t_{sat} = 126.03 °F)			**4 psia** (t_{sat} = 152.91 °F)			**6 psia** (t_{sat} = 170.00 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	333.51	1105.4	1.9776	173.72	1115.8	1.9195	90.628	1126.9	1.8621	61.979	1133.9	1.8290	Sat. Vap.
180	380.56	1141.0	2.0370	190.03	1140.6	1.9600	94.767	1139.6	1.8824	63.008	1138.6	1.8365	**180**
170	374.57	1136.5	2.0299	187.02	1136.0	1.9528	93.243	1135.0	1.8750	61.979	1133.9	1.8290	**170**
160	368.58	1132.0	2.0226	184.01	1131.4	1.9455	91.715	1130.3	1.8676	60.944	1129.1	1.8213	**160**
150	362.58	1127.4	2.0152	180.99	1126.8	1.9380	90.180	1125.6	1.8599	59.903	1124.2	1.8133	**150**
140	356.58	1122.9	2.0077	177.96	1122.2	1.9304	88.639	1120.8	1.8520	58.855	1119.3	1.8052	**140**
130	350.57	1118.4	2.0001	174.93	1117.6	1.9226	87.089	1116.0	1.8439	57.798	1114.2	1.7967	**130**
120	344.55	1113.8	1.9923	171.88	1113.0	1.9146	85.530	1111.1	1.8356	56.729	1109.1	1.7879	**120**
110	338.52	1109.3	1.9844	168.83	1108.3	1.9065	83.959	1106.1	1.8269	55.645	1103.8	1.7787	**110**
100	332.47	1104.7	1.9762	165.76	1103.5	1.8981	82.371	1101.1	1.8179	54.542	1098.3	1.7690	**100**
90	326.42	1100.0	1.9679	162.68	1098.7	1.8894	80.763	1095.8	1.8085	53.413	1092.6	1.7586	**90**
80	320.34	1095.4	1.9594	159.57	1093.9	1.8805	79.128	1090.4	1.7986	52.250	1086.4	1.7473	**80**
70	314.25	1090.7	1.9506	156.44	1088.9	1.8712	77.457	1084.7	1.7879	*51.039*	*1079.8*	*1.7349*	**70**
60	308.12	1085.9	1.9415	153.27	1083.8	1.8614	75.737	1078.7	1.7764				**60**
50	301.95	1081.1	1.9321	150.06	1078.5	1.8511	*73.949*	*1072.1*	*1.7636*				**50**
40	295.73	1076.2	1.9224	146.78	1072.9	1.8401							**40**
30	289.45	1071.1	1.9121	143.42	1067.0	1.8282							**30**
20	283.07	1065.8	1.9012	*139.93*	*1060.6*	*1.8149*							**20**
10	276.56	1060.3	1.8895										**10**
0	269.87	1054.4	1.8768										**0**

t (°F)	**8 psia** (t_{sat} = 182.81 °F)			**10 psia** (t_{sat} = 193.16 °F)			**12 psia** (t_{sat} = 201.91 °F)			**14 psia** (t_{sat} = 209.52 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	47.345	1139.0	1.8056	38.423	1143.1	1.7875	32.398	1146.4	1.7728	28.048	1149.4	1.7605	Sat. Vap.
210	49.449	1152.0	1.8254	39.473	1151.2	1.7999	32.822	1150.4	1.7788	28.070	1149.6	1.7608	**210**
200	48.678	1147.2	1.8182	38.851	1146.4	1.7926	32.297	1145.5	1.7714	27.614	1144.6	1.7533	**200**
190	47.904	1142.5	1.8109	38.224	1141.5	1.7852	31.768	1140.5	1.7638	27.155	1139.5	1.7455	**190**
180	47.125	1137.6	1.8035	37.592	1136.6	1.7775	31.235	1135.5	1.7560	26.691	1134.3	1.7375	**180**
170	46.342	1132.8	1.7958	36.957	1131.6	1.7696	30.696	1130.3	1.7479	26.221	1129.1	1.7292	**170**
160	45.554	1127.8	1.7879	36.315	1126.5	1.7615	30.151	1125.1	1.7395	25.744	1123.6	1.7205	**160**
150	44.758	1122.8	1.7797	35.665	1121.3	1.7530	29.597	1119.7	1.7307	25.258	1118.0	1.7113	**150**
140	43.955	1117.6	1.7712	35.006	1115.9	1.7441	29.033	1114.1	1.7214	24.759	1112.1	1.7015	**140**
130	43.140	1112.4	1.7623	34.335	1110.4	1.7348	28.455	1108.2	1.7115	24.245	1105.8	1.6910	**130**
120	42.313	1106.9	1.7530	33.648	1104.6	1.7249	27.858	1101.9	1.7008	*23.709*	*1099.1*	*1.6795*	**120**
110	41.467	1101.2	1.7431	32.940	1098.4	1.7141	*27.236*	*1095.2*	*1.6891*				**110**
100	40.598	1095.2	1.7325	*32.203*	*1091.8*	*1.7024*							**100**
90	*39.697*	*1088.8*	*1.7208*										**90**

t (°F)	**16 psia** (t_{sat} = 216.27 °F)			**18 psia** (t_{sat} = 222.36 °F)			**20 psia** (t_{sat} = 227.92 °F)			**22 psia** (t_{sat} = 233.03 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	24.755	1151.9	1.7497	22.173	1154.2	1.7403	20.092	1156.2	1.7319	18.378	1158.0	1.7243	Sat. Vap.
240	25.692	1163.6	1.7667	22.796	1162.9	1.7530	20.479	1162.3	1.7406	18.582	1161.6	1.7293	**240**
230	25.299	1158.7	1.7597	22.444	1158.0	1.7459	20.159	1157.2	1.7334	18.288	1156.5	1.7220	**230**
220	24.903	1153.7	1.7525	22.087	1153.0	1.7386	19.835	1152.1	1.7260	17.991	1151.3	1.7145	**220**
210	24.503	1148.7	1.7451	21.729	1147.9	1.7310	19.508	1147.0	1.7183	17.690	1146.0	1.7066	**210**
200	24.100	1143.6	1.7374	21.366	1142.7	1.7232	19.178	1141.7	1.7103	17.386	1140.6	1.6985	**200**
190	23.693	1138.5	1.7295	20.999	1137.4	1.7151	18.842	1136.2	1.7020	17.076	1135.0	1.6900	**190**
180	23.281	1133.2	1.7212	20.626	1131.9	1.7066	18.501	1130.6	1.6933	16.760	1129.3	1.6810	**180**
170	22.862	1127.7	1.7127	20.247	1126.3	1.6978	18.152	1124.8	1.6842	16.435	1123.2	1.6715	**170**
160	22.435	1122.1	1.7036	19.858	1120.4	1.6884	17.793	1118.7	1.6744	16.100	1116.9	1.6613	**160**
150	21.998	1116.2	1.6940	19.458	1114.2	1.6783	17.421	1112.2	1.6638	*15.750*	*1110.0*	*1.6501*	**150**
140	21.547	1109.9	1.6837	19.042	1107.6	1.6674	*17.032*	*1105.2*	*1.6522*				**140**
130	*21.078*	*1103.2*	*1.6725*	*18.606*	*1100.4*	*1.6553*							**130**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot {}^oR)$

NOTE: *Points in italics are extrapolations beyond 5 % equilibrium moisture limit; see Chapter 3.*

Table U-5 (continued). Properties of Superheated and Metastable Steam

	24 psia (t_{sat} = 237.78 ºF)			**26 psia** (t_{sat} = 242.21 ºF)			**28 psia** (t_{sat} = 246.38 ºF)			**30 psia** (t_{sat} = 250.30 ºF)			
t **(ºF)**	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	***t*** **(ºF)**
Sat. Vap.	16.941	1159.7	1.7173	15.719	1161.3	1.7109	14.665	1162.8	1.7050	13.748	1164.1	1.6995	Sat. Vap.
260	17.537	1171.0	1.7332	16.161	1170.4	1.7237	14.982	1169.8	1.7148	13.960	1169.2	1.7066	**260**
250	17.270	1165.9	1.7261	15.913	1165.3	1.7166	14.750	1164.6	1.7077	13.741	1164.0	1.6993	**250**
240	17.001	1160.9	1.7190	15.662	1160.2	1.7093	14.514	1159.4	1.7003	13.519	1158.7	1.6918	**240**
230	16.728	1155.7	1.7115	15.409	1154.9	1.7017	14.277	1154.1	1.6926	13.295	1153.3	1.6840	**230**
220	16.453	1150.4	1.7038	15.152	1149.6	1.6939	14.036	1148.7	1.6847	13.068	1147.7	1.6759	**220**
210	16.175	1145.1	1.6958	14.892	1144.1	1.6858	13.791	1143.1	1.6764	12.836	1142.0	1.6675	**210**
200	15.892	1139.5	1.6875	14.626	1138.4	1.6773	13.541	1137.3	1.6677	12.599	1136.1	1.6585	**200**
190	15.603	1133.8	1.6788	14.355	1132.6	1.6683	13.284	1131.2	1.6584	12.355	1129.9	1.6490	**190**
180	15.307	1127.9	1.6696	14.076	1126.4	1.6588	13.019	1124.9	1.6486	12.102	1123.3	1.6388	**180**
170	15.003	1121.6	1.6597	13.788	1119.9	1.6485	12.744	1118.1	1.6379	*11.837*	*1116.2*	*1.6276*	**170**
160	14.686	1114.9	1.6490	*13.486*	*1112.9*	*1.6373*	*12.454*	*1110.7*	*1.6260*				**160**
150	*14.353*	*1107.7*	*1.6372*										**150**

	32 psia (t_{sat} = 254.02 ºF)			**34 psia** (t_{sat} = 257.55 ºF)			**36 psia** (t_{sat} = 260.92 ºF)			**38 psia** (t_{sat} = 264.14 ºF)			
t **(ºF)**	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	***t*** **(ºF)**
Sat. Vap.	12.942	1165.4	1.6944	12.228	1166.6	1.6896	11.590	1167.7	1.6850	11.018	1168.8	1.6807	Sat. Vap.
270	13.269	1173.7	1.7059	12.469	1173.1	1.6985	11.757	1172.5	1.6916	11.120	1171.9	1.6850	**270**
260	13.065	1168.5	1.6987	12.275	1167.9	1.6914	11.572	1167.2	1.6843	10.944	1166.6	1.6776	**260**
250	12.858	1163.3	1.6914	12.078	1162.6	1.6839	11.385	1161.8	1.6768	10.765	1161.1	1.6700	**250**
240	12.648	1157.9	1.6838	11.880	1157.1	1.6762	11.196	1156.3	1.6689	10.584	1155.5	1.6620	**240**
230	12.436	1152.4	1.6759	11.678	1151.6	1.6682	11.003	1150.7	1.6608	10.399	1149.8	1.6537	**230**
220	12.220	1146.8	1.6676	11.472	1145.8	1.6598	10.806	1144.8	1.6522	10.210	1143.8	1.6450	**220**
210	12.000	1140.9	1.6590	11.261	1139.8	1.6509	10.604	1138.7	1.6432	10.015	1137.5	1.6357	**210**
200	11.774	1134.9	1.6498	11.045	1133.6	1.6415	10.396	1132.3	1.6335	9.814	1130.9	1.6258	**200**
190	11.540	1128.5	1.6401	10.820	1127.0	1.6314	10.179	1125.4	1.6231	9.604	1123.9	1.6150	**190**
180	11.297	1121.6	1.6294	10.585	1119.9	1.6204	*9.951*	*1118.0*	*1.6116*	*9.382*	*1116.1*	*1.6030*	**180**
170	*11.042*	*1114.2*	*1.6177*	*10.337*	*1112.1*	*1.6081*							**170**

	40 psia (t_{sat} = 267.22 ºF)			**45 psia** (t_{sat} = 274.42 ºF)			**50 psia** (t_{sat} = 280.99 ºF)			**60 psia** (t_{sat} = 292.69 ºF)			
t **(ºF)**	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	*v*	*h*	*s*	***t*** **(ºF)**
Sat. Vap.	10.500	1169.8	1.6766	9.4023	1172.2	1.6672	8.5171	1174.2	1.6588	7.1762	1177.8	1.6443	Sat. Vap.
300	11.041	1186.9	1.6996	9.7814	1185.7	1.6854	8.7735	1184.5	1.6724	7.2604	1181.9	1.6496	**300**
290	10.878	1181.8	1.6928	9.6345	1180.5	1.6784	8.6394	1179.1	1.6654	7.1445	1176.3	1.6422	**290**
280	10.713	1176.6	1.6858	9.4860	1175.2	1.6713	8.5029	1173.7	1.6581	7.0268	1170.5	1.6345	**280**
270	10.547	1171.3	1.6787	9.3348	1169.7	1.6639	8.3646	1168.1	1.6504	6.9068	1164.6	1.6264	**270**
260	10.378	1165.9	1.6712	9.1818	1164.2	1.6562	8.2240	1162.3	1.6425	6.7841	1158.5	1.6180	**260**
250	10.206	1160.4	1.6634	9.0261	1158.4	1.6482	8.0804	1156.4	1.6343	6.6578	1152.1	1.6091	**250**
240	10.032	1154.7	1.6554	8.8672	1152.5	1.6399	7.9332	1150.3	1.6255	6.5273	1145.4	1.5995	**240**
230	9.8547	1148.8	1.6469	8.7042	1146.4	1.6310	7.7816	1143.8	1.6163	6.3913	1138.2	1.5892	**230**
220	9.6726	1142.7	1.6380	8.5363	1140.0	1.6216	7.6243	1137.0	1.6063	*6.2482*	*1130.5*	*1.5780*	**220**
210	9.4848	1136.3	1.6286	8.3619	1133.1	1.6115	7.4598	1129.7	1.5955				**210**
200	9.2897	1129.5	1.6183	8.1792	1125.8	1.6005	*7.2857*	*1121.7*	*1.5835*				**200**
190	*9.0853*	*1122.2*	*1.6071*	*7.9856*	*1117.8*	*1.5882*							**190**

UNITS: *v* in ft^3/lb_m ; *h* in Btu/lb_m ; *s* in $Btu/(lb_m \cdot ºR)$

NOTE: *Points in italics are extrapolations beyond 5 % equilibrium moisture limit; see Chapter 3.*

Table U-5 (continued). Properties of Superheated and Metastable Steam

t (°F)	**80 psia** (t_{sat} = 312.03 °F)			**100 psia** (t_{sat} = 327.82 °F)			**150 psia** (t_{sat} = 358.43 °F)			**200 psia** (t_{sat} = 381.81 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	5.4730	1183.3	1.6212	4.4324	1187.5	1.6032	3.0148	1194.5	1.5700	2.2880	1198.8	1.5460	Sat. Vap.
390	6.1367	1225.6	1.6734	4.8684	1222.4	1.6459	3.1736	1213.9	1.5933	2.3215	1204.4	1.5526	**390**
380	6.0542	1220.4	1.6673	4.8005	1217.0	1.6395	3.1245	1207.9	1.5862	2.2808	1197.5	1.5445	**380**
370	5.9712	1215.2	1.6610	4.7319	1211.6	1.6330	3.0743	1201.8	1.5789	2.2385	1190.4	1.5360	**370**
360	5.8875	1209.9	1.6545	4.6625	1206.1	1.6263	3.0230	1195.5	1.5713	2.1947	1183.0	1.5270	**360**
350	5.8030	1204.5	1.6480	4.5923	1200.4	1.6194	2.9704	1188.9	1.5632	2.1491	1175.1	1.5173	**350**
340	5.7177	1199.1	1.6412	4.5211	1194.7	1.6123	2.9160	1182.1	1.5546	2.1014	1166.8	1.5069	**340**
330	5.6314	1193.6	1.6343	4.4485	1188.8	1.6048	2.8598	1174.9	1.5456	2.0510	1157.8	1.4956	**330**
320	5.5439	1187.9	1.6271	4.3742	1182.7	1.5970	2.8013	1167.3	1.5360	*1.9974*	*1148.0*	*1.4832*	**320**
310	5.4546	1182.1	1.6196	4.2981	1176.4	1.5889	2.7402	1159.2	1.5255				**310**
300	5.3635	1176.2	1.6118	4.2199	1169.8	1.5803	*2.6756*	*1150.5*	*1.5142*				**300**
290	5.2704	1170.0	1.6036	4.1392	1162.9	1.5712							**290**
280	5.1748	1163.6	1.5950	4.0552	1155.7	1.5614							**280**
270	5.0761	1156.9	1.5859	3.9674	1147.9	1.5508							**270**
260	4.9737	1149.8	1.5761	*3.8745*	*1139.5*	*1.5392*							**260**
250	4.8665	1142.2	1.5655										**250**
240	*4.7532*	*1133.9*	*1.5538*										**240**

t (°F)	**300 psia** (t_{sat} = 417.37 °F)			**400 psia** (t_{sat} = 444.63 °F)			**500 psia** (t_{sat} = 467.05 °F)			**600 psia** (t_{sat} = 486.25 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	1.5434	1203.4	1.5111	1.1616	1205.0	1.4853	0.9282	1205.0	1.4643	0.7702	1203.9	1.4464	Sat. Vap.
490	1.7416	1251.8	1.5642	1.2641	1238.8	1.5217	0.9742	1224.2	1.4848	0.7772	1207.5	1.4502	**490**
480	1.7161	1245.7	1.5577	1.2427	1231.9	1.5144	0.9548	1216.2	1.4763	0.7580	1197.7	1.4398	**480**
470	1.6901	1239.4	1.5510	1.2208	1224.7	1.5067	0.9344	1207.7	1.4671	0.7377	1187.2	1.4285	**470**
460	1.6637	1233.0	1.5441	1.1982	1217.3	1.4987	0.9129	1198.5	1.4572	0.7159	1175.7	1.4162	**460**
450	1.6367	1226.4	1.5370	1.1747	1209.5	1.4901	0.8902	1188.8	1.4466	*0.6923*	*1163.3*	*1.4025*	**450**
440	1.6091	1219.7	1.5295	1.1501	1201.1	1.4809	0.8662	1178.3	1.4350				**440**
430	1.5807	1212.7	1.5217	1.1244	1192.3	1.4711	*0.8403*	*1166.9*	*1.4223*				**430**
420	1.5514	1205.4	1.5134	1.0973	1182.9	1.4605							**420**
410	1.5210	1197.6	1.5046	1.0685	1172.9	1.4489							**410**
400	1.4892	1189.5	1.4951	*1.0378*	*1161.9*	*1.4363*							**400**
390	1.4559	1180.9	1.4850										**390**
380	1.4209	1171.7	1.4741										**380**
370	*1.3836*	*1161.7*	*1.4622*										**370**

t (°F)	**800 psia** (t_{sat} = 518.27 °F)			**1000 psia** (t_{sat} = 544.65 °F)			**1200 psia** (t_{sat} = 567.26 °F)			**1400 psia** (t_{sat} = 587.14 °F)			t (°F)
	v	h	s	v	h	s	v	h	s	v	h	s	
Sat. Vap.	0.5692	1199.3	1.4162	0.4461	1192.6	1.3906	0.3625	1184.2	1.3677	0.3017	1174.4	1.3465	Sat. Vap.
590	0.6663	1263.3	1.4795	0.5034	1240.3	1.4372	0.3910	1213.1	1.3956	0.3055	1179.0	1.3509	**590**
580	0.6543	1255.5	1.4721	0.4920	1231.0	1.4282	0.3791	1201.2	1.3842	0.2916	1162.1	1.3347	**580**
570	0.6419	1247.5	1.4643	0.4800	1221.1	1.4187	0.3662	1188.1	1.3715	*0.2756*	*1142.2*	*1.3155*	**570**
560	0.6292	1239.2	1.4562	0.4673	1210.5	1.4084	0.3519	1173.2	1.3570				**560**
550	0.6159	1230.5	1.4476	0.4538	1199.1	1.3971	0.3358	1156.2	1.3402				**550**
540	0.6020	1221.4	1.4385	0.4390	1186.5	1.3846	*0.3173*	*1136.4*	*1.3205*				**540**
530	0.5875	1211.7	1.4288	0.4228	1172.4	1.3704							**530**
520	0.5720	1201.2	1.4181	*0.4047*	*1156.4*	*1.3542*							**520**
510	0.5553	1189.8	1.4064										**510**
500	0.5372	1177.2	1.3934										**500**
490	*0.5174*	*1163.3*	*1.3788*										**490**

UNITS: v in ft^3/lb_m ; h in Btu/lb_m ; s in $Btu/(lb_m \cdot °R)$

NOTE: *Points in italics are extrapolations beyond 5 % equilibrium moisture limit; see Chapter 3.*

Table U-6. Isobaric Heat Capacity of Water and Steam ($Btu \cdot lb_m^{-1} \cdot {}^oR^{-1}$)

	Pressure (psia)													
t **(°F)**	**1**	**5**	**10**	**20**	**50**	**100**	**200**	**500**	**1000**	**2000**	**5000**	**7500**	**10 000**	**15 000**
Sat. Liq.	0.9981	1.0007	1.0043	1.0100	1.0228	1.0392	1.0668	1.1422	1.2848	1.8353				
Sat. Vap.	0.4610	0.4759	0.4873	0.5053	0.5488	0.6059	0.6943	0.9066	1.2663	2.6150				
32	1.0079	1.0079	1.0078	1.0078	1.0075	1.0071	1.0063	1.0039	0.9999	0.9925	0.9730	0.9595	0.9483	0.9315
50	1.0022	1.0021	1.0021	1.0020	1.0018	1.0015	1.0009	0.9991	0.9961	0.9904	0.9752	0.9645	0.9554	0.9409
75	0.9990	0.9990	0.9990	0.9989	0.9988	0.9985	0.9981	0.9966	0.9943	0.9898	0.9777	0.9690	0.9613	0.9485
100	0.9981	0.9981	0.9981	0.9980	0.9979	0.9977	0.9973	0.9961	0.9941	0.9902	0.9796	0.9718	0.9648	0.9528
125	0.4548	0.9984	0.9984	0.9983	0.9982	0.9980	0.9977	0.9965	0.9947	0.9912	0.9813	0.9740	0.9673	0.9558
150	0.4534	0.9997	0.9997	0.9997	0.9996	0.9994	0.9990	0.9979	0.9962	0.9928	0.9832	0.9761	0.9696	0.9582
175	0.4533	0.4708	1.0020	1.0020	1.0018	1.0017	1.0013	1.0002	0.9985	0.9951	0.9856	0.9784	0.9719	0.9604
200	0.4536	0.4661	0.4839	1.0052	1.0051	1.0049	1.0045	1.0034	1.0016	0.9981	0.9884	0.9811	0.9744	0.9627
225	0.4544	0.4639	0.4765	1.0094	1.0093	1.0091	1.0087	1.0076	1.0057	1.0020	0.9918	0.9842	0.9772	0.9650
250	0.4554	0.4628	0.4725	0.4938	1.0146	1.0144	1.0140	1.0127	1.0107	1.0067	0.9958	0.9877	0.9804	0.9675
275	0.4566	0.4625	0.4701	0.4864	1.0211	1.0208	1.0204	1.0190	1.0167	1.0124	1.0005	0.9918	0.9839	0.9702
300	0.4580	0.4627	0.4688	0.4816	0.5286	1.0286	1.0281	1.0265	1.0240	1.0191	1.0060	0.9965	0.9879	0.9732
325	0.4595	0.4633	0.4682	0.4785	0.5142	1.0381	1.0375	1.0357	1.0328	1.0272	1.0124	1.0018	0.9925	0.9765
350	0.4611	0.4642	0.4682	0.4766	0.5050	0.5670	1.0488	1.0467	1.0433	1.0368	1.0200	1.0081	0.9977	0.9803
375	0.4628	0.4654	0.4687	0.4756	0.4986	0.5453	1.0625	1.0600	1.0560	1.0484	1.0289	1.0154	1.0038	0.9846
400	0.4645	0.4667	0.4695	0.4752	0.4941	0.5314	0.6390	1.0763	1.0714	1.0623	1.0394	1.0239	1.0108	0.9896
425	0.4663	0.4682	0.4705	0.4753	0.4910	0.5214	0.6008	1.0964	1.0903	1.0792	1.0518	1.0338	1.0189	0.9952
450	0.4682	0.4698	0.4718	0.4759	0.4891	0.5142	0.5772	1.1214	1.1137	1.0998	1.0665	1.0455	1.0283	1.0017
475	0.4701	0.4715	0.4732	0.4767	0.4879	0.5090	0.5604	0.8527	1.1432	1.1252	1.0841	1.0590	1.0391	1.0090
500	0.4720	0.4732	0.4747	0.4777	0.4874	0.5052	0.5478	0.7535	1.1810	1.1571	1.1051	1.0749	1.0516	1.0173
525	0.4740	0.4750	0.4763	0.4790	0.4873	0.5026	0.5383	0.6980	1.2314	1.1981	1.1304	1.0935	1.0659	1.0266
550	0.4760	0.4769	0.4781	0.4804	0.4877	0.5009	0.5312	0.6601	1.1934	1.2526	1.1612	1.1153	1.0823	1.0370
575	0.4780	0.4788	0.4799	0.4819	0.4883	0.4998	0.5259	0.6322	0.9878	1.3295	1.1991	1.1408	1.1009	1.0483
600	0.4801	0.4808	0.4817	0.4835	0.4893	0.4994	0.5219	0.6110	0.8739	1.4481	1.2468	1.1708	1.1220	1.0605
625	0.4821	0.4828	0.4836	0.4853	0.4904	0.4993	0.5191	0.5947	0.7997	1.6636	1.3087	1.2062	1.1457	1.0734
650	0.4842	0.4848	0.4856	0.4870	0.4916	0.4996	0.5170	0.5820	0.7474	1.8951	1.3927	1.2481	1.1719	1.0868
675	0.4863	0.4869	0.4875	0.4889	0.4930	0.5002	0.5157	0.5720	0.7087	1.4047	1.5144	1.3014	1.2025	1.1010
700	0.4885	0.4889	0.4896	0.4908	0.4946	0.5011	0.5149	0.5642	0.6791	1.1651	1.7101	1.3697	1.2406	1.1194
725	0.4906	0.4911	0.4916	0.4927	0.4962	0.5021	0.5146	0.5582	0.6560	1.0221	2.0610	1.4552	1.2827	1.1377
750	0.4928	0.4932	0.4937	0.4947	0.4979	0.5033	0.5146	0.5534	0.6379	0.9267	2.8262	1.5668	1.3315	1.1558
775	0.4950	0.4953	0.4958	0.4968	0.4997	0.5046	0.5149	0.5497	0.6233	0.8585	4.1721	1.7127	1.3889	1.1754
800	0.4972	0.4975	0.4979	0.4988	0.5015	0.5061	0.5155	0.5469	0.6117	0.8076	3.5520	1.8939	1.4548	1.1973
825	0.4994	0.4997	0.5001	0.5009	0.5034	0.5076	0.5163	0.5448	0.6023	0.7684	2.5208	2.0838	1.5260	1.2210
850	0.5016	0.5019	0.5023	0.5030	0.5053	0.5092	0.5172	0.5433	0.5946	0.7375	1.9305	2.2036	1.5959	1.2453
875	0.5038	0.5041	0.5045	0.5052	0.5073	0.5109	0.5183	0.5422	0.5884	0.7127	1.5913	2.1753	1.6539	1.2685
900	0.5061	0.5064	0.5067	0.5074	0.5093	0.5127	0.5196	0.5415	0.5834	0.6926	1.3754	2.0246	1.6876	1.2891
925	0.5084	0.5086	0.5089	0.5095	0.5114	0.5145	0.5209	0.5412	0.5793	0.6762	1.2261	1.8190	1.6872	1.3052
950	0.5107	0.5109	0.5112	0.5118	0.5135	0.5164	0.5224	0.5412	0.5760	0.6625	1.1167	1.6461	1.6521	1.3156
975	0.5130	0.5132	0.5134	0.5140	0.5156	0.5184	0.5239	0.5414	0.5734	0.6512	1.0338	1.4796	1.5905	1.3193
1000	0.5153	0.5155	0.5157	0.5162	0.5178	0.5203	0.5255	0.5418	0.5714	0.6418	0.9694	1.3457	1.5125	1.3161
1025	0.5176	0.5178	0.5180	0.5185	0.5199	0.5223	0.5272	0.5424	0.5697	0.6338	0.9184	1.2384	1.4280	1.3060
1050	0.5199	0.5201	0.5203	0.5207	0.5221	0.5244	0.5290	0.5432	0.5685	0.6271	0.8773	1.1512	1.3441	1.2896
1075	0.5222	0.5224	0.5226	0.5230	0.5243	0.5264	0.5307	0.5441	0.5677	0.6215	0.8437	1.0801	1.2687	1.2681
1100	0.5246	0.5247	0.5249	0.5253	0.5265	0.5285	0.5326	0.5451	0.5671	0.6167	0.8157	1.0221	1.1991	1.2424
1125	0.5269	0.5271	0.5272	0.5276	0.5287	0.5306	0.5345	0.5462	0.5668	0.6127	0.7922	0.9744	1.1368	1.2159
1150	0.5292	0.5294	0.5296	0.5299	0.5310	0.5328	0.5364	0.5474	0.5667	0.6093	0.7721	0.9346	1.0826	1.1866
1175	0.5316	0.5317	0.5319	0.5322	0.5332	0.5349	0.5383	0.5487	0.5669	0.6065	0.7550	0.9009	1.0358	1.1461
1200	0.5339	0.5341	0.5342	0.5345	0.5355	0.5371	0.5403	0.5501	0.5672	0.6041	0.7401	0.8720	0.9954	1.1096
1250	0.5386	0.5388	0.5389	0.5392	0.5400	0.5415	0.5443	0.5531	0.5682	0.6006	0.7160	0.8253	0.9292	1.0529
1300	0.5433	0.5434	0.5436	0.5438	0.5446	0.5459	0.5485	0.5563	0.5698	0.5983	0.6976	0.7897	0.8776	1.0006
1350	0.5480	0.5481	0.5482	0.5485	0.5492	0.5503	0.5526	0.5597	0.5717	0.5971	0.6834	0.7621	0.8375	0.9501
1400	0.5527	0.5528	0.5529	0.5531	0.5537	0.5548	0.5569	0.5632	0.5740	0.5967	0.6724	0.7406	0.8064	0.9069
1450	0.5574	0.5575	0.5576	0.5578	0.5583	0.5593	0.5612	0.5669	0.5766	0.5970	0.6640	0.7239	0.7824	0.8727
1500	0.5623	0.5624	0.5625	0.5626	0.5631	0.5639	0.5656	0.5706	0.5792	0.5978	0.6576	0.7108	0.7638	0.8463

Table U-7. Speed of Sound in Water and Steam (ft·s^{-1})

	Pressure (psia)													
t **(°F)**	**1**	**5**	**10**	**20**	**50**	**100**	**200**	**500**	**1000**	**2000**	**5000**	**7500**	**10 000**	**15 000**
Sat. Liq.	5016.	5111.	5095.	5039.	4888.	4700.	4427.	3878.	3247.	2270.				
Sat. Vap.	1430.	1499.	1531.	1564.	1605.	1632.	1651.	1651.	1607.	1466.				
32	4601.	4601.	4601.	4601.	4602.	4604.	4608.	4618.	4636.	4673.	4787.	4885.	4986.	5189.
50	4749.	4749.	4749.	4749.	4750.	4752.	4756.	4767.	4785.	4821.	4933.	5029.	5127.	5324.
75	4905.	4905.	4905.	4905.	4906.	4908.	4912.	4922.	4941.	4977.	5087.	5181.	5276.	5467.
100	5011.	5011.	5011.	5011.	5012.	5014.	5018.	5029.	5047.	5084.	5195.	5289.	5383.	5571.
125	1461.	5075.	5076.	5076.	5077.	5079.	5083.	5094.	5113.	5151.	5265.	5360.	5455.	5643.
150	1492.	5106.	5106.	5107.	5108.	5110.	5114.	5126.	5146.	5185.	5303.	5401.	5499.	5689.
175	1522.	1516.	5109.	5109.	5110.	5112.	5117.	5129.	5150.	5192.	5315.	5417.	5518.	5712.
200	1551.	1547.	1540.	5087.	5089.	5091.	5095.	5109.	5131.	5175.	5305.	5411.	5516.	5714.
225	1580.	1576.	1571.	5045.	5046.	5049.	5054.	5068.	5092.	5139.	5276.	5387.	5496.	5700.
250	1608.	1604.	1600.	1592.	4986.	4988.	4994.	5009.	5034.	5085.	5230.	5347.	5460.	5671.
275	1635.	1632.	1629.	1622.	4909.	4912.	4917.	4934.	4961.	5015.	5169.	5293.	5411.	5629.
300	1662.	1659.	1656.	1650.	1631.	4820.	4826.	4844.	4874.	4932.	5096.	5226.	5351.	5577.
325	1688.	1686.	1683.	1678.	1661.	4713.	4720.	4739.	4772.	4835.	5011.	5148.	5279.	5515.
350	1714.	1712.	1710.	1705.	1691.	1664.	4600.	4621.	4657.	4725.	4914.	5060.	5198.	5445.
375	1739.	1737.	1735.	1731.	1719.	1696.	4466.	4489.	4528.	4603.	4807.	4962.	5108.	5367.
400	1764.	1762.	1761.	1757.	1746.	1727.	1682.	4343.	4386.	4468.	4690.	4855.	5009.	5282.
425	1788.	1787.	1785.	1782.	1772.	1755.	1718.	4183.	4230.	4320.	4562.	4739.	4902.	5190.
450	1812.	1811.	1810.	1807.	1798.	1783.	1750.	4007.	4060.	4160.	4423.	4614.	4788.	5092.
475	1836.	1835.	1833.	1831.	1823.	1810.	1781.	1669.	3874.	3985.	4275.	4480.	4666.	4988.
500	1859.	1858.	1857.	1855.	1848.	1836.	1810.	1717.	3670.	3795.	4116.	4339.	4537.	4879.
525	1882.	1881.	1880.	1878.	1872.	1861.	1838.	1758.	3445.	3588.	3946.	4189.	4402.	4765.
550	1904.	1904.	1903.	1901.	1895.	1885.	1865.	1794.	1624.	3360.	3767.	4033.	4262.	4647.
575	1926.	1926.	1925.	1923.	1918.	1909.	1891.	1828.	1690.	3104.	3576.	3869.	4117.	4526.
600	1948.	1948.	1947.	1945.	1941.	1933.	1916.	1860.	1743.	2808.	3372.	3699.	3968.	4403.
625	1970.	1969.	1969.	1967.	1963.	1955.	1940.	1890.	1788.	2461.	3154.	3524.	3816.	4279.
650	1991.	1991.	1990.	1989.	1985.	1978.	1964.	1919.	1829.	1546.	2922.	3343.	3661.	4154.
675	2012.	2012.	2011.	2010.	2006.	2000.	1987.	1946.	1867.	1641.	2671.	3151.	3505.	4030.
700	2033.	2033.	2032.	2031.	2027.	2022.	2010.	1973.	1902.	1714.	2396.	2955.	3342.	3906.
725	2054.	2053.	2053.	2052.	2048.	2043.	2032.	1998.	1934.	1773.	2090.	2754.	3178.	3778.
750	2074.	2073.	2073.	2072.	2069.	2064.	2054.	2023.	1965.	1825.	1762.	2551.	3016.	3650.
775	2094.	2093.	2093.	2092.	2089.	2085.	2076.	2047.	1994.	1871.	1515.	2351.	2856.	3523.
800	2114.	2113.	2113.	2112.	2109.	2105.	2097.	2070.	2022.	1913.	1518.	2163.	2702.	3399.
825	2133.	2133.	2132.	2132.	2129.	2125.	2117.	2093.	2049.	1951.	1606.	2006.	2558.	3280.
850	2152.	2152.	2152.	2151.	2149.	2145.	2138.	2115.	2075.	1987.	1692.	1899.	2428.	3167.
875	2171.	2171.	2171.	2170.	2168.	2165.	2158.	2137.	2100.	2020.	1765.	1849.	2318.	3062.
900	2190.	2190.	2190.	2189.	2187.	2184.	2178.	2158.	2124.	2052.	1829.	1846.	2231.	2966.
925	2209.	2209.	2208.	2208.	2206.	2203.	2197.	2179.	2148.	2082.	1885.	1869.	2171.	2879.
950	2227.	2227.	2227.	2226.	2225.	2222.	2217.	2200.	2171.	2110.	1936.	1905.	2136.	2802.
975	2246.	2246.	2245.	2245.	2243.	2241.	2236.	2220.	2193.	2138.	1983.	1947.	2122.	2736.
1000	2264.	2264.	2263.	2263.	2261.	2259.	2254.	2240.	2215.	2164.	2026.	1990.	2124.	2680.
1025	2282.	2282.	2281.	2281.	2280.	2277.	2273.	2259.	2236.	2190.	2066.	2032.	2137.	2635.
1050	2299.	2299.	2299.	2299.	2297.	2295.	2291.	2279.	2257.	2214.	2103.	2072.	2155.	2599.
1075	2317.	2317.	2317.	2316.	2315.	2313.	2309.	2298.	2278.	2238.	2138.	2110.	2178.	2572.
1100	2334.	2334.	2334.	2334.	2333.	2331.	2327.	2316.	2298.	2262.	2172.	2146.	2203.	2554.
1125	2352.	2352.	2351.	2351.	2350.	2348.	2345.	2335.	2318.	2285.	2203.	2181.	2229.	2556.
1150	2369.	2369.	2369.	2368.	2367.	2366.	2363.	2353.	2337.	2307.	2233.	2214.	2257.	2541.
1175	2386.	2386.	2385.	2385.	2384.	2383.	2380.	2371.	2357.	2329.	2262.	2246.	2284.	2538.
1200	2403.	2402.	2402.	2402.	2401.	2400.	2397.	2389.	2376.	2350.	2290.	2276.	2312.	2545.
1250	2436.	2436.	2435.	2435.	2435.	2433.	2431.	2424.	2413.	2391.	2343.	2334.	2366.	2572.
1300	2468.	2468.	2468.	2468.	2467.	2466.	2464.	2458.	2449.	2431.	2393.	2388.	2418.	2600.
1350	2500.	2500.	2500.	2500.	2500.	2499.	2497.	2492.	2484.	2469.	2440.	2439.	2469.	2627.
1400	2532.	2532.	2532.	2532.	2531.	2531.	2529.	2525.	2518.	2507.	2484.	2487.	2517.	2656.
1450	2563.	2563.	2563.	2563.	2563.	2562.	2561.	2557.	2552.	2543.	2527.	2533.	2562.	2690.
1500	2594.	2594.	2594.	2594.	2593.	2593.	2592.	2589.	2585.	2578.	2568.	2576.	2604.	2731.

Table U-8. Dynamic Viscosity of Water and Steam (10^{-6} $lb_m \cdot ft^{-1} \cdot s^{-1}$)

	Pressure (psia)													
t **(°F)**	**1**	**5**	**10**	**20**	**50**	**100**	**200**	**500**	**1000**	**2000**	**5000**	**7500**	**10 000**	**15 000**
Sat. Liq.	449.4	262.8	212.2	173.0	133.9	111.3	93.2	74.1	61.6	48.5				
Sat. Vap.	6.8	7.6	8.0	8.4	9.1	9.7	10.4	11.5	12.7	14.8				
32	1204.1	1204.1	1204.0	1203.9	1203.6	1203.1	1202.1	1199.0	1194.1	1184.7	1160.3	1144.1	1131.2	1114.7
50	877.6	877.6	877.5	877.5	877.4	877.2	876.8	875.5	873.5	869.8	860.3	854.4	850.1	846.0
75	613.5	613.5	613.5	613.5	613.5	613.5	613.4	613.2	612.8	612.2	611.0	610.8	611.2	614.1
100	457.6	457.6	457.6	457.6	457.6	457.6	457.7	457.8	458.1	458.6	460.5	462.4	464.6	469.9
125	7.1	357.2	357.2	357.2	357.2	357.3	357.4	357.7	358.2	359.2	362.3	365.0	367.9	374.0
150	7.4	288.6	288.6	288.6	288.6	288.7	288.8	289.2	289.7	290.9	294.5	297.5	300.6	306.9
175	7.8	7.8	239.6	239.6	239.6	239.7	239.8	240.2	240.8	242.0	245.7	248.8	251.9	258.2
200	8.1	8.1	8.1	203.3	203.4	203.4	203.6	203.9	204.6	205.8	209.5	212.6	215.6	221.7
225	8.5	8.5	8.4	175.8	175.8	175.9	176.0	176.4	177.0	178.2	181.9	184.9	187.8	193.7
250	8.8	8.8	8.8	8.8	154.4	154.5	154.6	155.0	155.6	156.8	160.3	163.2	166.1	171.8
275	9.2	9.2	9.2	9.1	137.4	137.5	137.6	137.9	138.5	139.7	143.2	146.0	148.8	154.2
300	9.5	9.5	9.5	9.5	9.4	123.7	123.8	124.2	124.8	126.0	129.4	132.1	134.8	140.1
325	9.9	9.9	9.9	9.9	9.8	112.4	112.6	112.9	113.5	114.6	118.0	120.7	123.3	128.4
350	10.3	10.3	10.3	10.2	10.2	10.1	103.1	103.5	104.1	105.2	108.5	111.2	113.7	118.7
375	10.7	10.6	10.6	10.6	10.6	10.5	95.2	95.5	96.1	97.2	100.5	103.1	105.7	110.5
400	11.0	11.0	11.0	11.0	11.0	10.9	10.7	88.7	89.3	90.4	93.7	96.3	98.8	103.5
425	11.4	11.4	11.4	11.4	11.3	11.3	11.1	82.7	83.3	84.5	87.8	90.4	92.8	97.5
450	11.8	11.8	11.8	11.8	11.7	11.7	11.6	77.4	78.0	79.2	82.6	85.2	87.7	92.3
475	12.2	12.2	12.2	12.1	12.1	12.1	12.0	11.7	73.2	74.5	78.0	80.6	83.1	87.7
500	12.6	12.5	12.5	12.5	12.5	12.5	12.4	12.1	68.9	70.2	73.8	76.5	79.0	83.7
525	12.9	12.9	12.9	12.9	12.9	12.9	12.8	12.6	64.7	66.2	70.0	72.8	75.4	80.0
550	13.3	13.3	13.3	13.3	13.3	13.3	13.2	13.0	12.8	62.4	66.5	69.4	72.0	76.7
575	13.7	13.7	13.7	13.7	13.7	13.6	13.6	13.5	13.3	58.6	63.1	66.2	68.9	73.8
600	14.1	14.1	14.1	14.1	14.1	14.0	14.0	13.9	13.7	54.8	59.9	63.2	66.1	71.0
625	14.5	14.5	14.5	14.5	14.5	14.4	14.4	14.3	14.2	50.6	56.8	60.4	63.4	68.4
650	14.9	14.9	14.9	14.9	14.8	14.8	14.8	14.7	14.7	15.0	53.6	57.6	60.8	66.0
675	15.2	15.2	15.2	15.2	15.2	15.2	15.2	15.1	15.1	15.4	50.3	54.9	58.3	63.8
700	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.5	15.8	46.8	52.1	55.9	61.6
725	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.2	42.8	49.4	53.5	59.5
750	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.7	37.6	46.6	51.2	57.6
775	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	16.8	17.1	30.9	43.6	48.9	55.6
800	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.5	25.6	40.5	46.5	53.8
825	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.6	17.9	23.4	37.4	44.3	52.0
850	17.9	17.9	17.9	17.9	17.9	17.9	17.9	18.0	18.0	18.3	22.6	34.4	42.0	50.2
875	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.4	18.4	18.7	22.3	31.8	39.8	48.5
900	18.7	18.7	18.7	18.7	18.7	18.7	18.7	18.8	18.8	19.2	22.2	29.9	37.8	46.9
925	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.2	19.6	22.3	28.5	36.0	45.4
950	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.6	19.9	22.5	27.6	34.5	43.9
975	19.8	19.8	19.8	19.8	19.9	19.9	19.9	19.9	20.0	20.3	22.7	27.1	33.2	42.6
1000	20.2	20.2	20.2	20.2	20.2	20.2	20.3	20.3	20.4	20.7	22.9	26.7	32.2	41.3
1025	20.6	20.6	20.6	20.6	20.6	20.6	20.6	20.7	20.8	21.1	23.2	26.6	31.4	40.2
1050	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.1	21.2	21.5	23.4	26.5	30.8	39.2
1075	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.6	21.9	23.7	26.5	30.4	38.3
1100	21.7	21.7	21.7	21.7	21.7	21.7	21.8	21.8	21.9	22.3	24.0	26.6	30.1	37.5
1125	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.2	22.3	22.6	24.3	26.7	29.9	36.8
1150	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.6	22.7	23.0	24.6	26.8	29.8	36.3
1175	22.8	22.8	22.8	22.9	22.9	22.9	22.9	22.9	23.1	23.4	24.9	27.0	29.7	35.8
1200	23.2	23.2	23.2	23.2	23.2	23.2	23.3	23.3	23.4	23.8	25.3	27.2	29.7	35.4
1250	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.1	24.2	24.5	25.9	27.6	29.8	34.8
1300	24.7	24.7	24.7	24.7	24.7	24.7	24.7	24.8	24.9	25.2	26.5	28.1	30.1	34.5
1350	25.4	25.4	25.4	25.4	25.4	25.4	25.5	25.5	25.6	25.9	27.2	28.6	30.4	34.3
1400	26.1	26.1	26.1	26.1	26.1	26.2	26.2	26.2	26.4	26.7	27.8	29.2	30.7	34.3
1450	26.9	26.9	26.9	26.9	26.9	26.9	26.9	27.0	27.1	27.4	28.5	29.7	31.1	34.4
1500	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.7	27.8	28.1	29.1	30.3	31.6	34.5

Table U-9. Thermal Conductivity of Water and Steam (10^{-3} Btu·h^{-1}·ft^{-1}·°F^{-1})

	Pressure (psia)													
t **(°F)**	**1**	**5**	**10**	**20**	**50**	**100**	**200**	**500**	**1000**	**2000**	**5000**	**7500**	**10 000**	**14 500**
Sat. Liq.	362.1	382.2	388.6	392.9	394.4	391.4	383.4	361.4	332.0	283.8				
Sat. Vap.	11.2	12.7	13.6	14.7	16.6	18.7	21.6	27.7	36.4	61.3				
32	321.0	321.0	321.0	321.1	321.2	321.3	321.6	322.5	324.0	326.9	335.0	341.3	347.0	356.3
50	334.4	334.4	334.4	334.4	334.5	334.6	334.9	335.7	336.9	339.4	346.5	352.0	357.2	365.5
75	349.3	349.4	349.4	349.4	349.5	349.6	349.8	350.5	351.6	353.8	360.1	365.1	369.8	377.6
100	361.4	361.4	361.4	361.4	361.5	361.6	361.8	362.5	363.5	365.6	371.6	376.3	380.8	388.5
125	11.8	371.2	371.2	371.2	371.3	371.4	371.6	372.2	373.2	375.3	381.2	385.9	390.5	398.3
150	12.4	379.1	379.1	379.1	379.1	379.3	379.5	380.1	381.1	383.2	389.1	394.0	398.6	406.7
175	13.0	13.1	385.2	385.2	385.3	385.4	385.6	386.2	387.3	389.4	395.5	400.5	405.3	413.7
200	13.7	13.7	13.8	389.7	389.8	389.9	390.1	390.7	391.8	394.0	400.4	405.6	410.6	419.4
225	14.3	14.4	14.5	392.7	392.7	392.9	393.1	393.8	394.9	397.2	403.9	409.3	414.6	423.8
250	15.0	15.1	15.1	15.3	394.3	394.4	394.7	395.4	396.6	399.0	406.0	411.7	417.2	426.9
275	15.7	15.8	15.8	16.0	394.6	394.7	395.0	395.7	397.0	399.5	406.9	412.8	418.6	428.7
300	16.4	16.5	16.5	16.7	17.2	393.7	394.0	394.8	396.1	398.8	406.5	412.8	418.9	429.5
325	17.1	17.2	17.3	17.4	17.8	391.7	392.0	392.8	394.2	396.9	405.0	411.6	418.0	429.2
350	17.9	17.9	18.0	18.1	18.5	19.3	388.9	389.8	391.3	394.2	402.5	409.4	416.2	427.8
375	18.6	18.7	18.7	18.9	19.2	19.9	384.7	385.7	387.3	390.4	399.3	406.5	413.4	425.6
400	19.4	19.5	19.5	19.6	20.0	20.6	22.0	380.5	382.2	385.5	395.0	402.6	409.9	422.5
425	20.2	20.2	20.3	20.4	20.7	21.3	22.5	374.3	376.1	379.6	389.8	397.8	405.6	418.7
450	21.0	21.0	21.1	21.2	21.5	22.0	23.1	367.0	368.9	372.8	383.7	392.2	400.4	414.3
475	21.8	21.8	21.9	22.0	22.3	22.7	23.8	27.7	360.8	364.9	376.7	385.8	394.4	409.1
500	22.6	22.7	22.7	22.8	23.0	23.5	24.4	27.9	351.5	356.1	368.8	378.6	387.8	403.2
525	23.5	23.5	23.5	23.6	23.8	24.3	25.1	28.2	341.1	346.2	360.1	370.6	380.4	396.7
550	24.3	24.3	24.4	24.4	24.7	25.0	25.8	28.6	36.1	335.1	350.5	361.9	372.4	389.7
575	25.2	25.2	25.2	25.3	25.5	25.8	26.6	29.1	35.2	322.7	340.1	352.4	363.7	382.0
600	26.0	26.1	26.1	26.1	26.3	26.7	27.3	29.6	34.8	308.6	328.7	342.3	354.4	373.8
625	26.9	26.9	27.0	27.0	27.2	27.5	28.1	30.2	34.8	292.1	316.2	331.3	344.5	365.2
650	27.8	27.8	27.8	27.9	28.1	28.3	28.9	30.8	34.9	54.3	302.4	319.6	334.0	356.1
675	28.7	28.7	28.7	28.8	28.9	29.2	29.7	31.5	35.2	49.2	287.1	307.0	322.9	346.6
700	29.6	29.6	29.6	29.7	29.8	30.1	30.6	32.2	35.5	46.8	269.7	293.6	311.2	336.7
725	30.5	30.5	30.6	30.6	30.7	31.0	31.4	33.0	36.0	45.5	249.1	279.0	298.9	326.4
750	31.4	31.5	31.5	31.5	31.7	31.9	32.3	33.7	36.5	44.8	223.2	263.2	286.0	315.9
775	32.4	32.4	32.4	32.5	32.6	32.8	33.2	34.6	37.2	44.5	187.0	245.9	272.6	305.1
800	33.3	33.3	33.4	33.4	33.5	33.7	34.1	35.4	37.8	44.4	139.6	226.9	258.5	294.2
825	34.3	34.3	34.3	34.3	34.5	34.6	35.0	36.2	38.5	44.6	109.1	206.0	243.8	283.0
850	35.2	35.2	35.3	35.3	35.4	35.6	35.9	37.1	39.3	44.9	92.9	184.0	228.6	271.7
875	36.2	36.2	36.2	36.3	36.4	36.5	36.9	38.0	40.1	45.3	83.7	162.4	213.1	260.4
900	37.2	37.2	37.2	37.2	37.3	37.5	37.8	38.9	40.9	45.8	78.0	143.6	197.6	249.1
925	38.2	38.2	38.2	38.2	38.3	38.5	38.8	39.8	41.7	46.4	74.4	128.5	182.7	238.0
950	39.1	39.2	39.2	39.2	39.3	39.4	39.8	40.8	42.6	47.0	71.9	117.2	168.9	227.1
975	40.1	40.2	40.2	40.2	40.3	40.4	40.7	41.7	43.5	47.7	70.3	108.7	156.6	216.6
1000	41.1	41.2	41.2	41.2	41.3	41.4	41.7	42.7	44.4	48.5	69.2	102.4	146.1	206.6
1025	42.1	42.2	42.2	42.2	42.3	42.4	42.7	43.7	45.3	49.3	68.5	97.8	137.2	197.2
1050	43.2	43.2	43.2	43.2	43.3	43.4	43.7	44.7	46.3	50.2	68.2	94.4	129.9	188.5
1075	44.2	44.2	44.2	44.2	44.3	44.5	44.8	45.7	47.3	51.0	68.1	91.9	124.0	180.5
1100	45.2	45.2	45.2	45.3	45.4	45.5	45.8	46.7	48.3	51.9	68.2	90.0	119.3	173.3
1125	46.2	46.3	46.3	46.3	46.4	46.5	46.8	47.7	49.3	52.9	68.5	88.7	115.5	166.9
1150	47.3	47.3	47.3	47.3	47.4	47.6	47.8	48.7	50.3	53.9	68.8	87.7	112.5	161.2
1175	48.3	48.3	48.4	48.4	48.5	48.6	48.9	49.8	51.3	54.8	69.4	87.1	110.1	156.3
1200	49.4	49.4	49.4	49.4	49.5	49.7	49.9	50.8	52.4	55.9	69.9	86.8	108.3	152.0
1250	51.5	51.5	51.5	51.5	51.6	51.8	52.1	52.9	54.5	57.9	71.4	86.7	105.8	145.1
1300	53.6	53.6	53.6	53.7	53.8	53.9	54.2	55.1	56.6	60.1	73.0	87.2	104.4	139.7
1350	55.8	55.8	55.8	55.8	55.9	56.1	56.4	57.3	58.8	62.2	74.9	88.4	104.3	136.9
1400	57.9	58.0	58.0	58.0	58.1	58.2	58.5	59.5	61.0	64.5	76.9	89.8	104.9	135.2
1450	60.1	60.1	60.2	60.2	60.3	60.4	60.7	61.7	63.3	66.8	79.0	91.5	105.8	134.3
1500	62.3	62.3	62.4	62.4	62.5	62.6	62.9	63.9	65.6	69.1	81.3	93.4	107.1	134.1

Table U-10. Prandtl Number of Water and Steam

	Pressure (psia)													
t **(°F)**	**1**	**5**	**10**	**20**	**50**	**100**	**200**	**500**	**1000**	**2000**	**5000**	**7500**	**10 000**	**14 500**
Sat. Liq.	4.46	2.48	1.97	1.60	1.25	1.06	0.93	0.84	0.86	1.13				
Sat. Vap.	1.01	1.02	1.03	1.04	1.08	1.13	1.20	1.35	1.59	2.27				
32	13.61	13.61	13.61	13.60	13.59	13.58	13.54	13.44	13.27	12.95	12.13	11.58	11.13	10.52
50	9.47	9.47	9.47	9.47	9.46	9.45	9.43	9.38	9.30	9.14	8.72	8.43	8.19	7.85
75	6.32	6.32	6.32	6.31	6.31	6.31	6.30	6.28	6.24	6.17	5.97	5.84	5.72	5.56
100	4.55	4.55	4.55	4.55	4.55	4.55	4.54	4.53	4.51	4.47	4.37	4.30	4.24	4.15
125	0.99	3.46	3.46	3.46	3.46	3.46	3.45	3.45	3.44	3.41	3.36	3.32	3.28	3.23
150	0.98	2.74	2.74	2.74	2.74	2.74	2.74	2.73	2.73	2.71	2.68	2.65	2.63	2.60
175	0.98	1.01	2.24	2.24	2.24	2.24	2.24	2.24	2.23	2.23	2.20	2.19	2.17	2.15
200	0.97	0.99	1.02	1.89	1.89	1.89	1.89	1.89	1.88	1.88	1.86	1.85	1.84	1.83
225	0.97	0.98	1.00	1.63	1.63	1.63	1.63	1.62	1.62	1.62	1.61	1.60	1.59	1.58
250	0.96	0.97	0.99	1.02	1.43	1.43	1.43	1.43	1.43	1.42	1.42	1.41	1.41	1.40
275	0.96	0.97	0.98	1.00	1.28	1.28	1.28	1.28	1.28	1.27	1.27	1.26	1.26	1.25
300	0.96	0.96	0.97	0.99	1.04	1.16	1.16	1.16	1.16	1.16	1.15	1.15	1.14	1.14
325	0.96	0.96	0.97	0.98	1.02	1.07	1.07	1.07	1.07	1.07	1.06	1.06	1.05	1.05
350	0.95	0.96	0.96	0.97	1.00	1.07	1.00	1.00	1.00	1.00	0.99	0.99	0.98	0.98
375	0.95	0.95	0.96	0.96	0.99	1.03	0.95	0.95	0.94	0.94	0.93	0.93	0.92	0.92
400	0.95	0.95	0.95	0.96	0.98	1.01	1.12	0.90	0.90	0.90	0.89	0.88	0.88	0.87
425	0.95	0.95	0.95	0.96	0.97	0.99	1.07	0.87	0.87	0.86	0.85	0.85	0.84	0.83
450	0.95	0.95	0.95	0.95	0.96	0.98	1.04	0.85	0.85	0.84	0.83	0.82	0.81	0.80
475	0.94	0.95	0.95	0.95	0.96	0.97	1.02	1.29	0.84	0.83	0.81	0.80	0.79	0.78
500	0.94	0.94	0.94	0.95	0.95	0.97	1.00	1.18	0.83	0.82	0.80	0.78	0.77	0.76
525	0.94	0.94	0.94	0.94	0.95	0.96	0.99	1.12	0.84	0.82	0.79	0.77	0.76	0.74
550	0.94	0.94	0.94	0.94	0.95	0.95	0.98	1.08	1.52	0.84	0.79	0.77	0.75	0.73
575	0.94	0.94	0.94	0.94	0.94	0.95	0.97	1.05	1.34	0.87	0.80	0.77	0.75	0.73
600	0.94	0.94	0.94	0.94	0.94	0.95	0.96	1.03	1.24	0.93	0.82	0.78	0.75	0.72
625	0.93	0.93	0.93	0.94	0.94	0.94	0.96	1.01	1.18	1.04	0.85	0.79	0.76	0.72
650	0.93	0.93	0.93	0.93	0.94	0.94	0.95	1.00	1.13	1.88	0.89	0.81	0.77	0.72
675	0.93	0.93	0.93	0.93	0.93	0.94	0.95	0.99	1.10	1.58	0.96	0.84	0.78	0.73
700	0.93	0.93	0.93	0.93	0.93	0.94	0.95	0.98	1.07	1.42	1.07	0.88	0.80	0.74
725	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.97	1.05	1.31	1.27	0.93	0.83	0.75
750	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.97	1.03	1.24	1.72	1.00	0.86	0.76
775	0.92	0.92	0.92	0.92	0.93	0.93	0.94	0.96	1.01	1.19	2.48	1.09	0.90	0.77
800	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.96	1.00	1.15	2.34	1.22	0.94	0.79
825	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.95	0.99	1.11	1.95	1.36	1.00	0.81
850	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.95	0.98	1.09	1.69	1.48	1.06	0.83
875	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.94	0.98	1.06	1.53	1.53	1.11	0.85
900	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.94	0.97	1.04	1.41	1.52	1.16	0.88
925	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.96	1.03	1.32	1.45	1.20	0.90
950	0.91	0.91	0.91	0.91	0.92	0.92	0.92	0.93	0.96	1.01	1.26	1.40	1.21	0.92
975	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.93	0.95	1.00	1.20	1.33	1.21	0.93
1000	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.93	0.95	0.99	1.15	1.26	1.20	0.94
1025	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.94	0.98	1.12	1.21	1.18	0.95
1050	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.94	0.97	1.09	1.16	1.15	0.96
1075	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.93	0.96	1.06	1.12	1.12	0.96
1100	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.93	0.95	1.03	1.09	1.09	0.96
1125	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.92	0.94	1.01	1.06	1.06	0.95
1150	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.92	0.94	0.99	1.03	1.03	0.94
1175	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.92	0.93	0.98	1.00	1.01	0.93
1200	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.93	0.96	0.98	0.98	0.91
1250	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.91	0.94	0.95	0.94	0.89
1300	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.91	0.92	0.91	0.87
1350	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.88	0.84
1400	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.88	0.87	0.85	0.81
1450	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.89	0.88	0.86	0.85	0.83	0.79
1500	0.90	0.90	0.90	0.90	0.89	0.89	0.89	0.89	0.88	0.87	0.85	0.83	0.81	0.77

Table U-11. Vapor-Liquid Surface Tension of Water and Steam (10^{-3} $lb_f \cdot ft^{-1}$)

t (°F)	Surf. Tension
32.018	5.183
40	5.141
50	5.086
60	5.030
70	4.972
80	4.914
90	4.854
100	4.794
110	4.732
120	4.668
130	4.604
140	4.539
150	4.472
160	4.405
170	4.336
180	4.266
190	4.196
200	4.124
210	4.051
220	3.978
230	3.903
240	3.828
250	3.751
260	3.674
270	3.596
280	3.517
290	3.437
300	3.356
310	3.275
320	3.192
330	3.110
340	3.026
350	2.942
360	2.857
370	2.771
380	2.685
390	2.599
400	2.512

t (°F)	Surf. Tension
410	2.424
420	2.336
430	2.248
440	2.159
450	2.071
460	1.981
470	1.892
480	1.802
490	1.713
500	1.623
510	1.534
520	1.444
530	1.355
540	1.266
550	1.177
560	1.089
570	1.001
580	0.914
590	0.828
600	0.743
610	0.659
620	0.577
630	0.496
640	0.416
650	0.340
660	0.266
670	0.195
680	0.129
690	0.068
700	0.018
705.1028	0

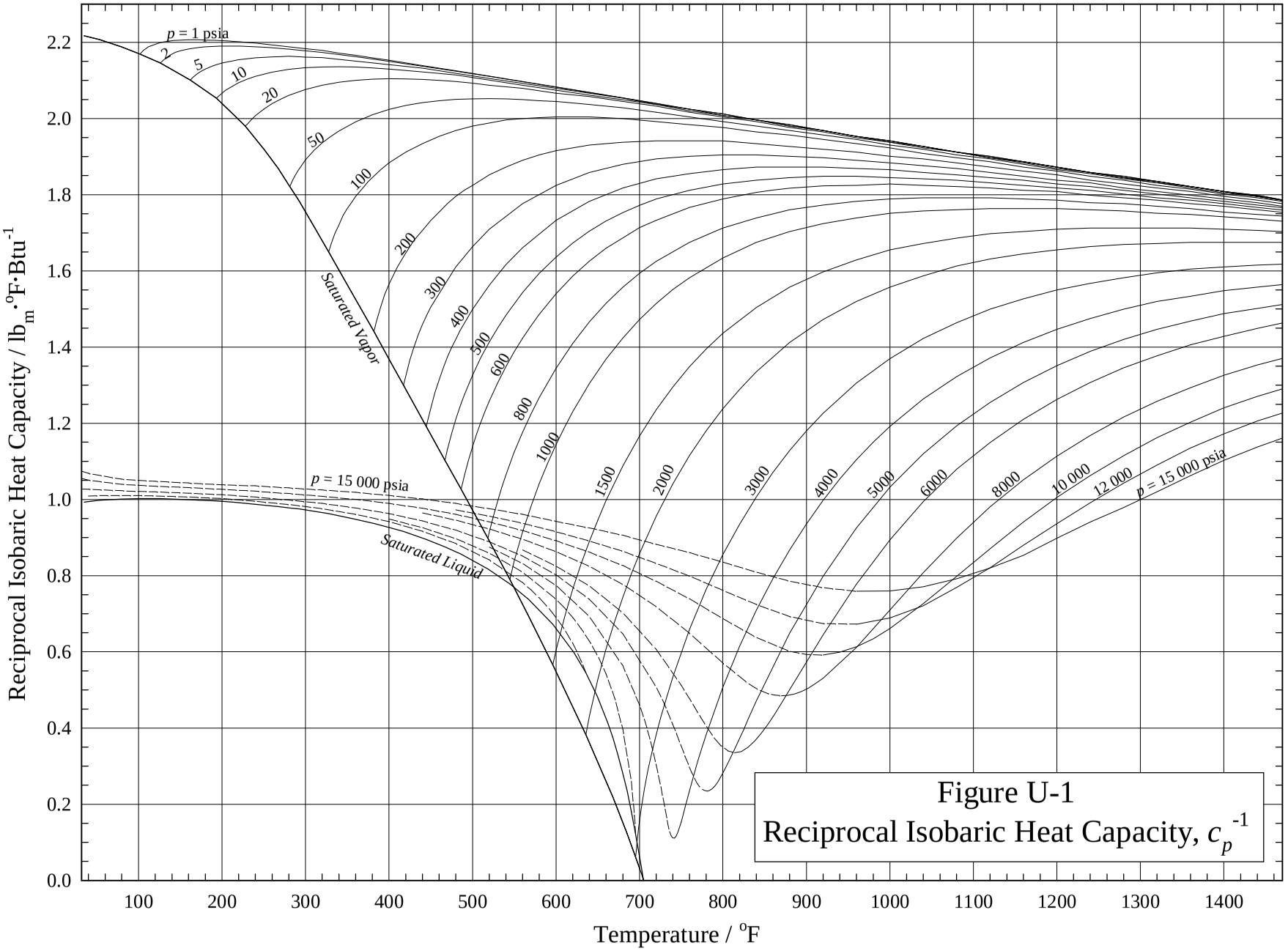


Figure U-1
Reciprocal Isobaric Heat Capacity, c_p^{-1}

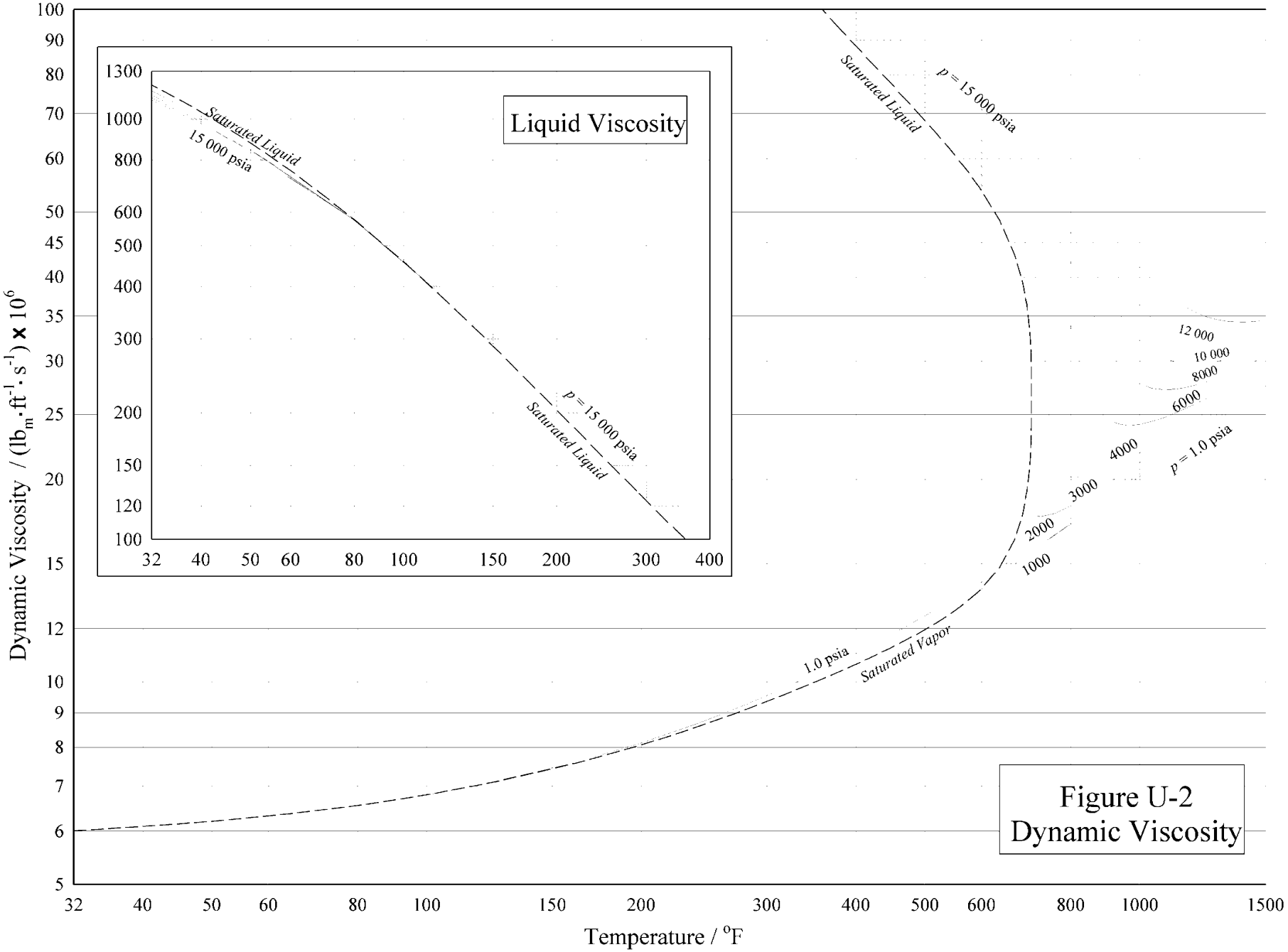


Figure U-2
Dynamic Viscosity

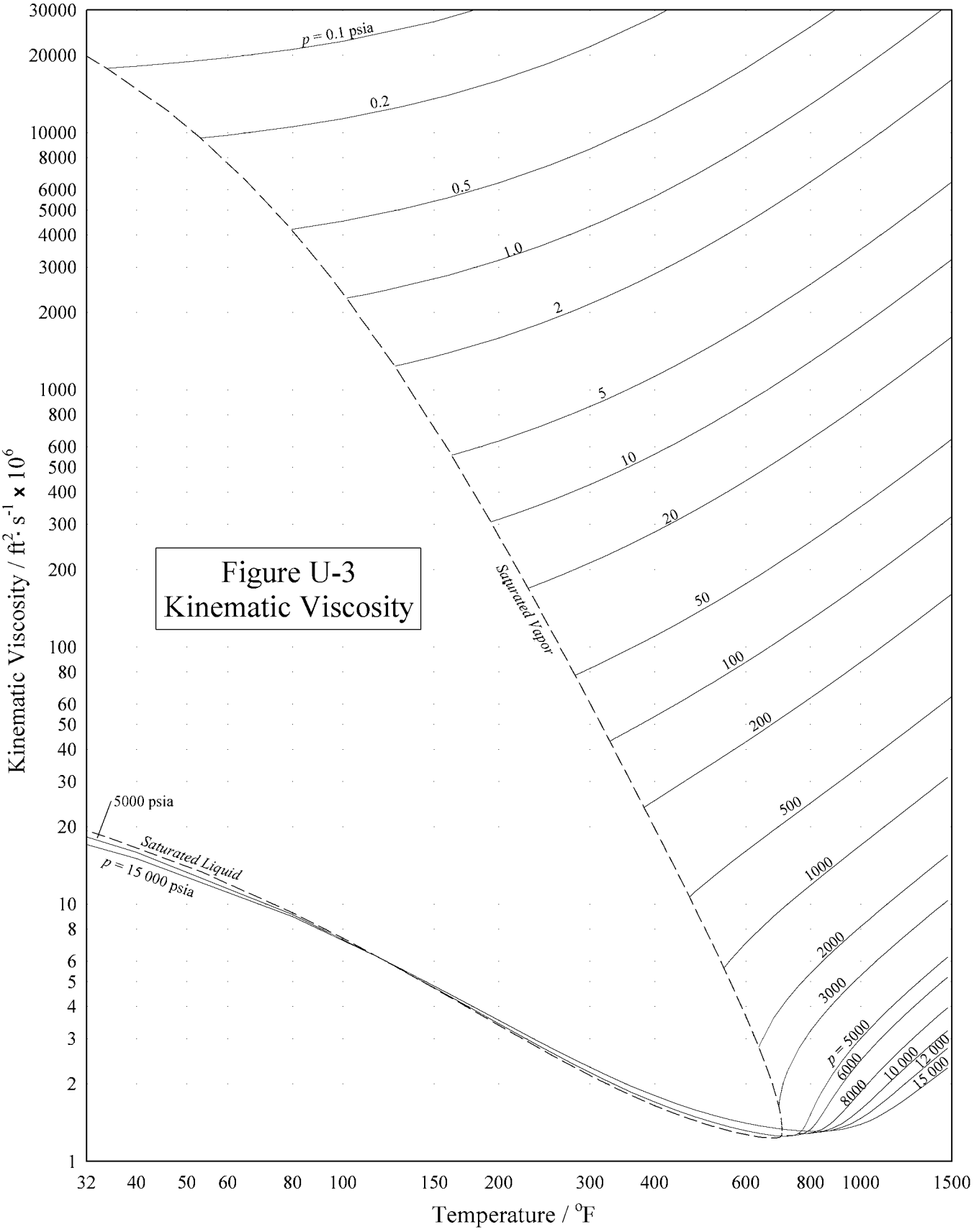


Figure U-3
Kinematic Viscosity
Kinematic Viscosity / ft² · s⁻¹ × 10⁶
Temperature / °F
p = 0.1 psia
0.2
0.5
1.0
2
5
10
20
50
100
200
500
1000
2000
3000
p = 5000
6000
8000
10 000
12 000
15 000
Saturated Vapor
Saturated Liquid
5000 psia
p = 15 000 psia
30000
20000
10000
8000
6000
5000
4000
3000
2000
1000
800
600
500
400
300
200
100
80
60
50
40
30
20
10
8
6
5
4
3
2
1
32
40
50
60
80
100
150
200
300
400
600
800
1000
1500

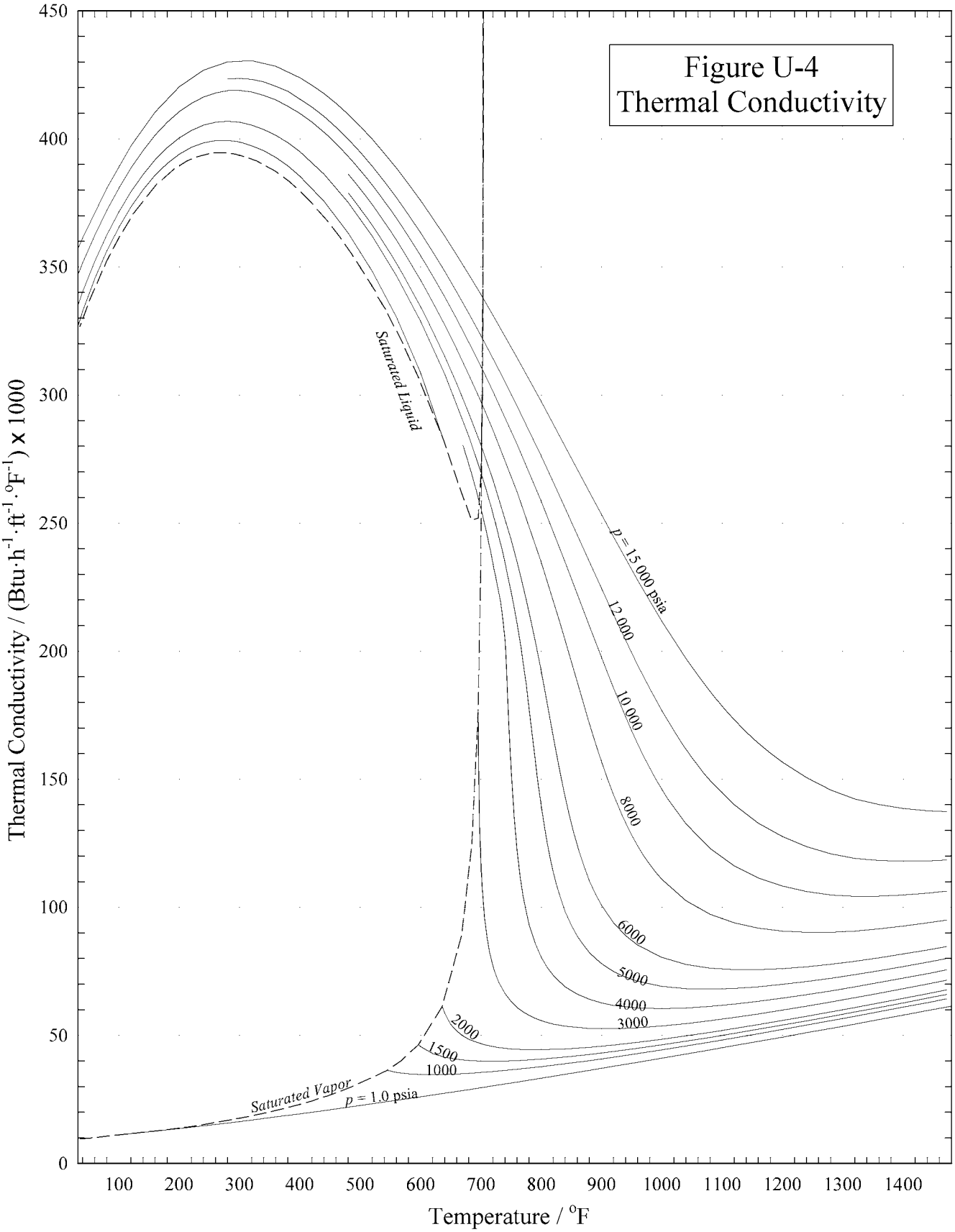


Figure U-4
Thermal Conductivity
Thermal Conductivity / (Btu·h^{-1}·ft^{-1}·°F^{-1}) x 1000
Temperature / °F
Saturated Liquid
Saturated Vapor
p = 15,000 psia
12,000
10,000
8000
6000
5000
4000
3000
2000
1500
1000
p = 1.0 psia
0
50
100
150
200
250
300
350
400
450
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400

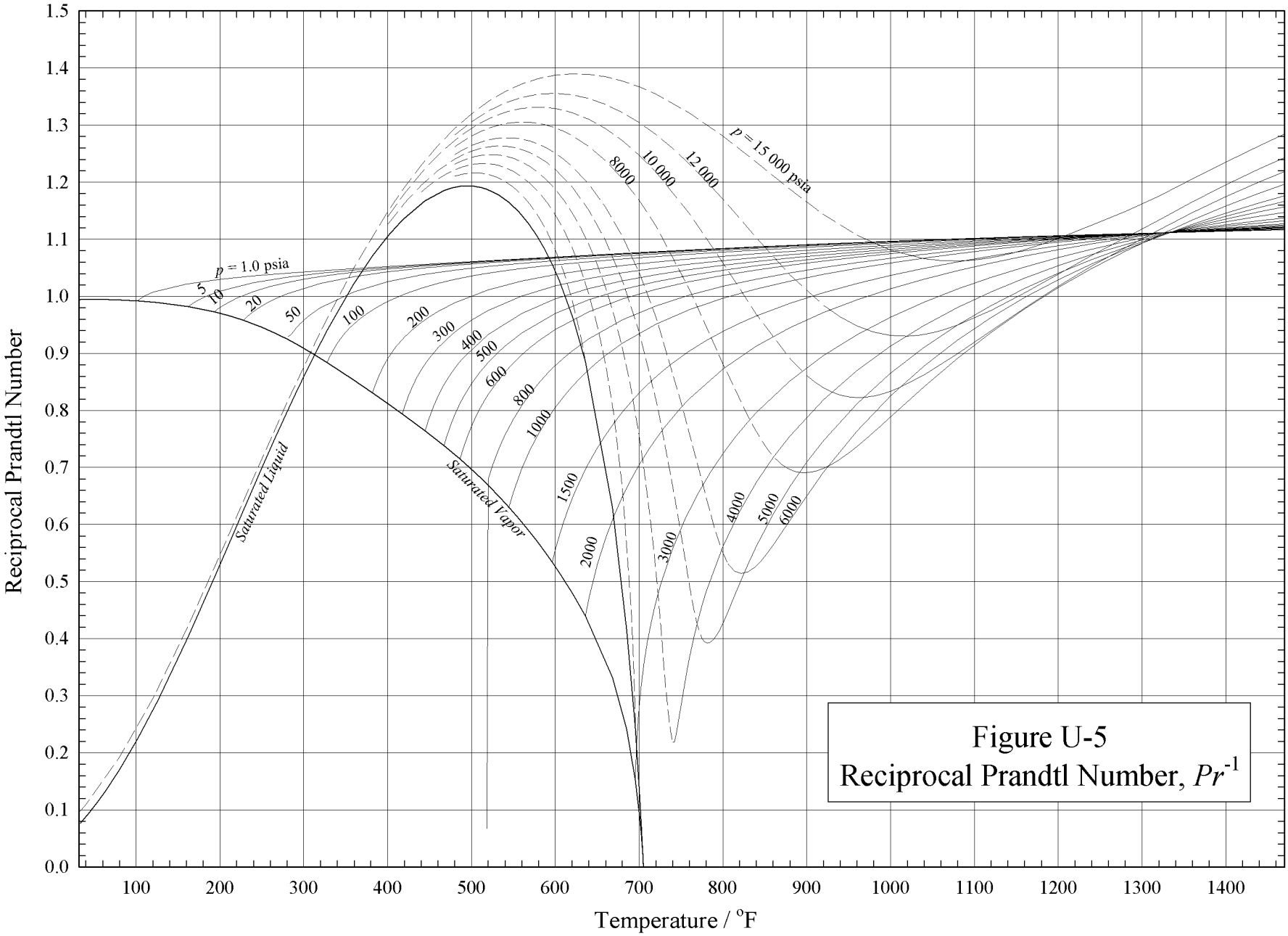


Figure U-5
Reciprocal Prandtl Number, Pr^{-1}

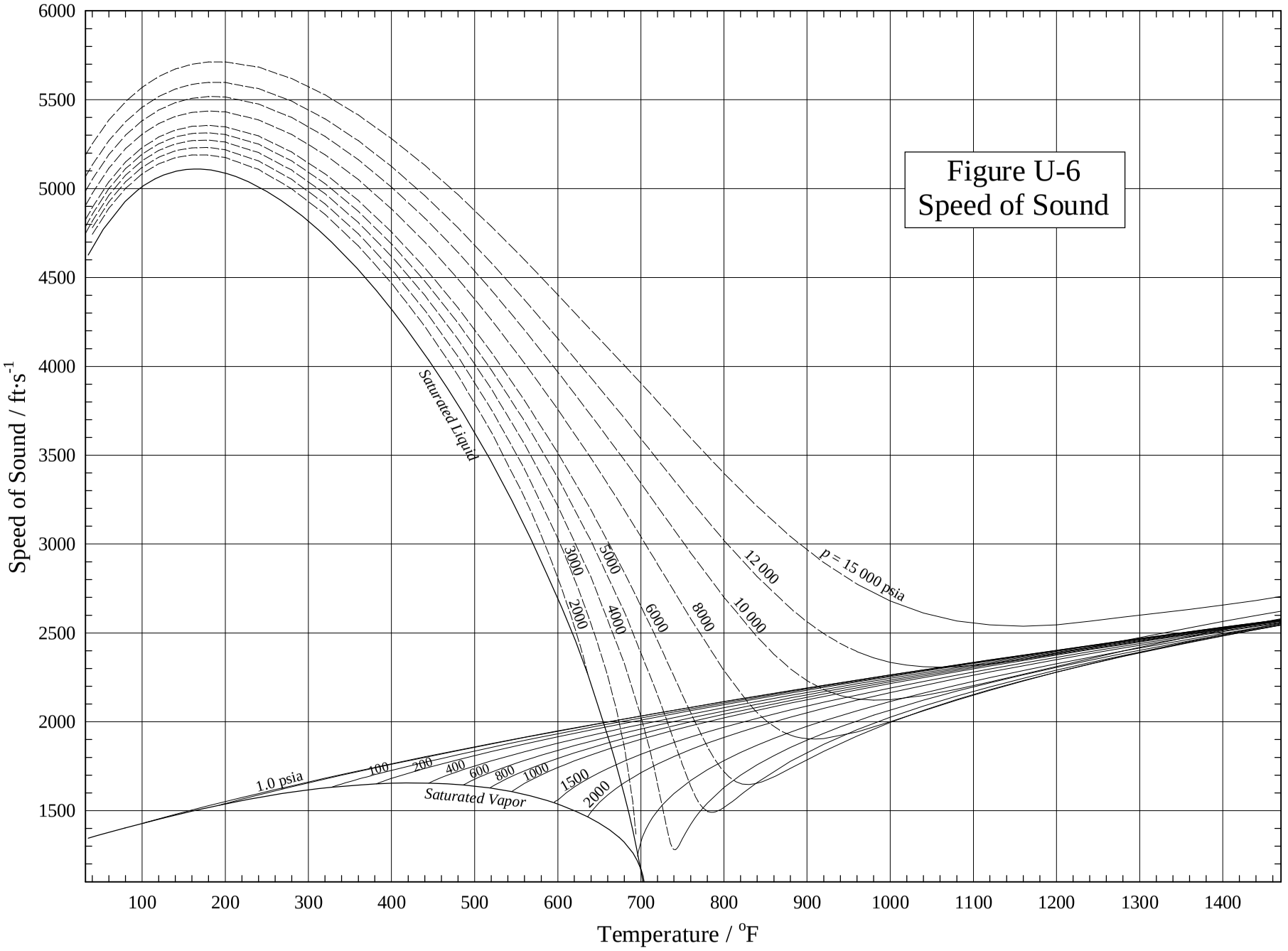


Figure U-6
Speed of Sound
Speed of Sound / ft·s-1
Temperature / °F
Saturated Liquid
Saturated Vapor
1.0 psia
100
200
400
600
800
1000
1500
2000
3000
5000
6000
8000
10 000
12 000
P = 15 000 psia

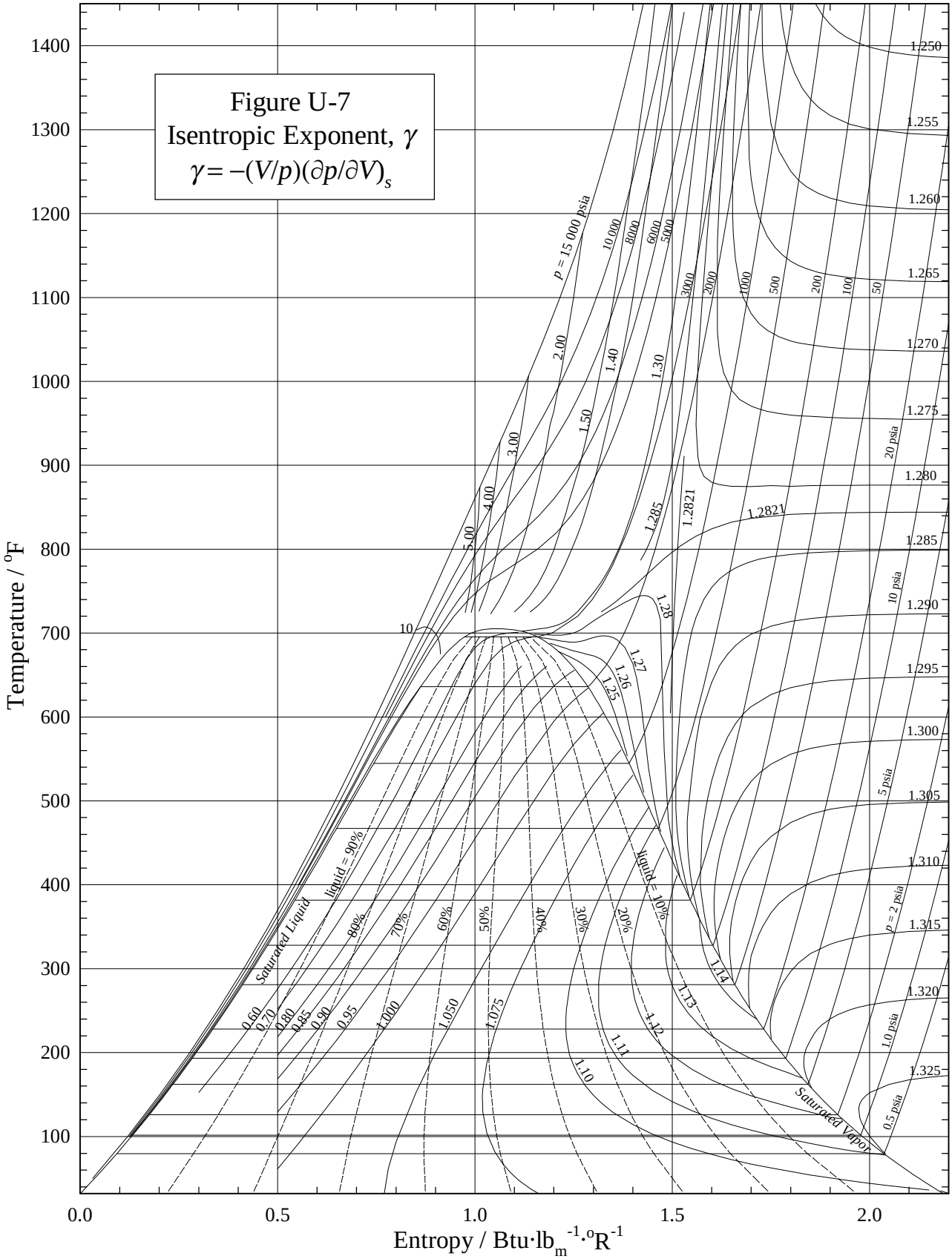


Figure U-7
Isentropic Exponent, γ
$\gamma = -(V/p)(\partial p/\partial V)_s$
Temperature / °F
Entropy / Btu·lb$_m^{-1}$·°R^{-1}
Saturated Liquid
Saturated Vapor
liquid = 90%
liquid = 10%
p = 15 000 psia
10 000
8000
6000
5000
3000
2000
1000
500
200
100
50
20 psia
10 psia
5 psia
p = 2 psia
1.0 psia
0.5 psia
10
2.00
1.40
1.30
1.50
3.00
4.00
5.00
1.285
1.2821
1.28
1.27
1.26
1.25
1.14
1.13
1.12
1.11
1.10
0.60
0.70
0.80
0.85
0.90
0.95
1.000
1.050
1.075
1.250
1.255
1.260
1.265
1.270
1.275
1.280
1.285
1.290
1.295
1.300
1.305
1.310
1.315
1.320
1.325

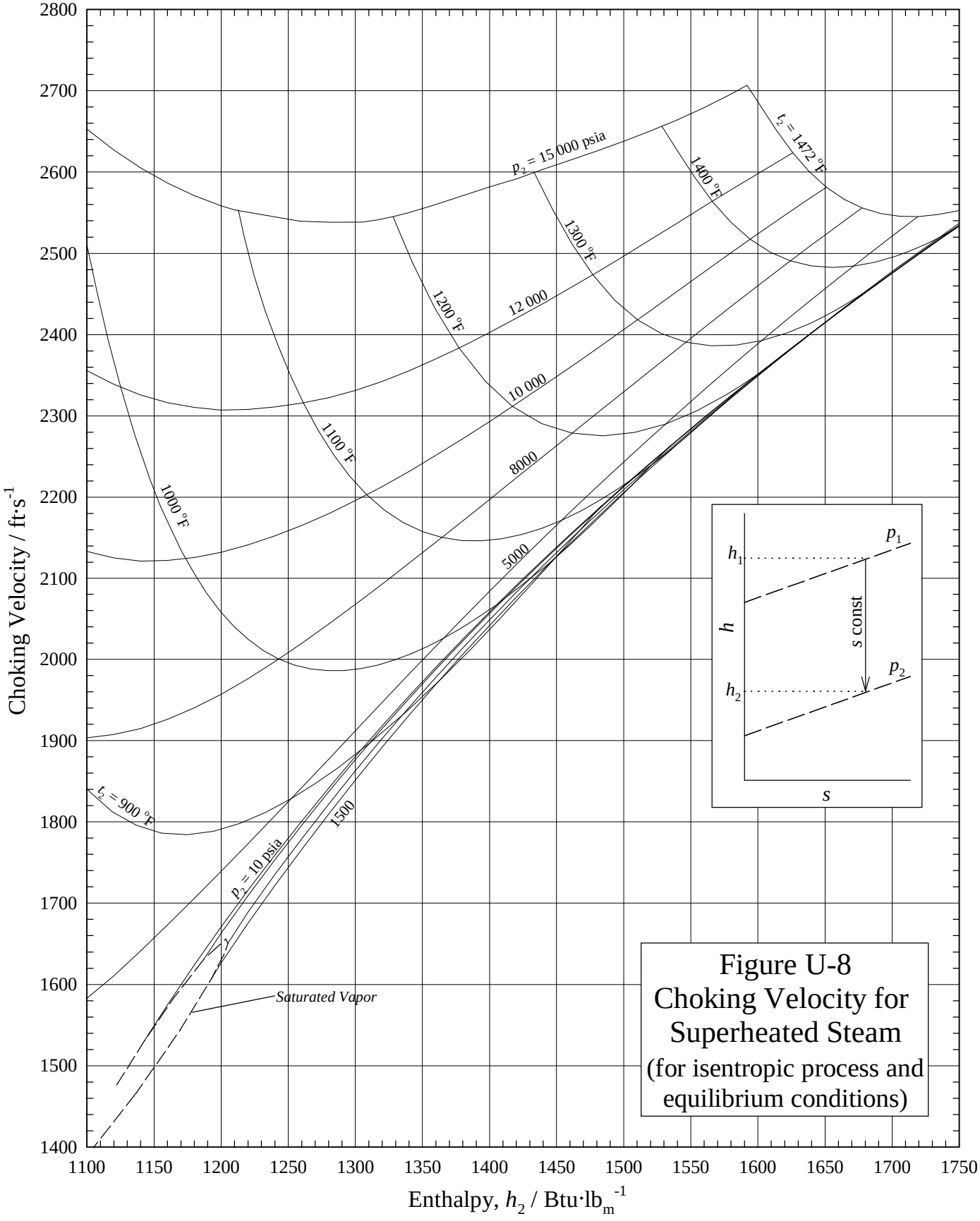


Figure U-8
Choking Velocity for Superheated Steam
(for isentropic process and equilibrium conditions)

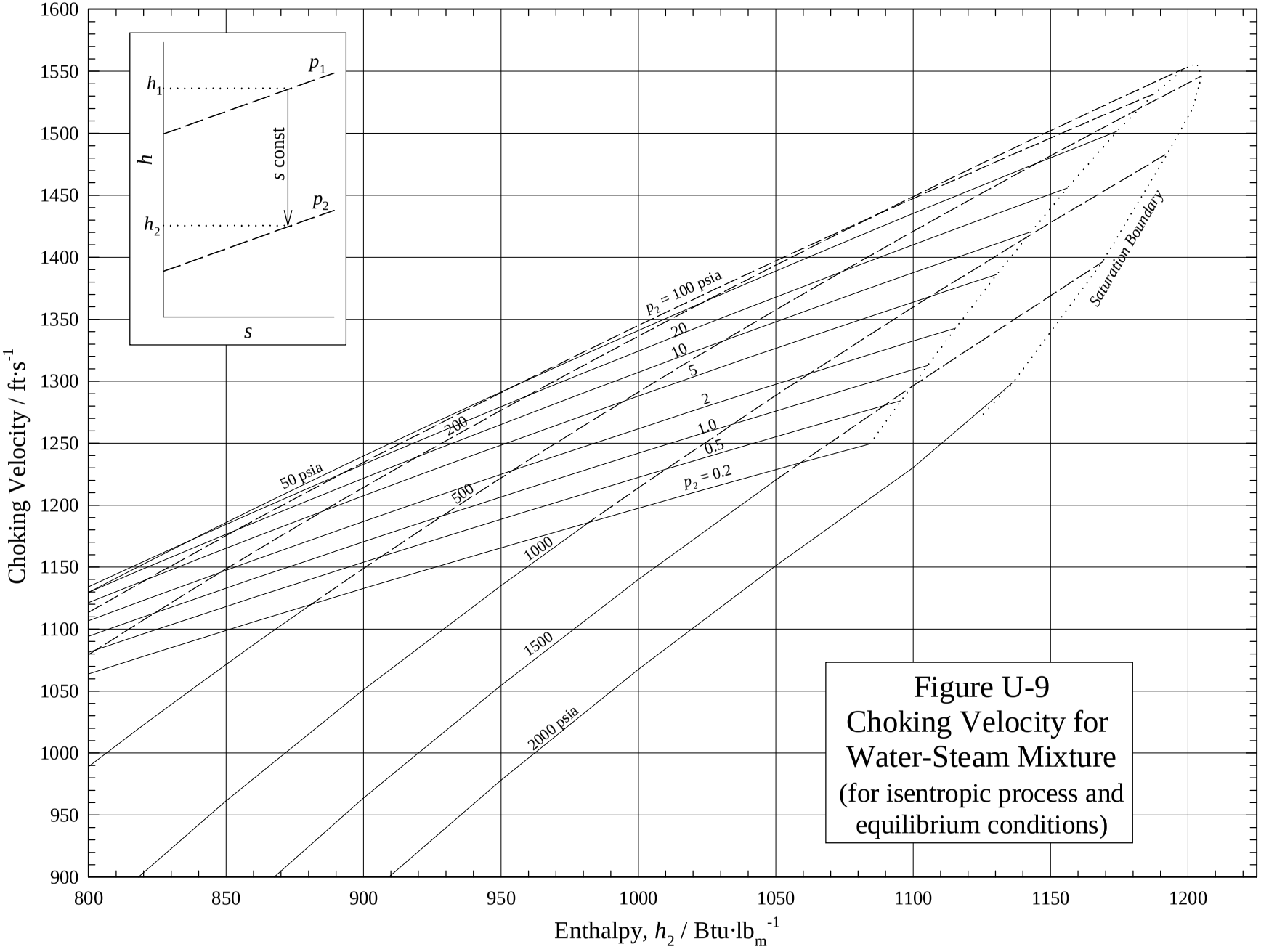


Figure U-9
Choking Velocity for
Water-Steam Mixture
(for isentropic process and
equilibrium conditions)

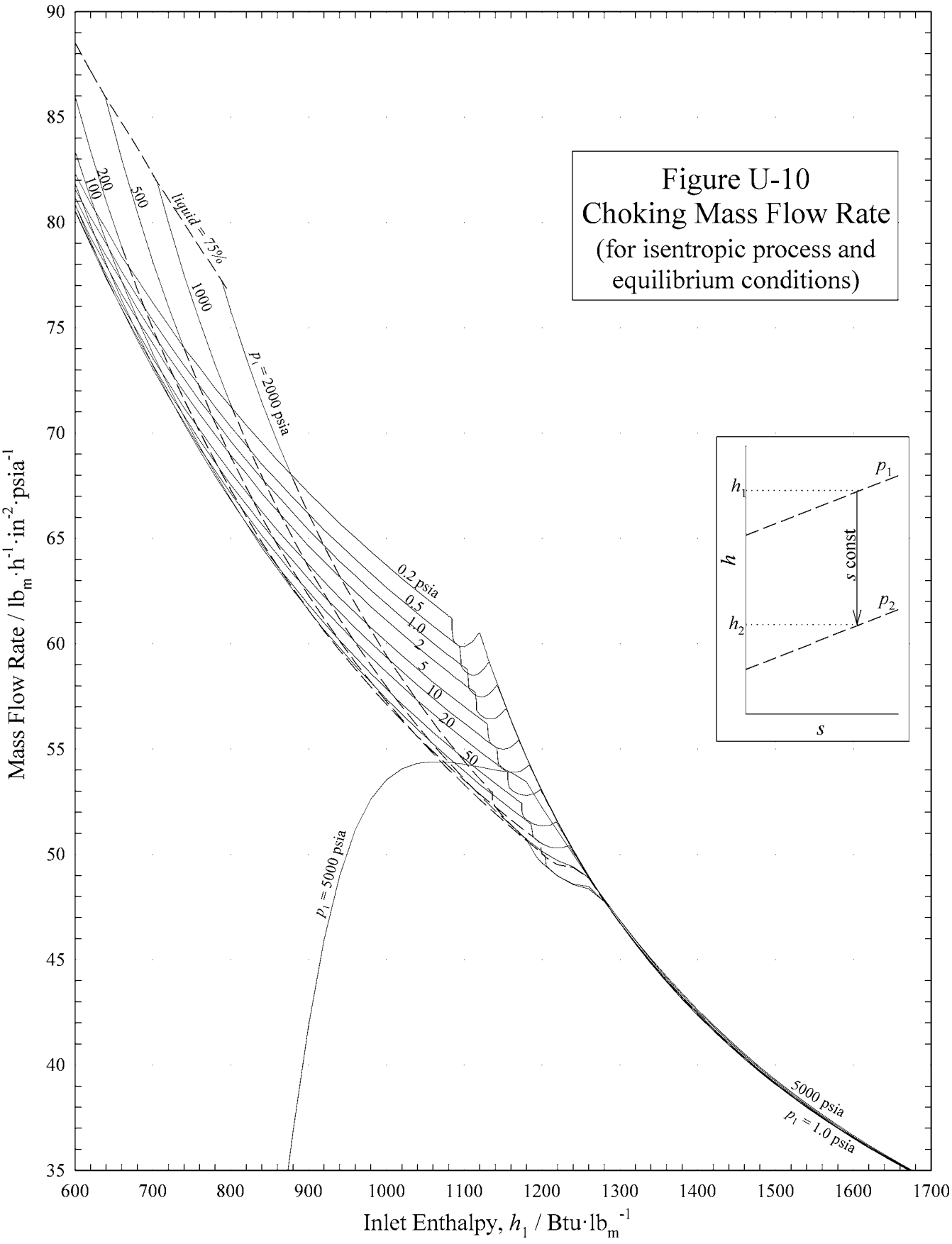


Figure U-10
Choking Mass Flow Rate
(for isentropic process and
equilibrium conditions)
Mass Flow Rate / lbm·h-1·in-2·psia-1
Inlet Enthalpy, h1 / Btu·lbm-1
liquid = 75%
p1 = 2000 psia
p1 = 5000 psia
p1 = 1.0 psia
0.2 psia
0.5
1.0
2
5
10
20
50
100
200
500
1000
5000 psia
h
s
h1
h2
p1
p2
s const

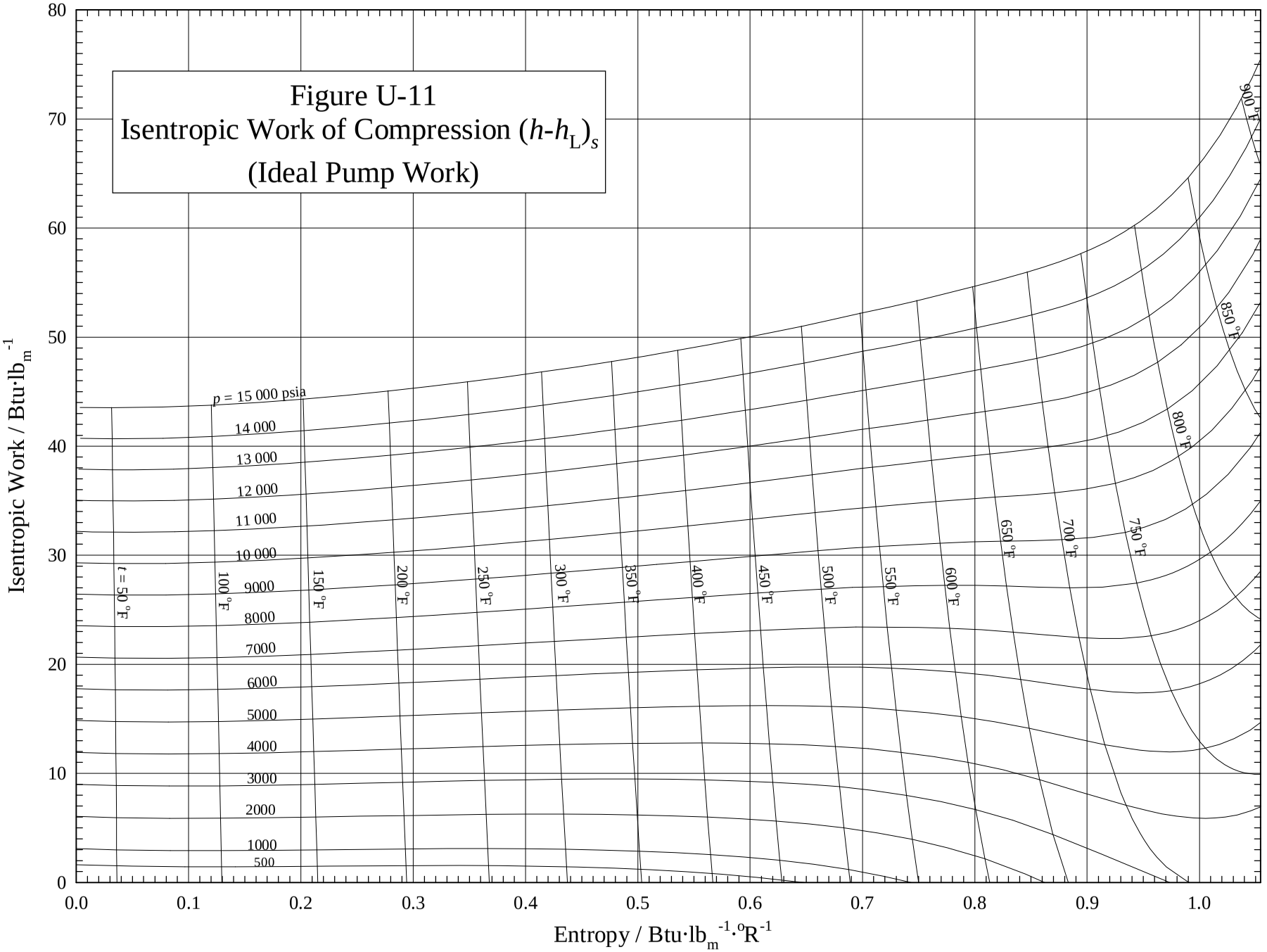


Figure U-11
Isentropic Work of Compression $(h\text{-}h_L)_s$
(Ideal Pump Work)
Isentropic Work / Btu·lb$_m^{-1}$
Entropy / Btu·lb$_m^{-1}$·°R^{-1}
0
10
20
30
40
50
60
70
80
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
p = 15 000 psia
14 000
13 000
12 000
11 000
10 000
9000
8000
7000
6000
5000
4000
3000
2000
1000
500
t = 50 °F
100 °F
150 °F
200 °F
250 °F
300 °F
350 °F
400 °F
450 °F
500 °F
550 °F
600 °F
650 °F
700 °F
750 °F
800 °F
850 °F
900 °F

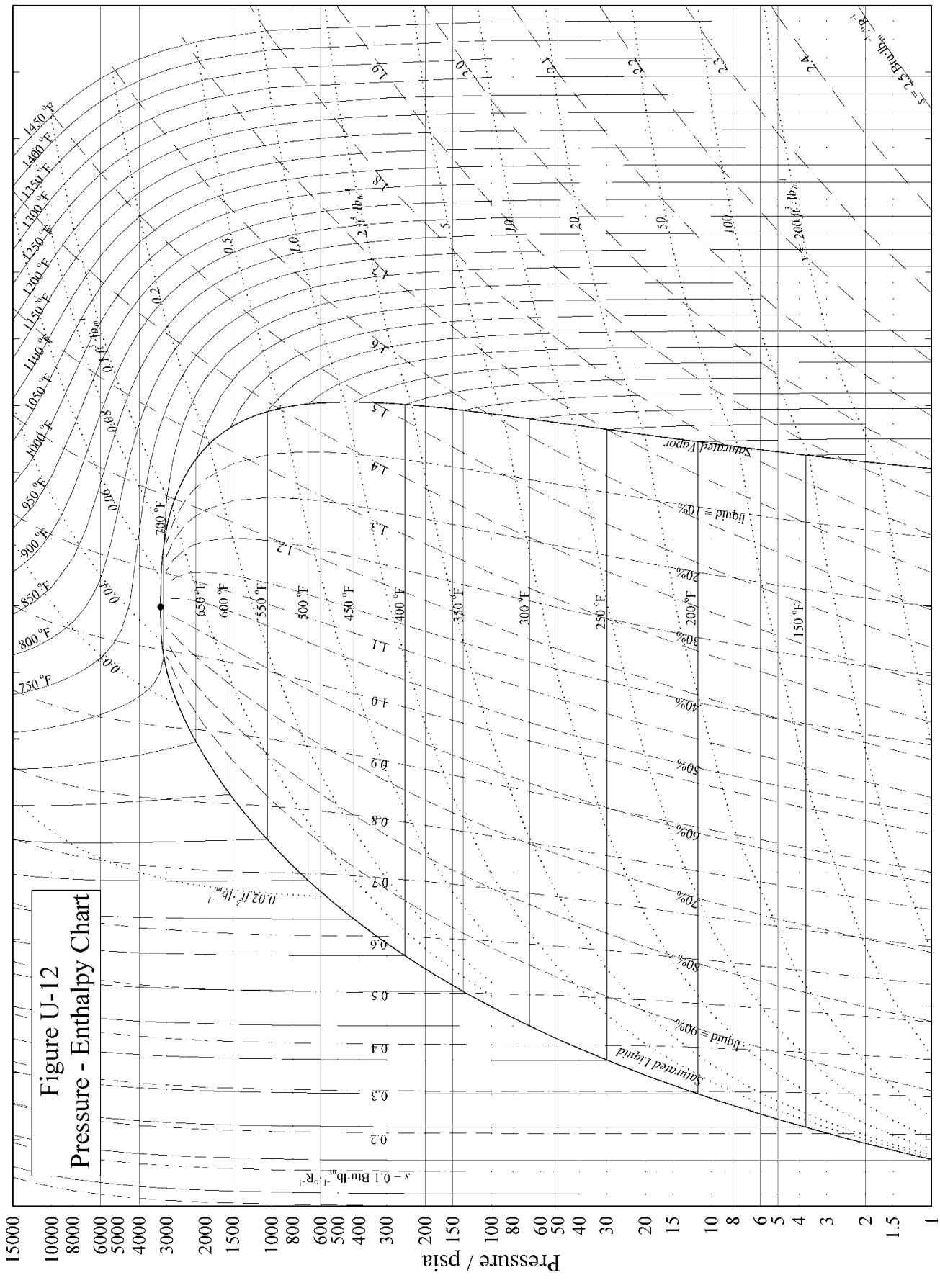


Figure U-12
Pressure - Enthalpy Chart
Pressure / psia
Enthalpy / Btu·lb$_m^{-1}$
Saturated Liquid
Saturated Vapor
Liquid = 90%
Liquid = 10%
s = 0.1 Btu·lb$_m^{-1}$·°R^{-1}
s = 2.5 Btu·lb$_m^{-1}$·°R^{-1}
v = 0.02 ft^3·lb$_m^{-1}$
v = 200 ft^3·lb$_m^{-1}$

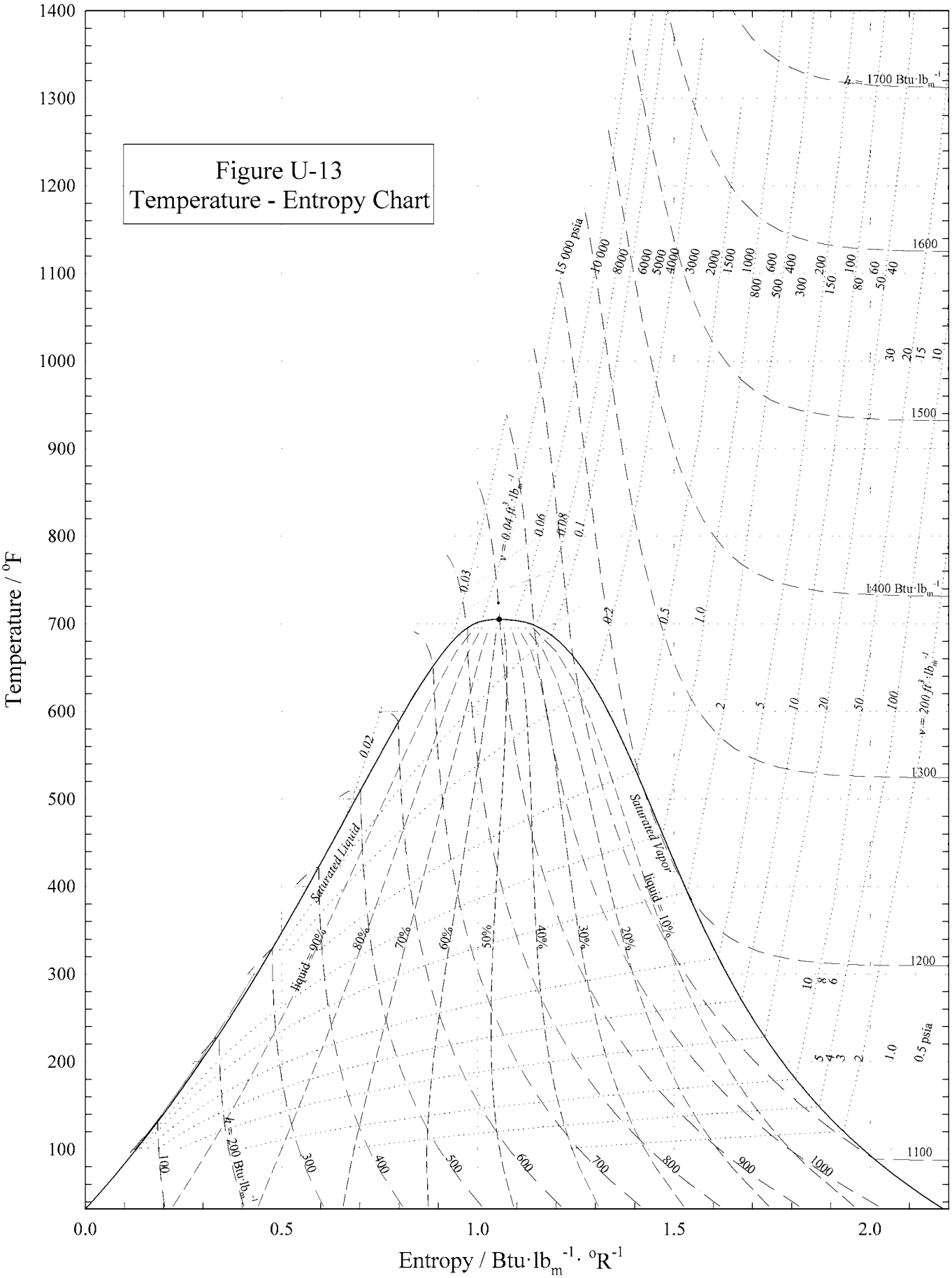


Figure U-13
Temperature - Entropy Chart
Temperature / °F
Entropy / Btu·lb_m^-1 · °R^-1
Saturated Liquid
Saturated Vapor
liquid = 90%
liquid = 10%
h = 1700 Btu·lb_m^-1
h = 1400 Btu·lb_m^-1
h = 200 Btu·lb_m^-1
v = 0.04 ft^3·lb_m^-1
v = 200 ft^3·lb_m^-1
15 000 psia
0.5 psia

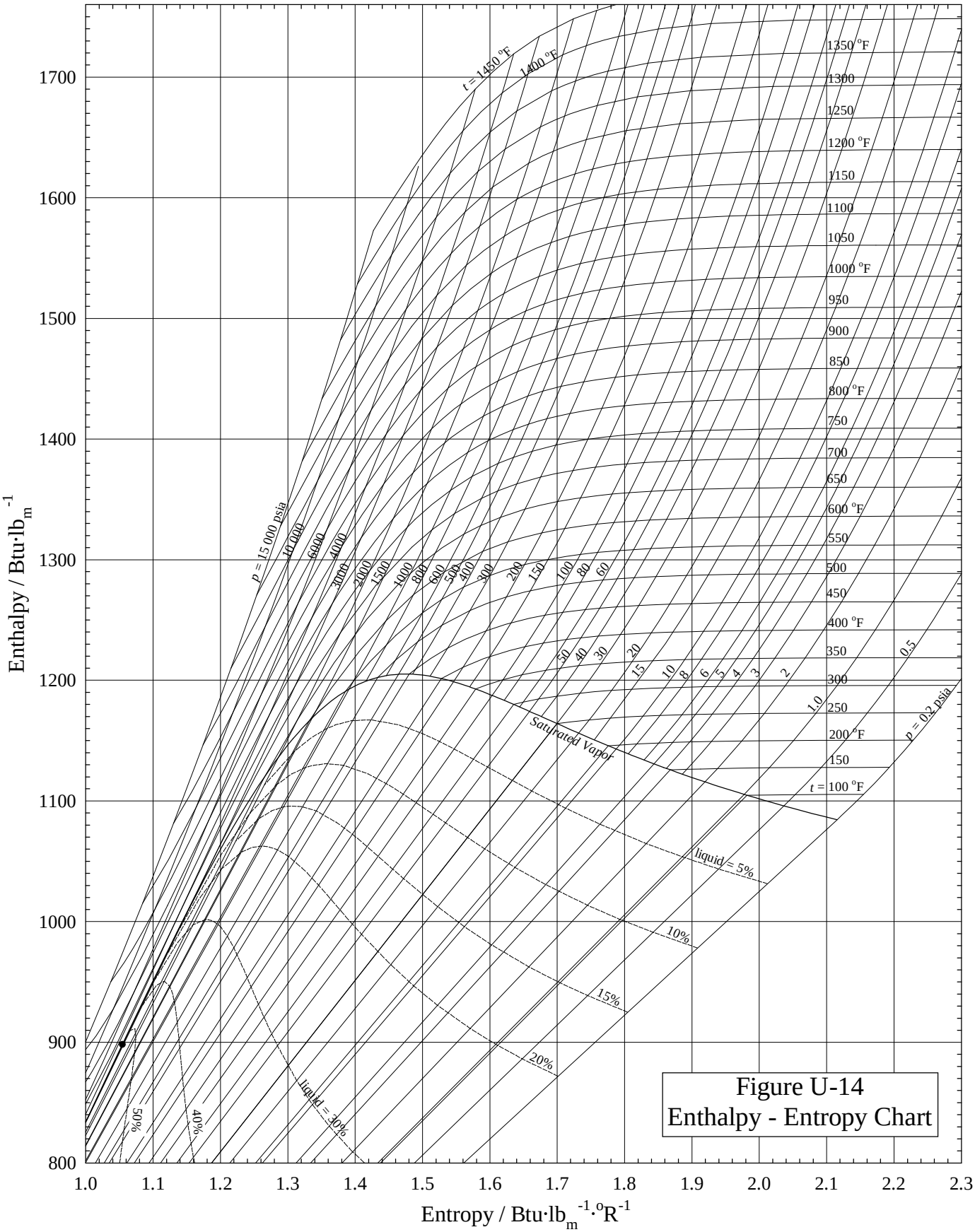


Figure U-14
Enthalpy - Entropy Chart