

CRTD-Vol. XX [number to come]

ASME

Steam Tables

COMPACT EDITION

Properties of Saturated and
Superheated Steam in
U.S. Customary and SI Units from the
International Standard for Industrial Use



*Prepared by the ASME Research and Technology
Committee on Water and Steam in Thermal
Systems, Subcommittee on Properties of Steam*

ASME • Three Park Avenue, New York, NY 10016

© 2006 by ASME, Three Park Avenue, New York, NY 10016, USA (www.asme.org)

SBN: 0-7918-0254-X

All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of the publisher.

INFORMATION CONTAINED IN THIS WORK HAS BEEN OBTAINED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS FROM SOURCES BELIEVED TO BE RELIABLE. HOWEVER, NEITHER ASME NOR ITS AUTHORS OR EDITORS GUARANTEE THE ACCURACY OR COMPLETENESS OF ANY INFORMATION PUBLISHED IN THIS WORK. NEITHER ASME NOR ITS AUTHORS AND EDITORS SHALL BE RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR DAMAGES ARISING OUT OF THE USE OF THIS INFORMATION. THE WORK IS PUBLISHED WITH THE UNDERSTANDING THAT ASME AND ITS AUTHORS AND EDITORS ARE SUPPLYING INFORMATION BUT ARE NOT ATTEMPTING TO RENDER ENGINEERING OR OTHER PROFESSIONAL SERVICES. IF SUCH ENGINEERING OR PROFESSIONAL SERVICES ARE REQUIRED, THE ASSISTANCE OF AN APPROPRIATE PROFESSIONAL SHOULD BE SOUGHT.

ASME shall not be responsible for statements or opinions advanced in papers or . . . printed in its publications (B7.1.3). Statement from the Bylaws.

For authorization to photocopy material for internal or personal use under those circumstances not falling within the fair use provisions of the Copyright Act, contact the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, tel: 978-750-8400, www.copyright.com.

CONTENTS

U.S. Customary Units

Table 1. Saturated Steam: Temperature Table4-6

Table 2. Saturated Steam: Pressure Table7-9

Table 3. Superheated Steam (1 to 15,000 psia)10-15

SI Units

Table 4. Saturated Steam: Temperature Table16-17

Table 5. Saturated Steam: Pressure Table18-19

Table 6. Superheated Steam (0.005 to 100 MPa)20-24

Unit Conversion Factors25-28

Mollier Diagrams (U.S. and SI units)29-30

This booklet is a product of the Properties Subcommittee of the ASME Research and Technology Committee on Water and Steam in Thermal Systems. The properties are computed from the “IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and Steam,” adopted for industrial use by the International Association for the Properties of Steam (IAPWS). More comprehensive tables and charts from this formulation are published in: W.T. Parry, J.C. Bellows, J.S. Gallagher, and A.H. Harvey, *ASME International Steam Tables for Industrial Use* (ASME Press, New York, 2000). Software implementing this formulation is also available from ASME under the title *ASME Steam Properties for Industrial Use*.

REFERENCE STATE

By convention, the specific internal energy and specific entropy are defined to be exactly zero for the liquid phase of water at its triple point.

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

Temp. °F	Pressure psia	Volume, ft ³ /lb _m		Enthalpy, Btu/lb _m		Entropy, Btu/(lb _m •°R)		Temp. °F
		v _L	v _V	h _L	h _V	s _L	s _V	
32	0.08865	0.016022	3302.0	-0.018	1075.2	0.0000	2.1868	32
35	0.09998	0.016020	2945.5	3.004	1076.5	0.0061	2.1762	35
40	0.12173	0.016020	2443.4	8.032	1078.7	0.0162	2.1590	40
45	0.14757	0.016021	2035.6	13.052	1080.9	0.0262	2.1421	45
50	0.17813	0.016024	1702.9	18.066	1083.1	0.0361	2.1257	50
55	0.21414	0.016029	1430.3	23.074	1085.3	0.0459	2.1097	55
60	0.25639	0.016035	1206.1	28.079	1087.4	0.0555	2.0941	60
65	0.30579	0.016043	1020.8	33.080	1089.6	0.0651	2.0788	65
70	0.36334	0.016052	867.19	38.078	1091.8	0.0746	2.0640	70
75	0.43015	0.016062	739.30	43.074	1094.0	0.0840	2.0495	75
80	0.50744	0.016074	632.44	48.069	1096.1	0.0933	2.0353	80
85	0.59656	0.016086	542.84	53.062	1098.3	0.1025	2.0215	85
90	0.69899	0.016100	467.45	58.054	1100.4	0.1116	2.0080	90
95	0.81636	0.016115	403.79	63.046	1102.6	0.1207	1.9948	95
100	0.95044	0.016131	349.87	68.037	1104.7	0.1296	1.9819	100
105	1.1032	0.016148	304.05	73.028	1106.9	0.1385	1.9693	105
110	1.2766	0.016166	264.99	78.019	1109.0	0.1473	1.9570	110
115	1.4730	0.016185	231.60	83.010	1111.1	0.1560	1.9450	115
120	1.6949	0.016205	202.96	88.002	1113.2	0.1647	1.9333	120
125	1.9449	0.016225	178.34	92.994	1115.3	0.1732	1.9218	125
130	2.2258	0.016247	157.10	97.987	1117.4	0.1817	1.9106	130
135	2.5407	0.016269	138.74	102.98	1119.5	0.1902	1.8996	135
140	2.8929	0.016293	122.82	107.98	1121.6	0.1985	1.8888	140
145	3.2858	0.016317	108.99	112.97	1123.7	0.2068	1.8783	145
150	3.7231	0.016342	96.934	117.97	1125.7	0.2151	1.8680	150
155	4.2089	0.016367	86.405	122.97	1127.8	0.2232	1.8580	155
160	4.7472	0.016394	77.186	127.98	1129.8	0.2313	1.8481	160
165	5.3426	0.016421	69.097	132.98	1131.9	0.2394	1.8384	165
170	5.9998	0.016449	61.982	137.99	1133.9	0.2474	1.8290	170
175	6.7237	0.016478	55.710	143.00	1135.9	0.2553	1.8197	175
180	7.5196	0.016507	50.171	148.01	1137.9	0.2631	1.8106	180
185	8.3930	0.016538	45.267	153.03	1139.9	0.2709	1.8017	185
190	9.3497	0.016569	40.918	158.05	1141.8	0.2787	1.7930	190
195	10.396	0.016601	37.053	163.07	1143.8	0.2864	1.7844	195
200	11.538	0.016633	33.611	168.10	1145.7	0.2940	1.7760	200
205	12.782	0.016667	30.540	173.13	1147.6	0.3016	1.7678	205
210	14.136	0.016701	27.796	178.17	1149.5	0.3092	1.7597	210
215	15.606	0.016736	25.339	183.20	1151.4	0.3167	1.7517	215
220	17.201	0.016771	23.135	188.25	1153.3	0.3241	1.7440	220
225	18.928	0.016808	21.155	193.30	1155.1	0.3315	1.7363	225
230	20.795	0.016845	19.373	198.35	1157.0	0.3388	1.7288	230
235	22.811	0.016883	17.766	203.41	1158.8	0.3461	1.7214	235
240	24.985	0.016921	16.316	208.47	1160.5	0.3534	1.7141	240
245	27.326	0.016961	15.004	213.54	1162.3	0.3606	1.7070	245
250	29.843	0.017001	13.816	218.62	1164.0	0.3678	1.7000	250

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

Temp. °F	Pressure psia	Volume, ft³/lb_m		Enthalpy, Btu/lb_m		Entropy, Btu/(lb_m•°R)		Temp. °F
		v_L	v_V	h_L	h_V	s_L	s_V	
255	32.546	0.017042	12.739	223.70	1165.7	0.3749	1.6930	255
260	35.445	0.017084	11.760	228.79	1167.4	0.3820	1.6862	260
265	38.551	0.017127	10.870	233.88	1169.1	0.3890	1.6796	265
270	41.874	0.017170	10.059	238.99	1170.7	0.3960	1.6730	270
275	45.426	0.017214	9.3196	244.10	1172.3	0.4030	1.6665	275
280	49.218	0.017259	8.6442	249.21	1173.9	0.4099	1.6601	280
285	53.261	0.017305	8.0265	254.34	1175.5	0.4168	1.6538	285
290	57.567	0.017352	7.4610	259.47	1177.0	0.4236	1.6476	290
295	62.150	0.017400	6.9425	264.61	1178.5	0.4305	1.6414	295
300	67.021	0.017449	6.4666	269.76	1180.0	0.4372	1.6354	300
305	72.193	0.017498	6.0293	274.91	1181.4	0.4440	1.6294	305
310	77.680	0.017548	5.6270	280.08	1182.8	0.4507	1.6235	310
315	83.496	0.017600	5.2564	285.26	1184.2	0.4574	1.6177	315
320	89.654	0.017652	4.9148	290.44	1185.5	0.4640	1.6120	320
325	96.168	0.017705	4.5994	295.64	1186.8	0.4706	1.6063	325
330	103.05	0.017760	4.3079	300.85	1188.0	0.4772	1.6007	330
335	110.32	0.017815	4.0384	306.07	1189.3	0.4838	1.5952	335
340	118.00	0.017871	3.7888	311.30	1190.5	0.4903	1.5897	340
345	126.08	0.017929	3.5574	316.54	1191.6	0.4968	1.5843	345
350	134.60	0.017987	3.3428	321.79	1192.7	0.5033	1.5789	350
355	143.57	0.018047	3.1435	327.06	1193.8	0.5097	1.5736	355
360	153.00	0.018108	2.9582	332.34	1194.8	0.5162	1.5684	360
365	162.92	0.018170	2.7859	337.63	1195.8	0.5226	1.5632	365
370	173.33	0.018233	2.6254	342.94	1196.7	0.5289	1.5580	370
375	184.25	0.018297	2.4758	348.26	1197.6	0.5353	1.5529	375
380	195.71	0.018363	2.3363	353.59	1198.5	0.5416	1.5478	380
385	207.72	0.018430	2.2061	358.94	1199.3	0.5479	1.5428	385
390	220.29	0.018498	2.0843	364.31	1200.1	0.5542	1.5378	390
395	233.45	0.018568	1.9705	369.70	1200.8	0.5605	1.5329	395
400	247.22	0.018639	1.8640	375.10	1201.5	0.5667	1.5280	400
405	261.61	0.018711	1.7643	380.52	1202.1	0.5729	1.5231	405
410	276.64	0.018785	1.6708	385.95	1202.6	0.5791	1.5182	410
415	292.34	0.018861	1.5830	391.41	1203.2	0.5853	1.5134	415
420	308.71	0.018938	1.5007	396.89	1203.6	0.5915	1.5086	420
425	325.79	0.019016	1.4234	402.38	1204.0	0.5977	1.5038	425
430	343.59	0.019097	1.3507	407.90	1204.4	0.6038	1.4991	430
435	362.13	0.019179	1.2822	413.44	1204.7	0.6100	1.4943	435
440	381.44	0.019263	1.2179	419.01	1204.9	0.6161	1.4896	440
445	401.53	0.019349	1.1572	424.59	1205.1	0.6222	1.4849	445
450	422.42	0.019437	1.1000	430.20	1205.2	0.6283	1.4802	450
455	444.14	0.019527	1.0461	435.84	1205.2	0.6344	1.4755	455
460	466.71	0.019619	0.9952	441.50	1205.2	0.6405	1.4709	460
465	490.15	0.019713	0.9471	447.19	1205.1	0.6466	1.4662	465
470	514.48	0.019810	0.9016	452.91	1204.9	0.6526	1.4615	470
475	539.73	0.019908	0.8586	458.66	1204.7	0.6587	1.4569	475

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

Temp. °F	Pressure psia	Volume, ft ³ /lb _m		Enthalpy, Btu/lb _m		Entropy, Btu/(lb _m •°R)		Temp. °F
		v _L	v _V	h _L	h _V	s _L	s _V	
480	565.92	0.02001	0.8180	464.44	1204.4	0.6648	1.4522	480
485	593.07	0.02011	0.7795	470.25	1204.0	0.6708	1.4475	485
490	621.20	0.02022	0.7430	476.10	1203.5	0.6769	1.4429	490
495	650.35	0.02033	0.7084	481.97	1203.0	0.6829	1.4382	495
500	680.53	0.02044	0.6756	487.89	1202.3	0.6890	1.4335	500
505	711.77	0.02056	0.6445	493.84	1201.6	0.6951	1.4288	505
510	744.09	0.02068	0.6149	499.83	1200.8	0.7011	1.4241	510
515	777.52	0.02080	0.5868	505.86	1199.9	0.7072	1.4193	515
520	812.08	0.02092	0.5601	511.93	1198.9	0.7133	1.4145	520
525	847.81	0.02105	0.5347	518.05	1197.9	0.7194	1.4098	525
530	884.73	0.02118	0.5105	524.21	1196.7	0.7255	1.4049	530
535	922.85	0.02132	0.4875	530.42	1195.4	0.7316	1.4001	535
540	962.23	0.02146	0.4656	536.69	1194.0	0.7377	1.3952	540
545	1002.9	0.02161	0.4446	543.00	1192.5	0.7438	1.3903	545
550	1044.8	0.02176	0.4247	549.37	1190.8	0.7500	1.3853	550
555	1088.1	0.02192	0.4056	555.80	1189.1	0.7562	1.3803	555
560	1132.7	0.02208	0.3875	562.29	1187.2	0.7624	1.3752	560
565	1178.7	0.02225	0.3701	568.85	1185.2	0.7686	1.3701	565
570	1226.2	0.02242	0.3535	575.48	1183.0	0.7749	1.3649	570
575	1275.1	0.02260	0.3376	582.18	1180.7	0.7812	1.3596	575
580	1325.4	0.02279	0.3223	588.95	1178.2	0.7875	1.3543	580
585	1377.3	0.02299	0.3077	595.81	1175.6	0.7939	1.3489	585
590	1430.8	0.02319	0.2938	602.75	1172.8	0.8003	1.3433	590
595	1485.8	0.02341	0.2803	609.79	1169.8	0.8067	1.3377	595
600	1542.5	0.02363	0.2675	616.93	1166.6	0.8133	1.3320	600
605	1600.8	0.02387	0.2551	624.17	1163.2	0.8198	1.3261	605
610	1660.8	0.02411	0.2432	631.53	1159.6	0.8265	1.3202	610
615	1722.6	0.02437	0.2317	639.01	1155.7	0.8332	1.3140	615
620	1786.1	0.02465	0.2207	646.62	1151.6	0.8400	1.3077	620
625	1851.5	0.02494	0.2101	654.38	1147.2	0.8469	1.3012	625
630	1918.8	0.02525	0.1998	662.30	1142.5	0.8539	1.2945	630
635	1988.0	0.02558	0.1899	670.40	1137.4	0.8610	1.2876	635
640	2059.2	0.02593	0.1802	678.69	1132.0	0.8683	1.2804	640
645	2132.4	0.02631	0.1709	687.21	1126.1	0.8757	1.2729	645
650	2207.7	0.02672	0.1618	695.99	1119.7	0.8833	1.2651	650
655	2285.2	0.02717	0.1530	705.06	1112.8	0.8911	1.2569	655
660	2364.8	0.02766	0.1444	714.47	1105.3	0.8991	1.2482	660
665	2446.8	0.02821	0.1359	724.30	1097.2	0.9075	1.2390	665
670	2531.2	0.02883	0.1276	734.63	1088.1	0.9163	1.2292	670
675	2618.0	0.02953	0.1194	745.57	1078.0	0.9255	1.2185	675
680	2707.3	0.03035	0.1112	757.30	1066.6	0.9354	1.2068	680
685	2799.3	0.03133	0.1030	770.10	1053.5	0.9462	1.1937	685
690	2894.2	0.03256	0.09444	784.45	1037.9	0.9582	1.1786	690
695	2991.9	0.03422	0.08531	801.35	1018.3	0.9723	1.1602	695
700	3092.9	0.03683	0.07466	823.64	990.64	0.9910	1.1350	700
705	3197.9	0.04662	0.05338	882.44	913.89	1.0409	1.0679	705
T_c	3200.1	0.04975	0.04975	897.48	897.48	1.0538	1.0538	T_c

T_c = 705.1028 °F

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

Pressure psia	Temp. °F	Volume, ft³/lb_m		Enthalpy, Btu/lb_m		Entropy, Btu/(lb_m°R)		Pressure psia
		v_L	v_V	h_L	h_V	s_L	s_V	
0.1	35.00	0.016020	2945.0	3.009	1076.5	0.0061	2.1762	0.1
0.2	53.13	0.016027	1525.9	21.204	1084.4	0.0422	2.1156	0.2
0.3	64.45	0.016042	1039.4	32.532	1089.4	0.0641	2.0805	0.3
0.5	79.55	0.016073	641.32	47.618	1095.9	0.0925	2.0366	0.5
0.7	90.05	0.016100	466.81	58.100	1100.4	0.1117	2.0079	0.7
1.0	101.69	0.016137	333.51	69.728	1105.4	0.1326	1.9776	1.0
1.5	115.64	0.016187	227.68	83.650	1111.4	0.1571	1.9435	1.5
2.0	126.03	0.016230	173.72	94.019	1115.8	0.1750	1.9195	2.0
3.0	141.42	0.016299	118.70	109.39	1122.2	0.2009	1.8858	3.0
4.0	152.91	0.016356	90.628	120.89	1126.9	0.2198	1.8621	4.0
6	170.00	0.016449	61.979	137.99	1133.9	0.2474	1.8290	6
8	182.81	0.016524	47.345	150.83	1139.0	0.2675	1.8056	8
10	193.16	0.016589	38.423	161.22	1143.1	0.2836	1.7875	10
12	201.91	0.016646	32.398	170.02	1146.4	0.2969	1.7728	12
14	209.52	0.016697	28.048	177.68	1149.4	0.3084	1.7605	14
16	216.27	0.016745	24.755	184.49	1151.9	0.3186	1.7497	16
18	222.36	0.016788	22.173	190.63	1154.2	0.3276	1.7403	18
20	227.92	0.016829	20.092	196.25	1156.2	0.3358	1.7319	20
25	240.03	0.016922	16.306	208.51	1160.5	0.3534	1.7141	25
30	250.30	0.017003	13.748	218.93	1164.1	0.3682	1.6995	30
35	259.25	0.017078	11.900	228.03	1167.2	0.3809	1.6873	35
40	267.22	0.017146	10.500	236.15	1169.8	0.3921	1.6766	40
45	274.42	0.017209	9.4023	243.50	1172.2	0.4022	1.6672	45
50	280.99	0.017268	8.5171	250.23	1174.2	0.4113	1.6588	50
55	287.06	0.017325	7.7878	256.45	1176.1	0.4196	1.6512	55
60	292.69	0.017378	7.1762	262.24	1177.8	0.4273	1.6443	60
65	297.96	0.017429	6.6557	267.66	1179.4	0.4345	1.6378	65
70	302.92	0.017477	6.2071	272.76	1180.8	0.4412	1.6319	70
75	307.59	0.017524	5.8164	277.59	1182.1	0.4475	1.6264	75
80	312.03	0.017569	5.4730	282.18	1183.3	0.4534	1.6212	80
85	316.25	0.017613	5.1686	286.55	1184.5	0.4590	1.6163	85
90	320.27	0.017655	4.8969	290.73	1185.6	0.4644	1.6117	90
95	324.12	0.017696	4.6528	294.73	1186.6	0.4695	1.6073	95
100	327.82	0.017736	4.4324	298.57	1187.5	0.4744	1.6032	100
110	334.78	0.017813	4.0496	305.84	1189.2	0.4835	1.5954	110
120	341.26	0.017886	3.7286	312.62	1190.7	0.4920	1.5883	120
130	347.33	0.017956	3.4554	318.98	1192.1	0.4998	1.5818	130
140	353.04	0.018023	3.2199	324.99	1193.4	0.5072	1.5757	140
150	358.43	0.018089	3.0148	330.68	1194.5	0.5141	1.5700	150
160	363.55	0.018152	2.8345	336.10	1195.5	0.5207	1.5647	160
170	368.43	0.018213	2.6746	341.27	1196.5	0.5269	1.5596	170
180	373.08	0.018272	2.5320	346.21	1197.3	0.5328	1.5549	180
190	377.54	0.018330	2.4038	350.96	1198.1	0.5385	1.5503	190
200	381.81	0.018387	2.2880	355.53	1198.8	0.5439	1.5460	200
210	385.92	0.018442	2.1829	359.94	1199.5	0.5491	1.5419	210

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

Pressure psia	Temp. °F	Volume, ft³/lb_m		Enthalpy, Btu/lb_m		Entropy, Btu/(lb_m°R)		Pressure psia
		v_L	v_V	h_L	h_V	s_L	s_V	
220	389.89	0.018496	2.0870	364.19	1200.1	0.5541	1.5379	220
230	393.71	0.018549	1.9992	368.30	1200.6	0.5588	1.5342	230
240	397.41	0.018601	1.9184	372.29	1201.1	0.5635	1.5305	240
250	400.98	0.018653	1.8439	376.16	1201.6	0.5679	1.5270	250
260	404.45	0.018703	1.7749	379.92	1202.0	0.5723	1.5236	260
270	407.82	0.018753	1.7108	383.58	1202.4	0.5764	1.5203	270
280	411.09	0.018801	1.6512	387.14	1202.8	0.5805	1.5172	280
290	414.27	0.018849	1.5955	390.61	1203.1	0.5844	1.5141	290
300	417.37	0.018897	1.5434	394.00	1203.4	0.5883	1.5111	300
320	423.33	0.018990	1.4487	400.54	1203.9	0.5956	1.5054	320
340	429.01	0.019081	1.3647	406.81	1204.3	0.6026	1.5000	340
360	434.43	0.019170	1.2898	412.82	1204.6	0.6093	1.4949	360
380	439.63	0.019257	1.2224	418.60	1204.9	0.6156	1.4900	380
400	444.63	0.019343	1.1616	424.18	1205.0	0.6217	1.4853	400
420	449.43	0.019427	1.1064	429.56	1205.1	0.6276	1.4807	420
440	454.06	0.019510	1.0560	434.78	1205.2	0.6333	1.4764	440
460	458.53	0.019592	1.0098	439.84	1205.2	0.6387	1.4722	460
480	462.86	0.019672	0.9673	444.75	1205.1	0.6440	1.4682	480
500	467.05	0.019752	0.9282	449.53	1205.0	0.6490	1.4643	500
520	471.11	0.019831	0.8919	454.19	1204.9	0.6540	1.4605	520
540	475.05	0.019909	0.8582	458.72	1204.7	0.6588	1.4568	540
560	478.89	0.019987	0.8268	463.15	1204.4	0.6634	1.4532	560
580	482.62	0.02006	0.7976	467.48	1204.2	0.6679	1.4498	580
600	486.25	0.02014	0.7702	471.71	1203.9	0.6723	1.4464	600
620	489.79	0.02022	0.7445	475.85	1203.5	0.6766	1.4430	620
640	493.24	0.02029	0.7203	479.91	1203.2	0.6808	1.4398	640
660	496.62	0.02037	0.6976	483.88	1202.8	0.6849	1.4367	660
680	499.91	0.02044	0.6761	487.79	1202.4	0.6889	1.4336	680
700	503.14	0.02051	0.6559	491.62	1201.9	0.6928	1.4305	700
720	506.29	0.02059	0.6367	495.38	1201.4	0.6966	1.4276	720
740	509.38	0.02066	0.6185	499.08	1200.9	0.7004	1.4246	740
760	512.40	0.02073	0.6012	502.72	1200.4	0.7040	1.4218	760
780	515.36	0.02081	0.5848	506.30	1199.9	0.7076	1.4190	780
800	518.27	0.02088	0.5692	509.83	1199.3	0.7112	1.4162	800
820	521.12	0.02095	0.5543	513.30	1198.7	0.7146	1.4135	820
840	523.92	0.02102	0.5401	516.73	1198.1	0.7181	1.4108	840
860	526.67	0.02110	0.5265	520.10	1197.5	0.7214	1.4082	860
880	529.37	0.02117	0.5135	523.43	1196.8	0.7247	1.4056	880
900	532.02	0.02124	0.5011	526.72	1196.2	0.7279	1.4030	900
920	534.63	0.02131	0.4892	529.96	1195.5	0.7311	1.4005	920
940	537.20	0.02138	0.4777	533.17	1194.8	0.7343	1.3980	940
960	539.72	0.02146	0.4667	536.34	1194.1	0.7374	1.3955	960
980	542.21	0.02153	0.4562	539.47	1193.3	0.7404	1.3930	980
1000	544.65	0.02160	0.4461	542.56	1192.6	0.7434	1.3906	1000
1050	550.61	0.02178	0.4223	550.15	1190.6	0.7507	1.3847	1050

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

Pressure psia	Temp. °F	Volume, ft ³ /lb _m		Enthalpy, Btu/lb _m		Entropy, Btu/(lb _m °R)		Pressure psia
		v _L	v _V	h _L	h _V	s _L	s _V	
1100	556.35	0.02196	0.4006	557.55	1188.6	0.7578	1.3789	1100
1150	561.90	0.02214	0.3808	564.77	1186.4	0.7647	1.3733	1150
1200	567.26	0.02233	0.3625	571.84	1184.2	0.7714	1.3677	1200
1250	572.46	0.02251	0.3456	578.76	1181.9	0.7780	1.3623	1250
1300	577.50	0.02270	0.3299	585.55	1179.5	0.7843	1.3570	1300
1350	582.39	0.02288	0.3153	592.21	1177.0	0.7905	1.3517	1350
1400	587.14	0.02307	0.3017	598.77	1174.4	0.7966	1.3465	1400
1450	591.76	0.02327	0.2890	605.23	1171.8	0.8025	1.3414	1450
1500	596.27	0.02346	0.2770	611.59	1169.0	0.8084	1.3363	1500
1550	600.66	0.02366	0.2658	617.87	1166.2	0.8141	1.3312	1550
1600	604.93	0.02386	0.2553	624.07	1163.3	0.8197	1.3262	1600
1650	609.11	0.02407	0.2453	630.21	1160.3	0.8253	1.3212	1650
1700	613.19	0.02428	0.2358	636.28	1157.2	0.8307	1.3163	1700
1750	617.18	0.02449	0.2269	642.30	1154.0	0.8361	1.3113	1750
1800	621.07	0.02471	0.2184	648.27	1150.7	0.8415	1.3063	1800
1850	624.89	0.02493	0.2103	654.20	1147.3	0.8467	1.3014	1850
1900	628.62	0.02516	0.2026	660.09	1143.8	0.8519	1.2964	1900
1950	632.27	0.02539	0.1952	665.96	1140.2	0.8571	1.2914	1950
2000	635.85	0.02563	0.1882	671.80	1136.5	0.8622	1.2864	2000
2050	639.36	0.02588	0.1814	677.62	1132.7	0.8673	1.2814	2050
2100	642.81	0.02614	0.1750	683.44	1128.7	0.8724	1.2763	2100
2150	646.18	0.02640	0.1687	689.26	1124.6	0.8774	1.2711	2150
2200	649.50	0.02668	0.1627	695.09	1120.4	0.8825	1.2659	2200
2250	652.75	0.02696	0.1569	700.93	1116.0	0.8875	1.2606	2250
2300	655.94	0.02726	0.1514	706.80	1111.5	0.8926	1.2553	2300
2350	659.08	0.02757	0.1459	712.71	1106.8	0.8976	1.2498	2350
2400	662.16	0.02789	0.1407	718.67	1101.9	0.9027	1.2443	2400
2450	665.19	0.02823	0.1356	724.69	1096.8	0.9078	1.2387	2450
2500	668.17	0.02859	0.1307	730.78	1091.5	0.9130	1.2329	2500
2550	671.10	0.02897	0.1258	736.97	1086.0	0.9183	1.2269	2550
2600	673.98	0.02938	0.1211	743.27	1080.2	0.9236	1.2208	2600
2650	676.81	0.02981	0.1165	749.71	1074.1	0.9290	1.2144	2650
2700	679.60	0.03028	0.1119	756.32	1067.6	0.9346	1.2078	2700
2750	682.34	0.03078	0.1074	763.13	1060.7	0.9403	1.2009	2750
2800	685.03	0.03134	0.1029	770.20	1053.4	0.9462	1.1936	2800
2850	687.69	0.03195	0.09843	777.59	1045.5	0.9524	1.1859	2850
2900	690.30	0.03264	0.09391	785.39	1036.8	0.9590	1.1776	2900
2950	692.88	0.03344	0.08930	793.75	1027.3	0.9660	1.1686	2950
3000	695.41	0.03438	0.08453	802.90	1016.5	0.9736	1.1585	3000
3050	697.90	0.03554	0.07945	813.22	1003.8	0.9823	1.1469	3050
3100	700.35	0.03708	0.07381	825.57	988.14	0.9926	1.1328	3100
3150	702.75	0.03947	0.06686	842.34	966.17	1.0068	1.1133	3150
3200	705.10	0.04897	0.05052	893.85	901.07	1.0507	1.0569	3200
p _c	705.1028	0.04975	0.04975	897.48	897.48	1.0538	1.0538	p _c

p_c = 3200.11psia

Table 3. Superheated Steam

Pressure psia (Sat. T)	Temperature—Degrees Fahrenheit													
	200	250	300	350	400	450	500	600	700	800	900	1000	1200	
1 (101.69)	<i>v</i>	392.53	422.42	452.28	482.11	511.93	541.74	571.55	631.15	690.74	750.32	809.91	869.48	988.64
	<i>h</i>	1150.1	1172.8	1195.7	1218.6	1241.8	1265.1	1288.6	1336.2	1384.6	1433.9	1484.1	1535.1	1640.0
	<i>s</i>	2.0510	2.0842	2.1152	2.1445	2.1723	2.1986	2.2238	2.2710	2.3146	2.3554	2.3937	2.4299	2.4973
5 (162.18)	<i>v</i>	78.155	84.220	90.248	96.254	102.25	108.23	114.21	126.15	138.09	150.02	161.94	173.87	197.71
	<i>h</i>	1148.5	1171.7	1194.8	1218.0	1241.3	1264.7	1288.2	1335.9	1384.4	1433.7	1483.9	1535.0	1640.0
	<i>s</i>	1.8716	1.9055	1.9370	1.9665	1.9944	2.0209	2.0461	2.0934	2.1371	2.1779	2.2162	2.2525	2.3198
10 (193.16)	<i>v</i>	38.851	41.942	44.993	48.022	51.036	54.042	57.042	63.030	69.008	74.980	80.949	86.915	98.841
	<i>h</i>	1146.4	1170.2	1193.8	1217.2	1240.6	1264.1	1287.8	1335.6	1384.2	1433.5	1483.8	1534.9	1639.9
	<i>s</i>	1.7926	1.8275	1.8595	1.8893	1.9174	1.9440	1.9693	2.0167	2.0605	2.1013	2.1397	2.1760	2.2434
15 (212.99)	<i>v</i>		27.846	29.906	31.943	33.966	35.979	37.986	41.988	45.981	49.968	53.950	57.931	65.886
	<i>h</i>		1168.7	1192.7	1216.3	1239.9	1263.6	1287.3	1335.3	1383.9	1433.3	1483.6	1534.7	1639.8
	<i>s</i>		1.7811	1.8137	1.8438	1.8721	1.8989	1.9243	1.9718	2.0156	2.0565	2.0949	2.1312	2.1986
20 (227.92)	<i>v</i>		20.796	22.362	23.903	25.430	26.947	28.458	31.467	34.467	37.461	40.451	43.438	49.408
	<i>h</i>		1167.2	1191.6	1215.5	1239.3	1263.0	1286.9	1334.9	1383.6	1433.1	1483.4	1534.6	1639.7
	<i>s</i>		1.7477	1.7808	1.8113	1.8398	1.8667	1.8922	1.9398	1.9838	2.0247	2.0631	2.0994	2.1669
25 (240.03)	<i>v</i>		16.565	17.835	19.079	20.308	21.528	22.741	25.155	27.559	29.957	32.352	34.743	39.521
	<i>h</i>		1165.6	1190.4	1214.6	1238.6	1262.5	1286.4	1334.6	1383.4	1432.9	1483.3	1534.5	1639.6
	<i>s</i>		1.7213	1.7551	1.7859	1.8146	1.8417	1.8673	1.9150	1.9590	2.0000	2.0384	2.0748	2.1422
30 (250.30)	<i>v</i>			14.816	15.863	16.894	17.915	18.930	20.947	22.954	24.955	26.952	28.946	32.930
	<i>h</i>			1189.3	1213.8	1237.9	1261.9	1286.0	1334.3	1383.1	1432.7	1483.1	1534.3	1639.5
	<i>s</i>			1.7338	1.7650	1.7939	1.8211	1.8468	1.8947	1.9387	1.9797	2.0182	2.0546	2.1221
35 (259.25)	<i>v</i>			12.659	13.565	14.455	15.334	16.207	17.941	19.664	21.381	23.095	24.806	28.222
	<i>h</i>			1188.1	1212.9	1237.2	1261.4	1285.5	1333.9	1382.9	1432.5	1482.9	1534.2	1639.4
	<i>s</i>			1.7156	1.7472	1.7764	1.8037	1.8295	1.8774	1.9216	1.9626	2.0011	2.0375	2.1050
40 (267.22)	<i>v</i>			11.041	11.841	12.625	13.398	14.165	15.686	17.197	18.702	20.202	21.700	24.691
	<i>h</i>			1186.9	1212.0	1236.5	1260.8	1285.0	1333.6	1382.6	1432.3	1482.7	1534.0	1639.3
	<i>s</i>			1.6996	1.7316	1.7610	1.7885	1.8144	1.8625	1.9067	1.9478	1.9863	2.0227	2.0903
45 (274.42)	<i>v</i>			9.7814	10.500	11.202	11.893	12.577	13.933	15.278	16.617	17.952	19.285	21.945
	<i>h</i>			1185.7	1211.1	1235.9	1260.3	1284.6	1333.2	1382.3	1432.1	1482.6	1533.9	1639.2
	<i>s</i>			1.6854	1.7178	1.7474	1.7750	1.8010	1.8493	1.8935	1.9347	1.9733	2.0097	2.0772
50 (280.99)	<i>v</i>			8.7735	9.4273	10.063	10.688	11.306	12.530	13.743	14.950	16.153	17.353	19.748
	<i>h</i>			1184.5	1210.2	1235.1	1259.7	1284.1	1332.9	1382.1	1431.9	1482.4	1533.8	1639.1
	<i>s</i>			1.6724	1.7053	1.7352	1.7629	1.7891	1.8374	1.8818	1.9229	1.9615	1.9980	2.0656
55 (287.06)	<i>v</i>			7.9484	8.5492	9.1315	9.7027	10.267	11.382	12.487	13.585	14.680	15.772	17.951
	<i>h</i>			1183.2	1209.3	1234.4	1259.1	1283.6	1332.6	1381.8	1431.7	1482.2	1533.6	1639.0
	<i>s</i>			1.6606	1.6939	1.7240	1.7520	1.7782	1.8267	1.8711	1.9123	1.9509	1.9874	2.0550
60 (292.69)	<i>v</i>			7.2604	7.8173	8.3549	8.8813	9.4004	10.425	11.440	12.448	13.453	14.454	16.453
	<i>h</i>			1181.9	1208.4	1233.7	1258.6	1283.2	1332.2	1381.5	1431.4	1482.1	1533.5	1638.9
	<i>s</i>			1.6496	1.6834	1.7138	1.7419	1.7682	1.8168	1.8613	1.9026	1.9413	1.9777	2.0454
65 (297.96)	<i>v</i>			6.6776	7.1978	7.6978	8.1862	8.6673	9.6160	10.554	11.486	12.414	13.340	15.185
	<i>h</i>			1180.5	1207.4	1233.0	1258.0	1282.7	1331.9	1381.3	1431.2	1481.9	1533.3	1638.8
	<i>s</i>			1.6394	1.6737	1.7043	1.7326	1.7590	1.8078	1.8523	1.8937	1.9323	1.9688	2.0365
70 (302.92)	<i>v</i>			6.6666	7.1344	7.5904	8.0389	8.9223	9.7951	10.662	11.524	12.384	14.099	
	<i>h</i>			1206.5	1232.3	1257.4	1282.2	1331.5	1381.0	1431.0	1481.7	1533.2	1638.7	
	<i>s</i>			1.6646	1.6955	1.7239	1.7505	1.7994	1.8440	1.8854	1.9241	1.9606	2.0283	

v = specific volume, ft³/lb_m *h* = enthalpy, Btu/lb_m *s* = entropy, Btu/(lb_m • °R)

Table 3 (continued). Superheated Steam

Pressure psia (Sat. T)		Temperature—Degrees Fahrenheit												
		350	400	450	500	550	600	700	800	900	1000	1100	1200	1400
80 (312.03)	<i>v</i>	5.8030	6.2186	6.6220	7.0176	7.4081	7.7949	8.5614	9.3216	10.078	10.831	11.583	12.333	13.831
	<i>h</i>	1204.5	1230.8	1256.2	1281.3	1306.1	1330.8	1380.5	1430.6	1481.4	1532.9	1585.3	1638.5	1747.5
	<i>s</i>	1.6480	1.6795	1.7082	1.7350	1.7602	1.7842	1.8289	1.8704	1.9092	1.9457	1.9804	2.0135	2.0755
90 (320.27)	<i>v</i>	5.1307	5.5061	5.8686	6.2232	6.5724	6.9180	7.6019	8.2794	8.9529	9.6237	10.293	10.960	12.292
	<i>h</i>	1202.5	1229.3	1255.1	1280.3	1305.3	1330.1	1380.0	1430.2	1481.0	1532.6	1585.0	1638.3	1747.4
	<i>s</i>	1.6330	1.6651	1.6943	1.7213	1.7466	1.7707	1.8156	1.8572	1.8960	1.9326	1.9673	2.0004	2.0625
100 (327.82)	<i>v</i>	4.5923	4.9358	5.2658	5.5875	5.9039	6.2165	6.8342	7.4456	8.0529	8.6576	9.2602	9.8615	11.061
	<i>h</i>	1200.4	1227.8	1253.9	1279.3	1304.5	1329.5	1379.4	1429.8	1480.7	1532.3	1584.8	1638.1	1747.2
	<i>s</i>	1.6194	1.6521	1.6816	1.7089	1.7344	1.7586	1.8037	1.8453	1.8842	1.9209	1.9556	1.9887	2.0508
110 (334.78)	<i>v</i>	4.1513	4.4689	4.7724	5.0674	5.3568	5.6424	6.2061	6.7634	7.3166	7.8671	8.4156	8.9627	10.054
	<i>h</i>	1198.3	1226.2	1252.6	1278.3	1303.6	1328.8	1378.9	1429.4	1480.4	1532.1	1584.6	1637.9	1747.1
	<i>s</i>	1.6068	1.6402	1.6701	1.6976	1.7233	1.7476	1.7928	1.8345	1.8735	1.9102	1.9450	1.9781	2.0402
120 (341.26)	<i>v</i>	3.7832	4.0796	4.3611	4.6339	4.9009	5.1640	5.6827	6.1949	6.7030	7.2083	7.7117	8.2137	9.2148
	<i>h</i>	1196.1	1224.6	1251.4	1277.3	1302.8	1328.1	1378.4	1428.9	1480.0	1531.8	1584.3	1637.7	1746.9
	<i>s</i>	1.5950	1.6292	1.6595	1.6872	1.7131	1.7375	1.7829	1.8247	1.8637	1.9005	1.9353	1.9684	2.0306
130 (347.33)	<i>v</i>	3.4711	3.7500	4.0130	4.2670	4.5151	4.7592	5.2398	5.7138	6.1838	6.6509	7.1162	7.5800	8.5047
	<i>h</i>	1193.8	1223.0	1250.2	1276.3	1302.0	1327.3	1377.8	1428.5	1479.7	1531.5	1584.1	1637.5	1746.8
	<i>s</i>	1.5839	1.6189	1.6496	1.6776	1.7037	1.7282	1.7737	1.8156	1.8547	1.8915	1.9263	1.9595	2.0217
140 (353.04)	<i>v</i>		3.4673	3.7145	3.9524	4.1843	4.4122	4.8602	5.3015	5.7387	6.1732	6.6057	7.0368	7.8960
	<i>h</i>		1221.4	1248.9	1275.3	1301.1	1326.6	1377.3	1428.1	1479.3	1531.2	1583.8	1637.3	1746.7
	<i>s</i>		1.6092	1.6404	1.6687	1.6949	1.7195	1.7652	1.8072	1.8464	1.8832	1.9180	1.9512	2.0135
150 (358.43)	<i>v</i>		3.2220	3.4557	3.6797	3.8976	4.1115	4.5311	4.9441	5.3530	5.7591	6.1632	6.5660	7.3685
	<i>h</i>		1219.7	1247.6	1274.3	1300.3	1325.9	1376.8	1427.7	1479.0	1530.9	1583.6	1637.1	1746.5
	<i>s</i>		1.6001	1.6317	1.6602	1.6866	1.7114	1.7573	1.7994	1.8386	1.8754	1.9103	1.9435	2.0058
160 (363.55)	<i>v</i>		3.0073	3.2291	3.4411	3.6468	3.8483	4.2432	4.6314	5.0155	5.3968	5.7761	6.1540	6.9069
	<i>h</i>		1218.0	1246.3	1273.3	1299.5	1325.2	1376.2	1427.2	1478.7	1530.7	1583.4	1636.9	1746.4
	<i>s</i>		1.5914	1.6235	1.6523	1.6789	1.7038	1.7498	1.7920	1.8313	1.8682	1.9031	1.9363	1.9986
170 (368.43)	<i>v</i>		2.8176	3.0291	3.2304	3.4253	3.6160	3.9892	4.3555	4.7177	5.0771	5.4345	5.7905	6.4996
	<i>h</i>		1216.3	1245.0	1272.2	1298.6	1324.5	1375.7	1426.8	1478.3	1530.4	1583.1	1636.7	1746.2
	<i>s</i>		1.5831	1.6157	1.6448	1.6716	1.6966	1.7428	1.7851	1.8244	1.8613	1.8963	1.9296	1.9919
180 (373.08)	<i>v</i>		2.6487	2.8512	3.0431	3.2285	3.4095	3.7633	4.1103	4.4530	4.7929	5.1309	5.4674	6.1376
	<i>h</i>		1214.5	1243.7	1271.2	1297.7	1323.8	1375.1	1426.4	1478.0	1530.1	1582.9	1636.5	1746.1
	<i>s</i>		1.5752	1.6082	1.6377	1.6646	1.6898	1.7361	1.7785	1.8179	1.8549	1.8899	1.9232	1.9855
190 (377.54)	<i>v</i>		2.4975	2.6920	2.8755	3.0524	3.2248	3.5613	3.8908	4.2161	4.5387	4.8592	5.1784	5.8137
	<i>h</i>		1212.7	1242.4	1270.1	1296.9	1323.0	1374.6	1426.0	1477.6	1529.8	1582.7	1636.3	1745.9
	<i>s</i>		1.5676	1.6011	1.6309	1.6580	1.6833	1.7298	1.7723	1.8118	1.8488	1.8838	1.9171	1.9795
200 (381.81)	<i>v</i>		2.3612	2.5485	2.7246	2.8938	3.0585	3.3794	3.6933	4.0030	4.3098	4.6147	4.9182	5.5222
	<i>h</i>		1210.9	1241.0	1269.1	1296.0	1322.3	1374.1	1425.5	1477.3	1529.5	1582.4	1636.1	1745.8
	<i>s</i>		1.5602	1.5943	1.6243	1.6517	1.6771	1.7238	1.7664	1.8059	1.8430	1.8780	1.9114	1.9738
220 (389.89)	<i>v</i>		2.1252	2.3006	2.4638	2.6198	2.7712	3.0652	3.3521	3.6348	3.9146	4.1924	4.4688	5.0186
	<i>h</i>		1207.0	1238.3	1266.9	1294.3	1320.8	1373.0	1424.7	1476.6	1529.0	1581.9	1635.7	1745.5
	<i>s</i>		1.5461	1.5814	1.6121	1.6399	1.6656	1.7126	1.7554	1.7950	1.8322	1.8673	1.9007	1.9631
240 (397.41)	<i>v</i>		1.9277	2.0936	2.2462	2.3914	2.5317	2.8034	3.0678	3.3279	3.5852	3.8404	4.0943	4.5990
	<i>h</i>		1203.0	1235.4	1264.7	1292.5	1319.4	1371.9	1423.8	1475.9	1528.4	1581.5	1635.3	1745.2
	<i>s</i>		1.5327	1.5694	1.6007	1.6289	1.6549	1.7023	1.7453	1.7851	1.8223	1.8575	1.8909	1.9534

v = specific volume, ft³/lb_m*h* = enthalpy, Btu/lb_m*s* = entropy, Btu/(lb_m • °R)

Table 3 (continued). Superheated Steam

Pressure psia (Sat. T)		Temperature—Degrees Fahrenheit												
		450	500	550	600	700	800	900	1000	1100	1200	1300	1400	1500
260 (404.45)	<i>v</i>	1.9182	2.0620	2.1980	2.3290	2.5818	2.8272	3.0683	3.3065	3.5426	3.7774	4.0111	4.2439	4.4763
	<i>h</i>	1232.5	1262.5	1290.7	1317.9	1370.8	1423.0	1475.2	1527.8	1581.0	1634.9	1689.5	1744.9	1801.1
	<i>s</i>	1.5580	1.5901	1.6188	1.6450	1.6928	1.7359	1.7758	1.8132	1.8484	1.8819	1.9138	1.9445	1.9739
280 (411.09)	<i>v</i>	1.7676	1.9039	2.0322	2.1552	2.3919	2.6210	2.8457	3.0676	3.2874	3.5058	3.7231	3.9396	4.1556
	<i>h</i>	1229.5	1260.2	1288.8	1316.3	1369.7	1422.1	1474.5	1527.2	1580.5	1634.5	1689.1	1744.6	1800.8
	<i>s</i>	1.5473	1.5801	1.6092	1.6358	1.6839	1.7273	1.7673	1.8047	1.8400	1.8735	1.9055	1.9362	1.9656
300 (417.37)	<i>v</i>	1.6367	1.7668	1.8883	2.0045	2.2272	2.4423	2.6529	2.8605	3.0662	3.2704	3.4735	3.6758	3.8776
	<i>h</i>	1226.4	1257.9	1287.0	1314.8	1368.5	1421.2	1473.8	1526.7	1580.0	1634.0	1688.8	1744.3	1800.6
	<i>s</i>	1.5370	1.5706	1.6002	1.6271	1.6756	1.7191	1.7593	1.7968	1.8322	1.8657	1.8978	1.9284	1.9579
320 (423.33)	<i>v</i>	1.5219	1.6467	1.7624	1.8726	2.0831	2.2859	2.4841	2.6793	2.8726	3.0644	3.2551	3.4450	3.6344
	<i>h</i>	1223.3	1255.5	1285.1	1313.3	1367.4	1420.4	1473.1	1526.1	1579.6	1633.6	1688.4	1744.0	1800.3
	<i>s</i>	1.5271	1.5615	1.5916	1.6189	1.6677	1.7115	1.7518	1.7894	1.8248	1.8584	1.8905	1.9212	1.9507
340 (429.01)	<i>v</i>	1.4203	1.5405	1.6512	1.7562	1.9560	2.1478	2.3351	2.5195	2.7018	2.8826	3.0624	3.2414	3.4198
	<i>h</i>	1220.0	1253.1	1283.2	1311.7	1366.3	1419.5	1472.4	1525.5	1579.1	1633.2	1688.1	1743.7	1800.1
	<i>s</i>	1.5175	1.5529	1.5835	1.6111	1.6603	1.7043	1.7447	1.7824	1.8179	1.8516	1.8837	1.9144	1.9439
360 (434.43)	<i>v</i>	1.3297	1.4460	1.5523	1.6527	1.8429	2.0252	2.2028	2.3774	2.5500	2.7211	2.8911	3.0604	3.2291
	<i>h</i>	1216.6	1250.6	1281.3	1310.1	1365.2	1418.6	1471.7	1525.0	1578.6	1632.8	1687.7	1743.4	1799.8
	<i>s</i>	1.5082	1.5446	1.5757	1.6036	1.6533	1.6975	1.7381	1.7758	1.8114	1.8451	1.8772	1.9080	1.9375
380 (439.63)	<i>v</i>	1.2483	1.3613	1.4637	1.5600	1.7418	1.9154	2.0843	2.2502	2.4141	2.5765	2.7379	2.8984	3.0584
	<i>h</i>	1213.1	1248.1	1279.3	1308.5	1364.0	1417.8	1471.0	1524.4	1578.1	1632.4	1687.4	1743.1	1799.5
	<i>s</i>	1.4991	1.5365	1.5683	1.5965	1.6466	1.6910	1.7317	1.7696	1.8052	1.8389	1.8711	1.9019	1.9314
400 (444.63)	<i>v</i>	1.1747	1.2850	1.3839	1.4765	1.6507	1.8166	1.9777	2.1358	2.2919	2.4464	2.6000	2.7527	2.9048
	<i>h</i>	1209.5	1245.6	1277.3	1306.9	1362.9	1416.9	1470.3	1523.8	1577.7	1632.0	1687.0	1742.8	1799.3
	<i>s</i>	1.4901	1.5288	1.5611	1.5897	1.6402	1.6848	1.7257	1.7636	1.7993	1.8331	1.8653	1.8961	1.9257
450 (456.32)	<i>v</i>		1.1232	1.2151	1.3001	1.4584	1.6079	1.7526	1.8942	2.0337	2.1718	2.3088	2.4449	2.5805
	<i>h</i>		1238.9	1272.2	1302.8	1360.0	1414.7	1468.6	1522.4	1576.5	1631.0	1686.2	1742.0	1798.6
	<i>s</i>		1.5103	1.5442	1.5737	1.6253	1.6705	1.7117	1.7499	1.7857	1.8196	1.8519	1.8828	1.9124
500 (467.05)	<i>v</i>		0.9930	1.0797	1.1587	1.3044	1.4409	1.5725	1.7009	1.8272	1.9521	2.0758	2.1987	2.3211
	<i>h</i>		1231.9	1267.0	1298.6	1357.0	1412.4	1466.8	1520.9	1575.3	1630.0	1685.3	1741.3	1798.0
	<i>s</i>		1.4928	1.5284	1.5591	1.6117	1.6576	1.6991	1.7375	1.7735	1.8076	1.8399	1.8708	1.9005
550 (476.98)	<i>v</i>		0.8856	0.9685	1.0428	1.1783	1.3043	1.4251	1.5428	1.6583	1.7723	1.8852	1.9973	2.1088
	<i>h</i>		1224.5	1261.5	1294.3	1354.0	1410.2	1465.0	1519.5	1574.0	1629.0	1684.4	1740.5	1797.3
	<i>s</i>		1.4760	1.5137	1.5454	1.5993	1.6457	1.6876	1.7263	1.7624	1.7966	1.8290	1.8600	1.8898
600 (486.25)	<i>v</i>		0.7953	0.8754	0.9460	1.0732	1.1904	1.3023	1.4110	1.5175	1.6225	1.7264	1.8295	1.9320
	<i>h</i>		1216.5	1255.8	1289.9	1351.0	1407.9	1463.2	1518.0	1572.8	1628.0	1683.6	1739.8	1796.7
	<i>s</i>		1.4597	1.4996	1.5325	1.5877	1.6348	1.6770	1.7159	1.7523	1.7865	1.8190	1.8501	1.8799
650 (494.94)	<i>v</i>		0.7178	0.7962	0.8639	0.9841	1.0940	1.1983	1.2994	1.3983	1.4957	1.5920	1.6874	1.7823
	<i>h</i>		1208.0	1249.9	1285.3	1347.9	1405.6	1461.4	1516.6	1571.6	1626.9	1682.7	1739.0	1796.0
	<i>s</i>		1.4434	1.4861	1.5203	1.5768	1.6246	1.6672	1.7063	1.7428	1.7772	1.8098	1.8410	1.8708
700 (503.14)	<i>v</i>			0.7280	0.7933	0.9077	1.0113	1.1092	1.2038	1.2962	1.3871	1.4768	1.5657	1.6540
	<i>h</i>			1243.7	1280.6	1344.8	1403.3	1459.6	1515.1	1570.4	1625.9	1681.8	1738.3	1795.4
	<i>s</i>			1.4730	1.5087	1.5666	1.6150	1.6580	1.6974	1.7341	1.7686	1.8013	1.8325	1.8624
750 (510.90)	<i>v</i>			0.6684	0.7319	0.8414	0.9396	1.0320	1.1209	1.2077	1.2929	1.3770	1.4602	1.5428
	<i>h</i>			1237.3	1275.8	1341.6	1401.0	1457.8	1513.6	1569.2	1624.9	1681.0	1737.5	1794.7
	<i>s</i>			1.4602	1.4975	1.5569	1.6060	1.6494	1.6890	1.7259	1.7605	1.7933	1.8245	1.8545

v = specific volume, ft³/lb_m *h* = enthalpy, Btu/lb_m *s* = entropy, Btu/(lb_m • °R)

Table 3 (continued). Superheated Steam

Pressure psia (Sat. T)		Temperature—Degrees Fahrenheit												
		550	600	650	700	750	800	900	1000	1100	1200	1300	1400	1500
800 (518.27)	<i>v</i>	0.6159	0.6780	0.7328	0.7834	0.8311	0.8768	0.9643	1.0484	1.1302	1.2105	1.2896	1.3679	1.4456
	<i>h</i>	1230.5	1270.8	1306.0	1338.4	1369.0	1398.6	1456.0	1512.1	1568.0	1623.9	1680.1	1736.8	1794.0
	<i>s</i>	1.4476	1.4866	1.5191	1.5476	1.5735	1.5975	1.6413	1.6812	1.7182	1.7529	1.7858	1.8171	1.8471
850 (525.30)	<i>v</i>	0.5691	0.6302	0.6834	0.7320	0.7777	0.8214	0.9047	0.9844	1.0619	1.1378	1.2125	1.2864	1.3597
	<i>h</i>	1223.4	1265.7	1302.0	1335.1	1366.3	1396.2	1454.1	1510.7	1566.7	1622.8	1679.2	1736.0	1793.4
	<i>s</i>	1.4351	1.4761	1.5096	1.5388	1.5651	1.5894	1.6336	1.6737	1.7109	1.7457	1.7787	1.8101	1.8401
900 (532.02)	<i>v</i>	0.5269	0.5875	0.6394	0.6864	0.7303	0.7721	0.8516	0.9275	1.0011	1.0731	1.1440	1.2140	1.2834
	<i>h</i>	1215.8	1260.4	1297.9	1331.8	1363.5	1393.8	1452.3	1509.2	1565.5	1621.8	1678.3	1735.3	1792.7
	<i>s</i>	1.4226	1.4658	1.5004	1.5302	1.5570	1.5816	1.6262	1.6666	1.7040	1.7389	1.7720	1.8035	1.8336
950 (538.46)	<i>v</i>	0.4887	0.5491	0.5998	0.6454	0.6878	0.7280	0.8041	0.8766	0.9467	1.0153	1.0827	1.1492	1.2152
	<i>h</i>	1207.8	1254.9	1293.7	1328.4	1360.6	1391.4	1450.4	1507.7	1564.3	1620.8	1677.4	1734.5	1792.1
	<i>s</i>	1.4100	1.4557	1.4914	1.5220	1.5492	1.5742	1.6192	1.6599	1.6974	1.7325	1.7657	1.7972	1.8273
1000 (544.65)	<i>v</i>	0.4538	0.5143	0.5641	0.6085	0.6495	0.6883	0.7614	0.8308	0.8978	0.9632	1.0275	1.0909	1.1537
	<i>h</i>	1199.1	1249.3	1289.4	1324.9	1357.8	1389.0	1448.5	1506.2	1563.0	1619.7	1676.6	1733.7	1791.4
	<i>s</i>	1.3971	1.4457	1.4827	1.5140	1.5418	1.5670	1.6125	1.6535	1.6911	1.7264	1.7596	1.7912	1.8214
1100 (556.35)	<i>v</i>		0.4536	0.5022	0.5446	0.5833	0.6196	0.6875	0.7516	0.8133	0.8733	0.9322	0.9902	1.0476
	<i>h</i>		1237.2	1280.5	1317.9	1351.9	1384.0	1444.7	1503.2	1560.6	1617.7	1674.8	1732.2	1790.1
	<i>s</i>		1.4259	1.4658	1.4987	1.5275	1.5535	1.5999	1.6414	1.6794	1.7149	1.7483	1.7801	1.8104
1200 (567.26)	<i>v</i>		0.4020	0.4501	0.4910	0.5279	0.5622	0.6259	0.6856	0.7428	0.7984	0.8528	0.9063	0.9592
	<i>h</i>		1224.1	1271.1	1310.5	1345.9	1378.9	1440.9	1500.1	1558.1	1615.6	1673.0	1730.7	1788.8
	<i>s</i>		1.4061	1.4494	1.4842	1.5141	1.5408	1.5882	1.6302	1.6686	1.7043	1.7379	1.7698	1.8002
1300 (577.50)	<i>v</i>		0.3574	0.4057	0.4455	0.4809	0.5136	0.5738	0.6298	0.6832	0.7350	0.7856	0.8353	0.8843
	<i>h</i>		1209.8	1261.3	1302.9	1339.7	1373.7	1437.0	1497.0	1555.6	1613.5	1671.3	1729.2	1787.4
	<i>s</i>		1.3859	1.4334	1.4701	1.5012	1.5288	1.5772	1.6198	1.6585	1.6945	1.7283	1.7604	1.7909
1400 (587.14)	<i>v</i>		0.3178	0.3671	0.4063	0.4405	0.4718	0.5290	0.5819	0.6321	0.6806	0.7280	0.7744	0.8202
	<i>h</i>		1193.7	1250.8	1295.0	1333.4	1368.5	1433.1	1493.9	1553.1	1611.4	1669.5	1727.7	1786.1
	<i>s</i>		1.3649	1.4175	1.4566	1.4890	1.5174	1.5668	1.6100	1.6491	1.6854	1.7194	1.7515	1.7821
1500 (596.27)	<i>v</i>		0.2819	0.3331	0.3720	0.4054	0.4356	0.4902	0.5403	0.5878	0.6335	0.6780	0.7217	0.7646
	<i>h</i>		1175.4	1239.6	1286.8	1326.9	1363.1	1429.1	1490.8	1550.5	1609.3	1667.7	1726.1	1784.8
	<i>s</i>		1.3423	1.4016	1.4433	1.4771	1.5064	1.5569	1.6007	1.6403	1.6768	1.7110	1.7433	1.7740
1600 (604.93)	<i>v</i>			0.3029	0.3418	0.3745	0.4037	0.4562	0.5040	0.5490	0.5923	0.6343	0.6755	0.7160
	<i>h</i>			1227.7	1278.3	1320.2	1357.6	1425.1	1487.7	1548.0	1607.2	1665.9	1724.6	1783.5
	<i>s</i>			1.3855	1.4302	1.4656	1.4959	1.5475	1.5920	1.6319	1.6687	1.7031	1.7355	1.7663
1700 (613.19)	<i>v</i>			0.2757	0.3149	0.3471	0.3756	0.4262	0.4719	0.5148	0.5559	0.5958	0.6348	0.6731
	<i>h</i>			1214.7	1269.3	1313.3	1351.9	1421.0	1484.5	1545.4	1605.0	1664.1	1723.0	1782.1
	<i>s</i>			1.3691	1.4172	1.4544	1.4857	1.5385	1.5836	1.6240	1.6610	1.6956	1.7282	1.7591
1800 (621.07)	<i>v</i>			0.2507	0.2908	0.3227	0.3505	0.3994	0.4433	0.4844	0.5236	0.5615	0.5986	0.6349
	<i>h</i>			1200.6	1259.9	1306.2	1346.2	1416.9	1481.3	1542.8	1602.9	1662.3	1721.5	1780.8
	<i>s</i>			1.3520	1.4043	1.4434	1.4758	1.5299	1.5756	1.6164	1.6537	1.6885	1.7212	1.7522
1900 (628.62)	<i>v</i>			0.2277	0.2689	0.3007	0.3280	0.3755	0.4178	0.4572	0.4947	0.5309	0.5662	0.6008
	<i>h</i>			1185.1	1250.1	1298.8	1340.3	1412.7	1478.1	1540.2	1600.8	1660.5	1720.0	1779.5
	<i>s</i>			1.3340	1.3914	1.4325	1.4662	1.5215	1.5680	1.6091	1.6468	1.6817	1.7146	1.7457
2000 (635.85)	<i>v</i>			0.2059	0.2489	0.2807	0.3076	0.3539	0.3948	0.4327	0.4686	0.5033	0.5370	0.5701
	<i>h</i>			1167.5	1239.7	1291.2	1334.3	1408.5	1474.9	1537.6	1598.6	1658.7	1718.4	1778.1
	<i>s</i>			1.3146	1.3783	1.4218	1.4567	1.5134	1.5606	1.6022	1.6401	1.6752	1.7083	1.7395

v = specific volume, ft³/lb_m*h* = enthalpy, Btu/lb_m*s* = entropy, Btu/(lb_m • °R)

Table 3 (continued). Superheated Steam

Pressure psia (Sat. T)		Temperature—Degrees Fahrenheit												
		650	700	750	800	850	900	950	1000	1100	1200	1300	1400	1500
2200 (649.50)	<i>v</i>	0.1635	0.2136	0.2459	0.2723	0.2955	0.3166	0.3363	0.3550	0.3903	0.4236	0.4556	0.4867	0.5171
	<i>h</i>	1122.0	1217.1	1275.2	1321.8	1362.6	1399.8	1434.8	1468.3	1532.4	1594.3	1655.1	1715.3	1775.5
	<i>s</i>	1.2673	1.3514	1.4006	1.4383	1.4700	1.4980	1.5232	1.5466	1.5891	1.6276	1.6631	1.6964	1.7279
2400 (662.16)	<i>v</i>		0.1827	0.2164	0.2426	0.2651	0.2854	0.3042	0.3219	0.3550	0.3861	0.4159	0.4447	0.4729
	<i>h</i>		1191.0	1258.0	1308.8	1352.0	1390.9	1427.2	1461.6	1527.1	1589.9	1651.4	1712.2	1772.8
	<i>s</i>		1.3226	1.3793	1.4204	1.4541	1.4833	1.5094	1.5335	1.5769	1.6159	1.6519	1.6855	1.7172
2600 (673.98)	<i>v</i>		0.1548	0.1909	0.2173	0.2393	0.2589	0.2769	0.2938	0.3251	0.3544	0.3823	0.4092	0.4355
	<i>h</i>		1160.0	1239.4	1295.0	1341.0	1381.8	1419.4	1454.8	1521.7	1585.6	1647.8	1709.1	1770.1
	<i>s</i>		1.2905	1.3577	1.4027	1.4386	1.4692	1.4963	1.5210	1.5654	1.6050	1.6414	1.6753	1.7073
2800 (685.03)	<i>v</i>		0.1280	0.1685	0.1953	0.2171	0.2362	0.2535	0.2697	0.2995	0.3272	0.3535	0.3788	0.4034
	<i>h</i>		1120.6	1219.0	1280.5	1329.7	1372.5	1411.5	1447.9	1516.3	1581.2	1644.1	1706.0	1767.4
	<i>s</i>		1.2520	1.3353	1.3852	1.4235	1.4555	1.4837	1.5092	1.5545	1.5948	1.6316	1.6658	1.6980
3000 (695.41)	<i>v</i>		0.0984	0.1484	0.1760	0.1977	0.2164	0.2332	0.2487	0.2773	0.3037	0.3286	0.3525	0.3757
	<i>h</i>		1059.8	1196.4	1265.2	1317.9	1362.9	1403.4	1441.0	1510.9	1576.7	1640.4	1702.8	1764.7
	<i>s</i>		1.1959	1.3118	1.3675	1.4086	1.4423	1.4716	1.4978	1.5442	1.5851	1.6223	1.6569	1.6893
3200 (705.10)	<i>v</i>			0.1300	0.1589	0.1806	0.1990	0.2154	0.2304	0.2579	0.2830	0.3067	0.3294	0.3514
	<i>h</i>			1171.0	1248.9	1305.7	1353.0	1395.1	1433.9	1505.4	1572.3	1636.7	1699.7	1762.0
	<i>s</i>			1.2866	1.3497	1.3939	1.4294	1.4598	1.4869	1.5343	1.5759	1.6136	1.6484	1.6810
3400	<i>v</i>			0.1129	0.1435	0.1654	0.1836	0.1996	0.2143	0.2407	0.2648	0.2875	0.3091	0.3299
	<i>h</i>			1141.8	1231.6	1292.9	1342.9	1386.7	1426.6	1499.8	1567.8	1633.0	1696.6	1759.3
	<i>s</i>			1.2587	1.3316	1.3793	1.4168	1.4484	1.4763	1.5248	1.5671	1.6052	1.6403	1.6732
3600	<i>v</i>			0.0964	0.1296	0.1518	0.1699	0.1856	0.1999	0.2255	0.2487	0.2704	0.2910	0.3109
	<i>h</i>			1107.2	1213.2	1279.7	1332.5	1378.1	1419.3	1494.2	1563.3	1629.2	1693.4	1756.6
	<i>s</i>			1.2269	1.3129	1.3648	1.4043	1.4373	1.4660	1.5157	1.5586	1.5972	1.6327	1.6658
3800	<i>v</i>			0.0802	0.1169	0.1396	0.1576	0.1731	0.1870	0.2118	0.2342	0.2551	0.2748	0.2939
	<i>h</i>			1064.4	1193.4	1266.0	1321.9	1369.4	1411.9	1488.5	1558.8	1625.5	1690.3	1753.9
	<i>s</i>			1.1888	1.2936	1.3502	1.3921	1.4264	1.4561	1.5069	1.5505	1.5896	1.6254	1.6587
4000	<i>v</i>			0.0637	0.1052	0.1285	0.1465	0.1617	0.1754	0.1996	0.2212	0.2413	0.2603	0.2785
	<i>h</i>			1009.2	1172.1	1251.7	1310.9	1360.5	1404.4	1482.8	1554.2	1621.7	1687.1	1751.2
	<i>s</i>			1.1409	1.2734	1.3355	1.3799	1.4157	1.4463	1.4983	1.5427	1.5822	1.6183	1.6519
4500	<i>v</i>			0.0393	0.0796	0.1047	0.1229	0.1378	0.1509	0.1737	0.1938	0.2122	0.2296	0.2462
	<i>h</i>			891.0	1111.1	1213.4	1282.3	1337.5	1385.3	1468.4	1542.7	1612.3	1679.2	1744.5
	<i>s</i>			1.0395	1.2183	1.2980	1.3497	1.3896	1.4229	1.4780	1.5242	1.5650	1.6019	1.6361
5000	<i>v</i>			0.0337	0.0594	0.0855	0.1039	0.1186	0.1313	0.1530	0.1719	0.1890	0.2051	0.2204
	<i>h</i>			853.0	1041.9	1171.5	1252.1	1313.7	1365.5	1453.8	1531.2	1602.9	1671.3	1737.7
	<i>s</i>			1.0053	1.1582	1.2593	1.3198	1.3643	1.4005	1.4590	1.5071	1.5491	1.5869	1.6217
5500	<i>v</i>			0.0313	0.0463	0.0701	0.0885	0.1030	0.1153	0.1361	0.1540	0.1701	0.1851	0.1993
	<i>h</i>			834.1	980.9	1126.9	1220.4	1289.1	1345.4	1439.0	1519.6	1593.4	1663.4	1731.0
	<i>s</i>			0.9872	1.1060	1.2198	1.2899	1.3396	1.3788	1.4409	1.4910	1.5343	1.5729	1.6084
6000	<i>v</i>			0.0298	0.0395	0.0582	0.0759	0.0901	0.1021	0.1221	0.1391	0.1544	0.1684	0.1817
	<i>h</i>			821.7	940.8	1083.1	1187.7	1263.8	1324.8	1424.0	1507.9	1583.9	1655.5	1724.3
	<i>s</i>			0.9747	1.0710	1.1818	1.2604	1.3154	1.3579	1.4237	1.4759	1.5204	1.5599	1.5960
7000	<i>v</i>			0.0279	0.0334	0.0438	0.0576	0.0705	0.0817	0.1004	0.1160	0.1298	0.1424	0.1542
	<i>h</i>			805.6	898.4	1013.3	1124.8	1213.1	1283.4	1394.0	1484.6	1565.1	1639.8	1711.0
	<i>s</i>			0.9570	1.0321	1.1215	1.2051	1.2689	1.3179	1.3913	1.4476	1.4948	1.5361	1.5734

v = specific volume, ft³/lb_m *h* = enthalpy, Btu/lb_m *s* = entropy, Btu/(lb_m • °R)

Table 3 (continued). Superheated Steam

Pressure psia (Sat. T)		Temperature—Degrees Fahrenheit												
		750	800	850	900	950	1000	1050	1100	1150	1200	1300	1400	1500
8000	<i>v</i>	0.0267	0.0306	0.0371	0.0465	0.0571	0.0672	0.0763	0.0844	0.0919	0.0988	0.1115	0.1230	0.1337
	<i>h</i>	795.1	876.0	971.0	1073.2	1165.6	1243.0	1307.9	1364.3	1414.9	1461.5	1546.4	1624.3	1697.9
	<i>s</i>	0.9441	1.0096	1.0836	1.1601	1.2269	1.2808	1.3246	1.3614	1.3933	1.4218	1.4715	1.5146	1.5532
9000	<i>v</i>	0.0258	0.0289	0.0335	0.0401	0.0483	0.0568	0.0650	0.0725	0.0794	0.0858	0.0975	0.1081	0.1179
	<i>h</i>	787.5	861.6	945.1	1036.2	1125.7	1205.8	1275.1	1335.6	1389.6	1438.9	1528.1	1609.1	1685.1
	<i>s</i>	0.9338	0.9938	1.0588	1.1270	1.1917	1.2475	1.2942	1.3337	1.3678	1.3980	1.4502	1.4949	1.5348
10000	<i>v</i>	0.0251	0.0276	0.0312	0.0362	0.0425	0.0495	0.0566	0.0633	0.0697	0.0756	0.0864	0.0962	0.1053
	<i>h</i>	781.8	851.3	927.6	1010.1	1094.2	1173.6	1245.0	1308.5	1365.4	1417.2	1510.4	1594.3	1672.6
	<i>s</i>	0.9252	0.9815	1.0409	1.1027	1.1634	1.2188	1.2669	1.3083	1.3442	1.3759	1.4304	1.4768	1.5179
11000	<i>v</i>	0.0245	0.0267	0.0296	0.0336	0.0385	0.0442	0.0503	0.0563	0.0621	0.0675	0.0776	0.0867	0.0952
	<i>h</i>	777.3	843.6	915.0	991.3	1070.0	1146.8	1218.5	1283.5	1342.6	1396.5	1493.3	1579.9	1660.4
	<i>s</i>	0.9177	0.9714	1.0269	1.0841	1.1409	1.1945	1.2428	1.2852	1.3225	1.3555	1.4121	1.4600	1.5022
12000	<i>v</i>	0.0240	0.0260	0.0285	0.0317	0.0357	0.0404	0.0456	0.0509	0.0561	0.0611	0.0704	0.0789	0.0868
	<i>h</i>	773.8	837.5	905.3	977.1	1051.3	1125.1	1195.6	1261.2	1321.6	1377.1	1477.0	1566.1	1648.6
	<i>s</i>	0.9111	0.9627	1.0155	1.0692	1.1228	1.1743	1.2218	1.2646	1.3027	1.3366	1.3951	1.4444	1.4876
13000	<i>v</i>	0.0236	0.0253	0.0275	0.0303	0.0336	0.0376	0.0420	0.0467	0.0513	0.0559	0.0645	0.0724	0.0798
	<i>h</i>	771.0	832.7	897.8	966.1	1036.6	1107.5	1176.3	1241.6	1302.6	1359.2	1461.5	1552.9	1637.2
	<i>s</i>	0.9051	0.9551	1.0057	1.0569	1.1079	1.1573	1.2036	1.2462	1.2847	1.3193	1.3792	1.4297	1.4739
14000	<i>v</i>	0.0232	0.0248	0.0267	0.0291	0.0320	0.0354	0.0392	0.0433	0.0475	0.0516	0.0596	0.0670	0.0739
	<i>h</i>	768.7	828.8	891.7	957.3	1024.9	1093.1	1160.1	1224.6	1285.7	1342.8	1446.9	1540.3	1626.3
	<i>s</i>	0.8996	0.9483	0.9973	1.0464	1.0952	1.1428	1.1879	1.2299	1.2685	1.3035	1.3644	1.4161	1.4611
15000	<i>v</i>	0.0229	0.0243	0.0261	0.0282	0.0308	0.0337	0.0370	0.0406	0.0443	0.0481	0.0554	0.0624	0.0689
	<i>h</i>	766.9	825.6	886.7	950.1	1015.3	1081.2	1146.5	1209.8	1270.6	1327.9	1433.3	1528.4	1615.8
	<i>s</i>	0.8946	0.9422	0.9897	1.0372	1.0843	1.1303	1.1742	1.2155	1.2539	1.2890	1.3506	1.4032	1.4490

v = specific volume, ft³/lb_m *h* = enthalpy, Btu/lb_m *s* = entropy, Btu/(lb_m • °R)

Table 4. Properties of Saturated Water and Steam (Temperature)

Temp. t (°C)	Pressure MPa	Volume, m³/kg		Enthalpy, kJ/kg		Entropy, kJ/(kg·K)		Temp. t (°C)
		v_L	v_V	h_L	h_V	s_L	s_V	
0.01	0.0006117	0.0010002	206.00	0.001	2500.9	0.0000	9.1555	0.01
5	0.0008726	0.0010001	147.02	21.019	2510.1	0.0763	9.0249	5
10	0.001228	0.0010003	106.31	42.021	2519.2	0.1511	8.8998	10
15	0.001706	0.0010009	77.881	62.984	2528.4	0.2245	8.7804	15
20	0.002339	0.0010018	57.761	83.920	2537.5	0.2965	8.6661	20
25	0.003170	0.0010030	43.341	104.84	2546.5	0.3673	8.5568	25
30	0.004247	0.0010044	32.882	125.75	2555.6	0.4368	8.4521	30
35	0.005629	0.0010060	25.208	146.64	2564.6	0.5052	8.3518	35
40	0.007384	0.0010079	19.517	167.54	2573.5	0.5724	8.2557	40
45	0.009594	0.0010099	15.253	188.44	2582.5	0.6386	8.1634	45
50	0.012351	0.0010121	12.028	209.34	2591.3	0.7038	8.0749	50
55	0.015761	0.0010145	9.5649	230.24	2600.1	0.7680	7.9899	55
60	0.019946	0.0010171	7.6677	251.15	2608.8	0.8312	7.9082	60
65	0.025041	0.0010199	6.1938	272.08	2617.5	0.8935	7.8296	65
70	0.031201	0.0010228	5.0397	293.02	2626.1	0.9550	7.7540	70
75	0.038595	0.0010258	4.1291	313.97	2634.6	1.0156	7.6812	75
80	0.047415	0.0010290	3.4053	334.95	2643.0	1.0754	7.6110	80
85	0.057867	0.0010324	2.8259	355.95	2651.3	1.1344	7.5434	85
90	0.070182	0.0010359	2.3591	376.97	2659.5	1.1927	7.4781	90
95	0.084609	0.0010396	1.9806	398.02	2667.6	1.2502	7.4150	95
100	0.10142	0.0010435	1.6719	419.10	2675.6	1.3070	7.3541	100
105	0.12090	0.0010474	1.4185	440.21	2683.4	1.3632	7.2951	105
110	0.14338	0.0010516	1.2094	461.36	2691.1	1.4187	7.2380	110
115	0.16918	0.0010559	1.0359	482.55	2698.6	1.4735	7.1827	115
120	0.19867	0.0010603	0.89130	503.78	2705.9	1.5278	7.1291	120
125	0.23222	0.0010649	0.77011	525.06	2713.1	1.5815	7.0770	125
130	0.27026	0.0010697	0.66808	546.39	2720.1	1.6346	7.0264	130
135	0.31320	0.0010747	0.58180	567.77	2726.9	1.6872	6.9772	135
140	0.36150	0.0010798	0.50852	589.20	2733.4	1.7393	6.9293	140
145	0.41563	0.0010850	0.44602	610.69	2739.8	1.7909	6.8826	145
150	0.47610	0.0010905	0.39250	632.25	2745.9	1.8420	6.8370	150
155	0.54342	0.0010962	0.34650	653.88	2751.8	1.8926	6.7926	155
160	0.61814	0.0011020	0.30682	675.57	2757.4	1.9428	6.7491	160
165	0.70082	0.0011080	0.27246	697.35	2762.8	1.9926	6.7066	165
170	0.79205	0.0011143	0.24262	719.21	2767.9	2.0419	6.6649	170
175	0.89245	0.0011207	0.21660	741.15	2772.7	2.0909	6.6241	175
180	1.0026	0.0011274	0.19386	763.19	2777.2	2.1395	6.5841	180
185	1.1233	0.0011343	0.17392	785.32	2781.4	2.1878	6.5447	185
190	1.2550	0.0011414	0.15638	807.57	2785.3	2.2358	6.5060	190
195	1.3986	0.0011488	0.14091	829.92	2788.9	2.2834	6.4679	195
200	1.5547	0.0011565	0.12722	852.39	2792.1	2.3308	6.4303	200
205	1.7240	0.0011645	0.11509	874.99	2794.9	2.3779	6.3932	205
210	1.9074	0.0011727	0.10430	897.73	2797.4	2.4248	6.3565	210
215	2.1055	0.0011813	0.094689	920.61	2799.4	2.4714	6.3202	215
220	2.3193	0.0011902	0.086101	943.64	2801.1	2.5178	6.2842	220

Table 4. Properties of Saturated Water and Steam (Temperature)

Temp. t (°C)	Pressure MPa	Volume, m³/kg		Enthalpy, kJ/kg		Entropy, kJ/(kg•K)		Temp. t (°C)
		v_L	v_V	h_L	h_V	s_L	s_V	
225	2.5494	0.001199	0.078411	966.84	2802.3	2.5641	6.2485	225
230	2.7968	0.001209	0.071510	990.21	2803.0	2.6102	6.2131	230
235	3.0622	0.001219	0.065304	1013.8	2803.3	2.6561	6.1777	235
240	3.3467	0.001229	0.059710	1037.5	2803.1	2.7019	6.1425	240
245	3.6509	0.001240	0.054658	1061.5	2802.3	2.7477	6.1074	245
250	3.9759	0.001252	0.050087	1085.7	2801.0	2.7934	6.0722	250
255	4.3227	0.001264	0.045941	1110.1	2799.1	2.8391	6.0370	255
260	4.6921	0.001276	0.042175	1134.8	2796.6	2.8847	6.0017	260
265	5.0851	0.001289	0.038748	1159.8	2793.5	2.9304	5.9662	265
270	5.5028	0.001303	0.035622	1185.1	2789.7	2.9762	5.9304	270
275	5.9463	0.001318	0.032767	1210.7	2785.1	3.0221	5.8943	275
280	6.4165	0.001333	0.030154	1236.7	2779.8	3.0681	5.8578	280
285	6.9145	0.001349	0.027758	1263.0	2773.7	3.1143	5.8208	285
290	7.4416	0.001366	0.025557	1289.8	2766.6	3.1608	5.7832	290
295	7.9990	0.001385	0.023531	1317.0	2758.6	3.2076	5.7449	295
300	8.5877	0.001404	0.021663	1344.8	2749.6	3.2547	5.7058	300
305	9.2092	0.001425	0.019937	1373.1	2739.4	3.3024	5.6656	305
310	9.8647	0.001448	0.018339	1402.0	2727.9	3.3506	5.6243	310
315	10.556	0.001472	0.016856	1431.6	2715.1	3.3994	5.5816	315
320	11.284	0.001499	0.015476	1462.1	2700.7	3.4491	5.5373	320
325	12.051	0.001528	0.014189	1493.4	2684.5	3.4997	5.4911	325
330	12.858	0.001561	0.012984	1525.7	2666.2	3.5516	5.4425	330
335	13.707	0.001597	0.011852	1559.3	2645.6	3.6048	5.3910	335
340	14.600	0.001638	0.010784	1594.4	2622.1	3.6599	5.3359	340
345	15.540	0.001685	0.009770	1631.4	2595.0	3.7175	5.2763	345
350	16.529	0.001740	0.008801	1670.9	2563.6	3.7783	5.2109	350
355	17.570	0.001808	0.007866	1713.7	2526.4	3.8438	5.1377	355
360	18.666	0.001895	0.006945	1761.5	2481.0	3.9164	5.0527	360
365	19.822	0.002016	0.006004	1817.6	2422.0	4.0011	4.9482	365
370	21.043	0.002222	0.004946	1892.6	2333.5	4.1142	4.7996	370
T_c	22.064	0.003106	0.003106	2087.5	2087.5	4.4120	4.4120	T_c

T_c = 373.946 °C

Table 5. Properties of Saturated Water and Steam (Pressure)

Press. MPa	Temp. t (°C)	Volume, m³/kg		Enthalpy, kJ/kg		Entropy, kJ/(kg·K)		Press. MPa
		v_L	v_V	h_L	h_V	s_L	s_V	
0.001	6.97	0.0010001	129.18	29.298	2513.7	0.1059	8.9749	0.001
0.002	17.50	0.0010014	66.990	73.435	2532.9	0.2606	8.7227	0.002
0.003	24.08	0.0010028	45.655	100.99	2544.9	0.3543	8.5766	0.003
0.004	28.96	0.0010041	34.792	121.40	2553.7	0.4224	8.4735	0.004
0.005	32.88	0.0010053	28.186	137.77	2560.8	0.4763	8.3939	0.005
0.006	36.16	0.0010064	23.734	151.49	2566.7	0.5209	8.3291	0.006
0.007	39.00	0.0010075	20.525	163.37	2571.8	0.5591	8.2746	0.007
0.008	41.51	0.0010085	18.099	173.85	2576.2	0.5925	8.2274	0.008
0.009	43.76	0.0010094	16.200	183.26	2580.3	0.6223	8.1859	0.009
0.010	45.81	0.0010103	14.671	191.81	2583.9	0.6492	8.1489	0.010
0.012	49.42	0.0010119	12.359	206.91	2590.3	0.6963	8.0850	0.012
0.014	52.55	0.0010133	10.691	219.99	2595.8	0.7366	8.0312	0.014
0.016	55.31	0.0010147	9.4309	231.55	2600.7	0.7720	7.9847	0.016
0.018	57.80	0.0010160	8.4433	241.95	2605.0	0.8035	7.9437	0.018
0.020	60.06	0.0010171	7.6482	251.40	2608.9	0.8320	7.9072	0.020
0.025	64.96	0.0010198	6.2034	271.93	2617.4	0.8931	7.8302	0.025
0.030	69.10	0.0010222	5.2286	289.23	2624.6	0.9439	7.7675	0.030
0.035	72.68	0.0010244	4.5252	304.25	2630.7	0.9876	7.7146	0.035
0.040	75.86	0.0010264	3.9931	317.57	2636.1	1.0259	7.6690	0.040
0.045	78.71	0.0010282	3.5761	329.55	2640.9	1.0601	7.6288	0.045
0.05	81.32	0.0010299	3.2401	340.48	2645.2	1.0910	7.5930	0.05
0.06	85.93	0.0010331	2.7318	359.84	2652.9	1.1452	7.5311	0.06
0.07	89.93	0.0010359	2.3649	376.68	2659.4	1.1919	7.4790	0.07
0.08	93.49	0.0010385	2.0872	391.64	2665.2	1.2328	7.4339	0.08
0.09	96.69	0.0010409	1.8695	405.13	2670.3	1.2694	7.3942	0.09
0.10	99.61	0.0010431	1.6940	417.44	2674.9	1.3026	7.3588	0.10
0.12	104.78	0.0010473	1.4284	439.30	2683.1	1.3608	7.2976	0.12
0.14	109.29	0.0010510	1.2366	458.37	2690.0	1.4109	7.2460	0.14
0.16	113.30	0.0010544	1.0914	475.34	2696.0	1.4549	7.2014	0.16
0.18	116.91	0.0010576	0.97753	490.67	2701.4	1.4944	7.1620	0.18
0.20	120.21	0.0010605	0.88574	504.68	2706.2	1.5301	7.1269	0.20
0.25	127.41	0.0010672	0.71870	535.35	2716.5	1.6072	7.0524	0.25
0.30	133.53	0.0010732	0.60579	561.46	2724.9	1.6718	6.9916	0.30
0.35	138.86	0.0010786	0.52420	584.31	2732.0	1.7275	6.9401	0.35
0.40	143.61	0.0010836	0.46239	604.72	2738.1	1.7766	6.8954	0.40
0.45	147.91	0.0010882	0.41390	623.22	2743.4	1.8206	6.8560	0.45
0.50	151.84	0.0010926	0.37480	640.19	2748.1	1.8606	6.8206	0.50
0.55	155.46	0.0010967	0.34259	655.88	2752.3	1.8972	6.7885	0.55
0.60	158.83	0.0011006	0.31558	670.50	2756.1	1.9311	6.7592	0.60
0.65	161.99	0.0011044	0.29258	684.22	2759.6	1.9626	6.7321	0.65
0.70	164.95	0.0011080	0.27276	697.14	2762.7	1.9921	6.7070	0.70
0.80	170.41	0.0011148	0.24033	721.02	2768.3	2.0460	6.6615	0.80
0.90	175.36	0.0011212	0.21487	742.72	2773.0	2.0944	6.6212	0.90
1.00	179.89	0.0011272	0.19435	762.68	2777.1	2.1384	6.5850	1.00
1.10	184.07	0.0011330	0.17744	781.20	2780.7	2.1789	6.5520	1.10

Table 5. Properties of Saturated Water and Steam (Pressure)

Press. MPa	Temp. t (°C)	Volume, m³/kg		Enthalpy, kJ/kg		Entropy, kJ/(kg·K)		Press. MPa
		v_L	v_V	h_L	h_V	s_L	s_V	
1.2	187.96	0.001139	0.16325	798.50	2783.8	2.2163	6.5217	1.2
1.3	191.61	0.001144	0.15117	814.76	2786.5	2.2512	6.4936	1.3
1.4	195.05	0.001149	0.14077	830.13	2788.9	2.2839	6.4675	1.4
1.5	198.30	0.001154	0.13170	844.72	2791.0	2.3147	6.4431	1.5
1.6	201.38	0.001159	0.12373	858.61	2792.9	2.3438	6.4200	1.6
1.8	207.12	0.001168	0.11036	884.61	2796.0	2.3978	6.3776	1.8
2.0	212.38	0.001177	0.099581	908.62	2798.4	2.4470	6.3392	2.0
2.2	217.26	0.001185	0.090695	930.98	2800.2	2.4924	6.3040	2.2
2.4	221.80	0.001193	0.083242	951.95	2801.5	2.5344	6.2714	2.4
2.6	226.05	0.001201	0.076897	971.74	2802.5	2.5738	6.2411	2.6
2.8	230.06	0.001209	0.071428	990.50	2803.0	2.6107	6.2126	2.8
3.0	233.86	0.001217	0.066664	1008.4	2803.3	2.6456	6.1858	3.0
3.2	237.46	0.001224	0.062475	1025.5	2803.2	2.6787	6.1604	3.2
3.4	240.90	0.001231	0.058761	1041.8	2803.0	2.7102	6.1362	3.4
3.6	244.19	0.001239	0.055446	1057.6	2802.5	2.7403	6.1131	3.6
3.8	247.33	0.001246	0.052468	1072.8	2801.8	2.7690	6.0910	3.8
4.0	250.36	0.001253	0.049777	1087.4	2800.9	2.7967	6.0697	4.0
4.2	253.27	0.001259	0.047333	1101.6	2799.9	2.8232	6.0492	4.2
4.4	256.07	0.001266	0.045103	1115.4	2798.7	2.8488	6.0294	4.4
4.6	258.78	0.001273	0.043060	1128.8	2797.3	2.8736	6.0103	4.6
4.8	261.40	0.001280	0.041181	1141.8	2795.8	2.8975	5.9917	4.8
5.0	263.94	0.001286	0.039446	1154.5	2794.2	2.9207	5.9737	5.0
5.5	269.97	0.001303	0.035642	1184.9	2789.7	2.9759	5.9307	5.5
6.0	275.59	0.001319	0.032449	1213.7	2784.6	3.0274	5.8901	6.0
6.5	280.86	0.001336	0.029728	1241.2	2778.8	3.0760	5.8515	6.5
7.0	285.83	0.001352	0.027380	1267.4	2772.6	3.1220	5.8146	7.0
7.5	290.54	0.001368	0.025331	1292.7	2765.8	3.1658	5.7792	7.5
8.0	295.01	0.001385	0.023528	1317.1	2758.6	3.2077	5.7448	8.0
8.5	299.27	0.001401	0.021926	1340.7	2751.0	3.2478	5.7115	8.5
9.0	303.35	0.001418	0.020493	1363.7	2742.9	3.2866	5.6790	9.0
9.5	307.25	0.001435	0.019203	1386.0	2734.4	3.3240	5.6472	9.5
10.0	311.00	0.001453	0.018034	1407.9	2725.5	3.3603	5.6159	10.0
11.0	318.08	0.001489	0.015994	1450.3	2706.4	3.4300	5.5545	11.0
12.0	324.68	0.001526	0.014269	1491.3	2685.6	3.4965	5.4941	12.0
13.0	330.86	0.001566	0.012785	1531.4	2662.9	3.5606	5.4339	13.0
14.0	336.67	0.001610	0.011489	1570.9	2638.1	3.6230	5.3730	14.0
15.0	342.16	0.001657	0.010340	1610.2	2610.9	3.6844	5.3108	15.0
16.0	347.36	0.001710	0.009308	1649.7	2580.8	3.7457	5.2463	16.0
17.0	352.29	0.001769	0.008369	1690.0	2547.4	3.8077	5.1785	17.0
18.0	356.99	0.001839	0.007499	1732.0	2509.5	3.8717	5.1055	18.0
19.0	361.47	0.001925	0.006673	1776.9	2465.4	3.9396	5.0246	19.0
20.0	365.75	0.002039	0.005858	1827.1	2411.4	4.0154	4.9299	20.0
21.0	369.83	0.002212	0.004988	1889.4	2337.5	4.1093	4.8062	21.0
22.0	373.71	0.002750	0.003577	2021.9	2164.2	4.3109	4.5308	22.0
p_c	373.946	0.003106	0.003106	2087.5	2087.5	4.4120	4.4120	p_c

$p_c = 22.064 \text{ MPa}$

Table 6. Superheated Steam – SI Units

Pressure MPa (Sat. T)	Temperature—Degrees Celsius													
	50	100	150	200	250	300	350	400	450	500	550	600	700	
0.005 (32.88)	<i>v</i>	29.782	34.419	39.043	43.663	48.281	52.898	57.515	62.131	66.747	71.363	75.979	80.594	89.826
	<i>h</i>	2593.4	2688.0	2783.4	2879.8	2977.6	3076.9	3177.6	3280.0	3384.0	3489.7	3597.1	3706.3	3929.9
	<i>s</i>	8.4976	8.7700	9.0097	9.2251	9.4216	9.6027	9.7713	9.9293	10.078	10.220	10.354	10.483	10.725
0.01 (45.81)	<i>v</i>	14.867	17.197	19.514	21.826	24.136	26.446	28.755	31.064	33.372	35.680	37.988	40.296	44.912
	<i>h</i>	2592.0	2687.4	2783.0	2879.6	2977.4	3076.7	3177.5	3279.9	3384.0	3489.7	3597.1	3706.3	3929.9
	<i>s</i>	8.1741	8.4488	8.6892	8.9048	9.1014	9.2827	9.4513	9.6093	9.7584	9.8997	10.034	10.163	10.405
0.02 (60.06)	<i>v</i>		8.5857	9.7488	10.907	12.064	13.220	14.375	15.530	16.684	17.839	18.993	20.147	22.455
	<i>h</i>		2686.2	2782.3	2879.1	2977.1	3076.5	3177.4	3279.8	3383.8	3489.6	3597.0	3706.2	3929.8
	<i>s</i>		8.1262	8.3680	8.5842	8.7811	8.9624	9.1311	9.2892	9.4383	9.5797	9.7143	9.8431	10.086
0.05 (81.32)	<i>v</i>		3.4188	3.8899	4.3563	4.8207	5.2841	5.7470	6.2095	6.6718	7.1339	7.5959	8.0578	8.9814
	<i>h</i>		2682.4	2780.2	2877.8	2976.2	3075.8	3176.8	3279.3	3383.5	3489.2	3596.7	3706.0	3929.7
	<i>s</i>		7.6952	7.9412	8.1591	8.3568	8.5386	8.7076	8.8658	9.0150	9.1565	9.2912	9.4200	9.6625
0.10 (99.61)	<i>v</i>		1.6960	1.9367	2.1725	2.4062	2.6389	2.8710	3.1027	3.3342	3.5656	3.7968	4.0279	4.4900
	<i>h</i>		2675.8	2776.6	2875.5	2974.5	3074.5	3175.8	3278.5	3382.8	3488.7	3596.3	3705.6	3929.4
	<i>s</i>		7.3610	7.6147	7.8356	8.0346	8.2171	8.3865	8.5451	8.6945	8.8361	8.9709	9.0998	9.3424
0.15 (111.35)	<i>v</i>			1.2856	1.4445	1.6013	1.7571	1.9123	2.0671	2.2217	2.3762	2.5305	2.6847	2.9929
	<i>h</i>			2772.9	2873.1	2972.9	3073.3	3174.9	3277.8	3382.2	3488.2	3595.8	3705.2	3929.1
	<i>s</i>			7.4207	7.6447	7.8451	8.0284	8.1983	8.3571	8.5067	8.6484	8.7833	8.9123	9.1550
0.20 (120.21)	<i>v</i>			0.9599	1.0805	1.1989	1.3162	1.4330	1.5493	1.6655	1.7814	1.8973	2.0130	2.2444
	<i>h</i>			2769.1	2870.8	2971.3	3072.1	3173.9	3277.0	3381.5	3487.6	3595.4	3704.8	3928.8
	<i>s</i>			7.2809	7.5081	7.7100	7.8940	8.0643	8.2235	8.3733	8.5151	8.6501	8.7792	9.0220
0.25 (127.41)	<i>v</i>			0.7644	0.8621	0.9574	1.0517	1.1454	1.2387	1.3317	1.4246	1.5174	1.6101	1.7952
	<i>h</i>			2765.2	2868.4	2969.6	3070.8	3172.9	3276.2	3380.9	3487.1	3594.9	3704.4	3928.5
	<i>s</i>			7.1707	7.4013	7.6046	7.7895	7.9602	8.1196	8.2696	8.4116	8.5467	8.6759	8.9188
0.30 (133.53)	<i>v</i>			0.6340	0.7164	0.7965	0.8753	0.9536	1.0315	1.1092	1.1867	1.2641	1.3414	1.4958
	<i>h</i>			2761.2	2866.0	2967.9	3069.6	3172.0	3275.4	3380.2	3486.6	3594.5	3704.0	3928.2
	<i>s</i>			7.0791	7.3132	7.5181	7.7037	7.8749	8.0346	8.1848	8.3269	8.4622	8.5914	8.8344
0.35 (138.86)	<i>v</i>			0.5408	0.6124	0.6815	0.7494	0.8167	0.8836	0.9503	1.0168	1.0832	1.1495	1.2819
	<i>h</i>			2757.1	2863.5	2966.3	3068.4	3171.0	3274.6	3379.6	3486.0	3594.0	3703.6	3927.9
	<i>s</i>			7.0002	7.2381	7.4445	7.6310	7.8026	7.9626	8.1130	8.2553	8.3906	8.5199	8.7630
0.40 (143.61)	<i>v</i>			0.4709	0.5343	0.5952	0.6549	0.7139	0.7726	0.8311	0.8894	0.9475	1.0056	1.1215
	<i>h</i>			2752.8	2861.0	2964.6	3067.1	3170.0	3273.9	3379.0	3485.5	3593.6	3703.2	3927.6
	<i>s</i>			6.9305	7.1724	7.3805	7.5677	7.7398	7.9001	8.0507	8.1931	8.3286	8.4579	8.7012
0.45 (147.91)	<i>v</i>			0.4164	0.4736	0.5281	0.5814	0.6341	0.6863	0.7384	0.7902	0.8420	0.8936	0.9968
	<i>h</i>			2748.3	2858.5	2962.8	3065.9	3169.0	3273.1	3378.3	3484.9	3593.1	3702.8	3927.3
	<i>s</i>			6.8677	7.1139	7.3237	7.5117	7.6843	7.8449	7.9957	8.1383	8.2738	8.4032	8.6466
0.50 (151.84)	<i>v</i>				0.4250	0.4744	0.5226	0.5701	0.6173	0.6642	0.7109	0.7576	0.8041	0.8970
	<i>h</i>				2855.9	2961.1	3064.6	3168.1	3272.3	3377.7	3484.4	3592.6	3702.5	3927.0
	<i>s</i>				7.0611	7.2726	7.4614	7.6345	7.7954	7.9464	8.0891	8.2247	8.3543	8.5977
0.55 (155.46)	<i>v</i>				0.3853	0.4305	0.4745	0.5178	0.5608	0.6035	0.6461	0.6885	0.7308	0.8153
	<i>h</i>				2853.3	2959.4	3063.3	3167.1	3271.5	3377.0	3483.9	3592.2	3702.1	3926.8
	<i>s</i>				7.0128	7.2261	7.4158	7.5894	7.7505	7.9017	8.0446	8.1803	8.3099	8.5535
0.60 (158.83)	<i>v</i>				0.3521	0.3939	0.4344	0.4743	0.5137	0.5530	0.5920	0.6309	0.6698	0.7473
	<i>h</i>				2850.7	2957.7	3062.1	3166.1	3270.7	3376.4	3483.3	3591.7	3701.7	3926.5
	<i>s</i>				6.9684	7.1834	7.3740	7.5480	7.7095	7.8609	8.0039	8.1398	8.2694	8.5131

v = specific volume, m³/kg *h* = enthalpy, kJ/kg *s* = entropy, kJ/(kg•K)

Table 6. Superheated Steam – SI Units

Pressure MPa (Sat. T)		Temperature—Degrees Celsius												
		200	250	300	350	400	450	500	550	600	650	700	750	800
0.65 (161.99)	<i>v</i>	0.3241	0.3629	0.4005	0.4374	0.4739	0.5102	0.5463	0.5822	0.6181	0.6539	0.6897	0.7254	0.7611
	<i>h</i>	2848.0	2955.9	3060.8	3165.1	3269.9	3375.7	3482.8	3591.3	3701.3	3812.9	3926.2	4041.1	4157.7
	<i>s</i>	6.9270	7.1439	7.3354	7.5099	7.6717	7.8233	7.9665	8.1024	8.2321	8.3564	8.4759	8.5911	8.7024
0.70 (164.95)	<i>v</i>	0.3000	0.3364	0.3714	0.4058	0.4398	0.4735	0.5070	0.5405	0.5738	0.6071	0.6403	0.6735	0.7067
	<i>h</i>	2845.3	2954.1	3059.5	3164.1	3269.1	3375.1	3482.3	3590.8	3700.9	3812.6	3925.9	4040.8	4157.5
	<i>s</i>	6.8884	7.1071	7.2995	7.4745	7.6366	7.7884	7.9317	8.0678	8.1976	8.3220	8.4415	8.5567	8.6680
0.75 (167.76)	<i>v</i>	0.2791	0.3133	0.3462	0.3784	0.4102	0.4417	0.4731	0.5043	0.5354	0.5665	0.5975	0.6285	0.6595
	<i>h</i>	2842.5	2952.3	3058.2	3163.1	3268.4	3374.4	3481.7	3590.4	3700.5	3812.2	3925.6	4040.6	4157.3
	<i>s</i>	6.8520	7.0727	7.2660	7.4415	7.6039	7.7559	7.8994	8.0355	8.1654	8.2898	8.4094	8.5246	8.6360
0.80 (170.41)	<i>v</i>	0.2609	0.2932	0.3242	0.3544	0.3843	0.4139	0.4433	0.4726	0.5019	0.5310	0.5601	0.5892	0.6182
	<i>h</i>	2839.8	2950.5	3056.9	3162.2	3267.6	3373.8	3481.2	3589.9	3700.1	3811.9	3925.3	4040.3	4157.1
	<i>s</i>	6.8176	7.0403	7.2345	7.4106	7.5733	7.7255	7.8690	8.0053	8.1353	8.2598	8.3794	8.4947	8.6060
0.90 (175.36)	<i>v</i>	0.2304	0.2596	0.2874	0.3145	0.3411	0.3675	0.3938	0.4199	0.4459	0.4718	0.4977	0.5236	0.5494
	<i>h</i>	2834.1	2946.9	3054.3	3160.2	3266.0	3372.5	3480.1	3589.0	3699.3	3811.2	3924.7	4039.8	4156.6
	<i>s</i>	6.7538	6.9806	7.1768	7.3538	7.5172	7.6698	7.8136	7.9501	8.0803	8.2049	8.3246	8.4399	8.5513
1.0 (179.89)	<i>v</i>	0.2060	0.2327	0.2580	0.2825	0.3066	0.3304	0.3541	0.3777	0.4011	0.4245	0.4478	0.4711	0.4944
	<i>h</i>	2828.3	2943.2	3051.7	3158.2	3264.4	3371.2	3479.0	3588.1	3698.6	3810.5	3924.1	4039.3	4156.2
	<i>s</i>	6.6955	6.9266	7.1247	7.3028	7.4668	7.6198	7.7640	7.9007	8.0309	8.1557	8.2755	8.3909	8.5024
1.1 (184.07)	<i>v</i>	0.1860	0.2107	0.2339	0.2563	0.2783	0.3001	0.3217	0.3431	0.3645	0.3858	0.4070	0.4282	0.4494
	<i>h</i>	2822.3	2939.5	3049.1	3156.2	3262.8	3369.9	3477.9	3587.2	3697.8	3809.9	3923.5	4038.8	4155.7
	<i>s</i>	6.6414	6.8772	7.0773	7.2564	7.4210	7.5745	7.7189	7.8558	7.9863	8.1111	8.2310	8.3465	8.4580
1.2 (187.96)	<i>v</i>	0.1693	0.1924	0.2139	0.2345	0.2548	0.2748	0.2946	0.3143	0.3339	0.3535	0.3730	0.3924	0.4118
	<i>h</i>	2816.1	2935.7	3046.4	3154.1	3261.2	3368.6	3476.8	3586.2	3697.0	3809.2	3922.9	4038.3	4155.2
	<i>s</i>	6.5908	6.8314	7.0336	7.2138	7.3791	7.5330	7.6777	7.8148	7.9454	8.0704	8.1904	8.3059	8.4175
1.3 (191.61)	<i>v</i>	0.1552	0.1769	0.1969	0.2161	0.2349	0.2534	0.2718	0.2900	0.3081	0.3262	0.3442	0.3621	0.3801
	<i>h</i>	2809.6	2931.8	3043.7	3152.1	3259.6	3367.3	3475.7	3585.3	3696.2	3808.5	3922.4	4037.8	4154.8
	<i>s</i>	6.5430	6.7888	6.9931	7.1745	7.3404	7.4947	7.6397	7.7770	7.9078	8.0329	8.1530	8.2686	8.3803
1.4 (195.05)	<i>v</i>	0.1430	0.1635	0.1823	0.2003	0.2178	0.2351	0.2522	0.2691	0.2860	0.3028	0.3195	0.3362	0.3529
	<i>h</i>	2803.0	2927.9	3041.0	3150.1	3258.0	3366.0	3474.7	3584.4	3695.4	3807.8	3921.8	4037.2	4154.3
	<i>s</i>	6.4975	6.7488	6.9553	7.1378	7.3044	7.4591	7.6045	7.7420	7.8729	7.9981	8.1183	8.2340	8.3457
1.5 (198.30)	<i>v</i>	0.1324	0.1520	0.1697	0.1866	0.2030	0.2192	0.2352	0.2510	0.2668	0.2825	0.2981	0.3137	0.3293
	<i>h</i>	2796.0	2924.0	3038.3	3148.0	3256.4	3364.7	3473.6	3583.5	3694.6	3807.2	3921.2	4036.7	4153.9
	<i>s</i>	6.4537	6.7111	6.9199	7.1035	7.2708	7.4259	7.5716	7.7093	7.8404	7.9657	8.0860	8.2018	8.3135
1.6 (201.38)	<i>v</i>		0.1419	0.1587	0.1746	0.1901	0.2053	0.2203	0.2352	0.2500	0.2647	0.2794	0.2940	0.3087
	<i>h</i>		2919.9	3035.5	3146.0	3254.7	3363.3	3472.5	3582.6	3693.9	3806.5	3920.6	4036.2	4153.4
	<i>s</i>		6.6754	6.8865	7.0713	7.2392	7.3948	7.5407	7.6787	7.8099	7.9354	8.0557	8.1716	8.2834
1.7 (204.31)	<i>v</i>		0.1330	0.1489	0.1640	0.1786	0.1930	0.2072	0.2212	0.2352	0.2491	0.2629	0.2767	0.2904
	<i>h</i>		2915.9	3032.7	3143.9	3253.1	3362.0	3471.4	3581.6	3693.1	3805.8	3920.0	4035.7	4153.0
	<i>s</i>		6.6413	6.8548	7.0408	7.2094	7.3654	7.5117	7.6499	7.7813	7.9068	8.0273	8.1432	8.2551
1.8 (207.12)	<i>v</i>		0.1250	0.1402	0.1546	0.1685	0.1821	0.1955	0.2088	0.2220	0.2351	0.2482	0.2612	0.2743
	<i>h</i>		2911.7	3029.9	3141.8	3251.5	3360.7	3470.3	3580.7	3692.3	3805.1	3919.4	4035.2	4152.5
	<i>s</i>		6.6087	6.8247	7.0119	7.1812	7.3377	7.4842	7.6226	7.7542	7.8799	8.0004	8.1164	8.2284
2.0 (212.38)	<i>v</i>		0.1115	0.1255	0.1386	0.1512	0.1635	0.1757	0.1877	0.1996	0.2115	0.2233	0.2350	0.2467
	<i>h</i>		2903.2	3024.3	3137.6	3248.2	3358.1	3468.1	3578.9	3690.7	3803.8	3918.2	4034.2	4151.6
	<i>s</i>		6.5474	6.7685	6.9582	7.1290	7.2863	7.4335	7.5723	7.7042	7.8301	7.9509	8.0670	8.1791

v = specific volume, m³/kg *h* = enthalpy, kJ/kg *s* = entropy, kJ/(kg•K)

Table 6. Superheated Steam – SI Units

Pressure MPa (Sat. T)		Temperature—Degrees Celsius											
		225	250	300	350	400	450	500	550	600	650	700	800
2.2 (217.26)	<i>v</i>	0.0931	0.1004	0.1134	0.1255	0.1371	0.1484	0.1595	0.1704	0.1813	0.1921	0.2028	0.2136
	<i>h</i>	2824.5	2894.5	3018.5	3133.4	3244.9	3355.4	3465.9	3577.0	3689.1	3802.4	3917.1	4033.1
	<i>s</i>	6.3531	6.4903	6.7168	6.9091	7.0813	7.2396	7.3873	7.5266	7.6588	7.7850	7.9059	8.0222
2.4 (221.80)	<i>v</i>	0.0842	0.0911	0.1034	0.1146	0.1253	0.1357	0.1459	0.1560	0.1660	0.1760	0.1858	0.1957
	<i>h</i>	2812.1	2885.5	3012.6	3129.1	3241.6	3352.7	3463.7	3575.2	3687.6	3801.1	3915.9	4032.1
	<i>s</i>	6.2926	6.4365	6.6688	6.8638	7.0375	7.1967	7.3450	7.4848	7.6173	7.7437	7.8648	7.9813
2.6 (226.05)	<i>v</i>		0.0833	0.0948	0.1053	0.1153	0.1250	0.1345	0.1439	0.1531	0.1623	0.1714	0.1805
	<i>h</i>		2876.2	3006.6	3124.8	3238.3	3350.0	3461.5	3573.3	3686.0	3799.7	3914.7	4031.1
	<i>s</i>		6.3854	6.6238	6.8216	6.9968	7.1570	7.3060	7.4461	7.5790	7.7056	7.8269	7.9435
2.8 (230.06)	<i>v</i>		0.0765	0.0875	0.0974	0.1068	0.1158	0.1247	0.1334	0.1420	0.1506	0.1591	0.1676
	<i>h</i>		2866.5	3000.5	3120.5	3234.9	3347.4	3459.3	3571.5	3684.4	3798.4	3913.5	4030.0
	<i>s</i>		6.3365	6.5814	6.7821	6.9589	7.1200	7.2696	7.4102	7.5434	7.6703	7.7918	7.9085
3.0 (233.86)	<i>v</i>		0.0706	0.0812	0.0906	0.0994	0.1079	0.1162	0.1244	0.1324	0.1405	0.1484	0.1563
	<i>h</i>		2856.5	2994.3	3116.1	3231.6	3344.7	3457.0	3569.6	3682.8	3797.0	3912.3	4029.0
	<i>s</i>		6.2893	6.5412	6.7449	6.9233	7.0853	7.2356	7.3767	7.5102	7.6373	7.7590	7.8759
3.2 (237.46)	<i>v</i>		0.0655	0.0756	0.0845	0.0929	0.1009	0.1088	0.1165	0.1240	0.1316	0.1390	0.1465
	<i>h</i>		2846.2	2988.0	3111.6	3228.2	3341.9	3454.8	3567.7	3681.2	3795.6	3911.2	4028.0
	<i>s</i>		6.2434	6.5029	6.7097	6.8897	7.0527	7.2036	7.3451	7.4790	7.6064	7.7283	7.8453
3.4 (240.90)	<i>v</i>		0.0609	0.0707	0.0792	0.0872	0.0948	0.1022	0.1095	0.1166	0.1237	0.1308	0.1378
	<i>h</i>		2835.3	2981.6	3107.1	3224.8	3339.2	3452.6	3565.9	3679.6	3794.3	3910.0	4026.9
	<i>s</i>		6.1986	6.4662	6.6762	6.8579	7.0219	7.1735	7.3154	7.4496	7.5773	7.6993	7.8165
3.6 (244.19)	<i>v</i>		0.0568	0.0663	0.0745	0.0821	0.0893	0.0964	0.1033	0.1101	0.1168	0.1234	0.1301
	<i>h</i>		2824.0	2975.1	3102.6	3221.3	3336.5	3450.3	3564.0	3678.0	3792.9	3908.8	4025.9
	<i>s</i>		6.1545	6.4309	6.6443	6.8276	6.9927	7.1449	7.2873	7.4219	7.5498	7.6720	7.7893
3.8 (247.33)	<i>v</i>		0.0531	0.0624	0.0703	0.0775	0.0844	0.0911	0.0977	0.1042	0.1105	0.1169	0.1232
	<i>h</i>		2812.1	2968.4	3098.0	3217.9	3333.7	3448.1	3562.1	3676.4	3791.5	3907.6	4024.8
	<i>s</i>		6.1107	6.3968	6.6137	6.7988	6.9649	7.1178	7.2607	7.3955	7.5237	7.6461	7.7636
4.0 (250.36)	<i>v</i>			0.0589	0.0665	0.0734	0.0800	0.0864	0.0927	0.0989	0.1049	0.1110	0.1170
	<i>h</i>			2961.7	3093.3	3214.4	3331.0	3445.8	3560.2	3674.8	3790.2	3906.4	4023.8
	<i>s</i>			6.3638	6.5843	6.7712	6.9383	7.0919	7.2353	7.3704	7.4989	7.6215	7.7391
4.5 (257.44)	<i>v</i>			0.0514	0.0584	0.0648	0.0708	0.0765	0.0821	0.0877	0.0931	0.0985	0.1038
	<i>h</i>			2944.1	3081.5	3205.6	3324.0	3440.2	3555.5	3670.8	3786.7	3903.4	4021.2
	<i>s</i>			6.2852	6.5153	6.7069	6.8767	7.0320	7.1765	7.3126	7.4416	7.5647	7.6827
5.0 (263.94)	<i>v</i>			0.0453	0.0520	0.0578	0.0633	0.0686	0.0737	0.0787	0.0836	0.0885	0.0933
	<i>h</i>			2925.6	3069.3	3196.6	3317.0	3434.5	3550.8	3666.8	3783.3	3900.5	4018.6
	<i>s</i>			6.2109	6.4515	6.6481	6.8208	6.9778	7.1235	7.2604	7.3901	7.5137	7.6321
5.5 (269.97)	<i>v</i>			0.0404	0.0467	0.0522	0.0572	0.0621	0.0668	0.0714	0.0759	0.0803	0.0848
	<i>h</i>			2906.2	3056.8	3187.5	3309.9	3428.7	3546.0	3662.8	3779.8	3897.5	4016.0
	<i>s</i>			6.1396	6.3919	6.5938	6.7693	6.9282	7.0751	7.2129	7.3432	7.4673	7.5861
6.0 (275.59)	<i>v</i>			0.0362	0.0423	0.0474	0.0522	0.0567	0.0610	0.0653	0.0694	0.0735	0.0776
	<i>h</i>			2885.5	3043.9	3178.2	3302.8	3422.9	3541.2	3658.8	3776.4	3894.5	4013.3
	<i>s</i>			6.0702	6.3356	6.5431	6.7216	6.8824	7.0306	7.1692	7.3002	7.4248	7.5439
6.5 (280.86)	<i>v</i>			0.0326	0.0385	0.0434	0.0479	0.0521	0.0561	0.0601	0.0640	0.0678	0.0716
	<i>h</i>			2863.5	3030.6	3168.7	3295.5	3417.1	3536.4	3654.7	3772.9	3891.5	4010.7
	<i>s</i>			6.0018	6.2819	6.4953	6.6771	6.8397	6.9892	7.1287	7.2603	7.3854	7.5050

v = specific volume, m³/kg *h* = enthalpy, kJ/kg *s* = entropy, kJ/(kg•K)

Table 6. Superheated Steam – SI Units

Pressure MPa (Sat. T)	Temperature—Degrees Celsius													
	300	325	350	375	400	450	500	550	600	650	700	750	800	
7.0 (285.83)	<i>v</i>	0.0295	0.0326	0.0353	0.0377	0.0400	0.0442	0.0482	0.0520	0.0557	0.0593	0.0628	0.0664	0.0698
	<i>h</i>	2839.8	2935.5	3016.8	3090.4	3159.1	3288.2	3411.3	3531.5	3650.6	3769.4	3888.5	4008.1	4128.6
	<i>s</i>	5.9335	6.0970	6.2303	6.3460	6.4501	6.6351	6.7997	6.9505	7.0909	7.2232	7.3488	7.4687	7.5837
7.5 (290.54)	<i>v</i>	0.0267	0.0298	0.0325	0.0348	0.0370	0.0410	0.0448	0.0483	0.0518	0.0552	0.0586	0.0619	0.0651
	<i>h</i>	2814.3	2917.4	3002.7	3078.8	3149.3	3280.7	3405.3	3526.7	3646.5	3765.9	3885.4	4005.5	4126.3
	<i>s</i>	5.8644	6.0407	6.1805	6.3002	6.4070	6.5954	6.7620	6.9141	7.0555	7.1885	7.3145	7.4348	7.5501
8.0 (295.01)	<i>v</i>	0.0243	0.0274	0.0300	0.0323	0.0343	0.0382	0.0418	0.0452	0.0485	0.0517	0.0548	0.0579	0.0610
	<i>h</i>	2786.4	2898.3	2988.1	3066.9	3139.3	3273.2	3399.4	3521.8	3642.4	3762.4	3882.4	4002.9	4124.0
	<i>s</i>	5.7935	5.9849	6.1319	6.2560	6.3657	6.5577	6.7264	6.8798	7.0221	7.1557	7.2823	7.4030	7.5186
8.5 (299.27)	<i>v</i>	0.0220	0.0252	0.0278	0.0300	0.0320	0.0357	0.0391	0.0424	0.0455	0.0485	0.0515	0.0545	0.0574
	<i>h</i>	2755.4	2878.3	2972.9	3054.7	3129.1	3265.6	3393.4	3516.9	3638.3	3758.9	3879.4	4000.2	4121.7
	<i>s</i>	5.7193	5.9294	6.0845	6.2132	6.3259	6.5216	6.6925	6.8473	6.9905	7.1248	7.2519	7.3730	7.4889
9.0 (303.35)	<i>v</i>		0.0233	0.0258	0.0280	0.0300	0.0335	0.0368	0.0399	0.0429	0.0458	0.0486	0.0514	0.0541
	<i>h</i>		2857.0	2957.2	3042.2	3118.8	3257.9	3387.3	3511.9	3634.2	3755.4	3876.4	3997.6	4119.4
	<i>s</i>		5.8736	6.0378	6.1716	6.2875	6.4871	6.6601	6.8163	6.9605	7.0955	7.2231	7.3446	7.4608
9.5 (307.25)	<i>v</i>		0.0215	0.0240	0.0262	0.0281	0.0316	0.0347	0.0377	0.0405	0.0433	0.0460	0.0486	0.0512
	<i>h</i>		2834.4	2940.9	3029.4	3108.2	3250.2	3381.2	3506.9	3630.0	3751.9	3873.3	3994.9	4117.0
	<i>s</i>		5.8170	5.9917	6.1309	6.2502	6.4538	6.6291	6.7867	6.9319	7.0676	7.1957	7.3176	7.4341
10.0 (311.00)	<i>v</i>		0.0199	0.0224	0.0246	0.0264	0.0298	0.0328	0.0357	0.0384	0.0410	0.0436	0.0461	0.0486
	<i>h</i>		2810.2	2924.0	3016.2	3097.4	3242.3	3375.1	3501.9	3625.8	3748.3	3870.3	3992.3	4114.7
	<i>s</i>		5.7593	5.9458	6.0910	6.2139	6.4217	6.5993	6.7584	6.9045	7.0409	7.1696	7.2918	7.4086
11.0 (318.08)	<i>v</i>		0.0170	0.0196	0.0217	0.0235	0.0267	0.0296	0.0322	0.0347	0.0371	0.0395	0.0418	0.0441
	<i>h</i>		2755.6	2887.8	2988.7	3075.1	3226.2	3362.6	3491.9	3617.5	3741.2	3864.2	3987.0	4110.1
	<i>s</i>		5.6373	5.8541	6.0129	6.1438	6.3605	6.5430	6.7050	6.8531	6.9910	7.1207	7.2437	7.3612
12.0 (324.68)	<i>v</i>		0.0143	0.0172	0.0193	0.0211	0.0242	0.0268	0.0293	0.0317	0.0339	0.0361	0.0383	0.0404
	<i>h</i>		2688.4	2848.0	2959.5	3051.9	3209.8	3350.0	3481.7	3609.0	3734.1	3858.0	3981.6	4105.4
	<i>s</i>		5.4988	5.7607	5.9362	6.0762	6.3027	6.4902	6.6553	6.8055	6.9448	7.0756	7.1994	7.3175
13.0 (330.86)	<i>v</i>			0.0151	0.0173	0.0190	0.0220	0.0245	0.0269	0.0291	0.0312	0.0332	0.0352	0.0372
	<i>h</i>			2803.6	2928.3	3027.6	3192.9	3337.1	3471.4	3600.5	3726.9	3851.9	3976.3	4100.7
	<i>s</i>			5.6635	5.8600	6.0104	6.2475	6.4404	6.6087	6.7610	6.9018	7.0336	7.1583	7.2771
14.0 (336.67)	<i>v</i>			0.0132	0.0155	0.0172	0.0201	0.0225	0.0248	0.0268	0.0288	0.0308	0.0326	0.0345
	<i>h</i>			2752.9	2894.9	3002.2	3175.6	3324.1	3461.0	3591.9	3719.7	3845.7	3970.9	4096.0
	<i>s</i>			5.5595	5.7832	5.9457	6.1945	6.3931	6.5648	6.7192	6.8615	6.9944	7.1200	7.2393
15.0 (342.16)	<i>v</i>			0.0115	0.0139	0.0157	0.0185	0.0208	0.0229	0.0249	0.0268	0.0286	0.0304	0.0321
	<i>h</i>			2693.0	2858.9	2975.5	3157.8	3310.8	3450.5	3583.3	3712.4	3839.5	3965.6	4091.3
	<i>s</i>			5.4435	5.7049	5.8817	6.1433	6.3479	6.5230	6.6797	6.8235	6.9576	7.0839	7.2039
16.0 (347.36)	<i>v</i>			0.0098	0.0125	0.0143	0.0170	0.0193	0.0214	0.0232	0.0250	0.0267	0.0284	0.0301
	<i>h</i>			2617.0	2819.5	2947.5	3139.6	3297.3	3439.8	3574.6	3705.1	3833.3	3960.2	4086.6
	<i>s</i>			5.3045	5.6238	5.8177	6.0935	6.3045	6.4832	6.6422	6.7876	6.9228	7.0499	7.1706
17.0 (352.29)	<i>v</i>				0.0112	0.0130	0.0158	0.0180	0.0199	0.0218	0.0235	0.0251	0.0267	0.0282
	<i>h</i>				2775.9	2917.8	3120.9	3283.6	3429.1	3565.9	3697.8	3827.0	3954.8	4081.9
	<i>s</i>				5.5384	5.7533	6.0449	6.2627	6.4451	6.6064	6.7534	6.8897	7.0178	7.1391
18.0 (356.99)	<i>v</i>				0.0100	0.0119	0.0147	0.0168	0.0187	0.0204	0.0221	0.0236	0.0251	0.0266
	<i>h</i>				2726.9	2886.3	3101.7	3269.7	3418.3	3557.0	3690.4	3820.7	3949.4	4077.2
	<i>s</i>				5.4465	5.6881	5.9973	6.2222	6.4085	6.5722	6.7208	6.8583	6.9872	7.1091

v = specific volume, m³/kg *h* = enthalpy, kJ/kg *s* = entropy, kJ/(kg•K)

Table 6. Superheated Steam – SI Units

Pressure MPa (Sat. T)		Temperature—Degrees Celsius											
		375	400	425	450	475	500	550	600	650	700	750	800
20 (365.75)	v	0.00768	0.00995	0.0115	0.0127	0.0138	0.0148	0.0166	0.0182	0.0197	0.0211	0.0225	0.0239
	h	2602.4	2816.8	2952.9	3061.5	3155.8	3241.2	3396.2	3539.2	3675.6	3808.2	3938.5	4067.7
	s	5.2272	5.5525	5.7510	5.9041	6.0322	6.1445	6.3390	6.5077	6.6596	6.7994	6.9301	7.0534
22 (373.71)	v	0.00490	0.00826	0.00987	0.0111	0.0122	0.0131	0.0148	0.0163	0.0178	0.0191	0.0204	0.0216
	h	2354.0	2735.8	2897.8	3019.0	3121.0	3211.8	3373.8	3521.2	3660.6	3795.5	3927.6	4058.2
	s	4.8240	5.4050	5.6417	5.8124	5.9511	6.0704	6.2736	6.4475	6.6029	6.7451	6.8776	7.0022
24	v	0.00206	0.00673	0.00850	0.00977	0.0108	0.0118	0.0134	0.0148	0.0161	0.0174	0.0186	0.0197
	h	1872.5	2637.4	2837.4	2974.0	3084.8	3181.4	3350.9	3502.9	3645.6	3782.8	3916.7	4048.8
	s	4.0731	5.2366	5.5289	5.7212	5.8720	5.9991	6.2116	6.3910	6.5499	6.6946	6.8289	6.9549
26	v	0.00192	0.00529	0.00731	0.00862	0.00967	0.0106	0.0121	0.0135	0.0148	0.0160	0.0171	0.0182
	h	1832.8	2510.6	2770.6	2926.1	3047.0	3150.2	3327.6	3484.4	3630.4	3770.0	3905.8	4039.3
	s	4.0059	5.0304	5.4106	5.6296	5.7942	5.9298	6.1523	6.3374	6.5000	6.6473	6.7833	6.9107
28	v	0.00185	0.00385	0.00625	0.00762	0.00867	0.00957	0.0111	0.0124	0.0136	0.0147	0.0158	0.0168
	h	1809.1	2334.4	2695.8	2875.1	3007.7	3117.9	3303.9	3465.7	3615.1	3757.1	3894.8	4029.7
	s	3.9635	4.7552	5.2841	5.5367	5.7170	5.8621	6.0953	6.2863	6.4527	6.6026	6.7405	6.8693
30	v	0.00179	0.00280	0.00530	0.00674	0.00780	0.00869	0.0102	0.0114	0.0126	0.0137	0.0147	0.0156
	h	1792.0	2152.4	2611.9	2820.9	2966.7	3084.8	3279.8	3446.9	3599.7	3744.2	3883.8	4020.2
	s	3.9314	4.4750	5.1473	5.4419	5.6402	5.7956	6.0403	6.2374	6.4077	6.5602	6.7000	6.8303
35	v	0.00170	0.00211	0.00344	0.00496	0.00606	0.00693	0.00835	0.00952	0.0106	0.0115	0.0124	0.0133
	h	1762.5	1988.4	2373.5	2671.0	2857.3	2998.0	3218.1	3399.0	3560.9	3711.9	3856.3	3996.5
	s	3.8725	4.2140	4.7752	5.1945	5.4480	5.6331	5.9093	6.1229	6.3032	6.4625	6.6072	6.7411
40	v	0.00164	0.00191	0.00254	0.00369	0.00476	0.00562	0.00699	0.00809	0.00905	0.00993	0.0107	0.0115
	h	1742.7	1931.1	2198.6	2511.8	2740.1	2906.7	3154.6	3350.4	3521.8	3679.4	3828.8	3972.8
	s	3.8290	4.1141	4.5037	4.9447	5.2555	5.4746	5.7859	6.0170	6.2079	6.3743	6.5239	6.6614
45	v	0.00160	0.00180	0.00219	0.00292	0.00382	0.00463	0.00594	0.00698	0.00788	0.00870	0.00945	0.0102
	h	1728.0	1897.6	2110.8	2377.3	2623.4	2813.4	3090.2	3301.5	3482.5	3647.0	3801.3	3949.3
	s	3.7939	4.0505	4.3612	4.7362	5.0710	5.3209	5.6685	5.9179	6.1197	6.2932	6.4479	6.5891
50	v	0.00156	0.00173	0.00201	0.00249	0.00317	0.00389	0.00512	0.00611	0.00696	0.00772	0.00842	0.00907
	h	1716.6	1874.3	2060.2	2284.4	2520.0	2722.5	3025.7	3252.6	3443.5	3614.8	3774.1	3926.0
	s	3.7642	4.0028	4.2738	4.5892	4.9096	5.1759	5.5566	5.8245	6.0372	6.2180	6.3777	6.5226
60	v	0.00150	0.00163	0.00182	0.00208	0.00247	0.00295	0.00395	0.00483	0.00559	0.00627	0.00688	0.00746
	h	1699.9	1843.1	2001.6	2179.8	2375.2	2570.4	2902.1	3157.0	3366.8	3551.4	3720.6	3880.2
	s	3.7148	3.9316	4.1626	4.4134	4.6790	4.9356	5.3519	5.6528	5.8867	6.0815	6.2512	6.4034
70	v	0.00146	0.00157	0.00171	0.00189	0.00214	0.00246	0.00322	0.00397	0.00465	0.00525	0.00580	0.00632
	h	1688.4	1822.9	1967.1	2123.4	2291.7	2466.2	2795.0	3067.5	3293.6	3490.5	3669.0	3835.8
	s	3.6743	3.8778	4.0880	4.3080	4.5368	4.7662	5.1786	5.5003	5.7522	5.9600	6.1390	6.2982
80	v	0.00143	0.00152	0.00163	0.00177	0.00196	0.00219	0.00276	0.00338	0.00398	0.00452	0.00501	0.00548
	h	1680.4	1808.8	1944.0	2087.6	2239.6	2397.6	2709.9	2988.1	3225.7	3432.9	3619.7	3793.3
	s	3.6395	3.8339	4.0311	4.2331	4.4398	4.6474	5.0391	5.3674	5.6321	5.8509	6.0382	6.2039
90	v	0.00140	0.00148	0.00157	0.00169	0.00184	0.00201	0.00246	0.00297	0.00348	0.00397	0.00442	0.00484
	h	1674.6	1798.6	1927.6	2062.7	2204.0	2350.3	2645.2	2920.8	3164.4	3379.5	3573.5	3753.0
	s	3.6089	3.7965	3.9847	4.1747	4.3669	4.5593	4.9288	5.2540	5.5255	5.7526	5.9470	6.1184
100	v	0.00137	0.00144	0.00153	0.00163	0.00175	0.00189	0.00225	0.00267	0.00311	0.00355	0.00395	0.00434
	h	1670.7	1791.1	1915.5	2044.5	2178.3	2316.2	2596.1	2865.1	3110.6	3330.8	3530.7	3715.2
	s	3.5815	3.7638	3.9452	4.1267	4.3086	4.4899	4.8407	5.1580	5.4316	5.6640	5.8644	6.0405

v = specific volume, m³/kg *h* = enthalpy, kJ/kg *s* = entropy, kJ/(kg•K)

Table Conv-1. Conversion Factors for Pressure (Force/Area)

To obtain multiply by	atm	atm	bar	psia (lb ^f /in ²)	in Hg (conventional)	mm Hg (conventional)	ft H ₂ O (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_10 ⁻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_10 ⁻²	6.894 757_10 ⁻²	1	2.036 021	51.714 93	2.306 659	6.894 757	6.894 757_10 ⁻³
in Hg (conventional)		25.4/760 = 3.342 105_10 ⁻²	3.386 388_10 ⁻²	4.911 541_10 ⁻¹	1	25.4	1.132 925	3.386 388	3.386 388_10 ⁻³
mm Hg (conventional)		1/760 = 1.315 789_10 ⁻³	(1.013 25)/760 = 1.333 224_10 ⁻³	1.933 677_10 ⁻²	1/(25.4) = 3.937 008_10 ⁻²	1	4.460 334_10 ⁻²	101.325/760 = 1.333 224_10 ⁻¹	(0.101 325)/760 = 1.333 224_10 ⁻⁴
ft H ₂ O (conventional)		2.949 980_10 ⁻²	2.989 067_10 ⁻²	4.335 275_10 ⁻¹	8.826 711_10 ⁻¹	22.419 85	1	2.989 067	2.989 067_10 ⁻³
kPa		1/101.325 = 9.869 233_10 ⁻³	0.01	1.450 377_10 ⁻¹	2.952 999_10 ⁻¹	760/101.325 = 7.500 617	3.345 526_10 ⁻¹	1	0.001
MPa		1/(0.101 325) = 9.869 233	10	145.0377	295.2999	760/(0.101 325) = 7.500 617_10 ³	334.5526	1000	1

Table Conv-3. Conversion Factors for Specific Enthalpy and Specific Energy (Energy/Mass)

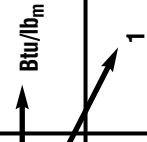
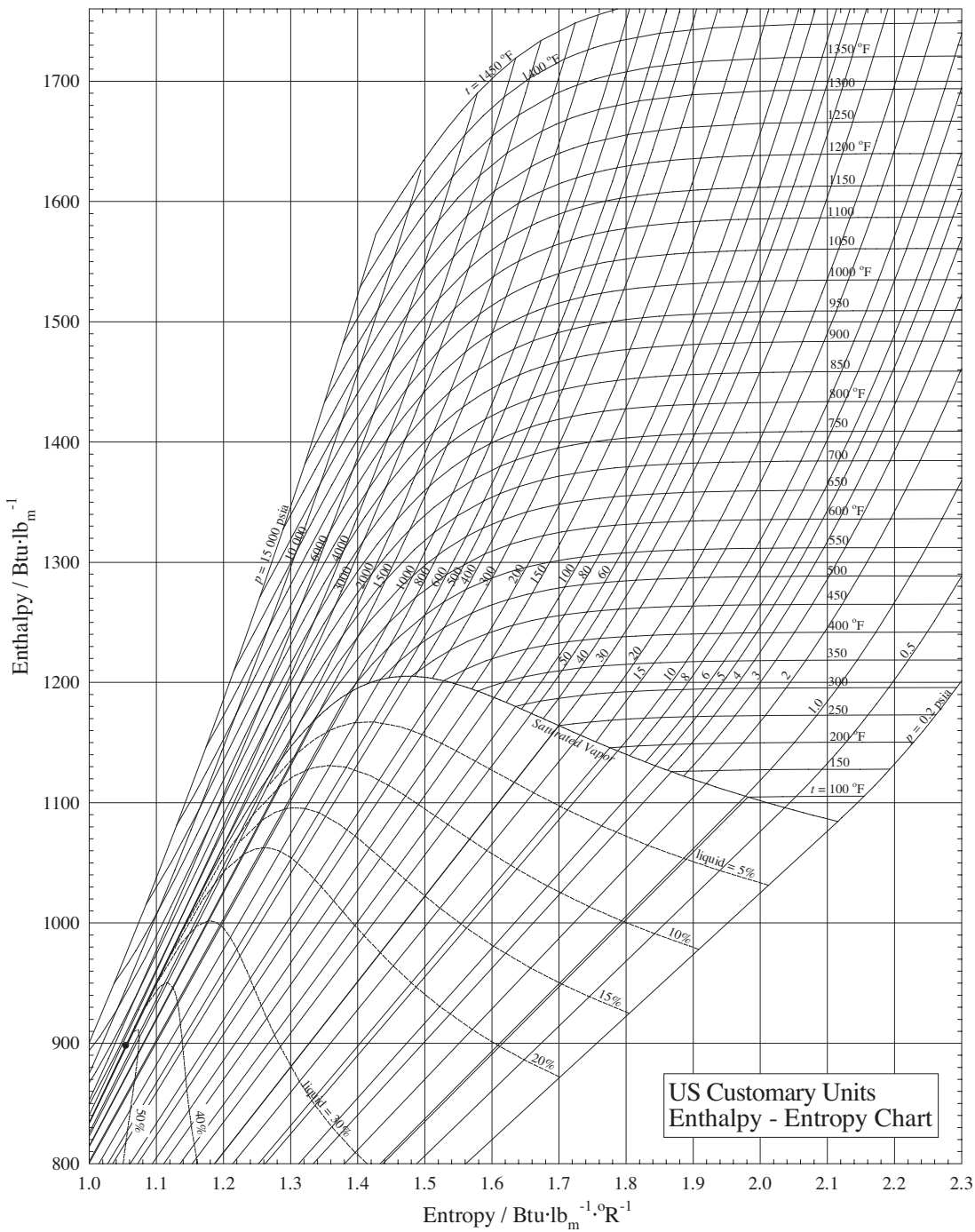
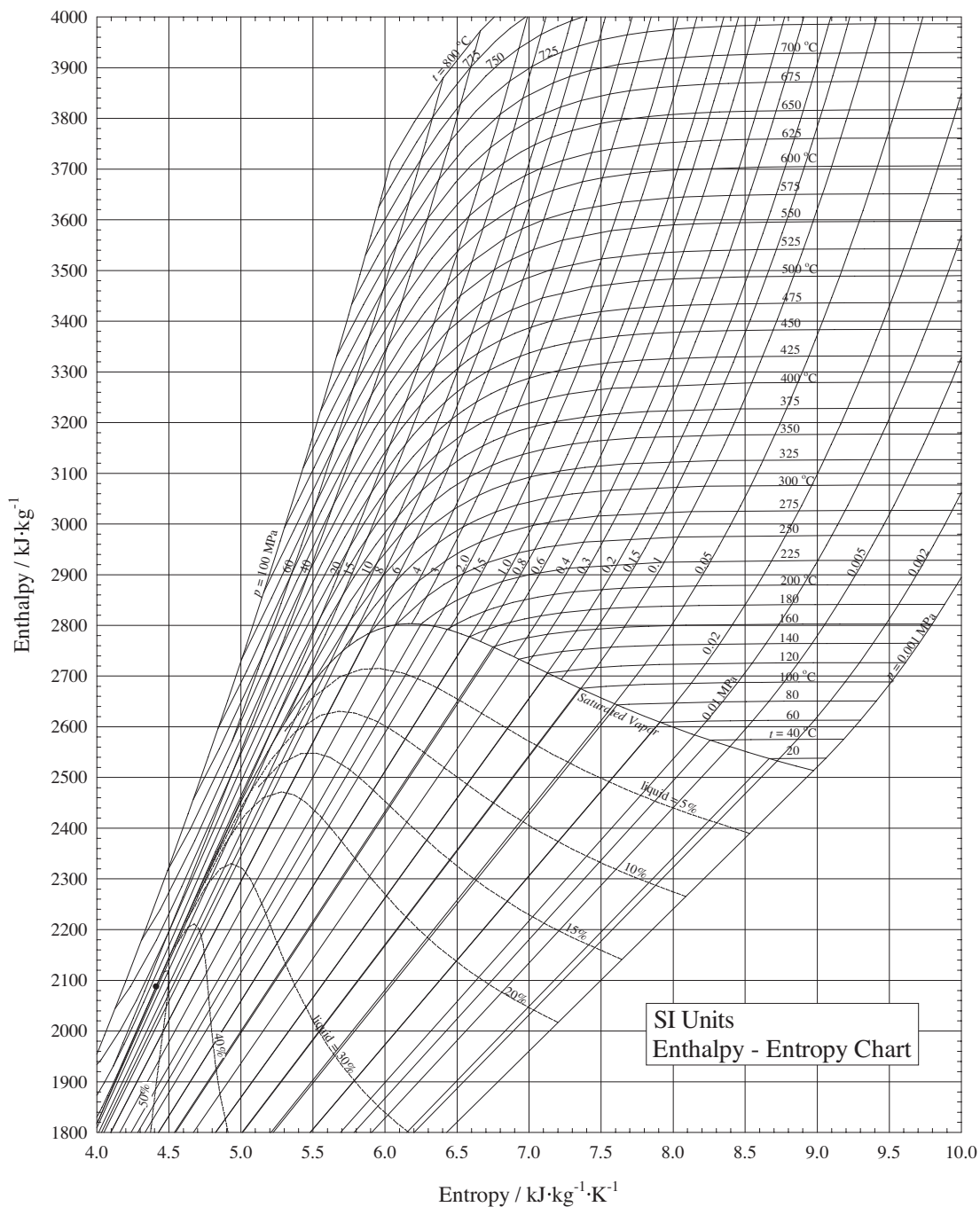
To obtain multiply by		Btu/lb _m	ft·lb _f /lb _m	hp·h/lb _m	kW·h/lb _m	psia/(lb _m /ft ³)	cal/g	kJ/kg
Btu/lb _m		1	7.781 693_10 ²	3.930 148_10 ⁻⁴	2.930 711_10 ⁻⁴	5.403 953	1/1.8 = 5.555 556_10 ⁻¹	4.1868/1.8 = 2.326
ft·lb _f /lb _m		1	1	1/(1.98_10⁶) = 5.050 505_10 ⁻⁷	3.766 161_10 ⁻⁷	1/144 = 6.944 444_10 ⁻³	7.139 264_10 ⁻⁴	2.989 067_10 ⁻³
hp·h/lb _m		1.98_10⁶	1.98_10⁶	1	7.456 999_10 ⁻¹	(1.98_10⁶)/144 = 1.375_10⁴	1.413 574_10 ³	5.918 353_10 ³
kW·h/lb _m		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/(lb _m /ft ³)		1.850 497_10 ⁻¹	144	144/(1.98_10⁶) = 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	2.323 283	1/4.1868 = 2.388 459_10 ⁻¹	1

Table Conv-4.
Conversion Factors for Specific Entropy, Heat Capacity, and Gas Constant (Energy/(Mass·Temperature))

To obtain multiply by		Btu/(lb _m ·°R)	ft·lb _f /(lb _m ·°R)	kW·h/(lb _m ·°R)	psia·ft ³ /(lb _m ·°R)	bar·cm ³ /(g·K)	cal/(g·K)	kJ/(kg·K)
		1	7.781 693_10 ²	2.930 711_10 ⁻⁴	5.403 953	41.868	1	4.1868
		1.285 067_10 ⁻³	1	3.766 161_10 ⁻⁷	1/144 = 6.944 444_10 ⁻³	5.380 320_10 ⁻²	1.285 067_10 ⁻³	5.380 320_10 ⁻³
		3.412 142_10 ³		1	1.843 905_10 ⁴	1.428 595_10 ⁵	3.412 142_10 ³	1.428 595_10 ⁴
		1.850 497_10 ⁻¹	144	5.423 272_10 ⁻⁵	1	7.747 661	1.850 497_10 ⁻¹	7.747 661_10 ⁻¹
		0.1/4.1868 = 2.388 459_10 ⁻²		6.999 882_10 ⁻⁶	1.290 712_10 ⁻¹	1	1/4.1868 = 2.388 459_10 ⁻²	0.1
		1	7.781 693_10 ²	2.930 711_10 ⁻⁴	5.403 953	41.868	1	4.1868
		1/4.1868 = 2.388 459_10 ⁻¹	1.858 625_10 ²	6.999 882_10 ⁻⁵	1.290 712	10	1/4.1868 = 2.388 459_10 ⁻¹	1

Enthalpy / Btu·lb_m⁻¹





NOTES

NOTES