

**ARMSTRONG INTERNATIONAL—INTELLIGENT SYSTEM SOLUTIONS™**

[www.armstronginternational.com](http://www.armstronginternational.com)

**Steam Specialties**

Steam traps, pressure reducing valves, temperature regulators, radiator traps and valves, air vents, and strainers.

**Steam-A-Ware™**

Sizing and selection software for steam, air, and hot water systems.

**Condensate Recovery Systems**

Non-electric pumping traps, condensate pump trap packages, and flash recovery vessels.

**Hot Water Systems**

Flo-Rite-Temp™ Steam to water instantaneous heaters, Flo-Direct™ 99.7% thermal efficient gas fired.

**Washdown Equipment**

Steamix® Hose Stations—steam and water mixing, hot and cold water mixing, hoses, nozzles, and accessories.

**Coils**

Steam and liquid heating/cooling coils. Finned tube, plate fin, unit heaters and tank heaters.

**Humidification**

Direct steam injection, gas fired, electronic, fogging, and steam to steam humidifiers.

**Humid-A-Ware™**

Sizing and selection software for steam gas fired, electronic, and fogging humidification systems.

**CHECK-ALL VALVE [www.checkall.com](http://www.checkall.com)**

Engineered spring-loaded check valves—1/8" – 20" bronze, carbon steel, nylon, PVC, stainless steel, Teflon® and other alloys, pressure ratings from vacuum to 10,000 psi, wide range of springs and seats.

**CONTROL SOUTHEAST, INC. [www.ametek.com](http://www.ametek.com)**

Thermal solution provider of jacketed piping, tracing technology, and heating/cooling jacketing.

**DONALDSON FILTRATION SOLUTIONS [www.donaldsonprocessfiltration.com](http://www.donaldsonprocessfiltration.com)**

A premier manufacturer of process filter housings and elements for steam, gas, liquids, or compressed air.

**ENERQUIP [www.enerquip.com](http://www.enerquip.com)**

Shell and tube heat exchangers for food and beverage, pharmaceutical, and industrial applications.

**KEL TECH INC. [www.keltechinc.com](http://www.keltechinc.com)**

Manufacturer of electric tank less water heaters.

**LATTNER BOILER COMPANY [www.lattnerboiler.com](http://www.lattnerboiler.com)**

Steam and hot water boilers—HRT, firetube and vertical tubeless designs and electric boilers. Condensate feedwater and blowdown systems.

**DRS MARLO COIL [www.marlocoil.com](http://www.marlocoil.com)**

Heating and cooling coils, "stratomizer" face, and bypass coils.

**RADA CONTROLS [www.us.radacontrols.com](http://www.us.radacontrols.com)**

A line of revolutionary digital thermostatic faucets and showers designed for ever increasing risk of waterborne pathogens in the healthcare and institutional markets.

**SHANNON ENTERPRISES [www.blanket-insulation.com](http://www.blanket-insulation.com)**

Engineered Blanket insulation solutions for maximum thermal management and acoustic optimization

**SHIPCO [www.shipcopumps.com](http://www.shipcopumps.com)**

Condensate handling equipment, boiler feed units, deaerators, and vacuum units.

**THRUSH [www.thrushco.com](http://www.thrushco.com)**

In-line circulators, close coupled, vertical in-line pumps and heat exchangers: double wall, straight and U-tube, and replacement bundles.

**CIRCLE S PRODUCTS, INC. [www.dryflo.com](http://www.dryflo.com)**

Steam and air separators, exhaust heads, and flash tanks.



Lattner Boiler Company



## Use this table to:

- Convert steam temperature from steam pressure
- Convert steam pressure to saturated temperature
- Determine Btu/lb of steam at a given pressure
- Determine the Btu/lb of condensate at a given pressure and temperature
- Determine the specific volume (cu ft/lb) of steam at a given pressure

**Table CG-1. Properties of Saturated Steam**  
(Abstracted from Keenan and Keyes, THERMODYNAMIC PROPERTIES OF STEAM, by permission of John Wiley & Sons, Inc.)

	Col.1 Gauge Pressure	Col.2 Absolute Pressure (psia)	Col.3 Steam Temp. (°F)	Col.4 Heat of Sat. Liquid (Btu/lb)	Col.5 Latent Heat (Btu/lb)	Col.6 Total Heat of Steam (Btu/lb)	Col.7 Specific Volume of Sat. Liquid (cu ft/lb)	Col.8 Specific Volume of Sat. Steam (cu ft/lb)
Inches of Vacuum	29.743	0.08854	32.00	0.00	1075.8	1075.8	0.016022	3306.00
	29.515	0.2	53.14	21.21	1063.8	1085.0	0.016027	1526.00
	27.886	1.0	101.74	69.70	1036.3	1106.0	0.016136	333.60
	19.742	5.0	162.24	130.13	1001.0	1131.0	0.016407	73.52
	9.562	10.0	193.21	161.17	982.1	1143.3	0.016590	38.42
	7.536	11.0	197.75	165.73	979.3	1145.0	0.016620	35.14
	5.490	12.0	201.96	169.96	976.6	1146.6	0.016647	32.40
	3.454	13.0	205.88	173.91	974.2	1148.1	0.016674	30.06
	1.418	14.0	209.56	177.61	971.9	1149.5	0.016699	28.04
PSIG	0.0	14.696	212.00	180.07	970.3	1150.4	0.016715	26.80
	1.3	16.0	216.32	184.42	967.6	1152.0	0.016746	24.75
	2.3	17.0	219.44	187.56	965.5	1153.1	0.016768	23.39
	5.3	20.0	227.96	196.16	960.1	1156.3	0.016830	20.09
	10.3	25.0	240.07	208.42	952.1	1160.6	0.016922	16.30
	15.3	30.0	250.33	218.82	945.3	1164.1	0.017004	13.75
	20.3	35.0	259.28	227.91	939.2	1167.1	0.017078	11.90
	25.3	40.0	267.25	236.03	933.7	1169.7	0.017146	10.50
	30.3	45.0	274.44	243.36	928.6	1172.0	0.017209	9.40
	40.3	55.0	287.07	256.30	919.6	1175.9	0.017325	7.79
	50.3	65.0	297.97	267.50	911.6	1179.1	0.017429	6.66
	60.3	75.0	307.60	277.43	904.5	1181.9	0.017524	5.82
	70.3	85.0	316.25	286.39	897.8	1184.2	0.017613	5.17
	80.3	95.0	324.12	294.56	891.7	1186.2	0.017696	4.65
	90.3	105.0	331.36	302.10	886.0	1188.1	0.017775	4.23
	100.0	114.7	337.90	308.80	880.0	1188.8	0.017850	3.88
	110.3	125.0	344.33	315.68	875.4	1191.1	0.017922	3.59
	120.3	135.0	350.21	321.85	870.6	1192.4	0.017991	3.33
	125.3	140.0	353.02	324.82	868.2	1193.0	0.018024	3.22
	130.3	145.0	355.76	327.70	865.8	1193.5	0.018057	3.11
	140.3	155.0	360.50	333.24	861.3	1194.6	0.018121	2.92
	150.3	165.0	365.99	338.53	857.1	1195.6	0.018183	2.75
	160.3	175.0	370.75	343.57	852.8	1196.5	0.018244	2.60
	180.3	195.0	379.67	353.10	844.9	1198.00	0.018360	2.34
	200.3	215.0	387.89	361.91	837.4	1199.3	0.018470	2.13
	225.3	240.0	397.37	372.12	828.5	1200.6	0.018602	1.92
	250.3	265.0	406.11	381.060	820.1	1201.7	0.018728	1.74
		300.0	417.33	393.84	809.0	1202.8	0.018896	1.54
		400.0	444.59	424.00	480.5	1204.5	0.019340	1.16
		450.00	456.28	437.20	767.4	1204.6	0.019547	1.03
		500.0	467.01	449.40	755.0	1204.4	0.019748	0.93
		600.0	486.21	471.60	731.6	1203.2	0.02013	0.77
	900.0	531.98	526.60	668.8	1195.4	0.02123	0.50	
	1200.0	567.22	571.70	611.7	1183.4	0.02232	0.36	
	1500.0	596.23	611.60	556.3	1167.9	0.02346	0.28	
	1700.0	613.15	636.30	519.6	1155.9	0.02428	0.24	
	2000.0	635.82	671.70	463.4	1135.1	0.02565	0.19	
	2500.0	668.13	730.60	360.5	1091.1	0.02860	0.13	
	2700.0	679.55	756.20	312.1	1068.3	0.03027	0.11	
	3206.2	705.40	902.70	0.0	902.7	0.05053	0.05	

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