Steam Table Guisales, Inc.

Steam Temp. Heat of Sat. Latent Heat Total Heat of

Specific

Specific

Gauge

Т

Absolute

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Definitions of Terms Used:

Saturated Steam is pure steam at the temperature that corresponds to the boiling temperature of water at the existing pressure.

Absolute pressure is pressure in pounds per square inch (psia) above a perfect vacuum.

Gauge pressure is pressure in pounds per square inch above atmospheric pressure which is 14.7 pounds per square inch absolute. Gauge pressure (psig) plus 14.7 equals absolute pressure.

Pressure/Temperature Relationship – For every pressure of pure steam there is a corresponding temperature. Example: The temperature of 250 psig pure steam is always 406°F.

Heat of Saturated Liquid

This is the amount of heat required to raise the temperature of a pound of water from 32°F to the boiling point at the pressure and temperature shown. It is expressed in British thermal units (Btu).

| | Pressure | Pressure (psia) | (°F) | (Btu/lb) | (Btu/Ib) | (Btu/lb) | Volume of Sat. Liquid (ft ³ /lb) | Volume of Sat. Steam (ft ³ /lb) |
|------------------|----------|--------------------|--------|----------|----------|----------|--|---|
| Inches of Vacuum | 29.743 | 0.08854 | 32.00 | 0.00 | 1075.8 | 1075.8 | 0.096022 | 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. | 0.016407 | 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 | 1198.0 | 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 | 381.60 | 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 | 780.5 | 1204.5 | 0.019340 | 1.16 |
| | | 450.0 | 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 | 0.02360 | 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 |
| | | 5200.2 | 705.40 | 502.70 | 0.0 | 502.7 | 0.03033 | 0.05 |

Latent Heat or Heat of Vaporization – The amount of heat (expressed in Btu) required to change a pound of boiling water to a pound of steam. This same amount of heat is released when a pound of steam is condensed back into a pound of water. This heat quantity is different for every pressure/temperature combination, as shown in the steam table.

Total Heat of Steam – The sum of the Heat of the Liquid (Column 4) and Latent Heat (Column 5) in Btu. It is the total heat in steam above 32°F.

Specific Volume of Liquid & Steam – The volume per unit of mass in cubic feet per pound.