

1 atmosphere

$$= \begin{cases} 14.696 \text{ lb per square inch} \\ 2.116 \text{ lb per square foot} \\ 33.94 \text{ ft. water at 62 F} \\ 30.01 \text{ in. mercury at 62 F} \\ 29.921 \text{ in. mercury at 32 F} \end{cases}$$

1 in. water at 62 F (in vacuo)

$$= \begin{cases} 0.03609 \text{ lb per square inch} \\ 0.5774 \text{ oz per square inch} \\ 5.197 \text{ lb per square foot} \end{cases}$$

1 ft. water at 62 F (in vacuo)

$$= \begin{cases} 0.4330 \text{ lb per square inch} \\ 62.37 \text{ lb per square foot} \end{cases}$$

1 in. mercury at 62 F (in vacuo)

$$= \begin{cases} 0.4897 \text{ lb per square inch} \\ 7.835 \text{ oz per square inch} \\ 1.131 \text{ ft water at 62 F} \\ 13.57 \text{ in. water at 62 F} \end{cases}$$

1 in. mercury at 32 F (in vacuo)

$$= 0.49115 \text{ lb per square inch}$$

Metric Units

1 cm

$$= 0.3937 \text{ in.} = 0.0328 \text{ ft.}$$

1 in.

$$= 2.540 \text{ cm}$$

1 m

$$= 3.281 \text{ ft.}$$

1 ft

$$= 0.3048 \text{ m.}$$

1 sq cm

$$= 0.1550 \text{ sq in.}$$

1 sq in.

$$= 6.452 \text{ sq cm}$$

1 sq m

$$= 10.76 \text{ sq ft.}$$

1 sq ft

$$= 0.09290 \text{ sq m.}$$

1 cu cm

$$= 0.06102 \text{ cu in.}$$

1 cu in.

$$= 16.39 \text{ cu cm}$$

1 cu m

$$= 35.31 \text{ cu ft.}$$

1 cu ft

$$= 0.02832 \text{ cu m.}$$

1 liter

$$= 1000 \text{ cu cm} = 0.2642 \text{ gal}$$

1 kg

$$= 2.205 \text{ lb (avdp)}$$

1 lb

$$= 0.4536 \text{ kg}$$

1 metric ton

$$= 2205 \text{ lb (avdp)}$$

1 gram

$$= 0.002205 \text{ lb (avdp)}$$

1 kilometer per hour

$$= 0.6214 \text{ mph}$$

1 gram per square centimeter

$$= \begin{cases} 0.02905 \text{ in. mercury at 62 F} \\ 0.3942 \text{ in. water at 62 F} \end{cases}$$

1 kg per sq cm (metric atmosphere)

$$= 14.22 \text{ lb per square inch}$$

1 gram per cubic centimeter

$$= \begin{cases} 0.03613 \text{ lb per cubic inch} \\ 62.43 \text{ lb per cubic foot} \end{cases}$$

1 dyne

$$= 0.00007233 \text{ poundals}$$

1 absolute joule

$$= \begin{cases} 10,000,000 \text{ ergs} \\ 0.7376 \text{ ft-lb} \end{cases}$$

1 Int. joule

$$= 0.7378 \text{ ft-lb}$$

1 metric horsepower

$$= \begin{cases} 75 \text{ kg-m per second} \\ 0.986 \text{ hp (U. S.)} \end{cases}$$

1 I.T. kilocalorie per kilogram

$$= 1.8 \text{ Btu per pound}$$

1 I.T. calorie per square centimeter

$$= 3.687 \text{ Btu per square foot}$$

1 I.T. calorie per (second) (square centimeter) for a temperature gradient of 1 C deg per centimeter

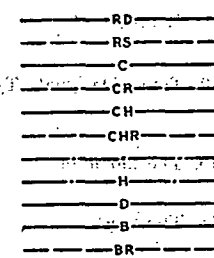
$$= \begin{cases} 2903 \text{ BTU per (hour) (square foot)} \\ \text{for a temperature gradient of 1 F} \\ \text{deg per inch of thickness.} \end{cases}$$

GRAPHICAL SYMBOLS FOR DRAWINGS**Graphical Symbols for Drawings****Piping****HEATING**

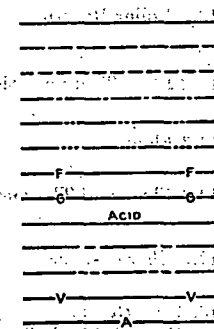
1. High Pressure Steam
2. Medium Pressure Steam
3. Low Pressure Steam
4. High Pressure Return
5. Medium Pressure Return
6. Low Pressure Return
7. Boiler Blow Off
8. Condensate or Vacuum Pump Discharge
9. Feedwater Pump Discharge
10. Make-Up Water
11. Air Relief Line
12. Fuel Oil Flow
13. Fuel Oil Return
14. Fuel Oil Tank Vent
15. Compressed Air
16. Hot Water Heating Supply
17. Hot Water Heating Return

**AIR CONDITIONING**

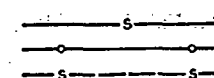
18. Refrigerant Discharge
19. Refrigerant Suction
20. Condenser Water Flow
21. Condenser Water Return
22. Circulating Chilled or Hot Water Flow
23. Circulating Chilled or Hot Water Return
24. Make-Up Water
25. Humidification Line
26. Drain
27. Brine Supply
28. Brine Return

**PLUMBING**

29. Soil, Waste or Leader (Above Grade)
30. Soil, Waste or Leader (Below Grade)
31. Vent
32. Cold Water
33. Hot Water
34. Hot Water Return
35. Fire Line
36. Gas
37. Acid Waste
38. Drinking Water Flow
39. Drinking Water Return
40. Vacuum Cleaning
41. Compressed Air

**SPRINKLERS**

42. Main Supplies
43. Branch and Head
44. Drain



* Extracted from: American Standard Graphical Symbols for Pipe Fittings, Valves, and Piping (ASA Z32.2-1949) and American Standard Graphical Symbols for Heating, Ventilating, and Air Conditioning (ASA Z32.2-1949) with the permission of the publisher, The American Society of Mechanical Engineers, 29 West 39th St., New York 18, N. Y.