Miscellaneous Information

COMMONLY USED FORMULAS

Pressure in PSI of a Column of Water = Height of Column in Feet x .434

Wheel RPM = 1056 x MPH ÷ Circumference

Gallons per Acre (GPA) = (GPM x 5940) / (MPH x Swath in Inches)

Gallons per Minute (GPM) = GPA x MPH x Swath in Inches / 5940

Capacity of a Round Tank in Gallons = Diameters in Inches Squared x Length in Inches x .0034

Capacity of a Rectangular Tank in Gallons = Length in Inches x Width in Inches x Height in Inches ÷ 231

Gallons per Foot of Depth = Diameter in Feet Squared x 5.875

Gallons per Foot of Depth = Diameter in Inches Squared x .0408

Diameter of Circle = Circumference x .31831

Circumference of Circle = Diameter x 3.1416

Area of Circle = Square of Diameter x .7854

PIPE AND PIPE FITTINGS

DIMENSION IN INCHES • STANDARD BLACK OR GALVANIZED

A common error made when sizing threaded fittings occurs whenever a ruler or tape measure is used. Pipe sizes must be measured by a pipe size scale – see illustration below.

NOMINAL PIPE SIZE, INCHES	ACTUAL INSIDE DIAMETER	ACTUAL OUTSIDE DIAMETER
1/4"	0.364	0.540
3/8"	0.493	0.675
1/2"	0.622	0.840
3/4"	0.824	1.050
1"	1.049	1.315
1 1/4"	1.380	1.660
1 1/2"	1.610	1.900
2"	2.067	2.375
2 1/2"	2.469	2.875
3"	3.068	3.500

VAPORIZATION RATES FOR ASME STORAGE TANKS

A number of assumptions were made in calculating the BTU figures listed in the table below:

1. The tank is one-half full.

2. Relative humidity is 70%.

3. The tank is under intermittent loading.

Although none of these conditions may apply, this table can still serve as a good rule-of-thumb in estimating what a particular tank size will provide under various temperatures. Continuous loading is not a very common occurrence on domestic installations, but under continuous loading the withdrawal rates should be multiplied by 0.25.

VAPORIZATION RATES FOR 100 POUND (45KG) DOT CYLINDERS IN BTUH FOR VARIOUS TEMPERATURES & LIQUID LEVELS

POUNDS OF PROPANE IN CYLINDER	-20° F (-29° C)	0° F (-18° C)	20° F (-6° C)	40° F (4° C)
100	65,000	71,000	79,000	94,000
90	60,000	65,000	72,000	85,000
80	54,000	59,000	66,000	77,000
70	48,000	52,000	59,000	69,000
60	43,000	46,000	52,000	61,000
50	37,000	40,000	45,000	53,000
40	31,000	34,000	38,000	45,000
30	26,000	28,000	31,000	37,000
20	20,000	22,000	25,000	29,000
10	15,000	16,000	18,000	21,000

MAXIMUM INTERMITTENT WITHDRAWAL RATE BTU/HR WITHOUT TANK FROSTING IF LOWEST OUTDOOR TEMPERATURE (AVERAGE FOR 24 HOURS) REACHES...

TEMPERATURE		TANK SIZE , GALLONS			
		150 (568)	250 (946)	500 (1893)	1000 (3785)
40° F	4° C	214,900	288,100	478,800	852,800
30° F	-1° C	187,000	251,800	418,600	745,600
20° F	-7° C	161,800	216,800	360,400	641,900
10° F	-12° C	148,000	198,400	329,700	587,200
0° F	-18° C	134,700	180,600	300,100	534,500
-10° F	-23° C	132,400	177,400	294,800	525,400
-20° F	-29° C	108,800	145,800	242,300	431,600
-30° F	-34° C	107,100	143,500	238,600	425,000