

14-400 and 14-500 Series Low Pressure Air Relief Valves

High volume air relief valves designed for low pressure air and gas service. Rugged bronze construction features elastomer soft seating and TFE coated discs for dependable operation.

Non-ASME code air and gas service
Inlet sizes 2", 2 1/2" and 3"
Set pressures 4 to 22 psig @ 400°F max.

Applications

- Low pressure, high volume blowers and compressors
- Bulk hauling tanks, trailers and rail cars
- Powdered solids / bulk handling
- Pneumatic conveying equipment

Features

- Vibration resistant soft seat is standard
- Stainless steel spring
- One piece unified bronze body design
- High flow "top-guided" design

Options:

- Model 14-400 with test lever
- Model 14-500 with plain cap, weather resistant sealed body

Air Relief Capacity

See page 19

Dimensions and Weights

Model Number	Size (in./mm.)	Dimensions(in./mm.)			Wt./Ea (lbs./kg.)
		A	B	C	
14-X05	2 x 2 50M x 50F	3 76	6-1/2 165	3-1/8 79	8.4 3.81
14-X06	2-1/2 x 2-1/2 65M x 65F	3-1/2 89	7-5/8 194	3-1/2 89	12.5 5.7
14-X07	3 x 3 80M x 80F	4-1/8 105	8-3/4 222	3-7/8 98	17.0 7.7

Model Numbering System 14-400/500 Series Air Relief Valves

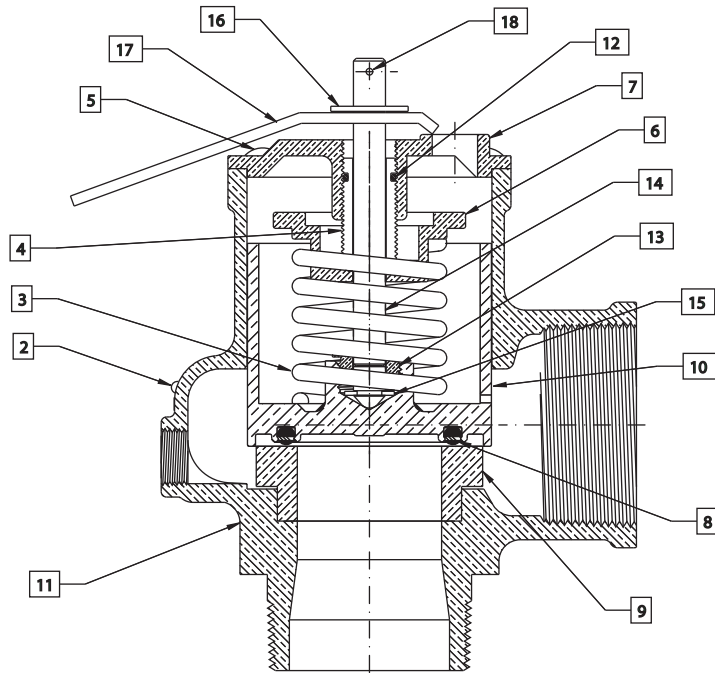
14	4	05	12
Series Number	Body / Cap Style and Service	Inlet Connection	Relief Pressure
14 Base Model No.	4 = Air Relief, with Test Lever 5 = Air Relief, Plain Cap	05 = 2 NPT 06 = 2 1/2" NPT 07 = 3" NPT	Set Pressure in psig (2 Digits)

EXAMPLES:

14-406 12
2-1/2" 14 Series air relief valve set at 12 psig, with lift lever

14-505-08
2" air relief valve set at 8 psig, with sealed cap

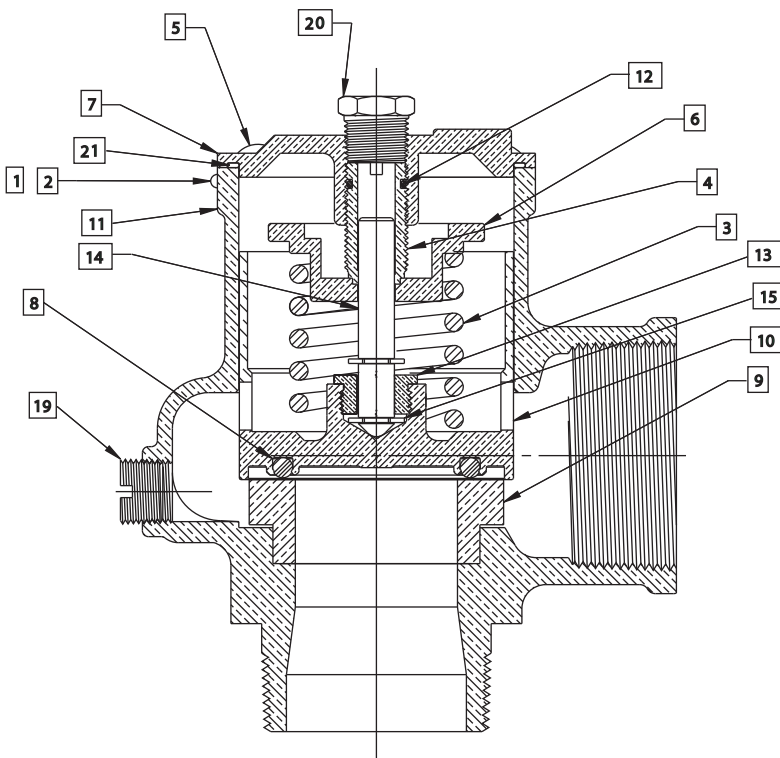
14-400, 14-500 and 14-600 Series Low Pressure Air and Vacuum Relief Valves



14-400

14-400, 14-500, 14-600 Materials

Item	Component	Material
1	NAMEPLATE	ALUMINUM
2	DRIVESCREWS (2)	STEEL (PLATED)
3	SPRING	STAINLESS STEEL
4	ADJUSTING SCREW	BRASS ASTM B-16
5	CAP SCREW (4)	STEEL (PLATED)
6	SPRING WASHER	BRASS ASTM B-16
7	CAP	BRONZE ASTM B-584
8	SEAT O-RING	SILICONE
9	SEAT INSERT	BRASS ASTM B-16
10	DISC	BRONZE ASTM B-584
11	BODY	BRONZE ASTM B-584
12	FRICTION RING	EPDM
13	STEM NUT	BRASS ASTM B-16
14	STEM	BRASS ASTM B-16
15	RETAINING RING	STEEL (PLATED)
16	LIFT WASHER	STEEL (PLATED)
17	LIFT LEVER	STEEL (PLATED)
18	ROLL PIN	STEEL (PLATED)
19	PLUG	BRASS ASTM B-16
20	PLUG	BRASS ASTM B-16
21	CAP SEAL O-RING	SILICONE



14-500 & 14-600

MODEL 14-400 and 14-500 Air Relief Valves

NON-CODE AIR RELIEF CAPACITIES

STANDARD CUBIC FEET PER MINUTE (NORMALIZED CUBIC METERS PER HOUR)
OF AIR AT 10% OVERPRESSURE

Ordering Suffix	U.S. Customary Units SCFM Air				Metric Units Nm ³ /hr. Air			
	Model No.	14-405	14-406	14-407	Model No.	14-405	14-406	14-407
	Size, (in.)	14-505	14-506	14-507	Size, (mm.)	14-505	14-506	14-507
	Area (in. ²)	2 x 2	2 1/2 x 2 1/2	3 x 3	Area (cm. ²)	50 x 50	65 x 65	80 x 80
	Area (in. ²)	2.238	3.339	5.155	Area (cm. ²)	14.438	21.544	33.259
	PSIG				barg			
-04	4	615	914	1338	.28	988	1469	2151
-05	5	651	967	1415	.34	1046	1554	2275
-06	6	687	1020	1492	.41	1104	1639	2398
-07	7	722	1072	1569	.48	1161	1724	2522
-08	8	758	1125	1646	.55	1218	1809	2646
-09	9	793	1178	1723	.62	1275	1893	2770
-10	10	829	1231	1801	.69	1332	1978	2894
-11	11	864	1283	1878	.76	1389	2063	3018
-12	12	900	1336	1955	.83	1446	2147	3142
-13	13	935	1389	2032	.90	1503	2232	3266
-14	14	971	1441	2109	.97	1560	2317	3390
-15	15	1006	1494	2186	1.03	1617	2402	3514
-16	16	1041	1547	2263	1.10	1673	2487	3638
-17	17	1076	1600	2340	1.17	1730	2572	3761
-18	18	1111	1653	2417	1.24	1786	2657	3885
-19	19	1146	1706	2494	1.31	1842	2742	4009
-20	20	1181	1756	2571	1.38	1899	2823	4133
-21	21	1216	1809	2648	1.45	1955	2907	4257
-22	22	1252	1861	2725	1.52	2012	2992	4381

Model 14-600 Vacuum Air Relief Capacity

Standard cubic feet per minute (normalized cubic meters per hour) of air.

Ordering Suffix	U.S. Customary Units SCFM Air				Metric Units Nm ³ /hr. Air			
	Model No.	14-605	14-606	14-607	Model No.	14-605	14-606	14-607
	Size, (in.)	2 x 2	2 1/2 x 2 1/2	3 x 3	Size, (in.)	50 x 50	65 x 65	80 x 80
	Area (in. ²)	2.238	3.339	5.155	Area (cm. ²)	14.438	21.544	33.259
	Relief Setting (in. Hg)				Relief Setting (mm. Hg)			
V08	8	395	600	865	203	635	964	1390
V09	9	405	618	890	229	651	993	1431
V10	10	415	635	915	254	667	1021	1471
V11	11	421	642	927	279	676	1021	1471
V12	12	426	649	939	305	685	1043	1509
V13	13	430	653	943	330	691	1050	1516
V14	14	430	653	943	356	691	1050	1516
V15	15	430	653	943	381	691	1050	1516
V20	20	430	653	943	508	691	1050	1516
V25	25	430	653	943	635	691	1050	1516
V30	30	430	653	943	762	691	1050	1516

Pressure Relief Valve Selection Chart

Model	Material Body / Trim	Inlet Sizes Min / Max, in.	Inlet Sizes Min / Max, mm.	Connections NPT Flanged	CE/PED Available	Set Pressures Min / Max, PSIG	Set Pressures Min / Max, barg	Temperature Max, °F	Temperature Max, °C
ASME Section I - Steam Power Boilers									
19M	Bronze / Brass	1/2 - 2 1/2	DN 15 - 65	X	X	15 - 250	1.0 - 17.2	406°F	207.7°C
19K	Bronze / Brass	1/2 - 2 1/2	DN 15 - 65	X	X	15 - 250	1.0 - 17.2	406°F	207.7°C
19L	Bronze / Stainless	1/2 - 2 1/2	DN 15 - 65	X	X	15 - 250	1.0 - 17.2	406°F	207.7°C
19S	Bronze / Stainless	1/2 - 2 1/2	DN 15 - 65	X	X	15 - 300	1.0 - 20.7	422°F	216.7°C
29	Bronze / Brass	3/8 - 1 1/4	DN 10 - 32	X	X	30 - 200	2.0 - 13.8	406°F	207.7°C
119	Cast Iron / Stainless	1-1/2 - 6	DN 40 - 150	X	X	15 - 250	1.0 - 17.2	450°F	232.2°C
ASME Section IV - Low Pressure Steam Heating Boilers									
12	Bronze / Brass	2 - 3	DN 50 - 80	X		5 - 15	0.34 - 1.0	250°F	121.1°C
13-101	Bronze / Brass	3/4	DN 20	X		5 - 15	0.34 - 1.0	250°F	121.1°C
13-202	Bronze / Brass	1	DN 25	X		5 - 15	0.34 - 1.0	250°F	121.1°C
13-211	Bronze / Brass	3/4	DN 20	X		5 - 15	0.34 - 1.0	250°F	121.1°C
13-213	Bronze / Brass	1-1/4	DN 32	X		5 - 15	0.34 - 1.0	250°F	121.1°C
13-214	Bronze / Brass	1-1/2	DN 40	X		5 - 15	0.34 - 1.0	250°F	121.1°C
13-510	Bronze / Brass	3/4	DN 20	X		5 - 15	0.34 - 1.0	250°F	121.1°C
14-200	Bronze / Brass	2 - 3	DN 50 - 80	X		5 - 15	0.34 - 1.0	250°F	121.1°C
ASME Section IV - Hot Water Heating & Supply Boilers									
10-100	Bronze / Brass	3/4	DN 20	X		20 - 65	1.4 - 4.5	250°F	121.1°C
10-300	Bronze / Brass	3/4	DN 20	X		20 - 65	1.4 - 4.5	250°F	121.1°C
10-400	Bronze / Brass	3/4	DN 20	X		30	2.0	250°F	121.1°C
10-410	Bronze / Brass	3/4	DN 20	X		20 - 80	1.4 - 5.5	250°F	121.1°C
10-600, 10-610	Bronze / Brass	3/4 - 2	DN 20 - 50	X	X	15 - 160	1.0 - 11.0	250°F	121.1°C
10-624, 10-634	Bronze / Brass	3/4	DN 20	X		30 - 150	2.0 - 10.3	250°F	121.1°C
17-401	Bronze / Brass	1/2	DN 15	X		75 - 160	5.2 - 11.0	250°F	121.1°C
17-402	Bronze / Brass	3/4	DN 20	X		75 - 150	5.2 - 10.3	250°F	121.1°C
18C-400	Bronze / Brass	1/2 - 3/4	DN 15 - 20	X		125 - 175	8.61 - 12.1	210°F	98.9°C
18-500	Bronze / Stainless	3/4 - 2	DN 20 - 50	X		75 - 150	5.2 - 10.3	210°F	98.9°C
ASME Section VIII Air / Gases									
15	Brass	1/4 - 1	DN 8 - 25	X	X	15 - 250	1.0 - 17.2	325°F	162.8°C
19M	Bronze / Brass	1/2 - 2-1/2	DN 15 - 65	X	X	8 - 300	0.55 - 20.7	406°F	207.7°C
19K	Bronze / Brass	1/2 - 2-1/2	DN 15 - 65	X	X	15 - 300	1.0 - 20.7	406°F	207.7°C
19L	Bronze / Stainless	1/2 - 2-1/2	DN 15 - 65	X	X	15 - 300	1.0 - 20.7	406°F	207.7°C
19S	Bronze / Stainless	1/2 - 2-1/2	DN 15 - 65	X	X	8 - 300	0.55 - 20.7	422°F	216.7°C
29	Bronze / Brass	3/8 - 1-1/4	DN 10 - 32	X	X	30 - 200	2.0 - 13.8	406°F	207.7°C
119	Cast Iron / Stainless	1-1/2 - 6	DN 40 - 150	X	X	8 - 250	0.55 - 17.2	450°F	232.2°C
510	Bronze / Brass	1/2 - 2	DN 15 - 50	X	X	8 - 300	0.55 - 20.7	406°F	207.7°C
520	Bronze / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 1200	0.55 - 82.7	422°F	216.7°C
530	Steel / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 1200	0.55 - 82.7	800°F	426.7°C
540	Stainless / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 1200	0.55 - 82.7	800°F	426.7°C
ASME Section VIII Steam									
10-322	Brass	3/4	DN 20	X	X	15 - 60	1.0 - 4.1	325°F	162.8°C
10-512	Brass	1/2	DN 15	X	X	9 - 60	0.62 - 4.1	325°F	162.8°C
19M	Bronze / Brass	1/2 - 2-1/2	DN 15 - 65	X	X	8 - 250	0.55 - 17.2	406°F	207.7°C
19K	Bronze / Brass	1/2 - 2-1/2	DN 15 - 65	X	X	15 - 250	1.0 - 17.2	406°F	207.7°C
19L	Bronze / Stainless	1/2 - 2-1/2	DN 15 - 65	X	X	15 - 250	1.0 - 17.2	406°F	207.7°C
19S	Bronze / Stainless	1/2 - 2-1/2	DN 15 - 65	X	X	8 - 300	0.55 - 20.7	422°F	216.7°C
29	Bronze / Brass	3/8 - 1-1/4	DN 10 - 32	X	X	30 - 200	2.0 - 13.8	406°F	207.7°C
119	Cast Iron / Stainless	1-1/2 - 6	DN 40 - 150	X	X	8 - 250	0.55 - 17.2	450°F	232.2°C
510	Bronze / Brass	1/2 - 2	DN 15 - 50	X	X	8 - 250	0.55 - 17.2	406°F	207.7°C
520	Bronze / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 300	0.55 - 20.7	422°F	216.7°C
530	Steel / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 900	0.55 - 62.1	800°F	426.7°C
540	Stainless / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 900	0.55 - 62.1	800°F	426.7°C
ASME Section VIII Liquid									
510	Bronze / Brass	1/2 - 2	DN 15 - 50	X	X	8 - 300	0.55 - 20.7	406°F	207.7°C
520	Bronze / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 1200	0.55 - 82.7	422°F	216.7°C
530	CS / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 1200	0.55 - 82.7	800°F	426.7°C
540	Stainless / Stainless	1/2 - 2	DN 15 - 50	X	X	8 - 1200	0.55 - 82.7	800°F	426.7°C
Non-Code, Vacuum & Miscellaneous Products									
14-400, 14-500	Low Pressure Air	2 - 3	DN 50 - 80	X		4 - 22	0.3 - 1.52	400°F	204.4°C
14-600	Vacuum Relief	2 - 3	DN 50 - 80	X		8 - 30 HG	203 - 762 mm. HG	400°F	204.4°C
16-200	Liquids	1/2	DN 15	X		30 - 80	2.1 - 12.4	120°F	48.9°C
16-501	Adj. Liquid Bypass	1/2	DN 15	X		0 - 600	0 - 41.4	200°F	93.3°C
16-503, 16-504	Calibrated Liquid Relief	1/2 - 3/4	DN 15 - 20	X		50 - 175	3.4 - 12.1	200°F	93.3°C
Drip Pan Elbows	Steam Discharge	3/4 - 8	DN 20 - 200	X	X	N/A	N/A	450°F	232.2°C

Correction Factors

AIR AND GAS TEMPERATURE CORRECTION FACTORS

To correct for temperatures other than 60°F at the valve inlet, multiply the SCFM from the capacity tables by factor K_t .

Temp°F	K_t	Temp°F	K_t	Temp°F	K_t	Temp°F	K_t
0	1.063	90	0.972	260	0.850	440	0.760
10	1.052	100	0.964	280	0.838	460	0.752
20	1.041	120	0.947	300	0.827	480	0.744
30	1.030	140	0.931	320	0.816	500	0.737
40	1.020	160	0.916	340	0.806	550	0.718
50	1.010	180	0.901	360	0.796	600	0.701
60	1.000	200	0.888	380	0.787	650	0.685
70	0.991	220	0.874	400	0.778	700	0.669
80	0.981	240	0.862	420	0.769	750	0.656

GAS AND LIQUID RELATIVE DENSITY CORRECTION FACTORS

To correct for a specific gravity other than air or water (=1.0)
multiply the SCFM or GPM from the capacity tables by factor K_{sg} .

Specific Gravity	K_{sg}	Specific Gravity	K_{sg}	Specific Gravity	K_{sg}	Specific Gravity	K_{sg}
0.10	3.160	0.75	1.155	1.25	0.913	2.50	0.633
0.20	2.240	0.80	1.117	1.30	0.877	3.00	0.577
0.30	1.825	0.90	1.085	1.40	0.845	3.50	0.535
0.40	1.580	0.95	1.025	1.50	0.817	4.00	0.500
0.50	1.414	1.00	1.00	1.60	0.791	4.50	0.471
0.55	1.350	1.05	0.975	1.70	0.768		
0.60	1.290	1.10	0.955	1.80	0.745		
0.65	1.240	1.15	0.933	1.90	0.725		
0.70	1.195	1.20	0.913	2.00	0.707		

Equivalents and Conversion Factors

This table may be used in two ways:

- (1) Multiply the unit under column A by the figure under column B, the result is the unit under column C.
- (2) Divide the unit under column C by the figure under column B, the result is then the unit under column A.

A MULTIPLY	B BY	C TO OBTAIN
Atmospheres	14.70	Pounds per square inch
Atmospheres	1.033	Kilograms per sq. cm.
Atmospheres	29.92	Inches of mercury
Atmospheres	760.0	Millimeters of mercury
Atmospheres	407.5	Inches of water
Atmospheres	33.96	Feet of water
Atmospheres	1.013	Bars
Atmospheres	101.3	KiloPascals
Barrels	42.00	Gallons (U.S.)
Bars	14.50	Pounds per square inch
Bars	1.020	Kilograms per sq. cm
Bars	100.0	KiloPascals
Centimeters	0.3937	Inches
Centimeters	0.03281	Feet
Centimeters	0.010	Meters
Centimeters	0.01094	Yards
Cubic centimeters	0.06102	Cubic yards
Cubic feet	7.481	Gallons
Cubic feet	0.1781	Barrels
Cubic feet per minute	0.02832	Cubic meters per minute
Cubic feet per second	448.8	Gallons per minute
Cubic inches	16.39	Cubic centimeters
Cubic inches	0.004329	Gallons
Cubic meters	264.2	Gallons
Cubic meters per hour	4.403	Gallons per minute
Cubic meters per minute	35.31	Cubic feet per minute
Standard cubic feet per min.	60.00	Standard cubic ft. per hr
Standard cubic feet per min.	1440.	Standard cubic ft. per day
Standard cubic feet per min.	0.02716	Nm ³ /min. (0°C, 1 Bara)
Standard cubic feet per min.	1.630	Nm ³ /hr. (0°C, 1 Bara)
Standard cubic feet per min.	39.11	Nm ³ /day. (0°C, 1 Bara)
Standard cubic feet per min.	0.02832	Sm ³ /min.
Standard cubic feet per min.	1.699	Sm ³ /hr.
Standard cubic feet per min.	40.78	Sm ³ /day.
Feet	0.3048	Meters
Feet	0.3333	Yards
Feet	30.48	Centimeters
Feet of water (68°F)	0.8812	Inches of mercury (0°C)
Feet of water (68°F)	0.4328	Pounds per square inch
Gallons (U.S.)	3785.	Cubic centimeters
Gallons (U.S.)	0.1337	Cubic feet
Gallons (U.S.)	231.0	Cubic inches
Gallons (Imperial)	277.4	Cubic inches
Gallons (U.S.)	0.8327	Gallons (Imperial)
Gallons (U.S.)	3.785	Liters
Gallons of water (60°F)	8.337	Pounds
Gallons of liquid per minute	500xSp. Gr.	Pounds per hour liquid
Gallons per minute	0.002228	Cubic feet per second
Gallons per minute (60°F)	227.0xSG	Kilograms per hour
Gallons per minute	.06309	Liters per second
Gallons per minute	3.785	Liters per minute
Gallons per minute	.2271	M ³ /hr.
Grams	.03527	Ounces
Inches	2.540	Centimeters
Inches	0.08333	Feet
Inches	0.0254	Meters
Inches	0.02778	Yards
Inches of mercury (0°C)	1.135	Feet of water (68°F)
Inches of mercury (0°C)	0.4912	Pounds per square inch
Inches of mercury (0°C)	0.03342	Atmospheres
Inches of mercury (0°C)	0.03453	Kilograms per sq. cm
Inches of water (68°F)	0.03607	Pounds per sq. in.
Inches of water (68°F)	0.07343	Inches of mercury (0° C)
Kilograms	2.205	Pounds
Kilograms	0.001102	Short tons (2000 lbs.)

A MULTIPLY	B BY	C TO OBTAIN
Kilograms	35.27	Ounces
Kilograms per minute	132.3	Pounds per hour
Kilograms per sq. cm.	14.22	Pounds per sq. in.
Kilograms per sq. cm.	0.9678	Atmospheres
Kilograms per sq. cm	28.96	Inches of mercury
Kilograms per cubic meter	0.0624	Pounds per cubic foot
KiloPascals	0.1450	Pounds per sq. in.
KiloPascals	0.0100	Bars
KiloPascals	0.01020	Kilograms per sq. cm
Liters	0.03531	Cubic feet
Liters	1000.	Cubic centimeters
Liters	0.2642	Gallons
Liters per hour	0.004403	Gallons per minute
MegaPascals	145.038	PSI
Meters	3.281	Feet
Meters	1.094	Yards
Meters	100.0	Centimeters
Meters	39.97	Inches
Pounds	0.1199	Gallons H2O @ 60°F (US)
Pounds	453.6	Grams
Pounds	0.0005	Short tons (2000 lbs.)
Pounds	0.4536	Kilograms
Pounds	0.0004536	Metric tons
Pounds	16.00	Ounces
Pounds per hour	6.324/M.W.	SCFM
Pounds per hour	.4536	Kilograms per hour
Pounds per hour liquid	0.002/Sp.Gr.	Gallons per minute liquid (at 60°F)
Pounds per sq. inch	27.73	Inches of water (68°F)
Pounds per sq. inch	2.311	Feet of water (68°F)
Pounds per sq. inch	2.036	Inches of mercury (0°C)
Pounds per sq. inch	0.07031	Kilograms per sq. cm.
Pounds per sq. inch	0.0680	Atmospheres
Pounds per sq. inch	51.71	Millimeters of mercury (0°C)
Pounds per sq. inch	0.7043	Meters of water (68°F)
Pounds per sq. inch	0.06895	Bar
Pounds per sq. inch	6.895	KiloPascals
Specific gravity (of gas or vapors)	28.97	Molecular weight (of gas or vapors)
Square centimeter	0.1550	Square inch
Square inch	6.4516	Square centimeter
Square inch	645.16	Square millimeter
SSU	0.2205 x SG	Centipoise
SSU	0.2162	Centistoke
Water (cubic feet @ 60F)	62.37	Pounds
Temperature:		
Centigrade	=	5/9 (Fahrenheit – 32)
Kelvin	=	Centigrade + 273
Fahrenheit	=	9/5 (Centigrade) +32
Fahrenheit	=	Rankine – 460
Fahrenheit	=	(9/5 Kelvin) - 460

A MULTIPLY	B BY	C TO OBTAIN
Horsepower of boiler	33,479	Btu/hr
Watts/hour	3.412	Btu/hr
Kilowatts/hour	3,412	Btu/hr
Pounds of steam/hour	1,000	Btu/hr
MBH	1,000	Btu/hr