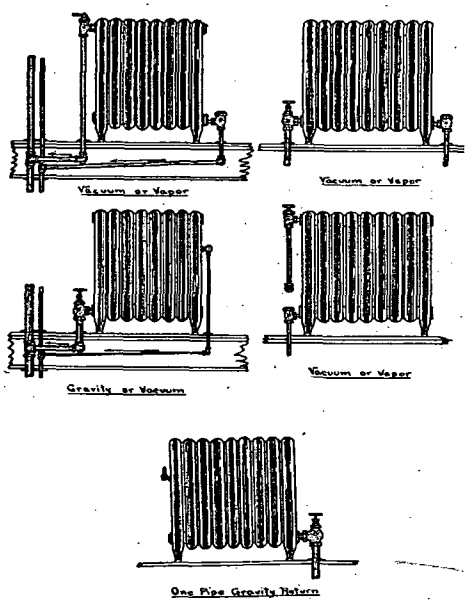
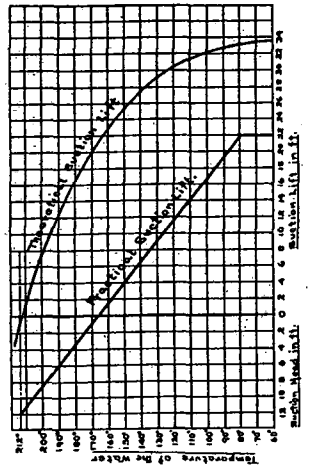
TYPICAL RADIATOR CONNECTIONS



NOTES—In making radiator connections allowance must be made for expansion. All branch connections to pitch down at least 1" in 5'-0" in direction of arrows. Automatic valves or traps plugged with grease or dirt can be cleaned in gasoline.

SAFETY VALVE SIZES. LOW PRESSURE BOILERS. A. S. M. E., STD.

Up to 3.25 sq. ft. Grate = 1¼"
3.26 to 4.50 sq. ft. Grate = 1½"
4.51 to 8.00 sq. ft. Grate = 2"
8.01 to 12.50 sq. ft. Grate = 2½"
12.51 to 17.75 sq. ft. Grate = 3"
17.76 to 24.00 sq. ft. Grate = 3½"
Over 24 sq. ft. Grate = 2 Valves

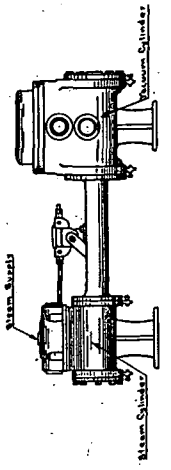


Suction lift of Pumps with Barometric Pressure at Different Altitudes & Approximate Pressure of Water

Altitudes	Barometric Pressure	Pressure Head (Water in Ft.)	Practical Suction Lift
Sea Level	14.70 lbs. per sq. in. (33.90 ft.)	33.96 ft.	22 ft.
2,000 ft. above sea level	14.16 " " " " (32.66 ft.)	32.72 "	21 "
5,000 " " " "	13.34 " " " " (30.76 ft.)	30.82 "	20 "
10,000 " " " "	12.20 " " " " (28.13 ft.)	28.19 "	18 "
15,000 " " " "	11.13 " " " " (25.67 ft.)	25.72 "	17 "
20,000 " " " "	10.19 " " " " (23.50 ft.)	23.55 "	15 "
25,000 " " " "	9.34 " " " " (21.54 ft.)	21.58 "	14 "

Inches of Mercury	Head of Water in Feet
1	1.13
2	2.26
3	3.39
4	4.52
5	5.65
6	6.78
7	7.91
8	9.04
9	10.17
10	11.30
11	12.43
12	13.56
13	14.69
14	15.82
15	16.95
16	18.08
17	19.21
18	20.34
19	21.47
20	22.60
21	23.73
22	24.86
23	25.99
24	27.12
25	28.25
26	29.38
27	30.51
28	31.64
29	32.77
30	33.90

Pump suction lifts at various temperatures and altitudes, and conversion table, inches of mercury to head of water in feet.



SIZE PUMP				CAPACITY		SIZE OPENINGS			APPROX. SPACE			
Steam Pressure	Diameter of Steam Cylinder	Diameter of Water Cylinder	Stroke of Piston	Gals. per minute against 100 ft. head	Sq. Ft. of Radiation supplied when Pump is 70° below Boiler	Steam	Exhaust	Suction	Discharge	Length	Width	Height
10	8	3	6	1800	37	¾	1	2	1¼	40	11	18
10	8	3½	6	2800	50	¾	1	2	1¼	40	11	18
10	8	4	6	4000	65	¾	1	2	1½	40	11	18
10	12	5	8	8000	100	1¼	2	3	2½	52	15	21
10	12	6	8	11000	144	1¼	2	3	2½	54	15	21
10	16	6	10	12000	144	2	2½	3	2½	67	20	31
20	6¾	3	6	1800	37	¾	1	2	1½	42	10	19
20	6¾	3½	6	2800	50	¾	1	2	1½	42	10	19
20	6¾	4	6	4000	65	¾	1	2	1½	42	10	19
20	8½	5	8	8000	100	1	1½	2½	2	48	13	21
20	8½	6	8	11000	144	1	1½	3	2½	48	13	21
20	12	6	10	18000	144	1¼	2	3	2½	58	18	23
20	12	8	10	28000	261	1¼	2	4	3½	60	18	23
20	12	8	12	31000	261	1¼	2	4	3½	60	18	23
60	3	3½	4	2000	16	⅜	½	2	1½	37	9	15
60	4	3½	5	2500	21	½	¾	2	1½	33	9	18
60	4	3½	6	3000	25	½	¾	2	1½	34	9	15
60	4	4	6	4000	33	½	¾	2	1½	34	9	18
60	4½	4	8	5000	43	½	¾	2	1½	43	9	19
60	8	5	6	6000	81	¾	¾	2½	2	38	10	20
60	8	5	6	9000	73	¾	¾	3	2½	40	12	21
60	6	6	8	12000	98	¾	1	3	2½	50	12	21
60	6	6	10	15000	132	¾	1	3	2½	54	13	22
60	7	7	10	17000	164	¾	1	3½	3	55	13	22
60	8½	8	10	24000	217	1	1¼	4	3½	60	14	23
60	8½	9	10	32000	275	1	1½	5	4	61	18	24
60	8½	10	10	42000	340	1	1½	5	4	65	18	24
60	10	10	12	50000	408	1¼	2	5	4	65	18	24
60	12	10	12	58000	408	1¼	2	5	4	66	18	24
60	12	12	12	75000	687	1¼	2	6	5	66	21	30
60	12	12	16	85000	782	1½	2½	6	5	80	21	32

Dimensions and capacities of steam driven vacuum pumps. Capacities based on piston displacement of 15 to 20 times that necessary to handle the water of condensation.