

# CONVERSION FORMULAS & TABLES



ALCO CONTROLS DIVISION  
EMERSON ELECTRIC CO.



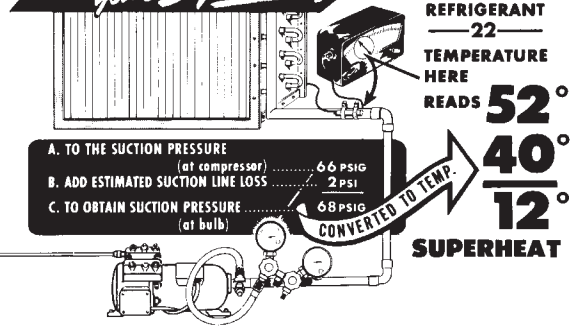
## TEMPERATURE-PRESSURE CHART

°F	R-12	R-22	R-500	R-502	R-717, Ammonia
-100	27.0	25.0	26.4	23.3	27.4
-95	26.4	24.1	25.7	22.1	26.8
-90	25.8	23.0	24.9	20.7	26.1
-85	25.0	21.7	24.0	19.0	25.3
-80	24.1	20.2	22.9	17.1	24.3
-75	23.0	18.5	21.7	15.0	23.2
-70	21.9	16.6	20.3	12.6	21.9
-65	20.5	14.4	18.8	10.0	20.4
-60	19.0	12.0	17.0	7.0	18.6
-55	17.3	9.2	15.0	3.6	16.6
-50	15.4	6.2	12.8	0.0	14.3
-45	13.3	2.7	10.4	2.1	11.7
-40	11.0	0.5	7.6	4.3	8.7
-35	8.4	2.6	4.6	6.7	5.4
-30	5.5	4.9	1.2	9.4	1.6
-28	4.3	5.9	0.1	10.5	0.0
-26	3.0	6.9	0.9	11.7	0.8
-24	1.6	7.9	1.6	13.0	1.7
-22	0.3	9.0	2.4	14.2	2.6
-20	0.6	10.2	3.2	15.5	3.6
-18	1.3	11.3	4.1	16.9	4.6
-16	2.1	12.5	5.0	18.3	5.6
-14	2.8	13.8	5.9	19.7	6.7
-12	3.7	15.1	6.8	21.2	7.9
-10	4.5	16.5	7.8	22.8	9.0
-8	5.4	17.9	8.8	24.4	10.3
-6	6.3	19.3	9.9	26.0	11.6
-4	7.2	20.8	11.0	27.7	12.9
-2	8.2	22.4	12.1	29.4	14.3
0	9.2	24.0	13.3	31.2	15.7
2	10.2	25.6	14.5	33.1	17.2
4	11.2	27.3	15.7	35.0	18.8
6	12.3	29.1	17.0	37.0	20.4

8	13.5	30.9	18.4	39.0	22.1
10	14.6	32.8	19.7	41.1	23.8
12	15.8	34.7	21.2	43.2	25.6
14	17.1	36.7	22.6	45.5	27.5
16	18.4	38.7	24.1	47.7	29.4
18	19.7	40.9	25.7	50.1	31.4
20	21.0	43.0	27.3	52.5	33.5
22	22.4	45.3	28.9	54.9	35.7
24	23.9	47.6	30.6	57.4	37.9
26	25.4	49.9	32.4	60.0	40.2
28	26.9	52.4	34.2	62.7	42.6
30	28.5	54.9	36.0	65.4	45.0
32	30.1	57.5	37.9	68.2	47.6
34	31.7	60.1	39.9	71.1	50.2
36	33.4	62.8	41.9	74.1	52.9
38	35.2	65.6	43.9	77.1	55.7
40	37.0	68.5	46.1	80.2	58.6
45	41.7	76.0	51.6	88.3	66.3
50	46.7	84.0	57.6	96.9	74.5
55	52.0	92.6	63.9	106.0	83.4
60	57.7	101.6	70.6	115.6	92.9
65	63.8	111.2	77.8	125.8	103.1
70	70.2	121.4	85.4	136.6	114.1
75	77.0	132.2	93.5	148.0	125.8
80	84.2	143.6	102.0	159.9	138.3
85	91.8	155.7	111.0	172.5	151.7
90	99.8	168.4	120.6	185.8	165.9
95	108.3	181.8	130.6	199.7	181.1
100	117.2	195.9	141.2	214.4	197.2
105	126.6	210.8	152.4	229.7	214.2
110	136.4	226.4	164.1	245.8	232.3
115	146.8	242.7	176.5	262.6	251.5
120	157.7	259.9	189.4	280.3	271.7
125	169.1	277.9	203.0	298.7	293.1
130	181.0	296.8	217.2	318.0	315.0
135	193.5	316.8	232.1	338.1	335.0
140	206.6	337.3	247.7	359.1	365.0
145	220.3	358.9	266.1	381.1	390.0
150	234.6	381.5	281.1	403.9	420.0
155	249.5	405.1	298.9	427.8	450.0
160	265.1	429.8	317.4	452.6	480.0

What's your Superheat?

### EXAMPLE



### CARRYING CAPACITY OF REFRIGERATION LINES

Tons of Refrigeration — 100 Equivalent Feet of Pipe Length

Inch Pipe Size	REFRIGERANT 717		REFRIGERANT								
	Copper Tube Size O.D. Type L inches		12		22		500		502		
	Liquid Line	Suction Line 40°F. Exp.	Liquid Line	Suction Line 40°F. Exp.	Liquid Line	Suction Line 40°F. Exp.	Liquid Line	Suction Line 40°F. Exp.	Liquid Line	Suction Line 40°F. Exp.	
1/4	12.1	—	1/4	2.2	0.3	3.6	0.6	2.7	—	2.4	0.1
1/4	24.0	—	1/4	4.1	0.6	6.7	1.1	5.0	0.7	4.5	0.3
1/4	54.2	—	1/4	10.8	1.5	18.2	2.9	13.2	2.0	11.8	0.7
1	106.4	3.4	1/4	21.9	3.0	37.0	5.8	26.9	4.0	24.1	1.4
1	228.6	8.9	1/4	38.3	5.3	64.7	10.1	47.1	6.9	42.0	2.5
1 1/2	349.2	13.4	1/4	62.7	9.3	102.5	18.0	74.6	10.9	66.4	4.0
2	811.4	26.0	1/2	126.4	17.3	213.0	33.1	155.1	22.6	138.0	8.2
2 1/2	1292.6	41.5	1/2	223.8	30.5	376.9	58.3	274.4	39.8	243.7	14.5
3	2287.8	73.5	3/4	357.7	48.6	601.5	92.9	438.6	63.5	389.3	23.2
4	4662.1	150.1	3/4	532.3	72.2	895.7	137.8	—	94.3	579.0	34.4
5	—	271.1	4/4	751.7	101.9	1263.2	194.3	—	132.9	816.9	48.5
6	—	439.2	5/4	—	182.0	—	346.6	—	237.3	—	86.7

Refrigerant 717 (Ammonia) values are based on 90° condensing temperature. Refrigerant 12, 22, 500, and 502 values are based on 105° condensing temperature.

SPORLAN VALVE COMPANY

ST. LOUIS, MO. 63143

Form 1-75-385

Printed in U.S.A.

### APPROXIMATE PRESSURE CONTROL SETTINGS

Vacuum - Inches of Mercury - ( ) Refrigerant - Pounds Per Square Inch Gage - Bold Figures

APPLICATION	REFRIGERANT							
	12		22		502		717	
	Out	In	Out	In	Out	In	Out	In
Ice Cube Maker—Dry Type Coil	4	17	16	37	22	45	—	—
Sweet Water Bath—Soda Fountain	21	29	43	56	52	66	33	45
Beer, Water, Milk Cooler, Wet Type	19	29	40	56	48	66	—	—
Ice Cream Trucks, Hardening Rooms	2	15	13	34	18	41	5	24
Eutectic Plates, Ice Cream Truck	1	4	11	16	16	22	4	8
Walk In, Defrost Cycle	14	34	32	64	40	75	23	55
Reach In, Defrost Cycle	19	36	40	68	48	78	30	57
Vegetable Display, Defrost Cycle	13	35	30	65	38	77	—	—
Vegetable Display Case—Open Type	16	42	35	77	44	89	—	—
Beverage Cooler, Blower Dry Type	15	34	34	64	42	75	24	55
Retail Florist—Blower Coil	28	42	55	77	65	89	44	67
Meat Display Case, Defrost Cycle	17	35	37	66	45	77	—	—
Meat Display Case—Open Type	11	27	27	53	35	63	—	—
Dairy Case—Open Type	10	35	26	56	33	77	—	—
Frozen Food—Open Type	(7)	5	4	17	8	24	—	—
Frozen Food—Open Type—Thermostat	2°F.	10°F.	—	—	—	—	—	—
Frozen Food—Closed Type	1	8	11	22	16	29	—	—

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### APPROXIMATE A.C. LOAD ESTIMATES

APPLICATION	SQ.FT./TON
Apartments (2-3 rooms)	400-500
Auditoriums—Theatres (seats/ton)	15-20
Banks (Main Areas)	200-250
Bowling Alleys (Tons/alley)	1.5-2.0
Churches (seats/ton)	17-25
Cocktail Lounges	150-200
Computer Rooms	50-125
Department Stores	200-250
Factories	275-325
High-Rise Office Buildings (exterior)	250-275
High-Rise Office Buildings (interior)	300-350
Hospital Patient Rooms	250-300
Hotel Guest Rooms	250-300
Low-Rise Office Buildings	350-375
Motels	400-500
Residences	500-700
Restaurants	100-250
Schoolrooms	250-275
Specialty Shops	175-225
Supermarkets	250-350



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