

Engineering Applications

Coil Connections

Following are general guidelines for connection types and sizes for various construction options, refrigerant systems, and unit capacities. Pump recirculated guidelines are based on overfeed ratios of 3:1 for ammonia and 2:1 for halocarbons. Please refer to factory certified data for specific project requirements.

Galvanized steel coil connections will be capped carbon steel pipe, Schedule 80 for less than 2" diameter and Schedule 40 elsewhere. Aluminum coils will ship with an aluminum flange and a mating carbon steel flange. Stainless steel coils will terminate with a capped carbon steel stub to facilitate field piping. Hot gas defrost connections in the pan will be capped carbon steel.

Table 3. Ammonia Connection Size Guidelines – Iron Pipe Sizes

Capacity Per Connection	Pump Recirculated (3:1)						Flooded				Direct Exp.		
	Liquid Feed	Suction Temperature (°F)					Liquid Feed	Suction Temperature (°F)				Suction Temperature (°F)	
		+40	+20	0	-20	-40		+40	0	-20	-40	+30	+10
2.5 Tons	0.75	0.75	1	1	1.25	1.25	1.25	1.25	1.5	2	2	0.75	1
5 Tons	0.75	1	1	1.25	1.5	2	1.5	1.5	2	2.5	3	1	1.25
10 Tons	0.75	1.25	1.25	2	2	2.5	2	2	2.5	3	4	1.25	1.25
15 Tons	0.75	1.25	1.5	2	2.5	3	2.5	2.5	3	4	4	1.25	1.5
20 Tons	0.75	1.5	2	2.5	3	4	3	3	3	4	5	1.5	2
25 Tons	1	2	2	2.5	3	4	3	3	4	4	5	1.5	2
30 Tons	1	2	2.5	3	4	5	3	3	4	5	5	2	2
35 Tons	1	2	2.5	3	4	5	4	4	4	5	6	2	2.5
40 Tons	1	2	2.5	3	4	5	4	4	4	5	6	*	*

Table 4. R-22 Connection Size Guidelines – Iron Pipe Sizes

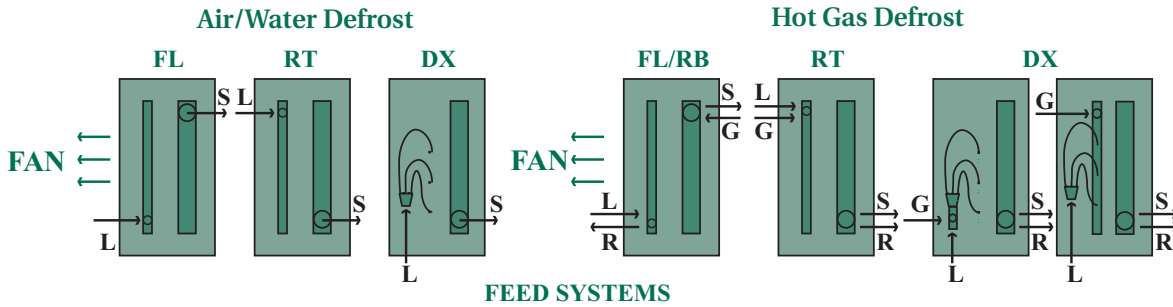
Capacity Per Connection	Pump Recirculated (2:1)						Direct Exp.		
	Liquid Feed	Suction Temperature (°F)					Suction Temperature (°F)		
		+40	+20	0	-20	-40	+30	+10	+10
2.5 Tons	0.75	1	1.25	1.25	1.5	2	1	1	1.25
5 Tons	0.75	1.25	1.5	1.5	2	2.5	1.25	1.25	1.5
10 Tons	1	1.5	2	2.5	2.5	3	1.5	2	2
15 Tons	1.25	2	2.5	2.5	2.5	4	2	2	2.5
20 Tons	1.25	2	2.5	3	4	4	2	2.5	3
25 Tons	1.25	2.5	3	3	4	5	2.5	2.5	3
30 Tons	1.5	2.5	3	4	4	5	2.5	3	*
35 Tons	1.5	3	3	4	4	5	2.5	3	*
40 Tons	1.5	3	3	4	5	6	*	*	*

Warning:
Do not use connection size estimates to size system piping.

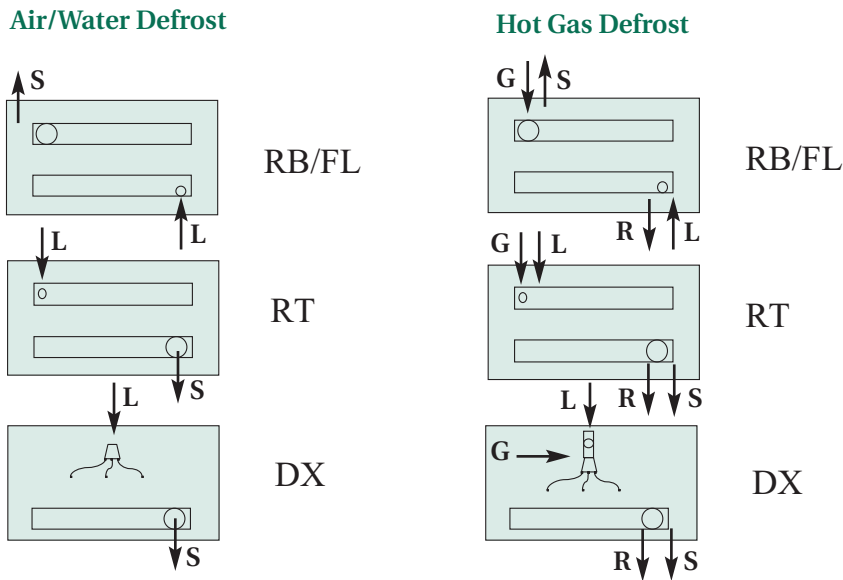


Following are the schematics of coil connection locations for a right hand unit, identifying the general location of liquid feed (L), suction (S), hot gas feed (G), and hot gas defrost relief (R) locations.

AS, AM, AL and AC Units:



AR Units:



Motor Amperage

The capacities of TEAO motors increase as room temperatures decrease due to the increased cooling effects of the colder, denser air. This increase in capacity more than accommodates the motor amp draw increase that also results from the colder, denser air. For reference, Tables 5 and 6 provide approximate motor full load amps (FLA) and air density correction factors for a range of room temperatures.

Table 5. Approximate Motor Nameplate FLA (3-Ph/60-Hz)

Motor (HP)	200V	230V	460V	575V
1/3	2.1	1.8	0.9	0.7
1/2	2.8	2.4	1.2	1
3/4	3.5	3.1	1.5	1.2
1	4.3	3.7	1.9	1.5
1.5	5.3	4.6	2.3	1.8
2	7	6.8	3.4	2.4
3	10.4	9.1	4.5	3.6
5	16.4	14.5	7.3	5.8
7.5	21.5	18.9	9.4	7.5

Table 6. Air Density Correction Factors

Room Temp.	+40°F	+20°F	0°F	-20°F	-30°F
Factor	1.06	1.11	1.15	1.21	1.26

