DuPont™ Suva®

REFRIGERANTS

Piping Guide for Suva® 410A (Eng)

Suction Line Size .. Evaporator to Compressor

		50° F through 30° F (145 through 99 psig)					29° F through 10° F (97 through 64 psig)					9° F through -10° F (62 through 38 psig)						
		Suggested Allowable Pressure Drop in psig = 2F°																
		4.6 lbs. (2F°)					3.5 lbs. (2F°)					2.5 lbs. (2F°)						
System Capacity BTU/Hr.	System Capacity Tons/Hr	Equivalent Suction Line Lengths ... feet															System Capacity Tons/Hr	System Capacity BTU/Hr.
		25	50	75	100	150	25	50	75	100	150	25	50	75	100	150		
18,000	1.50	1/2	5/8	5/8	5/8	3/4	5/8	5/8	3/4	3/4	3/4	5/8	3/4	3/4	7/8	7/8	1.50	18,000
24,000	2.00	1/2	5/8	3/4	3/4	3/4	5/8	3/4	3/4	7/8	7/8	3/4	7/8	7/8	1 1/8	1 1/8	2.00	24,000
30,000	2.50	5/8	3/4	3/4	3/4	7/8	3/4	3/4	7/8	7/8	1 1/8	3/4	7/8	1 1/8	1 1/8	1 1/8	2.50	30,000
36,000	3.00	5/8	3/4	3/4	7/8	7/8	3/4	7/8	7/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	3.00	36,000
42,000	3.50	3/4	3/4	7/8	7/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 1/8	1 3/8	3.50	42,000
48,000	4.00	3/4	7/8	7/8	7/8	1 1/8	7/8	7/8	1 1/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	4.00	48,000
60,000	5.00	7/8	7/8	1 1/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 1/8	1 3/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	5.00	60,000
92,000	7.50	7/8	1 1/8	1 1/8	1 1/8	1 3/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	7.50	92,000
120,000	10.00	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	1 3/8	1 5/8	1 5/8	1 5/8	2 1/8	10.00	120,000
150,000	12.50	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	12.50	150,000
180,000	15.00	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	15.00	180,000
240,000	20.00	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	1 3/8	1 5/8	2 1/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	20.00	240,000
300,000	25.00	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	25.00	300,000
360,000	30.00	1 3/8	1 5/8	2 1/8	2 1/8	2 1/8	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	30.00	360,000
420,000	35.00	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8	2 5/8	3 1/8	35.00	420,000
480,000	40.00	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	40.00	480,000
540,000	45.00	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	45.00	540,000
600,000	50.00	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8	2 5/8	3 1/8	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	50.00	600,000

- Equivalent length is actual length plus friction losses caused by fittings and accessories.
- Line sizes are expressed in outside diameter of type "L" copper tubing.
- Line sizes are calculated at rated full load system capacity.
- All selections are based on a maximum of 65° F return gas entering the compressor and a refrigerant condensing and liquid line temperature of 105° F.

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Suction Line Size .. Evaporator to Compressor

		- 11° F through - 30° F (37 through 19 psig)					- 31° F through - 50° F (18 through 6 psig)						
		Suggested Allowable Pressure Drop in psig = 2F°											
		1.9 lbs. (2F°)					1.3 lbs. (2F°)						
System Capacity BTU/Hr.	System Capacity Tons/Hr	Equivalent Suction Lengths ... feet										System Capacity Tons/Hr	System Capacity BTU/Hr.
		25	50	75	100	150	25	50	75	100	150		
18,000	1.50	3/4	7/8	7/8	1 1/8	1 1/8	7/8	1 1/8	1 1/8	1 1/8	1 3/8	1.50	18,000
24,000	2.00	7/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	2.00	24,000
30,000	2.50	7/8	1 1/8	1 1/8	1 1/8	1 3/8	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	2.50	30,000
36,000	3.00	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	3.00	36,000
42,000	3.50	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	3.50	42,000
48,000	4.00	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	1 3/8	1 3/8	1 5/8	1 5/8	2 1/8	4.00	48,000
60,000	5.00	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	5.00	60,000
92,000	7.50	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	1 5/8	1 5/8	2 1/8	2 1/8	2 5/8	7.50	92,000
120,000	10.00	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	10.00	120,000
150,000	12.50	1 5/8	2 1/8	2 1/8	2 1/8	2 5/8	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	12.50	150,000
180,000	15.00	2 1/8	2 1/8	2 1/8	2 5/8	2 5/8	2 1/8	2 5/8	2 5/8	2 5/8	3 1/8	15.00	180,000
240,000	20.00	2 1/8	2 1/8	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	20.00	240,000
300,000	25.00	2 1/8	2 5/8	2 5/8	2 5/8	3 1/8	2 5/8	3 1/8	3 1/8	3 1/8	3 5/8	25.00	300,000
360,000	30.00	2 1/8	2 5/8	2 5/8	3 1/8	3 1/8	2 5/8	3 1/8	3 5/8	3 5/8	3 5/8	30.00	360,000
420,000	35.00	2 5/8	2 5/8	3 1/8	3 1/8	3 5/8	3 1/8	3 5/8	3 5/8	3 5/8	4 1/8	35.00	420,000
480,000	40.00	2 5/8	3 1/8	3 1/8	3 1/8	3 5/8	3 1/8	3 5/8	3 5/8	4 1/8	4 1/8	40.00	480,000
540,000	45.00	2 5/8	3 1/8	3 1/8	3 5/8	3 5/8	3 1/8	3 5/8	3 5/8	4 1/8	5 1/8	45.00	540,000
600,000	50.00	2 5/8	3 1/8	3 5/8	3 5/8	4 1/8	3 5/8	3 5/8	4 1/8	4 1/8	5 1/8	50.00	600,000

- Equivalent length is actual length plus friction losses caused by fittings and accessories.
- Line sizes are expressed in outside diameter of type "L" copper tubing.
- Line sizes are calculated at rated full load system capacity.
- All selections are based on a maximum of 65° F return gas entering the compressor and a refrigerant condensing and liquid line temperature of 105° F.

		Discharge Line Size Compressor to Condenser 1F° (5 psi) pressure drop maximum					Liquid Condensate Line Condenser to Receiver Condensate drain / vent					Liquid Line Size Receiver to TXV 1F° (5 psi) pressure drop maximum						
System Capacity BTU/Hr.	System Capacity Tons/Hr	Equivalent Line Lengths ... feet															System Capacity Tons/Hr	System Capacity BTU/Hr.
		25	50	75	100	150	25	50	75	100	150	25	50	75	100	150		
18,000	1.50	1/2	1/2	1/2	5/8	5/8	1/2	1/2	1/2	1/2	1/2	3/8	3/8	3/8	3/8	3/8	1.50	18,000
24,000	2.00	1/2	5/8	5/8	5/8	5/8	1/2	1/2	1/2	5/8	5/8	3/8	3/8	3/8	1/2	1/2	2.00	24,000
30,000	2.50	1/2	5/8	5/8	5/8	3/4	1/2	1/2	5/8	5/8	5/8	3/8	3/8	1/2	1/2	1/2	2.50	30,000
36,000	3.00	5/8	5/8	5/8	3/4	3/4	1/2	1/2	5/8	5/8	5/8	3/8	3/8	1/2	1/2	1/2	3.00	36,000
42,000	3.50	5/8	5/8	3/4	3/4	3/4	1/2	5/8	5/8	5/8	5/8	3/8	1/2	1/2	1/2	1/2	3.50	42,000
48,000	4.00	5/8	3/4	3/4	3/4	7/8	5/8	5/8	5/8	5/8	3/4	1/2	1/2	1/2	1/2	5/8	4.00	48,000
60,000	5.00	3/4	3/4	7/8	7/8	7/8	5/8	5/8	5/8	3/4	3/4	1/2	1/2	1/2	5/8	5/8	5.00	60,000
92,000	7.50	3/4	7/8	7/8	1 1/8	1 1/8	5/8	3/4	3/4	3/4	7/8	1/2	5/8	5/8	5/8	3/4	7.50	92,000
120,000	10.00	7/8	1 1/8	1 1/8	1 1/8	1 1/8	5/8	3/4	3/4	7/8	7/8	1/2	5/8	5/8	3/4	3/4	10.00	120,000
150,000	12.50	7/8	1 1/8	1 1/8	1 1/8	1 3/8	3/4	3/4	7/8	7/8	1 1/8	5/8	5/8	3/4	3/4	7/8	12.50	150,000
180,000	15.00	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	3/4	7/8	7/8	1 1/8	1 1/8	5/8	3/4	3/4	7/8	7/8	15.00	180,000
240,000	20.00	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	7/8	7/8	1 1/8	1 1/8	1 3/8	3/4	3/4	7/8	7/8	1 1/8	20.00	240,000
300,000	25.00	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	3/4	7/8	7/8	1 1/8	1 1/8	25.00	300,000
360,000	30.00	1 3/8	1 3/8	1 5/8	1 5/8	1 5/8	7/8	1 1/8	1 3/8	1 3/8	1 3/8	3/4	7/8	1 1/8	1 1/8	1 1/8	30.00	360,000
420,000	35.00	1 3/8	1 5/8	1 5/8	1 5/8	2 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	7/8	1 1/8	1 1/8	1 1/8	1 1/8	35.00	420,000
480,000	40.00	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	7/8	1 1/8	1 1/8	1 1/8	1 3/8	40.00	480,000
540,000	45.00	1 3/8	1 5/8	1 5/8	2 1/8	2 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 5/8	7/8	1 1/8	1 1/8	1 1/8	1 3/8	45.00	540,000
600,000	50.00	1 5/8	1 5/8	2 1/8	2 1/8	2 1/8	1 3/8	1 3/8	1 3/8	1 5/8	1 5/8	1 1/8	1 1/8	1 1/8	1 3/8	1 3/8	50.00	600,000

- Equivalent length is actual length plus friction losses caused by fittings and accessories.
- Line sizes are expressed in outside diameter of type "L" copper tubing.
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- All selections are based on a maximum of 65° F return gas entering the compressor and a refrigerant condensing and liquid line temperature of 105° F.

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DuPont is a member of MACS, MEMA and SAE. DuPont supports efforts to recover and recycle used refrigerant to protect the environment.

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