



TEMPERATURE CONTROLLERS... PORTABLE CHILLERS... CENTRAL CHILLERS... PUMP TANK STATIONS... TOWER SYSTEMS...

SUBJECT: R410A DISCHARGE & CONDENSER LIQUID REFRIGERANT
LINE SIZING GUIDE

FYI #334 08/03/2021

R410A REFRIGERANT PIPING GUIDE

| | | DISCHARGE LINE SIZE COMPRESSOR TO CONDENSER 1F° (5 PSI pressure drop maximum) | | | | | LIQUID CONDENSATE LINE CONDENSER TO RECEIVER Condensate drain / vent | | | | |
|---------------------------|----------------------------|---|-------|-------|-------|-------|--|-------|-------|-------|-------|
| System Capacity BTU/Hr | System Capacity Tons/Hr | Equivalent Line Lengths (feet) | | | | | Equivalent Line Lengths (feet) | | | | |
| | | 25 | 50 | 75 | 100 | 150 | 25 | 50 | 75 | 100 | 150 |
| 18000 | 1.50 | 1/2 | 1/2 | 1/2 | 5/8 | 5/8 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| 24000 | 2.00 | 1/2 | 5/8 | 5/8 | 5/8 | 5/8 | 1/2 | 1/2 | 1/2 | 5/8 | 5/8 |
| 30000 | 2.50 | 1/2 | 5/8 | 5/8 | 5/8 | 3/4 | 1/2 | 1/2 | 5/8 | 5/8 | 5/8 |
| 36000 | 3.00 | 5/8 | 5/8 | 5/8 | 3/4 | 3/4 | 1/2 | 1/2 | 5/8 | 5/8 | 5/8 |
| 42000 | 3.50 | 5/8 | 5/8 | 3/4 | 3/4 | 3/4 | 1/2 | 5/8 | 5/8 | 5/8 | 5/8 |
| 48000 | 4.00 | 5/8 | 3/4 | 3/4 | 3/4 | 7/8 | 5/8 | 5/8 | 5/8 | 5/8 | 3/4 |
| 60000 | 5.00 | 3/4 | 3/4 | 7/8 | 7/8 | 7/8 | 5/8 | 5/8 | 5/8 | 3/4 | 3/4 |
| 92000 | 7.50 | 3/4 | 7/8 | 7/8 | 1 1/8 | 1 1/8 | 5/8 | 3/4 | 3/4 | 3/4 | 7/8 |
| 120000 | 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 |
| 150000 | 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 |
| 180000 | 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 |
| 240000 | 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 |
| 300000 | 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 |
| 360000 | 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 |
| 420000 | 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 |
| 480000 | 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 |
| 540000 | 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 |
| 600000 | 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 |

- Refer to DuPont Refrigerant Expert, Version 2.0 for actual velocities and pressure drops.
- 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 refrigerant condensing and liquid line temperature of 105°F.
- Information provided for reference only. Consult your local expert for specific system recommendations.
- Information provided by Dupont.