

Refrigerant HFC 410A (R-410A)

Tables contain no allowances for vertical lift!

Table AC/IN-8-A

Liquid Line Selection Table For R-410A Single Speed Systems

Maximum Allowable Liquid Line Pressure Drop =

Subtract .43 PSI for each foot of Liquid Lift (if any).....

Do Not Exceed this value when selecting Liquid Line.....

Tube O.D.	Rated BTUH	Pressure Drop (PSI) For Total Equivalent Length											
		20'	40'	60'	80'	100'	120'	140'	160'	180'	200'	220'	240'
1/4"	15000	4.5	9.0	13.6	18.1	22.6	27.1	31.6	36.2	40.7	45.2	49.7	—
	18000	6.3	12.6	18.8	25.1	31.4	37.7	44.0	—	—	—	—	—
5/16"	15000	1.2	2.4	3.5	4.7	5.9	7.1	8.3	9.4	10.6	11.8	13.0	14.2
	18000	1.6	3.3	4.9	6.6	8.2	9.8	11.5	13.1	14.8	16.4	18.0	19.7
	24000	2.8	5.5	8.3	11.0	13.8	16.6	19.3	22.1	24.8	27.6	30.4	33.1
	30000	4.1	8.3	12.4	16.6	20.7	24.8	29.0	33.1	37.3	41.4	45.5	49.7
	36000	5.8	11.6	17.3	23.1	28.9	34.7	40.5	46.2	—	—	—	—
42000	7.7	15.4	23.0	30.7	38.4	46.1	—	—	—	—	—	—	
3/8"	24000	1.0	1.9	2.9	3.8	4.8	5.8	6.7	7.7	8.6	9.6	10.6	11.5
	30000	1.4	2.9	4.3	5.8	7.2	8.6	10.1	11.5	13.0	14.4	15.8	17.3
	36000	2.0	4.0	6.1	8.1	10.1	12.1	14.1	16.2	18.2	20.2	22.2	24.2
	42000	2.7	5.3	8.0	10.6	13.3	16.0	18.6	21.3	23.9	26.6	29.3	31.9
	48000	3.4	6.8	10.2	13.6	17.0	20.4	23.8	27.2	30.6	34.0	37.4	40.8
60000	5.1	10.3	15.4	20.6	25.7	30.8	36.0	41.1	46.3	—	—	—	
1/2"	42000	.5	1.1	1.6	2.2	2.7	3.2	3.8	4.3	4.9	5.4	5.9	6.5
	48000	.7	1.4	2.0	2.7	3.4	4.1	4.8	5.4	6.1	6.8	7.5	8.2
	60000	1.0	2.1	3.1	4.2	5.2	6.2	7.3	8.3	9.4	10.4	11.4	12.5

Note 1: A blank space indicates a pressure drop of over 50 PSI.
 Note 2: Other existing sources of pressure drop, (solenoid valves, etc.) must be considered.
 Note 3: A vertical run with a heat pump system always results in a liquid lift (heating or cooling).
 Note 4: The smallest liquid line diameter that results in a total liquid line pressure drop of 50 PSI or less results in the most reliable system (fewer pounds of R-410A).

Table AC/IN-8-B

Allowable Vapor Line Diameters and BTUH Loss (R-410A Single Speed Systems)

Nominal Tons	Tube O.D. (Inches)	Press. Drop PSI/100 Ft.	BTUH Loss For Equivalent Length										
			40'	60'	80'	100'	120'	140'	160'	180'	200'	220'	240'
1.0	1/2*	5.0	70	160	250	340	430	520	610	700	790	880	970
	5/8	1.5	20	50	73	100	130	155	180	210	235	265	290
1.5	1/2*	10.8	173	410	640	875	1110	1340	1575				
	5/8	3.1	50	120	185	250	320	385	450	520	585	655	720
2.0	3/4	1.2	20	45	70	95	125	150	175	200	225	255	280
	5/8*	5.4	115	270	430	585	740	895	1050	1205	1360	1515	1670
2.5	3/4	2.0	45	100	160	215	275	330	390	445	505	560	620
	7/8	.9	20	45	70	95	125	150	175	200	225	255	280
3.0	5/8*	8.2	220	515	810	1110	1400	1695	1990	2290	2585	2880	
	3/4	3.0	80	190	295	405	515	620	730	840	945	1055	1160
3.5	7/8	1.3	35	80	130	175	220	270	315	365	410	455	505
	5/8	11.7	380	885	1390	1895	2400	2905	3410				
4.0	3/4*	4.3	140	325	510	700	880	1070	1255	1440	1625	1810	2000
	7/8	1.9	60	145	225	310	390	470	555	635	720	800	880
4.5	3/4*	5.8	220	510	805	1095	1390	1680	1975	2265	2560	2850	3140
	7/8	2.5	95	220	345	475	600	725	850	975	1105	1230	1355
5.0	3/4	7.4	320	745	1170	1600	2025	2450	2875	3305	3730	4155	4580
	7/8*	3.2	140	325	510	690	875	1060	1245	1430	1615	1795	1980
5.5	1-1/8	.9	40	90	145	195	245	300	350	400	455	505	555
	3/4	11.5	620	1450	2280	3105	3935	4760	5590				
6.0	7/8*	4.9	265	615	970	1325	1675	2030	2380	2735	3080	3440	3795
	1-1/8	1.3	70	165	255	350	445	540	630	725	820	915	1005

Note * Rated tube size.
 Note 1: Shaded value indicates more than 10% capacity loss.
 Note 2: Blank space indicates more than 15% capacity loss.

Refrigerant Line Limits

- Do not use traps.
- The suction line diameter must be one of the sizes listed. Use the actual tonnage of the system in selecting line sizes.
- Use the recommended liquid line size unless the total pressure drop (friction loss plus liquid lift) exceeds: 50 PSI.
- Staged condensing unit and heat pumps shall not be applied with more than 80 feet line length. Of the total line length the max vertical limit is 25 feet.

This page contains limited data to fully determine if the application will work or to select required accessories. Please refer to publication 14-4050-01 for complete details and examples.