

- Use gauges to determine the pressure at the evaporator coil outlet, and a thermometer to get the actual temperature at the same point.
 - Get the Dew temperature from the "Dew" column
 - Superheat = Actual Temperature - Dew Temperature
- Example:** Find the superheat on a system which uses Solstice® N13 (R-450A) when the pressure at the evaporator outlet reads 22 psig and your surface thermometer reads 42°F
- ✓ 22 psig yields ~ 22°F (using dew point)
 - ✓ Degree of Superheat = $42°F - 32°F = 10°F$

Procedure:

SUPERHEAT



- Use gauges to determine the pressure at the condenser coil outlet, and a thermometer to get the actual temperature at the same point.
 - Use the Bubble column to get the bubble temperature
 - Subcooling = Bubble Temperature - Actual Temperature
- Example:** Find the amount of subcooling on a system using Solstice® N13 (R-450A) when the liquid line temperature reads 100°F and the liquid line pressure is 120 psig.
- ✓ 120 psig yields ~ 106°F (using Bubble temp)
 - ✓ Degree of Subcooling = $106°F - 100°F = 6°F$

Procedure:

SUBCOOLING



Contact Honeywell

To learn more about the benefits of Honeywell refrigerants for your next project, call 1-800-631-8138 or visit www.honeywell-refrigerants.com.

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PT CHART FOR SOLSTICE® N13

New Pressure-based Charts
Make Calculating Glide Easier

SOLSTICE® N13 (R-450A)

PRESSURE BASED PT CHART

Pressure (psig)	Temperature			Pressure (psig)	Temperature		
	°F				°F		
	Avg	Bubble	Dew		Avg	Bubble	Dew
0.0	-9.5	-10.1	-9.0	115.0	104.0	103.4	104.6
5.0	2.7	2.1	3.3	120.0	106.6	106.0	107.1
10.0	12.7	12.1	13.2	125.0	109.0	108.5	109.6
15.0	21.1	20.6	21.7	130.0	111.4	110.9	112.0
20.0	28.6	28.0	29.2	135.0	113.8	113.2	114.3
22.0	31.3	30.8	31.9	140.0	116.1	115.5	116.6
24.0	34.0	33.4	34.6	145.0	118.3	117.7	118.9
26.0	36.5	35.9	37.1	150.0	120.5	119.9	121.0
28.0	38.9	38.4	39.5	155.0	122.6	122.1	123.2
30.0	41.3	40.7	41.9	160.0	124.7	124.1	125.2
32.0	43.6	43.0	44.2	165.0	126.7	126.2	127.3
34.0	45.8	45.2	46.4	170.0	128.7	128.2	129.3
36.0	47.9	47.3	48.5	175.0	130.7	130.2	131.2
38.0	50.0	49.4	50.6	180.0	132.6	132.1	133.2
40.0	52.0	51.4	52.6	185.0	134.5	134.0	135.0
42.0	53.9	53.4	54.5	190.0	136.3	135.8	136.9
44.0	55.8	55.3	56.4	195.0	138.2	137.6	138.7
46.0	57.7	57.1	58.3	200.0	139.9	139.4	140.5
48.0	59.5	58.9	60.1	205.0	141.7	141.2	142.2
50.0	61.3	60.7	61.8	210.0	143.4	142.9	143.9
55.0	65.5	64.9	66.1	215.0	145.1	144.6	145.6
60.0	69.5	68.9	70.1	220.0	146.8	146.3	147.3
70.0	77.0	76.4	77.5	230.0	150.0	149.5	150.5
80.0	83.8	83.2	84.4	240.0	153.2	152.7	153.7
90.0	90.1	89.5	90.6	250.0	156.2	155.7	156.7
100.0	95.9	95.3	96.5	260.0	159.2	158.7	159.7
105.0	98.7	98.1	99.3	270.0	162.1	161.6	162.6
110.0	101.4	100.8	102.0	280.0	164.9	164.4	165.4

Charge Calculation

Product	ASHRAE Number	Refrigerant Type	Refrigerant Class	Lubricant Used*	Liquid Density (lbs/ft ³)† at 80°F
Solstice N13	R-450A	Blend	HFO/HFC	POE	73.1
Genetron 134a	R-134a	Single Component	HFC	POE	74.9

* POE = polyol ester, MO = mineral oil, AB = Alkylbenzene ** Divide by 7.48 to convert to lbs/gal.

† U.S. production stopped Dec. 31, 1995.

When retrofitting a system with a new refrigerant, use this formula to determine amount needed:

$$\text{Pounds of new refrigerant} = \frac{\text{Pounds of original refrigerant} \times \text{density of new refrigerant (at 80°F)}}{\text{density of original refrigerant (at 80°F)}}$$

EXAMPLE

If you were using 1,000 pounds of R-134a, you'll need about 1,013 pounds of R-450A, as follows:

$$\text{Pounds of R-450A} = \frac{1,000 \times 74.9}{73.9} = 1,013$$



Scan to learn more about our new PT Chart.



Scan to learn more about calculating Glide.