Honeywell
THE POWER OF CONNECTED | Refrigerants

PT CHARTS FOR A/C AND REFRIGERATION

New Pressure-based Charts Make Calculating Glide Easy

SUPERHEAT

Procedure:

- 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® N40 (R-448A) when the pressure at the evaporator outlet reads 40 psig and your surface thermometer reads 26°F

- ✔ 40 psig yields ~ 16°F (using dew point)
- ✔ Degree of Superheat = 26°F - 16°F = 10°F

Charge Calculation

Product	ASHRAE Number	Refrigerant Type	Refrigerant Class	Lubricant Used*	Liquid Density (lbs/ft3)** at 80°F
Solstice® N40	R-448A	Blend	HFO/HFC	POE	68
Genetron Performax® LT	R-407F	Blend HFC	HFC	POE	69.3
Genetron® 22	R-22	Single Component	HCFC	MO	73.9
Genetron 404A	R-404A	Blend HFC	HFC	POE	64.7
Genetron AZ-50®	R-507	Azeotrope HFC	HFC	POE	64.9
Genetron 408A	R-408A	Blend HCFC	HCFC	AB	65.7
Genetron 502†	R-502	Azeotrope CFC	CFC	MO	75.4
Solstice N13	R-450A	Blend	HFO/HFC	POE	73.1
Genetron 134a	R-134a	Single Component	HFC	POE	74.9
Genetron MP39	R-401A	Blend HCFC	HCFC	AB	73.9
Genetron HP80	R-402A	Blend HCFC	HCFC	AB	71
Genetron 409A	R-409A	Blend HCFC	HCFC	AB	75.4
Genetron 12†	12	Single Component	CFC	MO	81.5
Genetron 407C	407C	Blend	HFC	POE	70.6
Genetron 422D	422D	Blend	HFC/HC	POE/MO	70.9

* 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:
Pounds of new refrigerant = Pounds of original refrigerant x density of new refrigerant (at 80°F) / density of original refrigerant (at 80° F).

EXAMPLE
If you were using 1,000 pounds of R-22, you'll need about 920 pounds of R-448A, as follows:

$$\text{Pounds of R-448A} = \frac{1{,}000 \times 68.0}{73.9} = \frac{68{,}000}{73.9} = 920$$

PT Charts for Air Conditioning

Genetron® 407C and 422D are excellent alternatives to R-22

Pressure (psig)	Genetron® 407C (R-407C) Temperature °F			Genetron® 422D (R-422D) Temperature °F			Genetron® R-22 Temperature °F
	Avg	Bubble	Dew	Avg	Bubble	Dew	
0.0	-40.2	-46.5	-33.9	-41.4	-45.8	-37.0	-41.5
10.0	-19.9	-26.0	-13.8	-20.8	-24.8	-16.7	-20.4
20.0	-5.2	-11.2	0.7	-5.9	-9.7	-2.1	-5.2
30.0	6.4	0.6	12.3	5.9	2.3	9.6	6.9
40.0	16.2	10.4	21.9	15.9	12.4	19.4	17.1
45.0	20.6	14.9	26.3	20.4	17.0	23.8	21.7
50.0	24.7	19.0	30.3	24.6	21.2	27.9	26.0
55.0	28.6	22.9	34.2	28.5	25.2	31.8	30.0
60.0	32.2	26.7	37.8	32.3	29.0	35.5	33.9
65.0	35.7	30.2	41.3	35.9	32.7	39.1	37.5
70.0	39.0	33.6	44.5	39.3	36.1	42.4	41.0
75.0	42.2	36.8	47.7	42.5	39.4	45.6	44.3
80.0	45.3	39.9	50.7	45.6	42.6	48.7	47.5
85.0	48.2	42.8	53.6	48.6	45.6	51.6	50.6
90.0	51.0	45.7	56.4	51.5	48.5	54.5	53.5
95.0	53.7	48.4	59.1	54.3	51.4	57.2	56.4
100.0	56.4	51.1	61.6	57.0	54.1	59.9	59.1
105.0	58.9	53.7	64.2	59.6	56.7	62.4	61.8
110.0	61.4	56.2	66.6	62.1	59.3	64.9	64.4
120.0	66.1	61.0	71.2	67.0	64.2	69.7	69.3
130.0	70.6	65.5	75.6	71.5	68.9	74.2	74.0
140.0	74.8	69.8	79.8	75.9	73.3	78.5	78.4
150.0	78.8	73.9	83.8	80.0	77.5	82.6	82.7
160.0	82.7	77.8	87.6	84.0	81.5	86.5	86.7
170.0	86.4	81.5	91.2	87.7	85.3	90.2	90.6
180.0	89.9	85.2	94.7	91.4	89.0	93.8	94.3
185.0	91.6	86.9	96.4	93.2	90.8	95.5	96.2
190.0	93.3	88.6	98.0	94.9	92.6	97.2	97.9
195.0	95.0	90.3	99.6	96.6	94.3	98.9	99.7
200.0	96.6	92.0	101.2	98.3	96.0	100.5	101.4
205.0	98.2	93.6	102.8	99.9	97.7	102.1	103.1
210.0	99.8	95.2	104.4	101.5	99.3	103.7	104.8
215.0	101.3	96.8	105.9	103.1	100.9	105.3	106.4
220.0	102.8	98.3	107.4	104.7	102.5	106.8	108.0
225.0	104.3	99.9	108.8	106.2	104.1	108.4	109.6
230.0	105.8	101.4	110.3	107.7	105.6	109.8	111.1
235.0	107.3	102.8	111.7	109.2	107.1	111.3	112.7
240.0	108.7	104.3	113.1	110.7	108.6	112.8	114.2
245.0	110.1	105.7	114.5	112.1	110.1	114.2	115.7
250.0	111.5	107.2	115.8	113.6	111.5	115.6	117.1
255.0	112.9	108.6	117.2	115.0	113.0	117.0	118.6
260.0	114.2	109.9	118.5	116.3	114.4	118.3	120.0
265.0	115.5	111.3	119.8	117.7	115.8	119.7	121.4
270.0	116.9	112.6	121.1	119.1	117.1	121.0	122.8
275.0	118.2	114.0	122.4	120.4	118.5	122.3	124.2
280.0	119.4	115.3	123.6	121.7	119.8	123.6	125.5
285.0	120.7	116.6	124.8	123.0	121.2	124.9	126.9
290.0	121.9	117.8	126.1	124.3	122.5	126.1	128.2
295.0	123.2	119.1	127.3	125.6	123.7	127.4	129.5
300.0	124.4	120.4	128.4	126.8	125.0	128.6	130.8
305.0	125.6	121.6	129.6	128.0	126.3	129.8	132.1
310.0	126.8	122.8	130.8	129.3	127.5	131.0	133.3
315.0	128.0	124.0	131.9	130.5	128.7	132.2	134.6
320.0	129.1	125.2	133.1	131.7	130.0	133.4	135.8
325.0	130.3	126.4	134.2	132.8	131.1	134.5	137.0
330.0	131.4	127.5	135.3	134.0	132.3	135.6	138.2
335.0	132.5	128.7	136.4	135.1	133.5	136.8	139.4
345.0	134.7	131.0	138.5	137.4	135.8	139.0	141.8
355.0	136.9	133.2	140.6	139.6	138.1	141.2	144.1
365.0	139.0	135.4	142.7	141.8	140.3	143.3	146.3
375.0	141.1	137.5	144.7	143.9	142.5	145.4	148.6
385.0	143.1	139.6	146.7	146.0	144.6	147.4	150.7
395.0	145.1	141.7	148.6	148.0	146.7	149.4	
405.0	147.1	143.7	150.5	150.0	148.7	151.3	
415.0	149.0	145.7	152.3	152.0	150.7	153.2	
425.0	150.9	147.6	154.1	153.9	152.7	155.1	

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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SUBCOOLING

Procedure:

- 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 N40 (R-448A) when the liquid line temperature reads 75°F and the liquid line pressure is 196 psig.

- ✔ 40 psig yields ~ 16°F (using Bubble temp)
- ✔ Degree of Subcooling = 85°F - 75°F = 10°F