Refrigerant PT Chart

Saturation pressure–temperature tables for R-22, R-32, R-134a, R-290, R-404A, R-407C, R-410A and R-454B

For: HVAC and refrigeration technicians, engineers, apprentices and trainers

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9 November 2026

BASIS
Saturation pressure at each temperature; liquid (bubble) and vapour (dew) for blends with glide

KEY RELATIONSHIP
Superheat = suction-line temp − dew temp; subcooling = bubble temp − liquid-line temp

READING THE TABLE
Find the gauge pressure in the column, read the saturation temperature in the first column

WORKED EXAMPLE
R-410A at 40 °F: 118.8 psig, so a suction line at 50 °F has 10 °F superheat

psig to 0.1 at sea level (14.696 psia); bar(g) on 1.01325 bar. ″ vac = inches of mercury below atmospheric.

Single-component and near-azeotropic refrigerants (psig)

R-410A has a glide below 0.5 psi; the liquid value is shown.

°F	R-22	R-32	R-134a	R-290	R-410A
-40	0.6	11.0	14.8″ vac	1.4	10.8
-35	2.6	14.4	12.5″ vac	3.4	14.1
-30	4.9	18.2	9.8″ vac	5.7	17.8
-25	7.4	22.3	6.9″ vac	8.1	21.9
-20	10.2	26.8	3.7″ vac	10.7	26.3
-15	13.2	31.7	0.1″ vac	13.6	31.2
-10	16.5	37.1	1.9	16.7	36.5
-5	20.1	42.9	4.1	20.1	42.2
0	24.0	49.3	6.5	23.7	48.4
5	28.3	56.1	9.1	27.6	55.2
10	32.8	63.5	11.9	31.8	62.4
15	37.8	71.4	15.0	36.3	70.3
20	43.1	80.0	18.4	41.1	78.7
25	48.8	89.2	22.1	46.3	87.7
30	55.0	99.1	26.1	51.8	97.4
35	61.5	109.7	30.4	57.7	107.7
40	68.6	121.0	35.0	63.9	118.8
45	76.1	133.0	40.1	70.6	130.6
50	84.1	145.8	45.4	77.6	143.1
55	92.6	159.5	51.2	85.1	156.5
60	101.6	174.0	57.4	93.0	170.7
65	111.2	189.5	64.0	101.4	185.8
70	121.4	205.8	71.1	110.2	201.7
75	132.2	223.2	78.7	119.5	218.6
80	143.6	241.5	86.7	129.3	236.5
85	155.7	260.9	95.2	139.7	255.4
90	168.4	281.3	104.3	150.5	275.3
95	181.8	302.9	113.9	161.9	296.4
100	195.9	325.7	124.2	173.9	318.5
105	210.8	349.6	135.0	186.5	341.9
110	226.4	374.9	146.4	199.6	366.5
115	242.8	401.4	158.4	213.4	392.3
120	260.0	429.3	171.2	227.8	419.5

°F	R-22	R-32	R-134a	R-290	R-410A
125	278.0	458.7	184.6	242.9	448.0
130	296.9	489.5	198.7	258.7	478.0
135	316.7	521.8	213.6	275.1	509.5
140	337.4	555.8	229.2	292.3	542.6
145	359.0	591.4	245.7	310.2	577.4
150	381.7	628.8	262.9	328.9	613.9

Blends with glide: liquid and vapour pressure (psig)

Use the vapour (dew) pressure for superheat and the liquid (bubble) pressure for subcooling.

°F	R-404A liquid	R-404A vapour	R-407C liquid	R-407C vapour	R-454B liquid	R-454B vapour
-40	4.9	4.3	2.7	4.6″ vac	9.5	8.4
-35	7.5	6.8	5.1	0.9″ vac	12.7	11.4
-30	10.3	9.6	7.7	1.6	16.2	14.8
-25	13.4	12.7	10.6	3.9	20.1	18.5
-20	16.8	16.0	13.7	6.5	24.3	22.6
-15	20.5	19.7	17.2	9.3	28.9	27.0
-10	24.6	23.6	20.9	12.3	33.9	31.8
-5	28.9	27.9	25.0	15.7	39.4	37.0
0	33.7	32.6	29.5	19.4	45.3	42.7
5	38.8	37.7	34.3	23.5	51.7	48.8
10	44.3	43.1	39.5	27.9	58.5	55.4
15	50.2	49.0	45.2	32.7	66.0	62.6
20	56.6	55.3	51.2	37.9	73.9	70.3
25	63.4	62.1	57.7	43.5	82.5	78.5
30	70.7	69.3	64.7	49.6	91.7	87.4
35	78.6	77.1	72.2	56.1	101.5	96.9
40	86.9	85.4	80.2	63.2	112.0	107.0
45	95.8	94.2	88.8	70.7	123.1	117.8
50	105.3	103.6	97.9	78.8	135.0	129.3
55	115.3	113.6	107.6	87.5	147.7	141.6
60	126.0	124.2	117.9	96.8	161.1	154.6
65	137.3	135.5	128.9	106.7	175.4	168.5
70	149.3	147.4	140.5	117.3	190.5	183.1
75	162.0	160.1	152.8	128.5	206.5	198.7
80	175.4	173.4	165.8	140.5	223.4	215.2
85	189.5	187.5	179.6	153.2	241.2	232.6
90	204.5	202.4	194.1	166.7	260.0	251.0
95	220.2	218.1	209.4	181.0	279.9	270.4
100	236.8	234.7	225.5	196.1	300.8	290.9
105	254.2	252.1	242.4	212.1	322.8	312.5
110	272.6	270.4	260.2	229.0	345.9	335.2
115	291.8	289.7	278.9	246.9	370.2	359.1
120	312.1	309.9	298.6	265.8	395.7	384.3
125	333.4	331.2	319.2	285.6	422.4	410.8
130	355.7	353.6	340.7	306.6	450.5	438.7
135	379.1	377.1	363.3	328.7	479.9	468.0
140	403.7	401.7	387.0	352.0	510.7	498.8
145	429.6	427.7	411.7	376.6	543.0	531.3
150	456.8	455.0	437.5	402.5	576.8	565.4

Single-component and near-azeotropic refrigerants (bar gauge, °C)

°C	R-22	R-32	R-134a	R-290	R-410A
-40	0.04	0.76	−0.50	0.10	0.74
-35	0.31	1.20	−0.35	0.36	1.18
-30	0.63	1.72	−0.17	0.67	1.69
-25	1.00	2.33	0.05	1.02	2.29
-20	1.44	3.04	0.31	1.43	2.99
-15	1.95	3.87	0.63	1.90	3.80
-10	2.53	4.81	0.99	2.44	4.73
-5	3.20	5.89	1.42	3.05	5.79
0	3.97	7.12	1.91	3.73	6.99
5	4.83	8.50	2.48	4.50	8.35
10	5.80	10.06	3.13	5.35	9.87
15	6.88	11.79	3.87	6.30	11.57
20	8.09	13.73	4.70	7.35	13.46
25	9.43	15.88	5.64	8.51	15.56
30	10.91	18.26	6.69	9.78	17.88
35	12.53	20.89	7.86	11.17	20.43
40	14.32	23.77	9.15	12.68	23.24
45	16.28	26.93	10.59	14.33	26.32
50	18.41	30.40	12.17	16.12	29.70
55	20.74	34.19	13.90	18.06	33.39
60	23.26	38.32	15.80	20.15	37.41

Blends with glide: liquid and vapour pressure (bar gauge, °C)

°C	R-404A liquid	R-404A vapour	R-407C liquid	R-407C vapour	R-454B liquid	R-454B vapour
-40	0.34	0.30	0.19	−0.16	0.66	0.58
-35	0.67	0.62	0.49	0.08	1.07	0.97
-30	1.06	1.01	0.86	0.37	1.56	1.44
-25	1.52	1.46	1.29	0.72	2.13	1.99
-20	2.06	1.99	1.79	1.13	2.79	2.63
-15	2.67	2.60	2.37	1.62	3.56	3.37
-10	3.38	3.29	3.03	2.18	4.44	4.21
-5	4.18	4.09	3.80	2.84	5.45	5.18
0	5.09	4.99	4.67	3.59	6.59	6.28
5	6.11	6.00	5.65	4.46	7.87	7.52
10	7.26	7.14	6.75	5.44	9.31	8.92
15	8.54	8.42	7.99	6.54	10.92	10.48
20	9.96	9.83	9.36	7.79	12.71	12.22
25	11.53	11.40	10.89	9.19	14.70	14.15
30	13.27	13.13	12.58	10.74	16.89	16.28
35	15.18	15.04	14.44	12.48	19.30	18.64
40	17.28	17.14	16.48	14.40	21.94	21.24
45	19.58	19.43	18.71	16.52	24.84	24.09
50	22.10	21.95	21.15	18.86	28.01	27.22
55	24.84	24.70	23.80	21.44	31.46	30.64
60	27.84	27.70	26.68	24.27	35.21	34.39

Refrigerant notes

Refrigerant	Type	Safety class	Critical temperature	Notes
R-22	HCFC	A1	96.1 °C	Ozone-depleting; new production banned in the US and EU (servicing only)
R-32	HFC	A2L	78.1 °C	Mildly flammable; common in new split air conditioners
R-134a	HFC	A1	101.1 °C	Chillers, older vehicle air conditioning, medium-temperature refrigeration
R-290	Propane (HC)	A3	96.7 °C	Highly flammable: small charges, sealed systems, trained technicians
R-404A	HFC blend	A1	72.1 °C	Low-temperature refrigeration; high GWP, being phased down
R-407C	HFC blend	A1	86.2 °C	Large glide (about 7 °C); R-22 replacement in air conditioning
R-410A	HFC blend	A1	71.3 °C	Near-azeotropic; being replaced by R-32 and R-454B in new equipment
R-454B	HFO/HFC blend	A2L	78.1 °C	Mildly flammable R-410A replacement; glide about 1 °C (1.7 °F)

Sources and method

- **Reference equations of state (as used in NIST REFPROP)** — R-22, R-32, R-134a, R-290; Lemmon (2003) pseudo-pure models for R-404A, R-407C and R-410A
- **CoolProp 8.0 (Bell et al., Ind. Eng. Chem. Res. 2014)** — Open-source property library used to evaluate IF97 and the refrigerant equations of state (coolprop.org/)
- **Chemours, Opteon XL41 (R-454B) thermodynamic properties, I/P units** — R-454B liquid and vapour pressures (NIST REFPROP 10)
- **Arkema, Forane pressure–temperature chart (05-2025)** — Second source: every refrigerant agrees within 0.1 psi at 40 °F and 100 °F

Pressures are calculated from the reference equations of state (R-454B transcribed from the manufacturer) and cross-checked against a second manufacturer's chart; no values are typed in except the R-454B data. Interactive version, corrections and more charts: **allunitconversions.com/refrigerant-pt-chart**