



R-422B and R-422D

Technical Guidelines

Physical Properties of Refrigerants	R-422B	R-422D
Environmental Classification	HFC	HFC
Molecular Weight	108.5	109.9
Boiling Point (1 atm, °F)	-42.4	-45.8
Critical Pressure (psia)	574.1	566.2
Critical Temperature (°F)	181.8	175.2
Critical Density, (lb./ft ³)	32.9	33.0
Liquid Density (70 °F, lb./ft ³)	73.05	70.9
Vapor Density (bp, lb./ft ³)	0.363	0.372
Heat of Vaporization (bp, BTU/lb.)	84.2	81.8
Specific Heat Liquid (70 °F, BTU/lb. °F)	0.3385	0.339
Specific Heat Vapor (1 atm, 70 °F, BTU/lb. °F)	0.201	0.20
Ozone Depletion Potential (CFC 11 = 1.0)	0	0
Global Warming Potential (CO ₂ = 1.0)	2525	2730
ASHRAE Standard 34 Safety Rating	A1	A1
Temperature Glide (°F) (see section 2)	5	5

Available in the following sizes

R-422D
25 LB. CYLINDER
110 LB. CYLINDER

Pressure-Temp Chart

R-422B

(R-125 /134a /600a)
(55 / 42 / 3 wt%)

Replaces:

R-22

Applications:

- R-422B: Medium temperature commercial and industrial direct expansion refrigeration and A/C
- R-422D: Medium and low temperature commercial and industrial direct expansion refrigeration

Performance:

- Slightly lower discharge temperature
- Possible undersized TXV based on pressure drop
- Up to 10% lower capacity

Lubricant

Recommendation: Compatible with mineral and alkylbenzene oil and if oil return becomes a concern, addition of polyolester lubricant in 5% increments could help resolve the issue

Retrofitting to:

- R-422B for R-22 Air Conditioning page 95
- R-422B for R-22 Refrigeration page 95
- R-422D for R-22 Refrigeration page 95

R-422B		Temp (°F)	R-422D	
Liquid (psig)	Vapor (psig)		Liquid (psig)	Vapor (psig)
0.9	2.7"	-40	2.4	2.3"
3.0	0.9"	-35	4.6	0.8
5.4	1.1	-30	7.1	3.0
7.9	3.2	-25	9.9	5.4
10.7	5.7	-20	12.9	8.1
13.8	8.3	-15	16.2	11.0
17.1	11.3	-10	19.8	14.3
20.7	14.5	-5	23.7	17.8
24.7	18.0	0	27.9	21.7
29.0	21.9	5	32.5	25.8
33.6	26.1	10	37.5	30.4
38.6	30.6	15	42.8	35.3
43.9	35.5	20	48.5	40.7
49.7	40.8	25	54.7	46.4
55.9	46.6	30	61.3	52.6
62.5	52.7	35	68.4	59.3
69.6	59.4	40	75.9	66.4
77.2	66.5	45	84.0	74.0
85.3	74.1	50	92.6	82.2
94	82.2	55	102	90.9
103	90.9	60	111	100
113	100	65	122	110
123	110	70	133	121
134	120	75	144	132
145	132	80	156	144
158	143	85	169	156
170	156	90	183	170
184	169	95	197	184
198	183	100	212	198
213	198	105	228	214
229	213	110	245	231
246	230	115	262	248
263	247	120	281	266
281	265	125	300	286
301	284	130	320	306
321	304	135	341	327
342	326	140	364	350



THERMODYNAMIC PROPERTIES OF R-422B

Temp [°F]	Pressure Liquid [psia]	Pressure Vapor [psia]	Density Liquid [lb/ft ³]	Density Vapor [lb/ft ³]	Enthalpy Liquid [Btu/lb]	Enthalpy Vapor [Btu/lb]	Entropy Liquid [Btu/R-lb]	Entropy Vapor [Btu/R-lb]
-60	9.1	6.6	89.17	0.17	-5.810	79.45	-0.01415	0.2022
-55	10.5	7.7	88.63	0.20	-4.366	80.19	-0.01057	0.2013
-50	12.0	9.0	88.09	0.23	-2.916	80.94	-0.00701	0.2004
-45	13.7	10.4	87.54	0.26	-1.461	81.68	-0.00349	0.1996
-40	15.6	12.0	86.99	0.30	0.000	82.42	0.00000	0.1989
-35	17.7	13.8	86.44	0.34	1.467	83.16	0.00346	0.1982
-30	20.0	15.7	85.88	0.39	2.941	83.89	0.00690	0.1976
-25	22.6	17.9	85.32	0.44	4.421	84.63	0.01031	0.1970
-20	25.4	20.4	84.75	0.49	5.908	85.35	0.01370	0.1964
-15	28.5	23.0	84.17	0.56	7.402	86.08	0.01707	0.1959
-10	31.8	26.0	83.59	0.62	8.904	86.80	0.02041	0.1955
-5	35.4	29.2	83.00	0.70	10.41	87.51	0.02373	0.1951
0	39.4	32.7	82.41	0.78	11.93	88.22	0.02703	0.1947
5	43.7	36.6	81.81	0.86	13.46	88.92	0.03031	0.1943
10	48.3	40.8	81.20	0.96	14.99	89.62	0.03358	0.1940
15	53.3	45.3	80.58	1.06	16.54	90.31	0.03682	0.1937
20	58.6	50.2	79.95	1.17	18.09	90.99	0.04006	0.1934
25	64.4	55.5	79.32	1.29	19.66	91.66	0.04327	0.1931
30	70.6	61.3	78.67	1.42	21.23	92.33	0.04648	0.1929
35	77.2	67.4	78.01	1.57	22.82	92.99	0.04967	0.1927
40	84.3	74.1	77.35	1.72	24.42	93.63	0.05285	0.1925
45	91.9	81.2	76.67	1.88	26.03	94.26	0.05601	0.1923
50	100.0	88.8	75.97	2.06	27.65	94.89	0.05917	0.1921
55	109	96.9	75.27	2.25	29.28	95.50	0.06233	0.1919
60	118	106	74.55	2.45	30.93	96.09	0.06547	0.1918
65	127	115	73.81	2.68	32.60	96.67	0.06861	0.1916
70	138	125	73.05	2.91	34.28	97.23	0.07175	0.1914
75	149	135	72.28	3.17	35.97	97.78	0.07489	0.1912
80	160	146	71.49	3.45	37.69	98.30	0.07802	0.1911
85	172	158	70.67	3.74	39.42	98.81	0.08116	0.1909
90	185	170	69.83	4.06	41.17	99.29	0.08430	0.1907
95	199	184	68.96	4.41	42.95	99.74	0.08745	0.1904
100	213	198	68.07	4.78	44.74	100.2	0.09060	0.1902
105	228	212	67.14	5.19	46.57	100.6	0.09377	0.1899
110	244	228	66.18	5.63	48.42	100.9	0.09696	0.1896
115	260	244	65.17	6.11	50.30	101.2	0.1002	0.1893
120	278	262	64.13	6.63	52.21	101.5	0.1034	0.1889
125	296	280	63.03	7.21	54.16	101.8	0.1067	0.1885
130	315	299	61.87	7.83	56.15	101.9	0.1100	0.1879
135	335	319	60.64	8.53	58.20	102.0	0.1133	0.1874
140	357	340	59.32	9.31	60.29	102.1	0.1167	0.1867