

ASHRAE Class	Low-Pressure Refrigerant <30 psig at 104°F condensing temperature			Medium-Pressure Refrigerant 30 to 155 psig at 104°F condensing temperature								ASHRAE Class
	B1	B1	A2L	A1	A1	A1		A1	A3	A2L	A2L	
GWP	77	1030	4.7-7	10,900	609	1558		1430	3	4	6	GWP
	HCFC	HFC	HFO	CFC	HCFC	HCFC R-409A		HFC	Hydrocarbon Isobutane	HFO	HFO	
°F	R-123	R-245fa	R-1233zd	R-12	R-124	Bubble* Liquid	Dew* Vapor	R-134a	R-600a	R-1234yf	R-1234ze	°F
-40°	*	-13.9	-28.3	-11.0	-22.1	6.7	-14.8	-14.8	-21.6	-11.5	-19.1	-40°
-35°	*	-13.7	-28.0	-8.4	-20.9	3.5	-12.5	-12.5	-20.4	-8.9	-17.4	-35°
-30°	*	-13.5	-27.6	-5.5	-19.4	0.0	-9.9	-9.8	-18.9	-6.0	-15.4	-30°
-25°	*	-13.2	-27.2	-2.4	-11.8	1.9	-7.0	-6.9	-17.4	-2.8	-13.3	-25°
-20°	-27.8	-13.0	-26.7	0.5	-16.0	4.0	-3.8	-3.1	-15.6	0.4	-10.9	-20°
-15°	-27.4	-12.7	-26.1	2.4	-14.0	6.3	2.0	-0.1	-13.7	2.3	-8.2	-15°
-10°	-26.9	-12.2	-25.5	4.5	-11.8	8.8	1.8	1.9	-11.5	4.4	-5.3	-10°
-5°	-26.4	-11.9	-24.7	6.7	-9.3	11.6	4.0	4.1	-9.2	6.7	-2.0	-5°
0°	-25.9	-11.4	-23.9	9.1	-6.6	14.6	6.3	6.5	-6.6	9.1	-0.8	0°
5°	-25.2	-11.0	-23.0	11.7	-3.6	17.8	8.8	9.1	-3.8	12.0	2.7	5°
10°	-24.5	-10.4	-22.0	14.6	-0.3	21.3	11.6	11.9	-0.7	14.9	4.8	10°
15°	-23.8	-9.5	-20.8	17.7	1.6	25.1	14.7	15.0	1.3	18.1	7.2	15°
20°	-22.8	-9.1	-19.5	21.0	3.6	29.2	18.0	18.4	3.1	21.6	9.7	20°
25°	-21.8	-8.0	-18.1	24.6	5.7	33.6	21.6	22.1	5.0	25.4	12.5	25°
30°	-20.7	-7.5	-16.5	28.4	8.0	38.4	25.5	26.1	7.1	29.4	15.4	30°
35°	-19.5	-6.8	-14.7	32.5	10.5	43.4	29.7	30.4	9.4	33.8	18.7	35°
40°	-18.1	-5.6	-12.8	36.9	13.2	48.9	34.2	35.0	11.8	38.4	22.2	40°
45°	-16.6	-4.2	-10.7	41.6	16.1	54.7	39.1	40.1	14.4	43.4	26.0	45°
50°	-14.9	-2.8	-8.3	46.6	19.3	60.9	44.3	45.4	17.2	48.8	30.0	50°
55°	-13.0	-1.8	-5.8	51.9	22.7	67.5	49.9	51.2	20.2	54.5	34.4	55°
60°	-11.2	0.0	-3.0	57.6	26.3	74.5	55.9	57.4	23.5	60.6	39.1	60°
65°	-8.9	1.9	0.0	63.7	30.2	81.9	62.3	64.0	26.9	67.0	44.1	65°
70°	-6.5	3.5	1.6	70.1	34.4	89.8	69.2	71.1	30.6	73.9	49.5	70°
75°	-4.1	5.9	3.4	76.8	38.9	98.2	76.5	78.7	34.5	81.3	55.2	75°
80°	-1.2	7.9	5.3	84.0	43.7	107	84.2	86.7	38.6	89.0	61.3	80°
85°	0.9	10.2	7.3	91.6	48.8	116	92.5	95.2	43.0	97.2	67.8	85°
90°	2.5	12.8	9.5	99.6	54.3	126	101	104	47.7	106	74.8	90°
95°	4.3	15.8	11.9	108	60.1	137	111	114	52.7	115	82.1	95°
100°	6.1	19.0	14.4	117	66.2	148	120	124	57.9	125	89.9	100°
104°	7.7	21.3	16.6	124	71.4	157	129	133	62.3	133	96.5	104°
105°	8.1	23.0	17.1	126	72.7	159	131	135	63.4	135	98.2	105°
110°	10.3	26.0	20.0	136	79.6	171	142	146	69.3	146	107	110°
115°	12.6	30.0	23.1	146	86.9	184	153	158	75.4	157	116	115°
120°	15.1	33.0	26.5	157	94.6	197	166	171	81.9	169	126	120°
125°	17.8	36.0	30.0	169	103	211	179	185	88.7	182	136	125°
130°	20.6	41.0	33.8	181	111	226	192	199	95.8	195	147	130°
135°	23.6	46.0	37.8	193	120	241	207	214	103	209	158	135°
140°	26.8	52.0	42.0	206	130	257	222	229	111	223	171	140°
145°	30.2	57.0	46.5	220	140	274	237	246	120	239	183	145°
150°	33.9	61.0	51.3	234	150	291	254	263	128	255	196	150°



* See page 8 for further detail on Bubble/Dew

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High-Pressure Refrigerant 155 to 340psig
at 104°F condensing temperature

Very-High
Pressure over
340 psig at 104°F
condensing
temperature

ASHRAE Class	A1	A1		A1		A1		A1		A3	A1	B2L	A1	ASHRAE Class	
GWP	1810	3920		1770		2730		2530		<5	2090	0	1 (base)	GWP	
	HCFC R-22	HFC R-404A		HFC R-407C		HFC R-422D		HFC R-422B		Hydrocarbon R-441A		HFC R-410A	Ammonia R-717	CO ₂ R-744	
°F		Bubble Liquid	Dew Vapor	Bubble Liquid	Dew Vapor	Bubble Liquid	Dew Vapor	Bubble Liquid	Dew Vapor	Bubble Liquid	Dew Vapor				°F
-40°	0.6	4.9	4.3	2.7	-4.6	2.4	-2.3	0.9	-2.7	4	2	11	-9	132	-40°
-35°	2.6	7.5	6.8	5.1	-0.9	4.6	0.8	3.0	-0.9	8	4	14	-6	147	-35°
-30°	4.9	10.3	9.6	7.7	1.6	7.1	3.0	5.4	1.1	9	5	18	-2	163	-30°
-25°	7.4	13.4	12.7	10.6	3.9	9.9	5.4	7.9	3.2	13	9	22	1	181	-25°
-20°	10.2	16.8	16.0	13.7	6.5	12.9	8.1	10.7	5.7	14	10	26	4	200	-20°
-15°	13.2	20.5	19.7	17.2	9.3	16.2	11.0	13.8	8.3	17	14	31	5	221	-15°
-10°	16.5	24.6	23.6	20.9	12.3	19.8	14.3	17.1	11.3	18	15	36	9	243	-10°
-5°	20.1	28.9	27.9	25.0	15.7	23.7	17.8	20.7	14.5	25	21	42	12	266	-5°
0°	24.0	33.7	32.6	29.5	19.4	27.9	21.7	24.7	18.0	28	24	48	16	291	0°
5°	28.3	38.8	37.7	34.3	23.5	32.5	25.8	29.0	21.9	33	27	55	20	318	5°
10°	32.8	44.3	43.1	39.5	27.9	37.5	30.4	33.6	26.1	38	33	62	24	346	10°
15°	37.8	50.2	49.0	45.2	32.7	42.8	35.3	38.6	30.6	44	35	70	28	376	15°
20°	43.1	56.6	55.3	51.2	37.9	48.5	40.7	43.9	35.5	49	44	78	33	407	20°
25°	48.8	63.4	62.2	57.7	43.5	54.7	46.4	49.7	40.8	54	47	87	39	441	25°
30°	55.0	70.7	69.3	64.7	49.6	61.3	52.6	55.9	46.6	66	51	97	45	476	30°
35°	61.5	78.6	77.1	72.2	56.1	68.4	59.3	62.5	52.7	66	60	107	51	513	35°
40°	68.6	86.9	85.4	80.2	63.2	75.9	66.4	69.6	59.4	74	68	118	58	553	40°
45°	76.1	96.8	94.2	88.8	70.7	84.0	74.0	77.2	66.5	80	74	130	66	595	45°
50°	84.1	105	104	97.9	78.8	92.6	82.2	85.3	74.1	88	80	143	74	638	50°
55°	92.6	115	114	108	87.5	102	90.9	94.0	82.2	97	89	156	83	684	55°
60°	102	126	124	118	96.8	111	100	103	90.9	105	97	170	93	733	60°
65°	111	137	136	129	107	122	110	113	100	115	106	185	103	784	65°
70°	121	159	147	141	117	133	121	123	110	125	117	201	114	838	70°
75°	132	162	160	153	129	144	132	134	120	133	124	218	126	895	75°
80°	144	175	173	166	141	156	144	145	132	145	135	238	138	955	80°
85°	156	190	188	180	153	169	156	158	143	155	145	255	151	1018	85°
90°	168	205	202	194	167	183	170	170	156	167	157	275	166	*	90°
95°	182	220	218	209	181	197	184	184	169	180	171	296	181	*	95°
100°	196	237	235	226	196	212	198	198	183	193	182	318	197	*	100°
104°	208	251	249	239	209	225	211	210	195	203	192	336	210	*	104°
105°	211	254	252	242	212	228	214	213	198	210	200	341	214	*	105°
110°	226	273	270	260	229	245	231	229	213	218	207	365	232	*	110°
115°	243	292	290	279	247	262	248	246	230	235	225	391	251	*	115°
120°	260	312	310	299	266	281	266	263	247	251	240	418	271	*	120°
125°	278	333	331	319	286	300	286	281	265	267	255	447	293	*	125°
130°	297	356	354	341	307	320	306	301	284	282	275	477	315	*	130°
135°	317	379	377	363	329	341	327	321	304	305	292	508	339	*	135°
140°	337	404	402	387	352	364	350	342	326	319	307	541	364	*	140°
145°	359	430	428	412	377	387	373	364	348	333	315	576	390	*	145°
150°	382	456.8	455	438	403	411	398	387	387	*	*	613	417	*	150°



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* See page 8 for further detail on Bubble/Dew