

Calculate superheat

R410a Superheat charts
(Cooling, NON-TXV)

Instructions

Measure wet bulb temperature with a sling psychrometer or a temperature and humidity thermistor.

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Use a digital thermometer for all temperature measurements. Do NOT use mercury or dial type thermometers. Allow the unit to operate (high cool for multistage units) for 15 minutes before reading measurements, adjusting charge.

- 1 Measure the evaporator (indoor) entering air wet bulb temperature and the condenser entering air dry bulb temperature
- 2 Calculate the required superheat by locating the measured indoor wet bulb temperature (row) and the closest condenser dry bulb temperature (column) using the first table.
- 3 Measure the vapor line temperature near the vapor line service valve and measure vapor pressure at the vapor service valve.

Table 1

R410a
Calculate Required Superheat °F
(Cooling, Non-TXV)

Evaporator Entering Air Wet Bulb °F	Condenser Entering Air Dry Bulb °F												
	55	60	65	70	75	80	85	90	95	100	105	110	115
50	9	7	4	2	0	-	-	-	-	-	-	-	-
52	12	10	6	2	0	-	-	-	-	-	-	-	-
54	14	12	10	7	4	2	0	-	-	-	-	-	-
56	17	15	13	10	6	4	2	0	-	-	-	-	-
58	20	18	16	13	9	5	2	0	-	-	-	-	-
60	23	21	19	16	12	8	4	2	0	-	-	-	-
62	26	24	21	19	15	12	8	5	2	0	-	-	-
64	29	27	24	21	18	15	11	9	6	4	2	0	-
66	32	30	27	24	21	18	15	13	10	8	5	2	0
68	35	33	30	27	24	21	19	16	14	12	9	6	2
70	37	35	33	30	28	25	22	20	18	15	13	11	8
72	40	38	36	33	31	28	26	24	22	20	17	15	14
74	42	40	38	36	34	32	30	27	25	23	22	20	18
76	45	43	41	39	37	35	33	31	29	27	26	25	23

Table 1

! To prevent slugging do not attempt to adjust charge at conditions in table that are indicated with a dash (-).

Vapor line °F

- 4 Using Table 2, select the column which is closest to the measured vapor pressure.
- 5 Scroll down the column to find your calculated superheat.
- 6 Read the required vapor line temperature at the intersection. (°F)

- If the measured vapor line temperature does **not** agree with the required vapor line temperature, **add refrigerant to lower** temperature or **remove refrigerant to raise** temperature. (Allow tolerance of ± 5 °F)
- 7

Table 2

R410a
Required Vapor Line Temperature °F
(Cooling, Non-TXV)

Calculated Superheat °F	Vapor pressure (PSIG) Measured at Condenser								
	108	112	116	122	126	131	136	140	146
0	35	37	39	41	43	45	47	49	51
2	37	39	41	43	45	47	49	51	53
4	39	41	43	45	47	49	51	53	55
6	41	43	45	47	49	51	53	55	57
8	43	45	47	49	51	53	55	57	59
10	45	47	49	51	53	55	57	59	61
12	47	49	51	53	55	57	59	61	63
14	49	51	53	55	57	59	61	63	65
16	51	53	55	57	59	61	63	65	67
18	53	55	57	59	61	63	65	67	69
20	55	57	59	61	63	65	67	69	71
22	57	59	61	63	65	67	69	71	73
24	59	61	63	65	67	69	71	73	75
26	61	63	65	67	69	71	73	75	77
28	63	65	67	69	71	73	75	77	79
30	65	67	69	71	73	75	77	79	81
32	67	69	71	73	75	77	79	81	83
34	69	71	73	75	77	79	81	83	85
36	71	73	75	77	79	81	83	85	87
38	73	75	77	79	81	83	85	87	89
40	75	77	79	81	83	85	87	89	91

Table 2