

Technical Bulletin: Charging of Micro Channel Condenser Coil Units

There are a growing number of “micro channel” or “micro tube” condenser coil units available from major HVAC manufacturers. In some cases alternate charging methods are specified. Please refer to the following guide on charging procedures for currently available units. This list is not complete but takes into account most major brands. If you find a unit with an alternate charging method that isn't listed, please let us know so we can document it.

Nordyne (Broan, Nu Tone, Gibson, Westinghouse)

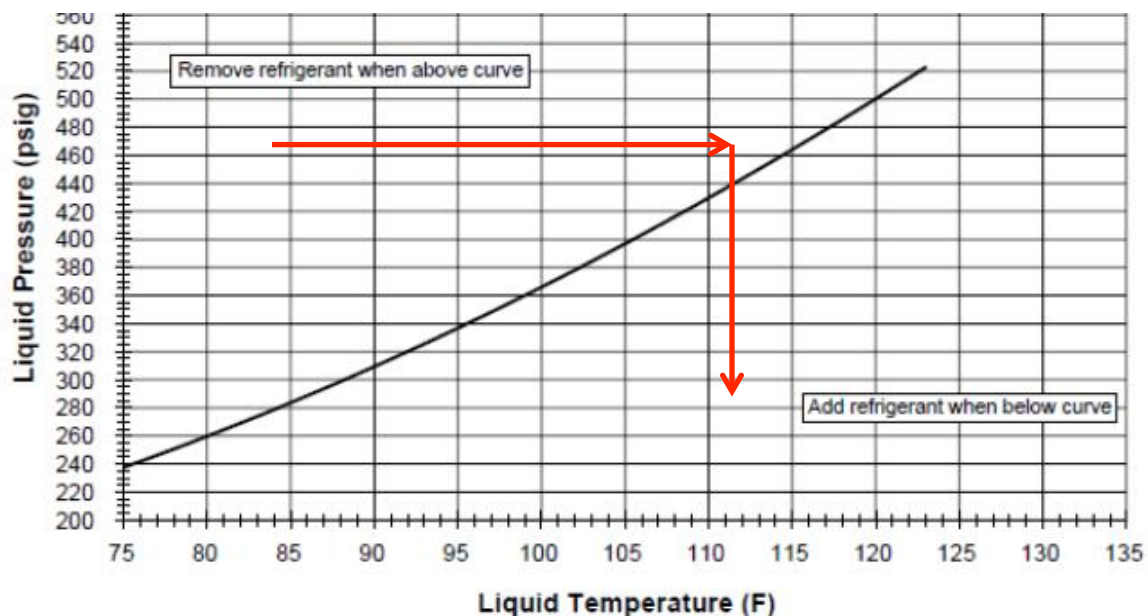
Nordyne units specify high side pressure and liquid line temperature as seen in Figure 1. This is equivalent to a variable subcooling target ranging from about 7 to 15 degrees for the unit shown. Make sure you use the correct chart for the system you're installing (They are different for different models)

- 1) Follow the manufacturer's directions, allow the unit to stabilize for 15 minutes, take all CheckMe! numbers as usual
- 2) Compare high side pressure and liquid line temp to the corresponding chart for the unit
- 3) Remove refrigerant if above the “target” line, add refrigerant if below the “target” line.

Report to CheckMe! as follows:

- 1) Calculate the target subcooling from the chart. *For the example in Figure 1, when the high side pressure is 440 psig (124°F Condenser Saturation temp), the liquid line temperature target is 111°F, so the target subcooling is 13 (124 – 111)*
- 2) Call into call center and tell the operator you have a Nordyne micro channel unit and ask them to check your target subcooling calculation. The operator will ask for the high side pressure **and the liquid line temperature from the chart**, and will confirm the subcooling target.
- 3) Report this as the target subcooling

Figure 1- Nordyne Micro Channel Charging Chart



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Trane

Trane units use a target liquid line temperature charging chart depending on conditions (outdoor ambient and suction line temp). Figure 2 is example of the target liquid line temperature table. Make sure you use the correct chart for the system you're installing (They are different for different models). The Trane charts also specify a maximum allowable high side pressure.

Figure 2- Target Liquid Line Temperature Charging Chart

		4TTM3036A1													
		Outdoor Ambient (°F)													
		<=60	65	70	75	80	85	90	95	100	105	110	115	120	125
		Target (MINIMUM) Liquid Temperature (CHARGE TO BUT NOT BELOW THIS LIMIT)													
Suction Line Pressure (PSIG)	<=115	79	82	84	87	89	92	94	96	100	105	110	115	120	125
	120	81	83	86	88	91	93	95	98	100	105	110	115	120	125
	125	82	85	87	90	92	94	97	99	102	105	110	115	120	125
	130	84	86	88	91	93	96	98	101	103	105	110	115	120	125
	135	85	87	90	92	95	97	100	102	105	107	110	115	120	125
	140	86	89	91	94	96	99	101	104	106	108	110	115	120	125
	145	88	90	93	95	98	100	102	105	107	110	112	115	120	125
150	89	92	94	97	99	101	104	106	109	111	114	116	120	125	
155	91	93	95	98	100	103	105	108	110	113	115	117	120	125	
160	92	94	97	99	102	104	107	109	112	114	116	119	121	125	
MAXIMUM LIQUID PSIG		241	260	280	301	324	348	373	399	427	455	485	517	549	583
Maximum Allowable Liquid Pressure (DO NOT EXCEED WHEN CHARGING)															

- 1) Follow the manufacturer's directions, allow the unit to stabilize for 15 minutes, take all CheckMe! numbers like usual
- 2) Compare the measured liquid line temp, suction pressure and high side pressure to the chart for that unit
- 3) Remove refrigerant if the actual liquid line temp is below the target liquid line, add refrigerant if the actual liquid line temp is above the target liquid line.

Report to CheckMe! as follows:

- 1) Read the minimum liquid line temp off the chart (*In the Figure 2 example this would be 112 for a condenser air entering temperature of 110 and a suction line pressure of 145 psig.*)
- 2) Calculate the target approach:
Minimum liquid line temp. (112°F) - Condenser air entering temp.(110 °F) + 3°F = 5°F
Tolerance for actual approach is ± 3°F
- 3) Call into call center and tell the operator you have a Trane micro channel unit and ask them to check your target approach calculation. The operator will ask for the outdoor temperature and minimum liquid line temperature from the unit's chart and will confirm the target approach. Report your target approach.

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York

York units don't require any special charging charts. They use a target subcooling. But **they are very concerned about overcharging** and want you to add refrigerant very slowly and wait to reach steady state between adjustments.

Carrier

Carrier units don't require any special charging charts. They use a target subcooling. They specify charging adjustments only if the outside temp. is below 100°F.