POLICY BULLETIN

SUBJECT: Application Precautions Related to R-448A, R-449A and R-407A in Low / Medium Temperature Applications. **PB- 130**

PAGE: 1 of 4

REV DATE: 29 March 2018

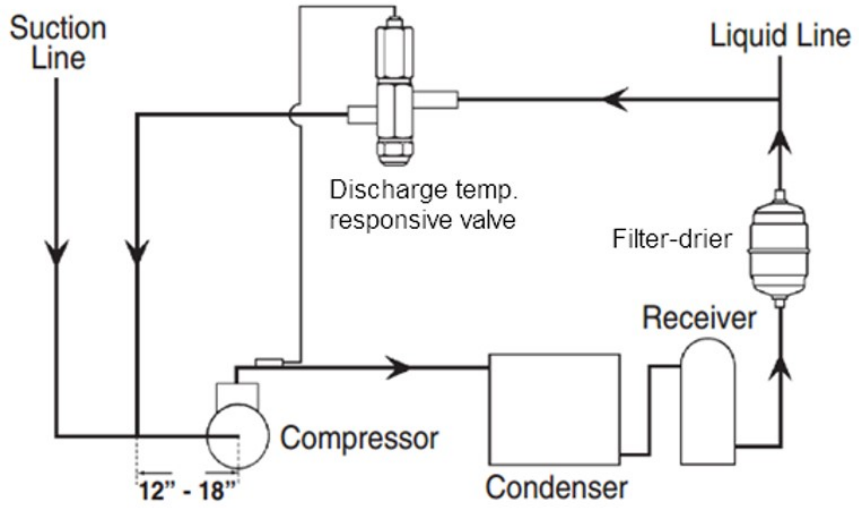
Testing has proven that R-448A, R-449A and R-407A have higher discharge temperatures than R-404A particularly at low evaporating temperatures. Therefore, special precautions must be taken to ensure reliable compressor operation.

For superior performance and long-term reliability, the following parameters **must** be maintained when applying Tecumseh compressors for use with R-448A, R-449A and R-407A:

1.	Refrigerant:	R-448A, R-449A and R-407A
2.	Evaporator Temperature Range:	Commercial Refrigeration -40 to 14 ° F (-40 to -10 ° C) See operating window for restrictions, pages 3-4.
3.	Condensing Temperature Range:	+86 to +140 ° F (+30 to +60 ° C) See operating window for restrictions, pages 3-4.
4.	Pressure Ratio:	12:1 Maximum
5.	Motor Temperature:	266 ° F (130 ° C) Maximum (Resistance Method)
6.	Shell Bottom:	Bottom shell temperature must be +35°F (19.4K) above the minimum suction saturation temperature. Reference Policy Bulletin No. 107.
7.	Discharge Gas Temperature:	248 ° F (120 ° C) Maximum (D2I) providing maximum motor temperature is not exceeded.
8.	Suction Gas Temperature:	68 ° F (20 ° C) Maximum Return gas temperature. See operating window pages 3-4.
9.	Superheat:	18 ° F (10K) Maximum Superheat. See operating window pages 3-4.
10.	Voltage Range (Run):	See Policy Bulletin No. 113.
11.	Voltage (Start):	See Policy Bulletin No. 102.
12.	Metering Devices:	Capillary tubes ***MUST*** not be used in LBP applications. Expansion Valves specifically designed for R-448A, R-449A and R-407A are recommended.
13.	Discharge Line Thermostat	Required if discharge line temperatures exceed 248°F (120°C). Should be located 2-6” from compressor and set to cut out compressor at 248°F (120°C) maximum.

14. Liquid / Vapor Heat Exchange:	Do not apply liquid / vapor heat exchangers (also known as desuperheaters) as it will result in elevated discharge temperatures.
15. Compressor Cooling:	For any application using R-448A, R-449A and R-407A we highly recommend compressor fan cooling especially at low evaporating temperatures.
16. Sound Blankets:	Do not insulate the compressor with a sound blanket and/or other means as it will result in elevated discharge temperatures.
17. Pressure Controls:	Low and high pressure controls must be adjusted so that system operating pressures do not exceed the compressors operating window, see pages 3-4.
18. TREV Valves:	If superheat cannot be maintained under 18°F (10K) (e.g., remote condensing units) a temperature responsive expansion valve (e.g., Parker TREV Y1037) that monitors discharge temperature by a sensing bulb must be used. Injecting a mixture of saturated liquid and vapor into the suction line will reduce the temperature of the superheated suction vapor and in return lower the discharge temperature.

Typical System Schematic with TREV

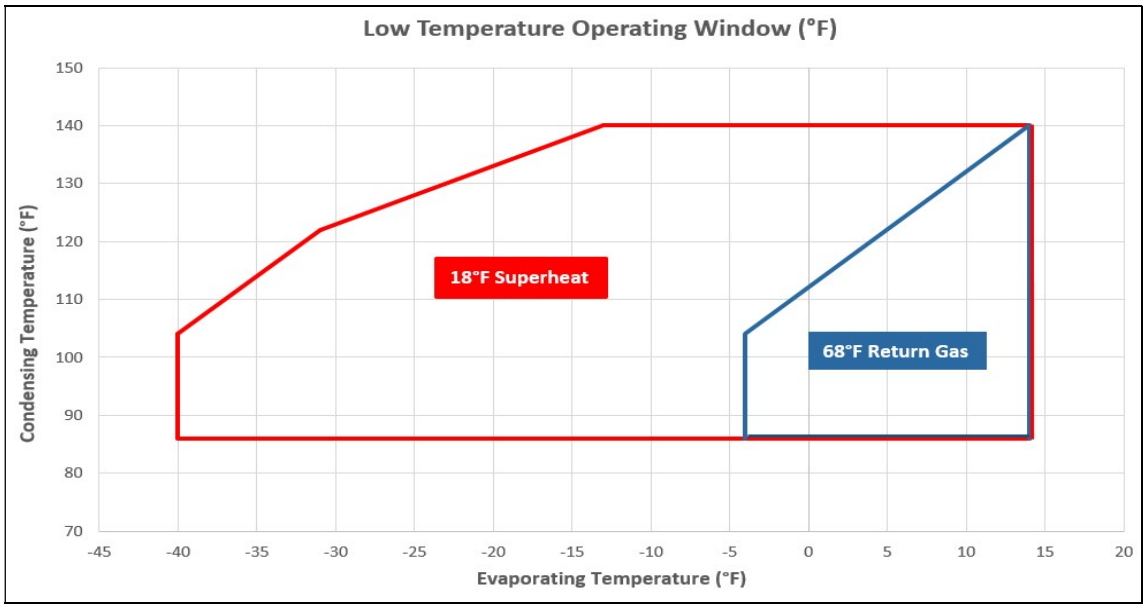


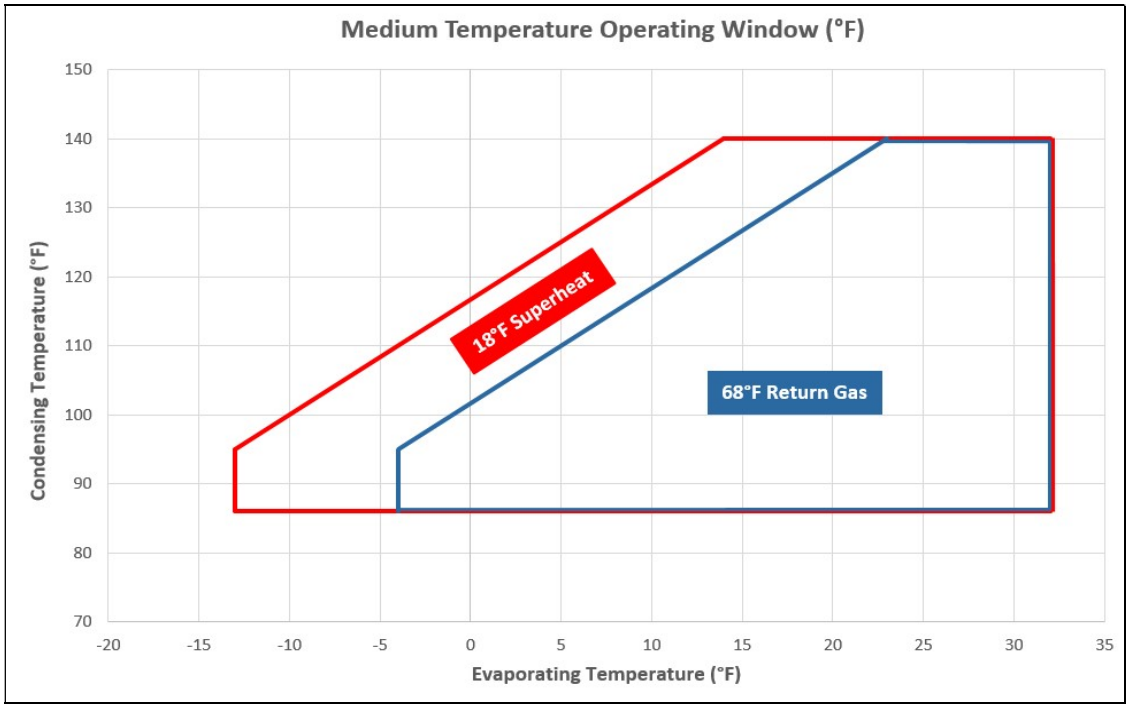
POLICY BULLETIN

SUBJECT: Application Precautions Related to R-448A, R-449A and R-407A in Low / Medium Temperature Applications. **PB- 130**

REV DATE: 29 March 2018

Application Boundaries (°F)





POLICY BULLETIN

SUBJECT: Application Precautions Related to R-448A, R-449A and R-407A in Low / Medium Temperature Applications. **PB- 130**

REV DATE: 29 March 2018

Application Boundaries (°C)