



Technical Bulletin (TB-0073)

Additional Cooling for VARISPEED Compressors

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This document provides the available options for additional cooling with a VARISPEED compressor.

Additional Cooling Options

The need for additional cooling is determined by the operating conditions and the refrigerant choice. Based on these factors, the discharge temperature of the compressor may exceed the maximum allowable temperature without additional compressor cooling.

For the VARISPEED compressor series, additional cooling options include using cylinder head fans and suction superheat control. Liquid injection at the compressor is **not** an option for the VARISPEED series.

Application Window

Compressor cooling requirements increase as the pressure ratio increases.

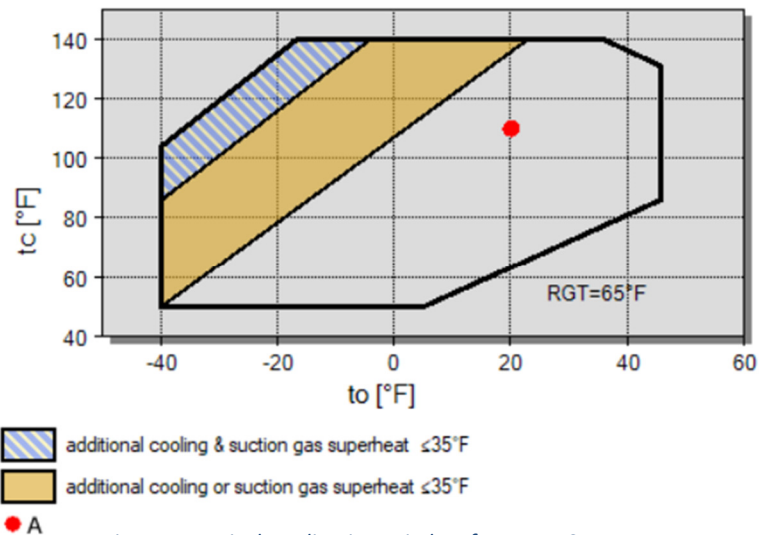


Figure 1: Typical Application Window for a VARISPEED compressor

Figure 1 shows a typical application window for a VARISPEED compressor. The shaded areas dictate when additional cooling is required and how it should be accomplished. This window assumes a return gas temperature at the compressor of 65F. For a low temperature application, this could mean more than 80F of superheat. Compressor superheat has a direct impact on discharge gas temperature.

For compressors operating in the tan area, there are two options for reducing the discharge gas temperature. Either a cylinder head fan can be installed on the compressor **or** the compressor superheat must be maintained below 35F (Minimum compressor superheat is 20F).

If a compressor is operating in the blue, hatched area of the application window, both cylinder head fans **and** compressor superheat control must be implemented to mitigate high discharge gas temperatures.

Parallel Rack Applications

For parallel rack applications, a de-superheating valve can be installed in the suction manifold of the entire rack. This will help reduce the return gas temperature to all the compressors on the rack and also help with cooling of the inverter on the VARISPEED compressor.

Contact BITZER technical support for further assistance.