



**Application Engineering Bulletin**  
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**MEDIUM TEMPERATURE R-22 COPELAWELD COMPRESSORS**

Copeland has released three compressor families for R-22 medium temperature commercial applications. The model lines are the CR, RS, and JS. See Form 1.301 for specific models.

To avoid compressor reliability problems, all models will have restricted operating envelopes at low evaporating temperatures. The restrictions are listed below:

Restricted Operating Conditions

<u>Evaporator*</u> <u>Temp. (°F.)</u>	<u>Maximum</u> <u>Return Gas (°F.)</u>	<u>Maximum</u> <u>Cond. Temp.(°F.)</u>
0	40	110
10	40	130

\* Saturated Suction Temperature at the compressor.

**UNDER NO CIRCUMSTANCES SHOULD SATURATED SUCTION TEMPERATURE AT THE COMPRESSOR FALL BELOW 0°F.**

For a given evaporator temperature, neither the maximum condensing temperature nor the maximum return gas temperature should be exceeded. Operation

beyond these limits will cause high compression ratios and/or high return gas temperatures. This results in compressor overheating or connecting rod wear and a shortened compressor life.

From a practical standpoint, these restrictions may mean:

1. The compressor and condensing units may not be suitable for outdoor use.
2. Units designed to operate near 0° will be susceptible to overheating with dirty condensers and/or restricted air flow.
3. Minimum suction line pressure drops will be important.
4. Traditional superheat settings may be **too** high.
5. Suction lines should be well insulated.
6. Suction to liquid heat exchangers may produce excessive return gas temperatures.
7. Condensers may need to be oversized in warm ambients.

