Maximum Continuous Current Rating for Copeland® Compressors

In compliance with the U.L. requirements based on the 1971 National Electric Code revisions, Emerson Climate Technologies has established maximum continuous current values for all U.L. recognized compressors. These values will then determine the minimum “rated load amp” value that may be used to comply with the U.L. and N.E.C. requirement that the motor compressor protection system will not permit a continuous current in excess of 156% of the rated load current.

On complete systems submitted to U.L., the rated load amp value will be determined by actual system test. On compressor and condensing units, the manufacturer may assign a rated load amp value without U.L. test, provided it falls within the 156% rule with the established maximum continuous current value.

Copelaweld® compressors presently have only locked rotor ampere values on the nameplate, and no change in this practice is anticipated.

Copelametic® compressors in the past carried both a locked rotor amp and full load amp rating. The terminology for full load amps was changed (early 70’s) to rated load amps in accordance with U.L. and N.E.C. requirements. With the introduction of maximum continuous current values, rated load amp values on Copeland® compressors are established so that the maximum continuous current rating on most compressors is 140% of the rated load amp rating.

Although U.L. standards would permit a rated load amp rating at the minimum value necessary to permit compliance with the 156% rule, contactors are not subject to qualification tests to determine their acceptability under such conditions. Therefore on all Copeland compressors with pilot circuit protection, a minimum contactor selection based on Emerson’s rated load amp nameplate value is required as a condition of the Emerson warranty.

Manufacturers have the option of using a rated load amp value on their unit nameplate either higher or lower than the Copelametic nameplate value, providing it falls within the 156% rule and the rated load amp value on the compressor nameplate is obliterated.

U.L. has designated evaporator operating ranges as follows:

1. +32°F. to +53.5°F.
2. -10°F. to +32°F.
3. -30°F. to +10°F.
4. -40°F. to +10°F.
5. -40°F. to -20°F.

The U.L. standard requires a separate rated load amp value for each operating range and each refrigerant, with the exception that a compressor applied in two or more ranges may be rated at the higher value for all ranges if desired.

Copeland compressors applied with the same refrigerant in two different ranges (for example, high temperature R-12 and medium temperature R-12) have been tested at the high temperature range, and the maximum continuous current and rated load amp values established on the basis of the higher evaporator loading condition. These values can be used without further testing on lower temperature evaporating ranges.

Where a Copeland compressor is applied with different refrigerants in two ranges (for example, high temperature R-12 and low temperature R-502) separate maximum continuous current values have been established for each, but for Copelametic nameplate purposes, only the highest resulting rated load amp value is used. In most cases, the MCC can be calculated by multiplying the RLA by 1.40. Consult with the factory for additional information.