

Power Factor - Know the Facts!

control the supply air temperature, QUEST mode uses software controls to maintain the actual temperature of the commodity, reducing system runtime and saving energy in the process.

Additionally, PrimeLINE units can be equipped with eAutoFresh™ automatic fresh air ventilation, which saves energy by ventilating only “on demand” rather than constantly, as occurs with manual ventilation methods.

Just as PrimeLINE units circle the world in service to shipping lines of all sizes, they also run circles around the competition when it comes to the challenges that are most meaningful to our customers. By every important measure, the PrimeLINE unit is the reigning champion of the high seas.

DEFINING A CHAMPION PERFORMER

Exceptional Energy Efficiency	✓
Best-in-Class Capacity	✓
Deep Frozen Performance to -31°F (-35°C)	✓
Best-in-Class Pulldown	✓
Best-in-Class Temperature Control to +/-0.25°C	✓
Efficient Electric Heating	✓
Best-in-Class Airflow	✓
Total Cost of Ownership	✓
M&R Reliability	✓
Best-in-Class Durability and Corrosion-Resistance	✓
430 Authorized Service Centers	✓
Best-in-Class Dehumidification Option	✓
QUEST Power-Saving Mode	✓
Automatic Fresh Air Ventilation	✓



The term “power factor” has recently been tossed about by some container refrigeration system manufacturers when discussing refrigeration unit energy performance, and it seems to be creating some confusion within the market.

“Power factor is not the same as energy efficiency, and the two should not be lumped together,” said Kartik Kumar, director of marketing and strategic planning, Global Container Refrigeration.

“The power factor is a ratio of kilowatts to kilovolt amperes,” explained Suresh Duraisamy, Carrier Transicold senior product manager. “As such, power factor is something that changes based on variables such as load conditions.

“From an engineering perspective, the PrimeLINE unit’s power factors are appropriate for its design, but this is not a measure that we would compare against other units – our own or competitors – because it’s somewhat meaningless,” Duraisamy said.

“In simple terms,” he explained, “it’s like comparing the energy spent in climbing a 10-foot wall by going vertically up a 10-foot ladder, versus climbing a 15-foot ladder on an incline. The identical result is achieved, and the energy required is the same. The ladder represents the power factor, and for purposes of this example its size is of no consequence.”

“Moreover,” Kumar added, “we’ve seen competitors claiming their refrigeration systems have the highest power factor, but some of these claims are based on part-load operation, rather than a full range of load conditions.”

“Interestingly, some claim that their power factors allow more reefers to be used on a vessel or terminal, but they have ignored the kilowatt limitations of typical electric generators,” Duraisamy said. “This creates hypothetical, but unrealistic or wholly impossible scenarios.”

“When making decisions about container refrigeration systems, customers need to consider energy consumption based on real-world operations,” Kumar explained. “There is no single-number answer to what makes a great container refrigeration unit. Customers need to consider the full range of criteria, including refrigeration performance.”