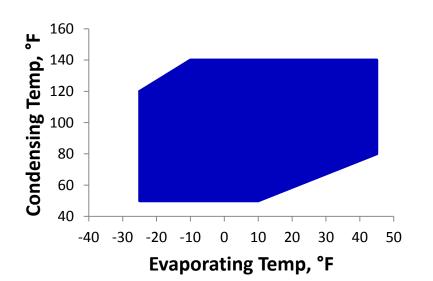
Copeland Scroll ZSKA Refrigeration Compressor

Information Package

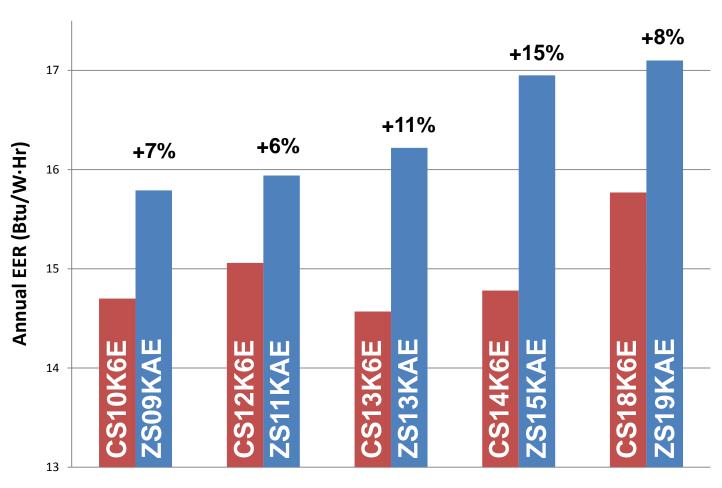


ZSKA Key Product Advantages

- Scroll Efficiency
 - 15% EER Improvement Over Hermetic Reciprocating Compressors!
- Wide Operating Envelope From -25°F To 45°F
- Scroll Reliability
 - 70% Fewer Moving Parts Than Recip
 - Superior Liquid Handling
- Smooth Scroll Movement -> Low Sound & Vibration
- Qualified For R-404A, R507, R-134a, R-407A/C, & R-22

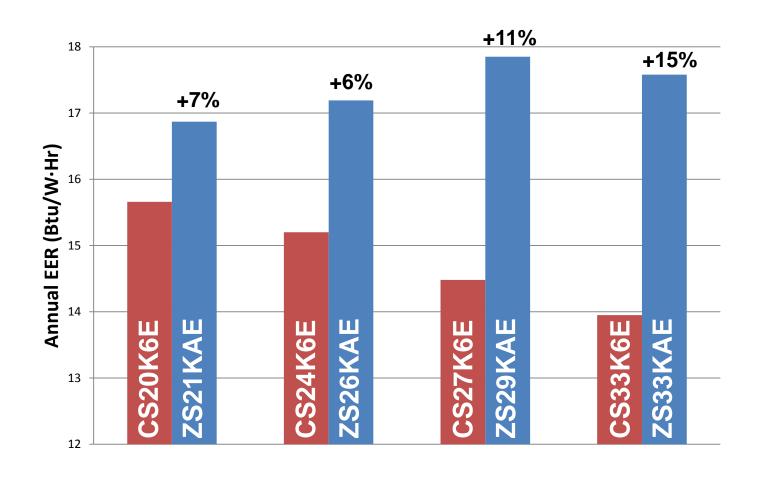


Annual Energy Efficiency Comparison ZSKA Scroll Vs. CSK6E Reciprocating



R-404A, PFV Electricals, 20°F Evaporator Atlanta, GA

Annual Energy Efficiency Comparison ZSKA Scroll Vs. CSK6E Reciprocating



R-404A, TF5 Electricals, 20°F Evaporator Atlanta, GA

ZSKA Specifications

| Model | Displacement (CFH) | Capacity (BTU/hr) | EER | Length (in) | Width (in) | Height (in) | Sound (dBA) |
|--------|-----------------------|----------------------|-----|----------------|---------------|-------------|----------------|
| ZS09KA | 1.307 | 9,400 | 6.6 | 9.7 | 9.7 | 16.0 | 70 |
| ZS11KA | 1.538 | 11,200 | 6.6 | 9.7 | 9.7 | 16.0 | 70 |
| ZS13KA | 1.768 | 12,800 | 6.7 | 9.7 | 9.7 | 16.0 | 72 |
| ZS15KA | 2.079 | 15,500 | 7.0 | 9.7 | 9.7 | 16.0 | 70 |
| ZS19KA | 2.361 | 17,500 | 7.0 | 9.7 | 9.7 | 16.0 | 70 |
| ZS21KA | 3.108 | 23,400 | 7.1 | 9.7 | 9.7 | 17.2 | 76 |
| ZS26KA | 3.450 | 26,000 | 7.2 | 9.7 | 9.7 | 17.2 | 76 |
| ZS29KA | 3.865 | 29,400 | 7.3 | 9.7 | 9.7 | 17.2 | 76 |
| ZS33KA | 4.395 | 32,600 | 7.3 | 9.7 | 9.7 | 17.2 | 76 |

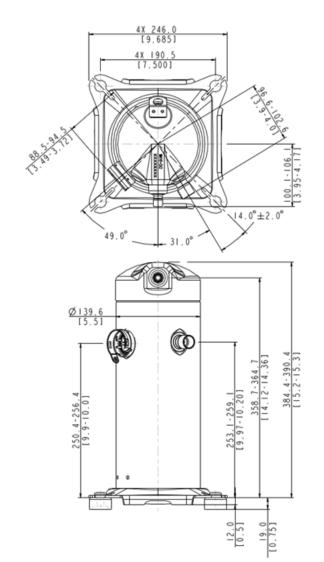
R404A At 20°F / 120°F / 65°F Return Gas 0°F Subcooling

Standard ZSKA Features

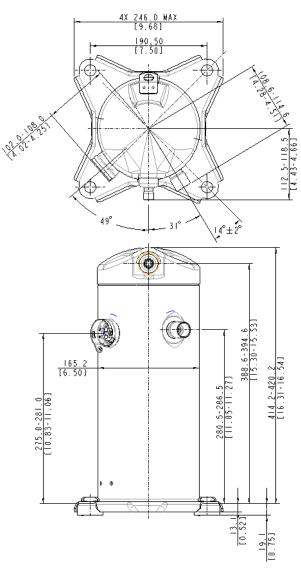
- Molded Plug Electricals For Ease Of Assembly
- Low Leak Check Valve For Reduced System Leak-Back

ZSKA Dimensions

ZS15-19KAE



ZS21-33KAE



| | ZS09- 19KAE | ZS21- 33KAE |
|---------------------|----------------|----------------|
| Overall Height | 16.0 in | 17.2 in |
| Suction Height | 10.9 in | 15.4 in |
| Discharge Height | 14.9 in | 11.2 in |

More Information On ZSKA



Marketing Brochure

ZSKA Website:

www.emersonclimate.com/Copeland_scroll_zska

Additional Resources
Available By Registering For
Online Product Information At
www.EmersonClimate.com



The ZS**KAE Copeland Scroll* compressor represents the latest generation of compliant scroll technology for the refrigeration industry.

Nomenclature

The refrigeration scroll model numbers include the nominal capacity at standard 60HZ ARI rating conditions for medium temperature (201120°F). For additional information on this product, please refer to the Online Product Information accessible from the Emerson Climate Technologies web site at www.emersonclimate.com.

- Z = Scroll
- S = Extended Medium Temperature Application 09K = nominal Capacity (x 1,000 Btu/hr)
- A = Compressor Generation
- E = POE Oil

Operating Envelope

The ZS**KAE refrigeration scroll compressor models can be used with a variety of refrigerants depending on the model selected and the lubricant used. (See Table 1)

The ZS**KAE models are intended for extended medium and high temperature refrigaration type duy. The approved operating envelopes for these models are such that they are ideally suited for applications such as loe machines, bulk milk and frozen carbonated beverage/frozen uncarbonated beverage/frozen uncarbonated beverage. The models and operating envelopes are depicted in Figures 1A,

Accumulators

Due to the scrolls' inherent ability to handle liquid erfigerant in flooded start and defrost cycle operation conditions, accumulators may not be required. An accumulator is required on single compressor systems when the charge limitations exceed those values listed in Table 2. On systems with defrost schemes or transient operations that allow protinged uncontrolled injust return to the sucreto header of sufficient volume to prevent liquid migration to the compressor is used.

Excessive liquid flood back or repeated flooded starts will dilute the oil in the compressor causing inadequate lubrication and bearing wear. Proper system design will minimize liquid flood back, thereby ensuring maximum compressor life.

© 2011 Emerson Climate Technologies Printed in the U.S.A. Crankcase heaters are required on all ZS**KAE scroll compressors where the system charge exceeds charge

ΔF4-1387

The Issted crankcase heaters are intended for use nonly when there is limited access (See Table 3). The heaters are not equipped for use with electrical conduit, Where applicable, electrical safety codes require lead protection, a crankcase heater terminal box should be used. Recommended crankcase heater terminal box are any questions concerning their application, contact our Emerson Climate Technologies representative.

Discharge Line Thermosta

Figures 1A, 1B and 1C show the operating maps based on refrigerant for the ZS**KAE scroll. Operation beyond these limits can cause high compression ratios or excessive internal compressor temperatures. This will result in overheating the scroll members, causing excessive wear resulting in premature compressor failure.

If the system is designed where operation with in these guidelines cannot be guaranteed, then the discharge line thermostat is required in the compressor control circuit.

The thermostats have a cut out setting that will insure discharge line temperatures below the 275°F maximum limit. It should be installed approximately 6 inches from the discharge tube outlet. If a service valve is installed at discharge tube, the thermostat should be located 5 inches from the valve haze.

rics have been set up to include the thermostat, retainer, and installation instructions. These thermostats must be used with ½° 0.D. discharge lines to ensure proper thermal transfer and temperature control. They work with either 120 or 240-volt control circuits and are available with or without an alarm circuit capability. See Table 4 for a list of discharge line thermostat kit numbers.

Pressure Controls

Both high and low-pressure controls are required on all models. See Table 5 for set points.

Pump Down Recommendations

All the ZS**KAE scrolls have an internal spring loaded low-leak discharge check valve suitable for pump down application. This valve prevents system pressures from equalizing and pump down can be achieved. However, during laboratory testing, we have observed a potential

Application Engineering Bulletin – AE-1387