

Copeland ZO scroll compressor

For subcritical R-744 (CO₂) applications

CO₂ low temperature refrigeration

Copeland has been a critical resource in past refrigerant transitions. As the market leader with the broadest compressor line up, our experience with refrigerants and products to fit the industry needs make us uniquely qualified to provide a compressor solution for CO₂.

Increasing environmental concerns about the potential direct emissions from HFC-based refrigeration systems into the atmosphere have led system designers to revisit refrigerant R-744 (CO₂). In comparison with HFC refrigerants, the specific properties of CO₂ require changes in the design of the refrigeration system. The ZO range of Copeland scroll compressors has been designed to exploit the characteristics of CO₂ refrigeration systems. The efficiency, reliability and liquid handling advantages of Copeland scroll technology make it ideal for these applications.

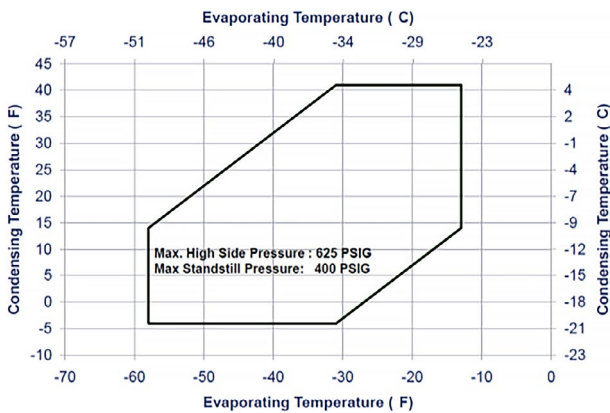


Copeland ZO (subcritical) scroll compressors

- 6 displacements from 1 to 6 HP
- 23 to 104 MBH; rated at -25°F evaporating, 20°F saturated discharge temperature
- 3 digital displacements (2, 3.5 and 6 HP at full capacity), providing 10 to 100% capacity modulation

Safeguarding your product and our environment

Environmental concerns must address potential direct refrigerant emissions as well as those arising from the energy consumption of the refrigeration system. The use of the refrigerant CO₂ has the potential to reduce direct emissions. However, refrigerant leakage is still undesirable as it jeopardizes system reliability. With its hermetic design, Copeland scroll technology eliminates any compressor-related leakage, contributing to reliable system operation and thus safeguarding your refrigerated product.



Additionally, the ZO range of scroll compressors transfers the high efficiency inherent in the Copeland scroll design to subcritical CO₂ refrigeration systems.

The extended operating envelope of the ZO compressors can further boost overall system efficiency when taking advantage of low load night time operation.

In comparison with HFC refrigerants, the specific properties of R-744 require changes in the design of the refrigeration system. The ZO range of Copeland scroll compressors has been designed to exploit the characteristics of the R-744 refrigeration system. Efficiency, reliability and liquid handling advantages of Copeland scroll technology apply. The optimized design of ZO compressors addresses the challenges of R-744 systems, which include high pressure levels and higher mass flow for a given displacement, while ensuring proper lubrication.

The range consists of 6 displacement including 3 digital models for 10 to 100% continuous cooling capacity modulation.

ZO model summary

Model		Nominal HP	Disp. (CFH)	Capacity (Btu/hr) ¹	EER (Bth/Wh)
Standard	Digital				
ZO21K5E	-	1.0	112 CFH	20,800 btuh	15.4
ZO34K3E	ZOD34K3E	2.0	172 CFH	32,000 btuh	15.4
ZO45K3E	-	2.5	228 CFH	44,000 btuh	16.5
ZO58K3E	ZOD58K3E	3.5	291 CFH	57,000 btuh	16.9
ZO88K3E	-	5.0	431 CFH	85,300 btuh	16.3
ZO104K3E	ZOD104KCE	6.0	498 CFH	98,500 btuh	15.8

¹Capacity with R-744 at -31°F evap, 14°F cascade cond, 5°F RG, 14°F liquid