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Application Engineering Europe

SOUND SHELL INSTALLATION INSTRUCTIONS FOR COPELAND SCROLL™ COMPRESSORS – 2 - 8 HP AND 7 - 15 HP “SUMMIT” SERIES

1 Introduction

Emerson Climate Technologies has developed a new sound shell for noise sensitive applications. It is designed to be factory mounted by the equipment manufacturers or to be installed on site with the greatest of ease and speed. This new generation of sound shells perfectly fits the shape of the compressor. The shells are retrofitable to ensure minimum downtime.

Sound shells can be fitted on Scroll compressors from 2 to 15 HP including the “Summit” series. **The sound shell provides an overall sound attenuation of 10 to 12 dB(A) making Scroll compressors the quietest solution currently available on the market.**

The design conforms to IEC 60335-1 with CE certification.

2 Sound shell installation

1. Check that the base/frame the compressor is to be mounted on is secure and fixed.
 - a) Place the sound shell base plate in position, then put the compressor on top with the correct pipe-work orientation **(Step 1)**.
 - b) Secure the mounting feet of the compressor. Use soft mounting grommets for single compressor and hard mounting parts for parallel compressor applications.
 - c) Braze the suction and discharge lines - not shown in these photographs.
 - d) If a crankcase heater is to be used, fit it around the lower part of the compressor body below the oil level.
2. Remove the pre-cut round electrical inserts from the terminal box overlay, run the wires through, and connect them inside the terminal box. Put the “T” box cover back in its place then fit the outer overlay **(Step 2)**. In case of “Summit” Series Digital, position the second overlay over the Digital solenoid valve box. The overlay is the same as the terminal box overlay.
3. Position the mantle around the compressor body ensuring suction inlet, discharge outlet and oil Schraeder are accessible **(Step 3)**.
4. The mantle ends meet and overlap with Velcro fastening **(Step 4)**.
5. Place the top cap in position with a correct fitting around the discharge outlet. An “O” ring holds the top cap closed around the insulation ring and discharge pipe **(Step 5)**. An additional “O” ring holds the cover above the compressor top cap for 2 - 8 HP Scroll compressors **(Step 5)** on 2 - 4 HP and 4 - 6 HP Scroll compressors).
6. Fit the closing ring at the foot of the compressor between the main shell and the base plate rim to ensure a tight seal and prevent any noise leakage or infiltration of moisture etc **(Steps 5 & 6)**.

<p>2 - 4 HP Scroll Compressors</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>
<p>4 - 8 HP Scroll Compressors</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>
<p>4 - 6 HP Scroll ZF Compressors with DTC</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>
<p>4 - 6 HP Digital Scroll Compressors</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>

<p>Summit™ Series 7 - 15 HP Scroll Compressors</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>
<p>Summit™ ZF 10 - 15 HP Scroll Compressors</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>
<p>Summit™ Digital Scroll Compressors</p>	 <p>Step 1</p>	 <p>Step 2</p>	 <p>Step 3</p>	 <p>Step 4</p>	 <p>Step 5</p>	 <p>Step 6</p>

Points to note:

- The bottom of the mantle should be fitted inside the base plate rim.
- Crankcase heaters should not be placed around the outside of the sound shell.
- Using a crankcase heater within a sound shell is a tested and approved application by Emerson Climate Technologies.
- Electrical cables should be run through the inserts in the bottom and on the side of the terminal box overlay.
- The compressor is fully encapsulated, including the electrical box and top cap of the compressor in order to minimize sound leaks.

3 Technical data

Size	Small Scroll	“Summit” Scroll			“Summit” ZF 10 - 15 HP Scroll		“Summit” Digital Scroll	
	All	Small	Medium	Large	Small	Medium	Small	Medium
Technical data								
Sound attenuation	10 – 12 dB(A)							
Total weight	3.4 kg	4.8 kg	4.9 kg	5.1 kg	4.8 kg	4.8 kg	5.3 kg	5.6 kg
Mantle thickness	25 mm							
Flammability	Conforms to IEC 60335-1 §30							
Material								
Mantle	Green felt layer (cotton + binder 1.2 kg/m ²)							
	Heavy layer (PVC 4.5 kg/m ²)							
	Closure by use of Velcro fastening - High frequency welded on PVC layer							
Base plate	PU SRIM - Low pressure reaction injection molding technology							
Top cap cover	PU SRIM - Low pressure reaction injection molding technology							
	Inside insulation green felt and aluminum film							
	High temperature insulation ring							
Terminal box cover	PU SRIM - Low pressure reaction injection molding technology							

4 Sizes and compressors

4.1 2 - 4 HP compressors

	Air conditioning	Refrigeration	Heat pump
Small size	ZR22K3E, ZR28K3E ZP23K3E, ZP26K3E	ZB15KCE, ZB19KCE, ZF06K4E ZS15K4E, ZO34K3E	ZH15K4E
Medium size	ZR34K3E, ZRD42KCE, ZRD48KCE ZP32K3E	ZB21KCE, ZBD21KCE ZF08K4E, ZF09K4E ZS19K4E, ZS21K4E, ZO45K3E	ZH19K4E, ZH21K4E, ZH09KVE
Large size	ZP41K3E, ZR40K3E, ZR48K3E	ZB26KCE, ZB29KCE, ZBD29KCE ZF11K4E, ZS26K4E, ZO58K3E	ZH26K4E ZH06K1P, ZH09K1P ZHI08K1P
Base - Fits all models mentioned in this table			

4.2 4 - 8 HP compressors

There is one size available with or without a sound shell base

Air conditioning	Refrigeration	Heat pump
ZR49KCE to ZR81KCE ZRD61KCE to ZRD81KCE ZP54K3E ZP61KCE to ZP91KCE ZPD54KCE to ZPD83KCE	ZB30KCE to ZB48KCE ZBD30KCE to ZBD45KCE ZF13K4E to ZF18K4E ZF13KVE to ZF18KVE ZFD13KVE, ZFD18KVE ZS30K4E to ZS45K4E ZO104KCE & ZOD104KCE	ZH30K4E to ZH45K4E ZH15K1P & ZH19K1P ZH13KVE & ZH18KVE ZHI18K1P* & ZHI23K1P*
Base - Fits all models mentioned in this table		

“*”: Only for single operation model BOM 526

4.3 “Summit” – Standard compressors

There are three sizes available with or without a sound shell base

	Air conditioning	Refrigeration	Heat Pump
Small size	ZR94KCE, ZP90KCE	ZB50KCE & ZB58KCE	
Medium size	ZR108KCE to ZR144KCE ZP103KCE, ZP120KCE, ZP137KCE	ZB66KCE & ZB76KCE	ZHI27K1P & ZHI32K1P
Large size	ZR160KCE to ZR190KCE ZP154KCE to ZP182KCE	ZB95KCE & ZB114KCE	ZHI35K1P & ZHI40K1P
Base - Fits all models mentioned in this table			

4.4 ”Summit” K5E compressors

There are two sizes available with or without a sound shell base

Medium size	Large size
ZB66K5E, ZB76K5E ZF34K5E, ZF45K5E	ZB95K5E, ZB114K5E ZF49K5E
Base - Fits all models mentioned in this table	

4.5 “Summit” – Digital compressors

There are two sizes available with or without a sound shell base

	Air conditioning	Refrigeration
Small size	ZRD94KCE	ZBD58KCE
Medium size	ZRD125KCE ZPD120KCE & ZPD137KCE	ZBD76KCE
Base - Fits all models mentioned in this table		