# **Copeland scroll compressors**

# Sound shell – Installation instructions

## 1 Introduction

Copeland has developed a 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 retrofittable to ensure minimum downtime.

These sound shells can be fitted on scroll compressors from 1.3 to 15 hp.

Compressors equipped with these sound shells conform to IEC 60335-1 and IEC 60335-2-34 or similar with CE certification.

The sound shell provides an overall sound attenuation of 10 to 12 dB(A) making Copeland scroll compressors the quietest solution currently available on the market.

## 2 Sound shell installation

- 1. Check that the base/frame of the compressor the shell is to be mounted on is secure and fixed.
- 2. Place the sound shell baseplate in position, then put the compressor on top with the correct pipework orientation (see **Step 1**).
- 3. Secure the mounting feet of the compressor. Use soft mounting grommets for single compressors and hard mounting parts for parallel compressor applications.
- 4. Braze the suction and discharge lines not shown in the photographs below.
- 5. If a crankcase heater is to be used fit it around the lower part of the compressor body below the oil level part.
- 6. 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 (see Step 2). In case of "Summit" Series digital compressor, position the second overlay over the digital solenoid valve box. The overlay is the same as the terminal box overlay.
- 7. Position the mantle around the compressor body ensuring suction inlet, discharge outlet and oil Schraeder are accessible (see **Step 3**).
- 8. The mantle ends meet and overlap with Velcro fastening (see Step 4).
- 9. 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 (see **Step 5**). An addition O-ring holds the cover above the compressor top cap for 2 8 hp scroll compressors (see **Step 5** on 2 4 hp and 4 6 hp compressors).
- 10. Fit the closing ring at the foot of the compressor between the main mantle and the baseplate rim to ensure a tight seal preventing any noise leakage or infiltration of moisture (see **Steps 5 & 6**).



Table 1: Scroll compressors – 2 to 4 hp





Table 2: Scroll compressors – 4 to 8 hp



Table 3: Scroll compressors – 4 to 6 hp, with DTC valve



Table 4: Digital scroll compressors – 4 to 6 hp, brazing



Table 5: Digital scroll compressors – 4 to 6 hp, Rotalock





Table 6: Scroll compressors – 7 to 15 hp



Table 7: Scroll compressors - 10 to 15 hp, with injection port



Table 8: Digital scroll compressors - 7 to 15 hp

#### Points to note:

- The bottom of the mantle should be fitted inside the baseplate rim.
- Crankcase heaters should not be placed around the outside of the shell.
- Using a crankcase heater within a sound shell is an application tested and approved by Copeland.
- 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, top cap and the compressor in order to minimize sound leaks.
- The sound shell will cover not only the compressor but also the nameplate and/or any kind of warning labels which are applied on the compressor



# 3 Technical data

Technical data			
Sound attenuation	10 – 12 dB(A)		
Mantle thickness	22 mm		
Flammability	Conforms to IEC 60335-1 §30 Not ATEX certified, to be used only in non-flammable environments		
Total weight (kg)	Depends on compressor size		
Material			
Mantle	Green felt layer (cotton + binder 1.2 kg/m²) Heavy layer (PVC 4 kg/m²) Closure by use of Velcro fastening - High frequency welded on PVC layer		
Baseplate	PU SRIM - Low pressure reaction injection moulding technology		
Top cap cover	PU SRIM - Low pressure reaction injection moulding technology Inside insulation green felt and aluminium film High temperature insulation ring		
Terminal box cover	PU SRIM - Low pressure reaction injection moulding technology		

# 4 Sound shell selection according to compressor type

### 4.1 1.3 to 2 hp scroll compressors

Kit 8415804 (with base), 84	416114 (without base)	Kit 8415791 (with base), 8416114 (without base)					
3 feet, BO	M 524	4 feet, BOM 618					
ZS09KAE, ZS11K4E, ZS13K4E							
4.2 2 to 4 hp scroll compressors							
Kit 8415791 (with base), 8416114 (without base)							
ZP24K5E, ZP29K	5E, ZP31K5E						
Kit 8562528 (with base), 8562539 (without base)							
ZR24KRE & ZR28KRE ZR22K3E & ZR28K3E ZP23K3E & ZP26K3E	ZB15KCE, ZB19KCE ZF06K4E, ZS15K4E ZO34K3E, ZOD34K3	ZH15K4E					
Kit 8562540 (with base), 8562551 (without base)							
ZP32K3E ZR34K3E, ZR36KRE ZRD42KCE, ZRD48KCE ZRD36KRE	ZB21KCE, ZBD21KC ZF08K4E, ZF09K4E ZS19K4E, ZS21K4E ZO45K3E	E ZH19K4E, ZH21K4E ZH09KVE					
Kit 8415815 (with base) 8416125 (without base)							
ZP36K5E, ZP42K5E	ZH06K1P, ZH09K1P	YH06K1P, YH09K1P					

Kit 8562562 (with base), 8562573 (without base)							
ZP41K3E, ZR40K3E, ZR48K3E ZR42KRE, ZR48KRE, ZRD48KRE	ZB26KCE, ZB29KCE, ZBD29KCE ZF11K4E, ZS26K4E, ZO58K3E	ZH26K4E, ZHI08K1P					





### 4.3 4 to 8 hp scroll compressors

Kit 8422168 (with base)	Kit 8422179 (with base)						
ZP54K5E		ZP61K5E					
Kit 8410116 (with base), 8410127 (without base)							
ZP50K3E & ZP54K3E ZP61KCE to ZP91KCE ZPD61KCE to ZPD91KCE ZR49KCE to ZR81KCE ZR61KRE to ZR92KRE ZRD61KCE to ZRD81KCE ZRD61KRE to ZRD92KRE	ZB30KCE f ZBD30KCE f ZF13K*E f ZFD13KVE ZS30K4E f ZO88KCE, ZOD1	to ZB45KCE to ZBD45KCE to ZF18K*E , ZFD18KVE to ZS45K4E ZO104KCE 04KCE	ZH30K4E to ZH45K4E ZH15K1P & ZH19K1P ZH13KVE & ZH18KVE ZHI18K1P* & ZHI23K1P* YH15K1P				
4.4 7.5 to 15 hp scroll compressors							
Kit 841328 (with base), 8413295 ZP104KCE, ZP122KCE, ZP ZPD104KCE, ZPD122k	(without base) 143KCE KCE	Kit 8414801 (with base), 8414812 (without base) ZB48KCE & ZB57KCE, ZBD57KCE ZF25K5E, ZFD25KVE					
Kit 8609149 (with base), 8608895	(without base)	Kit 8609150 (wi	th base), 8608908 (without base)				
ZR94KCE, ZP90KCI ZB50KCE & ZB58KC ZH40KCE	E	ZR108K0 ZR108K ZB66KCE & Z	CE, ZR125KCE, ZR144KCE RE ZR125KRE ZR144KRE B76KCE, ZH45KCE & ZH50KCE				
Kit 8622468 (with base), 8622479 ZP103KCE, ZP120KCE, ZP137KCE	(without base) , BOM 477 / 977	Kit 8619764 (wi Z⊦	ith base), 8619775 (without base) II27K1P & ZHI32K1P				
Kit 8615433 (with base), 8615444	(without base)	Kit 8615455 (wi	ith base), 8615466 (without base)				
YB56K1G, YB4K1G ZF34K5E, ZF41K5E ZB66K5E, ZB76K5E		Y Z Z	′B81K1G, YB97K1G B95K5E, ZB114K5E ZF49K5E, ZF54K5E				
Kit 8609161 (with base), 8608919	(without base)	Kit 8622446 (wi	ith base), 8622457 (without base)				
ZP154KCE, ZP182KC ZP154KPE, ZP182KF ZR160KCE & ZR190K ZR160KRE & ZR190K ZB95KCE & ZB114KC ZH64KCE & ZH75KC	DE PE CE RE DE DE	ZP154KCE, ZP182KCE ZP154KPE, ZP182KPE With BOM 477 / 977					
Kit 8412689 (with base), 8412690	(without base)	Kit 8619786 (wi	th base), 8619797 (without base)				
ZP182KCE-TW* ZP154KCE-TW*		ZH	1135K1P & ZHI40K1P				
Kit 8413411 (with base), 8413422 (without base) ZBD76K5E, ZFD41K5E		Kit 8413433 (with base), 8413444 (without base) ZBD114K5E					
Kit 8611646 (with base), 8611624	(without base)	Kit 8611657 (wi	th base), 8611635 (without base)				
ZRD94KCE ZBD58KCE		ZRD125KCE ZPD103KCE, ZPD120KCE, ZPD137KCE ZBD76KCE					
Kit 8423036 (with base), 8423047	(without base)	Kit 8638525 <u>(</u> wi	th base), 8638536 (without base)				
YP104K1T, YP1122K1T YHV0961, YHV1191		YP137K YH23K1E, Y YH23K1G, Y	1T, YP154K1T, YP182K1T /H28K1E, YH33K1E, YH38K1E /H28K1G, YH33K1G, YH38K1G				

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