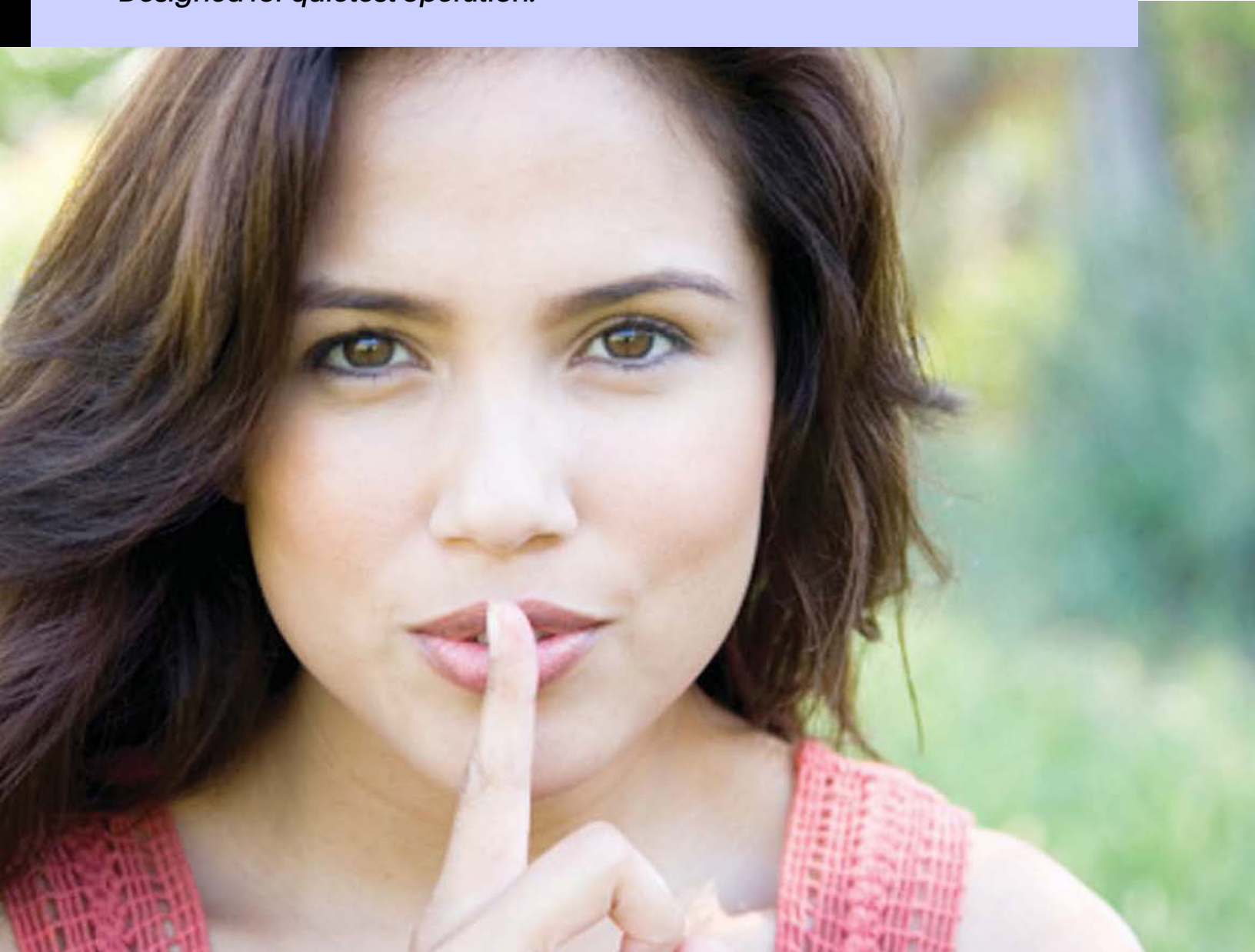# Sound shell for Copeland compressors

Designed for quietest operation.

Low Sound

Silence by Copeland

Refrigeration and HVAC equipment noise has become as important as its carbon footprint, level of reliability or of energy efficiency. This is particularly true for compressor packs on HVAC units that are often a source of disturbing noise in urban areas by their very nature. Copeland puts sound minimization at the centre of compressor development, along with sustainable performance, seasonal efficiency, reliability and robustness as well as compactness. And we have gone one step further by designing ground-breaking sound shells that provide outstanding sound reduction benefits.

The result is a full range of compressor sound shells for our entire range of scroll and semi-hermetic compressors. The sound shell is available for applications that are extremely sound sensitive, making Copeland's compressors the quietest on the market by far.

Sound Shells for scroll compressors

Copeland introduced its first sound shell on the 7 to 15 hp Copeland Scroll for refrigeration and air conditioning in 2008. The benefit of such a sound solution has become widely recognized and its fast growing success resulted in the extension of this sound reduction technology to all Copeland Scroll compressors from 2 to 15 hp including refrigeration, heating and air conditioning compressors.

Scroll Sound Shell and its key benefits:

- 10 to 12 dBA sound attenuation
- Removes the need to acoustically insulate the full cooling unit with associated cost reduction
- Uncompromised compressor operation, performance, reliability
- Designed for in-factory mounting (new equipment) or on-site installation (retrofit)

- Easy to fit, reducing mounting labor time
- Clean fit and nice finish
- Ideal for sound sensitive applications such as urban shops and retailers in residential areas
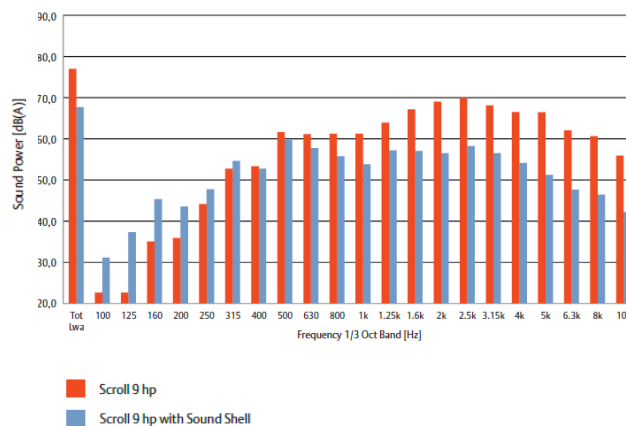- Available for all scroll sizes

How it works

Ground-breaking design techniques and materials derived from the automotive industry were utilized to develop the sound shell. The use of low pressure reaction injection techniques for the molded parts (top cap cover, terminal box cover and compressor base plate) allows a 10 to 12 dBA sound attenuation, a significant improvement over conventional sound jackets that reduce sound by 3 to 6 dBA.

In the design stage, particular attention was paid to ensuring ease of mounting in retrofit, service and new installation situations. The sound shell completely encapsulates the compressor, minimizing sound leaks without compromising compressor performance.

Scroll 9 hp

Sound power with and without sound shell

■ Scroll 9 hp
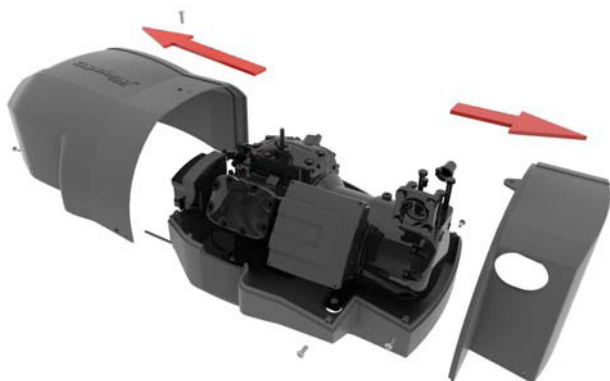■ Scroll 9 hp with Sound Shell

Sound Shell for stream semi-hermetic compressors

Sound challenges are typically associated with small compact equipment installed in urban areas. However, these challenges are increasingly extending to larger refrigeration systems using semi-hermetic reciprocating compressors. That is why Copeland developed a sound solution for its semihermetic reciprocating compressor range Stream.

Design efforts on Stream have led to a sound reduction of up to 7 dBA, compared to previous generations of Discus® compressors. However, an optimized sound level on the compressor is not always suffi cient for sound sensitive applications. As a result and building on the success of the scroll sound shell, Copeland has developed a similar solution for the Stream 4 and 6 cylinder compressor range.

Stream Sound Shell and its key benefits:

- 10 to 13 dBA sound attenuation
- Removes the need to acoustically insulate the full cooling unit with the associated cost reduction
- Uncompromised compressor performance
- Unchanged operating envelope
- Easy to assemble
- Full access to main compressor components after installation via service doors
- Clean fit and nice finish
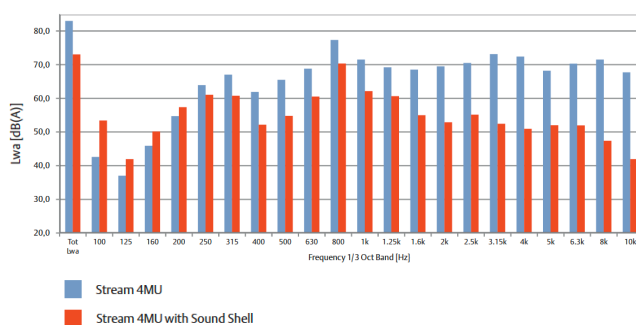- Perfect fit for installations in sound sensitive areas

How it works

The shell is made of five major parts that can be easily assembled and installed into refrigeration equipment. Snapped together parts allow quick access to key components of the compressor such as the oil control device (if mounted), the oil service valve or the CoreSense Diagnostics reset button. Two shell versions are available: one for 4 cylinder and one for 6 cylinder compressors, including Stream Digital models.

This patented sound shell solution provides an additional 10 to 13 dBA attenuation, making it the quietest reciprocating compressors on the market in this range of displacement.

Stream 4MU

Sound power with and without sound shell

■ Stream 4MU
■ Stream 4MU with Sound Shell

1	Head cover
2	Removeable parts for easy access to CoreSense or TraxOil
3	Encapsulated electrical box
4	Encapsulated suction valve

Technical data - Sound Shell for scroll and stream compressors

Product	Scroll 2 to 6 hp including Digital	Summit Scroll 7 to 15 hp including Digital	Stream 4 Cylinder Series including Digital	Stream 6 Cylinder Series including Digital
Product family	ZB(D), ZF(D), ZS, ZO(D) ZH, ZP(D), ZR(D)	ZB(D), ZF ZH, ZP(D), ZR(D)	4M, 4MD	6M, 6MD
Sound attenuation	10 to 12 dBA		10 to 13 dBA	
Total weight	3.4 kg	4.8 to 5.6 kg 21 kg	21 kg	22 kg
Mantle thickness	25mm		40 mm (30mm on cylinder heads)	
Flammability	Conforms to EN 60335-1		Conforms to EN 60335-1 & EN 60335-2-34	

Sound Shell for Copeland scroll

| 2 to 4 hp scroll | 4 to 6 hp scroll | 4 to 6 hp scroll ZF with DTC | 4 to 6 hp Digital Scroll | Summit Series 7 to 15 hp scroll | Summit Series Digital Scroll |

Sound Shell for Copeland Stream

COPELAND
Engineered for Sustainability