



Large chiller with Dual Scroll
up to 340 kW per circuit



Dual Scroll - Compressors and Controls Overview

Copeland Dual Scroll Overview

Model	Nominal Horse Power hp	Cooling Capacity kW ⁽¹⁾	COP	Length mm	Width mm	Height mm
Dual Scroll Single						
ZR620KCE	50	136	3,4	1209	481	590
ZR760KCE	60	164	3,4	1209	481	590
Dual Scroll Tandem⁽²⁾						
ZRT124M	2 x 50	272	3,4			
ZRU138M	50 + 60	300	3,4			
ZRT152M	2 x 60	328	3,4			

⁽¹⁾ EN 12900, HT: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K, R407C (Dew Point)

⁽²⁾ Tandem assemblies by system manufacturers. Copeland can provide technical support.

Controls Overview

Type	Model	Range	Description
Electronic expansion valves	EX6 / EX7 / EX8	up to 350 kW	Stepper motor driven, bi-flow, no solenoid needed
Superheat controller	EC3-X32 EC3-X33	any	Stand alone, plug & play controller, optional with TCP/IP interface
Pressure transmitter	PT4-075	-0.8 ... 7bar	Suction pressure input for EC3-X
Thermo-expansion valve	T-Series	2.1 ... 327 kW	Large diaphragm, bi-flow, modular design, 18 sizes
Solenoid valves	240RA	37.3 ... 208.3 kW	Liquid capacity: see catalogue for hot gas or suction applications, four sizes
Filter drier shells	ADKS-plus	Flow capacity up to 541 kW ⁽³⁾	for up to four cores S48, four sizes
Cores for drier shells	H48 / S48	48 inch ⁽³⁾	Optimised water and acid removal capacity
Hermetic filter drier	ADK	up to 75 inch ⁽³⁾	Hermetic design with solid core desiccant for liquid applications, seven sizes
Sight glass with moisture indicator	AMI	up to 54 mm tube ø	Large window with wide angle view and accurate crystal indicator element with calibrated four colors, 33 sizes
	MIA-PO6		U-shape tubing can be soldered in any tube size
Pressure switch	PS1	-0.5 ... 7 bar or 6 ... 31 bar	Switch point and difference adjustable. Manual or automatic reset.
Dual pressure switch	PS2	-0.5 ... 7 bar or 6 ... 31 bar	Many pressure connections. Optional TÜV approved versions, 45 sizes
Pressure switch	PS3-x6x	Low and high pressure	Pressostat with fixed settings according to customer specification, seven sizes
Fan speed controller	FSX / FSM	4 ... 43bar	Pressure actuated, for single-phase motors up to four A, voltage variation 50 ... 100 %, three sizes
	FSP + FSE	4 ... 43bar	Pressure actuated, for single- or three-phase motors up to eight A, voltage variation 30 ... 100 %, three models
Ball valve	BVA	up to 3-1/8" ODF tube size	Hermetic design, low leak rate, bi-flow, 17 sizes

⁽³⁾ @ 0.14 bar pressure drop

For more details, see www.eCopeland.com



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Dual Scroll
The Solution for Large
Air-Conditioning Systems





After the successful introduction of the large commercial scroll range (20 to 30 hp), Copeland is again setting the standard with the new Dual Scroll compressor for 50 & 60 hp in single and 100 to 120 hp in Tandem applications. This innovative compressor is designed for chillers, rooftops and custom engineered systems.



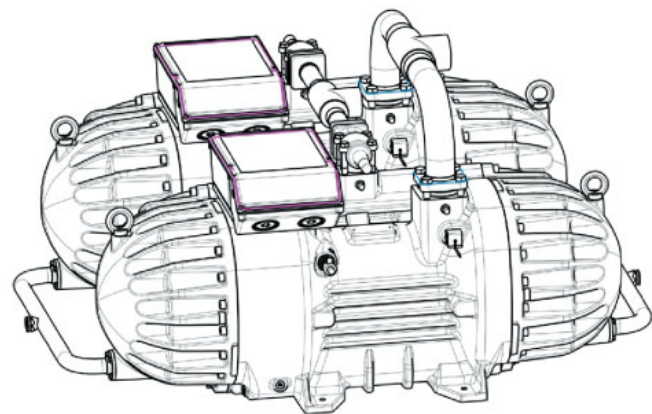
Combining the Best of Copeland Compressor Technologies

Dual Scroll - The Solution for Large Air-Conditioning Systems



The Air-Conditioning Compressor Market in Europe

The focus of the European air-conditioning industry has always been on high efficiency, reliability, low sound and lower applied cost compressors. This is why Scroll compressors have experienced a tremendous growth over the last ten years, becoming the technology of choice and replacing reciprocating and screw compressors.



Dual Scroll in Large Systems up to 340 kW per Circuit

Dual Scroll compressors allow OEMs to further extend the use of scroll in tandem applications up to 120 hp (340 kW) per circuit, thus replacing traditional screw compressors for scroll technology.

Higher System Efficiency with Dual Scroll

The air-conditioning commercial market has traditionally been very demanding regarding system efficiency. Now the availability of large scroll paralleling uniquely satisfies this requirement.

Today, the ongoing changes in performance certification of air-conditioning systems require a closer look at part load operation. In the past, full load conditions formed the EUROVENT certification process. In 2005, with increased environmental awareness, the European Seasonal Energy Efficiency Ratio (ESEER) was introduced. This classification focuses on part load conditions.

Scroll paralleling demonstrates better part load efficiency and the higher ESEER rating guarantees a much lower energy consumption for the end-user. Dual Scroll now allows the design of larger system with the highest part load efficiency, best applied cost and reliability. With scroll paralleling, OEMs can also benefit from a modular system approach, thus reducing design time while increasing standards in manufacturing.

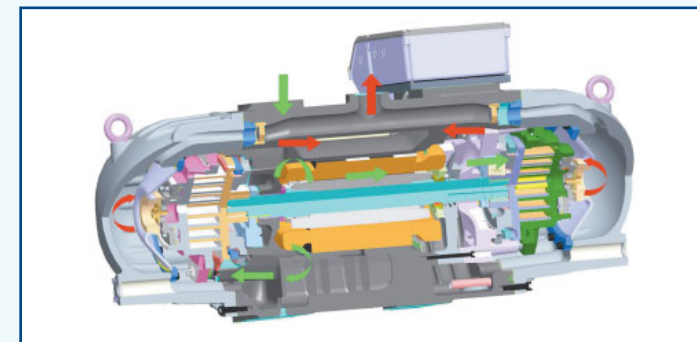
Production in Europe for Europe

The new Dual Scroll compressor is produced in Welkenraedt, Belgium. This plant is already serving Europe with all Copeland Scroll™ compressors from 7.5 hp to 30 hp.

The Dual Scroll Design

The Dual Scroll compressor has an innovative scroll design, featuring a horizontal semi-hermetic body with a scroll set mounted at each end of the central motor. By placing the motor horizontally a very compact unit is created. Dual Scroll has very low oil carry-over and an oil separator is not required.

For the single compressors, a capacity reduction by 50% is readily achieved by "switching off" one of the scrolls. This is obtained by separating the scroll set axially in exactly the same way as with a Copeland Scroll Digital™. By applying the Dual Scroll in tandem, four steps of capacity control are achieved (100, 75, 50 & 25 %). This highly efficient part-load arrangement gives superior seasonal efficiency compared to screw and reciprocating unloading methods.










Electronic Protection - Compressor Alert™

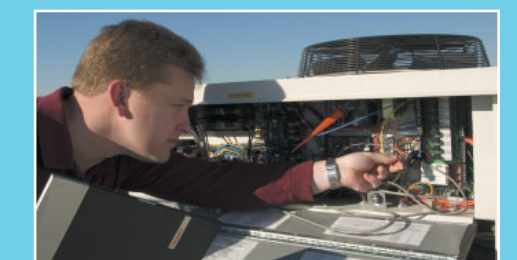
An advanced electronic module for diagnostics and protection is provided with the Dual Scroll. Data are acquired from one oil pressure sensor, six temperature sensors within the motor windings, and two discharge temperature sensors - one for each scroll set.

The Compressor Alert™ module provides advanced warning, tripping and lockout alarms, depending on the level and repetition pattern of the fault condition, and information can be transferred to the existing unit controller on Building Management Systems (BMS).

OEM and End-User Benefits

Dual Scroll is leveraging all the best of Copeland compressor technologies:

-  Superior seasonal efficiency with high efficiency both at full and part load conditions
-  Low sound semi-hermetic design
-  Wide operating envelope:
 - > High ambient and heat pump conditions
 - > No need for oil cooling or injection
-  Part winding motor: reduced inrush current
-  Capacity modulation
-  Unsurpassed compressor reliability thanks to small number of moving parts and Copeland's unique compliance principle for compressor liquid handling.
-  Electronic protection, diagnostic and communication with Compressor Alert™, leading to enhanced reliability



Easy Service and Troubleshooting with Compressor Alert™ Module