Copeland® Scroll™

DWM COPELAND

Leaders in Compressor Technology

Refrigeration

Air-Conditioning

Process Cooling

Heating

EMERSON™
Climate Technologies

Contents

World-Wide Leader in Refrigeration and Air-Conditioning Compressors

Emerson Climate Technologies delivers innovative technology, services and performance-based solutions to meet the critical needs of the global heating, ventilating, air-conditioning and refrigeration marketplace.

Copeland - division of Emerson Climate Technologies – is the world's leading compressor manufacturer, supporting the industry with advanced technology, technical support and training services.

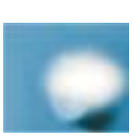
For more than 80 years Copeland has been introducing innovative technology to the market, from the first semi-hermetic and hermetic compressors in the 1940s and 1950s, to the high-efficiency DISCUS and air- conditioning compressors in the 1980s and 1990s. Copeland's Scroll technology has revolutionised the industry with high performance and reliability. With over 25 million installed globally, Copeland defines industry leadership.

Copeland offers a broad product range, providing a solution to a very wide variety of applications for the refrigeration and air-conditioning industry.

Responding to market needs, Copeland has introduced optimised refrigeration and dedicated Heat Pump scrolls. All compressors have been qualified for use with environmentally friendly HFC refrigerants.

Looking ahead, Copeland's world-wide manufacturing and technical centres will continue to remain on the forefront of technological and product innovation, providing solutions for all types of systems and application needs.

With 25 manufacturing facilities and dozens of sales offices located world-wide, Copeland provides a global network to system manufacturers, consultants, installers and end-users of the refrigeration and air- conditioning industry.



This brochure provides an overview of Copeland's product range and options as a reference for system planners, purchasers and end-users.

Refrigeration Scroll Compressors

Cost Effective Solutions for Refrigeration Challenges

2 to 15 hp Copeland Scroll™ compressors are designed and built exclusively for refrigeration applications. With fewer moving parts than conventional compressors, refrigeration scrolls are highly reliable and available for a full range of applications. Optimized for low, medium or high temperature applications, Copeland Scroll refrigeration compressors are replacing more and more traditional compressors because of these advantages:

- *High efficiency*
- *Low sound level*
- *Small space requirements*
- *Less weight*
- *Hermetic design*
- *Operation in extended application envelopes*

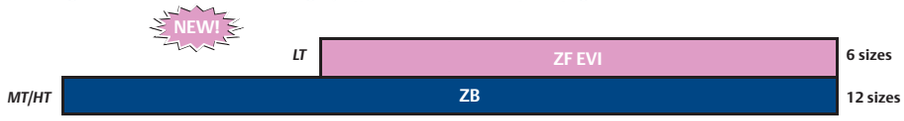
Refrigeration Scroll Compressors
Capable of handling the roughest working conditions

Product Ranges and Models

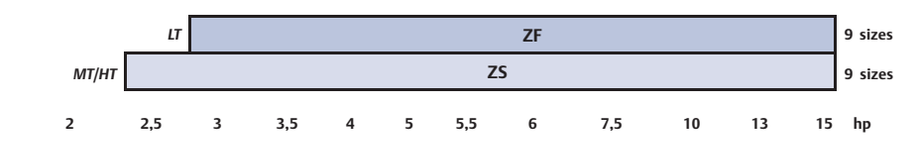
- ZF EVI for low temperature applications, 6 sizes from 4.2 to 14.8 kW (1)
- ZF for low temperature applications, 9 sizes from 1.9 to 9.9 kW (1)
- ZS for medium temperature applications, 9 sizes from 5.3 to 27.4 kW (2)
- ZB for high efficient medium and high temperature applications, 12 sizes from 3.4 to 25.9 kW (3)

For 50Hz and 60 Hz operation.
Approved for use with R404A, R22, R407C and R134a, except ZF EVI which are suitable for R404A only.

Second generation Copeland Scroll: highly efficient compressors for refrigeration



Standard Copeland Scroll compressors for refrigeration



Applications and Temperature Ranges

- Low temperature (LT) ZF EVI: highly efficient scroll ideal between +7 and -40°C (with vapour injection)
- Low temperature (LT) ZF: ideal between +7 and -45°C (with liquid injection)
- Medium temperature (MT) ZS: designed for applications between +7 and -30°C
- High temperature (HT) ZB: optimized for refrigeration applications between +10 and -30°C.

(1) EN12900: R404A Evaporating -35°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K
(2) R404A Evaporating -10°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K
(3) EN12900: R404A Evaporating -10°C, Condensing 45°C, Suction Gas Temperature 20°C, Subcooling 0K

Refrigeration Scroll Compressors

Model	Horizontal Configuration	Compressor Data					Motor Versions							Configuration
		Nominal Horse Power	Cooling Capacity	Displacement	Oil Quantity	Gross Weight(*)	220/240 - 1 - 50 265 - 1 - 60	380/420 - 3 - 50 460 - 3 - 60	200/220 - 3 - 50 200/230 - 3 -60	200 - 3 - 50 208/230 - 3 - 60	380 - 3 - 60	500 - 3 - 50 575 - 3 - 60	220/240 - 3 - 50	Rotalock Connections
		hp	**kW**	m^3/h	Liters	kg								
ZF-EVI - Models			**kW** [1]											
ZF 13 KVE		4,0	4,1	11,7	1,4	41		TFD						551
ZF 18 KVE		6,0	6,0	17,2	1,7	44								
ZF 24 KVE		7,5	7,3	20,9	4,0	100		TWD						
ZF 33 KVE		10	9,9	28,9	4,0	100								
ZF 40 KVE		13	12,0	35,6	4,1	110								
ZF 48 KVE		15	14,8	42,1	4,1	119								
ZF-Models			**kW** [1]											
ZF 09 K4E	ZFH 09 K4E	3,0	1,9	8,0	1,1	30		TFD	TF5					551/556 [4]
ZF 11 K4E	--	3,5	2,5	9,9	1,1	31								
ZF 13 K4E	ZFH 13 K4E	4,0	2,8	11,8	1,4	41								
ZF 15 K4E	ZFH 15 K4E	5,0	3,4	14,5	1,7	42								
ZF 18 K4E	ZFH 18 K4E	6,0	4,2	17,2	1,7	44								
ZF 24 K4E	--	7,5	5,2	20,9	4,0	100		TWD		TWC	TW7	TWE	TWR	551
ZF 33 K4E	--	10	6,6	28,9	4,0	100								
ZF 40 K4E	--	13	8,8	35,6	4,1	110								
ZF 48 K4E	--	15	9,9	42,1	4,1	119								
ZS-Models			**kW** [2]											
ZS 21 K4E	ZSH 21 K4E	3,0	5,3	8,0	1,1	30		TFD	TF5					551
ZS 26 K4E	--	3,5	6,5	9,9	1,1	31								
ZS 30 K4E	ZSH 30 K4E	4,0	7,7	11,8	1,4	41								
ZS 38 K4E	ZSH 38 K4E	5,0	9,5	14,5	1,7	42								
ZS 45 K4E	ZSH 45 K4E	6,0	11,2	17,2	1,7	44								
ZS 56 K4E	--	7,5	13,6	20,9	4,0	100		TWD		TWC	TW7	TWE	TWR	
ZS 75 K4E	--	10	19,1	28,9	4,0	100								
ZS 92 K4E	--	13	23,5	35,6	4,1	110								
ZS 11 M4E	--	15	27,4	42,1	4,1	119								
ZB-Models			**kW** [3]											
ZB 15KCE	--	2,0	3,4	5,9	0,7	26		TFD						551
ZB 19KCE	--	2,5	4,2	6,8	0,7	29								
ZB 21KCE	ZBH21 KCE	3,0	5,1	8,6	1,1	30	PFJ		TF5					
ZB 26KCE	--	3,5	5,9	9,9	1,1	31								
ZB 30KCE	ZBH 30KCE	4,0	6,9	11,8	1,2	40								
ZB 38KCE	ZBH 38KCE	5,0	8,6	14,5	1,2	41								
ZB 42KCE	--	5,5	9,7	16,2	1,1	31	PFJ							
ZB 45KCE	ZBH 45KCE	6,0	10,1	17,2	1,2	44		TFD	TF5					
ZB 56KCE	--	7,5	11,8	20,9	4,0	100				TWC	TW7	TWE	TWR	
ZB 75KCE	--	10	17,1	28,8	4,0	100								
ZB 92KCE	--	13	21,3	35,6	4,1	110								
ZB 11MCE	--	15	25,9	42,1	4,1	119								

[1] EN12900: R404A Evaporating -35°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K

[2] R404A Evaporating -10°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K

[3] EN12900: R404A Evaporating -10°C, Condensing 45°C, Suction Gas Temperature 20°C, Subcooling 0K

[4] 556: Discharge temperature control valve included

[*] Gross weight includes packaging.

Air-Conditioning and Process Cooling

Copeland Scroll compressors are known as the most technologically advanced products on the market today, and have radically transformed the air-conditioning and process cooling industry. Many Copeland Scroll design features distinguish them from all others including extremely high efficiency, quiet operation, compact size, and high reliability.

Scroll Compressors
The most technologically advanced compressors on the market today

Models and Product Range

Copeland's ZR Scroll compressors are available in many 50 and 60 Hz motor versions. ZR scrolls have been approved for HFC and HCFC refrigerants, and the entire ZR range is available with either mineral or ester oil.

- *Single ZR:* *18 sizes from 1.5 to 30 hp with cooling capacity from 4 to 81 kW (1)*

- *Tandem ZRT/ZRU:* *13 sizes from 8 to 60 hp with cooling capacity from 20 to 160 kW (1)*
  They consist of two scrolls, with same capacity (ZRT) or different capacity (ZRU), mounted on a single base and linked by the suction / discharge connections plus a suction pressure / oil equalisation line. Large capacity tandems are not assembled by Copeland but tubing design is released and available to support customer assembly.

- *Trio ZRY:* *5 sizes*
  They consist of three scrolls with same capacity, mounted on a single base. ZR16 to 380 scrolls are released for trio assembly operation to be assembled by system manufacturers. Released tubing design is available to support customer assembly.

Applications and Temperature Ranges

Copeland's air-conditioning scroll compressors are suitable for use in high and medium temperature air-conditioning and process cooling applications, with evaporating temperatures ranging from +12.5 to -20 °C.

(1) EN12900: R407C (Dew), Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K

Model	Compressor Data							Motor Versions							Configuration							
	Nominal Horse Power	Cooling Capacity			Displacement	Oil Quantity	Gross Weight (*)	220/240 - 1 - 50 265 - 1 - 60	380/420 - 3 - 50 460 - 3 - 60	200/220 - 3 - 50 200/230 - 3 -60	200 - 3 - 50 208/230 - 3 - 60	220/240 - 3 - 50	500 - 3 - 50 575 - 3 - 60	380 - 3 - 60	Three foot mount - Brazing Connections	Brazing Connections	Brazing Connections - Tandem Capable	Rotalock Connections	Rotalock Connections - Tandem Capable	Tandem Assembly with Brazing Connections	Tandem Assembly with Rotalock Adapters	Tandem Assembly with Rotalock Valves
	hp	kW (2) R407C	kW (2) R134a	kW (1) R22	m^3/h	Liters	kg															
Single ZR																						
ZR 18 K/E	1,5	3,8	2,5	4,4	4,4	0,7	21	PFJ	TFD	TF5	TWC	TWR	TWE	TW7	512 (4)	522						
ZR 22 K/E	1,8	4,6	3,2	5,4	5,3	1,0	26															
ZR 28 K/E	2,5	5,9	4,2	7,0	6,8	1,0	29															
ZR 34 K/E	3,0	7,0	4,9	8,3	8,0	1,1	30															
ZR 40 K/E	3,5	8,2	5,7	9,8	9,4	1,1	31															
ZR 48 K/E	4,0	10,2	6,9	11,9	11,5	1,4	33											523 (5)				
ZR 49 K/E	4,0	10,1	--	11,8	11,7	1,9	40															
ZR 61 K/E	5,0	12,5	8,9	14,5	14,4	1,9	41										422(5)					
ZR 72 K/E	6,0	14,8	10,5	17,6	17,0	1,7	44									522			523 (5)			
ZR 81 K/E	6,5	16,7	11,8	19,9	19,2	1,7	45															
ZR 90 K/E	7,5	18,7	12,8	21,6	20,9	4,1	105															
ZR 11 M/E	9,0	22,7	15,7	26,3	25,1	4,1	107															
ZR 12 M/E	10	26,3	18,2	30,5	28,8	4,1	111									522 (6) 568 (7)			551 (6) 561 (7)			
ZR 16 M/E	13	32,0	22,4	37,5	35,5	4,1	114															
ZR 19 M/E	15	39,5	26,8	46,0	42,8	4,1	130															
ZR 250 K/E	20	52,0	35,5	60,0	56,6	4,7	168															
ZR 310 K/E	25	65,0	44,0	74,0	71,4	6,3	188									522(6) 524(7)			523(6) 525(7)			
ZR 380 K/E	30	80,5	55,5	92,0	87,5	6,3	201															
Tandem ZRT - Tandem Uneven ZRU - Trio ZRY																						
ZRT 98 K3/E	2 x 4	20,1	--	23,5	23,4	3,2	119															
ZRT 122 K3/E	2 x 5	24,8	17,7	29,0	28,8	3,2	102															
ZRT 144 KC/E	2 x 6	29,5	20,9	35,2	34,0	3,2	113															
ZRT 162 KC/E	2 x 6.5	33,5	23,5	39,8	38,5	3,4	113															
ZRT 180 K3/E	2 x 7.5	36,5	25,6	43,2	41,8	8,1	227															
ZRT 220 K3/E	2 x 9	45,0	31,5	52,6	50,2	8,1	218															
ZRT 240 K3/E	2 x 10	52,0	36,5	61,0	57,6	8,1	225															
ZRU 280 K3/E	10 + 13	58,0	40,5	68,0	64,4	8,1	231															
ZRT 320 K3/E	2 x 13	64,5	45,0	75,0	71,2	8,1	227															
ZRT 380 K3/E	2 x 15	79,5	53,5	92,0	84,2	8,1	268															
ZRU 440 K3/E (3)	15 +20	90,8	61,7	105	99,4	8,8	313															
ZRY 480 K3/E (3)	3 x 13	95,0	66,5	111	107	12,3	342															
ZRT 500 K3/E (3)	2 x 20	103	70,0	118	113	9,4	340															
ZRU 500 K3/E (3)	15 + 25	103	70,0	119	114	10,0	327															
ZRU 560 K3/E (3)	20 + 25	116	79,0	134	128	10,6	305															
ZRY 570 K3/E (3)	3 x 15	117	79,6	137	128	12,3	357															
ZRT 620 K3/E (3)	2 x 25	130	88,0	150	143	11,8	400															
ZRU 690 K3/E (3)	30 + 25	115	78,6	133	156	11,8	390															
ZRY 750 K3/E (3)	3 x 20	154	105	177	170	14,1	524															
ZRT 760 K3/E (3)	2 x 30	160	107	184	168	11,8	460															
ZRY 930 K3/E (3)	3 x 25	190	132	218	214	17,7	590															
ZRY 114 M3/E (3)	3 x 30	240	159	275	253	17,7	690															

(1) ARI: Evaporating 7.2°C, Condensing 54.4°C, Superheat 11K, Subcooling 8.3K
(2) EN 12900: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K - (Dew for R407C)
(3) Tandem / Trio assemblies by system manufacturers. Copeland can provide full technical support
(4) TFD & PFJ motors only
(5) TFD motor only
(6) 115/230 V AC motor protection module
(7) 24 V AC motor protection module
(*) Gross weight includes packaging. For net weight, please refer to Copeland Selection Software.

Air-Conditioning Scroll Compressors for R410A

R410A is quickly becoming the global choice to replace R22 for air-conditioning in residential and commercial applications. Extensive tests have shown significant benefits with systems using R410A, giving a combination of higher efficiency and a potential to reduce system costs. Although R410A is a blend, it behaves much like a pure single-component refrigerant, with negligible temperature glide. R410A has excellent heat transfer characteristics and lower pressure drops. In addition, R410A operates very effectively with scroll compressors allowing for more compact and quiet unit designs. R410A also benefits the environment thanks to its higher efficiency, which reduces fuel consumption, CO_2 emissions and hence global warming. With the introduction of R410A for residential and now commercial applications, Copeland is the only company to offer a full line from 2 to 25 hp (5 to 63 kW).

Air-Conditioning Scrolls for R410A
Higher efficiency and a potential to reduce system cost

Models and Product Range

Copeland's ZP Scroll compressors are available in many 50 and 60 Hz motor versions, and have been approved for R410A. The entire ZP range is available with ester oil.

- *Single ZP:* *13 sizes from 1.9 to 25 hp with cooling capacity from 5 to 63 kW (1)*

- *Tandem ZPT/ZPU:* *10 sizes from 15 to 50 hp with cooling capacity from 38 to 122 kW (1)*
  They consist of two scrolls, with same capacity (ZPT) or different capacity (ZPU), mounted on a single base and linked by the suction / discharge connections plus a suction pressure / oil equalisation line. All tandems are not assembled by Copeland but tubing design is released and available to support customer assembly.

- *Trio ZPY:* *3 sizes*
  They consist of three scrolls with same capacity, mounted on a single base. ZP180, ZP235 and ZP295 scrolls are released for Trio assembly operation to be assembled by system manufacturers. Released tubing design is available to support customer assembly.

Applications and Temperature Ranges

Copeland's air-conditioning scroll compressors are suitable for use in high and medium temperature air-conditioning and process cooling applications, with evaporating temperatures ranging from +12.5 to -20 °C.

(1) EN12900, R410A: Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K

Air-Conditioning Scroll Compressors for R410A

Model	Nominal Horse Power	Cooling Capacity	Displacement	Oil Quantity	Gross Weight(*)	Motor Versions		Configuration - Bill of Material		
						220/240 - 1 - 50 265 - 1 - 60	380/420 - 3 - 50 460 - 3 - 60	Brazing Connections	Brazing Connections - Tandem Capable	Tandem Assembly with Brazing Connections
	hp	kW(1) R410A	m³/h	Liters	kg					
R410A: Single ZP										
ZP23K3E	1,9	5,0	4,1	1,1	32	PFJ	TFD	522		
ZP26K3E	2,2	5,5	4,4	1,1	32					
ZP32K3E	2,6	6,8	5,4	1,3	33					
ZP41K3E	3,4	8,8	6,9	1,3	35					
ZP54K3E	4,6	11,8	9,4	2,0	42					
ZP67KCE	5,5	14,4	11,0	1,7	40					
ZP83KCE	6,5	17,7	13,4	1,8	45					
ZP90KCE	7,5	19,2	14,6	2,5	58				422	
ZP103KCE	9,0	22,4	16,8	3,3	61					
ZP120KCE	10	26,0	19,8	3,3	62					
ZP137KCE	12	29,3	22,1	3,3	64					
ZP180KCE	15	39,0	29,0	4,1	119		TWD	522 (4) / 568 (5)		
ZP235KCE	20	50,5	36,3	4,7	140			522 (4)		
ZP295KCE	25	62,5	45,8	5,6	160			524 (5)		
R410A: Tandem ZPT (2) - Tandem Uneven ZPU (2)										
ZPT180KC/E	2 x 7.5	38,4	29,2	5,0	128		TFD			Yes(3)
ZPT206KC/E	2 x 9	44,8	33,6	6,5	134					
ZPT240KC/E	2 x 10	52,0	39,6	6,5	136					
ZPT274KC/E	2 x 12	58,6	44,2	6,6	141					
ZPT360KC/E	2 x 15	78,0	57,2	8,2	262		TWD			
ZPU415KC/E	20 + 15	89,5	64,9	8,5	300					
ZPT470KC/E	2 x 20	101	72,6	8,8	339					
ZPU530KCE	25 + 20	113	82,1	10,3	363					
ZPT590 KC/E	2 x 25	125	91,6	11,8	387					

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

(2) Tandem, all tandem assemblies have brazing connections to the systems

(3) Tandem assembly by system manufacturers. Copeland can provide full technical support

(4) 115/230 V AC motor protection module

(5) 24 V AC motor protection module

(*) Gross weight includes packaging. For net weight, please refer to Copeland Selection Software.

Dedicated Heat Pump Applications

The new generation of ZH scroll for dedicated Heat Pump is continuing the development of scroll compressors to support the specific requirements of the heating market. Dedicated Heat Pumps are becoming a very competitive alternative to traditional oil/gas heating boilers. These advanced scroll compressors are designed to be much more efficient, and to be applied over a broad range of operating conditions. This allows dedicated Heat Pumps to produce hot space heating and tap water for oil/gas boiler replacement.

ZH Scroll Compressor
Excellent performance and reliability in heat pump applications

Models and Product Range

Copeland 's dedicated Heat Pump ZH Scroll compressors are available in 400V/3Ph/50HZ and 230V/1Ph/50Hz and have been approved for R407C. The entire range is available with ester oil.

- ZH : *11 sizes from 2 to 15 hp with heating capacity from 4.9 to 39 kW (1)*
- ZH EVI : *6 sizes from 4 to 15 hp with heating capacity from 12 to 47 kW (1) (with vapour injection)*

Applications and Temperature Ranges

Copeland's ZH Scroll compressors are suitable for use in low evaporating and high condensing for dedicated Heat Pump able to produce hot water at low ambient temperatures. Evaporating temperatures are ranging from +10 to -25°C.

The ZH EVI scroll compressor cycle is similar to a two-stage cycle with interstage cooling, accomplished with one compressor. It consists in extracting a portion of the condenser liquid and expanding it before entering into a heat exchanger acting as a subcooler. The superheated vapour is then injected into an intermediate port in the scroll compressor. The additional injected vapour increases the condenser capacity by increasing refrigerant mass flow.

(1) R407C (Mid), Heat Pump: Evaporating -7°C, Condensing 50°C, Superheat 5K, Subcooling 4K

Dedicated Heat Pump Applications

Model	Compressor Data					Motor Versions		Configuration - Bill of Material
	Nominal Horse Power	Heating Capacity[2]	Displacement	Oil Quantity	Gross Weight[*]	220/240 - 1 - 50 265 - 1 - 60	380/420 - 3 - 50 460 - 3 - 60	Brazing Connections
	hp	kW[1] R407C	m3/h	Liters	kg			
ZH15K4E	2,0	5,0	5,9	1,3	26	PFJ	TFD	524
ZH19K4E	2,5	6,3	7,3	1,5	27			
ZH21K4E	3,0	6,9	8,0	1,5	27			
ZH26K4E	3,5	8,6	9,9	1,5	28			
ZH30K4E	4,0	10,0	11,7	1,9	39			
ZH38K4E	5,0	12,4	14,4	1,9	39			
ZH45K4E	6,0	14,5	17,1	1,9	39			
ZH56K4E	7,5	18,3	20,9	4,0	100		TWD	
ZH75K4E	10	26,0	29,0	4,0	100			
ZH92K4E	13	32,0	35,5	4,1	110			
ZH11M4E	15	39,0	42,8	4,1	119			
Dedicated Heat Pumps ZH EVI with vapour injection								
ZH13KVE	4,0	12,6	11,7	1,4	41	PFJ	TFD	526
ZH18KVE	6,0	17,7	17,1	1,7	44			
ZH24KVE	7,5	23,4	20,9	4,0	100		TWD	
ZH33KVE	10	32,0	29,0	4,0	100			
ZH40KVE	13	40,5	35,5	4,1	110			
ZH48KVE	15	47,0	42,8	4,1	119			

(1) Brine water 0°C / Water 50°C (-7°C Evaporating Temperature / 50°C Condensing Temperature, R407C Mid Point), Subcooling 4K, Superheat 5K

(*) Gross weight includes packaging. For net weight, please refer to Copeland Selection Software.

'K' & 'L' Series Small Semi-Hermetic Compressors (DK & DL)

DWM Copeland air-cooled small semi-hermetic compressors are offered for refrigeration applications up to 10 kW at medium temperature (-10/45°C) and 4 kW at low temperature applications (-35/40°C). A core range of products is offered for a wide operating range of -5 to -45°C evaporating temperature at condensing temperatures up to 55°C. These models include pressurized lubrication specifically engineered for high reliability and durability with HFC refrigerants and POE lubricants. All DK and DL compressors feature an in-line two cylinder configuration and electronic motor protection, are especially compact in size and ideally suited for condensing units and transport refrigeration applications.

"K & L" Semi-Hermetic Compressors
Excellent performance in refrigeration and transport applications

Models

- 2-cylinder DK and DL compressors are designed to operate with refrigerants R404A, R507, R22 and R134a.

Product Range

- DK Series: 5 compressor displacements, cooling capacity ranging from 1.8 to 4.6 kW(1)
- DL Series: 5 compressor displacements, cooling capacity ranging from 4.6 to 9.3 kW(1)

Applications and Temperature Ranges

The operating range differs according to the type of refrigerant used:

R404A/R507	:	7	to	-45°C	Evaporating temperature
R134a	:	12.5	to	-20°C	
R22	:	12.5	to	-50°C	

(1) EN12900: R404A, Evaporating -10°C, Condensing 45°C, Suction Gas Temperature 20°C, Subcooling 0K

‘K’ & ‘L’ Series Small Semi-Hermetic Compressors (DK & DL)

DK/DL	Compressor Data					Motor versions						
Model	Nominal Horse Power	Cooling Capacity	Displacement	Oil Quantity	Gross Weight(*)	220/230-1-50	220/240-3-50 (Δ) 380/420-3-50 (Y)	380/420-3-50 (Y/ Δ start)	500/550-3-50 (Δ)	220/240-3-60 (Δ) 380/420-3-60 (Y)	250/280-3-60 (Δ) 440/480-3-60 (Y)	440/480-3-60 (Y/Δ start)
	hp	kW	m3/h	Liters	kg							
DKM 50/5X	0,5	0.6 (2)	4,0	0,65	41	CAG	EWL		TWY	EWK	EWN	
DKM 75/7X	0,75	1.9 (1)	4,0	0,65	41							
DKM 100	1,0	2.0 (1)	4,0	0,65	41							
DKJ 75/7X	0,75	0.8 (2)	5,1	0,65	41				TWY			
DKJ 100/10X	1,0	2.6 (1)	5,1	0,65	41							
DKSJ 100/10X	1,0	1.0 (2)	6,3	0,65	42				TWY			
DKSJ 150/15X	1,5	3.3 (1)	6,3	0,65	42							
DKL 150/15X	1,5	1.2 (2)	7,4	0,65	41							
DKL 20X	2,0	1.1 (2)	7,4	0,65	41							
DKSL 20X	2,0	1.5 (2)	9,1	0,65	42							
DLE 201/20X	2,0	4.9 (1)	9,9	2,00	84			EWM	TWY		EWD	
DLF 201/20X	2,0	1.6 (2)	12,9	2,00	86							
DLF 301/30X	3,0	6.8 (1)	12,9	2,00	86							
DLJ 201/20X	2,0	1.9 (2)	14,5	2,00	84							
DLJ 301/30X	3,0	7.8 (1)	14,5	2,00	89							
DLL 301/30X	3,0	2.6 (2)	18,2	2,00	91							
DLL 401/40X	4,0	9.8 (1)	18,2	2,00	93							
DLSG 401/40X	4,0	3.5 (2)	22,5	2,00	82							

(1) R22 Evaporating -10°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K

(2) EN12900, R404A: Evaporating -35°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K

(*) Gross weight includes packaging.

'S' Series Standard Semi-Hermetic Compressors

The S-series starts with the medium size semi-hermetic product range D2S and D3S, which spans from 5 to 15 hp. It provides optimised solutions for low, medium and high temperature applications. The most outstanding features are:

- high-pressure internal oil pumps,
- standard connection for OPS1 oil pressure protection,
- Teflon® - coated bearings for optimal lubrication and durability,
- compact size
- low sound level
- high efficiency and durability ensured by stainless steel reed valves and steel valve plates
- only one compressor model is required for both low and medium temperature applications.

Above 15 hp, Copeland offers 4 to 8 cylinder "S " series semi-hermetic compressors with standard Reed valve technology up to 70 hp. Large "S"-series compressors run across the entire operating range (-5 to -45°C), using all common refrigerants and featuring all benefits as desribed above. The D6SU and D6SK compressors complete the product family, offering an ideally suited product program at a value price to customers.

"S" Semi-Hermetic Compressors
Excellent performance in refrigeration and air-conditioning applications

Models

- "S" Series for refrigeration applications: 2 to 8 cylinder models for R404A/R507, R134a and R22.
- "S" Series for air-conditioning applications: 4, 6 or 8 cylinder models for R407C, R134a and R22.

Product Range

- "S" Series: 16 compressor displacements, cooling capacity ranging from 3.5 to 187 kW (1)

Applications and Temperature Ranges

The operating range of "S" models differs according to the type of refrigerant used:

R404A/R507:	*- Low temperature applications*	- 5°C	to	-45°C	Evaporating temperature
	- Medium/high temperature applications	7.5°C	to	-45°C	
R134a:		12.5°C	to	-20°C	
R407C:		12.5°C	to	-35°C	
R22:	*- Low temperature applications*	- 5°C	to	-45°C	
	- Medium/high temperature applications	12.5°C	to	-35°C	

Twin

4,6 and 8 cylinders "S" series models are available in a TWIN version, which consists of two compressors of equal displacement that are assembled on rails and connected by means of a suction chamber. The TWIN version offers double cooling capacity with a high degree of modulation flexibility maintaining high efficiency levels.

(1) *Universal application range of "S" - Series. Operating envelope differs according to the refrigerant used.*

‘S’ Series Standard Semi-Hermetic Compressors

"S" Series	Compressor Data					Motor Versions											
Model	Nominal Horse Power	Cooling Capacity	Displacement	Oil Quantity	Gross Weight(*)	220/240-3-50 (Δ) 380/420-3-50 (Y)	380/420-3-50 (Y/ Δ start)	220/240-3-50 (YY/Y)	380/420-3-50 (YY/Y)	440/480-3-60 (YY/Y)	500/550-3-50 (YY/Y)	220/240-3-60 (Δ) 380/420-3-60 (Y)	440/480-3-60 (Y/ Δ start)	208/230-3-60 (YY/Y)	380-3-60 (YY/Y)	500/550-3-50 (Y/ Δ start)	500/550-3-50 (Δ)
	hp	kW	m^3/h	Liters	kg												
2 cylinder																	
D2SA 450/45X Air	4,5	3.3 (2)	22,4	2,4	95	EWL	EWM					EWK					
D2SA 450/45X	4,5	3.6 (1)	22,4	2,4	95												
D2SA 550/55X	5,5	17.3 (4)	22,4	2,4	95												
D2SC 550/55X Air	5,5	4.0 (2)	26,8	2,4	96												
D2SC 550/55X	5,5	4.1 (1)	26,8	2,4	96												
D2SC 650/65X	6,5	20.6 (4)	26,8	2,4	96												
D2SK 650/65X	6,5	4.9 (1)	31,3	2,4	97												
3 cylinder																	
D3SA 750/75X	7,5	25.0 (4)	32,2	3,7	174	EWL			AWM	AWD		EWK					
D3SC 750/75X	7,5	18.3 (3)	38,0	3,7	174												
D3SC 1000/100X	10	30.5 (4)	38,0	3,7	174												
D3SS 1000/100X	10	24.5 (3)	49,9	3,7	177												
D3SS 1500/150X	15	40.0 (4)	49,9	3,7	177												
4 cylinder																	
D4SF 1000/100X	10	9.3 (1)	56,0	4,5	194	EWL	EWM	AWR	AWM	AWD	AWY	EWK	EWD	AWC	AWX	EWY	TWY
D4SA 1000	10	10.3 (7)	56,0	4,5	191												
D4SA 100X	10	33.0 (6)	56,0	4,5	191												
D4SA 2000/200X	20	52.5 (5)	56,0	3,6	199												
D4SL 1500/150X	15	12.2 (1)	70,8	3,6	202												
D4SH 1500	15	13.0 (7)	70,8	3,6	197												
D4SH 150X	15	40.0 (6)	70,8	3,6	197												
D4SH 2500/250X	25	65.5 (5)	70,8	4,0	210												
D4ST 2000/200X	20	14.2 (1)	84,7	4,0	214												
D4SJ 2000	20	15.2 (7)	84,7	4,0	210												
D4SJ 200X	20	49.5 (6)	84,7	4,3	219												
D4SJ 3000/300X	30	77.0 (5)	84,7	4,0	226												
6 cylinder																	
D6SF 2000/200X	20	13.5 (1)	84,0	4,3	228	EWL	EWM	AWR	AWM	AWD	AWY	EWK	EWD	AWC	AWX	EWY	TWY
D6SA 3000/300X	30	74.0 (5)	84,0	4,3	230												
D6SL 2500/250X	25	17.6 (1)	106	4,3	232												
D6SH 2000	20	17.2 (7)	106	4,3	221												
D6SH 2000/200X	20	59.5 (6)	106	4,3	221												
D6SH 3500/350X	35	92.5 (5)	106	4,3	240												
D6ST 3200/320X	32	20.8 (1)	127	7,4	268												
D6SJ 3000	30	20.3 (7)	127	7,4	262												
D6SJ 3000/300X	30	71.5 (6)	127	7,4	262												
D6SJ 4000/400X	40	112 (5)	127	7,4	268												
D6SU 4000/400X	40	74 (3)	152	7,4	281												
D6SK 400X	40	84.5 (6)	152	7,4	284												
D6SK 5000	50	133 (5)	152	7,4	284												
8 cylinder																	
D8SH 3700/370X	37	24.6 (1)	151	7,7	335	EWL	EWM	BWR	BWM	BWD	BWY	EWK	EWD	BWC	BWX		
D8SH 400X	40	87.5 (6)	151	7,7	330												
D8SJ 4500/450X	45	29.3 (1)	181	7,7	366												
D8SJ 500X	50	102 (6)	181	7,7	345												
D8SJ 6000/600X	60	164 (5)	181	7,7	367												
D8SK 600X	60	118 (6)	210	7,7	370												
D8SK 7000/700X	70	187 (5)	210	7,7	376												

(1) EN12900: R404A Evaporating -35°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K
(2) EN12900: R22 Evaporating -35°C, Condensing 40°C, Suction Gas Temp. 20°C, Subcooling 0K
(3) EN12900: R404A Evaporating -10°C, Condensing 45°C, Suction Gas Temp. 20°C, Subcooling 0K
(4) EN12900: R404A Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K
(5) ARI: R22 Evaporating 7.2°C, Condensing 54.4°C, Superheat 11K, Subcooling 8.3K
(6) ARI: R134a Evaporating 7.2°C, Condensing 54.4°C, Superheat 11K, Subcooling 8.3K
(7) R22: Evaporating -40°C, Condensing 0°C, Suction Gas Temp. 20°C, Subcooling 0K
(*) Gross weight includes packaging.

DISCUS and Two-Stage Semi-Hermetic Compressors

DWM Copeland semi-hermetic DISCUS compressors are the most efficient semi-hermetics on the market due to their patented high technology valve plate design. DISCUS compressors can be applied to all air-conditioning, heat pump and refrigeration applications. All models are designed to operate with HFC and HCFC refrigerants. Superior manufacturing standards and outstanding technology, coupled with multiple options and accessories, make these compressors suitable for an extremely broad range of applications.

DISCUS Semi-Hermetic Compressors
Superior manufacturing standards and outstanding technology

Models

DWM Copeland's semi-hermetic DISCUS range is available from 2 to 8 cylinder for refrigerants R404A/R507, R134a, R407C and R22. Discus are specifically suitable for applications where high efficiency is required. Two-stage compressors are available as 3 cylinder version (D9T) for R22, and as 6 cylinder model (D6T) for R404A and R22.

Product Range

- DISCUS Series: 14 compressor displacements, cooling capacity ranging from 8 to 95 kW(1)
- D9T Series: 3 compressor displacements, cooling capacity ranging from 4 to 7.5 kW(4)
- D6T Series: 3 compressor displacements, cooling capacity ranging from 12.2 to 20.5 kW(4)

Applications and Temperature Ranges

DWM Copeland DISCUS semi-hermetic compressors can operate at very low temperatures according to the model and type of refrigerant being used.

- R404A/R507	:	7	to	-50°C	Evaporating temperature
- R134a	:	25	to	-20°C	
- R407C	:	12.5	to	-20°C	
- R22	:	12.5	to	-20°C	

Extremely low evaporating temperatures can be reached with the two-stage models with R404A from -20 to -60°C.

Twin

2 to 8 cylinder DISCUS and the two-stage models are available in a TWIN version. This version consists of two compressors of equal displacement which are assembled on rails and connected by means of a suction chamber. The TWIN version offers double cooling capacity with a high degree of modulation flexibility without sacrificing efficiency.

(1) R22: Evaporating -10°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K
(4) EN12900: R22, Evaporating -35°C, Condensing 40°C, Suction Gas Temperature 20°C, Subcooling 0K

DISCUS and Two-Stage Semi-Hermetic Compressors

Model	Compressor Data					Motor Versions										
	Nominal Horse Power	Cooling Capacity	Displacement	Oil Quantity	Gross Weight(*)	220/240-3-50 (Δ) 380/420-3-50 (Y)	380/420-3-50 (Y/ Δ start)	500/550-3-50 (Δ)	500/550-3-50 (Y/ Δ start)	220/240-3-50 (YY/Y) 220/240-3-50 (Δ/Δ)	380/420-3-50 (YY/Y) 380/420-3-50 (Δ/Δ)	500/550-3-50 (YY/Y) 500/550-3-50 (Δ/Δ)	220/240-3-60 (Δ) 380/420-3-60 (Y)	440/480-3-60 (Y/ Δ start)	208/230-3-60 (YY/Y) 208/230-3-60 (Δ/Δ)	380-3-60 (YY/Y) 380-3-60 (Δ/Δ)	440/480-3-60 (YY/Y) 440/480-3-60 (Δ/Δ)
	hp	kW	m^3/h	Liters	kg												
Discus																	
2 cylinder																	
D2DC 500/50X	5,0	8.4 (1)	16,8	2,3	141	EWL	EWM	TWY	EWY	AWR	AWM	AWY	EWK	EWD		AWX	AWD
D2DD 500/50X	5,0	9.8 (1)	19,3	2,3	141												
D2DL 400/40X	4,0	3.8 (2)	23,7	2,3	140												
D2DL 750/75X	7,5	12.2 (1)	23,7	2,3	145												
D2DB 500/50X	5,0	4.9 (2)	28,0	2,3	140												
D2DB 750/75X	7,5	15.0 (1)	28,0	2,3	145												
3 cylinder																	
D3DA 500/50X	5,0	5.4 (2)	32,2	3,7	157	EWL	EWM	TWY	EWY	AWR	AWM	AWY	EWK	EWD		AWX	AWD
D3DA 750/75X	7,5	17.3 (1)	32,2	3,7	163												
D3DC 750/75X	7,5	6.4 (2)	38,0	3,7	161												
D3DC 1000/100X	10	20.6 (1)	38,0	3,7	175												
D3DS 1000/100X	10	9.1 (2)	49,9	3,7	173												
D3DS 1500/150X	15	27.4 (1)	49,9	3,7	178												
4cylinder																	
D4DF 1000/100X	10	9.7 (2)	56,0	4,5	195	EWL	EWM			AWR	AWM	AWY	EWK	EWD	AWC	AWX	AWD
D4DA 100X	10	33.5 (3)	56,0	4,5	186												
D4DA 2000/200X	20	31.5 (1)	56,0	3,6	212												
D4DL 1500/150X	15	13.2 (2)	70,8	3,6	221												
D4DH 150X	15	41.5 (3)	70,8	3,6	207												
D4DH 2500/250X	25	39.5 (1)	70,8	4,0	225												
D4DT 2200/220X	22	15.5 (2)	84,7	4,0	231												
D4DJ 200X	20	50.5 (3)	84,7	4,0	214												
D4DJ 3000/300X	30	46.5 (1)	84,7	4,0	230												
6 cylinder																	
D6DL 2700/270X	27	19.3 (2)	106	4,3	258	EWL	EWM			AWR	AWM	AWY	EWK	EWD	AWC	AWX	AWD
D6DH 200X	20	64.5 (3)	106	4,3	219												
D6DH 3500/350X	35	59.0 (1)	106	4,3	262												
D6DT 3000/300X	35	23.2 (2)	127	7,4	277												
D6DJ 300X	30	75.0 (3)	127	7,4	248												
D6DJ 4000/400X	40	69.0 (1)	127	7,4	277												
8 cylinder																	
D8DL 370X	37	28.1 (2)	151	7,7	344	EWL	EWM			BWR	BWM	BWY	EWK	EWD	BWC	BWX	BWD
D8DH 400X	40	89.0 (3)	151	7,7	351												
D8DH 5000/500X	50	79.5 (1)	151	7,7	351												
D8DT 450X	45	32.5 (2)	181	7,7	356												
D8DJ 500X	50	103 (3)	181	7,7	352												
D8DJ 6000/600X	60	95.0 (1)	181	7,7	352												
2-Stage																	
3 cylinder																	
D9TK 0760 SUB	7,5	4.9 (4)	21,6	3,6	176	EWL	EWM	TWY	EWY	AWR	AWM	AWY	EWK	EWD	AWC		AWD
D9TL 0760 SUB	7,5	5.6 (4)	25,3	3,6	176												
D9TH 1010 SUB	10	7.5 (4)	33,0	2,9	187												
6 cylinder																	
D6TA 1500/150X SUB	15	14.6 (4)	56,0	4,3	254	EWL	EWM	TWY	EWY	AWR	AWM	AWY	EWK	EWD	AWC		AWD
D6TH 2000/200X SUB	20	18.3 (4)	70,8	4,3	252												
D6TJ 2500/250X SUB	25	20.5 (4)	84,7	7,4	277												

(1) R22 Evaporating -10°C, Condensing 40°C, Suction Gas Temp. 20°C, Subcooling 0K

(2) EN12900: R404A Evaporating -35°C, Condensing 40°C, Suction Gas Temp. 20°C, Subcooling 0K

(3) ARI: R134a Evaporating 7.2°C, Condensing 54.4°C, Superheat 11K, Subcooling 8.3K

(4) EN12900: R22 Evaporating -35°C, Condensing 40°C, Suction Gas Temp. 20°C, Subcooling 0K

SUB = Subcooling

(*) Gross weight includes packaging.

Condensing Units

Copeland offers a broad and diverse range of condensing units for high, medium and low temperature applications. These units are available with semi-hermetic and scroll compressors and approved for use with HFC and HCFC refrigerants. Standard features of Copeland Scroll condensing units, besides high reliability, include electrical pre-wiring, rotalock valves on compressor suction and liquid receiver outlet, crankcase oil heaters (optional for semi-hermetic) and dual pressure switch. Compressors equipped with oil pump are also provided with an oil pressure differential switch.

Copeland Scroll Condensing Unit

Copeland Scroll Outdoor Condensing Unit

DWM Copeland
Semi-Hermetic Condensing Unit

Models

Copeland offers 3 different condensing unit ranges:

- **Scroll condensing units** based on Copeland Scroll compressors, suitable for high, medium and low temperature applications with R404A/R507, R134a, R407C and R22. The range covers units with normal sized as well as large sized condensers for best operation under extreme conditions (high ambient and/or high evaporating temperatures).
- **Copeland Scroll outdoor condensing units**, fully equipped for quick and easy installation, with a weather resistant housing made of thermoplastic resin. The range consists of models from 2 to 15 hp, suitable for use with R404A/R507, R134a, R407C and R22. Each model is available as a low sound unit.
- **Semi-hermetic condensing units** equipped with DWM Copeland compressors, suitable for R404A/R507, R134a, R407C and R22. DWM Copeland offers a Standard range up to 15 hp and a high efficiency range with DISCUS compressors up to 40 hp. In addition the DWM Copeland semi-hermetic range also includes 2-Stage models from 15 up to 25 hp.

Applications

- Scroll condensing units & outdoor condensing units:		
high and medium temperature:	+12°C to -40°C	Evaporating temperature
medium and low temperature:	+ 7°C to -45°C	
- Standard semi-hermetic units:	+ 5°C to -45°C	
- High efficiency DISCUS semi-hermetic units:	+ 7°C to -45°C	

Product Range

- Scroll condensing units:	More than 25 sizes available from 2.5 kW to 27.9 kW.
- Outdoor condensing units:	More than 25 sizes available from 1.9 kW to 25.8 kW.
- Standard semi-hermetic units:	More than 25 sizes available from 0.6 kW to 26.8 kW.
- High efficiency DISCUS semi-hermetic units:	More than 20 sizes available from 1.9 kW to 67.0 kW.

Scroll Condensing Units

Medium Temperature Application

Model	Unit Data					Motor Versions	
	Nominal Horse Power	Cooling Capacity[1]	Displacement (compressor)	Oil Quantity (compressor)	Gross Weight[*]	220/240-1-50	380/420-3-50
	hp	kW	m3/h	Liters	kg		
MC-D8-ZB15KE	2,0	3,4	5,9	0,7	58	PFJ	TFD
MC-D8-ZB19KE	2,5	4,1	6,8	0,7	59		
MC-K9-ZB19KE	2,5	4,5	6,8	0,7	87		
MC-D8-ZB21KE	3,0	4,7	8,6	1,1	76		
MC-K9-ZB21KE	3,0	5,3	8,6	1,1	88		
MC-H8-ZB26KE	3,5	5,8	9,9	1,1	77		
MC-K9-ZB26KE	3,5	5,9	9,9	1,1	88		
MC-H8-ZB30KE	4,0	6,6	11,8	1,2	89		
MC-P8-ZB30KE	4,0	7,1	11,8	1,2	114		
MC-H8-ZB38KE	5,0	7,7	14,5	1,2	92		
MC-P8-ZB38KE	5,0	8,4	14,5	1,2	116		
MC-M8-ZB45KE	6,0	9,4	17,2	1,2	108		
MC-R7-ZB45KE	6,0	10,3	17,2	1,2	141		
MC-S9-ZB56KE	7,5	12,1	20,9	4,0	210		TWD
MC-V6-ZB75KE	10	18,1	28,8	4,0	287		
MC-V6-ZB92KE	13	21,6	35,6	4,1	298		
MC-W9-ZB11ME	15	25,9	42,1	4,1	364		

[1] EN13215: R404A, Evaporating -10°C, Suction Gas Temperature 20°C, Ambient Temperature 32°C

[*] Gross weight includes packaging.

Low Temperature Application

Model	Unit Data					Motor Versions	
	Nominal Horse Power	Cooling Capacity [2]	Displacement (compressor)	Oil Quantity (compressor)	Gross Weight[*]	220/240-1-50	380/420-3-50
	hp	kW	m3/h	Liters	kg		
MC-D8-ZF09KE	3,0	1,9	8,0	1,1	74		TFD
MC-H8-ZF11KE	3,5	2,5	9,9	1,1	82		
MC-H8-ZF13KE	4,0	2,8	11,8	1,4	92		
MC-H8-ZF15KE	5,0	3,4	14,5	1,7	98		
MC-M8-ZF18KE	6,0	4,2	17,2	1,7	105		
MC-P8-ZF24KE	7,5	5,0	20,9	4,0	176		TWD
MC-R7-ZF33KE	10	6,4	28,9	4,0	200		
MC-S9-ZF40KE	13	8,6	35,6	4,1	220		
MC-S9-ZF48KE	15	9,4	42,1	4,1	294		

[2] EN13215: R404A, Evaporating -35°C, Suction Gas Temperature 20°C, Ambient Temperature 32°C

[*] Gross weight includes packaging.

Copeland Scroll Outdoor Condensing Units

Copeland also offers a range of condensing units from 2 to 15 hp, specifically for outdoor use. The range up to 6 hp consists of two versions: an economically priced "standard " version and a low sound version. Above 6 hp only low sound versions are available. The range covers both medium and low temperature units. Units from 8 to 12 hp are also available with two compressors, featuring 50% modulation. All units feature a weather resistant housing, made of a modern synthetic resin material. They are equiped with second generation scroll compressors, which make these units very energy efficient.
For medium temperature applications, Copeland also offers Outdoor Condensing Units based on Copeland Digital Scroll™, which is capable of capacity modulation from 10 to 100%. These units are provided with a factory-fitted electronic controller enabling compressor modulation based on suction pressure.
Low temperature units from 7.5 hp and up are provided with a liquid sub-cooler, which boosts up both capacity and energy efficiency to values surpassing those of the best performing semi-hermetic condensing units available on the market. The design of the outdoor condensing unit range is based on "quick and easy "access during installation, commissioning and maintenance:

- *Both liquid and suction lines extend outside the unit: brazing the connecting lines to the refrigeration circuit can be done quickly and easily, saving valuable time on site.*
- *All necessary components for a basic installation are pre-installed.*
- *A lockable hinged door provides easy access to both refrigeration circuit and electrical connections.*
- *All electrical components are pre-wired and there is sufficient space in the electrical box in case any additional components need to be added.*

Outdoor Condensing Units
Quick and easy installation

Product Range

The full range of Copeland Scroll Outdoor condensing units consists of two versions:

Condensing units for medium temperature applications:
- 19 models for up to 24 kW refrigeration capacity
- 3 models (8, 10 and 12 hp) with two compressors, featuring 50% modulation capability
  All models are available as low sound version. Models from 2 to 6 hp also available as economically priced "standard" unit, suitable for areas where sound restrictions do not apply.
- 4 models (4, 6, 8 and 12 hp) as Digital version, featuring continuous modulation from 10 to 100%.
  They are identified by a "D" in the model designation. The 8 and 12 hp units have two compressors fitted, one of them being a Copeland Digital Scroll™ to provide continuous modulation.

Condensing units for low temperature applications:
- 17 models for up to 14 kW refrigeration capacity
- 2 models (8 and 12 hp) with two compressors, offering 50% modulation
  All models are available as low sound version, models from 2 to 6 hp also as economically priced "standard" unit. Units from 7.5 hp and larger are equipped with a liquid sub-cooler for highest capacity and energy efficiency.

The low sound units typically feature sound pressure levels at 10 metres distance of 33 to 47 dBA, depending on the model .

Refrigerants

Medium temperature range:
- All models are equipped with Copeland Scroll compressors. Single compressor units are suitable for R404A, R134a, R407C and R22, two compressor units for R404A, R407C and R22. Copeland Digital Scroll outdoor units are suitable for R404A and R22.

Low temperature range:
- All models are equipped with Copeland Scroll compressors for use with R404A and R22, except OLQ-24V to OLQ-48V, OLTQ-26V and OLTQ-36V, which are suitable for R404A only.

Applications

- Cold stores
- Supermarket display cases
- Petrol station forecourts
- Restaurants
- Beer cellars

Copeland Scroll Outdoor Condensing Units

Medium Temperature Application

OM/OMQ		Unit Data						Motor Code	
Model		Nominal Horse Power	Cooling Capacity[1] kW		Displacement (compressor)	Oil Quantity (compressor)	Net / Gross Weight[*]	220/240-1-50	380/420-3-50
Standard	Low Sound	hp	Standard	Low Sound	m^3/h	Liters	kg		
OM-15	OMQ-15	2,3	3,5	3,3	5,9	0,7	87 / 102	PFJ	TFD
OM-21	OMQ-21	3,0	5,1	5,0	8,6	1,1	97 / 114		
OM-26	OMQ-26	3,5	5,6	5,5	9,9	1,1	97 / 114		
OM-30	OMQ-30 / -30D	4,0	6,8	6,6	11,8	1,2	107 / 126		
OM-38	OMQ-38	5,0	8,0	7,7	14,5	1,2	108 / 127		
OM-45	OMQ-45 / -45D	6,0	9,7	9,4	17,2	1,2	124 / 146		
	OMQ-56	7,5		12,2	20,9	4,0	234 / 278		TWD
	OMQ-75	10		16,6	28,9	4,0	234 / 278		
	OMQ-92	13		20,6	35,6	4,1	244 / 288		
	OMQ-110	15		23,8	42,1	4,1	253 / 297		
Two-compressor units									
	OMTQ-60 / -60D	2 x 4		14,1	2 x 11.8	2,5	216 / 260		TFD
	OMTQ-76	2 x 5		16,6	2 x 14.5	2,5	218 / 262		
	OMTQ-90 / -90D	2 x 6		19,9	2 x 17.2	2,5	222 / 266		

[1] EN13215: R404A, Evaporating -10°C, Suction Gas Temperature 20°C, Ambient Temperature 32°C

[*] Gross weight includes packaging.

Low Temperature Application

OL/OLQ		Unit Data						Motor Code	
Model		Nominal Horse Power	Cooling Capacity[2] kW		Displacement (compressor)	Oil Quantity	Net / Gross Weight[*]	220/240-1-50	380/420-3-50
Standard	Low Sound	hp	Standard	Low Sound	m^3/h	Liters	kg		
OL-09	OLQ-09	3,0	2,0	1,9	8,0	1,1	94 / 111		TFD
OL-11	OLQ-11	3,5	2,5	2,4	9,9	1,1	97 / 114		
OL-13	OLQ-13	4,0	2,8	2,7	11,8	1,4	105 / 124		
OL-15	OLQ-15	5,0	3,4	3,4	14,5	1,7	109 / 128		
OL-18	OLQ-18	6,0	4,2	4,2	17,2	1,7	125 / 147		
	OLQ-24V	7,5		7.3 [3]	20,9	4,0	226 / 270		TWD
	OLQ-33V	10		9.8 [3]	28,9	4,0	226 / 270		
	OLQ-40V	13		11.9 [3]	35,6	4,1	236 / 280		
	OLQ-48V	15		14.4 [3]	42,1	4,1	245 / 289		
Two-compressor units									
	OLTQ-26V	2 x 4		7.9 [3]	2 x 11.8	2,8	218 / 262		TFD
	OLTQ-36V	2 x 6		11.9 [3]	2 x 17.2	3,4	226 / 270		

[2] EN13215: R404A, Evaporating -35°C, Suction Gas Temperature 20°C, Ambient Temperature 32°C

[3] Preliminary data

[*] Gross weight includes packaging.

Copeland Scroll Outdoor Condensing Units for Networks

Copeland has developed a special version of the outdoor condensing unit range to create medium and large size refrigeration systems. This outdoor condensing unit range covers models which allow installation of up to 4 outdoor condensing units in a refrigeration condensing unit network: a refrigeration system in which condensing units are connected mechanically (tubing) and electronically (control system) featuring capacity modulation, fan speed control and communication capabilities for remote monitoring. The range consists of Copeland Scroll Outdoor Condensing Units for medium as well as low temperature applications and covers units from 7.5 up to 15 hp. It also includes units with two compressors, featuring modulation in small steps or continuous modulation in case one of the units in a network is a Copeland Digital Scroll Condensing Unit.

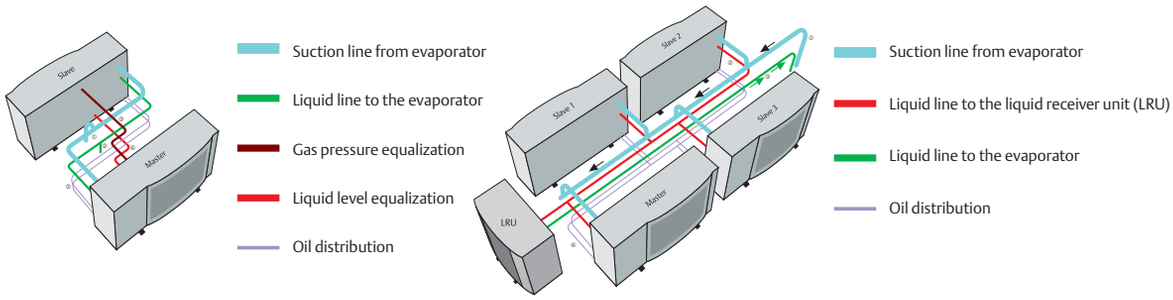
Applications

Copeland Scroll Outdoor Condensing Units, installed in a network perfectly fit in applications where larger cooling capacities and capacity modulation are required. Networks can be created for medium or low temperature refrigeration applications. Typical applications are:

- Cold- and freeze stores
- Supermarkets
- Petrol station forecourts
- Discounts and Convenience Stores
- Mini-markets

Creation of a network

Capacity modulation is achieved by a Master / Slave configuration of condensing units, each with one or two compressors. This requires the creation of a LON (Local Operating Network), which is done by electronically connecting the units with each other.



Product range

All models are available as low sound version.
The low sound units typically feature sound pressure levels at 10 meters distance of 42 to 47 dBA, depending on the model.

Condensing units for medium temperature applications:

- 7 models from 12 up to 24 kW refrigeration capacity
- 3 models (8, 10 and 12 hp) also available with two compressors, featuring 50% modulation capability
- 2 models (8 and 12 hp) are available as Digital version, featuring continuous modulation from 10 to 100%.

Condensing units for low temperature applications:

- 6 models from 7 up to 14 kW refrigeration capacity
- 2 models (8 and 12 hp) are available with two compressors, offering 50% modulation

All units are equipped with a liquid sub-cooler for highest capacity and energy efficiency.

Refrigerants

Medium temperature range:

- All models are equipped with Copeland Scroll compressors for use with R404A and R22.
- Copeland Digital Scroll outdoor units are approved for R404A and R22.

Low temperature range:

- OLQ-24V~OLQ-48V and OLTQ-26V & OLTQ-36V suitable for R404A.

Copeland Scroll Outdoor Condensing Units for Networks

Medium Temperature Application

	Network of 2 units		Network of 3 or 4 units		
hp	Master	Slave	Master	Slave	Cooling Capacity[1] kW
	Single compressor condensing units				
7,5	OMQ-56-NLO	OMQ-56-NL	OMQ-56-NO	OMQ-56-N	12,3
10	OMQ-75-NLO	OMQ-75-NL	OMQ-75-NO	OMQ-75-N	16,6
13	OMQ-92-NLO	OMQ-92-NL	OMQ-92-NO	OMQ-92-N	20,6
15	OMQ-110-NLO	OMQ-110-NL	OMQ-110-NO	OMQ-110-N	23,8
	Two compressor condensing units				
8	OMTQ-60-NLO	OMTQ-60-NL	OMTQ-60-NO	OMTQ-60-N	14,1
	OMTQ-60D-NLO[2]		OMTQ-60D-NO[2]		14,1
10	OMTQ-76-NLO	OMTQ-76-NL	OMTQ-76-NO	OMTQ-76-N	16,6
12	OMTQ-90-NLO	OMTQ-90-NL	OMTQ-90-NO	OMTQ-90-N	19,9
	OMTQ-90D-NLO[2]		OMTQ-90D-NO[2]		19,9

[1] EN13215: R404A, Evaporating -10°C, Suction Gas Temperature 20°C, Ambient Temperature 32°C
[2] Copeland Digital Scroll™ condensing unit, capable of continuous modulation

Low Temperature Application

	Network of 2 units		Network of 3 or 4 units		
hp	Master	Slave	Master	Slave	Cooling Capacity[3][4] kW
	Single compressor condensing units				
7,5	OLQ-24V-NLO	OLQ-24V-NL	OLQ-24V-NO	OLQ-24-VN	7,3
10	OLQ-33V-NLO	OLQ-33V-NL	OLQ-33V-NO	OLQ-33V-N	9,8
13	OLQ-40V-NLO	OLQ-40V-NL	OLQ-40V-NO	OLQ-40V-N	11,9
15	OLQ-48V-NLO	OLQ-48V-NL	OLQ-48V-NO	OLQ-48V-N	14,4
	Two compressor condensing units				
8	OLTQ-26V-NLO	OLTQ-26V-NL	OLTQ-26V-NO	OLTQ-26V-N	7,9
12	OLTQ-36V-NLO	OLTQ-36V-NL	OLTQ-36V-NO	OLTQ-36V-N	11,9

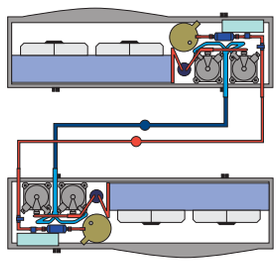
[3] EN13215: R404A, Evaporating -35°C, Suction Gas Temperature 20°C, Ambient Temperature 32°C
[4] Preliminary data

N = Network version
NL = Network version with liquid receiver
NO = Network version with oil reservoir
NLO = Network version with liquid receiver and oil reservoir (for networks of two units only)

Copeland Scroll Outdoor Condensing Units for Networks

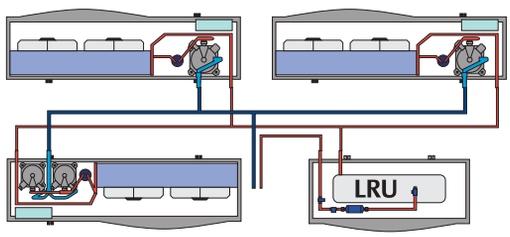
Example: network of two condensing units

OMTQ-90-NLO + OMTQ-90-NL
Nominal capacity (at –10/32°C ambient temperature) 39.7 kW with 4-step modulation of each 9.9 kW
Each unit has a liquid receiver inside, connected to the outgoing liquid line to the evaporator(s).



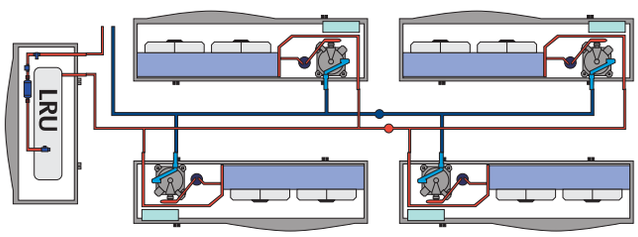
Example: network of three condensing units

OMTQ-90-NO + 2 x OMQ-92-N
Nominal capacity (at -10/32°C ambient temperature) 61 kW with 4-step modulation, smallest step: 9.9 kW
The system shows an additional liquid receiver unit LRU, which is required when a network consists of 3 or 4 condensing units. This LRU is available from Copeland with a 90 litre liquid receiver for remote use with filter drier, sight glass with moisture indicator and a solenoid valve.



Example: network of four condensing units

OMQ-110-NO + 3 x OMQ-110-N
Nominal capacity (at –10/32°C ambient temperature) 96 kW with 4-step modulation, smallest step: 24 kW
Also this system is shown with a liquid receiver unit (LRU).



Condensing Units with Semi-Hermetic Compressors

		Unit Data								Motor Code					
	Model	Nominal Horse Power	Cooling Capacity (kW)				Displacement (compressor)	Oil Quantity (compressor)	Gross Weight (*)	220/230-1-50	220/240-3-50 (Δ) 380/420-3-50 (Y)	380/420-3-50 (Y/ Δstart)	380/420-3-50 (YY/Y)	220/240-3-60 (Δ) 380/420-3-60 (Y)	440/480-3-60 (YY/Y)
		hp	R404A	R134A	R22	R407C	m^3/h	Liters	kg						
STANDARD	B8 KM 5X	0,5	0.6 (2)	1.5 (3)	0.5 (2)		4,0	0,7	66	CAG					
	B8 KM 75/7X	0,8	0.6 (2)		1.9 (1)		4,0	0,7	67,5					EWK	
	B8 KJ 7X	0,8	0.8 (2)	1.9 (3)	0.7 (2)		5,1	0,7	67,5						
	B8 KJ 100/10X	1,0	0.8 (2)		2.4 (1)		5,1	0,7	67,5						
	B8 KSJ 10X	1,0	1.1 (2)	2.3 (3)	1.0 (2)		6,3	0,7	68,5	CAG					
	D8 KSJ 150/15X	1,5	1.1 (2)		3.2 (1)		6,3	0,7	72						
	B8 KL 150/15X	1,5	1.2 (2)	2.6 (3)	1.1 (2)		7,4	0,7	67,5						
	D8-KSL 200/20X	2,0	1.6 (2)	3.6 (3)	4.4 (1)		9,1	0,7	70						
	H8-KSL 200/20X	2,0	1.7 (2)	3.7 (3)	4.7 (1)		9,1	0,7	70					EWK	
	D8 LF 200/20X	2,0	1.7 (2)	4.5 (3)	1.7 (2)		12,9	2,0	114						
	H8 LF 300/30X	3,0	2.1 (2)		6.4 (1)		12,9	2,0	123						
	H8 LJ 200/20X	2,0	2.1 (2)	5.3 (3)	2.0 (2)		14,5	2,0	118						
	H8 LJ 300/30X	3,0	2.3 (2)		7.2 (1)		14,5	2,0	123						
	H8 LL 300/30X	3,0	2.8 (2)	6.5 (3)	2.7 (2)		18,2	2,0	131						
	P8 LL 400/40X	4,0	2.9 (2)		9.2 (1)		18,2	2,0	155		EWL				
	H8 LSG 400/40X	4,0	3.5 (2)	8.0 (3)	3.5 (2)		22,5	2,0	131						
	M8 2SA 450/45X	4,5	3.7 (2)		10.0 (1)		22,4	2,4	167						
	R7 2SA 450/45X	4,5	3.9 (2)		10.5 (1)		22,4	2,4	167						
	M9 LHA 500/50X	5,0	4.8 (2)	10.1 (3)	4.2 (2)		26,6	1,6	167						
	M9 2SC 550/55X	5,5	4.3 (2)		12.5 (1)		26,8	2,4	167			EWM			
	S9 2SC 550/55X	5,5	4.5 (2)		13.2 (1)		26,8	2,4	167					EWK	
	M9 2SK 650/65X	6,5	5.0 (2)		14.3 (1)		31,2	2,4	167						
	V9 2SK 650/65X	6,5	5.4 (2)		15.7 (1)		31,2	2,4	167					EWK	
	S9 3SC 750/75X	7,5	5.8 (2)		17.2 (1)		38,0	3,7	360						
	V6 3SC 750/75X	10	6.1 (2)		18.8 (1)		38,0	3,7	360				AWM	EWK	AWD
	V6 3SS 1000/100X	10	8.6 (2)		23.9 (1)		49,9	3,7	360						
	W9 3SS 1000/100X	15	8.7 (2)		24.4 (1)		49,9	3,7	417					EWK	
DISCUS	R7 2DD 500/50X	5,0	2.5 (2)		9.5 (1)	10.3 (3)	19,3	2,3	236						
	R7 2DL 750/75X	7,5	3.9 (2)		11.5 (1)	12.4 (3)	23,7	2,3	245						
	P8 2DB 500 DC/50X	5,0	4.8 (2)	10.3 (3)	4.1 (2)		28,0	2,3	216						
	S9 2DB 750/75X	7,5	5.1 (2)		14.2 (1)	15.1 (3)	28,0	2,3	252						
	P8 3DA 500 DC/50X	5,0	5.1 (2)	11.2 (3)	4.5 (2)		32,2	3,7	235						
	S9 3DA 750/75X	7,5	5.5 (2)		16.0 (1)	16.8 (3)	32,2	3,7	339						
	R7 3DC 750 DC/75X	7,5	6.4 (2)	14.2 (3)	5.6 (2)		38,0	3,7	358		EWL				
	V6 3DC 1000/100X	10	7.1 (2)		20.0 (1)	21.6 (3)	38,0	3,7	358						
	S9 3DS 1000 DC/100X	10	8.9 (2)	18.4 (3)	7.6 (2)		49,9	3,7	279						
	W9 3DS 1500/150X	15	10.0 (2)		26.1 (1)	28.7 (3)	49,9	3,7	417				AWM	EWK	AWD
	V6 4DL 1500 DC/150X	15	13.1 (2)		12.2 (2)		70,8	3,6	383						
	Z9 4DA 2000/200X	20	32.0 (1)		31.0 (1)	34.5 (3)	56,0	3,6	567					EWK	AWD
	W9 4DT 2200 DC/220X	22	15.2 (2)		14.6 (2)		84,7	4,0	472						
	Z9 4DH 2500/250X	25	38.5 (1)		38.0(1)	42.0 (3)	70,8	4,0	576						AWD
	Z9 6DL 2700 DC/270X	28	19.8 (2)		15.9 (2)		106	4,3	603					EWK	
	Z9 4DJ 3000/300X	30	45.0 (1)		44.0 (1)	47.0 (3)	84,7	4,0	581						
	Z9 6DT 3000 DC/300X	30	23.1 (2)		19.6 (2)		127	7,4	622						
	W99 6DH 3500/350X	35	55.5 (1)		55.5 (1)	60.5 (3)	106	4,3	755					EWK	AWD
	W99 6DJ 4000/400X	40	61.5 (1)		63.0 (1)	68.0 (3)	127	7,4	770						

(1) *EN13215: Evaporating -10°C, Suction Gas Temperature 20°C, Subcooling 0K, Ambient Temperature 32°C*

(2) *EN13215: Evaporating -35°C, Suction Gas Temperature 20°C, Subcooling 0K, Ambient Temperature 32°C*

(3) *Evaporating -5°C, Suction Gas Temperature 20°C, Subcooling 0K, Ambient Temperature 32°C*

(*) *Gross weight includes packaging*

Approved Refrigerants & Oils

Refrigerants	R404A	R507	R407C	R 134a	R 410A	R 22	R 22
Oil	Ester	Ester	Ester	Ester	Ester	Ester	Mineral
SCROLL REFRIGERATION							
ZF/ZS/ZFH/ZSH	☺	☺		☺		☺	☺
ZF EVI	☺	☺					
ZB	☺	☺	☺	☺		☺	☺
ZBH	☺	☺	☺	☺			
SCROLL AIR-CONDITIONING & PROCESS COOLING							
ZR/ZRT/ZRU/ZRY			☺	☺		☺	☺
ZP/ZPT/ZPU/ZPY					☺		
SCROLL DEDICATED HEAT PUMPS							
ZH/ZH EVI			☺				
'K' & 'L' SERIES SEMI-HERMETICS (DK & DL)							
Without oil pump							☺
Integrated oil pump	☺	☺		☺		☺	☺
LHA	☺	☺		☺		☺	☺
"S" SERIES SEMI-HERMETICS							
2S/3S	☺	☺				☺	☺
4S/6S/8S	☺	☺	☺	☺		☺	☺
DISCUS SEMI-HERMETICS							
2D/3D/4D/6D/8D	☺	☺	☺	☺		☺	☺
TWO STAGE SEMI-HERMETICS							
9T							☺
6T	☺	☺				✓	☺

☺ Published data available in Copeland Selection Software, European catalogues, and compressor data sheets.

✓ Operation possible, but no data on Copeland Selection Software.

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