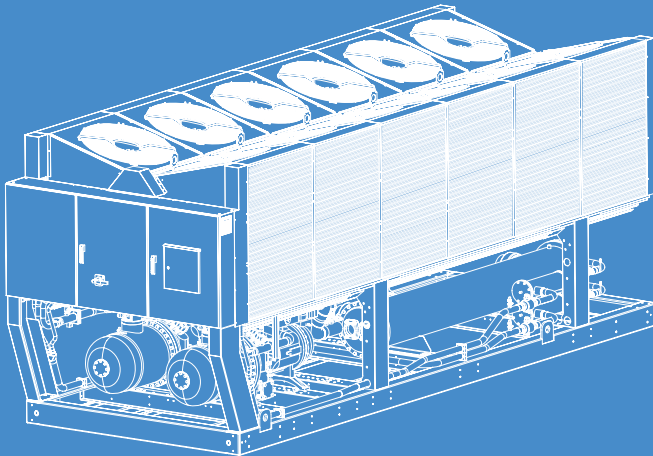


KELVIN Clim **A270**

Cooling Capacity: 270 ~ 1400 kW



Air cooled liquid chillers with twin screw compressors, flooded evaporator, microchannel condensing coils and AC axial fans

KELVIN Clim A270

KELVIN CLIM A270 : Air cooled liquid chillers in “A” class energy efficiency for outdoor installation, equipped with twin screw compressors, flooded evaporator, microchannel condensing coils and axial fans

Cooling Capacity: 270 ~ 1400 kW



KELVIN AIR CONDITIONING



MAIN FEATURES

- Air cooled liquid chiller.
- 29 models available, for a wide selection opportunity.
- Average step of 40kW.
- EER up to 3,15.
- ESEER up to 4,45.
- Twin-Screw compressors.
- R134a Refrigerant charge.
- Double refrigerant circuit.
- Flooded evaporator.
- AC Axial fans.
- Double air circuit.
- Electronic expansion valve.
- Suitable for outdoor installation.

MAIN BENEFITS

- High EER, A class energy efficiency.
- Availability of kit for the reduction and the extreme reduction of the noise.
- Availability of pumping groups.
- Availability of total or partial heat recovery system.
- Availability of EC fans for a higher efficiency.
- Components dedicated to the safety of the unity.
- Eurovent Certification,(pending)

ELECTRONIC EXPANSION VALVE

The electronic expansion valves are synonymous of an higher energy efficiency and stability of the system.

A CLASS ENERGY EFFICIENCY

The best and most accurate components applied to the chillers.

WORKING LIMITS IN COOLING MODE

Chilled water outlet temperature: -10~15°C
Ambient temperature: -20~48°C



MAIN COMPONENTS

FRAMEWORK

- Base, self supporting frame and panelling in steel plate with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders.
- Colour: RAL 9002.

COMPRESSORS

- Two twin screw semi-hermetic compressors with highly efficient screw profile and high peripheral speed, optimized for R134a refrigerant.
- Integrated discharge check valve.
- Integrated oil separator on gas discharge.
- Integrated safety relief valve (overpressure inner valve).
- Replaceable cartridge oil filter.
- Valves for oil filling and discharge.
- Oil sight glass.
- Electronic protection device that includes:
 - Electric motor thermal protection via internal winding temperature sensors,
 - Phase sequence electronic relay,
 - Sensor on refrigerant discharge for temperature monitoring.
- 2-pole 3-phase electric motor with Part-Winding starting from model 280 V2 F06 to model 710 V2 F12 included.
- 2-pole 3-phase electric motor with Star / Delta starting from model 780 V2 F14 to model 1400 V2 F24 included.
- Capacity control, 50~100% for each compressor.
- Crankcase heater.
- Terminal box with IP54 enclosure class.
- Rubber supports.

EVAPORATOR

- Flooded shell and tube evaporator, optimized for R134a refrigerant.
- Version two passes, characterized by low pressure losses on the waterside.
- Water tubes with a helical rifled internal surface.
- Integrated liquid drop separator.
- Shell, header, tube sheets made of carbon steel, tubes in Cu.
- Anticondensate insulation made of polyurethane.
- Large liquid level indicator.
- Temperature sensors on water inlet and outlet.
- Water flow switch for water flow control on water outlet towards the plant, not installed but supplied in kit.
- Large liquid level indicator.
- Anti freeze heater.
- Jet pump for oil drainage.
- Hydraulic connections with grooved end supplied as standard with flexible joint and adapter pipe to be welded.

CONDENSING COIL

- Microchannel condensing coil in aluminium, perfectly suitable for the civil and industrial applications cooling, while the protection function of the oxide layer allows an optimum resistance to corrosion also in case of aggressive ambient conditions.
- Extremely light construction. The coil weight is only 50% compared to traditional copper pipes and aluminium fins of the same capacity.
- Low air side pressure drop and consequentially drastic reduction of the fans motors electric energy consumption.
- High heat exchange efficiency.
- Reduced internal volume capable of reducing the total refrigerant charge. At the same performances conditions, the micro-channels condensers require up-to less than 75%refrigerant when compared to the traditional heat exchangers.
- Double air circuit.

FANS SECTION

- Axial fans with sickle-shaped blades, fan guard and optimized for low noise levels.
- External rotor AC type electric motor with stepless variable speed for condensing pressure control, with phase-cut electronic controller.
- IP54 enclosure class.

REFRIGERANT CIRCUIT

Component for each refrigerant circuit:

- Capacitive level sensor connected to the driver of the expansion valve.
- Electronic expansion valve that allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure.
- Energy reserve module for the electronic expansion valve to allow the closure of the valve in the event of lack of power supply.
- Liquid receiver with safety valve and service valve.
- Sight glass.
- Filter dryer on liquid line.
- Service valves on liquid line.
- Service valves on compressor gas discharge.
- Safety valves on high and low pressure side.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- High pressure safety switch with manual reset.
- Pressure gauge on high and low pressure.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Plastic capillary hoses for pressure sensors connection.
- R134a refrigerant charge.

ELECTRICAL PANEL

In accordance with EN60204-1 norms, for outdoor installation, complete with:

- Main switch with door lock safety.
- Fuses for each compressor.
- Magnetothermic switches for fans or water pumps (if scheduled).
- Contactors for each load.
- Compressor Part-Winding starting system from model 280 V2 F06 to model 710 V2 F12 included.
- Compressor Star / Delta starting system from model 780 V2 F14 to model 1400 V2 F24 included.
- Transformer for auxiliary circuit and microprocessor supply.
- Panel with machine controls.
- Power supply 400/3/50.

CONTROL SYSTEM

- MP.COM microprocessor system with graphic display for control and monitor of operating and alarms status. The system includes:
 - Clock card for alarms date and time displaying and storing;
 - Predisposition for the memorization of the intervened alarms;
 - Predisposition for connectivity board housing (KELVIN Com MBUS/JBUS, LON, BACnet for Ethernet (SNMP- TCP/IP), BACnet for MS/TP). The electronic cards are optional accessories;
 - Main components hour-meter;
 - Non-volatile "Flash" memory for data storage in case of power supply faulty;
 - Analogue set point compensation (0~1 Vdc) according to an external analogue signal at Customer care;
 - Menu with protection password;
 - LAN connection.

OPTIONAL ACCESSORIES

KELVIN Clim A270 SIZE	F06	F08	F10	F12	F14	F16	F18	F20	F22	F24
739 - Pumping group (1 pump)	•	•	-	-	-	-	-	-	-	-
769 - Pumping group (1+1stby)	•	•	-	-	-	-	-	-	-	-
740 - Pumping group (2 pumps)	-	-	•	•	•	•	•	•	•	•
770 - Pumping group (1+2stby)	-	-	•	•	•	•	•	•	•	•
1004 - Antifreezing heater for pumping group	•	•	•	•	•	•	•	•	•	•
118 - Kit brine A (for glycol solution production up to °6-C)	•	•	•	•	•	•	•	•	•	•
119 - Kit brine B (for glycol solution production up to °12-C)	•	•	•	•	•	•	•	•	•	•
786 - Pipes antifreezing kit	•	•	•	•	•	•	•	•	•	•
79 - Electrical panel heating system	•	•	•	•	•	•	•	•	•	•
150 - LNO kit (noise reduction)	•	•	•	•	•	•	•	•	•	•
151 - ELN kit (extremely noise reduction)	•	•	•	•	•	•	•	•	•	•
170 - Spring antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•
171 - Rubber antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•
101 - EC fan	•	•	•	•	•	•	•	•	•	•
450 - Partial heat recovery	•	•	•	•	•	•	•	•	•	•
449 - Voltage free contact for partial heat recovery water pump activation	•	•	•	•	•	•	•	•	•	•
%100 - 451 heat reclaim	•	•	•	•	•	•	•	•	•	•
454 - Voltage free contact for total heat recovery water pump activation	•	•	•	•	•	•	•	•	•	•
Selection switch for operation mode for total heat recovery	•	•	•	•	•	•	•	•	•	•
351 - Coils with pre-painted fins	•	•	•	•	•	•	•	•	•	•
Condensing coil in special execution	•	•	•	•	•	•	•	•	•	•
250 - Coils protection nets (kit)	•	•	•	•	•	•	•	•	•	•
731 - Safety water flow switch	•	•	•	•	•	•	•	•	•	•
1005 - Oil flow switch	•	•	•	•	•	•	•	•	•	•
650 - Compressor thermal relay	•	•	•	•	•	•	•	•	•	•
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•	•	•	•
Supply network control relay	•	•	•	•	•	•	•	•	•	•
83 - Compressor operation indicator	•	•	•	•	•	•	•	•	•	•
550 - Stop valve on compressor suction line	•	•	•	•	•	•	•	•	•	•
85 - Demand limit	•	•	•	•	•	•	•	•	•	•
88 - Analog set point compensation	•	•	•	•	•	•	•	•	•	•
1003 - Analogic flowmeter	•	•	•	•	•	•	•	•	•	•
1005 - Power supply analyzer	•	•	•	•	•	•	•	•	•	•
1009 - Multimeter kit	•	•	•	•	•	•	•	•	•	•
919 - Clock card	•	•	•	•	•	•	•	•	•	•
923 - KELVIN-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•	•	•
934 - MP.COM expansion card	•	•	•	•	•	•	•	•	•	•
942 - Serial card for GSM Modem	•	•	•	•	•	•	•	•	•	•
943 - Data Logger	•	•	•	•	•	•	•	•	•	•
Ambient temperature sensor	•	•	•	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•	•	•	•
957 - Plantwatch without modem	•	•	•	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•	•	•	•
KELVIN CLOUD PLATFORM	•	•	•	•	•	•	•	•	•	•

• available accessory; - not available accessory

TECHNICAL DATA KELVIN Clim A270

KELVIN Clim A270		280 V2	290 V2	310 V2	330 V2	340 V2	370 V2
SIZE		F06	F06	F06	F06	F06	F08
Cooling capacity (1)	kW	270	291	311	325	339	369
Compressors power input	kW	74	80	87	91	95	101
Compressors operating current [OA]	A	118	128	139	146	153	162
Evaporator water flow rate	m ³ /h	47	50	53	56	58	63
Evaporator pressure drop	kPa	44	46	45	42	46	45
Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
Quantity	n.	2	2	2	2	2	2
Maximum operative current (MOC)	A	159	178	196	205	214	229
Maximum current (FLA)	A	160	178	196	223	250	270
Starting current (LRA)	A	283	342	360	396	405	480
Stepless capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
Evaporator	n.	1	1	1	1	1	1
Water volume	l	45,5	49,8	54,1	58,5	58,5	52,0
Min water flow rate	m ³ /h	34	37	40	43	43	26
Max water flow rate	m ³ /h	95	105	114	123	123	73
AC Axial fans	n.	6	6	6	6	6	8
Total air flow	m ³ /h	144000	144000	144000	144000	144000	192000
Power input	kW	11,4	11,4	11,4	11,4	11,4	15,2
Plate current [FLA]	A	28,8	28,8	28,8	28,8	28,8	38,4
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a
Total refrigerant charge (optional excluded)	kg	168	165	163	161	248	262
Gas circuits	n.	2	2	2	2	2	2
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Energy efficiency indexes							
EER - Energy Efficiency Ratio (1)	kW/kW	3,14	3,14	3,13	3,14	3,14	3,13
ESEER - Eurovent Standard		4,01	4,07	4,14	4,19	4,24	4,03
Sound level							
Average sound pressure level [LPm] (2)	dB(A)	73,6	73,7	73,7	73,8	73,9	73,9
Sound power level [Lw] (3)	dB(A)	93,2	93,3	93,4	93,5	93,5	94,1
Dimensions							
Length (a)	mm	3420	3420	3420	3420	3420	4690
Width (b)	mm	2260	2260	2260	2260	2260	2260
Height (c)	mm	2540	2540	2540	2540	2540	2540
Net weight	kg	2822	2840	2857	2860	2947	3448
Hydraunic connections							
Evaporator							
Inlet/outlet – OD (4)	Ø mm	139,7	139,7	139,7	139,7	139,7	139,7

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.
2. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Hydraulic connection with grooved end, supplied as standard with flexible joint and adapter pipe.

TECHNICAL DATA KELVIN Clim A270

KELVIN Clim A270		400 V2	420 V2	430 V2	460 V2	480 V2	510 V2
SIZE		F08	F08	F08	F10	F10	F10
Cooling capacity (1)	kW	398	414	430	457	474	511
Compressors power input	kW	110	115	121	124	130	141
Compressors operating current [OA]	A	176	185	194	200	208	227
Evaporator water flow rate	m ³ /h	68	71	74	78	81	88
Evaporator pressure drop	kPa	45	42	45	45	43	42
Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
Quantity	n.	2	2	2	2	2	2
Maximum operative current (MOC)	A	244	259	273	274	276	302
Maximum current (FLA)	A	290	305	320	305	290	325
Starting current (LRA)	A	495	527	542	625	626	653
Stepless capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
Evaporator	n.	1	1	1	1	1	1
Water volume	l	55,2	58,5	63,3	68,2	68,2	74,7
Min water flow rate	m ³ /h	28	29	32	34	34	37
Max water flow rate	m ³ /h	77	82	89	95	95	105
AC Axial fans	n.	8	8	8	10	10	10
Total air flow	m ³ /h	192000	192000	192000	240000	240000	240000
Power input	kW	15,2	15,2	15,2	19,0	19,0	19,0
Plate current [FLA]	A	38,4	38,4	38,4	48,0	48,0	48,0
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a
Total refrigerant charge (optional excluded)	kg	260	259	256	257	258	255
Gas circuits	n.	2	2	2	2	2	
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Energy efficiency indexes							
EER - Energy Efficiency Ratio (1)	kW/kW	3,13	3,14	3,11	3,15	3,14	3,15
ESEER - Eurovent Standard		4,10	4,14	4,18	4,01	4,05	4,12
Sound level							
Average sound pressure level [LPm] (2)	dB(A)	74,0	74,1	74,1	74,3	74,4	75,6
Sound power level [Lw] (3)	dB(A)	94,2	94,3	94,4	95,0	95,1	96,3
Dimensions							
Length (a)	mm	4690	4690	4690	5650	5650	5650
Width (b)	mm	2260	2260	2260	2260	2260	2260
Height (c)	mm	2540	2540	2540	2540	2540	2540
Net weight	kg	3462	3477	3490	3759	3775	4108
Hydraunic connections							
Evaporator							
Inlet/outlet – OD (4)	Ø mm	139,7	139,7	139,7	139,7	139,7	139,7

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.
2. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Hydraulic connection with grooved end, supplied as standard with flexible joint and adapter pipe.

TECHNICAL DATA KELVIN Clim A270

KELVIN Clim A270		550 V2	590 V2	630 V2	670 V2	710 V2	780 V2
SIZE		F10	F10	F10	F12	F12	F14
Cooling capacity (1)	kW	548	585	622	669	703	777
Compressors power input	kW	153	165	177	187	199	218
Compressors operating current [OA]	A	245	265	284	301	319	350
Evaporator water flow rate	m ³ /h	94	100	107	115	121	134
Evaporator pressure drop	kPa	42	43	43	45	45	42
Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
Quantity	n.	2	2	2	2	2	2
Maximum operative current (MOC)	A	329	356	383	410	438	479
Maximum current (FLA)	A	360	378	396	419	442	504
Starting current (LRA)	A	599	695	722	779	806	665
Stepless capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
Evaporator	n.	1	1	1	1	1	1
Water volume	l	81,2	87,7	87,7	99,1	99,1	115,3
Min water flow rate	m ³ /h	40	43	43	49	49	57
Max water flow rate	m ³ /h	114	123	123	139	139	162
AC Axial fans	n.	10	10	10	12	12	14
Total air flow	m ³ /h	240000	240000	240000	288000	288000	336000
Power input	kW	19,0	19,0	19,0	22,8	22,8	26,6
Plate current [FLA]	A	48,0	48,0	48,0	57,6	57,6	67,2
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a
Total refrigerant charge (optional excluded)	kg	252	249	251	323	325	320
Gas circuits	n.	2	2	2	2	2	2
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Energy efficiency indexes							
EER - Energy Efficiency Ratio (1)	kW/kW	3,14	3,14	3,13	3,15	3,13	3,14
ESEER - Eurovent Standard		4,19	4,27	4,35	4,22	4,28	4,20
Sound level							
Average sound pressure level [L _{Pm}] (2)	dB(A)	76,6	76,7	76,8	77,7	77,8	77,6
Sound power level [L _w] (3)	dB(A)	97,3	97,4	97,5	98,8	99,0	99,1
Dimensions							
Length (a)	mm	5650	5650	5650	6820	6820	7735
Width (b)	mm	2260	2260	2260	2260	2260	2260
Height (c)	mm	2540	2540	2540	2540	2540	2540
Net weight	kg	4441	4449	4456	4985	4990	5863
Hydraunic connections							
Evaporator							
Inlet/outlet – OD (4)	Ø mm	139,7	139,7	139,7	139,7	139,7	168,3

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²°K/kW.
2. Average sound pressure level [L_{Pm}] 1m far according to ISO EN 3744.
3. Sound power level [L_w] according to ISO EN 9614 – 2.
4. Hydraulic connection with grooved end, supplied as standard with flexible joint and adapter pipe.

TECHNICAL DATA KELVIN Clim A270

KELVIN Clim A270		840 V2	890 V2	940 V2	1010 V2	1070 V2	1120 V2
SIZE		F14	F14	F14	F16	F16	F18
Cooling capacity (1)	kW	841	889	936	1011	1068	1115
Compressors power input	kW	237	253	269	288	309	318
Compressors operating current [OA]	A	381	406	431	463	495	511
Evaporator water flow rate	m ³ /h	144	153	161	174	184	191
Evaporator pressure drop	kPa	44	44	45	45	45	45
Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
Quantity	n.	2	2	2	2	2	2
Maximum operative current (MOC)	A	521	545	570	608	646	677
Maximum current (FLA)	A	566	598	630	671	712	783
Starting current (LRA)	A	696	725	750	871	909	973
Stepless capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
Evaporator	n.	1	1	1	1	1	1
Water volume	l	121,8	129,9	136,4	142,9	147,8	155,9
Min water flow rate	m ³ /h	60	64	67	70	73	77
Max water flow rate	m ³ /h	171	182	191	200	207	219
AC Axial fans	n.	14	14	14	16	16	18
Total air flow	m ³ /h	336000	336000	336000	384000	384000	432000
Power input	kW	26,6	26,6	26,6	30,4	30,4	34,2
Plate current [FLA]	A	67,2	67,2	67,2	76,8	76,8	86,4
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a
Total refrigerant charge (optional excluded)	kg	319	397	395	398	397	487
Gas circuits	n.	2	2	2	2	2	2
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Energy efficiency indexes							
EER - Energy Efficiency Ratio (1)	kW/kW	3,15	3,14	3,13	3,14	3,11	3,13
ESEER - Eurovent Standard		4,29	4,37	4,45	4,36	4,44	4,35
Sound level							
Average sound pressure level [LPm] (2)	dB(A)	77,6	77,7	77,8	77,8	78,0	78,1
Sound power level [Lw] (3)	dB(A)	99,0	99,1	99,2	99,7	99,9	100,2
Dimensions							
Length (a)	mm	7735	7735	7735	8906	8906	9820
Width (b)	mm	2260	2260	2260	2260	2260	2260
Height (c)	mm	2540	2540	2540	2540	2540	2540
Net weight	kg	6463	6645	6646	7260	7263	7697
Hydraunic connections							
Evaporator							
Inlet/outlet – OD (4)	Ø mm	168,3	168,3	168,3	168,3	168,3	168,3

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.
2. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Hydraulic connection with grooved end, supplied as standard with flexible joint and adapter pipe.

TECHNICAL DATA KELVIN Clim A270

KELVIN Clim A270		1150 V2	1220 V2	1290 V2	1350 V2	1400 V2
SIZE		F18	F20	F22	F24	F24
Cooling capacity (1)	kW	1150	1217	1290	1347	1394
Compressors power input	kW	330	348	368	380	396
Compressors operating current [OA]	A	529	559	591	609	636
Evaporator water flow rate	m ³ /h	198	209	222	231	239
Evaporator pressure drop	kPa	44	46	46	41	44
Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
Quantity	n.	2	2	2	2	2
Maximum operative current (MOC)	A	708	752	796	812	829
Maximum current (FLA)	A	854	901	948	948	948
Starting current (LRA)	A	1004	1159	1203	1219	1219
Stepless capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
Evaporator	n.	1	1	1	1	1
Water volume	l	164,0	172,1	181,9	190,0	199,7
Min water flow rate	m ³ /h	81	85	90	94	98
Max water flow rate	m ³ /h	230	242	255	267	280
AC Axial fans	n.	18	20	22	24	24
Total air flow	m ³ /h	432000	480000	528000	576000	576000
Power input	kW	34,2	38,0	41,8	45,6	45,6
Plate current [FLA]	A	86,4	96,0	105,6	115,2	115,2
Refrigerant		R134a	R134a	R134a	R134a	R134a
Total refrigerant charge (optional excluded)	kg	484	484	481	482	477
Gas circuits	n.	2	2	2	2	2
Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Energy efficiency indexes						
EER - Energy Efficiency Ratio (1)	kW/kW	3,12	3,11	3,11	3,13	3,12
ESEER - Eurovent Standard		4,39	4,33	4,26	4,23	4,27
Sound level						
Average sound pressure level [LPm] (2)	dB(A)	78,3	80,3	81,1	81,0	81,1
Sound power level [Lw] (3)	dB(A)	100,4	102,8	103,9	104,0	104,1
Dimensions						
Length (a)	mm	9820	10990	11905	13075	13075
Width (b)	mm	2260	2260	2260	2260	2260
Height (c)	mm	2540	2540	2540	2540	2540
Net weight	kg	7699	8061	8305	8641	8641
Hydraunic connections						
Evaporator						
Inlet/outlet – OD (4)	Ø mm	168,3	168,3	168,3	168,3	168,3

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²K/kW.
2. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Hydraulic connection with grooved end, supplied as standard with flexible joint and adapter pipe.

