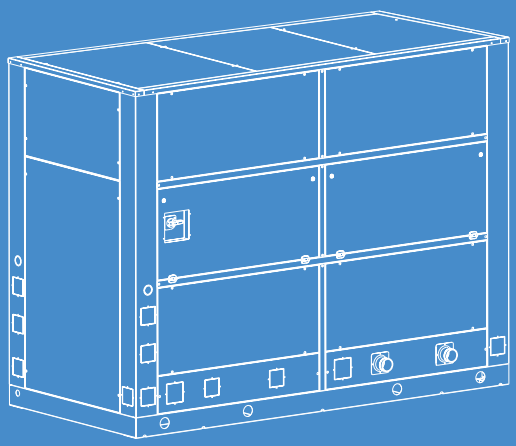
KELVIN
Air Conditioning System
2016

Qualified for **Energy Technology List**
www.eca.gov.uk
TM

bsi. ISO 9001 Quality Management | ISO 14001 Environmental Management

KELVIN Clim F18 PF

Cooling Capacity: 21 ~ 277 kW
Free-Cooling Capacity: 18 ~ 176 kW



R410A | FREE COOLING | PLATE | EC | EU

Packaged air cooled liquid chillers with free-cooling system for indoor installation, equipped with scroll compressors and plug fan

KELVIN AIR CONDITIONING

KELVIN Clim F18 PF

KELVIN CLIM F18 PF: Packaged air cooled liquid chillers with free-cooling system for indoor installation, equipped with scroll compressors and plug fan
Cooling Capacity: 21 ÷ 277 kW
Free-Cooling Capacity: 18 ÷ 176 kW

EUROVENT CERTIFIED PERFORMANCE Pending... www.eurovent-certification.com

KELVIN AIR CONDITIONING

R410A | FREE COOLING | PLATE | EC | EU

MAIN FEATURES

- Air cooled liquid chiller with free-cooling system.
- 29 models available, for a wide selection opportunity.
- Average step of 12,5kW.
- EER up to 2,79.
- ESEER up to 3,40.
- Scroll compressors.
- R410A Refrigerant charge.
- Single or double refrigerant circuit.
- Plate type heat exchangers.
- EC Plug fan.
- Single air circuit.
- Electronic expansion valve.
- Suitable for outdoor installation.

MAIN BENEFITS

- Units equipped with two scroll compressors for refrigerant circuit to reach a high efficiency.
- Units with single and double refrigerant circuits.
- Indirect free cooling system.
- High ESEER.
- EC Plug fan for a high efficiency.
- Availability of kit for the reduction of the noise.
- Availability of pumping groups.
- Availability of partial heat recovery system.
- Easily of maintenance.
- Components dedicated to the safety of the unity.
- Eurovent Certifi cation.(pending)

INDIRECT FREE COOLING SYSTEM

Complete cooling of the chilled water of the existing cooling system with the outside air. The energy saving will be higher the longer the outside temperature remains below the required temperature for cooling.

INDOOR INSTALLATION

The machines are designed for indoor installation and ducting for air suction and discharge. For outdoor installation the use of the dedicated optional kit is mandatory. The machine must be installed under a cover or anyway protected against atmospherics agent.

WORKING LIMITS IN COOLING MODE

Chilled water outlet temperature: 4~15°C
Ambient temperature: -10~45°C

WORKING LIMITS IN FREE-COOLING MODE

Minimum chilled water outlet temperature: -15°C
Minimum ambient temperature: -20°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

- Orbiting spiral (SCROLL) hermetic compressors with spiral profile optimized for R410A refrigerant.
- ON / OFF capacity control (0 / 100% each compressor).
- 2-pole 3-phase electric motor with direct on line starting.
- Phase sequence electronic relay.
- Crankcase heater.
- Electric motor thermal protection via internal winding temperature sensors.
- Rubber supports.

EVAPORATOR

- Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel:
  - With single refrigerant circuit for S version machines,
  - With double refrigerant circuit for D version machines.
- Anticondensate insulation made of polyurethane.
- Temperature sensors on water inlet and outlet.
- Differential water pressure switch for water flow control.
- Antifreeze heater.

CONDENSING COIL

- Heat exchanger coil with internally corrugated copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops. The combination of two factors, special tubes and fins, allow to optimally combine the following aspects:
  - Maximum capacity relative to the size of the exchanger,
  - Minimum charge of refrigerant,
  - Reduction of the air flow required for the heat exchange.
- Sub-cooling circuit to allow a significant increase in cooling capacity.
- Frame in galvanized steel.

FREE-COOLING COIL

- Heat exchanger coil with copper tubes and high efficiency aluminium fins, specifically developed to provide high heat transfer and lower pressure drops. The combination of two factors, special tubes and fins, allow to optimally combine the following aspects:
  - Maximum capacity relative to the size of the exchanger,
  - Reduction of the air flow required for the heat exchange.
- Frame in galvanized steel.
- Motorized valves for free-cooling water circuit control.
- Temperature sensor on ambient air.

FANS SECTION

- Centrifugal fans with backward curved blades, single suction and without scroll housings (Plug-fan).
- Brushless type synchronous EC motor with integrated electronic commutated system and continuous variation of the rotation speed. The motor rotation control is obtained with the EC system (Electronic Commutation) that manage the motor according to the 0~10V proportional signal coming from the microprocessor control.
- Maintenance-free bearings.
- IP54 enclosure class.

REFRIGERANT CIRCUIT

Components for each refrigerant circuit:

- Thermostatic expansion valve up to model 85 P2 C3 D included.
- Electronic expansion valve from model 107 P2 C3 D included.

The valve allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure. The electronic expansion valve exclude the installation of the electromagnetic valve on liquid line.

- Sight glass.
- Electromagnetic valve on liquid line. The electromagnetic valve is not installed when the electronic expansion valve is present.
- Filter dryer on liquid line.
- Service valves on liquid line and gas discharge.
- Safety valve on low pressure side.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- High pressure safety switch with manual reset.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Plastic capillary hoses for pressure sensors connection.
- R410A refrigerant charge.

ELECTRICAL PANEL

In accordance with EN60204-1 norms complete with:

- Main switch with door lock safety.
- Magnetothermic switch or fuses for each compressor.
- Magnetothermic switches for fans or water pumps (if scheduled).
- Contactors for each load.
- 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:
  - Voltage free contact for remote general alarm,
  - Main components hour-meter,
  - Nonvolatile "Flash" memory for data storage,
  - Menu with protection password,
  - LAN connection.

OPTIONAL ACCESSORIES

KELVIN Clim F18 PF SIZE	C1	C2	C3	C4	C5
739 - Pumping group (1 pump)	●	●	●	●	●
740 - Pumping group (2 pumps)	-	-	●	●	●
768 - Chilled water storage tank	●	●	●	●	●
150 - LNO kit (noise reduction)	●	●	●	●	●
170 - Spring antivibration holders (kit)	●	●	●	●	●
172 - Rubber support (kit)	●	●	●	●	●
118 - Kit brine A (for glycol solution production up to °6-C)	●	●	●	●	●
119 - Kit brine B (for glycol solution production up to °12-C)	●	●	●	●	●
79 - Electrical panel heating system	●	●	●	●	●
460 - Kit for outdoor installation	●	●	●	●	●
450 - Partial heat recovery	●	●	●	●	●
251 - Coils protection nets	●	●	●	●	●
351 - Coils with pre-painted fins	●	●	●	●	●
Condensing coil in special execution	●	●	●	●	●
160 - Discharge air plenum with sound attenuators	●	●	●	●	●
731 - Safety water flow switch	●	●	●	●	●
143 - Glycol free	●	●	●	●	●
605 - Compr. power factor capacitor - 0,9	●	●	●	●	●
1002 - Soft Starter	●	●	●	●	●
83 - Compressor operation indicator	●	●	●	●	●
Expansion valve energy reserve module	●	●	●	●	●
Ambient temperature sensor	●	●	●	●	●
81 - Phases sequence control	●	●	●	●	●
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	●	●	●	●	●
942 - Serial card for GSM Modem	●	●	●	●	●
943 - Data Logger	●	●	●	●	●
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 F18 PF

	KELVIN Clim F18 PF		22 P1 S	24 P1 S	28 P1 S	32 P1 S	36 P1 S	42 P1 S	53 P1 S	67 P1 S
	SIZE		C1	C1	C1	C1	C1	C1	C2	C2
STANDARD	**Cooling capacity (1)**	**kW**	**21,4**	**23,9**	**27,9**	**31,6**	**35,2**	**39,6**	**51,4**	**64,4**
	Unit power input	kW	7,7	9,0	10,9	11,8	14,2	17,2	20,8	26,0
	Free-Cooling capacity (2)	**kW**	**18,1**	**19,5**	**22,9**	**26,0**	**28,2**	**29,9**	**42,3**	**52,1**
	Total water flow rate	m³/h	4,0	4,4	5,2	5,8	6,5	7,3	9,5	11,9
	Total pressure drop	kPa	98	123	151	166	150	174	160	212
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	1	1	1	1
	Capacity steps	n.	1	1	1	1	1	1	1	1
	Centrifugal fans EC	n.	1	1	1	1	1	1	2	2
	Total air flow	m³/h	6500	7000	8500	10000	11000	11500	16000	21000
	External static pressure	Pa	50	50	50	50	50	50	50	50
	Air circuits	n.	1	1	1	1	1	1	1	1
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	11,3	11,3	11,3	11,5	11,6	11,6	18	18,5
	Gas circuits	n.	1	1	1	1	1	1	1	1
	Power supply	V/Ph/Hz	50/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/400
	Max unit operating current (FLA)	A	21,3	26,6	27,6	31,4	37,7	40,8	51,0	59,7
	Unit starting current (LRA)	A	99,3	115,3	122,3	122,9	144,9	178,9	233,6	280,4
	EER (1)	kW/kW	2,79	2,66	2,55	2,68	2,48	2,30	2,47	2,48
	ESEER		3,17	3,03	2,95	3,14	2,86	2,60	2,84	2,97
	Sound power level [Lw] (3)	dB(A)	87,3	88,9	93,0	92,1	94,5	95,5	95,0	97,2
	Average sound pressure level [Lpm] (4)	dB(A)	70,7	72,3	76,4	75,5	77,9	78,9	77,8	80,0
	Net weight	kg	450	460	460	470	470	480	750	790
	Hydraulic connections									
	Evaporator IN/OUT - ISO 1/7 – R	Ø	2	"2	"2/1 1	"2/1 1	"2/1 1	"2/1 1	"2/1 1	"2/1 1"
	Evaporator IN/OUT - OD (5)	Ø mm	–	–	–	–	–	–	--	--
OPTIONAL	Partial heat recovery (6)									
	Heating capacity	**kW**	**7,4**	**8,2**	**9,6**	**10,9**	**12,1**	**13,6**	**17,7**	**22,2**
	Pumping group									
	1 pump - 2 poles electric motor	kW	1,1	1,1	1,1	1,1	1,1	1,1	1,5	1,5
	2 pump - 2 poles electric motor	kW	-	-	-	-	-	-	-	-
	Water tank - volume	l	130	130	130	130	130	130	210	210
LNO KIT %100	**Cooling capacity (1)**	**kW**	**21,4**	**23,9**	**27,9**	**31,6**	**35,2**	**39,6**	**51,4**	**64,4**
	Unit power input	kW	7,7	9,0	10,9	11,8	14,2	17,2	20,8	26,0
	Free-Cooling capacity (2)	**kW**	**18,1**	**19,5**	**22,9**	**26,0**	**28,2**	**29,9**	**42,3**	**52,1**
	Total air flow	m³/h	6500	7000	8500	10000	11000	11500	16000	21000
	External static pressure	Pa	50	50	50	50	50	50	50	50
	EER (1)	kW/kW	2,79	2,66	2,55	2,68	2,48	2,30	2,47	2,48
	Sound power level [Lw] (3)	dB(A)	87,1	88,7	92,8	92,1	94,1	96,0	94,6	96,4
	Average sound pressure level [Lpm] (4)	dB(A)	70,5	72,1	76,2	75,5	77,5	79,4	77,4	79,2
LNO KIT %85	**Cooling capacity (1)**	**kW**	**20,8**	**23,2**	**27,0**	**30,6**	**34,0**	**38,2**	**50,0**	**62,6**
	Unit power input	kW	7,7	9,0	10,8	11,9	13,9	16,9	20,7	25,9
	Free-Cooling capacity (2)	**kW**	**17,9**	**19,4**	**22,7**	**25,7**	**28,0**	**29,6**	**41,9**	**51,7**
	Total air flow	m³/h	5525	5950	7225	8500	9350	9775	13600	17850
	External static pressure	Pa	36	36	36	36	36	36	36	36
	EER (1)	kW/kW	2,69	2,57	2,49	2,58	2,45	2,26	2,42	2,42
	Sound power level [Lw] (3)	dB(A)	83,6	85,2	89,3	88,2	90,6	92,5	91,2	93,0
	Average sound pressure level [Lpm] (4)	dB(A)	67,0	68,6	72,7	71,6	74,0	75,9	74,0	75,8
LNO KIT %70	**Cooling capacity (1)**	**kW**	**19,9**	**22,1**	**25,8**	**29,2**	**32,5**	**36,3**	**47,9**	**59,9**
	Unit power input	kW	8,0	9,4	11,1	12,3	14,0	17,2	21,2	26,5
	Free-Cooling capacity (2)	**kW**	**17,6**	**19,1**	**22,3**	**25,3**	**27,6**	**29,2**	**41,5**	**51,1**
	Total air flow	m³/h	4550	4900	5950	7000	7700	8050	11200	14700
	External static pressure	Pa	25	25	25	25	25	25	25	25
	EER (1)	kW/kW	2,49	2,36	2,33	2,37	2,32	2,11	2,26	2,26
	Sound power level [Lw] (3)	dB(A)	80,4	82,0	86,1	83,6	87,4	89,3	88,2	90,1
	Average sound pressure level [Lpm] (4)	dB(A)	63,8	65,4	69,5	67,1	70,8	72,7	71,0	72,9

1. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²°K/kW.
2. Referred to glycol solution inlet temperature 15°C; 20% Ethylene glycol solution; ambient temperature 3°C. Fouling factor of the exchangers 0,043 m²°K/kW.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end complete with fl exible joint and adapter pipe for solder connection.
6. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m²°K/kW.

TECHNICAL DATA KELVIN Clim F18 PF

	KELVIN Clim F18 PF		55 P2 S	55 P2 D	62 P2 S	62 P2 D	71 P2 S	71 P2 D	85 P2 S	85 P2 D
	SIZE		C2	C2	C2	C2	C2	C2	C3	C3
STANDARD	**Cooling capacity (1)**	**kW**	**54,1**	**54,2**	**60,7**	**60,9**	**68,4**	**68,3**	**80,5**	**80,1**
	Unit power input	kW	22,1	21,9	24,3	24,1	28,9	28,6	31,3	31,2
	Free-Cooling capacity (2)	**kW**	**45,7**	**45,7**	**50,6**	**50,6**	**55,6**	**55,5**	**67,1**	**67,0**
	Total water flow rate	m³/h	10,0	10,0	11,2	11,2	12,6	12,6	14,9	14,8
	Total pressure drop	kPa	175	153	203	179	239	218	167	147
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	2	2	2	2	2	2	2	2
	Capacity steps	n.	2	2	2	2	2	2	2	2
	Centrifugal fans EC	n.	2	2	2	2	2	2	3	3
	Total air flow	m³/h	18000	18000	20500	20500	23000	23000	25500	25500
	External static pressure	Pa	50	50	50	50	50	50	50	50
	Air circuits	n.	1	1	1	1	1	1	1	1
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	18,3	16	18,3	16	18,7	16,2	28,7	25,5
	Gas circuits	n.	1	2	1	2	1	2	1	2
	Power supply	V/Ph/Hz	50/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/400
	Max unit operating current (FLA)	A	56,5	56,5	61,3	61,3	73,9	73,9	86,8	86,8
	Unit starting current (LRA)	A	149,8	149,8	151,4	151,4	179,4	179,4	222,7	222,7
	EER (1)	kW/kW	2,45	2,48	2,50	2,53	2,37	2,39	2,57	2,57
	ESEER		3,28	3,01	3,33	2,84	2,83	3,09	3,01	3,25
	Sound power level [Lw] (3)	dB(A)	93,6	93,6	87,5	87,5	89,8	89,8	94,4	94,4
	Average sound pressure level [Lpm] (4)	dB(A)	76,4	76,4	70,3	70,3	72,6	72,6	76,5	76,5
	Net weight	kg	740	740	810	810	820	820	1050	1050
	Hydraulic connections									
	Evaporator IN/OUT - ISO 1/7 – R	Ø	2	"2	"2	"2	"2	"2"	--	--
	Evaporator IN/OUT - OD (5)	Ø mm	76,1	76,1–	–	–	–	–	–	
OPTIONAL	Partial heat recovery (6)									
	Heating capacity	**kW**	**18,6**	**18,6**	**20,9**	**21,0**	**23,5**	**23,5**	**27,7**	**27,6**
	Pumping group									
	1 pump - 2 poles electric motor	kW	1,5	1,5	1,5	1,5	1,5	1,5	3,0	3,0
	2 pump - 2 poles electric motor	kW	3,0	3,0-	-	-	-	-	-	
	Water tank - volume	l	210	210	210	210	210	210	360	360
LNO KIT %100	**Cooling capacity (1)**	**kW**	**54,1**	**54,2**	**60,7**	**60,9**	**68,4**	**68,3**	**80,5**	**80,1**
	Unit power input	kW	22,1	21,9	24,3	24,1	28,9	28,6	31,3	31,2
	Free-Cooling capacity (2)	**kW**	**45,7**	**45,7**	**50,6**	**50,6**	**55,6**	**55,5**	**67,1**	**67,0**
	Total air flow	m³/h	18000	18000	20500	20500	23000	23000	25500	25500
	External static pressure	Pa	50	50	50	50	50	50	50	50
	EER (1)	kW/kW	2,45	2,48	2,50	2,53	2,37	2,39	2,57	2,57
	Sound power level [Lw] (3)	dB(A)	93,1	93,1	86,5	86,5	89,0	89,0	93,7	93,7
	Average sound pressure level [Lpm] (4)	dB(A)	75,9	75,9	69,3	69,3	71,8	71,8	75,8	75,8
LNO KIT %85	**Cooling capacity (1)**	**kW**	**52,5**	**52,6**	**58,9**	**59,0**	**66,3**	**66,2**	**78,2**	**77,8**
	Unit power input	kW	21,9	21,6	23,9	23,9	28,0	27,7	31,0	30,9
	Free-Cooling capacity (2)	**kW**	**45,3**	**45,4**	**50,2**	**50,2**	**55,1**	**55,1**	**66,5**	**66,4**
	Total air flow	m³/h	15300	15300	17425	17425	19550	19550	21675	21675
	External static pressure	Pa	36	36	36	36	36	36	36	36
	EER (1)	kW/kW	2,40	2,43	2,46	2,47	2,37	2,39	2,52	2,52
	Sound power level [Lw] (3)	dB(A)	89,6	89,6	83,1	83,1	85,5	85,5	90,3	90,3
	Average sound pressure level [Lpm] (4)	dB(A)	72,4	72,4	65,9	65,9	68,3	68,3	72,4	72,4
LNO KIT %70	**Cooling capacity (1)**	**kW**	**50,2**	**50,3**	**56,3**	**56,4**	**63,3**	**63,2**	**74,9**	**74,5**
	Unit power input	kW	22,4	22,2	24,4	24,4	28,3	28,0	31,6	31,6
	Free-Cooling capacity (2)	**kW**	**44,8**	**44,8**	**49,6**	**49,6**	**54,4**	**54,4**	**65,8**	**65,7**
	Total air flow	m³/h	12600	12600	14350	14350	16100	16100	17850	17850
	External static pressure	Pa	25	25	25	25	25	25	25	25
	EER (1)	kW/kW	2,24	2,27	2,31	2,31	2,24	2,26	2,37	2,36
	Sound power level [Lw] (3)	dB(A)	86,4	86,4	80,2	80,2	82,5	82,5	87,2	87,2
	Average sound pressure level [Lpm] (4)	dB(A)	69,2	69,2	63,0	63,0	65,3	65,3	69,3	69,3

1. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 $m^{2o}K/kW$.
2. Referred to glycol solution inlet temperature 15°C; 20% Ethylene glycol solution; ambient temperature 3°C. Fouling factor of the exchangers 0,043 $m^{2o}K/kW$.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end complete with fl exible joint and adapter pipe for solder connection.
6. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 $m^{2o}K/kW$.

TECHNICAL DATA KELVIN Clim F18 PF

	KELVIN Clim F18 PF		107 P2 S	107 P2 D	135 P2 S	135 P2 D	170 P2 S	170 P2 D	195 P2 S	195 P2 D
	SIZE		C3	C3	C4	C4	C4	C4	C4	C4
STANDARD	**Cooling capacity (1)**	**kW**	**103,0**	**102,0**	**128,0**	**126,0**	**166,0**	**164,0**	**182,0**	**185,0**
	Unit power input	kW	42,7	42,5	50,0	50,0	67,8	67,8	70,0	80,4
	Free-Cooling capacity (2)	**kW**	**81,1**	**80,9**	**99,5**	**99,0**	**124,0**	**123,0**	**127,0**	**127,0**
	Total water flow rate	m³/h	19,1	18,9	23,5	23,2	30,6	30,2	33,6	34,2
	Total pressure drop	kPa	233	216	110	99	145	139	169	165
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	2	2	2	2	2	2	2	2
	Capacity steps	n.	2	2	2	2	2	2	2	2
	Centrifugal fans EC	n.	3	3	4	4	4	4	4	4
	Total air flow	m³/h	32000	32000	40000	40000	52000	52000	52000	52000
	External static pressure	Pa	50	50	50	50	50	50	50	50
	Air circuits	n.	1	1	1	1	1	1	1	1
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	32	29,3	35,1	38,6	50,9	42,6	51,9	44
	Gas circuits	n.	1	2	1	2	1	2	1	2
	Power supply	V/Ph/Hz	50/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/400
	Max unit operating current (FLA)	A	99,4	99,4	119,5	119,5	155,0	155,0	172,4	172,4
	Unit starting current (LRA)	A	279,7	279,7	337,3	337,3	392,2	392,2	456,2	456,2
	EER (1)	kW/kW	2,41	2,40	2,56	2,52	2,45	2,42	2,60	2,30
	ESEER		2,82	3,08	2,96	3,40	2,84	3,14	2,72	3,37
	Sound power level [Lw] (3)	dB(A)	99,2	99,2	92,7	92,7	96,2	96,2	96,2	96,2
	Average sound pressure level [Lpm] (4)	dB(A)	81,3	81,3	74,1	74,1	77,6	77,6	77,6	77,6
	Net weight	kg	1240	1240	1690	1690	1800	1780	1850	1820
	Hydraulic connections									
	Evaporator IN/OUT - ISO 1/7 – R	Ø	–	–	–	–	–	–	–	--
	Evaporator IN/OUT - OD (5)	Ø mm	76,1	76,1	88,9	88,9	88,9	88,9	88,9	88,9
OPTIONAL	Partial heat recovery (6)									
	Heating capacity	**kW**	**35,6**	**35,2**	**43,9**	**43,2**	**57,2**	**56,3**	**62,6**	**63,7**
	Pumping group									
	1 pump - 2 poles electric motor	kW	3,0	3,0	3,0	3,0	3,0	3,0	3,0	3,0
	2 pump - 2 poles electric motor	kW	3,0	3,0	4,0	4,0	4,0	4,0	4,0	4,0
	Water tank - volume	l	360	360	520	520	520	520	520	520
LNO KIT %100	**Cooling capacity (1)**	**kW**	**103,0**	**102,0**	**128,0**	**126,0**	**166,0**	**164,0**	**182,0**	**185,0**
	Unit power input	kW	42,7	42,5	50,0	50,0	67,8	67,8	70,0	80,4
	Free-Cooling capacity (2)	**kW**	**81,1**	**80,9**	**99,5**	**99,0**	**124,0**	**123,0**	**127,0**	**127,0**
	Total air flow	m³/h	32000	32000	40000	40000	52000	52000	52000	52000
	External static pressure	Pa	50	50	50	50	50	50	50	50
	EER (1)	kW/kW	2,41	2,40	2,56	2,52	2,45	2,42	2,60	2,30
	Sound power level [Lw] (3)	dB(A)	98,5	98,5	90,2	90,2	95,0	95,0	95,7	95,7
	Average sound pressure level [Lpm] (4)	dB(A)	80,6	80,6	71,6	71,6	76,4	76,4	77,1	77,1
LNO KIT %85	**Cooling capacity (1)**	**kW**	**101,0**	**99,4**	**124,0**	**122,0**	**161,0**	**159,0**	**176,0**	**179,0**
	Unit power input	kW	41,7	41,6	50,0	49,8	66,3	66,0	68,2	79,2
	Free-Cooling capacity (2)	**kW**	**80,6**	**80,3**	**98,6**	**98,1**	**123,0**	**122,0**	**126,0**	**126,0**
	Total air flow	m³/h	27200	27200	34000	34000	44200	44200	44200	44200
	External static pressure	Pa	36	36	36	36	36	36	36	36
	EER (1)	kW/kW	2,42	2,39	2,48	2,45	2,43	2,41	2,58	2,26
	Sound power level [Lw] (3)	dB(A)	95,1	95,1	87,8	87,8	91,9	91,9	92,6	92,6
	Average sound pressure level [Lpm] (4)	dB(A)	77,2	77,2	69,2	69,2	73,3	73,3	74,0	74,0
LNO KIT %70	**Cooling capacity (1)**	**kW**	**96,5**	**95,5**	**118,0**	**117,0**	**155,0**	**153,0**	**167,0**	**170,0**
	Unit power input	kW	42,3	42,1	51,3	51,1	66,8	66,5	69,0	81,0
	Free-Cooling capacity (2)	**kW**	**79,7**	**79,5**	**97,3**	**96,8**	**121,0**	**121,0**	**124,0**	**125,0**
	Total air flow	m³/h	22400	22400	28000	28000	36400	36400	36400	36400
	External static pressure	Pa	25	25	25	25	25	25	25	25
	EER (1)	kW/kW	2,28	2,27	2,30	2,29	2,32	2,30	2,42	2,10
	Sound power level [Lw] (3)	dB(A)	92,0	92,0	86,9	86,9	89,7	89,7	90,3	90,3
	Average sound pressure level [Lpm] (4)	dB(A)	74,1	74,1	68,3	68,3	71,1	71,1	71,7	71,7

1. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 $m^2°K/kW$.
2. Referred to glycol solution inlet temperature 15°C; 20% Ethylene glycol solution; ambient temperature 3°C. Fouling factor of the exchangers 0,043 $m^2°K/kW$.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end complete with fl exible joint and adapter pipe for solder connection.
6. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 $m^2°K/kW$.

TECHNICAL DATA KELVIN Clim F18 PF

	KELVIN Clim F18 PF		220 P2 S C5	220 P2 D C5	250 P3 S C5	265 P4 D C5	290 P4 D C5
	SIZE						
STANDARD	**Cooling capacity (1)**	**kW**	**210,0**	**214,0**	**240,0**	**253,0**	**277,0**
	Unit power input	kW	84,7	84,9	101,3	107,7	127,1
	Free-Cooling capacity (2)	**kW**	**163,0**	**163,0**	**163,2**	**173,0**	**176,0**
	Total water flow rate	m³/h	38,8	39,4	44,4	46,7	51,3
	Total pressure drop	kPa	148	143	55	183	211
	Compressors		scroll	scroll	scroll	scroll	scroll
	Quantity	n.	2	2	3	4	4
	Capacity steps	n.	2	2	3	4	4
	Centrifugal fans EC	n.	5	5	5	5	5
	Total air flow	m³/h	62500	62500	64000	64000	64000
	External static pressure	Pa	50	50	50	50	50
	Air circuits	n.	1	1	1	1	1
	Refrigerant		R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	83,1	102,2	83,7	113,3	113,2
	Gas circuits	n.	1	2	1	2	2
	Power supply	V/Ph/Hz	50/3/50	400/3/50	400/3/50	400/3/50	400/3/400
	Max unit operating current (FLA)	A	194,3	194,3	228,1	225,8	331,6
	Unit starting current (LRA)	A	477,0	477,0	461,8	438,5	607,8
	EER (1)	kW/kW	2,48	2,52	2,37	2,35	2,18
	ESEER		2,96	3,21	3,35	3,32	3,29
	Sound power level [Lw] (3)	dB(A)	96,8	96,8	97,2	97,3	97,3
	Average sound pressure level [Lpm] (4)	dB(A)	77,6	77,6	77,9	78,0	78,0
	Net weight	kg	2320	2330	2490	2670	2720
	Hydraulic connections						
	Evaporator IN/OUT - ISO 1/7 – R	Ø	–	–	–	–	–
	Evaporator IN/OUT - OD (5)	Ø mm	88,9	88,9	88,9	88,9	88,9
OPTIONAL	Partial heat recovery (6)						
	Heating capacity	**kW**	**72,3**	**73,5**	**82,7**	**87,0**	**95,4**
	Pumping group						
	1 pump - 2 poles electric motor	kW	5,5	5,5	5,5	5,5	5,5
	2 pump - 2 poles electric motor	kW	7,5	7,5	7,5	7,5	7,5
	Water tank - volume	l	720	720	720	720	720
LNO KIT %100	**Cooling capacity (1)**	**kW**	**210,0**	**214,0**	**240,0**	**253,0**	**277,0**
	Unit power input	kW	84,7	84,9	101,3	107,7	127,1
	Free-Cooling capacity (2)	**kW**	**163,0**	**163,0**	**163,2**	**173,0**	**176,0**
	Total air flow	m³/h	62500	62500	64000	64000	64000
	External static pressure	Pa	50	50	50	50	50
	EER (1)	kW/kW	2,48	2,52	2,37	2,35	2,18
	Sound power level [Lw] (3)	dB(A)	95,3	95,3	95,8	96,4	96,4
	Average sound pressure level [Lpm] (4)	dB(A)	76,1	76,1	76,5	77,1	77,1
LNO KIT %85	**Cooling capacity (1)**	**kW**	**204,0**	**207,0**	**232,0**	**244,0**	**266,0**
	Unit power input	kW	83,3	83,8	100,9	107,0	127,3
	Free-Cooling capacity (2)	**kW**	**161,0**	**162,0**	**162,1**	**171,0**	**175,0**
	Total air flow	m³/h	53125	53125	54400	54400	54400
	External static pressure	Pa	36	36	36	36	36
	EER (1)	kW/kW	2,45	2,47	2,30	2,28	2,09
	Sound power level [Lw] (3)	dB(A)	92,4	92,4	92,8	93,3	93,3
	Average sound pressure level [Lpm] (4)	dB(A)	73,1	73,1	73,5	74,0	74,0
LNO KIT %70	**Cooling capacity (1)**	**kW**	**195,0**	**198,0**	**220,0**	**231,0**	**248,0**
	Unit power input	kW	85,2	85,3	103,8	109,5	132,6
	Free-Cooling capacity (2)	**kW**	**159,0**	**160,0**	**160,1**	**169,0**	**172,0**
	Total air flow	m³/h	43750	43750	44800	44800	44800
	External static pressure	Pa	25	25	25	25	25
	EER (1)	kW/kW	2,29	2,32	2,12	2,11	1,87
	Sound power level [Lw] (3)	dB(A)	90,5	90,5	90,8	91,2	91,2
	Average sound pressure level [Lpm] (4)	dB(A)	71,2	71,2	71,5	71,9	71,9

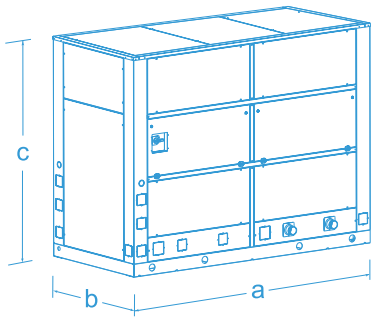
1. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 $m^2°K/kW$.
2. Referred to glycol solution inlet temperature 15°C; 20% Ethylene glycol solution; ambient temperature 3°C. Fouling factor of the exchangers 0,043 $m^2°K/kW$.
3. Sound power level [Lw] according to ISO EN 9614 – 2.
4. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
5. Hydraulic connection with grooved end complete with fl exible joint and adapter pipe for solder connection.
6. Referred to glycol solution temperature 15/10°C; 20% Ethylene glycol solution; air temperature to the condenser 35°C. Water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 $m^2°K/kW$.

DIMENSIONS (mm)

KELVIN Clim F18 PF

SIZE C

	a	b	c
C1	1250	1010	1950
C2	1800	1180	2000
C3	2600	1340	2000
C4	3700	1490	2000
C5	4950	1500	2040



Note

Note


KELVIN
Air Conditioning System