KELVIN
Air Conditioning System
2016

Qualified for **Energy Technology List**
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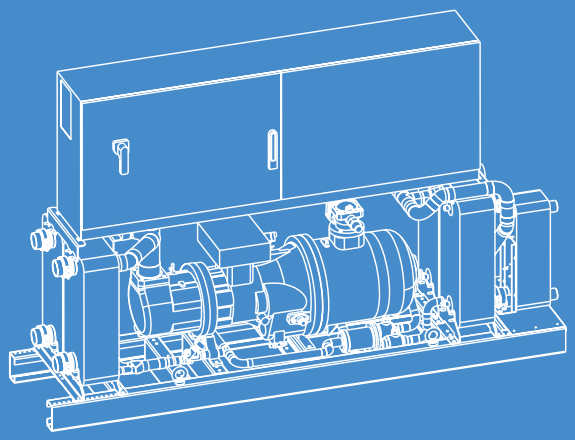
TM

bsi. ISO 9001 Quality Management | ISO 14001 Environmental Management

KELVIN Clim W186

Cooling Capacity: 186 ~ 656 kW



R134a PLATE EU

Water cooled liquid chillers for indoor installation, equipped with screw compressor and plate heat exchangers

KELVIN AIR CONDITIONING

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

KELVIN AIR CONDITIONING

R134a PLATE EU

MAIN FEATURES

- Water cooled liquid chiller.
- 13 models available, for a wide selection opportunity.
- Average step of 35kW.
- EER up to 4,76.
- ESEER up to 5,53.
- Single screw compressor.
- R134a Refrigerant charge.
- Electronic expansion valve.
- Plate type heat exchangers.
- Suitable for indoor installation.

MAIN BENEFITS

- High ESEER.
- Availability of kit for the reduction of the noise.
- Reduced footprint.
- Easily of maintenance.
- Eurovent Certification.(pending)

HEAVY DUTY APPLICATIONS

The machines are particularly suitable for installation in marine applications with continuous operation.

INDOOR INSTALLATION

The machines are designed for indoor installation.

ELECTRONIC EXPANSION VALVE

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

WORKING LIMITS IN COOLING MODE

Evaporator chilled water outlet temperature: -10~15℃
Condenser outlet water temperature: 19~63℃

MAIN COMPONENTS

FRAMEWORK
- Base and self supporting frame 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.

COMPRESSOR
- Twin screw semi-hermetic compressor with highly efficient screw profile and high peripheral speed, optimized for R134a refrigerant.
- Integrated discharge check valve.
- Flanged-on oil separator.
- Integrated overpressure valve.
- Replaceable cartridge type oil filter.
- Oil flow switch.
- Valves for oil filling and discharge.
- 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 190 V1 up to model 270 V1 included.
- 2-pole 3-phase electric motor with Star / Delta starting for all other machines.
- Stepless capacity control, 50~100% for each compressor.
- Crankcase heater.
- Terminal box with IP54 enclosure class.
- Rubber supports.

EVAPORATOR
- Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel.
- Anticondensate insulation made of polyurethane.
- Temperature sensors on water inlet and outlet.
- From model 360 V1 up to model 660 V1 the unit is equipped with two evaporators. The parallel of the hydraulic circuit is at Customer care.
- Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.

CONDENSER
- Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel.
- Anticondensate insulation made of polyurethane.
- From model 360 V1 up to model 660 V1 the unit is equipped with two condensers. The parallel of the hydraulic circuit is at Customer care.
- Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.

REFRIGERANT CIRCUIT
- Electronic expansion valve that allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure.
- Sight glass.
- Filter dryer on liquid line.
- Service valves on liquid line.
- Service valves on gas discharge.
- Safety valve on low pressure side.
- Safety valve on high 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.
- R134a refrigerant charge.

ELECTRICAL PANEL
In accordance with EN60204-1 norms, suitable for indoor installation, complete with:
- Main switch with door lock safety.
- Fuses for compressor.
- Contactors for compressor (2 contactors for Part-Winding start system – 3 contactors for Star / Delta start system).
- Compressor Part-Winding start system from model 190 V1 up to model 270 V1 included.
- Compressor Star / Delta start system for all other machines.
- 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.
  - Integrated "Data logger" function for the recording of events and alarms.
  - Nonvolatile "Flash" memory for data storage.
  - Menu with protection password.

OPTIONAL ACCESSORIES

KELVIN Clim W186	190 V1	210 V1	240 V1	250 V1	270 V1	310 V1	360 V1	410 V1	470 V1	500 V1	530 V1	580 V1	660 V1
171 - Rubber antivibration holders (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)	●	●	●	●	●	●	●	●	●	●	●	●	●
731 - Safety water flow switch	●	●	●	●	●	●	●	●	●	●	●	●	●
650 - Compressor thermal relay	●	●	●	●	●	●	●	●	●	●	●	●	●
605 - Compr. power factor capacitor - 0,9	●	●	●	●	●	●	●	●	●	●	●	●	●
550 - Stop valve on compressor suction line	●	●	●	●	●	●	●	●	●	●	●	●	●
610 - Noise deading cup on compressor	●	●	●	●	●	●	●	●	●	●	●	●	●
83 - Compressor operation indicator	●	●	●	●	●	●	●	●	●	●	●	●	●
85 - Demand limit	●	●	●	●	●	●	●	●	●	●	●	●	●
88 - Analog set point compensation	●	●	●	●	●	●	●	●	●	●	●	●	●
960 - Free contact enable plant pump	●	●	●	●	●	●	●	●	●	●	●	●	●
963 - Free contact enable source pump	●	●	●	●	●	●	●	●	●	●	●	●	●
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	●	●	●	●	●	●	●	●	●	●	●	●	●
KEKVIN CLOUD PLATFORM	●	●	●	●	●	●	●	●	●	●	●	●	●

● available accessory; - not available accessory

TECHNICAL DATA KELVIN Clim W186

	KELVIN Clim W186		190 V1	210 V1	240 V1	250 V1	270 V1	310 V1	360 V1	410 V1
STANDARD	Cooling capacity (1)	kW	186	207	231	249	263	307	354	411
	Unit power input	kW	39,2	43,5	48,7	52,3	55,7	65,0	74,8	86,9
	Evaporator water flow rate	m³/h	31,9	35,6	39,7	42,8	45,2	52,6	60,7	70,5
	Evaporator pressure drop	kPa	18	22	20	18	27	31	32	33
	Condenser water flow rate	m³/h	38,9	43,3	48,4	52,1	55,1	63,0	73,9	84,0
	Condenser pressure drop	kPa	6	5	5	5	7	7	8	8
	Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
	Quantity	n.	1	1	1	1	1	1	1	1
	Capacity control	%	50 ... 100%	50 ... 100%	50 ... 100%	50 ... 100%	50 ... 100%	50 ... 100%	50 ... 100%	50 ... 100%
	Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
	Total refrigerant charge (optional excluded)	kg	15	16	17	17	15	16	37	42
	Gas circuits	n.	1	1	1	1	1	1	1	1
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max operating current (MOC)	A	83,6	97,5	111,1	121,8	141,7	155,1	181,1	203,0
	Max unit operating current (FLA)	A	102,9	131,3	140,7	168,0	193,2	185,9	207,9	297,2
	Unit starting current (LRA)	A	262,0	298,0	373,0	405,0	434,0	434,0	530,0	436,0
	EER (1)	kW/kW	4,75	4,76	4,74	4,76	4,72	4,72	4,73	4,73
	ESEER		5,33	5,32	5,32	5,36	5,36	5,33	5,35	5,36
	Sound power level [Lw] (2)	dB(A)	88,1	89,1	93,1	93,1	93,1	96,1	97,4	97,4
	Average sound pressure level [Lpm] (3)	dB(A)	71,0	72,0	76,0	76,0	76,0	79,0	80,0	80,0
	Net weight	kg	1399	1423	1465	1476	1689	1733	1750	2117
	Hydraulic connections									
	Evaporator / Condenser IN/OUT - OD (4)	Ø mm	88,9	88,9	88,9	88,9	88,9	88,9	2x88,9	2x88,9
OPT	Noise deadling cup on compressor									
	Sound power level [Lw] (2)	dB(A)	85,1	86,1	90,1	90,1	90,1	93,1	94,4	94,4
	Average sound pressure level [Lpm] (3)	dB(A)	68,0	69,0	73,0	73,0	73,0	76,0	77,0	77,0

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution.
2. Sound power level [Lw] according to ISO EN 9614 - 2.
3. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
4. Hydraulic connection with grooved end complete with fl exible joint and adapter pipe for solder connection.

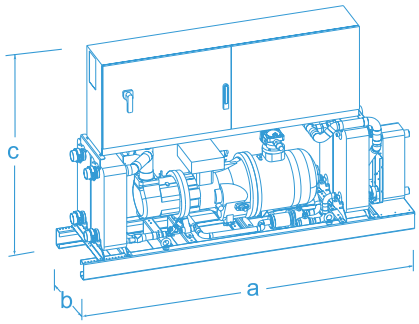
TECHNICAL DATA KELVIN Clim W186

	KELVIN Clim W186		470 V1	500 V1	530 V1	580 V1	660 V1
STANDARD	**Cooling capacity (1)**	**kW**	**464**	**492**	**526**	**580**	**656**
	Unit power input	kW	98,7	106,0	111,2	123,1	139,0
	Evaporator water flow rate	m³/h	79,6	84,4	90,3	99,5	113,0
	Evaporator pressure drop	kPa	35	32	31	28	19
	Condenser water flow rate	m³/h	95,0	103,0	110,0	121,0	137,0
	Condenser pressure drop	kPa	10	11	11	9	9
	Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
	Quantity	n.	1	1	1	1	1
	Capacity control	%	50 … 100%	50 … 100%	50 … 100%	50 … 100%	50 … 100%
	Refrigerant		R134a	R134a	R134a	R134a	R134a
	Total refrigerant charge (optional excluded)	kg	48	53	58	64	69
	Gas circuits	n.	1	1	1	1	1
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max operating current (MOC)	A	228,0	228,0	250,9	290,5	300,0
	Max unit operating current (FLA)	A	297,2	297,2	330,8	373,8	396,9
	Unit starting current (LRA)	A	436	436	465	586	650
	EER (1)	kW/kW	4,70	4,64	4,73	4,71	4,72
	ESEER		5,36	5,35	5,43	5,45	5,53
	Sound power level [Lw] (2)	dB(A)	96,4	98,4	98,4	99,6	99,6
	Average sound pressure level [Lpm] (3)	dB(A)	79,0	81,0	81,0	82,0	82,0
	Net weight	kg	2151	2177	2233	2616	2663
	Hydraulic connections						
	Evaporator / Condenser IN/OUT - OD (4)	Ø mm	2x88,9	2x88,9	2x88,9	2x88,9	2x88,9
OPT	Compressor soundproof box						
	Sound power level [Lw] (2)	dB(A)	93,4	95,4	95,4	96,6	96,6
	Average sound pressure level [Lpm] (3)	dB(A)	76,0	78,0	78,0	79,0	79,0

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution.
2. Sound power level [Lw] according to ISO EN 9614 - 2.
3. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
4. Hydraulic connection with grooved end complete with fl exible joint and adapter pipe for solder connection.

DIMENSIONS (mm)

KELVIN Clim W186	a	b	c
190 V1	2791	502	1840
210 V1	2891	590	1840
240 V1		590	1840
250 V1	2891	590	1840
270 V1	2891	590	1840
310 V1	2891	590	1840
360 V1	2988	720	1935
410 V1	2988	755	1935
470 V1	2988	755	1935
500 V1	2988	761	1935
530 V1	2988	761	1935
580 V1	3486	745	1840
660 V1	3486	745	1840



Note

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