

RAE C Kc

AIR COOLED CHILLERS WITH SCROLL COMPRESSORS AND CENTRIFUGAL FANS

COOLING CAPACITY FROM 11 to 18 Kw 1 COOLING CIRCUIT

RAE 131 C PS Kc



Above picture is only indicative and is not binding.



The air cooled chillers of **RAE C Kc series**, with centrifugal fans, are designed for indoor installation and are particularly suitable for small and medium sized air conditioning systems, in residential and commercial applications. Therefore during their design, it has been given a particular care for dimensions and sound level, so to have compact and silent units at the same time. They can also be matched to fancoils or terminal units or for water cooling in small industrial processes. They are all available with 1 refrigerant circuit. Thanks to their compact dimensions and to the several options available, these units are particularly easy to install in small spaces. They are completely assembled and tested in the factory and supplied with refrigerant and non-freezing oil charge. Therefore, once on site, the units only need to be positioned and electrically and hydraulically connected.

The following versions are available with vertical air flow:

- **RAE C Kc** standard version
- **RAE C PS Kc** with hydraulic kit

Operation limits (standard units):

AIR: from 15 to 45°C; WATER (out from evaporator): from 5 to 15°C.

MAIN COMPONENTS

Frame made of galvanized steel plate, suitably treated to resist to external

agents and then painted in RAL 7035 colour. The compressor section is completely closed and suitably isolated from the air flow; inside of it, the compressor and the main components are placed so to facilitate also the service operations. The external panels, easy to be dismantled, allow the full access in case of service. For PS version, the hydraulic kit is installed at the bottom of the unit, with no change in dimensions and it is composed of: circulation pump, buffer tank, safety valve, pressure gauge, water filling and discharge valves, purging valve, expansion vessel.

High-efficiency scroll compressor (EER 3.37 under ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater when necessary.

Heat-exchange external coil with copper tube and specially corrugated aluminium fins for a better efficiency. It is suitably sized with a wide exchange surface, so to allow the unit operation also at very high external air temperatures. On request, in case of installation in aggressive environments, several coil protection treatments are available.

Centrifugal fans of double suction type with electrical motor directly joined to the wheel, with a low sound level and provided with short circuit and overload protections and external safety protection grid.

LIQUID CHILLERS - AIR COOLED

Weld-brazed plate evaporator in AISI 316 stainless steel, with pipes and patented manifold so to reach a high heat exchange coefficient. Its design allows a uniform water distribution, compatibly with pressure drops. The exchanger is provided with close-cell insulating material. The evaporator is also equipped with safety water flow switch switching off the unit in case of low water flow through the evaporator.

Cooling circuit composed of thermostatic expansion valve, dehydrating filter, sight glass, safety device, antifreeze thermostat, high and low pressure switches.

Electric board in compliance with CE norms, contained in a suitable partition protected by the internal safety panel, provided with a main switch and an external panel to be opened. It is complete with remote switches, overload protections, transformer for auxiliaries and terminal board. In case of PS version, the electrical control of the pump group is provided.

Unit management microprocessor installed on the internal safety panel of the electrical board, complete with compressors hour counter.

ACCESSORIES

- AE Electrical power supply different from standard:** Mainly, 230V triphase, 460V triphase. Frequency 50/60 Hz.
- BT Low temperature operation** (down to -8°C): Electronic device for the continuous modulating voltage control of the condensing pressure through the variation of the fan rotation speed (Alternative to BF).
- BF Low ambient temperature operation** (down to -20°C): Electronic device, frequency converter type, for the continuous modulating control of the condensing pressure through the variation of the fan rotation speed (Alternative to BT).
- GP Condensing coil protection grid:** Metal protection grid against accidental impacts.
- HG Hot gas by-pass:** Mechanical device for modulating cooling capacity.
- IH RS 485 Serial interface:** Electronic card to be connected to the microprocessor to allow connection of the units to supervision systems, for a remote control and monitoring of the unit.
- IM Seawood packing:** Fumigated sea wood case and protection bag with hygroscopic salts, suitable for long sea transports.
- MF Phase monitor:** Electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.
- MT High and low pressure gauges** for measuring circuit pressure.
- PA Rubber-type vibration dampers:** Bell-shaped vibration dampers supports for insulating the unit (supplied in kit), made of base and bell in galvanized steel and natural rubber mixture.
- PQ Remote display:** Remote terminal, allowing to display the temperature and humidity values detected by probes, the status of digital inputs and outputs, alarm condition, remote ON/OFF and also the ability to remotely program parameters in microprocessor.
- RA Anti-freeze heater on evaporator:** Electrical heater installed on the evaporator, in order to prevent freezing and provided with thermostat.
- RL Compressors overload relays:** Electromechanical protection devices against compressor's overload with displayed alarm.
- RM Condensing coil with pre-painted fins:** Double-layer treatment of condensing coils with epoxy coating.
- RR Copper/copper condensing coils:** Special execution of the condensing coils with copper pipe and fins.
- RV Personalized frame painting in RAL colour.**

VB Brine version: Unit suitable for working with evaporator outlet water temperatures lower than 0°C . a 20 mm evaporator insulation will be provided.

VS Solenoid valve: Electromagnetic solenoid valve on each cooling circuit to cut off the liquid line at compressors switch-off.

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Technical data sheet - RAE 131-181 C Kc

RAE C		131 Kc	151 Kc	161 Kc	181 Kc
Cooling capacity					
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Absorbed power	kW	11,3	13,2	17,4	18,2
EER		2,17	2,16	2,49	2,39
Scroll compressors					
Quantity	n	1	1	1	1
Standard steps capacity	n	1	1	1	1
Circuits	n	1	1	1	1
Nominal absorbed current	A	5,5	6,4	9,1	10,4
Maximum absorbed current	A	12,0	14,0	16,0	18,0
Inrush current	A	56,0	68,0	81,0	99,0
Centrifugal fans					
Quantity	n	2	2	2	2
Rotation speed	rpm	1.250	1.250	1.250	1.250
Motors power	kW	1,0	1,0	2,2	2,2
Total air flow	m ³ /h	7.500	7.500	6.700	6.700
Total air flow	l/s	2.083	2.083	1.861	1.861
Available pressure	Pa	40	40	165	165
Nominal absorbed current	A	13,6	13,6	13,6	13,6
Sound pressure level 2)	dB(A)	60,0	60,0	60,0	60,0
Brazed plate evaporator					
Quantity	n	1	1	1	1
Water flow rate	m ³ /h	1,9	2,3	3,0	3,2
Water flow rate	l/s	0,5	0,6	0,8	0,9
Pressure drop	kPa	34	44	36	40
Electrical data					
Total absorbed power	kW	6,2	7,1	9,2	9,8
Dimensions					
Length	mm	1.100	1.100	1.100	1.100
Width	mm	750	750	750	750
Height	mm	1.100	1.100	1.100	1.100
Weight	kg	217	221	238	240
Refrigerant charge	kg	3,3	3,3	5,1	5,1
[RAE C...PS]					
Water pump motor power	kW	0,18	0,18	0,18	0,18
Available pressure	kPa	65	48	52	47
Buffer tank water volume	l	30	30	30	30
Dimensions [RAE C...PS]					
Length with water kit included	mm	1.100	1.100	1.100	1.100
Width with water kit included	mm	750	750	750	750
Height with water kit included	mm	1.100	1.100	1.100	1.100
Weight with empty water kit included	kg	238	241	259	260
Refrigerant charge	kg	3,3	3,3	5,1	5,1
Power supply					
Power supply	V / ph / Hz	400 V/ 50Hz / 3Ph + N + T			

NOTES
Nominal condition referred to: air 35 °C - chilled water 7/12 °C.

2) Measured at 1 m in open field (ISO 3746) with air suction and air discharge in ducts.