

FRIGO SCREW CLA PLUS

FRIGO SCREW CLA PLUS: Packaged water cooled liquid chillers in “A+” class energy efficiency for indoor installation, equipped with screw compressors and shell and tube heat exchangers
Cooling Capacity: **625 ÷ 1179 kW**



FRIGO SCREW CLA PLUS

rcgroupairconditioning



MAIN FEATURES

- Water cooled liquid chiller in A+ class energy efficiency.
- 7 models available, for a wide selection opportunity.
- Average step of 75kW.
- EER up to 5,34.
- ESEER up to 6,20.
- Twin-screw compressors.
- Double refrigerant circuit.
- R134a Refrigerant charge.
- Electronic expansion valve.
- Shell and tube heat exchangers.
- Suitable for indoor installation.

MAIN BENEFITS

- High EER and ESEER, A+ class energy efficiency.
- Availability of kit for the reduction of the noise.
- Availability of partial heat recovery system.
- Easily of maintenance.
- Eurovent Certification.

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.

A+ CLASS ENERGY EFFICIENCY

The best and most accurate components applied to the chillers.

WORKING LIMITS IN COOLING MODE

Evaporator chilled water outlet temperature: -11÷15,5°C
Condenser outlet water temperature: 21÷49°C



COMPONENTS

FRAMEWORK

- Base, self supporting frame and panelling in epoxy painted galvanized steel sheet.
- Colour: RAL 9002

COMPRESSORS

- Twin screw semi-hermetic compressors 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 for model 620 V2
- 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

- Shell and tube evaporator optimized for R134a refrigerant.
- Tubes with a helical rifled internal surface.
- Intermediate baffles positioned to ensure optimum speed of the fluid and low pressure drops.
- Single circuit on water side and independent circuits, one for each compressor, on refrigerant side.
- Shell, header, tube sheets, made of carbon steel, tubes in Cu.
- Anticondensate insulation made of polyurethane.
- Temperature sensors on water inlet and outlet.
- Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.

CONDENSER

One condenser for each refrigerant circuit:

- Shell and tube condenser optimized for R134a refrigerant.
- Shell, header, tube sheets made of carbon steel, tubes in Cu.
- Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.

REFRIGERANT CIRCUIT

Components for each 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.
- Economizer. The system includes:
 - Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel.
 - Anticondensate insulation made of polyurethane.
 - Intermediate electronic expansion valve.
- 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 and oil 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 each compressors.
- Contactors for each compressors (2 contactors for Part-Winding start system – 3 contactors for Star / Delta start system).
- Compressor Part-Winding start system for model 620 V2
- 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

FRIGO SCREW CLA PLUS	620 V2	720 V2	820 V2	970 V2	1080 V2	1150 V2	1180 V2
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)	•	•	•	•	•	•	•
450 - Partial heat recovery	•	•	•	•	•	•	•
731 - Safety water flow switch	•	•	•	•	•	•	•
650 - Compressor thermal relay	•	•	•	•	•	•	•
605 - Compr. power factor capacitor - 0,9	•	•	•	•	•	•	•
550 - Stop valve on compressor suction line	•	•	•	•	•	•	•
780 - Noise absorption box	•	•	•	•	•	•	•
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 - RC-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	•	•	•	•	•	•	•
RC CLOUD PLATFORM	•	•	•	•	•	•	•

• available accessory; - not available accessory

TECHNICAL DATA FRIGO SCREW CLA PLUS

FRIGO SCREW CLA PLUS		620 V2	720 V2	820 V2	970 V2	1080 V2	1150 V2	1180 V2
Cooling capacity (1)		625	723	821	960	1079	1142	1179
Unit power input		kW	117,0	135,6	156,7	185,7	203,2	221,2
Evaporator water flow rate		m³/h	107	124	141	165	185	202
Evaporator pressure drop		kPa	11	16	25	12	14	15
Condenser water flow rate		m³/h	128	148	168	197	222	235
Condenser pressure drop		kPa	22	4	40	55	8	5
Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
Quantity		n.	2	2	2	2	2	2
Capacity control		%	25 ... 100%	25 ... 100%	25 ... 100%	25 ... 100%	25 ... 100%	25 ... 100%
Refrigerant			R134a	R134a	R134a	R134a	R134a	R134a
Total refrigerant charge (optional excluded)		kg	171	171	156	216	211	211
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
Max operating current (MOC)		A	283,4	310,2	362,2	406,0	456,0	501,8
Max unit operating current (FLA)		A	386,4	371,7	415,8	594,3	594,3	661,5
Unit starting current (LRA)		A	575,7	589,1	711,1	639,0	664,0	715,9
EER - Eurovent standard (1)		kW/kW	5,34	5,33	5,24	5,17	5,31	5,33
ESEER			6,20	6,18	5,96	5,92	6,09	6,10
Sound power level [Lw] (2)		dB(A)	96,8	96,8	97,6	97,6	101,2	101,2
Average sound pressure level [Lp _m] (3)		dB(A)	79,0	79,0	82,0	82,0	82,0	82,0
Net weight		kg	4009	4051	4325	5439	5459	5565
Hydraulic connections								
Evaporator IN/OUT - OD (4)		Ø mm	219,1	219,1	219,1	219,1	219,1	273,0
Condenser IN/OUT - ISO 228/1		n x Ø	3"	3"	-	-	-	-
Condenser IN/OUT - OD (4)		Ø mm	-	-	114,3	114,3	114,3	114,3
Partial heat recovery (5)								
Heating capacity		kW	81,3	93,9	107,0	125,0	140,0	153,0
Compressor soundproof box								
Sound power level [Lw] (2)		dB(A)	93,8	93,8	94,6	94,6	98,2	98,2
Average sound pressure level [Lp _m] (3)		dB(A)	76,0	76,0	79,0	79,0	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 [Lp_m] 1m far according to ISO EN 3744.

4. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.

5. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature to the condenser 30/35°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²K/kW.

DIMENSIONS (mm)

FRIGO SCREW CLA PLUS			
	a	b	c
620 V2	3514	1060	1770
720 V2	3514	1060	1770
820 V2	3982	1057	1770
970 V2	3818	1269	1991
1080 V2	3818	1269	1991
1150 V2	3818	1269	1991
1180 V2	3818	1269	1991

