i-MAX 0695

i-MAX

Air/water reversible inverter heat pump with axial fans

Offer Number: 38253

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TECHNICAL CHARACTERISTICS

The i-MAX series reverse cycle heat pumps are designed for applications in commercial and industrial sectors, are most versatile and can operate in heat pump mode with the possibility of producing hot water at a temperature up to 60°C for environmental heating and/or domestic uses.The use of scroll compressors technology, specifically designed for R410A, matched with an INVERTER DC brushless motor compressor; the fans are driven by inverter DC motors, as well as the integrated circulators with variable water flow and the electronic expansion valve together optimize the energy consumption and the operational efficiency of the whole system.

CARPENTRY

The i-MAX chillers/heat pump units are made up of hot-galvanized sheet metal, painted with polyurethane powder enamels at 180°C in order to ensure the best resistance against atmospheric agents.

FAN

The type of the fan is axial-flow with aluminum aerofoil blades of fibre. It is statically and dynamically balanced and supplied with fan grill for protection and locking). The electric fan motor used in this series is modulated by inverter, directly coupled and equipped with integrated thermal protection. The protection class of the motors is IP X4 according to CEI EN 60335-2-80 Rule.

USER SIDE HEAT EXCHANGER

The employed user side heat exchanger is made up of AISI 316 stainless steel braze-welded plates type integrating a dual cooling circuit. The user heat exchanger is factory insulated with flexible close cell material and can be equipped with antifreeze heater (KA optional accessory).The evaporator is provided with an immersion temperature sensor, used for antifreeze protection which activates the circulator, even in the case when the unit is in off mode and when the parameters adjusted by the controller have been occurred.

REFRIGERANT CIRCUIT

The refrigerant circuit has been manufactured by means of international primary brands components and according to the UNI EN 13134 Rule concerning welding procedures. The refrigerant gas is R410A. Each refrigerant circuit includes 4 way reverse cycle valve, electronic expansion valve, liquid separator, liquid receivers, auxiliary circuit to reduce the defrosting time, oil recovery circuit, non-return valves, valves of inspection for maintenance and control, safety device (high pressure switch) according to PED regulation, pressure transducers, precision sensors, high capacity filter dryer, mechanical filters.

COMPRESSORS

The compressors are a scroll type, mounted on a rubber material acting as a shock absorber. Each one of the two circuits is equipped with a DC inverter compressor. In this way, the capacity of each circuit can be modulated continuously between the minimum capacity of a single inverter compressor and the sum of the maximum capacities of the whole compressors of the same circuit. On all units of this series, the range of partialization of the output capacity and the energy consumption can reach the 9% of the maximum capacity for the models provided with 4 compressors and up to 6% for the models provided with 6 compressors.The crankcase heater is standard equipment. The compressors can be inspected through the frontal panel of the unit that allows the maintenance of the compressors even if the unit is in operations.

AIR SIDE HEAT EXCHANGERS

The air side heat exchanger is made up of copper pipes and aluminum fins. The geometry of these condensers guarantees a low air side pressure drop and, then the possibility of using low rotational speed fan (consequently, low noise emission).

ELECTRIC PANEL

The electric panel is manufactured according to the actual European Union rules, with protection level IP24 and it contains all the electromechanical and electronic components of regulation and control. The terminal board in the electric panel is supplied with voltage free contacts for: remote ON-OFF, winter/summer commutation, domestic hot water temperature sensor, and for the remote control panel. The addition of the GI optional module allows further management of the plant.

CONTROL SYSTEM

The i-MAX units are all supplied with a central control unit with a microprocessor for overheating control logic, of the electronic thermostatic valve and of the solenoid valves, the pressure transducers and of the temperature sensors. The CPU manages also the following functions: regulation of the water temperature, antifreeze protection, time setting and compressors startup sequence, reset and management of alarms, fans modulation and pump modulation. Upon request, it is possible to connect the microprocessor to a BMS remote control systems by mean of Modbus protocol. The control system together with the INVERTER technology and the on board sensors continuously monitors and adapts the performance of the inverter compressor, circulating pump and of the fan.

PROTECTION AND CONTROL DEVICES

The units are all supplied with the following protection and control devices: return water temperature sensor, operating and antifreeze sensor, high and low pressure transducers, compressor inlet and outlet temperature sensors, fans thermal protection device, water flow switch installed on water side, high pressure HP flow switch.

HYDRAULIC CIRCUIT

The chillers/heat pump units of i-MAX series are supplied with an integrated hydronic kit which includes: dual refrigerant circuit plate heat exchanger and a single hydraulic circuit, a pressure gauge at the inlet and a fitting on the heat exchanger outlet for evaluating the load losses, service valve and flow switch for protection, automatic air release valve and safety valve (6 bar). The version with integrated circulator, provides a pump with AC motor that can be driven by an inverter for regulating the water flow rate between 60 and 100% (CI6 accessory) or with fix speed (CI7 accessory), suitable also for the utilization of chilled water and directly managed by the on-board unit controller.

Selection data

		Summer	Winter
Air temperature (wet bulb)	°C	24	6
Air temperature (dry bulb)	°C	35	7
Outlet water temperature	°C	7	45
Capacity	kW	94.7	88.57
Power absorption	kW	32.66	27.68
Flow rate	L/s	4.52	4.23
Pressure drop	kPa	136.03	118.99
Glycol	%	0	-
Δ T	-	5	5
EER / COP	W/W	2.9	3.2

Technical sheet

Description	Unit of measurement	Value
Power supply	V/Ph/Hz	400/3Ph
Energy Efficency (water 35°C / 55°C)	-	A+ / A
Compressor Model	-	Scroll DC Inverter / On-Off
Compressors	n.	2+4
n° refrigerant circuits	n.	2
Fan specification	Type	Motore EC Brushless
Fans	n.	2
Air flow	m^3/s	8 x 2
Refrigerant	Type	R410A
Refrigerant gas content	kg	13,4 x 2
[1] Water flow	L/s	4,52
[1] Available water pressure	kPa	81
[1] Circulator power absorption	kW	1,2

Water connection	inch	2"1/2
[2] Minimum system water content	L	260
[3] Noise power	dB(A)	84
[4] Sound pressure	dB(A)	52,2
Weight	kg	1026
Dimensions (L = Lenght; A = Height; P = Width)	mm	1170x1985x2250

[1] Chilled water from 12 to 7 °C, ambient air temperature 35 °C
[2] Estimated time for having a 15°C water temperature decrease during a 6 minutes defrosting cycle.
[3] Noise during heating mode, based on measurements made in accordance with the UNI EN ISO 9614-2 standard, in complicance with Eurovent certification
[4] Noise pressure accordin with ISO 3744. 10 meters distance.

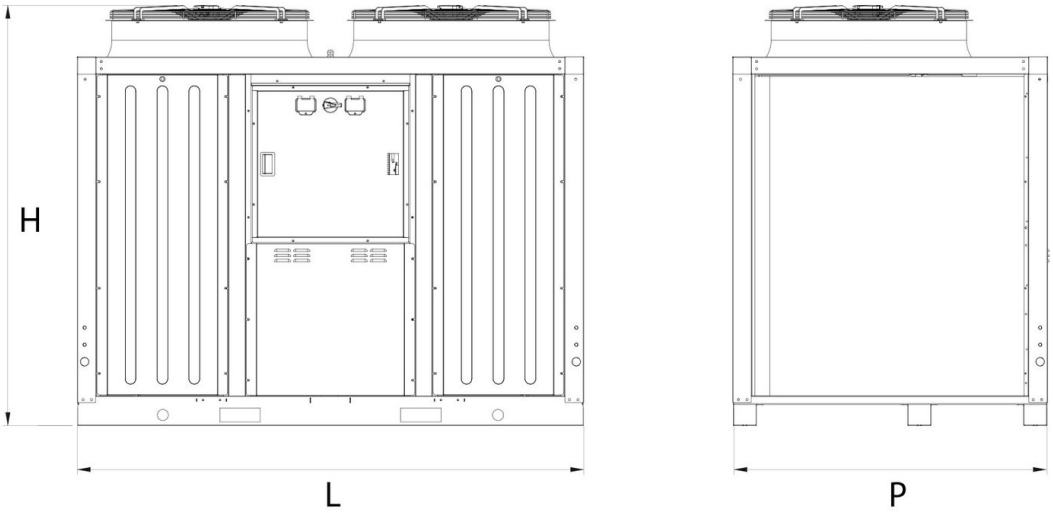
Fitted accessories

KA - Antifreeze kit
CI6 - AC inverter pump (GI module included)

Loose accessories

AG - Rubber shock absorbers
i-CR - Remote wall controller
LNC - LAN/WiFi local converter, Maxa DAS license included

Unit dimensional drawings



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