



> GEYSER MAX
Reversible heat pump
for the production of high temperature water



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SPECIFICATIONS

GEYSER MAX

High efficiency air/water heat pumps

Air-condensed water cooler unit, compact in size, featuring hermetic scroll compressors, an axial fan and a plate evaporator. Cooling fluid: R410A.

BODY

Galvanised metal sheet painted with polyester dust RAL 7035 at 180 °C, which make it highly resistant to weather conditions.

Panels installed on all four sides are easy to remove in order to guarantee access to internal components.

COMPRESSORS

Steam injection hermetic scroll components complete with a thermal protection in the coils of the electrical motor, a heater for the casing and rubber vibration dampers. These compressors are provided with a connection to the steam injection unit in order to achieve higher temperatures compared to standard compressors. From a thermodynamic standpoint, steam injection also allows for greater energy efficiency levels. The unit consists in two separate circuits to ensure greater reliability.

HEAT EXCHANGER ON SOURCE SIDE

The heat exchanger consists of a coil featuring copper tubes and aluminium fins and is provided with a large exchange surface. The coil is characterised by two or three separate and staggered rows which allow for higher heat exchange.

The coil also features two separate circuits which create two independent circuits.

A subcooler is installed at the base of the coil to allow for total defrosting, while an anti-freeze heater ensures condensation water flow towards the drain.

FANS

Axial flow fans directly coupled to the 6-pin electric motor featuring an external rotor, protection level IP54. The fan is made with an aluminium body to make it lighter and blades in polymeric material. This solution significantly reduces vibration levels and noise emissions.

The fan houses a shaped nozzle and includes a safety protection grid in line with standard UNI EN 294.

HEAT EXCHANGER ON OPERATION SIDE

Braze-welded stainless steel AISI 316 plates insulated by a shell of closed-cell foam material. This is a two-circuit heat exchanger, i.e. it features two independent internal circuits. This feature not only increases the unit reliability, but also offers great advantage in terms of energy consumption.

The heat exchanger is provided with a temperature probe for protection against freezing and a flow switch standardly supplied with the exchanger.

REFRIGERANT CIRCUIT

The circuit includes: a fluid intake into the line and aspiration, a fluid light, a dehydrator filter, thermal expansion valves with an external pressure equalization system, a 4-way inversion valve, a fluid accumulator, an intake separator, check valves, a solenoid valve in the fluid line, a pressure transducer, high and low pressure switches and a safety valve. It also features a refrigerant-refrigerant exchanger that produces steam for compressor cooling.

ELECTRICAL PANEL

Features a general circuit-breaking device, a protection of power and auxiliary circuits and a remote compressor control switch. The unit is microprocessor controlled and is equipped with a function display.

The electrical panel consists of:

- a general circuit-breaking device and fuses to protect the power and auxiliary circuits;
- a remote compressor control switch;
- a fan turn controller for condensation control;
- general alarm contacts;
- a microprocessor to control the following functions:
 - water temperature setting with inlet water control;
 - an anti-freeze protection;
 - compressor timers;
 - a high pressure alert manager (to prevent the unit from stopping);
 - a switch for winter-to-summer switching and/or vice versa;
 - automatic defrosting;
 - alarm signals;
 - alarm reset;
 - self-adjusting controller to enable optimised operation even when the water level in the unit is low;
 - a digital input for external ON-OFF switching;
 - a digital input for winter-to-summer switching and/or vice versa.

Parameters shown in the display:

- Outlet water temperature;
 - input water temperature;
 - condensation temperature;
 - temperature and differential setpoints;
 - alarm description;
 - compressor hour meter;
- 400V/3~/50Hz power supply for all sizes.

CONTROLS AND SAFETY DEVICES

- Water temperature probe on user side (located at heat exchanger inlet)
- Anti-freeze probe triggering anti-freeze alarm (automatic resetting, limited maintenance)
- High pressure switch (manual resetting)
- Low pressure switch (manual resetting, limited maintenance)
- Flow switch alarm due to low water rate (manual resetting)
- Condensation pressure control by means of turn controller for operation at low external temperatures
- High pressure safety valve
- Internal protection against compressor overpressure
- External protection against compressor overpressure

TESTING

The units are factory-tested and supplied complete with oil and refrigerant.

Testing consists in the following activities:

- leak test: the circuit is pressurised and welds are tested for tightness;
- operating test in Chiller mode (refrigerating capacity, absorbed power, head loss, etc.);
- operating test in Heat Pump mode (heating capacity, absorbed power, etc.);
- inspection for the causes of safety device engagement.

VERSIONS

Consult the configuration table to check whether an option interferes with other configurations.

HYDRAULIC MODULE OPTIONS

GEYSER MAX /LN: Low Noise Unit

In addition to the components of the basic version, this unit has a fully soundproofed compressor compartment using high acoustic impedance and sound-absorbent materials.

ACCESSORIES

REFRIGERANT CIRCUIT ACCESSORIES

- Tap in liquid line
- Electronic thermostat valve
- Dual setpoint

HYDRAULIC CIRCUIT ACCESSORIES

- Filling unit with pressure gauge
- Anti-freeze seal

ELECTRICAL ACCESSORIES

- Phase monitor
- Serial interface RS485
- Remotly-controlled user terminal panel (in addition to panel installed on machine)
- User interface
- Setpoint compensation depending on external air temperature
- Automatic management of domestic hot water

OTHER ACCESSORIES

- Rubber vibration dampers
- Packaging in wooden crate

general specifications - basic version

UNIT SIZE			30	40	50	60
Heating						
Nominal heating capacity	(1)	kW	31,6	43,5	54,3	64,1
Absorbed power - heating	(1), (2)	kW	7,5	10,5	12,9	14,8
COP	(1)		4,20	4,16	4,21	4,34
Nominal heating capacity	(3)	kW	31,8	43,3	55,0	64,3
Absorbed power - heating	(3), (2)	kW	8,8	12,2	15,5	17,7
COP	(3)		3,62	3,54	3,55	3,64
Nominal heating capacity	(4)	kW	32,1	42,1	57,0	65,7
Absorbed power - heating	(4), (2)	kW	12,5	17,6	23,6	25,2
COP	(4)		2,57	2,39	2,41	2,61
Cooling						
Nominal cooling capacity	(5)	kW	35,7	46,2	61,2	71,7
Absorbed power - cooling	(5), (2)	kW	9,3	14,2	19,1	22,2
EER	(5)		3,84	3,25	3,21	3,23
Nominal cooling capacity	(6)	kW	27,2	35,6	46,6	54,9
Absorbed power - cooling	(6), (2)	kW	8,5	12,6	16,2	18,9
EER	(6)		3,21	2,83	2,88	2,90
ESEER						
Compressors						
Type					Scroll	
Quantity/Cooling circuits		no./no.	2/2	2/2	2/2	2/2
Capacity steps			2	2	2	2
Total oil load		kg	3,8	3,8	8,0	8,0
Total cooling load		kg	10,9	14,6	19,3	20,9
Fans						
Type					Axial	
Quantity		no.	1	1	1	1
Air flow		cu.m/h	18.000	18.000	17.000	17.000
Heat exchanger on user side						
Type					Plates	
Quantity		no.	1	1	1	1
Water flow rate	(1)	l/h	5.434	7.477	9.341	11.028
Head loss	(1)	kPa	17	30	38	51
Noise levels						
Noise power level	(7)	dB(A)	70	70	71	73
Noise pressure level	(8)	dB(A)	38	38	39	41
Dimensions and weights of basic unit						
Length		mm	1.078	1.078	1.078	1.078
Depth		mm	1.078	1.078	1.078	1.078
Height		mm	2.263	2.263	2.263	2.263
Operating weight		kg	550	578	589	589

- (1) External air temperature 7°C BS, 6°C BU; condenser input-output water temperature 30-35 °C
 (2) The total power is the sum of the power absorbed by the compressors and the fans.
 (3) External air temperature 7°C BS, 6°C BU; condenser input-output water temperature 40-45 °C
 (4) External air temperature 7°C BS, 6°C BU; condenser input-output water temperature 60-65 °C
 (5) External air temperature 35°C, evaporator inlet-outlet water temperature 23-18 °C

- (6) External air temperature 35°C; evaporator inlet-outlet water temperature 12-7°C
 (7) Noise power levels measured according to standard ISO 3744 under nominal operating conditions.
 (8) Noise pressure levels refer to the values measured at a location 10 metres away from the unit in free field under nominal operating conditions according to ISO 3744.

This data sheet gives the characteristic data of the basic and standard versions of the range; for more details please refer to the specific documentation.