

ZETA REV series

40÷240 kW



General

Customisable, high efficiency chiller and air/water heat pump, with hermetic scroll compressors.

Configurations

HE: high efficiency

HP: Reversible heat pump

SLN: Super low noise unit

LE: Motocondensing unit

LE/HP: Reversible motocondensing unit

DS: Unit with desuperheaters

DC: Unit with recovery condenser

Optional hydronic module

Strengths

- ▶ Eurovent Class A
- ▶ Unit with Night Shift function
- ▶ Optional advanced control
- ▶ Multilogic
- ▶ Hydraulic module integrated with tank
- ▶ 3 types of pumps: standard, oversize and for high percentages of glycol (up to 50%)
- ▶ User-side pumps with inverter available

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SPECIFICATIONS

Water chiller unit with hermetic screw compressors, air heat rejection with axial fans and user-side plate heat exchanger.

Refrigerant fluid: R410A

STRUCTURE

The structure of the unit is made of galvanized sheet-iron coated with polyester powder RAL 7035/5017 at 180°C, which makes it highly resistant to weather conditions.

The structure is a load-bearing frame, with removable paneling lined with sound absorbing expanded polyurethane matting.

All screws and bolts are stainless steel.

COMPRESSORS

The compressors are hermetic orbiting spiral scroll compressors connected in tandem. They are provided with oil level sight glass, internal Klixon® thermal overload protection or external Kriwan® module (depending on the model) and oil equalisation line.

The compressors are enclosed in a dedicated technical compartment, which can be accessed by removing the panelling that allows maintenance operations to be carried out even with units running.

All the compressors are fitted as standard with crankcase heater.

SOURCE-SIDE HEAT EXCHANGER

For the cooling only units, the exchangers are made with microchannel aluminium coils.

For /HP units, finned pack coils with copper tubes and aluminium fins are used. These also have a special circuit for keeping the lower part of the coil free of ice by circulation of gas at high temperature.

Thanks to continuous research in the field of metal alloys and to sophisticated production methods, microchannel coils are made using specific aluminium alloys for the tubes and for the fins. This allows the effects of galvanic corrosion to be drastically reduced to always ensure protection of the tubes that confine the refrigerant. Tubes and fins are also subjected to SilFLUX coating processes (or equivalent) or have zinc added to further increase their corrosion resistance.

If the unit has to be installed in an environment with a particularly aggressive atmosphere, e-coated microchannel coils are available as an option. This option is strongly recommended for applications in coastal or highly industrialized areas.

The use of microchannel coils compared to conventional copper/aluminium coils reduces the total weight of the unit by about 10% and gives a reduction in refrigerant charge of at least 30%.

To protect the exchangers from corrosion and ensure optimal operation of the unit, we advise following the recommendations given in the user, installation and maintenance manual for cleaning the coils.

For installations within a kilometre of the coast, the use of Cu/Al coils with anti-corrosion treatment is strongly recommended for cooling only units too.

The exchanger is protected by a metal mesh.

FANS

The fans are axial fans, directly coupled to a 6-pole electric motor, with integrated thermal overload protection (Klixon®) and IP 54 protection rating.

The fan includes the shroud, designed to optimize its efficiency and reduce noise emission to a minimum, and the safety guard.

For standard efficiency models from 3.2 to 10.2 and for HE and SLN version models from 3.2 to 7.2, the unit is fitted as standard with condensing control with fan speed adjuster. For the other models, condensing control by steps or condensing control with fan speed adjuster are available as alternative options.

USER-SIDE HEAT EXCHANGER

The exchanger is a braze-welded stainless steel plate heat exchanger, insulated with a shroud of closed-cell insulating material.

For dual circuit models, the unit uses two exchangers already manifolded inside the unit and therefore with a single hydraulic connection.

The exchanger is also equipped with thermostat-controlled anti-freeze heater to protect it from ice formation when the unit is not running.

REFRIGERANT CIRCUIT

Each refrigerant circuit of the basic unit (cooling only) comprises:

- valve on the liquid line
- charging valves
- liquid sight glass
- replaceable solid cartridge dehydrator filter (except for sizes 3.2, 4.2 and 5.2 where the filter is a weld-on filter)
- thermostatic expansion valve with pressure equalization
- high and low pressure switches

The pipes of the circuit and the exchanger are insulated with extruded closed-cell expanded elastomer.

As an accessory, all the units can be fitted with an electronic expansion valve that allows machine stability to be reached more quickly and better superheating control than the mechanical expansion valve, to maximize the use of the evaporator in all load conditions.

ELECTRICAL CONTROL PANEL

The electrical control panel is made in a painted galvanized sheet-iron box with forced ventilation and IP54 protection rating.

The electrical control panel of the basic unit comprises:

- main disconnect switch
- automatic circuit breakers for compressors with fixed calibration
- fuses for the fans and auxiliary circuits
- thermal magnetic circuit breakers for the pumps (if present)
- contactors for the compressors, fans and pumps (if present)
- phase cutting speed adjuster for models with single-phase

fan

- phase monitor
- potential free general alarm contacts
- single potential free operating contacts for compressors, fans and pumps (if present)
- microprocessor control with display accessible from the outside

All the electrical cables inside the panel are numbered and the terminal board dedicated to the customer's connections is coloured blue so that it can be quickly identified in the panel.

The power supply to the unit is 400V/3~+N/50Hz for the following models:

- Zeta Rev from size 3.2 to 10.2
- Zeta Rev HE from size 3.2 to 7.2
- Zeta Rev SLN from size 3.2 to 7.2

The power supply to the unit is 400V/3~/50Hz for the following models:

- Zeta Rev from size 12.2 to 24.4
- Zeta Rev HE from size 8.2 to 16.4
- Zeta Rev SLN from size 8.2 to 16.4

CONTROL

Thermoregulation of the unit controls water temperature at the inlet to the user-side heat exchanger. Outlet water temperature control is available as an option.

As standard, the unit uses a parametric controller that allows the following functions:

- freeze protection
- compressor timings
- automatic rotation of compressor starting sequence
- management of capacity reduction due to high pressure limit
- display of alarms
- recording of log of last 100 alarms - in addition to the alarm, it shows the date, time and type of operation of the unit when the alarm occurs
- an RS485 serial port with Modbus protocol
- clock board
- sliding defrost management
- digital input for remote ON/OFF
- digital input for remote Summer/Winter selection
- digital input for remote selection of double set point
- display of hours of operation of all the compressors
- display of starts per hour of the compressors
- position a compressor or a circuit to OFF from button
- display the time left to the start of the next defrost cycle

The control has a 6-button interface with a display that can display 2 quantities and 20 icons at the same time, so as to see the unit's operating state at a glance.

The "Advanced controller" accessory is available as an option and adds the following to the above-listed functions:

- recording of all the variables and parameters of the unit with

sampling for 15 seconds - this allows a log to be kept with FIFO logic that covers about 20 days, depending on the size of machine

- an Ethernet serial port with TCP/IP protocol and Modbus over IP
- an integrated WEB server with display pages and management of preloaded pages

Both types of control have a display that allows the following to be shown:

- water inlet and outlet temperatures
- set temperature and differential set points
- description of the alarms (only for the advanced control)
- hour meter of operation and number of start-ups of the unit, the compressors and the pumps (if present)
- high and low pressure values
- condensing and evaporating temperatures (only for the advanced control)
- external air temperature
- superheating at compressor suction (only for the advanced control)

For further details on available functions and on displayed information, you can refer to the specific documentation of the control.

By default, the serial connections present as standard are enabled only for reading from BMS.

CONTROLS AND SAFETY DEVICES

- chilled water temperature probe
- antifreeze probe at outlet of each user-side heat exchanger
- high pressure switch (with manual reset)
- low pressure safety device (with manual reset managed by the control)
- high pressure safety valve
- protection against compressor overtemperature
- protection against fan overtemperature
- water flow sensor already installed and wired that, depending on the version and size of machine, will be a differential water pressure switch or a paddle flow switch.

TESTING

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

VERSIONS

Alongside the basic version, there are other versions that differ in efficiency and noise levels.

ZETA REV HE: high efficiency unit

The HE version unit uses oversize coils, in order to increase the ratio between exchange surfaces and capacity of the compressors to make high efficiency units.

ZETA REV SLN: super low noise unit

The SLN version unit uses a soundproofed compressor compartment, oversize coils compared to the standard efficiency unit

and fans with speed adjuster and reduced air flow rate. The speed reduction of the fans is such that, under nominal operating conditions, the air flow rate and noise level are lower than those of the basic version of the unit. In any case, the speed adjuster allows rotation of the fans at maximum speed when external air temperature conditions are particularly critical and therefore guarantees the same operating limits as the ZETA REV HE.

Also, for /HP version units that work in heat pump mode, the fans always operate at 100% speed and therefore guarantee the same performance levels as the ZETA REV HE/HP.

ZETA REV LE: motocondensing unit

Compared to the basic unit, the LE version is without user-side heat exchanger and thermostatic expansion valve (to be positioned on the remote evaporator).

The unit is supplied with:

- standard solenoid valve on the liquid line
- pressurised refrigerant circuit charged with nitrogen (therefore without refrigerant charge)
- weld-on refrigerant connections closed with copper plugs

ZETA REV LE/HP: reversible motocondensing unit

Compared to the HP version, the LE/HP version is without user-side heat exchanger and thermostatic expansion valve for operation in air conditioning mode (to be positioned on the remote evaporator). The solenoid valve on the liquid line is supplied as standard. The unit is supplied with:

- standard solenoid valve on the liquid line
- pressurised refrigerant circuit charged with nitrogen (therefore without refrigerant charge)
- weld-on refrigerant connections closed with copper plugs

OPTIONS

/HP: reversible heat pump

In addition to the basic set-up, HP units comprise (for each refrigerant circuit):

- 4-way reversing valve
- fluid accumulator
- second thermostatic expansion valve.

For defrost management, the control of the unit uses a sliding intervention threshold, depending on the pressures inside the unit and the external air temperature. By putting together all this information, the control can identify the presence of ice on the coil and activates the defrosting sequence only when necessary, so as to maximize the energy efficiency of the unit.

For units with three-phase fan, defrosting is done using a patented defrost system that also uses reverse ventilation to speed up the cleaning of the coil of condensate water.

As standard, summer/winter switching is done from digital input but, as an alternative, the possibility of doing this from the keypad, remote terminal or serial communication (BMS) can be activated.

/DC: unit with recovery condenser

In addition to the basic set-up, the /DC units comprise:

- a recovery condenser for recovering 100% of the conden-

sation heat on each refrigerant circuit. The exchanger is a braze-welded plate heat exchanger.

For dual circuit units, the exchangers are to be manifolded outside the unit (by the customer).

- temperature probe at the inlet of each recovery exchanger. For dual circuit units, the probe is supplied with the unit and is to be positioned on the exchanger inlet manifold (by the customer).
- liquid receiver for each refrigerant circuit with system for emptying the refrigerant from the condensing coil
- potential free contact in the electrical control panel for activation of recovery.

When required by the system, through the closing of a contact, the control automatically manages activation of recovery. Recovery management is carried out through a control on the temperature of the return water.

The control also automatically manages safety deactivation of recovery if the condensing pressure becomes too high, and changes to using the condensing coils.

This option is not available for /HP units

/DS: unit with desuperheater

In addition to the basic set-up, /DS units comprise (for each refrigerant circuit) an exchanger for condensation heat recovery of up to 20% (depending on size, version and operating conditions), placed in series with the condensing coil. The exchanger is a braze-welded plate heat exchanger.

For dual circuit units, the exchangers are to be manifolded outside the unit (by the customer).

To maximize the use of the accessory and optimize machine operation, combination with the speed adjuster of the fans or with the EC fans is recommended. This option is also available for /HP units, but in this case, in the installation, it must have provision for shutting off the recovery water circuit during operation in heat pump mode to avoid taking power from the user-side heat exchanger.

/LN: low noise unit

In the unit with /LN option, the technical compartment that houses the compressors is fully soundproofed with sound absorbing material and soundproofing material.

/HAT: unit for high external air temperatures

The unit fitted with this accessory adopts an electrical control panel made using specific components to withstand high temperatures, special cables and oversize protection parts. The accessory enables the unit to work with external air temperatures of over 46°C as indicated in the section on operating limits.

Units with hydraulic module

All units can be fitted with hydraulic module in various configurations:

- /1P: hydraulic module with one pump
- /2P: hydraulic module with two pumps
- /1PS: hydraulic module with one pump and buffer tank
- /2PS: hydraulic module with two pumps and buffer tank

All the above-mentioned modules have pumps with standard

discharge head. The following are also available:

- modules /1PM, /2PM, /1PMS and /2PMS that have pumps with increased available discharge head
- modules /1PG, /2PG, /1PGS and /2PGS that have pumps suitable for operating with glycol up to 50%

Hydraulic modules with one pump have:

- one pump
- a gate valve on the delivery side of the pump
- an expansion vessel

Hydraulic modules with two pumps have:

- two pumps
- a check valve on the delivery side of each pump
- a gate valve on the outlet of the delivery manifold
- an expansion vessel

In the version with 2 pumps, these are always with one on standby while the other is working. Switching over between the pumps is automatic and is done by time (to balance the hours of operation of each one) or in the event of failure.


Hydraulic modules with tank also have:

- a gate valve at the inlet of the pump or the suction manifold
- a tank with drain valve and air valve

Refer to the table of configurations that are not possible to check for availability of specific set-ups.

DESCRIPTION OF ACCESSORIES

CODE	Accessory	Operation and advantages
REFRIGERANT CIRCUIT ACCESSORIES		
RG	Condensing control with fan speed adjuster	<p>The control manages the speed of the fans through a phase cutting speed adjuster, in order to optimize the operating conditions and efficiency of the unit.</p> <p>This control also has the effect of reducing the noise level of the unit: in fact, the typical conditions under which the control will be modulating the speed of the fans are those of the night, spring and autumn.</p> <p>For HP units, the control also carries out evaporating control when the unit is working in heat pump mode.</p> <p>For units equipped with EC fans, the same function is carried out using the electronically commutated motor of the fans and is supplied as standard.</p>
TEMP	Condensing control by steps	<p>With this accessory, the condensing pressure of the unit is controlled through the stepped switching off of the fans. There are two steps for units with 2 fans and three steps for units with 3 or 4 fans.</p>
MAFR	Pressure gauges	<p>The operating pressures of each circuit of the unit can be displayed on the control by accessing the relevant screens. Also, the machine can be fitted with pressure gauges (two for each circuit) installed in a clearly visible position. These allow reading in real time of the working pressures of the refrigerant gas on the low pressure side and on the high pressure side of each refrigerant circuit.</p>
RIC	Liquid receivers.	<p>The adoption of this accessory always guarantees correct feeding of the expansion valve even when the unit is subjected to wide external air temperature ranges.</p> <p>This accessory is standard on DC and HP units.</p>
RUB	Compressor suction and delivery valves	<p>The valves situated on the suction and delivery manifolds of the compressors allow the tandem or the trio to be isolated from the rest of the refrigerant circuit, so making the maintenance operations quicker and less invasive.</p>
DVS	Double safety valve	<p>With this accessory, instead of each individual safety valve per circuit, there is a "candelabrum" with two safety valves and a diverter valve for choosing the valve in operation. This allows the safety valves to be replaced without having to drain the machine and without having to stop it.</p>
VS	Liquid line solenoid valve	<p>This accessory prevents refrigerant migration that could damage the compressor on starting.</p> <p>Standard on HP units.</p>
VTE	Electronic expansion valve	<p>The use of this accessory is particularly advisable on units that have to work in conditions of very variable heat load, large differences in external air temperatures or frequent operating mode change, as in the case of combined management of air conditioning, heating and hot water production.</p> <p>The use of an electronic expansion valve allows you to:</p> <ul style="list-style-type: none"> • maximize heat exchange at the user-side heat exchanger • minimize the response times of the refrigerant circuit to variations in the load and in the operating conditions • optimize superheating control
BK	Brine Kit	<p>Application of this accessory is mandatory if the unit has to produce water with temperature lower than +3° (if the unit is provided with double set point or variable set point, the lower set point is considered).</p> <p>The accessory consists of adopting an increased insulation and a suitable sizing and calibration of some components.</p> <p>This accessory obligatorily requires insertion of the condensing control.</p>
RPR	Refrigerant leak detector	<p>With this accessory, a refrigerant leak detector is placed inside the compressor compartment.</p> <p>If the unit is fitted with the standard control (parametric), detection of a refrigerant leak causes the closing of a potential free contact shown in the terminal board and the activation of sound and visual signalling on the machine.</p> <p>If the unit is fitted with the advanced control, detection of a refrigerant leak is managed by the control through a specific alarm and display of a specific icon on the display of the control. This alarm does not stop the unit.</p>
RPP	Refrigerant leak detector with automatic pump down	<p>With this accessory, a refrigerant leak detector is placed inside the compressor compartment. Detection of a refrigerant leak is managed by the control through a specific alarm and display of a specific icon on the display of the control. The alarm also starts the procedure of machine stopping with pump down, confining all the refrigerant in the coils.</p> <p>This accessory is available only in combination with the advanced control.</p>

CODE	Accessory	Operation and advantages
FAN ACCESSORIES		
VEC	EC fans	<p>With this accessory, EC fans, with electronically commutated brushless motor, are used for the ventilating section. These guarantee very high efficiency levels for all working conditions and allow a 15% saving on the power absorbed by each fan working at full capacity.</p> <p>Also, through a 0-10V analogue signal sent to each fan, the microprocessor carries out condensing/evaporating control by continuous adjustment of the air flow rate as the external air temperature changes, with a further reduction in electrical absorption and noise emission.</p>
VEM	Oversize EC fans	<p>With this accessory, EC fans, with electronically commutated brushless motor, are used for the ventilating section. These guarantee very high efficiency levels for all working conditions. Through a 0-10V analogue signal sent to each fan, the microprocessor carries out condensing/evaporating control by continuous adjustment of the air flow rate as the external air temperature changes, with a further reduction in electrical absorption and noise emission.</p> <p>Oversize EC fans make it possible to have an available residual pressure of about 70Pa for standard units and about 100Pa for SLN units.</p>
RECP	<p>Pressure recuperator</p> 	<p>Normally, the air ejected by the fan has a high speed and this manifests itself as kinetic energy that is dissipated into the environment.</p> <p>The pressure recuperator is a passive element positioned on the ejection duct of each individual fan designed to allow better conversion of the kinetic energy under static pressure and this conversion manifests itself as a higher pressure generated by the fan. In practice, this allows efficiency to be increased considerably, by making it possible to have a reduction in the speed of the fans and therefore in sound emissions (for the same pressure differential) or to obtain an increase in the available pressure of the ventilating section of about 50Pa (for the same fan speed).</p> <p>To allow optimization of the performance of the accessory, combination with the speed adjuster or EC fans is necessary. In this last case, the higher efficiency of the EC fans is added to the performance improvement generated by the pressure recuperator.</p> <p>The accessory is supplied separately from the unit on one or more pallets and it must obligatorily be installed (by the customer) before the first start-up of the machine.</p>

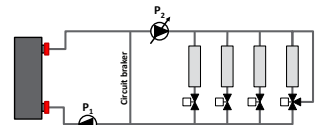
CODE	Accessory	Operation and advantages
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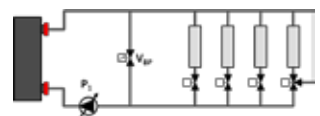
IVPO	Soundproofed pump compartment	With this accessory, the motor and the impeller of the pumps are enclosed in a compartment that is fully soundproofed with sound absorbing material and soundproofing material.
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IPU	Inverter for pump on user side	<p>This accessory requires the following to be supplied:</p> <ul style="list-style-type: none"> • inverter for controlling the pumps of the hydraulic module • motor-driven modulating bypass valve (supplied with it) • pressure transducers • dedicated controller for management of the inverter and of the bypass valve, provided with display
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This accessory can be offered as an alternative to the conventional layout that has a constant flow pump on the primary circuit (P1) and a variable flow pump on the secondary circuit (P2).



This layout shows the use of the hydraulic uncoupling pipe (circuit breaker) between primary and secondary circuit that is sized at 100% of the flow rate: if the users require only a percentage of the nominal capacity, the uncoupling pipe recirculates the excess flow rate with consequent waste of pumping energy.



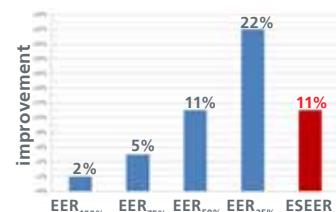
In the solution with the "Inverter for pump on user side" accessory, there is a single variable flow pumping unit (P1), already integrated in the chiller, which feeds both the primary and secondary circuits. Instead of a simple separation pipe, a bypass valve (VBP) is inserted and this guarantees that the minimum water flow rate to the evaporator is maintained even when demand from the users is well below nominal demand.

This system also allows the separation pipe and the bypass valve to be sized for a much lower water flow rate than the nominal flow rate, to therefore obtain a net reduction in energy losses due to water recirculation.

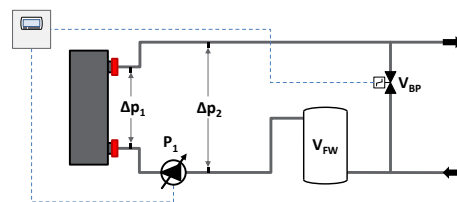
The benefits obtained with the use of this accessory are therefore:

- insertion of a single set of pumps in the system, with consequent reduction in investment and pumping costs
- reduction in the space necessary inside the technical compartment of the building
- simplification of the hydraulic circuit
- greater pumping energy efficiency

Also, by assessing the ESEER level of the unit, also counting the absorption of the integrated pump as well as the absorption of the compressors and fans, it can be seen that there is a gradual increase in efficiency as the degree of capacity reduction of the system is increased, with a consequent increase in ESEER up to 11%.



To understand more clearly how the accessory works, we refer to the following layout:



The whole system is controlled by a dedicated controller (provided with its display) that, through pressure transducers, detects the head losses on the evaporator (Δp_1) and the head losses on the system side (Δp_2).

When all the users are in operation, the pump of the unit works at the nominal flow rate. The decrease in heat load of the system causes the shut-off valves of the users to close, with a consequent increase in head losses on the system side because of the increase in flow rate in the lines left open.

The control therefore detects the variation of Δp_2 and, by also assessing the water outlet temperature from the exchanger (varied with respect to the decrease in head), implements a procedure of adjustment of the speed of the pump P1 in order to return the head losses to nominal conditions.

CODE	Accessory	Operation and advantages																									
IPU	Inverter for pump on user side	<p>Again considering the water outlet temperature and the variation of Δp_1, the control checks that at the exchanger there is always the minimum flow rate necessary to ensure correct heat exchange. If the flow rate required by the system is too low to have the correct flow rate at the exchanger, the control modulates the bypass valve VBP until the correct operating conditions for both the system and the exchanger are restored.</p> <p>To ensure correct operation of this system in all conditions, it is necessary to assess the volumes of water present in the system and their position: when the system has most of the shut-off valves closed and therefore with heat load near zero, even if the machine is working in conditions of maximum capacity reduction, conditions that trigger the antifreeze alarm could occur. To avoid this problem, it is necessary to have a "thermal wheel minimum" in the section between the exchanger of the unit and the bypass valve (represented in the figure with the VFW tank). The required volume can be determined with the following formula:</p> $V_{FW} = P_0 \cdot \frac{s_{min}}{100} \cdot k$ <p>Where V_{FW} is the volume of the "thermal wheel minimum" expressed in l P_0 is the total refrigeration capacity of the machine expressed in kW s_{min} is the minimum capacity reduction step expressed in % k is a coefficient equal to 14.3 l/kW</p> <p>The water content of the exchanger, the buffer tank of the hydraulic module (if present) and the pipes between bypass and exchanger, can contribute to the determination of the "thermal wheel minimum".</p> <p>If the accessory is combined with a cold only unit connected to a system in which an ethylene glycol mixture is used, the "thermal wheel minimum" can be reduced according to the following table:</p> <table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">Glycol concentration</th> </tr> <tr> <th>0 to 10%</th> <th>10 to 20%</th> <th>20 to 30%</th> </tr> </thead> <tbody> <tr> <th rowspan="4">N° of compressors</th> <th>1</th> <td>0%</td> <td>-56%</td> <td>-77%</td> </tr> <tr> <th>2</th> <td>0%</td> <td>-58%</td> <td>-82%</td> </tr> <tr> <th>3</th> <td>0%</td> <td>-60%</td> <td>-84%</td> </tr> <tr> <th>4</th> <td>0%</td> <td>-62%</td> <td>-86%</td> </tr> </tbody> </table> <p>The "thermal wheel minimum" also allows correct operation of the unit in heat pump mode, but in this case, the presence of glycol does not allow its volume to be reduced.</p> <p>As indicated in the user, installation and maintenance manual, to guarantee correct operation of the unit and avoid excessive fluctuations on the temperatures, it is always necessary to ensure the presence of a minimum volume of water in the system. The thermal wheel minimum is a part of it, but while V_{FW} must obligatorily be positioned as shown in the figure, the remaining minimum volume can be distributed in the system.</p> <p>We strongly recommend the use of three-way valves on the users that are furthest away from the machine and a calibration gate valve that connects the final part of the backbones of the system, in order to guarantee a minimum flow of water to the system in any condition.</p> <p>The system is calibrated at the factory to work on a plant that, under nominal conditions, must work with a thermal gradient of 5°C on the water. For different values, please contact our sales department.</p> <p>When this accessory is present, even the minimum water outlet temperature is limited: in chiller operating mode, the minimum settable set point is 7°C, while in heat pump operating mode, the minimum set point is 40°C. If outlet temperatures lower than these limits are required, please contact our sales department.</p>			Glycol concentration			0 to 10%	10 to 20%	20 to 30%	N° of compressors	1	0%	-56%	-77%	2	0%	-58%	-82%	3	0%	-60%	-84%	4	0%	-62%	-86%
		Glycol concentration																									
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	3	0%	-60%	-84%																							
	4	0%	-62%	-86%																							
RA	Anti-freeze heater	<p>In addition to the anti-freeze heater already present as standard on the user-side heat exchanger, with this accessory, anti-freeze heaters are also inserted on the pumps and in the tank (depending on the configuration of the machine) to prevent damage to the hydraulic components due to ice formation during periods when the machine is stopped.</p> <p>Based on normal operating conditions and the percentage of glycol in the system, an appropriate "antifreeze alarm" temperature is set in the control. When a temperature that is 1°C higher than the antifreeze alarm threshold is detected at the outlet from the exchanger, the pump (if present) and the antifreeze heaters are switched on. If the temperature of the outgoing water reaches the antifreeze alarm threshold, the compressors are stopped, keeping the heaters and the pumps active, and the general alarm contact of the machine is activated.</p>																									
VSIW	Water-side safety valve	<p>With this accessory, a safety valve is inserted in the hydraulic circuit of the unit: when the calibration pressure is reached, the valve opens and, by discharging (to be routed by the customer), prevents the system pressure from reaching limits that are dangerous for the components present in the system. The valves have positive action, that is, performance is guaranteed even if the diaphragm deteriorates or breaks.</p>																									
FLUS	Flow switch (instead of the water differential flow switch)	<p>As an alternative to the differential pressure switch (standard flow sensor), it is possible to request the paddle flow switch as accessory. This detects when there is no water flow to the user-side exchanger and sends a signal to the control of the unit that will stop the compressors to prevent damage to the exchangers.</p> <p>The flow switch is supplied with the unit (installation by the customer) and replaces the water differential pressure switch (standard).</p>																									

CODE	Accessory	Operation and advantages
ACCESSORI ELETTRICI		
CA	Advanced control	<p>Compared to the parametric control fitted as standard, the advanced control adds the following functionalities</p> <ul style="list-style-type: none"> recording of all the variables and parameters of the unit with sampling for 15 seconds - this allows a log to be kept with FIFO logic that covers about 20 days, depending on the size of machine an Ethernet serial port with TCP/IP protocol and Modbus over IP an integrated WEB server with display pages and management of preloaded pages
PBA	BACnet protocol over IP (Ethernet)	<p>The control is set for using the BACnet protocol (instead of Modbus) on the Ethernet port.</p> <p>By default, the programming gives read-only access to the control of the unit. Enabling of read/write access should be requested when ordering.</p>
GLO	Lon Gateway	<p>With this accessory, a RS485/Lon gateway is installed inside the electrical control panel.</p> <p>By default, the programming gives read-only access to the control of the unit. Enabling of read/write access should be requested when ordering.</p>
FM2	Multilogic function for Master unit for managing up to 2 Slaves	<p>With this accessory, the unit is programmed as master of a system of machines in Multilogic network (for further details, refer to the control manual). Also, a network gateway with 4 ports is installed in the electrical control panel of the unit to allow the unit to be connected to an external LAN network and up to 2 slave units to be managed.</p>
FM6	Multilogic function for Master unit for managing up to 6 Slaves	<p>With this accessory, the unit is programmed as master of a system of machines in Multilogic network (for further details, refer to the control manual). Also, a network gateway with 8 ports is installed in the electrical control panel of the unit to allow the unit to be connected to an external LAN network and up to 6 slave units to be managed.</p>
FM0	Multilogic function for Slave unit	<p>With this accessory, the unit is programmed as slave of a system of machines in Multilogic network (for further details, refer to the control manual).</p>
LIID	Limitation of the current absorbed by digital input	<p>When this accessory is requested, a digital input is prepared in the terminal board to activate the forced capacity reduction of the unit to a set fixed level.</p> <p>This accessory is useful when there is a need to necessarily limit the power absorbed by the unit as regards particular conditions.</p>
RIF	Power factor correction to $\cos\phi \geq 0.9$	<p>With this accessory, an electrical control panel, containing power factor correction condensers to bring the $\cos\phi$ of the unit to being greater than 0.9, is supplied with the unit. The condensers should be connected (by the customer) to the electrical control panel of the unit in the specially prepared terminal board.</p> <p>Besides reducing the absorbed reactive power, the use of this accessory also allows the maximum absorbed current to be lowered.</p>
COTW	Outgoing water temperature control	<p>When this accessory is requested, the unit is set to use the water outlet temperature (instead of the inlet temperature) as reference for thermoregulation.</p> <p>This system requires the management of a neutral zone to the control; the lower the number of compressors of the unit, the wider this zone will be.</p>
SETD	Double set point from digital input	<p>For units fitted with this accessory, it is possible to preset two different operating set points and manage the change from one to the other through a digital signal.</p> <p>The set point temperatures must be specified when ordering.</p>
SETV	Variable set point with remote signal (0-1V, 0-10V, 4-20mA)	<p>For units fitted with this accessory, the set point can be varied continuously between two preset values, a maximum and a minimum, depending on an external signal that can be of the 0-1V, 0-10V or 4-20mA type.</p> <p>For units fitted with this accessory, the set point of the unit is set so that it can vary between two values, a maximum and a minimum, depending on the external air temperature. The compensation ramp and the maximum and minimum values of the set point can be changed by the user.</p> <p>Unless otherwise specified in the order, the control will be set to implement a negative compensation logic according to the temperatures shown in the following diagrams:</p>
CSP	Set point compensation depending on external air temperature	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Negative compensation</p> </div> <div style="text-align: center;"> <p>Positive compensation</p> </div> </div>

CODE	Accessory	Operation and advantages
RE1P	Relay for management of 1 external pump	This accessory can be requested for units without pumps and allows a pump outside the machine to be controlled.
RE2P	Relay for management of 2 external pumps	This accessory can be requested for units without pumps and allows two pumps outside the machine to be controlled with a running/stand-by logic by implementing a rotation on the hours of operation.
TERM	Remote-controlled user terminal 	<p>This accessory consists of a replica of the control that can be remotely operated up to 150m, from which it is possible to work completely on the configuration of the unit and display all its parameters on the display.</p> <p>This terminal is suitable for insertion in an ordinary electrical enclosure box (box 503) and does not need an external power supply unit because it takes its power directly from the control of the unit.</p> <p>The terminal is also fitted with an NTC temperature probe and can therefore work as a room thermostat (for LE or LE/HP units combined with air handling units).</p> <p>The parameters are accessed by entering passwords that enable the various modification levels.</p>
TERM	Remote-controlled user terminal (unit with advanced control) 	<p>This accessory allows the terminal normally situated on the machine to be replicated on a support situated at a distance. It is particularly suitable when the unit is placed in an area that is not easily accessible.</p> <p>The accessory is supplied with the unit and is to be installed by the customer at a maximum distance of 120m from the unit.</p>
RMMT	Maximum and minimum voltage relay	This accessory constantly monitors the voltage value and the unit's power supply phase sequence. If the supply voltage does not fall within the set parameters or there is a phase reversal, an alarm is generated that stops the machine to prevent damage to its main parts.
IA	Automatic circuit breakers	With this accessory, automatic circuit breakers are installed for the protection of auxiliary loads and fans. Also, this accessory uses automatic circuit breakers with adjustable thermal overload protection to protect the compressors.
ARU	Stopping of the unit due to temperatures below the operating limit	<p>With this accessory, it is possible to set the unit so that the controller switches off the compressors when the unit is operating in heat pump mode and the external air temperature falls below a minimum set limit: this will prevent the unit from going into low pressure alarm, so avoiding having to manually restart the machine.</p> <p>At the same time, the control will enable a digital output that can be used for activating an auxiliary heat source.</p> <p>When the external air temperature returns above the set threshold temperature, the unit will automatically resume operation without it being necessary to do anything.</p> <p>For units equipped with integrated pump, the pump will always be kept running so as to prevent ice formation and ensure correct reading of the temperature and antifreeze safety probes at all times.</p> <p>The stopping temperature must be set based on the set point temperature and in accordance with what is allowed by the operating limits of the machine.</p> <p>With the default programming, the limit that considers a production of outgoing water at 45°C is set, therefore -7°C for standard units and -10°C for /HE and /SLN units.</p> <p>The same function can be used to set an external air temperature below which to use an alternative heat source because it is more efficient or economically more advantageous.</p>
NSS	Night Shift System 	<p>This accessory is applied to high efficiency /LN version units with speed adjuster or to SLN units.</p> <p>In the day time band, which is normally the one with the highest heat load, priority is given to efficiency and therefore the machine works with a fan control curve that maximises the EER. In this time band, therefore, the unit is a high efficiency low noise machine (equivalent to HE/LN)</p> <p>In the night time band, priority goes to keeping down the noise of the machine and therefore the control implements a reduction of the air flow rate using a specific speed adjuster control curve. So in this time band, the unit is a super low noise machine (equivalent to SLN).</p> <p>The time bands can be set from the control depending on installation requirements.</p>
SQE	Heater for electrical control panel	Electric heaters are positioned inside the electrical control panel and these prevent the formation of ice or condensation inside it.

CODE	Accessory	Operation and advantages
OTHER ACCESSORIES		
AG	Rubber anti-vibration mounts	These allow you to reduce the vibrations transmitted from the unit to the surface it is standing on. Accessory supplied with the unit.
AM	Spring anti-vibration mounts	These allow you to reduce the vibrations transmitted from the unit to the surface it is standing on. Accessory supplied with the unit.
MCHE	E-coated microchannel coil	<p>The e-coated microchannel coils are treated by immersion of the whole exchanger in an emulsion of organic resins, solvents, ionic stabilisers and deionised water. This is all subjected to a suitable electric field that causes the formation of a solid, uniform deposit on the exchanger. The function of this deposit will be to protect the aluminium from corrosion without penalising its thermophysical properties.</p> <p>The choice of whether or not to treat the exchanger should be made with regard to the environment in which the unit is to be installed and through observation of other structures and machinery with exposed metal surfaces present in the destination environment.</p> <p>The cross observation criterion is the most valid method of selection currently available without having to carry out preliminary tests or measurements with instruments. The identified reference environments are:</p> <ul style="list-style-type: none"> • marine coastal • industrial • urban with a high housing density • rural <p>Please note that in cases where different conditions co-exist, even for short periods, the choice must be suitable for preserving the exchanger in the harsher environmental conditions and not in conditions between the worst and best situation.</p> <p>Particular attention must be given to cases where an environment that is not particularly aggressive becomes aggressive as a consequence of a local and/or temporal concomitant cause such as, for example, due to the presence of a heating flue outlet or an industrial kitchen or a solvent extraction fan in a small craft business.</p> <p>Protective treatment of the exchanger is strongly recommended if at least one of the points below is verified:</p> <ul style="list-style-type: none"> • there are obvious signs of corrosion of the exposed metal surfaces in the installation area • the distance from the coast is less than 20 km • the prevailing winds come from the sea towards the unit • the environment is industrial with a significant concentration of pollutants • the environment is urban with a high population density • the environment is rural with the presence of organic discharges and effluents. <p>For installations within a kilometre of the coast, the use of Cu/Al coils with anti-corrosion treatment is strongly recommended for cooling only units too. This accessory is not available for HP version units.</p>
RAAL	Cu/Al coils	This accessory uses finned pack coils with copper tubes and aluminium fins instead of microchannel coils.
ALPR	Pre-painted aluminium coil	<p>This accessory uses finned pack coils with copper tubes and aluminium fins pre-painted with an anti-corrosion treatment. This accessory is available only for HP version units.</p> <p>The treatment is applied exclusively to finned pack coils with copper tubes and aluminium fins and consists of aluminium passivation and coating with a polyurethane base; a double layer of paint, of which the first passivates the aluminium and acts as primer and the second is a polyurethane based surface coating. The product has high resistance to corrosion and all environmental conditions.</p> <p>The choice of whether or not to treat the exchanger should be made with regard to the environment in which the unit is to be installed and through observation of other structures and machinery with exposed metal surfaces present in the destination environment.</p> <p>The cross observation criterion is the most valid method of selection currently available without having to carry out preliminary tests or measurements with instruments. The identified reference environments are:</p> <ul style="list-style-type: none"> • marine coastal • industrial • urban with a high housing density • rural <p>Please note that in cases where different conditions co-exist, even for short periods, the choice must be suitable for preserving the exchanger in the harsher environmental conditions and not in conditions between the worst and best situation.</p> <p>Particular attention must be given to cases where an environment that is not particularly aggressive becomes aggressive as a consequence of a local and/or temporal concomitant cause such as, for example, due to the presence of a heating flue outlet or an industrial kitchen or a solvent extraction fan in a small craft business.</p> <p>Protective treatment of the exchanger is strongly recommended if at least one of the points below is verified:</p> <ul style="list-style-type: none"> • there are obvious signs of corrosion of the exposed metal surfaces in the installation area • the distance from the coast is less than 20 km • the prevailing winds come from the sea towards the unit • the environment is industrial with a significant concentration of pollutants • the environment is urban with a high population density • the environment is rural with the presence of organic discharges and effluents. <p>For chiller units, this accessory also includes the "Cu/Al coil" accessory.</p>
ANTC	Coil treated with anti-corrosion paints	<p>Please note that in cases where different conditions co-exist, even for short periods, the choice must be suitable for preserving the exchanger in the harsher environmental conditions and not in conditions between the worst and best situation.</p> <p>Particular attention must be given to cases where an environment that is not particularly aggressive becomes aggressive as a consequence of a local and/or temporal concomitant cause such as, for example, due to the presence of a heating flue outlet or an industrial kitchen or a solvent extraction fan in a small craft business.</p> <p>Protective treatment of the exchanger is strongly recommended if at least one of the points below is verified:</p> <ul style="list-style-type: none"> • there are obvious signs of corrosion of the exposed metal surfaces in the installation area • the distance from the coast is less than 20 km • the prevailing winds come from the sea towards the unit • the environment is industrial with a significant concentration of pollutants • the environment is urban with a high population density • the environment is rural with the presence of organic discharges and effluents. <p>For chiller units, this accessory also includes the "Cu/Al coil" accessory.</p>

CODE	Accessory	Operation and advantages
PREA	Partially assembled construction	<p>The unit is delivered so that it can be disassembled easily on site if this makes the installation operations easier. A unit requested with this option is supplied:</p> <ul style="list-style-type: none"> • screwed instead of riveted • with plugged and not welded pipes • without refrigerant charge • untested • covered by the warranty only if reassembled and screwed together by personnel authorized by the factory
SLIT	Special pallet/skid for container shipment	The unit is placed on a skid that makes the container loading and unloading operations easier. The accessory is mandatory if shipping by container is required
GABB	Packaging in wooden crate	The unit is enclosed in a treated and ISPM 15 marked wooden crate. This accessory is strongly advised for shipping by container.
	Coil protection mesh	Safety mesh that protects people from accidentally touching the coil.
RETE	Coil protection mesh with metal filter	Safety mesh, which protects people from accidentally touching the coil, combined with an aluminium filter to protect the coil from leaves and hail. This accessory cannot be combined with HP units.
VASC	Condensation collection tank for HP units	<p>This accessory can be combined with HP units in order to collect the condensation that forms after each coil defrost cycle. The tank is made of stainless steel and is placed under the source-side heat exchanger, at a suitable distance.</p> <p>On the opposite sides of the tank, there are some 1" close nipples to allow the customer to connect a pipe to it for draining out the water so as not to cause harm or damage to people or objects.</p>
RAV	Anti-freeze heater for condensation collection tank	<p>A heating cable, glued to the bottom, can be combined with the condensation collection tank to prevent ice formation at the base of the coil or near the outlets.</p> <p>The heater is controlled by a thermostat and is activated depending on the external air temperature.</p>
FW	Water filter	To protect the elements of the hydraulic circuit (in particular, the exchangers), there are Y filters that can stop and settle the particles that are normally present in the water flow and would otherwise settle in the more delicate parts of the hydraulic circuit and damage its heat exchange capacity. Installation of the water filter is mandatory even when it is not supplied as an accessory. Accessory supplied with the unit.

TECHNICAL SPECIFICATIONS - ZETA REV

Unit Size			3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	12.2
ZETA REV											
Cooling (A35; W7)											
Refrigeration capacity	(1)	kW	40	45	53	60	67	81	93	102	116
Absorbed power	(1)	kW	14	17	20	21	24	26	31	36	42
EER	(1)		2,91	2,71	2,62	2,88	2,73	3,06	2,98	2,82	2,79
ESEER			4,15	4,11	4,07	4,19	4,09	4,20	4,25	4,12	4,03
Eurovent efficiency class			B	C	D	C	C	B	B	C	C
ZETA REV /HP											
Cooling (A35; W7)											
Refrigeration capacity	(1)	kW	40	45	52	59	66	80	90	98	114
Absorbed power	(1)	kW	14	17	20	21	25	27	32	38	43
EER	(1)		2,81	2,63	2,63	2,77	2,66	2,95	2,80	2,58	2,67
ESEER			4,08	4,07	4,08	4,11	4,05	4,20	4,25	4,05	3,96
Eurovent efficiency class			C	D	D	C	D	B	C	D	D
Heating (A7; W45)											
Heating capacity	(2)	kW	42	47	55	63	70	84	95	104	122
Absorbed power	(2)	kW	14	16	18	20	22	26	30	33	39
COP	(2)		3,08	3,00	3,06	3,16	3,18	3,19	3,18	3,12	3,10
Eurovent efficiency class			B	C	B	B	B	B	B	B	B
Compressors											
Quantity/Refrigerant circuits		n°/n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Minimum capacity reduction step		%	50%	50%	50%	50%	50%	50%	43%	50%	44%
Refrigerant charge (CH)	(5)	kg	4	4	4	6	6	9	9	9	10
Refrigerant charge (HP)	(6)	kg	11	12	12	17	18	23	26	26	26
Fans											
Quantity		n°	2	2	2	2	2	3	3	3	2
Air flow rate ZETA REV		m³/h	18.000	18.000	17.000	19.000	19.000	28.000	28.000	28.000	39.000
Air flow rate ZETA REV /HP		m³/h	16.000	16.000	15.000	18.000	18.000	26.000	26.000	26.000	36.000
User-side heat exchanger											
Quantity			1	1	1	1	1	1	1	1	1
Water flow rate ZETA REV	(1)	m³/h	7,0	7,8	9,2	10,3	11,5	14,0	16,0	17,6	20,1
Head losses ZETA REV	(1)	kPa	38	33	33	42	22	33	28	34	34
Water flow rate ZETA REV /HP	(1)	m³/h	6,9	7,7	9,0	10,1	11,4	13,8	15,6	16,9	19,7
	(2)	m³/h	7,2	8,1	9,5	10,8	12,0	14,3	16,2	17,8	20,8
Head losses ZETA REV /HP	(1)	kPa	35	31	32	40	21	31	26	30	32
	(2)	kPa	41	35	38	47	25	36	30	36	38
Hydraulic module											
Volume of the buffer tank		l	165	165	165	200	200	450	450	450	450
Volume of the expansion vessel		l	5	5	5	18	18	18	18	18	18
Pump model (STD)			P2	P2	P3	P4	P4	P5	P7	P7	P9
Available discharge head (1P)	(1)	kPa	145	135	162	133	148	168	177	165	172
Available discharge head (2P)	(1)	kPa	137	125	149	117	128	136	162	147	149
Pump model (OVS)			P1	P6	P6	P6	P6	P8	P8	P8	P11
Available discharge head (1PM)	(1)	kPa	255	237	233	218	232	322	320	298	295
Available discharge head (2PM)	(1)	kPa	247	227	221	202	212	291	305	280	271
Pump model (GLY)			P15	P15	P16	P16	P16	P17	P17	P18	P18
Available discharge head (1PG)	(1)	kPa	120	124	168	150	174	153	153	158	146
Available discharge head (2PG)	(1)	kPa	105	105	143	138	158	146	143	146	132
Noise levels											
Sound power level (-)	(3)	dB(A)	78	79	79	80	81	82	83	84	86
Sound pressure level (-)	(4)	dB(A)	46	48	48	48	49	50	51	52	54
Sound power level (LN)	(3)	dB(A)	76	77	77	78	79	80	81	82	84
Sound pressure level (LN)	(4)	dB(A)	44	46	46	46	47	48	49	50	52
Basic dimensions											
Length	(7)	mm	1.750	1.750	1.750	2.200	2.200	3.200	3.200	3.200	3.200
Depth		mm	1.000	1.000	1.000	1.000	1.000	1.100	1.100	1.100	1.100
Height		mm	1.400	1.400	1.400	1.740	1.740	1.740	1.740	1.740	1.880

- External air temperature 35°C; user-side heat exchanger inlet-outlet water temperature 12-7°C. Values compliant with standard EN 14511
- External air temperature 7°C DB, 6°C WB; user-side heat exchanger inlet-outlet water temperature 40-45°C. Values compliant with standard EN 14511
- Sound power levels calculated according to ISO 3744
- Sound pressure levels measured at a distance of 10 metres from the unit in free field and directivity factor Q=2
- The reading refers to the basic unit with microchannel coils
- The reading refers to the basic unit with Cu/Al coils
- The reading refers to the unit without pumps, tank or recovery Refer to the specific dimensional drawing if the unit is configured

TECHNICAL SPECIFICATIONS - ZETA REV

Unit Size			13.2	15.2	16.2	14.4	16.4	18.4	20.4	24.4
ZETA REV										
Cooling (A35; W7)										
Refrigeration capacity	(1)	kW	125	146	159	137	153	189	208	233
Absorbed power	(1)	kW	48	53	62	47	58	62	72	83
EER	(1)		2,61	2,76	2,58	2,89	2,64	3,04	2,88	2,81
ESEER			3,86	4,03	3,92	4,21	4,11	4,28	4,22	4,18
Eurovent efficiency class			D	C	D	C	D	B	C	C
ZETA REV /HP										
Cooling (A35; W7)										
Refrigeration capacity	(1)	kW	123	141	153	132	148	182	199	224
Absorbed power	(1)	kW	49	55	65	49	60	65	76	87
EER	(1)		2,51	2,57	2,37	2,69	2,45	2,81	2,62	2,58
ESEER			3,79	3,92	3,80	4,15	4,05	3,95	3,83	3,84
Eurovent efficiency class			D	D	E	D	E	C	D	D
Heating (A7; W45)										
Heating capacity	(2)	kW	133	153	168	143	162	194	212	238
Absorbed power	(2)	kW	43	49	55	45	52	61	68	78
COP	(2)		3,06	3,13	3,08	3,18	3,12	3,18	3,11	3,04
Eurovent efficiency class			B	B	B	B	B	B	B	B
Compressors										
Quantity/Refrigerant circuits		n°/n°	2/1	2/1	2/1	4/2	4/2	4/2	4/2	4/2
Minimum capacity reduction step		%	50%	45%	50%	25%	25%	21%	25%	22%
Refrigerant charge (CH)	(5)	kg	10	16	16	16	16	25	25	25
Refrigerant charge (HP)	(6)	kg	26	40	40	43	44	56	56	56
Fans										
Quantity		n°	2	2	2	2	2	3	3	4
Air flow rate ZETA REV		m³/h	39.000	42.000	42.000	42.000	42.000	63.000	63.000	76.000
Air flow rate ZETA REV /HP		m³/h	36.000	40.000	40.000	40.000	40.000	58.000	58.000	70.000
User-side heat exchanger										
Quantity			1	1	1	2	2	2	2	2
Water flow rate ZETA REV	(1)	m³/h	21,6	25,3	27,5	23,6	26,5	32,7	35,9	40,3
Head losses ZETA REV	(1)	kPa	39	35	41	23	28	29	35	34
Water flow rate ZETA REV /HP	(1)	m³/h	21,2	24,4	26,4	22,8	25,6	31,5	34,3	38,7
	(2)	m³/h	22,7	26,2	28,8	24,6	27,8	33,3	36,3	40,8
Head losses ZETA REV /HP	(1)	kPa	37	32	37	21	26	26	31	31
	(2)	kPa	45	39	46	25	32	31	37	36
Hydraulic module										
Volume of the buffer tank		l	450	390	390	390	390	700	700	700
Volume of the expansion vessel		l	18	18	18	18	18	18	18	18
Pump model (STD)			P9	P9	P10	P9	P10	P10	P10	P13
Available discharge head (1P)	(1)	kPa	160	157	184	170	194	176	153	218
Available discharge head (2P)	(1)	kPa	133	120	140	138	153	156	129	188
Pump model (OVS)			P11	P11	P12	P11	P12	P12	P12	P14
Available discharge head (1PM)	(1)	kPa	283	279	334	292	344	324	300	281
Available discharge head (2PM)	(1)	kPa	256	242	290	260	303	304	276	250
Pump model (GLY)			P19	P19	P19	P18	P19	P19	P20	P20
Available discharge head (1PG)	(1)	kPa	175	169	148	142	159	126	192	171
Available discharge head (2PG)	(1)	kPa	157	157	133	131	145	118	182	159
Noise levels										
Sound power level (-)	(3)	dB(A)	87	87	87	84	85	87	89	90
Sound pressure level (-)	(4)	dB(A)	55	55	55	52	53	55	57	58
Sound power level (LN)	(3)	dB(A)	85	85	85	82	83	85	87	88
Sound pressure level (LN)	(4)	dB(A)	53	53	53	50	51	53	55	56
Basic dimensions										
Length	(7)	mm	3.200	3.200	3.200	3.200	3.200	4.200	4.200	4.200
Depth		mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height		mm	1.880	2.380	2.380	2.380	2.380	2.380	2.380	2.380

- External air temperature 35°C; user-side heat exchanger inlet-outlet water temperature 12-7°C. Values compliant with standard EN 14511
- External air temperature 7°C DB, 6°C WB; user-side heat exchanger inlet-outlet water temperature 40-45°C. Values compliant with standard EN 14511
- Sound power levels calculated according to ISO 3744
- Sound pressure levels measured at a distance of 10 metres from the unit in free field and directivity factor Q=2
- The reading refers to the basic unit with microchannel coils
- The reading refers to the basic unit with Cu/Al coils
- The reading refers to the unit without pumps, tank or recovery Refer to the specific dimensional drawing if the unit is configured

TECHNICAL SPECIFICATIONS - ZETA REV LE

Unit Size			3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	12.2
ZETA REV											
Cooling (A35; W7)											
Refrigeration capacity	(1)	kW	46	51	58	68	73	92	104	115	131
Absorbed power	(1)	kW	14	17	21	21	25	27	32	38	43
EER	(1)		3,21	2,96	2,77	3,17	2,90	3,38	3,22	3,05	3,03
ZETA REV /HP											
Cooling (A35; W7)											
Refrigeration capacity	(1)	kW	45	51	59	67	73	92	102	111	129
Absorbed power	(1)	kW	15	18	21	22	26	28	34	40	45
EER	(1)		3,10	2,86	2,88	3,04	2,80	3,28	3,02	2,76	2,88
Heating (A7; W45)											
Heating capacity	(2)	kW	42	47	55	65	72	87	96	104	123
Absorbed power	(2)	kW	11	12	14	16	18	21	24	27	32
COP	(2)		3,85	3,76	3,89	4,08	4,06	4,11	3,99	3,86	3,85
Compressors											
Quantity/Refrigerant circuits		n°/n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Minimum capacity reduction step		%	50%	50%	50%	50%	50%	50%	43%	50%	44%
Fans											
Quantity		n°	2	2	2	2	2	3	3	3	2
Air flow rate ZETA REV		m³/h	18.000	18.000	17.000	19.000	19.000	28.000	28.000	28.000	39.000
Air flow rate ZETA REV /HP		m³/h	16.000	16.000	15.000	18.000	18.000	26.000	26.000	26.000	36.000
Noise levels											
Sound power level (-)	(3)	dB(A)	78	79	79	80	81	82	83	84	86
Sound pressure level (-)	(4)	dB(A)	46	48	48	48	49	50	51	52	54
Sound power level (LN)	(3)	dB(A)	76	77	77	78	79	80	81	82	84
Sound pressure level (LN)	(4)	dB(A)	44	46	46	46	47	48	49	50	52
Basic dimensions											
Length		mm	1.750	1.750	1.750	2.200	2.200	3.200	3.200	3.200	3.200
Depth		mm	1.000	1.000	1.000	1.000	1.000	1.100	1.100	1.100	1.100
Height		mm	1.400	1.400	1.400	1.740	1.740	1.740	1.740	1.740	1.880

Unit Size			13.2	15.2	16.2	14.4	16.4	18.4	20.4	24.4
ZETA REV										
Cooling (A35; W7)										
Refrigeration capacity	(1)	kW	140	164	178	153	171	210	235	263
Absorbed power	(1)	kW	50	55	65	49	61	65	75	86
EER	(1)		2,82	2,97	2,74	3,09	2,82	3,25	3,12	3,05
ZETA REV /HP										
Cooling (A35; W7)										
Refrigeration capacity	(1)	kW	138	159	169	148	165	206	224	252
Absorbed power	(1)	kW	51	58	68	52	63	68	81	92
EER	(1)		2,69	2,73	2,48	2,86	2,60	3,02	2,78	2,75
Heating (A7; W45)										
Heating capacity	(2)	kW	133	155	168	145	163	196	213	237
Absorbed power	(2)	kW	35	40	44	36	42	50	55	64
COP	(2)		3,77	3,89	3,81	3,98	3,86	3,94	3,84	3,72
Compressors										
Quantity/Refrigerant circuits		n°/n°	2/1	2/1	2/1	4/2	4/2	4/2	4/2	4/2
Minimum capacity reduction step		%	50%	45%	50%	25%	25%	21%	25%	22%
Fans										
Quantity		n°	2	2	2	2	2	3	3	4
Air flow rate ZETA REV		m³/h	39.000	42.000	42.000	42.000	42.000	63.000	63.000	76.000
Air flow rate ZETA REV /HP		m³/h	36.000	40.000	40.000	40.000	40.000	58.000	58.000	70.000
Noise levels										
Sound power level (-)	(3)	dB(A)	87	87	87	84	85	87	89	90
Sound pressure level (-)	(4)	dB(A)	55	55	55	52	53	55	57	58
Sound power level (LN)	(3)	dB(A)	85	85	85	82	83	85	87	88
Sound pressure level (LN)	(4)	dB(A)	53	53	53	50	51	53	55	56
Basic dimensions										
Length		mm	3.200	3.200	3.200	3.200	3.200	4.200	4.200	4.200
Depth		mm	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height		mm	1.880	2.380	2.380	2.380	2.380	2.380	2.380	2.380

- External air temperature 35°C; evaporating temperature 7.5°C
- External air temperature 7°C DB, 6°C WB; condensing temperature 40°C
- Sound power levels calculated according to ISO 3744
- Sound pressure levels measured at a distance of 10 metres from the unit in free field and directivity factor Q=2

TECHNICAL SPECIFICATIONS - ZETA REV HE

Unit Size		3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	12.2	13.2	15.2	16.2	14.4	16.4
ZETA REV HE															
Cooling (A35; W7)															
Refrigeration capacity	(1) kW	42	49	58	63	72	87	101	111	128	139	159	179	144	171
Absorbed power	(1) kW	13	15	19	19	23	27	32	35	41	43	50	57	45	54
EER	(1)	3,25	3,20	3,11	3,26	3,19	3,17	3,13	3,15	3,13	3,21	3,16	3,13	3,18	3,14
ESEER		4,39	4,35	4,37	4,48	4,36	4,20	4,25	4,22	4,23	4,27	4,26	4,24	4,30	4,26
Eurovent efficiency class		A	A	A	A	A	A	A	A	A	A	A	A	A	A
ZETA REV HE/HP															
Cooling (A35; W7)															
Refrigeration capacity	(1) kW	42	51	58	62	71	86	100	111	129	140	160	183	145	173
Absorbed power	(1) kW	14	16	19	20	23	28	32	36	41	44	51	59	47	56
EER	(1)	3,10	3,10	3,10	3,18	3,12	3,11	3,10	3,11	3,10	3,15	3,12	3,10	3,11	3,10
ESEER		4,29	4,30	4,37	4,42	4,32	4,20	4,25	4,21	4,22	4,23	4,24	4,22	4,28	4,25
Eurovent efficiency class		A	A	A	A	A	A	A	A	A	A	A	A	A	A
Heating (A7; W45)															
Heating capacity	(2) kW	43	49	57	65	73	89	100	112	124	143	161	178	150	173
Absorbed power	(2) kW	13	15	18	20	22	27	31	35	39	44	50	55	46	53
COP	(2)	3,21	3,21	3,25	3,26	3,29	3,22	3,21	3,23	3,20	3,23	3,23	3,22	3,26	3,26
Eurovent efficiency class		A	A	A	A	A	A	A	A	A	A	A	A	A	A
Compressors															
Quantity/Refrigerant circuits	n°/n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	4/2	4/2
Minimum capacity reduction step	%	50%	50%	50%	50%	50%	50%	43%	50%	44%	50%	45%	50%	25%	25%
Refrigerant charge (CH)	(5) kg	6	6	6	10	10	10	10	15	16	24	24	25	25	25
Refrigerant charge (HP)	(6) kg	12	13	17	28	28	28	28	41	41	55	55	55	57	57
Fans															
Quantity	n°	2	2	2	3	3	2	2	2	2	3	3	3	3	3
Air flow rate ZETA REV HE	m³/h	19.000	19.000	19.000	28.000	28.000	39.000	39.000	42.000	42.000	63.000	63.000	63.000	63.000	63.000
Air flow rate ZETA REV HE/HP	m³/h	18.000	18.000	18.000	26.000	26.000	36.000	36.000	40.000	40.000	58.000	58.000	58.000	58.000	58.000
User-side heat exchanger															
Quantity		1	1	1	1	1	1	1	1	1	1	1	1	2	2
Water flow rate ZETA REV HE	(1) m³/h	7,3	8,5	10,1	10,9	12,5	15,1	17,4	19,2	22,1	24,0	27,4	31,0	25,0	29,6
Head losses ZETA REV HE	(1) kPa	25	23	28	27	33	44	41	52	48	42	50	47	34	43
Water flow rate ZETA REV HE/HP	(1) m³/h	7,3	8,7	10,0	10,8	12,3	14,9	17,3	19,2	22,2	24,1	27,7	31,6	25,0	29,9
	(2) m³/h	7,3	8,4	9,8	11,2	12,6	15,2	17,0	19,1	21,2	24,5	27,6	30,5	25,7	29,6
Head losses ZETA REV HE/HP	(1) kPa	23	20	28	26	31	43	39	49	46	39	47	43	32	40
	(2) kPa	25	22	30	27	34	47	43	53	51	42	52	48	35	45
Hydraulic module															
Volume of the buffer tank	l	165	165	200	200	200	450	450	450	450	700	700	700	700	700
Volume of the expansion vessel	l	5	5	18	18	18	18	18	18	18	18	18	18	18	18
Pump model (STD)		P2	P2	P3	P4	P4	P5	P7	P7	P9	P9	P9	P10	P9	P10
Available discharge head (1P)	(1) kPa	145	128	146	141	136	159	159	143	159	160	141	174	156	175
Available discharge head (2P)	(1) kPa	136	116	131	120	126	145	142	121	132	148	126	156	143	158
Pump model (OVS)		P1	P6	P6	P6	P6	P8	P8	P8	P11	P11	P11	P12	P11	P12
Available discharge head (1PM)	(1) kPa	247	244	234	226	220	311	295	264	281	282	263	323	278	324
Available discharge head (2PM)	(1) kPa	238	232	219	204	210	297	278	242	254	270	248	305	265	307
Pump model (GLY)		P15	P15	P16	P16	P16	P17	P17	P18	P18	P19	P19	P19	P18	P19
Available discharge head (1PG)	(1) kPa	142	141	176	171	153	130	126	124	121	165	138	126	112	121
Available discharge head (2PG)	(1) kPa	135	132	164	166	146	121	115	116	112	160	132	118	107	114
Noise levels															
Sound power level (-)	(3) dB(A)	78	79	79	80	81	83	85	87	86	88	88	88	85	86
Sound pressure level (-)	(4) dB(A)	46	48	48	48	49	51	53	55	54	56	56	56	53	54
Sound power level (LN)	(3) dB(A)	76	77	77	78	79	81	83	85	84	86	86	86	83	84
Sound pressure level (LN)	(4) dB(A)	44	46	46	46	47	49	51	53	52	54	54	54	51	52
Basic dimensions ZETA REV HE															
Length	(7) mm	2.200	2.200	2.200	3.200	3.200	3.200	3.200	3.200	3.200	4.200	4.200	4.200	4.200	4.200
Depth	mm	1.000	1.000	1.000	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	1.740	1.740	1.740	1.740	1.740	1.880	1.880	2.380	2.380	2.380	2.380	2.380	2.380	2.380
Basic dimensions ZETA REV HE/HP															
Length	(7) mm	1.750	1.750	2.200	3.200	3.200	3.200	3.200	3.200	3.200	4.200	4.200	4.200	4.200	4.200
Depth	mm	1.000	1.000	1.000	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	1.400	1.400	1.740	1.740	1.740	1.880	1.880	2.380	2.380	2.380	2.380	2.380	2.380	2.380

- External air temperature 35°C; user-side heat exchanger inlet-outlet water temperature 12-7°C. Values compliant with standard EN 14511
- External air temperature 7°C DB, 6°C WB; user-side heat exchanger inlet-outlet water temperature 40-45°C. Values compliant with standard EN 14511
- Sound power levels calculated according to ISO 3744
- Sound pressure levels measured at a distance of 10 metres from the unit in free field and directivity factor Q=2
- The reading refers to the basic unit with microchannel coils
- The reading refers to the basic unit with Cu/Al coils
- The reading refers to the unit without pumps, tank or recovery Refer to the specific dimensional drawing if the unit is configured

TECHNICAL SPECIFICATIONS - ZETA REV SLN

Unit Size		3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2	12.2	13.2	15.2	16.2	14.4	16.4
ZETA REV SLN															
Cooling (A35; W7)															
Refrigeration capacity	(1) kW	41	46	52	62	71	84	95	106	117	137	154	170	142	162
Absorbed power	(1) kW	14	17	20	20	24	27	32	36	42	44	52	60	47	57
EER	(1)	2,95	2,77	2,64	3,09	2,99	3,08	2,97	2,93	2,77	3,08	2,97	2,84	3,01	2,84
ESEER		4,18	4,14	4,09	4,35	4,24	4,20	4,25	4,16	4,02	4,18	4,15	4,07	4,25	4,17
Eurovent efficiency class		B	C	D	B	B	B	B	B	C	B	B	C	B	C
ZETA REV SLN/HP															
Cooling (A35; W7)															
Refrigeration capacity	(1) kW	39	44	50	60	68	81	92	102	112	132	148	163	137	157
Absorbed power	(1) kW	14	17	21	21	24	28	33	37	43	45	53	61	48	58
EER	(1)	2,77	2,58	2,44	2,90	2,81	2,92	2,79	2,75	2,58	2,92	2,80	2,66	2,88	2,72
ESEER		4,05	4,05	3,96	4,21	4,14	4,20	4,25	4,10	3,90	4,07	4,05	3,97	4,21	4,13
Eurovent efficiency class		C	D	E	B	C	B	C	C	D	B	C	D	C	C
Heating (A7; W45)															
Heating capacity	(2) kW	43	49	57	65	73	89	100	112	124	143	161	178	150	173
Absorbed power	(2) kW	13	15	18	20	22	27	31	35	39	44	50	55	46	53
COP	(2)	3,21	3,21	3,25	3,26	3,29	3,22	3,21	3,23	3,20	3,23	3,23	3,22	3,26	3,26
Eurovent efficiency class		A	A	A	A	A	A	A	A	A	A	A	A	A	A
Compressors															
Quantity/Refrigerant circuits	n°/n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	2/1	4/2	4/2
Minimum capacity reduction step	%	50%	50%	50%	50%	50%	50%	43%	50%	44%	50%	45%	50%	25%	25%
Refrigerant charge (CH)	(5) kg	6	6	6	10	10	10	10	15	16	24	24	25	25	25
Refrigerant charge (HP)	(6) kg	12	13	17	28	28	28	28	41	41	55	55	55	57	57
Fans															
Quantity	n°	2	2	2	3	3	2	2	2	2	3	3	3	3	3
Air flow rate ZETA REV SLN	m³/h	13.000	13.000	13.000	20.000	20.000	32.000	32.000	32.000	32.000	48.000	48.000	48.000	48.000	48.000
Air flow rate ZETA REV SLN/HP	m³/h	18.000	18.000	18.000	26.000	26.000	36.000	36.000	40.000	40.000	58.000	58.000	58.000	58.000	58.000
User-side heat exchanger															
Quantity		1	1	1	1	1	1	1	1	1	1	1	1	2	2
Water flow rate ZETA REV SLN	(1) m³/h	7,0	8,0	9,1	10,8	12,2	14,4	16,3	18,4	20,3	23,6	26,6	29,3	24,4	28,0
Head losses ZETA REV SLN	(1) kPa	22	20	25	25	31	43	39	49	45	39	47	43	32	39
Water flow rate ZETA REV SLN/HP	(1) m³/h	7,3	8,7	10,0	10,8	12,3	14,9	17,3	19,2	22,2	24,1	27,7	31,6	25,0	29,9
	(2) m³/h	7,3	8,4	9,8	11,2	12,6	15,2	17,0	19,1	21,2	24,5	27,6	30,5	25,7	29,6
Head losses ZETA REV SLN/HP	(1) kPa	23	20	28	26	31	43	39	49	46	39	47	43	32	40
	(2) kPa	25	22	30	27	34	47	43	53	51	42	52	48	35	45
Hydraulic module															
Volume of the buffer tank	l	165	165	200	200	200	450	450	450	450	700	700	700	700	700
Volume of the expansion vessel	l	5	5	18	18	18	18	18	18	18	18	18	18	18	18
Pump model (STD)		P2	P2	P3	P4	P4	P5	P7	P7	P9	P9	P9	P10	P9	P10
Available discharge head (1P)	(1) kPa	145	128	146	141	136	159	159	143	159	160	141	174	156	175
Available discharge head (2P)	(1) kPa	136	116	131	120	126	145	142	121	132	148	126	156	143	158
Pump model (OVS)		P1	P6	P6	P6	P6	P8	P8	P8	P11	P11	P11	P11	P11	P12
Available discharge head (1PM)	(1) kPa	247	244	234	226	220	311	295	264	281	282	263	323	278	324
Available discharge head (2PM)	(1) kPa	238	232	219	204	210	297	278	242	254	270	248	305	265	307
Pump model (GLY)		P15	P15	P16	P16	P16	P17	P17	P18	P18	P19	P19	P19	P18	P19
Available discharge head (1PG)	(1) kPa	142	141	176	171	153	130	126	124	121	165	138	126	112	121
Available discharge head (2PG)	(1) kPa	135	132	164	166	146	121	115	116	112	160	132	118	107	114
Noise levels															
Sound power level	(3) dB(A)	74	75	75	76	77	78	79	80	82	83	83	83	80	81
Sound pressure level	(4) dB(A)	42	44	44	44	45	46	47	48	50	51	51	51	48	49
Basic dimensions ZETA REV SLN															
Length	(7) mm	2.200	2.200	2.200	3.200	3.200	3.200	3.200	3.200	3.200	4.200	4.200	4.200	4.200	4.200
Depth	mm	1.000	1.000	1.000	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	1.740	1.740	1.740	1.740	1.740	1.880	1.880	2.380	2.380	2.380	2.380	2.380	2.380	2.380
Basic dimensions ZETA REV SLN/HP															
Length	(7) mm	1.750	1.750	2.200	3.200	3.200	3.200	3.200	3.200	3.200	4.200	4.200	4.200	4.200	4.200
Depth	mm	1.000	1.000	1.000	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
Height	mm	1.400	1.400	1.740	1.740	1.740	1.880	1.880	2.380	2.380	2.380	2.380	2.380	2.380	2.380

- External air temperature 35°C; user-side heat exchanger inlet-outlet water temperature 12-7°C. Values compliant with standard EN 14511
- External air temperature 7°C DB, 6°C WB; user-side heat exchanger inlet-outlet water temperature 40-45°C. Values compliant with standard EN 14511
- Sound power levels calculated according to ISO 3744
- Sound pressure levels measured at a distance of 10 metres from the unit in free field and directivity factor Q=2
- The reading refers to the basic unit with microchannel coils
- The reading refers to the basic unit with Cu/Al coils
- The reading refers to the unit without pumps, tank or recovery Refer to the specific dimensional drawing if the unit is configured

ELECTRICAL SPECIFICATIONS - ZETA REV - ZETA REV LE

Unit Size		3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2
Max. absorbed power	kW	19,2	21,4	25,2	27,6	32,0	38,6	45,1	51,6
Max. absorbed current	A	34,4	40,0	46,6	51,2	56,0	68,5	74,7	80,9
Max. inrush current	A	121	134	144	146	171	212	263	269
Max. inrush current with soft-starter	A	80	89	97	99	115	143	173	179
Nominal power of standard fan	n° x kW	2 x 0,6	2 x 0,6	2 x 0,6	2 x 0,6	2 x 0,6	3 x 0,6	3 x 0,6	3 x 0,6
Nominal current of standard fan	n° x A	2 x 2,6	2 x 2,6	2 x 2,6	2 x 2,6	2 x 2,6	3 x 2,6	3 x 2,6	3 x 2,6
Nominal power of EC fan	n° x kW	2 x 0,8	2 x 0,8	2 x 0,8	2 x 0,8	2 x 0,8	3 x 0,8	3 x 0,8	3 x 0,8
Nominal current of EC fan	n° x A	2 x 1,4	2 x 1,4	2 x 1,4	2 x 1,4	2 x 1,4	3 x 1,4	3 x 1,4	3 x 1,4
Nominal power of EC OVS fan	n° x kW	2 x 1,0	2 x 1,0	2 x 1,0	2 x 1,0	2 x 1,0	3 x 1,0	3 x 1,0	3 x 1,0
Nominal current of EC OVS fan	n° x A	2 x 1,6	2 x 1,6	2 x 1,6	2 x 1,6	2 x 1,6	3 x 1,6	3 x 1,6	3 x 1,6
Power supply	V/ph/Hz	400/3~+N/50							
Power supply for auxiliary circuits	V/ph/Hz	230-24/1~/50							

Unit Size		12.2	13.2	15.2	16.2	14.4	16.4	18.4	20.4	24.4
Max. absorbed power	kW	59,6	65,4	72,7	80,0	65,5	77,6	92,6	105,6	119,2
Max. absorbed current	A	89,7	97,8	112,5	127,2	110,2	129,8	146,5	158,9	179,4
Max. inrush current	A	317	325	363	378	225	274	335	347	407
Max. inrush current with soft-starter	A	208	216	239	254	169	204	245	257	298
Nominal power of standard fan	n° x kW	2 x 2,0	2 x 2,0	2 x 2,0	2 x 2,0	2 x 2,0	2 x 2,0	3 x 2,0	3 x 2,0	4 x 2,0
Nominal current of standard fan	n° x A	2 x 4,3	2 x 4,3	2 x 4,3	2 x 4,3	2 x 4,3	2 x 4,3	3 x 4,3	3 x 4,3	4 x 4,3
Nominal power of EC fan	n° x kW	2 x 1,9	2 x 1,9	2 x 1,9	2 x 1,9	2 x 1,9	2 x 1,9	3 x 1,9	3 x 1,9	4 x 1,9
Nominal current of EC fan	n° x A	2 x 2,9	2 x 2,9	2 x 2,9	2 x 2,9	2 x 2,9	2 x 2,9	3 x 2,9	3 x 2,9	4 x 2,9
Nominal power of EC OVS fan	n° x kW	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0	3 x 3,0	3 x 3,0	4 x 3,0
Nominal current of EC OVS fan	n° x A	2 x 4,5	2 x 4,5	2 x 4,5	2 x 4,5	2 x 4,5	2 x 4,5	3 x 4,5	3 x 4,5	4 x 4,5
Power supply	V/ph/Hz	400/3~/50								
Power supply for auxiliary circuits	V/ph/Hz	230-24/1~/50								

ELECTRICAL SPECIFICATIONS - ZETA REV HE - ZETA REV SLN

GratiGizza Unità		3.2	4.2	5.2	6.2	7.2	8.2	9.2	10.2
Max. absorbed power	kW	19,2	21,4	25,2	28,2	32,6	40,8	47,3	53,8
Max. absorbed current	A	34,4	40,0	46,6	53,9	58,7	69,2	75,4	81,6
Max. inrush current	A	121	134	144	149	173	213	264	270
Max. inrush current with soft-starter	A	80	89	97	102	117	143	174	180
Nominal power of standard fan	n° x kW	2 x 0,6	2 x 0,6	2 x 0,6	3 x 0,6	3 x 0,6	2 x 2,0	2 x 2,0	2 x 2,0
Nominal current of standard fan	n° x A	2 x 2,6	2 x 2,6	2 x 2,6	3 x 2,6	3 x 2,6	2 x 4,3	2 x 4,3	2 x 4,3
Nominal power of EC fan	n° x kW	2 x 0,8	2 x 0,8	2 x 0,8	3 x 0,8	3 x 0,8	2 x 1,9	2 x 1,9	2 x 1,9
Nominal current of EC fan	n° x A	2 x 1,4	2 x 1,4	2 x 1,4	3 x 1,4	3 x 1,4	2 x 2,9	2 x 2,9	2 x 2,9
Nominal power of EC OVS fan	n° x kW	2 x 1,0	2 x 1,0	2 x 1,0	3 x 1,0	3 x 1,0	2 x 3,0	2 x 3,0	2 x 3,0
Nominal current of EC OVS fan	n° x A	2 x 1,6	2 x 1,6	2 x 1,6	3 x 1,6	3 x 1,6	2 x 4,5	2 x 4,5	2 x 4,5
Power supply	V/ph/Hz	400/3~+N/50							
Power supply for auxiliary circuits	V/ph/Hz	230-24/1~/50							

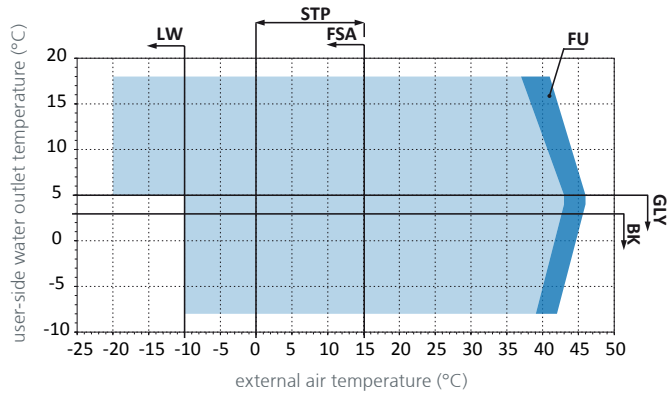
GratiGizza Unità		12.2	13.2	15.2	16.2	14.4	16.4	
Max. absorbed power	kW	59,6	67,4	74,7	82,0	67,5	79,6	
Max. absorbed current	A	89,7	102,1	116,8	131,5	114,5	134,1	
Max. inrush current	A	317	330	368	382	229	278	
Max. inrush current with soft-starter	A	208	221	244	258	173	208	
Nominal power of standard fan	n° x kW	2 x 2,0	3 x 2,0	3 x 2,0	3 x 2,0	3 x 2,0	3 x 2,0	
Nominal current of standard fan	n° x A	2 x 4,3	3 x 4,3	3 x 4,3	3 x 4,3	3 x 4,3	3 x 4,3	
Nominal power of EC fan	n° x kW	2 x 1,9	3 x 1,9	3 x 1,9	3 x 1,9	3 x 1,9	3 x 1,9	
Nominal current of EC fan	n° x A	2 x 2,9	3 x 2,9	3 x 2,9	3 x 2,9	3 x 2,9	3 x 2,9	
Nominal power of EC OVS fan	n° x kW	2 x 3,0	3 x 3,0	3 x 3,0	3 x 3,0	3 x 3,0	3 x 3,0	
Nominal current of EC OVS fan	n° x A	2 x 4,5	3 x 4,5	3 x 4,5	3 x 4,5	3 x 4,5	3 x 4,5	
Power supply	V/ph/Hz	400/3~+N/50						
Power supply for auxiliary circuits	V/ph/Hz	230-24/1~/50						

RATED DATA FOR PUMPS

Model	Nominal power	Nominal current	Qmin	Qmax
	kW	A	m ³ /h	m ³ /h
P1	1.1	2.7	3.0	9.0
P2	0.9	2.1	3.6	9.6
P3	0.9	2.4	3.6	9.6
P4	1.1	2.5	7.0	18.0
P5	1.5	3.2	7.0	18.0
P6	1.9	4.2	7.0	18.0
P7	1.9	4.5	12.0	31.2
P8	3.0	6.1	6.0	20.0
P9	2.2	4.5	12.0	42.0
P10	3.0	6.1	12.0	42.0
P11	4.0	8.7	12.0	42.0
P12	5.5	10.4	12.0	42.0
P13	5.5	10.4	24.0	72.0
P14	7.5	13.7	24.0	72.0

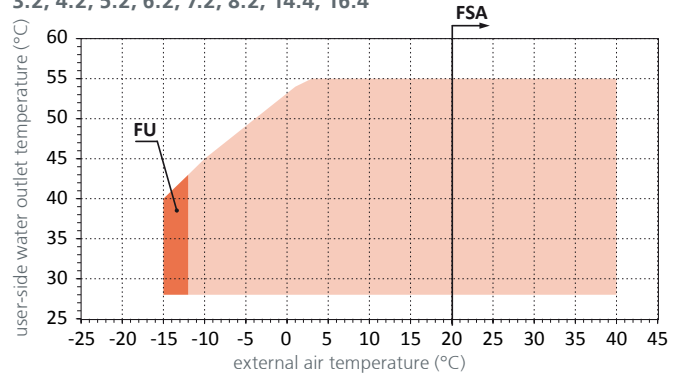
OPERATING LIMITS - ZETA REV

COOLING

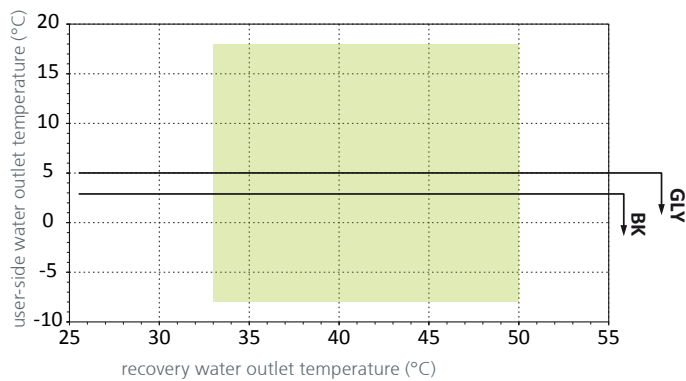


HEATING

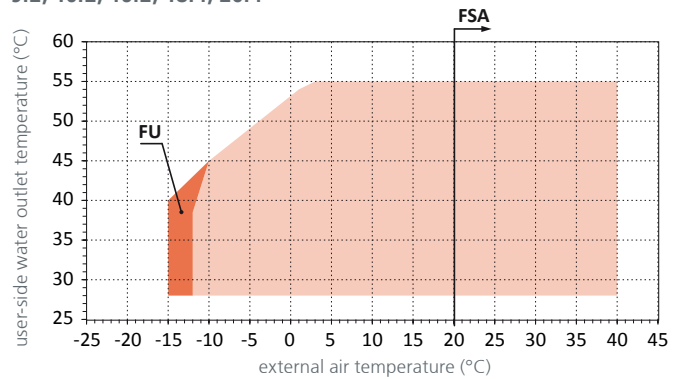
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3.2, 4.2, 5.2, 6.2, 7.2, 8.2, 14.4, 16.4



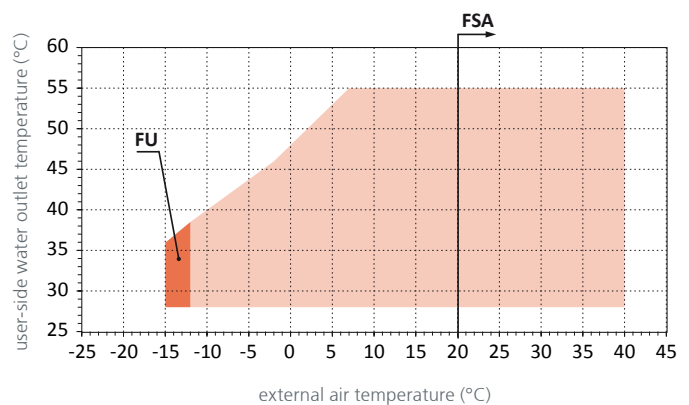
RECOVERY



valid for sizes
9.2, 10.2, 16.2, 18.4, 20.4



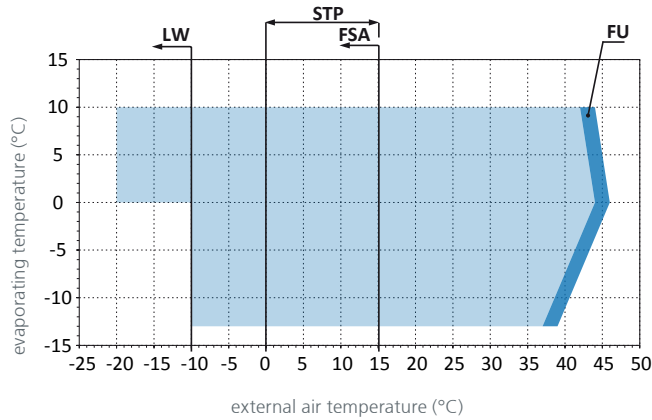
valid for sizes
12.2, 13.2, 15.2, 24.4



STP (Condensing control by steps): for external air temperatures of between +15°C and 0°C, the unit can work only if equipped with the "Condensing control by steps" accessory. For temperatures below 0°C, the unit can work only if fitted with the accessories indicated in the FSA note.
 FSA (Fan Speed Adjuster): in the area indicated by the arrow, it is mandatory to include the "Fan speed adjuster" or "EC fans" accessory.
 LW (Less Wind): in the area indicated by the arrow, the unit can work only if there is no wind.
 FU (Forced Unloading): in the indicated area, the control could actuate a forced capacity reduction of the compressors so as to prevent tripping of the safety devices.
 INV (INverter pump on user side): the use of the "Inverter pump on user side" accessory is allowed only in the area indicated by the arrow. For different conditions, please contact our sales department.
 GLY (GLYcol): for SET point temperatures below 5°C, it is mandatory to use suitable percentages of antifreeze additives (glycols) to prevent ice formation in the exchanger.
 BK (Brine Kit): for SET point temperatures below 3°C, it is mandatory to use the "Brine Kit" accessory.

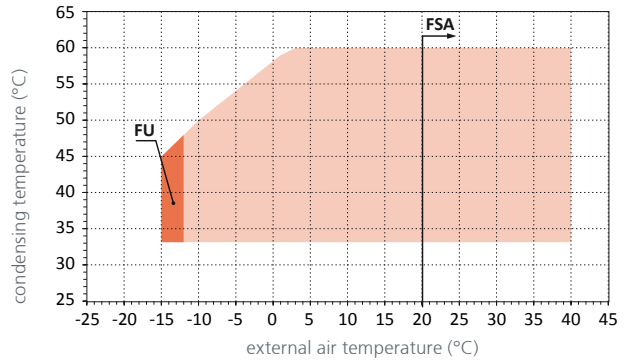
OPERATING LIMITS - ZETA REV LE

COOLING

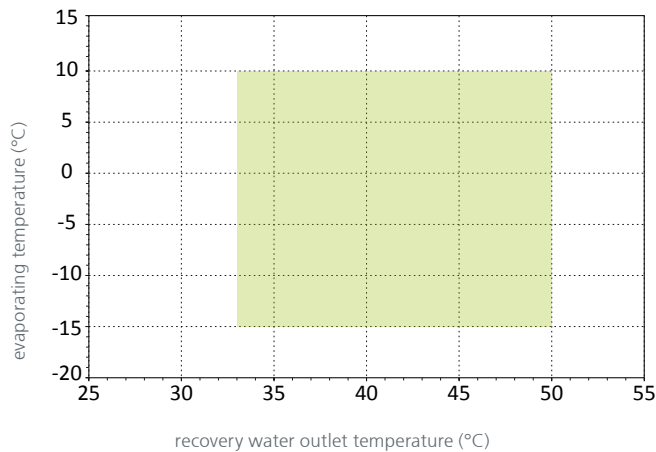


HEATING

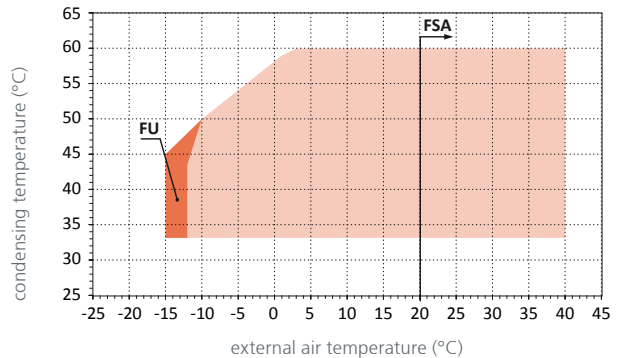
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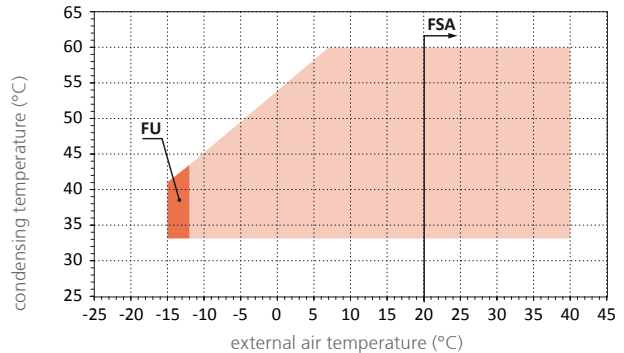
RECOVERY



valid for sizes
9.2, 10.2, 16.2, 18.4, 20.4



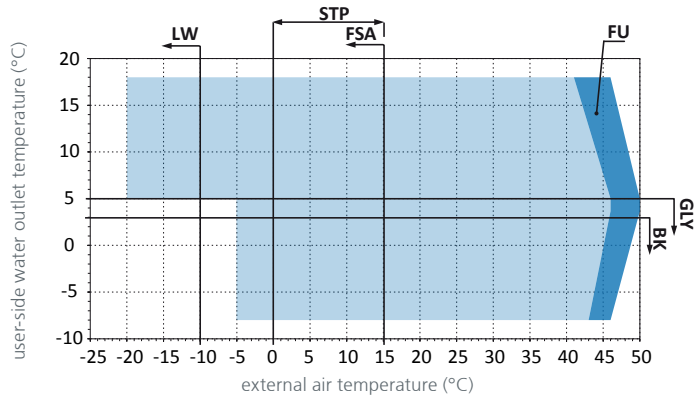
valid for sizes
12.2, 13.2, 15.2, 24.4



STP (Condensing control by steps): for external air temperatures of between +15°C and 0°C, the unit can work only if equipped with the "Condensing control by steps" accessory. For temperatures below 0°C, the unit can work only if fitted with the accessories indicated in the FSA note.
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 LW (Less Wind): in the area indicated by the arrow, the unit can work only if there is no wind.
 FU (Forced Unloading): in the indicated area, the control could actuate a forced capacity reduction of the compressors so as to prevent tripping of the safety devices.
 INV (INverter pump on user side): the use of the "Inverter pump on user side" accessory is allowed only in the area indicated by the arrow. For different conditions, please contact our sales department.
 GLY (GLYcol): for SET point temperatures below 5°C, it is mandatory to use suitable percentages of antifreeze additives (glycols) to prevent ice formation in the exchanger.
 BK (Brine Kit): for SET point temperatures below 3°C, it is mandatory to use the "Brine Kit" accessory.

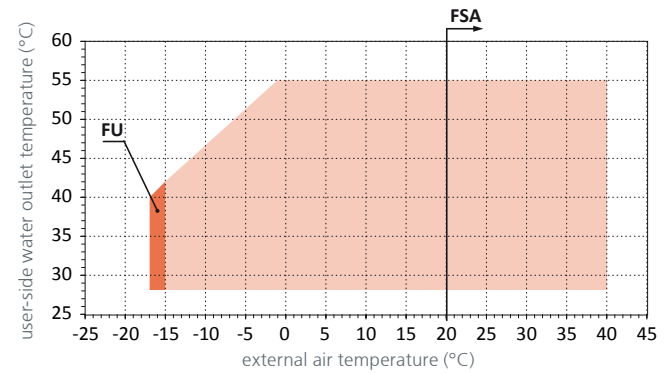
OPERATING LIMITS - ZETA REV HE-SLN

COOLING

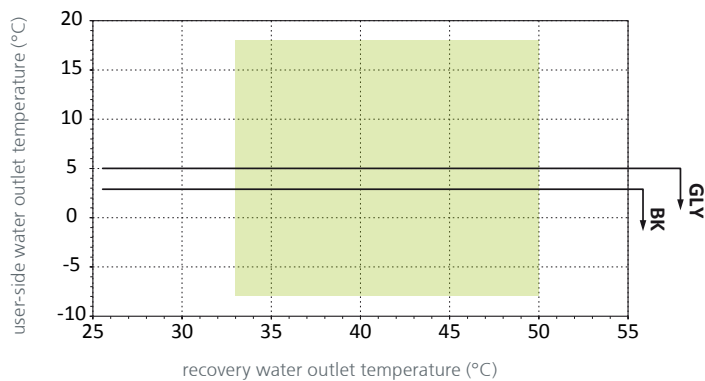


HEATING

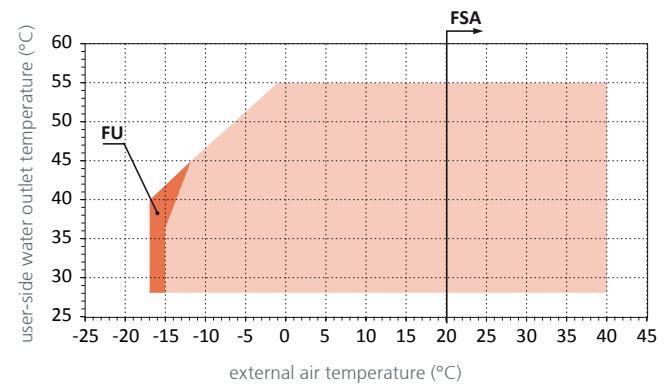
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3.2, 4.2, 5.2, 6.2, 7.2, 8.2, 14.4, 16.4



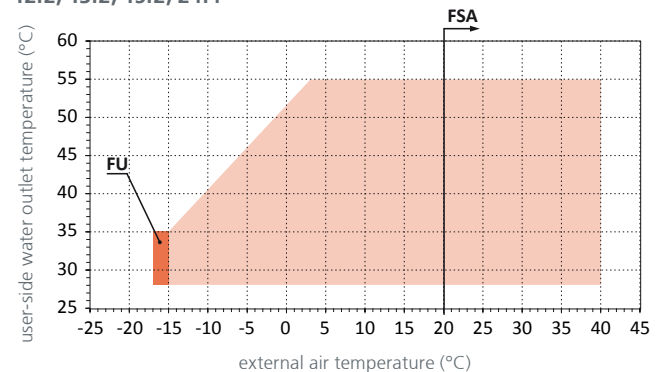
RECOVERY



valid for sizes
9.2, 10.2, 16.2, 18.4, 20.4



valid for sizes
12.2, 13.2, 15.2, 24.4



STP (Condensing control by steps): for external air temperatures of between +15°C and 0°C, the unit can work only if equipped with the "Condensing control by steps" accessory. For temperatures below 0°C, the unit can work only if fitted with the accessories indicated in the FSA note.
 FSA (Fan Speed Adjuster): in the area indicated by the arrow, it is mandatory to include the "Fan speed adjuster" or "EC fans" accessory.
 LW (Less Wind): in the area indicated by the arrow, the unit can work only if there is no wind.
 FU (Forced Unloading): in the indicated area, the control could actuate a forced capacity reduction of the compressors so as to prevent tripping of the safety devices.
 INV (INverter pump on user side): the use of the "Inverter pump on user side" accessory is allowed only in the area indicated by the arrow. For different conditions, please contact our sales department.
 GLY (GLYcol): for SET point temperatures below 5°C, it is mandatory to use suitable percentages of antifreeze additives (glycols) to prevent ice formation in the exchanger.
 BK (Brine Kit): for SET point temperatures below 3°C, it is mandatory to use the "Brine Kit" accessory.

VERSIONS THAT ARE NOT POSSIBLE - ZETA REV

	CHILLER ONLY										HEAT PUMP							
	Basic	"/1P /2P"	"/1PS /2PS"	DS	"/DS /1P /DS /2P"	/DS /1PS	/DS /2PS	DC	"/DC /1P /DC /2P"	/DC /1PS	/DC /2PS	HP	"HP /1P HP /2P"	"HP /1PS HP /2PS"	HP /DS	"HP /DS /1P HP /DS /2P"	HP /DS /1PS	HP /DS /2PS
3.2	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
4.2	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
5.2	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
6.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
7.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
8.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
9.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
10.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
12.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
13.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
15.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
16.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
14.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✗	✗	✗
16.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✗	✗	✗
18.4	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✗	✗	✗	✗
20.4	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
24.4	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗

VERSIONS THAT ARE NOT POSSIBLE - ZETA REV HE - SLN

	CHILLER ONLY										HEAT PUMP							
	Basic	"/1P /2P"	"/1PS /2PS"	DS	"/DS /1P /DS /2P"	/DS /1PS	/DS /2PS	DC	"/DC /1P /DC /2P"	/DC /1PS	/DC /2PS	HP	"HP /1P HP /2P"	"HP /1PS HP /2PS"	HP /DS	"HP /DS /1P HP /DS /2P"	HP /DS /1PS	HP /DS /2PS
3.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
4.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
5.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
6.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
7.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
8.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
9.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
10.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
12.2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗
13.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
15.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
16.2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
14.4	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗
16.4	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗

✓ = Version possible ✗ = Version not possible

ZETA REV

Allowed flow rate range

	Q	Qmin	Qmax
	m ³ /h	m ³ /h	m ³ /h
3.2	7.0	3.5	10.5
4.2	7.8	3.9	11.7
5.2	9.2	4.6	13.7
6.2	10.3	5.2	15.5
7.2	11.5	5.8	17.3
8.2	14.0	7.0	21.0
9.2	16.0	8.0	24.0
10.2	17.6	8.8	26.4
12.2	20.1	10.0	30.1
13.2	21.6	10.8	32.4
15.2	25.3	12.6	37.9
16.2	27.5	13.7	41.2
14.4	23.6	11.8	35.4
16.4	26.5	13.2	39.7
18.4	32.7	16.3	49.0
20.4	35.9	17.9	53.8
24.4	40.3	20.1	60.4

ZETA REV HE - ZETA REV SLN

Allowed flow rate range

	Q	Qmin	Qmax
	m ³ /h	m ³ /h	m ³ /h
3.2	7.3	3.7	11.0
4.2	8.5	4.2	12.7
5.2	10.1	5.0	15.1
6.2	10.9	5.5	16.4
7.2	12.5	6.2	18.7
8.2	15.1	7.5	22.6
9.2	17.4	8.7	26.1
10.2	19.2	9.6	28.8
12.2	22.1	11.0	33.1
13.2	24.0	12.0	36.0
15.2	27.4	13.7	41.1
16.2	31.0	15.5	46.5
14.4	25.0	12.5	37.4
16.4	29.6	14.8	44.4

NOISE LEVELS - ZETA REV

MODEL	Octave bands [dB]																Total [dB(A)]	
	63 Hz		125 Hz		250 Hz		500 Hz		1000 Hz		2000 Hz		4000 Hz		8000 Hz			
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
3.2	79	48	78	47	70	38	73	41	72	41	71	39	69	38	64	32	78	46
4.2	79	48	78	47	70	39	74	42	73	42	74	42	70	39	65	34	79	48
5.2	79	48	78	47	70	38	74	43	74	43	73	41	70	38	65	33	79	48
6.2	79	48	78	47	69	38	72	41	75	43	75	43	71	39	67	36	80	48
7.2	79	48	78	47	70	38	75	43	75	44	75	44	72	40	67	35	81	49
8.2	81	49	80	48	71	39	75	43	76	44	77	45	73	41	68	36	82	50
9.2	79	47	78	46	74	42	75	43	76	44	79	47	72	40	65	33	83	51
10.2	80	48	78	46	76	44	77	45	77	45	81	49	73	41	64	32	84	52
12.2	84	52	74	42	77	45	78	46	80	48	82	50	75	43	69	37	86	54
13.2	84	52	74	42	77	45	78	46	81	49	83	51	76	44	71	39	87	55
15.2	84	52	74	42	77	45	79	47	82	50	82	50	76	44	70	38	87	55
16.2	84	52	74	42	77	45	79	47	82	50	82	50	76	44	69	37	87	55
14.4	87	55	76	44	75	43	79	47	79	47	79	47	75	43	70	38	84	52
16.4	87	55	76	44	75	43	79	47	80	48	80	48	76	44	71	39	85	53
18.4	87	55	77	45	79	47	81	49	80	48	83	51	76	44	70	38	87	55
20.4	88	56	78	46	81	49	82	50	81	49	85	53	77	45	69	37	89	57
24.4	89	57	79	47	81	49	82	50	84	52	86	54	79	47	73	41	90	58

NOISE LEVELS - ZETA REV LN

MODEL	Octave bands [dB]																Total [dB(A)]	
	63 Hz		125 Hz		250 Hz		500 Hz		1000 Hz		2000 Hz		4000 Hz		8000 Hz			
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
3.2	77	45	76	45	68	36	71	39	70	39	69	37	67	36	62	31	76	44
4.2	77	45	76	45	68	37	72	40	71	40	71	40	68	37	63	32	77	46
5.2	77	45	76	45	68	36	72	41	72	41	71	39	68	36	63	32	77	46
6.2	77	46	76	45	68	36	70	39	73	41	73	41	69	37	66	34	78	46
7.2	77	46	76	45	68	36	73	41	73	42	73	42	70	38	65	34	79	47
8.2	79	47	78	46	70	38	73	41	74	43	75	43	71	39	66	35	80	48
9.2	77	46	76	44	72	41	73	42	74	42	77	45	70	39	64	32	81	49
10.2	78	47	76	45	75	43	75	44	75	44	79	47	71	40	62	31	82	50
12.2	82	51	72	41	75	44	76	44	78	46	80	48	73	42	67	35	84	52
13.2	82	50	72	41	75	44	76	45	79	48	81	49	75	43	69	37	85	53
15.2	82	50	72	41	75	44	77	45	80	48	80	49	74	43	68	37	85	53
16.2	82	50	72	41	75	44	77	46	80	49	80	49	74	43	67	36	85	53
14.4	84	53	74	43	73	41	77	45	77	45	77	45	73	42	68	37	82	50
16.4	84	53	74	43	73	41	77	45	78	46	78	46	74	42	69	38	83	51
18.4	85	54	76	44	77	46	79	47	79	47	81	50	74	43	68	36	85	53
20.4	86	54	76	44	79	47	80	48	79	48	83	51	75	44	67	35	87	55
24.4	87	55	77	45	80	48	80	49	82	51	84	53	78	46	71	40	88	56

Air 35°C; Water 12/7 °C

LW: sound power on the basis of measurements made in compliance with ISO 3744 and Eurovent certification program. Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

LP: average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.

NOISE LEVELS - ZETA REV HE

MODEL	Octave bands [dB]																Total [dB(A)]	
	63 Hz		125 Hz		250 Hz		500 Hz		1000 Hz		2000 Hz		4000 Hz		8000 Hz		Lw	Lp
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp		
3.2	79	48	78	47	70	38	73	41	72	41	71	39	69	38	64	32	78	46
4.2	79	48	78	47	70	39	74	42	73	42	74	42	70	39	65	34	79	48
5.2	79	48	78	47	70	38	74	43	74	43	73	41	70	38	65	33	79	48
6.2	81	49	80	48	71	39	73	41	75	43	75	43	71	39	68	36	80	48
7.2	81	49	80	48	71	39	75	43	76	44	76	44	72	40	67	35	81	49
8.2	87	55	76	44	74	42	77	45	78	46	78	46	73	41	69	37	83	51
9.2	87	55	77	45	77	45	79	47	79	47	81	49	74	42	68	36	85	53
10.2	87	55	77	45	79	47	80	48	80	48	83	51	75	43	67	35	87	55
12.2	84	52	74	42	77	45	78	46	80	48	82	50	75	43	69	37	86	54
13.2	86	54	76	44	78	46	79	47	82	50	83	51	77	45	71	39	88	56
15.2	86	54	76	44	78	46	80	48	83	51	83	51	77	45	71	39	88	56
16.2	86	54	76	44	78	46	80	48	83	51	83	51	77	45	70	38	88	56
14.4	88	56	78	46	76	44	80	48	80	48	79	47	76	44	71	39	85	53
16.4	88	56	78	46	76	44	80	48	80	48	80	48	76	44	71	39	86	54

NOISE LEVELS - ZETA REV HE LN

MODEL	Octave bands [dB]																Total [dB(A)]	
	63 Hz		125 Hz		250 Hz		500 Hz		1000 Hz		2000 Hz		4000 Hz		8000 Hz		Lw	Lp
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp		
3.2	77	45	76	45	68	36	71	39	70	39	69	37	67	36	62	31	76	44
4.2	77	45	76	45	68	37	72	40	71	40	71	40	68	37	63	32	77	46
5.2	77	45	76	45	68	36	72	41	72	41	71	39	68	36	63	32	77	46
6.2	79	47	78	46	69	38	71	40	73	42	73	41	69	38	66	34	78	46
7.2	79	47	78	46	69	38	73	42	74	42	74	42	70	39	66	34	79	47
8.2	84	53	74	43	73	41	75	44	76	44	76	44	72	40	67	35	81	49
9.2	85	53	75	43	76	44	77	46	77	45	79	48	73	41	66	35	83	51
10.2	85	53	75	43	77	46	78	47	78	46	81	50	73	42	65	34	85	53
12.2	82	51	72	41	75	44	76	44	78	46	80	48	73	42	67	35	84	52
13.2	84	53	74	43	76	45	77	46	80	48	81	50	75	44	70	38	86	54
15.2	84	53	74	43	76	45	78	46	81	49	81	50	75	44	69	37	86	54
16.2	84	53	74	43	76	45	78	47	81	50	81	49	75	43	68	37	86	54
14.4	86	55	76	45	74	43	78	46	78	46	77	46	74	42	69	37	83	51
16.4	86	55	76	45	74	43	78	46	78	47	78	47	74	43	70	38	84	52

Air 35°C; Water 12/7 °C

LW: sound power on the basis of measurements made in compliance with ISO 3744 and Eurovent certification program. Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

LP: average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.

NOISE LEVELS - ZETA REV SLN

MODEL	Octave bands [dB]																Total [dB(A)]	
	63 Hz		125 Hz		250 Hz		500 Hz		1000 Hz		2000 Hz		4000 Hz		8000 Hz		Lw	Lp
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp		
3.2	72	40	70	38	65	33	69	38	69	37	67	35	66	34	60	28	74	42
4.2	71	40	70	38	65	33	70	39	69	38	70	38	67	35	61	30	75	44
5.2	71	40	70	38	64	33	70	39	70	39	69	37	66	34	61	29	75	44
6.2	73	41	71	39	65	33	69	37	71	39	71	39	67	35	64	32	76	44
7.2	73	41	71	39	66	34	71	39	72	40	72	40	68	36	63	31	77	45
8.2	78	46	69	37	67	35	72	40	73	41	73	41	69	37	64	32	78	46
9.2	77	45	68	36	71	39	72	40	73	41	75	43	69	37	62	30	79	47
10.2	77	45	68	36	73	41	74	42	73	41	77	45	69	37	61	29	80	48
12.2	77	45	67	35	73	41	73	41	76	44	78	46	71	39	65	33	82	50
13.2	78	46	69	37	73	41	74	42	77	45	79	47	73	41	67	35	83	51
15.2	78	46	69	37	73	41	75	43	78	46	79	47	73	41	66	34	83	51
16.2	78	46	69	37	73	41	75	43	79	47	78	46	73	41	66	34	83	51
14.4	81	49	71	39	70	38	75	43	75	43	75	43	72	40	67	35	80	48
16.4	80	48	71	39	70	38	74	42	76	44	76	44	72	40	67	35	81	49

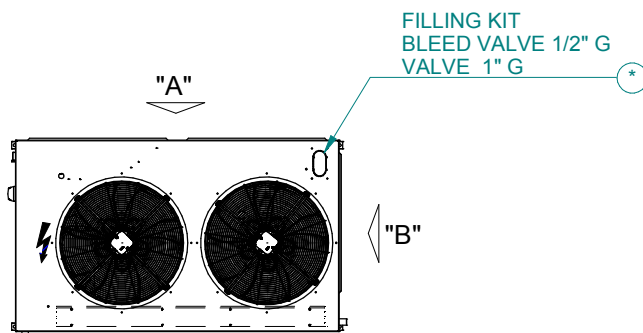
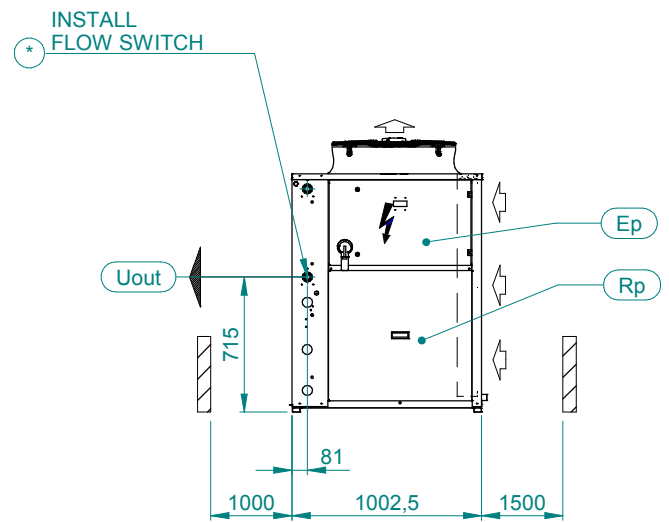
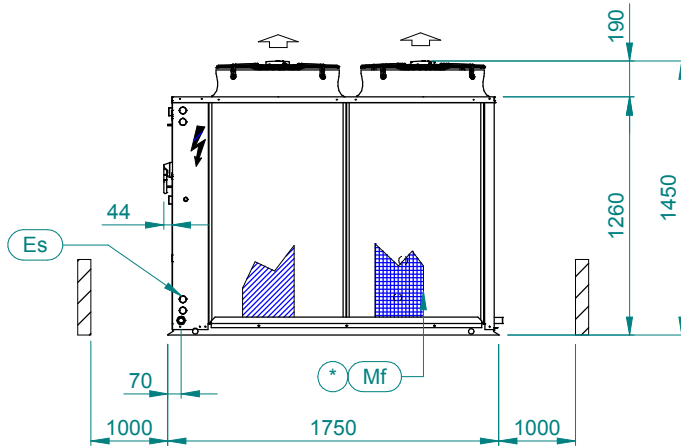
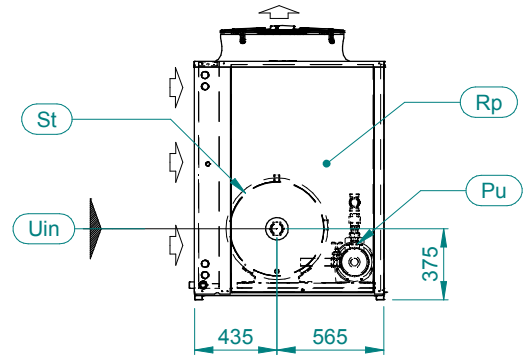
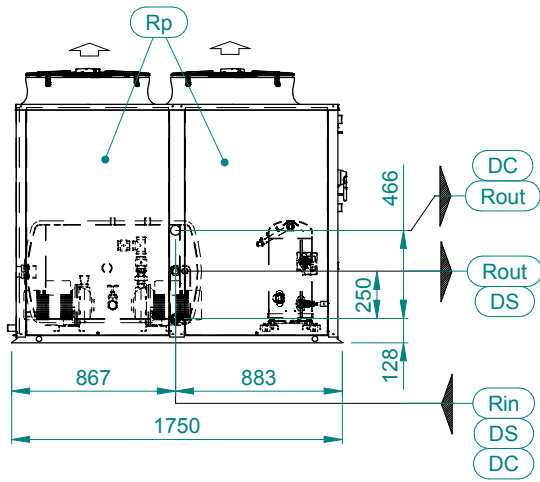
Air 35°C; Water 12/7 °C

LW: sound power on the basis of measurements made in compliance with ISO 3744 and Eurovent certification program. Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

LP: average sound pressure level, at 10m distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level.

DIMENSIONAL DIAGRAMS
ZETA REV 3.2-5.2 1PS-2PS

A4G061-A



Uin	G 2" M
Uout	G 1 1/4" M

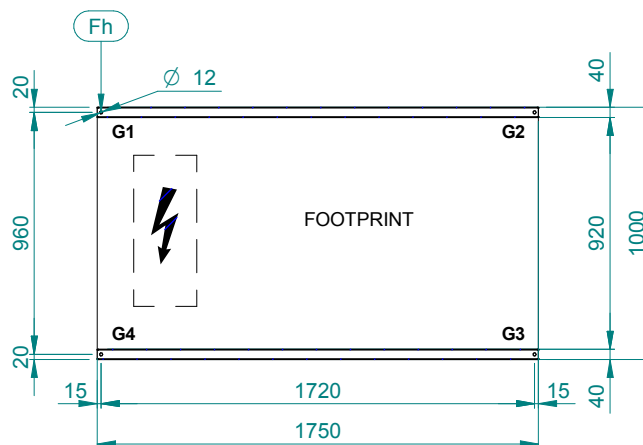
	DC	DS
Rin	G 1 1/4" M	G 1" F
Rout	G 1 1/4" M	G 1" F

*	OPTIONAL
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DIMENSIONAL DIAGRAMS

ZETA REV 3.2-5.2 1PS-2PS

A4G061-A



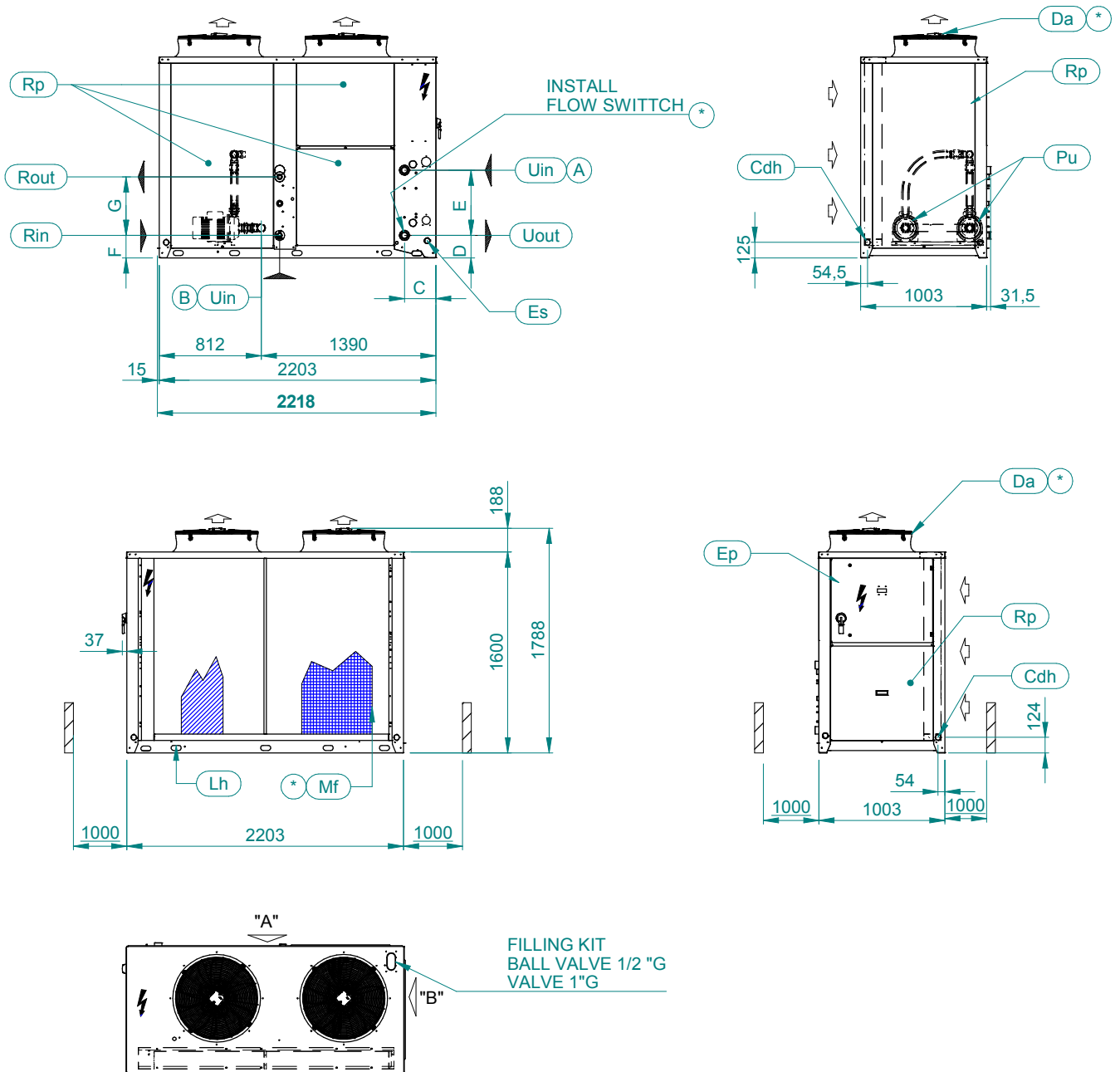
SCALE
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MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 3.2 ST 1PS-2PS-S	538	711	188	166	167	190
ZETA REV 4.2 ST 1PS-2PS-S	549	722	194	167	167	194
ZETA REV 5.2 ST 1PS-2PS-S	551	725	196	167	167	195
ZETA REV 3.2 HP-ST 1PS-2PS-S	577	750	200	171	175	204
ZETA REV 4.2 HP-ST 1PS-2PS-S	588	761	206	172	175	208
ZETA REV 5.2 HP-ST 1PS-2PS-S	600	774	207	174	179	214
ZETA REV 3.2 ST 1PS-S-DC-DS	549	725	197	169	165	194
ZETA REV 4.2 ST 1PS-S-DC-DS	563	740	205	171	166	198
ZETA REV 5.2 ST 1PS-S-DC-DS	570	748	209	174	166	199
ZETA REV 3.2 HP-ST 1PS-S-DS	566	740	197	166	172	205
ZETA REV 4.2 HP-ST 1PS-S-DS	578	752	204	167	172	209
ZETA REV 5.2 HP-ST 1PS-S-DS	591	766	206	169	176	215

DIMENSIONAL DIAGRAMS

ZETA REV 6.2-7.2

A4G074-A



	F	G	ϕ Rin	ϕ Rout
DC	180	519	G2\"M	G2\"M
DS	180	250	G1\"M	G1\"M

	C	D	E	Uin		Uout
6.2	185	280	466	A	B	G 1 1/4\" M
				G 1 1/4\" M	G 2\" F	
7.2	250	180	519	G 2\" M	G 2\" F	G 2\" M

HYDRAULIC CONNECTIONS

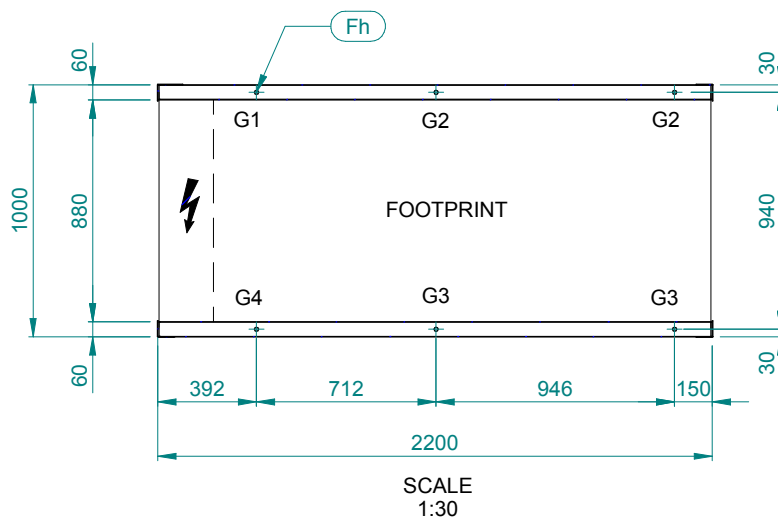
* OPTIONAL

- (A) WITHOUT HYDRAULIC MODULE
- (B) HYDRAULIC MODULE ST1P-2P

DIMENSIONAL DIAGRAMS

ZETA REV 6.2-7.2

A4G074-A

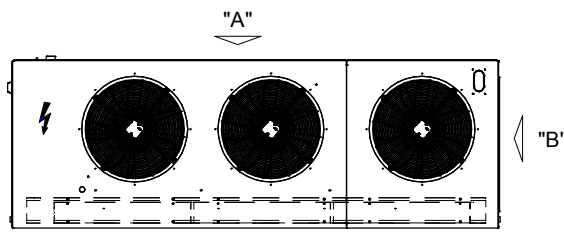
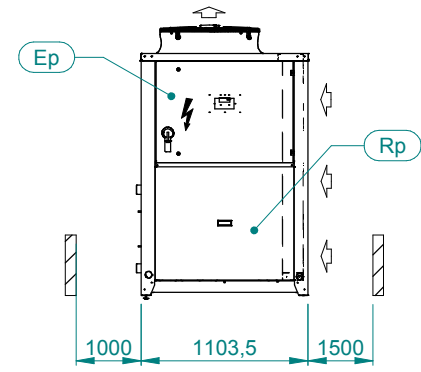
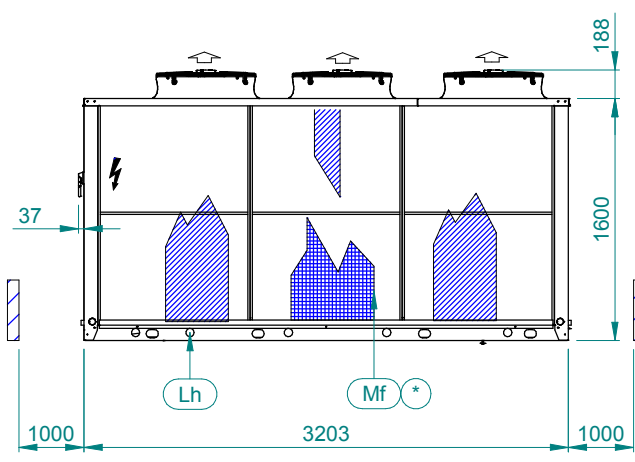
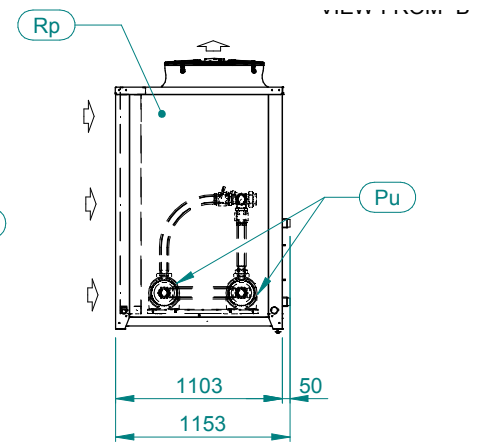
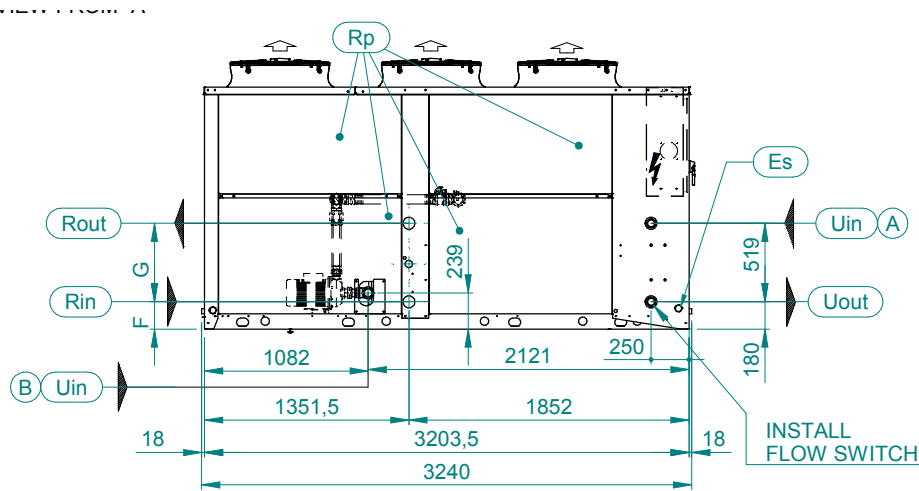


MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 6.2	556	560	212	54	40	160
ZETA REV 6.2 ST 1P-2P	611	615	208	72	54	155
ZETA REV 6.2 DC-DS	606	615	230	61	46	171
ZETA REV 6.2 ST 1P-2P-DC-DS	660	669	228	78	58	169
ZETA REV 6.2 HP	667	671	224	60	57	213
ZETA REV 6.2 HP-ST 1P-2P	720	724	224	76	70	208
ZETA REV 6.2 HP-DS	677	682	225	61	59	217
ZETA REV 6.2 HP-ST 1P-2P-DS	729	734	224	77	72	212
ZETA REV 7.2	906	917	352	80	63	279
ZETA REV 7.2 ST 1P-2P	635	641	226	74	53	161
ZETA REV 7.2 DC-DS	631	642	249	63	45	177
ZETA REV 7.2 ST 1P-2P-DC-DS	684	695	246	80	57	175
ZETA REV 7.2 HP	687	693	242	61	55	219
ZETA REV 7.2 HP-ST 1P-2P	744	750	242	78	69	214
ZETA REV 7.2 HP-DS	700	707	244	62	57	225
ZETA REV 7.2 HP-ST 1P-2P-DS	753	760	242	79	71	218

DIMENSIONAL DIAGRAMS

ZETA REV 8.2-10.2

A4G140-A



* OPTIONAL

HYDRAULIC CONNECTIONS

- (A) WITHOUT HYDRAULIC MODULE
- (B) HYDRAULIC MODULE ST1P-2P

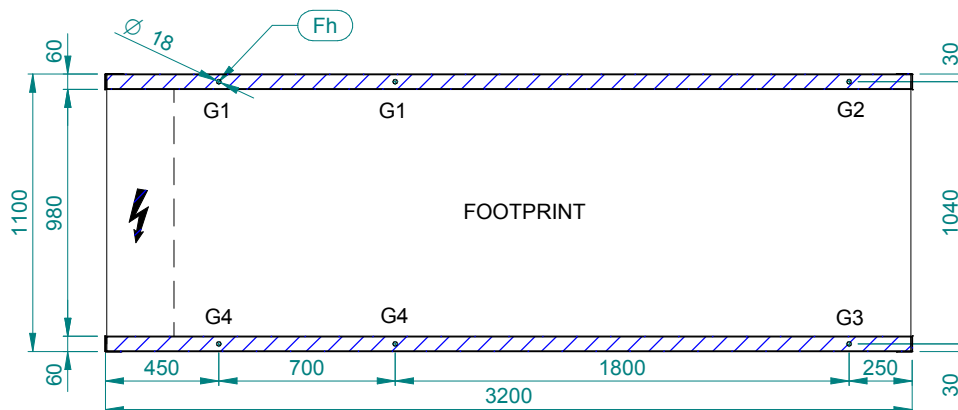
	F	G	ø Rin	ø Rout
DC	180	519	G2" M	G2" M
DS	180	250	G1" M	G1" M

Uin A	Uin B	Uout
G 2" M	G 2" F	G 2" M

DIMENSIONAL DIAGRAMS

ZETA REV 8.2-10.2

A4G140-A



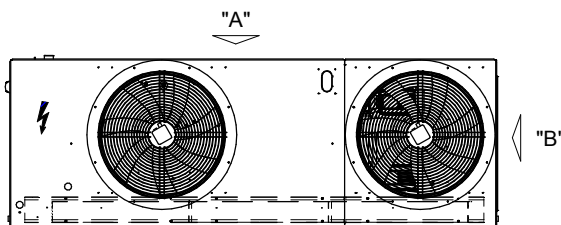
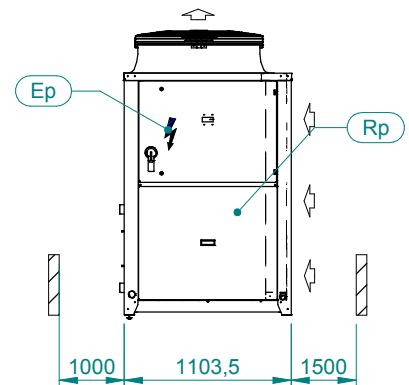
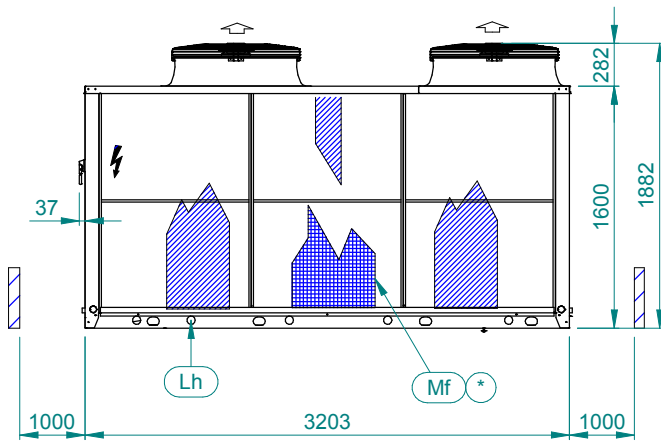
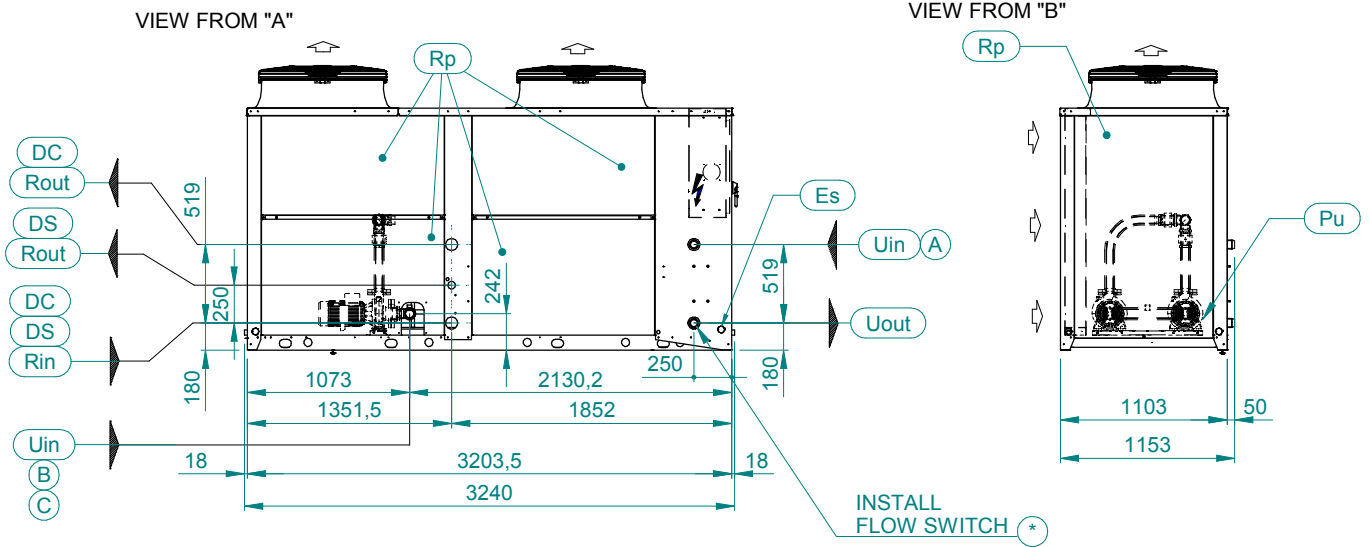
SCALE
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MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 8.2	796	802	188	88	64	137
ZETA REV 9.2	808	814	192	88	64	139
ZETA REV 10.2	819	826	197	89	63	140
ZETA REV 8.2 ST 1P-2P	853	859	194	111	80	140
ZETA REV 9.2 ST 1P-2P	860	866	197	111	79	141
ZETA REV 10.2 ST 1P-2P	871	878	202	111	79	142
ZETA REV 8.2 DC-DS	873	886	208	104	74	146
ZETA REV 9.2 DC-DS	884	898	212	105	73	148
ZETA REV 10.2 DC-DS	901	917	219	108	73	149
ZETA REV 8.2 ST 1P-2P-DC-DS	947	960	218	128	90	153
ZETA REV 9.2 ST 1P-2P-DC-DS	959	973	222	129	90	155
ZETA REV 10.2 ST 1P-2P-DC-DS	975	991	229	131	90	156
ZETA REV 8.2 HP	948	954	196	100	94	184
ZETA REV 9.2 HP	957	963	200	100	93	185
ZETA REV 10.2 HP	970	977	205	101	92	187
ZETA REV 8.2 HP-ST 1P-2P	1000	1006	202	121	111	185
ZETA REV 9.2 HP-ST 1P-2P	1012	1018	206	122	110	187
ZETA REV 10.2 HP-ST 1P-2P	1024	1031	211	122	109	189
ZETA REV 8.2 HP-DS	955	962	199	103	95	183
ZETA REV 9.2 HP-DS	967	975	203	104	95	185
ZETA REV 10.2 HP-DS	1011	1020	208	108	102	197
ZETA REV 8.2 HP-ST 1P-2P-DS	1009	1016	205	124	112	185
ZETA REV 9.2 HP-ST 1P-2P-DS	1021	1029	209	125	112	187
ZETA REV 10.2 HP-ST 1P-2P-DS	1034	1043	215	126	111	188

DIMENSIONAL DIAGRAMS

ZETA REV 12.2-13.2

A4G141-A



HYDRAULIC CONNECTIONS

- (A) WITHOUT HYDRAULIC MODULE
- (B) HYDRAULIC MODULE ST1P
- (C) HYDRAULIC MODULE ST2P

Uin			Uout
(A)	(B)	(C)	G 2" M
G 2" M	G 2" 1/2 F	G 2" F	G 2" M

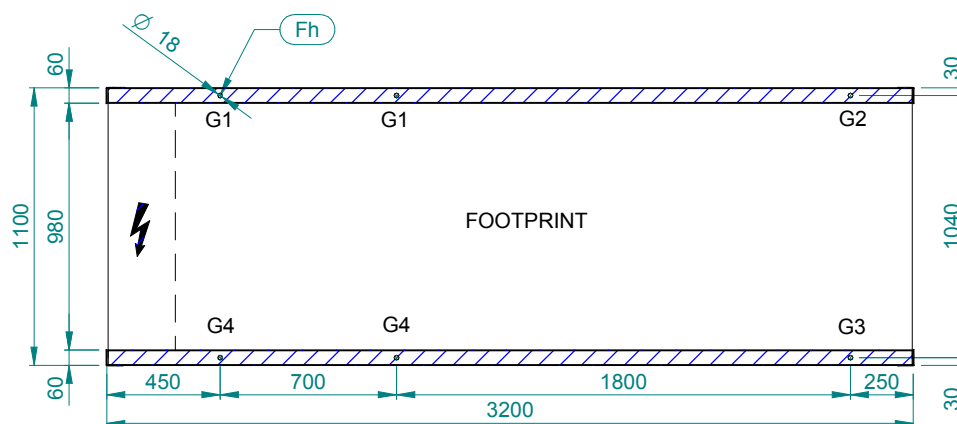
* OPTIONAL

	DC	DS
Rin	G 2" M	G 1" F
Rout	G 2" M	G 1" F

DIMENSIONAL DIAGRAMS

ZETA REV 12.2-13.2

A4G141-A



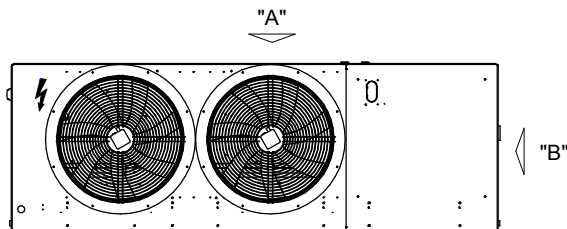
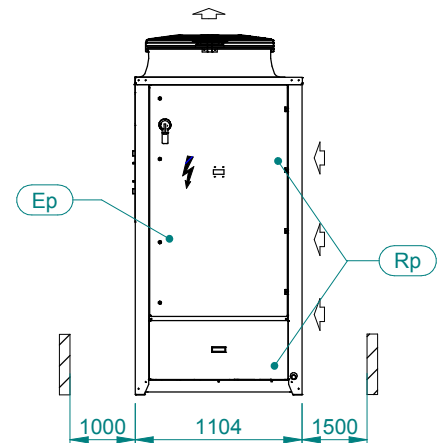
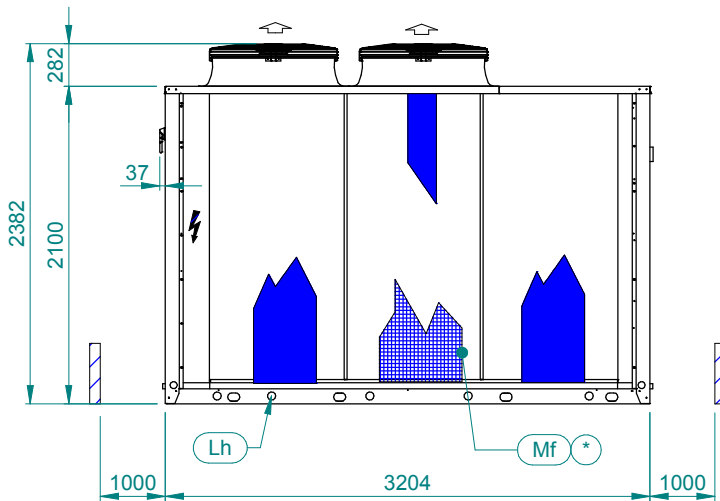
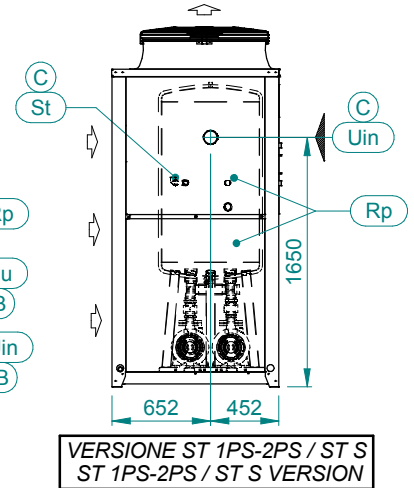
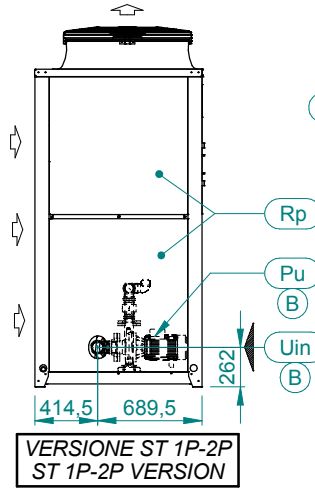
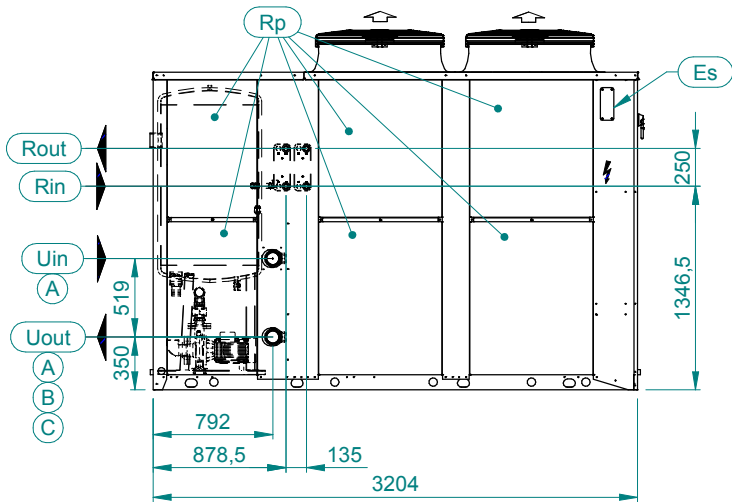
SCALE
1:30

MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 12.2	960	968	230	117	79	156
ZETA REV 13.2	1003	1012	243	122	81	160
ZETA REV 12.2 ST 1P-2P	1016	1024	235	141	95	158
ZETA REV 13.2 ST 1P-2P	1053	1062	248	146	96	163
ZETA REV 12.2 DC-DS	1048	1066	254	139	90	165
ZETA REV 13.2 DC-DS	1095	1116	269	147	92	169
ZETA REV 12.2 ST 1P-2P-DC-DS	1122	1140	264	163	106	172
ZETA REV 13.2 ST 1P-2P-DC-DS	1169	1190	279	171	108	176
ZETA REV 12.2 HP	1114	1122	239	129	110	203
ZETA REV 13.2 HP	1155	1164	252	135	111	207
ZETA REV 12.2 HP-ST 1P-2P	1168	1176	245	151	126	204
ZETA REV 13.2 HP-ST 1P-2P	1211	1220	258	157	127	209
ZETA REV 12.2 HP-DS	1138	1148	244	136	113	204
ZETA REV 13.2 HP-DS	1179	1190	258	142	115	208
ZETA REV 12.2 HP-ST 1P-2P-DS	1190	1200	250	158	130	206
ZETA REV 13.2 HP-ST 1P-2P-DS	1231	1242	264	164	131	210

DIMENSIONAL DIAGRAMS

ZETA REV 14.4-16.4

A4G228-A



HYDRAULIC CONNECTIONS

- (A) WITHOUT HYDRAULIC MODULE
- (B) HYDRAULIC MODULE ST1P-2P
- (C) HYDRAULIC MODULE ST1PS-2PS

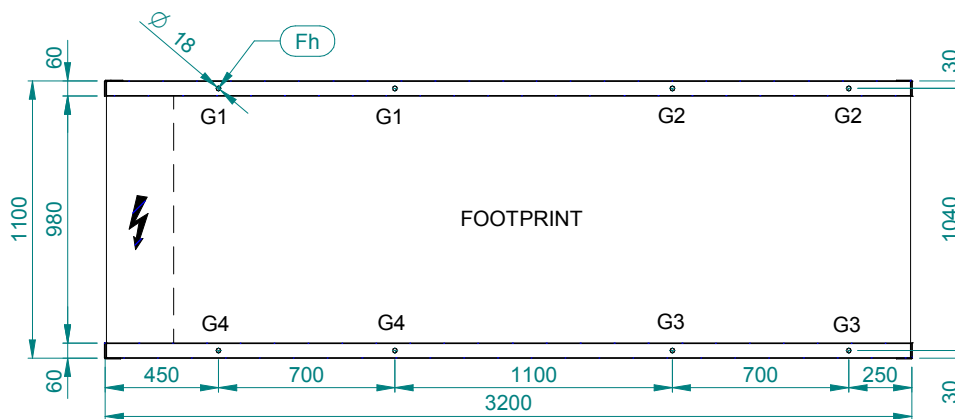
* OPTIONAL

Uin			Uout	Rin	Rout
(A)	(B)	(C)			
G 3" F	G 3" F	G 2 1/2" F	G 3" F	G 1" M	G 1" M

DIMENSIONAL DIAGRAMS

ZETA REV 14.4-16.4

A4G228-A

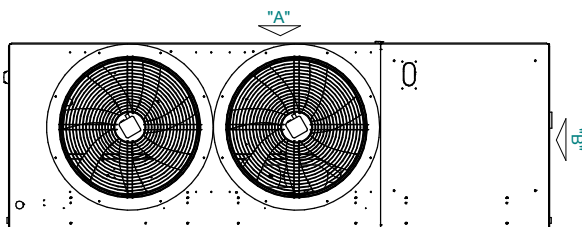
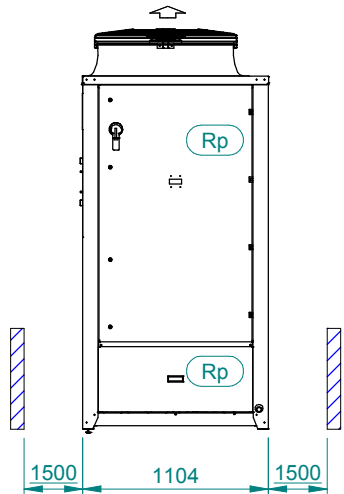
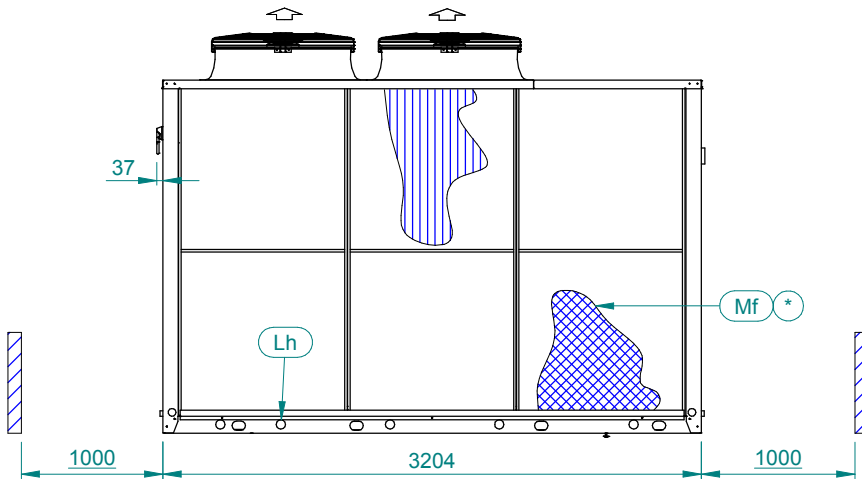
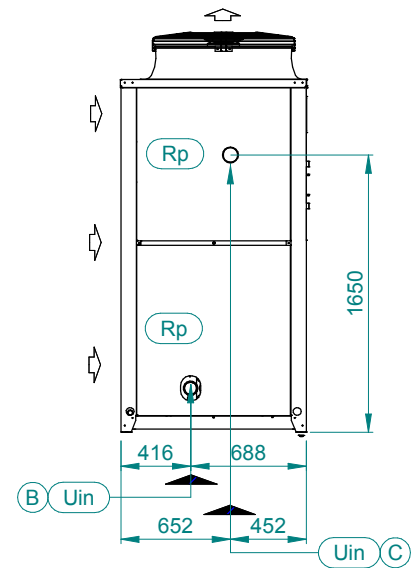
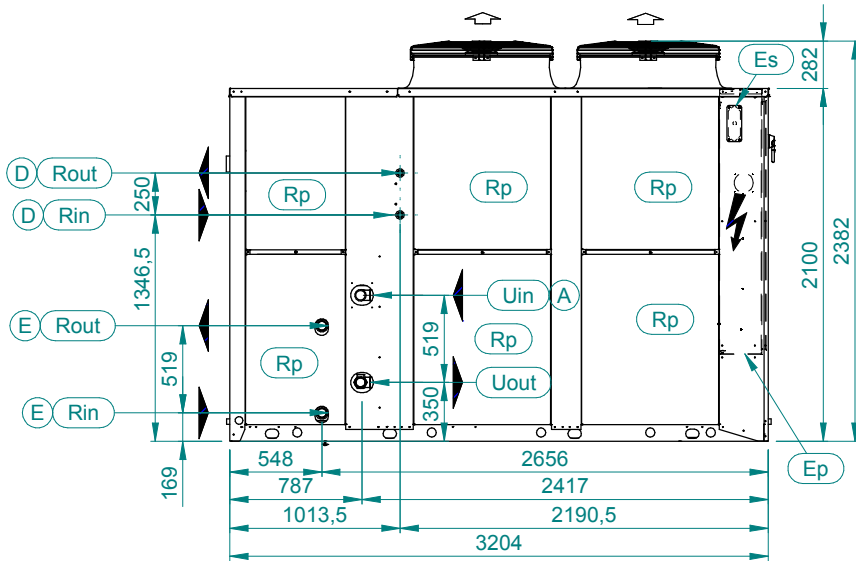


SCALE
1:30

MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 16.4	1300,6	1312	265	118	84	189
ZETA REV 16.4 ST 1P-2P	1432,6	1454	263	158	115	191
ZETA REV 16.4 ST 1PS-2PS-S	1520,6	1922	239	314	232	176
ZETA REV 16.4 DS	1398	1412	276	131	96	203
ZETA REV 16.4 ST 1P-2P-DS	1512	1536	271	170	126	201
ZETA REV 16.4 ST 1PS-2PS-S-DS	1616	2020	251	325	245	189
ZETA REV 14.4	1156,6	1168	221	108	84	171
ZETA REV 14.4 ST 1P-2P	1284,6	1306	220	147	115	171
ZETA REV 14.4 ST 1PS-2PS-S	1370,6	1772	198	300	234	154
ZETA REV 14.4 DS	1252	1266	232	120	96	185
ZETA REV 14.4 ST 1P-2P-DS	1362	1386	228	158	126	181
ZETA REV 14.4 ST 1PS-2PS-S-DS	1466	1870	210	311	247	167

DIMENSIONAL DIAGRAMS
ZETA REV CH-HP 15.2-16.2

A4G243-A



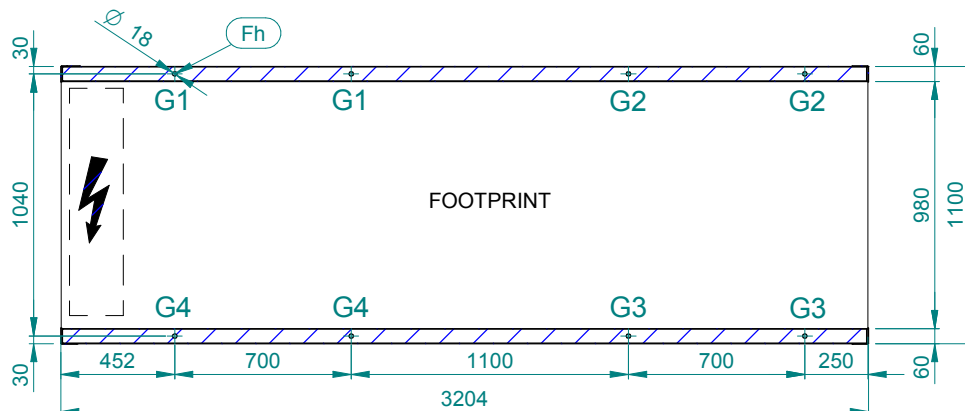
* OPTIONAL

- (A) WITHOUT HYDRAULIC MODULE
- (B) HYDRAULIC MODULE ST 1P-2P
- (C) HYDRAULIC MODULE ST 1PS-2PS
- (D) DS VERSION
- (E) DC VERSION

	DC	DS	Uin	Uout
Rin	G 2" F	G 1" M	A G 2" F	G 3" F
Rout	G 2" F	G 1" M	B G 2 1/2" F	
			C G 3" F	

DIMENSIONAL DIAGRAMS
ZETA REV CH-HP 15.2-16.2

A4G243-A



SCALE

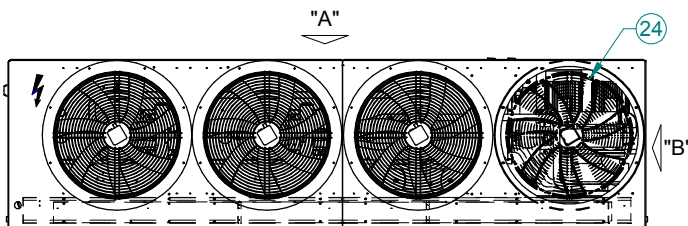
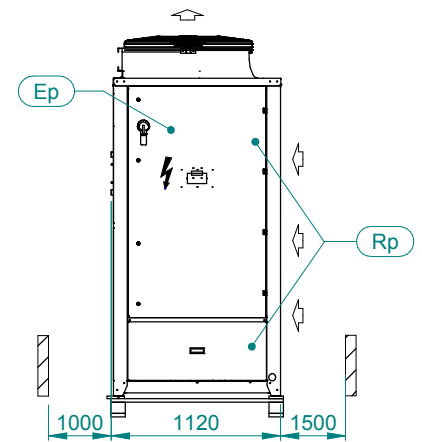
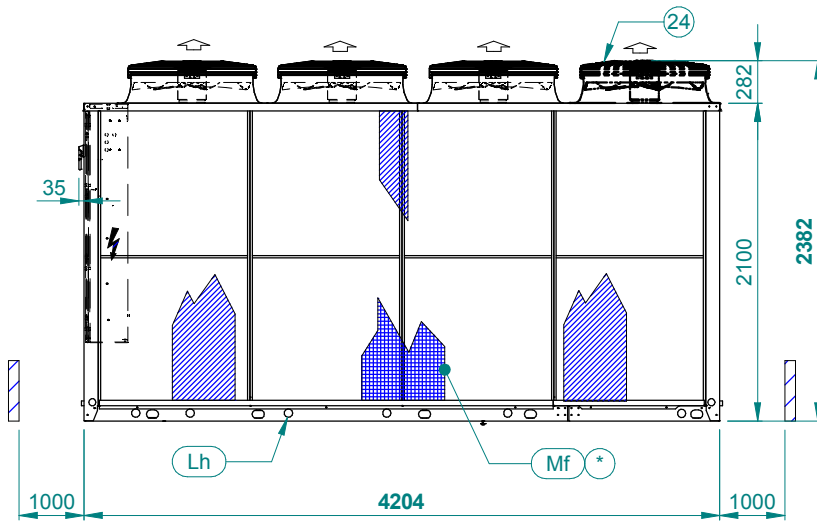
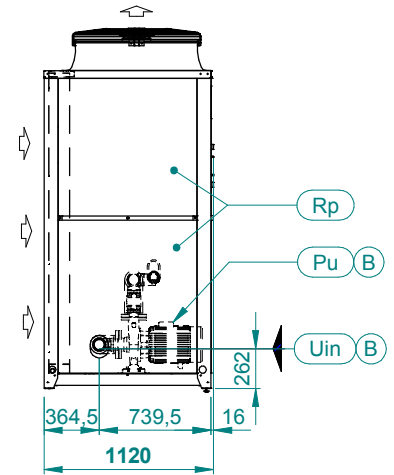
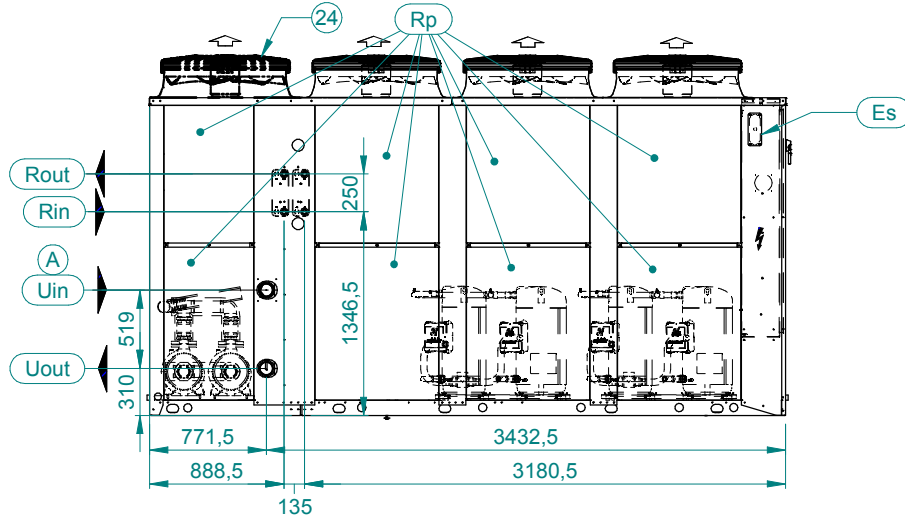
1:30

MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 15.2	1156	1168	227	108	80	169
ZETA REV 16.2	1197	1208	238	110	81	175
ZETA REV 15.2 ST 1P-2P	1268	1290	222	146	110	167
ZETA REV 16.2 ST 1P-2P	1381	1404	254	156	111	181
ZETA REV 15.2 ST 1PS-2PS-S	1376	1778	203	301	230	155
ZETA REV 16.2 ST 1PS-2PS-S	1489	1892	233	313	229	171
ZETA REV 15.2 DS	1264	1280	241	123	93	183
ZETA REV 16.2 DS	1375	1392	273	132	95	196
ZETA REV 15.2 ST 1P-2P-DS	1374	1400	236	161	123	180
ZETA REV 16.2 ST 1P-2P-DS	1485	1512	267	171	124	194
ZETA REV 15.2 ST 1PS-2PS-S-DS	1480	1886	217	316	243	167
ZETA REV 16.2 ST 1PS-2PS-S-DS	1593	2000	247	327	243	183
ZETA REV 15.2 HP	1326	1338	236	116	105	212
ZETA REV 16.2 HP	1491	1504	267	128	116	241
ZETA REV 15.2 HP-ST 1P-2P	1436	1458	233	153	136	207
ZETA REV 16.2 HP-ST 1P-2P	1601	1624	264	165	147	236
ZETA REV 15.2 HP-ST 1PS-2PS-S	1544	1946	219	302	262	190
ZETA REV 16.2 HP-ST 1PS-2PS-S	1709	2112	251	314	273	218
ZETA REV 15.2 HP-DS	1388	1404	247	127	112	216
ZETA REV 16.2 HP-DS	1553	1570	278	139	123	245
ZETA REV 15.2 HP-ST 1P-2P-DS	1498	1524	243	164	143	212
ZETA REV 16.2 HP-ST 1P-2P-DS	1665	1692	275	176	154	241
ZETA REV 15.2 HP-ST 1PS-2PS-S-DS	1608	2014	229	315	268	195
ZETA REV 16.2 HP-ST 1PS-2PS-S-DS	1771	2178	261	326	279	223
ZETA REV 15.2 DC	1304	1332	243	141	103	179
ZETA REV 16.2 DC	1427	1458	278	151	106	194

DIMENSIONAL DIAGRAMS

ZETA REV 18.4-20.4-24.4

A4G216-A



Uin		Uout	Rin	Rout
(A)	(B)			
G 3" F	G 2 1/2" F	G 3" F	G 1" F	G 1" F

HYDRAULIC CONNECTIONS

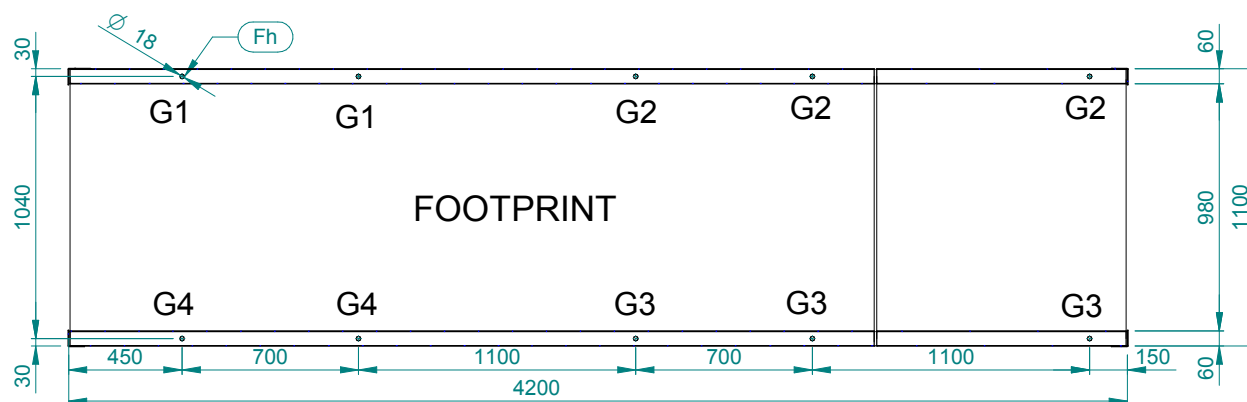
- (A) WITHOUT HYDRAULIC MODULE
- (B) HYDRAULIC MODULE ST1P-2P
- (24) ONLY FOR 24.4

*	OPTIONAL
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DIMENSIONAL DIAGRAMS

ZETA REV 18.4-20.4-24.4

A4G216-A



SCALE
1:30

MODEL	WEIGHT(kg)	OPERATING WEIGHT (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA REV 18.4	1596	1609	297	115	82	212
ZETA REV 20.4	1626	1641	302	119	84	214
ZETA REV 24.4	1750	1766	320	135	93	221
ZETA REV 18.4 ST 1P-2P	1747	1785	279	160	115	201
ZETA REV 20.4 ST 1P-2P	1796	1836	288	164	118	207
ZETA REV 24.4 ST 1P-2P	1923	1964	306	181	127	214
ZETA REV 18.4 DS	1662	1678	299	125	91	216
ZETA REV 20.4 DS	1694,5	1713	304	130	93	218
ZETA REV 24.4 DS	1819	1839	322	147	102	224
ZETA REV 18.4 ST 1P-2P-DS	1813	1854	281	170	124	205
ZETA REV 20.4 ST 1P-2P-DS	1864,5	1908	290	175	127	211
ZETA REV 24.4 ST 1P-2P-DS	2148	2193	313	197	158	251
ZETA REV 18.4 HP	1807	1820	299	127	109	257
ZETA REV 20.4 HP	1848	1863	308	130	111	262
ZETA REV 24.4 HP	1970	1986	326	146	120	268
ZETA REV 18.4 HP-ST 1P-2P	1955	1983	285	167	142	243
ZETA REV 20.4 HP-ST 1P-2P	1977	2017	289	172	145	244
ZETA REV 24.4 HP-ST 1P-2P	2104	2145	307	189	154	251
ZETA REV 18.4 HP-DS	1823	1839	301	132	111	254
ZETA REV 20.4 HP-DS	1869,5	1888	310	136	114	259
ZETA REV 24.4 HP-DS	1992	2012	328	153	123	264
ZETA REV 18.4 HP-ST 1P-2P-DS	1984	2015	289	172	145	243
ZETA REV 20.4 HP-ST 1P-2P-DS	2002,5	2046	292	178	148	242
ZETA REV 24.4 HP-ST 1P-2P-DS	2139	2184	311	196	158	250

