



# Zeta Echos air/water chillers and heat pumps



**Technical information manual**



**ZETA ECHOS**  
Water chiller

**ZETA ECHOS/HP**  
Reversible heat pump

**ZETA ECHOS/ST**  
Unit with tank and pumps

**ZETA ECHOS/DC**  
Unit with recovery condenser

**ZETA ECHOS/DS**  
Unit with desuperheater

**ZETA ECHO/LN**  
Low-noise unit

**ZETA ECHOS/SLN**  
Super low-noise unit

**ZETA ECHOS/LE**  
Motocondensing unit

**ZETA ECHOS A**  
High performance unit



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## **TECHNICAL FEATURES**

### **ZETA ECHOS**

Air cooled water chiller with hermetic scroll compressors and brazed plate evaporators. Basic unit outfit.

### **STRUCTURE**

Self-supporting frame and removable panels lined with noise-absorbent expanded polyurethane matting in galvanised steel sheet painted in RAL 7035 and the top of the unit in RAL 5017 with polyester powder at 180°C, to offer high weather resistance. Screws and bolts in Stainless Steel.

### **COMPRESSORS**

Parallel connected hermetic rotary screw scroll type compressors with oil level gauge, klixon thermal protection and oil equalization system. Enclosed in an insulated compartment and separated from the air flow, the compressors are accessible through the special panels for maintenance operations, even when the unit is on.

### **CONDENSERS**

The heat exchanger is composed of an aluminium-finned copper-tube multirow coil, of high efficiency. The finned coil pack is protected by a metal mesh.

### **ELECTRO FANS**

Axial fans designed to enhance performance and reduce noise emissions, driven directly by a 6-pole electric motor with integrated klixon thermal protection. Motor protection degree is IP 54. The fan is fitted with a protection grille in compliance with UNI EN 294.

### **EVAPORATOR**

Plate type heat exchanger in AISI 316 stainless steel covered with closed-cell foam. Each evaporator is equipped with temperature probe for antifreeze protection and vane operated flow switch supplied as standard. The plate heat exchangers provide for:

- Increased COP/EER;
- Reduced refrigerant charge;
- Reduced volume and weight of the unit;
- Easier maintenance.

### **COOLING CIRCUIT**

Comprises: fluid valve, feeding plug, fluid sight glass, dehydrating filter, thermostatic expansion valve for pressure external control, high and low pressure switches and safety valve.





## TECHNICAL FEATURES

### ELECTRICAL PANEL

The panel consists of:

- Main disconnect switch;
- Fuses for main and auxiliary power circuit protection ;
- Magnetothermic switches, pumps (if present);
- Compressor remote switches;
- Fan remote switches ;
- Pump remote switches (for ST version)
- Microprocessor to control the following functions:
  - Control of ingoing water temperature;
  - Anti-freeze protection;
  - Compressor operation timers;
  - Automatic rotation of compressor start-up sequence;
  - Alarm signals;
  - Alarm reset;
  - Capacity steps;
  - Cumulative alarm contact for remote signaling;
  - Forced capacity reduction according to pressure limits;
- Display of:
  - Ingoing and outgoing water temperature;
  - Currently set temperature and differential;
  - Alarm description;
  - Hour counter for compressor operation;
- Black box function;
  - Power supply (V/ph/Hz): 400/3~/50 ±5%.

### CONTROL AND SAFETY DEVICES

- cooled water temperature control probe (on evaporator intake);
- anti-freeze probe on evaporator outtake;
- manual reset high pressure controller;
- controlled manual reset low pressure switch;
- high pressure safety valve;
- compressor overtemperature protection;
- fan overtemperature protection;
- vane actuated mechanical flow switch (supplied as standard)

### TESTING

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

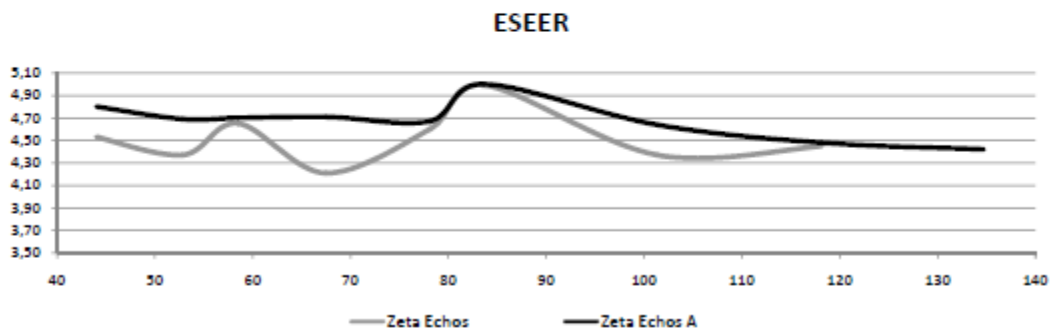
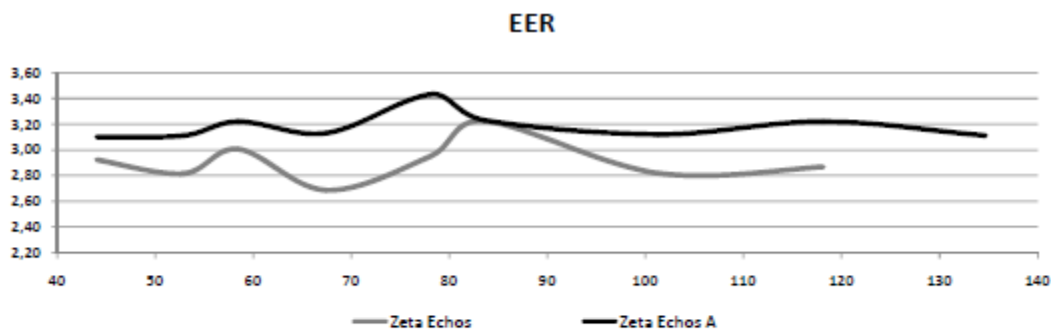
## VERSIONS

Check the table with the available configurations for any interferences between one option and the other.

### ZETA ECHOS A:

#### high performance unit

Zeta Echos Class A carries the hallmark of energy-saving thanks to an EER of the chiller operation always greater than 3.1! There are 9 sizes available, with a capacity range from 44 to 135 kW, classified in full compliance with the regulations set by EUROVENT as high energy efficiency class. The diagram below describes the increase of energy efficiency of the Zeta Echos range, at 100% charge (EER) and partial charge (ESEER), according to the EUROVENT provisions.



### ZETA ECHOS /HP:

#### reversible heat pump

Beside the basic version components, the unit comprises:

- 4-way reversing valve;
- fluid collector;
- a second thermostatic valve;
- solenoid valve on fluid line from 6.2 at 13.2;
- enablement of summer/winter mode switching and automatic defrosting via microprocessor, with a patented logic, which ensures optimal activation and duration of defrosting operations.

### ZETA ECHOS /LE:



**motocondensing unit**

In addition to the basic version, this unit has no evaporator and thermostatic valve fitted.. The fluid receptors can be supplied as accessories. The solenoid valve on the fluid line is supplied as standard. The unit is supplied without refrigerant charge.

**ZETA ECHOS /LE /HP:**

**heat pump motocondensing unit**

In addition to the basic version ZETA ECHOS/HP, this unit has no evaporator and thermostatic valves fitted. The solenoid valve on the fluid line is supplied as standard. The unit is supplied without refrigerant charge.



## HYDRAULIC SYSTEM OPTIONS

### ZETA ECHOS /ST 2PS

#### unit with pumps and tank

Beside the basic version components, the unit comprises:

- insulated storage tank;
- two circulation pumps of which one in stand-by mode, with automatic switch in case of failure;
- expansion vessel;
- check valve;
- gate valves.

The ST version is available in four additional configurations:

- ST 1PS: unit with pump and tank;
- ST 1P: unit with single pump without tank;
- ST 2P: with 2 pumps without tanks;
- ST S: with tank without pumps.

## ACCESSORY VERSIONS

### ZETA ECHOS /DC

#### unit with recovery condenser

Beside the basic version components, the unit comprises a recovery condenser on each cooling circuit (recovering 100% of the condensing heat for the production of hot water) and a fluid receptor. The condenser is brazed plate type. The accessory is available for sizes from 3.2-13.2 "1p-2p" and for all models without hydraulic module; is not available for the HP models. The control automatically enables the recovery function, depending on water temperature, and controls its safety desablement in case of high pressure. For maximum benefit use the accessory combined with the circuit regulator. The accessory is available for all models. It is not available for the HP version.

### ZETA ECHOS /DS

#### unit with desuperheater

Beside the basic version components, the unit comprises a brazed plate recovery condenser on each cooling circuit

(recovering 20 % of the condensate, connected in series with the condenser coil). The accessory is available for models from 3.2 to 13.2 with "1P-2P" and for all models without hydraulic module. For maximum benefit use the accessory combined with the circuit regulator. This version is also available for HP outfit. In this case, the system must be equipped with a shut-off valve on the water recovery line during the HP mode operation, as shown in the manual.

### ZETA ECHOS /LN

#### low-noise unit

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

### ZETA ECHOS /SLN

#### super low-noise unit

beside the /LN version components, the coil surface is larger, fans have reduced speed and a turn regulator.



## ACCESSORIES

### REFRIGERANT CIRCUIT ACCESSORIES

- Electronic thermostatic valve;
- Condensing pressure controlled by operation circuit regulator with low external temperatures;
- Double set point (high/low temperature) with a single electronic expansion valve. The evaporator is sized according to high temperature operation. The set point can be changed from the keyboard or the digital input, in this case must be specified in the order;
- High and low pressure switches are available for all models;
- Fluid receptors (supplied as standard for HP, HP/LE and DC, DC/LE versions);
- Intake and delivery valves on compressor line;
- Solenoid valve on fluid line (supplied as standard for HP and HP/LE and LE versions);
- Low water temperature kit.

### HYDRAULIC CIRCUIT ACCESSORIES

- Defroster for the evaporator (the ST version is equipped with an antifreeze resistance on the tank, piping system and on the pump spiral, which is insulated for this reason) and on any recovery heat exchanger;
- Water side safety valve (ST version only). The valve calibration value is 6 bar, which corresponds to the maximum allowed operating pressure.

### ELECTRICAL ACCESSORIES

- Serial interface RS485 suited for Carel and Modbus protocols;
- Power factor correction  $\cos \phi \geq 0.9$  under nominal operating conditions; on the external board in IP 55 (power supply connected by the installer directly on the main). The accessory is combined with dry contacts;
- Remote user terminal (in addition to the standard one);
- Dry contacts.

### MISCELLANEOUS ACCESSORIES

- Rubber antivibration mounts;
- Copper/copper condensation coil;
- Copper/tinned-copper condensation coil;
- Prepainted aluminium condensation coil;
- Condensation coil with passivated aluminium and polyurethane coating.  
The treatment consists of a double layer, the first of which passivates the aluminium and acts as a primer and the second which is a polyurethane-based surface coating. The product has high anti-corrosive properties and virtually resists to all environmental conditions. For installation in marine and rural environments, from industrial to urban areas;
- Packaging in wooden crates;
- Special pallet/skid for container shipment;
- Non-standard "RAL" paint colours.

### DOUBLE SET-POINT

The microprocessor enables you to set two set temperatures for the production of cold and hot water. Unless specified otherwise in the order, the default values are 12/7°C and 15/10°C for chiller mode and 40/45°C and 35/40°C for heat pump mode. The set temperatures must, in any case, remain within the operating ranges of the unit.

Use either the keypad or the digital input to switch between the first and second set. For series that do not permit the simultaneous selection of "Select summer/winter mode with digital input" and "Double set point with digital input", summer/winter mode can be selected only on the keypad while the double set point still uses the digital input, as per our standard.



### **EC FANS**

Units can be coupled to the innovative direct current EC axial fans with electronically commutated brushless motor.

These motors with permanent magnets rotor ensure a high level of efficiency for all work conditions and allow to obtain a 15% saving per fan.

Moreover, through a 0-10V analogical signal sent to every fan, the microprocessor allows to control the condensation through continuous air flow regulations on variation of the outdoor air temperature and the consequent sound emission reduction.

### **“BRINE KIT” ACCESSORY**

It is applied if the evaporator output temperature is included within +3°C and -8°C. It consists in a higher thermal insulation of the exchanger and piping, a specific calibration of the low pressure switches and of the anti-freeze alarm, and dimensioning check of the mechanical thermostatic valve.

If it is not included in the set-up, the “Check condensation” accessory must be added.

### **ELECTRONIC THERMOSTATIC VALVE**

The use of this accessory is particularly indicated for units that operate in very unstable heat load conditions or in unstable functional mode, as in the case of joint management of air conditioning and production of high temperature water. Use of the electronic thermostatic valve in fact allows to:

- Maximize the heat exchange to the evaporator
- Minimize response times on load variation and on operative conditions
- Optimize the regulation of the over-heating
- Guarantee maximum energy efficiency

### **SELF-ADAPTABLE REGULATION LOGIC**

This function allows the unit control to dynamically vary the outlet waters set point according to the stop and functional cycles of the machine: in practice, by increasing and reducing the water outlet temperature, the control avoids that compressor start-ups are too close in time, decreasing the number of peaks and protecting the unit components.

### **SOFT-STARTER**

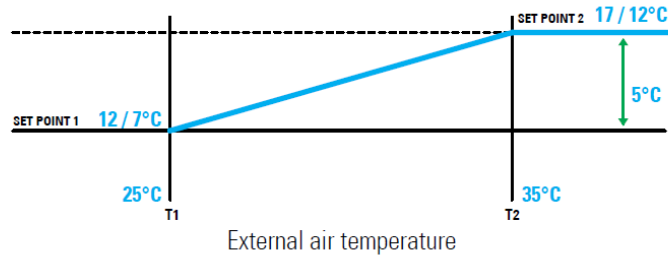
Blue Box units adopt all the required functioning set-ups and logics to minimise peak currents. The Soft-Starter accessory allows a further 40% reduction of normal current peaks, through an electronic control of the electric motor start-up.

### **COMPENSATION OF THE SET-POINT to the external air temperature**

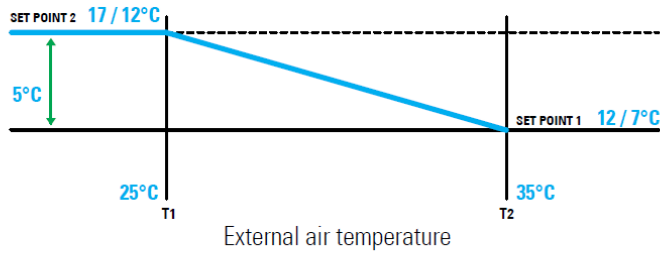
The unit microprocessor control can compensate the set point in a dynamic way, on variation of the external air temperature. The compensation can be positive or negative: with positive compensation, on increase of the air temperature the functioning set also increases. With negative compensation on increase of the air temperature the set decreases. Compensation can be made either on the summer set point or on the winter set point (heat pumps).

By default, both summer and winter negative compensation is set, but this configuration can be modified from the microprocessor keyboard. Unless otherwise specified, default values are indicated in the graphics below.

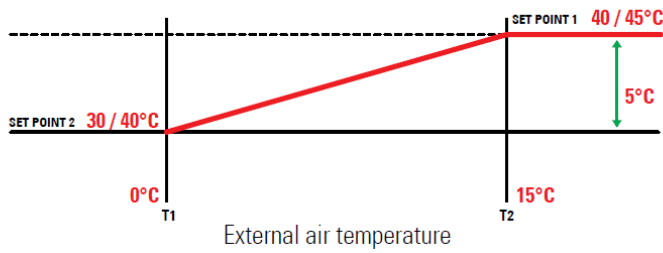
**SUMMER COMPENSATION-POSITIVE**



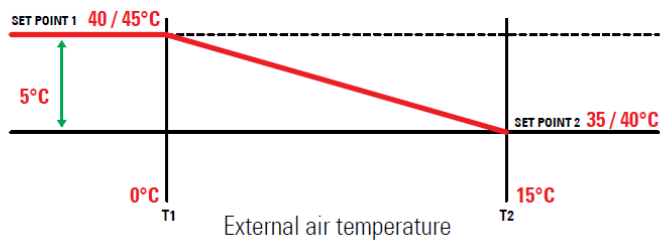
**SUMMER COMPENSATION-NEGATIVE**



**WINTER COMPENSATION-POSITIVE**



**WINTER COMPENSATION-NEGATIVE**



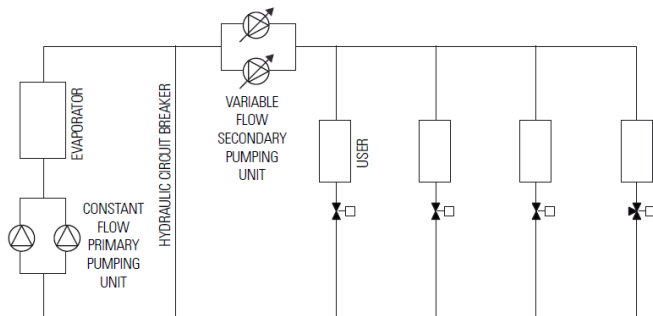
## INVERTER DRIVEN PUMP (PER ST1P/S 0 ST2P/S)

### Energy savings:

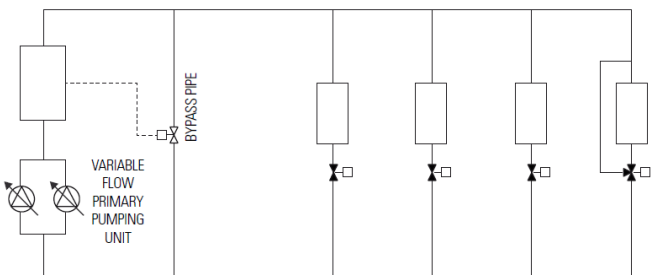
Variable flow pumps have become more widespread over the years to optimise air conditioning and cooling systems. Thanks to the inverter Driven Pump, Western Airconditioning offers an alternative method that differs from conventional layouts: a constant flow primary pump and a variable flow secondary pump.

Let's compare the two solutions:

- 1) The figure below shows the layout of a constant flow primary pump and a variable flow secondary pump. Please note the use of the decoupling pipe between the primary and secondary system (design to cover the entire flow rate): if the utilities only require a percentage of the nominal power, the decoupling pipe recirculates the excess flow, which means wasting pumping energy.



The figure below shows a system with only variable flow primary, which also serve the secondary system. The bypass pipe and the two-way control valve ensure minimum water flow through the evaporator when the request is below the allowed minimum water flow rate than the nominal one. This allows to considerably reduce energy losses related to the mixing process, which in traditional systems are caused by the hydraulic circuit breaker.

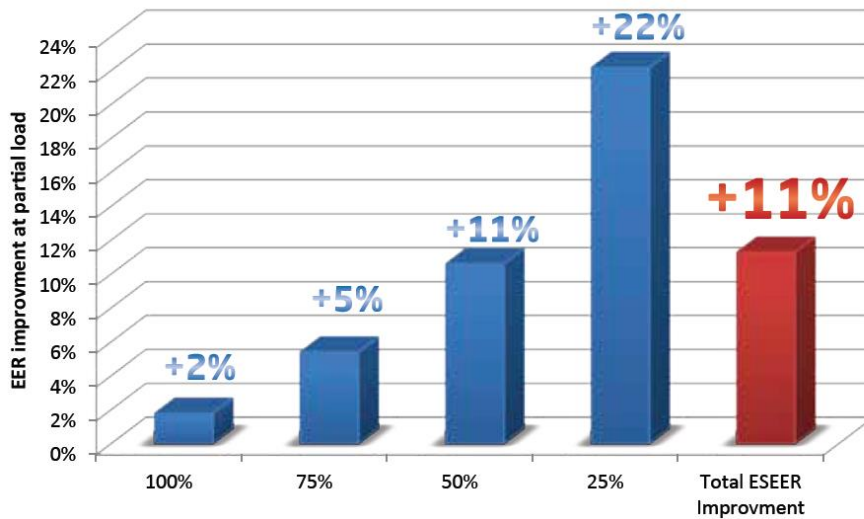


### Benefits of the Inverter Driven pump:

- Saving a set of pumps
- Reduced overall dimensions of the machines' housings
- Lower piping costs
- Reduced pressure drops
- Greater energy efficiency on the pump side

As we can see from the graph under EUROVENT conditions, the systems in the diagrams have higher efficiency under part-load conditions, considering the energy consumed by the pumps as well as by the chiller (compressors plus fans)



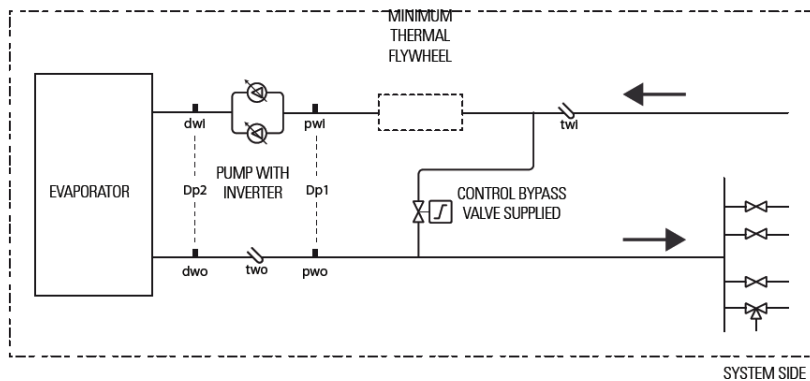


Energy savings in these conditions can be as high as 11% per year and sometimes even more!

#### Inverter Driven Pump operating logic:

Dp1: System side pressure drops

Dp2: Evaporator pressure drops



When all the utilities are in operation, the unit's pump runs at the nominal flow rate and with an available head on the system side equal to Dp1 and evaporator pressure drops equal to Dp2. The system's heat load drop causes the shut-off valves of the utilities to close, which results in an increase in the pressure drops that the pump needs to overcome. At the same time, the inverter's control logic will reduce the flow rate, which will determine lower evaporator pressure drops and bring back the available head to the nominal Dp1 value.



**Key points for a variable flow primary system:**

In order for the components of the system to operate optimally, it is important to take some key points into account:

**1) minimum water flow and bypass valve supplied:**

The inverter Driven pump also includes the two-way bypass valve supplied with it and adequately designed in relation to the size of the unit.

If on the system side the heat load is very low, this means that many utilities are closed, which results in an increase in pressure drops. The inverter counters the Dp1 variation detected by the sensor by reducing the speed of the pump and the flow rate as a result. However, there is a limit lower than the flow rate value below which the heat exchange towards the evaporator is not performed properly and the temperature drop processed by the evaporator increases, which might activate the anti-freeze alarm. The two-way control valve adequately selected based on the machine model prevents this alarm from being triggered, thereby ensuring the minimum water flow rate towards the evaporator.

**2) "Minimum thermal flywheel":**

In the event of a heat load close to zero, with the unit in maximum power partialisation conditions, the pump set at the minimum flow rate and closed system valves, the machine might stop due to the anti-freeze alarm.

To prevent this problem, there must be a "minimum thermal flywheel" in the evaporator / bypass valve section.

Below is the formula to determine it:

$$Vol = \frac{P_0 * k}{N} \quad [l]$$

$P_0$  Machine overall chilling power [kW]

$N$  : Inverse of the unit's minimum partialisation

$k$  : parameter [l/kW]

Scroll compressors		2	3	4	5	6	7	8	9	10	12
k	[l/kW]	17.4	13	13.9	17.4	16.3	15.3	14.8	14.6	13.9	13.4
N		2	3	4	5	6	7	8	9	10	12

The water content of the evaporator, of the hydraulic module's inertial tank (if there is one) and of the pipes between the bypass and the evaporator itself may contribute to determine the "minimum thermal flywheel".

However, it is advisable to use three-way valves on a certain number of utilities on the system to ensure a minimum flow of water towards the system in any condition.

Please note: if this accessory is installed, the minimum cold water temperature at the outlet cannot drop below 7°C. Moreover, the temperature variation considered under the conditions specified in the project must be 5°C. Please contact our sale department for the minimum water temperature at the outlet (production of cold water) and for different temperature drop values.

You should also contact the sales department in the event of production of hot water for temperatures at the outlet below 40°C.

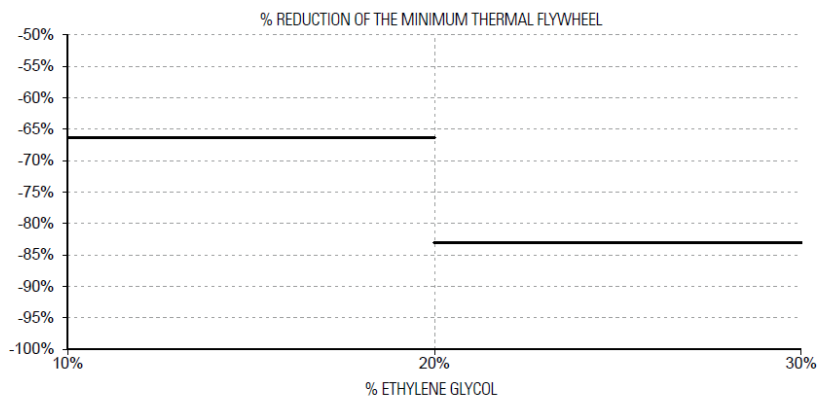
Attention: the "minimum thermal flywheel" must be between the bypass valve and the evaporator. This is a part of the "minimum water content of the system" described in the relative chapter; the difference between the "minimum water content of the system" and the "minimum thermal flywheel" can instead be positioned in any area of the system.



The “minimum thermal flywheel” allows the unit to operate correctly also in heat pump mode.

For cooling-only machines, if using ethylene glycol mixes, it is possible to reduce the “minimum thermal flywheel” based on the curves below.

For scroll compressors:



If the unit is in heat pump mode, the “minimum thermal flywheel” is not reduced even if there is glycol.

## Zeta Echos - general technical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
<b>Cooling (Gross values)</b>							
Nominal cooling capacity	(1)	kW	40,9	45,9	51,8	60,4	66,8
Total power input for cooling	(1),(2)	kW	13,6	15,7	18,4	20,1	24,9
EER	(1)		3,01	2,92	2,82	3,00	2,69
ESEER			4,67	4,53	4,37	4,65	4,21
Efficiency class			B	B	C	B	D
<b>Cooling (EN 14511 values)</b>							
Nominal cooling capacity	(1),(8)	kW	40,5	45,5	51,4	60,0	66,4
EER	(1),(8)		2,90	2,83	2,74	2,92	2,64
ESEER	(8)		4,24	4,14	4,00	4,26	4,01
Efficiency class			C	C	C	B	D
<b>Heating (Gross values)</b>							
Nominal heating capacity	(3)	kW	41,6	47,4	55,5	63,4	71,0
Total power input for heating	(2),(3)	kW	14,2	16,2	18,7	20,8	25,1
COP	(3)		2,93	2,93	2,97	3,05	2,83
Efficiency class			C	C	C	B	C
<b>Heating (EN 14511 values)</b>							
Nominal heating capacity	(3),(8)	kW	42,0	47,8	55,9	63,8	71,3
COP	(3),(8)		2,88	2,88	2,93	3,01	2,81
Efficiency class			C	C	C	B	C
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	5,2	6,5	6,5	6,5	6,6
Total refrigerant load (CH version)		kg	6,7	6,8	9	15,8	16
Total refrigerant load (/HP version)		kg	14,8	14,9	17	18,4	18,6
<b>Fans</b>							
Type					Axial		
Quantity		n°	2	2	2	2	2
Air flow		m³/h	17.000	17.000	15.000	19.000	19.000
<b>Evaporator</b>							
Type					With plates		
Quantity		n°	1	1	1	1	1
Water flow		l/h	7034	7893	8908	10387	11481
Pressure drop		kPa	65,0	55,7	54,8	51,1	35,5
<b>Hydraulic module</b>							
Head ratings	(6)	kPa	127	108	105	153	149
Storage tank capacity	(6)	l	165	165	165	200	200
Expansion vessel		l	5	5	5	18	18
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	83	83	83	83	84
Noise pressure level (basic unit)	(5)	dB(A)	51	51	51	51	52
Noise power level (LN version)	(4)	dB(A)	81	81	81	81	82
Noise pressure level (LN version)	(5)	dB(A)	49	49	49	49	50
<b>Basic version dimensions and weights</b>							
Length		mm	1750	1750	1750	2233	2233
Depth		mm	1003	1003	1003	1020	1020
Height		mm	1400	1400	1400	1738	1738
Operating weight		kg	428	439	453	631	631

(1) External air temperature 35°C, evaporator ingoing-outgoing water temperature 12-7°C  
(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans  
(3) External air temperature 7°C BS, 8°C BU; condenser ingoing-outgoing water temperature 40-45 °C  
(4) Noise power levels measured according to ISO 3744, under nominal operating conditions  
(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.  
(6) For ST 2PS version  
(8) Values in compliance with EN 14511-3:2011

## Zeta Echos - general technical data

UNIT SIZE			8.2	9.2	10.2	12.2	13.2
<b>Cooling (Gross values)</b>							
Nominal cooling capacity	(1)	kW	83,5	93,7	104,0	117,0	125,0
Total power input for cooling	(1),(2)	kW	25,9	31,3	36,9	40,8	45,5
EER	(1)		3,22	2,99	2,82	2,87	2,75
ESEER			4,99	4,63	4,37	4,45	4,26
Efficiency class			A	B	C	C	C
<b>Cooling (EN 14511 values)</b>							
Nominal cooling capacity	(1),(8)	kW	83,0	93,1	103,4	116,4	124,4
EER	(1),(8)		3,14	2,92	2,76	2,81	2,70
ESEER	(8)		4,58	4,25	4,03	4,09	3,93
Efficiency class			A	B	C	C	D
<b>Heating (Gross values)</b>							
Nominal heating capacity	(3)	kW	83,9	97,0	112,0	127,0	139,0
Total power input for heating	(2),(3)	kW	27,9	32,6	36,7	42,8	46,0
COP	(3)		3,01	2,98	3,05	2,97	3,02
Efficiency class			B	C	B	C	B
<b>Heating (EN 14511 values)</b>							
Nominal heating capacity	(3),(8)	kW	84,4	97,6	112,6	127,7	139,7
COP	(3),(8)		2,97	2,94	3,02	2,94	2,99
Efficiency class			C	C	B	C	C
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	6,2	12,4	12,4	12,4	14,2
Total refrigerant load (CH version)		kg	23,2	23,4	23,6	23,7	23,9
Total refrigerant load (HP version)		kg	25,7	25,8	26	26	26
<b>Fans</b>							
Type					Axial		
Quantity		n°	3	3	3	2	2
Air flow		m³/h	28.500	28.500	28.500	36.000	36.000
<b>Evaporator</b>							
Type					With plates		
Quantity		n°	1	1	1	1	1
Water flow		l/h	14359	16113	17885	20120	21496
Pressure drop		kPa	49,4	50,6	46,0	48,8	45,1
<b>Hydraulic module</b>							
Head ratings	(6)	kPa	123	143	130	124	108
Storage tank capacity	(6)	l	450	450	450	450	450
Expansion vessel		l	18	18	18	18	18
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	85	86	86	87	87
Noise pressure level (basic unit)	(5)	dB(A)	53	54	54	55	55
Noise power level (LN version)	(4)	dB(A)	83	84	84	85	85
Noise pressure level (LN version)	(5)	dB(A)	51	52	52	53	53
<b>Basic version dimensions and weights</b>							
Length		mm	3234	3234	3234	3233	3233
Depth		mm	1144	1144	1144	1120	1120
Height		mm	1740	1740	1740	1882	1882
Operating weight		kg	911	920	935	1077	1120

(1) External air temperature 35°C; evaporator ingoing-outgoing water temperature 12-7°C

(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans

(3) External air temperature 7°C BS, 8°C BU; condenser ingoing-outgoing water temperature 40-45 °C

(4) Noise power levels measured according to ISO 3744, under nominal operating conditions.

(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.

(6) For ST 2PS version

(8) Values in compliance with EN 14511-3:2011

## Zeta Echos SLN - general technical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
<b>Cooling (Gross values)</b>							
Nominal cooling capacity	(1)	kW	40,9	45,9	51,8	60,4	66,8
Total power input for cooling	(1),(2)	kW	13,6	15,7	18,4	20,1	24,9
EER	(1)		3,01	2,92	2,82	3,00	2,69
ESEER			4,67	4,53	4,37	4,65	4,21
Efficiency class			B	B	C	B	D
<b>Cooling (EN 14511 values)</b>							
Nominal cooling capacity	(1),(8)	kW	40,5	45,5	51,4	60,0	66,4
EER	(1),(8)		2,90	2,83	2,74	2,92	2,64
ESEER	(8)		4,24	4,14	4,00	4,26	4,01
Efficiency class			C	C	C	B	D
<b>Heating (Gross values)</b>							
Nominal heating capacity	(3)	kW	41,6	47,4	55,5	63,4	71,0
Total power input for heating	(2),(3)	kW	14,2	16,2	18,7	20,8	25,1
COP	(3)		2,93	2,93	2,97	3,05	2,83
Efficiency class			C	C	C	B	C
<b>Heating (EN 14511 values)</b>							
Nominal heating capacity	(3),(8)	kW	42,0	47,8	55,9	63,8	71,3
COP	(3),(8)		2,88	2,88	2,93	3,01	2,81
Efficiency class			C	C	C	B	C
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	6	6,6	6,6	6,6	6,6
Total refrigerant load (CH version)		kg	6,7	6,8	9	15,8	16
Total refrigerant load (/HP version)		kg	14,8	14,9	17	18,4	18,6
<b>Fans</b>							
Type					Axial		
Quantity		n°	2	2	2	3	3
Air flow		m³/h	17.000	17.000	15.000	19.000	19.000
<b>Evaporator</b>							
Type					With plates		
Quantity		n°	1	1	1	1	1
Water flow		l/h	7034	7893	8908	10387	11481
Pressure drop		kPa	65,0	55,7	54,8	51,1	35,5
<b>Hydraulic module</b>							
Head ratings	(6)	kPa	127	108	105	108	104
Storage tank capacity	(6)	l	165	165	165	200	200
Expansion vessel		l	5	5	5	18	18
<b>Noise levels</b>							
Noise power level	(4)	dB(A)	76	77	78	78	79
Noise pressure level	(5)	dB(A)	44	45	46	46	47
<b>Basic version dimensions and weights</b>							
Length		mm	1750	1750	2233	3234	3234
Depth		mm	1003	1003	1020	1144	1144
Height		mm	1400	1400	1738	1740	1740
Operating weight		kg	428	439	628	819	846

(1) External air temperature 35°C; evaporator ingoing-outgoing water temperature 12-7°C

(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans

(3) External air temperature 7°C BS, 8°C BU; condenser ingoing-outgoing water temperature 40-45 °C

(4) Noise power levels measured according to ISO 3744, under nominal operating conditions.

(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.

(6) For ST 2PS version

(8) Values in compliance with EN 14511-3:2011

## Zeta Echos SLN - general technical data

UNIT SIZE			8.2	9.2	10.2	12.2	13.2
<b>Cooling (Gross values)</b>							
Nominal cooling capacity	(1)	kW	83,5	93,7	104,0	117,0	125,0
Total power input for cooling	(1),(2)	kW	25,9	31,3	36,9	40,8	45,5
EER	(1)		3,22	2,99	2,82	2,87	2,75
ESEER			4,99	4,63	4,37	4,45	4,26
Efficiency class			A	B	C	C	C
<b>Cooling (EN 14511 values)</b>							
Nominal cooling capacity	(1),(8)	kW	83,0	93,1	103,4	116,4	124,4
EER	(1),(8)		3,14	2,92	2,76	2,81	2,70
ESEER	(8)		4,58	4,25	4,03	4,09	3,93
Efficiency class			A	B	C	C	D
<b>Heating (Gross values)</b>							
Nominal heating capacity	(3)	kW	83,9	97,0	112,0	127,0	139,0
Total power input for heating	(2),(3)	kW	27,9	32,6	36,7	42,8	46,0
COP	(3)		3,01	2,98	3,05	2,97	3,02
Efficiency class			B	C	B	C	B
<b>Heating (EN 14511 values)</b>							
Nominal heating capacity	(3),(8)	kW	84,4	97,6	112,6	127,7	139,7
COP	(3),(8)		2,97	2,94	3,02	2,94	2,99
Efficiency class			C	C	B	C	C
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	13,4	13,4	13,4	13,4	13,4
Total refrigerant load (CH version)		kg	23,2	23,4	23,6	23,7	23,9
Total refrigerant load (/HP version)		kg	25,7	25,8	26	26	26
<b>Fans</b>							
Type					Axial		
Quantity		n°	2	2	2	2	2
Air flow		m³/h	28.500	28.500	28.500	36.000	36.000
<b>Evaporator</b>							
Type					With plates		
Quantity		n°	1	1	1	1	1
Water flow		l/h	14359	16113	17885	20120	21496
Pressure drop		kPa	49,4	50,6	46,0	48,8	45,1
<b>Hydraulic module</b>							
Head ratings	(6)	kPa	123	143	130	124	108
Storage tank capacity	(6)	l	450	450	450	450	450
Expansion vessel		l	18	18	18	18	18
<b>Noise levels</b>							
Noise power level	(4)	dB(A)	80	81	82	82	83
Noise pressure level	(5)	dB(A)	48	49	50	50	51
<b>Basic version dimensions and weights</b>							
Length		mm	3233	3233	3233	3233	3233
Depth		mm	1120	1120	1120	1120	1120
Height		mm	1882	1882	1882	1882	1882
Operating weight		kg	1136	1144	1156	1196	1238

(1) External air temperature 35°C; evaporator ingoing-outgoing water temperature 12-7°C  
 (2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans  
 (3) External air temperature 7°C BS, 6°C BU; condenser ingoing-outgoing water temperature 40-45 °C  
 (4) Noise power levels measured according to ISO 3744, under nominal operating conditions.  
 (5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.  
 (6) For ST 2PS version  
 (8) Values in compliance with EN 14511-3:2011

## Zeta Echos /LE - general technical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
<b>Cooling</b>							
Nominal cooling capacity	(1)	kW	45,9	51,5	59,1	70,1	76,39
Total absorbed power in cooling mode	(1),(2)	kW	13,78	15,98	18,88	20,58	25,1
EER	(1)		3,33	3,22	3,13	3,41	3,04
<b>Heating</b>							
Nominal heating capacity	(3)	kW	43,1	49,3	57,7	66,4	71,99
Total absorbed power in heating mode	(2),(3)	kW	10,98	12,28	14,08	16,18	20,02
Compressor absorbed power	(3)	kW	9,80	11,10	12,90	15,00	18,84
COP	(3)		3,93	4,01	4,10	4,10	3,60
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n°/n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	5,2	6,5	6,5	6,5	6,6
<b>Fans</b>							
Type					Axial		
Quantity		n°	2	2	2	2	2
Air flow		m <sup>3</sup> /h	17.000	17.000	15.000	19.000	19.000
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	83	83	83	83	84
Noise pressure level (basic unit)	(5)	dB(A)	51	51	51	51	52
Noise power level (LN version)	(4)	dB(A)	81	81	81	81	82
Noise pressure level (LN version )	(5)	dB(A)	49	49	49	49	50
Noise power level (SLN version)	(4)	dB(A)	76	77	78	78	79
Noise pressure level (SLN version )	(5)	dB(A)	44	45	46	46	47
<b>Basic version dimensions and weights</b>							
Length		mm	1.750	1.750	1.750	2.233	2.233
Depth		mm	1.003	1.003	1.003	1.020	1.020
Height		mm	1.400	1.400	1.400	1.738	1.738
Operating weight		kg	411	419	432	598	598

(1) External air temperature 35°C; evaporation temperature 7.5°C

(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans

(3) External air temperature 8°C, 70% UR; condensation temperature 40°C

(4) Noise power levels measured according to ISO 3744, under nominal operating conditions.

(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.



## Zeta Echos /LE - general technical data

UNIT SIZE			8.2	9.2	10.2	12.2	13.2
<b>Cooling</b>							
Nominal cooling capacity	(1)	kW	92,3	104,7	117,2	134,3	144,4
Total absorbed power in cooling mode	(1),(2)	kW	26,07	31,77	37,97	42,2	47,4
EER	(1)		3,54	3,30	3,09	3,18	3,05
<b>Heating</b>							
Nominal heating capacity	(3)	kW	87,4	100,7	116,6	131,4	143,7
Total absorbed power in heating mode	(2),(3)	kW	21,97	25,27	28,67	34,1	37,2
Compressor absorbed power	(3)	kW	20,20	23,50	26,90	30,10	33,20
COP	(3)		3,98	3,98	4,07	3,85	3,86
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n°/n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	13,4	13,4	13,4	13,4	13,4
<b>Fans</b>							
Type					Axial		
Quantity		n°	3	3	3	2	2
Air flow		m <sup>3</sup> /h	28.500	28.500	28.500	36.000	36.000
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	85	86	86	87	87
Noise pressure level (basic unit)	(5)	dB(A)	53	54	54	55	55
Noise power level (LN version)	(4)	dB(A)	83	84	84	85	85
Noise pressure level (LN version )	(5)	dB(A)	51	52	52	53	53
Noise power level (SLN version)	(4)	dB(A)	80	81	82	82	83
Noise pressure level (SLN version )	(5)	dB(A)	48	49	50	50	51
<b>Basic version dimensions and weights</b>							
Length		mm	3233	3233	3233	3233	3233
Depth		mm	1120	1120	1120	1120	1120
Height		mm	1738	1738	1738	1882	1882
Operating weight		kg	875	883	889	1033	1071

- (1) External air temperature 35°C, evaporation temperature 7.5°C  
(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans  
(3) External air temperature 8°C, 70% UR, condensation temperature 40°C  
(4) Noise power levels measured according to ISO 3744, under nominal operating conditions.  
(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.

## Zeta Echos /LE - general technical data

UNIT SIZE			15.2	16.2	14.4	16.4	18.4
<b>Cooling</b>							
Nominal cooling capacity	(1)	kW	160,8	169,4	150,2	172,1	210,1
Total absorbed power in cooling mode	(1),(2)	kW	56,9	62,8	52,2	57,1	65,1
EER	(1)		2,83	2,70	2,88	3,01	3,23
<b>Heating</b>							
Nominal heating capacity	(3)	kW	154,7	163,4	146,9	169,1	209
Total absorbed power in heating mode	(2),(3)	kW	45,4	48,4	41,7	44,4	53,1
Compressor absorbed power	(3)	kW	41,40	44,40	37,70	40,40	47,10
COP	(3)		3,41	3,38	3,52	3,81	3,94
<b>Compressors</b>							
Type			Scroll				
Quantity/Cooling circuits		n°/n°	2 / 1	2 / 1	4 / 2	4 / 2	4 / 2
Capacity steps		n°	0-50-100	0-50-100	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100
Total oil load		kg	14	14,5	14	16	24,8
<b>Fans</b>							
Type			Axial				
Quantity		n°	2	2	2	2	3
Air flow		m <sup>3</sup> /h	40.000	40.000	40.000	40.000	60.000
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	89	89	90	90	91
Noise pressure level (basic unit)	(5)	dB(A)	57	57	58	58	59
Noise power level (LN version)	(4)	dB(A)	86	86	88	88	89
Noise pressure level (LN version)	(5)	dB(A)	54	54	56	56	57
Noise power level (SLN version)	(4)	dB(A)	84	84	86	86	87
Noise pressure level (SLN version)	(5)	dB(A)	52	52	54	54	55
<b>Basic version dimensions and weights</b>							
Length		mm	3.233	3.233	3.233	3.240	4.240
Depth		mm	1.120	1.120	1.120	1.120	1.120
Height		mm	2.382	2.382	2.382	2.382	2.382
Operating weight		kg	1.300	1.390	1.298	1.358	1.678

(1) External air temperature 35°C; evaporation temperature 7,5°C  
(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans  
(3) External air temperature 8°C, 70% UR, condensation temperature 40°C  
(4) Noise power levels measured according to ISO 3744, under nominal operating conditions.  
(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.

## Zeta Echos /LE - general technical data

UNIT SIZE			20.4	24.4	26.4	30.4	33.4
<b>Cooling</b>							
Nominal cooling capacity	(1)	kW	237,3	263,5	285,1	309,1	344,31
Total absorbed power in cooling mode	(1),(2)	kW	75,8	86,2	97,1	116	125,4
EER	(1)		3,13	3,06	2,94	2,66	2,75
<b>Heating</b>							
Nominal heating capacity	(3)	kW	237,3	255,9	282,5	304,7	328
Total absorbed power in heating mode	(2),(3)	kW	59,9	68,1	74,5	90,7	98,8
Compressor absorbed power	(3)	kW	53,90	60,10	66,50	82,70	88,80
COP	(3)		3,96	3,76	3,79	3,36	3,32
<b>Compressors</b>							
Type			Scroll				
Quantity/Cooling circuits		n°/n°	4 / 2	4 / 2	4 / 2	4 / 2	4 / 2
Capacity steps		n°	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100	0-25-50-75-100
Total oil load		kg	24,8	28,4	32	28	29
<b>Fans</b>							
Type			Axial				
Quantity		n°	3	4	4	4	5
Air flow		m <sup>3</sup> /h	60.000	70.000	70.000	78.000	90.000
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	92	93	93	95	96
Noise pressure level (basic unit)	(5)	dB(A)	60	61	61	63	64
Noise power level (LN version)	(4)	dB(A)	90	91	91	93	94
Noise pressure level (LN version )	(5)	dB(A)	58	59	59	61	62
Noise power level (SLN version)	(4)	dB(A)	88	88	89	91	92
Noise pressure level (SLN version )	(5)	dB(A)	56	56	57	59	60
<b>Basic version dimensions and weights</b>							
Length		mm	4.240	4.240	4.240	5.234	5.234
Depth		mm	1.120	1.120	1.120	1.120	1.120
Height		mm	2.382	2.382	2.382	2.382	2.382
Operating weight		kg	1.698	1.822	1.960	2.278	2.354

(1) External air temperature 35°C, evaporation temperature 7.5°C

(2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans

(3) External air temperature 8°C, 70% UR, condensation temperature 40°C

(4) Noise power levels measured according to ISO 3744, under nominal operating conditions.

(5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.

## Zeta Echos A - general technical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
<b>Cooling (Gross values)</b>							
Nominal cooling capacity	(1)	kW	45,6	54,2	58,5	69,1	78,1
Total power input for cooling	(1),(2)	kW	14,3	17,1	18,2	21,8	22,8
EER	(1)		3,19	3,17	3,21	3,17	3,43
ESEER			4,68	4,69	4,70	4,71	4,67
Efficiency class			A	A	A	A	A
<b>Cooling (EN 14511 values)</b>							
Nominal cooling capacity	(1),(8)	kW	45,3	54,0	58,2	68,8	77,7
EER	(1),(8)		3,11	3,11	3,13	3,12	3,35
ESEER	(8)		4,38	4,43	4,40	4,47	4,39
Efficiency class			A	A	A	A	A
<b>Heating (Gross values)</b>							
Nominal heating capacity	(3)	kW	51,3	59,7	66,4	74,5	89,3
Total power input for heating	(2),(3)	kW	13,8	16,0	17,8	20,4	23,8
COP	(3)		3,72	3,74	3,74	3,66	3,76
Efficiency class			A	A	A	A	A
<b>Heating (EN 14511 values)</b>							
Nominal heating capacity	(3),(8)	kW	51,7	60,0	66,9	74,8	89,8
COP	(3),(8)		3,65	3,69	3,67	3,62	3,70
Efficiency class			A	A	A	A	A
<b>Compressors</b>							
Type					Scroll		
Quantity/Cooling circuits		n° / n°	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	6	6,6	6,6	6,6	6,6
Total refrigerant load (CH version)		kg	6,7	6,8	9	15,8	16
Total refrigerant load (/HP version)		kg	14,8	14,9	17	18,4	18,6
<b>Fans</b>							
Type					Axial		
Quantity		n°	2	2	2	2	3
Air flow		m³/h	15.000	15.000	19.000	19.000	28.500
<b>Evaporator</b>							
Type					With plates		
Quantity		n°	1	1	1	1	1
Water flow		l/h	7574	9089	10064	11604	13431
Pressure drop		kPa	44,0	34,0	43,0	28,0	38,0
<b>Hydraulic module</b>							
Head ratings	(6)	kPa	135	121	169	171	142
Storage tank capacity	(6)	l	165	165	200	200	200
Expansion vessel		l	5	5	18	18	18
<b>Noise levels</b>							
Noise power level (basic version)	(4)	dB(A)	80	80	81	81	82
Noise pressure level (basic unit)	(5)	dB(A)	48	48	49	49	50
Noise power level (LN version)	(4)	dB(A)	78	78	79	79	80
Noise pressure level (LN version)	(5)	dB(A)	46	46	47	47	48
<b>Basic version dimensions and weights</b>							
Length		mm	1.750	1.750	2.233	2.233	3.234
Depth		mm	1.003	1.003	1.020	1.020	1.144
Height		mm	1.400	1.400	1.738	1.738	1.740
Operating weight		kg	467	486	673	695	883

(1) External air temperature 35°C; evaporator ingoing-outgoing water temperature 12-7°C  
 (2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans  
 (3) External air temperature 7°C BS, 6°C BU, condenser ingoing-outgoing water temperature 40-45 °C  
 (4) Noise power levels measured according to ISO 3744, under nominal operating conditions.  
 (5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.  
 (6) For ST 2PS version  
 (8) Values in compliance with EN 14511-3:2011

## Zeta Echos A - general technical data

UNIT SIZE			8.2	9.2	10.2	12.2
<b>Cooling (Gross values)</b>						
Nominal cooling capacity	(1)	kW	83,6	104,5	118,1	138,0
Total power input for cooling	(1),(2)	kW	25,9	32,8	36,6	43,5
EER	(1)		3,23	3,19	3,23	3,17
ESEER			5,00	4,64	4,48	4,42
Efficiency class			A	A	A	A
<b>Cooling (EN 14511 values)</b>						
Nominal cooling capacity	(1),(8)	kW	83,1	104,0	117,5	137,5
EER	(1),(8)		3,16	3,12	3,15	3,13
ESEER	(8)		4,68	4,31	4,16	4,19
Efficiency class			A	A	A	A
<b>Heating (Gross values)</b>						
Nominal heating capacity	(3)	kW	99,2	114,6	135,5	151,5
Total power input for heating	(2),(3)	kW	27,1	33,5	38,1	42,1
COP	(3)		3,67	3,42	3,56	3,60
Efficiency class			A	A	A	A
<b>Heating (EN 14511 values)</b>						
Nominal heating capacity	(3),(8)	kW	99,8	115,2	136,4	152,1
COP	(3),(8)		3,61	3,38	3,50	3,56
Efficiency class			A	A	A	A
<b>Compressors</b>						
Type					Scroll	
Quantity/Cooling circuits		n° / n°	2 / 1	2 / 1	2 / 1	2 / 1
Capacity steps		n°	0-50-100	0-50-100	0-50-100	0-50-100
Total oil load		kg	6,2	12,4	12,4	12,4
Total refrigerant load (CH version)		kg	23,2	23,4	23,6	23,7
Total refrigerant load (/HP version)		kg	25,7	25,8	26	26
<b>Fans</b>						
Type					Axial	
Quantity		n°	3	2	2	2
Air flow		m³/h	28.500	36.000	40.000	40.000
<b>Evaporator</b>						
Type					With plates	
Quantity		n°	1	1	1	1
Water flow		l/h	14378	17422	20316	23164
Pressure drop		kPa	43,0	51,0	52,0	30,0
<b>Hydraulic module</b>						
Head ratings	(6)	kPa	126	135	126	128
Storage tank capacity	(6)	l	450	450	450	450
Expansion vessel		l	18	18	18	18
<b>Noise levels</b>						
Noise power level (basic version)	(4)	dB(A)	85	85	86	86
Noise pressure level (basic unit)	(5)	dB(A)	53	53	54	54
Noise power level (LN version)	(4)	dB(A)	83	83	84	84
Noise pressure level (LN version)	(5)	dB(A)	51	51	52	52
<b>Basic version dimensions and weights</b>						
Length		mm	3.234	3.233	3.233	3.233
Depth		mm	1.144	1.120	1.120	1.120
Height		mm	1.740	1.882	2.382	2.382
Operating weight		kg	953	1.018	1.192	1.250

(1) External air temperature 35°C; evaporator ingoing-outgoing water temperature 12-7°C  
 (2) The total capacity is represented by the sum of the power absorbed by compressors and that absorbed by fans  
 (3) External air temperature 7°C BS, 6°C BU; condenser ingoing-outgoing water temperature 40-45 °C  
 (4) Noise power levels measured according to ISO 3744, under nominal operating conditions.  
 (5) Sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.  
 (6) For ST 2PS version  
 (8) Values in compliance with EN 14511-3:2011

## Zeta Echos - general electrical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
Maximum absorbed power	(1),(3)	kW	19,18 (20,08)	21,38 (22,28)	25,18 (26,08)	27,58 (29,08)	31,94 (33,44)
Maximum absorbed current	(2),(3)	A	38,1 (40,7)	45,1 (47,7)	48,3 (50,9)	54,7 (58,2)	59,3 (62,8)
Maximum input current	(4)	A	117,1 (118)	136,6 (137,5)	145,2 (146,1)	148,3 (149,8)	190,7 (192,2)
Fan nominal power		n° x kW	2 x 0,6	2 x 0,6	2 x 0,6	2 x 0,6	2 x 0,6
Fan nominal current		n° x A	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0
Pump motor nominal power		kW	0,9	0,9	0,9	1,5	1,5
Pump motor nominal current		A	2,61	2,61	2,61	3,49	3,49
Main power supply		V/ph/Hz	400/3N~/50 ±5%				
Auxilliary power supply		V/ph/Hz	230/1~/50 ±5%				

UNIT SIZE			8.2	9.2	10.2	12.2	13.2
Maximum absorbed power	(1),(3)	kW	38,57 (40,07)	45,07 (46,92)	51,57 (53,42)	59,60 (61,80)	65,40 (67,60)
Maximum absorbed current	(2),(3)	A	73,1 (76,6)	83,2 (88,2)	93,2 (98,2)	104,2 (109,0)	116,3 (121,1)
Maximum input current	(4)	A	236,0 (237,5)	256,1 (257,95)	266,1 (267,95)	322,1 (324,3)	322,1 (324,3)
Fan nominal power		n° x kW	3 x 0,6	3 x 0,6	3 x 0,6	2 x 2,0	2 x 2,0
Fan nominal current		n° x A	3 x 3,0	3 x 3,0	3 x 3,0	2 x 4,0	2 x 4,0
Pump motor nominal power		kW	1,5	1,85	1,85	2,2	2,2
Pump motor nominal current		A	3,49	4,98	4,98	4,78	4,78
Main power supply		V/ph/Hz	400/3N~/50 ±5%			400/3~/50 ±5%	
Auxilliary power supply		V/ph/Hz	230/1~/50 ±5%			230/1~/50 ±5%	

(1) Electrical power that must be supplied by the mains to power the unit.

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit)

(3) The values in brackets refer to the ST version unit (with storage tank and pumps or units with pumps only).

(4) Maximum input current calculated considering the power of the compressor with the higher power and the maximum current absorbed by all other devices

## Zeta Echos SLN - general electrical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
Maximum absorbed power	(1),(3)	kW	19,18 (20,08)	21,38 (22,28)	25,18 (26,08)	27,58 (28,68)	31,94 (33,04)
Maximum absorbed current	(2),(3)	A	35,2 (37,8)	40,8 (43,4)	47,4 (50,0)	52,0 (54,7)	56,8 (59,5)
Maximum input current	(4)	A	121,6 (122,5)	134,4 (135,3)	144,7 (145,6)	147,0 (148,1)	171,4 (172,5)
Fan nominal power		n° x kW	2 x 0,6	2 x 0,6	2 x 0,6	3 x 0,6	3 x 0,6
Fan nominal current		n° x A	2 x 3,0	2 x 3,0	2 x 3,0	3 x 3,0	3 x 3,0
Pump motor nominal power		kW	0,9	0,9	0,9	1,1	1,1
Pump motor nominal current		A	2,61	2,61	2,61	2,7	2,7
Main power supply		V/ph/Hz	400/3N~/50 ±5%				
Auxilliary power supply		V/ph/Hz	230/1~/50 ±5%				

UNIT SIZE			8.2	9.2	10.2	12.2	13.2
Maximum absorbed power	(1),(3)	kW	38,57 (40,07)	45,07 (46,92)	51,57 (53,42)	59,60 (61,80)	65,40 (67,60)
Maximum absorbed current	(2),(3)	A	69,6 (73,1)	75,8 (80,8)	82,0 (87,0)	89,1 (93,9)	97,2 (102,0)
Maximum input current	(4)	A	213,3 (214,8)	264,3 (266,15)	270,5 (272,35)	316,5 (318,7)	324,6 (326,8)
Fan nominal power		n° x kW	2 x 2,0	2 x 2,0	2 x 2,0	2 x 2,0	2 x 2,0
Fan nominal current		n° x A	2 x 4,0	2 x 4,0	2 x 4,0	2 x 4,0	2 x 4,0
Pump motor nominal power		kW	1,5	1,85	1,85	2,2	2,2
Pump motor nominal current		A	3,49	4,98	4,98	4,78	4,78
Main power supply		V/ph/Hz	400/3~/50 ±5%				
Auxilliary power supply		V/ph/Hz	230/1~/50 ±5%				

(1) Electrical power that must be supplied by the mains to power the unit.

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit)

(3) The values in brackets refer to the ST version unit (with storage tank and pumps or units with pumps only).

(4) Maximum input current calculated considering the power of the compressor with the higher power and the maximum current absorbed by all other devices



## Zeta Echos /LE - general electrical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
Maximum absorbed power	(1)	n° x kW	19,18	21,38	25,18	27,58	31,94
Maximum absorbed current	(2)	n° x A	38,1	45,1	48,3	54,7	59,3
Maximum startup current	(3)	n° x A	117,1	136,6	145,2	148,3	190,7
Fan nominal power		kW	2 x 0,6	2 x 0,6	2 x 0,6	2 x 0,6	2 x 0,6
Fan nominal current		A	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0	2 x 3,0
Main power supply		V/ph/Hz			400/3~/50 ±5%		
Auxilliary power supply		V/ph/Hz			230/1~/50 ±5%		

UNIT SIZE			8.2	9.2	10.2	12.2	13.2
Maximum absorbed power	(1)	n° x kW	38,57	45,07	51,57	59,60	65,40
Maximum absorbed current	(2)	n° x A	73,1	83,2	93,2	104,2	116,3
Maximum startup current	(3)	n° x A	236,0	256,1	266,1	322,1	322,1
Fan nominal power		kW	3 x 0,6	3 x 0,6	3 x 0,6	2 x 2,0	2 x 2,0
Fan nominal current		A	3 x 3,0	3 x 3,0	3 x 3,0	2 x 4,0	2 x 4,0
Main power supply		V/ph/Hz			400/3~/50 ±5%		
Auxilliary power supply		V/ph/Hz			230/1~/50 ±5%		

## Zeta Echos /LE - general electrical data

UNIT SIZE			15.2	16.2	14.4	16.4	18.4
Maximum absorbed power	(1)	n° x kW	74,00	80,00	70,80	77,60	92,60
Maximum absorbed current	(2)	n° x A	123,7	131,0	114,6	136,3	160,3
Maximum startup current	(3)	n° x A	382,2	389,5	246,0	299,2	333,2
Fan nominal power		kW	2 x 2,0	2 x 2,0	2 x 2,0	2 x 2,0	3 x 2,0
Fan nominal current		A	2 x 4,0	2 x 4,0	2 x 4,0	2 x 4,0	3 x 4,0
Main power supply		V/ph/Hz			400/3~/50 ±5%		
Auxilliary power supply		V/ph/Hz			230/1~/50 ±5%		

UNIT SIZE			20.4	24.4	26.4	30.4	33.4
Maximum absorbed power	(1)	n° x kW	105,60	119,20	130,80	148,00	162,00
Maximum absorbed current	(2)	n° x A	180,3	208,5	232,6	247,3	266,0
Maximum startup current	(3)	n° x A	353,2	414,3	438,4	505,8	524,5
Fan nominal power		kW	3 x 2,0	4 x 2,0	4 x 2,0	4 x 2,0	5 x 2,0
Fan nominal current		A	3 x 4,0	4 x 4,0	4 x 4,0	4 x 4,0	5 x 4,0
Main power supply		V/ph/Hz			400/3~/50 ±5%		
Auxilliary power supply		V/ph/Hz			230/1~/50 ±5%		

(1) Electrical power that must be supplied by the mains to power the unit.

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit).

(3) The values in brackets refer to the ST version unit (with storage tank and pumps or units with pumps only).

(4) Maximum input current calculated considering the power of the compressor with the higher power and the maximum current absorbed by all other devices



## Zeta Echos A - general electrical data

UNIT SIZE			3.2	4.2	5.2	6.2	7.2
Maximum absorbed power	(1),(3)	kW	20,96 (21,86)	24,16 (25,06)	26,96 (28,46)	30,76 (32,26)	35,34 (36,84)
Maximum absorbed current	(2),(3)	A	38,9 (41,5)	46,9 (49,5)	48,9 (52,4)	54,9 (58,4)	64,3 (67,8)
Maximum input current	(4)	A	120,9 (121,8)	168,9 (169,8)	169,9 (171,4)	177,9 (179,4)	195,3 (196,8)
Fan nominal power		n° x kW	2 x 0,8	2 x 0,8	2 x 0,8	2 x 0,8	3 x 0,8
Fan nominal current		n° x A	2 x 3,4	2 x 3,4	2 x 3,4	2 x 3,4	3 x 3,4
Pump motor nominal power		kW	0,9	0,9	1,5	1,5	1,5
Pump motor nominal current		A	2,61	2,61	3,49	3,49	3,49
Main power supply		V/ph/Hz	400/3N~/50 ±5%				
Auxilliary power supply		V/ph/Hz	230/1~/50 ±5%				

UNIT SIZE			8.2	9.2	10.2	12.2
Maximum absorbed power	(1),(3)	kW	39,54 (41,04)	48,20 (50,05)	55,20 (57,40)	61,60 (63,80)
Maximum absorbed current	(2),(3)	A	74,3 (77,8)	82,0 (87,0)	92,0 (96,8)	104,0 (108,8)
Maximum input current	(4)	A	237,3 (238,8)	255,0 (256,85)	265,0 (267,2)	310,0 (312,2)
Fan nominal power		n° x kW	3 x 0,8	2 x 2,0	2 x 2,0	2 x 2,0
Fan nominal current		n° x A	3 x 3,4	2 x 4,0	2 x 4,0	2 x 4,0
Pump motor nominal power		kW	1,5	1,85	2,2	2,2
Pump motor nominal current		A	3,49	4,98	4,78	4,78
Main power supply		V/ph/Hz	400/3N~/50 ±5%		400/3~/50 ±5%	
Auxilliary power supply		V/ph/Hz	230/1~/50 ±5%		230/1~/50 ±5%	

- (1) Electrical power that must be supplied by the mains to power the unit.  
(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit)  
(3) The values in brackets refer to the ST version unit (with storage tank and pumps or units with pumps only).  
(4) Maximum input current calculated considering the power of the compressor with the higher power and the maximum current absorbed by all other devices

Zeta Echos - cooling capacity

Model	EXTERNAL AIR TEMPERATURE [°C]										
	To [°C]	25		30		35		40		43	
		Pf	Pe	Pf	Pe	Pf	Pe	Pf	Pe	Pf	Pe
3.2	5	43,6	9,6	41,1	10,7	38,5	12	35,6	13,5	33,7	14,4
	6	44,9	9,6	42,4	10,8	39,7	12,1	36,7	13,6	34,8	14,5
	7	46,3	9,7	43,7	10,9	40,9	12,2	37,9	13,7	36	14,6
	8	47,6	9,8	45	11	42,2	12,3	39,1	13,8	37,1	14,7
	9	49	9,9	46,4	11	43,4	12,4	40,3	13,8	38,3	14,8
	10	50,5	10	47,7	11,1	44,7	12,5	41,5	13,9	39,5	14,9
4.2	5	49	11,2	46,2	12,5	43,2	14	40,1	15,7	38,2	16,8
	6	50,4	11,3	47,5	12,7	44,5	14,2	41,3	15,8	39,4	16,9
	7	51,9	11,5	48,9	12,8	45,9	14,3	42,6	16	40,6	17
	8	53,4	11,6	50,4	12,9	47,2	14,4	43,9	16,1	41,8	17,2
	9	54,9	11,7	51,8	13	48,6	14,5	45,2	16,2	43,1	17,3
	10	56,5	11,8	53,3	13,2	50	14,7	46,5	16,4	44,4	17,4
5.2	5	55,8	13,2	52,4	14,9	48,8	16,7	44,9	18,8	42,5	20,1
	6	57,4	13,4	54	15	50,3	16,9	46,3	18,9	43,8	20,2
	7	59,1	13,5	55,7	15,1	51,8	17	47,8	19	45,2	20,4
	8	60,8	13,7	57,2	15,3	53,4	17,1	49,2	19,2	46,6	20,5
	9	62,5	13,8	58,9	15,4	55	17,3	50,7	19,3	48	20,7
	10	64,3	13,9	60,6	15,6	56,6	17,4	52,2	19,5	49,4	20,8
6.2	5	64,3	14,9	60,7	16,5	56,8	18,4	52,6	20,6	49,9	22
	6	66,2	15	62,6	16,6	58,5	18,6	54,2	20,7	51,5	22,1
	7	68,2	15,1	64,5	16,8	60,3	18,7	55,9	20,8	53,1	22,2
	8	70,2	15,2	66,3	16,9	62,2	18,8	57,7	20,9	54,8	22,3
	9	72,2	15,3	68,3	17	64	18,9	59,4	21,1	56,5	22,5
	10	74,3	15,5	70,3	17,2	65,9	19,1	61,2	21,2	58,2	22,6
7.2	5	71,38	18,52	67,28	20,43	62,82	22,62	57,97	25,15	54,86	26,85
	6	73,41	18,7	69,2	20,63	64,61	22,83	59,64	25,36	56,45	27,06
	7	75,52	18,9	71,2	20,83	66,52	23,05	61,33	25,58	58,05	27,29
	8	77,63	19,09	73,17	21,04	68,32	23,26	63,06	25,81	59,69	27,52
	9	79,79	19,3	75,19	21,25	70,21	23,48	64,79	26,04	61,32	27,76
	10	81,95	19,5	77,22	21,47	72,1	23,71	66,53	26,28	62,96	28,01
8.2	5	88,5	19,3	83,7	21,2	78,4	23,5	72,9	26,1	69,2	27,8
	6	91,3	19,4	86,4	21,3	81	23,6	75,2	26,3	71,5	28
	7	94,2	19,5	89,1	21,5	83,5	23,8	77,4	26,4	73,8	28,1
	8	97,2	19,6	91,9	21,6	86,1	23,9	79,9	26,6	76	28,3
	9	100,1	19,8	94,7	21,8	88,8	24,1	82,3	26,7	78,3	28,4
	10	103,2	19,9	97,6	21,9	91,4	24,3	84,9	26,9	80,7	28,6
9.2	5	100	23,5	94,4	25,9	88,1	28,8	81,5	32	77,2	34,1
	6	103,2	23,7	97,3	26,2	90,9	29	84	32,2	79,6	34,3
	7	106,4	23,9	100,3	26,4	93,7	29,2	86,6	32,4	82,1	34,5
	8	109,5	24,1	103,3	26,6	96,6	29,4	89,3	32,6	84,6	34,7
	9	112,9	24,3	106,5	26,8	99,5	29,6	92	32,8	87,2	35
	10	116,3	24,5	109,7	27	102,5	29,9	94,7	33,1	89,8	35,2
10.2	5	112	28,1	105,4	31	98,2	34,4	90,4	38,3	85,4	40,9
	6	115,5	28,4	108,6	31,2	101,2	34,7	93,1	38,6	88	41,1
	7	119	28,6	111,9	31,5	104,2	34,9	95,9	38,8	90,6	41,4
	8	122,6	28,9	115,3	31,8	107,3	35,2	98,7	39,1	93,3	41,7
	9	126,2	29,2	118,7	32,1	110,5	35,6	101,7	39,4	96	42
	10	129,9	29,5	122,1	32,4	113,7	35,9	104,6	39,7	98,8	42,3



<b>12.2</b>	5	125,5	29,5	118,2	32,6	110,3	36,2	101,6	40,4	96,2	43,1
	6	129,3	29,7	121,9	32,8	113,7	36,5	104,8	40,6	99,2	43,4
	7	133,3	29,9	125,6	33,1	117,1	36,7	107,9	40,9	102,2	43,6
	8	137,3	30,2	129,3	33,3	120,6	37	111,2	41,2	105,3	43,9
	9	141,4	30,4	133,2	33,6	124,1	37,4	114,5	41,5	108,4	44,2
	10	145,7	30,7	137,1	33,9	127,8	37,7	117,9	41,8	111,6	44,4
<b>13.2</b>	5	135,4	33,2	127,2	36,9	118,4	41	108,8	45,7	102,8	48,7
	6	139,5	33,5	131	37,2	121,8	41,4	112,1	46	105,9	49
	7	143,6	33,8	135	37,5	125,4	41,7	115,4	46,3	109	49,3
	8	147,9	34,1	138,9	37,8	129,1	42	118,8	46,7	112,1	49,7
	9	152,1	34,4	142,8	38,2	132,9	42,4	122,2	47	115,3	50,1
	10	156,4	34,7	146,9	38,5	136,7	42,7	125,7	47,3	118,6	50,4

Pf: cooling capacity [kW]

Pe: electrical power absorbed by the compressors [kW]

T0: evaporator outgoing water temperature [°C]

Zeta Echos - heating capacity

Model	CONDENSER INGOING WATER TEMPERATURE [°C]									
	Ta [°C]	RH %	30		35		40		43	
			Pt	Pe	Pt	Pe	Pt	Pe	Pt	Pe
3.2	-5	90	32,6	9,5	32,7	10,7	-	-	-	-
	0	90	36,8	9,7	36,8	11	36,8	12,4	-	-
	5	80	40,6	10	40,5	11,2	40,3	12,7	40,2	13,6
	8	70	42,9	10,2	42,6	11,5	42,3	12,9	42,2	13,8
	10	70	44,6	10,4	44,5	11,7	44,1	13,1	43,9	14
4.2	-5	90	37,3	11,1	37,3	12,5	-	-	-	-
	0	90	41,9	11,5	41,9	12,9	41,9	14,5	-	-
	5	80	46,1	11,7	46,1	13,1	45,9	14,8	45,9	15,9
	8	70	48,6	11,8	48,6	13,2	48,3	14,9	48,2	16
	10	70	50,6	11,8	50,5	13,3	50,3	14,9	50,1	16
5.2	-5	90	43,8	13,2	43,8	14,9	-	-	-	-
	0	90	49,3	13,4	49,2	15,1	49,2	17	-	-
	5	80	54,4	13,6	54,2	15,3	53,9	17,2	53,7	18,5
	8	70	57,2	13,6	57,1	15,4	56,8	17,4	56,5	18,7
	10	70	59,7	13,7	59,4	15,5	59	17,5	58,6	18,8
6.2	-5	90	50,2	15,1	50,1	16,8	-	-	-	-
	0	90	56,4	15,3	56,3	17,1	56,2	19,1	-	-
	5	80	62,3	15,4	61,9	17,3	61,5	19,3	61,4	20,6
	8	70	65,4	15,5	65,2	17,3	64,9	19,4	64,5	20,7
	10	70	68,2	15,6	67,8	17,4	67,3	19,5	66,9	20,8
7.2	-5	90	52,94	16,94	53,35	18,98	53,94	21,32	54,37	22,9
	0	90	59,25	17,04	59,46	19,03	59,67	21,31	59,95	22,85
	5	80	65,49	17,17	65,54	19,13	65,62	21,38	65,7	22,89
	8	70	69,03	17,25	68,76	19,19	68,72	21,42	68,73	22,92
	10	70	71,91	17,31	71,74	19,25	71,6	21,47	71,53	22,97
8.2	-5	90	79,84	17,51	79,4	19,43	78,95	21,62	78,7	23,1
	0	90	66,8	20,5	66,8	22,9	-	-	-	-
	5	80	74,8	20,6	74,7	23	74,6	25,7	-	-
	8	70	82,3	20,7	81,8	23,1	81,5	25,8	81,2	27,6
	10	70	86,8	20,8	86,3	23,2	85,5	25,9	85	27,6
9.2	-5	90	90,4	20,9	89,6	23,3	88,7	26	88,3	27,7
	0	90	100,3	21,2	99,4	23,5	98,4	26,2	97,6	28
	5	80	76,9	23,6	77,2	26,4	-	-	-	-
	8	70	86	23,9	86,1	26,7	86,4	30	-	-
	10	70	94,7	24,1	94,4	27	94,2	30,3	94,2	32,5
10.2	-5	90	99,6	24,3	99,4	27,1	99,1	30,4	98,8	32,6
	0	90	103,8	24,5	103,3	27,3	102,7	30,6	102,2	32,7
	5	80	116	24,9	114,8	27,7	113,3	31	112,8	33,1
	8	70	88,2	26,4	88,7	29,7	-	-	-	-
	10	70	98,7	26,9	99	30,1	99,5	34	-	-
10.2	5	80	108,9	27,3	108,5	30,5	108,6	34,4	108,6	37
	8	70	114,4	27,5	114,3	30,8	114	34,6	113,9	37,2
	10	70	119,6	27,8	119	31	118,2	34,8	117,9	37,3
15	70	133,1	28,3	132,1	31,5	131,4	35,3	129,8	37,8	



12.2	-5	90	100,6	29,8	100,8	33,4	-	-	-	-
	0	90	113	30,3	112,8	33,8	112,8	38	-	-
	5	80	124,1	30,7	123,6	34,3	123,1	38,4	122,9	41,2
	8	70	131,2	31	130,4	34,5	129,5	38,7	128,6	41,4
	10	70	136,6	31,1	135,4	34,7	134,1	38,9	133,2	41,6
	15	70	152,3	31,7	150,3	35,3	148,6	39,4	147,4	42,2
13.2	-5	90	110,2	32,9	110,5	36,7	-	-	-	-
	0	90	123,5	33,3	123,5	37,1	123,5	41,5	-	-
	5	80	135,7	33,7	135,2	37,5	134,7	42	134,4	44,9
	8	70	143,1	33,9	142,6	37,8	141,7	42,2	141	45,2
	10	70	149,2	34	148,2	38	147	42,4	146	45,4
	15	70	166,7	34,5	165,3	38,5	162,5	43	161,4	45,9

Pt: heating capacity [kW]

Pe: electrical power absorbed by the compressors [kW]

Ta: evaporator intake air temperature dry bulb [°C]

RH: evaporator intake air relative humidity [%]

Zeta Echos - total recovery capacity

Model	CONDENSER INGOING WATER TEMPERATURE [°C]												
	To [°C]	35			40			45			48		
		Pf	Pe	Pr	Pf	Pe	Pr	Pf	Pe	Pr	Pf	Pe	Pr
3.2	5	40	11,3	51,3	37,3	12,7	50	34,3	14,2	48,5	32,4	15,2	47,6
	7	42,7	11,4	54,1	39,7	12,8	52,6	36,6	14,4	51	34,6	15,4	50
	10	47	11,6	58,5	43,8	13	56,8	40,4	14,5	54,9	38,2	15,6	53,7
4.2	5	45,6	12,9	58,5	42,5	14,5	57	39,2	16,3	55,5	37,2	17,4	54,6
	7	48,6	13	61,6	45,4	14,6	60	42	16,4	58,3	39,8	17,5	57,3
	10	53,4	13,2	66,6	49,9	14,8	64,7	46,3	16,6	62,8	44	17,7	61,7
5.2	5	51,9	15,2	67,1	48,2	17,1	65,3	44,1	19,2	63,4	41,5	20,6	62,2
	7	55,5	15,3	70,8	51,5	17,2	68,7	47,3	19,3	66,6	44,6	20,7	65,3
	10	61	15,4	76,5	56,9	17,3	74,2	52,3	19,5	71,8	49,4	20,9	70,3
6.2	5	59,2	17,4	76,6	55	19,5	74,5	50,6	21,8	72,3	47,7	23,2	71
	7	63,2	17,5	80,7	58,9	19,5	78,4	54,2	21,8	76	51,2	23,3	74,5
	10	69,5	17,6	87,2	64,9	19,7	84,6	59,9	21,9	81,8	56,7	23,4	80,1
7.2	5	72,13	17,65	89,77	68,24	19,51	87,75	64,02	21,63	85,65	61,32	23,06	84,38
	7	76,88	17,77	94,65	72,82	19,62	92,45	68,42	21,74	90,16	65,6	23,17	88,77
	10	84,43	17,95	102,38	80,03	19,81	99,84	75,22	21,93	97,15	72,15	23,35	95,5
8.2	5	80,5	22,8	103,3	74,9	25,4	100,3	68,8	28,3	97,1	64,9	30,1	95,1
	7	86,1	23	109	80	25,5	105,5	73,7	28,4	102,1	69,6	30,3	99,8
	10	94,9	23,2	118,1	88,4	25,7	114,1	81,3	28,6	109,9	76,8	30,5	107,2
9.2	5	91,8	27,3	119	85,2	30,3	115,5	78	33,8	111,9	73,7	36,2	109,8
	7	98,1	27,5	125,6	91,1	30,5	121,6	83,5	34	117,5	78,7	36,3	115
	10	108,2	27,8	136	100,6	30,8	131,4	92,3	34,3	126,5	87,1	36,5	123,6
10.2	5	104,9	31,2	136,1	97,4	34,8	132,2	89,3	38,9	128,1	84	41,6	125,6
	7	112,2	31,4	143,6	104,2	35	139,2	95,5	39,1	134,6	89,9	41,8	131,7
	10	123,8	31,8	155,6	115,1	35,3	150,4	105,5	39,4	144,9	99,4	42	141,4
12.2	5	116,4	33,6	150	108,1	37,4	145,6	99,1	41,8	140,9	93,3	44,7	138
	7	124,4	33,8	158,2	115,6	37,7	153,2	106	42	148	99,9	44,9	144,8
	10	137,1	34,1	171,3	127,5	38	165,4	117	42,3	159,3	110,3	45,2	155,5
13.2	5	126	37,4	163,5	116,9	41,8	158,7	107	46,6	153,6	100,7	49,7	150,4
		134,6	37,7	172,2	124,9	42	166,9	114,4	46,8	161,2	107,7	50	157,6
	10	148,2	38	186,2	137,6	42,3	179,9	126,1	47,2	173,3	118,8	50,3	169,1

Pf: cooling capacity [kW]  
 Pe: electrical power absorbed by the compressors [kW]  
 Pr: recovery condenser heating capacity [kW]  
 To: evaporator outgoing water temperature [°C]

Zeta Echos /LE - cooling capacity

Model	EXTERNAL AIR TEMPERATURE [°C]										
	Tev [°C]	25		30		35		40		43	
		Pf	Pe	Pf	Pe	Pf	Pe	Pf	Pe	Pf	Pe
3.2	0	41,4	9,4	38,9	10,6	36,2	11,9	33,3	13,3	31,5	14,3
	2,5	44,8	9,6	42,2	10,8	39,3	12,1	36,2	13,5	34,3	14,5
	5	48,3	9,8	45,5	11	42,5	12,3	39,3	13,8	37,2	14,7
	7,5	52	10,1	49,1	11,2	45,9	12,6	42,4	14	-	-
	10	55,7	10,4	52,6	11,5	49,3	12,8	45,7	14,3	-	-
4.2	0	46,8	11,1	44	12,4	41	13,9	37,9	15,5	35,9	16,6
	2,5	50,5	11,4	47,5	12,7	44,4	14,1	41,1	15,8	39	16,9
	5	54,4	11,7	51,2	13	47,9	14,5	44,4	16,1	42,2	17,2
	7,5	58,5	12	55	13,4	51,5	14,8	47,8	16,5	-	-
	10	62,6	12,4	59	13,8	55,2	15,2	51,3	16,9	-	-
5.2	0	54,2	13,1	50,8	14,7	47,1	16,6	43,1	18,6	40,6	19,9
	2,5	58,5	13,5	54,9	15,1	51	16,9	46,8	18,9	44,1	20,2
	5	63	13,8	59,1	15,5	55	17,3	50,5	19,3	47,7	20,6
	7,5	67,6	14,2	63,5	15,9	59,1	17,7	54,4	19,7	-	-
	10	72,4	14,6	68	16,3	63,4	18,1	58,4	20,1	-	-
6.2	0	63,5	14,8	59,8	16,5	55,7	18,4	51,3	20,5	48,6	21,9
	2,5	68,6	15,1	64,6	16,8	60,3	18,7	55,7	20,8	52,7	22,2
	5	73,9	15,4	69,6	17,1	65,1	19	60,2	21,1	57,1	22,5
	7,5	79,3	15,8	74,9	17,5	70,1	19,4	64,9	21,5	-	-
	10	85	16,2	80,3	17,9	75,3	19,8	69,8	21,9	-	-
7.2	0	70,02	18,4	65,62	20,26	60,88	22,4	55,77	24,87	52,52	26,54
	2,5	75,57	18,9	70,81	20,79	65,69	22,95	60,19	25,43	56,69	27,1
	5	81,33	19,44	76,19	21,36	70,67	23,54	64,76	26,04	60,99	27,71
	7,5	87,3	20,02	81,76	21,97	75,82	24,18	69,46	26,7	65,43	28,38
	10	93,47	20,64	87,5	22,62	81,12	24,86	74,3	27,41	69,97	29,11
8.2	0	82,4	19	77,7	20,9	72,6	23,2	67,1	25,8	63,6	27,5
	2,5	89,5	19,3	84,4	21,2	78,9	23,5	72,9	26,1	69,1	27,8
	5	96,9	19,6	91,4	21,6	85,5	23,9	79	26,5	75	28,2
	7,5	104,8	20	98,8	22	92,3	24,3	85,4	26,9	-	-
	10	112,9	20,3	106,4	22,4	99,5	24,8	92,1	27,4	-	-
9.2	0	94,5	23,2	88,9	25,5	82,8	28,3	76,2	31,6	72	33,7
	2,5	102,5	23,7	96,3	26,1	89,7	28,9	82,6	32,1	78,1	34,2
	5	110,7	24,2	104,2	26,6	97	29,4	89,4	32,6	84,5	34,7
	7,5	119,5	24,7	112,4	27,2	104,7	30	96,4	33,2	-	-
	10	128,7	25,3	121	27,8	112,7	30,7	103,8	33,9	-	-
10.2	0	107	27,7	100,4	30,5	93,3	33,9	85,5	37,8	80,6	40,4
	2,5	115,9	28,4	108,7	31,3	100,9	34,6	92,5	38,5	87,2	41,1
	5	125,1	29,1	117,3	32	108,8	35,4	99,8	39,2	94	41,8
	7,5	134,8	29,8	126,3	32,8	117,2	36,2	107,4	40	-	-
	10	144,9	30,6	135,7	33,6	125,8	37	115,3	40,8	-	-
12.2	0	122,4	29,3	114,9	32,3	106,9	35,9	98,1	40,1	92,5	42,8
	2,5	132,5	29,9	124,4	33	115,6	36,6	106,1	40,8	100,2	43,4
	5	143,1	30,5	134,4	33,7	124,7	37,4	114,6	41,5	108,2	44,1
	7,5	154,1	31,2	144,6	34,5	134,3	38,2	123,4	42,2	-	-
	10	165,7	32	155,4	35,3	144,4	38,9	132,6	43	-	-
13.2	0	133,1	33,1	124,7	36,7	115,6	40,8	105,8	45,4	99,6	48,3
	2,5	143,9	33,8	134,7	37,5	124,7	41,7	114,3	46,2	107,7	49,2
	5	154,9	34,6	145	38,3	134,4	42,5	123,1	47,1	115,8	50,1
	7,5	166,6	35,4	155,9	39,2	144,4	43,4	132,2	48	-	-
	10	178,6	36,3	167,1	40,1	154,8	44,3	141,7	49	-	-

Pf: cooling capacity [kW]  
 Pe: electrical power absorbed by the compressors [kW]  
 Tev: evaporation temperature [°C]



Zeta Echos HP /LE - heating capacity

Model	CONDENSATION TEMPERATURE [°C]											
	Ta [°C]	RH %	40		45		50		55		60	
			Pt	Pe	Pt	Pe	Pt	Pe	Pt	Pe	Pt	Pe
3.2	-5	90	32,7	9,9	32,5	11,2	-	-	-	-	-	-
	0	90	37,0	9,9	36,9	11,2	36,6	12,6	-	-	-	-
	5	80	40,8	9,9	40,6	11,1	40,4	12,6	40,2	14,2	-	-
	8	70	43,1	9,8	42,7	11,1	42,5	12,6	42,2	14,2	41,8	15,9
	10	70	45,0	9,8	44,8	11,1	44,2	12,5	43,8	14,1	43,4	15,9
	15	70	50,3	9,8	49,8	11,0	49,4	12,5	48,8	14,1	47,9	15,8
4.2	-5	90	37,5	11,2	37,5	12,7	-	-	-	-	-	-
	0	90	42,3	11,2	42,2	12,6	42,2	14,2	-	-	-	-
	5	80	46,6	11,1	46,4	12,5	46,2	14,1	46,1	15,9	-	-
	8	70	49,3	11,1	49,0	12,5	48,6	14,1	48,4	15,8	48,1	17,8
	10	70	51,3	11,0	51,1	12,4	50,8	14,0	50,3	15,8	49,9	17,7
	15	70	57,2	11,0	56,8	12,4	56,4	14,0	55,9	15,7	55,4	17,7
5.2	-5	90	43,8	13,0	43,8	14,7	-	-	-	-	-	-
	0	90	49,5	13,0	49,4	14,7	49,2	16,5	-	-	-	-
	5	80	54,7	12,9	54,3	14,6	54,0	16,5	53,7	18,6	-	-
	8	70	57,7	12,9	57,4	14,6	57,1	16,5	56,5	18,6	55,9	20,9
	10	70	60,2	12,9	59,8	14,6	59,4	16,5	58,7	18,6	58,1	20,9
	15	70	67,7	12,8	66,7	14,5	66,0	16,4	65,4	18,5	64,5	20,9
6.2	-5	90	50,5	15,1	50,4	16,9	-	-	-	-	-	-
	0	90	57,0	15,1	56,8	16,9	56,5	18,9	-	-	-	-
	5	80	62,9	15,0	62,5	16,8	62,0	18,9	61,6	21,1	-	-
	8	70	66,4	15,0	65,9	16,8	65,5	18,8	64,7	21,1	64,0	23,6
	10	70	69,2	15,0	68,7	16,8	68,0	18,8	67,1	21,1	66,4	23,5
	15	70	77,5	14,9	76,3	16,7	75,5	18,7	74,6	21,0	73,4	23,5
7.2	-5	90	53,0	17,5	53,5	19,7	54,2	22,1	55,0	25,0	56,0	28,2
	0	90	59,3	17,5	59,6	19,6	59,8	22,0	60,3	24,7	61,0	27,9
	5	80	65,5	17,5	65,6	19,6	65,7	21,9	65,9	24,6	66,0	27,7
	8	70	68,9	17,6	68,8	19,6	68,7	21,9	68,8	24,6	69,0	27,7
	10	70	71,9	17,6	71,7	19,6	71,6	21,9	71,3	24,5	71,3	27,6
	15	70	79,8	17,7	79,4	19,6	78,9	21,9	78,5	24,5	78,1	27,5
8.2	-5	90	67,0	20,5	66,9	22,9	-	-	-	-	-	-
	0	90	75,1	20,3	74,8	22,7	74,6	25,4	-	-	-	-
	5	80	82,7	20,2	82,1	22,5	81,6	25,2	81,2	28,2	-	-
	8	70	87,4	20,2	86,7	22,4	85,7	25,1	84,9	28,0	84,1	31,4
	10	70	91,1	20,1	90,3	22,4	89,2	25,0	88,2	28,0	87,2	31,3
	15	70	101,8	20,1	100,6	22,3	99,5	24,9	98,0	27,8	96,0	31,1
9.2	-5	90	77,2	23,6	77,4	26,4	-	-	-	-	-	-
	0	90	86,7	23,5	86,6	26,3	86,7	29,6	-	-	-	-
	5	80	95,5	23,5	95,1	26,2	94,7	29,4	94,5	33,1	-	-
	8	70	100,7	23,5	100,2	26,2	99,7	29,4	98,9	33,1	98,2	37,2
	10	70	105,0	23,6	104,3	26,2	103,5	29,4	102,5	33,0	101,7	37,1
	15	70	118,1	23,6	115,9	26,2	114,9	29,3	113,6	32,8	111,8	36,8
10.2	-5	90	89,2	26,6	89,4	29,9	-	-	-	-	-	-
	0	90	100,2	26,7	100,1	29,9	100,4	33,8	-	-	-	-
	5	80	110,4	26,8	109,9	30,0	109,5	33,7	109,5	38,1	-	-
	8	70	116,6	26,9	115,9	30,0	115,3	33,7	114,7	38,0	113,9	42,9
	10	70	121,6	27,0	120,8	30,0	119,8	33,7	118,6	38,0	117,8	42,8
	15	70	136,7	27,1	135,4	30,1	133,1	33,7	131,5	37,8	129,3	42,5





12.2	-5	90	100,4	29,9	100,5	33,5	-	-	-	-	-	-
	0	90	112,9	30,0	112,7	33,5	112,6	37,7	-	-	-	-
	5	80	124,2	30,0	123,5	33,5	122,9	37,6	122,4	42,3	-	-
	8	70	131,4	30,1	130,5	33,5	129,2	37,6	128,1	42,3	126,8	47,5
	10	70	137,1	30,1	135,8	33,5	134,2	37,6	132,8	42,2	131,2	47,4
13.2	15	70	153,0	30,1	151,5	33,5	149,6	37,5	147,4	42,1	144,0	47,2
	-5	90	110,2	33,3	110,4	37,1	-	-	-	-	-	-
	0	90	123,8	33,3	123,6	37,1	123,5	41,6	-	-	-	-
	5	80	136,0	33,3	135,3	37,1	134,7	41,5	134,0	46,5	-	-
	8	70	143,7	33,2	142,9	37,1	142,0	41,5	140,4	46,5	138,8	52,0
	10	70	149,9	33,2	148,9	37,1	147,4	41,5	145,4	46,5	143,7	52,0
15	70	168,2	33,1	165,2	37,0	163,6	41,4	161,4	46,4	158,0	51,9	

Pt: heating capacity [kW]

Pe: electrical power absorbed by the compressors [kW]

Ta: evaporator intake air temperature dry bulb [°C]

RH: evaporator intake air relative humidity [%]

## Zeta Echos A - cooling capacity

Model	EXTERNAL AIR TEMPERATURE [°C]										
	To [°C]	25		30		35		40		43	
		Pf	Pe	Pf	Pe	Pf	Pe	Pf	Pe	Pf	Pe
3.2	5	48,1	10,6	45,6	11,6	42,9	12,8	40,1	14,1	38,4	14,9
	6	49,6	10,7	47,0	11,8	44,3	12,9	41,4	14,2	39,6	15,0
	7	51,1	10,8	48,4	11,9	45,6	13,0	42,6	14,3	40,8	15,1
	8	52,6	10,9	49,9	12,0	47,0	13,1	43,9	14,4	42,0	15,3
	9	54,1	11,0	51,3	12,1	48,3	13,2	45,2	14,5	43,2	15,4
	10	55,7	11,1	52,8	12,2	49,7	13,3	46,5	14,6	44,5	15,5
4.2	5	56,6	13,0	54,0	14,2	51,2	15,5	48,1	17,1	46,2	18,1
	6	58,3	13,1	55,6	14,3	52,7	15,7	49,6	17,2	47,6	18,2
	7	60,2	13,2	57,2	14,4	54,2	15,8	51,0	17,4	49,0	18,4
	8	61,9	13,4	58,9	14,6	55,8	16,0	52,4	17,5	50,4	18,5
	9	63,7	13,5	60,6	14,7	57,3	16,1	53,9	17,7	51,7	18,7
	10	65,5	13,7	62,3	14,9	58,9	16,3	55,4	17,8	53,2	18,9
5.2	5	61,7	13,9	58,5	15,2	55,1	16,7	51,5	18,4	49,3	19,5
	6	63,5	14,0	60,3	15,3	56,8	16,9	53,1	18,6	50,8	19,7
	7	65,5	14,1	62,2	15,5	58,5	17,0	54,7	18,7	52,3	19,8
	8	67,4	14,3	63,9	15,6	60,3	17,2	56,4	18,9	53,9	20,0
	9	69,3	14,4	65,8	15,8	62,0	17,3	58,0	19,0	55,5	20,1
	10	71,3	14,5	67,7	15,9	63,8	17,5	59,7	19,2	57,1	20,3
6.2	5	72,6	16,7	69,1	18,3	65,3	20,1	61,3	22,2	58,8	23,6
	6	74,7	16,9	71,1	18,5	67,2	20,3	63,1	22,4	60,5	23,8
	7	76,9	17,0	73,2	18,7	69,1	20,5	64,9	22,6	62,3	24,0
	8	79,0	17,2	75,2	18,8	71,1	20,7	66,7	22,8	64,0	24,2
	9	81,2	17,3	77,3	19,0	73,0	20,9	68,6	23,0	65,8	24,4
	10	83,4	17,5	79,4	19,2	75,0	21,1	70,5	23,2	67,7	24,6
7.2	5	82,0	17,1	78,0	18,8	73,6	20,7	68,8	22,9	65,8	24,4
	6	84,4	17,2	80,3	18,9	75,8	20,9	71,0	23,1	67,9	24,5
	7	87,1	17,4	82,8	19,1	78,1	21,0	73,1	23,2	69,9	24,7
	8	89,6	17,5	85,2	19,2	80,4	21,2	75,3	23,4	72,0	24,9
	9	92,2	17,6	87,7	19,4	82,8	21,3	77,5	23,6	74,2	25,0
	10	94,8	17,8	90,2	19,5	85,2	21,5	79,8	23,7	76,3	25,2
8.2	5	88,2	19,5	83,6	21,6	78,7	23,8	73,5	26,4	70,2	28,1
	6	90,8	19,7	86,1	21,7	81,1	24,0	75,8	26,5	72,4	28,2
	7	93,5	19,8	88,7	21,8	83,6	24,1	78,2	26,7	74,8	28,4
	8	96,4	20,0	91,4	22,0	86,1	24,3	80,5	26,8	77,0	28,5
	9	99,1	20,1	94,1	22,1	88,7	24,4	83,0	27,0	79,4	28,7
	10	102,0	20,2	96,8	22,3	91,3	24,6	85,4	27,2	81,7	28,9
9.2	5	110,0	23,4	104,3	25,9	98,2	28,7	91,8	31,9	87,8	34,0
	6	113,4	23,6	107,6	26,1	101,4	28,9	94,8	32,1	90,7	34,2
	7	116,9	23,8	110,9	26,3	104,5	29,1	97,8	32,3	93,5	34,4
	8	120,3	24,0	114,2	26,5	107,7	29,3	100,8	32,5	96,4	34,6
	9	123,8	24,1	117,5	26,6	110,9	29,5	103,8	32,7	99,3	34,8
	10	127,4	24,3	120,9	26,8	114,1	29,7	106,9	32,9	102,3	35,0



10.2	5	124,4	26,5	118,0	29,4	111,2	32,7	104,1	36,4	99,5	38,8
	6	128,1	26,7	121,6	29,6	114,6	32,9	107,3	36,6	102,7	39,1
	7	132,0	26,9	125,4	29,8	118,1	33,1	110,6	36,8	105,8	39,3
	8	135,8	27,1	128,9	30,0	121,7	33,3	113,9	37,1	109,0	39,5
	9	139,8	27,3	132,7	30,2	125,2	33,5	117,3	37,3	112,3	39,8
	10	143,7	27,5	136,5	30,4	128,8	33,8	120,7	37,5	115,6	40,0
12.2	5	146,1	32,2	138,4	35,5	130,1	39,2	121,2	43,4	115,6	46,1
	6	150,6	32,5	142,7	35,8	134,1	39,5	124,9	43,7	119,1	46,4
	7	154,9	32,7	146,8	36,1	138,0	39,8	128,6	44,0	122,7	46,7
	8	159,4	33,0	151,0	36,4	142,0	40,1	132,4	44,3	126,3	47,0
	9	163,9	33,3	155,3	36,6	146,1	40,4	136,2	44,6	130,0	47,3
	10	168,5	33,6	159,7	36,9	150,2	40,7	140,1	44,9	133,7	47,7

Pf: cooling capacity [kW]

Pe: electrical power absorbed by the compressors [kW]

T0: evaporator outgoing water temperature [°C]

**Zeta Echos A - heating capacity**

Model	CONDENSER INGOING WATER TEMPERATURE [°C]									
	Ta [°C]	RH %	30		35		40		43	
			Pt	Pe	Pt	Pe	Pt	Pe	Pt	Pe
3.2	-5	90	39,1	9,9	38,8	11,0	38,5	12,2	38,4	13,0
	0	90	44,6	10,1	44,1	11,2	43,6	12,4	43,4	13,2
	5	80	49,8	10,3	49,2	11,3	48,5	12,5	48,1	13,3
	8	70	52,8	10,3	52,0	11,4	51,1	12,6	50,7	13,4
	10	70	55,3	10,4	54,5	11,5	53,6	12,7	53,1	13,5
4.2	-5	90	44,7	11,7	45,0	13,0	45,3	14,4	45,6	15,3
	0	90	50,9	11,9	50,9	13,1	51,0	14,5	51,0	15,5
	5	80	56,7	12,1	56,5	13,3	56,4	14,7	56,3	15,6
	8	70	60,2	12,2	59,9	13,4	59,6	14,8	59,4	15,7
	10	70	62,9	12,3	62,4	13,5	61,9	14,9	61,7	15,8
5.2	-5	90	50,4	13,0	50,1	14,4	49,9	16,0	49,8	17,1
	0	90	57,4	13,3	56,9	14,7	56,4	16,3	56,1	17,3
	5	80	64,2	13,5	63,4	14,9	62,7	16,5	62,2	17,5
	8	70	68,1	13,6	67,2	15,0	66,2	16,6	65,6	17,7
	10	70	71,1	13,7	70,1	15,1	69,1	16,7	68,5	17,8
6.2	-5	90	80,4	13,9	78,8	15,3	77,4	16,9	76,6	18,0
	0	90	56,9	14,9	56,9	16,5	57,0	18,3	*	*
	5	80	64,2	15,1	64,0	16,8	63,9	19,1	63,9	20,3
	8	70	71,0	15,4	70,7	17,1	70,3	19,2	70,2	20,4
	10	70	75,3	15,5	74,8	17,3	74,2	19,3	74,0	20,5
7.2	-5	90	78,7	15,6	77,8	17,5	77,2	19,4	76,9	20,6
	0	90	88,3	15,9	87,3	17,7	86,1	19,6	85,4	20,8
	5	80	88,5	17,0	87,9	19,1	87,3	21,9	87,2	23,3
	8	70	78,0	17,3	77,0	19,5	75,9	21,9	75,5	23,3
	10	70	87,0	17,6	85,6	19,7	84,3	22,0	83,6	23,3
8.2	-5	90	91,9	17,8	90,4	19,7	88,8	22,1	88,0	23,4
	0	90	96,4	17,9	94,8	19,8	93,0	22,1	92,1	23,4
	5	80	108,6	18,1	106,6	20,0	104,3	22,3	103,1	23,6
	8	70	76,3	20,1	75,7	22,7	75,1	25,5	74,9	27,2
	10	70	86,6	20,3	85,6	22,7	84,6	25,4	84,2	26,9
9.2	-5	90	96,6	20,4	95,2	22,6	93,7	25,3	93,0	26,8
	0	90	102,3	20,4	100,6	22,6	98,8	25,3	98,0	26,7
	5	80	107,0	20,4	105,3	22,6	103,5	25,3	102,6	26,7
	8	70	120,5	20,5	118,3	22,7	116,0	25,3	114,9	26,7
	10	70	88,5	24,1	89,0	26,9	88,5	29,9	88,4	31,9
9.2	-5	90	99,1	24,3	98,3	27,0	97,8	30,0	97,6	32,1
	0	90	110,9	24,4	109,6	27,1	108,4	30,2	107,8	32,2
	5	80	117,8	24,5	116,3	27,2	114,8	30,3	113,8	32,3
	8	70	123,1	24,6	121,4	27,3	119,8	30,4	118,9	32,4
	10	70	138,3	24,8	136,1	27,5	134,0	30,6	132,7	32,6



10.2	-5	90	103,9	26,9	103,0	30,4	102,5	34,2	102,2	36,3
	0	90	118,0	27,2	116,8	30,5	115,7	34,3	115,0	36,4
	5	80	131,4	27,4	129,8	30,6	128,1	34,4	127,3	36,5
	8	70	138,9	27,4	136,8	30,7	134,9	34,5	134,0	36,5
	10	70	145,4	27,5	143,3	30,7	141,2	34,5	140,1	36,5
	15	70	163,4	27,6	160,8	30,8	158,0	34,6	156,5	36,6
12.2	-5	90	116,2	30,1	115,6	33,5	115,0	37,3	114,6	40,9
	0	90	131,8	30,5	130,6	34,0	129,3	38,6	128,7	41,1
	5	80	146,6	30,7	144,9	34,4	143,1	38,8	142,1	41,2
	8	70	155,1	30,9	153,1	34,7	150,7	38,9	149,6	41,2
	10	70	161,7	31,0	159,4	34,9	157,2	38,9	156,0	41,3
	15	70	182,2	31,4	178,6	34,9	175,5	39,0	174,0	41,3

Pt: heating capacity [kW]

Pe: electrical power absorbed by the compressors [kW]

Ta: evaporator intake air temperature dry bulb [°C]

RH: evaporator intake air relative humidity [%]

Zeta Echos A - total recovery capacity

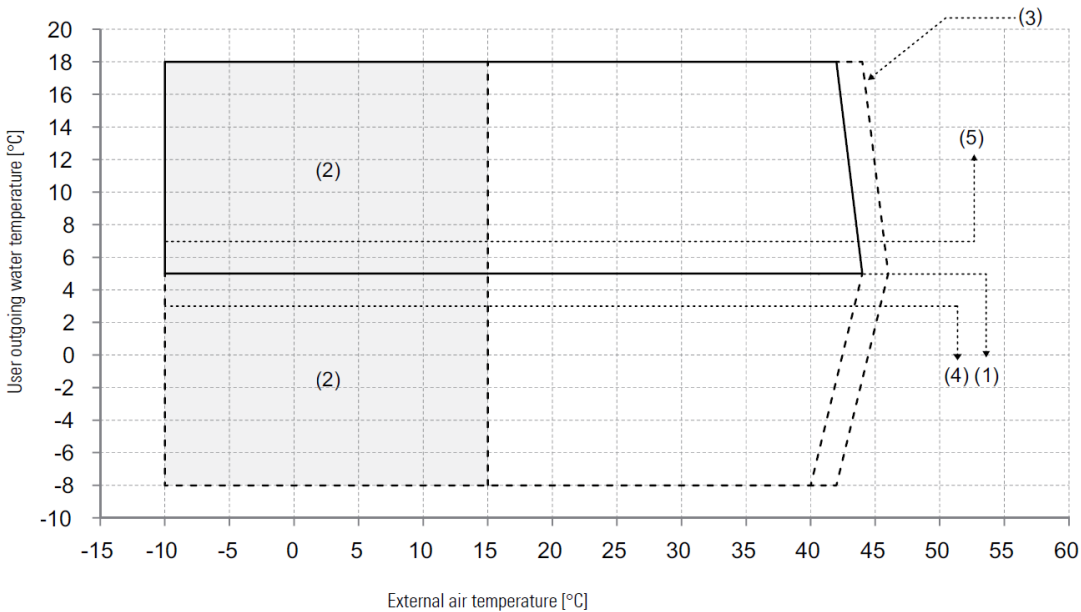
Model	CONDENSER INGOING WATER TEMPERATURE [°C]												
	To [°C]	35			40			45			48		
		Pf	Pe	Pr	Pf	Pe	Pr	Pf	Pe	Pr	Pf	Pe	Pr
3.2	5	47,3	10,8	58,1	44,6	11,9	56,5	41,8	13,1	54,9	40,1	13,9	54,0
	7	50,5	10,9	61,4	47,7	12,0	59,7	44,7	13,2	57,9	42,9	14,0	56,9
	10	55,5	11,0	66,5	52,5	12,1	64,6	49,3	13,3	62,6	47,3	14,2	61,4
4.2	5	56,4	12,8	69,3	53,7	14,1	67,8	50,8	15,5	66,3	49,0	16,4	65,4
	7	60,3	13,0	73,2	57,4	14,2	71,6	54,3	15,6	69,9	52,2	16,5	68,8
	10	66,3	13,2	79,4	63,0	14,4	77,4	59,6	15,8	75,3	57,4	16,7	74,1
5.2	5	61,0	14,2	75,2	57,5	15,7	73,2	53,9	17,3	71,2	51,6	18,4	70,0
	7	65,1	14,3	79,4	61,5	15,8	77,3	57,6	17,4	75,0	55,2	18,5	73,7
	10	71,5	14,5	86,0	67,6	16,0	83,6	63,5	17,6	81,1	60,9	18,7	79,5
6.2	5	73,8	16,3	90,1	70,1	18,0	88,1	66,1	19,9	86,0	63,6	21,1	84,7
	7	78,7	16,5	95,1	74,7	18,1	92,8	70,5	20,0	90,5	67,8	21,2	89,0
	10	86,1	16,6	102,8	81,9	18,3	100,2	77,4	20,2	97,5	74,5	21,4	95,9
7.2	5	79,8	18,0	97,8	75,4	19,9	95,3	70,6	22,1	92,7	67,5	23,6	91,1
	7	85,2	18,2	103,4	80,4	20,1	100,5	75,4	22,2	97,6	72,1	23,7	95,8
	10	93,4	18,4	111,8	88,4	20,3	108,6	82,9	22,5	105,3	79,4	23,9	103,3
8.2	5	90,8	19,9	110,7	85,2	22,3	107,5	79,2	25,0	104,2	76,1	26,6	102,6
	7	96,9	20,0	116,8	90,9	22,4	113,4	84,8	25,1	109,9	81,6	26,5	108,1
	10	106,3	20,1	126,4	100,2	22,5	122,7	93,8	25,1	118,9	90,4	26,5	116,9
9.2	5	110,0	23,4	133,4	103,2	26,4	129,6	96,3	29,6	125,9	92,6	31,4	124,0
	7	117,2	23,6	140,8	110,5	26,4	136,9	103,1	29,6	132,7	99,2	31,4	130,6
	10	128,6	23,8	152,3	121,6	26,5	148,0	113,8	29,7	143,5	109,7	31,4	141,1
10.2	5	123,9	26,8	150,7	116,5	30,2	146,7	108,9	34,0	142,9	104,7	36,1	140,8
	7	132,1	27,0	159,1	124,7	30,2	154,9	116,5	34,0	150,5	112,1	36,1	148,2
	10	145,0	27,1	172,2	137,2	30,3	167,5	128,5	34,0	162,5	123,8	36,2	160,0
12.2	5	148,5	31,3	179,7	139,8	34,9	174,7	130,5	39,0	169,5	125,4	41,3	166,7
	7	158,3	31,5	189,7	149,5	34,9	184,4	139,7	39,0	178,7	134,4	41,3	175,7
	10	174,1	31,6	205,7	164,7	35,0	199,7	154,1	39,1	193,2	148,5	41,4	189,8

Pf: cooling capacity [kW]  
 Pe: electrical power absorbed by the compressors [kW]  
 Pr: recovery condenser heating capacity [kW]  
 To: evaporator outgoing water temperature [°C]

Zeta Echos - CH - HP - operating limits

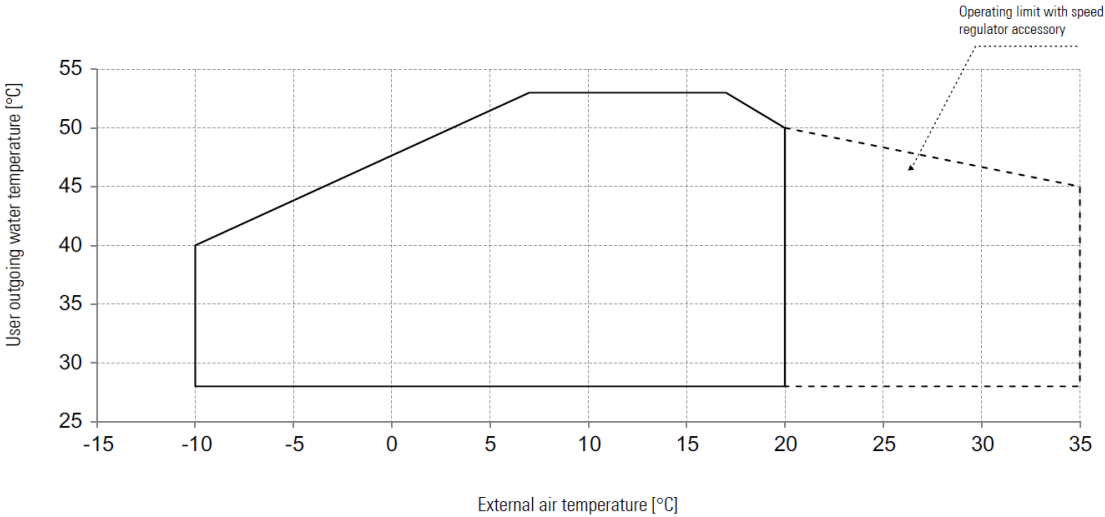
**COOLING**

Thermal gap allowed between 4°C and 7°C. Thermal gap = 5°C with Inverter Driven Pump



**HEATING**

Thermal gap allowed between 4°C and 7°C. Thermal gap = 5°C with Inverter Driven Pump

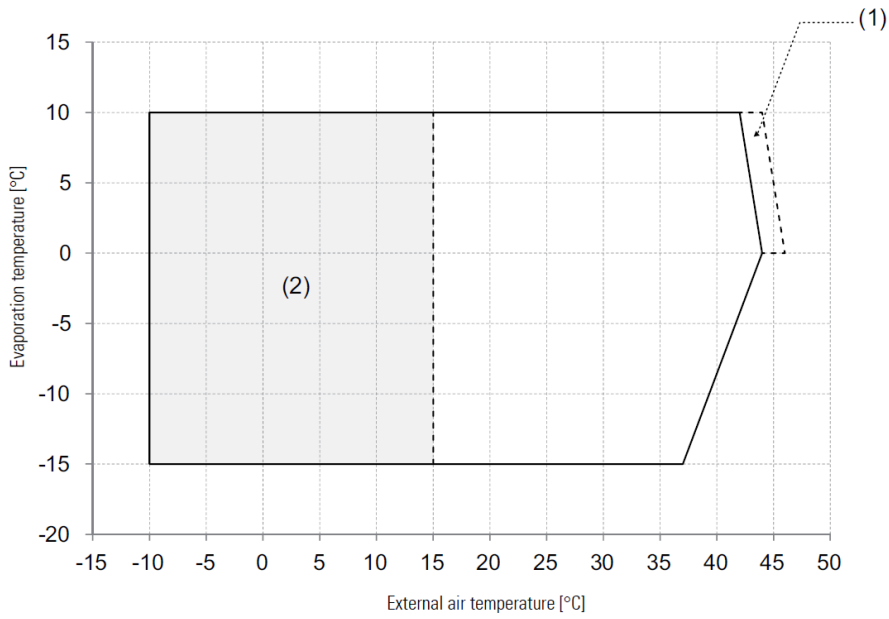


(1) Working limit in case of forced capacity control  
 (2) With low ambient temperature Kit

Zeta Echos - LE - LE/HP - operating limits

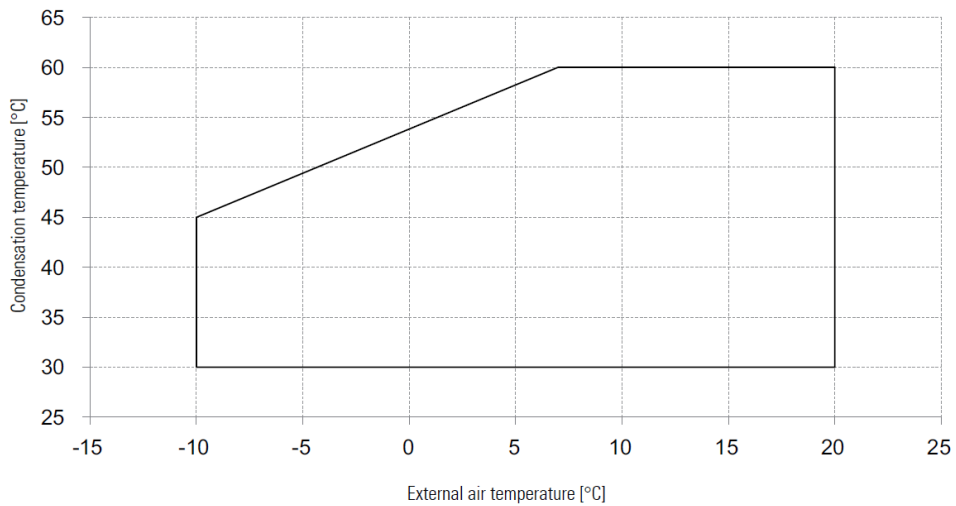
**COOLING**

Thermal gap allowed between 4°C and 7°C



**HEATING**

Thermal gap allowed between 4°C and 7°C



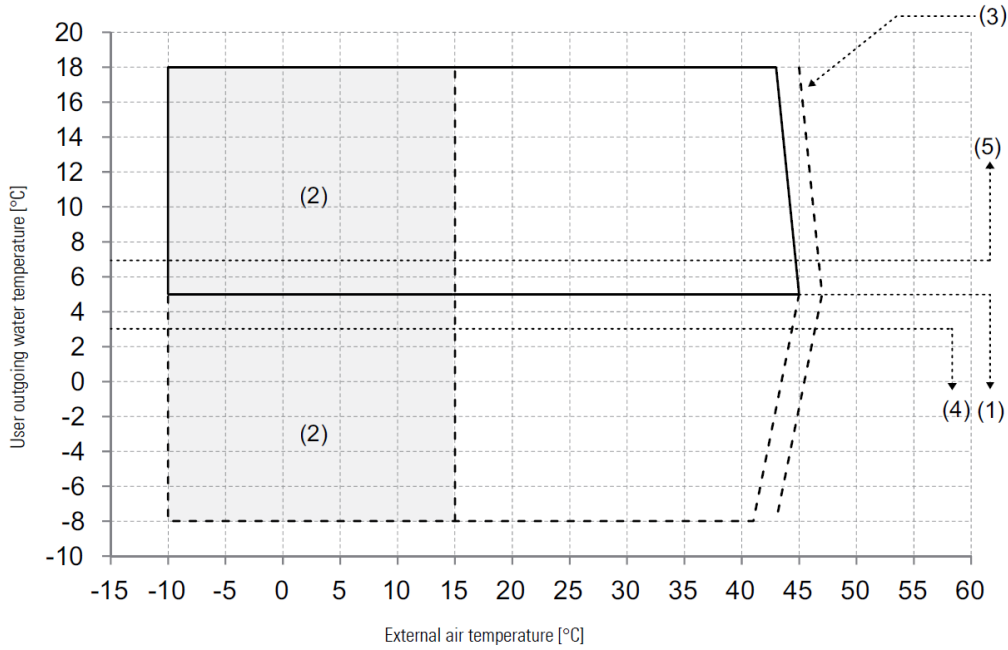
(1) Workin limit in case of forced capacity control  
(2) With low ambient temperature Kit



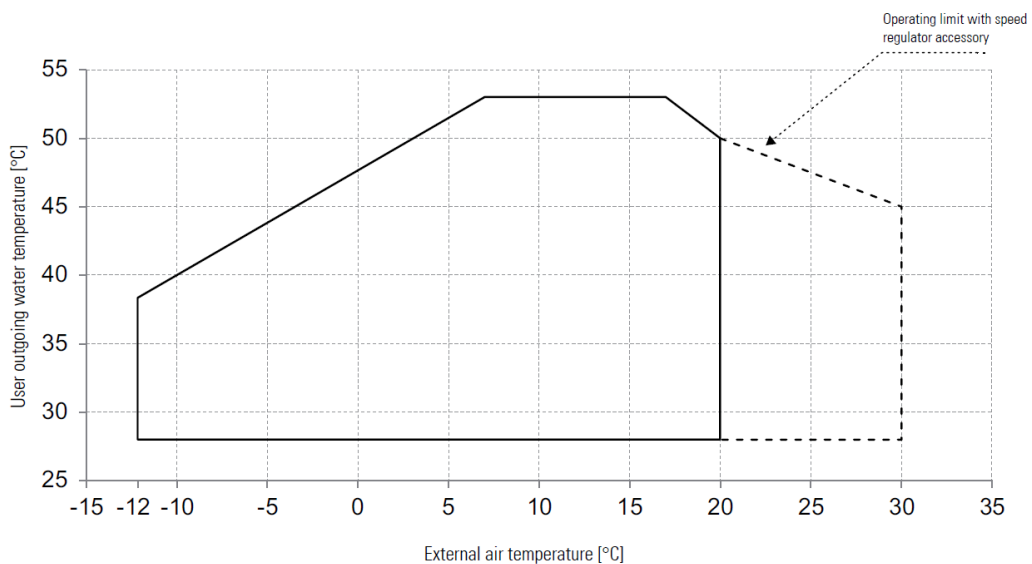
Zeta Echos A - CH - HP - operating limits

**COOLING**

Thermal gap allowed between 4°C and 7°C. Thermal gap = 5°C with Inverter Driven Pump



**HEATING**



- (1) Operating range for unit with ethilene glycol
- (2) With low ambient temperature Kit
- (3) Workin limit in case of forced capacity control
- (4) Brine kit limit
- (5) Minimum Outlet water temperature with Inverter Driven Pump. Contact Commercial Office for lower limits

## Zeta Echos - noise levels

### STANDARD UNIT

Model	OCTAVE BAND [dB]																Total	
	63 [dB]		125 [dB]		250 [dB]		500 [dB]		1000 [dB]		2000 [dB]		4000 [dB]		8000 [dB]		dB(A)	
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
3.2	83	51	86	54	81	49	79	47	79	47	73	41	68	36	57	25	83	51
4.2	83	51	87	55	81	49	81	49	79	47	73	41	70	38	57	25	83	51
5.2	83	51	87	55	81	49	81	49	79	47	73	41	70	38	57	25	83	51
6.2	83	51	87	55	81	49	81	49	79	47	73	41	70	38	57	25	83	51
7.2	84	52	88	56	82	50	82	50	80	48	74	42	71	39	58	26	84	52
8.2	85	53	89	57	83	51	83	51	81	49	75	43	72	40	60	28	85	53
9.2	85	53	89	57	83	51	83	51	82	50	76	44	72	40	60	28	86	54
10.2	85	52	89	56	83	50	83	50	82	49	76	43	72	39	60	27	86	53
12.2	86	53	90	57	84	51	84	51	83	50	77	44	73	40	61	28	87	54
13.2	86	53	90	57	84	51	84	51	83	50	77	44	73	40	61	28	87	54

### LOW-NOISE UNIT

Model	OCTAVE BAND [dB]																Total	
	63 [dB]		125 [dB]		250 [dB]		500 [dB]		1000 [dB]		2000 [dB]		4000 [dB]		8000 [dB]		dB(A)	
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
3.2	82	50	83	51	78	46	77	45	77	45	71	39	66	34	55	23	81	49
4.2	82	50	84	52	78	46	78	46	77	45	71	39	67	35	55	23	81	49
5.2	82	50	84	52	78	46	78	46	77	45	71	39	67	35	55	23	81	49
6.2	82	50	84	52	78	46	78	46	77	45	71	39	67	35	55	23	81	49
7.2	83	51	85	53	79	47	79	47	78	46	72	40	69	37	57	25	82	50
8.2	84	52	86	54	80	48	80	48	79	47	73	41	70	38	58	26	83	51
9.2	84	52	87	55	81	49	81	49	80	48	74	42	70	38	58	26	84	52
10.2	84	51	87	54	81	48	81	48	80	47	74	41	70	37	58	25	84	51
12.2	85	52	88	55	82	49	82	49	81	48	75	42	71	38	59	26	85	52
13.2	85	52	88	55	82	49	82	49	81	48	75	42	71	38	59	26	85	52

### SUPER LOW-NOISE UNIT

Model	OCTAVE BAND [dB]																Total	
	63 [dB]		125 [dB]		250 [dB]		500 [dB]		1000 [dB]		2000 [dB]		4000 [dB]		8000 [dB]		dB(A)	
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
3.2	80	48	79	47	73	41	73	41	72	40	66	34	62	30	50	18	76	44
4.2	80	48	79	47	74	42	74	42	73	41	67	35	63	31	51	19	77	45
5.2	80	48	79	47	75	43	74	42	74	42	68	36	64	32	52	20	78	46
6.2	80	48	80	48	75	43	75	43	74	42	68	36	64	32	52	20	78	46
7.2	81	49	81	49	76	44	76	44	75	43	69	37	65	33	53	21	79	47
8.2	82	50	82	50	77	45	77	45	76	44	70	38	66	34	54	22	80	48
9.2	82	50	83	51	78	46	78	46	77	45	71	39	67	35	55	23	81	49
10.2	82	49	84	51	79	46	79	46	78	45	72	39	68	35	56	23	82	49
12.2	83	50	84	51	79	46	79	46	78	45	72	39	68	35	56	23	82	49
13.2	83	50	84	51	81	48	79	46	79	46	73	40	68	35	57	24	83	50

Lw: noise power levels measured in free field according to standard ISO 3744; under nominal operating conditions.

Lp: sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.

## Zeta Echos A - noise levels

### STANDARD UNIT

Model	OCTAVE BAND [dB]																Total	
	63 [dB]		125 [dB]		250 [dB]		500 [dB]		1000 [dB]		2000 [dB]		4000 [dB]		8000 [dB]		dB(A)	
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
<b>3.2</b>	80,1	48,1	82,7	50,7	77,8	45,8	76,6	44,6	76,6	44,6	70,4	38,4	65,7	33,7	54,6	22,6	<b>80</b>	<b>48</b>
<b>4.2</b>	80,5	48,5	83,0	51,0	78,1	46,1	77,9	45,9	76,3	44,3	70,7	38,7	65,9	33,9	54,8	22,8	<b>80</b>	<b>48</b>
<b>5.2</b>	81,0	49,0	84,0	52,0	78,8	46,8	77,7	45,7	77,0	45,0	70,7	38,7	65,9	33,9	54,8	22,8	<b>81</b>	<b>49</b>
<b>6.2</b>	81,0	49,0	84,0	52,0	78,8	46,8	77,7	45,7	77,0	45,0	70,7	38,7	65,9	33,9	54,8	22,8	<b>81</b>	<b>49</b>
<b>7.2</b>	83,0	51,0	86,0	54,0	81,8	49,8	79,6	47,6	77,9	45,9	71,5	39,5	66,6	34,6	55,8	23,8	<b>82</b>	<b>50</b>
<b>8.2</b>	84,5	52,5	86,5	54,5	83,2	51,2	83,5	51,5	80,3	48,3	75,4	43,4	71,6	39,6	59,5	27,5	<b>85</b>	<b>53</b>
<b>9.2</b>	84,4	52,4	87,9	55,9	82,7	50,7	82,8	50,8	80,2	48,2	74,4	42,4	71,2	39,2	59,9	27,9	<b>85</b>	<b>53</b>
<b>10.2</b>	85,0	53,0	88,3	56,3	83,2	51,2	83,2	51,2	81,1	49,1	75,8	43,8	72,1	40,1	59,9	27,9	<b>85</b>	<b>53</b>
<b>12.2</b>	85,0	53,0	88,3	56,3	83,2	51,2	83,2	51,2	81,1	49,1	75,8	43,8	72,1	40,1	59,9	27,9	<b>85</b>	<b>53</b>

### LOW-NOISE UNIT

Model	OCTAVE BAND [dB]																Total	
	63 [dB]		125 [dB]		250 [dB]		500 [dB]		1000 [dB]		2000 [dB]		4000 [dB]		8000 [dB]		dB(A)	
	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp	Lw	Lp
<b>3.2</b>	78,0	46,0	79,1	47,1	74,3	42,3	74,1	42,1	73,1	41,1	67,1	35,1	62,3	30,3	51,4	19,4	<b>77</b>	<b>45</b>
<b>4.2</b>	78,4	46,4	79,5	47,5	75,0	43,0	75,1	43,1	74,0	42,0	67,3	35,3	62,4	30,4	53,0	21,0	<b>78</b>	<b>46</b>
<b>5.2</b>	80,6	48,6	81,0	49,0	76,3	44,3	75,3	43,3	75,0	43,0	69,2	37,2	64,5	32,5	55,0	23,0	<b>79</b>	<b>47</b>
<b>6.2</b>	80,7	48,7	81,3	49,3	76,3	44,3	75,5	43,5	75,0	43,0	69,2	37,2	65,0	33,0	55,0	23,0	<b>79</b>	<b>47</b>
<b>7.2</b>	81,1	49,1	83,0	51,0	77,0	45,0	78,2	46,2	76,1	44,1	70,3	38,3	65,2	33,2	55,3	23,3	<b>80</b>	<b>48</b>
<b>8.2</b>	82,5	50,5	86,0	54,0	81,0	49,0	80,2	48,2	78,2	46,2	72,7	40,7	69,1	37,1	57,0	25,0	<b>83</b>	<b>51</b>
<b>9.2</b>	82,7	50,7	86,0	54,0	81,0	49,0	80,2	48,2	78,2	46,2	72,7	40,7	69,1	37,1	57,2	25,2	<b>83</b>	<b>51</b>
<b>10.2</b>	82,9	50,9	87,2	55,2	81,3	49,3	80,2	48,2	78,5	46,5	73,0	41,0	69,8	37,8	57,5	25,5	<b>83</b>	<b>51</b>
<b>12.2</b>	83,2	51,2	87,3	55,3	81,4	49,4	80,2	48,2	79,0	47,0	73,4	41,4	70,2	38,2	57,9	25,9	<b>83</b>	<b>51</b>

Lw: sound power levels measured in free field according to standard ISO 3744; under nominal operating conditions.

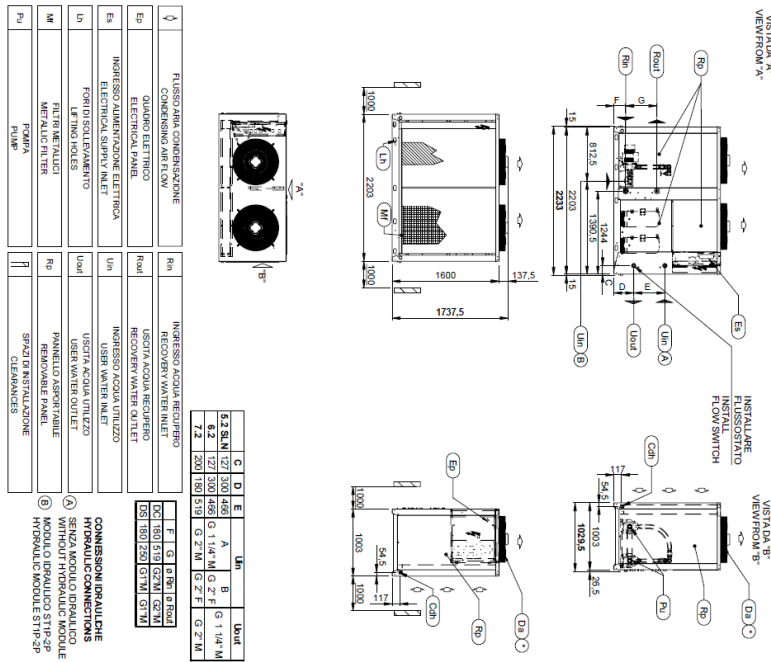
Lp: sound pressure levels measured at 10 metres from the unit in free field under nominal operating conditions, according to ISO 3744.





overall dimensions, weights, clearance areas and hydraulic connections

### ZETA ECHOS 6.2 - 7.2 - ZETA 5.2 SLN



MODELLO	MODELLO	PESSO(Kg)	PERO IN FUNZIONE(Kg)	G (TKg)	GZ(Kg)	G3(Kg)	G4(Kg)
ZETA ECHOS 6.2	6.2	627	631	215	82	53	188
ZETA ECHOS 6.2	6.2	631	635	215	82	53	188
ZETA ECHOS 6.2	6.2	635	639	215	82	53	188
ZETA ECHOS 6.2	6.2	639	643	215	82	53	188
ZETA ECHOS 6.2	6.2	643	647	215	82	53	188
ZETA ECHOS 6.2	6.2	647	651	215	82	53	188
ZETA ECHOS 6.2	6.2	651	655	215	82	53	188
ZETA ECHOS 6.2	6.2	655	659	215	82	53	188
ZETA ECHOS 6.2	6.2	659	663	215	82	53	188
ZETA ECHOS 6.2	6.2	663	667	215	82	53	188
ZETA ECHOS 6.2	6.2	667	671	215	82	53	188
ZETA ECHOS 6.2	6.2	671	675	215	82	53	188
ZETA ECHOS 6.2	6.2	675	679	215	82	53	188
ZETA ECHOS 6.2	6.2	679	683	215	82	53	188
ZETA ECHOS 6.2	6.2	683	687	215	82	53	188
ZETA ECHOS 6.2	6.2	687	691	215	82	53	188
ZETA ECHOS 6.2	6.2	691	695	215	82	53	188
ZETA ECHOS 6.2	6.2	695	699	215	82	53	188
ZETA ECHOS 6.2	6.2	699	703	215	82	53	188
ZETA ECHOS 6.2	6.2	703	707	215	82	53	188
ZETA ECHOS 6.2	6.2	707	711	215	82	53	188
ZETA ECHOS 6.2	6.2	711	715	215	82	53	188
ZETA ECHOS 6.2	6.2	715	719	215	82	53	188
ZETA ECHOS 6.2	6.2	719	723	215	82	53	188
ZETA ECHOS 6.2	6.2	723	727	215	82	53	188
ZETA ECHOS 6.2	6.2	727	731	215	82	53	188
ZETA ECHOS 6.2	6.2	731	735	215	82	53	188
ZETA ECHOS 6.2	6.2	735	739	215	82	53	188
ZETA ECHOS 6.2	6.2	739	743	215	82	53	188
ZETA ECHOS 6.2	6.2	743	747	215	82	53	188
ZETA ECHOS 6.2	6.2	747	751	215	82	53	188
ZETA ECHOS 6.2	6.2	751	755	215	82	53	188
ZETA ECHOS 6.2	6.2	755	759	215	82	53	188
ZETA ECHOS 6.2	6.2	759	763	215	82	53	188
ZETA ECHOS 6.2	6.2	763	767	215	82	53	188
ZETA ECHOS 6.2	6.2	767	771	215	82	53	188
ZETA ECHOS 6.2	6.2	771	775	215	82	53	188
ZETA ECHOS 6.2	6.2	775	779	215	82	53	188
ZETA ECHOS 6.2	6.2	779	783	215	82	53	188
ZETA ECHOS 6.2	6.2	783	787	215	82	53	188
ZETA ECHOS 6.2	6.2	787	791	215	82	53	188
ZETA ECHOS 6.2	6.2	791	795	215	82	53	188
ZETA ECHOS 6.2	6.2	795	799	215	82	53	188
ZETA ECHOS 6.2	6.2	799	803	215	82	53	188
ZETA ECHOS 6.2	6.2	803	807	215	82	53	188
ZETA ECHOS 6.2	6.2	807	811	215	82	53	188
ZETA ECHOS 6.2	6.2	811	815	215	82	53	188
ZETA ECHOS 6.2	6.2	815	819	215	82	53	188
ZETA ECHOS 6.2	6.2	819	823	215	82	53	188
ZETA ECHOS 6.2	6.2	823	827	215	82	53	188
ZETA ECHOS 6.2	6.2	827	831	215	82	53	188
ZETA ECHOS 6.2	6.2	831	835	215	82	53	188
ZETA ECHOS 6.2	6.2	835	839	215	82	53	188
ZETA ECHOS 6.2	6.2	839	843	215	82	53	188
ZETA ECHOS 6.2	6.2	843	847	215	82	53	188
ZETA ECHOS 6.2	6.2	847	851	215	82	53	188
ZETA ECHOS 6.2	6.2	851	855	215	82	53	188
ZETA ECHOS 6.2	6.2	855	859	215	82	53	188
ZETA ECHOS 6.2	6.2	859	863	215	82	53	188
ZETA ECHOS 6.2	6.2	863	867	215	82	53	188
ZETA ECHOS 6.2	6.2	867	871	215	82	53	188
ZETA ECHOS 6.2	6.2	871	875	215	82	53	188
ZETA ECHOS 6.2	6.2	875	879	215	82	53	188
ZETA ECHOS 6.2	6.2	879	883	215	82	53	188
ZETA ECHOS 6.2	6.2	883	887	215	82	53	188
ZETA ECHOS 6.2	6.2	887	891	215	82	53	188
ZETA ECHOS 6.2	6.2	891	895	215	82	53	188
ZETA ECHOS 6.2	6.2	895	899	215	82	53	188
ZETA ECHOS 6.2	6.2	899	903	215	82	53	188
ZETA ECHOS 6.2	6.2	903	907	215	82	53	188
ZETA ECHOS 6.2	6.2	907	911	215	82	53	188
ZETA ECHOS 6.2	6.2	911	915	215	82	53	188
ZETA ECHOS 6.2	6.2	915	919	215	82	53	188
ZETA ECHOS 6.2	6.2	919	923	215	82	53	188
ZETA ECHOS 6.2	6.2	923	927	215	82	53	188
ZETA ECHOS 6.2	6.2	927	931	215	82	53	188
ZETA ECHOS 6.2	6.2	931	935	215	82	53	188
ZETA ECHOS 6.2	6.2	935	939	215	82	53	188
ZETA ECHOS 6.2	6.2	939	943	215	82	53	188
ZETA ECHOS 6.2	6.2	943	947	215	82	53	188
ZETA ECHOS 6.2	6.2	947	951	215	82	53	188
ZETA ECHOS 6.2	6.2	951	955	215	82	53	188
ZETA ECHOS 6.2	6.2	955	959	215	82	53	188
ZETA ECHOS 6.2	6.2	959	963	215	82	53	188
ZETA ECHOS 6.2	6.2	963	967	215	82	53	188
ZETA ECHOS 6.2	6.2	967	971	215	82	53	188
ZETA ECHOS 6.2	6.2	971	975	215	82	53	188
ZETA ECHOS 6.2	6.2	975	979	215	82	53	188
ZETA ECHOS 6.2	6.2	979	983	215	82	53	188
ZETA ECHOS 6.2	6.2	983	987	215	82	53	188
ZETA ECHOS 6.2	6.2	987	991	215	82	53	188
ZETA ECHOS 6.2	6.2	991	995	215	82	53	188
ZETA ECHOS 6.2	6.2	995	999	215	82	53	188
ZETA ECHOS 6.2	6.2	999	1003	215	82	53	188

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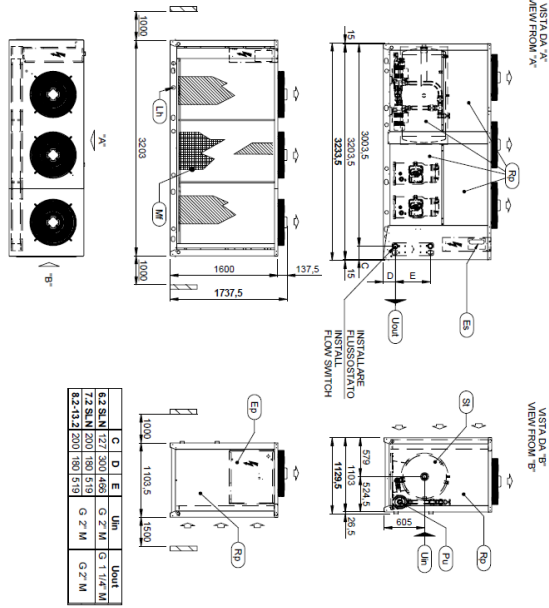




overall dimensions, weights, clearance areas and hydraulic connections

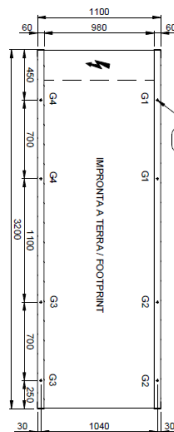
## ZETA ECHOS 8.2 - 10.2 2PS - ZETA ECHOS SLN 6 - 7.2 2PS

ES	QUADRO ELETTRICO ELECTRICAL PANEL	FLUSSO/ARIA CONDENSAZIONE CONDENSING AIR FLOW
LS	INGRESSO ALIMENTAZIONE ELETTRICA ELECTRICAL SUPPLY INLET	INGRESSO ACQUA UTILIZZO USER WATER INLET
LN	FORO DI SILEVAMENTO LIFTING HOLES	USCITA ACQUA UTILIZZO USER WATER OUTLET
MF	FILTRI METALLICI METALLIC FILTER	PANNELLO ASPRORIBILE REMOVABLE PANEL
SI	SERBATOIO DI ACCUMULO STORAGE TANK	SPAZI DI INSTALLAZIONE CLEARANCES
PU	POMPA PUMP	



MODELLO	PESO(KG)	PESO IN FUNZIONE(KG)	G1(KG)	G2(KG)	G3(KG)	G4(KG)	G5(KG)	G6(KG)
ZETA ECHOS ST 1PS-2PS-8.2	1076	1522	208	211	175	168	170	172
ZETA ECHOS ST 1PS-2PS-8.2	1089	1536	211	212	173	172	172	172
ZETA ECHOS ST 1PS-2PS-10.2	1106	1562	207	205	181	183	185	186
ZETA ECHOS HP-ST 1PS-2PS-8.2	1116	1562	211	205	180	180	183	185
ZETA ECHOS HP-ST 1PS-2PS-10.2	1127	1574	219	210	175	183	183	185
ZETA ECHOS ST 1PS-2PS-S-SLN 6.2	978	1422	176	204	178	154	157	157
ZETA ECHOS HP-ST 1PS-2PS-S-SLN 6.2	1012	1466	179	198	184	157	157	158
ZETA ECHOS ST 1PS-2PS-S-SLN 7.2	1000	1446	184	205	176	158	158	158
ZETA ECHOS HP-ST 1PS-2PS-S-SLN 7.2	1036	1482	188	199	182	172	172	172

FR	FORI DI FISSAGGIO FIXING HOLES	918
G	PUNTI DI APPROCCIO ANTIVIBRANTI VIBRATION DAMPER FOOT HOLDS	



SCALA  
1:30

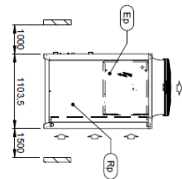
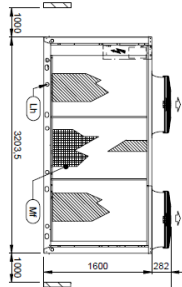
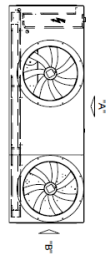
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overall dimensions, weights, clearance areas and hydraulic connections

### ZETA ECHOS 12.2 - 13.2

Ep	QUADRO ELETTRICO ELECTRICAL PANEL	Rm	INGRESSO ACQUA RECUPERO RECOVER WATER INLET
Es	INGRESSO ALIMENTAZIONE ELETTRICA ELECTRICAL SUPPLY INLET	Ra	USCITA ACQUA RECUPERO RECOVER WATER OUTLET
Lh	FORI DI SOGLIAMENTO LIFTING HOLES	Un	INGRESSO ACQUA UTILIZZO USER WATER INLET
Mf	FILTRI METALLICI METALLIC FILTER	Uo	USCITA ACQUA UTILIZZO USER WATER OUTLET
∅	FLUSSO ARIA CONDENSAZIONE CONDENSING AIR FLOW	Rp	PANNELLO ASPORTABILE REMOVABLE PANEL
Pa	FORI DI INSTALLAZIONE FLOW HOLES		SPACCHI DI INSTALLAZIONE CLEARANCES

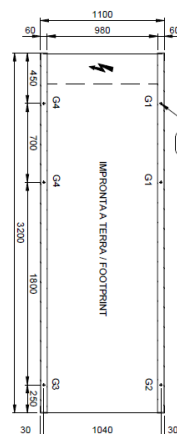
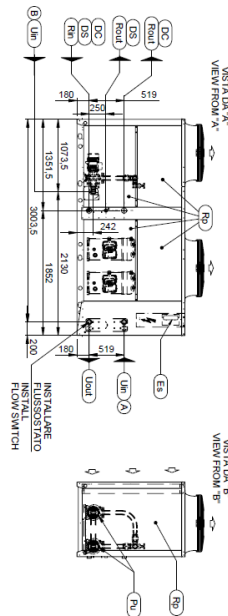


A SERIA MODULO IDRAULICO  
B MODULO IDRAULICO STP-2P  
C MODULO IDRAULICO STP-2P  
D MODULO IDRAULICO STP-2P

UN	Uo
G 2 M	G 2 M
G 2 M	G 2 M
G 2 M	G 2 M

Fn	FORI DI FISSAGGIO FIXING HOLES	Q18
G	FORI DI APROCCIO ANTIVIBRANTI VIBRATION DAMPER FOOT HOLES	

MODELLO	WEIGHT (KG)	FISCO (NFC)	FISCO (NFC) (NFC)	GH (KG)	GH (KG)	GH (KG)	GH (KG)
ZETA ECHOS 12.2	1099	1077	234	132	105	188	
ZETA ECHOS 13.2	1111	1120	247	138	108	191	
ZETA ECHOS STP-2P 12.2	1117	1117	247	138	108	191	
ZETA ECHOS STP-2P 13.2	1168	1174	253	140	112	196	
ZETA ECHOS DC-OS 12.2	1198	1176	258	154	116	196	
ZETA ECHOS DC-OS 13.2	1203	1224	273	162	118	199	
ZETA ECHOS STP-2P-DC-OS 12.2	1230	1248	288	177	133	201	
ZETA ECHOS STP-2P-DC-OS 13.2	1277	1296	293	185	136	208	
ZETA ECHOS STP-2P 12.2	1195	1195	248	132	106	190	
ZETA ECHOS STP-2P 13.2	1197	1197	248	132	106	190	
ZETA ECHOS H-STP 12.2	1172	1172	248	134	105	190	
ZETA ECHOS H-STP 13.2	1211	1220	262	159	125	205	
ZETA ECHOS H-OS 12.2	1128	1138	247	136	110	189	
ZETA ECHOS H-OS 13.2	1172	1183	260	143	112	204	
ZETA ECHOS H-STP 12.2	1188	1188	258	139	108	190	
ZETA ECHOS H-STP 13.2	1220	1220	260	152	120	200	

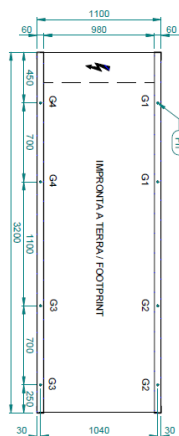
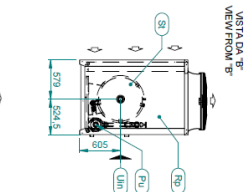
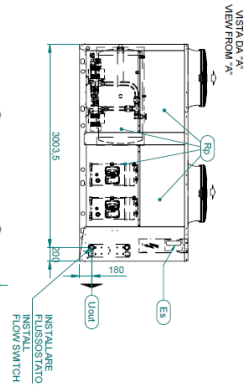
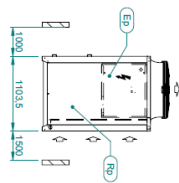
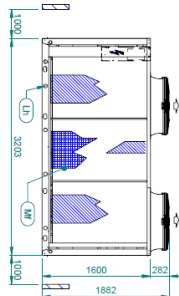
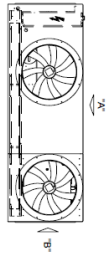


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overall dimensions, weights, clearance areas and hydraulic connections

### ZETA ECHOS 1PS - 2PS 12.2 - 13.2

Ep	QUADRO ELETTRICO ELECTRICAL PANEL	↓	FILISSO ARIA, CONDENSAZIONE CONDENSING AIR FLOW
Ea	INGRESSO ALIMENTAZIONI ELETTRICHE ELECTRICAL SUPPLY INLET	↓	INGRESSO ACQUA UTILIZZO USER WATER INLET
Lh	FORI DI SOLLEVAMENTO LIFTING HOLES	Uhl	INGRESSO ACQUA UTILIZZO USER WATER INLET
M	FILTRI METALLICI METALLIC FILTER	Uod	USCITA ACQUA UTILIZZO USER WATER OUTLET
Sr	SEPARATORE DI ACCUMULO STORAGE TANK	Rp	PANNELLO ASPORTABILE REMOVABLE PANEL
Pu	POMPA PUMP		SPAZZI INSTALLAZIONE CLEARANCES



Fh	FORI DI RISERVOIO FIXING HOLES	018
G	PIANTI DI APPESOGGIO ANTIVIBRANTI VIBRATION DAMPER FOOT HOLES	

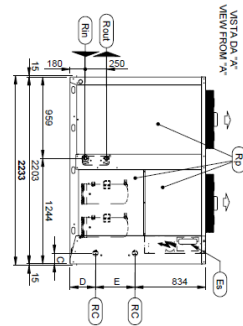
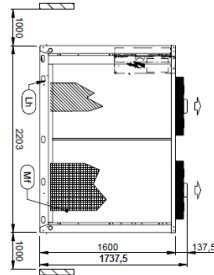
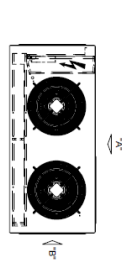
MODELLO	PESO (KG)	PESO IN FUNZIONE (KG)	G1 (KG)	G2 (KG)	G3 (KG)	G4 (KG)
ZETA ECHOS ST 1PS-2PS-13.2	1172	1172	224	214	171	170
ZETA ECHOS ST 1PS-2PS-12.2	1167	1167	224	216	171	164
ZETA ECHOS ST 1PS-2PS-13.2	1166	1514	228	208	177	154
ZETA ECHOS ST 1PS-2PS-12.2	1205	1554	240	212	175	181

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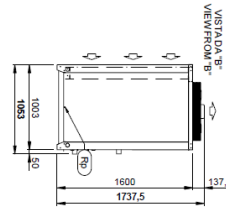
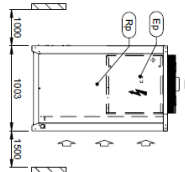
overall dimensions, weights,  
clearance areas and hydraulic connections

## ZETA ECHOS LE LE/HP 6.2 - 7.2 - 5.2 LE/HP SLN

Rh	INGRESSO ACQUA REFRIGERIO RECOVER WATER INLET	↓	FLUSSO ARIA CONDENSAZIONE CONDENSING AIRFLOW
Roa	USCITA ACQUA REFRIGERIO RECOVER WATER OUTLET	Ra	PANNELLO ASSORBIBILE REMOVABLE PANEL
Ep	QUADRO ELETTRICO ELECTRICAL PANEL	RC	CONNESSIONI REFRIGERANTE REFRIGERANT CONNECTIONS
Es	INGRESSO ALIMENTAZIONE ELETTRICA ELECTRICAL SUPPLY INLET	MM	FILTRI METALLICI METALLIC FILTER
Lh	FORI DI SOLLEVAMENTO LIFTING HOLES	□	SPAZZI DI INSTALLAZIONE CLEARANCES

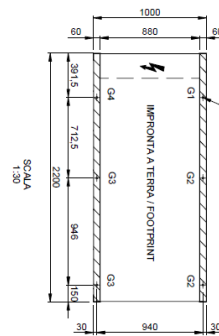


	C	D	E	g (R)h	g (R)h
6.2 SLN	127	1300	485	153	QTM
7.2	202	1300	485	153	QTM
5.2	202	1300	485	153	QTM



Fh	FORI DI RISERVOIO TANK HOLES	Ø16
G	PUNTI DI APPESO ANTI-VIBRANTI VIBRATION DAMPER HOLES	

MODELLO	MODEL	PESO (KG)	PESANTI FUNZIONE (KG)	GT (KG)	GZ (KG)	G3 (KG)	G4 (KG)
ZETA ECHOS LE-DS 6.2	ZETA ECHOS LE-DS 6.2	602	508	180	60	56	178
ZETA ECHOS LE/HP 6.2	ZETA ECHOS LE/HP 6.2	646	508	190	60	57	179
ZETA ECHOS LE/HP 6.2	ZETA ECHOS LE/HP 6.2	652	508	209	60	56	201
ZETA ECHOS LE-DS 7.2	ZETA ECHOS LE-DS 7.2	611	519	188	61	59	179
ZETA ECHOS LE/HP 7.2	ZETA ECHOS LE/HP 7.2	681	519	198	62	57	183
ZETA ECHOS LE/HP 7.2	ZETA ECHOS LE/HP 7.2	688	519	217	62	60	208
ZETA ECHOS LE-SLN 5.2	ZETA ECHOS LE-SLN 5.2	603	504	190	60	56	177
ZETA ECHOS LE/HP-SLN 5.2	ZETA ECHOS LE/HP-SLN 5.2	647	504	204	60	57	180
ZETA ECHOS LE/HP-SLN 5.2	ZETA ECHOS LE/HP-SLN 5.2	654	504	210	60	56	201



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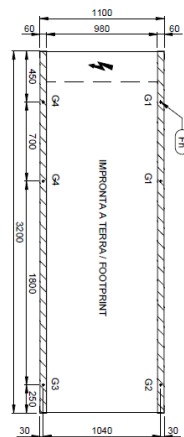
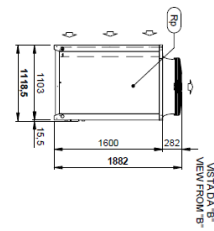
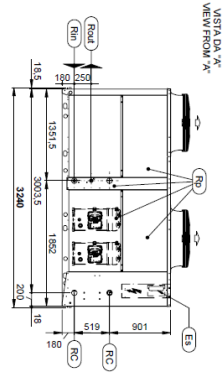
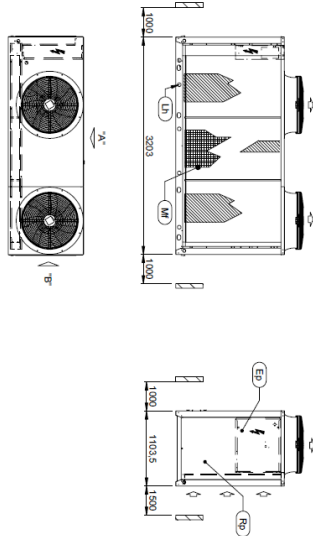
overall dimensions, weights,  
clearance areas and hydraulic connections

## ZETA ECHOS LE 12.2 - 13.2

Rh	INGRESSO ACQUA RECIPIERO RECOVERY WATER INLET	↓	FLUSSO ARIA CONDENSAZIONE CONDENSING AIR FLOW
Road	USCITA ACQUA RECIPIERO RECOVERY WATER OUTLET	Rg	PANNELLO ASPIRANTE REMOVABLE PANEL
Es	QUADRO ELETTRICO ELECTRICAL PANEL	Rc	CONNESSIONI REFRIGERANTE REFRIGERANT CONNECTIONS
Et	INGRESSO ALIMENTAZIONE ELETTRICA ELECTRICAL SUPPLY INLET	Mt	FILTRI METALLICI METALLIC FILTER
Lh	FORI DI SOLLEVAMENTO LIFTING HOLES	☑	SPAZZI DI INSTALLAZIONE CLEARANCES

DS	Rh	Road
	Q/T/M	Q/T/M

Fh	FORI DI FISSAGGIO FIXING HOLES	Ø18
G	PIATTI DI APPOGGIO ANTIVIBRANTI VIBRATION DAMPER HOLES	



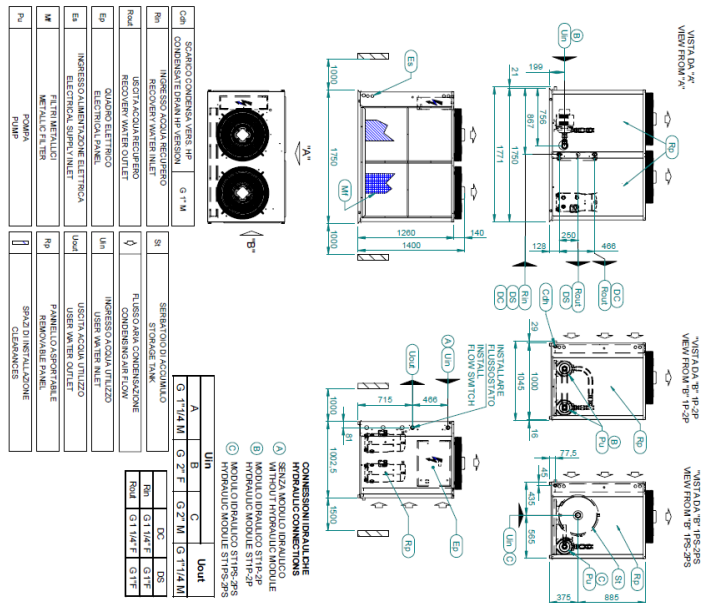
SCALA  
1:30

MODELLO MODEL	PESO(KG) WEIGHT(KG)	PESO IN FUNZIONE(KG) OPERATING WEIGHT(KG)	G1(KG)	G2(KG)	G3(KG)	G4(KG)
ZETA ECHOS LE 12.2	1053	1053	211	137	116	179
ZETA ECHOS LE 13.2	1071	1071	222	143	119	183
ZETA ECHOS LE-DOS 12.2	1053	1055	216	144	119	180
ZETA ECHOS LE-DOS 13.2	1089	1081	227	150	121	183
ZETA ECHOS LE-HP 12.2	1181	1081	231	138	119	183
ZETA ECHOS LE-HP 13.2	1117	1117	231	142	121	192
ZETA ECHOS LE-HP-DOS 12.2	1092	1094	224	141	121	192
ZETA ECHOS LE-HP-DOS 13.2	1131	1133	235	148	123	195

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overall dimensions, weights,  
clearance areas and hydraulic connections

## ZETA ECHOS A CH-HP 3.2-4.2



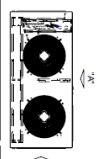
Modello	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ																																																																																																																																																																																																																																																																																																																	
ZETA ECHOS A 3.2 CH	441	444	447	450	453	456	459	462	465	468	471	474	477	480	483	486	489	492	495	498	501	504	507	510	513	516	519	522	525	528	531	534	537	540	543	546	549	552	555	558	561	564	567	570	573	576	579	582	585	588	591	594	597	600	603	606	609	612	615	618	621	624	627	630	633	636	639	642	645	648	651	654	657	660	663	666	669	672	675	678	681	684	687	690	693	696	699	702	705	708	711	714	717	720	723	726	729	732	735	738	741	744	747	750	753	756	759	762	765	768	771	774	777	780	783	786	789	792	795	798	801	804	807	810	813	816	819	822	825	828	831	834	837	840	843	846	849	852	855	858	861	864	867	870	873	876	879	882	885	888	891	894	897	900	903	906	909	912	915	918	921	924	927	930	933	936	939	942	945	948	951	954	957	960	963	966	969	972	975	978	981	984	987	990	993	996	999	1002	1005	1008	1011	1014	1017	1020	1023	1026	1029	1032	1035	1038	1041	1044	1047	1050	1053	1056	1059	1062	1065	1068	1071	1074	1077	1080	1083	1086	1089	1092	1095	1098	1101	1104	1107	1110	1113	1116	1119	1122	1125	1128	1131	1134	1137	1140	1143	1146	1149	1152	1155	1158	1161	1164	1167	1170	1173	1176	1179	1182	1185	1188	1191	1194	1197	1200	1203	1206	1209	1212	1215	1218	1221	1224	1227	1230	1233	1236	1239	1242	1245	1248	1251	1254	1257	1260	1263	1266	1269	1272	1275	1278	1281	1284	1287	1290	1293	1296	1299	1302	1305	1308	1311	1314	1317	1320	1323	1326	1329	1332	1335	1338	1341	1344	1347	1350	1353	1356	1359	1362	1365	1368	1371	1374	1377	1380	1383	1386	1389	1392	1395	1398	1401	1404	1407	1410	1413	1416	1419	1422	1425	1428	1431</



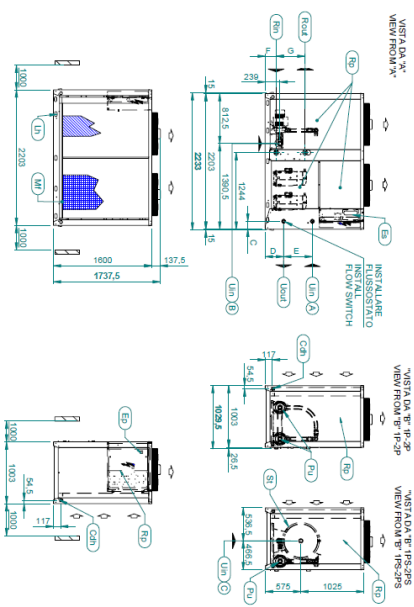
overall dimensions, weights,  
clearance areas and hydraulic connections

### ZETA ECHOS A CH-HP 5.2-6.2

SI	SERVITORE DI ACCUMULO	CON	SCARICO CONDENSATA VERSA HP	Q 1" M	
FD	FILTRO CONDENSATI	INH	INTELLIGENTE RECUPERO ACQUA RECUPERO		
Q	QUADRO ELETTRICO	INH	INTELLIGENTE RECUPERO ACQUA RECUPERO		
EB	ELETTRONICO SUPPLY INLET	UM	USCITA ACQUA RECUPERO		
UH	FORNITORE DI ACQUA RECUPERO	UM	USCITA ACQUA RECUPERO		
MF	FILTRO METALLICO	HP	INTELLIGENTE RECUPERO ACQUA RECUPERO		
PH	TRAVATA PUMP		SPAZIO INSTALLAZIONE		

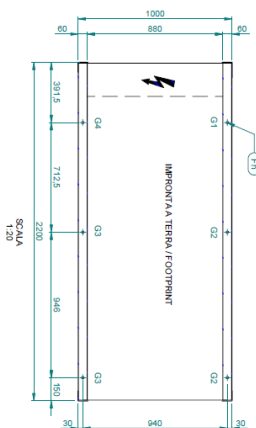


	C	D	E	A	B	UM	UM
62	1271	300	486	6	1146	A	G 1/4" M
62	2001	180	576	6	2118	A	G 1/4" M



PH	FORNITORE ACQUA RECUPERO	HP
Q	INTELLIGENTE RECUPERO ACQUA RECUPERO	HP

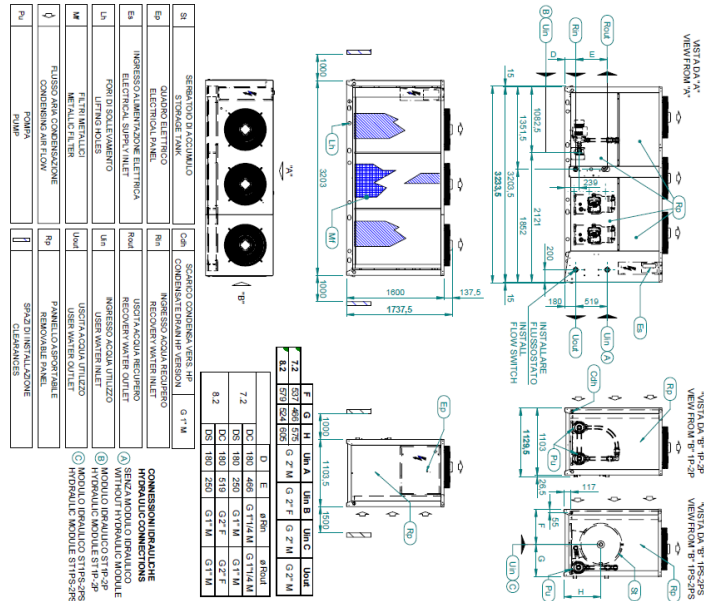
MODELLO	RESERVOIR (KG)	RESERVOIR (KG)	CF (KG)	CF (KG)	CF (KG)	CF (KG)	CF (KG)
ZETA ECHOS A 2.0 CH	627	631	218	62	53	89	95
ZETA ECHOS A 2.2 CH	646	652	235	63	52	89	95
ZETA ECHOS A 2.4 CH	681	686	252	63	52	89	95
ZETA ECHOS A 2.6 CH	706	712	269	62	52	89	95
ZETA ECHOS A 2.8 CH	731	737	286	62	52	89	95
ZETA ECHOS A 3.0 CH	756	762	303	61	51	88	94
ZETA ECHOS A 3.2 CH	781	787	320	60	50	87	93
ZETA ECHOS A 3.4 CH	806	812	337	59	49	86	92
ZETA ECHOS A 3.6 CH	831	837	354	58	48	85	91
ZETA ECHOS A 3.8 CH	856	862	371	57	47	84	90
ZETA ECHOS A 4.0 CH	881	887	388	56	46	83	89
ZETA ECHOS A 4.2 CH	906	912	405	55	45	82	88
ZETA ECHOS A 4.4 CH	931	937	422	54	44	81	87
ZETA ECHOS A 4.6 CH	956	962	439	53	43	80	86
ZETA ECHOS A 4.8 CH	981	987	456	52	42	79	85
ZETA ECHOS A 5.0 CH	1006	1012	473	51	41	78	84
ZETA ECHOS A 5.2 CH	1031	1037	490	50	40	77	83
ZETA ECHOS A 5.4 CH	1056	1062	507	49	39	76	82
ZETA ECHOS A 5.6 CH	1081	1087	524	48	38	75	81
ZETA ECHOS A 5.8 CH	1106	1112	541	47	37	74	80
ZETA ECHOS A 6.0 CH	1131	1137	558	46	36	73	79
ZETA ECHOS A 6.2 CH	1156	1162	575	45	35	72	78



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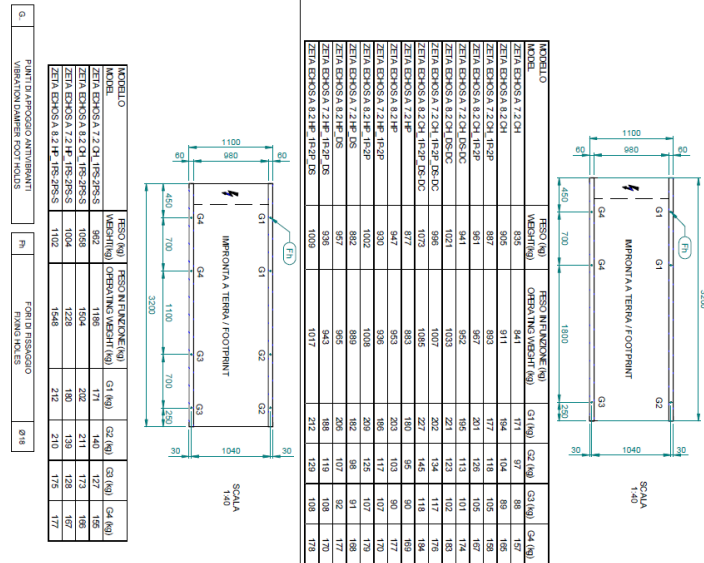
overall dimensions, weights, clearance areas and hydraulic connections

### ZETA ECHOS A CH-HP 7.2-8.2



B1	SERBATOIO D'ACQUA	STORAGE TANK	Cap	SCARICO CONDENSATI VERSO L'ESTERNO	CONDENSATE DRAIN VERSION	G 1/4"
B2	QUADRO ELETTRICO	ELECTRICAL CONTROL PANEL	Rm	INGRESSO ACQUA REFRIGERANTE	REFRIGERANT WATER INLET	G 1/2"
B3	INGRESSO ACQUA REFRIGERANTE	REFRIGERANT WATER INLET	Rm	INGRESSO ACQUA REFRIGERANTE	REFRIGERANT WATER INLET	G 1/2"
B4	INGRESSO ACQUA REFRIGERANTE	REFRIGERANT WATER INLET	Rm	INGRESSO ACQUA REFRIGERANTE	REFRIGERANT WATER INLET	G 1/2"
U1	FORO DI SCALZAMENTO	DRILLING HOLES	Un	INGRESSO ACQUA UTILIZZO	USER WATER INLET	G 1/2"
M	FILTRI METALLICI	METALLIC FILTERS	Un	USCITA ACQUA UTILIZZO	USER WATER OUTLET	G 1/2"
Q	FUSORE PER COMPENSAZIONE	COMPENSATION BURNER	Rp	PANNELLO DI CONTROLLO	CONTROL PANEL	G 1/2"
Rp	FORO PER COMPENSAZIONE	COMPENSATION BURNER	Rp	SPAZIO DI MANTENIMENTO	MAINTENANCE CLEARANCE	

7.2	8.2	F	Q	M	UN A	UN B	UN C	UN D
180	200	180	200	180	200	180	200	180
180	200	180	200	180	200	180	200	180
180	200	180	200	180	200	180	200	180
180	200	180	200	180	200	180	200	180

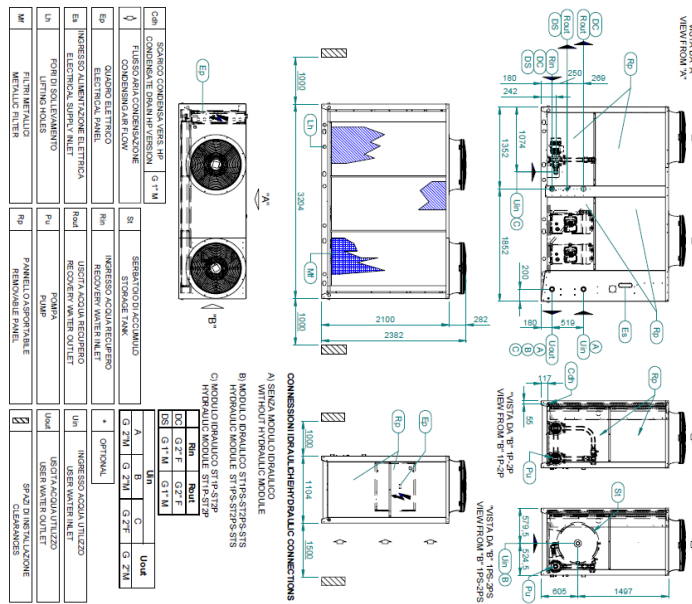


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overall dimensions, weights,  
clearance areas and hydraulic connections

## ZETA ECHOS A CH-HP 10.2-12.2



MODELLO	RESO (kg)	RESO INIZIAZIONE (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA ECHOS A 10.2 CH	1146	1152	212	71	72	227
ZETA ECHOS A 12.2 CH	1200	1212	233	74	72	227
ZETA ECHOS A 10.2 CH 05-10	1182	1208	228	82	78	217
ZETA ECHOS A 12.2 CH 05-10	1251	1278	238	85	78	225
ZETA ECHOS A 10.2 CH 10-20	1249	1275	241	80	76	224
ZETA ECHOS A 12.2 CH 10-20	1316	1328	241	103	96	224
ZETA ECHOS A 10.2 CH 10-20 05-10	1288	1284	231	101	84	216
ZETA ECHOS A 12.2 CH 10-20 05-10	1365	1388	246	115	100	220
ZETA ECHOS A 10.2 HP	1162	1162	216	75	79	228
ZETA ECHOS A 12.2 HP	1228	1228	236	78	77	224
ZETA ECHOS A 10.2 HP 05	1207	1216	221	79	81	227
ZETA ECHOS A 12.2 HP 05	1273	1280	231	81	77	227
ZETA ECHOS A 10.2 HP 10-20	1250	1268	222	84	84	224
ZETA ECHOS A 12.2 HP 10-20	1320	1328	246	105	100	220
ZETA ECHOS A 10.2 HP 10-20 05	1281	1280	227	97	96	225
ZETA ECHOS A 12.2 HP 10-20 05	1370	1384	249	110	102	221
ZETA ECHOS A 10.2 CH 10S-20S-S	1416	1798	230	213	209	226
ZETA ECHOS A 12.2 CH 10S-20S-S	1492	1894	259	239	210	246

G FONTI ASSOGGIANTIMENTI  
VIBRATION DAMPER FOOT HOLES

F4 FONI DI RISASSOGGI  
FOOT HOLES

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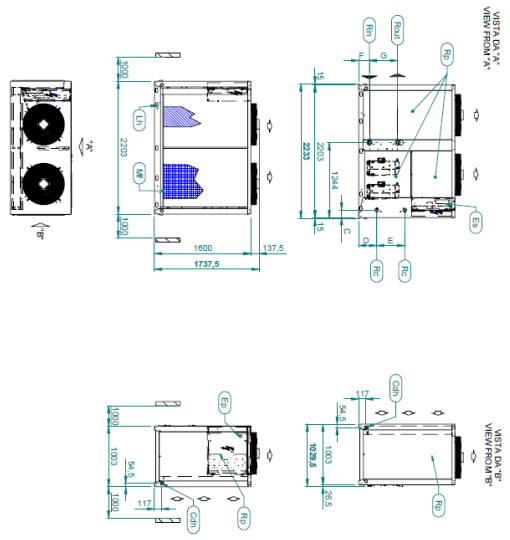
overall dimensions, weights,  
clearance areas and hydraulic connections

## ZETA ECHOS A CH-HP /LE 5.2-6.2

↓	FLUSSO ARIA CONDENSAZIONE CONDENSING AIR FLOW		
BP	QUADRO ELETTRICO ELECTRICAL PANEL	RM	INGRESSO ACQUA RECUPERO RECOVER WATER INLET
ES	NUMERO ALIMENTAZIONE ELETTRICA ELECTRICAL SUPPLY LINE	RM4	USCITA ACQUA RECUPERO RECOVER WATER OUTLET
LT	FORNITORE ACQUA L'INCHIESTA L'INCHQUEST	Rb	CONNESSIONI PER REFRIGERANT CONNECTIONS
MF	FILTRI METALLICI METALLIC FILTERS	CR	SCARICO CONDENSATE VERDE PANNELLO A SPERSONE REMOVABLE PANEL
	SPAZIO INFILTRAZIONE CLEARANCES	Rp	

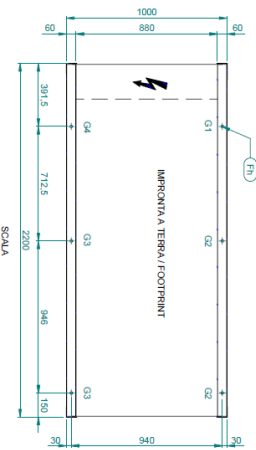
  

CS	SE	ST	8	8	8	8	8	8	8
150	150	250	G 1/4"	G 1/4"	G 1/4"	G 1/4"	G 1/4"	G 1/4"	G 1/4"



FH	PIEDI ELEGGENTI VIBRATION DAMPER FOOTHOUS	0/8
G		

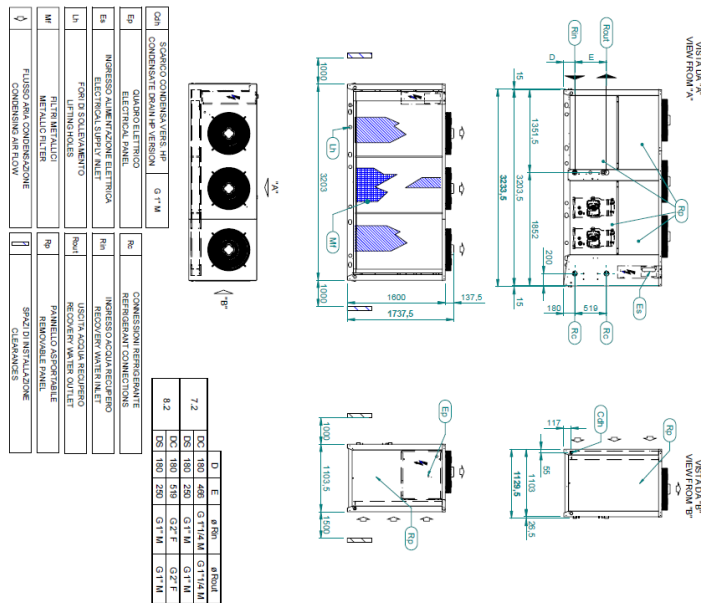
MODELLO	RESO (kg)	RESO IN FUNZIONE (kg)	G1 (kg)	G2 (kg)	G3 (kg)	G4 (kg)
ZETA ECHOS A 5.2 CH-LE	652	652	192	81	57	120
ZETA ECHOS A 5.2 CH-LE	650	650	203	68	51	188
ZETA ECHOS A 5.2 CH-LE DS-DC	664	669	215	70	52	190
ZETA ECHOS A 5.2 HP-LE	648	649	207	63	59	191
ZETA ECHOS A 5.2 HP-LE DS	652	653	207	62	60	202
ZETA ECHOS A 6.2 HP-LE DS	666	666	214	63	60	208



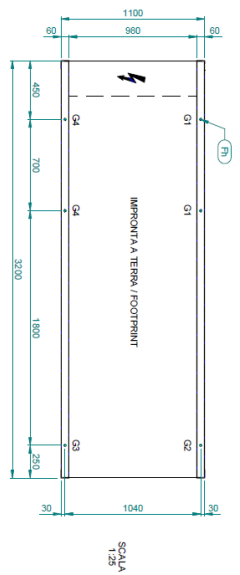
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overall dimensions, weights, clearance areas and hydraulic connections

### ZETA ECHOS A CH-HP /LE 7.2-8.2



MODELLO	RESO (kg)	RESO RINNOVARE (kg)	C1 (kg)	C2 (kg)	C3 (kg)	C4 (kg)
ZETA ECHOS A 7.2 CH-LE	802	802	153	99	97	159
ZETA ECHOS A 8.2 CH-LE	874	874	177	107	97	159
ZETA ECHOS A 7.2 CH-LE DS-DC	909	914	177	115	109	169
ZETA ECHOS A 8.2 CH-LE DS-DC	988	994	202	128	110	177
ZETA ECHOS A 7.2 HP-LE	845	845	161	98	99	163
ZETA ECHOS A 8.2 HP-LE	915	915	184	100	99	171
ZETA ECHOS A 7.2 HP-LE DS	840	850	163	100	100	162
ZETA ECHOS A 8.2 HP-LE DS	924	929	187	110	100	171



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## **INSTALLATION GUIDELINES**

### **POSITIONING**

- Strictly comply with the clearance areas indicated in the catalogue.
- Make sure that there are no obstructions near the finned coil suction or the fan air discharge.
- Place the unit in a manner that assures the lowest environmental impact (noise, integration with nearby structures, etc.).

### **WIRING**

- Always consult the enclosed wiring diagram, which provides all the instructions required for making the electrical connections.
- Power up the unit (closing the disconnect switch), at least 12 hours before start-up, in order to turn the crankcase heaters on. Do not switch the power off during short stoppages.
- Before turning on the disconnect switch, stop the unit by turning off all the operating switches or using the remote control.
- Before accessing the inner components, cut the power off by turning on the disconnect switch.
- The power supply must be fitted with all protections according to the standards in force.
- Electrical connections: three-pole power cable + earth, or three pole cable + neutral + earth; external interlock; remote alarm signaling.

### **HYDRAULIC CONNECTIONS**

- Carefully vent the hydraulic system with the pump switched off, by turning the air valve. This procedure is particularly important, as even small air bubbles may cause the evaporator to freeze.
- Drain the system during winter stops or use special anti-freeze solutions. During short stops, it is advisable to install an electric heater (defroster) on the evaporator and the hydraulic circuit.
- Install the hydraulic circuit with all the components shown in the diagrams (expansion vessel, flow switch, storage tank, air valve, shut-off valves, flexible connections etc. Please refer to the user, installation and maintenance manual).
- Connect the flow switch when supplied in the kit, following carefully the instructions provided with the units.

### **START-UP AND MAINTENANCE**

- Strictly follow the instructions given in the use and maintenance manual. These operations must be carried out by qualified personnel only.



**Zeta Echos - 062014**

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