

**Air/Water chillers and heat pumps  
with centrifugal fans and  
hermetic scroll compressors**

41 ÷ 250 kW



### BETA ECHOS

Water chiller

#### Unit frame

Galvanized steel frame with baked-on polyester powder coating (colour RAL 5014). Removable panels are internally soundproofed with a sound absorbing mat.

#### Compressors

Hermetic scroll compressors connected in tandem. Fitted with guard heater, thermal overload protection, level indicator and oil equalisation line.

#### Refrigerant circuit

Comprises : liquid line shut-off valve, charge connection, sight glass, filter dryer, thermostatic expansion valve, safety valve, high and low pressure switches (two-compressor models). 4-compressor models are equipped with pressure transducers.

#### Evaporator

Braze-welded plate type with antifreeze protection and mechanical flow switch.

#### Condenser

High efficiency, finned coil protected by a grille with metal mesh filter.

#### Fans

Centrifugal fans with three-phase, 4-pole motors, V-belt/pulley drive and safety guard on delivery outlet.

#### Electrical panel

With main switch, power and control circuit protection, compressor, pump and fan contactors. Microprocessor control with function display.

#### Testing

The units are factory-tested and supplied with HFC-410A refrigerant charge and oil.

### BETA ECHOS/HP

Reversible heat pump

In addition to the components featured on Beta ECHOS, this models includes: liquid receiver, solenoid valve on the liquid line

models 6.2 to 26.4, 4-way reversing valve and second thermostatic expansion valve. High efficiency reverse cycle defrost function in accordance with patented Blue Box logic no 1335232. to optimise defrost cycle operation and duration.

### HYDRAULIC MODULE OPTIONS

#### BETA ECHOS/ST 2PS

In addition to the components of Beta ECHOS, this model includes: insulated storage tank, two water pumps (one in stand-by and the other with automatic changeover in the event of malfunctions), expansion vessel, check valves and gate valves.

#### BETA ECHOS/ST 1PS

Unlike model Beta ECHOS/ST 2PS, the unit features only one pump.

#### BETA ECHOS/ST 2P

Unlike model Beta ECHOS/ST 2PS, the unit is not fitted with a storage tank or expansion vessel.

#### BETA ECHOS/ST 1P

Unlike model Beta ECHOS/ST 2PS, the unit is not equipped with a storage tank or expansion vessel, and has only one pump.

### ACCESSORY VERSIONS

#### BETA ECHOS/DC

Unit with 100% heat recovery condenser, water temperature thermostat and heat recovery safety device pressure switch. Contacts on terminal board for external enabling.

Not available for all models /HP and versions /ST as stated on price list.

#### BETA ECHOS/DS

Unit with desuperheaters for partial (20%) recovery of heat rejection. Not available for the /ST versions as stated on price list.

### BETA ECHOS/LN

Low noise version: soundproofed compressor compartment with sound absorbing mat (with high acoustic impedance material inserted on compartment sides).

### BETA ECHOS/SLN

Extra-low noise version: in addition to the components featured on model Beta ECHOS/LN, this unit features oversized condensing coil and reduced speed fans.

### MAIN ACCESSORIES

- Electronic thermostatic valve
- Condensing pressure control with modulating damper (air down to -12 °C), signals delivered from pressure transducers
- Dual set point with single electronic thermostatic valve; the set point can be entered via the keyboard or digital input (specify type when ordering)
- RS485 microprocessor serial interface for supervision or tele-maintenance via personal computer. Carel or Modbus communication protocols
- Pressure gauges
- Electric heater on the evaporator (also on tank and piping on /ST option)
- Remote user terminal (in addition to one on board unit).

**BETA ECHOS - R410A TECHNICAL DATA**

Unit size		3.2	4.2	5.2	6.2	8.2	9.2	10.2
<b>Nominal cooling capacity (*)</b>	kW	40,9	45,9	51,8	60,4	83,5	93,7	104,2
<b>Nominal heating capacity (**)</b>	kW	42,4	48,3	56,8	64,8	85,5	99	114
<b>Compressor</b>								
Quantity/Refrigerant circuits	n°	2/1	2/1	2/1	2/1	2/1	2/1	2/1
Cooling power input (*)	kW	12,2	14,3	17	18,7	23,8	29,2	34,9
Heating power input (**)	kW	12,9	14,9	17,4	19,4	25,9	30,5	34,6
Capacity steps	%	50-100	50-100	50-100	50-100	50-100	50-100	50-100
<b>Fans</b>								
Air flow	m³/s	4,722	4,722	4,167	5,278	7,917	7,917	7,917
Quantity	n°	2	2	2	2	3	3	3
Fan motor rated power	n° x kW	1 x 5,50	1 x 5,50	1 x 4,00	2 x 2,20	3 x 2,20	3 x 2,20	3 x 2,20
<b>Evaporator characteristics</b>								
Pressure drop	kPa	79,3	73,5	76,7	80,4	106,7	82,3	83,3
<b>Hydraulic module characteristics</b>								
Water flow rate	l/s	1,955	2,194	2,482	2,885	3,986	4,477	4,987
Available pressure for ST 2PS version	kPa	113	106	106	152	107	119	101
Storage tank capacity	l	200	200	200	200	200	450	450
Expansion vessel	l	5	5	5	18	18	18	18
<b>Noise level (***)</b>								
Basic unit	dB(A)	71,5	72	72	72,5	74	74	74
LN version	dB(A)	69	69,5	69,5	70	71,5	71,5	71,5
SLN version	dB(A)	66,5	67	67	67,5	69	69	69
<b>Power supply</b>	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
<b>Dimensions and weight</b>								
Width	mm	1750	1750	1750	2233	3234	3234	3234
Depth	mm	1002	1002	1002	1043	1144	1144	1144
Height	mm	1260	1260	1260	1630	1630	1630	1630
Operating weight	kg	755	766	779	1120	1618	1626	1632

Unit size		12.2	13.2	16.4	18.4	20.4	24.4	26.4
<b>Nominal cooling capacity (*)</b>	kW	117,3	125,5	158,4	186,4	210,1	231,7	250,2
<b>Nominal heating capacity (**)</b>	kW	129,4	141,7	165,5	201,8	229,8	249,4	273,8
<b>Compressor</b>								
Quantity/Refrigerant circuits	n°	2/1	2/1	4/2	4/2	4/2	4/2	4/2
Cooling power input (*)	kW	36,7	41,6	51,6	58,2	67,9	75	85,3
Heating power input (**)	kW	38,7	42,3	51,7	61	69,3	77,1	84,2
Capacity steps	%	50-100	50-100	25-50-75-100	25-50-75-100	25-50-75-100	25-50-75-100	25-50-75-100
<b>Fans</b>								
Air flow	m³/s	10,000	10,000	11,111	15,833	16,375	19,444	19,444
Quantity	n°	3	3	3	4	4	4	4
Fan motor rated power	n x kW	3 x 3,00	3 x 3,00	3 x 2,20	4 x 3,00	4 x 3,00	4 x 4,00	4 x 4,00
<b>Evaporator characteristics</b>								
Pressure drop	kPa	94,5	97,8	129,6	105,9	114,7	135,7	138,2
<b>Hydraulic module characteristics</b>								
Water flow rate	l/s	5,608	6,014	7,585	8,907	10,059	11,091	11,937
Available pressure for ST 2PS version	kPa	124	116	128	129	97	157	149
Storage tank capacity	l	450	450	340	700	700	700	700
Expansion vessel	l	18	18	18	18	18	18	18
<b>Noise level (***)</b>								
Basic unit	dB(A)	75	75	76	77	78,5	78,5	78,5
LN version	dB(A)	72,5	72,5	74	75	75	75	75
SLN version	dB(A)	70,5	70,5	71,5	72	72,5	72,5	72,5
<b>Power supply</b>	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
<b>Dimensions and weight</b>								
Width	mm	3234	3234	4234	4234	4234	4234	4234
Depth	mm	1144	1144	1119	1174	1174	1174	1174
Height	mm	1630	1630	2130	2130	2130	2130	2130
Operating weight	kg	1674	1708	2190	2214	2379	2498	2498

(\*) Ambient air temperature 35°C; evaporator inlet/outlet water temperature 12-7°C.

(\*\*) Ambient air temperature 8°C DB, 70% R.H.; condenser inlet/outlet water temperature 40-45°C.

(\*\*\*) Sound pressure levels measured in free field conditions at distance of 1 m from the unit, according to ISO 3746.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation

**BETA ECHOS**  
**Water chiller with HFC-410A refrigerant****Unit frame**

Galvanized steel frame with baked-on polyester powder coating (colour RAL 5014).  
Removable panels are internally soundproofed with a sound absorbing mat.

**Compressors**

Hermetic scroll compressors connected in tandem. Fitted with guard heater, thermal overload protection, level indicator and oil equalisation line.

**Refrigerant circuit**

Comprises : liquid line shut-off valve, charge connection, sight glass, filter dryer, thermostatic expansion valve, safety valve, high and low pressure switches (two-compressor models). 4-compressor models are equipped with pressure transducers.

**Evaporator**

Braze-welded plate type with antifreeze protection and mechanical flow switch.

**Condenser**

High efficiency, finned coil protected by a grille with metal mesh filter.

**Fans**

Centrifugal fans with three-phase, 4-pole motors, V-belt/pulley drive and safety guard on delivery outlet.

**Electrical panel**

With main switch, power and control circuit protection, compressor, pump and fan contactors. Microprocessor control with function display

**Testing**

The units are factory-tested and supplied with HFC-410A refrigerant charge and oil.

**BETA ECHOS /HP**

Reversible heat pump

In addition to the components featured on Beta ECHOS, this model includes: liquid receiver, solenoid valve on the liquid line models 6.2 to 26.4, 4-way reversing valve and second thermostatic expansion valve. High efficiency reverse cycle defrost function in accordance with patented Blue Box logic no VI2003A227. to optimise defrost cycle operation and duration.

**HYDRAULIC MODULE OPTIONS****BETA ECHOS /ST 2PS**

In addition to the components of Beta ECHOS, this model includes: insulated storage tank, two water pumps (one in stand-by and the other with automatic changeover in the event of malfunctions), expansion vessel, check valves and gate valves.

**BETA ECHOS /ST 1PS**

Unlike model Beta ECHOS /ST 2PS, the unit features only one pump.

**BETA ECHOS /ST 2P**



Unlike model Beta ECHOS /ST 2PS, the unit is not fitted with a storage tank or expansion vessel.

### **BETA ECHOS /ST S**

Unlike model Beta ECHOS /ST 2PS, the unit is not equipped with pumps.

### **BETA ECHOS /ST 1P**

Unlike model Beta ECHOS /ST 2PS, the unit is not equipped with a storage tank or expansion vessel, and has only one pump.

### **ACCESSORY VERSIONS**

#### **BETA ECHOS /DC**

Unit with 100% heat recovery condenser, water temperature thermostat and heat recovery safety device pressure switch. Contacts on terminal board for external enabling.

Not available for all models /HP and versions /ST as stated on price list.

#### **BETA ECHOS /DS**

Unit with desuperheaters for partial (20%) recovery of heat rejection. Not available for the /ST versions as stated on price list.

#### **BETA ECHOS /LN**

Low noise version: soundproofed compressor compartment with sound absorbing mat (with high acoustic impedance material inserted on compartment sides).

#### **BETA ECHOS /SLN**

Extra-low noise version: in addition to the components featured on model Beta ECHOS /LN, this unit features oversized condensing coil and fan speed control.

### **MAIN ACCESSORIES**

- electronic thermostatic valve;
- condensing pressure control with modulating damper (air down to -12 °C), signals delivered from pressure transducers;
- dual set point with single electronic thermostatic valve; the set point can be entered via the keyboard or digital input (specify type when ordering).
- RS485 microprocessor serial interface for supervision or tele-maintenance via personal computer. Carel or Modbus communication protocols;
- pressure gauges;
- electric heater on the evaporator (also on tank, pump and piping on /ST option);
- tRemote user terminal (in addition to one on board unit);
- SMS text message for management of service calls;
- division of alarms according to three levels of criticality.





## TECHNICAL DATA



### Unit

Model	BETA ECHOS/SLN-6.2
Refrigerant	R410A

### Cooling

Cooling capacity	59 kW
Compressors power input	20 kW
EER	2,42
ESEER	4,43

### Compressors

Type	Scroll
Quantity	2 n°
Refrigerant circuits	1 n°
Capacity steps	0-50-100 %
Total oil charge	6,5 kg
Total refrigerant charge	15,8 kg

### Evaporator

Carrier fluid	WATER
Inlet water temperature	12 °C
Outlet water temperature	8 °C
Type	Plates evaporator
Quantity	1 n°
Water flow rate	12687 l/h
Hydraulic circuit pressure drop	74 kPa
Water content	4,2 l

### Fans

Type	Centrifugal
Outdoor air temperature	35 °C
Total air flow rate	12700 m³/h
Standard available static pressure	50 Pa
Quantity	2 n°
Fan motor rated power	2,2 kW
Fan motor rated current	5,1 A

### Electrical data

Max. absorbed power (1)	30,80 kW
Max. absorbed current (2)	60,20 A
Max. starting current	153,20 A
Electric power supply	400/3~/50 ±5% V/Ph/Hz
Control circuits power supply	230/1~/50 V/Ph/Hz

### Dimensions

Length	3240 mm
Height	1800 mm
Depth	1120 mm
Weight in operation	934,0 kg

### Sound spectrum

Frequency	63	125	250	500	1000	2000	4000	8000	Total
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB]	[dB(A)]
Lw	93	86	82	82	79	75	76	73	85
Lp	76	68	65	65	62	58	59	56	68

Lw: sound power levels in free field conditions calculated according to ISO 3744

Lp: sound pressure levels at 1 m from the unit in free field conditions measured according to ISO 3744

(1) Electric power that must be available from the mains for the unit operation.

(2) Current threshold for tripping of the unit internal safety devices.



Type	Air cooled units
Function	Liquid chillers
Fans type	Centrifugal
Electric power supply	400 V/3 ph/50 Hz
Version	Extra low noise
Refrigerant	R410A
Fluid	WATER
Hydraulic module	Not present
Pump type	Not present
Heat recovery	Not present
Unit n°:	2

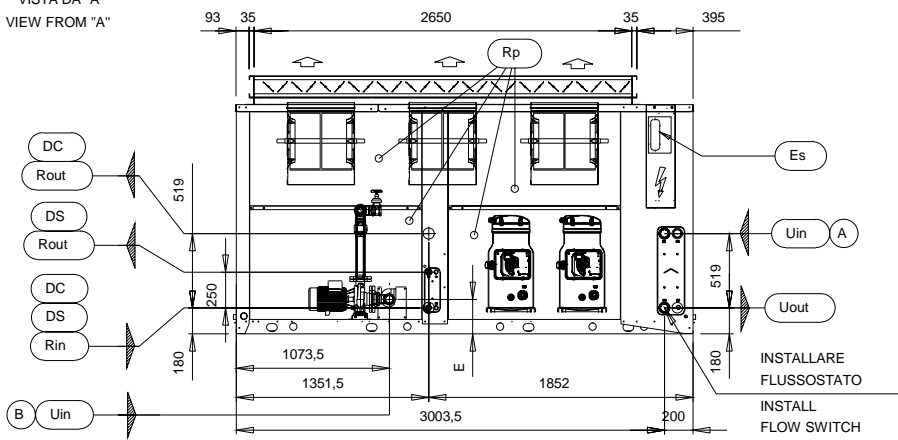


# DIMENSIONAL DRAWING

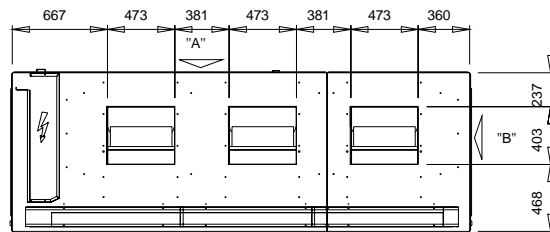
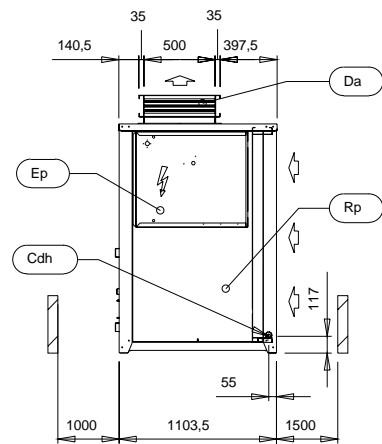
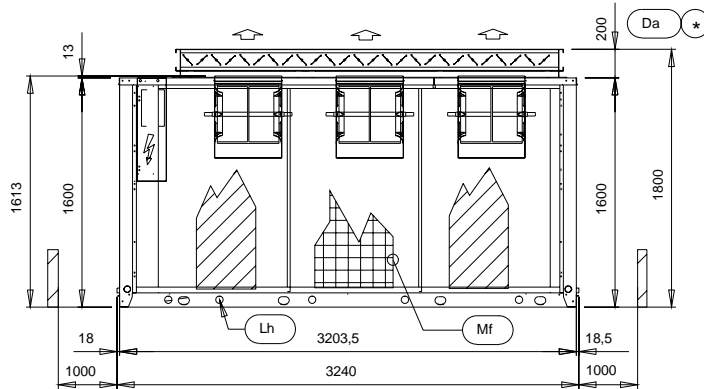
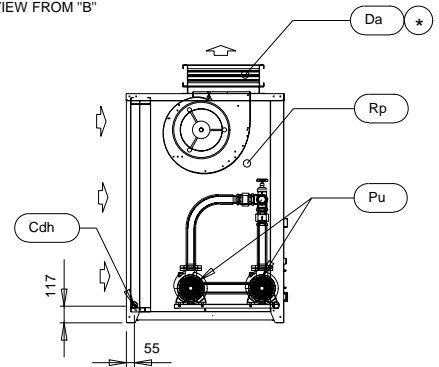
Model **BETA ECHOS/SLN-6.2**



VISTA DA "A"  
VIEW FROM "A"



VISTA DA "B"  
VIEW FROM "B"



CONNESSIONI IDRAULICHE  
HYDRAULIC CONNECTIONS

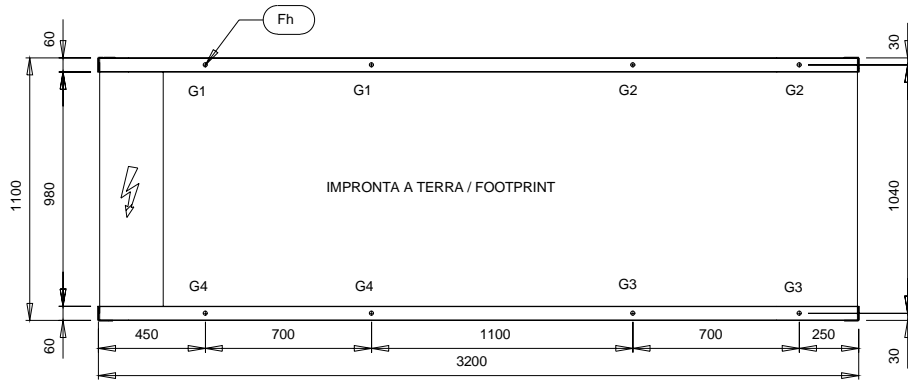
- (A) SENZA MODULO IDRAULICO  
WITHOUT HYDRAULIC MODULE
- (B) MODULO IDRAULICO ST1P-2P  
HYDRAULIC MODULE ST1P-2P

	FLUSSO ARIA CONDENSAZIONE CONDENSING AIR FLOW	Rin	INGRESSO ACQUA RECUPERO RECOVERY WATER INLET	
Ep	QUADRO ELETTRICO ELECTRICAL PANEL	Rout	USCITA ACQUA RECUPERO RECOVERY WATER OUTLET	
Es	INGRESSO ALIMENTAZIONE ELETTRICA ELECTRICAL SUPPLY INLET	Da	SERRANDA CONTROLLO CONDENSAZIONE CONDENSER CONTROL DAMPER	
Lh	FORI DI SOLLEVAMENTO LIFTING HOLES	Uin	INGRESSO ACQUA UTILIZZO USER WATER INLET	
Mf	FILTRI METALLICI METALLIC FILTER	Uout	USCITA ACQUA UTILIZZO USER WATER OUTLET	
Cdh	SCARICO CONDENSA VERS. HP CONDENSATE DRAIN HP VERSION	G 1" M	Rp	PANNELLO ASPORTABILE REMOVABLE PANEL
Pu	POMPA PUMP		SPAZI DI INSTALLAZIONE CLEARANCES	* OPTIONAL

# DIMENSIONAL DRAWING

Model

**BETA ECHOS/SLN-6.2**



SCALA  
1:30

G..	PUNTI DI APPOGGIO ANTIVIBRANTI VIBRATION DAMPER FOOT HOLDS	Fh	FORI DI FISSAGGIO FIXING HOLES	Ø18
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Weight in operation

**934,0** kg

G1 **172** kg

G2 **75** kg

G3 **67** kg

G4 **153** kg

Drawing **A48192A\_2.UNI**