

**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
Nominal cooling capacity (*)	kW	40,9	45,9	51,8	60,4	83,5	93,7	104,2
Nominal heating capacity (**)	kW	42,4	48,3	56,8	64,8	85,5	99	114
Compressor								
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
Fans								
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
Evaporator characteristics								
Pressure drop	kPa	79,3	73,5	76,7	80,4	106,7	82,3	83,3
Hydraulic module characteristics								
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
Noise level (***)								
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
Power supply	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
Dimensions and weight								
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
Nominal cooling capacity (*)	kW	117,3	125,5	158,4	186,4	210,1	231,7	250,2
Nominal heating capacity (**)	kW	129,4	141,7	165,5	201,8	229,8	249,4	273,8
Compressor								
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
Fans								
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
Evaporator characteristics								
Pressure drop	kPa	94,5	97,8	129,6	105,9	114,7	135,7	138,2
Hydraulic module characteristics								
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
Noise level (***)								
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
Power supply	V/ph/Hz	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50	400/3~/50
Dimensions and weight								
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