

- > EPSILON ECHOS
Water chiller
- > EPSILON ECHOS /HP
Reversible heat pump
- > EPSILON ECHOS /ST
Water chiller with storage tank and pumps
- > EPSILON ECHOS /LE
Condensing unit
- > EPSILON ECHOS /LE /HP
Reversible condensing unit





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TECHNICAL CHARACTERISTICS

EPSILON ECHOS water chiller

Water chillers and air/water heat pumps with axial fans.

EPSILON ECHOS/LE water chiller

Condensing unit and reversible condensing unit with axial fans.

UNIT FRAME

Galvanized sheet structure with baked-on polyester-powder coating (colour RAL 7035) for excellent weather resistance.

Easily removable panels allowing full access to interior components.

COMPRESSOR

Sizes 6 and 8 with rotary vane compressors supplied with thermal circuit-breakers in motor windings and rubber anti-vibration mounts.

Sizes 10 to 41 with hermetic scroll compressors supplied with thermal circuit-breakers in motor windings, casing heater and rubber anti-vibration mounts.

CONDENSER

Aluminium-finned copper-tube coil with large heat-exchange surface.

Finned coils protected by wire mesh.

FANS

Propeller fans directly coupled to external-rotor 6-pole electric motor, protection rating IP 54.

Fans housed in shaped nozzles equipped with safety grids complying with UNI EN 294.

EVAPORATOR *(On Epsilon Echos only)*

Braze-welded AISI 316 stainless-steel plate evaporator, wrapped in closed-cell foam insulation.

Exchanger equipped with temperature probe for antifreeze protection and supplied with a vane-operated flow switch.

REFRIGERANT CIRCUIT

On Epsilon Echos includes: charge connection on the liquid and suction lines, liquid sight-glass, filter/dryer, thermostatic-expansion valve with external pressure equalization, pressure transducer, high and low pressure gauges and safety valve (except on sizes 6, 8, 10).

On Epsilon Echos/LE includes: charge intake on the liquid and suction lines, liquid sight-glass, filter/dryer, pressure transducer, high and low pressure gauges and safety valve (except on sizes 6, 8, 10).

POWER PANEL

With master switch, circuit-breakers for power and auxiliary circuits, contactors for compressors. Microprocessor-based unit control, with main functions shown on display.

The power panel includes:

- Automatic circuit breakers protecting the auxiliary circuits and power circuits (sizes 6 and 10)
- Master switch and fuses protecting the auxiliary circuits and power circuits (sizes 14 to 41)
- Contactor for compressor
- Fan-speed governor for controlling condensation
- Pump relay or motor protector and contactor (sizes 16 to 34, versions ST1P – ST1PS)
- Potential-free contacts for general alarm
- A microprocessor controlling the following functions:
 - Regulation of inlet water temperature
 - Antifreeze protection
 - Compressor timing
 - High-pressure warning (prevents unit blockage in many situations)
 - Alarm messages
 - Alarm reset
 - Self-adjusting regulation for ideal operation when running low on water
 - Digital input for external ON-OFF signal
- Information shown on display:
 - Discharge water temperature
 - Condensation temperature
 - Temperature and differential settings
 - Explanation of alarm messages
 - Compressor and pump working hours counter

Power supply 230V/1~/50Hz for sizes 6 and 8, 400V/3N~/50Hz for sizes 10 to 41

CONTROLS AND SAFETY DEVICES

- Chilled water temperature probe (at evaporator inlet)
- Antifreeze sensor at evaporator outlet connected to antifreeze alarm (automatic reset, with limited thresholds)
- High-pressure gauge (manual reset)
- Low-pressure gauge (automatic reset, with limited thresholds)
- Mechanical vane-operated flow switch supplied
- Condensation pressure controlled by fan-speed governor for working in low outdoor temperature
- High-pressure safety valve (except sizes 6, 8, 10)
- Compressor overtemperature protection

TESTING

Epsilon Echos units are factory-tested and supplied complete with oil and refrigerant charge.

Epsilon Echos/LE units are factory-tested and supplied with the refrigerant circuit filled with nitrogen.

VERSIONS

EPSILON ECHOS /HP:

Reversible heat pump

In addition to the features on the standard version, this unit includes:

4-way reversing valve, liquid receiver, check valves, additional thermostatic valve.

Microprocessor enabled for: summer/winter switching, automatic defrosting, digital input for remote summer/winter switching.

EPSILON ECHOS /LE /HP:

Reversible condensing unit (heat pump)

In addition to the features on the standard version, this unit includes:

4-way reversing valve, liquid receiver, check valves, thermostatic valve.

Microprocessor enabled for: summer/winter switching, automatic defrosting, digital input for remote summer/winter switching.

HYDRAULIC MODULE OPTIONS

EPSILON ECHOS /ST 1P:

Pump-equipped unit

This unit is equipped with a circulator (sizes 6 to 18) or a circulation pump (sizes 20 to 41), an expansion tank, a water circuit drainage valve and a safety valve set at 6 bars (maximum allowable operating pressure).

EPSILON ECHOS /ST 1PS:

Unit equipped with pump and tank

In addition to the features on the /ST 1P version, this unit includes an insulated storage tank.

ACCESSORIES

MAIN ACCESSORIES

- Electronic thermostatic valve
- Filling unit with pressure gauge (ST version only)
- Antifreeze heater
- Additional heaters
- Electronic modulation of water flow rate
- RS485 serial interface
- Remote user terminal (in addition to terminal on unit)
- Rubber anti-vibration mounts

REFRIGERANT CIRCUIT ACCESSORIES

- Liquid-line valve
- Solenoid valve on liquid line (supplied with electronic thermostatic valve)
- Electronic thermostatic valve

HYDRAULIC CIRCUIT ACCESSORIES

- Filling unit with pressure gauge (ST version only)
- Antifreeze heater
Includes:
Standard version: Electric heater on evaporator
ST1P version: Electric heater on evaporator + heating cable on pipes
ST1PS version: Electric heater on evaporator + heating cable on pipes + immersion heater in tank
- Additional heaters (for HP/ST 1PS versions)
- Electronic modulation of water flow rate

ELECTRICAL ACCESSORIES

- Power supply 230/1/50 (for size 10)
- Power supply 400/3/50+N (for sizes 6, 8)
- RS485 serial interface
- Remote user terminal (in addition to terminal on unit)
- User interface
- Set point compensation according on outdoor air temperature

OTHER ACCESSORIES

- Rubber anti-vibration mounts
- Wooden crate packing
- Drip tray (for sizes 21 to 41; on sizes 6 to 18 the condensate gathers in the unit's base)

technical data standard unit

UNIT SIZE			6	8	10	14	16	18
Cooling								
Nominal cooling capacity	(1)	kW	5,71	7,06	8,79	12,96	14,87	17,72
Cooling power input	(1)	kW	2,07	2,78	3,54	4,62	5,60	6,48
EER	(1)		2,76	2,54	2,48	2,81	2,66	2,73
ESEER			0,00	0,00	0,00	0,00	0,00	0,00
Heating								
Nominal heating capacity	(1)	kW	6,49	8,03	10,04	14,10	16,41	19,50
Heating power	(1)	kW	2,31	2,81	3,49	4,66	5,52	6,41
COP			2,81	2,86	2,88	3,03	2,97	3,04
Compressors								
Type			Rotary			Scroll		
Quantity/Refrigerant circuits		n°/n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Capacity steps		n°	100	100	100	100	100	100
Cooling power input		kg	1,87	2,58	3,34	4,22	5,20	6,08
Heating power		kg	2,11	2,61	3,29	4,26	5,12	6,01
Fans								
Type			Axial					
Quantity/Refrigerant circuits		n°	1	1	1	2	2	2
Air flow		m³/h	4.000	4.000	3.800	8.000	8.000	7.600
Air flow - /SLN Version		m³/h	2.500	2.500	5.000	5.000	5.000	9.600
Evaporator								
Type			Plates					
Quantity			1	1	1	1	1	1
Water flow rate		l/h	982	1.214	1.512	2.229	2.557	3.047
Pressure drop		kPa	5,0	7,0	6,0	46,0	46,0	46,0
Hydraulic module								
Available pump pressure		kPa	55	51	50	44	42	40
Storage tank capacity		l	40	40	40	70	70	70
Expansion vessel		l	2	2	2	5	5	5
Sound level								
Sound power value	(4)	dB(A)	63	65	66	68	70	70
Sound pressure value	(5)	dB(A)	35	37	38	40	42	42
Sound power value - /SLN Version	(4)	dB(A)	58	60	62	63	65	66
Sound pressure value - /SLN Version	(5)	dB(A)	27	29	31	32	34	35
Basic unit size and weights								
Width		mm	925	925	925	925	925	925
Depth		mm	375	375	375	375	375	375
Height		mm	700	700	700	1.350	1.350	1.350
Operating weight		kg	74	82	89	118	135	147

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

(2) Total power input is sum of compressors and fans power input

(3) Ambient air temperature 7°C DB, 6°C WB; condenser inlet/outlet water temperature 40-45 °C

(4) Sound power values in free field conditions are calculated in accordance with ISO 3744; nominal working conditions.

(5) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744

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

technical data standard unit

UNIT SIZE			21	25	28	31	37	41
Cooling								
Nominal cooling capacity	(1)	kW	19,03	23,65	27,13	30,19	35,58	40,06
Cooling power input	(1)	kW	6,15	8,31	9,56	10,66	12,11	13,62
EER	(1)		3,09	2,85	2,84	2,83	2,94	2,94
ESEER			0,00	0,00	0,00	0,00	0,00	0,00
Heating								
Nominal heating capacity	(1)	kW	20,51	26,25	30,50	33,52	38,14	43,57
Heating power	(1)	kW	6,43	8,04	9,16	10,56	11,90	13,45
COP			3,19	3,26	3,33	3,17	3,21	3,24
Compressors								
Type			Scroll					
Quantity/Refrigerant circuits		n°/n°	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Capacity steps		n°	100	100	100	100	100	100
Cooling power input		kg	5,55	7,71	8,96	9,56	11,01	12,52
Heating power		kg	5,83	7,44	8,56	9,46	10,80	12,35
Fans								
Type			Axial					
Quantity/Refrigerant circuits		n°	2	2	2	2	2	2
Air flow		m³/h	14.000	14.000	13.200	19.000	19.000	17.800
Portata aria - Versione /SLN		m³/h	9.600	9.600	13.000	13.000	13.000	-
Evaporator								
Type			Plates					
Quantity			1	1	1	1	1	1
Water flow rate		l/h	3.273	4.067	4.666	5.192	6.119	6.889
Pressure drop		kPa	32,0	47,0	46,0	44,0	45,0	56,0
Hydraulic module								
Available pump pressure		kPa	153	108	93	76	135	104
Storage tank capacity		l	85	85	85	140	140	140
Expansion vessel		l	8	8	8	8	8	8
Sound level								
Sound power value	(4)	dB(A)	72	73	73	74	75	75
Sound pressure value	(5)	dB(A)	41	42	42	42	43	43
Sound power value - /SLN Version	(4)	dB(A)	67	68	68	69	70	-
Sound pressure value - /SLN Version	(5)	dB(A)	36	37	37	37	38	-
Basic unit size and weights								
Width		mm	1.105	1.105	1.105	1.305	1.305	1.305
Depth		mm	505	505	505	505	505	505
Height		mm	1.385	1.385	1.385	1.585	1.585	1.585
Operating weight		kg	178	190	224	324	326	337

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

(2) Total power input is sum of compressors and fans power input

(3) Ambient air temperature 7°C DB, 6°C WB; condenser inlet/outlet water temperature 40-45 °C

(4) Sound power values in free field conditions are calculated in accordance with ISO 3744; nominal working conditions.

(5) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744

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