TECHNICAL DATA MANUAL

Original instructions

ECOi-W AQUA-Z 50-170 C/H

Air cooled water chillers and heat pumps

These units use the refrigerant R32.

R32
REFRIGERANT









Model No.

Size	Standard Cooling only	Standard Heat pump
50	P-AQAZ0050C	P-AQAZ0050H
60	P-AQAZ0060C	P-AQAZ0060H
70	P-AQAZ0070C	P-AQAZ0070H
75	P-AQAZ0075C	P-AQAZ0075H
85	P-AQAZ0085C	P-AQAZ0085H
100	P-AQAZ0100C	P-AQAZ0100H
115	P-AQAZ0115C	P-AQAZ0115H
130	P-AQAZ0130C	P-AQAZ0130H
150	P-AQAZ0150C	P-AQAZ0150H
170	P-AQAZ0170C	P-AQAZ0170H

TDM ECOi-W AQUA-Z 01-P-1EN
April 2024

Key Points

- **R32** new refrigerant with low GWP (global warming potential) of 675, three times less polluting than R410A,
- Units are optimised for partial load operation,
- High SEER and SCOP,
- 2 compressors fitted in tandem for all the range
- Super low noise version with EC fans,
- "Night Mode" to reduce noise level in night operation,
- Ready for Smart grid enabling (SG ready)
- Ambient temperature compensation curve standard for energy savings
- Great accessibility to internal components for service operations,
- New display on external panel allowing the complete control of the unit,
- Wide operating limits,
- In Heating Mode, high temperature operation up to 55 °C for sizes 50-130 and up to 53 °C for sizes 150-170,
- Operation in heat pump mode down to external temperature of -15 °C,
- EC fans for low ambient operation in cooling mode down to -15 °C,
- New advanced control system comes built-in with one of the following communication protocol: Modbus RTU, Modbus TCP/IP, Bacnet MSTP, Bacnet IP,
- Phase sequence monitor supplied as standard,
- Management of up to 8 units in cascade (Optional)
- Control logic on return or leaving water temperature,
- In cooling mode, 3.5 litres of buffer volume per kW are recommended,
- New technology "smart deice" standard for **ECOi-W AQUA-Z H** units to ensure a constant temperature out of water even at very low temperatures
- Water filter (supplied loose) and water flow switch (factory fitted) are supplied as standard,
- "Plug and play" hydraulic kit optional on sizes 50 to 170,
- Automatic air vent,
- Finned tubes Al/Cu with Blufin treatment on Reversible units
- Optional Al/Cu finned tubes with anti-corrosion treatment
- Small footprint, allowing shipping and handling costs to be saved, units find easily a place to be installed.

ECOi-W AQUA-Z 150 to 170

ECOi-W AQUA-Z 50 to 60



ECOi-W AQUA-Z 70 to 75

ECOi-W AQUA-Z 85 to 130

Specifications

General

The new **ECOi-W AQUA-Z** have been designed and optimised to operate with R32 refrigerant fluid. They are equipped with a single refrigeration circuit

They are available in **cooling only (ECOi-W AQUA-Z C)** and **heat pump (ECOi-W AQUA-Z H)** versions.

Each version consists of **10 sizes (50, 60, 70, 75, 85, 100, 115, 130, 150 & 170)** and covers a nominal cooling capacity range from **50 to 176 kW** and a nominal heating capacity range from **53 to 182 kW**.

All units are equipped with **two scroll compressors fitted in tandem** for adapting to partial system loads.

The general operation status of the machine is continuously managed by an **HMI controller**

The **ECOi-W AQUA-Z units can operate without water tank**, thanks to the controller that implements an **auto-adaptative control logic** ensuring a total protection of the compressors at different load or water volume conditions.

The minimum water volume requested in cooling mode is **3.5 L/kW** for application air conditioning and **6.5L/kW** for application process.

For reversible units, the total content of the primary water loop must never be lower than **6,5 L/kW** in reference to the heating nominal capacity of the unit.

To guarantee homogeneous temperatures during defrost cycles for a stable comfort for the end user, evaluation for an increase of the value above by an engineer is strongly recommended.

If the total volume of the primary loop does not allow to reach these recommendations, a buffer tank must be added to the installation to increase the water volume up to the value required.

If the unit runs with a low volume of water (for instance with air treatment plant) or if it is used for industrial processes, a buffer tank is compulsory to guarantee sufficient thermal inertia and satisfactory temperature stability.

ECOi-W AQUA-Z units can be supplied in several versions:

- **AC version**: equipped with AC fans.
- **EC version**: equipped with EC fans.
- **EC S (Super low noise) version**: includes dedicated EC fans with lower acoustic level in comparison to standard AC fans, plus dedicated additional compressor jackets.
- **HPF version** : increases the static pressure and it includes EC fans, that can be regulated according to installation needs.

Cabinet and structure

The cabinet and structure of the unit are of heavy duty galvanized steel. All galvanized steel components are **individually painted** by a special painting process before the assembly of the unit.

This painting system performs a homogeneous protection to the corrosion. The painting is a polyester powder based type, coloured in **RAL 9001**.

The units **ECOi-W AQUA-Z C & H** are suitable for outdoor installation, directly on the building roof or at the ground level.

Compressors

Each unit is equipped with two scroll compressors fitted on a rail and assembled together to form **tandem compressors**.

The compressors are then mounted on rubber pads in order to eliminate noise and vibration transmissions.

The compressor motors have a direct start-up. Each motor is cooled by the refrigerant gas and is equipped with overload protection.

A **phase sequence monitor** is supplied as standard.

Plate Heat Exchanger

The plate heat exchanger can work as evaporator (for C and H version) and condenser (for H version) and it is made of stainless steel plates insulated with closed cell sysnthetic foam. It is protected by an **antifreeze electric heater** to ensure a good protection against freezing at low ambient temperature (-15 °C min.) when the unit is switched off.

Maximum working pressure is 10 bar at water side, 45 bar for sizes 50-130 and 44.5 bar for sizes 150-170 at refrigerant side.

Finned coil

The finned coil can work as evaporator (for H version) and condenser (for L and H version) and it is made of seamless copper tubes mechanically expanded into aluminimum fins. The fins of **ECOi-W AQUA-Z H** coils are made of aluminium with hydrophylic bluefin coating to facilitate water droplets drain.

Coil pipes are designed with a diameter of 7.2 mm , to optimise the unit performances and reduce the amount or R32 refrigerant charge.

Finned coils are largely dimensioned in order to optimise performance and defrosting cycles.

The condenser can be equipped, as optional, a protective grille to prevent shocks.

Specifications

Fans

STD version is provided with axial fans AC type, with two speeds, to increase the unit efficiency during part load conditions.

S version is provided with axial fans EC type, with continuous fan regulation, to grant best acoustic level, higher efficiencies, wider operative limits .

The fan motor are equipped with thermal overload protection, AC fans have protection grade IP54 while EC fans have IP55 .

EC fans can be provided to allow the unit to operate in cooling mode at low air ambient temperature down to a minimum -15°C. The fan speed is regulated to keep the condensing temperature inside the compressor operating limits

All fans are fitted with a protective grille on top.

Refrigerant circuit

All units have one refrigerant circuit consisting of: scroll tandem compressors, plate heat exchanger, electronic expansion valve, 4-way reverse cycle valve and liquid receiver (heat pump version only), condenser coil, as well as safety and control devices such as high pressure switch, additional pressure relief valve for sizes 150 and 170 and high/low pressure transducers.

Inspection on refrigerant via a sight glass can be done during service operations, by removing an access panel, without disturbing the unit operating conditions.

A set of optional LP and HP gauges can be factory fitted as option.

All refrigerant components are shown in the functional diagrams illustrated in the next pages, section "Refrigerant flow diagram".

Hydraulic circuit

Thanks to the design flexibility on the hydraulic circuit, all the units can be configured in several ways:

- **Standard unit** : Unit without pump, the hydraulic circuit contains the following components : supplied loose water filter, mounted water flow switch, water safety valve, automatic air vent, optional field-installed in/out 3/8" water valves. All water piping is covered with thermal insulation.
- **1P-SP/1P-HP** : One pump unit has the same equipment as Standard unit, with additional single pump. Version 1P-SP (standard pressure pump) provides an available static pressure to the user in nominal conditions around 100-150 kPa. Version 1P-HP (high pressure pump) provides an available static pressure to the user in nominal conditions around 150-200 kPa.
- **2P-SP/2P-HP** : Two pump unit has the same equipment as 1P-SP/1P-HP units, with additional pump for redundancy. Each pump works singularly.
- Variable speed options (inverter driven) are available to manage water flow according to differential temperature control, differential pressure control or to set manual speeds in phase of commissioning

The hydraulic connections are male gas threaded type; for the connection diameters, please refer to the physical data tables on the next pages.

Control panel

The units are fitted with an external control panel that displays the operating parameters and alarms.

The control panel is accessible from exterior without removing any parts, nor shutting down the unit, because it is placed on an external panel.

The **ECOi-W AQUA-Z** units are equipped with a microprocessor based control with a new **HMI** logic that implements an intelligent control **with anticipation of needs**, either on entering water temperature, or on leaving water temperature

User interface



The main features of this control system are:

- User-friendly : with only 6 buttons and a tree logic, it is possible to control the unit easily,
- Reliable : all indications on the display are visible in all weather conditions,
- Internal test procedure,
- Alarm visualization with a logging of the last 10 alarms,
- Remote ON/OFF switching,
- Compressor and pump working hour counter,
- Pressure transducers to control discharge and suction temperatures,
- Maximum discharge temperature control,
- Electronic expansion valve parameters,
- Part load operating mode,
- Remote Cooling/Heating mode switching,
- Compatibility with BMS Modbus RTU, Modbus TCP/IP, Bacnet MSTP, Bacnet IP,
- Smart grid compatibility (SG ready)
- Temperature sensor calibration

Specifications

Control and safety devices

Each unit is complete with the following safety and control devices:

Safety:

- Fan motor overload protection.
- Compressor motor overload protection.
- Water flow switch.
- Water filter (supplied loose).
- High pressure switch.
- Pressure relief valve for sizes 150/170.
- High and low pressure transducers.
- Evaporator antifreeze electric heater.
- Crankcase heater.
- Safety valve on 3 bar water side.

Control:

- Entering water temperature sensor.
- Leaving water temperature sensor.
- Coil temperature sensor.
- Two discharge temperature sensors: one for each compressor discharge, to have a precise control of each compressor's operative limits.
- Air temperature sensor.
- Suction and discharge pressure transducers.
- Dry contact available to the client: ON / OFF,SUMMER / WINTER, Reduced modes.

Factory-installed options

- Condenser protective grille.
- Compressor Jacket insulation (standard for S version).
- Finned coil with epoxy anti-corrosion treatment.
- LP/HP gauges.
- Lack of water pressure switch.
- 1-pump hydraulic kit with variable primary flow
- 2-pumps hydraulic kit with variable primary flow
- Variable Primary Flow: VS: twin speed or constant DT, VS+: twin speed or constant DT or constant DP
- EC fans (standard for S version.)
- Electrical Heater (sizes 50-130)

Field-installed accessories

- Anti-vibration rubber pads or spring damper.
- Water pressure switch (fitted when pump selected, to mount on field when no pump selected)
- Smart remote control
- Differential pressure transducer for DP modulation pump option

Conformity with standards

All **ECOi-W AQUA-Z** units are in compliance with the following standards:

- Machine Directive: 2006/42/EC
- Electromagnetic Compatibility Directive: 2014/30 UE
- Pressure Equipment Directive: 2014/68/UE
- RoHs directive: 2011/65/EU
- Ecodesign directive : 2009/125/EC

Models designation

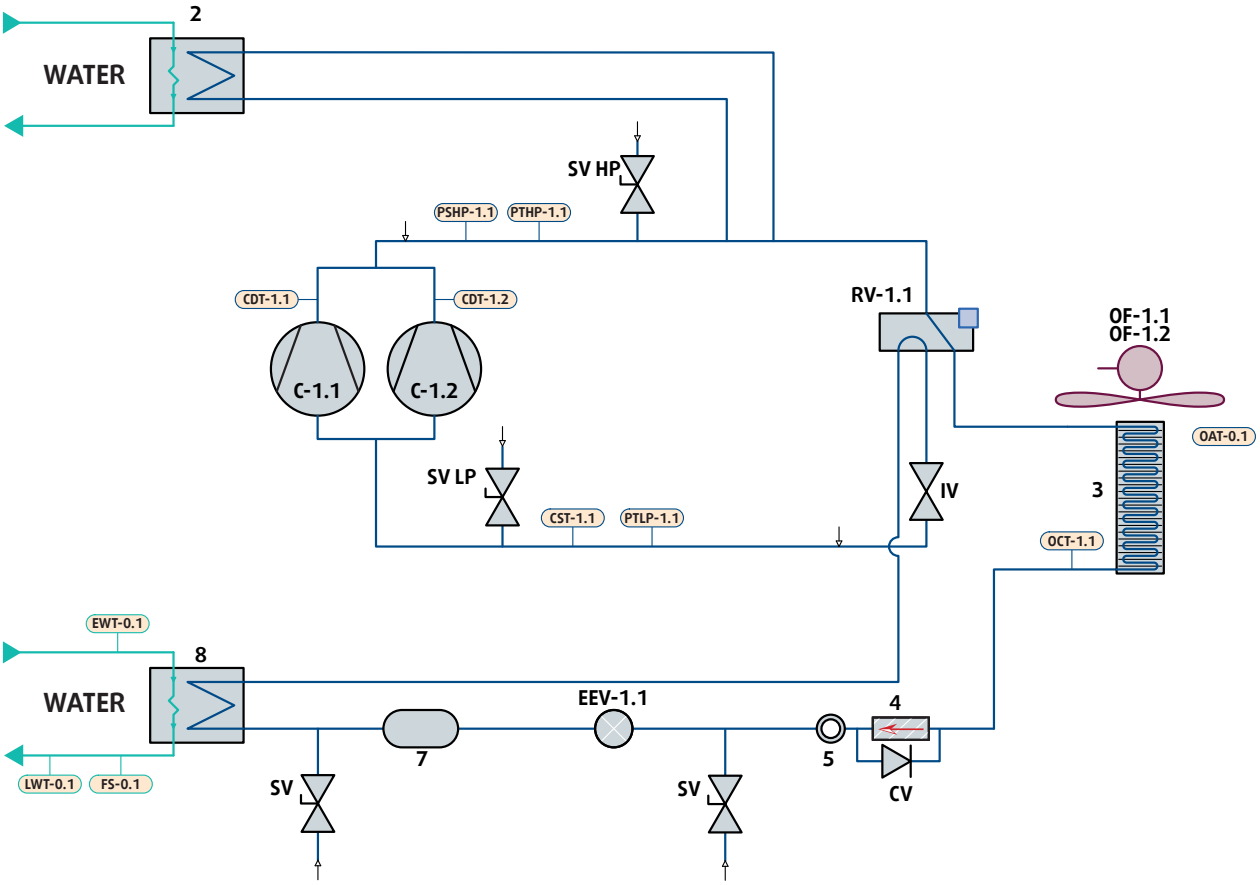
P-AQAZ0050H . 1P-SP . STD . AC . CG . T

① ② ③ ④ ⑤ ⑤

REP.			Description	
①	Size	Cooling only	**P-AQAZ0050C**: size 50 **P-AQAZ0060C**: size 60 **P-AQAZ0070C**: size 70 **P-AQAZ0075C**: size 75 **P-AQAZ0085C**: size 85	**P-AQAZ00100C**: size 100 **P-AQAZ00115C**: size 115 **P-AQAZ00130C**: size 130 **P-AQAZ00150C**: size 150 **P-AQAZ00170C**: size 170
		Heat pump	**P-AQAZ0050H**: size 50 **P-AQAZ0060H**: size 60 **P-AQAZ0070H**: size 70 **P-AQAZ0075H**: size 75 **P-AQAZ0085H**: size 85	**P-AQAZ00100H**: size 100 **P-AQAZ00115H** size 115 **P-AQAZ00130H**: size 130 **P-AQAZ00150H**: size 150 **P-AQAZ00170H**: size 170
②	Hydraulic circuit		Empty : Without pump **1P-SP** : Single pump standard pressure **1P-HP** : Single pump high pressure	**2P-SP** : Double pump standard pressure **2P-HP** : Double pump high pressure
③	Acoustics		**STD** : Standard	**S** : Super Low Noise
④	Fan type		**AC** : Standard AC fans	**EC** : EC fans **HPF** : High pressure fans
⑤	Option		**CG** : Outdoor coil protection grid **EPO** : Finned coil treatment - Epoxy **WPS** : Low water pressure sensor **AVS** : Spring dampers **AVM** : Rubber pads **VI** : Water isolation valves **KM** : Refrigerant gauge **T** : Buffer tank **SS** : Soft Starter	**PFC** : Power factor capacitor **CC** : Container transport **VS** : Variable pump double speed / constant ΔT **VS +** : Variable pump constant outlet pressure / constant ΔT / constant ΔP **DES** : Desuperheater **EH12** : Electric heating 12kW **EH24** : Electric heating 24kW **EH36** : Electric heating 36kW **4G** : 4G Modem

Refrigerant Circuit Diagram

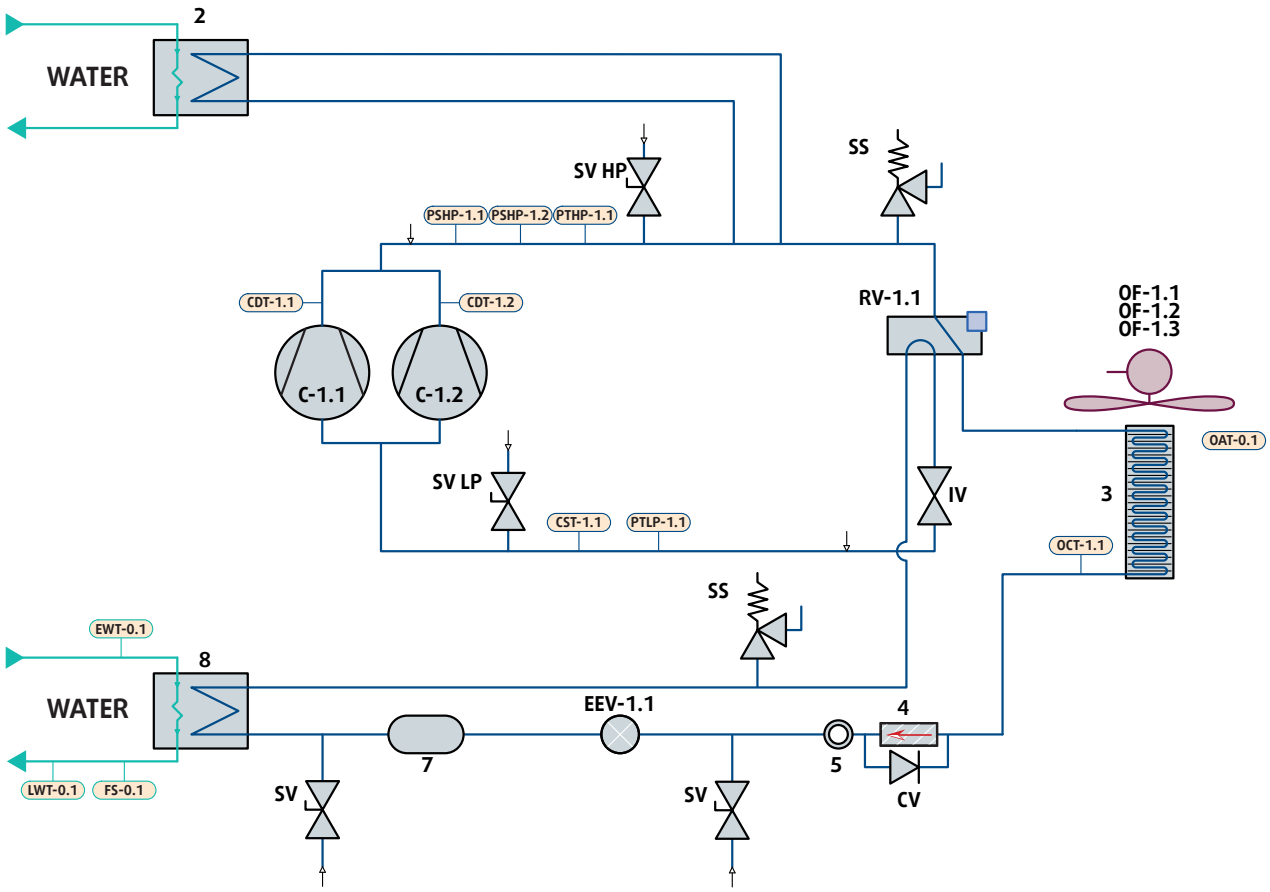
ECOi-W AQUA-Z 50-130



C-1.1 / C-1.2	Compressors 1 et 2
RV-1.1	Cycle reversal valve
OF-1.1 / OF-1.2	Outdoor fan motor
3	Air cooled condenser
4	Filter drier
CV	Check valve
5	Sight glass
EEV-1.1	Electronic expansion valve
7	Liquid reservoir
8	Plate heat exchanger
	Pressure tapping point 1/4"
PTHP-1.1	High pressure transducer
PSHP-1.1	High pressure switch
CDT-1.1	Discharge temperature sensor
PTLP-1.1	Low pressure transducer
CST-1.1	Suction temperature sensor
OAT-0.1	Outdoor air temperature sensor
SV	Service valve
SV HP	Service valve HP
SV LP	Service valve LP
IV	Isolating valve

Refrigerant Circuit Diagram

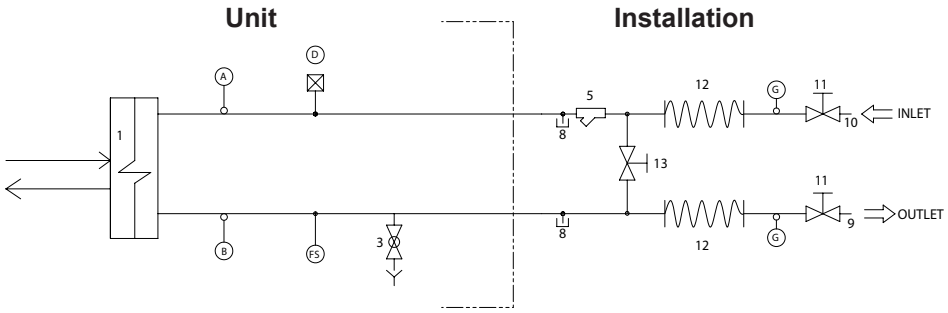
ECOi-W AQUA-Z 150-170



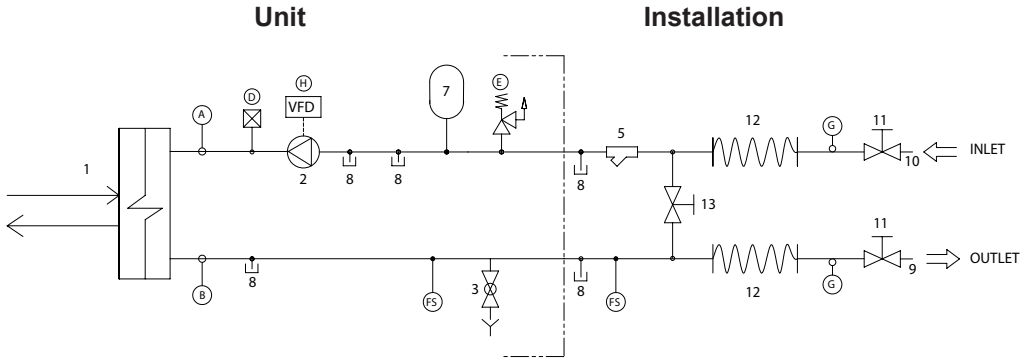
C-1.1 / C-1.2	Compressors 1 et 2
RV-1.1	Cycle reversal valve
OF-1.1 / OF-1.2	Outdoor fan motor
3	Air cooled condenser
4	Filter drier
CV	Check valve
5	Sight glass
EEV-1.1	Electronic expansion valve
7	Liquid reservoir
8	Plate heat exchanger
⏚	Pressure tapping point 1/4"
PTHP-1.1	High pressure transducer
PSHP-1.1	High pressure switch
CDT-1.1	Discharge temperature sensor
PTLP-1.1	Low pressure transducer
CST-1.1	Suction temperature sensor
OAT-0.1	Outdoor air temperature sensor
SV	Service valve
SV HP	Service valve HP
SV LP	Service valve LP
IV	Isolating valve
SS	PED Pressure relief valve (only size 80)

Hydraulic Circuit Diagram

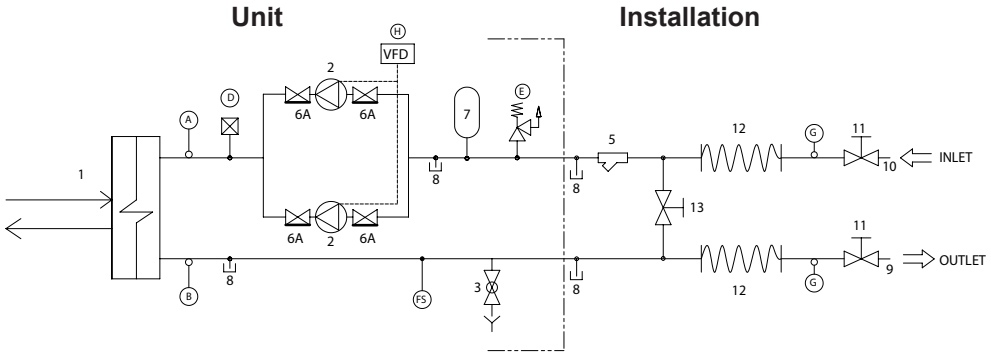
ECOi-W AQUA-Z 50-170 - Without pump version



ECOi-W AQUA-Z 50-170 - Single pump version



ECOi-W AQUA-Z 50-130 - Double pump version

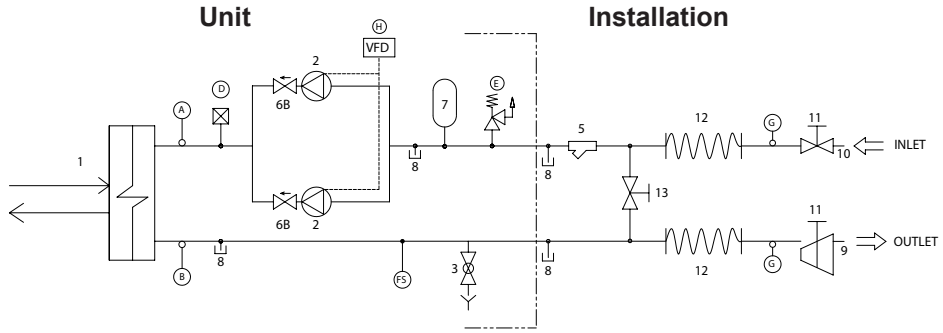


Components	
1	Plate Heat Exchanger
2	Pump
3	Draining valve
4	Water buffer tank
5	Water filter
6A	Gate valve
6B	Check valve
7	Pressure expansion tank
8	Pression point/drainage
9	Water outlet
10	Water inlet
11	Globe valve
12	Flexible pipes
13	By pass valve

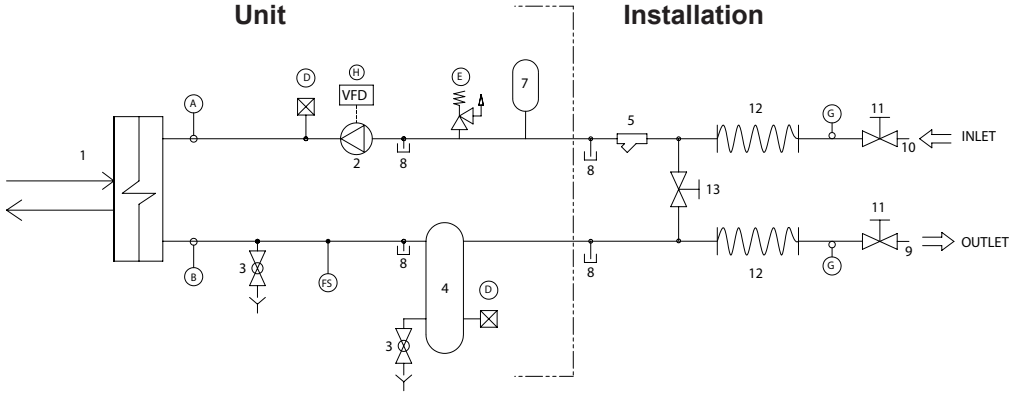
Safety/control devices	
A	Inlet water temperature sensor
B	Outlet water temperature sensor
C	Water differential pressure switch
D	Vent valve
E	Water safety valve (3 bar)
FS	Flow switch
G	Thermometer
H	Variable frequency drive
- - — - -	Unit side
o	Probes

Hydraulic Circuit Diagram

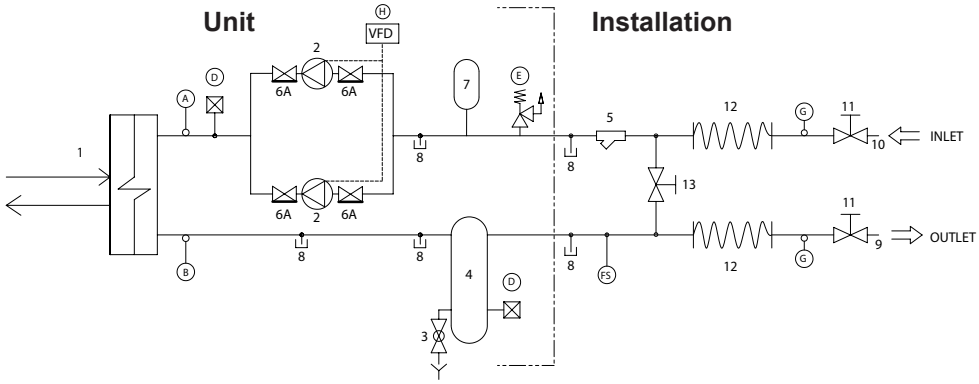
ECOi-W AQUA-Z 150-170 - Double pump version



ECOi-W AQUA-Z 50-170 - Single pump version + tank



ECOi-W AQUA-Z 50-130 - Double pump version + tank

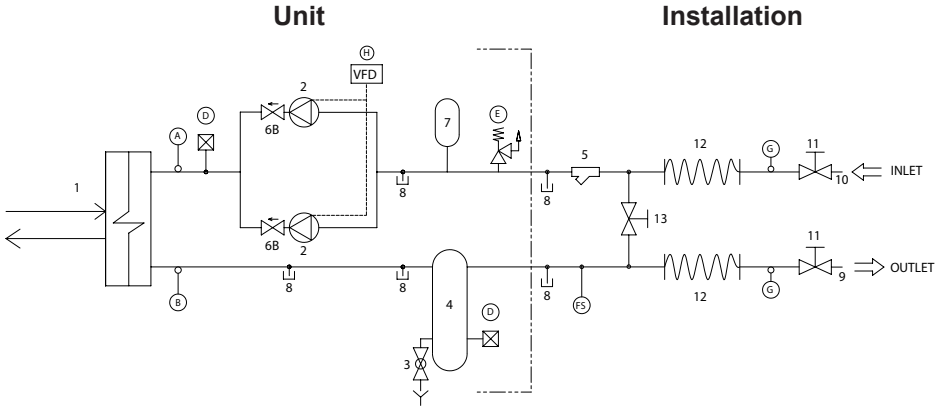


Components	
1	Plate Heat Exchanger
2	Pump
3	Draining valve
4	Water buffer tank
5	Water filter
6A	Gate valve
6B	Check valve
7	Pressure expansion tank
8	Pression point/drainage
9	Water outlet
10	Water inlet
11	Globe valve
12	Flexible pipes
13	By pass valve

Safety/control devices	
A	Inlet water temperature sensor
B	Outlet water temperature sensor
C	Water differential pressure switch
D	Vent valve
E	Water safety valve (3 bar)
FS	Flow switch
G	Thermometer
H	Variable frequency drive
- - — - -	Unit side
o	Probes

Hydraulic Circuit Diagram

ECOi-W AQUA-Z 150-170 - Double pump version + tank



Components	
1	Plate Heat Exchanger
2	Pump
3	Draining valve
4	Water buffer tank
5	Water filter
6A	Gate valve
6B	Check valve
7	Pressure expansion tank
8	Pression point/drainage
9	Water outlet
10	Water inlet
11	Globe valve
12	Flexible pipes
13	By pass valve

Safety/control devices	
A	Inlet water temperature sensor
B	Outlet water temperature sensor
C	Water differential pressure switch
D	Vent valve
E	Water safety valve (3 bar)
FS	Flow switch
G	Thermometer
H	Variable frequency drive
- - — - -	Unit side
o	Probes

Operating Limits

ECOi-W AQUA-Z C in cooling mode

ECOi-W AQUA-Z C models			50		60		70		75		85	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	6.34	14.79	7.08	16.51	8.56	19.98	9.61	9.61	10.17	23.74
Air temperature		°C	See diagrams on next page									

ECOi-W AQUA-Z C models			100		115		130		150		170	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	12.29	28.67	14.25	33.25	15.48	36.12	18.92	44.15	21.25	49.59
Air temperature		°C	See diagrams on next page									

* Below 5 °C, glycol is required.
** Considered at nominal unit capacity

ECOi-W AQUA-Z H in cooling mode

ECOi-W AQUA-Z H models			50		60		70		75		85	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	6.28	14.65	7.00	16.34	8.48	19.78	9.51	22.19	10.07	23.51
Air temperature		°C	See diagrams on next page									

ECOi-W AQUA-Z H models			100		115		130		150		170	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature *	°C	-10	18	-10	18	-10	18	-10	18	-10	18
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	12.20	28.47	14.13	32.97	15.36	35.83	18.67	43.57	20.89	48.73
Air temperature		°C	See diagrams on next page									

* Below 5 °C, glycol is required.
** Considered at nominal unit capacity

ECOi-W AQUA-Z H in heating mode

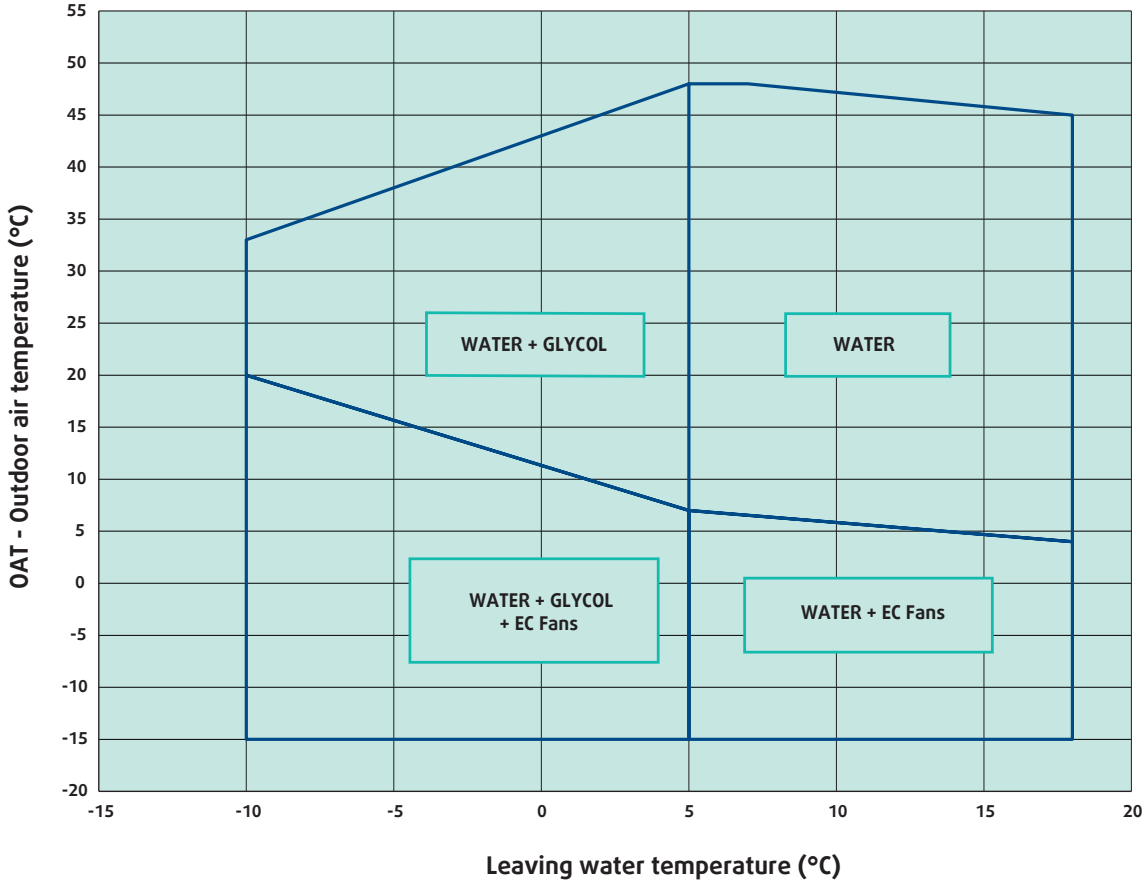
ECOi-W AQUA-Z H models			50		60		70		75		85	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature	°C	20	55	20	55	20	55	20	55	20	55
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	6.35	14.81	7.34	17.12	8.82	20.58	9.64	22.50	10.63	24.80
Air temperature		°C	See diagrams on next page									

ECOi-W AQUA-Z H models			100		115		130		150		170	
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Water	Water outlet temperature	°C	20	55	20	55	20	55	20	53	20	53
	Water ΔT **	K	3	7	3	7	3	7	3	7	3	7
	Flow rate **	m³/h	9.32	13.22	15.03	35.06	16.90	39.42	19.54	45.60	22.12	51.62
Air temperature		°C	See diagrams on next page									

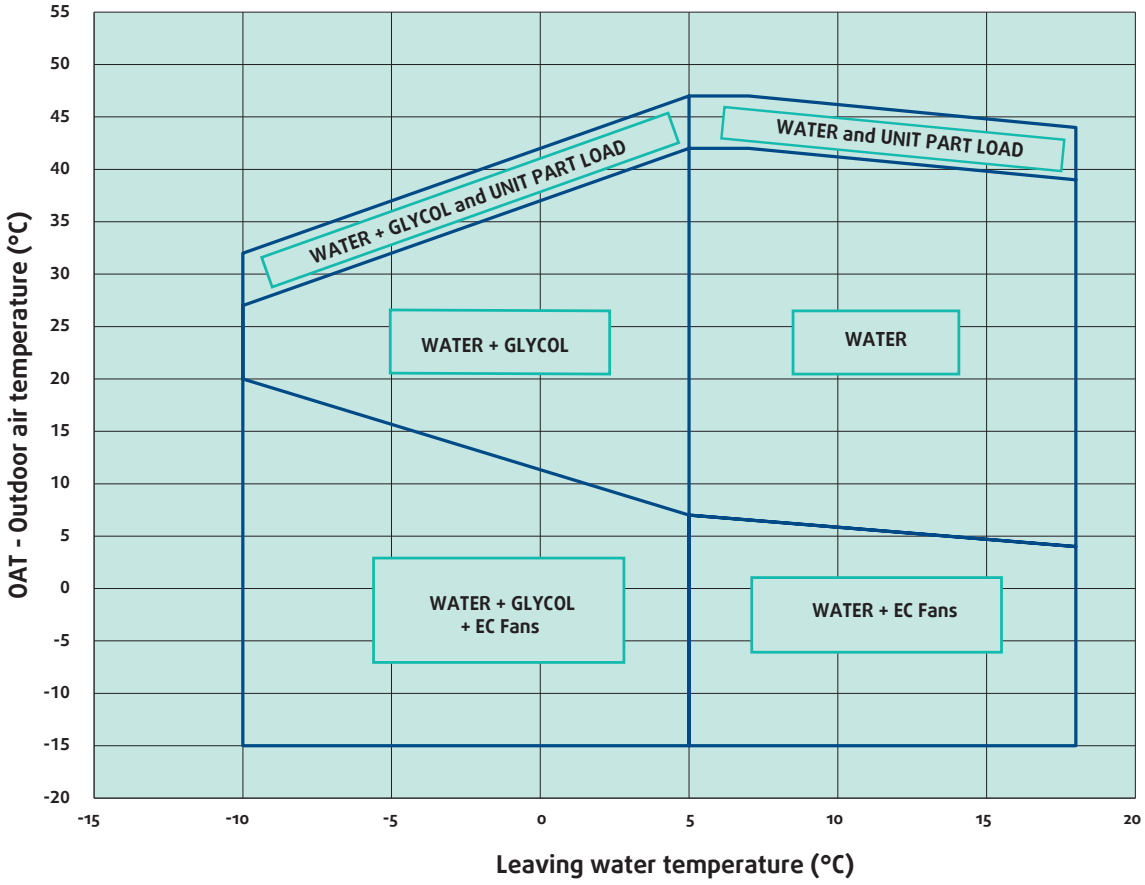
** Considered at nominal unit capacity

Operating Limits

ECOi-W AQUA-Z 50-130 C/H in cooling mode

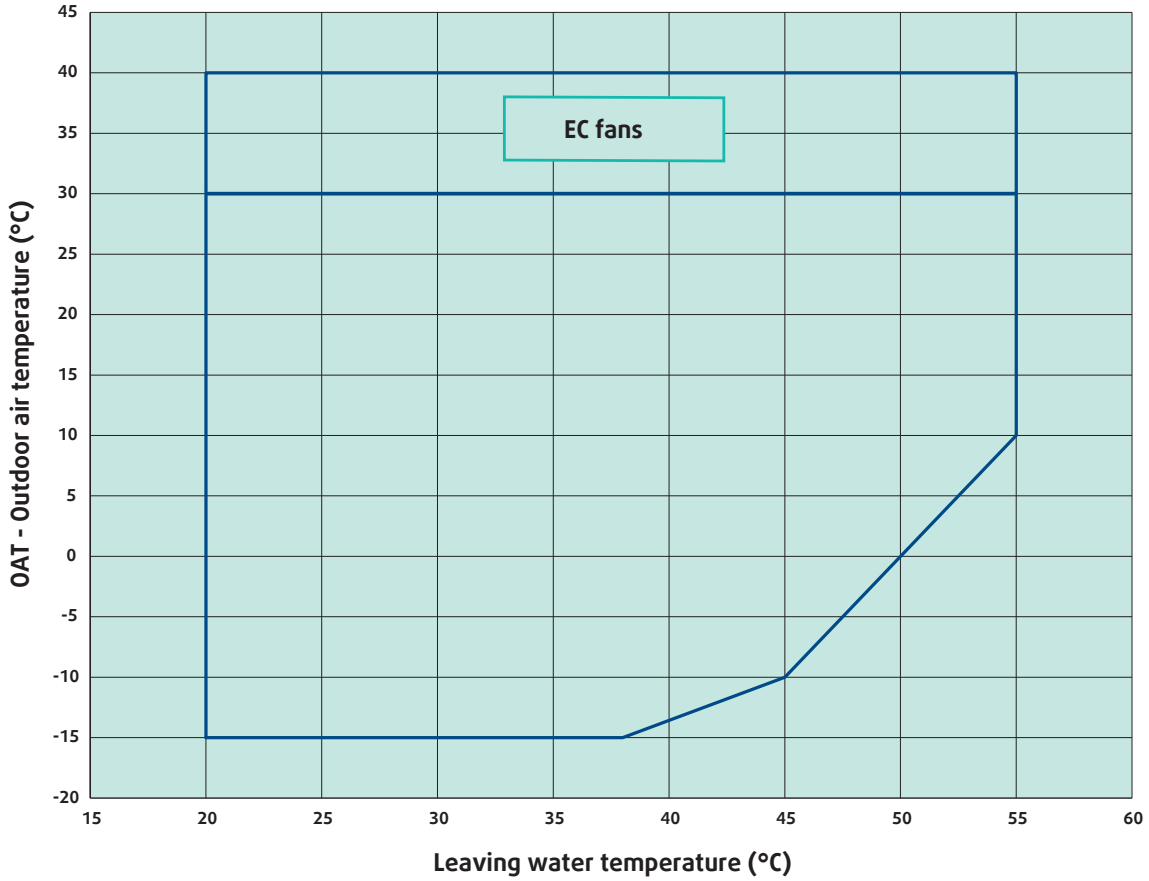


ECOi-W AQUA-Z 150-170 C/H in cooling mode

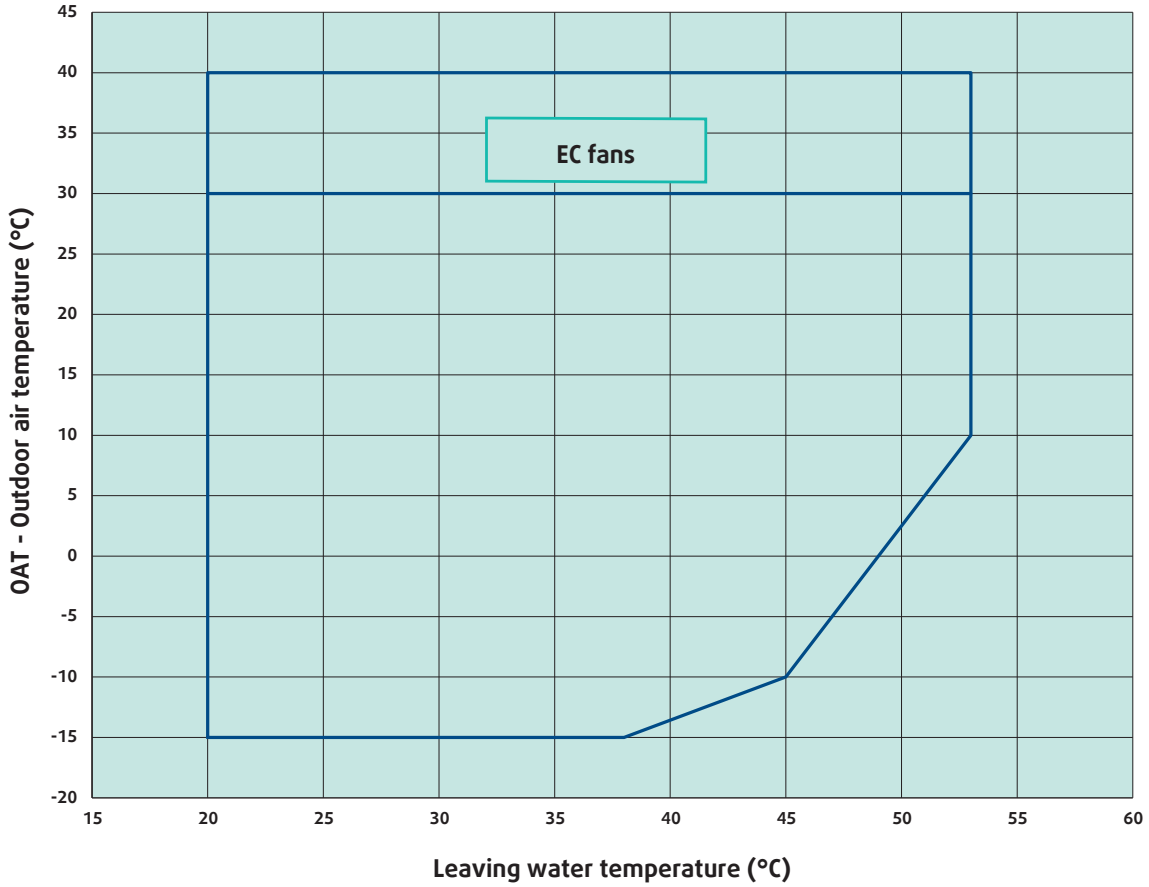


Operating Limits

ECOi-W AQUA-Z 50-130 H in heating mode



ECOi-W AQUA-Z 150-170 H in heating mode



Correction Factors

Fouling factors - Heat plate exchanger

Fouling factor (m^2.°C/kW)	Capacity	Power input
0.044	1.000	1.000
0.088	0.987	0.995
0.176	0.964	0.985
0.352	0.915	0.962

Fouling factors - Finned coil

Fouling factor (m^2.°C/kW)	Capacity	Power input
0.044	1.000	1.000
0.088	0.987	1.023
0.176	0.955	1.068
0.352	0.910	1.135

Altitude factors

Altitude (m)	Capacity	Power input
0	1.000	1.000
600	0.987	1.010
1 200	0.973	1.020
1 800	0.958	1.030
2 400	0.943	1.040

Correction factors - Glycol

% glycol	Freezing point (°C)	Thermodynamic power		Power input	Water flow	load loss
		Cooling mode	Heating mode			
0	0	1.000	1.000	1.000	1.000	1.000
10	-4	0.992	1.000	1.007	1.028	1.110
20	-10	0.986	1.000	1.013	1.056	1.272
30	-17	0.975	1.000	1.020	1.085	1.461
40	-26	0.965	1.000	1.033	1.115	1.679

Warning !

Ethylene glycol is toxic to the environment. Moreover, it is not suitable for heating with domestic hot water production by simple exchange. It is recommended to use Propylene glycol.

Physical Data - ECOi-W AQUA-Z C - AC version

			50 AC	60 AC	70 AC	75 AC
Cooling capacity (1)		kW	51.6	57.6	69.7	78.2
Power input (1)		kW	16.5	19.6	22.4	24.0
Total EER 100% (1)			3.13	2.94	3.11	3.26
SEER (2)			4.60	4.59	4.61	4.72
ηsc (2)		%	180.9	180.5	181.3	185.6
ELECTRICAL POWER SUPPLY						
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		A	43	53	60	69
Startup current	**without Soft Starter**	A	161	162	200	209
	with Soft Starter	A	119	121	156	160
REFRIGERANT						
Type / GWP			R32			
Number of refrigerant circuit			1			
Charge		kg	7.9	8.1	10.3	10.6
COMPRESSORS						
Number / Type			2 / Scroll			
Part load steps		%	0/46/54/100	0/40/60/100	0/40/60/100	0/46/54/100
Crankcase heater		W	70/70	70/66	70/66	66/66
PLATE HEAT EXCHANGER						
Number / Type			1 / Plate			
Cooling mode	**Water flow**	m³/h	8,87	9,91	11,99	13,45
	Water pressure drop	kPa	35.3	46.7	33.0	38.2
Water volume		L	6.0	6.0	8.4	8.4
Antifreeze heater		W	30	30	2 x 30	2 x 30
FINNED COIL						
Number			1	1	2	2
Frontal surface		m²	4,2	4,2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	2	2
Air flow		m³/h	21 200	21 200	30 000	30 000
Rotational speed		rpm	870	870	690	690
Power input each fan		kW	2 100	2 100	1.0	1.0
WATER CONNECTIONS						
Plate heat exchanger	**Type**		Male gas threaded			
	Inlet diameter	inch	2"	2"	2"	2"
	Outlet diameter	inch	2"	2"	2"	2"
Desuperheater	**Type**		Male gas threaded			
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		L	300	300	300	300
DIMENSIONS						
Length without / with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		mm	1 160	1 160	1 160	1 160
Height		mm	1730	2011	1 986	1 986
WEIGHT						
Operating weight (STD)		kg	533	553	629	645
ACOUSTIC DATA						
Sound power level		dB(A)	83.2	83.8	81.3	81.3
Sound pressure level (*)		dB(A)	51.4	52.0	49.5	49.5

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.

(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.

(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z C - AC version

			85 AC	100 AC	115 AC	130 AC	150 AC	170 AC
Cooling capacity (1)		kW	82.8	100.0	116.0	126.0	154.0	173.0
Power input (1)		kW	26.8	31.4	37.4	42.3	47.4	55.7
Total EER 100% (1)			3.09	3.18	3.10	2.98	3.25	3.11
SEER (2)			4.45	4.88	4.59	4.43	4.70	4.68
ηsc (2)		%	175.0	192.3	180.5	174.2	184.8	184.2
ELECTRICAL POWER SUPPLY								
Power supply			400V/3~/50Hz					
Startup type			Direct					
Maximum operating current		A	75	87	94	104	125	142
Startup current	**without Soft Starter**	A	215	326	333	343	363	380
	with Soft Starter	A	168	234	246	257	277	294
REFRIGERANT								
Type / GWP			R32					
Number of refrigerant circuit			1					
Charge		kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORS								
Number / Type			2 / Scroll					
Part load steps		%	0/50/ 50/100	0/35/ 65/100	0/44/ 56/100	0/50/ 50/100	0/44/ 56/100	0/38/ 62/100
Crankcase heater		W	66/66	66/66	66/66	66/66	66/105	66/105
PLATE HEAT EXCHANGER								
Number / Type			1 / Plate					
Cooling mode	**Water flow**	m³/h	14.24	17.2	19.95	21.67	26.49	29.76
	Water pressure drop	kPa	22.6	33.4	46.5	58.0	39.1	49.6
Water volume		L	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater		W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
FINNED COIL								
Number			2	2	2	2	2	2
Frontal surface		m²	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows			2	2	3	3	3	3
FAN								
Number			2	2	2	2	3	3
Air flow		m³/h	41 300	41 300	41 300	41 300	56 205	56 205
Rotational speed		rpm	870	870	870	870	870	870
Power input each fan		kW	2.1	2.1	1.6	1.6	1.4	1.4
WATER CONNECTIONS								
Plate heat exchanger	**Type**		Male gas threaded					
	Inlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	**Type**		Male gas threaded					
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)								
Volume		L	300	300	300	300	300	300
DIMENSIONS								
Length without / with tank		mm	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	3 796/ 3 796	3 796/ 3 796
Width		mm	1 160	1 160	1 160	1 160	1 100	1 100
Height		mm	2 286	2 286	2 286	2 286	2 310	2 310
WEIGHT								
Operating weight (STD)		kg	713	743	825	827	1 284	1 298
ACOUSTIC DATA								
Sound power level		dB(A)	84.4	86.0	87.0	87.4	88.9	91.1
Sound pressure level (*)		dB(A)	52.5	54.1	55.1	55.5	57.0	59.2

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.

(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.

(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z C - EC / EC S version

			50 EC / EC S	60 EC / EC S	70 EC / EC S	75 EC / EC S
Cooling capacity (1)		kW	51.6	57.6	69.7	78.2
Power input (1)		kW	15.9	19.0	21.2	22.9
Total EER 100% (1)			3.25	3.03	3.29	3.41
SEER (2)			5.05	5.02	5.19	5.29
ηsc (2)		%	198.9	197.8	204.7	208.7
ELECTRICAL POWER SUPPLY						
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		A	43	52	62	71
Startup current	**without Soft Starter**	A	160	161	202	211
	with Soft Starter	A	119	120	158	162
REFRIGERANT						
Type / GWP			R32			
Number of refrigerant circuit			1			
Charge		kg	7.9	8.1	10.3	10.6
COMPRESSORS						
Number / Type			2 / Scroll			
Part load steps		%	0/46/54/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater		W	70/70	70/66	70/66	66/66
PLATE HEAT EXCHANGER						
Number / Type			1 / Plate			
Cooling mode	**Water flow**	m³/h	8.87	9.91	11.99	13.45
	Water pressure drop	kPa	35.3	46.7	33.0	38.2
Water volume		l	6.0	6.0	8.4	8.4
Antifreeze heater		W	30	30	2 x 30	2 x 30
FINNED COIL						
Number			1	1	2	2
Frontal surface		m²	4.2	4.2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	2	2
Air flow		m³/h	21 200	21 200	30 000	30 000
Rotational speed		rpm	780	780	620	620
Power input each fan		kW	1.1	1.1	0.6	0.6
WATER CONNECTIONS						
Plate heat exchanger	**Type**		Male gas threaded			
	Inlet diameter	inch	2"	2"	2"	2"
	Outlet diameter	inch	2"	2"	2"	2"
Desuperheater	**Type**		Male gas threaded			
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		L	300	300	300	300
DIMENSIONS						
Length without / with tank		mm	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		mm	1 160	1 160	1 160	1 160
Height		mm	2 034	2 034	2 034	2 034
WEIGHT						
Operating weight (STD)		kg	554	574	650	666
ACOUSTIC DATA						
Sound power level (EC)		dB(A)	80.7	81.2	78.3	78.2
Sound pressure level (EC) (*)		dB(A)	48.9	49.4	46.5	46.4
Sound power level (EC / S)		dB(A)	87.2	87.3	89.2	89.3
Sound pressure level (EC / S) (*)		dB(A)	55.4	55.5	57.4	57.5

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.

(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.

(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z C - EC / EC S version

				85 EC / EC S	100 EC / EC S	115 EC / EC S	130 EC / EC S	150 EC / EC S	170 EC / EC S
Cooling capacity (1)			kW	82.8	100.0	116.0	126.0	154.0	173.0
Power input (1)			kW	25.6	30.3	36.2	41.1	45.6	54.0
Total EER 100% (1)				3.23	3.30	3.20	3.07	3.38	3.20
SEER (2)				4.96	5.19	5.01	4.71	5.22	5.16
ηsc (2)			%	195.6	204.9	197.3	185.6	205.6	203.2
ELECTRICAL POWER SUPPLY									
Power supply				400V/3~/50Hz					
Startup type				Direct					
Maximum operating current			A	74	86	93	103	123	141
Startup current	**without Soft Starter**		A	214	325	332	342	362	379
	with Soft Starter		A	167	233	245	256	276	293
REFRIGERANT									
Type / GWP				R32					
Number of refrigerant circuit				1					
Charge			kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORS									
Number / Type				2 / Scroll					
Part load steps			%	0/50/50100	0/35/65/100	0/44/56/100	0/50/50100	0/44/56/100	0/38/62/100
Crankcase heater			W	66/66	66/66	66/66	66/66	66/105	66/105
PLATE HEAT EXCHANGER									
Number / Type				1 / Plate					
Cooling mode	**Water flow**		m³/h	14.24	17.2	19.95	21.67	26.49	29.76
	Water pressure drop		kPa	22.6	33.4	46.5	58.0	39.1	49.6
Water volume			L	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater			W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
FINNED COIL									
Number				2	2	2	2	2	2
Frontal surface			m²	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows				2	2	3	3	3	3
FAN									
Number				2	2	2	2	3	3
Air flow			m³/h	41 300	41 300	41 300	41 300	56 205	56 205
Rotational speed			rpm	780	780	780	780	780	780
Power input each fan			kW	0.8	0.8	1.0	1.0	0.8	0.8
WATER CONNECTIONS									
Plate heat exchanger	**Type**			Male gas threaded					
	Inlet diameter		inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter		inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	**Type**			Male gas threaded					
	Inlet diameter		inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter		inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)									
Volume			L	300	300	300	300	300	300
DIMENSIONS									
Length without / with tank			mm	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	3 796/ 3 796	3 796/ 3 796
Width			mm	1 160	1 160	1 160	1 160	1 100	1 100
Height			mm	2 334	2 334	2 334	2 334	2 370	2 370
WEIGHT									
Operating weight (STD)			kg	734	764	846	848	1 309	1 323
ACOUSTIC DATA									
Sound power level (EC)			dB(A)	81.7	83.2	84.0	84.4	85.9	88.0
Sound pressure level (EC) (*)			dB(A)	49.8	51.3	52.1	52.5	54.0	56.1
Sound power level (EC / S)			dB(A)	89.3	89.7	90.0	90.2	91.6	92.3
Sound pressure level (EC / S) (*)			dB(A)	57.4	57.8	58.1	58.3	59.7	60.4

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z H - AC version

			50 AC	60 AC	70 AC	75 AC
Cooling capacity (1)		**kW**	51.1	57.0	69.0	77.4
Power input (1)		**kW**	16.7	19.8	22.6	24.3
Total EER 100% (1)			3.06	2.88	3.05	3.19
SEER (2)			4.46	4.42	4.51	4.61
ηsc (2)		**%**	175.2	173.6	177.5	181.5
Heating capacity (3)		**kW**	51.7	59.7	71.8	78.5
Power input (3)		**kW**	16.5	19.3	22.1	24.2
Low temperature application W30/35°C	**SCOP (4)**		3.53	3.54	3.47	3.65
	hsh (4)		138.0	138.5	135.6	143.2
	Energy class SCOP		A+	A+	A+	A+
ELECTRICAL POWER SUPPLY						
Power supply			400V/3~/50Hz			
Startup type			Direct			
Maximum operating current		**A**	43	53	60	69
Startup current	**without Soft Starter**	**A**	161	162	200	209
	with Soft Starter	**A**	119	121	156	160
REFRIGERANT						
Type / GWP			R32			
Number of refrigerant circuit			1			
Charge		**kg**	7.9	8.1	10.3	10.6
COMPRESSORS						
Number / Type			2 / Scroll			
Part load steps		**%**	0/47/53/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater		**W**	70/70	70/66	70/66	66/66
PLATE HEAT EXCHANGER						
Number / Type			1 / Plate			
Cooling mode	**Water flow**	**m³/h**	8.79	9.81	11.87	13.31
	Water pressure drop	**kPa**	31.8	46.7	33.0	38.2
Heating mode	**Water flow**	**m³/h**	8.98	10.37	12.47	13.64
	Water pressure drop	**kPa**	36.3	48.1	34.4	42.8
Water volume		**L**	6.0	6.0	8.4	8.4
Antifreeze heater		**W**	30	30	2 x 30	2 x 30
FINNED COIL						
Number			1	1	2	2
Frontal surface		**m²**	4.2	4.2	5.6	5.6
Number of rows			2	2	2	2
FAN						
Number			1	1	1	1
Air flow		**m³/h**	21 200	21 200	30 000	30 000
Rotational speed		**rpm**	780	780	620	620
Power input each fan		**kW**	1.1	1.1	0.6	0.6
WATER CONNECTIONS						
Plate heat exchanger	**Type**		Male gas threaded			
	Inlet diameter	**inch**	2"	2"	2"	2"
	Outlet diameter	**inch**	2"	2"	2"	2"
Desuperheater	**Type**		Male gas threaded			
	Inlet diameter	**inch**	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	**inch**	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)						
Volume		**L**	300	300	300	300
DIMENSIONS						
Length without / with tank		**mm**	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width		**mm**	1 160	1 160	1 160	1 160
Height		**mm**	1 986	1 986	1 986	1 986
WEIGHT						
Operating weight (STD)		**kg**	533	553	629	645
ACOUSTIC DATA						
Sound power level		**dB(A)**	83.2	83.8	81.3	81.3
Sound pressure level (*)		**dB(A)**	51.4	52.0	49.5	49.5

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(**3**) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(**4**) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z H - AC version

				85 AC	100 AC	115 AC	130 AC	150 AC	170 AC
Cooling capacity (1)			**kW**	82.0	99.3	115.0	125.0	152.0	170.0
Power input (1)			**kW**	27.1	31.8	37.7	42.7	47.9	57.1
Total EER 100% (1)				3.03	3.12	3.05	2.93	3.17	2.98
SEER (2)				4.33	4.77	4.44	4.23	4.59	4.49
ηsc (2)			**%**	170.3	187.7	174.6	166.0	180.5	176.6
Heating capacity (3)			**kW**	86.5	107.6	122.3	137.5	159.1	180.1
Power input (3)			**kW**	27.2	32.5	37.0	41.0	48.2	54.5
Low temperature application W30/35°C	**SCOP (4)**			3.60	3.64	3.66	3.72	3.57	3.60
	hsh (4)			141.2	142.5	143.2	145.7	139.9	140.9
	Energy class SCOP			A+	A+	A+	A+	A+	A+
ELECTRICAL POWER SUPPLY									
Power supply				400V/3~/50Hz					
Startup type				Direct					
Maximum operating current			**A**	75	87	94	104	125	142
Startup current	**without Soft Starter**		**A**	215	326	333	343	363	380
	with Soft Starter		**A**	168	234	246	257	277	294
REFRIGERANT									
Type / GWP				R32					
Number of refrigerant circuit				1					
Charge			**kg**	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORS									
Number / Type				2 / Scroll					
Part load steps			**%**	0/50/ 50/100	0/35/ 65/100	0/44/ 56/100	0/50/ 50/100	0/45/ 56/100	0/38/ 62/100
Crankcase heater			**W**	66/66	66/66	66/66	66/66	66/105	66/105
PLATE HEAT EXCHANGER									
Number / Type				1 / Plate					
Cooling mode	**Water flow**		**m³/h**	14.11	17.08	19.78	21.5	26.15	29.24
	Water pressure drop		**kPa**	22.6	33.4	46.5	58.0	39.1	49.6
Heating mode	**Water flow**		**m³/h**	15.03	18.69	21.24	23.88	27.81	31.32
	Water pressure drop		**kPa**	23.6	35.3	48.4	59.7	39.9	52.9
Water volume			**L**	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater			**W**	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
FINNED COIL									
Number				2	2	2	2	2	2
Frontal surface			**m²**	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows				2	2	3	3	3	3
FAN									
Number				2	2	2	2	3	3
Air flow			**m³/h**	41 300	41 300	41 300	41 300	56 205	56 205
Rotational speed			**rpm**	780	780	780	780	780	780
Power input each fan			**kW**	0.8	0.8	1.0	1.0	0.8	0.8
WATER CONNECTIONS									
Plate heat exchanger	**Type**			Male gas threaded					
	Inlet diameter		**inch**	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter		**inch**	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	**Type**			Male gas threaded					
	Inlet diameter		**inch**	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter		**inch**	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)									
Volume			**L**	300	300	300	300	300	300
DIMENSIONS									
Length without / with tank			**mm**	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	3 796/ 3 796	3 796/ 3 796
Width			**mm**	1 160	1 160	1 160	1 160	1 100	1 100
Height			**mm**	2 286	2 286	2 286	2 286	2 310	2 310
WEIGHT									
Operating weight (STD)			**kg**	713	743	825	827	1 284	1 298
ACOUSTIC DATA									
Sound power level			**dB(A)**	84.4	86.0	87.0	87.4	88.9	91.1
Sound pressure level (*)			**dB(A)**	52.5	54.1	55.1	55.5	57.0	59.2

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(**3**) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(**4**) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z H - EC / EC S version

				50 EC / EC S	60 EC / EC S	70 EC / EC S	75 EC / EC S
Cooling capacity (1)			**kW**	51.1	57.0	69.0	77.4
Power input (1)			**kW**	16.1	19.2	21.4	23.1
Total EER 100% (1)				3.17	2.97	3.22	3.35
SEER (2)				4.83	4.79	5.04	4.99
ηsc (2)			**%**	190.2	188.8	198.8	196.7
Heating capacity (3)			**kW**	52.2	59.7	72.0	80.2
Power input (3)			**kW**	16.0	18.6	21.0	23.5
Low temperature application W30/35°C	**SCOP (4)**			3.90	3.94	3.71	3.80
	hsh (4)			152.8	154.5	145.3	148.8
	Energy class SCOP			A+	A+	A+	A+
ELECTRICAL POWER SUPPLY							
Power supply				400V/3~/50Hz			
Startup type				Direct			
Maximum operating current			**A**	43	53	60	69
Startup current	**without Soft Starter**		**A**	161	162	200	209
	with Soft Starter		**A**	119	121	156	160
REFRIGERANT							
Type / GWP				R32			
Number of refrigerant circuit				1			
Charge			**kg**	7.9	8.1	10.3	10.6
COMPRESSORS							
Number / Type				2 / Scroll			
Part load steps			**%**	0/47/53/100	0/41/59/100	0/40/60/100	0/46/54/100
Crankcase heater			**W**	70/70	70/66	70/66	66/66
PLATE HEAT EXCHANGER							
Number / Type				1 / Plate			
Cooling mode	**Water flow**		**m³/h**	8.79	9.81	11.87	13.31
	Water pressure drop		**kPa**	31.8	46.7	33.0	38.2
Heating mode	**Water flow**		**m³/h**	9.07	10.37	12.51	13.93
	Water pressure drop		**kPa**	36.3	48.1	34.4	42.8
Water volume			**L**	6.0	6.0	8.4	8.4
Antifreeze heater			**W**	30	30	2 x 30	2 x 30
FINNED COIL							
Number				1	1	2	2
Frontal surface			**m²**	4.2	4.2	5.6	5.6
Number of rows				2	2	2	2
FAN							
Number				1	1	1	1
Air flow			**m³/h**	21 200	21 200	30 000	30 000
Rotational speed			**rpm**	780	780	620	620
Power input each fan			**kW**	1.1	1.1	0.6	0.6
WATER CONNECTIONS							
Plate heat exchanger	**Type**			Male gas threaded			
	Inlet diameter		**inch**	2"	2"	2"	2"
	Outlet diameter		**inch**	2"	2"	2"	2"
Desuperheater	**Type**			Male gas threaded			
	Inlet diameter		**inch**	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter		**inch**	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)							
Volume			**L**	300	300	300	300
DIMENSIONS							
Length without / with tank			**mm**	2 180/2 680	2 180/2 680	2 180/2 680	2 180/2 680
Width			**mm**	1 160	1 160	1 160	1 160
Height			**mm**	1 986	1 986	1 986	1 986
WEIGHT							
Operating weight (STD)			**kg**	533	553	629	645
ACOUSTIC DATA							
Sound power level (EC)			**dB(A)**	83.2	83.8	81.3	81.3
Sound pressure level (EC) (*)			**dB(A)**	51.4	52.0	49.5	49.5
Sound power level (EC / S)			**dB(A)**	87.2	87.3	89.2	89.3
Sound pressure level (EC / S) (*)			**dB(A)**	55.4	55.5	57.4	57.5

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(**3**) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(**4**) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Physical Data - ECOi-W AQUA-Z H - EC / EC S version

			85 EC / EC S	100 EC / EC S	115 EC / EC S	130 EC / EC S	150 EC / EC S	170 EC / EC S
Cooling capacity (1)		kW	82.0	99.4	115.0	125.0	152.0	170.0
Power input (1)		kW	25.9	30.6	36.6	41.6	46.1	55.4
Total EER 100% (1)			3.17	3.25	3.14	3.00	3.30	3.07
SEER (2)			4.80	4.93	4.82	4.51	5.04	4.92
ηsc (2)		%	188.9	194.1	190.0	177.2	198.7	193.8
Heating capacity (3)		kW	86.7	108.3	122.3	137.5	160.1	180.3
Power input (3)		kW	26.3	31.4	35.7	40.2	46.0	53.1
Low temperature application W30/35°C	**SCOP (4)**		4.02	4.10	4.02	3.97	4.04	3.95
	hsh (4)		157.8	160.9	157.9	155.9	158.4	155.2
	Energy class SCOP		A++	A++	A+	A++	A++	A++
ELECTRICAL POWER SUPPLY								
Power supply			400V/3~/50Hz					
Startup type			Direct					
Maximum operating current		A	74	86	93	103	123	141
Startup current	**without Soft Starter**	A	214	325	332	342	362	379
	with Soft Starter	A	167	233	245	256	276	293
REFRIGERANT								
Type / GWP			R32					
Number of refrigerant circuit			1					
Charge		kg	12.8	10.9	13.0	15.0	19.2	20.0
COMPRESSORS								
Number / Type			2 / Scroll					
Part load steps		%	0/50/50/100	0/35/65/100	0/44/56/100	0/50/50/100	0/45/56/100	0/38/62/100
Crankcase heater		W	66/66	66/66	66/66	66/66	66/105	66/105
PLATE HEAT EXCHANGER								
Number / Type			1 / Plate					
Cooling mode	**Water flow**	m³/h	14.11	17.08	19.78	21.5	26.15	29.24
	Water pressure drop	kPa	22.6	33.4	46.5	58.0	39.1	49.6
Heating mode	**Water flow**	m³/h	15.06	18.81	21.24	23.88	27.81	31.32
	Water pressure drop	kPa	23.6	35.3	48.4	59.7	39.9	52.9
Water volume		L	11.7	11.7	11.7	11.7	19.1	19.1
Antifreeze heater		W	2 x 30	2 x 30	2 x 30	2 x 30	4 x 30	4 x 30
FINNED COIL								
Number			2	2	2	2	2	2
Frontal surface		m²	6.4	6.4	6.4	6.4	8.7	8.7
Number of rows			2	2	3	3	3	3
FAN								
Number			2	2	2	2	3	3
Air flow		m³/h	41 300	41 300	41 300	41 300	56 205	56 205
Rotational speed		rpm	780	780	780	780	780	780
Power input each fan		kW	0.8	0.8	1.0	1.0	0.8	0.8
WATER CONNECTIONS								
Plate heat exchanger	**Type**		Male gas threaded					
	Inlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
	Outlet diameter	inch	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2	2"1/2
Desuperheater	**Type**		Male gas threaded					
	Inlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
	Outlet diameter	inch	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4	1"1/4
BUFFER TANK (OPTION)								
Volume		L	300	300	300	300	300	300
DIMENSIONS								
Length without / with tank		mm	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	2 180/ 2 680	3 796/ 3 796	3 796/ 3 796
Width		mm	1 160	1 160	1 160	1 160	1 100	1 100
Height		mm	2 286	2 286	2 286	2 286	2 310	2 310
WEIGHT								
Operating weight (STD)		kg	713	743	825	827	1 284	1 298
ACOUSTIC DATA								
Sound power level (EC)		dB(A)	84.4	86.0	87.0	87.4	88.9	91.1
Sound pressure level (EC) (*)		dB(A)	52.5	54.1	55.1	55.5	57.0	59.2
Sound power level (EC / S)		dB(A)	89.3	89.7	90.0	90.2	91.6	92.3
Sound pressure level (EC / S) (*)		dB(A)	57.4	57.8	58.1	58.3	59.7	60.4

(**1**) According EN14511-2018: chilled water inlet/outlet temperature: 12/7°C, outdoor ambient temperature 35°C DB.
(**2**) According EN14825 and Following COMMISSION REGULATION (EU) 2016/2281.
(**3**) According EN14511-2018: warm water inlet/outlet temperature: 40/45°C, outdoor ambient temperature 7°C DB/6°C WB.
(**4**) According EN14825 and Following COMMISSION REGULATION (EU) No 813/2013.
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO 3744 standard, parallelepiped shape.

Electrical Data

Unit without pump with AC fans

Sizes		50	60	70	75	85	100	115	130	150	170
Power supply		400V / 3~ / 50Hz									
Maximum current	A	43	48	57	61	69	81	94	104	125	142
Fuse rating aM	A	63	63	80	80	100	100	125	125	160	200
Total startup current (without Soft Starter)	A	161	163	212	216	224	320	332	343	363	380
Total startup current (with Soft Starter)	A	119	121	156	160	168	234	246	257	277	294

Unit without pump with EC fans

Sizes		50	60	70	75	85	100	115	130	150	170
Power supply		400V / 3~ / 50Hz									
Maximum current	A	43	47	59	63	68	81	93	103	123	141
Fuse rating aM	A	63	63	80	80	100	100	125	125	160	200
Total startup current (without Soft Starter)	A	160	162	214	218	223	319	331	342	362	379
Total startup current (with Soft Starter)	A	119	120	158	162	167	233	245	256	276	293

Note: The values are indicative. Actual data are indicated on the unit label.

Electrical Data

Standard pressure pump (400V/3/50Hz)

Sizes	Nominal power (kW)	Max. current (A)
50	1.0	1.9
60	1.0	1.9
70	1.4	2.5
75	1.4	2.5
85	2.0	3.4
100	2.0	3.4
115	2.5	4.5
130	2.5	4.5
150	3.4	6.4
170	3.4	6.4

High pressure pump (400V/3/50Hz)

Sizes	Nominal power (kW)	Max. current (A)
50	1.7	3.2
60	1.7	3.2
70	1.7	3.2
75	1.7	3.2
85	3.3	5.9
100	3.3	5.9
115	3.3	5.9
130	3.3	5.9
150	4.5	8.7
170	4.5	8.7

Electrical heater

			50	60	70	75	85	100	115	130	150	170
Power supply			400V / 3~ / 50Hz								/	/
Low power heating	**Power**	**kW**	12	12	12	12	24	24	24	24	/	/
	Maximum intensity	**A**	19	19	19	19	38	38	38	38	/	/
High power heating	**Power**	**kW**	24	24	24	24	36	36	36	36	/	/
	Maximum intensity	**A**	38	38	38	38	57	57	57	57	/	/

Acoustical Data

Sound power level Lw-dB - AC fans and EC fans standard versions

ECOi-W AQUA-Z models	Frequency in octave band (Hz)								Lw global dB (A)	Sound pressure level dB(A) *
	63	125	250	500	1000	2000	4000	8000		
50	98	89	83	78	78	74	71	68	**83.2**	**51.4**
60	99	90	83	78	79	75	72	69	**83.8**	**52.0**
70	96	88	81	76	76	72	69	66	**81.3**	**49.5**
75	96	88	81	76	76	72	69	66	**81.3**	**49.5**
85	99	91	84	79	79	75	72	69	**84.4**	**52.5**
100	101	92	85	80	81	77	74	71	**86.0**	**54.1**
115	102	93	86	81	82	78	75	72	**87.0**	**55.1**
130	103	94	87	82	82	78	75	72	**87.4**	**55.5**
150	104	95	88	83	84	80	77	74	**88.9**	**57.0**
170	106	97	91	86	86	82	79	76	**91.1**	**59.2**

Sound power level Lw-dB - EC fans - S version

ECOi-W AQUA-Z models	Frequency in octave band (Hz)								Lw global dB (A)	Sound pressure level dB(A) *
	63	125	250	500	1000	2000	4000	8000		
50	96	87	80	75	75	72	68	66	**80.7**	**48.9**
60	96	87	81	76	76	72	69	66	**81.2**	**49.4**
70	93	85	78	73	73	69	66	63	**78.3**	**46.5**
75	93	84	78	73	73	69	66	63	**78.2**	**46.4**
85	97	88	81	76	76	73	69	67	**81.7**	**49.8**
100	98	89	83	78	78	74	71	68	**83.2**	**51.3**
115	99	90	83	78	79	75	72	69	**84.0**	**52.1**
130	100	91	84	79	79	75	72	69	**84.4**	**52.5**
150	101	92	85	80	81	77	74	71	**85.9**	**54.0**
170	103	94	87	82	83	79	76	73	**88.0**	**56.1**

Sound power level Lw-dB - EC fans - HPF version

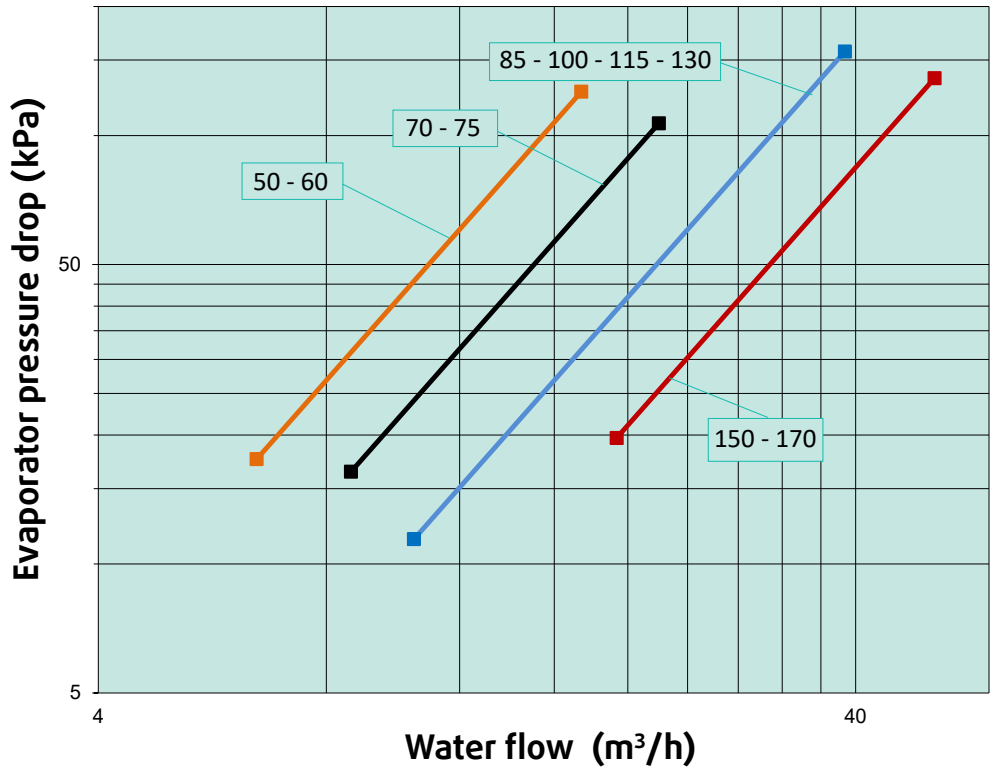
ECOi-W AQUA-Z models	Frequency in octave band (Hz)								Lw global dB (A)	Sound pressure level dB(A) *
	63	125	250	500	1000	2000	4000	8000		
50	104	95	88	83	83	80	76	74	**87.2**	**55.4**
60	104	95	88	83	83	80	76	74	**87.3**	**55.5**
70	107	98	91	86	86	83	79	77	**89.2**	**57.4**
75	106	97	90	85	85	82	78	76	**89.3**	**57.5**
85	105	96	89	84	84	81	77	75	**89.3**	**57.4**
100	105	96	89	84	85	81	78	75	**89.7**	**57.8**
115	105	96	90	85	85	81	78	75	**90.0**	**58.1**
130	105	96	90	85	85	81	78	75	**90.2**	**58.3**
150	108	99	92	87	87	84	80	78	**91.6**	**59.7**
170	108	99	92	87	88	84	81	78	**92.3**	**60.4**

Note: Sound data valid in max. air flow rate condition.

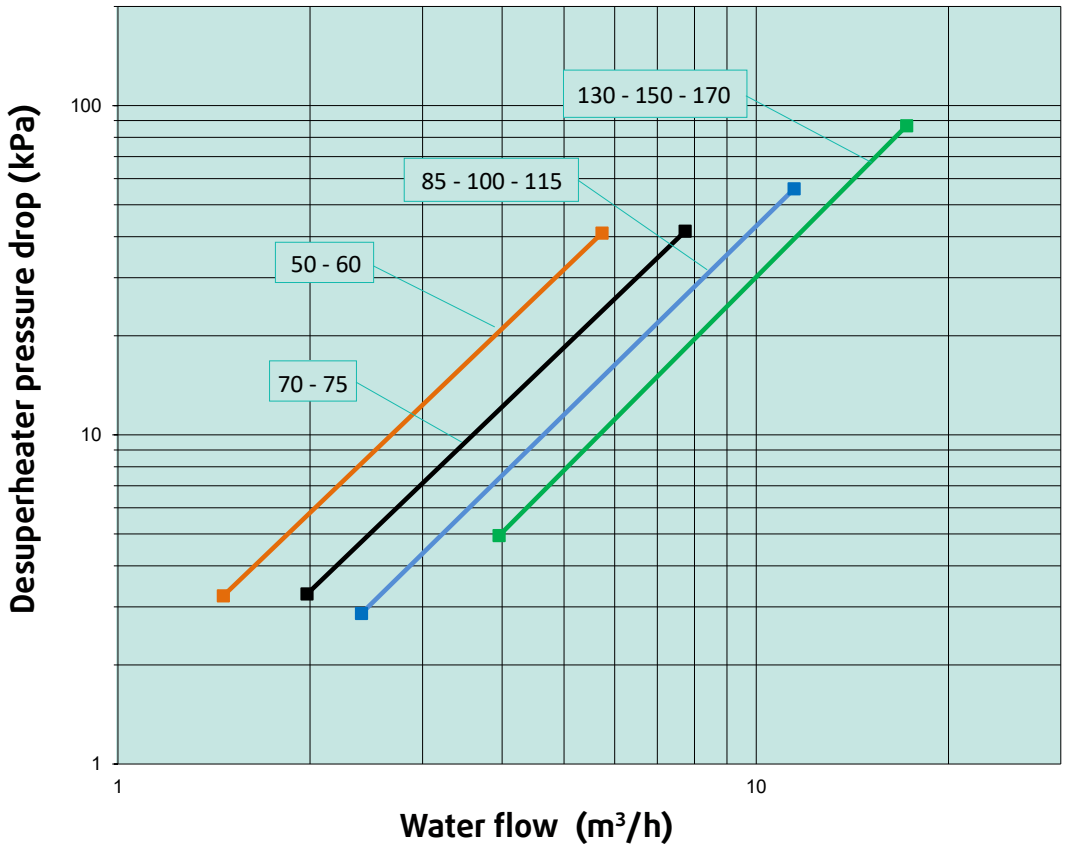
(*) Sound pressure levels calculated at 10 meters. Sound pressure levels refer to ISO standard 3744 with parallelepiped shape.

Water Pressure Drop

ECOi-W AQUA-Z 50-170 - Indoor Heat Exchanger

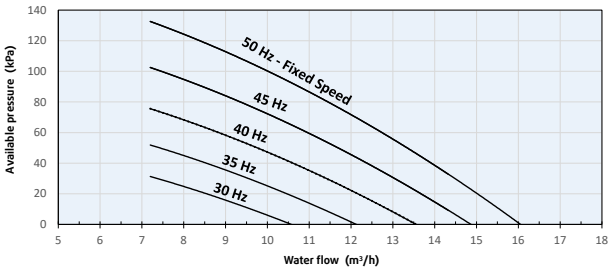


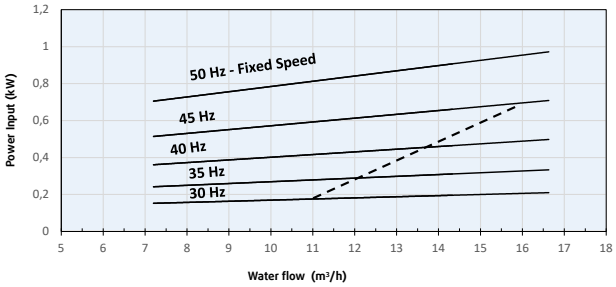
ECOi-W AQUA-Z 50-170 - Desuperheater



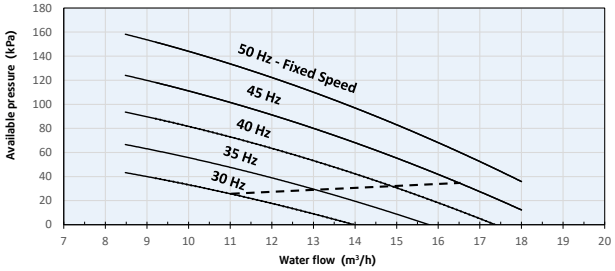
Water Pump Curves

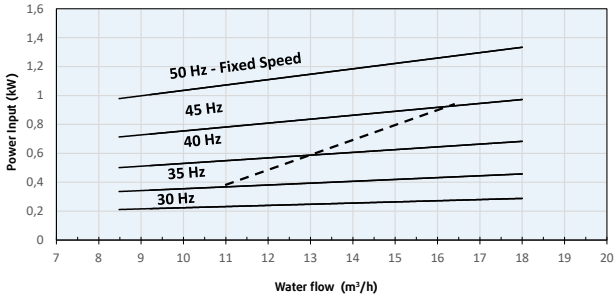
ECOi-W AQUA-Z 50 - 60 - Standard pressure pump



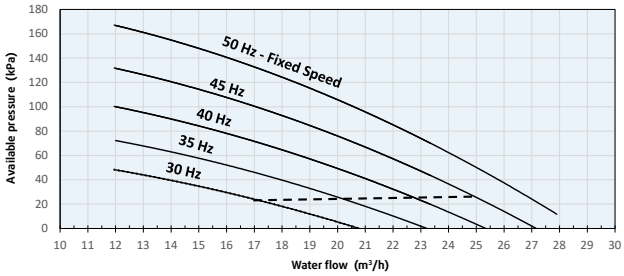


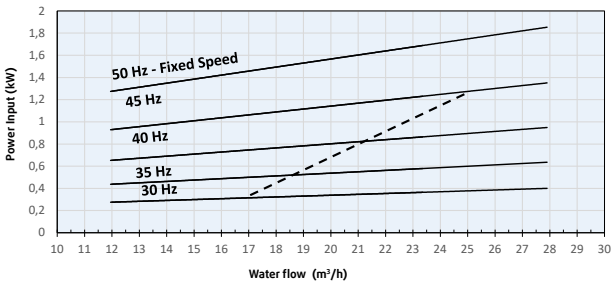
ECOi-W AQUA-Z 70 - 75 - Standard pressure pump



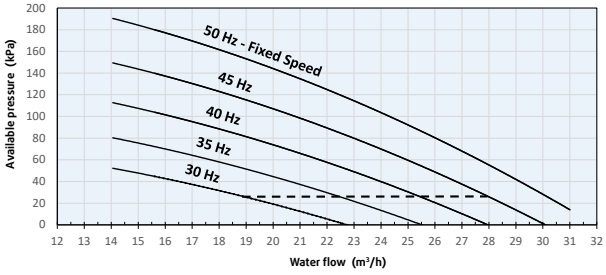


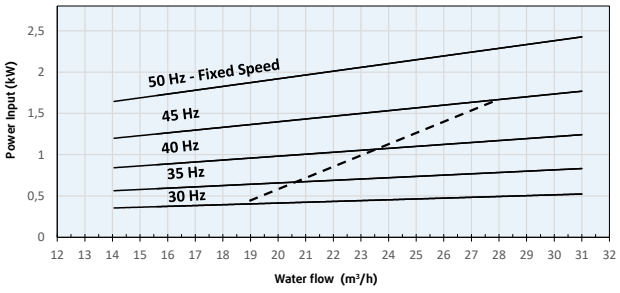
ECOi-W AQUA-Z 85 - 100 - Standard pressure pump



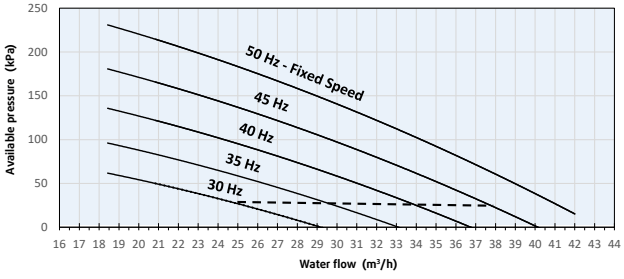


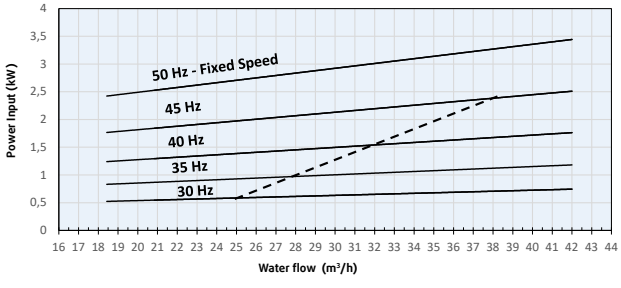
ECOi-W AQUA-Z 115 - 130 - Standard pressure pump





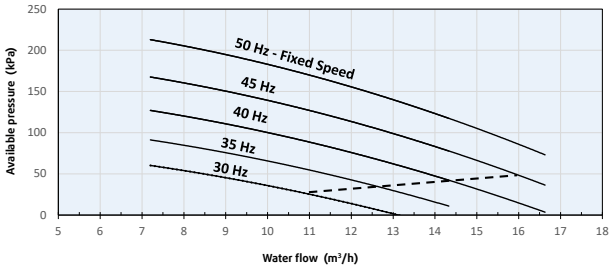
ECOi-W AQUA-Z 150 - 170 - Standard pressure pump

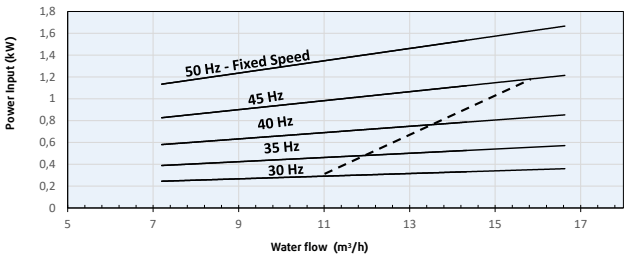




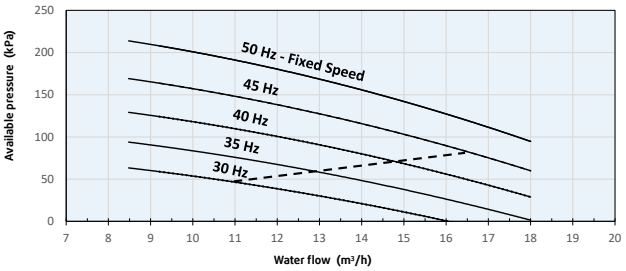
Water Pump Curves

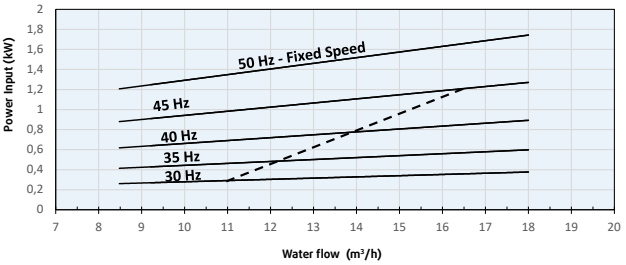
ECOi-W AQUA-Z 50 - 60 - High pressure pump



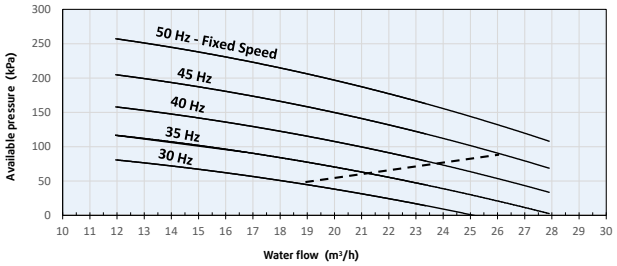


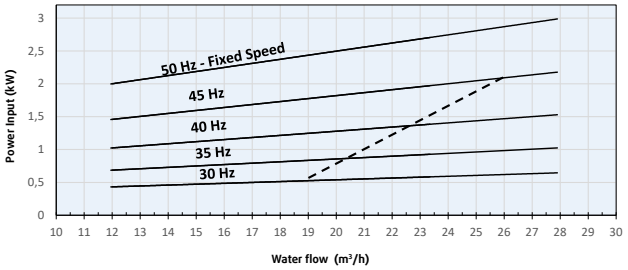
ECOi-W AQUA-Z 70 - 75 - High pressure pump



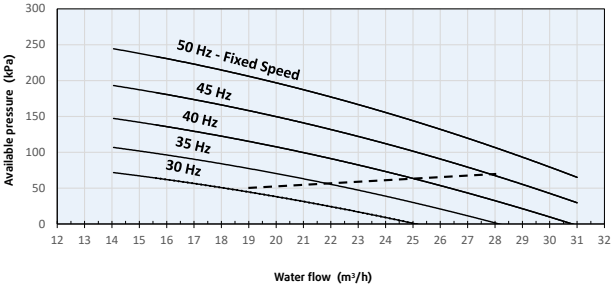


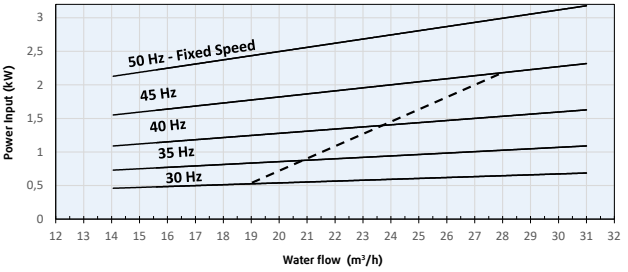
ECOi-W AQUA-Z 85 - 100 - High pressure pump



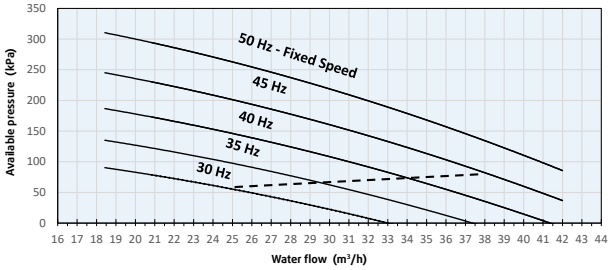


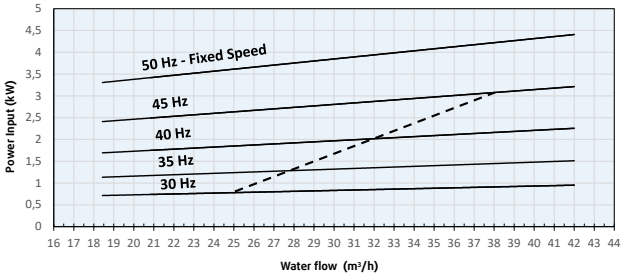
ECOi-W AQUA-Z 115 - 130 - High pressure pump





ECOi-W AQUA-Z 150 - 170 - High pressure pump





Weight

			50	60	70	75	85	100	115	130	150	170
Without pump		**kg**	527	547	621	637	701	731	813	815	1 265	1 279
Single pump	**Standard Pressure**	**kg**	+31	+31	+33	+33	+41	+41	+44	+44	+68	+68
	High Pressure	**kg**	+34	+34	+34	+34	+44	+44	+44	+44	+77	+77
Double pump	**Standard Pressure**	**kg**	+44	+44	+44	+44	+63	+63	+71	+71	+115	+115
	High Pressure	**Kg**	+51	+51	+47	+47	+70	+70	+74	+74	+133	+133
Fans	**EC**	**kg**	+12	+12	+25	+25	+25	+25	+25	+25	+37	+37
	HPF	**Kg**	+20	+20	+33	+33	+33	+33	+33	+33	+45	+45
S version		**kg**	+21	+21	+21	+21	+21	+21	+21	+21	+25	+25
Desuperheater		**kg**	+12	+12	+12	+12	+12	+12	+12	+12	+12	+12
Buffer tank	**without electrical heater**	**kg**	+115*	+115*	+115*	+115*	+115*	+115*	+115*	+115*	+50*	+50*
	with electrical heater	**kg**	+120*	+120*	+120*	+120*	+121*	+121*	+121*	+121*	+56*	+56*

Note: The values are indicative. Actual data are indicated on the unit label.

* including extra metal frame.

Dimensions (mm)

ECOi-W AQUA-Z 50-60 - AC FANS

