Databook

Code: CSS 10.13

Air Cooled chiller with scroll compressors

EWAT~B

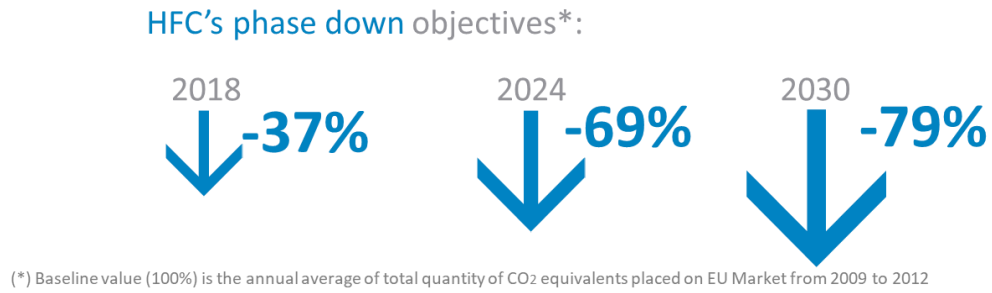
- Nominal capacity range 81 - 701 kW
- 2 efficiency levels
- 3 sound configuration
- Full packaged solution
- R32 refrigerant

Performance according to EN14511.

www.eurovent-certification.com

Low operating cost.
The new Daikin *BLUEVOLUTION* chiller series (EWAT-B) is the result of careful design aimed to optimize the energy efficiency and thus the total life cycle cost of the chiller, with reduced operating cost thanks to outstanding performances and reliability.
The chillers feature high efficiency scroll compressor arranged in tandem or trio configuration on each refrigerant circuit, optimized condensing section with advanced technology condensing fans and plates evaporator with low refrigerant content and reduced pressure drops.

Low environmental impact.
Latest revision of F-GAS, entered into force in 2015, set up a phase down program for traditional HFC's refrigerants. In 2018 first significant reduction step will be introduced (37%) and in 2030 the reduction (calculated in equivalent CO2 tons) will need to achieve almost 80%.



The new Daikin *BLUEVOLUTION* chillers uses R-32 refrigerant to reduce drastically the carbon footprint of the unit. The selection of R-32 (chemical name difluoromethane) minimises the global warming impact of scroll compressor chillers thanks to the lower Global Warming Potential in combination with high-energy efficiency.
The Global Warming Potential of R-32 is 675, which is only one third of the commonly used refrigerant R-410A.

Thanks to the lower flammability classification (R-32 refrigerant is classified A2L in ISO817), it can be safely used in many applications including chilled water systems. Being a single component refrigerant, R-32 is also easier to recycle and reuse, that is another environmental plus in its favour.

Daikin has a long history of continuous reduction of the environmental impact of cooling, heating and refrigeration, having a unique expertise that comes from manufacturing both refrigerants and equipment. This position is one of the results of company's corporate philosophy to "Be a Company that Leads in Applying Environmentally Friendly Practices".

Regarding refrigerant choice, Daikin has expertise in using fluorinated (HFC, HFO) as well as non-fluorinated gases (ammonia, carbon dioxide, hydrocarbons), because the company believes in diversity of refrigerant choice to allow the best suited solution to be used in each application.

Range overview.
EWAT-B is available with:
- 2 different layouts: Single-V coil and Multi-V coils.
- 2 Efficiency levels: Gold (high efficiency) and Silver (standard efficiency).
- One or Two independent refrigerant circuits.

Circuit	Efficiency level	Layout: Single V	Layout: Multi V
Single	Silver	81-217 kW	238-341 kW
	Gold	81-183 kW	238-350 kW
Twin	Silver	158-212 kW	240-663 kW
	Gold		178-701 kW

- 3 noise versions: Standard, Low and Reduced each one carefully designed to meet the acoustic requirements of the installation site.

Layout	SINGLE V 			MULTI V 		
Sound Version	**Compressor Acoustic enclosure**	**Fan speed**	**Avg sound power reduction**	**Compressor Acoustic enclosure**	**Fan speed**	**Avg sound power reduction**
Standard	Not insulated	Standard	-	-	Standard	-
Low	Insulated	Standard	-1,5dB(A)	Insulated	Standard	-3,0dB(A)
Reduced	Insulated	Reduced	-6,5dB(A)	Insulated	VFD Reduced	-8,5dB(A)

Outstanding reliability.
The chillers have one or two truly independent refrigerant circuits with two or three compressors, to assure maximum safety for any maintenance, whether planned or not.

Condensation control.
Single-V units are standardly equipped with continuous fan speed modulation (phase cut) to ensure precise airflow control and optimized condensing temperature. Multi-V units are equipped with fan speed modulation (VFD) on request (standard on reduced noise units).

Fan silent mode.
Units equipped with fan modulation are standardly supplied with fan silent mode. This feature allows the user to set up detailed time bands to reduced fan rotation speed and therefore sound emission in those areas where night quietness is a mandatory requirement (approximately -4dB(A) – detailed values are available on CSS selection software)

Superior control logic.
The MicroTech III controller provides an easy to use control environment. The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide history of unit operation. Easy interface with LonWorks, Bacnet, Ethernet TCP/IP or Modbus communications. Master/Slave operation is provided as standard allowing to connect up to 4 units working as single system.

Dynamic Condensing Pressure Management.
Superior software logic has been developed to get the highest efficiency at whichever operating condition: thanks to the Dynamic Condensing Pressure Management the chiller controller adjusts the condensing pressure set-point to minimize the overall chiller power input.

Code requirements – Safety and observant of laws/directives
Units are designed and manufactured in accordance to the following directives and harmonized standards:

Low voltage directive	DIRECTIVE 2014/35/EU
Electromagnetic compatibility (EMC)	DIRECTIVE 2014/30/EU
Machinery directive	DIRECTIVE 2006/42/EC
Pressure equipment desing	DIRECTIVE 2014/68/EU
Ecodesing	DIRECTIVE 2009/125/EC
Safety of machinery	EN 60204-1
EMC - Part 6-2	EN 61000-6-2
EMC - Part 6-3	EN 61000-6-3
Safety and environmental requirements	EN 378-1; EN 378-2; EN 378-4
Methods for calculation pressure relief devices.	EN 13136

Certifications.
Units are CE marked, complying with European directives in force, concerning manufacturing and safety. On request units can be produced complying with laws in force in non-European countries (ASME, GOST, etc.), and with other applications.

Compressors
Hermetic orbiting scroll type optimized for R-32 operation and complete with motor over-temperature and over-current protection devices. Each compressor is equipped with an oil heater that keeps the oil from being diluted by the refrigerant when the chiller is not running. The compressors are connected in Tandem or Trio configuration on each refrigerant circuit. Each compressor is mounted on rubber antivibration mounts for a quite operation. Unit is delivered with complete oil charge.

Evaporator
The unit is equipped with a direct expansion plate-to-plate type evaporator optimized for R-32 refrigerant operation. This heat exchanger is made of stainless steel brazed plates and is covered with 10mm closed cell insulation material. The exchanger is equipped with an electric heater for protection against freezing and evaporator water connections are provided with victaulic kit (as standard). The evaporator is manufactured in accordance to 2014/68/EU. The evaporator flow switch and the evaporator water filter are available as option (shipped loose). Note the installation of an evaporator flow switch and an evaporator water filter is mandatory.

Condenser
The condenser is made entirely of aluminum and it is optimized for R-32 refrigerant operation. Full-depth louvered aluminum fins are inserted between the aluminum tubes maximizing the heat exchange.
The Microchannel technology ensures the highest performance with the minimum surface for the exchanger. This technology reduces unit refrigerant charge compared to traditional copper tubes and aluminum condenser.
Special treatment ensure resistance to the corrosion by atmospheric agents extending the lifetime.
Note: applications in industrial, costal, highly polluted urban environment or combinations of them, require proper evaluation to understand if additional measures are needed to protect the condenser coil from the aggressive environment.

Condenser fans
Condenser fans are propeller type with high efficiency design blades to maximize performances. The blades are made of glass-reinforced resin and a guard protects each fan.
Single-V units are equipped as standard with fan speed modulation (phase cut).
Multi-V units (standard and low sound versions) are equipped with on/off fans and inverter drive is available as an option. Multi-V units reduced noise versions are equipped with inverter driven fans as standard.

Electronic expansion valve
The unit is equipped with electronic expansion valves to achieve precise control of R-32 refrigerant mass flow. As today's systems require improved energy efficiency, accurate temperature control, wide range of operating conditions, the application of electronic expansion valves becomes mandatory.
Electronic expansion valves has unique features: short opening and closing time, high resolution, positive shut-off function to eliminate use of additional solenoid valve, continuous modulation of mass flow without stress in the refrigerant circuit and corrosion resistance stainless steel body.
If compared to traditional thermostatic valves, electronic expansion valves allow the system to work with low condenser pressure (winter time) without any refrigerant flow problems and the perfect control of the chilled water temperature.

Refrigerant circuit
Each unit has one or two independent refrigerant circuits and each one includes:

- Compressor
- Refrigerant
- Evaporator
- Air Cooled Condenser
- Electronic expansion valve
- Sight glass with moisture indicator
- Filter drier
- Charging valves
- High pressure switch
- High pressure transducers
- Low pressure transducers
- Oil pressure transducer
- Suction temperature sensor

Electrical panel
Power and control are in the main panel that is manufactured to ensure protection against all weather conditions. The electrical panel is IP54 and (when opening the doors) internally protected against possible

accidental contact with live parts. The main panel is fitted with a main switch interlocked door that shuts off power supply when opening.

MicroTech III controller

Units are equipped with MicroTech III advanced controller that can be used to modify unit set-points and check control parameters. Regulation type is proportional integral derivative regulation on the evaporator leaving water temperature.
A built-in display shows chiller operating status, temperatures and pressures of water, refrigerant and air, programmable values and set-points.

A sophisticated software with predictive logic, selects the most energy efficient combination of compressors, EEXV and condenser fans to keep stable operating conditions to maximize chiller energy efficiency and reliability. MicroTech III is able to protect critical components based on external signals (such as motor temperatures, refrigerant gas and oil pressures, correct phase sequence, pressure switches and evaporator flow switch).

Control section - main features

Main control features are (for more information refer to Unit Control Manual):

- 164x44 dots liquid crystal display with white back lighting
- Optimized management of compressors.
- Display of evaporator entering/leaving water temperatures.
- Display of Ambient Temperature
- Display of refrigerant condensing/evaporating temperatures and pressures.
- Regulation of leaving evaporator water temperature.
- Display of compressor working hours and number of compressor starts.
- Re-start in case of power failure (automatic or manual depending on failure type).
- Soft load (optimized management of the compressor load during the start-up).
- Set point reset.
- Master/Slave operation (up to 4 chillers connected).
- Variable Primary Flow Management (available as option)

Alarms signaling (for more information refer to Unit Control Manual):

- Phase loss.
- Evaporator water flow loss.
- Evaporator water freezing protection.
- External alarm.
- Low evaporator refrigerant pressure.
- High refrigerant pressure (transducer).
- High refrigerant pressure (switch).
- High refrigerant discharge temperature.
- High oil pressure differential.
- High motor temperature.
- Low ambient temperature lock-out.
- Freeze protection.

Supervising systems (on request)

MicroTech III remote communication

MicroTech III is able to communicate to BMS (Building Management System) based on the most common protocols as:

- ModbusRTU (Native)
- LonWorks, now also based on the international 8040 Standard Chiller Profile and LonMark Technology.
- BacNet BTP certifief over IP and MS/TP (class 4) (Native).

Ethernet TCP/IP (Native).

Additional information related to F-GAS Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006

Unit Model	Refrigerant type	Refrigerant GWP	N° of circuits	Refrigerant charge Circuit 1 [kg]	Refrigerant charge Circuit 1 [tCO2Eq]	Refrigerant charge Circuit 2 [kg]	Refrigerant charge Circuit 2 [tCO2Eq]
EWAT085B-SSA1	R32	675	1	10	7	-	-
EWAT115B-SSA1	R32	675	1	11	7	-	-
EWAT135B-SSA1	R32	675	1	13	8	-	-
EWAT175B-SSA1	R32	675	1	14	9	-	-
EWAT215B-SSA1	R32	675	1	17	11	-	-
EWAT290B-SSA1	R32	675	1	36	24	-	-
EWAT340B-SSA1	R32	675	1	50	34	-	-
EWAT155B-SSA2	R32	675	2	8	5	8	5
EWAT195B-SSA2	R32	675	2	9	6	10	6
EWAT205B-SSA2	R32	675	2	9	6	9	6
EWAT240B-SSA2	R32	675	2	18	12	19	12
EWAT260B-SSA2	R32	675	2	19	13	19	13
EWAT310B-SSA2	R32	675	2	20	14	22	15
EWAT330B-SSA2	R32	675	2	21	14	23	15
EWAT350B-SSA2	R32	675	2	21	14	23	16
EWAT420B-SSA2	R32	675	2	28	19	30	20
EWAT460B-SSA2	R32	675	2	28	19	30	20
EWAT510B-SSA2	R32	675	2	29	20	31	21
EWAT570B-SSA2	R32	675	2	31	21	31	21
EWAT610B-SSA2	R32	675	2	39	26	42	28
EWAT670B-SSA2	R32	675	2	45	30	45	30

Unit Model	Refrigerant type	Refrigerant GWP	N° of circuits	Refrigerant charge Circuit 1 [kg]	Refrigerant charge Circuit 1 [tCO2Eq]	Refrigerant charge Circuit 2 [kg]	Refrigerant charge Circuit 2 [tCO2Eq]
EWAT085B-XSA1	R32	675	1	11	7	-	-
EWAT115B-XSA1	R32	675	1	13	8	-	-
EWAT145B-XSA1	R32	675	1	15	10	-	-
EWAT185B-XSA1	R32	675	1	16	11	-	-
EWAT230B-XSA1	R32	675	1	30	20	-	-
EWAT300B-XSA1	R32	675	1	36	24	-	-
EWAT360B-XSA1	R32	675	1	50	34	-	-
EWAT180B-XSA2	R32	675	2	15	10	15	10
EWAT200B-XSA2	R32	675	2	18	12	19	12
EWAT220B-XSA2	R32	675	2	19	12	19	12
EWAT250B-XSA2	R32	675	2	21	14	22	15
EWAT280B-XSA2	R32	675	2	24	16	25	17
EWAT310B-XSA2	R32	675	2	24	16	26	18
EWAT320B-XSA2	R32	675	2	25	17	27	18
EWAT370B-XSA2	R32	675	2	28	19	30	20
EWAT430B-XSA2	R32	675	2	30	20	32	22
EWAT470B-XSA2	R32	675	2	35	24	35	24
EWAT540B-XSA2	R32	675	2	38	25	41	27
EWAT600B-XSA2	R32	675	2	40	27	40	27
EWAT660B-XSA2	R32	675	2	45	30	48	32
EWAT700B-XSA2	R32	675	2	50	34	50	34

Note: Equipment contains fluorinated greenhouse gases. Actual refrigerant charge depends on the final unit construction, details can be found on the unit labels.

Unit Model	Refrigerant type	Refrigerant GWP	N° of circuits	Refrigerant charge Circuit 1 [kg]	Refrigerant charge Circuit 1 [tCO2Eq]	Refrigerant charge Circuit 2 [kg]	Refrigerant charge Circuit 2 [tCO2Eq]
EWAT085B-SLA1	R32	675	1	10	7	-	-
EWAT115B-SLA1	R32	675	1	11	7	-	-
EWAT135B-SLA1	R32	675	1	13	8	-	-
EWAT175B-SLA1	R32	675	1	14	9	-	-
EWAT215B-SLA1	R32	675	1	17	11	-	-
EWAT290B-SLA1	R32	675	1	36	24	-	-
EWAT340B-SLA1	R32	675	1	50	34	-	-
EWAT155B-SLA2	R32	675	2	8	5	8	5
EWAT195B-SLA2	R32	675	2	9	6	10	6
EWAT205B-SLA2	R32	675	2	9	6	9	6
EWAT240B-SLA2	R32	675	2	18	12	19	12
EWAT260B-SLA2	R32	675	2	19	13	19	13
EWAT310B-SLA2	R32	675	2	20	14	22	15
EWAT330B-SLA2	R32	675	2	21	14	23	15
EWAT350B-SLA2	R32	675	2	21	14	23	16
EWAT420B-SLA2	R32	675	2	28	19	30	20
EWAT460B-SLA2	R32	675	2	28	19	30	20
EWAT510B-SLA2	R32	675	2	29	20	31	21
EWAT570B-SLA2	R32	675	2	31	21	31	21
EWAT610B-SLA2	R32	675	2	39	26	42	28
EWAT670B-SLA2	R32	675	2	45	30	45	30

Unit Model	Refrigerant type	Refrigerant GWP	N° of circuits	Refrigerant charge Circuit 1 [kg]	Refrigerant charge Circuit 1 [tCO2Eq]	Refrigerant charge Circuit 2 [kg]	Refrigerant charge Circuit 2 [tCO2Eq]
EWAT085B-XLA1	R32	675	1	11	7	-	-
EWAT115B-XLA1	R32	675	1	13	8	-	-
EWAT145B-XLA1	R32	675	1	15	10	-	-
EWAT185B-XLA1	R32	675	1	16	11	-	-
EWAT230B-XLA1	R32	675	1	30	20	-	-
EWAT300B-XLA1	R32	675	1	36	24	-	-
EWAT360B-XLA1	R32	675	1	50	34	-	-
EWAT180B-XLA2	R32	675	2	15	10	15	10
EWAT200B-XLA2	R32	675	2	18	12	19	12
EWAT220B-XLA2	R32	675	2	19	12	19	12
EWAT250B-XLA2	R32	675	2	21	14	22	15
EWAT280B-XLA2	R32	675	2	24	16	25	17
EWAT310B-XLA2	R32	675	2	24	16	26	18
EWAT320B-XLA2	R32	675	2	25	17	27	18
EWAT370B-XLA2	R32	675	2	28	19	30	20
EWAT430B-XLA2	R32	675	2	30	20	32	22
EWAT470B-XLA2	R32	675	2	35	24	35	24
EWAT540B-XLA2	R32	675	2	38	25	41	27
EWAT600B-XLA2	R32	675	2	40	27	40	27
EWAT660B-XLA2	R32	675	2	45	30	48	32
EWAT700B-XLA2	R32	675	2	50	34	50	34

Note: Equipment contains fluorinated greenhouse gases. Actual refrigerant charge depends on the final unit construction, details can be found on the unit labels.

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EWAT115B-SRA1	R32	675	1	11	7	-	-
EWAT135B-SRA1	R32	675	1	13	8	-	-
EWAT175B-SRA1	R32	675	1	14	9	-	-
EWAT215B-SRA1	R32	675	1	17	11	-	-
EWAT290B-SRA1	R32	675	1	36	24	-	-
EWAT340B-SRA1	R32	675	1	50	34	-	-
EWAT155B-SRA2	R32	675	2	8	5	8	5
EWAT195B-SRA2	R32	675	2	9	6	10	6
EWAT205B-SRA2	R32	675	2	9	6	9	6
EWAT240B-SRA2	R32	675	2	18	12	19	12
EWAT260B-SRA2	R32	675	2	19	13	19	13
EWAT310B-SRA2	R32	675	2	20	14	22	15
EWAT330B-SRA2	R32	675	2	21	14	23	15
EWAT350B-SRA2	R32	675	2	21	14	23	16
EWAT420B-SRA2	R32	675	2	28	19	30	20
EWAT460B-SRA2	R32	675	2	28	19	30	20
EWAT510B-SRA2	R32	675	2	29	20	31	21
EWAT570B-SRA2	R32	675	2	31	21	31	21
EWAT610B-SRA2	R32	675	2	39	26	42	28
EWAT670B-SRA2	R32	675	2	45	30	45	30

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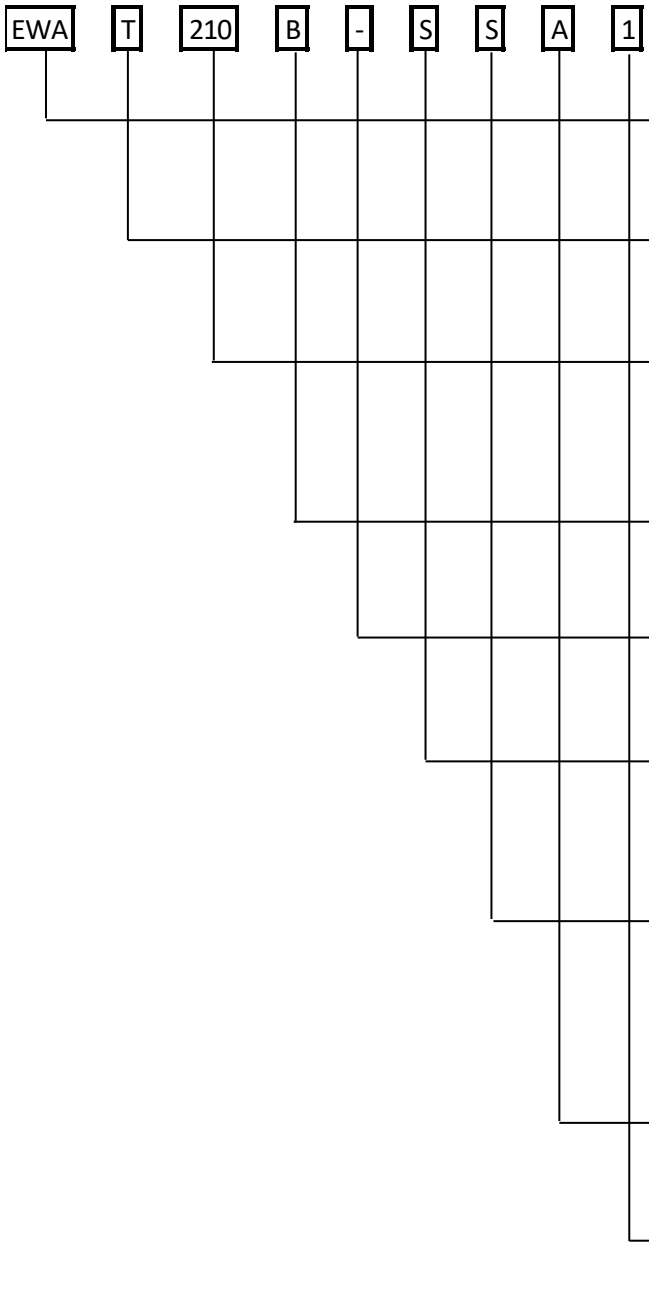
EWAT115B-XRA1	R32	675	1	13	8	-	-
EWAT145B-XRA1	R32	675	1	15	10	-	-
EWAT185B-XRA1	R32	675	1	16	11	-	-
EWAT230B-XRA1	R32	675	1	30	20	-	-
EWAT300B-XRA1	R32	675	1	36	24	-	-
EWAT360B-XRA1	R32	675	1	50	34	-	-
EWAT180B-XRA2	R32	675	2	15	10	15	10
EWAT200B-XRA2	R32	675	2	18	12	19	12
EWAT220B-XRA2	R32	675	2	19	12	19	12
EWAT250B-XRA2	R32	675	2	21	14	22	15
EWAT280B-XRA2	R32	675	2	24	16	25	17
EWAT310B-XRA2	R32	675	2	24	16	26	18
EWAT320B-XRA2	R32	675	2	25	17	27	18
EWAT370B-XRA2	R32	675	2	28	19	30	20
EWAT430B-XRA2	R32	675	2	30	20	32	22
EWAT470B-XRA2	R32	675	2	35	24	35	24
EWAT540B-XRA2	R32	675	2	38	25	41	27
EWAT600B-XRA2	R32	675	2	40	27	40	27
EWAT660B-XRA2	R32	675	2	45	30	48	32
EWAT700B-XRA2	R32	675	2	50	34	50	34

Note: Equipment contains fluorinated greenhouse gases. Actual refrigerant charge depends on the final unit construction, details can be found on the unit labels.

Nomenclature



Machine type
Cooling only

Refrigerant
R32

Capacity Class in kW (Cooling)
Always 3-digit code
Last capacity digit: "5" Single V, "0" Multi V

Model series
B

Inverter
Non Inverter

Efficiency level
S: Standard Efficiency
X: High Efficiency

Sound level
S: Standard Sound
L:Low Sound
R:Reduced Sound

Version
A

Number of circuits
1 or 2

Standard Options (supplied on basic units)

Double set point (opt. code 10 – provided as standard)
Possibility to pre-set two different chilled water temperature set points (cooling mode).

Evaporator Victaulic KIT (opt. code 20 – provided as standard)
It includes the victaulic joint and the counter pipe fitted with victaulic groove to be welded with the plant pipes - *Opt. incompatibility 21.*

Evaporator electric heater (opt. code 57 – provided as standard)

Electronic expansion valve (opt. code 60 – provided as standard)

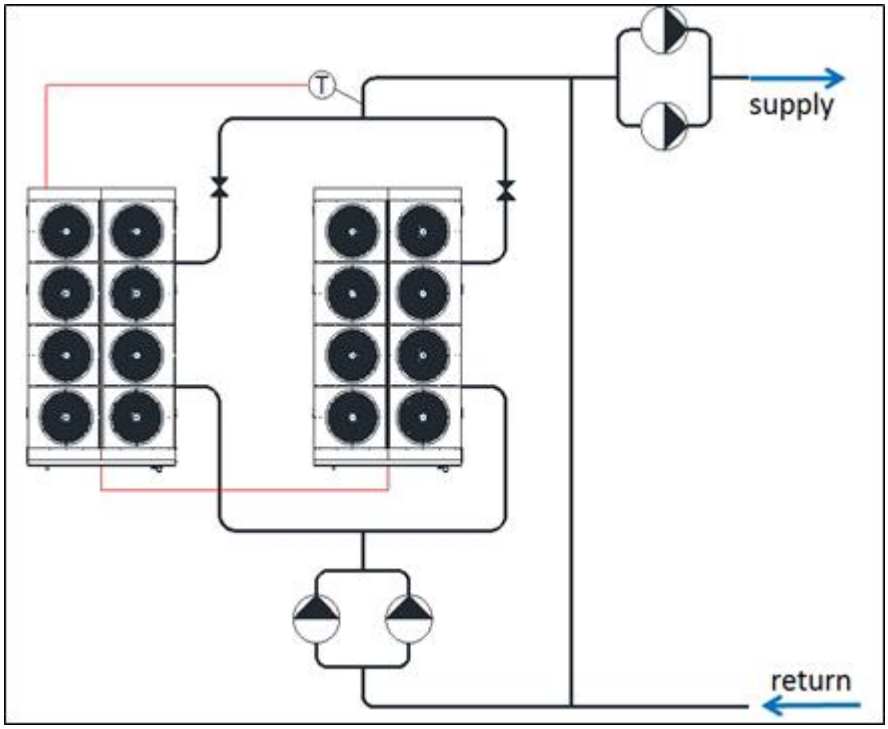
Ambient outside temperarue sensonr and set-point reset (opt. code 67 – provided as standard)
Setpoint Reset: The leaving water temperature set-point can be overwritten through an external 4- 20mA signal, through the ambient temperature, or through the evaporator water temperature ΔT.

Hour run meter (opt. code 68 – provided as standard)

General fault contactor (opt. code 69 – provided as standard)

Main switch interlock door (opt. code 97 – provided as standard)

Master / Slave (opt. code 128 – provided as standard)
The EWAT~B features the new DAIKIN Master/ Slave (M/S) control. Once set which unit has the role of master, the other(s) will operate as slave(s) based on the inputs provided by the master.
The chillers must be installed in parallel in the hydronic plant.



With Master/Slave control is possible to balance the working hours of the compressors enhancing reliability and extending the life of the system

In order to operate in Master/Slave mode an additional probe (PT1000 or NTC10K) must be installed on the common line of the plant and connected to the master unit. The additional probe is not provided by the factory. Master/Slave can manage units selected with pump on board (fix speed pumps). Note: check valves must be installed at the outlet of each chiller.
Master/Slave can also manage the start and stop of external pumps (not provided by factory). In this case, the power supply of external pumps is not provided by the unit.

Mechanical Options – On request

20mm evaporator insulation (opt. code 29)
The heat exchanger is fitted with 20mm closed cell insulation material - *Opt. incompatibility 08.*

Discharge line shut-off valve (opt. code 61– Multi-V units only)
Installed on the common discharge pipe of the compressors to facilitate maintenance operation (one discharge valve per refrigerant circuit).

Suction line shut-off valve (opt. code 62– Multi-V units only)
Installed on the common suction pipe of the compressors to facilitate maintenance operation (one suction valve per refrigerant circuit).

Discharge and Suction line shut-off valve (opt. code 126– Single-V units only)
Installed on the common discharge and suction pipes of the compressors to facilitate maintenance operation (one discharge and one suction valve per refrigerant circuit).

Alarm from external device (opt. code 70)
The unit controller is able to receive an external alarm signal. The user can decide whether this alarm signal will stop the unit or not.

Fans circuit breakers (opt. code 96)
Safety devices that, added to the standard protection devices, protect fan motors against overload and overcurrent.

Water filter (opt. code 115)
The water filter removes impurities from water by means of a fine physical barrier. It must be installed on the water pipe connceted to the heat exchanger inlet.
The filter is shipped loose together with two victaulic joints and two counter pipes to be welded on the plants.
NOTE: The installation of the filter is mandatory.

Total Heat Recovery (opt. code 01)
A plate to plate heat exchanger for each refrigerant circuit is installed in series to the condenser coil. There is no switch nor solenoid valve in the circuit, thus compressor discharged refrigerant is always flowing through the heat recovery exchanger and hot water production is always available while the chiller is providing cooling. During the operation in heat recover the condenser coils provides the sub-cooling ensuring the right amount of liquid at the inlet of the expansion valve. The unit controller manages the condensing temperature set point in order to maximize the cooling effect and amount of energy recovered.
The amount of heat recovered is about the **80/85%** (according to the operating conditions) of the total heat rejection of the chiller. The chiller performs the control on the recovery circuit, based on the return water temperature to the unit. Heat recovery capability is subject to cooling load demand (if no cooling demand is present then no heat recovery is available) - *Opt. incompatibility 03. Not available on the following models: EWAT085B-SSA1, EWAT085B-SLA1, and EWAT085B-SRA1.*

Partial Heat Recovery (opt. code 03)
A plate to plate heat exchanger for each refrigerant circuit is installed in series to the condenser coil. There is no switch nor solenoid valve in the circuit, thus compressor discharged refrigerant is always flowing through the heat recovery exchanger and hot water production is always available while the chiller is providing cooling. During the operation in heat recover the condenser coils provides the sub-cooling ensuring the right amount of liquid at the inlet of the expansion valve. The unit controller manages the condensing temperature set point in order to maximize the cooling effect and amount of energy recovered.
The amount of heat recovered is about the **15/20%** (according to the operating conditions) of the total heat rejection of the chiller. The chiller performs the control on the recovery circuit, based on the return water temperature to the unit. Heat recovery capability is subject to cooling load demand (if no cooling demand is present then no heat recovery is available) - *Opt. incompatibility 01. Not available on the following models: EWAT085B-SSA1, EWAT085B-SLA1, and EWAT085B-SRA1.*

Brine Version (opt. code 08) - *Opt. incompatibility 29-142*
For operation with temperature at the outlet of the evaporator below +4°C the unit must operate with glycol mixture (with ethylene or propylene glycol) and the Brine Version option must be selected. Brine version includes additional insulation on evaporator surfaces.

Evaporator flange kit (opt. code 21)
Opt. incompatibility 20.

High pressure side manometers (opt. code 63 – Mult-V units only)

Low pressure side manometers (opt. code 64 – Multi-V units only)

High and Low pressure side manometers (opt. code 127 – Single-V units only)

Double pressure relief valve with diverter (opt. code 91)

Hydronic kits:

- **One centrifugal pump (Low lift) (opt. code 78)**
- **One centrifugal pump (high lift) (opt. code 79)**
- **Two centrifugal pump (Low lift) (opt. code 80)**
- **Two centrifugal pump (high lift) (opt. code 81)**
- **One centrifugal pump (Low lift) + water tank (opt. code 134)**
- **One centrifugal pump (high lift) + water tank (opt. code 135)**
- **Two centrifugal pump (Low lift) + water tank (opt. code 136)**
- **Two centrifugal pump (high lift) + water tank (opt. code 137)**

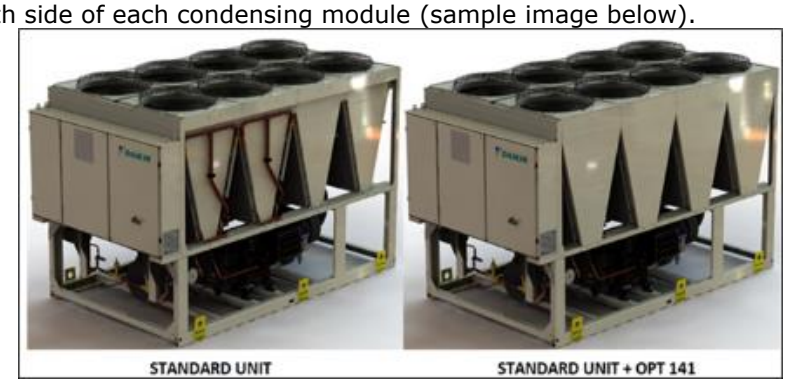
Unit mounted hydronic kits are available with single and dual pumps.
The Low lift kits provides an average available head of 100 kPa at chiller standard conditions. The High lift kits provides an average available head of 200 kPa at chiller standard conditions.
The kit is completed with pressure gauge, safety valve, drain valve. The motor pump is protected by a circuit breaker installed in control panel. Pump motors are insulation class F, IP55 protected and supplied by the unit with 400V/3ph/50Hz electric current. The kit is assembled and wired to the control panel. The pipe and pump are protected from freezing with an additional electrical heater.
In case of unit equipped with hydronic kit on board selected to operate with glycol mixture, contact factory.
Water buffer tank volume (if selected), depends on unit model size – detailed informations available on section "Options (technical data)" of this databook.

Refrigerant leak detection (opt. code 121 - Available only on units with compressors' enclosure)
Automated permanent refrigerant leak detection system installed on board. The refrigerant sensors are installed within the compressor enclosures and are specifically calibrated for R-32 refrigerant. When leaks above a certain concentration are detected, the sensor provides a signal to the unit controller (a specific alarm is visualized on the unit microprocessor). The automatic shut down and pump down of refrigerant into the condensing section occurs on the detection of refrigerant leakage. The alarm threshold that triggers automatic pump down upon detection of refrigerant is set to a maximum of 500ppm. Available only on units with compressors' enclosure.

E-coating microchannel coils (opt. code 139)
A protection a layer of an epoxy polymer is added on the surface of the exchanger. The process consists in the complete immersion of the exchanger in the epoxy polymer solution. An electric voltage applied to the exchanger causes a difference with the electrical charge of the polymer molecules that, as result, are drawn to the metal. The thickness of the coating is controlled by the applied voltage. The result is a uniform layer of epoxy polymers applied all over the exchanger surface. A final UV top-coat treatment is applied on the coil surface. The treatment is recommended in all application where high risk of corrosion exist (eg: high pollutted urban, costal, industrial environments and their combinations). *Opt. incompatibility 153.*

Unit guards (to cover unit access) (opt. code 140)
Wire mesh that cover the access around the unit

Side panels on coil ends (opt. code 141 – Multi-V units only)
Protection panel on both side of each condensing module (sample image below).



Blue coat (opt. code 153 – Multi V units only)
An epoxy powder is sprayed and electrostatically fixed to the coil. Once the surface is completely covered by the epoxy material, the coil is sent in to a furnace for the drying and curing phase. The result is a uniform and durable

coating that enhance the resistance to the corrosion. The treatment is recommended in all application where moderate risk of corrosion exist (eg: urban, costal, industrial environments) - *Opt. incompatibility 139.*

Electrical options – On request

Compressor thermal overload relays (opt. code 11 – Multi V units only)
Available on Multi V units only. - *Opt. incompatibility 95.*

Under over voltage control (opt. code 15)
Electronic device that monitors and displays input voltage. It stops the chiller in case of phase loss, wrong phase sequence, or voltage exceeding minimum and maximum allowed values.

Energy meter (opt. code 16 – Multi V units only)
Device installed inside the control box that displays chillers' electrical power parameters such as input line voltage and phase current, input active and reactive power, active and reactive energy. An integrated RS485 module allows a Modbus communication to an external BMS.

Speedtrol (opt. code 42 – Multi V units only) - *Opt. incompatibility 99-142a-161.*
Continuous fan speed regulation on the first fan (VFD driven) of each circuit. It allows unit operation down to -18ºC (available for standard and low sound version).

Evaporator flow switch (opt. code 58)
Supplied separately to be wired and installed on the evaporator water piping (by the customer). The installation of the flow switch in mandatory.

Compressors circuit breakers (opt. code 95)
Safety devices that include in a single device all safety functions otherwise provided by standard fuses and optional thermal relays, such as protection against overcurrent, overload, current unbalance **-** *Opt. incompatibility 11.*

Fans speed regulation +fans silent mode (opt. code 99)
Fans speed regulation: continuous modulation of the fans' speed for optimal condensation control at low ambient temperatures.
Fans silent mode: This feature allows the user to set up customized time bands to reduced fans' speed rotation and therefore sound emission in those areas where quiet is a mandatory requirement during specific time of the day (e.g. night operation).
Note: option 99 is standard on Single V units (phase cut).
Note: option 99 is standard on Multi V units reduced sound (inverter).

Ground fault relay (opt. code 102 – Multi V units only)
To shut down the unit in case of a ground fault condition is detected.

Inverter kit for pumps:
- **INVERTER KIT FOR 1 CENTR PUMP LOW LIFT (opt. code 120e)**
- **INVERTER KIT FOR 1 CENTR PUMP HIGH LIFT (opt. code 120f)**
- **INVERTER KIT FOR 2 CENTR PUMP LOW LIFT (opt. code 120g)**
- **INVERTER KIT FOR 2 CENTR PUMP HIGH LIFT (opt. code 120h)**

the Inverter kit must be associated with the corresponding hydronic kit (opt.code 78/79/80/81). It is standardly not compatibile with kit pump + water tank. Contact factory to evaluate feasibility.

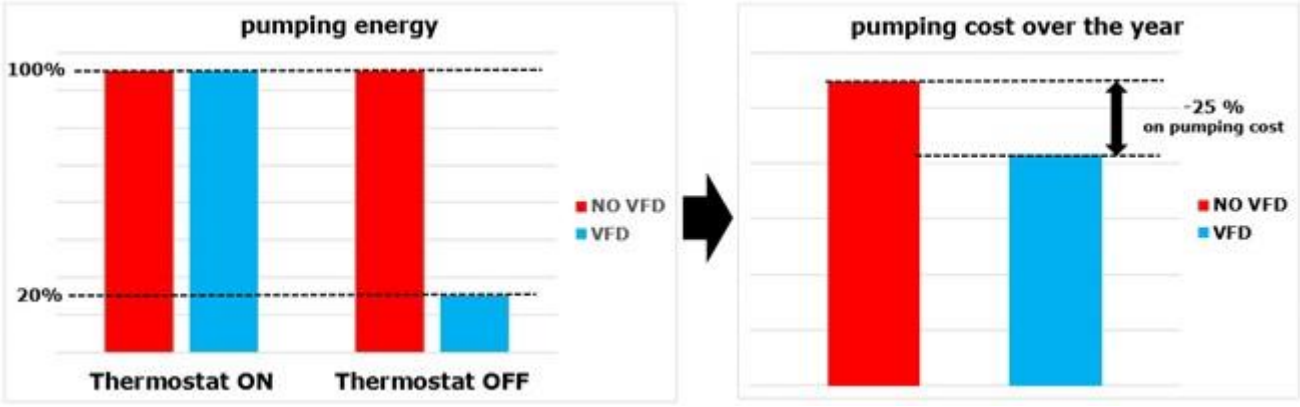
The inverter kit can be used for the following purposes:

- **Adjusting the water flow rate during unit commissioning.**

- Control the pump speed via external input from Building Management System (BMS)
For this application a 0-10V signal for the pump speed must be provided from the plant manager according to the specific control strategy of the plant. The water must be within the minimum and maximum value allowed for the unit (refer to the "Operating limit" chapter). The change in water flow rate must not be exceed more than 10% of the design water flow rate per minute.

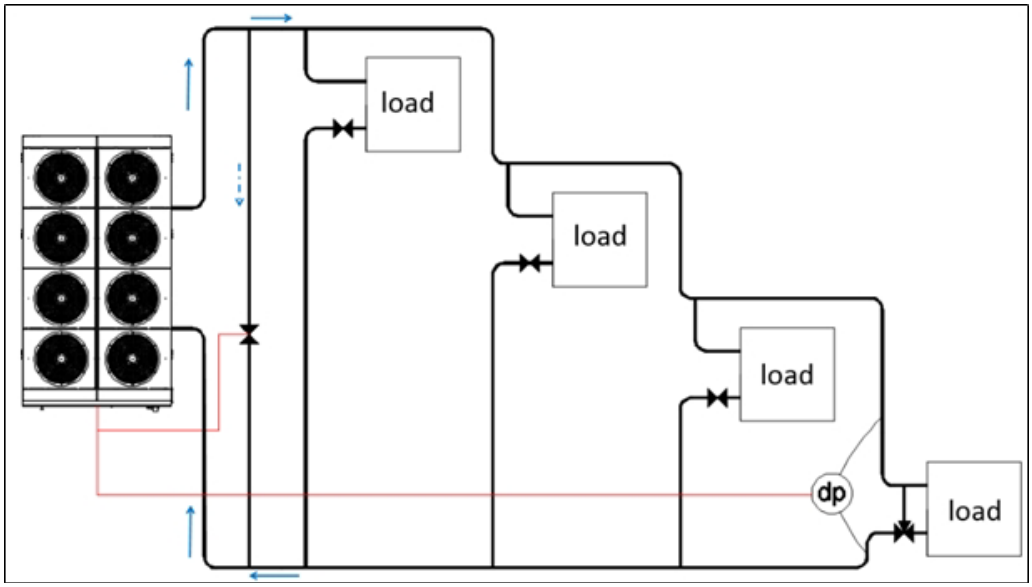
- **Set a "thermostat off" pump speed**. Providing the unit with the inverter kit for the on-board pump is possible to manage two different water flow settings. A setting for water flow during the "Thermostat ON" mode (when the chiller is actually providing cooling to the plant), and a set for the "thermostat off" mode (when the plant load is satisfied and the compressors are waiting to start). This feature allows to achieve energy saving on plant operating cost by reducing the speed of the pumps when the chiller has reached the set point.

Thanks to the saving on pumping cost, the payback time for the Inverter Kit is approximately one year.



High ambient kit (opt. code 142A) - *Opt. incompatibility 99-42-161.*
The high ambient kit allows to increase the maximum operating ambient temeperature. Check the unit operating envelope for more information.

Variable Primary Flow (opt. code 143)
By selecting opt. 143 the chiller can manage the Variable Primary water flow according to the differential pressure measured in a specific point of the plant, selected by the plant designer. The differential pressure transducer, is available as option from the factory (opt. code 144). Once installed, the differential pressure transducer must be connected to the unit. As an alternative the unit controller can receive directly the differential pressure value from an external BMS communicating with the standards communications protocols (eg. MODBUS).



A bypass line (field supply) needs to be installed which guarantees that at all times the minimum water flow of the chiller is supplied (refer to the "Operating limit" chapter for indication on minimum water flow). The bypass valve will be an ON/OFF normally closed valve controlled by the chiller. In case the minimum water flow allowed is not reached, the chiller will open the bypass line restoring the water flow above the minimum value.

In case of multiple units installations in a primary only plant, to control the pump speed iCM is required. Master/Slave function does not support primary only chilled water systems with variable flow operation.

Hydronic options summarizing table

	Fixed speed	Variable speed pump (for "thermostat off" pump speed function or to be controlled with external BMS)	Variable Primary Flow management
ONE CENTRIFUGAL PUMP (LOW LIFT)	Opt 78	Opt 78 + Opt 120e	Opt 78 + Opt 120e + Opt 143
ONE CENTRIFUGAL PUMP (HIGH LIFT)	Opt 79	Opt 79 + Opt 120f	Opt 79 + Opt 120f + Opt 143
TWO CENTRIFUGAL PUMP (LOW LIFT)	Opt 80	Opt 80 + Opt 120g	Opt 80 + Opt 120g + Opt 143
TWO CENTRIFUGAL PUMP (HIGH LIFT)	Opt 81	Opt 81 + Opt 120h	Opt. 81 + Opt 120h + Opt 143

Note: opt.143 can be used only for units installed in a primary only plant to be controlled according to VPF strategy. In case of multiple units installations in a primary only plant, to control the pump speed iCM is required. Master/Slave function does not support primary only chilled water systems with variable flow operation.

Differential Pressure Transducers - shipped loose - (opt. code 144).

Daikin on site modem with antenna (opt. code 155)
Whenever LAN connection to the unit will not be available, connecting the unit to Daikin on Site will be possible through a dedicated 3G M2M modem that can be ordered from Factory. When ordered, the modem will be installed on the unit before leaving the Factory.

100 PA ESP fans (opt. code 160 – Single V units only).
Special fans providing 100 Pa ESP. Unit power consumption is increasing.

200 PA ESP fans (opt. code 161 – Multi V units only) – *option incompatibility 99-42-142a.*
Special fans providing 100 Pa ESP. Unit power consumption is increasing.

Installation options – On request

Rubber anti vibration mounts (opt. code 75) - *option incompatibility 77.*
Shipped loos, rubbe mounts are to be positioned under the base frame of the unit during installation. Ideal to reduce the vibrations when the unit is floor mounted.

Spring anti vibration mounts (opt. code 77) - *option incompatibility 75.*
Shipped loos, spring mounts are to be positioned under the base frame of the unit during installation. Ideal for dampening vibrations for installation on roofs and metallic structures.

External tank without cabinet – 500 L (opt. code 83)
Inertial tank for chilled water storage **-** *option incompatibility 84-87-88.*

External tank without cabinet – 1000 L (opt. code 84)
Inertial tank for chilled water storage **-** *option incompatibility 83-87-88.*

External tank with cabinet – 500 L (opt. code 87)
Inertial tank for chilled water storage with cabinet **-** *option incompatibility 83-84-88.*

External tank with cabinet – 1000 L (opt. code 88)
Inertial tank for chilled water storage with cabinet **-** *option incompatibility 83-84-87.*

Other options – On request

Container kit (opt. code 71)
Specific solution designed to facilitate loading/unloading of the unit into the container and to reduce risk of damage. **-** *option incompatibility 112.*

Transport kit (opt. code 112)
Specific solution that offers shocks' absorption during unit transportation. **-** *option incompatibility 71.*

EWAT~B-SS/L

MODEL		EWAT085B -SS(L)A1	EWAT115B -SS(L)A1	EWAT135B -SS(L)A1	EWAT155B -SS(L)A2	EWAT175B -SS(L)A1	EWAT195B -SS(L)A2
COOLING PERFORMANCE							
Capacity - Cooling	kW	81	109	131	158	175	191
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	23	21	31	25	31	21
Unit power input - Cooling	kW	31.7	38.5	49.4	62.1	67.5	69.4
EER		2.55	2.82	2.66	2.54	2.59	2.75
ESEER		-	-	-	-	-	-
ESEER (+opt FANMOD(5))		3.96	4.03	3.86	3.83	4.09	4.00
IPLV		-	-	-	-	-	-
IPLV (+opt FANMOD(5))		4.68	4.97	4.48	4.67	4.81	4.80
SEER(1)		-	-	-	-	-	-
SEER (+opt FANMOD(5)) (1)		3.80	4.12	3.80	3.80	4.15	3.85
DIMENSIONS							
Height	mm	1801	1801	1801	1822	1801	1822
Width	mm	1204	1204	1204	1204	1204	1204
Length	mm	2120	2660	2660	3570	3180	4170
WEIGHT							
Unit Weight (SL Version)	kg	679 (689)	763 (773)	810 (820)	1005 (1026)	983 (993)	1164 (1085)
Operating Weight (SL Version)	kg	686 (696)	773 (783)	820 (830)	1014 (1035)	996 (1006)	1177 (1198)
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	5	6	9	7	12	11
Water flow rate	l/s	3.9	5.2	6.3	7.6	8.4	9.1
Water pressure drop(4)	kPa	27	34	27	64	42	46
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		Phase cut	Phase cut	Phase cut	Phase cut	Phase cut	Phase cut
Diameter	mm	450	450	450	450	450	450
Nominal air flow	l/s	6022	9036	9036	13354	12023	16710
Quantity	No.	4	6	6	8	8	10
Speed	rpm	1360	1360	1360	1360	1360	1360
Motor input	kW	1.8	2.7	2.7	3.6	3.6	4.5
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	6.5	7.7	8.9	13.0	10.7	14.1
Quantity	No.	2	2	2	4	2	4
SOUND LEVEL (3)							
Sound Power - Cooling (SL Version)	dB(A)	85 (84)	88 (86)	90 (87)	88 (87)	92 (89)	90 (88)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	67.4 (66.3)	70.5 (68.5)	72.0 (69.3)	69.5 (68.4)	73.8 (70.7)	71.3 (69.5)
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	10	11	12.5	15	14	18
N. of circuits	No.	1	1	1	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	76.1	76.1	76.1	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(47) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99 – VFD fans

Eurovent certified values

EWAT~B-SS/L

MODEL		EWAT205B -SS(L)A1	EWAT215- BSS(L)A1	EWAT240B -SS(L)A1	EWAT260B -SS(L)A2	EWAT290B -SS(L)A1	EWAT310B -SS(L)A2
COOLING PERFORMANCE							
Capacity - Cooling	kW	210	217	240	259	282	306
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	19	50	16.7	25	23.8	13.6
Unit power input - Cooling	kW	79.8	85.3	85.7	95.7	108	112
EER		2.63	2.54	2.81	2.71	2.60	2.71
ESEER		-	-	3.94	3.76	3.99	4.02
ESEER (+opt FANMOD(5))		3.94	3.85	4,00	3.86	4.09	4.09
IPLV		-	-	4.66	4.51	4.76	4.67
IPLV (+opt FANMOD(5))		4.87	4.51	4.77	4.61	4.88	4.85
SEER(1)		-	-	4.21	3.96	4.23	4.26
SEER (+opt FANMOD(5)) (1)		4.28	4.32	4.30	4.04	4.33	4.35
DIMENSIONS							
Height	mm	1822	1822	2540	2540	2540	2540
Width	mm	1204	1204	2236	2236	2236	2236
Length	mm	4170	3780	2326	2326	2326	3226
WEIGHT							
Unit Weight (SL Version)	kg	1156 (1177)	1181 (1191)	1660 (1815)	1688 (1843)	1853 (1935)	2096 (2251)
Operating Weight (SL Version)	kg	1169 (1190)	1200 (1210)	1668 (1822)	1694 (1849)	1869 (1951)	2114 (2268)
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	11	16	11	11	16	19
Water flow rate	l/s	10.1	10.4	11.5	12.4	13.5	14.6
Water pressure drop(4)	kPa	54	41	69	80	66	46
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		Mch	Mch	MCH	MCH	MCH	MCH
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		Phase cut	Phase cut	On-off	On-off	On-off	On-off
Diameter	mm	450	450	800	800	800	800
Nominal air flow	l/s	16710	15057	20306	20306	20306	25382
Quantity	No.	10	10	4	4	4	5
Speed	rpm	1360	1360	900	900	900	900
Motor input	kW	4.5	4.5	7.2	7.2	7.2	9.0
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	15.3	12.6	16.5	17.7	17.0	19.1
Quantity	No.	4	2	4	4	3	4
SOUND LEVEL (3)							
Sound Power - Cooling (SL Version)	dB(A)	91 (89)	93 (90)	93 (91)	94 (91)	94 (91)	94 (92)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	72.3 (70.1)	74.8 (71.6)	74.3 (71.8)	74.8 (71.8)	75.8 (72)	75.4 (72.3)
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	18	17	36	38	36	42
N. of circuits	No.	2	1	2	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99 – VFD fans

Eurovent certified values

EWAT~B-SS/L

MODEL		EWAT330B -SS(L)A2	EWAT340B -SS(L)A1	EWAT350B -SS(L)A2	EWAT420B -SS(L)A2	EWAT460B -SS(L)A2	EWAT510B -SS(L)A2
COOLING PERFORMANCE							
Capacity - Cooling	kW	329	342	349	415	466	511
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	12.5	33.3	19.2	17.2	14.7	13.5
Unit power input - Cooling	kW	122	118	132	142	171	187
EER		2.69	2.89	2.64	2.92	2.71	2.73
ESEER		3.97	4.06	3.91	4.09	4,00	3.97
ESEER (+opt FANMOD(5))		4.01	4.21	3.98	4.14	4.13	4.06
IPLV		4.65	4.77	4.58	4.77	4.75	4.71
IPLV (+opt FANMOD(5))		4.73	4.98	4.71	4.89	4.92	4.81
SEER(1)		4.26	4.32	4.11	4.44	4.35	4.38
SEER (+opt FANMOD(5)) (1)		4.35	4.50	4.17	4.51	4.46	4.49
DIMENSIONS							
Height	mm	2540	2540	2540	2540	2540	2540
Width	mm	2236	2236	2236	2236	2236	2236
Length	mm	3226	3226	3226	4126	4126	4126
WEIGHT							
Unit Weight (SL Version)	kg	2123 (2277)	2247 (2330)	2150 (2304)	2600 (2754)	2756 (2921)	2913 (3078)
Operating Weight (SL Version)	kg	2141 (2296)	2268 (2350)	2169 (2324)	2630 (2784)	2789 (2954)	2946 (3111)
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	19	20	19	28	28	28
Water flow rate	l/s	15.7	16.4	16.7	19.9	22.3	24.5
Water pressure drop(4)	kPa	53	77	59	55	67	80
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		MCH	MCH	MCH	MCH	MCH	MCH
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		On-off	On-off	On-off	On-off	On-off	On-off
Diameter	mm	800	800	800	800	800	800
Nominal air flow	l/s	25382	30459	25382	35535	35535	40612
Quantity	No.	5	6	5	7	7	8
Speed	rpm	900	900	900	900	900	900
Motor input	kW	9.0	10.8	9.0	12.6	12.6	14.3
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	20.2	18.9	21.4	23.3	27.7	29.6
Quantity	No.	4	3	4	4	5	5
SOUND LEVEL (3)							
Sound Power - Cooling (SL Version)	dB(A)	95 (92)	96 (93)	96 (92)	97 (93)	97 (93)	98 (94)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	75.8 (72.4)	76.6 (73.2)	76.1 (72.4)	76.7 (73.3)	77.0 (73.4)	77.6 (74)
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	43	50	44	57	58	60
N. of circuits	No.	2	1	2	2	2	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	88.9	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-SS/L

MODEL		EWAT570B -SS(L)A2	EWAT610B -SS(L)A2	EWAT670B -SS(L)A2
COOLING PERFORMANCE				
Capacity - Cooling	kW	564	609	665
Capacity control - Type		Step	Step	Step
Capacity control - Minimum capacity	%	11.9	11.1	16.7
Unit power input - Cooling	kW	216	230	240
EER		2.61	2.64	2.76
ESEER		4.03	4.01	3.98
ESEER (+opt FANMOD(5))		4.03	4.08	4.11
IPLV		4.74	4.71	4.73
IPLV (+opt FANMOD(5))		4.82	4.81	4.96
SEER(1)		4.32	4.36	4.36
SEER (+opt FANMOD(5)) (1)		4.41	4.42	4.51
DIMENSIONS				
Height	mm	2540	2540	2540
Width	mm	2236	2236	2236
Length	mm	4126	5025	5874
WEIGHT				
Unit Weight (SL Version)	kg	3148 (3312)	3554 (3718)	3888 (4053)
Operating Weight (SL Version)	kg	3195 (3360)	3597 (3762)	3924 (4089)
WATER HEAT EXCHANGER				
Type (2)		PHE	PHE	PHE
Water Volume	l	42	42	42
Water flow rate	l/s	27.0	29.2	31.9
Water pressure drop(4)	kPa	65	75	88
Insulation material		Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER				
Type (2)		MCH	MCH	MCH
FAN				
Type (2)		DPT	DPT	DPT
Drive (2)		On-off	On-off	On-off
Diameter	mm	800	800	800
Nominal air flow	l/s	40612	45688	55841
Quantity	No.	8	9	11
Speed	rpm	900	900	900
Motor input	kW	14.3	16.1	19.7
COMPRESSOR				
Type		Scroll	Scroll	Scroll
Oil charge	l	34.0	35.9	37.8
Quantity	No.	6	6	6
SOUND LEVEL (3)				
Sound Power - Cooling (SL Version)	dB(A)	98 (94)	98 (95)	99 (95)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	77.9 (74)	77.9 (74.1)	78.2 (74.6)
REFRIGERANT CIRCUIT				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	62	80	90
N. of circuits	No.	2	2	2
PIPING CONNECTIONS				
Evaporator water inlet/outlet	mm	114.3	114.3	114.3

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.
(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-SR

MODEL		EWAT085B -SRA1	EWAT115B -SRA1	EWAT135B -SRA1	EWAT155B -SRA2	EWAT175B -SRA1	EWAT195B -SRA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	76	105	124	150	165	181
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	23	21	31	25	31	21
Unit power input - Cooling	kW	33.6	40.3	52.5	66.0	72.1	73.2
EER		2.27	2.60	2.35	2.27	2.28	2.47
ESEER (+opt FANMOD [5])		3.95	4.07	3.90	3.81	4.10	3.88
IPLV (+opt FANMOD [5])		4.67	4.97	4.50	4.63	4.74	4.62
SEER (+opt FANMOD [5]) [1]		3.80	4.11	3.80	3.80	4.07	3.90
DIMENSIONS							
Height	mm	1801	1801	1801	1822	1801	1822
Width	mm	1204	1204	1204	1204	1204	1204
Length	mm	2120	2660	2660	3570	3180	4170
WEIGHT							
Unit Weight	kg	689	773	820	1026	993	1185
Operating Weight	kg	696	783	830	1035	1006	1198
WATER HEAT EXCHANGER							
Type [2]		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	5	6	9	7	12	11
Water flow rate	l/s	3.7	5.0	5.9	7.2	7.9	8.7
Water pressure drop [4]	kPa	24.6	32.2	23.8	58.5	37.5	41.6
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type [2]		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type [2]		DPT	DPT	DPT	DPT	DPT	DPT
Drive [2]		Phase cut	Phase cut	Phase cut	Phase cut	Phase cut	Phase cut
Diameter	mm	450	450	450	450	450	450
Nominal air flow	l/s	4929	7396	7396	11352	9838	14202
Quantity	No.	4	6	6	8	8	10
Speed	rpm	1200	1200	1200	1200	1200	1200
Motor input	kW	1.4	2.2	2.2	2.9	2.9	3.6
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	6.5	7.7	8.9	13.0	10.7	14.1
Quantity	No.	2	2	2	4	2	4
SOUND LEVEL [3]							
Sound Power - Cooling	dB(A)	79	83	84	82	86	84
Sound Pressure level@1m distance Cooling	dB(A)	61.2	64.7	66.4	63.3	68.3	65.3
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	10	11	12.5	15	14	18
N. of circuits	No.	1	1	1	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	76.1	76.1	76.1	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99 – VFD fans

Eurovent certified values

EWAT~B-SR

MODEL		EWAT205B -SRA2	EWAT215B -SRA1	EWAT240B -SRA2	EWAT260B -SRA2	EWAT290B -SRA1	EWAT310B -SRA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	200	203	230	248	266	290
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	19	50	17	25	24	14
Unit power input - Cooling	kW	84.7	91.4	89.1	100	115	119
EER		2.36	2.22	2.59	2.47	2.30	2.43
ESEER (+opt FANMOD (5))		3.97	3.73	3.98	4.09	4.12	4.05
IPLV (+opt FANMOD (5))		4.72	4.36	4.88	4.38	4.84	4.83
SEER (+opt FANMOD (5)) (1)		3.92	3.82	4.29	4.01	4.26	4.20
DIMENSIONS							
Height	mm	1822	1822	2540	2540	2540	2540
Width	mm	1204	1204	2236	2236	2236	2236
Length	mm	4170	3780	2326	2326	2326	3226
WEIGHT							
Unit Weight	kg	1177	1191	1815	1843	1935	2251
Operating Weight	kg	1190	1210	1822	1849	1951	2268
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	11	16	11	11	16	19
Water flow rate	l/s	9.6	9.7	11.0	11.9	12.7	13.9
Water pressure drop (4)	kPa	49.9	36.8	64.5	73.5	59.9	42.1
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		Phase cut	Phase cut	VFD fans	VFD fans	VFD fans	VFD fans
Diameter	mm	450	450	800	800	800	800
Nominal air flow	l/s	14202	12325	17064	17064	17064	21330
Quantity	No.	10	10	4	4	4	5
Speed	rpm	1200	1200	780	780	780	780
Motor input	kW	3.6	3.6	4.7	4.7	4.7	5.9
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	15.3	12.6	16.5	17.7	17.0	19.1
Quantity	No.	4	2	4	4	3	4
SOUND LEVEL (3)							
Sound Power - Cooling	dB(A)	85	88	85	85	86	86
Sound Pressure level@1m distance Cooling	dB(A)	66.6	69.4	66.0	66.2	66.7	66.8
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	18	17	36	38	36	42
N. of circuits	No.	2	1	2	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-SR

MODEL		EWAT330B -SRA2	EWAT340B -SRA1	EWAT350B -SRA2	EWAT420B -SRA2	EWAT460B -SRA2	EWAT510B -SRA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	311	328	330	397	442	486
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	13	33	19	17	15	14
Unit power input - Cooling	kW	129	122	140	147	181	197
EER		2.40	2.68	2.35	2.69	2.44	2.47
ESEER (+opt FANMOD [5])		3.96	4.20	3.97	4.09	4.13	4.02
IPLV (+opt FANMOD [5])		4.72	5.01	4.70	4.81	4.86	4.75
SEER (+opt FANMOD [5]) [1]		4.26	4.40	4.04	4.42	4.35	4.41
DIMENSIONS							
Height	mm	2540	2540	2540	2540	2540	2540
Width	mm	2236	2236	2236	2236	2236	2236
Length	mm	3226	3226	3226	4126	4126	4126
WEIGHT							
Unit Weight	kg	2277	2330	2304	2754	2921	3078
Operating Weight	kg	2296	2350	2324	2784	2954	3111
WATER HEAT EXCHANGER							
Type [2]		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	19	20	19	28	28	28
Water flow rate	l/s	14.9	15.7	15.8	19.0	21.2	23.3
Water pressure drop [4]	kPa	47.8	71.7	53.2	50.4	61.1	72.7
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type [2]		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type [2]		DPT	DPT	DPT	DPT	DPT	DPT
Drive [2]		VFD fans	VFD fans	VFD fans	VFD fans	VFD fans	VFD fans
Diameter	mm	800	800	800	800	800	800
Nominal air flow	l/s	21330	25596	21330	29862	29862	34128
Quantity	No.	5	6	5	7	7	8
Speed	rpm	780	780	780	780	780	780
Motor input	kW	5.9	7.1	5.9	8.2	8.2	9.4
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	20.2	18.9	21.4	23.3	27.7	29.6
Quantity	No.	4	3	4	4	5	5
SOUND LEVEL [3]							
Sound Power - Cooling	dB(A)	86	87	87	88	88	89
Sound Pressure level@1m distance Cooling	dB(A)	66.9	67.7	67.1	67.9	68.0	68.6
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	43	50	44	57	58	60
N. of circuits	No.	2	1	2	2	2	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	88.9	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-SR

MODEL		EWAT570B-SRA2	EWAT610B-SRA2	EWAT670B-SRA2
COOLING PERFORMANCE				
Capacity - Cooling	kW	532	577	635
Capacity control - Type		Step	Step	Step
Capacity control - Minimum capacity	%	12	11	17
Unit power input - Cooling	kW	230	244	251
EER		2.31	2.35	2.52
ESEER (+opt FANMOD [5])		4.13	4.01	4.10
IPLV (+opt FANMOD [5])		4.84	4.84	4.89
SEER (+opt FANMOD [5]) [1]		4.30	4.37	4.41
DIMENSIONS				
Height	mm	2540	2540	2540
Width	mm	2236	2236	2236
Length	mm	4126	5025	5874
WEIGHT				
Unit Weight	kg	3312	3718	4053
Operating Weight	kg	3360	3762	4089
WATER HEAT EXCHANGER				
Type [2]		PHE	PHE	PHE
Water Volume	l	42	42	42
Water flow rate	l/s	25.5	27.6	30.4
Water pressure drop [4]	kPa	58.9	68.0	81.0
Insulation material		Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER				
Type [2]		Mch	Mch	Mch
FAN				
Type [2]		DPT	DPT	DPT
Drive [2]		VFD fans	VFD fans	VFD fans
Diameter	mm	800	800	800
Nominal air flow	l/s	34128	38394	46926
Quantity	No.	8	9	11
Speed	rpm	780	780	780
Motor input	kW	9.4	10.6	12.9
COMPRESSOR				
Type		Scroll	Scroll	Scroll
Oil charge	l	34.0	35.9	37.8
Quantity	No.	6	6	6
SOUND LEVEL [3]				
Sound Power - Cooling	dB(A)	89	89	90
Sound Pressure level@1m distance Cooling	dB(A)	68.8	68.8	69.2
REFRIGERANT CIRCUIT				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	62	80	90
N. of circuits	No.	2	2	2
PIPING CONNECTIONS				
Evaporator water inlet/outlet	mm	114.3	114.3	114.3

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XS/L

MODEL		EWAT085B -XSA1	EWAT115B -XSA1	EWAT145B -XSA1	EWAT180B -XSA2	EWAT185B -XSA1	EWAT200B -XSA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	88	114	143	179	182	200
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	23	21	31	25	31	21.4
Unit power input - Cooling	kW	28.8	36.5	44.3	57.6	63.3	66.7
EER		3.04	3.11	3.24	3.10	2.88	3.01
ESEER		-	-	-	4.02	-	4.01
ESEER (+opt FANMOD(5))		4.07	4.23	4.19	4.30	4.05	4.13
IPLV		-	-	-	4.65	-	4.67
IPLV (+opt FANMOD(5))		4.89	4.87	4.83	5.11	4.89	5.05
SEER(1)		-	-	-	4.11	-	4.18
SEER (+opt FANMOD(5)) (1)		3.96	4.37	4.21	4.29	4.31	4.35
DIMENSIONS							
Height	mm	1801	1801	1822	2540	1822	2540
Width	mm	1204	1204	1204	2236	1204	2236
Length	mm	2660	3180	3780	2326	3780	2326
WEIGHT							
Unit Weight (SL Version)	kg	733 (744)	826 (837)	951 (961)	1577 (1732)	1062 (1072)	1609 (1763)
Operating Weight (SL Version)	kg	742 (752)	836 (846)	958 (968)	1588 (1743)	1078 (1088)	1618 (1773)
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	5	6	9	11	12	11
Water flow rate	l/s	4.2	5.4	6.9	8.6	8.7	9.6
Water pressure drop(4)	kPa	31.6	37.3	31.0	40.7	45.1	50.1
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		Mch	Mch	Mch	MCH	Mch	MCH
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		Phase cut	Phase cut	Phase cut	On-off	Phase cut	On-off
Diameter	mm	450	450	450	800	450	800
Nominal air flow	l/s	9036	12023	15057	20306	15057	20306
Quantity	No.	6	8	10	4	10	4
Speed	rpm	1360	1360	1360	900	1360	900
Motor input	kW	2.7	3.6	4.5	7.2	4.6	7.2
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	6.5	7.7	8.9	13.0	10.7	14.1
Quantity	No.	2	2	2	4	2	4
SOUND LEVEL (3)							
Sound Power - Cooling (SL Version)	dB(A)	86 (85)	89 (87)	91 (89)	91 (91)	92 (89)	92 (91)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	68.3 (67.5)	70.8 (69.1)	72.3 (70.1)	72.3 (71.6)	73.7 (70.9)	73.1 (71.7)
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	10.5	12.5	15	30	16	36
N. of circuits	No.	1	1	1	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	76.1	76.1	76.1	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XS/L

MODEL		EWAT220B -XSA2	EWAT230B -XSA1	EWAT250B -XSA2	EWAT280B -XSA2	EWAT300B -XSA1	EWAT310B -XSA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	226	238	254	281	304	304
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	18.8	50	16.7	15.8	23.8	14.3
Unit power input - Cooling	kW	75.9	76.1	82.8	89.1	99.7	98.4
EER		2.97	3.13	3.07	3.15	3.05	3.10
ESEER		4.06	4.10	4.03	4.15	4.14	4.13
ESEER (+opt FANMOD(5))		4.19	4.23	4.21	4.23	4.32	4.18
IPLV		4.72	4.71	4.68	4.78	4.8	4.77
IPLV (+opt FANMOD(5))		5.01	4.92	4.97	5.04	5.09	4.92
SEER(1)		4.25	-	4.27	4.40	4.34	4.42
SEER (+opt FANMOD(5)) (1)		4.40	4.21	4.44	4.58	4.68	4.56
DIMENSIONS							
Height	mm	2540	2540	2540	2540	2540	2540
Width	mm	2236	2236	2236	2236	2236	2236
Length	mm	2326	3226	3226	3226	3226	3226
WEIGHT							
Unit Weight (SL Version)	kg	1636 (1790)	1915 (1977)	1899 (2054)	2037 (2192)	2130 (2212)	2065 (2220)
Operating Weight (SL Version)	kg	1646 (1801)	1935 (1997)	1912 (2066)	2055 (2209)	2152 (2234)	2087 (2241)
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	11	16	14	19	20	19
Water flow rate	l/s	10.8	11.4	12.2	13.4	14.5	14.6
Water pressure drop(4)	kPa	43.7	49.2	54.2	39.8	62.2	46.1
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		MCH	MCH	MCH	MCH	MCH	MCH
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		On-off	On-off	On-off	On-off	On-off	On-off
Diameter	mm	800	800	800	800	800	800
Nominal air flow	l/s	20306	25382	25382	30459	30459	30459
Quantity	No.	4	5	5	6	6	6
Speed	rpm	900	900	900	900	900	900
Motor input	kW	7.2	9.0	9.0	10.8	10.8	10.8
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	15.3	12.6	16.5	17.2	17.0	18.4
Quantity	No.	4	2	4	4	3	4
SOUND LEVEL (3)							
Sound Power - Cooling (SL Version)	dB(A)	93 (91)	95 (92)	94 (92)	95 (93)	96 (93)	95 (93)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	73.7 (71.7)	75.3 (72.3)	74.3 (72.2)	75.1 (73)	76.1 (73.1)	75.5 (73)
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	37	30	42	48	36	50
N. of circuits	No.	2	1	2	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XS/L

MODEL		EWAT320B -XSA2	EWAT360B -XSA1	EWAT370B -XSA2	EWAT430B -XSA2	EWAT470B -XSA2	EWAT540B -XSA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	325	350	370	424	470	537
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	21.7	33.3	19.2	17.2	25	13.5
Unit power input - Cooling	kW	108	115	123	139	155	177
EER		3.00	3.04	3.00	3.04	3.04	3.02
ESEER		4.12	4.08	4.03	4.12	4.09	4.06
ESEER (+opt FANMOD(5))		4.22	4.25	4.15	4.17	4.20	4.30
IPLV		4.68	4.8	4.7	4.78	4.77	4.76
IPLV (+opt FANMOD(5))		4.86	4.94	4.96	4.94	4.99	5.01
SEER(1)		4.36	4.37	4.35	4.47	4.36	4.42
SEER (+opt FANMOD(5)) (1)		4.42	4.60	4.45	4.58	4.45	4.67
DIMENSIONS							
Height	mm	2540	2540	2540	2540	2540	2540
Width	mm	2236	2236	2236	2236	2236	2236
Length	mm	3226	4126	4126	4126	5025	5025
WEIGHT							
Unit Weight (SL Version)	kg	2093 (2247)	2508 (2590)	2472 (2627)	2656 (2811)	3072 (3237)	3293 (3458)
Operating Weight (SL Version)	kg	2123 (2277)	2532 (2614)	2501 (2655)	2693 (2848)	3103 (3268)	3332 (3497)
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	19	20	20	28	28	42
Water flow rate	l/s	15.6	16.8	17.7	20.3	22.5	25.7
Water pressure drop(4)	kPa	51.9	80.6	65.7	56.6	68.5	59.7
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		MCH	MCH	MCH	MCH	MCH	MCH
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		On-off	On-off	On-off	On-off	On-off	On-off
Diameter	mm	800	800	800	800	800	800
Nominal air flow	l/s	30459	35535	35535	40612	45688	50765
Quantity	No.	6	7	7	8	9	10
Speed	rpm	900	900	900	900	900	900
Motor input	kW	10.8	12.6	12.6	14.3	16.1	17.9
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	19.6	18.9	21.4	23.3	25.2	29.6
Quantity	No.	4	3	4	4	4	5
SOUND LEVEL (3)							
Sound Power - Cooling (SL Version)	dB(A)	95 (93)	96 (93)	96 (93)	97 (94)	98 (94)	98 (95)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	75.9 (73.1)	76.4 (73.3)	76.3 (73.3)	77.0 (73.9)	77.2 (74)	77.6 (74.4)
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	52	50	58	62	70	78
N. of circuits	No.	2	1	2	2	2	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	88.9	114.3

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XS/L

MODEL		EWAT600B -XSA2	EWAT660B -XSA2	EWAT700B -XSA2
COOLING PERFORMANCE				
Capacity - Cooling	kW	607	660	701
Capacity control - Type		Step	Step	Step
Capacity control - Minimum capacity	%	11.9	11.1	16.7
Unit power input - Cooling	kW	198	214	231
EER		3.05	3.08	3.03
ESEER		4.08	4.12	4.05
ESEER (+opt FANMOD(5))		4.25	4.33	4.27
IPLV		4.78	4.82	4.75
IPLV (+opt FANMOD(5))		5.03	5.10	5.08
SEER(1)		4.42	4.47	4.46
SEER (+opt FANMOD(5)) (1)		4.68	4.72	4.74
DIMENSIONS				
Height	mm	2540	2540	2540
Width	mm	2236	2236	2236
Length	mm	5874	6774	6774
WEIGHT				
Unit Weight (SL Version)	kg	3708 (3873)	4083 (4248)	4231 (4396)
Operating Weight (SL Version)	kg	3751 (3916)	4125 (4290)	4267 (4432)
WATER HEAT EXCHANGER				
Type (2)		PHE	PHE	PHE
Water Volume	l	42	50	50
Water flow rate	l/s	29.1	31.6	33.6
Water pressure drop(4)	kPa	74.6	70.2	78.5
Insulation material		Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER				
Type (2)		MCH	MCH	MCH
FAN				
Type (2)		DPT	DPT	DPT
Drive (2)		On-off	On-off	On-off
Diameter	mm	800	800	800
Nominal air flow	l/s	60918	65994	71071
Quantity	No.	12	13	14
Speed	rpm	900	900	900
Motor input	kW	21.5	23.3	25.1
COMPRESSOR				
Type		Scroll	Scroll	Scroll
Oil charge	l	34.0	35.9	37.8
Quantity	No.	6	6	6
SOUND LEVEL (3)				
Sound Power - Cooling (SL Version)	dB(A)	99 (96)	99.0 (96)	99 (96)
Sound Pressure level@1m distance Cooling (SL Version)	dB(A)	77.8 (74.8)	77.9 (74.8)	78.3 (75.2)
REFRIGERANT CIRCUIT				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	80	92	100
N. of circuits	No.	2	2	2
PIPING CONNECTIONS				
Evaporator water inlet/outlet	mm	114.3	114.3	114.3

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

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Eurovent certified values

EWAT~B-XR

MODEL		EWAT085B -XRA1	EWAT115B -XRA1	EWAT145B -XRA1	EWAT180B -XRA2	EWAT185B -XRA1	EWAT200B -XRA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	82	108	135	168	166	187
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	23	21	31	25	31	21
Unit power input - Cooling	kW	30.8	38.7	46.8	59.5	69.4	70.5
EER		2.65	2.80	2.89	2.82	2.39	2.66
ESEER (+opt FANMOD [5])		4.02	4.18	4.08	4.24	4.04	4.21
IPLV (+opt FANMOD [5])		4.74	5.10	4.76	5.00	4.78	5.00
SEER (+opt FANMOD [5]) [1]		3.84	4.24	4.08	4.17	4.08	4.24
DIMENSIONS							
Height	mm	1801	1801	1822	2540	1822	2540
Width	mm	1204	1204	1204	2236	1204	2236
Length	mm	2660	3180	3780	2326	3780	2326
WEIGHT		744	837	961	1732	1072	1763
Unit Weight	kg	1177	1191	1815	1843	1935	2251
Operating Weight	kg	752	846	968	1743	1088	1773
WATER HEAT EXCHANGER							
Type [2]		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	5	6	9	11	12	11
Water flow rate	l/s	3.9	5.2	6.5	8.0	7.9	9.0
Water pressure drop [4]	kPa	27.8	34.2	28.0	36.3	38.0	44.2
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type [2]		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type [2]		DPT	DPT	DPT	DPT	DPT	DPT
Drive [2]		Phase cut	Phase cut	Phase cut	VFD fans	Phase cut	VFD fans
Diameter	mm	450	450	450	800	450	800
Nominal air flow	l/s	6673	8896	11122	15054	11122	15054
Quantity	No.	6	8	10	4	10	4
Speed	rpm	1108	1108	1108	700	1108	700
Motor input	kW	2.1	2.8	3.5	3.6	3.5	3.6
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	6.5	7.7	8.9	13.0	10.7	14.1
Quantity	No.	2	2	2	4	2	4
SOUND LEVEL [3]							
Sound Power - Cooling	dB(A)	78	82	84	84	86	85
Sound Pressure level@1m distance Cooling	dB(A)	60.2	63.9	65.6	65.3	67.7	65.5
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	10.5	12.5	15	30	16	36
N. of circuits	No.	1	1	1	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	76.1	76.1	76.1	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XR

MODEL		EWAT220B -XRA2	EWAT230B -XRA1	EWAT250B -XRA2	EWAT280B -XRA2	EWAT300B -XRA1	EWAT310B -XRA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	208	224	238	264	284	284
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	19	50	17	16	24	14
Unit power input - Cooling	kW	81.7	79.7	87.3	92.7	105	103
EER		2.55	2.81	2.73	2.85	2.69	2.73
ESEER (+opt FANMOD [5])		4.17	4.16	4.15	4.34	4.31	4.12
IPLV (+opt FANMOD [5])		5.05	4.82	4.93	5.09	5.15	5.02
SEER (+opt FANMOD [5]) [1]		4.24	4.20	4.36	4.49	4.59	4.44
DIMENSIONS							
Height	mm	2540	2540	2540	2540	2540	2540
Width	mm	2236	2236	2236	2236	2236	2236
Length	mm	2326	3226	3226	3226	3226	3226
WEIGHT							
Unit Weight	kg	1790	1977	2054	2192	2212	2220
Operating Weight	kg	1801	1997	2066	2209	2234	2241
WATER HEAT EXCHANGER							
Type [2]		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	11	16	14	19	20	19
Water flow rate	l/s	10.0	10.7	11.4	12.6	13.6	13.6
Water pressure drop [4]	kPa	37.7	44.0	48.2	35.6	55.1	40.6
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type [2]		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type [2]		DPT	DPT	DPT	DPT	DPT	DPT
Drive [2]		VFD fans	VFD fans	VFD fans	VFD fans	VFD fans	VFD fans
Diameter	mm	800	800	800	800	800	800
Nominal air flow	l/s	15054	18819	18818	22582	22582	22582
Quantity	No.	4	5	5	6	6	6
Speed	rpm	700	700	700	700	700	700
Motor input	kW	3.6	4.4	4.4	5.3	5.3	5.3
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	15.3	12.6	16.5	17.2	17.0	18.4
Quantity	No.	4	2	4	4	3	4
SOUND LEVEL [3]							
Sound Power - Cooling	dB(A)	85	86	86	87	87	87
Sound Pressure level@1m distance Cooling	dB(A)	65.8	66.7	66.3	67.1	67.5	67.2
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	37	30	42	48	36	50
N. of circuits	No.	2	1	2	2	1	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	76.1	88.9

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XR

MODEL		EWAT320B -XRA2	EWAT360B -XRA1	EWAT370B -XRA2	EWAT430B -XRA2	EWAT470B -XRA2	EWAT540B -XRA2
COOLING PERFORMANCE							
Capacity - Cooling	kW	301	328	345	393	438	500
Capacity control - Type		Step	Step	Step	Step	Step	Step
Capacity control - Minimum capacity	%	22	33	19	17	25	14
Unit power input - Cooling	kW	116	121	131	148	165	190
EER		2.59	2.69	2.62	2.64	2.65	2.63
ESEER (+opt FANMOD (5))		4.04	4.24	4.15	4.15	4.12	4.20
IPLV (+opt FANMOD (5))		4.72	5.05	4.90	4.86	4.82	4.91
SEER (+opt FANMOD (5)) (1)		4.24	4.45	4.32	4.47	4.26	4.54
DIMENSIONS							
Height	mm	2540	2540	2540	2540	2540	2540
Width	mm	2236	2236	2236	2236	2236	2236
Length	mm	3226	4126	4126	4126	5025	5025
WEIGHT							
Unit Weight	kg	2247	2590	2627	2811	3237	3458
Operating Weight	kg	2277	2614	2655	2848	3268	3497
WATER HEAT EXCHANGER							
Type (2)		PHE	PHE	PHE	PHE	PHE	PHE
Water Volume	l	19	20	20	28	28	42
Water flow rate	l/s	14.4	15.7	16.5	18.8	21.0	23.9
Water pressure drop (4)	kPa	45.1	71.4	57.9	49.5	60.2	52.5
Insulation material		Closed cell	Closed cell	Closed cell	Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER							
Type (2)		Mch	Mch	Mch	Mch	Mch	Mch
FAN							
Type (2)		DPT	DPT	DPT	DPT	DPT	DPT
Drive (2)		VFD fans	VFD fans	VFD fans	VFD fans	VFD fans	VFD fans
Diameter	mm	800	800	800	800	800	800
Nominal air flow	l/s	22582	26346	26346	30110	33874	37637
Quantity	No.	6	7	7	8	9	10
Speed	rpm	700	700	700	700	700	700
Motor input	kW	5.3	6.2	6.2	7.1	8.0	8.9
COMPRESSOR							
Type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Oil charge	l	19.6	18.9	21.4	23.3	25.2	29.6
Quantity	No.	4	3	4	4	4	5
SOUND LEVEL (3)							
Sound Power - Cooling	dB(A)	87	88	88	88	89	89.
Sound Pressure level@1m distance Cooling	dB(A)	67.4	67.8	67.7	68.3	68.5	68.9
REFRIGERANT CIRCUIT							
Refrigerant type		R32	R32	R32	R32	R32	R32
Refrigerant charge	kg	52	50	58	62	70	78
N. of circuits	No.	2	1	2	2	2	2
PIPING CONNECTIONS							
Evaporator water inlet/outlet	mm	88.9	76.1	88.9	88.9	88.9	114.3

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-XR

MODEL		EWAT600B -XRA2	EWAT660B -XRA2	EWAT700B -XRA2
COOLING PERFORMANCE				
Capacity - Cooling	kW	569	619	657
Capacity control - Type		Step	Step	Step
Capacity control - Minimum capacity	%	12	11	17
Unit power input - Cooling	kW	209	226	245
EER		2.72	2.73	2.68
ESEER (+opt FANMOD [5])		4.21	4.25	4.23
IPLV (+opt FANMOD [5])		5.07	4.99	4.99
SEER (+opt FANMOD [5]) [1]		4.61	4.60	4.58
DIMENSIONS				
Height	mm	2540	2540	2540
Width	mm	2236	2236	2236
Length	mm	5874	6774	6774
WEIGHT				
Unit Weight	kg	3873	4248	4396
Operating Weight	kg	3916	4290	4432
WATER HEAT EXCHANGER				
Type [2]		PHE	PHE	PHE
Water Volume	l	42	50	50
Water flow rate	l/s	27.3	29.6	31.5
Water pressure drop [4]	kPa	66.5	62.6	69.7
Insulation material		Closed cell	Closed cell	Closed cell
AIR HEAT EXCHANGER				
Type [2]		Mch	Mch	Mch
FAN				
Type [2]		DPT	DPT	DPT
Drive [2]		VFD fans	VFD fans	VFD fans
Diameter	mm	800	800	800
Nominal air flow	l/s	45164	48928	52692
Quantity	No.	12	13	14
Speed	rpm	700	700	700
Motor input	kW	10.6	11.5	12.4
COMPRESSOR				
Type		Scroll	Scroll	Scroll
Oil charge	l	34.0	35.9	37.8
Quantity	No.	6	6	6
SOUND LEVEL [3]				
Sound Power - Cooling	dB(A)	90	90	91
Sound Pressure level@1m distance Cooling	dB(A)	69.2	69.3	69.6
REFRIGERANT CIRCUIT				
Refrigerant type		R32	R32	R32
Refrigerant charge	kg	80	92	100
N. of circuits	No.	2	2	2
PIPING CONNECTIONS				
Evaporator water inlet/outlet	mm	114.3	114.3	114.3

All the performances (Cooling capacity, unit power input in cooling and EER) are based on the following conditions: evaporator 12.0/7.0°C; ambient 35.0°C, unit at full load operation; operating fluid: Water; fouling factor = 0.

(1) In accordance with standard EN14825:2013, comfort low temperature, average climate. SEER and μs values applicable Ecodesign regulation: (EU) No 2016/2281.

(2) PHE: Plate Heat Exchanger; S&T: Single Pass Shell & Tube; MCH: Microchannel; DPT: Direct Propeller Type; DOL: Direct On Line - VFD: Inverter

(3) Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level, the sound pressure is calculated from the sound power level and are for information only and not considered binding. The minimum capacity indicated is referred to unit operating at standard Eurovent conditions. Dimensions and weights are for indication only and not considered binding. Before designing the installation, consult the official drawings available from the factory at request. All the data are referred to standard unit without options. All data are subject to change without notice.

(4) The value refers to the pressure drops in the evaporator only.

(5) Option FANMOD consist in Continuous Fan Speed Regulation and improves part load operation. Single-V units are standardly equipped with continuous fan control. Multi-V units require opt 99

Eurovent certified values

EWAT~B-SS/L

MODEL		EWAT085B-SS(L)A1	EWAT115B-SS(L)A1	EWAT135B-SS(L)A1	EWAT155B-SS(L)A2	EWAT175B-SS(L)A1	EWAT195B-SS(L)A2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	207	319	316	272	482	413
Nominal running current cooling	A	59	69	83	112	113	122
Maximum running current	A	70	97	94	139	160	195
Maximum current for wires sizing	A	77	107	104	152	176	214
FANS							
Nominal running current cooling	A	4	6	6	8	8	10
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	66	91	88	131	152	185
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT205B-SS(L)A2	EWAT215B-SS(L)A1	EWAT240B-SS(L)A2	EWAT260B-SS(L)A2	EWAT290B-SS(L)A1	EWAT310B-SS(L)A2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	410	486	407	404	560	552
Nominal running current cooling	A	136	142	147	160	179	194
Maximum running current	A	192	167	193	190	244	239
Maximum current for wires sizing	A	211	183	212	209	268	263
FANS							
Nominal running current cooling	A	10	10	13	13	13	16
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	182	157	180	177	230	222
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-SS/L

MODEL		EWAT330B-SS(L)A2	EWAT340B-SS(L)A1	EWAT350B-SS(L)A2	EWAT420B-SS(L)A2	EWAT460B-SS(L)A2	EWAT510B-SS(L)A2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	578	565	575	638	712	717
Nominal running current cooling	A	207	197	220	238	285	310
Maximum running current	A	265	255	262	332	406	414
Maximum current for wires sizing	A	291	280	288	365	446	455
FANS							
Nominal running current cooling	A	16	20	16	23	23	26
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	248	235	245	309	383	387
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT570B-SS(L)A2	EWAT610B-SS(L)A2	EWAT670B-SS(L)A2
POWER SUPPLY				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
UNIT				
Maximum inrush current	A	791	795	800
Nominal running current cooling	A	358	382	399
Maximum running current	A	487	495	507
Maximum current for wires sizing	A	536	545	557
FANS				
Nominal running current cooling	A	26	30	36
COMPRESSORS				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	461	466	470
Starting method		DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-SR

MODEL		EWAT085B-SRA1	EWAT115B-SRA1	EWAT135B-SRA1	EWAT155B-SRA2	EWAT175B-SRA1	EWAT195B-SRA2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	207	319	316	272	482	413
Nominal running current cooling	A	62	71	87	119	119	127
Maximum running current	A	69	96	93	137	159	193
Maximum current for wires sizing	A	76	106	102	151	174	212
FANS							
Nominal running current cooling	A	3	5	5	6	6	8
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	66	91	88	131	152	185
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT205B-SRA2	EWAT215B-SRA1	EWAT240B-SRA2	EWAT260B-SRA2	EWAT290B-SRA1	EWAT310B-SRA2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	410	486	407	404	560	552
Nominal running current cooling	A	143	151	151	165	189	202
Maximum running current	A	190	165	188	185	239	233
Maximum current for wires sizing	A	209	181	207	204	263	257
FANS							
Nominal running current cooling	A	8	8	9	9	9	11
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	182	157	180	177	230	222
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-SR

MODEL		EWAT330B-SRA2	EWAT340B-SRA1	EWAT350B-SRA2	EWAT420B-SRA2	EWAT460B-SRA2	EWAT510B-SRA2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	578	565	575	638	712	717
Nominal running current cooling	A	216	202	231	245	298	324
Maximum running current	A	259	248	256	324	398	405
Maximum current for wires sizing	A	285	273	281	356	437	445
FANS							
Nominal running current cooling	A	11	13	11	15	15	17
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	248	235	245	309	383	387
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT570B-SRA2	EWAT610B-SRA2	EWAT670B-SRA2
POWER SUPPLY				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
UNIT				
Maximum inrush current	A	791	795	800
Nominal running current cooling	A	378	402	414
Maximum running current	A	478	485	494
Maximum current for wires sizing	A	526	534	544
FANS				
Nominal running current cooling	A	17	19	24
COMPRESSORS				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	461	466	470
Starting method		DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-XS/L

MODEL		EWAT085B-XS(L)A1	EWAT115B-XS(L)A1	EWAT145B-XS(L)A1	EWAT180B-XS(L)A2	EWAT185B-XS(L)A1	EWAT200B-XS(L)A2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	207	319	316	272	482	385
Nominal running current cooling	A	56	67	78	110	108	122
Maximum running current	A	72	99	98	144	162	170
Maximum current for wires sizing	A	79	109	108	159	178	187
FANS							
Nominal running current cooling	A	6	8	10	13	10	13
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	66	91	88	131	152	157
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT220B-XS(L)A2	EWAT230B-XS(L)A1	EWAT250B-XS(L)A2	EWAT280B-XS(L)A2	EWAT300B-XS(L)A1	EWAT310B-XS(L)A2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	411	486	407	547	560	573
Nominal running current cooling	A	135	128	145	158	168	171
Maximum running current	A	196	173	196	237	250	263
Maximum current for wires sizing	A	215	191	216	261	275	290
FANS							
Nominal running current cooling	A	13	16	16	20	20	20
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	183	157	180	218	230	243
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-XS/L

MODEL		EWAT320B-XS(L)A2	EWAT360B-XS(L)A1	EWAT370B-XS(L)A2	EWAT430B-XS(L)A2	EWAT470B-XS(L)A2	EWAT540B-XS(L)A2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	570	565	575	638	643	717
Nominal running current cooling	A	184	193	209	235	260	299
Maximum running current	A	260	258	268	335	343	420
Maximum current for wires sizing	A	286	284	295	369	378	462
FANS							
Nominal running current cooling	A	20	23	23	26	30	33
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	240	235	245	309	314	387
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT600B-XS(L)A2	EWAT660B-XS(L)A2	EWAT700B-XS(L)A2
POWER SUPPLY				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
UNIT				
Maximum inrush current	A	791	795	800
Nominal running current cooling	A	335	361	388
Maximum running current	A	501	509	517
Maximum current for wires sizing	A	551	559	568
FANS				
Nominal running current cooling	A	40	43	46
COMPRESSORS				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	461	466	470
Starting method		DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-XR

MODEL		EWAT085B-XRA1	EWAT115B-XRA1	EWAT145B-XRA1	EWAT180B-XRA2	EWAT185B-XRA1	EWAT200B-XRA2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	207	319	316	272	482	385
Nominal running current cooling	A	60	71	83	113	118	128
Maximum running current	A	72	99	98	140	162	165
Maximum current for wires sizing	A	79	109	108	153	178	182
FANS							
Nominal running current cooling	A	6	8	10	8	10	8
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	66	91	88	131	152	157
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT220B-XRA2	EWAT230B-XRA1	EWAT250B-XRA2	EWAT280B-XRA2	EWAT300B-XRA1	EWAT310B-XRA2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	411	486	407	547	560	573
Nominal running current cooling	A	143	134	151	164	177	179
Maximum running current	A	191	167	190	230	243	256
Maximum current for wires sizing	A	210	184	209	253	267	281
FANS							
Nominal running current cooling	A	8	10	10	12	12	12
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	183	157	180	218	230	243
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-XR

MODEL		EWAT320B-XRA2	EWAT360B-XRA1	EWAT370B-XRA2	EWAT430B-XRA2	EWAT470B-XRA2	EWAT540B-XRA2
POWER SUPPLY							
Phases	No.	3	3	3	3	3	3
Frequency	Hz	50	50	50	50	50	50
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
UNIT							
Maximum inrush current	A	570	565	575	638	643	717
Nominal running current cooling	A	194	204	221	250	276	319
Maximum running current	A	253	250	259	325	332	408
Maximum current for wires sizing	A	278	275	285	358	365	449
FANS							
Nominal running current cooling	A	12	14	14	16	19	21
COMPRESSORS							
Phases	No.	3	3	3	3	3	3
Voltage	V	400	400	400	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%	10%	10%	10%
Maximum running current	A	240	235	245	309	314	387
Starting method		DOL	DOL	DOL	DOL	DOL	DOL

MODEL		EWAT600B-XRA2	EWAT660B-XRA2	EWAT700B-XRA2
POWER SUPPLY				
Phases	No.	3	3	3
Frequency	Hz	50	50	50
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
UNIT				
Maximum inrush current	A	791	795	800
Nominal running current cooling	A	352	381	410
Maximum running current	A	486	492	499
Maximum current for wires sizing	A	534	542	549
FANS				
Nominal running current cooling	A	25	27	29
COMPRESSORS				
Phases	No.	3	3	3
Voltage	V	400	400	400
Voltage tolerance Minimum	%	-10%	-10%	-10%
Voltage tolerance Maximum	%	10%	10%	10%
Maximum running current	A	461	466	470
Starting method		DOL	DOL	DOL

Fluid: Water
Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.
Maximum starting current: In case of inverter driven units, no inrush current at start up is experienced.
Nominal current in cooling mode is referred to the following conditions: evaporator 12/7°C; ambient 35°C; compressors + fans current.
Maximum running current is based on max compressor absorbed current in its envelope and max fans absorbed current
Maximum unit current for wires sizing is based on minimum allowed voltage
Maximum current for wires sizing: (compressors full load ampere + fans current) x 1,1.
The data are referred to the standard unit without options.
For the electrical data of the hydronic kit refer to "Options technical data"
All data are subject to change without notice. Please refer to unit nameplate data.

EWAT~B-SS

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	**db(A)**	**db (A)**
85	61.4	66.3	65.6	63.2	62.4	60.1	57.5	51.8	**67.4**	**85**
115	64.5	69.4	68.7	66.3	65.5	63.2	60.6	54.9	**70.5**	**88**
135	66.0	70.9	70.1	67.8	66.9	64.7	62.1	56.4	**72.0**	**90**
155	63.5	68.4	67.7	65.3	64.5	62.2	59.6	53.9	**69.5**	**88**
175	67.8	72.6	71.9	69.6	68.7	66.5	63.9	58.1	**73.8**	**92**
195	65.3	70.1	69.4	67.1	66.2	64.0	61.4	55.6	**71.3**	**90**
205	66.3	71.2	70.5	68.1	67.3	65.0	62.4	56.7	**72.3**	**91**
215	68.8	73.7	73.0	70.6	69.8	67.5	64.9	59.2	**74.8**	**93**
240	68.3	73.2	72.4	70.1	69.3	67.0	64.4	58.7	**74.3**	**93**
260	68.8	73.7	73.0	70.6	69.8	67.5	64.9	59.2	**74.8**	**94**
290	69.8	74.7	74.0	71.6	70.8	68.5	65.9	60.2	**75.8**	**95**
310	69.4	74.3	73.6	71.2	70.4	68.1	65.5	59.8	**75.4**	**95**
330	69.8	74.6	73.9	71.6	70.7	68.5	65.9	60.1	**75.8**	**95**
340	70.6	75.5	74.7	72.4	71.6	69.3	66.7	61.0	**76.6**	**96**
350	70.1	75.0	74.2	71.9	71.1	68.8	66.2	60.5	**76.1**	**96**
420	70.7	75.6	74.9	72.5	71.7	69.4	66.8	61.1	**76.7**	**97**
460	71.0	75.9	75.2	72.8	72.0	69.7	67.1	61.4	**77.0**	**97**
510	71.6	76.5	75.8	73.4	72.6	70.3	67.7	62.0	**77.6**	**98**
570	71.9	76.7	76.0	73.7	72.8	70.6	68.0	62.2	**77.9**	**98**
610	71.9	76.8	76.1	73.7	72.9	70.6	68.0	62.3	**77.9**	**98**
670	72.2	77.1	76.3	74.0	73.1	70.9	68.3	62.6	**78.2**	**99**

EWAT~B-SL

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	**db(A)**	**db (A)**
85	60.3	65.2	64.5	62.1	61.3	59.0	56.4	50.7	**66.3**	**84**
115	62.5	67.4	66.6	64.3	63.4	61.2	58.6	52.9	**68.5**	**86**
135	63.3	68.2	67.4	65.1	64.2	62.0	59.4	53.7	**69.3**	**87**
155	62.4	67.3	66.5	64.2	63.3	61.1	58.5	52.8	**68.4**	**87**
175	64.7	69.6	68.9	66.5	65.7	63.4	60.8	55.1	**70.7**	**89**
195	63.5	68.4	67.7	65.3	64.5	62.2	59.6	53.9	**69.5**	**88**
205	64.0	68.9	68.2	65.8	65.0	62.8	60.1	54.4	**70.1**	**89**
215	65.6	70.5	69.8	67.4	66.6	64.3	61.7	56.0	**71.6**	**90**
240	65.8	70.7	69.9	67.6	66.7	64.5	61.9	56.2	**71.8**	**91**
260	65.8	70.7	70.0	67.6	66.8	64.5	61.9	56.2	**71.8**	**91**
290	66.0	70.9	70.1	67.8	66.9	64.7	62.1	56.4	**72.0**	**91**
310	66.3	71.2	70.5	68.1	67.3	65.0	62.4	56.7	**72.3**	**92**
330	66.3	71.2	70.5	68.1	67.3	65.1	62.5	56.7	**72.4**	**92**
340	67.1	72.0	71.3	68.9	68.1	65.9	63.2	57.5	**73.2**	**93**
350	66.4	71.3	70.5	68.2	67.4	65.1	62.5	56.8	**72.4**	**92**
420	67.3	72.2	71.5	69.1	68.3	66.0	63.4	57.7	**73.3**	**93**
460	67.4	72.3	71.5	69.2	68.3	66.1	63.5	57.7	**73.4**	**93**
510	68.0	72.8	72.1	69.8	68.9	66.7	64.1	58.3	**74.0**	**94**
570	68.0	72.9	72.1	69.8	69.0	66.7	64.1	58.4	**74.0**	**94**
610	68.1	73.0	72.2	69.9	69.0	66.8	64.2	58.5	**74.1**	**95**
670	68.6	73.4	72.7	70.3	69.5	67.3	64.7	58.9	**74.6**	**95**

Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level.
The sound data in the Octave band spectrum is for intended for reference only and not considering binding.
The sound pressure is calculated from the sound power level and are for information only and not considered binding.

EWAT~B-SR

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	**db(A)**	**db (A)**
85	55.2	60.1	59.4	57.0	56.2	53.9	51.3	45.6	**61.2**	**79**
115	58.7	63.6	62.9	60.5	59.7	57.4	54.8	49.1	**64.7**	**83**
135	60.4	65.3	64.6	62.2	61.4	59.1	56.5	50.8	**66.4**	**84**
155	57.3	62.2	61.4	59.1	58.2	56.0	53.4	47.7	**63.3**	**82**
175	62.3	67.2	66.5	64.1	63.3	61.0	58.4	52.7	**68.3**	**86**
195	59.3	64.2	63.5	61.1	60.3	58.0	55.4	49.7	**65.3**	**84**
205	60.6	65.5	64.8	62.4	61.6	59.3	56.7	51.0	**66.6**	**85**
215	63.4	68.3	67.6	65.2	64.4	62.1	59.5	53.8	**69.4**	**88**
240	62.1	66.9	66.2	63.9	63.0	60.8	58.2	52.4	**68.1**	**87**
260	62.2	67.1	66.4	64.0	63.2	60.9	58.3	52.6	**68.2**	**87**
290	62.5	67.4	66.7	64.3	63.5	61.2	58.6	52.9	**68.5**	**88**
310	62.7	67.6	66.8	64.5	63.6	61.4	58.8	53.1	**68.7**	**88**
330	62.8	67.7	66.9	64.6	63.8	61.5	58.9	53.2	**68.8**	**88**
340	63.6	68.5	67.8	65.4	64.6	62.3	59.7	54.0	**69.6**	**89**
350	62.9	67.8	67.1	64.7	63.9	61.6	59.0	53.3	**68.9**	**88**
420	63.8	68.7	67.9	65.6	64.7	62.5	59.9	54.2	**69.8**	**90**
460	63.9	68.8	68.0	65.7	64.8	62.6	60.0	54.2	**69.9**	**90**
510	64.5	69.3	68.6	66.3	65.4	63.2	60.6	54.8	**70.5**	**90**
570	64.5	69.4	68.7	66.3	65.5	63.2	60.6	54.9	**70.5**	**91**
610	64.6	69.5	68.8	66.4	65.6	63.3	60.7	55.0	**70.6**	**91**
670	65.0	69.9	69.2	66.8	66.0	63.8	61.2	55.4	**71.1**	**92**

EWAT~B-XS

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	**db(A)**	**db (A)**
85	62.3	67.2	66.5	64.1	63.3	61.0	58.4	52.7	**68.3**	**86**
115	64.8	69.7	69.0	66.6	65.8	63.5	60.9	55.2	**70.8**	**89**
145	66.2	71.0	70.3	68.0	67.1	64.9	62.3	56.5	**72.2**	**91**
180	66.3	71.1	70.4	68.1	67.2	65.0	62.4	56.6	**72.3**	**91**
185	67.7	72.6	71.8	69.5	68.6	66.4	63.8	58.1	**73.7**	**92**
200	67.0	71.9	71.2	68.8	68.0	65.8	63.1	57.4	**73.1**	**92**
220	67.7	72.6	71.9	69.5	68.7	66.4	63.8	58.1	**73.7**	**93**
230	69.3	74.1	73.4	71.1	70.2	68.0	65.4	59.6	**75.3**	**95**
250	68.3	73.2	72.5	70.1	69.3	67.0	64.4	58.7	**74.3**	**94**
280	69.1	74.0	73.3	70.9	70.1	67.8	65.2	59.5	**75.1**	**95**
300	70.1	74.9	74.2	71.9	71.0	68.8	66.2	60.4	**76.1**	**96**
310	69.5	74.4	73.7	71.3	70.5	68.2	65.6	59.9	**75.5**	**95**
320	69.9	74.7	74.0	71.7	70.8	68.6	66.0	60.2	**75.9**	**95**
360	70.4	75.3	74.6	72.2	71.4	69.1	66.5	60.8	**76.4**	**96**
370	70.3	75.1	74.4	72.0	71.2	69.0	66.4	60.6	**76.3**	**96**
430	71.0	75.9	75.1	72.8	71.9	69.7	67.1	61.3	**77.0**	**97**
470	71.2	76.1	75.3	73.0	72.1	69.9	67.3	61.5	**77.2**	**98**
540	71.6	76.5	75.8	73.4	72.6	70.3	67.7	62.0	**77.6**	**98**
600	71.8	76.7	76.0	73.6	72.8	70.5	67.9	62.2	**77.8**	**99**
660	71.9	76.8	76.0	73.7	72.8	70.6	68.0	62.3	**77.9**	**99**
700	72.3	77.2	76.4	74.1	73.2	71.0	68.4	62.7	**78.3**	**99**

Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level.
The sound data in the Octave band spectrum is for intended for reference only and not considering binding.
The sound pressure is calculated from the sound power level and are for information only and not considered binding.

EWAT~B-XL

	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	**db(A)**	**db (A)**
85	61.5	66.4	65.6	63.3	62.5	60.2	57.6	51.9	**67.5**	**85**
115	63.1	68.0	67.2	64.9	64.0	61.8	59.2	53.5	**69.1**	**87**
145	64.1	69.0	68.2	65.9	65.0	62.8	60.2	54.4	**70.1**	**89**
180	65.6	70.5	69.7	67.4	66.5	64.3	61.7	56.0	**71.6**	**91**
185	64.9	69.8	69.1	66.7	65.9	63.6	61.0	55.3	**70.9**	**89**
200	65.7	70.5	69.8	67.5	66.6	64.4	61.8	56.0	**71.7**	**91**
220	65.7	70.6	69.9	67.5	66.7	64.4	61.8	56.1	**71.7**	**91**
230	66.3	71.2	70.4	68.1	67.2	65.0	62.4	56.7	**72.3**	**92**
250	66.2	71.1	70.3	68.0	67.1	64.9	62.3	56.5	**72.2**	**92**
280	67.0	71.9	71.1	68.8	67.9	65.7	63.1	57.3	**73.0**	**93**
300	66.3	71.2	70.4	68.1	67.2	65.0	62.4	56.7	**73.1**	**93**
310	67.0	71.9	71.2	68.8	68.0	65.7	63.1	57.4	**73.0**	**93**
320	67.0	71.9	71.2	68.8	68.0	65.8	63.2	57.4	**73.1**	**93**
360	67.3	72.2	71.4	69.1	68.3	66.0	63.4	57.7	**73.3**	**93**
370	67.3	72.2	71.4	69.1	68.2	66.0	63.4	57.6	**73.3**	**93**
430	67.9	72.8	72.0	69.7	68.8	66.6	64.0	58.2	**73.9**	**94**
470	68.0	72.9	72.1	69.8	68.9	66.7	64.1	58.3	**74.0**	**94**
540	68.4	73.3	72.6	70.2	69.4	67.1	64.5	58.8	**74.4**	**95**
600	68.8	73.7	73.0	70.6	69.8	67.5	64.9	59.2	**74.8**	**96**
660	68.8	73.7	73.0	70.6	69.8	67.5	64.9	59.2	**74.8**	**96**
700	69.2	74.0	73.3	71.0	70.1	67.9	65.3	59.5	**75.2**	**96**

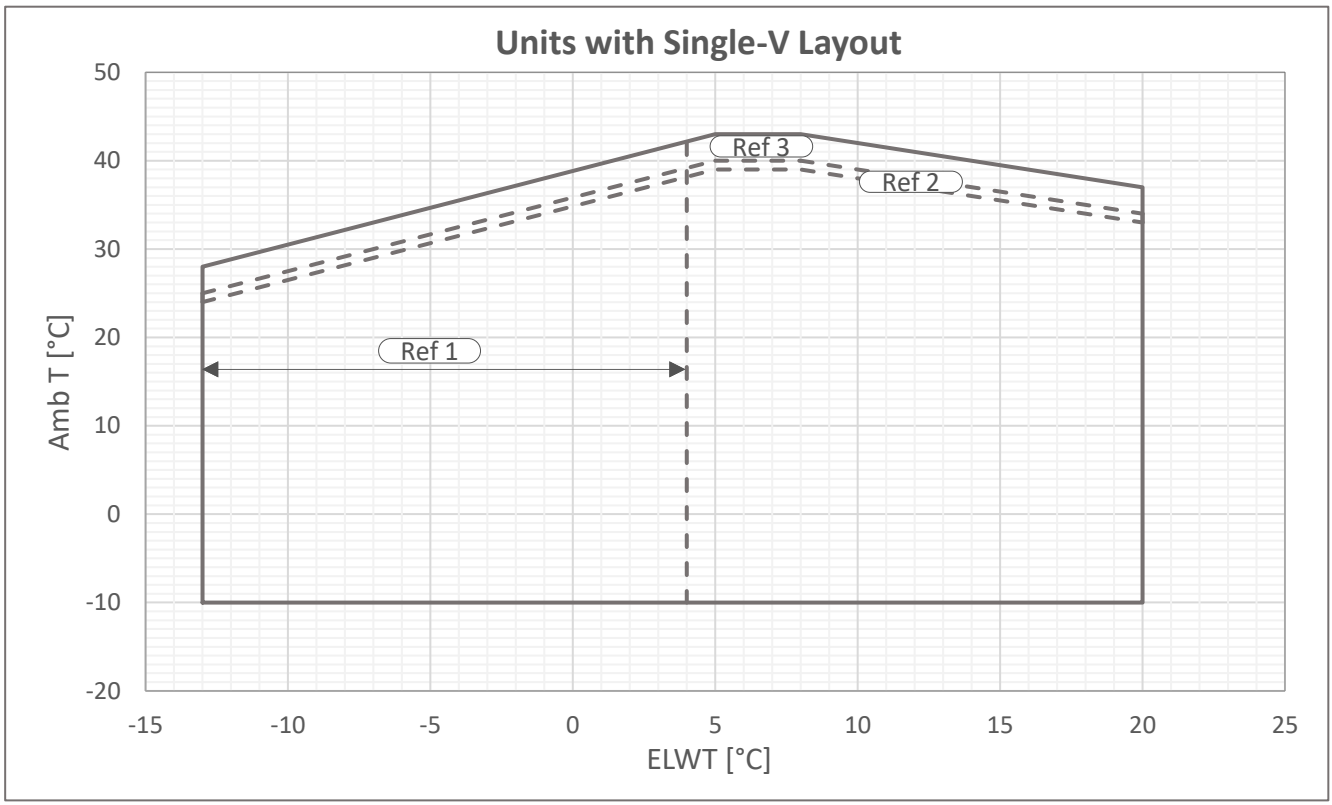
EWAT~B-XR

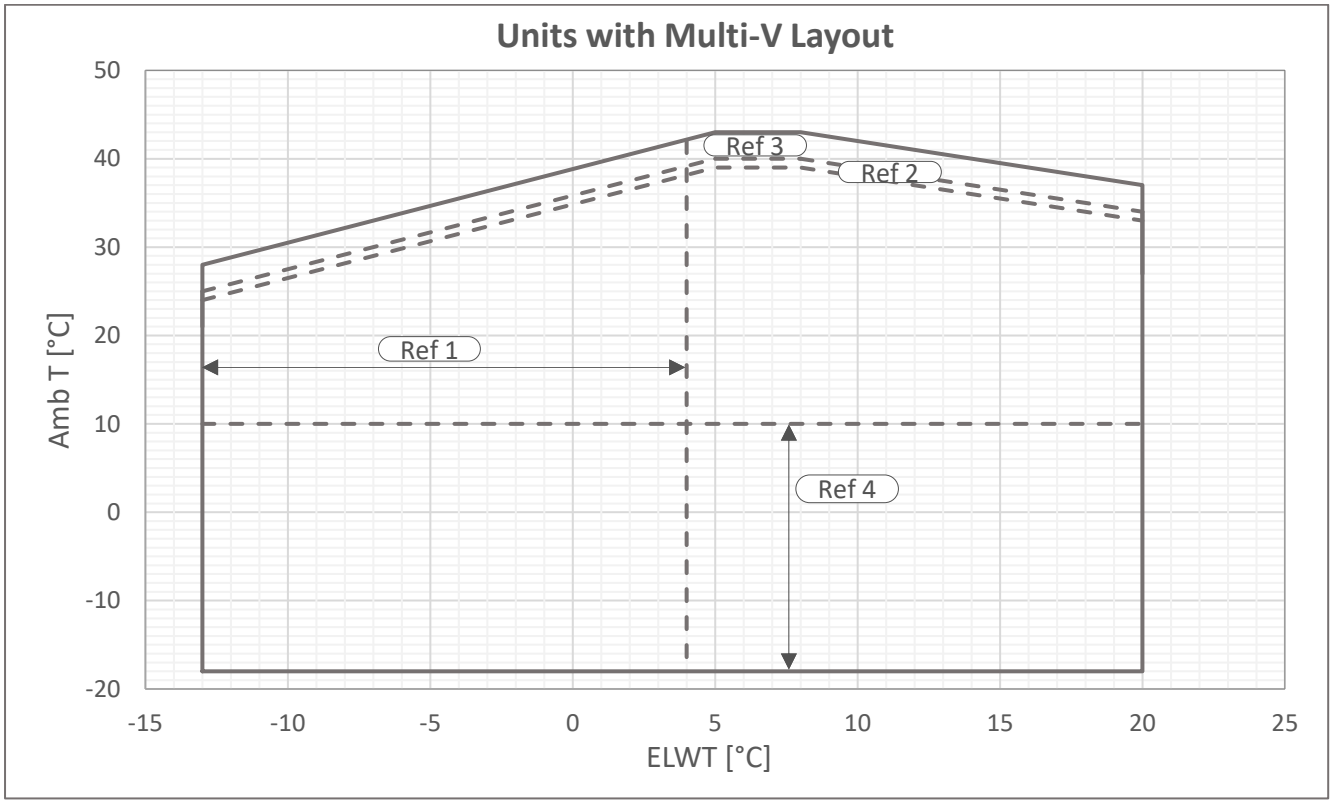
	Sound pressure level at 1 m from the unit (rif. 2 x 10-5 Pa)								Sound Power
MODEL	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	**db(A)**	**db (A)**
85	54.2	59.1	58.3	56.0	55.1	52.9	50.3	44.6	**60.2**	**78**
115	57.9	62.8	62.0	59.7	58.8	56.6	54.0	48.3	**63.9**	**82**
145	59.6	64.5	63.7	61.4	60.5	58.3	55.7	50.0	**65.6**	**84**
180	59.3	64.1	63.4	61.1	60.2	58.0	55.4	49.6	**65.3**	**84**
185	61.6	66.5	65.8	63.4	62.6	60.4	57.7	52.0	**67.7**	**86**
200	59.5	64.4	63.7	61.3	60.5	58.2	55.6	49.9	**65.5**	**85**
220	59.8	64.7	63.9	61.6	60.7	58.5	55.9	50.1	**65.8**	**85**
230	60.7	65.6	64.8	62.5	61.6	59.4	56.8	51.1	**66.7**	**86**
250	60.3	65.2	64.4	62.1	61.2	59.0	56.4	50.6	**66.3**	**86**
280	61.1	66.0	65.2	62.9	62.0	59.8	57.2	51.4	**67.1**	**87**
300	61.5	66.4	65.6	63.3	62.4	60.2	57.6	51.8	**67.5**	**87**
310	61.2	66.1	65.4	63.0	62.2	59.9	57.3	51.6	**67.2**	**87**
320	61.4	66.3	65.5	63.2	62.3	60.1	57.5	51.8	**67.4**	**87**
360	61.7	66.6	65.9	63.5	62.7	60.5	57.9	52.1	**67.8**	**88**
370	61.7	66.6	65.8	63.5	62.6	60.4	57.8	52.0	**67.7**	**88**
430	62.3	67.2	66.5	64.1	63.3	61.0	58.4	52.7	**68.3**	**88**
470	62.5	67.3	66.6	64.3	63.4	61.2	58.6	52.8	**68.5**	**89**
540	62.9	67.8	67.1	64.7	63.9	61.6	59.0	53.3	**68.9**	**89**
600	63.2	68.1	67.4	65.0	64.2	61.9	59.3	53.6	**69.2**	**90**
660	63.3	68.1	67.4	65.1	64.2	62.0	59.4	53.6	**69.3**	**90**
700	63.6	68.5	67.8	65.4	64.6	62.3	59.7	54.0	**69.6**	**91**

Sound power level (referred to evaporator 12/7°C, ambient 35°C full load operation) are measured in accordance with ISO 9614 and Eurovent 8/1 for Eurovent certified units. The certification refers only to the overall sound power level.
The sound data in the Octave band spectrum is for intended for reference only and not considering binding.
The sound pressure is calculated from the sound power level and are for information only and not considered binding.

Operating limits

EWAT~B-S (SILVER SERIES)

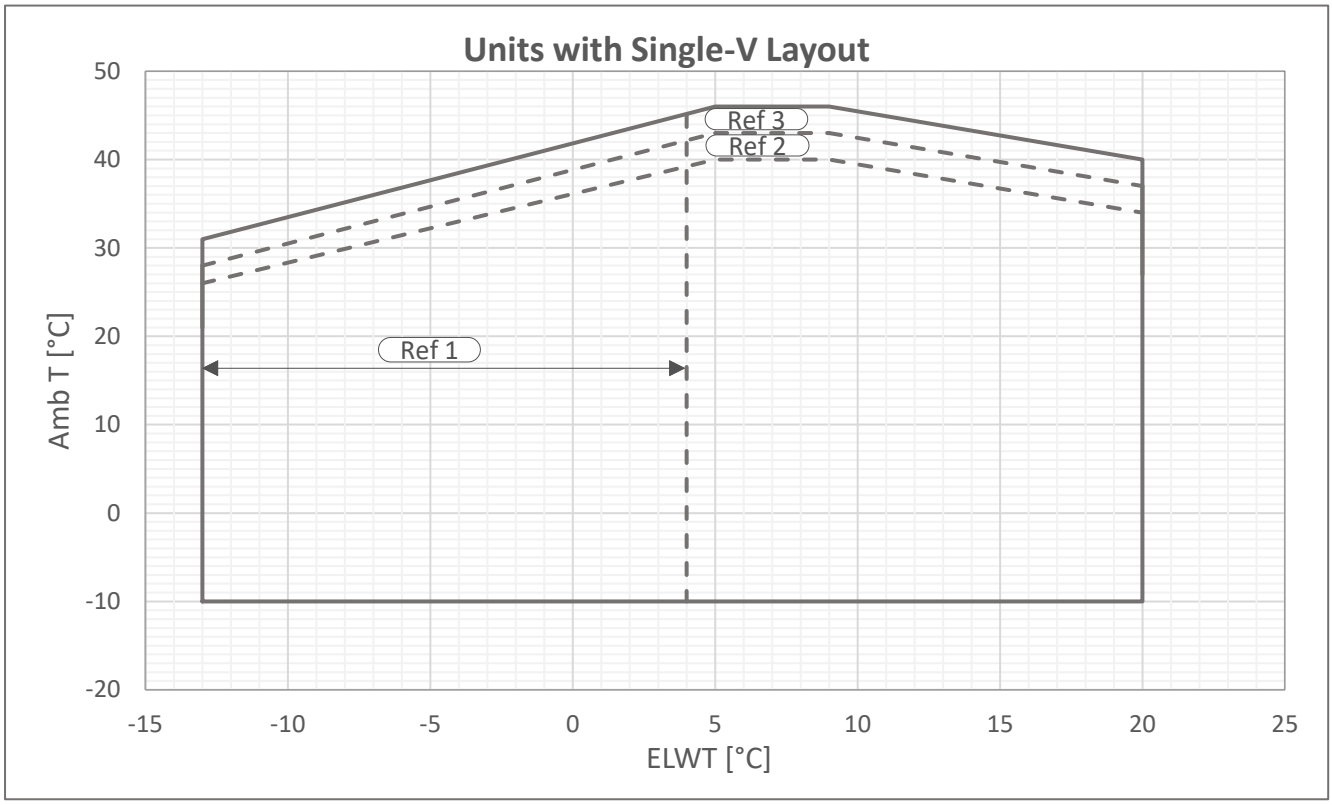


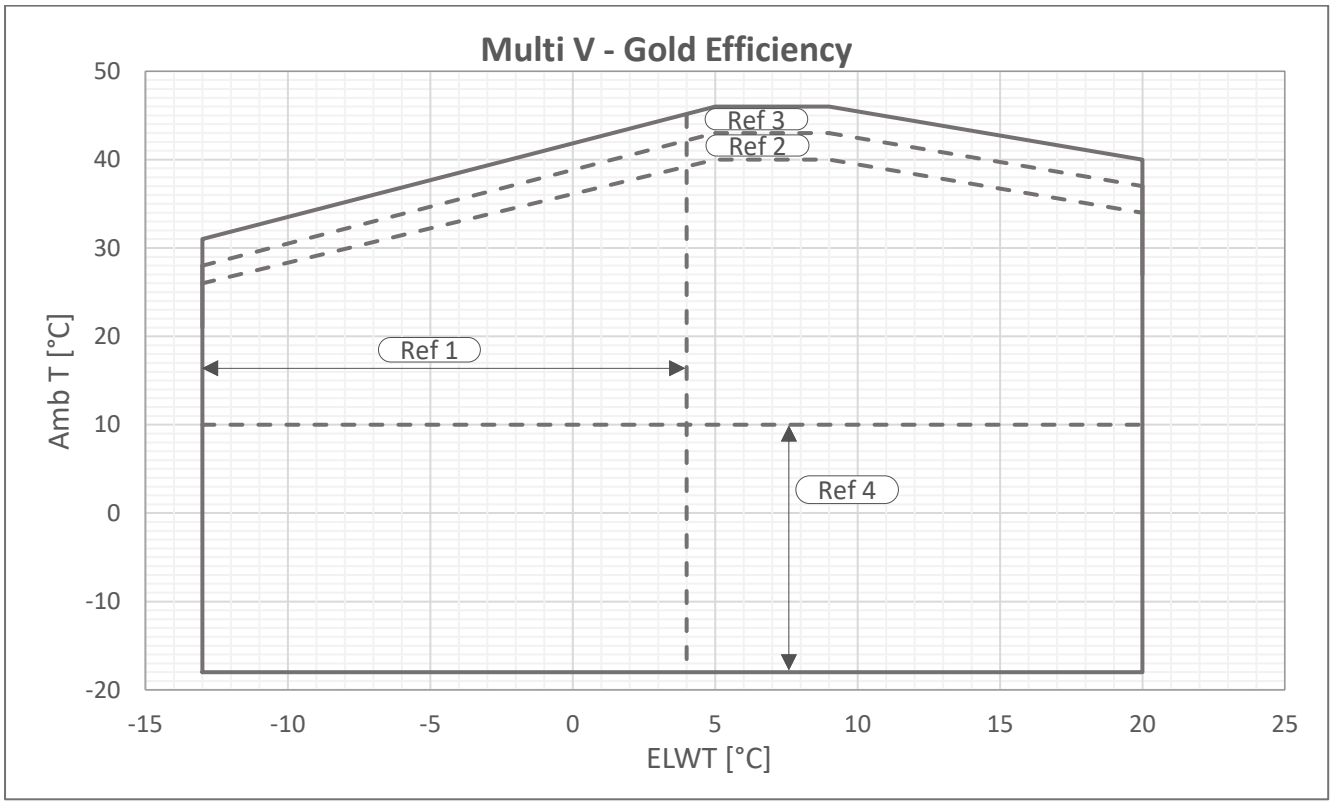


Ref 1 Operations below 4°C Evaporator Leaving Temperature require opt 08 (brine) and glycol
Ref 2 Units with Reduced Sound configuration might increase their sound level in this area
Ref 3 Certain unit sizes might work in part load in this area (Full load operation might need opt 142 - High Ambient Kit) Refer to Chiller Selection Software for detailed information"
Ref 4 In Multi-V units, operations below 10°C Ambient Temperature require Opt 99 (fan speed modulation) or Opt 42 (Speedtroll)

The above graph refers to the unit operating at full load. Unit may be able to operate outside the above envelope with compressors unloading. Please contact factory for further details.
The above graphic represents a guideline about the operating limits of the range. Please refer to the latest Chiller Selection Software (CSS) for real operating limits working conditions for each size.

EWAT~B-X (GOLD SERIES)





Ref 1 Operations below 4°C Evaporator Leaving Temperature require opt 08 (brine) and glycol
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Ref 4 In Multi-V units, operations below 10°C Ambient Temperature require Opt 99 (fan speed modulation) or Opt 42 (Speedtroll)

The above graph refers to the unit operating at full load. Unit may be able to operate outside the above envelope with compressors unloading. Please contact factory for further details.
The above graphic represents a guideline about the operating limits of the range. Please refer to the latest Chiller Selection Software (CSS) for real operating limits working conditions for each size.

Water heat exchanger - maximum/maximum water Δt

The minimum and maximum allowed Δt at full load conditioins are respectively 3 °C and 8°C. Contact factory in case lower or higher Δt are required

Water flow

The following tables indicate the minimum and maximum water flow allowed for each model. For application with Variable Primary Flow (opt. code 143) refer to the following value for the dimensioning of the bypass line.
In case of variable flow application where the speed of the pump is managed by an external BMS (trough 0- 10V signal) the change in water flow rate must not be exceed more than 10% of design water flow rate (at standard conditions) per minute.
The minimum flow indicated correspond to the minimum flow allowed at minimum load for the unit. It is not intended as minimum flow allowed for unit full load operation.
For minimum flow allowed (maximum deltaT) in full load operation refer to Selection Software.
The below values are referred to pure water (in case of glycol mixture contact factory).
Note: the performances are certified at standard conditions and with the unit operating with the nominal water flow (corresponding to OAT 35°C; water in/out 12/7°C).

SILVER EFFICIENCY UNITS			GOLD EFFICIENCY UNITS		
MODEL	Min Flow [l/s]	Max flow [l/s]	MODEL	Min flow [l/s]	Max flow [l/s]
EWAT085B-SS(L)(R)A1	1.8	9.0	EWAT085B-XS(L)(R)A1	1.8	9.0
EWAT115B-SS(L)(R)A1	2.0	10.3	EWAT115B-XS(L)(R)A1	2.0	10.3
EWAT135B-SS(L)(R)A1	2.7	14.8	EWAT145B-XS(L)(R)A1	2.7	14.8
EWAT155B-SS(L)(R)A2	2.3	11.9	EWAT180B-XS(L)(R)A2	3.6	17.0
EWAT175B-SS(L)(R)A1	3.5	16.6	EWAT185B-XS(L)(R)A1	3.5	16.6
EWAT195B-SS(L)(R)A2	3.6	17.0	EWAT200B-XS(L)(R)A2	3.6	17.0
EWAT205B-SS(L)(R)A2	3.6	17.0	EWAT220B-XS(L)(R)A2	4.3	20.0
EWAT215B-SS(L)(R)A1	4.3	20.5	EWAT230B-XS(L)(R)A1	4.3	20.5
EWAT240B-SS(L)(R)A2	3.6	17.0	EWAT250B-XS(L)(R)A2	4.3	20.0
EWAT260B-SS(L)(R)A2	3.6	17.0	EWAT280B-XS(L)(R)A2	5.6	26.5
EWAT290B-SS(L)(R)A1	4.3	20.5	EWAT300B-XS(L)(R)A1	4.9	23.1
EWAT310B-SS(L)(R)A2	5.6	26.5	EWAT310B-XS(L)(R)A2	5.6	26.5
EWAT330B-SS(L)(R)A2	5.6	26.5	EWAT320B-XS(L)(R)A2	5.6	26.5
EWAT340B-SS(L)(R)A1	4.9	23.1	EWAT360B-XS(L)(R)A1	4.9	23.1
EWAT350B-SS(L)(R)A2	5.6	26.5	EWAT370B-XS(L)(R)A2	5.6	26.5
EWAT420B-SS(L)(R)A2	7.0	31.2	EWAT430B-XS(L)(R)A2	7.0	31.2
EWAT460B-SS(L)(R)A2	7.0	31.2	EWAT470B-XS(L)(R)A2	7.0	31.2
EWAT510B-SS(L)(R)A2	7.0	31.2	EWAT540B-XS(L)(R)A2	8.8	41.2
EWAT570B-SS(L)(R)A2	8.8	41.2	EWAT600B-XS(L)(R)A2	8.8	41.2
EWAT610B-SS(L)(R)A2	8.8	41.2	EWAT660B-XS(L)(R)A2	9.9	46.0
EWAT670B-SS(L)(R)A2	8.8	41.2	EWAT700B-XS(L)(R)A2	9.9	46.0

Minimum glycol percentage for low air ambient temperature to prevent freezing of the hydraulic circuit

AMBIENT T [°C]	-3	-8	-15	-20
ETHYLENE GLYCOL	10%	20%	30%	40%

AMBIENT T [°C]	-3	-8	-15	-20
PROPYLENE GLYCOL	10%	20%	30%	40%

The presence of glycol in the water system will affect unit performances. Refer to the selection software for details. All machine protection systems, such as antifreeze and low-pressure protection will need to be set in accordance to the type and percentage of the glycol and plant requirements.

Air heat exchanger - Altitude correction factors

ELEVATION ABOVE SEA LEVEL [m]	0	300	600	900	1200	1500	1800
BAROMETRIC PRESSURE [mbar]	1013	997	942	908	875	843	812
COOLING CAPACITY CORRECTION FACTOR	1	0,993	0,986	0,979	0,973	0,967	0,96
POWER INPUT CORRECTION FACTOR	1	1,005	1,009	1,015	1,021	1,026	1,031

Maximum operating altitude is 1800 m above sea level.
Contact factory if the unit has to be installed 1000 m above the sea level.

Available fan static pressure correction factors

EXTERNAL STATIC PRESSURE [Pa]	0	10	20	30
COOLING CAPACITY CORRECTION FACTOR	1	0.998	0.995	0.990
COMPRESSOR POWER INPUTCORRECTION FACTOR	1	1.006	1.010	1.020
REDUCTION OF MAX OPERATING AMBIENT TEMPERATURE [°C]	1	-0.3	-0.5	-1

The above table is valid for SILVER and GOLD series with standard and VFD driven fans. Application with more than 30 Pa of external static pressure are not recommended. In case where external static pressure over 30 Pa is required special high ESP fans are required.

Maximum cable dimension

Model	Max cable size	Model	Max cable size
EWAT085B-SS(L)(R)A1	3x70mm²	EWAT085B-XS(L)(R)A1	3x70mm²
EWAT115B-SS(L)(R)A1	3x70mm²	EWAT115B-XS(L)(R)A1	3x70mm²
EWAT135B-SS(L)(R)A1	3x70mm²	EWAT145B-XS(L)(R)A1	3x70mm²
EWAT155B-SS(L)(R)A2	3x70mm²	EWAT180B-XS(L)(R)A2	3x95mm²
EWAT175B-SS(L)(R)A1	3x70mm²	EWAT185B-XS(L)(R)A1	3x70mm²
EWAT195B-SS(L)(R)A2	3x70mm²	EWAT200B-XS(L)(R)A2	3x95mm²
EWAT205B-SS(L)(R)A2	3x70mm²	EWAT220B-XS(L)(R)A2	3x120mm²
EWAT215B-SS(L)(R)A1	3x70mm²	EWAT230B-XS(L)(R)A1	3x120mm²
EWAT240B-SS(L)(R)A2	3x120mm²	EWAT250B-XS(L)(R)A2	3x120mm²
EWAT260B-SS(L)(R)A2	3x120mm²	EWAT280B-XS(L)(R)A2	3x240mm²
EWAT290B-SS(L)(R)A1	3x240mm²	EWAT300B-XS(L)(R)A1	3x240mm²
EWAT310B-SS(L)(R)A2	3x240mm²	EWAT310B-XS(L)(R)A2	3x240mm²
EWAT330B-SS(L)(R)A2	3x240mm²	EWAT320B-XS(L)(R)A2	3x240mm²
EWAT340B-SS(L)(R)A1	3x240mm²	EWAT360B-XS(L)(R)A1	3x240mm²
EWAT350B-SS(L)(R)A2	3x240mm²	EWAT370B-XS(L)(R)A2	3x240mm²
EWAT420B-SS(L)(R)A2	3x240mm²	EWAT430B-XS(L)(R)A2	3x240mm²
EWAT460B-SS(L)(R)A2	3x2x185mm²	EWAT470B-XS(L)(R)A2	3x2x185mm²
EWAT510B-SS(L)(R)A2	3x2x185mm²	EWAT540B-XS(L)(R)A2	3x2x185mm²
EWAT570B-SS(L)(R)A2	3x2x185mm²	EWAT600B-XS(L)(R)A2	3x2x185mm²
EWAT610B-SS(L)(R)A2	3x2x185mm²	EWAT660B-XS(L)(R)A2	3x2x185mm²
EWAT670B-SS(L)(R)A2	3x2x185mm²	EWAT700B-XS(L)(R)A2	3x2x185mm²

Heat recovery Units may be optionally equipped with heat recovery system. This system is made by a water -cooled heat exchanger located on the compressors discharge pipe and a dedicated management of condensing pressure.
To guarantee compressor operation within its envelope, units with heat recovery cannot operate with water temperature of the heat recovery water lower than 25°C.
It is a responsibility of plant designer and chiller installer to guarantee the respect of this value (e.g. using recirculating bypass valve).

Plant water content The cooled water distribution circuits should have minimum water content to avoid excessive compressors start and stop. In fact, each time the compressor starts up, an excessive quantity of oil goes from the compressor sump and simultaneously there is a rise in the temperature of the compressor motor's stator due to the inrush current during the start - up. To prevent damage to the compressors, have been envisaged the application of a device to limit frequent stops and restarts.
During the span of one hour there will be no more than 10 starts of the compressor. The plant side should therefore ensure that the overall water content allows a more constant functioning of the unit and consequently greater environmental comfort.
The calculation of the water content should also consider the plant's design parameters.
As a general indication the water content should not be less than 5 lt/kW on single circuit units and 2,5l/kW on the twin circuit units.
Note: The indication is intended as a general guideline and not intended to substitute the evaluation made by qualified technical personnel or by HVAC engineers. For more detailed analysis is better to consider the use of other more detailed approach.

Water quality Before putting the unit into operation, clean the water circuit. Dirt, scales, corrosion debrits and other material can accumulate inside the heat exchanger and reduce its heat exchanging capacity. Pressure drop can increase as well, thus reducing water flow. Proper water treatment therefore reduces the risk of corrosion, erosion, scaling, etc. The most appropriate water treatment must be determined locally, according to the type of system and water characteristics. The manufacturer is not responsible for damage to or malfunctioning of equipment caused by failure to treat water or by improperly treated water.

Water charge, flow and quality

Items (1) (6)			Cooling Water			Cooled Water		Heated water (2)				Tendency if out of criteria
			Circulating System		Once Flow			Low temperature		High temperature		
			Circulating water	Supply water (4)	Flowing water	Circulating water [Below 20°C]	Supply water (4)	Circulating water [20°C ~ 60°C]	Supply water (4)	Circulating water [60°C ~ 80°C]	Supply water (4)	
Items to be controlled:	pH	at 25°C	6.5 ~ 8.2	6.0 ~ 8.0	6.0 ~ 8.0	6.8 - 8.0	6.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	Corrosion + Scale
	Electrical conductivity	[mS/m] at 25°C	Below 80	Below 30	Below 40	Below 80	Below 80	Below 30	Below 30	Below 30	Below 30	Corrosion + Scale
		(μS/cm) at 25°C	(Below 800)	(Below 300)	(Below 400)	(Below 800)	(Below 800)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	Corrosion + Scale
	Chloride ion	[mgCl^-/l]	Below 200	Below 50	Below 50	Below 200	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	Sulfate ion	[mgSO^{2-}_4/l]	Below 200	Below 50	Below 50	Below 200	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	M-alkalinity (pH4.8)	[mg$CaCO_3$/l]	Below 100	Below 50	Below 50	Below 100	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Total hardness	[mg$CaCO_3$/l]	Below 200	Below 70	Below 70	Below 200	Below 70	Below 70	Below 70	Below 70	Below 70	Scale
	Calcium harness	[mg$CaCO_3$/l]	Below 150	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Silca ion	[mgSiO_2/l]	Below 50	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Scale
	Oxygen	(mg O2 /l)	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Corrosion
	Particole size	(mm)	Below 0.5	Below 0.5	Below 0.5	Below 0.5	Below 0.6	Below 0.5	Below 0.6	Below 0.5	Below 0.6	Erosion
	Total dissolved solids	(mg / l)	Below 1000	Below 1000	Below 1000	Below 1000	Below 1001	Below 1000	Below 1001	Below 1000	Below 1001	Erosion
	Ethykene, Propylene Glycol (weight conc.)		Below 60%	Below 60%	—	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	–
Items to be referred to:	Nitrate ion	(mg NO3- /l)	Below 100	Below 100	Below 100	Below 100	Below 101	Below 100	Below 101	Below 100	Below 101	Corrosion
	TOC Total organic carbon	(mg /l)	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Scale
	Iron	[mgFe/l]	Below 1.0	Below 0.3	Below 1.0	Below 1.0	Below 0.3	Below 1.0	Below 0.3	Below 1.0	Below 0.3	Corrosion + Scale
	Copper	[mgCu/l]	Below 0.3	Below 0.1	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 0.1	Below 1.0	Below 0.1	Corrosion
	Sulfite ion	[mgS^{2-}/l]	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Corrosion
	Ammonium ion	[mgNH^+_4/l]	Below 1.0	Below 0.1	Below 1.0	Below 1.0	Below 0.1	Below 0.3	Below 0.1	Below 0.1	Below 0.1	Corrosion
	Remaining chloride	[mgCL/l]	Below 0.3	Below 0.3	Below 0.3	Below 0.3	Below 0.3	Below 0.25	Below 0.3	Below 0.1	Below 0.3	Corrosion
	Free carbide	[mgCO_2/l]	Below 4.0	Below 4.0	Below 4.0	Below 4.0	Below 4.0	Below 0.4	Below 4.0	Below 0.4	Below 4.0	Corrosion
	Stability index		6.0 ~ 7.0	—	—	—	—	—	—	—	—	Corrosion + Scale

1 Names, definitions and units are according to JIS K 0101. Units and figures between brackets are old units published as reference only.

2 In case of using heated water (more than 40°C), corrosion is generally noticeable.
Especially when the iron materials is in direct contact with water without any protection shields, it is desireable to give the valid measure for corrosion. E.g. chemical measure

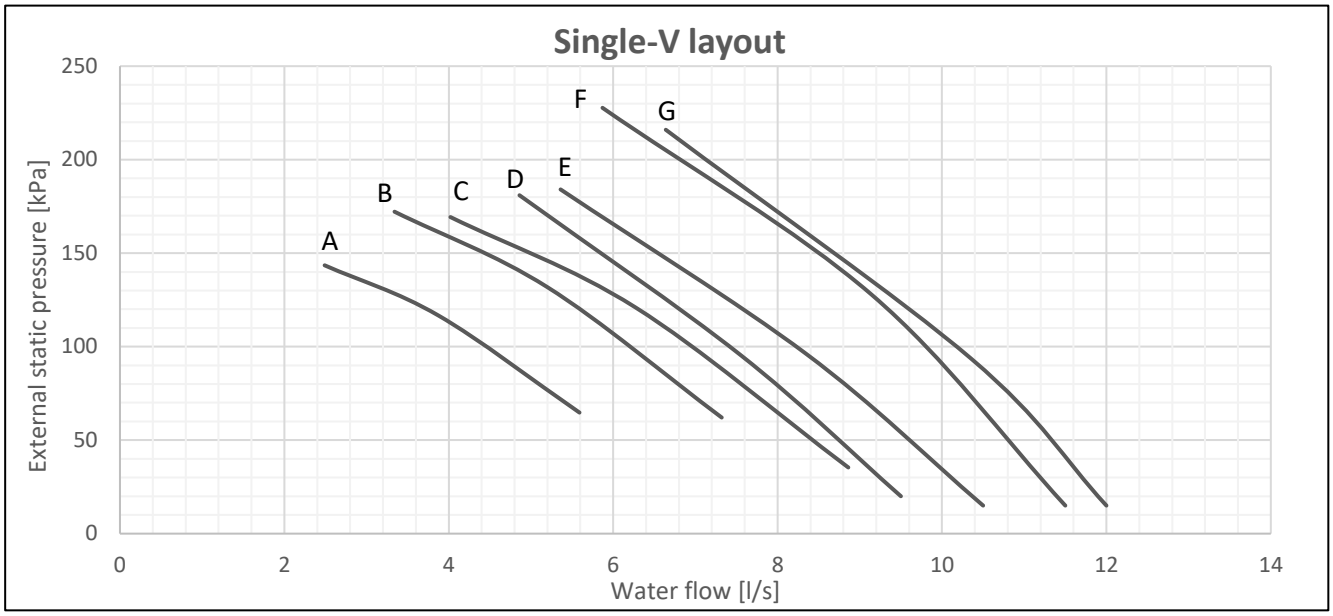
3 In the cooling water using hermetic cooling tower, close circuit water is according to heated water standard, and scattered water is according to cooling water standard.

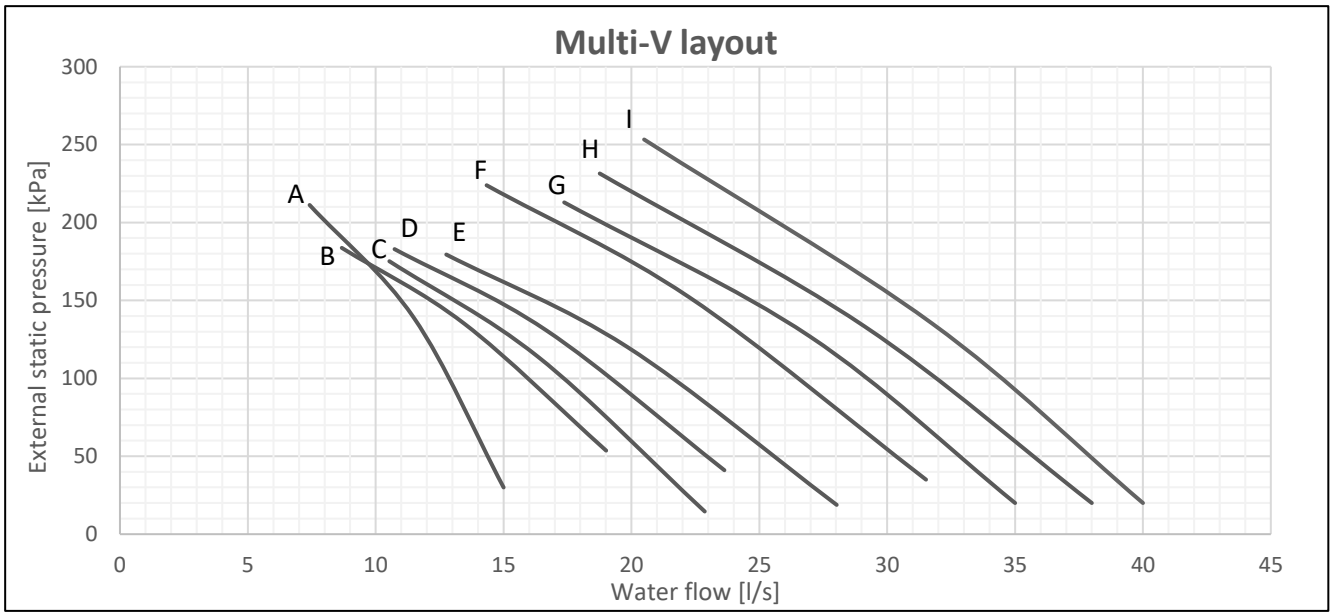
4 Supply water is considered drink water, industrial water and ground water except for genuine water, neutral water and soft water.

5 The above mentioned items are representable items in corrosion and scale cases.

6 The limits above have to be considered as a general prescription and con not totallu assure the absence of corrossion and erosion.
Some particular combinations of elements or the presence of components not listed in the table or factors not considered may trigger corrosion phenomena.

EWAT~B-S (SILVER SERIES) – Single pump low lift



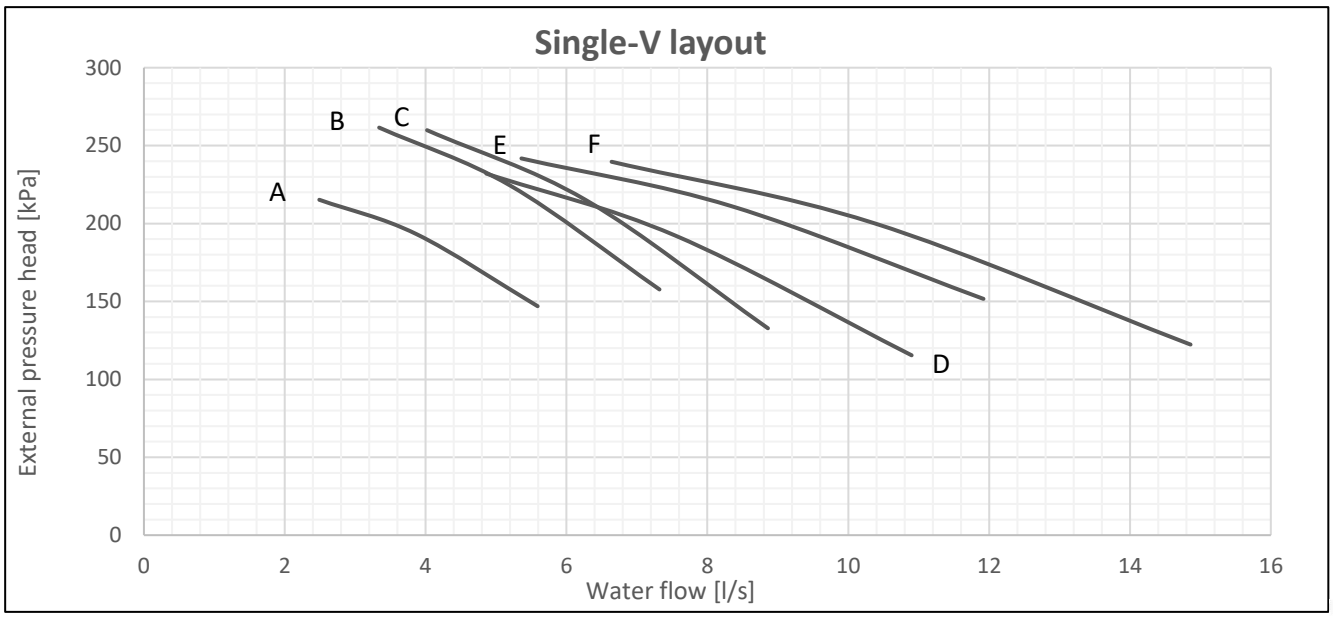


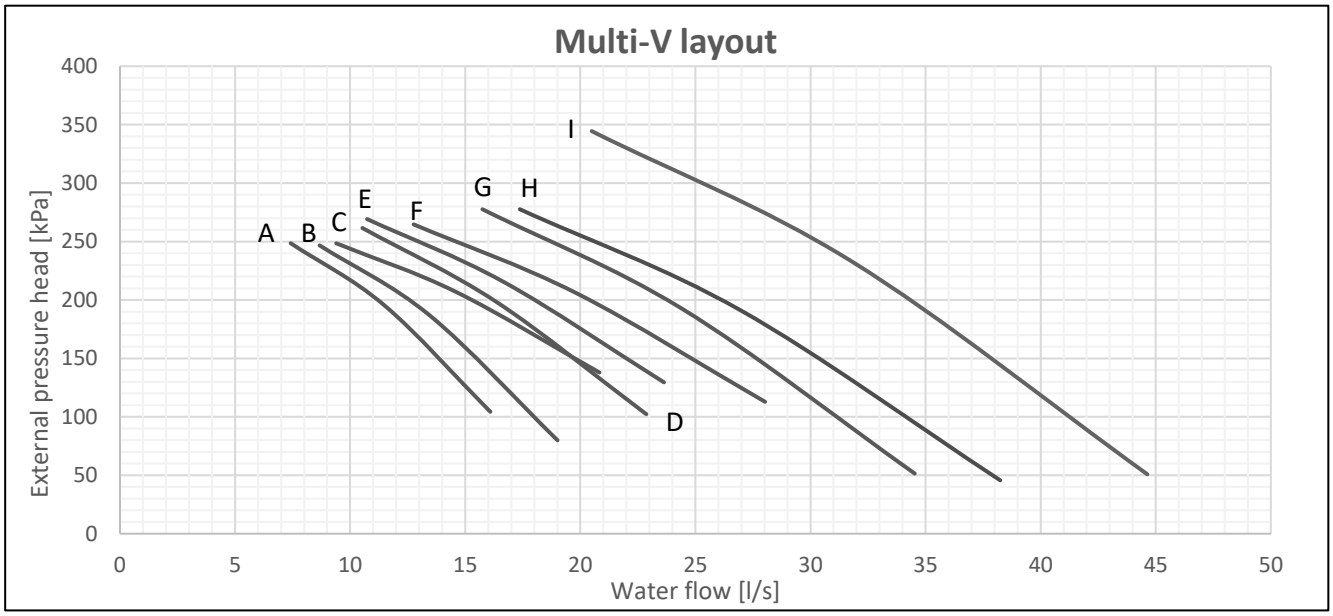
Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-SSA1	A	1,4	2,5
EWAT115B-SSA1	B	2,0	3,4
EWAT135B-SSA1	C	2,0	3,4
EWAT155B-SSA2	E	2,5	4,5
EWAT175B-SSA1	D	2,5	4,5
EWAT195B-SSA2	F	3,3	5,8
EWAT205B-SSA2	F	3,3	5,8
EWAT215B-SSA1	G	3,3	5,8

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT240B-SSA2	A	2,2	4,5
EWAT260B-SSA2	A	4,0	7,6
EWAT290B-SSA1	B	3,0	6,3
EWAT310B-SSA2	D	5,5	10,5
EWAT330B-SSA2	D	5,5	10,5
EWAT340B-SSA1	C	5,5	10,5
EWAT350B-SSA2	D	5,5	10,5
EWAT420B-SSA2	E	5,5	10,5
EWAT460B-SSA2	F	7,5	14,1
EWAT510B-SSA2	F	7,5	14,1
EWAT570B-SSA2	G	9,2	17,2
EWAT610B-SSA2	H	9,2	17,2
EWAT670B-SSA2	I	11	20,2

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

EWAT~B-S (SILVER SERIES) – Single pump high lift



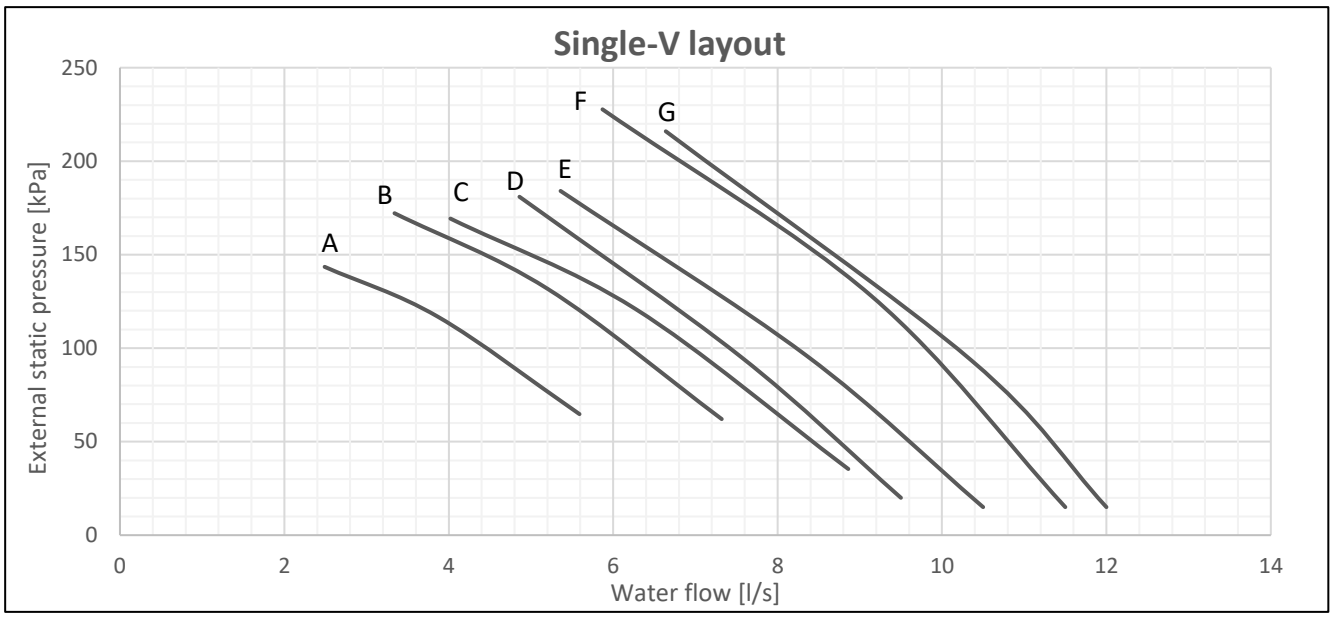


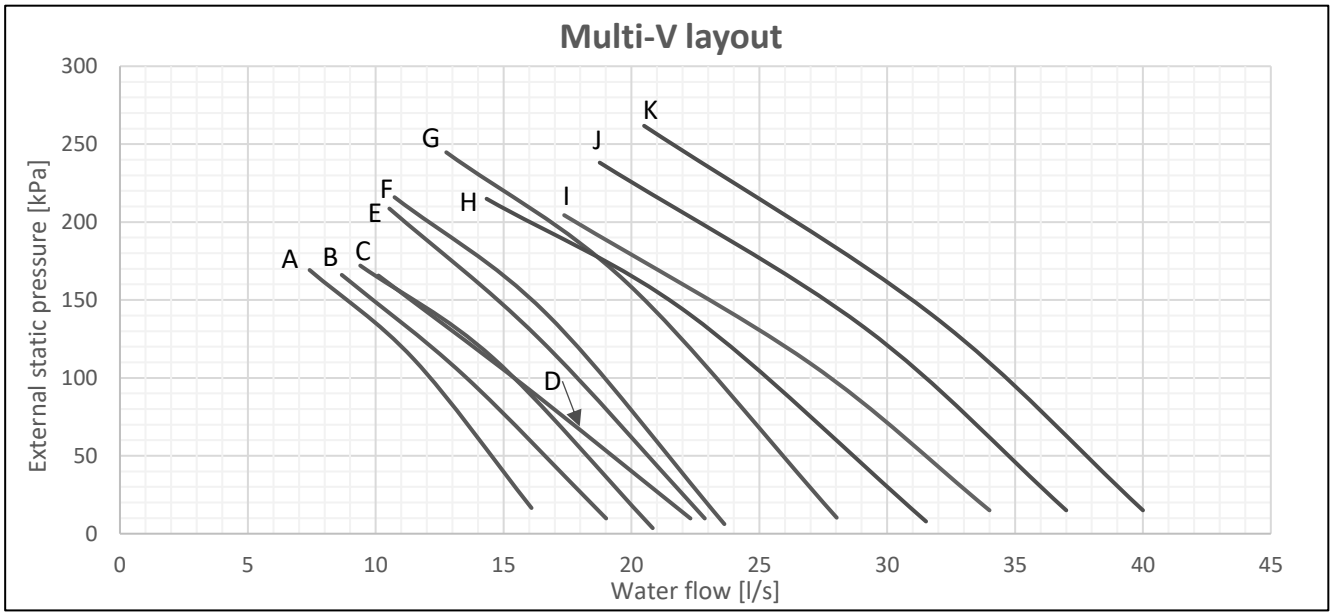
Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-SSA1	A	2,5	4,5
EWAT115B-SSA1	B	3,3	5,8
EWAT135B-SSA1	C	3,3	5,8
EWAT155B-SSA2	D	4,0	7,8
EWAT175B-SSA1	E	4,0	7,8
EWAT195B-SSA2	E	4,0	7,8
EWAT205B-SSA2	E	4,0	7,8
EWAT215B-SSA1	F	4,0	7,8

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT240B-SSA2	A	4,0	7,6
EWAT260B-SSA2	A	7,5	14,1
EWAT290B-SSA1	B	4,0	7,6
EWAT310B-SSA2	C	7,5	14,1
EWAT330B-SSA2	C	7,5	14,1
EWAT340B-SSA1	D	9,2	17,2
EWAT350B-SSA2	E	9,2	17,2
EWAT420B-SSA2	F	9,2	17,2
EWAT460B-SSA2	G	11	20,2
EWAT510B-SSA2	G	11	20,2
EWAT570B-SSA2	H	11	20,2
EWAT610B-SSA2	I	15	26,6
EWAT670B-SSA2	I	15	26,6

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

EWAT~B-S (SILVER SERIES) – Twin pump low lift



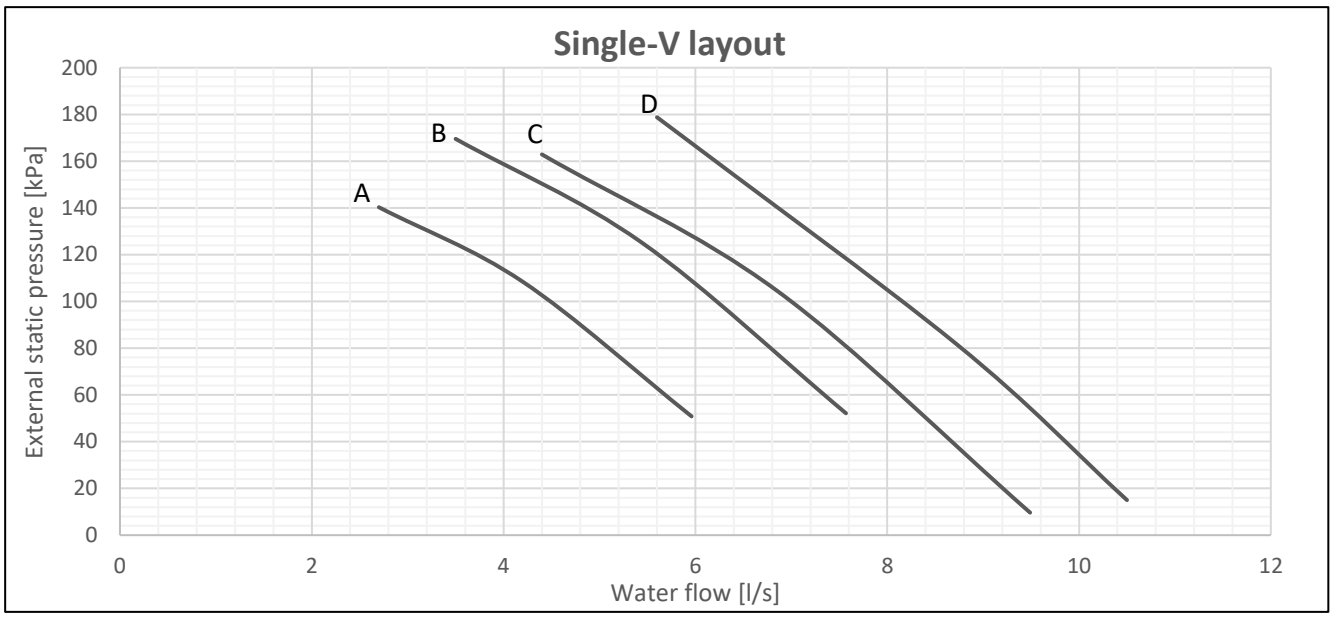


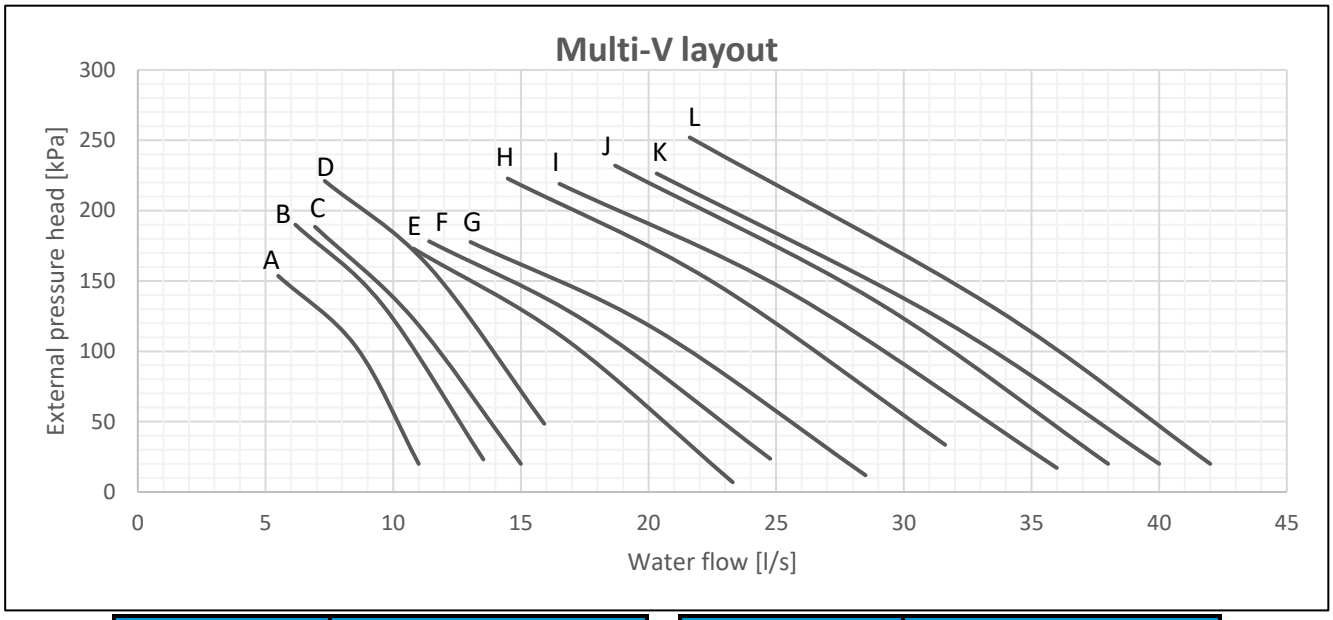
Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-SSA1	A	1,4	2,5
EWAT115B-SSA1	B	2,0	3,4
EWAT135B-SSA1	C	2,0	3,4
EWAT155B-SSA2	E	2,5	4,5
EWAT175B-SSA1	D	2,5	4,5
EWAT195B-SSA2	F	3,3	5,8
EWAT205B-SSA2	F	3,3	5,8
EWAT215B-SSA1	G	3,3	5,8

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT240B-SSA2	A	4,0	7,6
EWAT260B-SSA2	A	4,0	7,6
EWAT290B-SSA1	B	4,0	7,6
EWAT310B-SSA2	C	4,0	7,6
EWAT330B-SSA2	D	4,0	7,6
EWAT340B-SSA1	E	5,5	10,5
EWAT350B-SSA2	F	5,5	10,5
EWAT420B-SSA2	G	7,5	14,1
EWAT460B-SSA2	H	7,5	14,1
EWAT510B-SSA2	H	7,5	14,1
EWAT570B-SSA2	I	7,5	14,1
EWAT610B-SSA2	J	9,2	17,2
EWAT670B-SSA2	K	11	20,2

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

EWAT~B-X (GOLD SERIES) – Single pump low lift



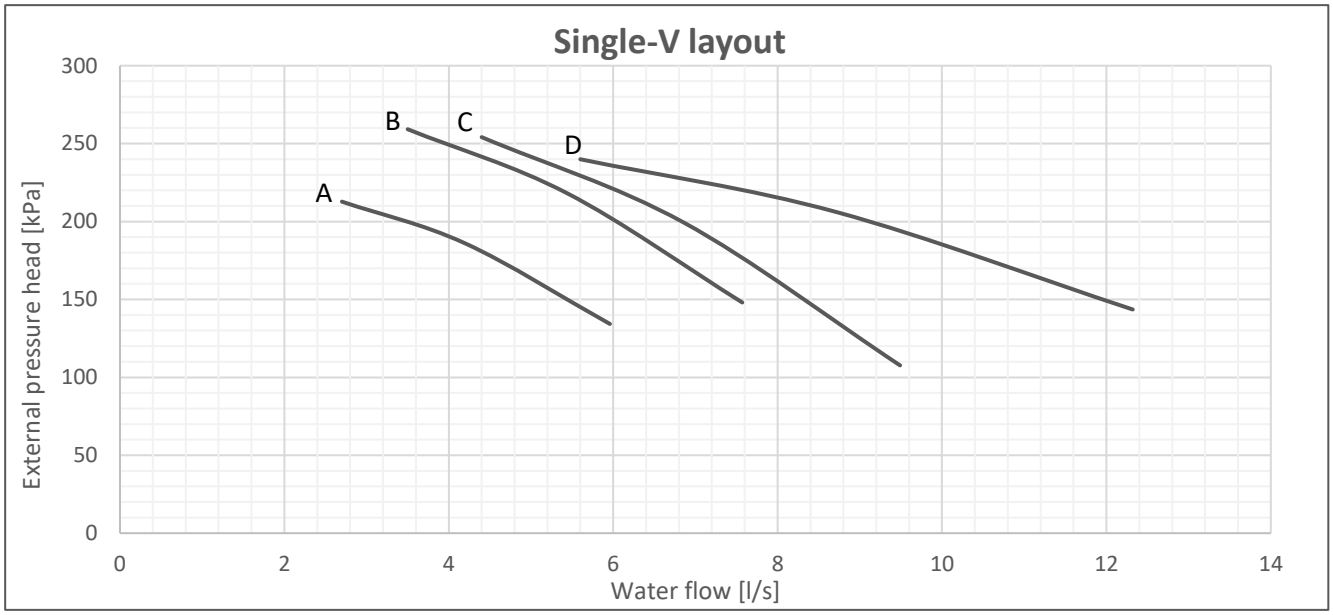


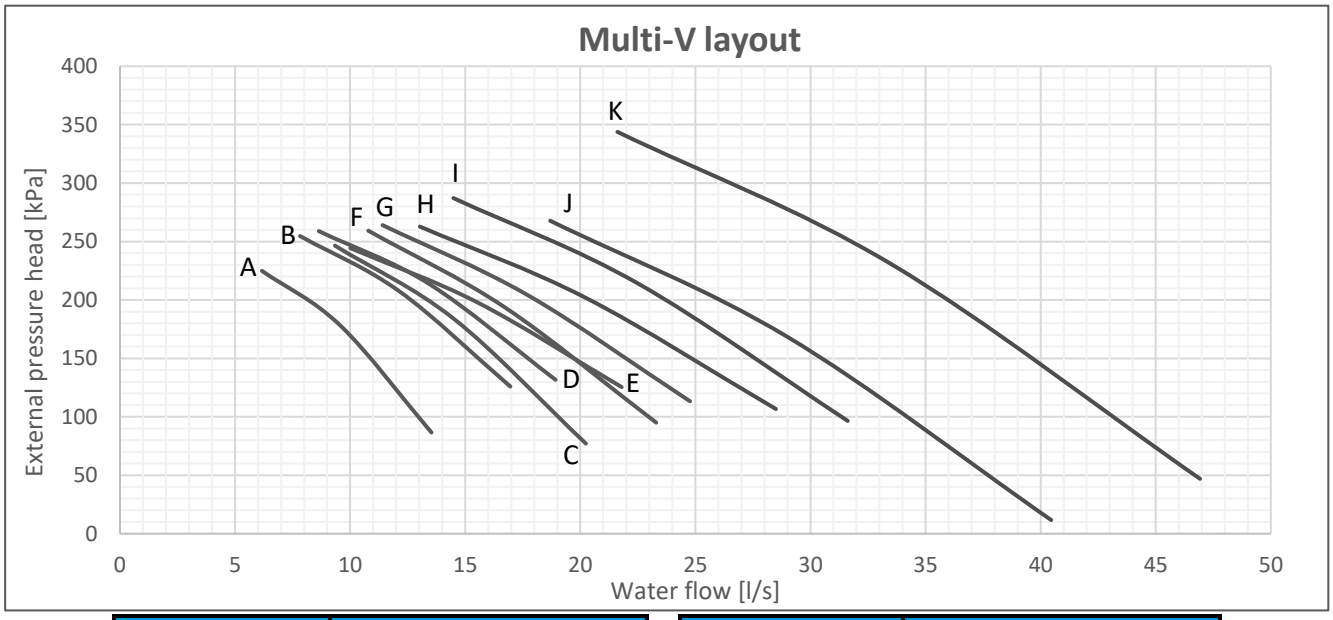
Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-XSA1	A	1,4	2,5
EWAT115B-XSA1	B	2,0	3,4
EWAT145B-XSA1	C	2,0	3,4
EWAT185B-XSA1	D	2,5	4,5

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT180B-XSA2	A	2,2	4,5
EWAT200B-XSA2	B	3	6,3
EWAT220B-XSA2	C	3	6,3
EWAT230B-XSA1	D	3	6,3
EWAT250B-XSA2	D	4	7,6
EWAT280B-XSA2	F	5,5	10
EWAT300B-XSA1	E	5,5	10
EWAT310B-XSA2	F	5,5	10
EWAT320B-XSA2	F	5,5	10
EWAT360B-XSA1	E	7,5	14
EWAT370B-XSA2	F	5,5	10
EWAT430B-XSA2	G	5,5	10
EWAT470B-XSA2	H	7,5	14
EWAT540B-XSA2	I	7,5	14
EWAT600B-XSA2	J	9,2	17
EWAT660B-XSA2	K	9,2	17
EWAT700B-XSA2	L	11	20

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

EWAT~B-X (GOLD SERIES) – Single pump High lift



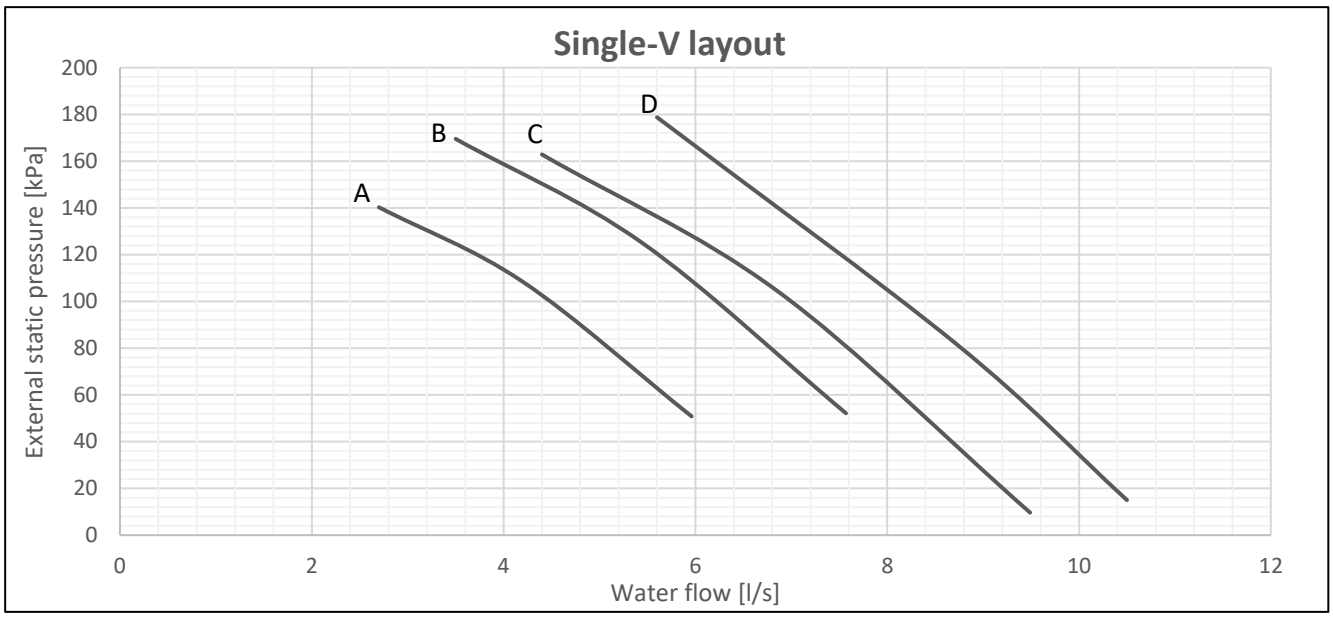


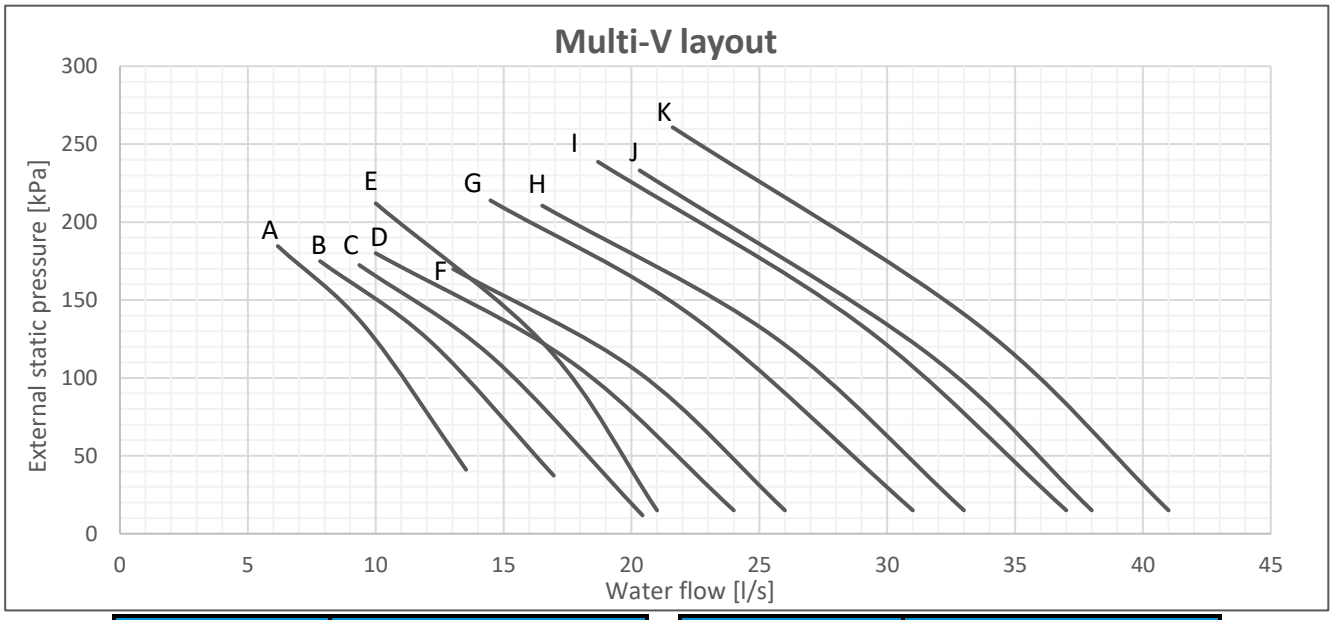
Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-XSA1	A	2,5	4,5
EWAT115B-XSA1	B	3,3	5,8
EWAT145B-XSA1	C	3,3	5,8
EWAT185B-XSA1	D	4,0	7,8

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT180B-XSA2	A	4,0	7,6
EWAT200B-XSA2	A	4,0	7,6
EWAT220B-XSA2	B	7,5	14
EWAT230B-XSA1	B	4,0	7,6
EWAT250B-XSA2	B	7,5	14
EWAT280B-XSA2	D	7,5	14
EWAT300B-XSA1	C	7,5	14
EWAT310B-XSA2	E	7,5	14
EWAT320B-XSA2	E	7,5	14
EWAT360B-XSA1	F	9,2	17
EWAT370B-XSA2	G	9,2	17
EWAT430B-XSA2	H	9,2	17
EWAT470B-XSA2	I	11	20
EWAT540B-XSA2	J	11	20
EWAT600B-XSA2	J	11	20
EWAT660B-XSA2	K	15	26
EWAT700B-XSA2	K	15	26

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

EWAT~B-X (GOLD SERIES) – Twin pump low lift



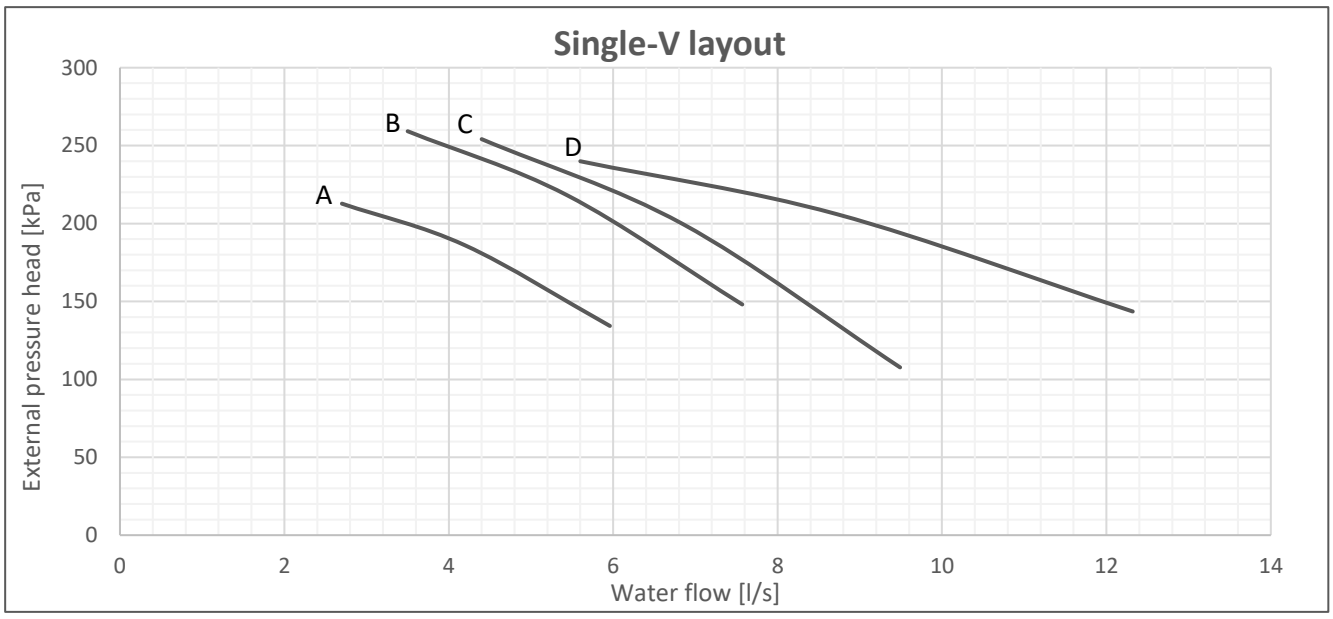


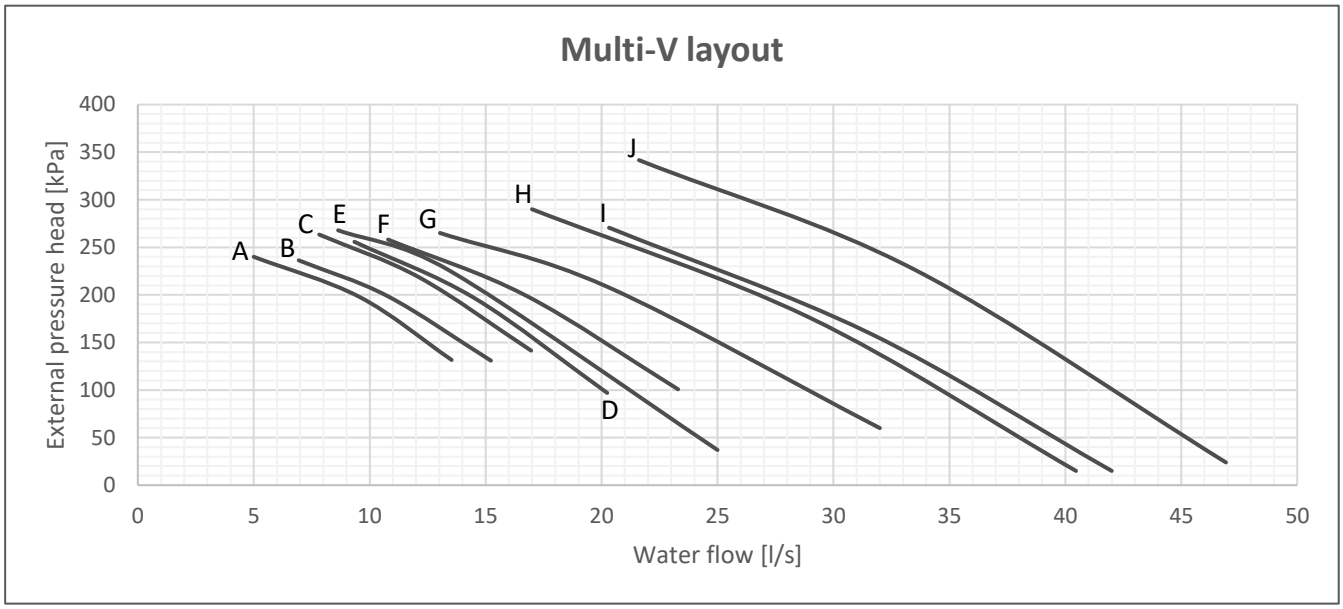
Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-XSA1	A	1,4	2,5
EWAT115B-XSA1	B	2,0	3,4
EWAT145B-XSA1	C	2,0	3,4
EWAT185B-XSA1	D	2,5	4,5

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT180B-XSA2	A	4,0	7,6
EWAT200B-XSA2	A	4,0	7,6
EWAT220B-XSA2	B	7,5	14,1
EWAT230B-XSA1	B	4,0	7,6
EWAT250B-XSA2	B	7,5	14,1
EWAT280B-XSA2	C	7,5	14,1
EWAT300B-XSA1	E	7,5	14,1
EWAT310B-XSA2	C	7,5	14,1
EWAT320B-XSA2	D	7,5	14,1
EWAT360B-XSA1	E	9,2	17,2
EWAT370B-XSA2	D	9,2	17,2
EWAT430B-XSA2	F	9,2	17,2
EWAT470B-XSA2	G	11	20,2
EWAT540B-XSA2	H	11	20,2
EWAT600B-XSA2	I	11	20,2
EWAT660B-XSA2	J	15	26,6
EWAT700B-XSA2	K	15	26,6

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

EWAT~B-X (GOLD SERIES) – Twin pump High lift



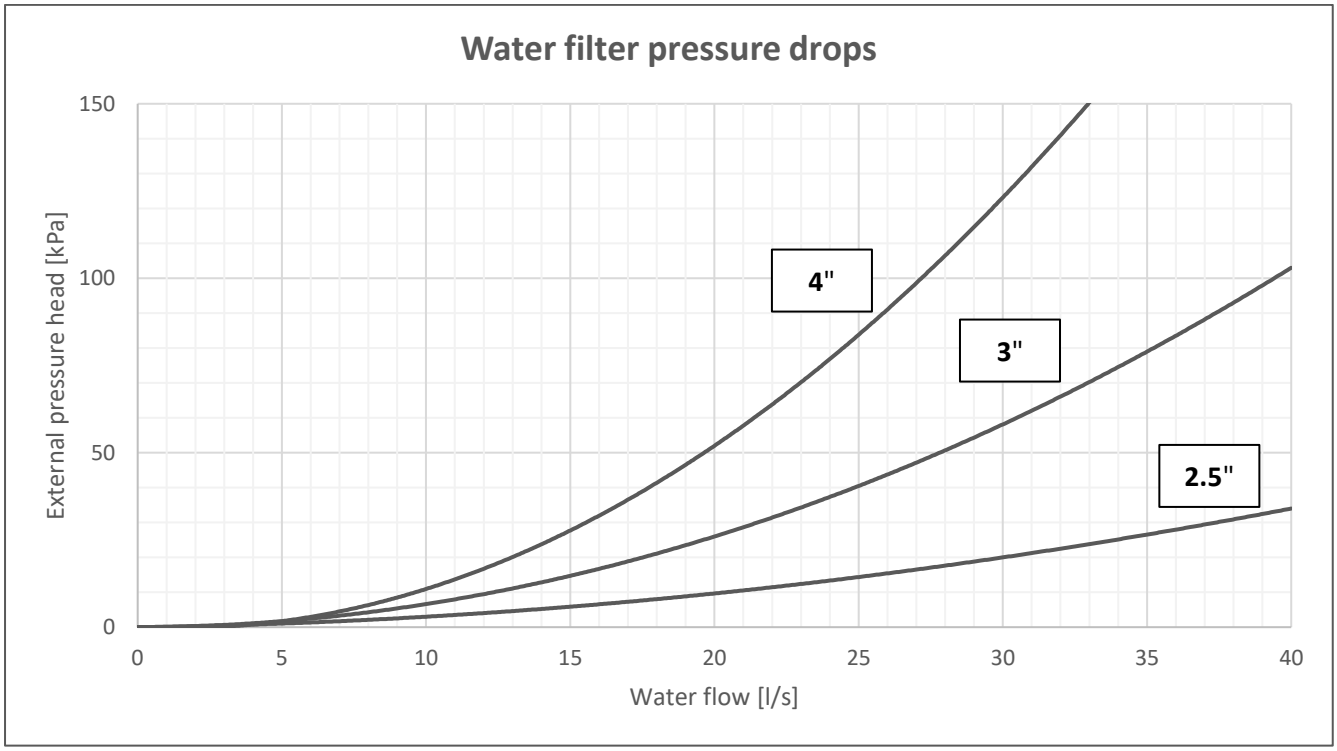


Single-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT085B-XSA1	A	2,5	4,5
EWAT115B-XSA1	B	3,3	5,8
EWAT145B-XSA1	C	3,3	5,8
EWAT185B-XSA1	D	4,0	7,8

Multi-V layout	Pump curve	Pump motor power [kW]	Pump motor current [A]
EWAT180B-XSA2	A	5,5	10,5
EWAT200B-XSA2	A	5,5	10,5
EWAT220B-XSA2	B	5,5	10,5
EWAT230B-XSA1	C	7,5	14,1
EWAT250B-XSA2	C	7,5	14,1
EWAT280B-XSA2	E	7,5	14,1
EWAT300B-XSA1	D	7,5	14,1
EWAT310B-XSA2	E	7,5	14,1
EWAT320B-XSA2	E	7,5	14,1
EWAT360B-XSA1	F	9,2	17,2
EWAT370B-XSA2	E	7,5	14,1
EWAT430B-XSA2	G	9,2	17,2
EWAT470B-XSA2	G	9,2	17,2
EWAT540B-XSA2	H	11,0	20,2
EWAT600B-XSA2	H	11,0	20,2
EWAT660B-XSA2	I	11,0	20,2
EWAT700B-XSA2	J	15,0	26,6

External static pressure refers to unit equipped with hydronic kit, defined as difference between pump external static pressure and evaporator pressure drops. Water flow range refer to pump only. For water flow limits of the unit refer to water flow section.
To calculate the total electrical data of the base unit selected with hydronic kit, the electrical data of the pump must be added to the electrical data of the base unit. Electrical data are subject to modification without notice. Please refer to unit nameplate.

Water filter pressure drops



Starting current with soft starter

MODEL	LRA [A]	MODEL	LRA [A]
EWAT085B-SS(L)(R)A1	156	EWAT085B-XS(L)(R)A1	158
EWAT115B-SS(L)(R)A1	196	EWAT115B-XS(L)(R)A1	198
EWAT135B-SS(L)(R)A1	207	EWAT145B-XS(L)(R)A1	211
EWAT155B-SS(L)(R)A2	226	EWAT180B-XS(L)(R)A2	232
EWAT175B-SS(L)(R)A1	328	EWAT185B-XS(L)(R)A1	330
EWAT195B-SS(L)(R)A2	266	EWAT200B-XS(L)(R)A2	272
EWAT205B-SS(L)(R)A2	277	EWAT220B-XS(L)(R)A2	283
EWAT215B-SS(L)(R)A1	364	EWAT230B-XS(L)(R)A1	368
EWAT240B-SS(L)(R)A2	295	EWAT250B-XS(L)(R)A2	299
EWAT260B-SS(L)(R)A2	306	EWAT280B-XS(L)(R)A2	406
EWAT290B-SS(L)(R)A1	409	EWAT300B-XS(L)(R)A1	417
EWAT310B-SS(L)(R)A2	434	EWAT310B-XS(L)(R)A2	417
EWAT330B-SS(L)(R)A2	446	EWAT320B-XS(L)(R)A2	429
EWAT340B-SS(L)(R)A1	449	EWAT360B-XS(L)(R)A1	453
EWAT350B-SS(L)(R)A2	457	EWAT370B-XS(L)(R)A2	465
EWAT420B-SS(L)(R)A2	498	EWAT430B-XS(L)(R)A2	502
EWAT460B-SS(L)(R)A2	543	EWAT470B-XS(L)(R)A2	539
EWAT510B-SS(L)(R)A2	579	EWAT540B-XS(L)(R)A2	587
EWAT570B-SS(L)(R)A2	624	EWAT600B-XS(L)(R)A2	640
EWAT610B-SS(L)(R)A2	661	EWAT660B-XS(L)(R)A2	677
EWAT670B-SS(L)(R)A2	701	EWAT700B-XS(L)(R)A2	713

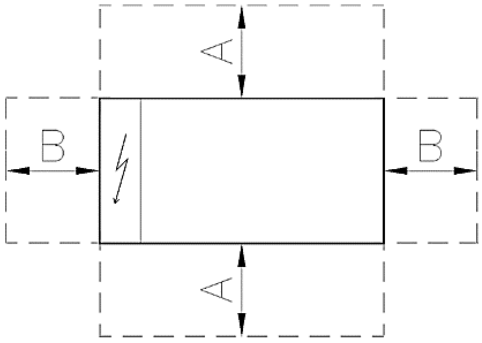
Tank volume (Hydronic kit with tank)

MODEL	Vol [l]	MODEL	Vol [l]
EWAT085B-SS(L)(R)A1	70	EWAT085B-XS(L)(R)A1	145
EWAT115B-SS(L)(R)A1	145	EWAT115B-XS(L)(R)A1	190
EWAT135B-SS(L)(R)A1	145	EWAT145B-XS(L)(R)A1	190
EWAT155B-SS(L)(R)A2	190	EWAT180B-XS(L)(R)A2	300
EWAT175B-SS(L)(R)A1	190	EWAT185B-XS(L)(R)A1	250
EWAT195B-SS(L)(R)A2	250	EWAT200B-XS(L)(R)A2	300
EWAT205B-SS(L)(R)A2	250	EWAT220B-XS(L)(R)A2	300
EWAT215B-SS(L)(R)A1	250	EWAT230B-XS(L)(R)A1	400
EWAT240B-SS(L)(R)A2	300	EWAT250B-XS(L)(R)A2	400
EWAT260B-SS(L)(R)A2	300	EWAT280B-XS(L)(R)A2	400
EWAT290B-SS(L)(R)A1	300	EWAT300B-XS(L)(R)A1	400
EWAT310B-SS(L)(R)A2	400	EWAT310B-XS(L)(R)A2	400
EWAT330B-SS(L)(R)A2	400	EWAT320B-XS(L)(R)A2	400
EWAT340B-SS(L)(R)A1	400	EWAT360B-XS(L)(R)A1	600
EWAT350B-SS(L)(R)A2	400	EWAT370B-XS(L)(R)A2	600
EWAT420B-SS(L)(R)A2	600	EWAT430B-XS(L)(R)A2	600
EWAT460B-SS(L)(R)A2	600	EWAT470B-XS(L)(R)A2	600
EWAT510B-SS(L)(R)A2	600	EWAT540B-XS(L)(R)A2	600
EWAT570B-SS(L)(R)A2	600	EWAT600B-XS(L)(R)A2	750
EWAT610B-SS(L)(R)A2	600	EWAT660B-XS(L)(R)A2	750
EWAT670B-SS(L)(R)A2	750	EWAT700B-XS(L)(R)A2	750

Warning Installation and maintenance of the unit must be performed only by qualified personnel who have knowledge with local codes and regulations and experience with this type of equipment. unit installation in places that could be considered dangerous for maintenance operations must be avoided.

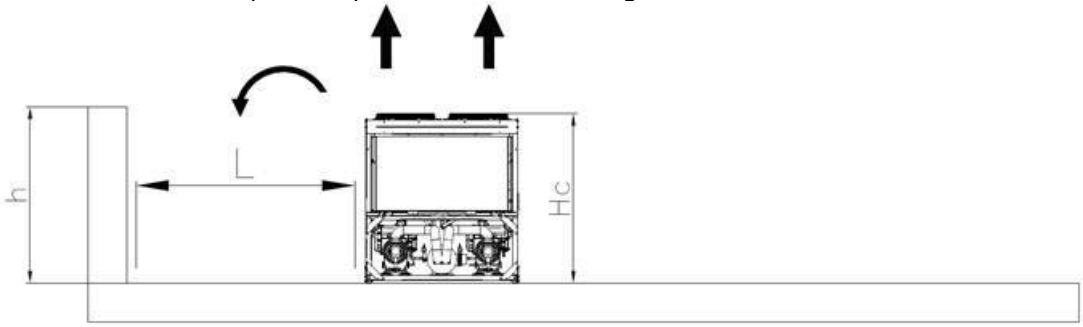
Location The units are produced for outdoor installation on roofs, floors or below ground level on condition that the area is free from obstacles for the passage of the condenser air. The unit should be positioned on solid foundations and perfectly leveled; in the case of installation on roofs or floors, it may be advisable to arrange the use of suitable weight distribution beams. When the units are installed on the ground, a concrete base at least 250 mm wider and longer than the unit's footprint should be laid. Furthermore, this base should withstand the unit weight mentioned in the technical data table.

Space requirements The units are air-cooled, then it is important to respect the minimum distances which guarantee the best ventilation of the condenser coils. Limitations of space reducing the air flow could cause significant reductions in cooling capacity and an increase in electricity consumption.
To determinate unit placement, careful consideration must be given to assure a sufficient air flow across the condenser heat transfer surface. Two conditions must be avoided to achieve the best performance: warm air recirculation and coil starvation. Both these conditions cause an increase of condensing pressures that results in reductions in unit efficiency and capacity. Moreover, the unique microprocessor can evaluate the operating environment of the air-cooled chiller and is capable to optimize performances staying on-line during abnormal conditions.
Each side of the unit must be accessible after installation for periodic service. The following pictures shows you minimum recommended clearance requirements.



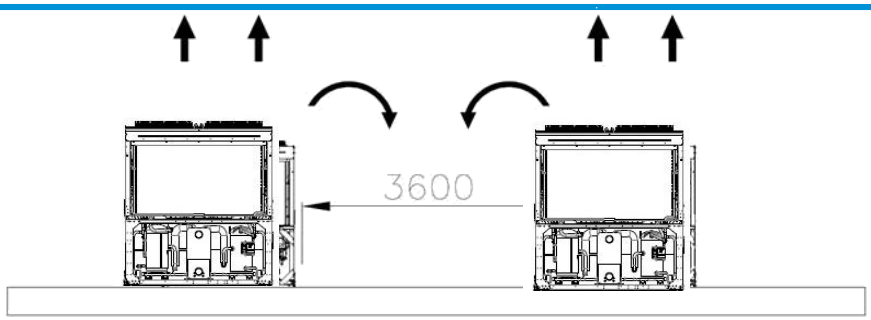
	Single V	Multi V
A	1100 mm	2200 mm
B	1100 mm	1500 mm

For single chiller installation in proximity of a wall the following indications are recommended:

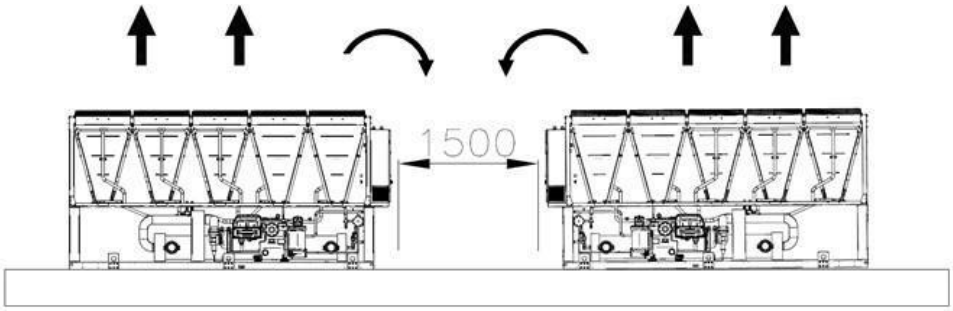


- if h < Hc → L must at least 3 m for multi-V layout units or 1.8m for single-V layout units
- if h ≥ Hc or L lower than recommended contact Daikin representative to evaluate possible arrangements

In case two chillers installed side by side in free filed, the minimum distance recommended between the chillers is indicated in the below picture



For mutliple chiller installation it is recommended to install the chillers is a single row as hown in the picture below



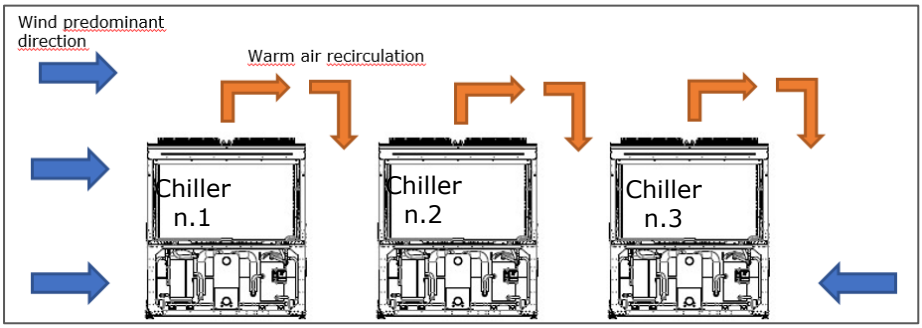
For additional information refer to the Installation Manual. If the site does not allow this kind of installation contact Daikin representative to evaluate possible arrangements.

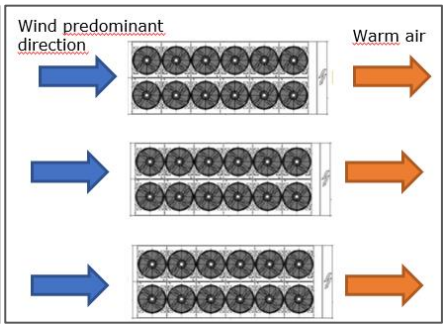
Multiple chillers installation – free field with wind prevalent direction

Considering an installation in areas with prevailing wind direction (as represented in the first image below):

- Chiller n.1: operates with no air overtemperature
- Chiller n.2: operates in heated environment caused by Chiller n.1 and by itself
- Chiller n.3: operates in partially heated environment caused by Chiller n.2

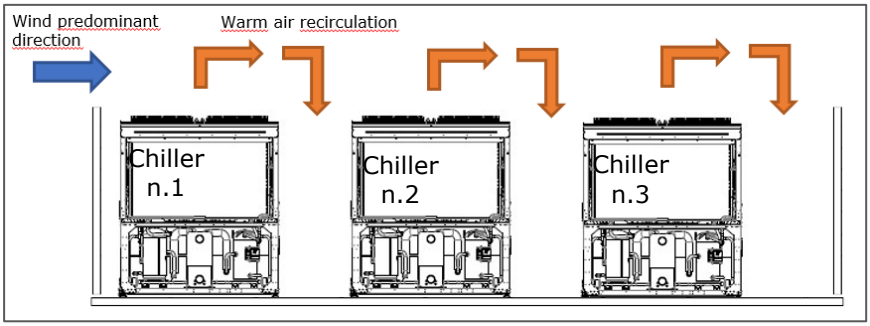
To reduce the effect of prevailing wind, it is opportune to set the chillers main dimension parallel to the wind prevailing wind (as represented in the second image below).





Multiple chillers installation – closed area with wind prevalent direction

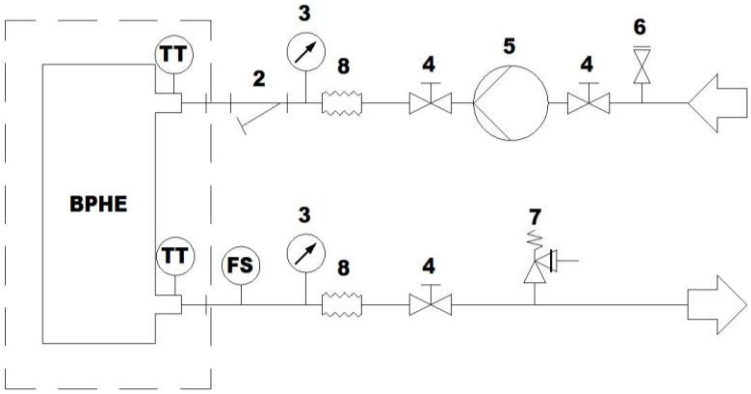
In case of closed area with height equal or higher than the chillers, installation is the installation is not recommended. Chillers 2 and 3 operate at significantly higher temperatures due to the higher recirculation. In this case it is necessary to adopt special precautions based on the specific installation (for example: walls with grids, installation of the unit on base to increase its height, duct on fans, high head fans, etc.)



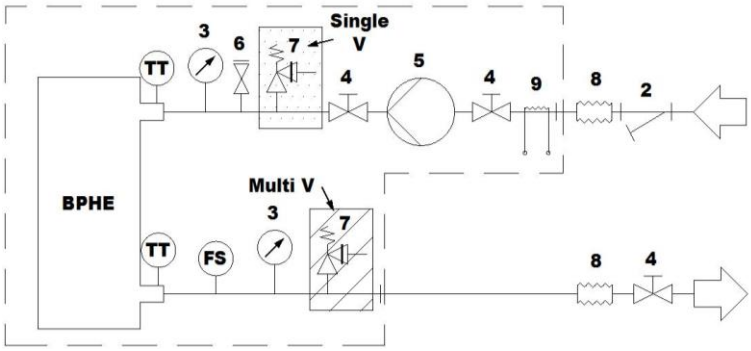
Water filter The installation of the filter is mandatory. Reccomended maximum mesh size is equal to 1.0 mm. Water filter has to be installed as close as possible to the chiller. If the chiller is installed in a different part of the hydraulic system, the installed must ensure the cleaning of the water pipes between water filter and evaporator. The pressure drop value showed in CSS (Chiller Selection Software) are referred to chiller's evaporator only. For EWAT~B the water filter is available as option on request (shipped loose).

Hydraulic schemes

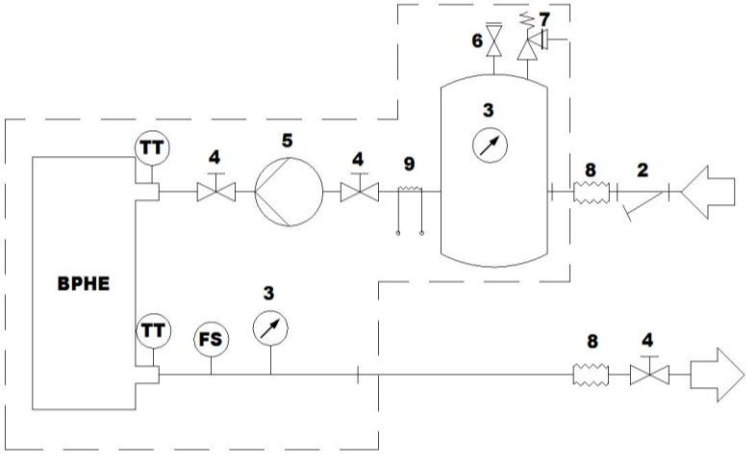
- **Hydraulic scheme of the standard unit** (max operating pressure 20bar)



- **Hydraulic scheme of the unit with pump(s)** (max operating pressure 6bar)



- **Hydraulic scheme of the unit with pump(s) and tank** (max operating pressure 6bar)



BPHE	Brazed plates heat exchanger	**5**	Pump (or pumps)
FS	Flowswitch	**6**	Filling group
TT	Temperature sensor	**7**	Safety valve (Pt = 6 bar)
2	Water filter	**8**	Anti-vibration joint
3	Pressure gauge	**9**	Electric heater
4	Shut-off valve		

General The chiller will be designed and manufactured in accordance with the following European directives:
• Construction of pressure vessel 2014/68/EU
• Machinery Directive 2006/42/EC
• Low Voltage 2014/35/EU
• Electromagnetic Compatibility 2014/30/EU
• Electrical & Safety codes EN 60204–1 / EN 60335-2-40
• Manufacturing Quality Standards UNI – UNI EN ISO 1400
The unit will be tested at full load in the factory (at the nominal working conditions and water temperatures).
The chiller will be delivered to the job site completely assembled and charged with refrigerant and oil.
The installation of the chiller must comply with the manufacturer's instructions for rigging and handling equipment.

The unit will be able to start up and operate (as standard) at full load with:
- Outside air temperature from..... °C to..... °C
- Evaporator leaving fluid temperature between..... °C and..... °C

Refrigerant HFC R-32

Performance Chiller shall supply the following performances:
• Number of chiller(s):..... unit(s)
• Cooling capacity for single chiller:..... kW
• Power input for single chiller in cooling mode:..... kW
• Heat exchanger entering water temperature in cooling mode:..... °C
• Heat exchanger leaving water temperature in cooling mode:..... °C
• Heat exchanger water flow:..... l/s
• Nominal outside working ambient temperature in cooling mode:..... °C
• Minimum full load efficiency (EER): ..... (kW/kW)
• Minimum part load efficiency (SEER): ..... (kW/kW)

Operating voltage range should be 400V ±10%, 3ph, 50Hz (or 380V ±10%, 3ph, 60Hz), voltage unbalance maximum 3%, without neutral conductor and shall only have one power connection point.

Unit description Chiller shall include one or two independent refrigerant circuits, hermetic orbiting scroll type optimized for R-32 operation, electronic expansion device (EEXV), direct expansion, PHE evaporator, air-cooled condenser section made with aluminum Microchannel technology, R-32 refrigerant, lubrication system, motor starting components, control system and all components necessary for a safe and stable unit operation.
The chiller will be factory assembled on a robust base frame made of galvanized steel, protected by an epoxy paint.

Sound level and vibrations Sound power level shall not exceed .....dB(A). The sound power levels must be rated in accordance to ISO 9614 (other types of rating cannot be used). Vibration on the base frame should not exceed 2 mm/s.

Dimensions Unit dimensions shall not exceed following indications:
- Unit length..... mm
- Unit width..... mm
- Unit height..... mm

Compressors
Hermetic orbiting scroll type optimized for R-32 operation and complete with motor over-temperature and over-current protection devices. Each compressor equipped with oil heater that keeps the oil from being diluted by the refrigerant when the chiller is not running. Each compressor is mounted on rubber antivibration mounts for a quite operation. Unit is delivered with complete oil charge.

Evaporator
The units shall be equipped with a direct expansion plate to plate type evaporator.
• The evaporator will be made of stainless steel brazed plates and shall be linked with an electrical heater controlled by a thermostat and shall be insulated with flexible, closed cell polyurethane insulation material.
• The water connections shall be VICTAULIC type connections as standard to ensure quick mechanical disconnection between the unit and the hydronic network.
• The evaporator will be manufactured in accordance to PED approval.
• Flow switch on evaporator available as option (shipped loose).
• Water folter on evaporatoravailable as option (shipped loose).

Condenser coil The condenser is made entirely of aluminum with flat tubes containing small channels. Full - depth louvered aluminum fins are inserted between the tubes maximizing the heat exchange. The

Microchannel technology ensures the highest performance with the minimum surface for the exchanger. The quantity of refrigerant is also reduced compared to Cu/Al condenser. Special treatments ensure resistance to thecorrosion by atmospheric agents extending the life time (available on request).

Condenser fans The condenser fans used in conjunction with the condenser coils, shall be propeller with glass reinforced resin blades for higher efficiencies and lower sound. Each fan shall be protected by a fan guard.
• The air discharge shall be vertical and each fan must be coupled to the electrical motor, supplied asstandard to IP54 and capable to work to ambient temperatures of - 20°C to + 65°C.
• The condenser fans shall have as a standard a thermally protection by internal thermal motor.

Refrigerant circuit The unit shall have one or two independent refrigerant.
• The circuit shall include as standard: electronic expansion device dived by unit's microprocessor control, liquid line shut-off valve, sight glass with moisture indicator, filter drier, charging valves, high pressure switch, high and low pressure transducers, oil pressure transducer and insulated suction line. Condensation control The units will be provided with an automatic control for condensing pressure which ensures the working at low external temperatures down to - …… °C, to maintain condensing pressure.

• The unit automatically unloads when abnormal high condensing pressure is detected. This to prevent the shutdown of the refrigerant circuit (shutdown of the unit) due to a high-pressure fault.
The compressor shall be connected to unit's metal base frame by rubber anti vibration supports to prevent the transmission of vibrations to all metal unit structure, in order to limit the unit noise emissions. The chiller shall be provided with an acoustical compressor enclosure (according to the version). This enclosure shall be realized with a light, corrosion resisting aluminum structure and metal panels. The compressor sound-proof enclosure (available as option) shall be internally fitted with flexible, multi-layer, high density materials.

Hydronic kit options (on request) The hydronic module shall be integrated in the chiller chassis without increasing its dimensions and includes the following elements: centrifugal pump with motor protected by a circuit breaker installed in control panel, water filling system with pressure gauge, safety valve, drain valve.
• The hydronic module shall be assembled and wired to the control panel.
• The water piping shall be protected against corrosion and freezing and insulated to prevent condensation.
• A choice of two pump types shall be available:
- in-line single pump
- in-line twin pumps.
The unit should be able to operate in Primary only system with two-ways valve on terminals with Variable Primary Flow control strategy (available as option on request).

Master/Slave
The unit shell be able to operate in Master / Slave mode in order to be connected with another similar unit (up to 4). The master unit shall manage the slave units connected in series on the hydraulic plant with the aim of optimize the running hours of each compressor and to balance running hours and the load between the units.

Electrical control panel
Power and control shall be located in the main panel that will be manufactured to ensure protection against all weather conditions.
• The electrical panel shall be IP54 and (when opening the doors) internally protected against possible accidental contact with live parts.
• The main panel shall be fitted with a main switch interlocked door that shuts off power supply when opening.
• The power section will include compressors and fans starter devices.

Controller
The controller will be installed as standard and it will be used to modify unit set-points and check control parameters.
• A built-in display will shows chiller operating status plus temperatures and pressures of water, refrigerant and air, programmable values, set-points.
• A sophisticated software with predictive logic, will select the most energy efficient combination of compressors, EEXV and condenser fans to keep stable operating conditions to maximize chiller energy efficiency and reliability.
• The controller will be able to protect critical components based on external signals received from the unit itself (such as motor temperatures, refrigerant gas and oil pressures, correct phase sequence, pressure switches and evaporator flow switch). The input coming from the high pressure switch cuts all digital output from the controller in less than 50ms, this will be an additional safety for the equipment.
• Fast program cycle (200ms) for a precise monitoring of the system.
• Floating point calculations supported for increased accuracy in P/T conversions.

Controller features
Controller shall be guarantee following minimum functions:

• Management of the compressors.
• Chiller enabled to work in partial failure condition.
• Full routine operation at condition of:
- high ambient temperature value
- high thermal load
- high evaporator entering water temperature (start-up)
• Display of evaporator entering/leaving water temperature.
• Display of Outdoor Ambient Temperature.
• Display of condensing-evaporating temperature and pressure, suction and discharge superheat for each circuit.
• Leaving water evaporator temperature regulation.
• Compressor and evaporator pumps hours counter.
• Display of Status Safety Devices.
• Number of starts and compressor working hours.
• Optimized management of unit load.
• Fan management according to condensing pressure.
• Re-start in case of power failure (automatic / manual).
• Soft Load (optimized management of the unit load during the start-up).
• Start at high evaporator water temperature.
• Return Reset (Set Point Reset based on return water temperature).
• OAT (Outside Ambient temperature) set-point reset.
• Set point Reset from external signal (optional).
• Application and system upgrade with commercial SD cards.
• Ethernet port for remote or local servicing using standard web browsers.
• Master / Slave (provided as standard)
• Variable primary Flow (available as option)
• Two different sets of default parameters could be stored for easy restore.

High Level Communications Interface (on request)
The chiller shall be able to communicate to BMS (Building Management System) based on the most common protocols as:
- ModbusRTU
- LonWorks, now also based on the international 8040 Standard Chiller Profile and LonMark Technology
- BacNet BTP certified over IP

In all of us, a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

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