AWA RANGE REFRESH

Increased performance

High competitiveness on the market

NEW!

R454B

AWA HP XEA/SEA **R454B** (heat pump version)

Heating capacity ***130 - 340 KW***

Cooling capacity ***127 – 338 kW***

AWA XEA/SEA **R454B** (chiller version)

Cooling capacity ***137 – 420 kW***

SUMMARY

- Discover the range
- Product features
- Operating maps
- Controllers
- Main options

NEW!

R454B

AWA R-evolution

DRIVERS

- **Greater reliability**
- **High performances** -> Increase over current *Legacy models*
- **New advanced THERMOLOGIC controller :**
  - High reliability of performance data;
  - Extensive range of accessories available;
  - Touch screen 7''.

AWA PDC
10 models
HC: ***130 - 340 kW***

- **AWA HP SEA:** high efficiency range with EC fans!
- **AWA HP XEA:** standard efficiency range with AC fans!

- Lower footprint of last model 305 kW (moving from 4V to 3V)
- New design for 3 models (230 – 270 kW) moving from 3V to 2.5V
- Extended operating map: suitable for COMFORT and PROCESS applications, in heating mode they guarantee perfect operation down to -15°C of external air and are able to produce water up to a maximum temperature of 60°C.

AWA CHILLER
12 models
CC: ***137 - 420 kW***

NEW!

- **AWA SEA:** high efficiency range with EC fans!
- **AWA XEA:** standard efficiency range with AC fans!

- Lower footprint for 4 models in the 300 – 420 kW range (thanks to the switch from 4V to 3V)
- Operating map – Cooling mode min. LWT = -12°C

Higher performances

AWA HP SEA

Range with EC fans

	042	050	055	060	061	070	074	075	085	095
CC	**128**	**156**	**180**	**201**	**218**	**238**	**261**	**264**	**289**	**315**
EER	**2,98**	**3,09**	**2,95**	**2,78**	**3,15**	**3,10**	**2,88**	**3,20**	**3,00**	**2,85**
EC	B	B	B	C	A	A	C	A	B	C
ηs,c	178	177	177	164	185	179	170	182	177	170
SEER	4,51	4,49	4,49	4,18	4,69	4,54	4,31	4,64	4,50	4,31
HC	**127**	**158**	**183**	**208**	**220**	**243**	**270**	**278**	**308**	**338**
COP	**3,11**	**3,08**	**3,11**	**3,08**	**3,29**	**3,31**	**3,21**	**3,35**	**3,30**	**3,25**
EC	B	B	B	B	A	A	A	A	A	A
ηs,h	145	135	138	139	140	147	145	144	144	145
SCOP	3,70	3,44	3,54	3,56	3,57	3,74	3,70	3,66	3,67	3,69
EC	A	A	A	A	A	A	A	A	A	A

AWA REFRESH vs *Legacy R454B*

EER average +7%

COP average +2%

SCOP average +13%

CLASS A!

AWA HP XEA

	042	050	055	060	061	070	074	075	085	095
CC	**128**	**155**	**180**	**201**	**217**	**238**	**261**	**264**	**289**	**315**
EER	**2,94**	**3,06**	**2,92**	**2,76**	**3,13**	**3,08**	**2,86**	**3,17**	**2,98**	**2,83**
EC	B	B	B	C	A	B	C	A	B	C
ηs,c	174	164	166	158	170	169	162	170	167	162
SEER	4,42	4,18	4,21	4,02	4,31	4,29	4,13	4,32	4,25	4,12
HC	**127**	**157**	**183**	**208**	**220**	**242**	**270**	**277**	**308**	**338**
COP	**3,09**	**3,04**	**3,08**	**3,06**	**3,26**	**3,28**	**3,19**	**3,32**	**3,27**	**3,23**
EC	B	B	B	B	A	A	B	A	A	A
ηs,h	143	132	136	137	137	144	143	141	141	142
SCOP	3,65	3,36	3,47	3,50	3,50	3,68	3,65	3,60	3,60	3,63
EC	A	A	A	A	A	A	A	A	A	A

CLASS A!

Higher performances

CLASS A!

AWA XEA R454B			AC											
V Number			2V								3V			
Size			042	050	052	055	060	065	070	075	085	095	105	125
	Net Capacity	kW	137	156	185	198	223	236	246	266	309	337	377	419
	Net Power	kW	43,9	54,2	55,5	60,4	71,5	76,0	80,5	89,9	92,8	105,7	121,6	138,1
Cooling (1)	Net EER		3,11	2,88	3,33	3,28	3,13	3,11	3,06	2,96	3,33	3,18	3,10	3,03
	Eurovent Class		A	C	A	A	A	A	B	B	A	A	A	B
	P rated c	kW	137	156	185	198	223	236	246	266	309	337	377	419
Cooling (2)	ηs,c [VO/VW]	%	188%	180%	185%	186%	180%	179%	178%	177%	195%	188%	188%	186%
	SEER [VO/VW]		4,79	4,56	4,70	4,73	4,56	4,55	4,53	4,50	4,96	4,77	4,78	4,73
	P rated	kW	137	156	185	198	223	236	246	266	309	337	377	419
High temperature process cooling (3)	SEPR HT		5,64	5,38	5,86	5,76	5,55	5,57	5,50	5,43	5,55	5,47	5,18	5,52

AWA REFRESH vs *Legacy R454b*

EER average +4%

SEER average +6%

Range with EC fans

CLASS A!

AWA SEA R454B			EC											
V Number			2V								3V			
Size			042	050	052	055	060	065	070	075	085	095	105	125
	Net Capacity	kW	137	157	185	199	224	237	247	266	310	337	378	420
	Net Power	kW	43,5	53,6	55,1	59,9	70,9	75,5	79,9	89,3	92,2	105,0	120,8	137,2
	Net EER		3,15	2,92	3,36	3,31	3,15	3,14	3,09	2,98	3,36	3,21	3,13	3,06
Cooling (1)	Eurovent Class		A	B	A	A	A	A	B	B	A	A	A	B
	P rated c	kW	137	157	185	199	224	237	247	266	310	337	378	420
Cooling (2)	ηs,c [VO/VW]	%	195%	183%	196%	198%	189%	187%	186%	184%	203%	197%	195%	191%
	SEER [VO/VW]		4,95	4,65	4,98	5,03	4,79	4,75	4,73	4,66	5,14	4,99	4,95	4,84
High temperature process cooling (3)	P rated	kW	137,12	156,82	185,23	198,56	223,73	236,66	246,83	266,41	309,74	337,31	377,52	419,85
	SEPR HT		5,82	5,52	5,95	5,87	5,73	5,74	5,67	5,60	5,92	5,77	5,70	5,74

PRODUCT FEATURES

New design – extra compact solutions

2.5V (only for heat pump units)

V number

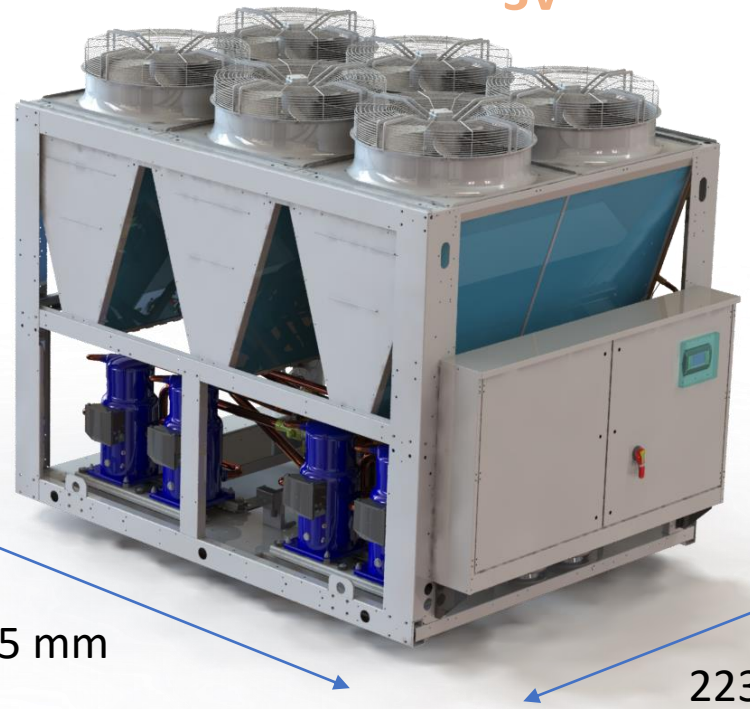
2V

2412 mm

1997 mm

2505 mm

3V



2531 mm

3255 mm

2232 mm

FOOTPRINT:

Footprint basic unit =
Footprint unit with pumps =
Footprint unit with pumps and tank

Check CAD drawings on the website and on the selection software for deeper details

PRODUCT FEATURES

Axial fan(s):
AWA HP XEA units: AC fans type (3V) and AC fans + phase cut modulation for 2V and 2.5V
AWA XEA units: AC fans type (3V) and AC fans + phase cut modulation for 2V

AWA HP SEA and AWA SEA units: EC type or EC HESP

THERMOLOGIC controller + TD7 touch color display for all sizes

PHR (desuperheater) available as an option for all the units in heat pump and chiller mode

Condenser coil
AWA HP SEA/ AWA HP XEA units: Seamless copper tubes and aluminum fins

AWA SEA/AWA XEA units: microchannel aluminum coil

Electronic expansion valve as standard

Tandem scroll compressors per each circuit
(compressor jackets optional)

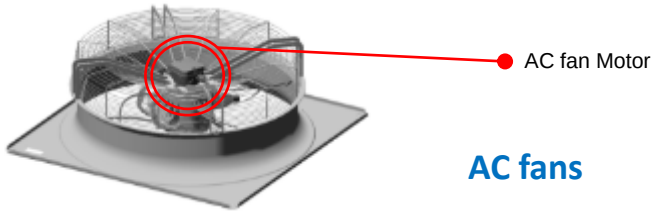
Optional **hydraulic circuit** with pump and water tank with 2 possible available static pressure: standard & high!
…. *Within the same unit footprint!*

PRODUCT FEATURES

Axial fan(s):
AWA HP XEA units: AC fans type (3V) and AC fans + phase cut modulation for 2V and 2.5V
AWA XEA units: AC fans type (3V) and AC fans + phase cut modulation for 2V

AWA HP SEA and AWA SEA units: EC type or EC HESP

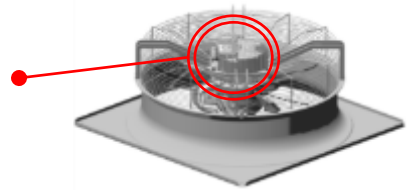
(Digit 56= 1)



AC fans

(Digit 56= 2)

Same grid design as AC fan
With EC motor (5 blades)



EC fans

EC fan motors are very high efficiency and maintain a high efficiency level at low speed. This means that in most cases they use from less than one third to one half of the electricity used by the traditional "shaded pole" induction motors used in the ventilation and refrigeration industries.
EC fans are class F, IP55 and built-in accordance with EN 61800-5-1.

Benefits :
- Improved capacity modulation
- Reduced power consumption
- Reduced energy costs

PRODUCT FEATURES

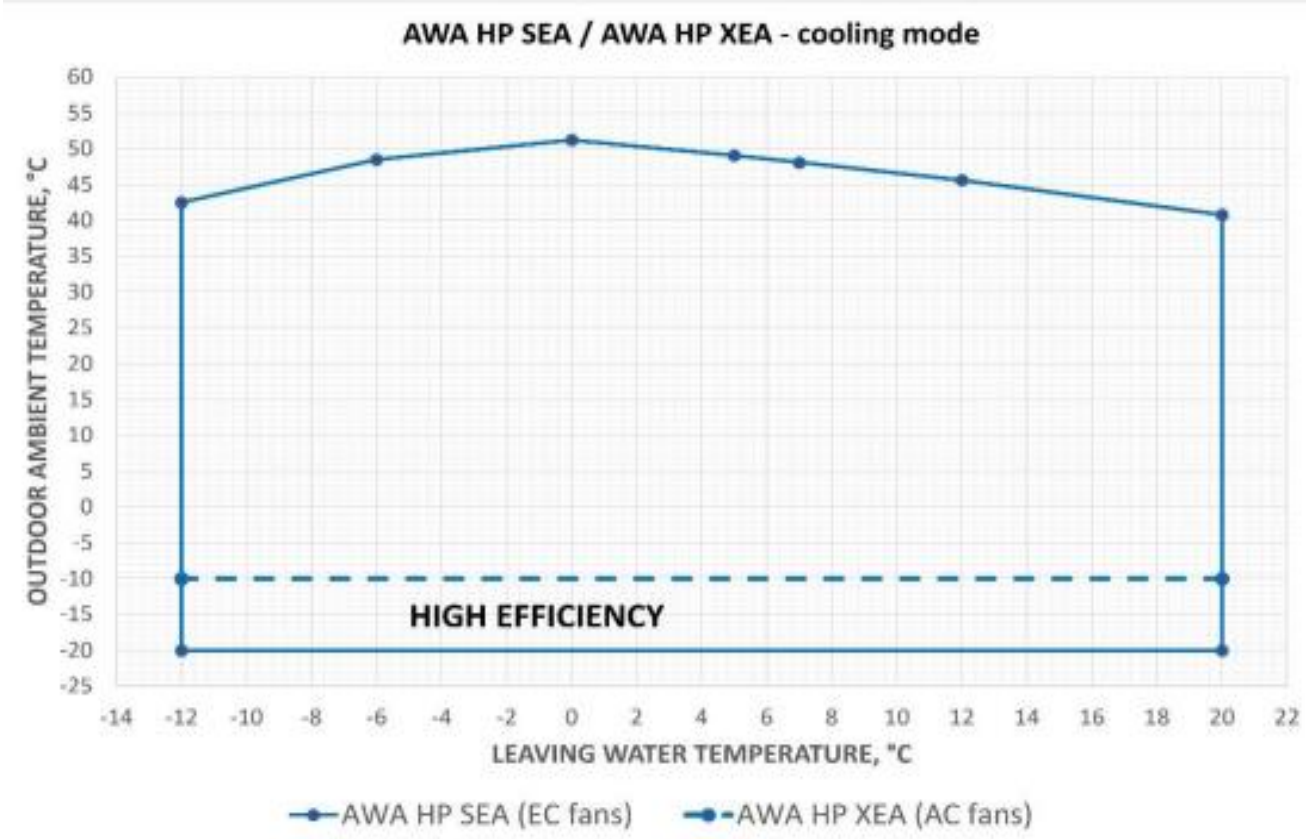
- ✓ ErP2021 compliant for SEER (AWA XEA/AWA SEA) and SCOP (AWA HP SEA/AWA HP XEA)
- ✓ Conto Termico compliant (AWA HP SEA/AWA HP XEA)
- ✓ Very low footprint
- ✓ Hydraulic module fits in the same unit footprint
- ✓ Same Model number as per bigger AWA XEA/AWA SEA, AWA HP SEA/AWA HP XEA, with almost same accessories
- ✓ Electrical panel with circuit breaker.

An AWA HP SEA R454B unit in the new testing lab in Bari.

OPERATING MAPS

Only SEA units with EC fans allow to go down from -10°C up to -20°C outdoor air temperature (OAT).

A certain amount of glycol may be requested according to working temperatures. Check MUM for deeper details.



up to 51°C

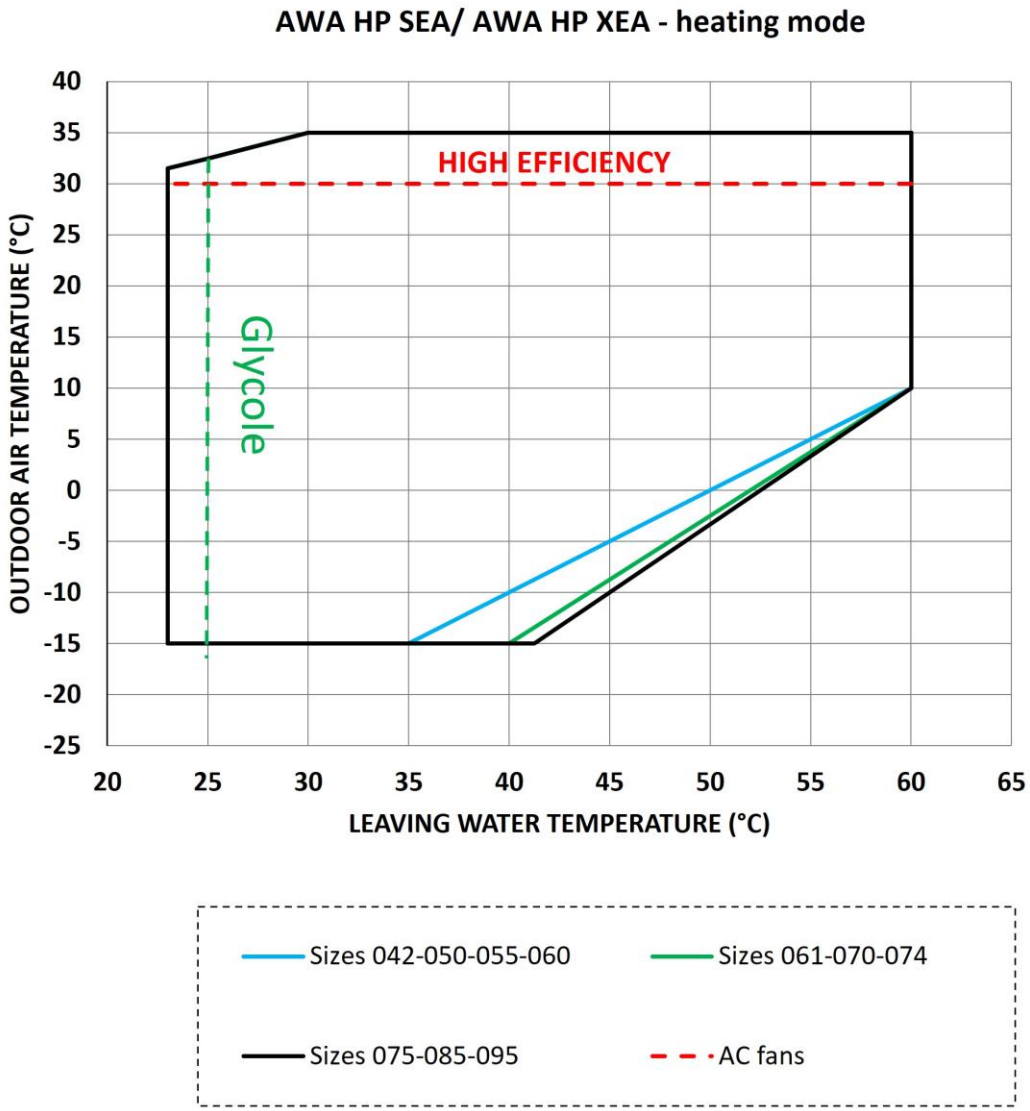
down to -20°C

Down to -12°C LWT

OPERATING MAPS

R454B

A certain amount of glycol may be requested according to working temperatures. Check MUM for deeper details.



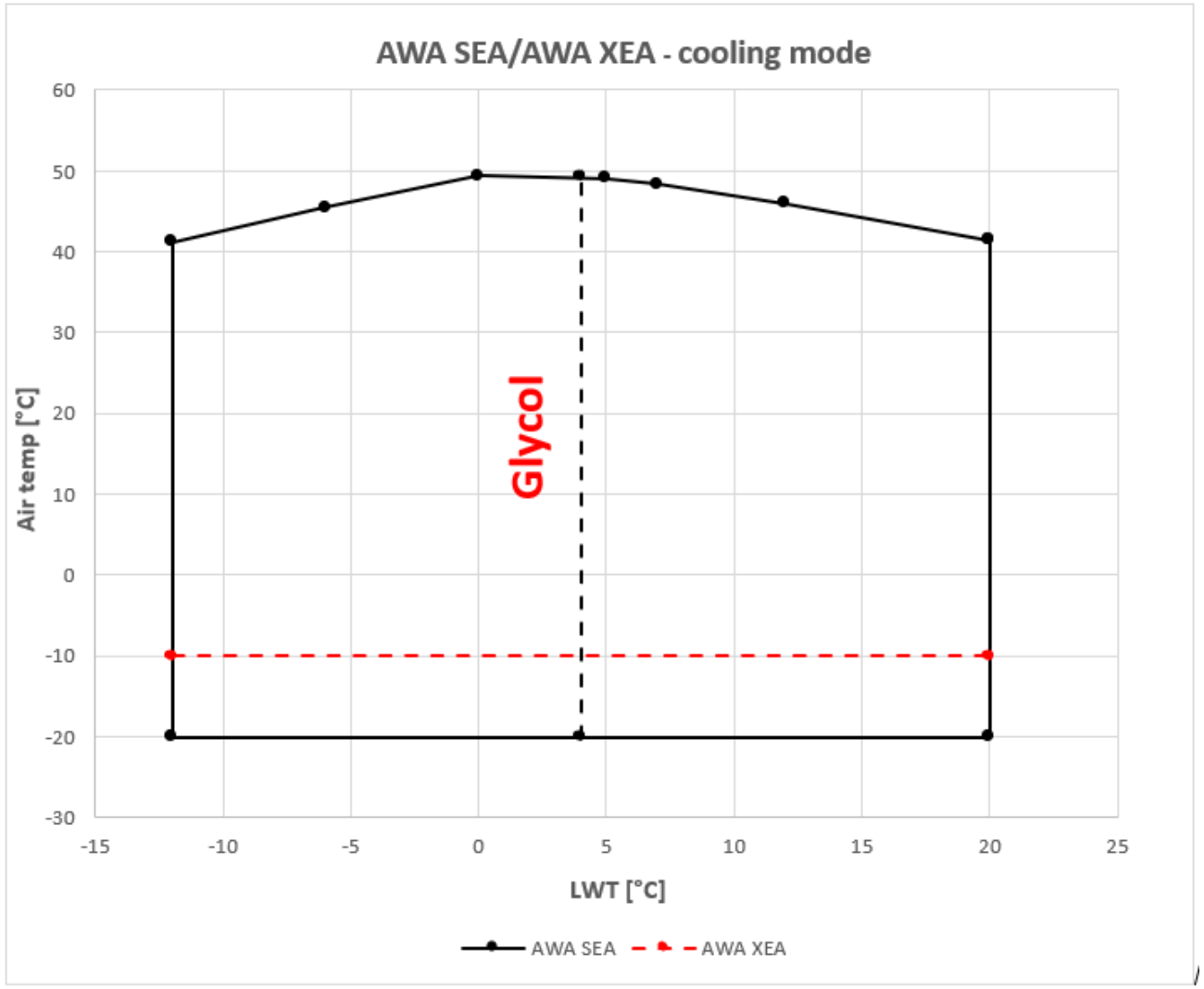
60°C

down to -15°C

OPERATING MAPS

Only AWA SEA units with EC fans allow to go down from -10°C up to -20°C outdoor air temperature (OAT).

A certain amount of glycol may be requested according to working temperatures. Check MUM for deeper details.



up to 50°C

down to -20°C

Down to -12°C LWT

CONTROLLERS

THERMOLOGIC controller

- Well known for its legendary reliability and advanced control logic
- New functionalities added:
  - New open standard protocol support incl. BACnet IP and Modbus TCP
  - Better serviceability and access
    - Secure remote connectivity
    - Expandable I/O
    - Optional customer programming
  - Integrated Time/Day scheduling + email alarming
  - SD card backup/restore


THERMOLOGIC


Service Tools


Web Based Interface


SD support

User interface TD7

- Large touch screen
- Full-color interface for simple, intuitive operation
- Main processor in the control panel

Proven, Very Reliable Unit Controller

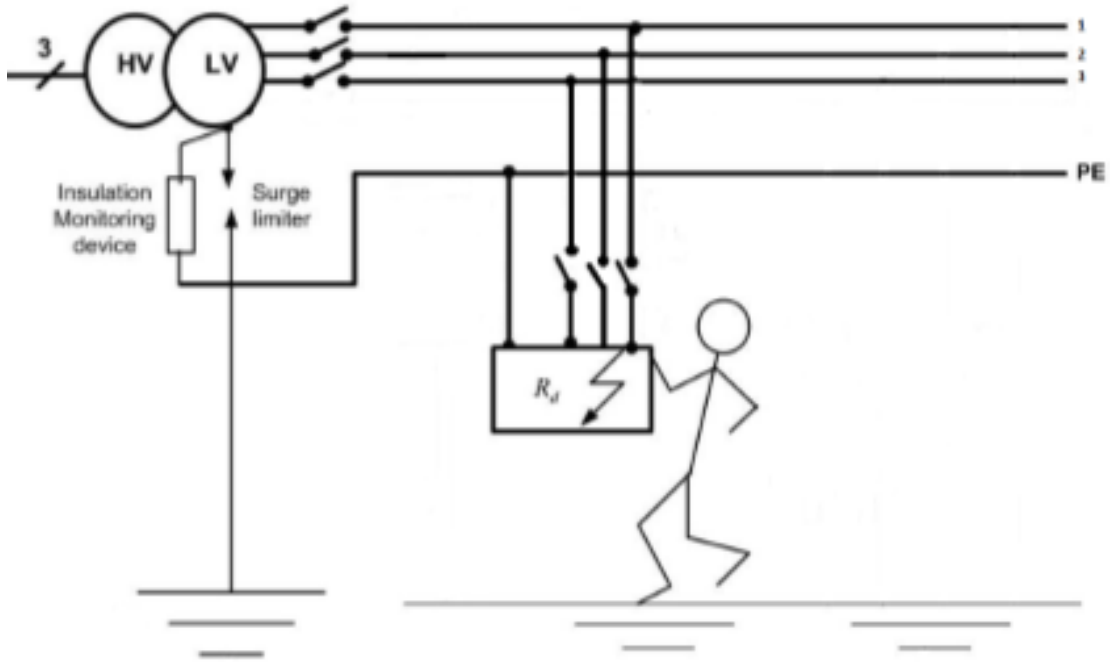
Simple and intuitive user interface

MAIN OPTIONS

Digit 8 = Electrical power supply

Option D: As standard the power supply is 400 V, 50 Hz, 3 phase.

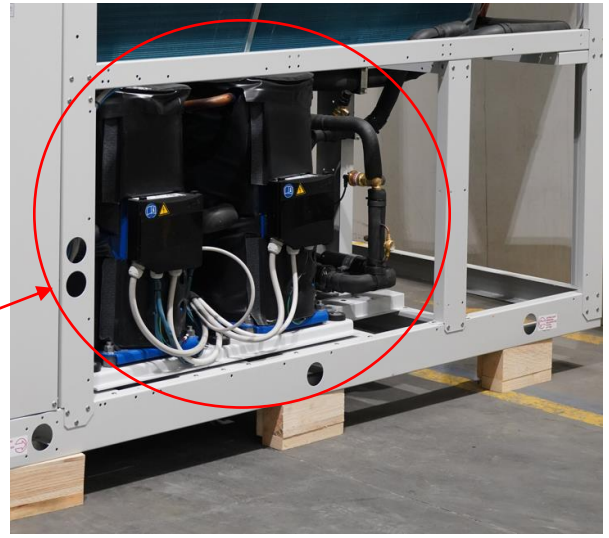
Option G: 400 Volt 50 Hz 3 Phase Compatible With IT Neutral.
This option is selected when the neutral point connection is requested IT. The voltage remains 400V ±10% / 3 phases / 50Hz



MAIN OPTIONS

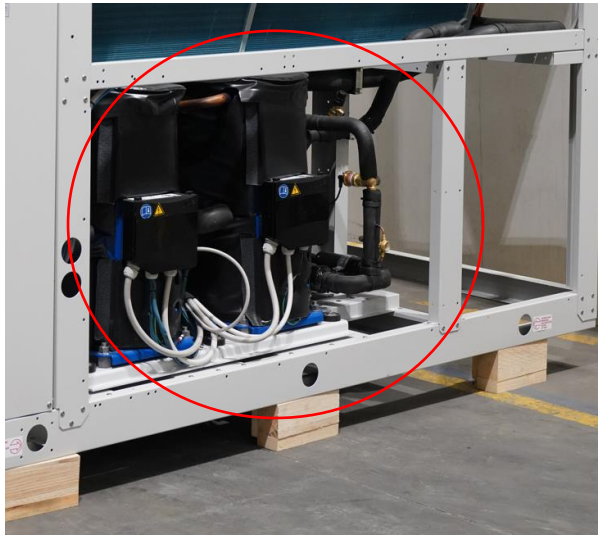
Digit 15 = L: Low noise version

Basic unit is provided with compressors jacket to reduce noise produced.
This solution led to an overall noise reduction by **2 dB(A).**



Digit 15 = E: Super low noise version

Basic unit is provided with enhanced compressors jacket, with higher density foam. This solution led to an overall noise reduction by **3 dB(A).**



MAIN OPTIONS

Digit 16 : Unit application

(AWA SEA/XEA)

Digit 16=X – Standard Ambient

The unit operates in Cooling Mode at ambient temperatures between -10°C to max °C. → XEA

Digit 16=L – Low Ambient

The unit operates in Cooling Mode at ambient temperatures between -20°C to max °C. → SEA

(AWA HP SEA/XEA)

Digit 16=1 – Comfort application

The unit operates in Cooling Mode at ambient temperatures between -10°C to max °C.

It operates in Heating Mode, in ambient temperatures between min °C to 30°C. → XEA

Digit 16=3 – Process application

The unit operates in Cooling Mode at ambient temperatures between -20°C to max °C.

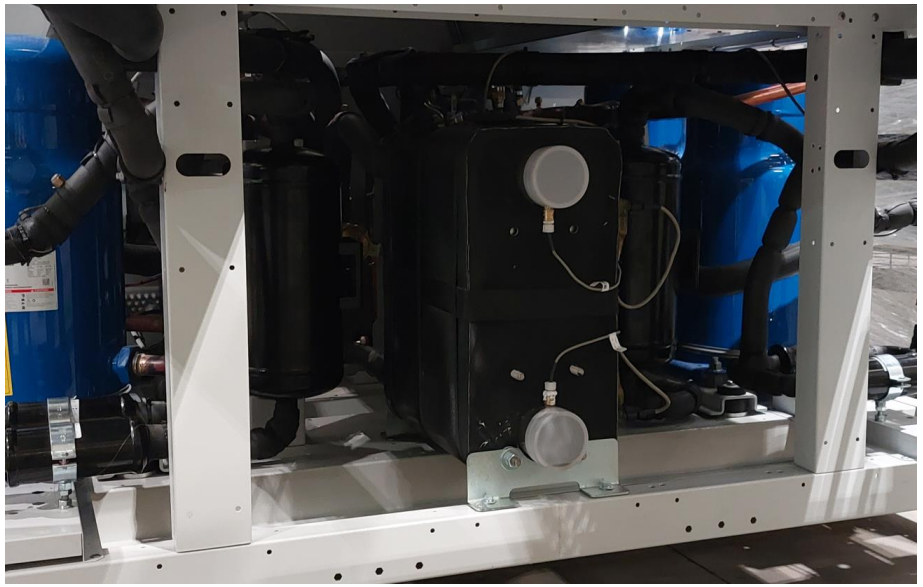
It operates in Heating Mode, in ambient temperatures between min °C to 35°C. → SEA

MAIN OPTIONS

Digit 18 : Kit Victaulic

For **standard units (digit 18 = X)**, Thermocold supplies as standard, grooved pipe connection without Victaulic coupling. This option is used to connect the unit, both in chiller and in heat pump version, to the water circuit.

- Connection pipes are grooved
- No Victaulic coupling on the water connection



Standard unit connections: Plate heat exchanger connections are closed with a plastic cap for transport

Kit Victaulic with Weld couplings (digit 18= W) :
This option is used to connect the unit, both in chiller and in heat pump version, to the water circuit by pipe stub and couplings.
It includes pipe stub and Victaulic couplings on water connection (**supplied loose**)
Used when tubes are welded.

Benefits: Victaulic piping system are safe, efficient and cost-effective, eliminating hazardous welding and lowering risk during installation.

Example of Victaulic kit

MAIN OPTIONS

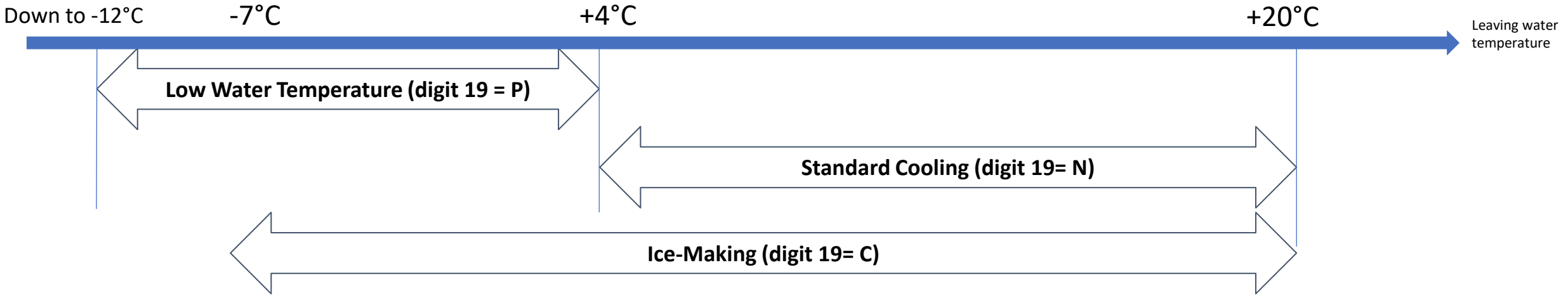
Digit 19 : Low water temperature

Unit without hydraulic module

Standard Cooling (digit 19= N) :
In standard the evaporator is provided with standard cooling application which the evaporator leaving temperature is in a range of **+4°C to 20°C**.

Low Water Temperature (digit 19 = P)
Unit is optimized in terms of EXV and refrigerant charge to operate **from +4°C down to -12°C** leaving water temperature.

Ice-Making (digit 19= C) :
The other option for evaporator is ice-making with a wide range of leaving water temperature between -7°C and 20°C.
The unit will run at full load until it reached the desired leaving water temperature. This option can be applied when the chiller is used to make ice at night.
The frozen water (ice) serves as thermal storage that can be melted to produce cooling. 2 set points enable the customer to control the chiller for this option: one set point used for the day time and the other one used during the night time. At night, unit generates ice when utility rates are low (off-peak period) and uses ice for cooling during the day when utility rates are high (on-peak period).

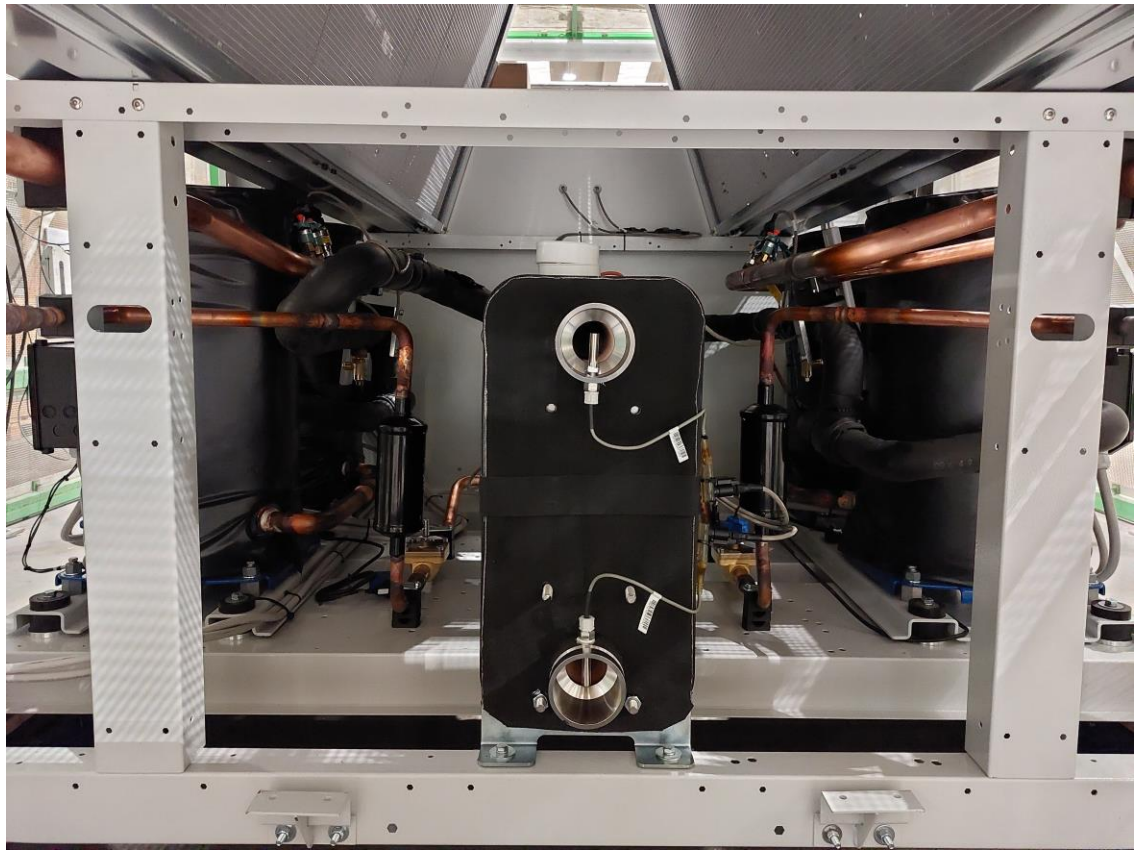


MAIN OPTIONS

Digit 21 : Double thermal insulation

Plate heat exchanger and cold parts of the refrigerant circuit are covered by a factory-installed foam insulation, to prevent condensation on cold parts.
Insulated parts are:
- brazed plate heat exchanger
- Suction and discharge lines

As standard **(digit 21=N)** the insulation thickness is 10 mm, while for higher performance option **(digit 21 = H)** , the insulation is 20 mm thick.



Brazed plate heat exchanger.

MAIN OPTIONS

Digit 22 : Condenser coating

(AWA XEA/SEA) Micro channel (digit 22 = N) :
To use when the chiller is installed in a non-polluted area. (standard)

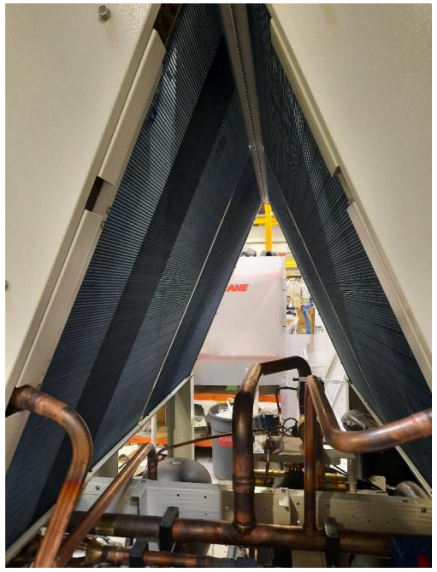
(AWA XEA/SEA) E-coated MCHE (digit 22 = C) :
An option to supply MCHE condenser coils with e-coating is available.
This e-coating withstand the exposure to typical corrosive atmospheres, in shore or industrial locations, without sensible impact on coil performances in what heat transfer and air pressure drop is a concern.

MAIN OPTIONS

Digit 22 : Condenser coating

(AWA HP SEA/AWA HP XEA) Aluminum fins (digit 22 = B) :

When the heat pump is installed in **standard ambient**.
Coils are made of copper tubes and aluminum fins.
Fins are recovered with hydrophilic blue coating in order to evacuate easily water particularly during defrost.
Due to Hydrophilic treatment, water droplets easily slide off the surface of the fins to prevent ice formation.
The aluminum fins increase the capacity of heat exchange between the refrigerant and the ambient airflow.



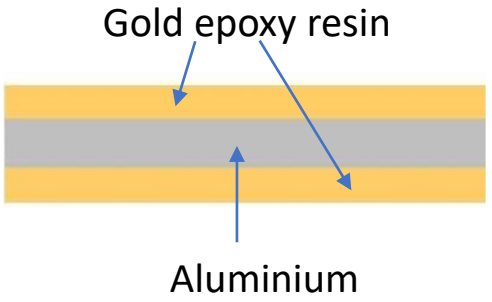
Blue fins

(AWA HP SEA/AWA HP XEA) Epoxy coated aluminum fins (digit 22 = E) :
Suitable for:

- When the heat pump is requested for coastal or salt mist environments.
- When the aluminum fins are exposed to hard weather conditions (acid rain, moisture, pollution, salt …).

Fins are made out of aluminum with epoxy treatment: epoxy slows down the corrosion process on the aluminum. Epoxy layer is between 2 to 3 µm thick per surface

Gold epoxy aluminum fins



MAIN OPTIONS

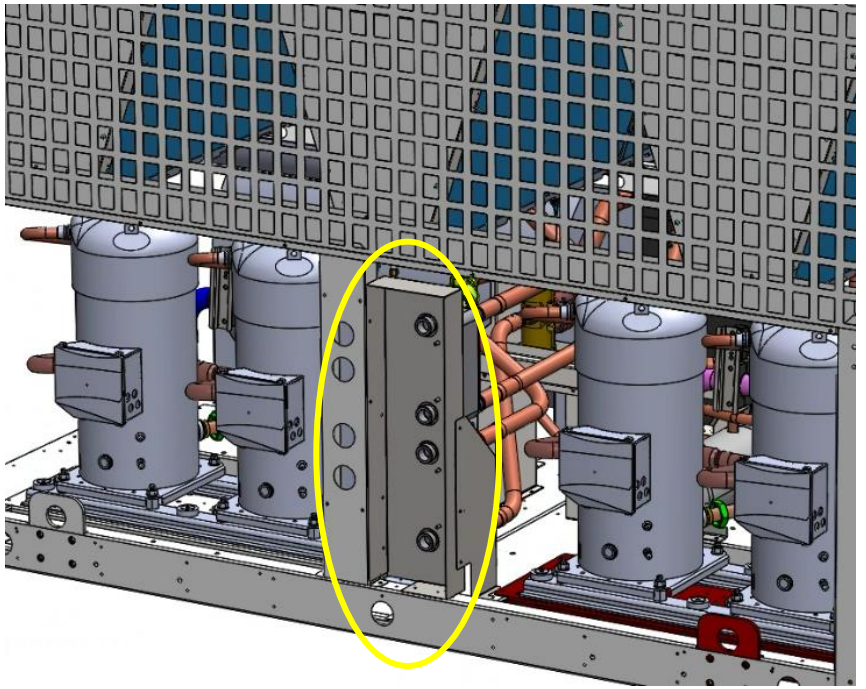
Digit 23 : Desuperheater

Desuperheater (digit 23 = P) :
To be used when there is a need for some heating and the customer wants to save energy consumption on the heating side: pre-heating for service water for example. The heat pump will allow **heat recovery by producing 20-30% of the cooling**.
Heat recovery is only possible when the heat pump is ON meaning when there is a need for cooling. If there is no cooling, there is no heat recovery. Partial heat recovery is usually a complement to an existing heating system.

This option is made with two Braze Plate Heat Exchangers (BPHEs) installed on discharge lines of circuit 1 and circuit 2.
BPHE are in serial with the condenser. Water loop shall be provided by the customer.

Condenser waters temperature probes must be installed at customer care. *Probes are shipped into the electric cabinet.*

The heat exchanger benefits from the discharge gas superheat as well as a part of the condensing gas heat to be transferred to hot water system.
The Partial Heat Recovery operates without heating temperature management, nor fan speed management.



Water connection for PHR heat exchangers (one per circuit)

MAIN OPTIONS

Digit 24 : Hydraulic pump(s)

Possible combinations for leaving water temperature <u>down to -5°C</u>

- Dual pump standard pressure (digit 24 =1)
- Single pump standard pressure (digit 24 =2)
- Dual pump high pressure (digit 24 =3)
- Single pump high pressure (digit 24 =4)

Selection is possible using TEOS selection software

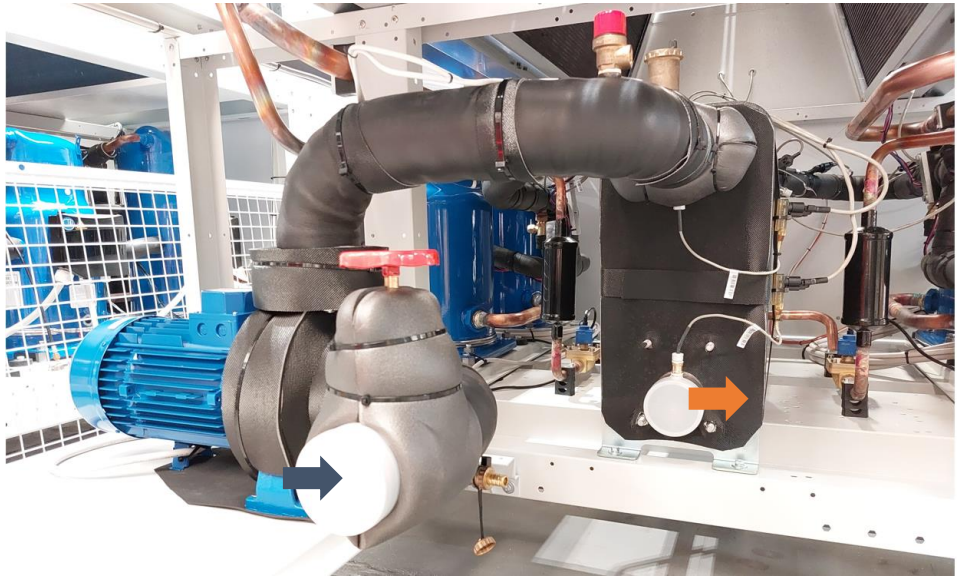
Possible combinations for leaving water temperature <u>below -5°C down to -12°C</u>

To overcome higher density fluid density, pumps are fitted with enhanced motors compared to the previous ones.

<u>Pump curves are the same as in options 1,2,3,4</u>

- Dual pump standard pressure with LWT < -5°C (digit 24 =A)
- Single pump standard pressure with LWT < -5°C (digit 24 =B)
- Dual pump high pressure with LWT < -5°C (digit 24 =C)
- Single pump high pressure with LWT < -5°C (digit 24 =D)

Double pumps unit with tank (digit 50)



Single pump unit

MAIN OPTIONS

Digit 26 : Disconnect switch (standard)

it's main switch to power on and off the unit
List of the main switches used is reported in the unit MUM

Digit 27 : Under/Over Voltage Protection

Under/Over Voltage Protection (digit 27= 1)
The unit is designed to be powered with 400V +/- 10%. In case of voltages out of tolerance, the motor lifetime will reduce dramatically with the increase or decrease of voltage. This option is used to protect the unit against under/over voltage**. It controls also the phase reversal**.
The unit is protected against network voltage variation that could reduce the lifetime of the motors when exceeding the given values.

Under/Over Voltage Protection and ground fault protection (digit 27=2)
IN addition to digit 27=1, The unit has the ground protection, to protect the electrical distribution system from ground faults.

MAIN OPTIONS

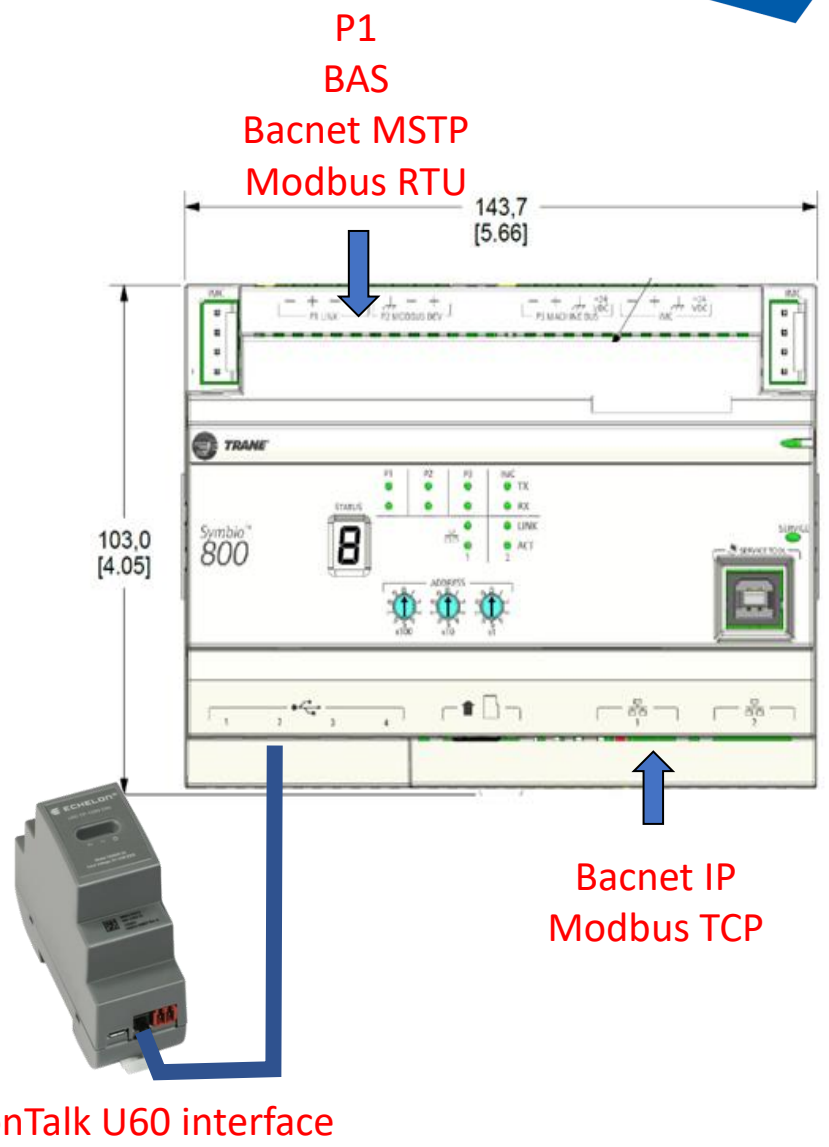
Digit 29 : Remote interface

The Building Automation and Control Network protocol is a standard that allows building automation systems or components from different manufacturers to share information and control functions.

AWA range controller, THERMOLOGIC is factory-mounted and located in the control panel box.

Different remote interfaces are available:

- **BACnet interface RS485 (MSTP) (digit 29 = B) :**
- **BACnet interface TCP-IP (digit 29 = C) :**
- **ModBus interface RS485 (RTU) (digit 29 = M) :**
- **ModBus interface TCP (digit 29 = T) :**
- **LonTalk interface (digit 29 = L)** LonTalk communication is made with an U60 interface.



MAIN OPTIONS

Digit 30 : External Set points & Capacity outputs

When to use it?

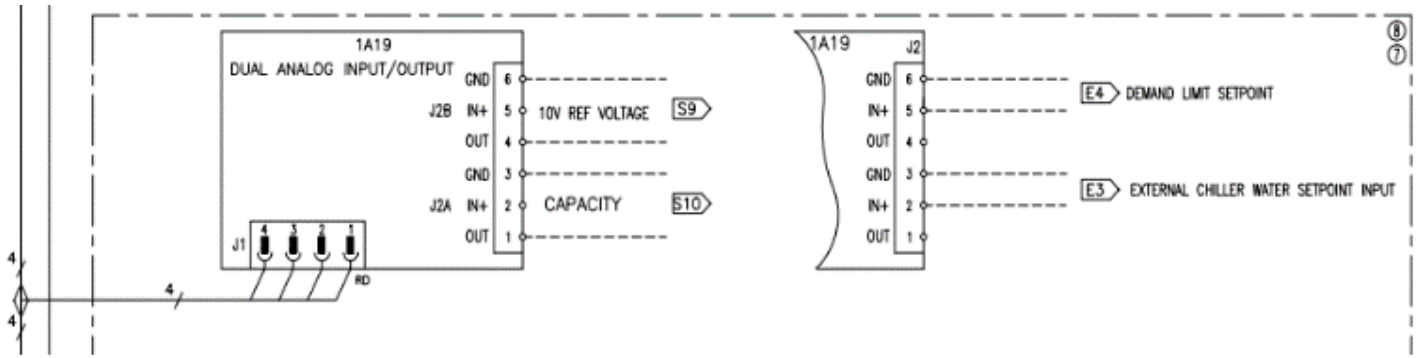
1. (EXTERNAL SET POINT) When the chilled water set point needs to be set by sending an external signal (E3)
2. (DEMAND LIMIT) When the number of compressors allowed to start needs to be limited in order to control chiller power consumption by sending an external signal (E4)

How is made?

- There is one input to set the Chilled Water set point and one input according to the limit set point
- THERMOLOGIC accepts dual analog input suitable for customer connection to set the unit external chilled water set point (ECWS) and the external demand limit set point (EDLS).

Which are the Benefits ?

- Energy savings.
- Provides the possibility to set the chilled water and the demand limit set point from an external signal from remote location.
- Adaptation to customer power supply



MAIN OPTIONS

Digit 31 : Flow switch

To detect if water is flowing into the unit.

It is mandatory to use a flow switch with liquid chillers to stop the unit in case of water flow loss to avoid any water freezing in the evaporator. The flow switch (with paddle type) is not mounted into the unit and it must be placed on the evaporator water piping (see installation detail in the MUM).

An example of Flow switch

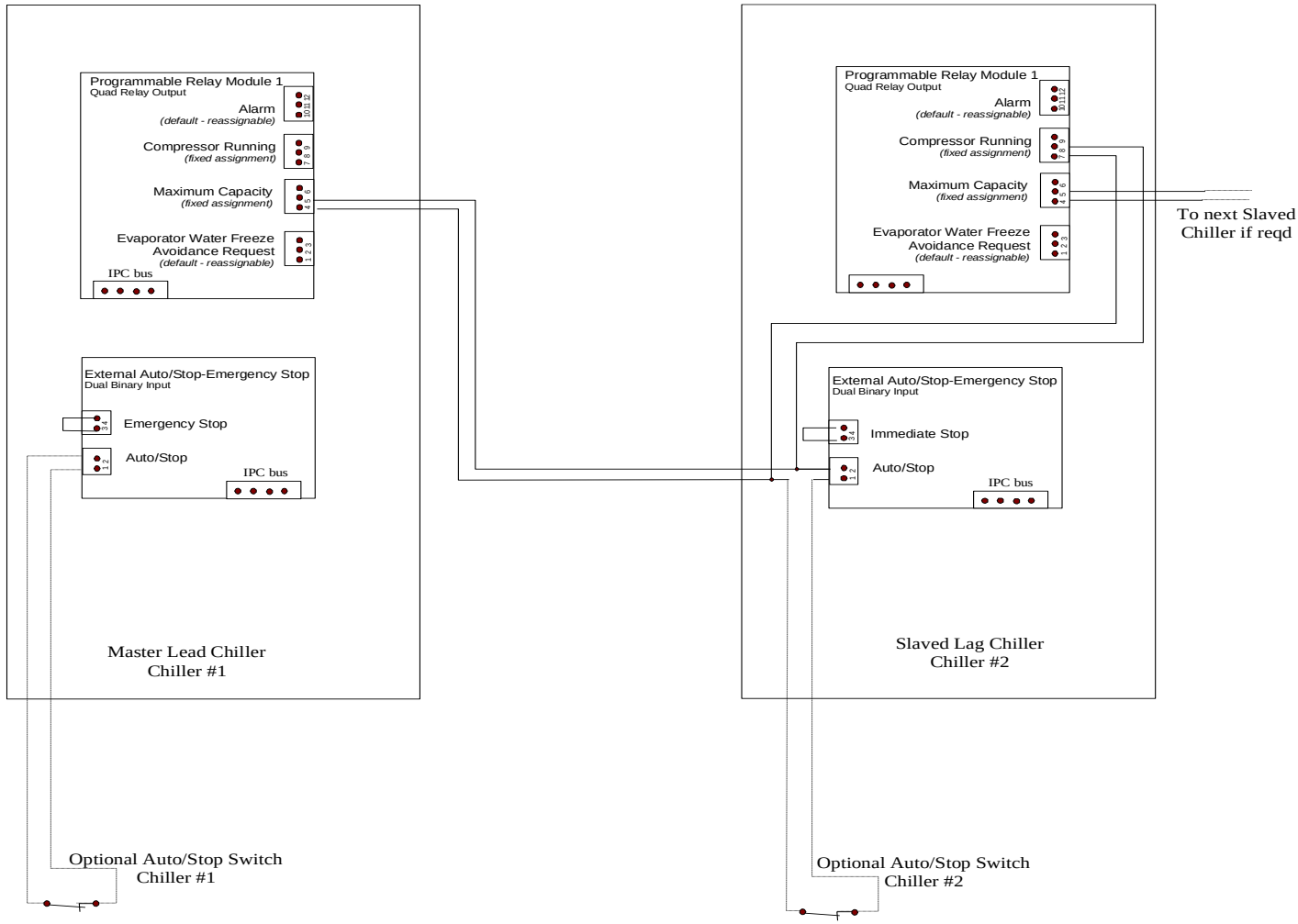
MAIN OPTIONS

Digit 33 : Master salve configuration

Simple hard wired solution to enable operation of slave unit when master unit reach maximum capacity.

When the master is at his full capacity, there is activation of the slave like that the master can decompress and they regulate together.

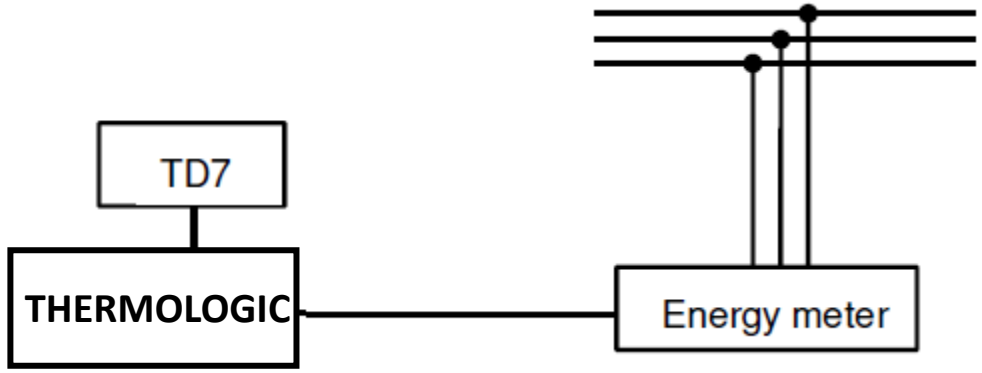
It must be noted that this method does not allow alternating or intelligent switching of which chiller is the lead or lag, nor will it provide the same level of efficiency or optimization as a dedicated chiller plant controller, since it does not take into account part load efficiencies or the design tonnages of the chillers.



MAIN OPTIONS

Digit 35 : Energy meter

The energy meter is installed in the electrical panel. It communicates a pulse outlet to the THERMOLOGIC controller.



MAIN OPTIONS

Digit 37 : INVERTER (to be associated to hydraulic kit)

Constant speed pump_No VFD (digit 37 = X) :
Used as standard on **AWA XEA/SEA** chiller units.
No Variable Frequency Drive (VFD) on the unit.

Constant speed pump_VFD Ajustment (digit 37 = F) :
When the water flow must be adjusted by a constant speed pump, no VPF application is possible with a chiller control, but with external control you can change pump's VFD speed.
Used to save energy on the pump consumption
Variable Frequency Drive (VFD) fitted on the unit. For dual pump, there is only one VFD provided.
Constant speed drive
Benefits :
Control of the water flow & Energy saving on the pump consumption

Housing of inverters device for pumps (digit 37)

MAIN OPTIONS

Digit 38 : Refrigerant leak detector (only for R454B units)

Why and when to use
To detect a refrigerant leak, which **avoids the risk of the flammability**.
To ensure **safety** for the customer by taking appropriate actions in the case of the leak.

Refrigerant leak detector is available only on **R454B units**. A refrigerant detector is placed in the middle of the unit, close to the compressors

Customer must take appropriate action when leak taction contact closes; Unit control is not taking any action (to avoid risk of sparks inside control panel)

Example of refrigerant leak detector

MAIN OPTIONS

Digit 40 : Power Socket

P: Included (230V-100W)
A convenience plug is provided within unit electric box.
The model is M1170 by ABB, able to be directly connected with “Schuko” type or 10/16A – P11/P17 plugs.

Illustration 230V-100W convenience outlet

Digit 41 : Unit inspections

B: Visual Inspection With Customer
The customer will be able to see the unit to check the quality of the construction, the documentation provided with the unit and to check that the unit is in accordance with the order write up.

MAIN OPTIONS

Digit 42 : Unit isolators

To avoid direct contact of the unit and the ground or frame.
They are installed at customer care under the unit to reduce vibrations .
Two possible isolators are available: made of neoprene or spring type.
Warning: Isolators are supplied loose in a box.

Neoprene Isolators (Digit 42= 1)

Spring antivibration (Digit 42=6)

MAIN OPTIONS

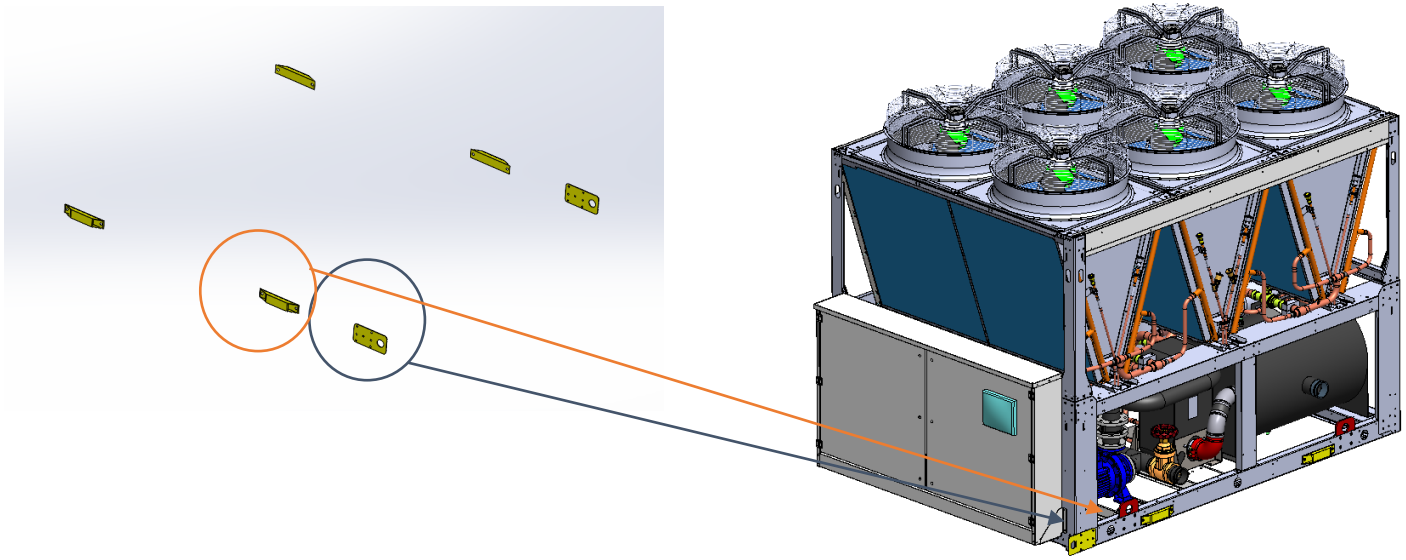
Digit 44 : Sea container kit

Standard (Digit 44= X) :

In standard, units are provided with wood skid, a treated wood located under the base frame.

Sea container kit (Digit 44= A) :

When the heat pump is shipped in a container, Thermocold adds yellow spacers and hooks to facilitate the transport



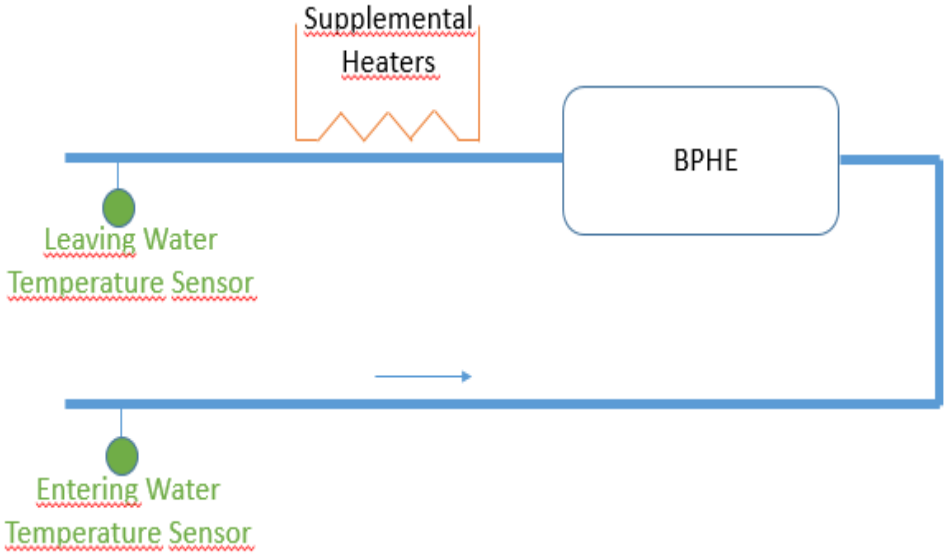
MAIN OPTIONS

Digit 47 : Power factor correction capacitors

To reduce the reactive power and therefore the electrical current.
Units have in average a cosphi= 0,87; thanks to this accessory it moves to ≥0.91

Digit 48 : Auxiliary heater relays (only for heat pump version)

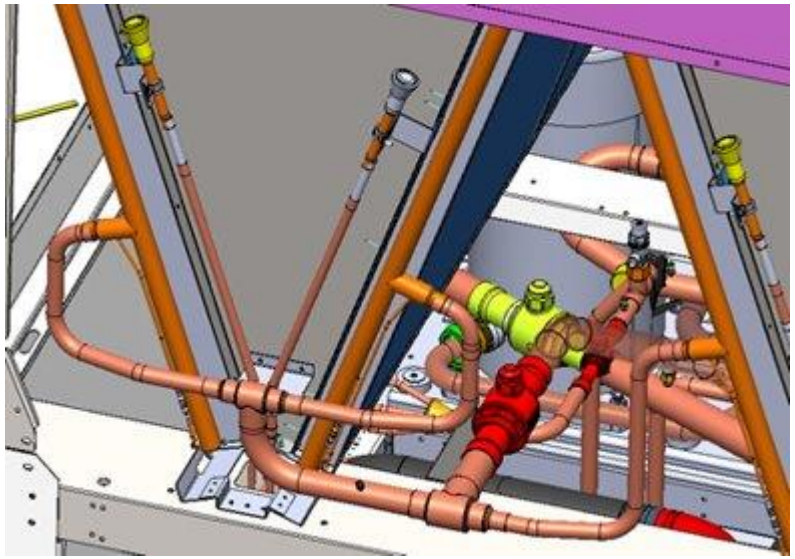
For AWA HP XEA/SEA units, it give the possibility to switch on auxiliary hot resources, when needed.
The supplemental heater stages ON / OFF based on Hot water capacity control logic when all available mechanical heating stages are already ON.



MAIN OPTIONS

Digit 46 : Isolator Valve Per Manifold Compressor

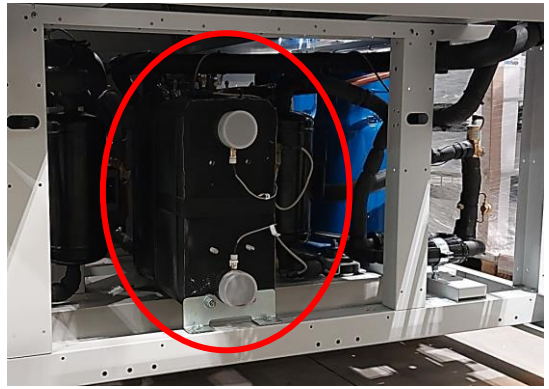
Allow to isolate the refrigerant in the condenser of the unit, for each circuit. This valve allows to isolate the compressor, evaporator, EXV and filter drier from the condenser, for each circuit.
It can simplify maintenance operations.



MAIN OPTIONS

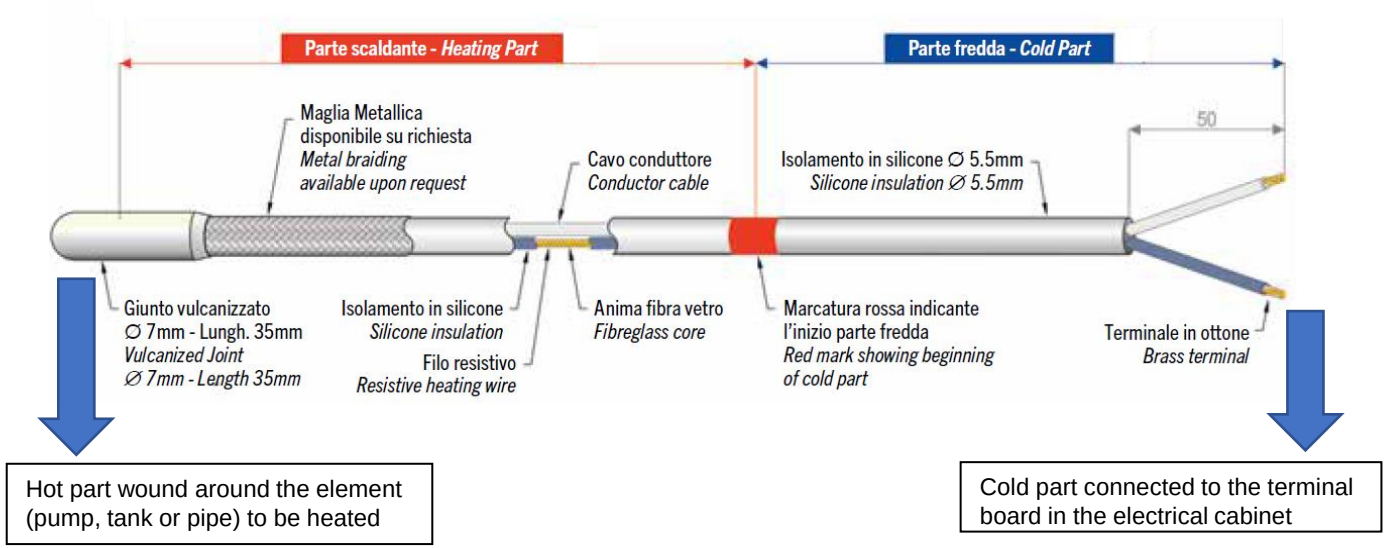
Digit 49 : Freeze Protection

Thanks to THERMOLOGIC controller, the anti-freeze protection is possible with the pump activation using external temperature sensor.



Freeze protection for hydraulic modules (digit 49 =2)

These kits, aimed at avoiding the freezing of all the components of the hydraulic circuit inside the unit (pumps, pipes and tank) are optional and are coupled to the unit hydraulic versions.
The heating cable type used for the kits mentioned above is featured in the figure below (230 V version)



MAIN OPTIONS

Digit 50 : Buffer tank

When to use it?

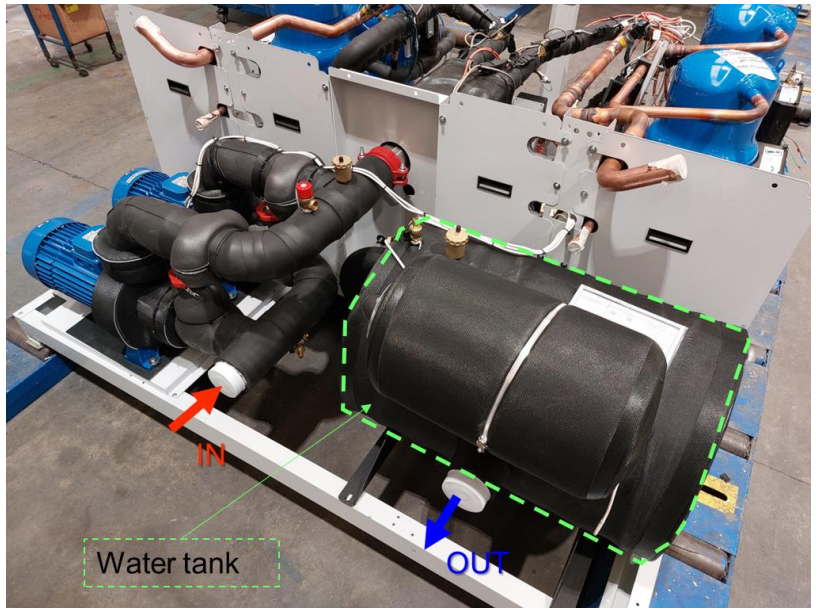
- Used to increase the chilled water circuit inertia.
- Allows to meet the two minutes water loop circulation

How it is made?

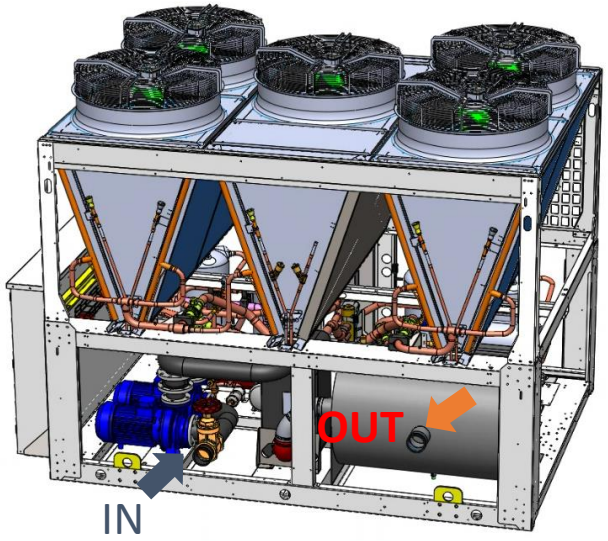
- Buffer tank is factory-installed, located on the supply of water loop.
- It is installed after the water pump
- Water tank capacity is
  - **200 liters for sizes on 2V platform**
  - **500 liters for sizes in 2.5 and 3V platform**

Why?

- Ease of installation at the building site
- Increases the compressor life span
- Allows more accurate water temperature



Hydraulic module with double pumps and tank on a 2V unit



Hydraulic module with double pumps and tank on a 2.5V unit

MAIN OPTIONS

Digit 51 : Water strainer

Why?
To filter big impurities into the water, thus it prevents accumulation of the foreign particles in the restricted area as the isolation valves and the brazed plate heat exchange.

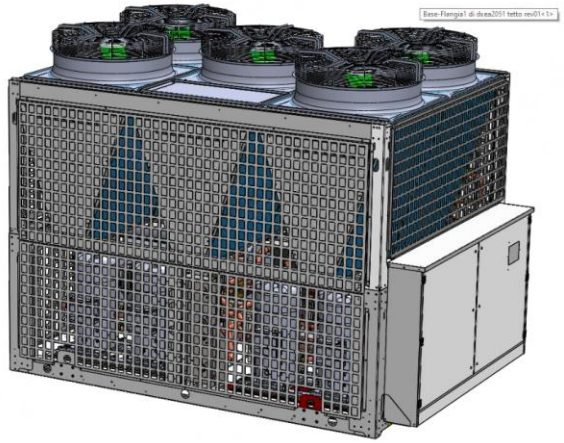
How is it made?
“Y” water strainer consists of a body and stainless-steel mesh with meshes not over 0.5mm, with replaceable filter through the inspection cap. Loose accessory, to be installed by customer.
The filter is connectable via Victaulic clamps not provided with the kit.

Benefits:
- Increases the life of heat exchanger and isolation valves.
- Heat exchanger and isolation valves are protected.
- Avoid the abrasive effect of flowing particles.
- The customer do not have to dismount completely the strainer for cleaning or changing the filter.

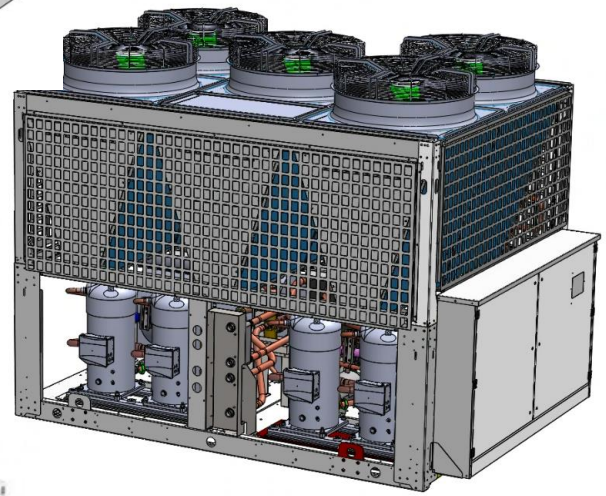
MAIN OPTIONS

Digit 52 : Anti-intrusion grilles

B= Complete anti-intrusion grilles
Full unit protection grids: To protect the unit and components there installed (upper+ bottom part of the unit is covered by grills)



C= Condensing coil protection grills
To protect just the unit coils (upper part of the unit is covered by grills)



Digit 54 : Soft starter (Digit 54 = B)

To reduce inrush current when the compressors start.

- In this circuit, the soft starter replaces the direct online starter.
- It controls the current flow which will generate the compressors to start gradu

Benefits:
- The compressor can start smoothly as the starting current is reduced.
- Smooth starting reduces motor and compressor wear.
- Less stress on the power supply.
- Reduce cable size.

MAIN OPTIONS

Digit 55 : Annunciation Relays

When to use it?
When certain events or states of the chiller need to be remotely controlled.

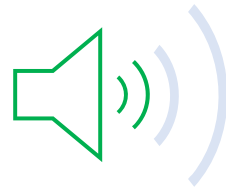
How is it made?
The 4 programmable relays will be energized when the event or state occurs.
Works with THERMOLOGIC.
Available outputs are :

- Alarm - Latching
- Alarm - NonLatching
- Alarm
- Alarm Ckt 1
- Alarm Ckt 2
- Warning
- Chiller Limit Mode
- Compressor Running
- Circuit 1 Running
- Circuit 2 Running
- Maximum Capacity
- Ice Making Status
- Hot Water Control Status
- Defrost Status
- Evaporator Water Freeze Avoidance Request
- Service request (for Unit, Compressor(s) or water pump)

Illustration Relay output card

MAIN OPTIONS

Digit 57 : Night Noise Set Back NNSB (digit 57 = 1)



Useful when fans speed need to be reduced at night.
When NNSB feature is activated via a digital input, fans run at lower speed.
As default, max rpm are reduced by 20% at factory, but it is possible to adjust it.

This option is designed for night operation and ensures exceptional acoustic comfort without compromising efficiency when loads are increased.

THANKS FOR YOUR KIND ATTENTION

Thermocold®
THE AIRVOLUTION