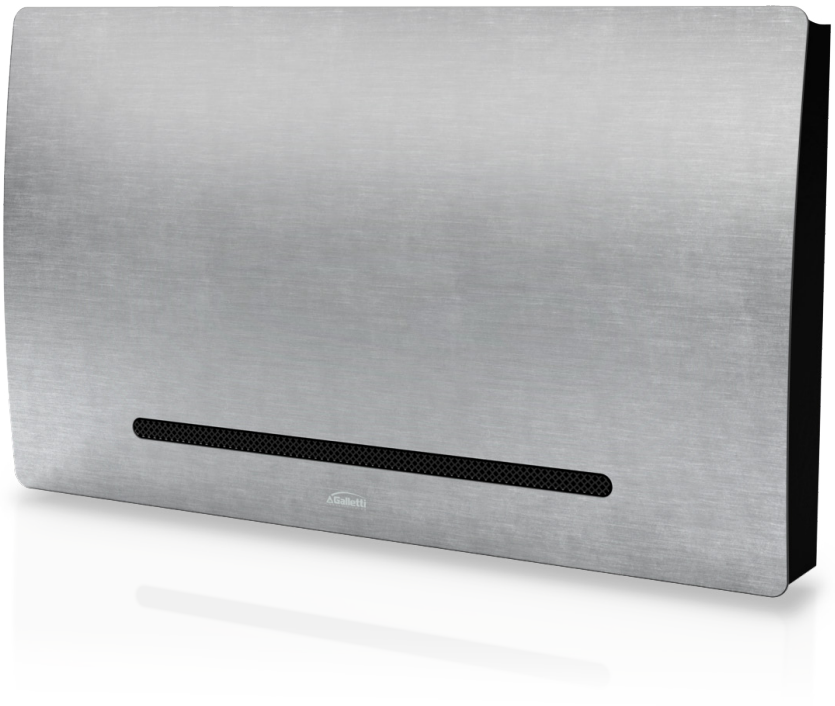
EN

TECHNICAL MANUAL

ART-U

Fan coil unit with Design cabinet, minimum depth and BLDC motor

1-4 kW



BLDC motor | Tangential fan | Supervision ERGO | 2 pipes systems | Vertical installation

PLUS

- A furnishing with an innovative design and width up to only 10 cm
- Inverter-controlled BLDC motor
- Low energy consumption
- Modulating operation

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

CE

FC66005368 10/18

Galletti AIR CONDITIONING

Dear Customer,
Thank you for placing your trust in one of the products of Galletti S.p.a
This product is the result of our work and our commitment to design, research, and production and has been made from the finest materials, employing state-of-the-art components and production technology.
The CE marking of the product ensures its compliance with the safety requirements of the following directives: the Machinery Directive, the Electromagnetic Compatibility Directive, the Electrical Safety Directive, and the Pressure Equipment Directive. Fulfillment of the Ecodesign requirements is fully in keeping with the environmental awareness that has always guided our company.
The company certification of the Quality and Safety management system ensures that product quality is constantly checked and improved, and that the product is manufactured in full compliance with the highest standards.
By choosing our product, you have opted for Quality, Reliability, Safety, and Sustainability.
At your disposal, once again.
Galletti S.p.a

TABLE OF CONTENTS

OPERATING LIMITS
Thermal carrier fluid: **water**
Water temperature: **5°C ÷ 80°C**
Air temperature: **5°C ÷ 43°C**
Supply voltage: **230 V - 50 Hz**
Maximum water pressure during operation: **10 bar**
Limit of room air relative humidity: **RH<85% not condensing**

1 MAIN FEATURES

From the extensive experience of Galletti in the development and design of fan coil units, and in confirmation of its continuous search for innovation, has been created ART-U, the result of a perfect combination of performance and design.
The ambitious goal of this project was to develop something absolutely new and unique, a product not yet present on the market, which on the one hand was able to meet the increasingly stringent demands for energy efficiency, while on the other hand could, for the first time, reflect the latest trends in furnishings and interior design.
With the new ART-U, Galletti this goal has been fully achieved, presenting on the market a new concept of hydronic indoor unit, a product that is characterized by its enviable technical performance and at the same time represents a true style shift in a field that has long been dominated by products that are all very similar to each other.

ART-U, with its width that in some places is only 10 cm, and thanks to its unique lines, was designed to be an absolutely all-purpose product, that adapts perfectly to rigorous and essential environments as well as to warmer and more sophisticated spaces. Thanks also to the possibility of customizing the front panel, ART-U meets the demand for ever more personalization of the spaces to be furnished.
The achievement of extremely high aesthetic standards has not weakened the usual construction integrity of Galletti products: striving for innovation has in fact also focused on the components and the use of new materials.
With ART-U the state of the art has been redefined also in terms of technical performance, thanks to the use of computational fluid dynamics simulations for the optimisation of the heat exchange inside the indoor unit combined with the use of permanent magnet electric motors.

AVAILABLE VERSIONS

Models with on-board control (or predisposition) have two side doors (left and right).
The models intended only for remote controller have a continuous upper grill.

⚠ **WARNING:** on designed models for remote control isn't possible to install subsequently a on board control, pay attenction to this when ordering the unit

CONFIGURATOR

AU	10	W	I	L	0	0	0	0	0	0	0 A
Family	Size	Version	Motor	Std.Coil	DF Coil	Valves	Control	Probe	Accessories various	Upper grill	Release / Special
	10 20 30 40 50	Y Grey W White	I Brushless	L left R right	0 absent	0 absent 1 3 way - on/off 230V 2 2 way - on/off 230V 3 3 way - modulating 5 3 way - on/off 230V 6 2 way - on/off 230V	0 absent T touch basic 6 TED10 E EVO board F EVO board +disp	0 absent 1 SA 2 SW 3 SU 4 SA+SW 5 SA+SU 6 SA+SU+SW B SA x TED C SW x TED D SA+SW TED	0 absent 1BV 2 shell valves	0 continuous grill P control doors	0A first release

1.3 AVAILABLE ACCESSORIES

Electronic microprocessor control panels with display	
EVOBOARD	Circuit board for EVO control
EVODISP	User interface with display for EVO controller
KBEVS	EVO on-board installation Kit for ART-U
MCLE	Microprocessor control with display MY COMFORT LARGE
MCSUE	Humidity sensor for MY COMFORT (medium e large), EVO
MCSWE	Water sensor for MYCOMFORT, EVO, LED 503 controllers
Electronic microprocessor control panels	
KBTES	On-board ART-U installation kit suitable for TED controller
TED 10	Electronic controller for BLDC fan equipped with inverter and ON/OFF valves 230 V
TED SWA	Water temperature sensor for TED controls
Auxiliary water drip trays, insulating shell, condensate drainage pump	
BV	Auxiliary water drip tray for vertical installation fan coil units
GIVK	Insulating shell for VKS valve
Valves	
V2VSTD	2-way valve, ON/OFF or MODULATING actuator, 230 V or 24 V power supply, hydraulic kit, for main heat exchanger
V3VSTD	2-way valves, ON/OFF or MODULATING actuator, 230 V or 24 V power supply, hydraulic kit, for main heat exchanger

2 MAIN COMPONENTS

2.1 CABINET

The elegant front panel consists of two sheets of aluminium with a polyethylene core and possibly a polyester-based surface coating. It is a light but very resistant material, created for covering façades in the building sector. The side panels are made of UV-stabilized ABS to maintain the colour over time.
The polyethylene core acts as a flexible filler and thermal insulation while the aluminium provides structural strength and aesthetics.
It can be customized in different chromatic variations on request:
ART-U Grey:

- Side panels in ABS colour RAL 9005;
- Front grill supplied with black stainless steel filter;
- Upper grille colour black consisting of adjustable fins in anodized aluminium and ABS supports.
- Front panel consisting of brushed natural aluminium sheets;

ART-U White:

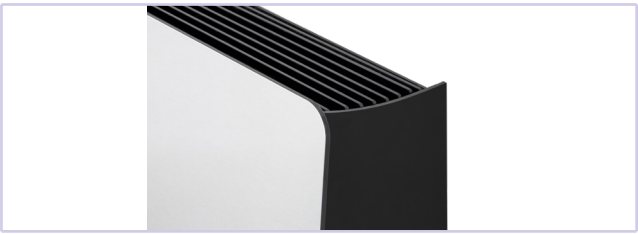
- Side panels in ABS Colour RAL 9010;
- Front grille supplied with stainless steel filter;
- Upper grille consisting of adjustable fins in anodized aluminium and ABS supports.
- Front panel consisting of RAL9010 colour sheets;

2.2 CONVEYORS

Made of high-density polystyrene. They are designed to optimise the air flow inside the hydronic indoor unit allowing optimal distribution of the air flow in the coil and low noise in every operating mode.

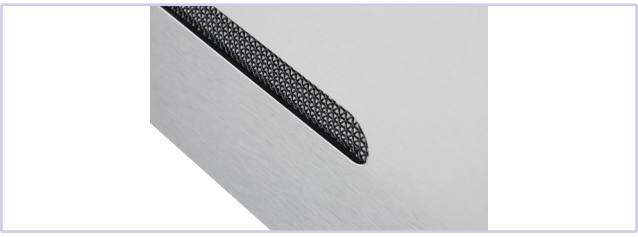
2.3 UPPER GRILLE

Consisting of adjustable fins made of anodised aluminium, available in the version for on-board or wall-mounted control. The ABS combs support the grilles and prevent them from being bent, thus always guaranteeing the user's safety.
Wall-mounted control unit version has a continuous upper grille. In the version for on-board control, the grill has two side doors to allow access to the control.



2.4 FRONT GRILLE

Stabilizes the operation of the tangential fan unit and is equipped with a stainless steel filter.



2.5 HEAT EXCHANGER

With high efficiency turbocoil-type heat exchanger, and made with copper tubing and aluminium fins, it is equipped with brass manifolds and a vent valve.
The hydrophilic treatment is applied to the fins as a standard treatment, to increase their efficiency during cooling.
Water connections on the left available on standard version. Water connections on the right available on request.

2.6 AIR FILTER

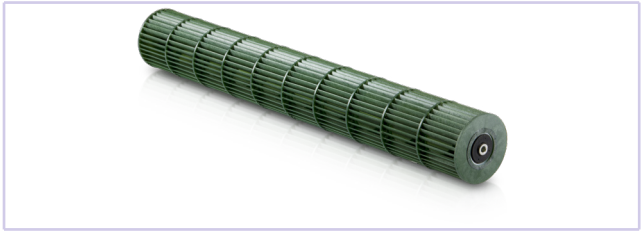
Honey-comb polypropylene washable filter, easily removable for maintenance operations.

2.7 ELECTRIC MOTOR

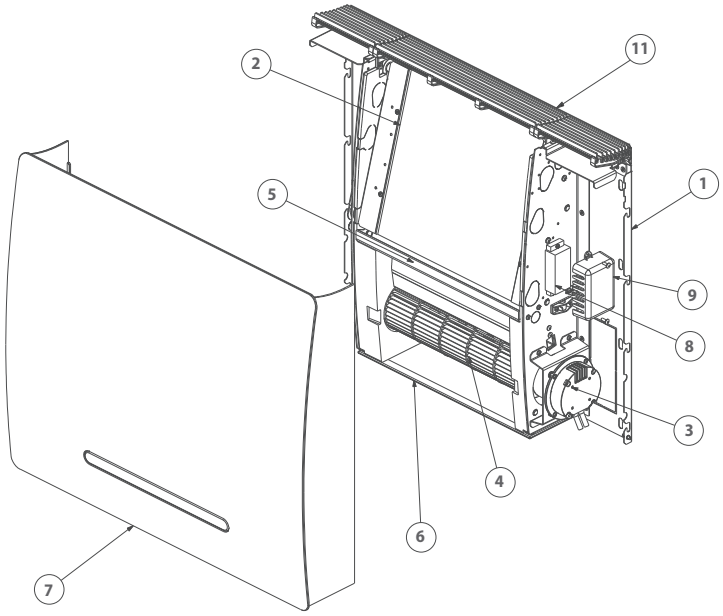
Permanent magnet BLDC motor with inverter integrated in the ventilation unit. An IP44, protection rating is guaranteed; therefore, dust inside is avoided and resistance to water spray is guaranteed.

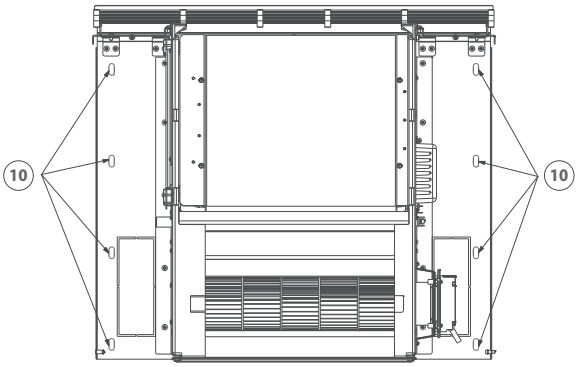
2.8 TANGENTIAL FANS

Tangential fan, statically and dynamically balanced to reduce its noise during operation.
The ABS used for the blades guarantees, in comparison with metal fans, a reduction in vibrations and an absence of bending along the rotation axis.
The blades are alternated with intermediate reinforcement disks in order to increase their sturdiness.



2.9 EXPLODED VIEW





Legend

1 Base unit
2 Heat exchanger
3 Electric motor
4 Tangential fan
5 Condensate drip tray
6 Filter
7 Cabinet
8 Connection terminal board
9 Terminal board cover
10 Slots for installation of basic unit
11 Outlet air grill

3 INSTALLATION

⚠ **WARNING:** unit installation and start-up must be entrusted to competent personnel and performed in a workmanlike manner, in accordance with current regulations.

For each unit an (IL) switch should be mounted on the power supply, with opening contacts at a distance of at least 3 mm and a suitable protection fuse (F) .

⚠ **WARNING:** Install the unit, circuit breaker (IL) and/or any remote controls in a place out of reach of persons who may be taking a bath or shower.

⚠ **WARNING:** the EMC filters connected to frequency converters (inverters) can create leakage currents toward ground (in order to make the unit EMC compliant, by reducing conducted emissions on power supply line). Depending on installation site, this can force the cut out of the differential safety switch. It is recommended to install a separate differential safety switch, only for the BLDC unit, with an adjustable threshold for the cut out current.

⚠ **WARNING:** base unit must be protect by original packaging to avoid demage at the worksite, before cabinet installation.

⚠ **WARNING:** keep the cabinet inside the original packaging until the finally installation

When choosing an **installation site**, you should observe the following rules:

— The air conditioning unit should not be placed immediately under a socket
— Do not install the unit in places where inflammable gases or powders are present
— Do not expose the unit to sprays of water
— Install the unit on walls able to withstand its weight. Keep a clear space all around the unit to assure the proper functioning and accessibility for routine and extraordinary maintenance (see figure 8.1 p. 17)
— store the unit in its packing container until you are ready to install it

☞ **WARNING:** Equipment designed for ambient air conditioning and intended for use in civil comfort applications.

3.1 INSTALLATION REQUIREMENTS

The fan coils should be installed in a position where the room can be cooled or heated evenly, on walls able to withstand their weight.
It is advisable to install any **accessories** on the standard unit prior to positioning the latter.
For installation and use of accessories, please refer to the relative technical sheets.
Install any remote **control panel** in an easily accessible position allowing the user to set the functions while ensuring an accurate reading of the ambient temperature, if provided.
Avoid therefore:

— positions directly exposed to sunlight;
— positions exposed to direct currents of warm or cold air
— placing obstacles that impede an accurate temperature reading

The water connections are on the left side, viewing the unit from the front.
Hydraulic connections on the opposite side are available only on order
The water connection pipes must pass through the slots provided on the rear panel of the unit (depending on the L or R version, use the appropriate slot)
NOTE: the electrical wiring must always be positioned on the opposite side of the plumbing connections.
Make the plumbing connections to the heat exchanger and, where the cooling function is to be used, to the condensate drainage outlet.
It is recommended to connect the installation intake to the upper part of the heat exchanger and the return to the bottom part of it.
Bleed air from the exchanger by means of the air vent valves situated beside the plumbing connections of the exchanger.
To favour the drainage of condensate, the drain hose should be inclined downward, at least 3 cm/m; make sure that no loops or bends form along its path.

⚠ **WARNING:**

In normal operation, particularly with the fan at minimum speed and ambient air with high relative humidity, condensation may form on the air outlet and on some external parts of the unit.
To avoid such issues while always remaining within the operating limits envisaged for the unit, it is necessary to limit the (average) temperature of the water inside the heat exchanger. In particular, the difference between the air dew point (T_A,D_P) and the average water temperature (T_{WM}) must NOT exceed 14 °C, according to the following relationship:
TW>TA,DP-14 °C
Example: in the case of ambient air at 25 ° C with 75% relative humidity, the dew point temperature is about 20 ° C and therefore the average temperature of the water in the battery must be greater then:

— 20-14 = 6 °C in order to avoid condensation on a fancoil equipped with a valve.
— 20-12 = 8 °C If the valve kit accessory can not be installed.

Fan coil with valve

	Air temperature dry bulb (°C)							
		21	23	25	27	29	31	33
Relative Humidity %	40	5	5	5	5	5	5	5
	50	5	5	5	5	5	6	8
	60	5	5	5	5	7	9	11
	70	5	5	6	8	9	11	13
	80	5	6	8	10	12	14	16
	90	6	8	10	12	14	16	18

Fan coil without valve

	Air temperature dry bulb (°C)							
		21	23	25	27	29	31	33
Relative Humidity %	40	6	6	6	6	6	6	6
	50	6	6	6	6	6	8	10
	60	6	6	6	7	9	11	13
	70	6	6	8	10	11	13	15
	80	6	8	10	12	12	16	18
	90	8	10	12	14	14	18	20

In the event the indoor unit is stopped for a prolonged period, with the fan stopped and circulation of cold water in the heat exchanger, condensation may also form on the unit's

exterior. In this case it is advisable to install the 3-way (or 2-way) valve accessory in order to stop the flow of water in the coil when the fan is stopped.

During wintertime periods of quiescence, drain water from the system, to prevent ice from forming. If anti-freeze solutions are used, check for their freezing point using the table below.

% Glycol by weight	Freezing temperature (°C)	Capacity adjustment	Pressure drop adjustment
0	0	1,00	1,00
10	-4	0,97	1,05
20	-10	0,92	1,10
30	-16	0,87	1,15
40	-24	0,82	1,20

4 RATED TECHNICAL DATA

ART-U			10			20			30			40			50		
Speed			min	med	max	min	med	max	min	med	max	min	med	max	min	med	max
Control voltage		V	4,50	5,60	6,40	4,90	7,00	10,0	5,40	7,00	10,0	5,50	7,00	10,0	5,50	7,00	10,0
Rated air flow		m^3/h	110	141	179	190	275	391	295	390	528	412	529	715	474	609	824
Power supply		V-ph-Hz	230 - 1 - 50														
Power input	(E)	W	4	5	6	7	11	17	10	14	23	14	20	32	16	23	36
Total cooling capacity	(1)	kW	0,39	0,69	0,80	0,93	1,32	1,67	1,44	2,01	2,44	1,96	2,62	3,16	2,29	3,17	3,72
Sensible cooling capacity	(1)	kW	0,29	0,50	0,63	0,69	0,99	1,28	1,05	1,44	1,84	1,43	1,97	2,43	1,66	2,26	2,83
Total cooling capacity	(2)(E)	kW	0,39	0,69	0,80	0,93	1,31	1,66	1,43	2,00	2,42	1,95	2,60	3,13	2,28	3,14	3,69
Sensible cooling capacity	(2)(E)	kW	0,29	0,49	0,62	0,68	0,98	1,26	1,04	1,43	1,82	1,42	1,95	2,39	1,65	2,24	2,79
FCEER class	(E)		C			B			B			B			B		
Water flow	(1)	l/h	67	116	134	161	227	282	247	329	395	338	441	528	395	517	622
Water pressure drop	(1)(E)	kPa	1	1	2	4	8	11	12	20	27	9	15	20	14	23	31
Heating capacity	(3)(E)	kW	0,73	0,93	1,05	1,28	1,70	2,14	1,98	2,41	2,94	2,65	3,22	3,92	3,08	3,74	4,56
FCCOP class	(E)		C														
Water pressure drop	(3)(E)	kPa	1	1	2	4	8	11	12	20	27	9	15	20	14	23	31
Heating capacity	(4)(E)	kW	0,56	0,73	0,87	1,04	1,38	1,81	1,52	2,09	2,48	1,96	2,66	3,34	2,49	3,07	3,74
Water flow	(4)	l/h	98	126	146	169	238	303	261	359	413	360	457	557	416	528	644
Water pressure drop	(4)(E)	kPa	1	1	2	4	7	12	11	20	27	8	14	20	14	20	28
Total sound power level	(5)(E)	dB(A)	37	44	49	39	47	54	41	47	54	42	47	54	42	47	54

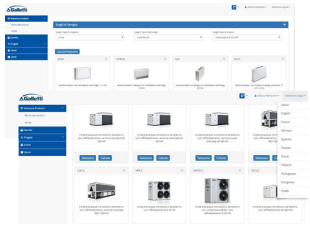
(1) Water temperature 7°C / 12°C, air temperature dry bulb 27°C, wet bulb 19°C (47% relative humidity)
(2) According to EN1397:2015
(3) Inlet water temperature 50°C, water flow rate same as in cooling mode, air temperature 20°C
(4) Water temperature 45°C / 40°C, air temperature 20°C
(5) Sound power measured according to standards ISO 3741 and ISO 3742
(E) EUROVENT certified data

5 WEIGHTS

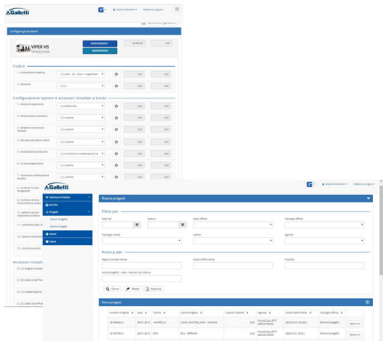
Mod.	kg
ART-U 010	12
ART-U 020	14
ART-U 030	17
ART-U 040	19
ART-U 050	21

6 PERFORMANCES

Galletti has developed on its www.galletti.com web-area the new ON-LINE integrated platform for product selection, configuration and the making of the economic offer.
The software, whose use is easy and intuitive, allows the identification of the desired products by calculating their performances based on real working conditions and their configuration helping the user in choosing options and accessories. It also allows to obtain a detailed report which includes performances, dimensional drawings, tender specifications and the economic offer.



Product selection:
Filters to make the identification of the requested product easier
Performance calculation and saving of results
Performance comparison between products belonging to different series



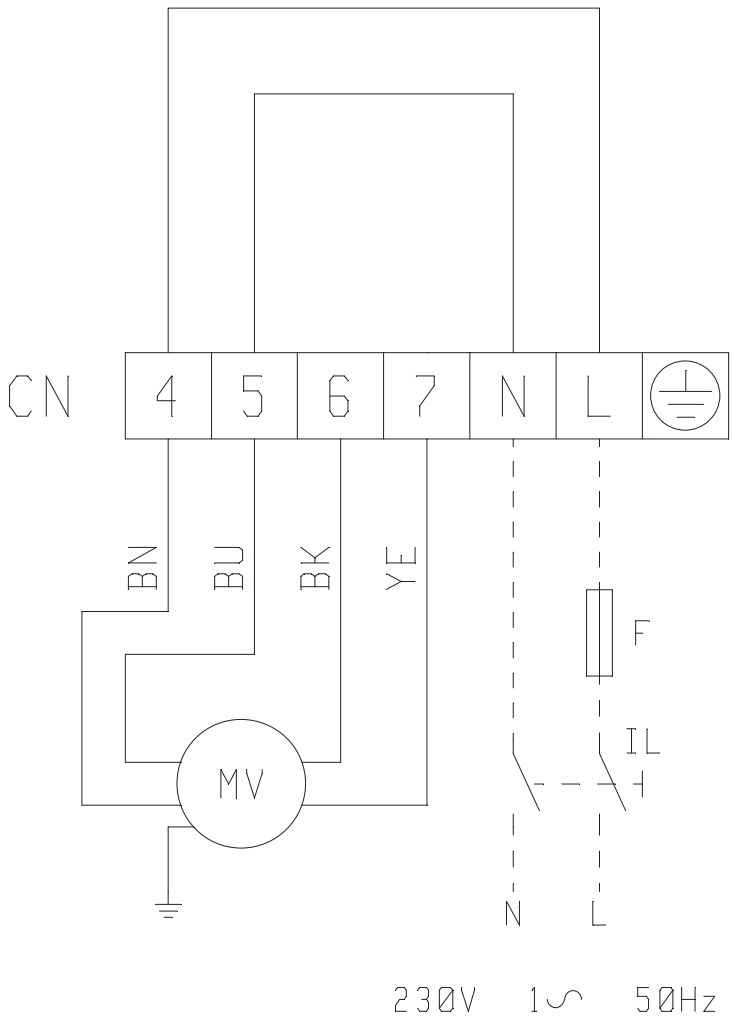
Configuration and project history
Wizard configuration of accessories and options for chillers, heat pumps and hydronic units
Creation of a project which collects all products of interest
Complete management of the storaged history projects

Report:
Generation of a detailed list report in pdf format
Choice of the sections to be included in the print:
— Products performances
— Dimensional drawings
— Tender specifications

7 ELECTRICAL CONNECTION DIAGRAMS

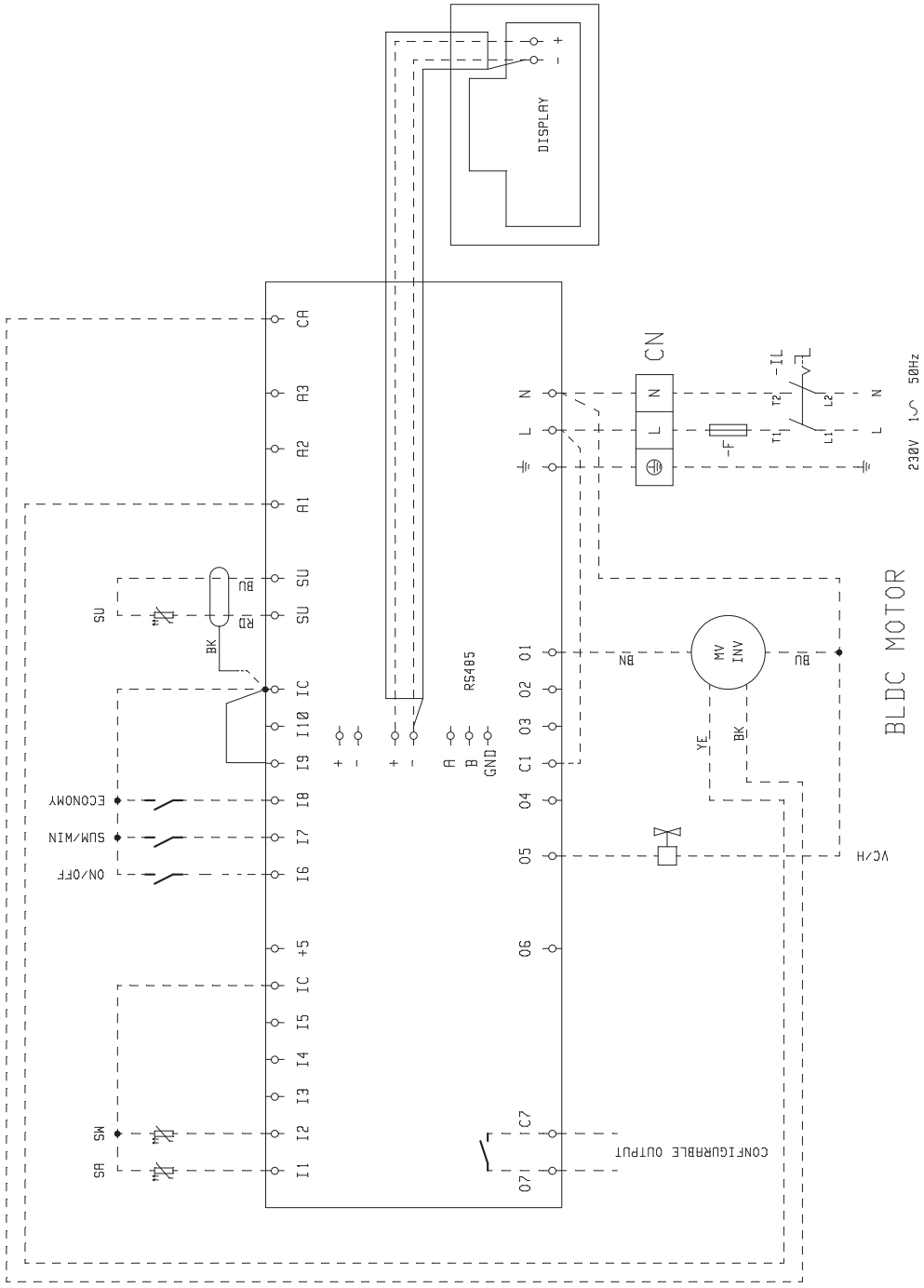
The connections dotted must be made by the installer. For each unit an (IL) switch should be mounted on the power supply, with opening contacts at a distance of at least 3 mm and a suitable protection fuse (F) .
Make the electrical connections with the power supply disconnected, in accordance with current safety regulations, and following the base wiring diagram and pertinent legend.
Check that the mains electricity supply is compatible with the voltage shown on the unit rating plate.
The electrical connections indicated must be made by the installer.
For each fan coil a switch (IL) should be mounted on the power supply, with opening contacts at a distance of at least 3 mm and a suitable protection fuse (F).

» 7.1 Base wiring diagram

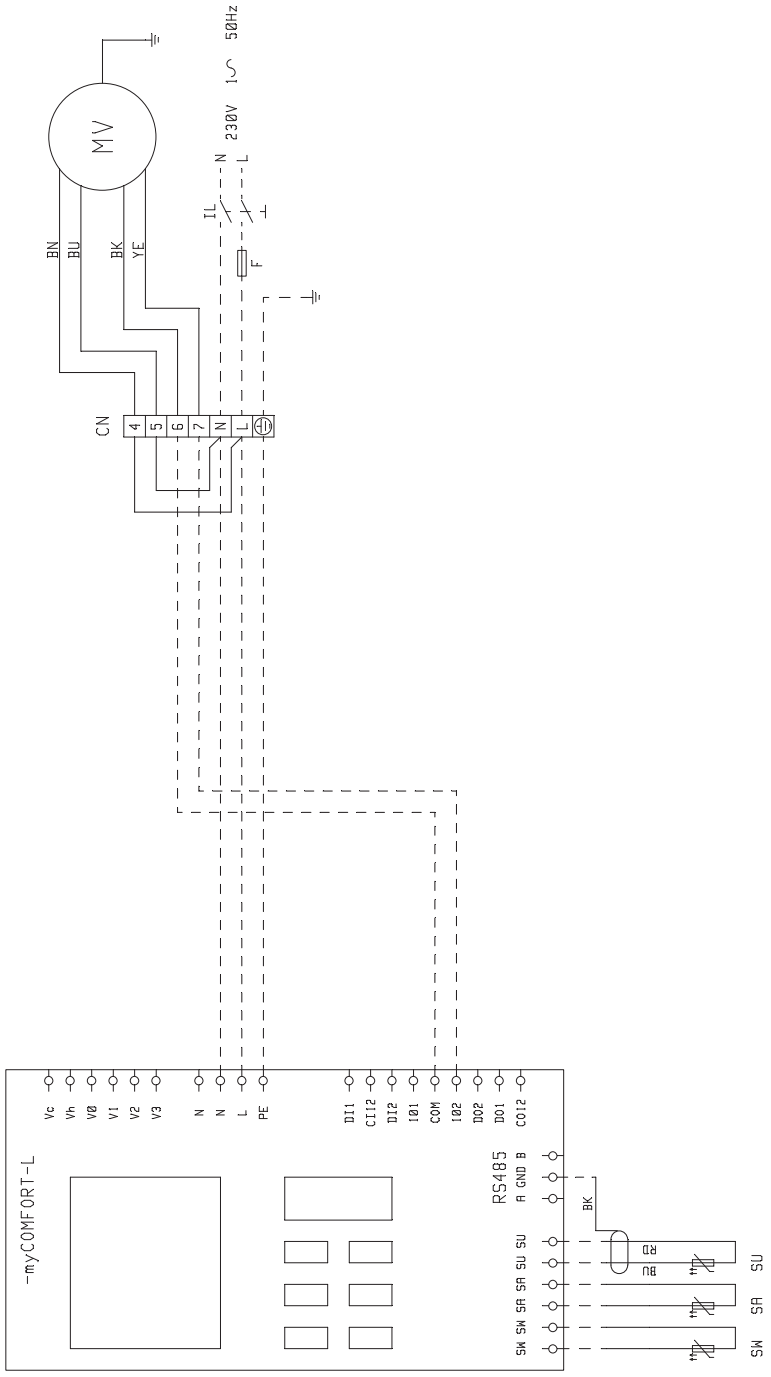


1: Control panel connection (accessory)
BK: Black= GND
BN: Brown= motor supply line
BU: Blue = neutral motor and fan supply
YE: Yellow = 0-10V signal
CN: Fast-on connector
F: Protection fuse not supplied
IL: Circuit breaker (not supplied)
MV: Motor

» 7.2 EVO BOARD + EVO DISP (on board or wall-mounted)



BK: Black = GND fan motor
BN: Brown= motor supply line
BU: Blue = neutral motor and fan supply
YE: Yellow = 0-10V signal
F: Fuse (not provided)
CN: Fast-on connector
IL: Circuit breaker (not supplied)
SU: Umidity sensor
SW: Water temperature sensor
SA: Room temperature sensor
VC/H: Water valve (hot and cold)
MV: Fan motor



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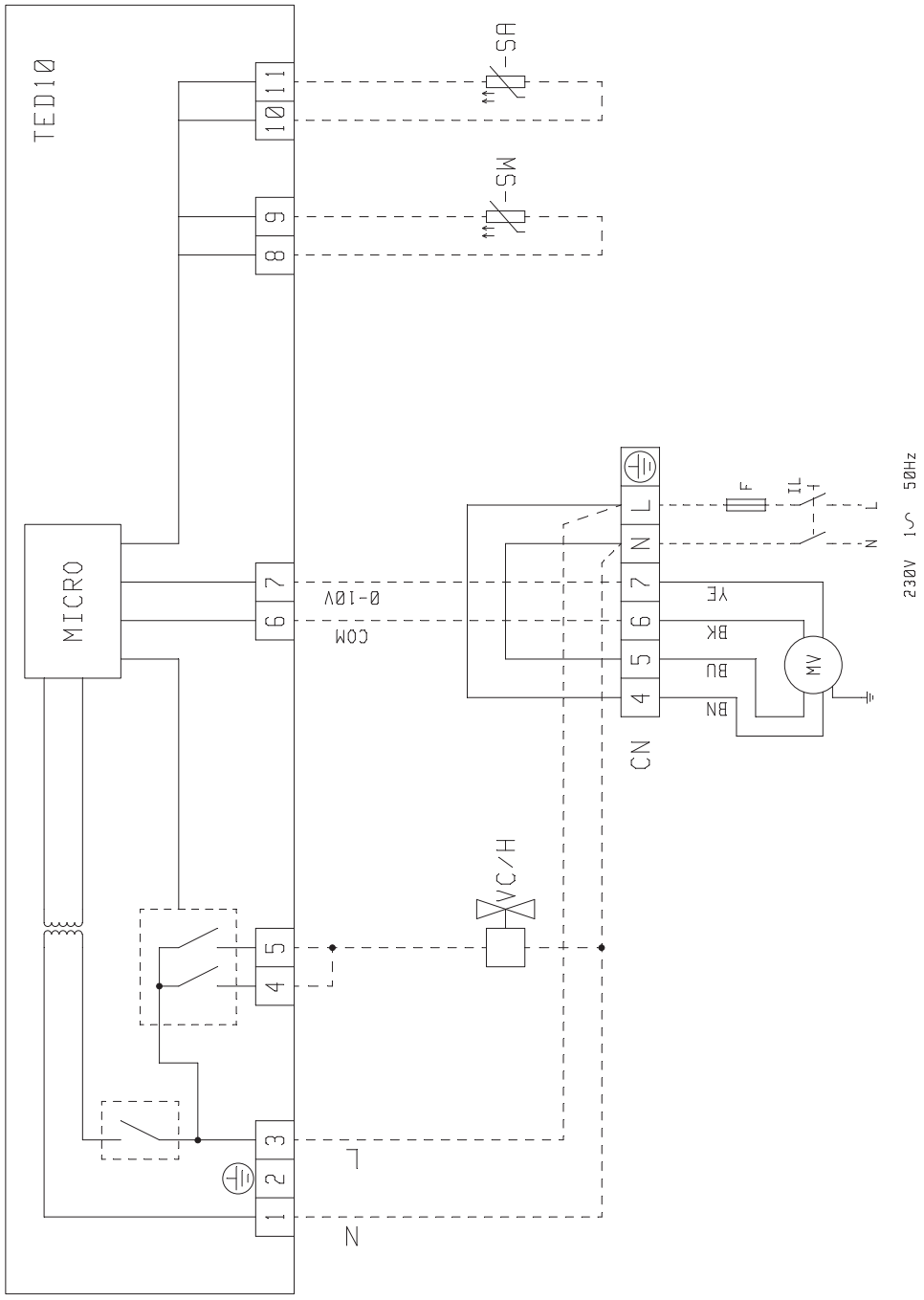
SU: Umidity sensor
SW: Water temperature sensor
SA: Room temperature sensor
MV: Fan motor

» 7.4 TED10 (on-board and wall-mounted)



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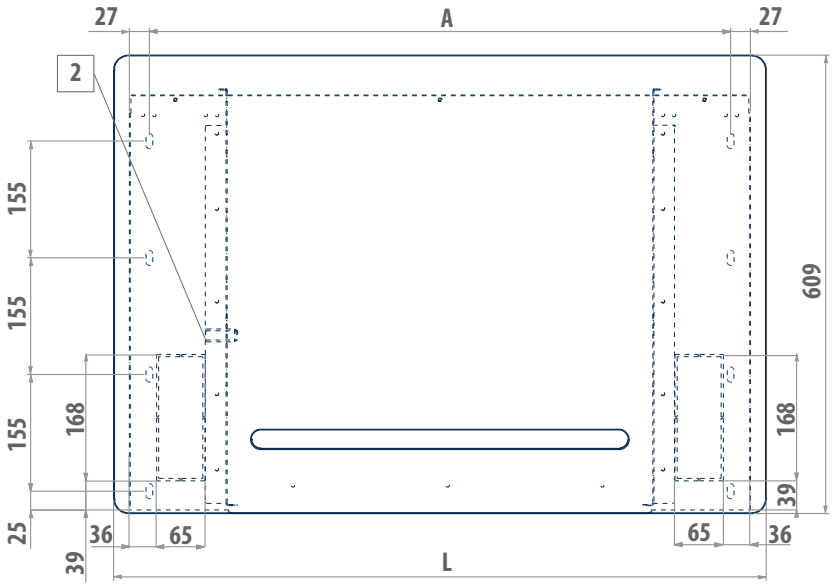
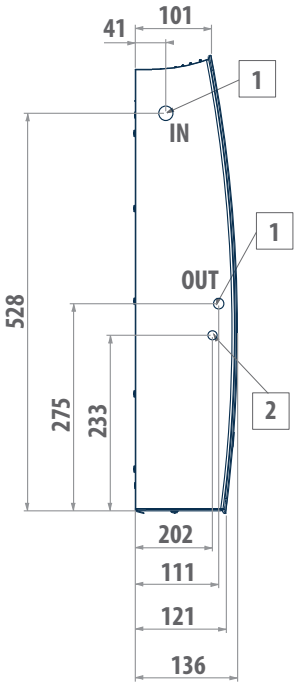
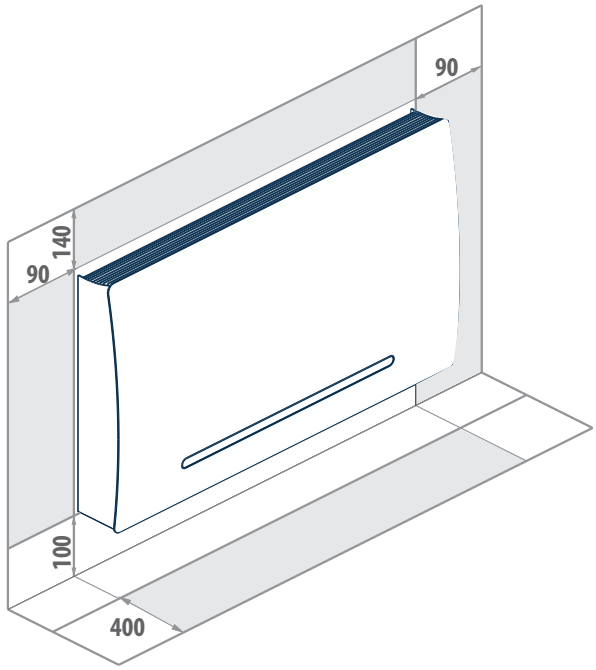
F: Fuse (not provided)
YE: Yellow = 0-10V signal
CN: Fast-on connector
IL: Circuit breaker (not supplied)
SW: Water temperature sensor
SA: Room temperature sensor
VC/H: Water valve (hot and cold)
MV: Fan motor
N: Neutral
L: Phase

8 OVERALL DIMENSIONS

» Dimension







LEGEND
1 Water connections standard heat exchanger ø 1/2"
2 Condensate discharge diameter for vertical installation ø 17 mm

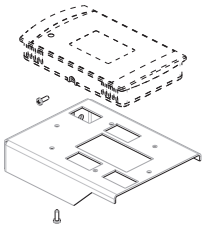
Mod.	A	L
	mm	mm
ART-U 010	616	711
ART-U 020	772	867
ART-U 030	941	1036
ART-U 040	1173	1268
ART-U 050	1307	1402

9 ACCESSORIES

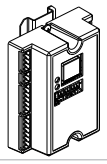
EVO - wall-mounted or remote microprocessor split controller
Composed of:
EVO BOARD: circuit board
EVO DISP: user interface with display
Main functions:
- Room air temperature reading and adjustment
- Room humidity reading and adjustment
- Water temperature reading (water sensor as an optional)
- Manual/automatic regulation of the fan speed with ON -OFF step and modulating control
- Automatic adjustment of valve opening with ON/OFF and modulating controller
- Manual and automatic switching of heating and cooling mode depending on the water temperature within the heat exchanger or on the room temperature, with a selectable neutral zone
- Clock and hourly timer-programmed operation
- 3 Analogue outputs for controlling modulating evices -10V
- E conomy function and minimum temperature
- 1 Digital outputs for controlling (On/Off) external devices (novoltage contacts)
- Serial port for RS485 connection
- Serial port for OC connection
- 3 digital inputs for remote setting of ON OFF, Economy, operating modes

Operating mode
The controller is equipped with a programmable display to show and set all the functions of the hydronic unit through a dedicated interface with the parameter description.

DISPKB - EVO DISP on-board installation kit
it consists of the bracket (same color of the cabinet) and the appropriate mounting screws.

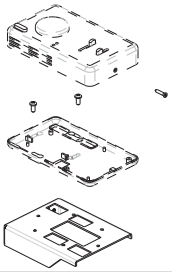


EVOBOARD - EVO BOARD on-board installation kit
it includes a power board, a connection terminal board and appropirate mounting screws.



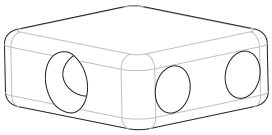
TED10 - on-board or wall-mounted electronic controller for BLDC fan control and one or two valves ON/OFF 230V.
Main functions:
- It supports terminal units equipped with BLDC electric motor thanks to its internal 0-10 V signal generator
- for 2 and 4 pipes systems
- Manual and automatic fan speed adjustment mode
- temperature-based management of water flow enabling

TEDKB - TED on-board installation kit
it consists of the bracket (same color of the cabinet) and the appropriate mounting screws.

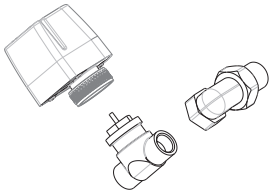


TED SWA - Water or air temperature sensor for controls TED
NTC resistive probe connected directly to the microprocessor control TED10, depending on connetion, it measures indifferently the temperature of the water passing through the finned coil or the temperature of the air inlet to the fan coil.
Ventilation is disabled in heating and cooling operation mode if the detected temperature is less than 30 ° C and above 22 ° C respectively.

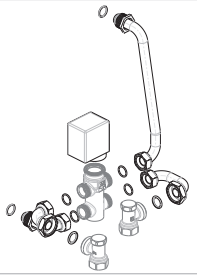
GIVK - Insulating shell for VKS
GIVK valve insulation shell avoid forming condensate into the valve body. The water connections are provided both left and right.



V2VSTD - 2 way valve
The kit is made up of:
2-way valve/2 connections with built-in by-pass, maximum operating pressure 16 bar.
Electrothermal actuator with ON/OFF functions (total opening time 4 minutes), 230 V power supply.
Hydraulic kit for installing the valve on the heat exchanger.
Available versions with water connections on the left and on the right.



V2VSTD - 3 way valve
The kit is made up of:
3-way valve/4 connections with built-in by-pass, maximum operating pressure 16 bar.
Hydraulic kit for installing the valve on the heat exchanger, complete with 2 holders for balancing and regulating the fan coil unit.
Available versions with water connections on the left and on the right.



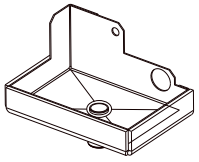
MYCOMFORT LARGE - wall-mounted microprocessor control having the following main features:
- Room air temperature reading and adjustment
- Room humidity reading and adjustment
- Water temperature reading (water probe as an optional)
- Manual and automatic adjustment of fan speed
- Manual and automatic switching of heating and cooling mode depending on the water temperature within the heat exchanger or on the room temperature, with a neutral zone that can be selected in the range from 2° to 5°C.
- Clock and hourly timer-programmed operation
- 2 Analogue outputs for controlling modulating evices 0-10 V
- 2 Digital outputs for controlling (On/Off) external devices (novoltage contacts)
- Serial port for Bus connection

The controller is equipped with a large display (3") to show and set all the functions of the unit.

MCSWE - water temperature sensor for microprocessor controls model EVO, MYCOMFORT
Directly connected to the microprocessor controllers EVO and MYCOMFORT to measure the water temperature through the heat exchanger.
If the temperature detected is less than 17°C, the unit will operate in the cooling mode and the controller will use the summertime temperature scale (19 - 31°C); if the temperature detected is greater than 37°C the unit will function in the heating mode and the controller will use the wintertime temperature scale (14 / 26°C). If the temperature detected by the probe is in the range of 17°C to 37°C, the controller will inhibit operation of the fan coil unit.

MCSUE - Humidity sensor for EVO and MYCOMFORT microprocessor controller
Directly connected to the microprocessor controllers EVO and MYCOMFORT, it enables the control of the heating element ventilation (if present, as support in heating mode) and the automatic cooling/heating changeover according to the water temperature.

BV - Water drip tray
This accessory tray is used to collect the condensate from the valve and the pressure regulator. The drip tray is reversible for both left and right version.



10 MAINTENANCE

For safety reasons, before carrying out any maintenance or cleaning jobs, turn off the unit by moving the fan speed selector to "Off" and putting off the main switch (0 position).
Due caution must be taken while carrying out maintenance: some metal parts may cause injuries; wear protective gloves.
ART-U type fan coils do not have particular maintenance requirements: it is sufficient to periodically clean the air filter.
A running in period of 100 hours is necessary to eliminate all initial mechanical friction of the motor.
Start-up should be carried out at the maximum operating speed.
To assure that the ART-U fan coil units perform efficiently, abide by the following indications:

— keep the air filter clean
— do not pour liquids inside the equipment;
— do not introduce metal parts through the air outlet (upper) grill and through the frontal grill;
— avoid obstructing the air outlet or intake

Whenever starting up the unit after it has not been used for a long time, check that there is no air in the heat exchanger.
Before the period of operation in the cooling mode, check that condensate is properly drained and that the heat exchanger fins are not obstructed by impurities.
Clean as necessary using compressed air or low pressure steam, taking care not to damage the fins.
Adequate periodic maintenance will ensure save both energy and cost savings.

10.1 CLEANING THE AIR FILTER

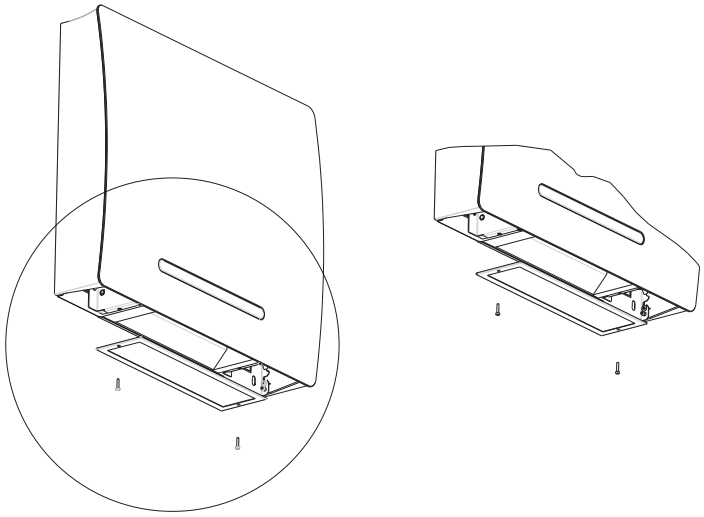
Clean the air filter at least once a month and in any case at the start of the period of use (before the heating and the air conditioning season).
To clean the air filter proceed as follows:

1. Unscrew the two M5 screws that block the filter by pulling it out of its housing and freeing it from the magnets (use a Phillips screwdriver, maximum length 8 cm).
2. Clean it with warm water (in the event of dry dust build-up, using compressed air).
3. After allowing it to dry, fit the filter back in place.
4. Once the filter has been repositioned, fix it again with the two M5 screws.

⚠ **WARNING:** THE FILTER MUST ALWAYS BE SECURED IN PLACE WITH THE SCREWS PROVIDED TO PREVENT ACCIDENTAL CONTACT WITH THE FAN.

It is recommended to replace the air filter once a year, using an original replacement filter; the indoor unit model is specified on the identification plate on the inside of the side panel.

» Air filter



10.2 CLEANING THE HEAT EXCHANGER

It is advisable to check the condition of the exchangers before the start of every period of use and to make sure that the fins are not obstructed by dirt.

10.3 CLEANING THE CABINET

— Use a soft cloth
— Never pour liquids onto the unit, as this could cause electrical discharges and damage the internal components.
— Never use harsh chemical solvents.

⚠ **WARNING:** The appliance is not to be used by children or person with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction. Children being supervised not to play with appliance.

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