

TECHNICAL MANUAL



ESTUCS600 and ESTUCS900 Cassette



EUROPO

INTEGRATED
COMFORT
SYSTEMS



INDEX

1. GENERAL INFORMATION

1.1 Applications	4
1.2 Operation	4
1.3 Performances	4
1.4 Selection software	4

2. ESTUCS600 and ESTUCS900 CASSETTE UNITS

2.1 ESTUCS600 description.....	5
2.2 ESTUCS900 description	8

3. COANDA EFFECT

11

4. COMPONENTS

4.1 Structure	12
4.2 Coil for ESTUCS600 model.....	12
4.3 Coil for ESTUCS900 model	12
4.4 Fan deck	13
4.5 ESTQEC00 - Electric panel	13
4.6 Condensate pump	13
4.7 Air filter	13
4.8 Air outlet plenum	13
4.9 Air intake grill	13

5. SPECIAL VERSIONS

5.1 ESTUCS/M 600 model: micro-drilled metallic grill.....	14
5.2 ESTUCS/M 600-Slots model: metallic grill with slots	15
5.3 ESTUCS/H 600 model: cassette with natural condensate discharge.....	18
5.4 ESTUCS/HM 600 VDI 6022: cassetta igienica certificata.....	21

6. ELECTRICAL ACCESSORIES

6.1 QEC10	26
6.2 QEC20	26
6.3 Electric heater KREL for ESTUCS600.....	26
6.4 Electric heater KREL for ESTUCS900.....	26
6.5 AS – Air sensor	26
6.6 CS – Check sensor	26
6.7 WS – Water sensor.....	26
6.8 Electronic regulator - EDCR	27
6.9 OMNIBUS 360 digital control.....	28
6.9.1 OPower card for BMS ORBU10.....	28
6.9.2 Round Touch Console- ORC4xx.....	28
6.9.3 Round Display Console- ORC2xx	29
6.9.4 Round Analog Console- ORC3xx	29
6.9.5 Round Cabin Console- ORC6xx	29
6.9.6 Round IR Console (ORC5xx) and remote control (OIR30)	29
6.10 OMNIBUS 360 Supervision	30

6.10.1 Round Manager - ORS7xx (up to 16 units)	30
6.10.2 Round Master - ORS810 (up to 100 units).....	30
6.10.3 Round Net - ORS940 (up to 250 units)	31
6.10.4 App Round Clima and Round Clima Plus	31

7. AIR FILTER

7.1 G3 Filter (not available for ESTUCS900).....	32
7.2 F7 filter (only for ESTUCS/HM 600 model) and pressure switch.....	32

8. REGULATING VALVES

8.1 DT_3B2 or DT_2B2	33
8.2 DTJ3BM or DTJ2BM	33
8.3 4-PIPE COMPACT KIT	35
8.4 D2B2 or D2C2	35
8.5 D2BM or D2CM	35
8.6 DT – Shut-off valve	37
8.7 Drawings and dimensions for regulating and pressure independent valves.....	38

9. TECHNICAL DATA EST CASSETTE UNITS

9.1 Nominal air volumes	46
9.2 Cooling capacities, 2 pipe system	47
9.3 Heating capacities, 2 pipe system	47
9.4 Cooling capacities, 4 pipe system	48
9.5 Heating capacities, 4 pipe system (additional 1 row coil)	48
9.6 Electrical data	49
9.7 Working operation limits	45

10. NOISE LEVELS

10.1 Sound power	50
10.2 Sound pressure in a closed environment	50

11. ELECTRICAL CONNECTIONS

51

1

2

3

4

5

6

7

8

9

10

11

1

1. GENERAL INFORMATION

2

1.1 APPLICATIONS

The EURAPO ESTUCS Cassette units, **with energy saving motors**, are designed for installation on a false ceiling, suitable for cooling and heating applications.

3

1.2 OPERATION

The effectiveness of the cassette units is due to the large surface area of the finned heat exchanger (coil) where the air drawn from the room by the fan passes through.

4

The ambient air drawn through the central air intake grill is blown into the circular heat exchanger, composed by copper pipes and aluminium fins, and then it comes out from the 4 sides of the cassette unit. Thanks to the special combination of air intake/air outlet grilles it is possible to obtain the **pleasant COANDA effect** (see chapter 3).

5

In heating operation, the hot water circulating in the finned coil supplies heat to the air passing through the heat exchanger.

6

In cooling operation, the chilled water circulating in the finned coil removes heat from the air passing through the heat exchanger. The air is also dehumidified and the condensed water vapour collects itself on the condensate tray beneath the heat exchanger.

7

It is then evacuated by a condensate pump, factory fitted and wired, to which proper water discharge pipes must be connected. The condensate pump is NOT present on the ESTUCS/H 600 model.

8

1.3 PERFORMANCES

The performance of a ESTUCS cassette unit can vary greatly with changes in the temperature and in the amount of water circulating through the coil, as well as with changes in the temperature and in the amount of air circulating through the coil.

9

The air volume is determined by selecting the proper fan speed through continuous regulation (0÷100%) by using electronic or digital regulators (also for BMS system), while the water flow rate is determined by the specifications of the system and of the pump. Thermal performances of the unit can be optimised by controlling the inlet flow rate of the water with proper regulating valves (ON/OFF or modulating type), which can be supplied as accessories.

10

The use of regulating valves is always recommended in Cooling operation.

11

1.4 SELECTION SOFTWARE

To facilitate choosing the correct size of a cassette unit for any operating condition (including those differing from the standard ones), EURAPO offers a dedicated computer program at the following web address:

- <http://www.geniusplan.it>

2. ESTUCS AND ESTUCS900 CASSETTE UNITS

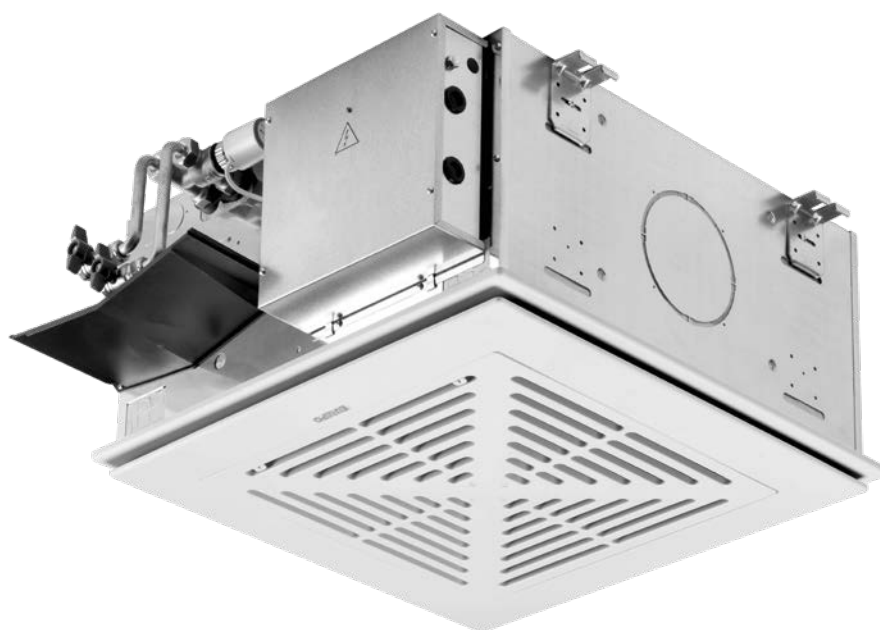
2.1 ESTUCS600 DESCRIPTION



Horizontal unit with air outlet on 4 sides and central air intake, suitable for installation on the false ceiling.

General features:

- brushless motor and inverter technology;
- central air intake grill in heat resistant ABS V0 Anti UV, white colour (RAL9003), prearranged for infrared control (optional);
- 4 sides air outlet plenum in heat resistant ABS V0 Anti UV, white colour (RAL9003), with manual flaps with clutch system in order to adjust the air flow; the air outlet plenum is designed to distribute the air by creating a COANDA effect (see chapter 3);
- unit equipped with condensate tray and condensate pump;
- 2 pipe systems: 2 or 3 row coils available; in all units an electric heater (max. 1,5 kW) can be also installed;
- 4 pipe systems: the additional 1 row coil can be added to units with a 2 or 3 row coil;
- prearranged hole for fresh air intake (standard), diam. 100 mm;
- prearranged holes for air supply into adjacent rooms (standard), diam. 150 mm.



ESTUCS600 WITH VALVES (OPTIONALS)

1

2

3

4

5

6

7

8

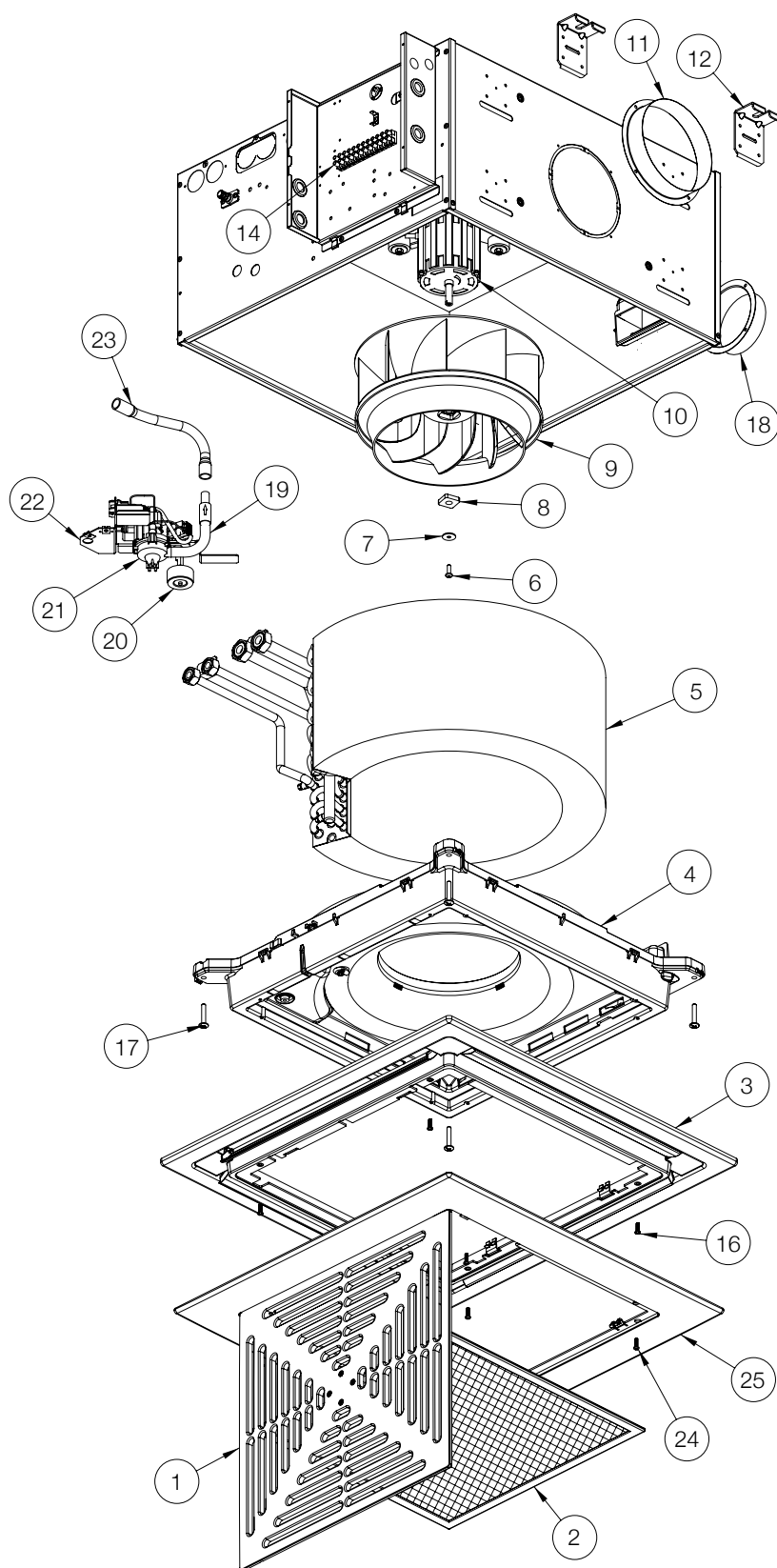
9

10

11

LEGEND-ESTUCS600

1. Air suction grill
2. Filter
3. Air supply grilles
4. Air intake plenum/condensate tray
5. Heat exchanger
6. Fan wheel fixing screw
7. Fan wheel washer
8. Square washer
9. Fan wheel
10. Brushless motor
11. Air supply collar
12. Fixing support
14. Terminal board
16. Fixing screw for air supply grilles
17. Fixing screw for air intake plenum/cond. tray
18. Collar for ext. air intake
19. Non return valve pipe
20. Flow switch for cond. pump
21. Motor for cond. pump
22. Support for cond. pump
23. Condensing water discharge pipe
24. Fixing screws for air suction grill
25. Air suction grill frame



2 PIPE SYSTEM

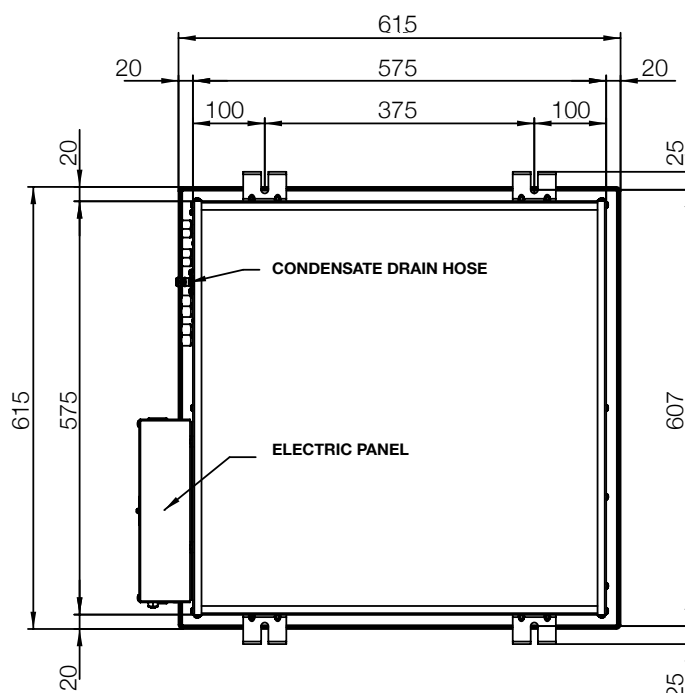
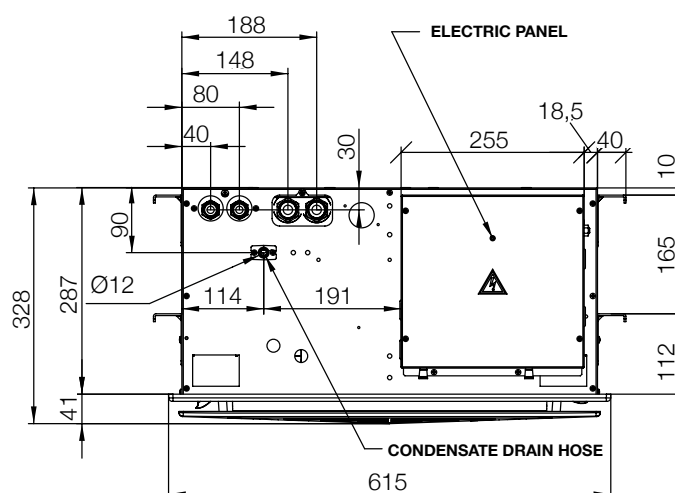
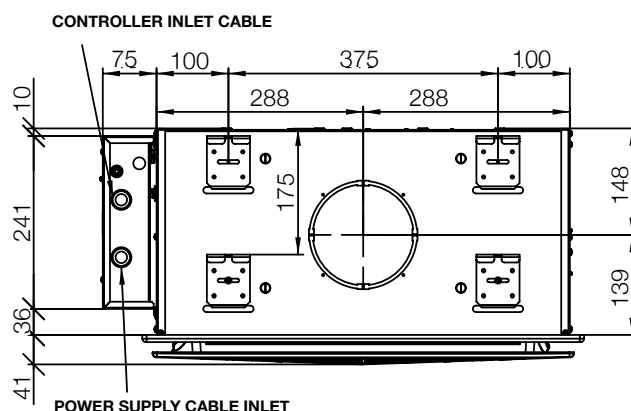
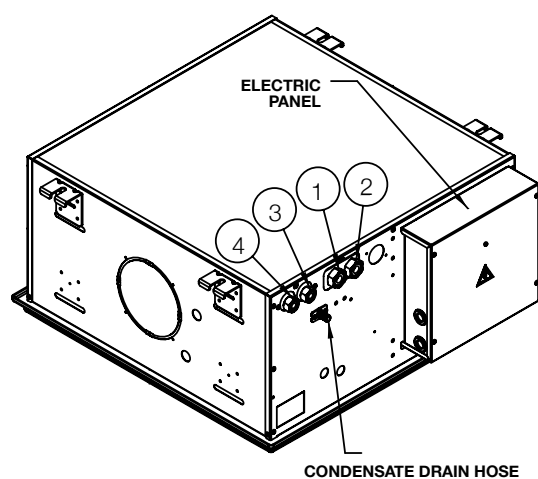
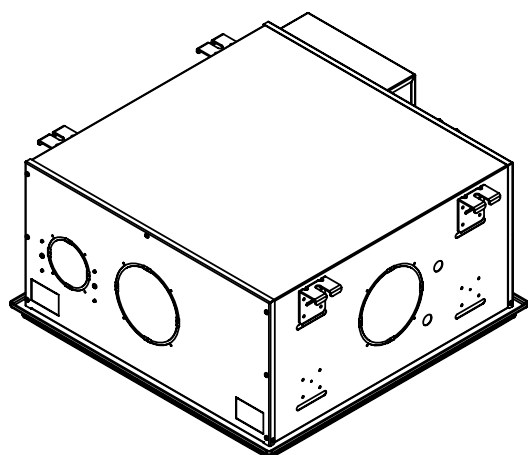
1. Water inlet.....3/4" F
2. Water outlet.....3/4" F

4 PIPE SYSTEM

1. Inlet cooling water.....3/4" F
2. Outlet cooling water.....3/4" F
3. Inlet heating water.....1/2" F
4. Outlet heating water.....1/2" F

WEIGHT (kg)

ESTUCS621-641	24,0-24,2
ESTUCS622-642	25,4-25,6
ESTUCS624-644	25,4-25,6

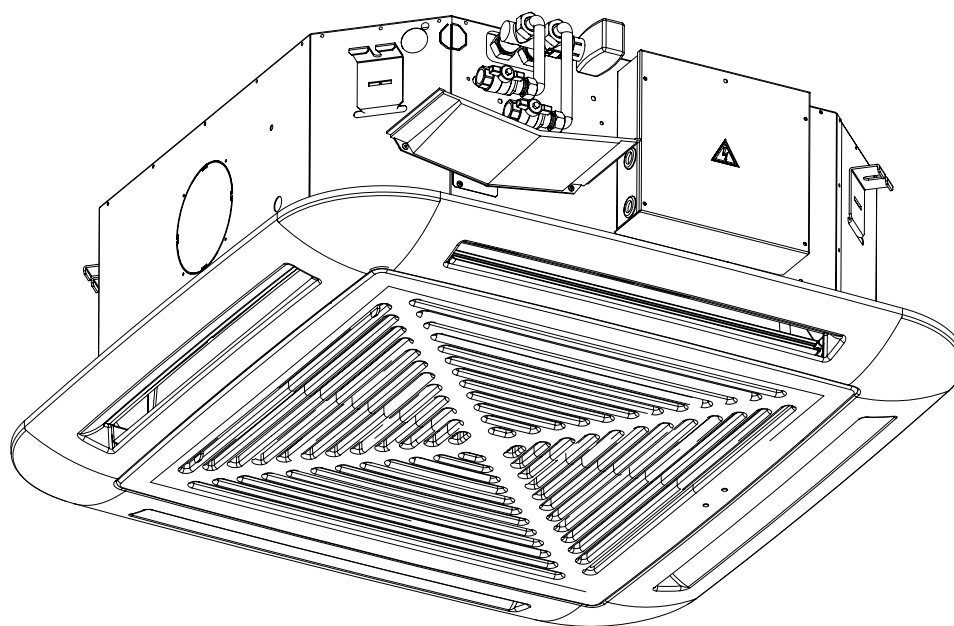


2.2 ESTUCS900 DESCRIPTION

Horizontal unit with air outlet on 4 sides and central air intake, suitable for installation on the false ceiling.

General features:

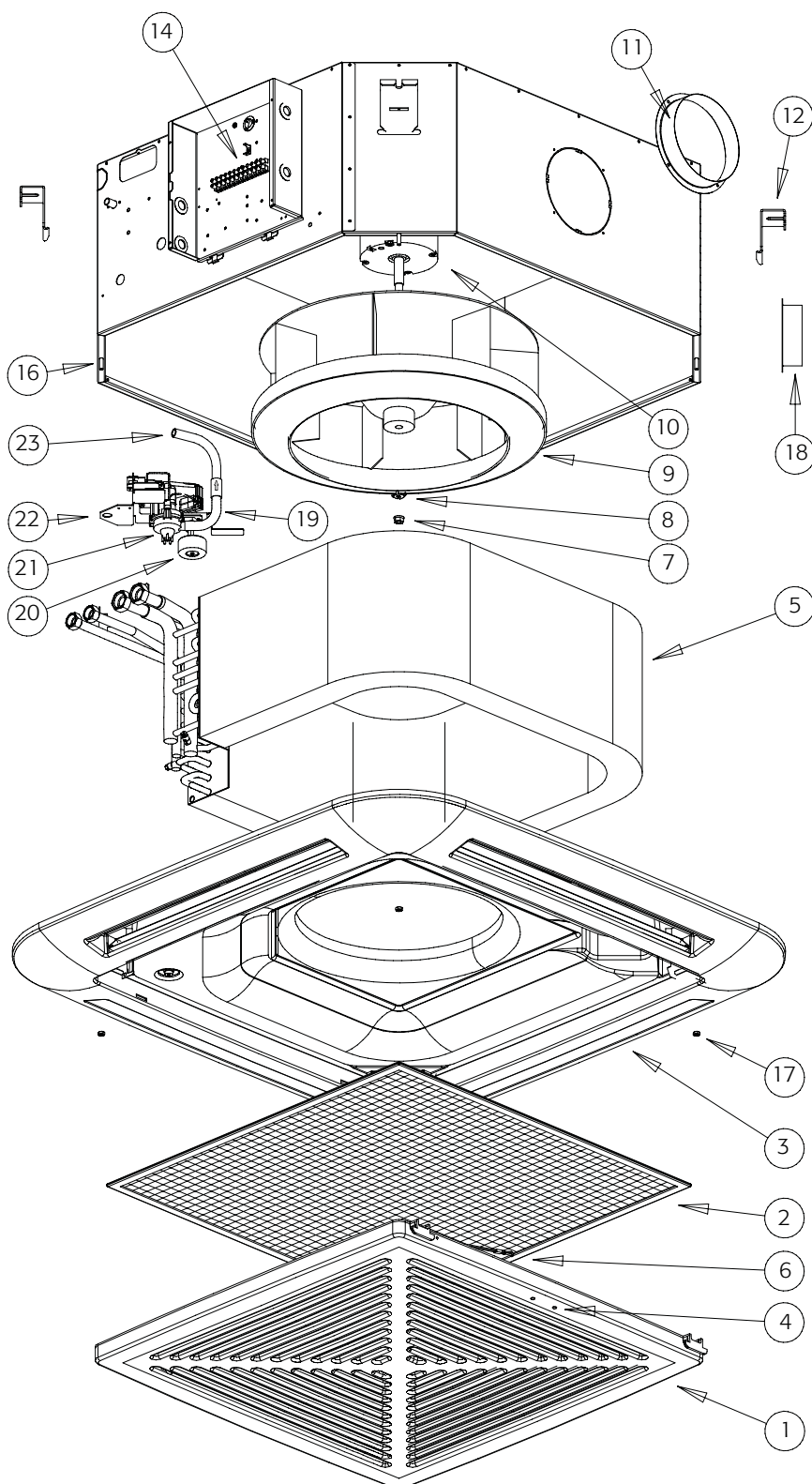
- brushless motor and inverter technology;
- central air intake grill in heat resistant ABS, white colour RAL9003;
- 4 sides air outlet plenum in heat resistant ABS, white colour RAL9003 with manual flaps in order to adjust the air flow; the air outlet plenum is designed to distribute the air by creating a COANDA effect (see chapter 3);
- unit equipped with condensate tray and condensate pump;
- 2 pipe systems: 3 row coils available; in all units an electric heater (max. 3,0 kW) can be also installed;
- 4 pipe systems: the additional 1 row coil can be added to units with a 3 row coil;
- prearranged hole for fresh air intake (standard), diam. 100 mm;
- prearranged holes for air supply into adjacent rooms (standard), diam. 150 mm.



ESTUCS900 WITH VALVES (OPTIONALS)

LEGEND-ESTUCS900

- | | |
|-----|--------------------------------------|
| 1. | Air suction grill |
| 2. | Filter |
| 3. | Air supply frame/condensate tray |
| 4. | "IR" receiver (optional) |
| 5. | Heat exchanger |
| 6. | Safety rope for air suction grill |
| 7. | Fan wheel fixing nut |
| 8. | Fan wheel joint |
| 9. | Fan wheel |
| 10. | Brushless motor |
| 11. | Air supply collar |
| 12. | Fixing support |
| 14. | Terminal board |
| 16. | Fixing screws for air supply grilles |
| 17. | Fixing nuts for air supply grilles |
| 18. | Collar for ext. air intake |
| 19. | Non return valve pipe |
| 20. | Flow switch for cond. pump |
| 21. | Motor for cond. pump |
| 22. | Support for cond. pump |
| 23. | Condensing water discharge pipe |



1

2

3

4

5

6

7

8

9

10

11

1

2

3

4

5

6

7

8

9

10

11

2 PIPE SYSTEM

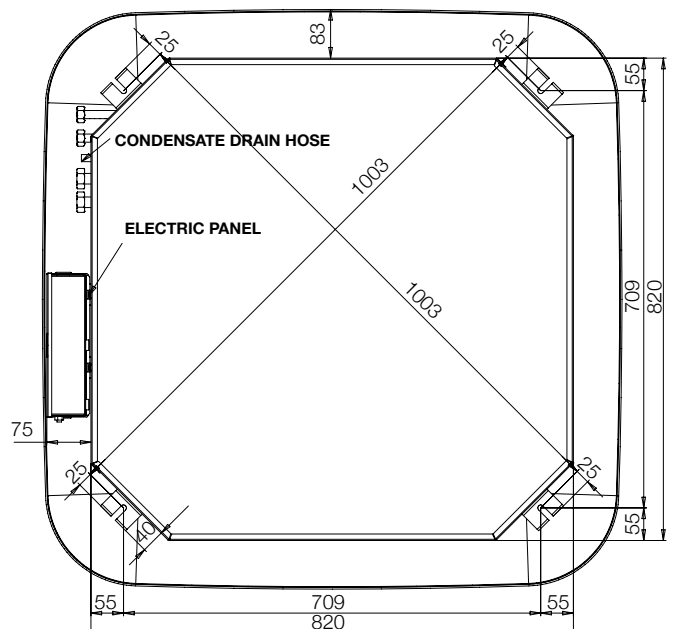
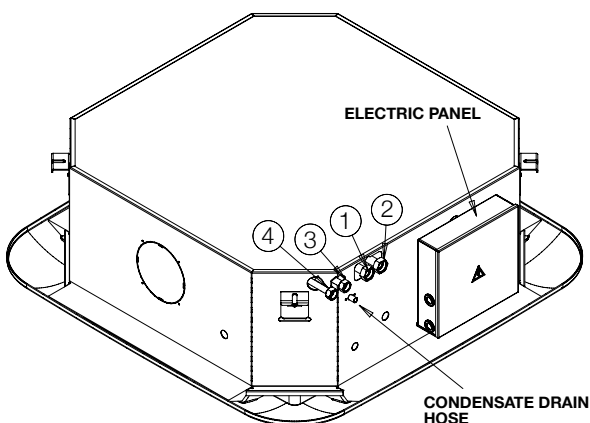
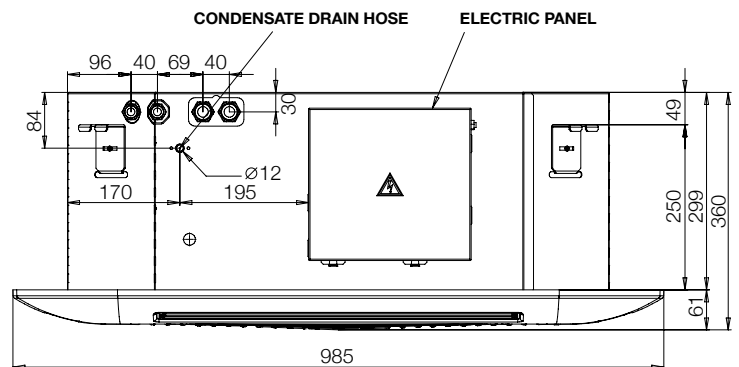
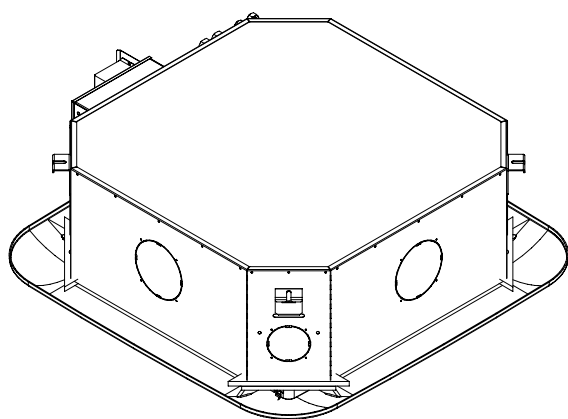
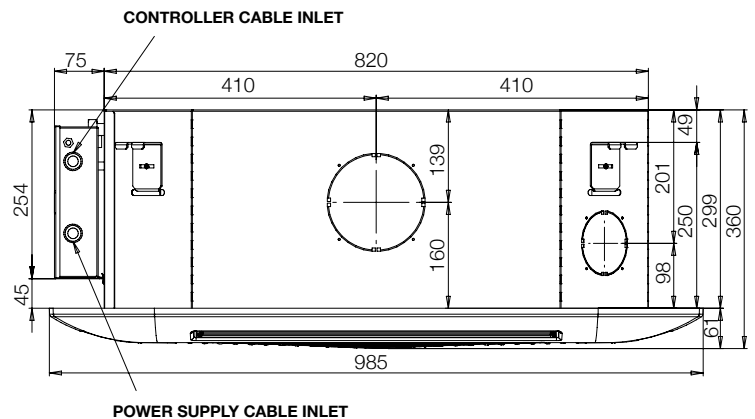
1. Water inlet.....3/4" F
2. Water outlet.....3/4" F

4 PIPE SYSTEM

1. Inlet cooling water.....3/4" F
2. Outlet cooling water.....3/4" F
3. Inlet heating water.....1/2" F
4. Outlet heating water.....1/2" F

WEIGHT (kg)

ESTUCS922.1-942.1.....45,0



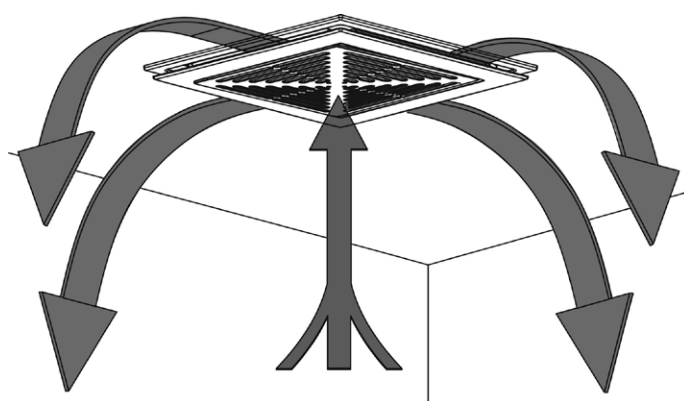
ESTUCS900 model

3. COANDA EFFECT

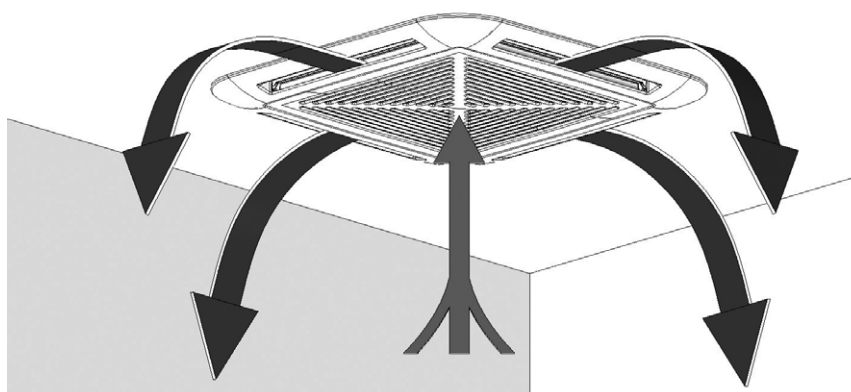
The particular combination of the air intake and outlet grilles permits to obtain a pleasant distribution of the air flow and creates a good comfort in the room where the EURAPO cassette unit is installed.

This condition is granted by the phenomenon called "COANDA effect": the air is blown towards the ceiling and not directly downwards, it adheres to the ceiling (because of the depression created on the ceiling's surface) and it attracts the air coming from the room, by mixing with it. The air throw is longer and the air falling velocity decreases, by falling down as rain, with a milder temperature.

The COANDA effect guarantees an uniform air distribution and it avoids a direct air flow against the people in the room.



Coanda effect model ESTUCS600



Coanda effect model ESTUCS900

1

2

3

4

5

6

7

8

9

10

11

4. COMPONENTS

4.1 STRUCTURE

The structure is made of 10/10 mm thick galvanised steel for the ESTUCS600 and 12/10 mm thick galvanised steel for the ESTUCS900, completely insulated inside with closed cell thermal insulation material, 10 mm thick. On three of the four sides there is a prearranged hole having diam. 150 mm for the connection to an air supply duct. Furthermore there is a prearranged hole having diam. 100 mm for the connection to an external air intake.

The relevant collars for an easy connection to the air duct are always supplied as standard.

The air plenum/condensate tray group is realised in heat resistant ABS V0 Anti UV material. The condensate tray has a water drainage hole, which is normally closed by a water-tight rubber cap.

The air plenum has special slots on the sides in order to permit access to the external air: the fresh air coming through the slots will perfectly mix with the internal air and pass through the heat exchanger before blowing into the room.

Additionally there are four fixing supports, which are part of the main structure, that are supplied as standard in a separate kit. The fixing supports can be installed on the proper holes on two sides of the cassette unit, either on the upper side or on the lower side.

4.2 COIL FOR ESTUCS600 MODEL

The finned heat exchangers are made of copper pipes and surface treated (3 rows) aluminium fins, bent for 360°. The surface treatment on the fins permits to have a better condensing water discharge from the fins themselves and a perfect air passage through the heat exchanger, with reduced pressure drops and a high dehumidification and efficiency of the coil.

The hexagonal brass water connections have diameter $\frac{3}{4}$ " G female on the cooling coil and diameter $\frac{1}{2}$ " G female on the heating coil (4 pipe system). A particular internal fixing system of the coil's header will limit the problems of torsion and damages on the copper pipes.

Maximum operating pressure: 16 bar.

Min/max water temperature: 5/85 °C (see paragraph 9.8).

A drain valve is located beneath the coil's headers in order to completely discharge the water from the coil, when the unit does not work for a long period of time.

The air bleed is done by loosening slightly the water inlet union and supplying water from the outlet connection.

4.3 COIL FOR ESTUCS900 MODEL

The finned heat exchangers are made of copper pipes and aluminium fins.

The hexagonal brass water connections have diameter $\frac{3}{4}$ " G female on the cooling coil and diameter $\frac{1}{2}$ " G female on the heating coil (4 pipe system). A particular internal fixing system of the coil's header will limit the problems of torsion and damages on the copper pipes.

Maximum operating pressure: 16 bar.

Min/max water temperature: 5/85 °C (see paragraph 9.8).

A drain valve is located beneath the coil's headers in order to completely discharge the water from the coil, when the unit does not work for a long period of time.

The air bleed is done by loosening slightly the water inlet union and supplying water from the outlet connection.

4.4 FAN DECK

The fan deck, installed in central position, is composed by a centrifugal fan and plastic impeller. The brushless motor is combined to a dedicated electronic device (inverter). The inverter can be managed by specific regulators (Omnibus 360) which use a modulating signal with 0÷10Vdc tension in order to regulate the fan speed. OMNIBUS 360 regulators give the possibility to fully control the fan speed (0÷100%) and/or to manually select three fan steps (high, med and low speed) in order to fulfil specific thermal or acoustical requirements. The motor has a IP40 protection degree, class F. The motor operates at 50/60 Hz and the power supply is 230V ±10% for all sizes.

4.5 ESTQEC00 - ELECTRIC PANEL

The electric panel (ESTQEC00) consists of a galvanized metal box, which contains the terminal board for the electrical connections, the earth protection terminal. In the OMNIBUS configuration, in addition to the components mentioned above, it is also fixed the ORBUxx power card, for management of the units that mount brushless motors. The electric panel is fixed on the same side of the water connections. Every ESTUCS model is supplied with an electric wiring diagram showing all the electrical components, accessories factory fitted and/or remote controllers ordered together with the unit. Everything must be correctly wired in accordance to the diagram, to obtain the requested working conditions of the unit.

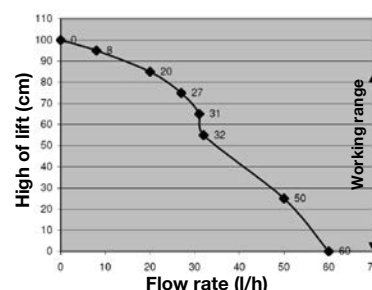
4.6 CONDENSATE PUMP

The EURAPO Cassette units (except for the ESTUCS/H 600 model) are supplied with a built-in condensate pump having a no-return valve on the outlet.

The pump has a water discharge head of 850 mm from the bottom side of the cassette unit. The pump is activated by a floating switch and a second switch is used for closing the cooling valve in case of too high water level in the condensate tray, due to some problems in the water evacuation system.

Technical features:

- water discharge head: 850 mm from the bottom side of the cassette unit
- power supply: 230V~ - 50/60 Hz
- absorption: 0,06 A - 8 W (230 V~)
- insulation: class B
- ambient temperature: from 0 to 45 °C, 95% r.h.
- alarm contact: exchange contact, 250V~ - 4 A
- sound level: lift 30 cm < 26 dB(A)



4.7 AIR FILTER

The air filter is composed by a black pre-varnished metal frame and by a honeycomb polypropylene fibre filtering septum contained in two electro welded galvanized steel nets (12x24 mm). The re-generable filtering septum, black colour, has very low pressure drops. The filter is immediately accessible by removing the external air intake grill. Filtration class: G1.

4.8 AIR OUTLET PLENUM

The air outlet plenum is made by heat-resistant ABS V0 Anti UV plastic material in white colour (RAL9003). It permits to distribute the air on the 4 sides of the unit. On each side of the cassette unit there are white flaps which can be totally closed on one or two (max.) sides of the unit, particularly used in case of an air discharge into an adjacent room.

It is recommended not to close more than two sides of the cassette unit, in order to avoid turbulence and noise on the open sides.

4.9 AIR INTAKE GRILL

The air intake grill is realized in heat-resistant ABS V0 Anti UV plastic material, white colour (RAL9003), with a very discreet design. A perfect internal insulation with closed-cell insulating material guarantees not to have problems of water condensation on the grilles.

1

2

3

4

5

6

7

8

9

10

11

1

In ESTUCS600 models the particular combination of air intake and air outlet grilles permits to avoid having direct air flow against the people in the room. In order to facilitate the maintenance and cleaning operations the grill can be opened by pressing two hooks and, thanks to a hinge system, the grill remains hooked to the frame.

2

In ESTUCS900 models two levers fix the grill to one side of the air supply plenum; this permits, thanks to a hinge system, to facilitate maintenance operations, as the grill remains hooked to the plenum itself. A black rope with hook permits to make the maintenance operations in total safe.

3

On request, the air intake/outlet grilles can be painted in every RAL colour, with delivery time and prices to be defined.

4

5. SPECIAL VERSIONS

5

5.1 ESTUCS/M 600 MODEL: CASSETTE WITH MICRO-DRILLED METALLIC GRILL

6

The ESTUCS/M 600 cassette unit is born as an aesthetical variation of the ESTUCS600 model and it is perfectly adaptable to modular false ceilings. The air intake micro-drilled grill and the outlet frame are made of 10/10 mm thick metal sheet, painted in white colour (RAL9003) with epoxy-polyester powders.

7

Technical, functional and performance features of the ESTUCS/M 600 cassette are exactly the same ones as described for the ESTUCS600 model. The ESTUCS/M 600 is not provided with air outlet flaps for the deviation of the air flow, therefore the air diffusion is homogeneous on the four sides of the cassette unit.

8

Similarly to the standard ESTUCS600 model, the metallic grill has been designed to obtain the Coanda effect, that guarantees an uniform and pleasant air diffusion, by avoiding that people are directly invested by outgoing air flow (COANDA effect, see chapter 3). A perfect internal insulation with closed-cell insulating material guarantees not to have problems of water condensation on the grilles.

9

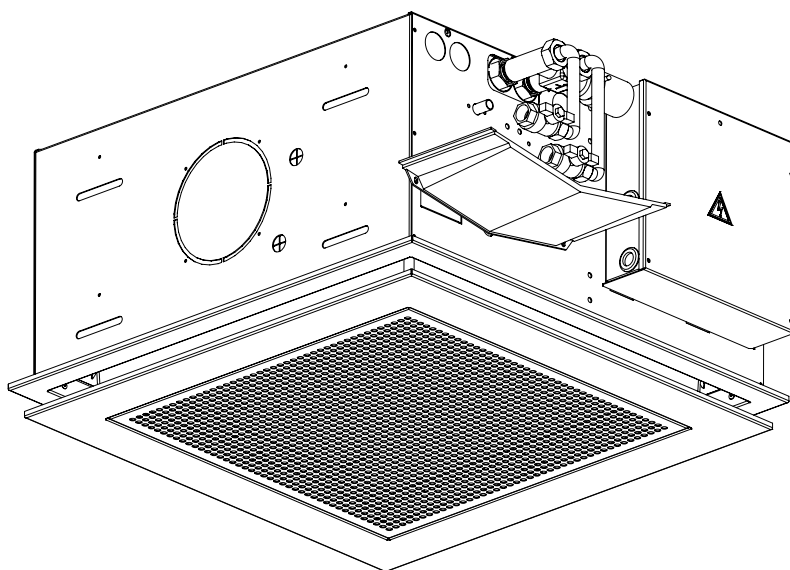
The ESTUCS/M 600 cassette has been designed to facilitate maintenance and filter cleaning operations: by simply turning outwards the closing lever, suitably hidden and located near the EURAPO sticker on the frame, the intake grill opens and it remains hooked to one side of the unit, making any type of operation extremely easy.

10

Note: This model is not available with infrared control.

11

On request, the air intake/outlet grilles can be painted in every RAL colour, with delivery time and prices to be defined.



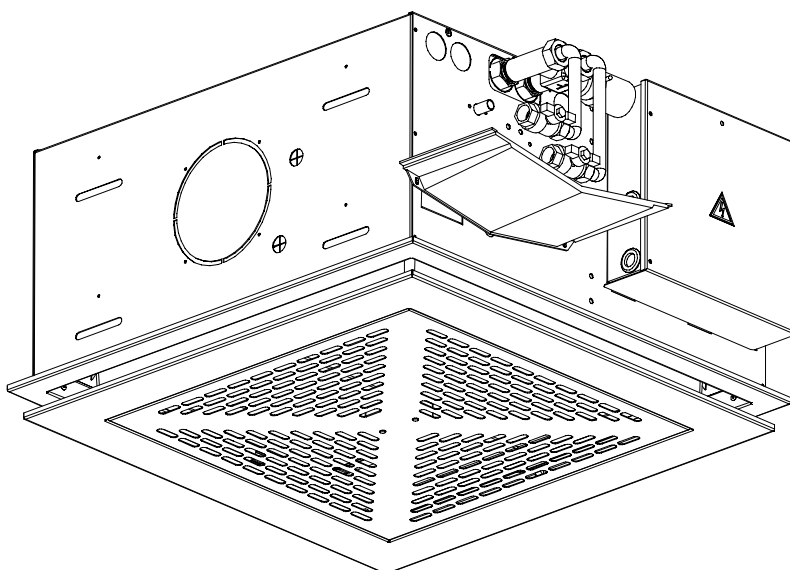
ESTUCS/M 600 - MICRO-DRILLED GRILL WITH VALVES (OPTIONALS)

5.2 ESTUCS/M 600-SLOTS: METALLIC GRILL WITH SLOTS

The air intake grill is available, on request, also in a version with slots.

Unlike the standard version with micro-drilled grill (see paragraph 5.1), this model can be supplied with infrared control.

On request, the air intake/outlet grilles can be painted in every RAL colour, with delivery time and prices to be defined.



ESTUCS/M 600 - SLOTS WITH VALVES (OPTIONALS)

1

2

3

4

5

6

7

8

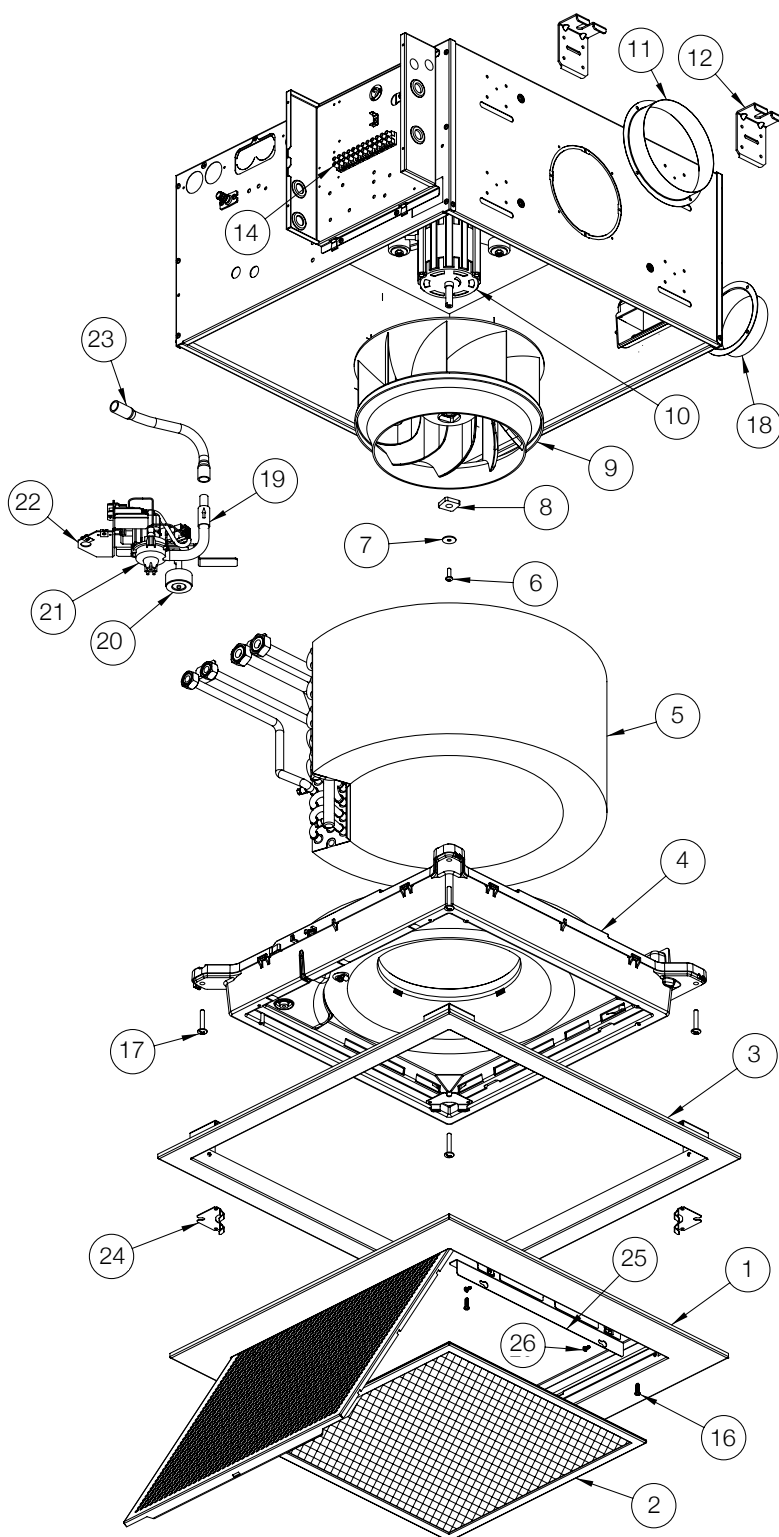
9

10

11

LEGEND - ESTUCS/M 600

1. Air intake grill with support
2. Filter
3. Air supply frame
4. Air intake plenum/condensate tray
5. Heat exchanger
6. Fan wheel fixing screw
7. Fan wheel washer
8. Square washer
9. Fan wheel
10. Brushless motor
11. Air supply collar
12. Fixing support
14. Terminal board
16. Fixing screw for air supply grilles
17. Fixing screw for air intake plenum/cond. tray
18. Collar for ext. air intake
19. Non return valve pipe
20. Flow switch for cond. pump
21. Motor for cond. pump
22. Support for cond. pump
23. Condensate water discharge pipe
24. Fast fixing hook for outlet frame
25. Filtre fixing brackets
26. Screws for filter fixing brackets



2 PIPE SYSTEM

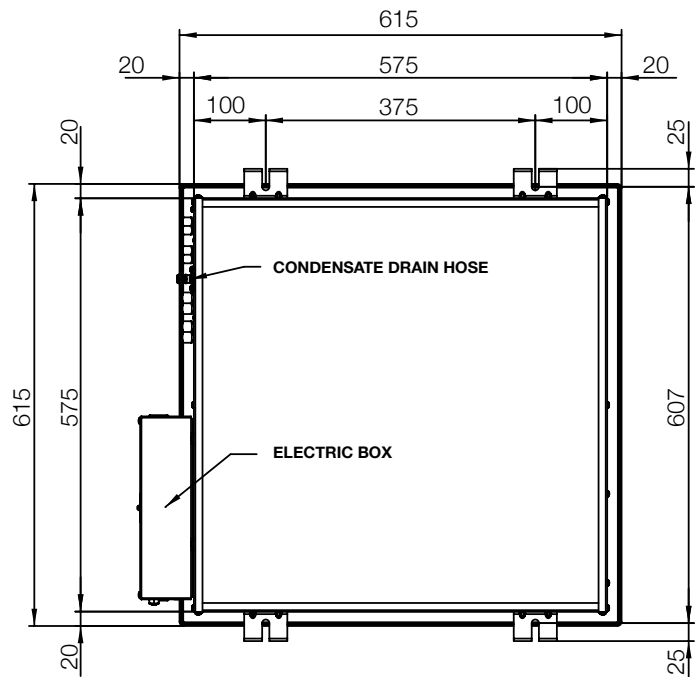
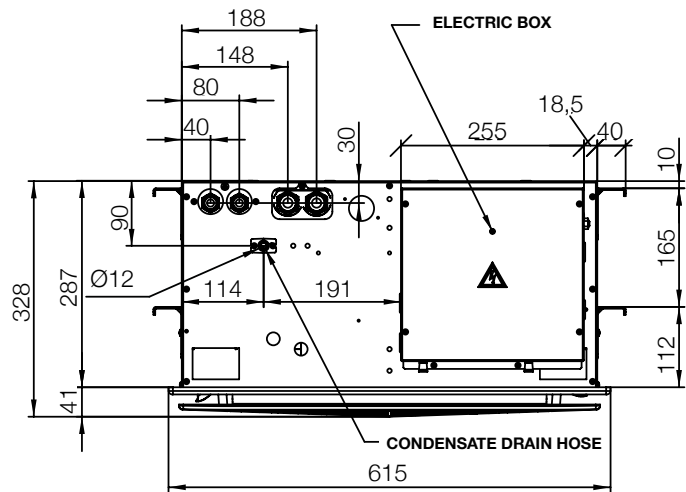
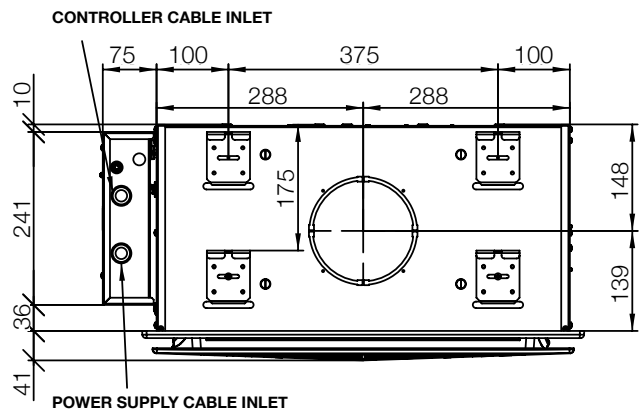
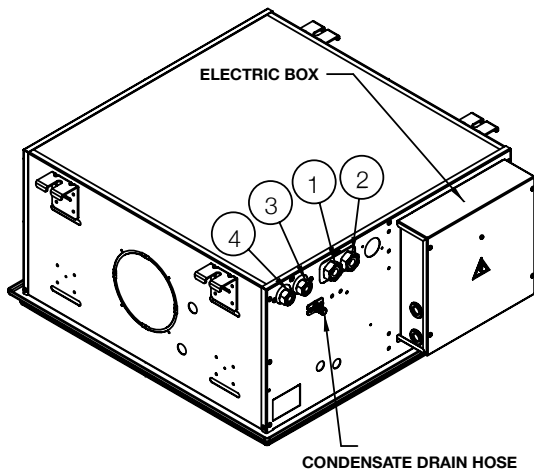
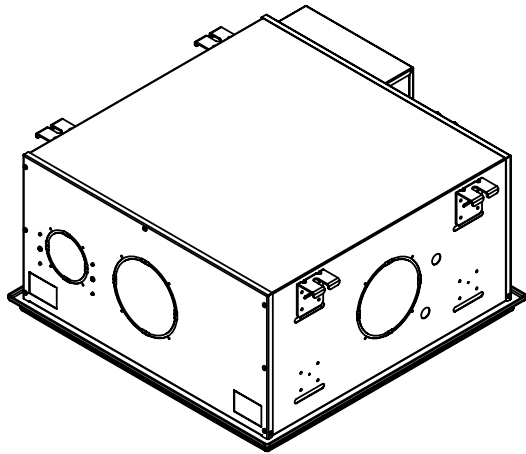
1. Water inlet..... 3/4" F
2. Water outlet..... 3/4" F

4 PIPE SYSTEM

1. Cooling water inlet..... 3/4" F
2. Cooling water outlet..... 3/4" F
3. Heating water inlet..... 1/2" F
4. Heating water outlet..... 1/2" F

WEIGHT (kg)

ESTUCS/M 621-641	26,0-26,2
ESTUCS/M 622-642.....	27,4-27,6
ESTUCS/M 624-644	27,4-27,6



ESTUCS/M 600 model

1

2

3

4

5

6

7

8

9

10

11

1

5.3 ESTUCS/H 600 MODEL: CASSETTE WITH NATURAL CONDENSATE DISCHARGE

It is a special version of the ESTUCS600 model designed to allow a natural condensate water discharge for gravity; in this way, condensate pump is not necessary.

2

The ESTUCS/H 600 model is characterized by a particular vertical development of the unit (height goes from the standard 287 mm to 483 mm): it is recommended installing it in false ceilings with 500 mm height.

3

Air intake grill and outlet plenum are the same ones as for the ESTUCS600 model, so once they are installed the two models look identical. It is possible to install also the metallic grill: ESTUCS/HM 600 with micro-drilled grill and ESTUCS/HM 600-SLOTS with slotted hole grill.

4

The absence of the condensate pump has the following advantages:

- reduced noise level during functioning of the unit, making it even more silent;
- reduced, even if slightly, overall power consumption of the unit;
- absence of humidity inside the drain pan, which could cause bacterial proliferation;
- no need of maintenance due to wear or malfunctioning of the condensate pump.

5

ESTUCS/H 600 unit is particularly indicated when reduced maintenance operations are allowed, for safety locations (banks, police stations, ministry) or when very low sound levels are tolerated (libraries, museums). **ESTUCS/HM 600** unit, combined with optional **filter F7** (Par. 7.2) which ensure purification and air quality improvement, is particularly indicated when total hygiene is necessary (hospitals, nursing homes).

6

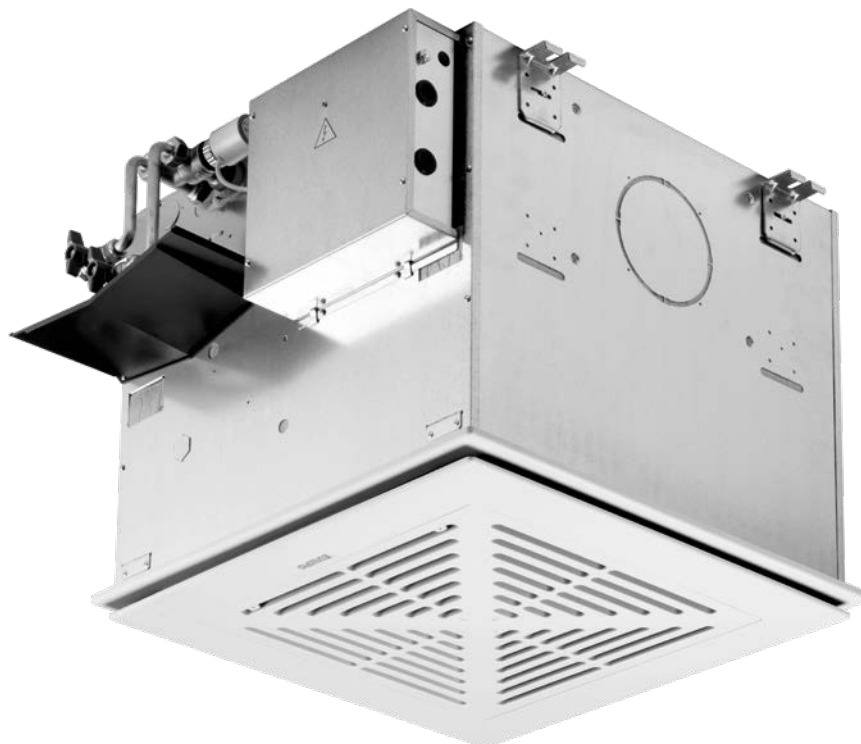
7

8

9

10

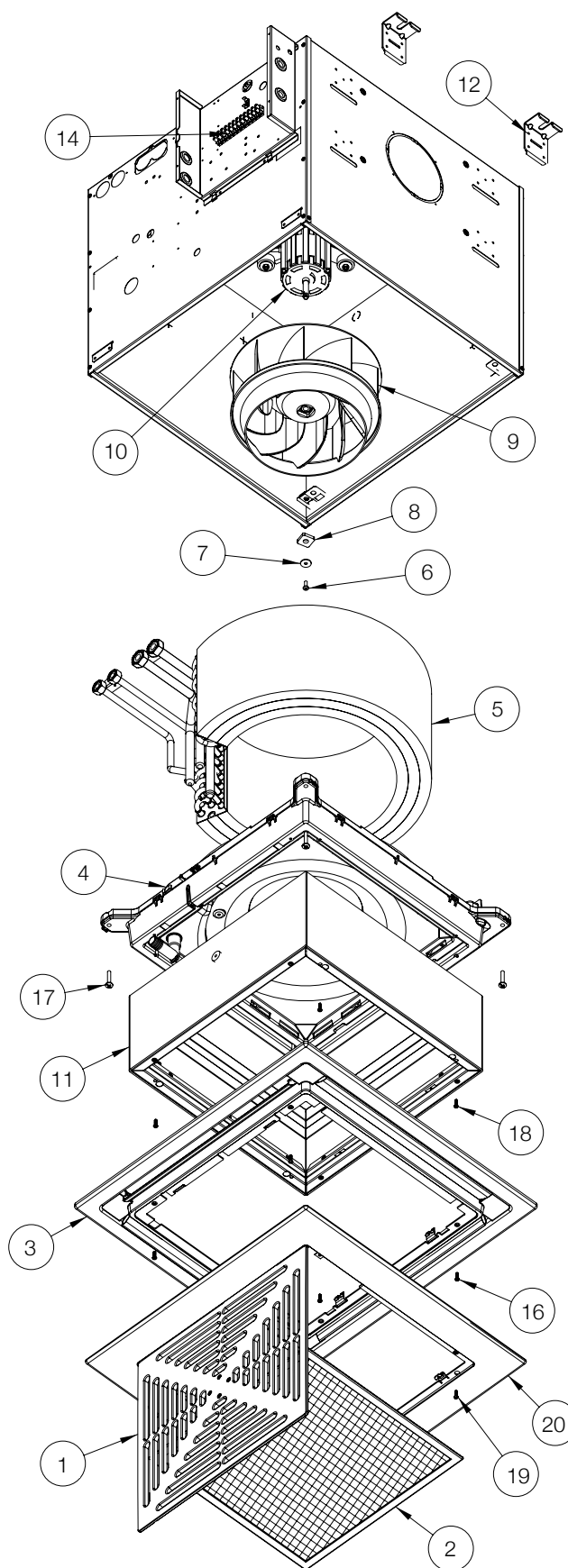
11



ESTUCS/H 600 WITH VALVES (OPTIONALS)

LEGEND - ESTUCS/H 600

- | | |
|-----|---|
| 1. | Air suction grill |
| 2. | Filter |
| 3. | Air supply grilles |
| 4. | Air intake plenum/condensate tray |
| 5. | Heat exchanger |
| 6. | Fan wheel fixing screw |
| 7. | Fan wheel washer |
| 8. | Square washer |
| 9. | Fan wheel |
| 10. | Brushless motor |
| 11. | Air intake connection |
| 12. | Fixing support |
| 14. | Terminal board |
| 16. | Fixing screw for supply grill |
| 17. | Fixing screw for air intake plenum/cond. tray |
| 18. | Fixing screw for air intake connection |
| 19. | Fixing screws for air suction grill |
| 20. | Air suction grill frame |



2 PIPE SYSTEM

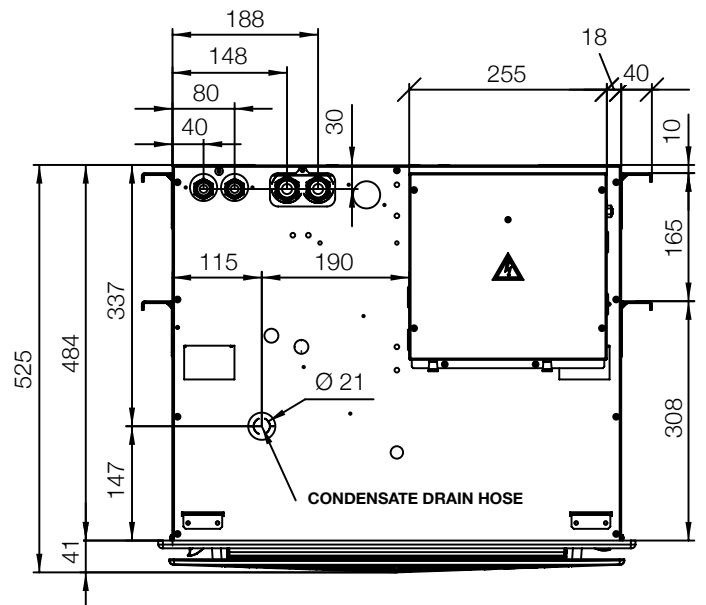
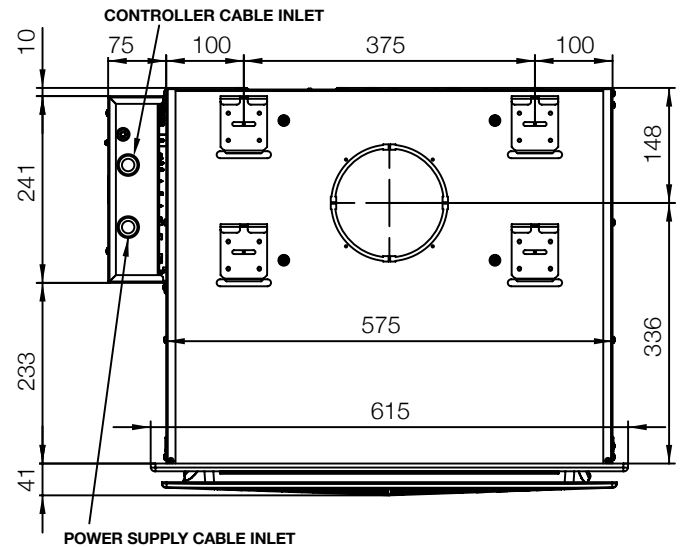
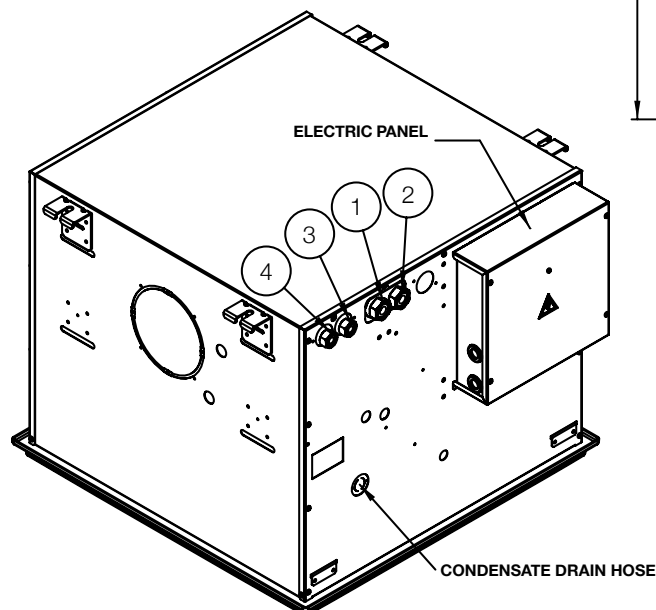
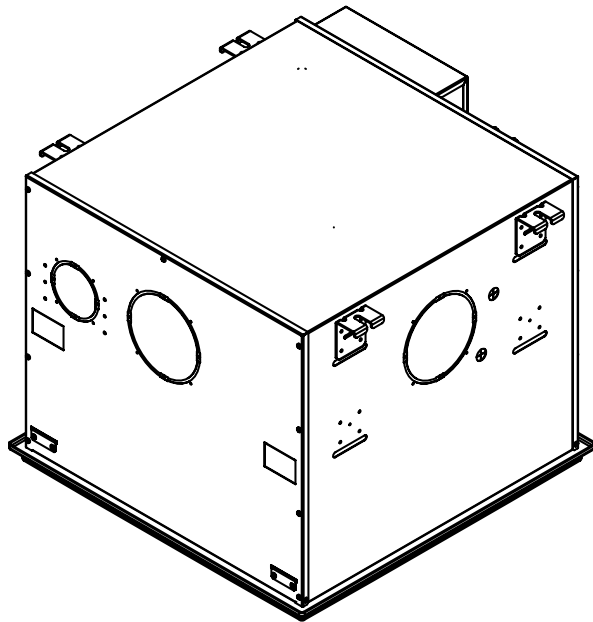
1. Water inlet..... 3/4" F
2. Water outlet..... 3/4" F

4 PIPE SYSTEM

1. Cooling water inlet..... 3/4" F
2. Cooling water outlet..... 3/4" F
3. Heating water inlet..... 1/2" F
4. Heating water outlet..... 1/2" F

WEIGHT (kg)

ESTUCS/H 621-641.....	33,1-33,3
ESTUCS/H 622-642.....	34,5-34,7
ESTUCS/H 624-644.....	34,5-34,7



ESTUCS/H 600 model

5.4 ESTUCS/HM 600 VDI 6022 MODEL: CERTIFIED HYGENIC CASSETTE



Thanks to the development of several dedicated details and the choice of materials with high quality standards used for the construction, the **ESTUCS/HM 600 VDI 6022** model has obtained a certification according to the VDI 6022* guidelines. VDI standards are the strictest hygiene market's requirements for the HVAC systems and guarantee a high quality of the indoor air, avoiding any propagation of pathogenic agents and ensuring materials used for building the unit don't provide a growth base for bacteria and fungi. VDI deals with hygiene in HVAC systems with the objective of preventing negative effects on room air in order to protect the health of individuals, keeping the quality of the handling air at high quality standard. The **ESTUCS/HM 600 VDI 6022** cassette is particularly suitable for environments where high air quality is required (for example waiting rooms or special rooms in medical centers, hotel rooms or laboratories) or for particularly crowded areas, where the presence of germs can be very probable (such as kindergartens or schools or shopping centers).

The ESTUCS/HM 600 VDI 6022 model is characterized by a particular vertical development of the unit (height goes from the standard 287 mm to 483 mm): it is recommended installing it in false ceilings with 500 mm height.

The main features of the **ESTUCS/HM 600 VDI 6022** are:

- The **surfaces** within the terminal unit that are in direct contact with the handled air are all **tested** in according with **ISO 846**** in this way **no proliferation of microbial flora** or fungi is ensured inside the unit;
- **Sealings** are made of closed-cell materials and **do not absorb moisture** or provide a nutrient source for microorganisms (sealing in direct contact with the air are tested according to ISO 846);
- In order to allow cleaning and disinfection, interior wall surfaces are smooth and free of exposed absorption areas and insulating materials are provided with **a suitable aluminized cover**. Grooves and joints in the bottom panel of the unit are avoided;
- **A classified ePM1 55% filter** (able to capture the 55% of particles of size between 0,1 µm to 0,3 µm according to ISO 16890) is provided with the unit. It is an improvement on the minimum VDI requirements that foresee an ePM10 50% filter for fan coils and cassettes;
- The filter is replaceable through the air intake side (the filter is located upstream of the coil);
- The use of an **hydrophilic coat** for the fin avoid the entrainment of droplets during the cooling;
- The cassette is designed to allow a natural condensate water discharge for gravity; in this way condensate pump is not necessary;
- The condensate tray is made in plastic (corrosion resistant material) and it is easily and safely accessible for cleaning;
- The air inlet grill is in galvanized metal 10/10 thick and painted in white colour (RAL9003) with epoxy-polyester powders..



ESTUCS/HM 600 VDI 6022
WITH VALVES (OPTIONALS)

*note: VDI is a German association of engineers (Verein Deutscher Ingenieure). VDI Societies consists of "12,000 experts from science, industry and public administration are engaged in more than 600 VDI committees. They all work on an honorary and non-profit-making basis" (from vdi.eu).

**note: ISO 846 rule specifies methods for determining the deterioration of plastics due to the action of fungi and bacteria and soil microorganisms.

1

2

3

4

5

6

7

8

9

10

11



Herewith it is confirmed to the company

EURAPO S.r.l.

in

I-33170 Pordenone

based on the positive results of the inspection of one
fan coil unit of the ranges

„UCS/HM 6xx- xxx – VDI 6022 xxx”
„ESTUCS/HM 6xx- xxx – VDI 6022 xxx”

according to the standard
VDI 6022 part 1: 2018-01

that the requirements of the Certification Program of the
TÜV SÜD Industrie Service GmbH are fulfilled.

The manufacturer is allowed to use the following
TÜV SÜD Certification Mark.



This certificate is valid until 2023-12-31

Certificate Registration Number: 18/21/75

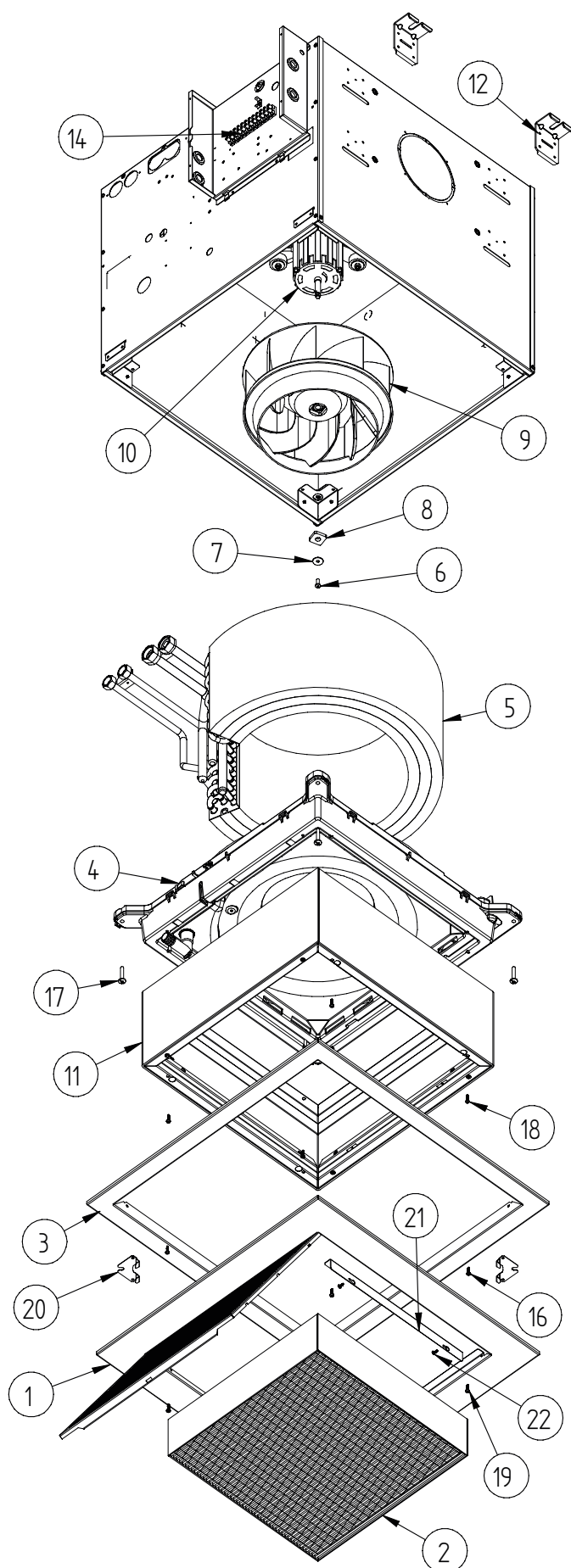


Signature
Certification Body for Products
Refrigeration and Air-Conditioning
Munich, 2021-12-10



LEGEND ESTUCS/HM 600 VDI 6022

- | | |
|-----|---|
| 1. | Air suction grill with support |
| 2. | ePM1 55% (F7) filter |
| 3. | Air supply frame |
| 4. | Air intake plenum/condensate tray |
| 5. | Heat exchanger |
| 6. | Fan wheel fixing screw |
| 7. | Fan wheel washer |
| 8. | Square washer |
| 9. | Fan wheel |
| 10. | Brushless motor with inverter |
| 11. | Air intake connection |
| 12. | Fixing support |
| 14. | Terminal board |
| 16. | Fixing screw for air supply frame |
| 17. | Fixing screw for air intake plenum/cond. tray |
| 18. | Fixing screw for air intake connection |
| 19. | Fixing screws for air intake grill |
| 20. | Fast fixing hook for outlet frame |
| 21. | Filtre fixing brackets |
| 22. | Screws for filter fixing brackets |



NOMINAL VALUES ESTUCS/HM 600 VDI 6022

			2 PIPES		4 PIPES	
Speed			621	622	641	642
Cooling Air temperature: 27°C d.b., 19°C w.b. Water temperature: 7/12 °C	Total cooling capacity [kW]	10V	2,78	4,36	1,95	4,10
		6V	2,07	3,15	1,60	2,92
		3V	1,24	1,94	1,06	1,84
	Cooling capacity (sensible) [kW]	10V	2,27	3,26	1,52	3,17
		6V	1,65	2,26	1,24	2,20
		3V	0,98	1,36	0,83	1,29
	Cooling capacity (latent) [kW]	10V	0,51	1,10	0,75	1,59
		6V	0,42	0,89	0,62	1,29
		3V	0,26	0,58	0,27	0,44
	Water flow [l/h]	10V	478	748	334	704
		6V	355	541	275	502
		3V	212	333	182	316
	Water pressure drop [kPa]	10V	9,3	12,5	8,2	13,9
		6V	5,7	7,1	5,9	9,3
		3V	2,4	3,2	2,9	4,2
Heating - 2 pipes Air temperature: 20 °C Inlet water temperature: 45 °C/40 °C	Total heating capacity [kW]	10V	2,99	4,86	-	-
		6V	2,11	3,20	-	-
		3V	1,36	1,90	-	-
	Water flow [l/h]	10V	519	845	-	-
		6V	367	555	-	-
		3V	237	331	-	-
	Water pressure drop [kPa]	10V	8,1	12,3	-	-
		6V	4,5	5,9	-	-
		3V	2,1	2,4	-	-
Heating - 4 pipes Air temperature: 20 °C Water temperature: 65 °C/55 °C	Total heating capacity [kW]	10V	-	-	2,54	4,18
		6V	-	-	2,08	2,75
		3V	-	-	1,31	1,70
	Water flow [l/h]	10V	-	-	222	365
		6V	-	-	182	240
		3V	-	-	114	149
	Water pressure drop [kPa]	10V	-	-	7,2	21,1
		6V	-	-	5,1	10,1
		3V	-	-	2,3	4,4
Further data	Air flow [m³/h]	10V	554	702	554	702
		6V	357	438	357	438
		3V	210	249	210	249
	Sound power level [dB(A)]	10V	53,2	58,4	53,2	58,4
		6V	44,8	49,3	44,8	49,3
		3V	33,3	36,2	33,3	36,2
	Power input [kW] ⁽¹⁾	10V	0,025	0,042	0,025	0,042
		6V	0,011	0,016	0,011	0,016
		3V	0,006	0,007	0,006	0,007
	Absorbed current [A] ⁽¹⁾	10V	0,23	0,38	0,23	0,38
	Water content [l]		1,34	2,12	1,34	2,12
					(0,3) ⁽²⁾	(0,3) ⁽²⁾

(1) Electrical supply: 230±6%-1-50/60 [V-ph-Hz]. - (2) Additional row.

2 PIPE SYSTEM

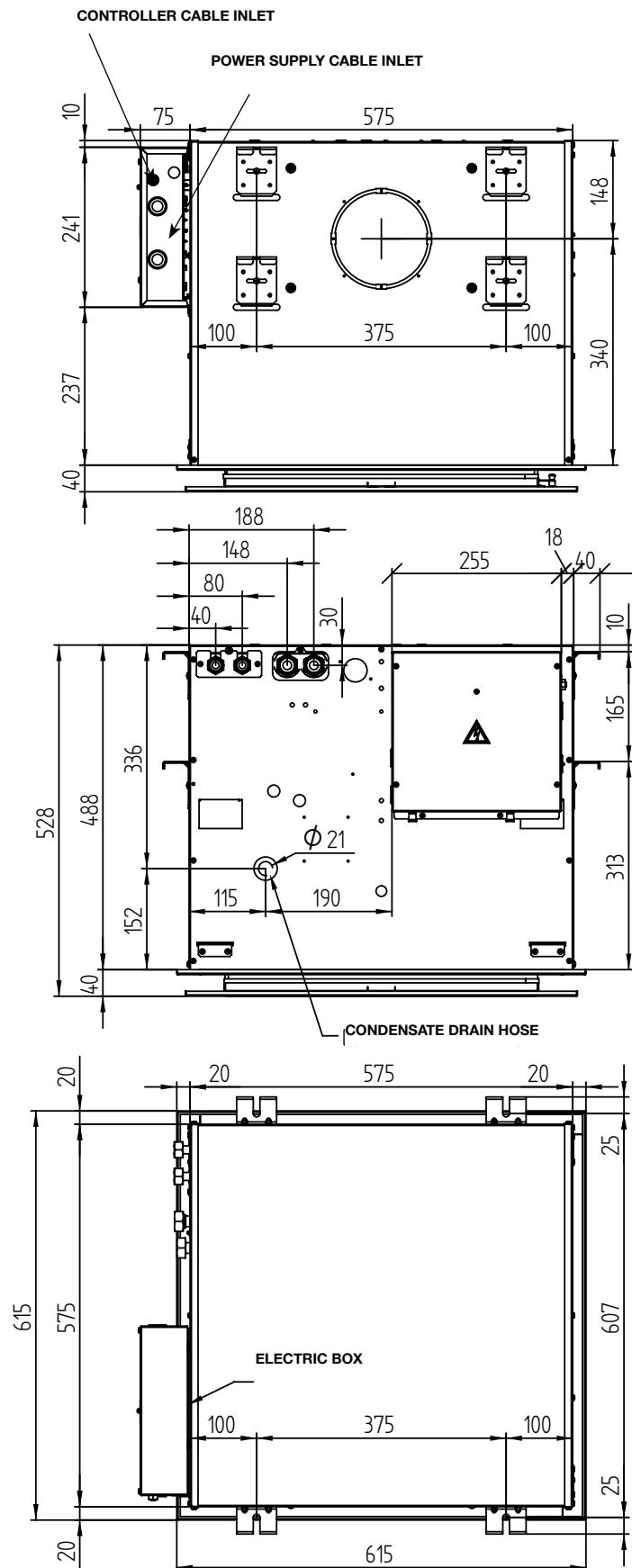
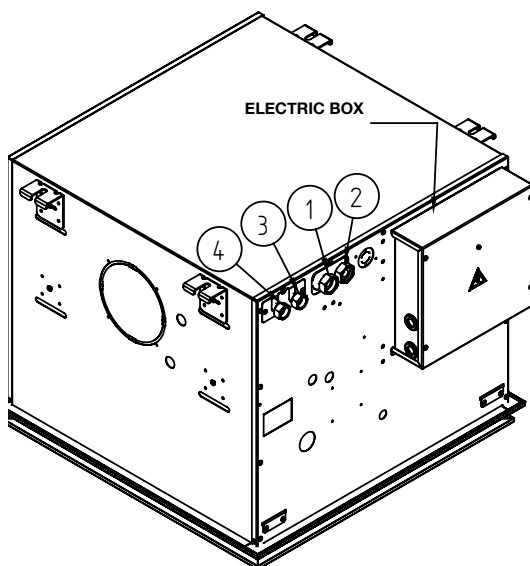
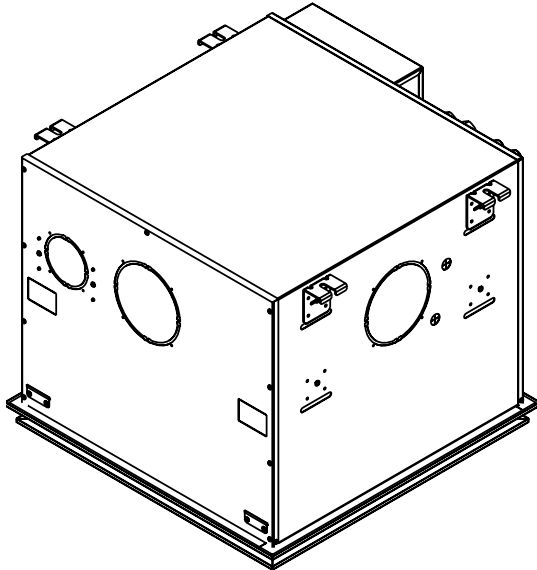
1. Water inlet.....3/4" F
2. Water outlet.....3/4" F

4 PIPE SYSTEM

1. Cooling water inlet.....3/4" F
2. Cooling water outlet.....3/4" F
3. Heating water inlet.....1/2" F
4. Heating water outlet.....1/2" F

WEIGHT (kg)

ESTUCS/HM 621-641 VDI 6022	37,1-37,3
ESTUCS/HM 622-642 VDI 6022	38,5-38,7
ESTUCS/HM 621-641	35,1-35,3
ESTUCS/HM 622-642	36,5-36,7
ESTUCS/HM 624-644	36,5-36,7



ESTUCS/HM 600 VDI 6022 model

6. ELECTRICAL ACCESSORIES

6.1 QEC10

The galvanized metal electric panel includes, besides the standard terminal board (see ESTQEC00-par. 4.5), a double insulated transformer (230/24 Vac 10 VA) for the power supply to modulating valves. It can be used in combination to EDCR and ORBUxx (Omnibus 360).

6.2 QEC20

The galvanized metal electric panel includes, besides the standard terminal board (see ESTQEC00-par. 4.5), a 230 Vac relay card for supporting the electric heater. It can be used in combination to the controllers EDCR and ORBUxx (Omnibus 360).

6.3 ELECTRIC HEATER KREL FOR ESTUCS600

Stainless steel 1,5 kW electric heater supplied with 2 safety thermostats, one with automatic resetting (intervention temperature 75 °C) and the other one with manual resetting (intervention temperature 85 °C) and a power relay card (QEC20).

When the Electric heater is installed, the cassette unit is internally insulated with heat resistant insulating material.

6.4 ELECTRIC HEATER KREL FOR ESTUCS900

Stainless steel 3,0 kW electric heater supplied with 2 safety thermostats, one with automatic resetting (intervention temperature 75 °C) and the other one with manual resetting (intervention temperature 85 °C) and a power relay card (QEC20).

When the Electric heater is installed, the cassette unit is internally insulated with heat resistant insulating material.

6.5 AS – AIR SENSOR

1m long NTC sensor (10K, 25°C), to be installed on the cassette unit's air intake. It is optional, on request, for EDCR and ORBUXx controls.

Note: When operating in heating mode, the AS sensor mounted on the intake may be affected by the phenomenon of air stratification.

6.6 CS – CHECK SENSOR

1m long NTC sensor, to be installed on the cassette unit's air outlet.

In combination with OMNIBUS 360 cards, it allows to highlight any faults in the functioning of the cassette unit, by reporting an alarm signal.

6.7 WS – WATER SENSOR

3m long NTC sensor (10K, 25 °C), requested for the automatic S/W switch when a cassette unit is controlled by a regulator with microprocessor or OMNIBUS, in a 2 pipe system, for both heating and cooling operation.

The Summer/Winter changeover works as follows:

- Summer: water temperature < 18 °C ± 1K = cooling on
- water temperature > 20 °C ± 1K = cooling off
- Winter: water temperature > 36 °C = heating on
- water temperature WS < 34 °C = heating off

The water sensor is not suitable when 2 way valves are mounted on the unit (i.e.: DTH2B2 or DTJ2BM).



WS

6.8 ELECTRONIC REGULATOR – EDCR

Microprocessor control designed for water terminal units equipped with brushless motors (EST Inverter Technology). It permits to control the type of ventilation (fan thermostated or fan continuously running), the fan speeds (0÷10V or Auto), SUMMER/WINTER changeover and room temperature thermostat.



EDCR

For more information please refer to the TECHNICAL MANUAL FOR EDCR CONTROLLERS.

EDCR CONTROL FUNCTIONS

Functions	EDCR
Ventilation mode (Thermostated - Continuous)	•
Manual (0-10V) or Auto speed selector	•
Automatic S/W changeover (2 pipe system, with WS)	•
Automatic (with dead band) or external (centralized) S/W changeover	•
Room temperature thermostat setting	•
De-stratification function	•
Economy/occupancy contact*	•
Window contact*	•
Frost protection (only with heating valve)	•
Operating mode LED (Summer - Winter)	•
Dirty filter alarm LED	•

* not optoinsulated from 230 V~ power supply net

EDCR CONTROL COMPATIBILITY TABLE

Compatibility	Rif. EUROPO	EDCR
2 and 4 pipe system		•
ON/OFF 230V cooling and heating valve, 2/4 pipe system	DTH3B2-A2	•
Modulating 24V cooling and heating valve, 2/4 pipe system	DTJ3BM-AM	•
Pressure independent 230 V cooling and heating valve, 2/4 pipe system	D2B2-A2	•
Modulating 24V pressure independent cooling and heating valve, 2/4 pipe system	D2BM-AM	•
NTC water sensor for automatic S/W (2 pipe system) and min. water temp. thermostat	WS	•
Electric heater (in alternative to the heating valve)	KREL	•

6.9 OMNIBUS 360 DIGITAL CONTROL

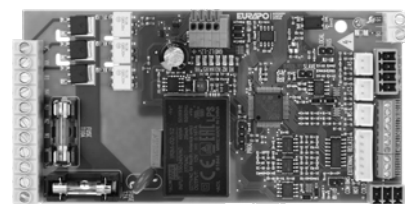
The digital control OMNIBUS 360 permits a complete and integrated management of a cassette unit. It is designed either for a stand-alone operating mode, or to be integrated, at different levels, to a centralized Building Automation System, with a serial communication protocol RS-485 (Modbus RTU). The digital regulator can control many fancoil units at the same time (Master/Slave solution), which are connected together by two twisted wires (AWG 22/24).

6.9.1 OPOWER CARD FOR BMS - ORBU10

The OPower card mounted on the unit is designed to fully regulate (directly or via Modbus) the water terminal units with brushless motor.

Output/Input management:

- 230V ON/OFF VALVES: no. 2 230V outputs for the management of the Hot water valve and Cold water valve.
- MODULATING VALVES: no. 2 analogue 0/10V outputs for the management of Hot water modulating valve and Cold water modulating valve.
- BRUSHLESS FAN: Analogue 0/10V output for the management of the brushless motor and relative input for the management of any alarms.
- ELECTRIC HEATER: 230V signal for the control of the electric heater.
- ROOM TEMPERATURE: Analogue input for the connection of a NTC water sensor (WS)
- AIR OUTLET TEMPERATURE: Analogue input for the connection of an air outlet temperature sensor (CS).
- WINDOW CONTACT INPUT: Digital input configurable for the management of the window contact.
- MULTIFUNCTION INPUT: Configurable input for the management of differential pressure switch, STANDBY forcing, Season changeover, Motor alarm, Forcing ventilation, Economy mode, External temperature sensor.
- PUMP ALARM/DIFFERENTIAL PRESSURE SWITCH INPUT: Configurable input for the management of the condensate pumps alarm or the differential pressure switch alarm.



ORBU10

Serial Ports of communication:

- MODBUS LOCAL BUS: Communication port 485 with Modbus protocol for the MASTER/SLAVE connection of the units.
- MODBUS BUS CONSOLE: Communication port 485 with Modbus protocol for the connection of the LOCAL CONSOLE.
- MODBUS BMS BUS: Communication port 485 with Modbus protocol for the connection of the BMS supervisor.

Additional multifunction card:

- MULTITASK CARD CONNECTION: The multitask expansion board provides contacts for the control of 24V ON/OFF valves, alarm contact, fan contact or card status via some relays.

6.9.2 ROUND TOUCH CONSOLE - ORC4xx

The console is connected to the OPower card installed on the water terminal unit with a double-insulated 3-conductor cable for information exchange of the RS-485 Console Bus network. The 230V mains power supply is supplied separately. It is equipped with a 4.3" backlit capacitive TFT touch screen and a buzzer for confirming the command selection.

The console can manage the following functions:

- Status: OFF-Comfort-Economy
- Fan: Min, Med, Max, Auto
- Functioning mode: Cooling-Heating-Fan
- Room temperature setting (set-point)
- Weekly program
- Alarms management and visualization
- Parameters management
- Visualization of Input/Output status



ORC436

For a correct operation of the console a NTC air sensor must be mounted on the combined fan coil unit.

6.9.3 ROUND DISPLAY CONSOLE - ORC2xx

The console is connected to the OPower card installed on the water terminal unit with a double-insulated 4-conductor cable for power supply and information exchange of the RS-485 Console Bus network; it is equipped with a LCD backlit screen and four **touch** buttons for the parameters and operation mode settings of the fan coil unit:

- Status: OFF-Comfort-Economy
- Fan: Min, Med, Max, and Auto
- Functioning mode: Cooling-Heating-Fan
- Room temperature setting (set-point)

The console is equipped with a NTC sensor for the detection of the room temperature.

The Round Display console can also be used as **Service Tool** (diagnostic tool), allowing:

- Identification by code of any alarm states.
- Modbus address assignment or change and I/O status verification.



ORC236

6.9.4 ROUND ANALOG CONSOLE - ORC3xx

The console is connected to the OPower card with 4 wires for power supply and information exchange of the RS-485 Console Bus network. The console is composed by:

- 1 knob for the room temperature setting and the deactivation of the water terminal unit;
- 2 buttons for the fan speed selection (Min, Med, Max, Auto) and the operating mode setting (Summer/Winter);
- 1 LED that indicates the operating mode;
- 4 LED for the visualization of the fan speed and any warning status
- 1 NTC integrated air sensor for the detection of the room temperature.



ORC236

6.9.5 ROUND CABIN CONSOLE - ORC6xx

The console is connected to the OPower card with 4 wires for power supply and information exchange of the RS-485 Console Bus network. The console is composed by:

- 1 KNOB for the room temperature setting and the operating mode;
- 1 LED that indicates the operating mode (Cooling or Heating) or any alarm or warning;
- 1 NTC integrated air sensor for the detection of the room temperature.



ORC636

6.9.6 ROUND IR CONSOLE (ORC5xx) AND REMOTE CONTROL (OIR30)

The console is connected to the OPower card with 4 wires for power supply and information exchange of the RS-485 Local Bus network. It can be mounted on the grill (ORC 514) or on the wall (ORC 516).

The console is composed by: 1 NTC integrated air sensor for the detection of the room temperature and 1 LED that indicates the operating mode (Cooling or Heating) or any alarm or warning.

The console Round IR must be paired to the remote control (OIR 30).



ORC5xx



OIR30

1

2

3

4

5

6

7

8

9

10

11

6.10 OMNIBUS 360 SUPERVISION

6.10.1 ROUND MANAGER - ORS7xx (up to 16 units)

It is a supervisor for small system and is composed by 4.3" capacitive TFT touch screen. It allows the centralization of the operating mode of the **OPower** cards, up to a maximum of 16 cards connected to the network. Each single OPower card can be independently managed by using one of the available OConsoles. The provisioning of a Wi-Fi connection allows the connection to a server Cloud and the remote management by the dedicated app **ROUND CLIMA**.

- MODBUS/RTU protocol
- Parameters set-up
- INPUT/OUTPUT status visualization
- Alarms management
- Daily and weekly programming of all units connected to the same network
- Multilanguage



ROUND MANAGER - ORS736

6.10.2 ROUND MASTER SUPERVISOR - ORS810 (UP TO 100 UNITS)

Round Master is a supervisor for medium-size systems with a 7-inch screen and capacitive touch. It allows managing up to 100 **OPower** cards connected to the network via the MODBUS RTU serial bus.

Each single OPower card can be independently managed by using one of the available OConsoles.

With Round Master it is possible to configure complex scenarios and set up seasonal system programming. The supervisor can manage by one control panel the operation of fan coil units and to integrate and interact with other devices of the HVAC system at the same time:

- cooling and heating unit (chiller/boiler);
- circulating pumps of the HVAC system;
- modulating valves (for radiant systems);
- thermal zone valves;
- hydronic terminal units.

The main features are:

- Wi-Fi connection allows the connection to a server Cloud and the remote management by the dedicated app **ROUND CLIMA PLUS**
- Ethernet connection
- MODBUS/RTU protocol
- Different access level (administrator/super/user)
- Centralized operation
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily, weekly and special events program
- Alarms management
- Boost function for a period set by the user
- Remote management via Internet
- USB port for backup and restore of the system



ROUND MASTER - ORS810

Round Master supervisor is designed to be installed on the wall or to be placed on a table and has an external 230V/24vdc power supply supplied in the installation kit.

6.10.3 ROUND NET - ORS940 (RECOMENDED UP TO 250 UNITS)

Round Net Web server is an embedded system complete with web server, designed to allow terminal units to be connected and managed via the MODBUS network, ensuring a very high level of control.

Thanks to a latest generation processor and high performance components, it is possible to achieve high computing power. Round Net offers the same functions as the Round Master supervisor, but allows you to manage larger networks, controlling **up to 250 OPower cards**.

Thanks to the Wi-Fi antenna, it is possible to connect to Round Net via the internet, using a common web browser. It can also connect to a Cloud server and be managed remotely via the **ROUND CLIMA PLUS app**.

Round Net is designed for remote wall installation, typically positioned in technical rooms or **thermal power plants** thanks to the presence on the body of useful air intakes.

Round Net has an external 230V/24Vdc power supply supplied in the installation kit.



OCB50

6.10.3 APP ROUND CLIMA AND ROUND CLIMA PLUS

With the **Round Clima** and **Round Clima Plus** mobile applications it is possible to remotely manage the system functions via smartphone and tablet.

The application is compatible with both Android and iOS operating systems.

They are only available paired with Round Manager, Round Master and Round Net devices.



ROUND CLIMA PLUS is available in the following app stores:



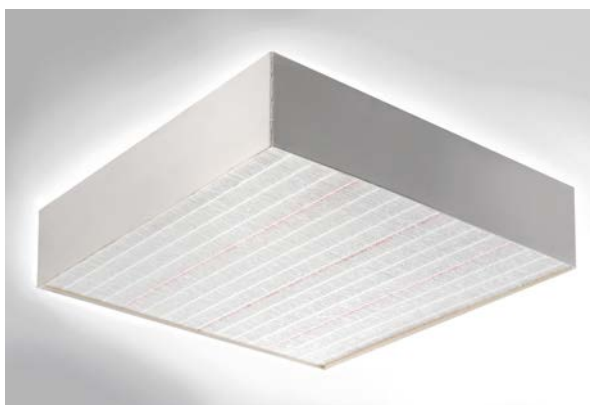
7. AIR FILTERS

7.1 G3 FILTER (NOT AVAILABLE FOR ESTUCS900)

The air filter is composed by a black pre-varnished metal frame and by an acrylic fibre filtering septum, with G3 degree filtration, contained in two electro-welded galvanized steel nets. The regenerable filtering septum, black colour, has very low pressure drops.

7.2 F7/EPM1 55% FILTER (ONLY FOR ESTUCS/HM 600 MODEL) AND PRESSURE SWITCH (FOR ESTUCS/HM 600 MODEL AND ESTUCS/HM 600 VDI 6022)

The air filter is composed by a white ABS plastic frame and by a fiberglass filtering septum with self-extinguishing class M1 and a filtration degree ePM1 55% (F7), which permits to filter particles sizes smaller than $0,3 \mu\text{m}$. The filter can be combined with a pressure switch that monitors the pressure differences signalling an alarm when the filter is clogged. The pressure switch is calibrated according to customer needs.



ePM1 55% (F7) Filter



Pressure switch

In order to select the cassette ESTUCS/HM 600 in presence of the F7 filter, please use the EURAPO selection software.

8. REGULATING VALVES

8.1 DT_3B2 OR DT_2B2 – ON/OFF VALVES, 3-WAY WITH 4 WATER CONNECTIONS (DT_3B2) OR 2-WAY (DT_2B2), 230V, FOR 2 OR 4 PIPE SYSTEMS

The ON/OFF regulating valves, G $\frac{3}{4}$ " M (for 2 pipe system) and G $\frac{1}{2}$ " M for the heating coil (4 pipe system), 3 way with 4 water connections or 2 way, are provided with thermoelectric actuator and copper connection tubes. The direct flow is closed by not supplying power to the actuator. They are factory fitted and wired.

The full bore ball shut-off valves ending with G $\frac{1}{2}$ " F connection are supplied separately as a kit. In the same kit the auxiliary drain pan is included.

These valves are available also with on/off 24V actuators: for more information, please contact the EURAPO staff.

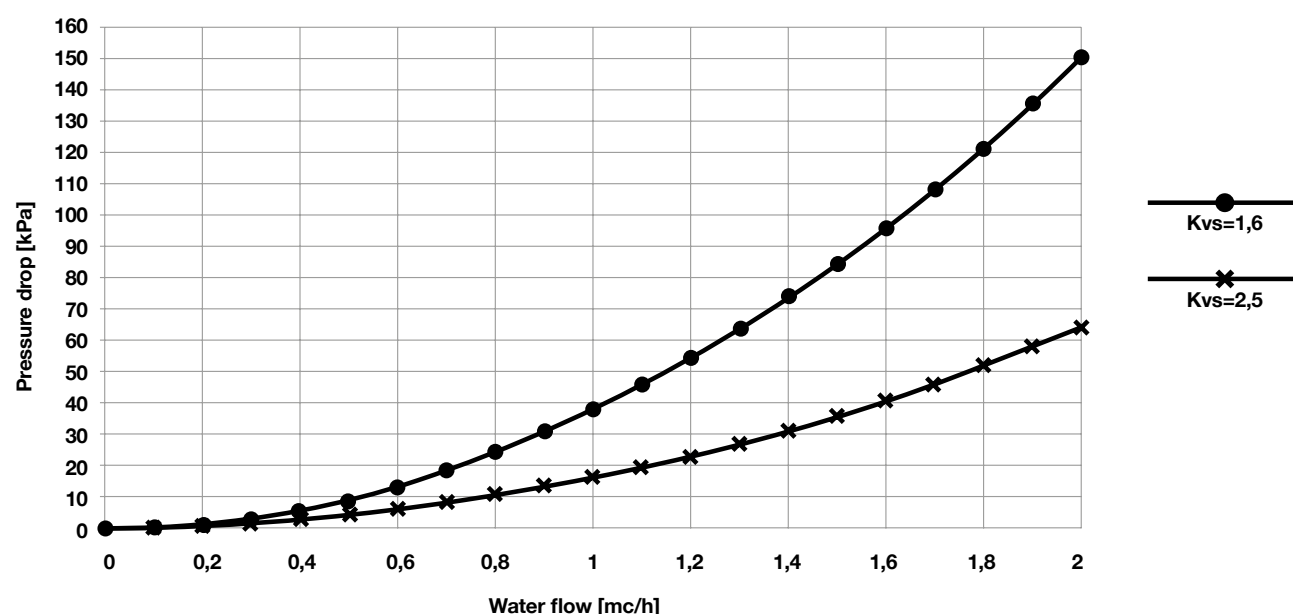
8.2 DTJ3BM OR DTJ2BM – MODULATING (24V) VALVES, 3 WAY WITH 4 WATER CONNECTIONS (DTJ3BM) OR 2 WAY (DTJ2BM) FOR 2 OR 4 PIPE SYSTEMS

The modulating 0-10V valves, G $\frac{3}{4}$ " M (for 2 pipe system) and G $\frac{1}{2}$ " M for the heating coil (4 pipe system), 3 way with 4 water connections or 2 way, are provided with modulating actuator and copper connection tubes. The direct flow is closed by not giving signal to the actuator. They are factory fitted and wired.

The modulating valves are highly recommended in combination to the ESTUCS cassette unit, for the high levels of comfort that they can provide.

The full bore ball shut-off valves ending with G $\frac{1}{2}$ " F connection are supplied separately as a kit. In the same kit the auxiliary drain pan is included.

PRESSURE DROP DIAGRAM REFERRED TO THE VALVES WITH DIFFERENT KVS



Maximum operating pressure with valves: 16 bar.

VALVES TECHNICAL FEATURES

Nominal pressure	PN16	Cod.: H2A2, J2A2, H3A2, J3A2, J2AM, J3AM, H2B2, J2B2, H3B2, J3B2 J2BM, J3BM, H3B0, H2B0, H3A0, H2A0
Fluid	Hot or cold water for HVAC system, according to VDI standard quality or equivalent	Cod.: H2A2, J2A2, H3A2, J3A2, J2AM, J3AM, H2B2, J2B2, H3B2, J3B2, J2BM, J3BM, H3B0, H2B0, H3A0, H2A0
Connection	1/2" GM 3/4" GM	Cod.: H2A2, J2A2, H3A2, J3A2, J2AM, J3AM, H3A0, H2A0 Cod.: H2B2, J2B2, H3B2, J3B2, J2BM, J3BM, H3B0, H2B0
Max close-off pressure	200kPa 250kPa 300kPa	Cod.: H2B2, J2B2, H3B2, J3B2, H3B0, H2B0, J2BM, J3BM Cod.: J3A2, J2A2, J2AM, J3AM Cod.: H2A2, H3A2, H3A0, H2A0
Kvs	1,6 2,5	Cod.: H2A2, J2A2, H3A2, J3A2, H3A0, H2A0, J2AM, J3AM Cod.: H2B2, J2B2, H3B2, J3B2, J3BM, H3B0, H2B0, J2BM
Material	Brass	Cod.: H2A2, J2A2, H3A2, J3A2, J2AM, J3AM, H2B2, J2B2, H3B2, J3B2 J2BM, J3BM, H3B0, H2B0, H3A0, H2A0
Flow temperature limit	2÷110 °C 2÷120 °C	Cod.: J2A2, J3A2, J2B2, J3B2, J2AM, J3AM, J2BM, J3BM Cod.: H3A2, H2A2, H2B2, H3B2, H3B0, H2B0, H3A0, H2A0
Room temperature limit	2÷50 °C	Cod.: H2A2, J2A2, H3A2, J3A2, J2AM, J3AM, H2B2, J2B2, H3B2, J3B2 J2BM, J3BM, H3B0, H2B0, H3A0, H2A0
Actuator	On/Off Modulating	Cod.: H2A2, J2A2, H3A2, J3A2, H2B2, J2B2, H3B2, J3B2, H3B0, H2B0, H3A0, H2A0 Cod.: J2AM, J3AM, J2BM, J3BM
Voltage supply	230V~ ±15% 50/60 Hz 230V~ ±10% 50/60 Hz 24V~ ±15% 50/60 Hz	Cod.: H2A2, H3A2, H2B2, H3B2 Cod.: J2A2, J3A2, J2B2, J3B2 Cod.: J2AM, J3AM, J2BM, J3BM, H3B0, H2B0, H3A0, H2A0
Control signal	0÷10 Vcc o 0-20mA	Cod.: J2AM, J3AM, J2BM, J3BM
Absorption	3 W 1,8 W	Cod.: H2A2, H3A2, H2B2, H3B2, H3B0, H2B0, H3A0, H2A0 Cod.: J2A2, J3A2, J2B2, J3B2
Operating power	1,5 W	Cod. J2AM, J3AM, J2BM, J3BM
Opening/closing time	~ 3 MIN	Cod.: H2A2, J2A2, H3A2, J3A2, H2B2, J2B2, H3B2, J3B2, H3B0, H2B0, H3A0, H2A0
Opening/closing time	8s/mm	Cod. J2AM, J3AM, J2BM, J3BM
Protection grade	IP43 IP54	Cod.: H2A2, H3A2, H2B2, H3B2, H3B0, H2B0, H3A0, H2A0, J2AM, J3AM, J2BM, J3BM Cod.: J2A2, J3A2, J2B2, J3B2

8.3 4-PIPE COMPACT KIT

Hydraulic kit consisting of 2 3-way body valve and 2 ON/OFF 230V actuators. The kit allows, in a 4-pipe system, to use the 3 or 4-row coil for both cooling and heating.

8.4 PRESSURE INDEPENDENT VALVES ON/OFF, D2B2 (ESTUCS600) AND D2C2 (ESTUCS900), 2-WAY, FOR 2 OR 4 PIPE SYSTEMS, 230V.

The ON/OFF pressure independent valves, 2 way, are provided with thermoelectric actuator and copper connection tubes. The direct flow is closed by not supplying power to the actuator.

ESTUCS600 2 pipe: D2B2 valve (connected to G $\frac{3}{4}$ " F) - **ESTUCS600 4 pipe:** D2B2-A2 valves (connected to G $\frac{3}{4}$ " F - G $\frac{3}{4}$ " F for the heating coil).

The valves and the relative pipe kit are not factory fitted and are supplied in a separate box.

ESTUCS900 2 pipe: D2C2 valve (connected to G $\frac{3}{4}$ " F) - **ESTUCS900 4 pipe:** D2C2-B2 valve (connected to G $\frac{3}{4}$ " F - G $\frac{3}{4}$ " F for the heating coil).

The valves and the relative pipe kit are not factory fitted and are supplied in a separate box.

8.5 PRESSURE INDEPENDENT VALVES, MODULATING (0-10V), D2BM (ESTUCS600) AND D2CM (ESTUCS900), 2-WAY, FOR 2 OR 4 PIPE SYSTEMS, 24V.

The modulating pressure independent valves, 2 way, are provided with modulating actuator and copper connection tubes. The direct flow is closed when the signal (0-10Vcc) given to the actuator is equal to «0».

ESTUCS600 2 pipe: D2BM valve (connected to G $\frac{3}{4}$ " F) - **ESTUCS600 4 pipe:** D2BM-AM valves (connected to G $\frac{3}{4}$ " F - G $\frac{3}{4}$ " F for the heating coil).

The valves and the relative pipe kit are not factory fitted and are supplied in a separate box.

ESTUCS900 2 pipe: D2CM valve (connected to G $\frac{3}{4}$ " F) - **ESTUCS900 4 pipe:** D2CM-BM valve (connected to G $\frac{3}{4}$ " F - G $\frac{3}{4}$ " F for the heating coil).

The valves and the relative pipe kit are not factory fitted and are supplied in a separate box.

The modulating valves are highly recommended in combination to the ESTUCS cassette unit, for the high levels of comfort that they can provide.

1

2

3

4

5

6

7

8

9

10

11

PRESSURE INDEPENDENT VALVES REGULATION

The calculated flow can be adjusted easily without using special tools. To change the presetting (factory setting is 100 %) follow the four steps below:

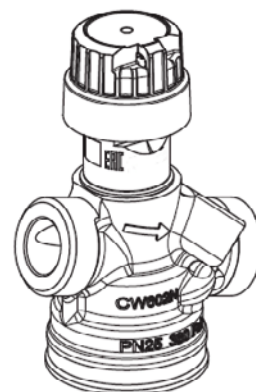
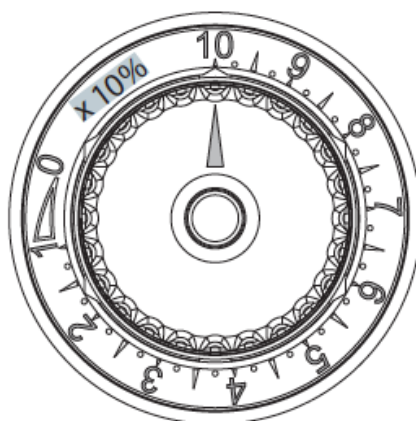
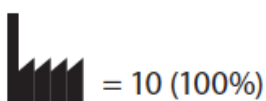
1. Remove the blue protective cap or the mounted actuator
2. Raise the grey pointer Turn (clock wise to decrease) to the new presetting
3. Press grey pointer back into lock position.

After click presetting is locked.

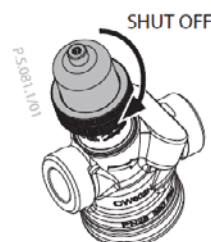
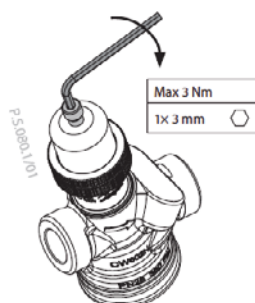
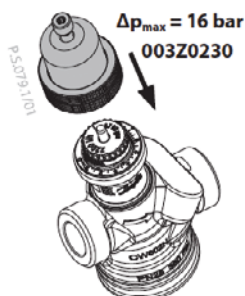
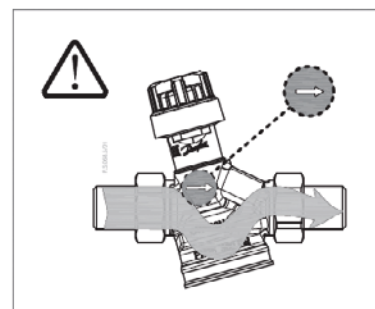
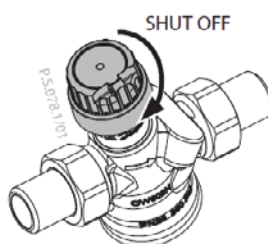
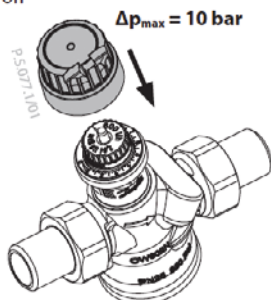
The presetting scale indicates values from 100 % flow to 0 %. Clock wise turning would decrease the flow value while counter clock wise would increase it.

If the valve is a DN 15 then the nominal flow = 450 l/h = 100 % presetting. To set a flow of 270 l/h you have to set: $270/450 = 60\%$. We recomend a presetting/flow from 20 % to 100 %. Factory presetting is 100 %.

Setting



Shut-off



VALVES' TECHNICAL FEATURES

Nominal pressure	PN25	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2; D2BM; D2BM-AM; D2CM; D2CM-BM
Fluid	Hot or cold water for HVAC system, according to VDI standard quality or equivalent	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2; D2BM; D2BM-AM; D2CM; D2CM-BM
Ø valve connection*	3/4" GM 3/4" - 1/2" GM 1" GM 1" GM - 3/4" GM	Cod.: D2B2, D2BM Cod.: D2B2-A2, D2BM-AM Cod.: D2C2, D2CM Cod.: D2C2-B2, D2CM-BM
Max close-off pressure	600 Kpa	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2; D2BM; D2BM-AM; D2CM; D2CM-BM
Material	Brass	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2; D2BM; D2BM-AM; D2CM; D2CM-BM
Flow temperature limit	-10÷95 °C	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2; D2BM; D2BM-AM; D2CM; D2CM-BM
Room temperature limit	0÷60 °C	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2; D2BM; D2BM-AM; D2CM; D2CM-BM
Actuator	On/Off	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2
	Modulating	Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM
Voltage supply	230 VAC 50/60 Hz	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2
	24 VAC/DC 50/60 Hz	Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM
Control signal	0÷10 Vcc	Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM
Absorption	< 2 W	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2
	1 W	Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM
Operating power	110 N ± 10	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2
	100 N ± 5	Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM
Opening/closing time 20 °C	< 3 MIN	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2
	30 s/mm or 3-5 MIN	Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM
Protection grade	IP54	Cod.: D2B2; D2B2-A2; D2C2; D2C2-B2 Cod.: D2BM; D2BM-AM; D2CM; D2CM-BM

* OUR VALVES KIT ENDS WITH A HYDRAULIC CONNECTION G 3/4" F (2 and 4 pipe system).

8.6 DT – SHUT-OFF VALVE

It is a full bore ball valve with T handle; it is designed to separate the unit from the piping system if maintenance is required. **In presence of the ESTUCS900 model equipped with pressure independent valves the shut-off valve kit must always be insulated on site as it is not covered by the auxiliary drain pan.**



EURAPO RECOMMENDS TO INSULATE ALWAYS THE SHUT-OFF VALVE KIT (DT)



Maximum operating pressure with valves: 16 bar.

In order to choose the correct type of valve it is necessary to know the system's technical specifications. For this reason the consultant has full responsibility for the correct choice of the valve.

8.7 DRAWINGS AND DIMENSIONS FOR REGULATING AND PRESSURE INDEPENDENT VALVES

2 PIPE SYSTEM

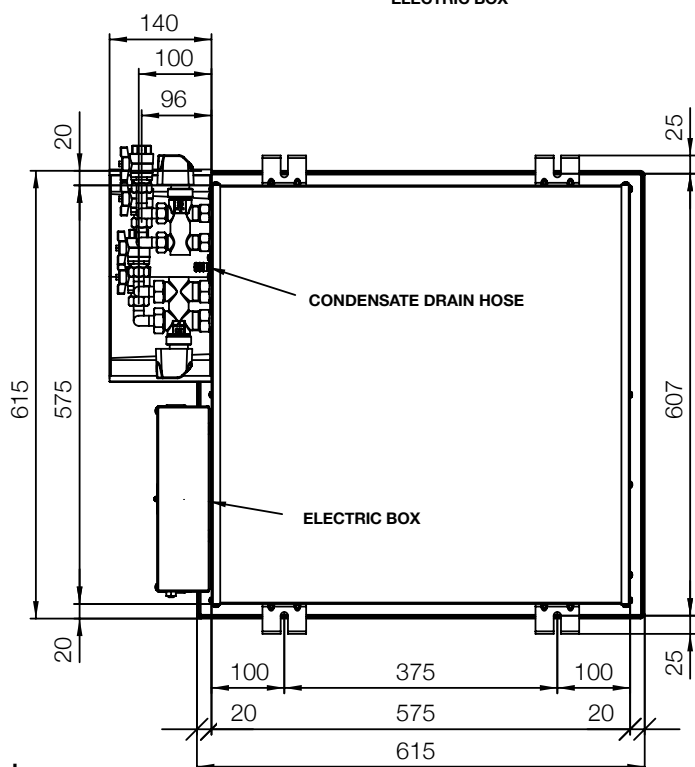
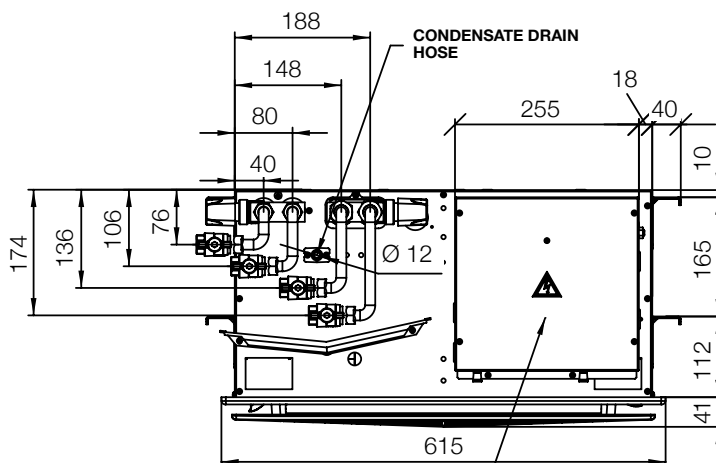
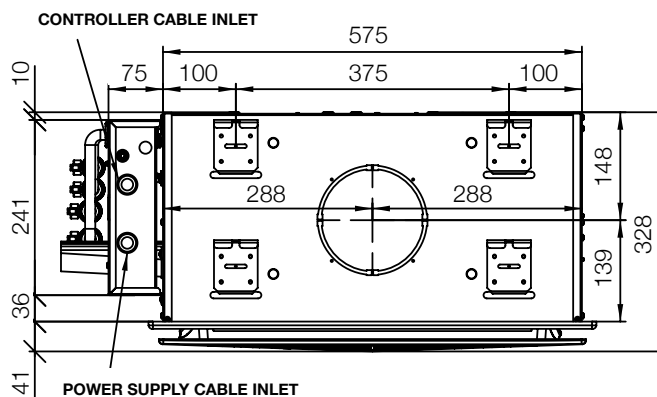
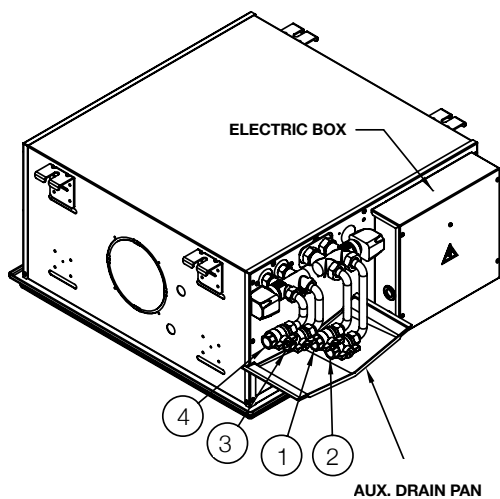
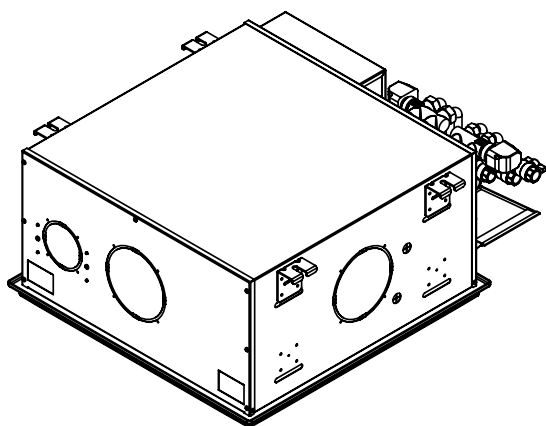
(VALVE KIT WITH SHUT-OFF VALVES)

1. Water inlet..... 1/2" F
2. Water outlet..... 1/2" F

4 PIPE SYSTEM

(VALVE KIT WITH SHUT-OFF VALVES)

1. Cooling water inlet..... 1/2" F
2. Cooling water outlet..... 1/2" F
3. Heating water inlet..... 1/2" F
4. Heating water outlet..... 1/2" F



ESTUCS600, ESTUCS/M 600 model with regulating valves

2 PIPE SYSTEM

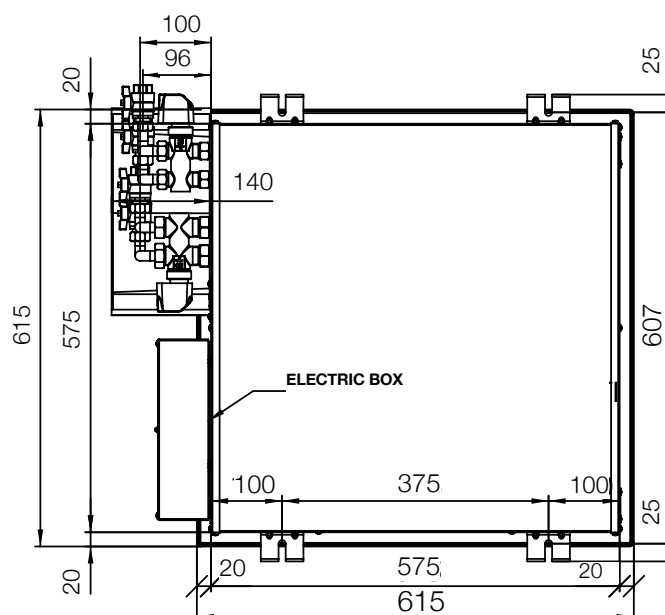
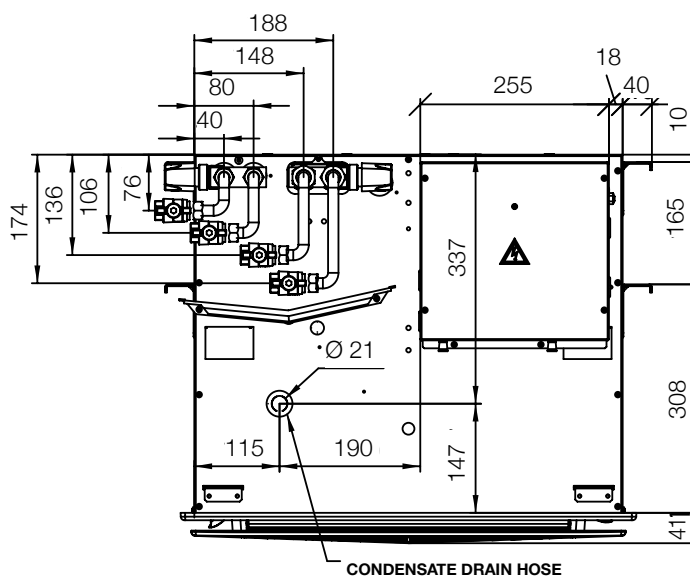
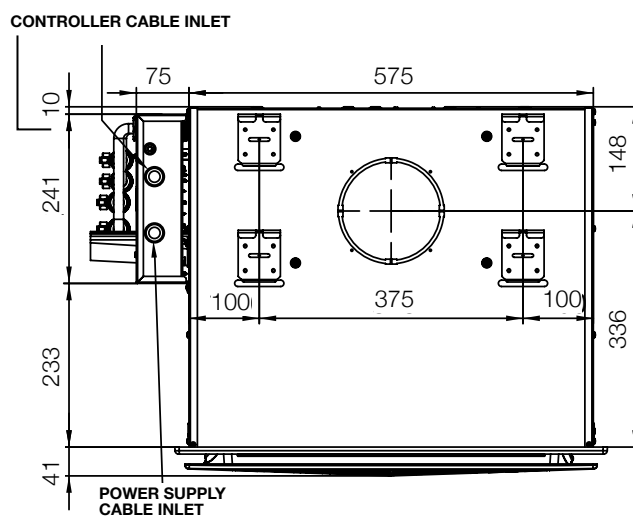
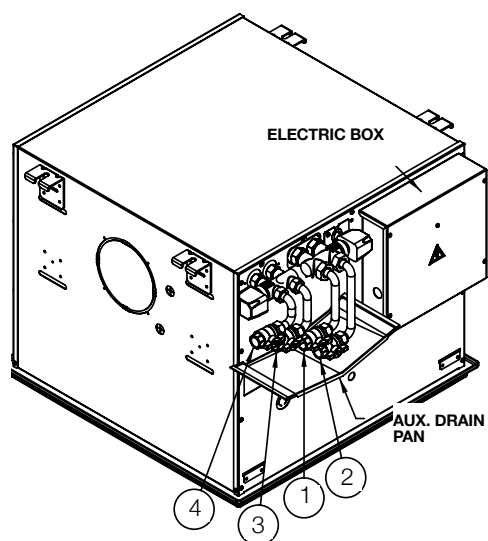
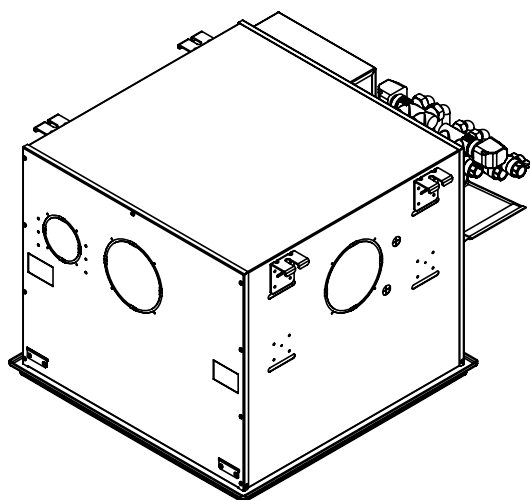
(VALVE KIT WITH SHUT-OFF VALVES)

1. Water inlet..... 1/2" F
2. Water outlet..... 1/2" F

4 PIPE SYSTEM

(VALVE KIT WITH SHUT-OFF VALVES)

1. Cooling water inlet..... 1/2" F
2. Cooling water outlet..... 1/2" F
3. Heating water inlet..... 1/2" F
4. Heating water outlet..... 1/2" F



ESTUCS/H 600 model with regulating valves

1

2

3

4

5

6

7

8

9

10

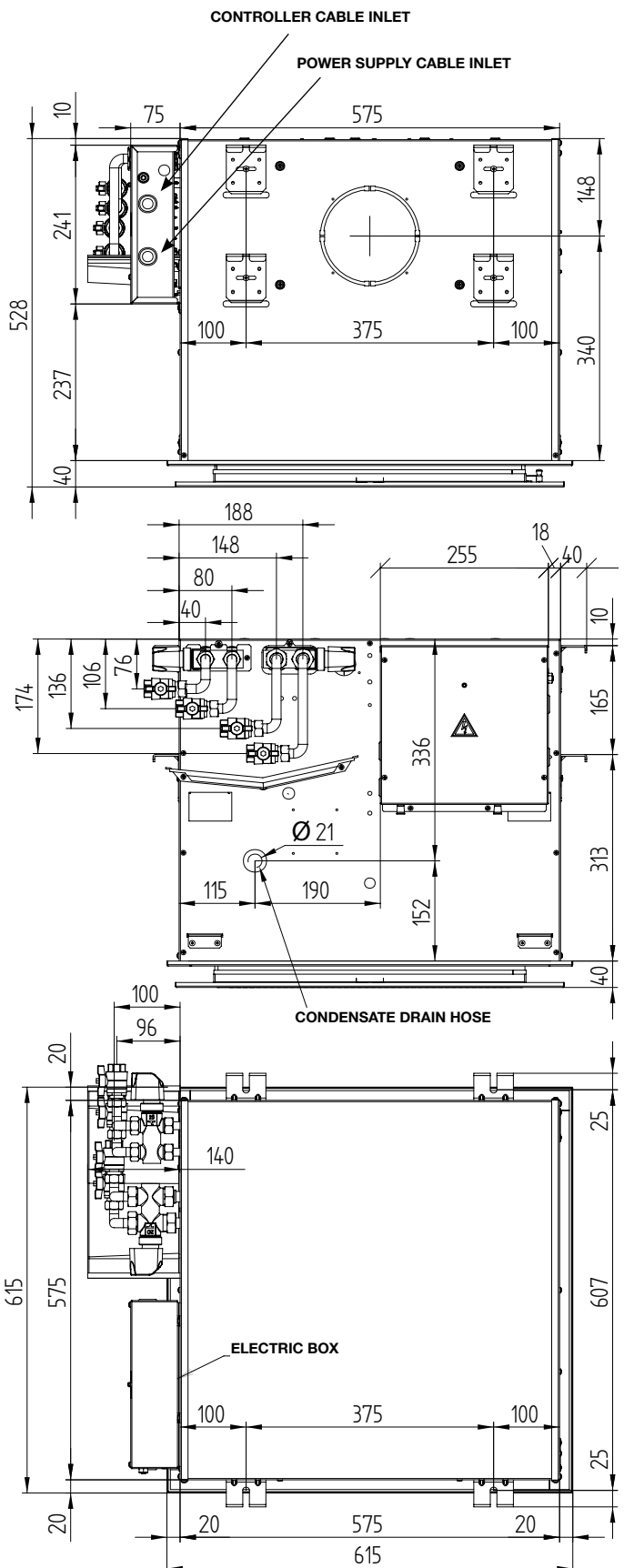
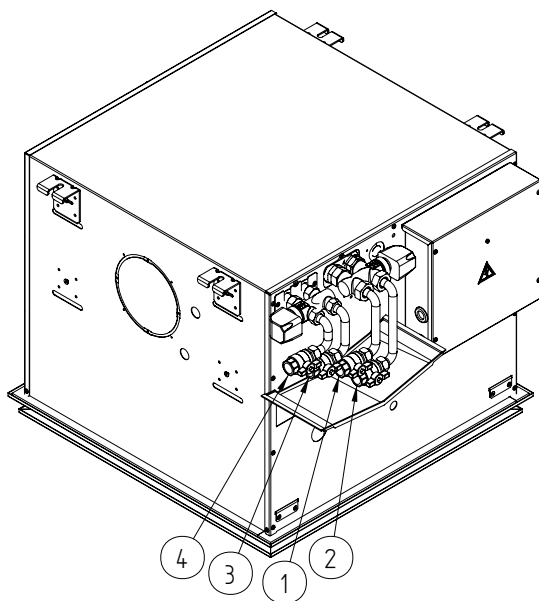
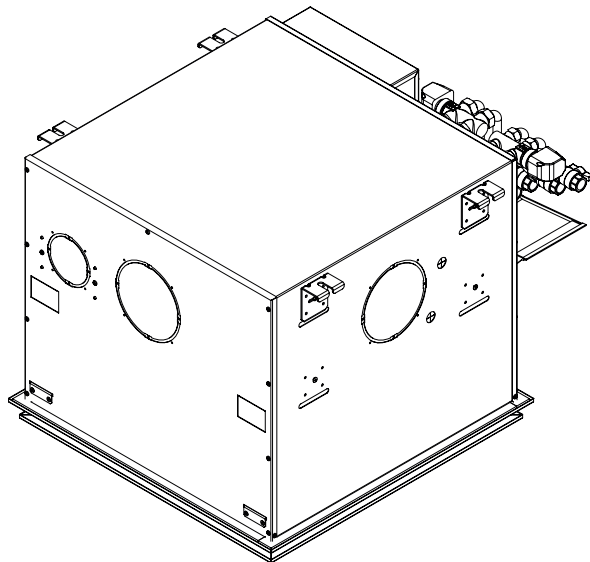
11

2 PIPE SYSTEM (VALVE KIT WITH SHUT-OFF VALVES)

1. Water inlet..... 1/2" F
2. Water outlet..... 1/2" F

4 PIPE SYSTEM (VALVE KIT WITH SHUT-OFF VALVES)

1. Cooling water inlet..... 1/2" F
2. Cooling water outlet..... 1/2" F
3. Heating water inlet..... 1/2" F
4. Heating water outlet..... 1/2" F



ESTUCS/HM 600 model with regulating valves

2 PIPE SYSTEM

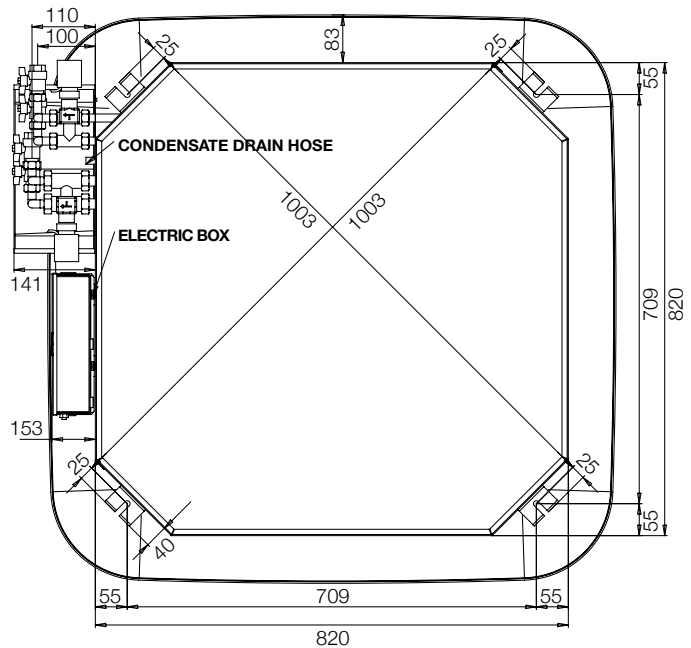
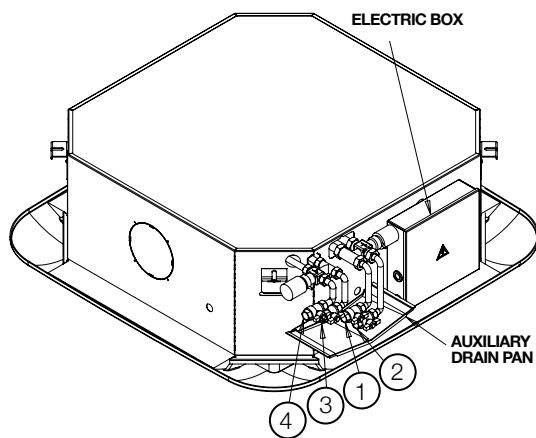
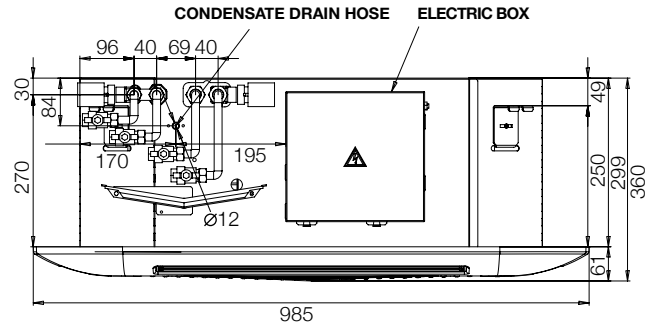
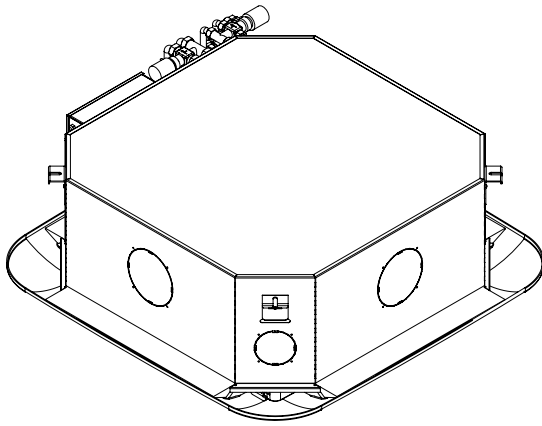
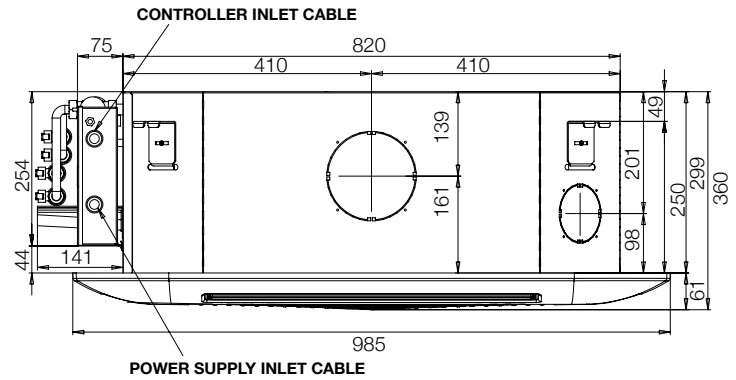
(VALVE KIT WITH SHUT-OFF VALVES)

1. Water inlet..... 1/2" F
2. Water outlet..... 1/2" F

4 PIPE SYSTEM

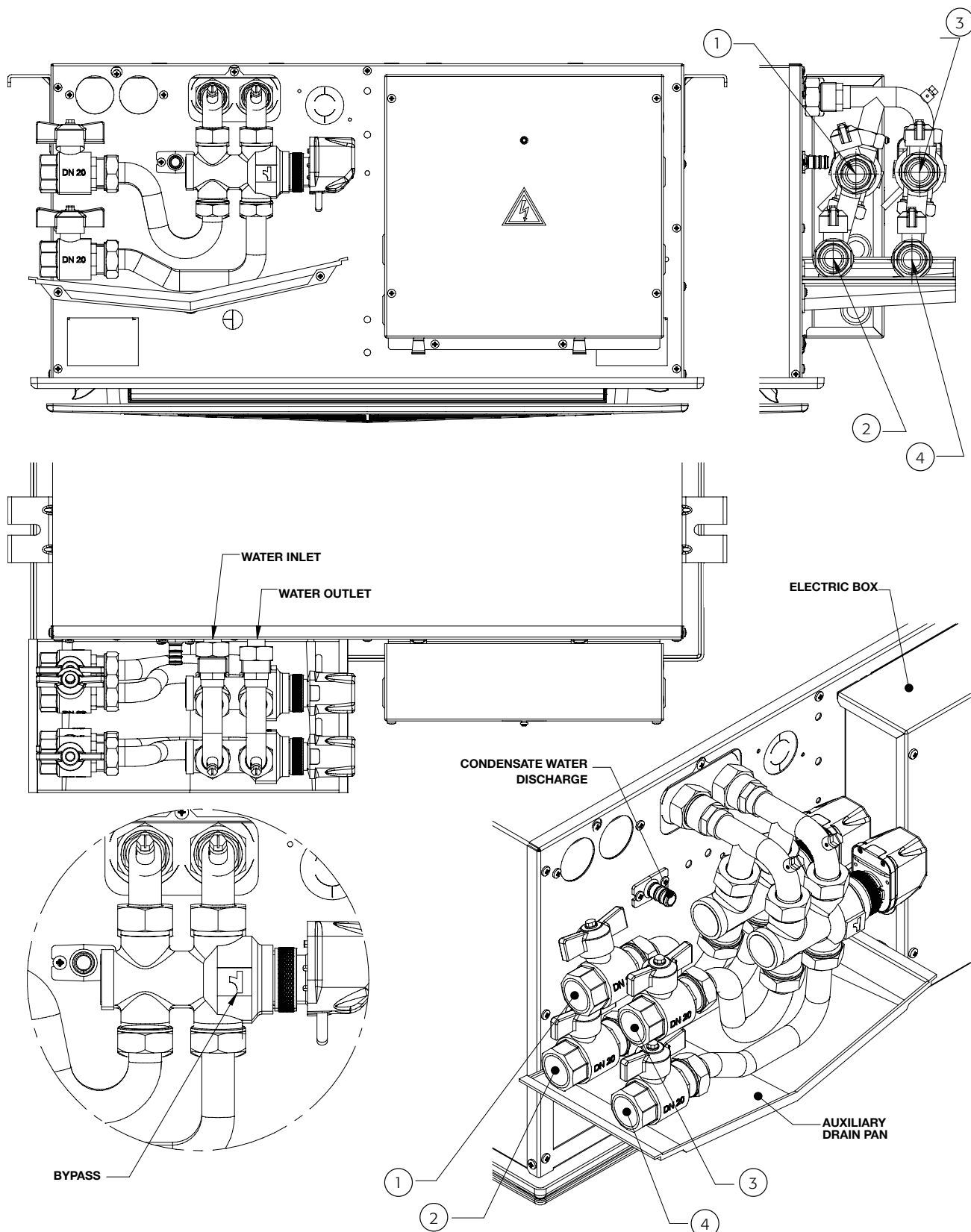
(VALVE KIT WITH SHUT-OFF VALVES)

1. Cooling water inlet..... 1/2" F
2. Cooling water outlet..... 1/2" F
3. Heating water inlet..... 1/2" F
4. Heating water outlet..... 1/2" F



4 PIPE COMPACT KIT

1. Cooling water inlet.....3/4" F
2. Cooling water outlet.....3/4" F
3. Heating water inlet.....3/4" F
4. Heating water outlet.....3/4" F



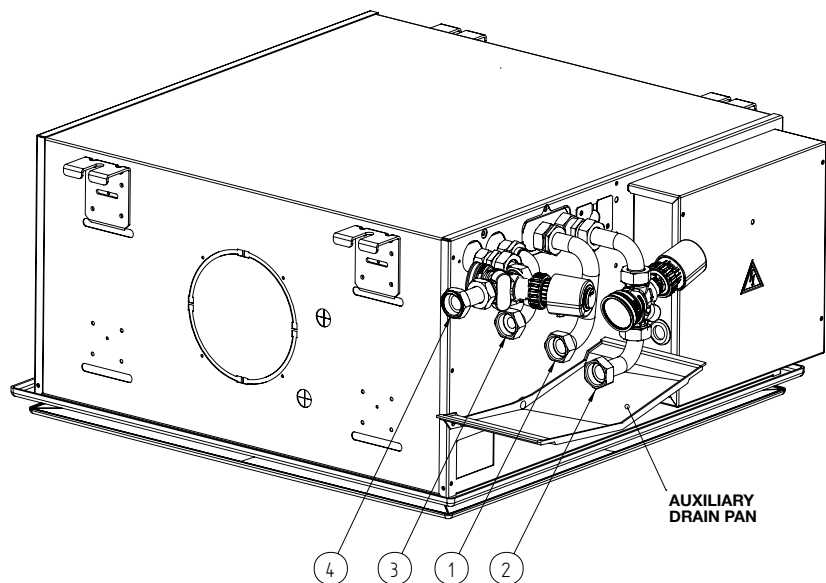
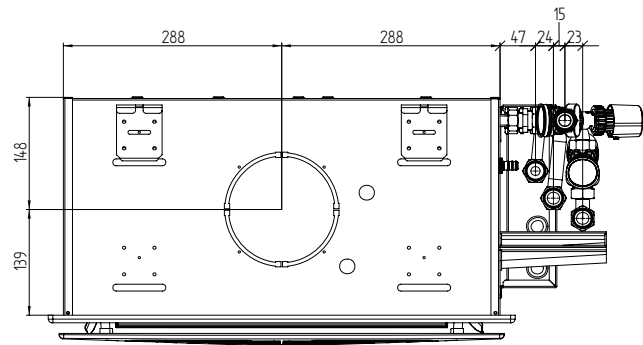
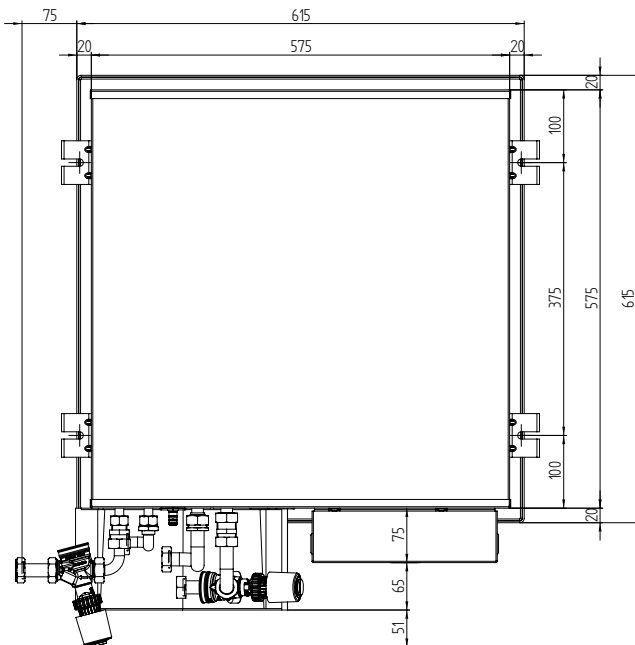
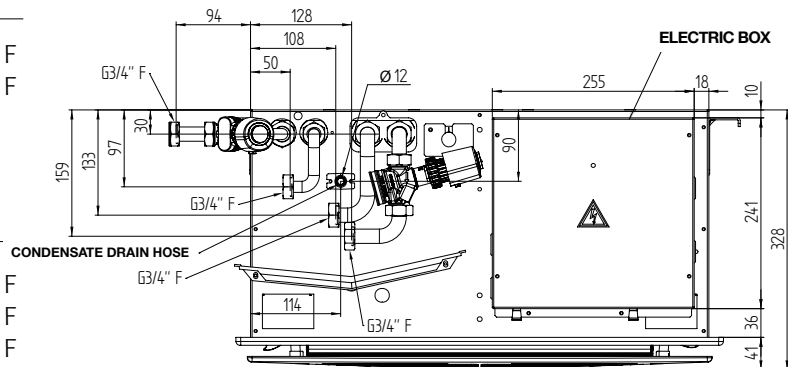
ESTUCS600 model with 4 pipe compact kit

2 PIPE SYSTEM (VALVE KIT)

1. Water inlet.....3/4" F
2. Water outlet.....3/4" F

4 PIPE SYSTEM (VALVE KIT)

1. Cooling water inlet.....3/4" F
2. Cooling water outlet.....3/4" F
3. Heating water inlet.....3/4" F
4. Heating water outlet.....3/4" F



ESTUCS600 model with pressure independent valves

1

2

3

4

5

6

7

8

9

10

11

2 PIPE SYSTEM

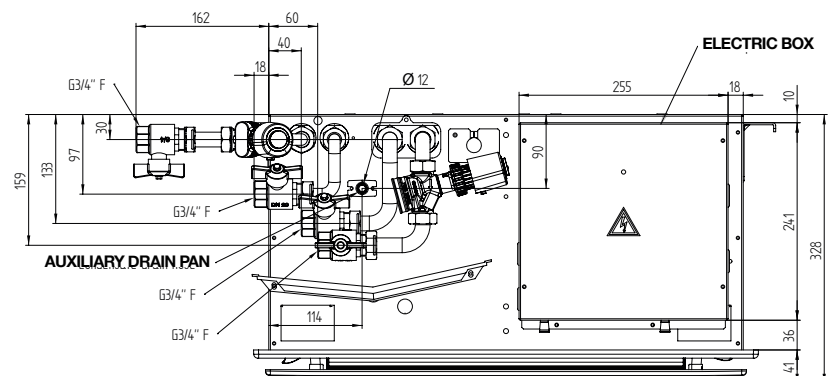
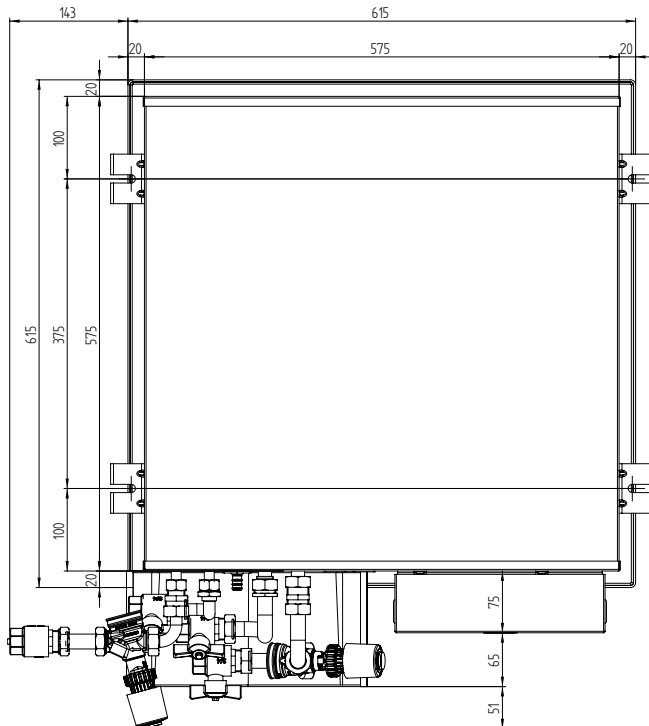
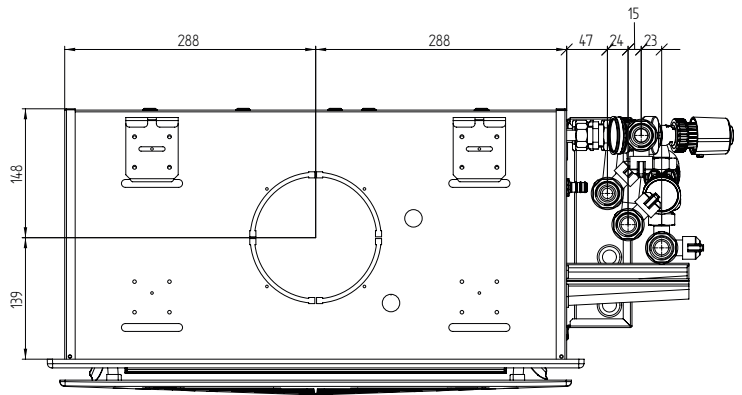
(VALVE KIT WITH SHUT-OFF VALVES)

1. Water inlet.....3/4" F
2. Water outlet.....3/4" F

4 PIPE SYSTEM

(VALVE KIT WITH SHUT-OFF VALVES)

1. Cooling water inlet.....3/4" F
2. Cooling water outlet.....3/4" F
3. Heating water inlet.....3/4" F
4. Heating water outlet.....3/4" F



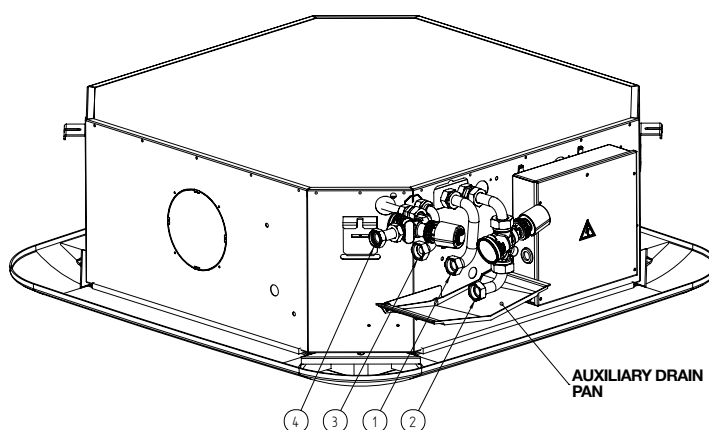
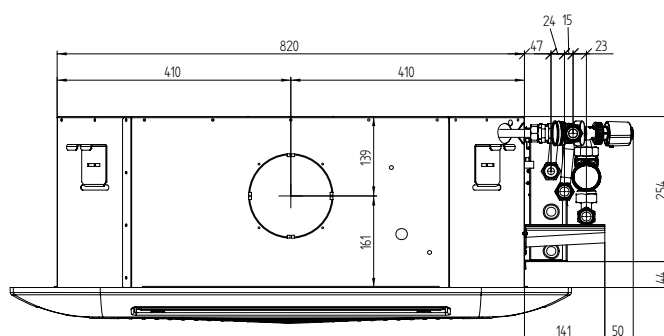
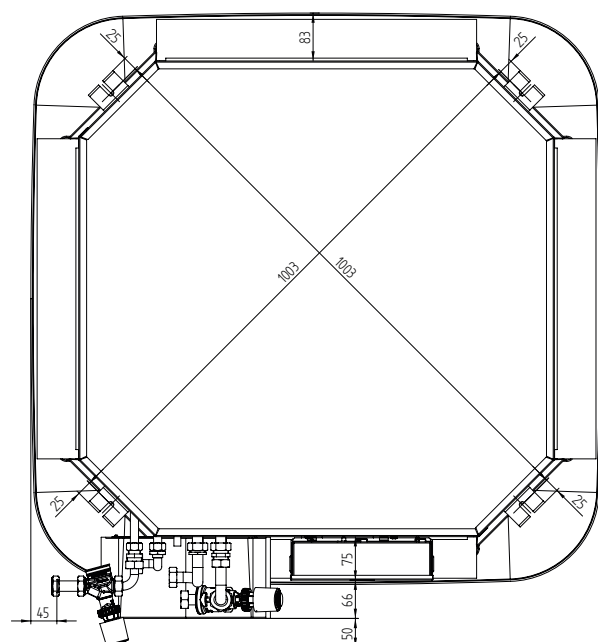
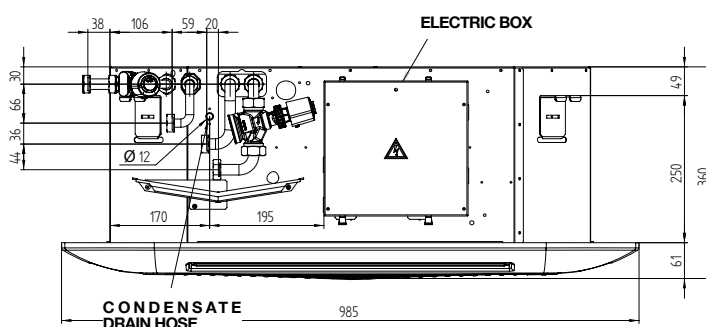
ESTUCS600 model with pressure independent valves and shut-off valves

2 PIPE SYSTEM (VALVE KIT)

1. Water inlet.....3/4" F
2. Water outlet.....3/4" F

4 PIPE SYSTEM (VALVE KIT)

1. Cooling water inlet.....3/4" F
2. Cooling water outlet.....3/4" F
3. Heating water inlet.....3/4" F
4. Heating water outlet.....3/4" F



ESTUCS900 model with pressure independent valves

9. TECHNICAL DATA EST CASSETTE UNITS

9.1 NOMINAL AIR VOLUMES

NOMINAL VALUES (m ³ /h)					
Model		621-641	624-644	622-642	922.1-942.1
Fan speed	10V	605	809	734	1497
	9V	564	738	677	1346
	8V	508	667	602	1190
	7V	466	591	547	1023
	6V	425	536	492	867
	5V	369	467	438	708
	4V	327	412	366	671
	3V	288	326	314	541
	2V	235	260	260	384
	1V	186	198	187	205

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900

9.2 COOLING CAPACITIES, 2 PIPE SYSTEM



ROOM TEMPERATURE: 27 °C d.b. - 47% R. H. - WATER TEMPERATURE: 7/12 °C					
Size		621*	622*	624*	922.1*
Total cooling capacity [kW]	MAX	2,85	4,85	5,43	10,15
	MED	2,37	3,64	3,99	7,61
	MIN	1,63	2,56	2,76	4,66
Sensible cooling capacity [kW]	MAX	2,42	3,79	4,17	7,87
	MED	1,93	2,69	2,98	5,66
	MIN	1,26	1,85	1,99	3,34
Water flow [l/h]	MAX	491	835	935	1747
	MED	408	627	687	1310
	MIN	281	441	475	802
Water pressure drop [kPa]	MAX	9,2	17,2	40,5	23,2
	MED	6,9	10,6	23,2	13,9
	MIN	3,9	6,1	12,3	5,8
Water content	l	1,34	2,12	2,15	4,26

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900.

*MAX, MED, MIN: 621/922.1=10V, 6V, 2V - 622/624=10V, 6V, 3V

9.3 HEATING CAPACITIES, 2 PIPE SYSTEM



ROOM TEMPERATURE: 20 °C d.b. - 50% R. H. - WATER TEMPERATURE: 45/40 °C					
Size		621*	622*	624*	922.1*
Heating total capacity [kW]	MAX	2,99	4,91	5,44	10,31
	MED	2,38	3,52	3,98	7,51
	MIN	1,59	2,33	2,62	4,45
Water flow [l/h]	MAX	515	845	936	1775
	MED	410	606	686	1293
	MIN	274	401	455	766
Water pressure drop [kPa]	MAX	9,0	16,2	35,7	21,0
	MED	5,9	8,9	20,4	12,0
	MIN	2,9	4,2	9,5	4,5
Water content	l	1,34	2,12	2,15	4,26

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900.

*MAX, MED, MIN: 621/922.1=10V, 6V, 2V - 622/624=10V, 6V, 3V

1

2

3

4

5

6

7

8

9

10

11

9.4 COOLING CAPACITIES, 4 PIPE SYSTEM



ROOM TEMPERATURE: 27 °C d.b. - 47% R. H. - WATER TEMPERATURE: 7/12 °C					
Size		641*	642*	644*	942.1*
Total cooling capacity [kW]	MAX	1,87	3,52	4,30	9,10
	MED	1,68	2,75	3,30	6,85
	MIN	1,22	2,03	2,32	4,32
Sensible cooling capacity [kW]	MAX	1,73	3,32	3,53	7,34
	MED	1,52	2,50	2,58	5,33
	MIN	1,08	1,73	1,71	3,21
Water flow [l/h]	MAX	322	678	740	1566
	MED	289	530	568	1179
	MIN	210	391	399	744
Water pressure drop [kPa]	MAX	7,9	17,0	19,8	24,3
	MED	6,6	11,0	12,5	14,5
	MIN	4,1	6,7	7,3	6,3
Water content	l	1,34	2,12	2,12	4,26

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900.

*MIN-MED-MAX: 641/942.1=10V, 6V, 2V - 642/644=10V, 6V, 3V

9.5 HEATING CAPACITIES, 4 PIPE SYSTEM (ADDITIONAL 1 ROW COIL)



ROOM TEMPERATURE: 20 °C d.b. - 50% R. H. - WATER TEMPERATURE: 65/55 °C					
Size		641*	642*	644*	942.1*
Heating total capacity [kW]	MAX	2,11	3,30	3,72	7,48
	MED	1,84	2,64	2,98	6,13
	MIN	1,37	2,04	2,23	4,41
Water flow [l/h]	MAX	190	284	320	644
	MED	158	227	256	528
	MIN	118	176	192	380
Water pressure drop [kPa]	MAX	7,1	15,6	19,6	26,2
	MED	5,2	10,5	13,4	18,5
	MIN	3,0	6,6	8,1	10,2
Water content	l	1,34	2,12	2,12	4,26

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900.

*MIN-MED-MAX: 641/942.1=10V, 6V, 2V - 642/644=10V, 6V, 3V

9.6 ELECTRICAL DATA



POWER SUPPLY: 230±10%-1-50/60 (V-ph-Hz)

Size		621*	622*	624*	922.1*	641*	642*	644*	942.1*
Nominal absorbed power [W]	MAX	27	42	54	97	27	43	53	98
	MED	12	16	19	32	12	17	19	32
	MIN	4	7	7	9	4	7	7	9
Nominal absorbed power [A]	MAX	0,25	0,38	0,47	0,80	0,25	0,39	0,46	0,80
	MED	0,12	0,16	0,17	0,28	0,12	0,16	0,17	0,28
	MIN	0,05	0,08	0,07	0,10	0,05	0,08	0,07	0,10

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900.

*MAX-MED-MIN: 621/641=10V, 6V, 2V - 622/642=10V, 6V, 3V - 624/644=10V, 6V, 3V - 922.1/942.1=10V, 6V, 2V



Electrical data refer to standard ESTUCS cassette units with clean filter and without external static pressure. A dirty filter or an external air pressure drop will lower the absorbed power level. The installation of electric accessories increases the absorbed power level.

9.7 WORKING OPERATION LIMITS

The ESTUCS Cassette units can work correctly only if the following operational limits are respected:

- Max. operating pressure (water side): 1600 kPa
- Min. inlet cold water temperature: 5 °C
- Max. inlet cold water temperature: 20 °C
- Min. inlet hot water temperature: 35 °C
- Max. inlet hot water temperature: 85 °C

For more detailed information, please use the EURAPO software for selection.

1

2

3

4

5

6

7

8

9

10

11

10. NOISE LEVELS

10.1 SOUND POWER

The acoustic emission characteristics of any noise source is defined as its **«sound power»** (SWL). This typical measurement indicates the total radiated energy which does not vary for a given noise source; that is, it does not depend on the observer, location, distance or any other factor which is not part of the source. Following please find the values of the sound power level.

10.2 SOUND PRESSURE IN A CLOSED ENVIRONMENT

The perceived noise radiated from a sound source is something quite different: noise perception is indicated by its **«sound pressure»** (SPL). Even though it is caused by the emission of a sound energy, it greatly depends on the environment through which the sound travels, on the distance from the source and on all other circumstances that are not directly related to the primary noise source.

Besides the distance from the source, the most important factor that influences the **«sound pressure»** (and, as a result, the perceived noise) in a closed environment is the amount of sound energy reflected off surfaces that have a greater or lesser reflection capacity: it depends, therefore, on the re-transmission of sound energy (power) acting upon reflecting surfaces.

Covering the walls with sound absorbing material (i.e. material with a low sound reflecting capacity) is the most effective way to reduce the noise level in a closed environment.

The following values indicate the sound pressure emitted by the cassette unit, calculated at 1,5 meter distance and with a reverberation time of 0,3 seconds. By using the EURAPO software for selection it is possible to calculate the new sound pressure level obtained by changing the parameters: room volume, distance from the noise source and reverberation time. The reverberation time measures the sound characteristics of a room: it increases as the room dimensions increase and decreases as the sound absorption capacity of the structure increases.



SOUND POWER LEVEL			SOUND PRESSURE LEVEL IN A CLOSED ENVIRONMENT		
		dB(A)			dB(A)
Model 621	10V	55,0	Model 621	10V	45,6
	6V	47,0		6V	37,6
	2V	32,0		2V	22,6
Model 622	10V	59,0	Model 622	10V	49,6
	6V	49,0		6V	39,6
	3V	39,0		3V	29,6
Model 624	10V	62,0	Model 624	10V	52,6
	6V	51,0		6V	41,6
	3V	39,0		3V	29,6
Model 641	10V	57,0	Model 641	10V	47,6
	6V	49,0		6V	39,6
	2V	35,0		2V	25,6
Model 642	10V	59,0	Model 642	10V	49,6
	6V	49,0		6V	39,6
	3V	39,0		3V	29,6
Model 644	10V	62,0	Model 644	10V	52,6
	6V	51,0		6V	41,6
	3V	39,0		3V	29,6
Model 922.1	10V	62,0	Model 922.1	10V	52,6
	6V	51,0		6V	41,6
	2V	34,0		2V	24,6
Model 942.1	10V	62,0	Model 942.1	10V	52,6
	6V	51,0		6V	41,6
	2V	34,0		2V	24,6

Data referred to models ESTUCS600, ESTUCS/M 600, ESTUCS/H 600, ESTUCS/HM 600 and ESTUCS900.

In order to select the ESTUCS Cassette units with calculating conditions differing from the standard ones, please use the EURAPO software selection.

11. ELECTRICAL CONNECTIONS

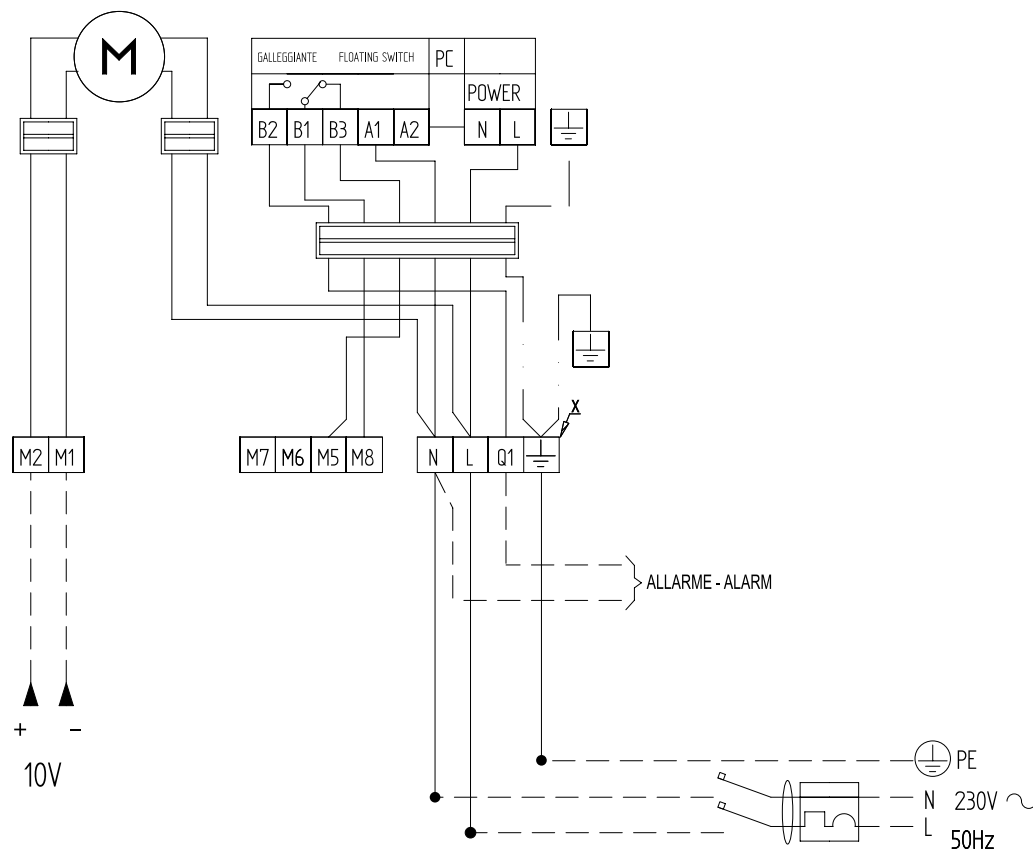
LEGEND (for all the electric diagrams)

M	Fan motor	RE	Electric heater
MS	Terminal board for motor	PR	Relay card
SV	Fan speed selector	PC	Condensate pump
PE	Earth	TSRM	Safety thermostat with manual resetting
N	Neutral	TSRA	Safety thermostat with automatic resetting
L	Phase	X	Terminal board
EV	Regulating valve: EVC for cooling; EVH for heating	TA	Room thermostat
		I/E	Summer/Winter changeover

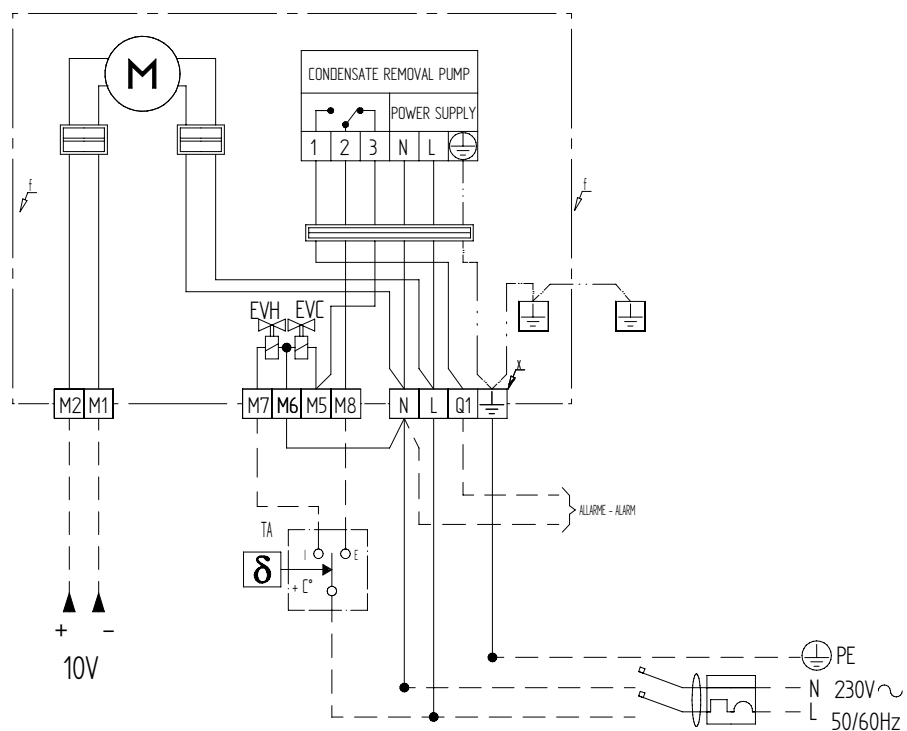
NOTE. If other configurations are required, different from the standard ones, please refer to the instruction manual of every specific EURAPO regulator.

The following wiring diagrams are the most frequently used for cassette applications:

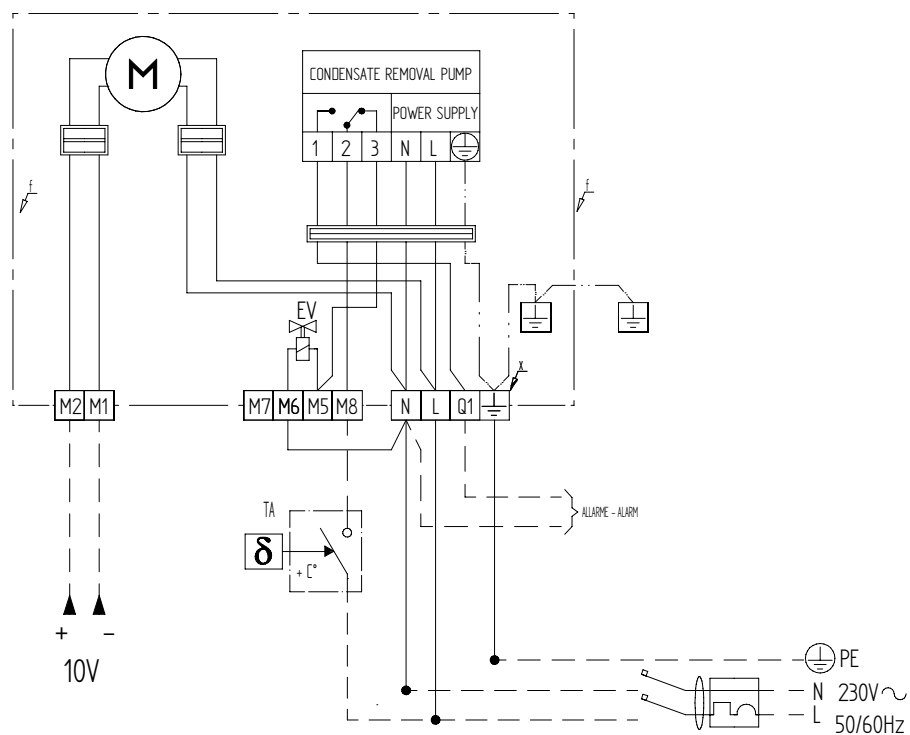
ESTQEC00 (ESTUCS600, ESTUCS/M 600, ESTUCS900)



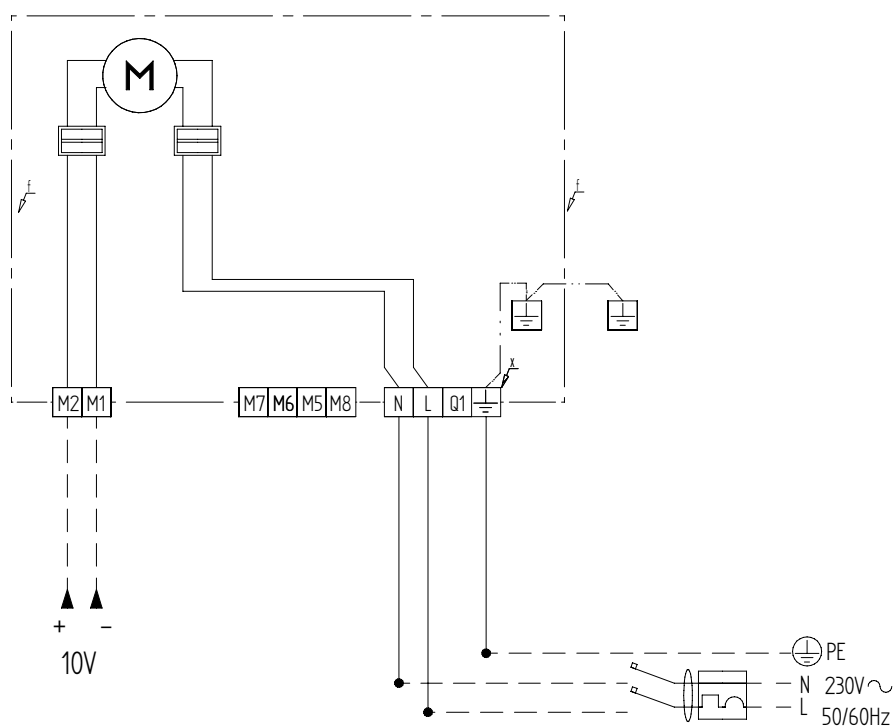
ESTQEC00-EVC-EVH (ESTUCS600, ESTUCS/M 600, ESTUCS900)



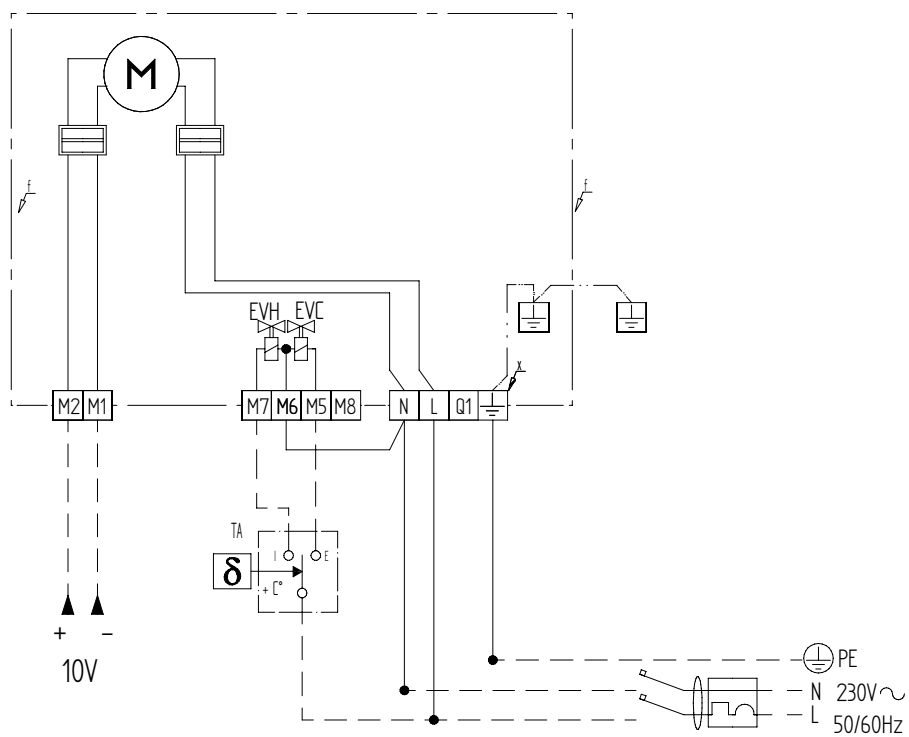
ESTQEC00-EV-EVH MASTER&SLAVE (ESTUCS600, ESTUCS/M 600, ESTUCS900)



QEC00 (ESTUCS/H 600, ESTUCS/HM 600, ESTUCS/HM 600 VDI 6022)



QEC00-EVC-EVH (ESTUCS/H 600, ESTUCS/HM 600, ESTUCS/HM 600 VDI 6022)



1

2

3

4

5

6

7

8

9

10

11

1

2

3

4

5

6

7

8

9

10

11

EURAPO

Eurapo Srl
Via A. Malignani, 12
33170 Pordenone - Italy
T +39 0434 572552
F +39 0434 28667
info@eurapo.it
www.eurapo.it



ISO 9001 certified company
Cert. n. 731005773



CE



www.eurovent-certification.com
www.certiflash.com

As programs and technologies are always improving, description, data and drawings must be intended as merely indicative and can be modified without any notice.