



TVEC Multi

Indoor and outdoor installation

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1. RECOMMENDATIONS AND SAFETY INSTRUCTIONS

Read the manual carefully before starting to install the equipment and keep it in good condition near the equipment throughout its lifetime. This manual, supplied with the TVEC Multi, is complemented by the Smart Evolution user manual and by individual technical data sheets for each TVEC Multi.

1.1. Precautions for installation and maintenance

- Installing a TVEC Multi can be risky due to live components or moving mechanical parts. This equipment must be installed, commissioned and repaired by qualified, trained personnel, in compliance with the standards in force and best practices
- Any servicing or maintenance operation that necessitates opening the panels or removing components from the TVEC Multi must be carried out by a qualified professional
- Electrical connections must be made by a qualified professional according to the rules of French standard NF C 15-100
- Avoid contact with energized electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product
- Make sure that the TVEC Multi cannot start running accidentally
- If one of the power supply cords is damaged, it must be replaced by the professional who installed the product or similarly qualified persons to avoid danger
- Panels should never be opened unless the fan is switched off and completely stopped
- During installation and maintenance of the TVEC Multi, do not approach ignition sources close to the filtration sections as the material used in filters is flammable
- Should the motor fail (signal fault in the motor's built-in circuit, phase breakdown, motor blocked, short circuit at the earth or internal short circuit, intermediate and network under-voltage or over-voltage, peak current fault), an alarm triggers stopping the TVEC. Switch off the power supply (circuit breaker on electrical switchboard), check if nothing is hindering the operation of the TVEC Multi (for example, blocking, rubbing, fouling of the wheel, abnormal noise, etc.)
- Only use genuine replacement parts supplied by the manufacturer
- For TVEC Multi fitted with an electrical heating coil: where there are multiple failures of the electrical coil control if the air supply compartment overheats a thermostat with manual reset will activate at 112°C stopping the electrical coil
- The equipment must not be modified in any way to avoid invalidating the warranty
- Service the equipment regularly to ensure its smooth operation
- Before starting up the TVEC Multi, check if all the elements/equipment are correctly installed
- Conditions of storage and use:
 - Storage temperature/relative humidity: -25°C - +50°C/ 10 – 95 %RH (without condensation).
 - Operating temperature/relative humidity: -10°C - +40°C/ 10 – 95 %RH (without condensation).
 - HMI ambient temperature/relative humidity: 0°C - +50°C/ 10 – 95 %RH (without condensation).

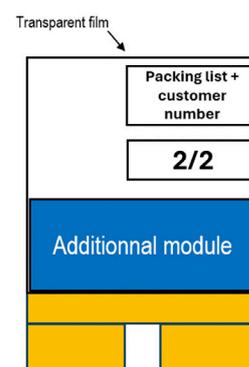
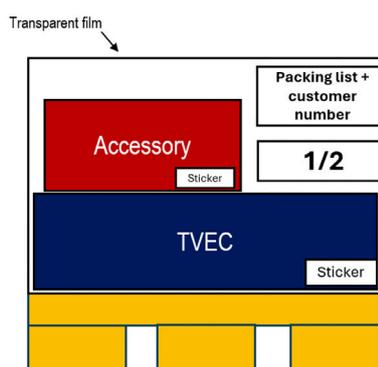
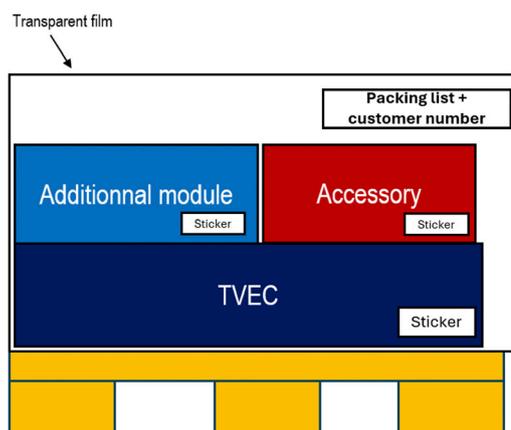
1.2. Delivery and handling precautions

The TVEC Multi are delivered properly packaged and labelled, usually on a pallet. Check if the TVEC Multi and its components have not been damaged during transport. If it is not possible to install the TVEC Multi at the time of delivery and the TVEC Multi has to be stored, take the following precautions to prevent parts from being damaged by water, dirt or foreign bodies.

- After receiving the goods, remove all plastic film and tape to prevent condensation from forming
- Check that all accesses are properly closed
- Store the TVEC Multi and accessories in a dry area, preferably protected from the elements
- Place the TVEC Multi on a completely flat surface, free from humidity
- Cover the entire TVEC Multi and accessories with tarpaulins. Do not use plastic film
- Openings should be covered, preferably with cardboard
- If the TVEC Multi has been stored for longer than 12 months, make sure that the fan bearings are working properly by checking if there is free movement in the rotor

How the product is delivered if all the components FIT on one pallet:

How the product is delivered if all the components DO NOT FIT on one pallet:

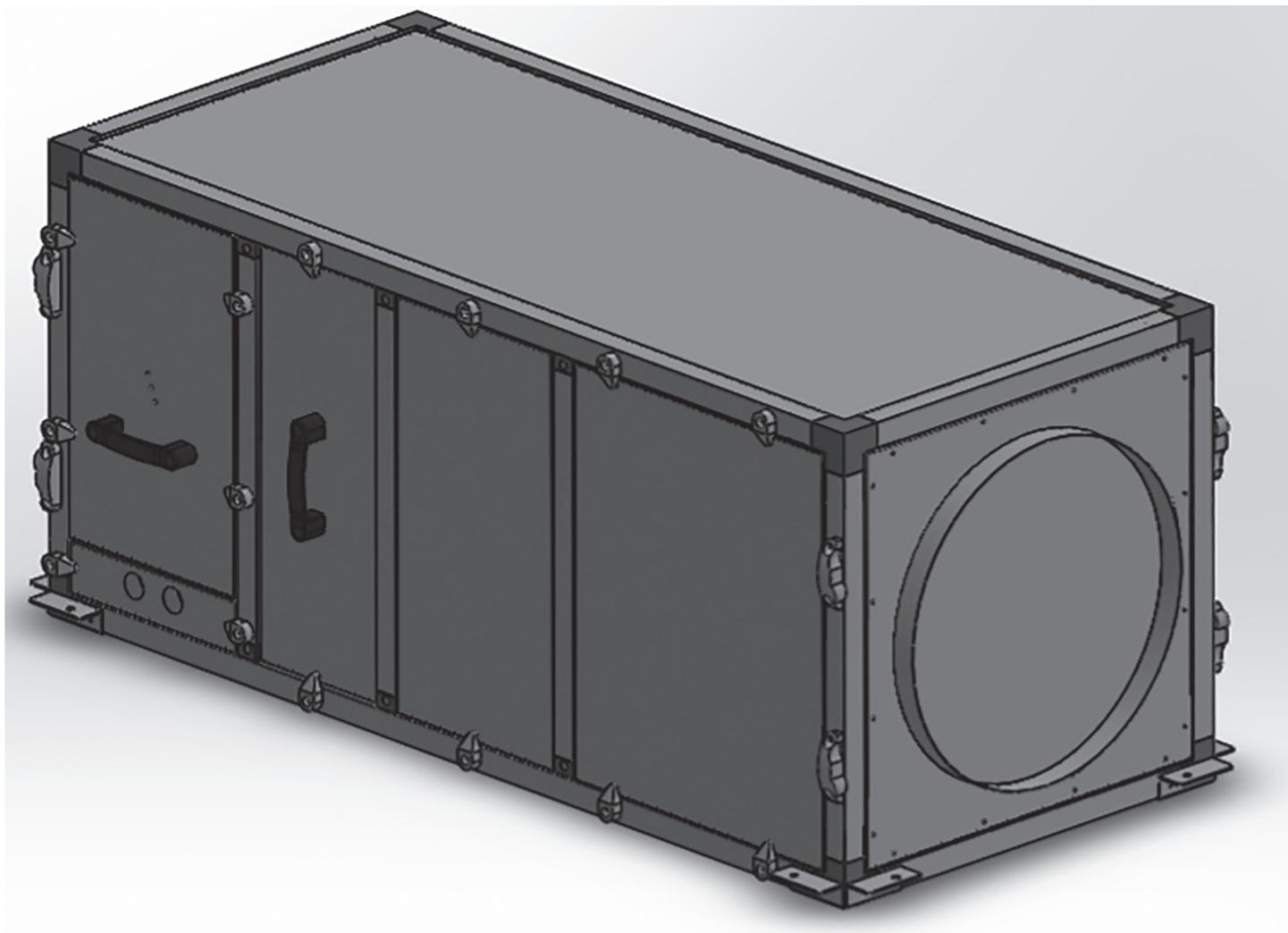


2. INSTALLATION

2.1. General information



CAUTION: the purpose of this document is to guide the installation of the TVEC Multi. For a fully compliant installation, refer to the legislation in force in the country of installation.



2.2. Transport on site

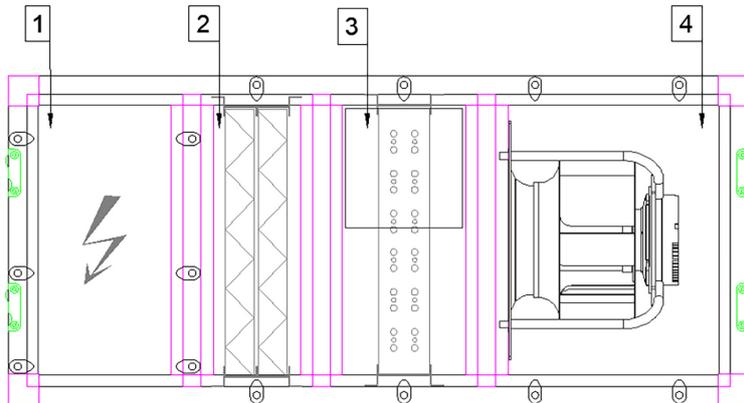
The TVEC Multi is packed in plastic film, protected with cardboard corners on the bottom and on top of the TVEC Multi. All accessories ordered with the TVEC Multi are supplied unfitted. The products are loaded onto pallets and secured to them using bolts and protective film.

Before moving products, make sure that the means of transport used has an adequate load capacity. Handling should be done using a forklift or a pallet truck in the case of smaller TVEC Multi.

2.3. Parts supplied with the TVEC Multi

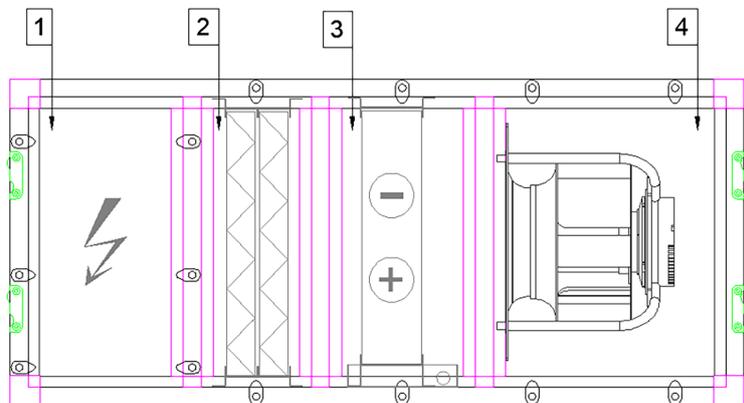
The TVEC Multi has X possible configurations:

TVEC Multi with electrical post heater integrated



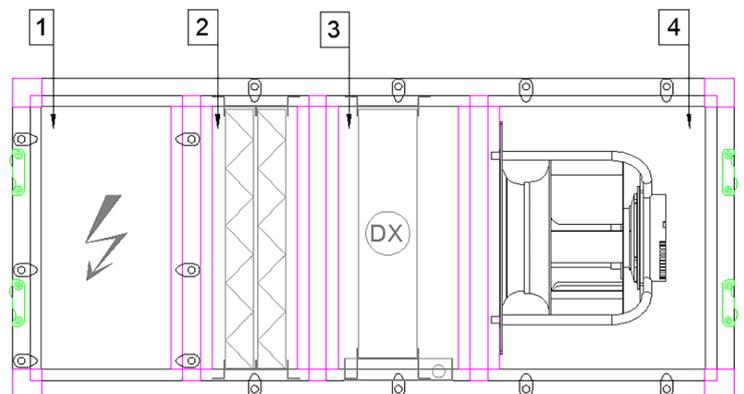
Legend	
Reference	Description
1	Electrical cabinet
2	Filter (2 stages possibles)
3	Electric heater
4	Fan

TVEC Multi with hydraulic coil integrated



Legend	
Reference	Description
1	Electrical cabinet
2	Filter (2 stages possibles)
3	Hydraulic coil
4	Fan

TVEC Multi with additional external water heating coil (to be installed on site, delivered separately)



Legend	
Reference	Description
1	Electrical cabinet
2	Filter (2 stages possibles)
3	Direct expansion refrigerant (dx) coil
4	Fan

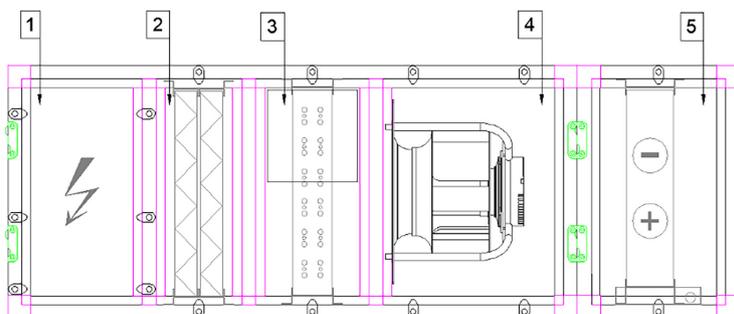
In every TVEC Multi, a bag is placed on the supply air fan casing, containing accessories to connect the HMI etc, All these components must be mounted by the installer on site. In addition, the wiring diagram will be printed and placed on the electrical panel cover. If the TVEC Multi is ordered with a heating water coil, it must be equipped on site by the customer with a 3-ways water valve and an electrical actuator (0-10V command type, power supply 24V) sold as accessories separately.

Model	3-way valve	Servomotor	Article code
TVEC Multi 1500	VFMD 320 6.3	SE4M24M30/VFMD	11004096
TVEC Multi 2500	VFMD 325 10	SE4M24M30/VFMD	11004097
TVEC Multi 3500	VFMD 332 16	SE4M24M30/VFMD	11004098
TVEC Multi 5000	VFMD 340 25	SE4M24M30/VFMD	11004099
TVEC Multi 7000	VFMD 340 25	SE4M24M30/VFMD	11004100
TVEC Multi 10 000	VFMD 340 25	SE4M24M30/VFMD	11004101
TVEC Multi 12 000	VFBF 350 40	SE5M24	11004102
TVEC Multi 15 000	VFBF 350 40	SE5M24	11004103



The actuator will have to be wired on site by the installer. For this specific version, there is no additional accessory delivered with the unit. Unit in combination with external module.

TVEC Multi with additional external change-over coil (to be installed on site, delivered separately)



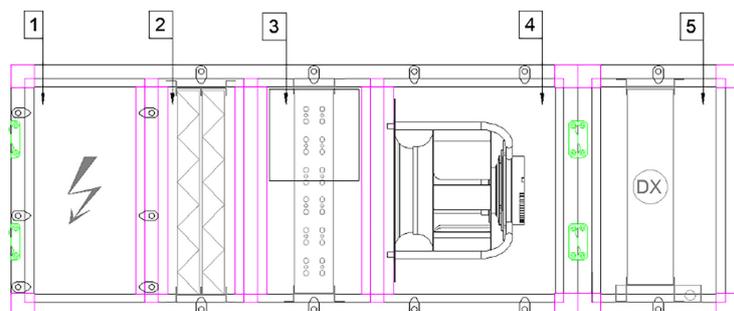
Legend	
Reference	Description
1	Electrical cabinet
2	Filter (2 stages possibles)
3	Electric heater
4	Fan
5	Change over coil

For this specific version, there is no additional accessory delivered with the unit. Unit in combination with external module.



If the TVEC Multi is ordered with an additional change-over water coil, it must be equipped on site by the customer with a 3-ways water valve and an electrical actuator (0-10V command type, power supply 24V) sold as accessories separately.

TVEC Multi with additional external DX coil



Legend	
Reference	Description
1	Electrical cabinet
2	Filter (2 stages possibles)
3	Electric heater
4	Fan
5	Direct expansion refrigerant (dx) coil

For this specific version, there is no additional accessory delivered with the unit. Additional combinations are possible with recirculation session. It is possible to take the unit work as the master (Extraction unit) slave (supplier unit). Systematically, in every version of TVEC Multi Compact with or without coil, the main prefilter is delivered with the unit. All versions of TVEC Multi are delivered with a control system.

In every TVEC Multi, a plastic bag is placed on the supply air fan casing. It contains the following articles necessary to install and start the unit:



Electrical HMI



Fixation brackets,
10 m cable

2.3.1. Remote Display (HMI) – Installation Information



Supplied with the unit:

- The remote HMI is supplied as standard with all versions of the TVEC Multi.
- It is delivered in a card box inside the electrical cabinet. The cable will also be inside the electrical cabinet.

Connection terminals:

- The HMI is identified in the wiring diagram as «Remote Display».
- It must be connected to the CANBUS communication terminals on the c-pro 3 OEM controller.
 - C- and C+
 - APS terminals → 12V, GND

Cable type:

- Use:
 - A shielded twisted-pair cable for MODBUS signals (A/B)
 - LIYCY 4x1mm cable (with mesh/shield)

Additional wiring recommendations in case of BMS (building management system) control:

TVEC Multi can be monitored and controlled using a building supervisor or BMS. Communication protocol allowed is the Modbus RTU (RS485 type)

Use:

- Connect the MODBUS communication lines (A, B, and GND) to the matching controller terminals.
- Keep communication lines away from power cables to reduce electrical noise.

To get more information please refer to the control user guide

See Appendix: Electrical Wiring Diagram for terminal reference and physical layout

All these components must be mounted by the installer and installed on site. In addition, the wiring diagram is placed inside the electrical panel cover.

2.4. Installation of the TVEC Multi

2.4.1. General information

The TVEC Multi can be installed under the ceiling or directly into the false ceiling using the fixations devices delivered on the TVEC Multi for all models. Each model comes with at least four squares supplied separately, packaged separately and put inside the casing.

After fixing the TVEC Multi in the correct position (take care of the sense of the air):

- carry out the connection to the ducting,
- connect it to the power supply network via the terminal boxes
- fix the condensate drainpipe on the exhaust air side.

When installing the TVEC Multi and connecting ducts and electric cables, make sure not to obstruct the access points so that the internal functional components can be extracted with ease.



CAUTION: Install the TVEC Multi through appropriate means (weight up to 220 kg) in order to avoid risks during the load handling procedures. Do not stand under the TVEC Multi until it is completely attached to the ceiling. During installation you may need to work at heights over 2m. Therefore, evaluate the risks of falling, inert suspension or generic injury and take the necessary precautions.

2.4.2. Installation conditions

Indoor installation only in the room treated, ambient temperature range -15° to 50°C. Storage temperature range -15°C;60°C. Relative humidity range 5% to 85% (non-condensing). Operating temperature range: -10°C;50°C. The protection degree of the electrical cabinet is IP54.

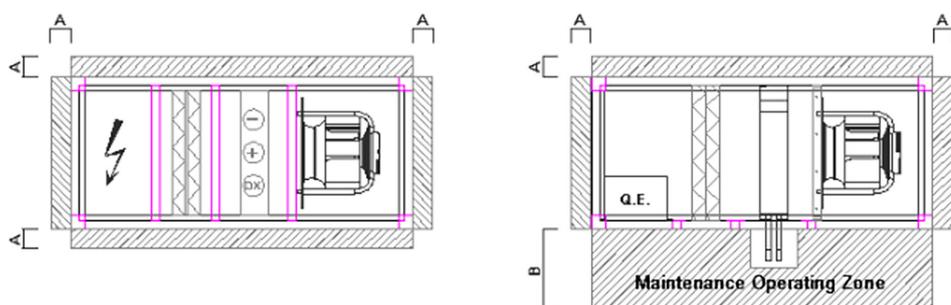
Outdoor installation is possible for TVEC Multi in condition to add the ROOF accessory component fitted for each size and version of unit

- Do not install near any of the following: sources of heat, steam, flammable or explosive liquids, etc
- Do not touch the device with wet or damp hands or feet

To consider:

- Use the device only for the use for which it was built. The manufacturer cannot be held responsible for any damage caused by improper or incorrect use
- Consider an area where the air flow and noise of the TVEC Multi don't disturb the neighbors
- Minimum space required for the maintenance (as defined below)
- A position that does not block passageways or entrances
- Check if the TVEC Multi is levelled
- There is a specific height to set in order to let the water drain evacuate correctly by the siphon
- Drain water can also be evacuated by a condensate pump (not provided)

Maintenance area



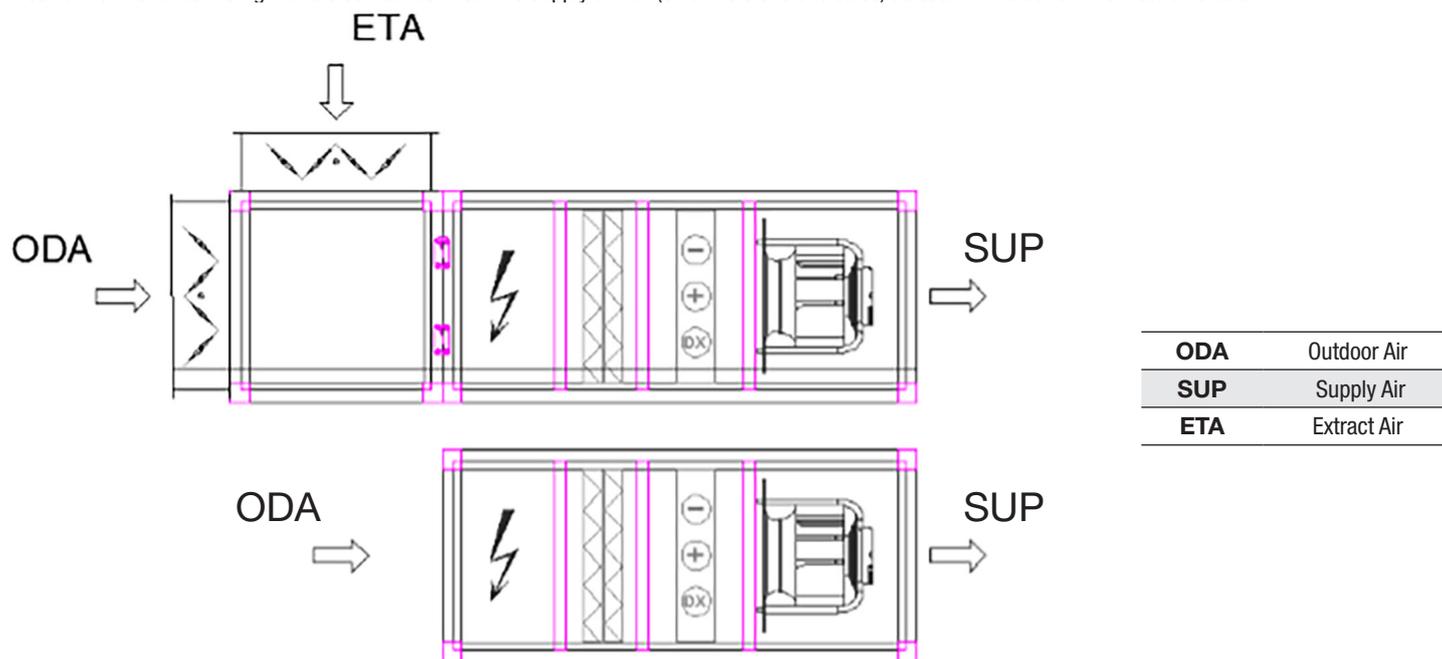
B' indicates the required distance for filter removal

Model	A	B	B'
TVEC Multi 1500 Change hydraulic coil + F7 + CAV	100	700	495
TVEC Multi 2500 Change hydraulic coil + F7 + CAV	100	800	595
TVEC Multi 3500 Change hydraulic coil + F7 + CAV	100	950	745
TVEC Multi 5000 Change hydraulic coil + F7 + CAV	100	1050	845
TVEC Multi 7000 Change hydraulic coil + F7 + CAV	100	1200	995
TVEC Multi 10 000 Change hydraulic coil + F7 + CAV	100	1460	592
TVEC Multi 12 000 Change hydraulic coil + F7 + CAV	100	1750	592
TVEC Multi 15 000 Change hydraulic coil + F7 + CAV	100	1750	592
TVEC Multi 1500 DX coil + F7 + CAV	100	700	495
TVEC Multi 2500 DX coil + F7 + CAV	100	800	595
TVEC Multi 3500 DX coil + F7 + CAV	100	950	745
TVEC Multi 5000 DX coil + F7 + CAV	100	1050	845
TVEC Multi 7000 DX coil + F7 + CAV	100	1200	995
TVEC Multi 10 000 DX coil + F7 + CAV	100	1460	592
TVEC Multi 12 000 DX coil + F7 + CAV	100	1750	592
TVEC Multi 15 000 DX coil + F7 + CAV	100	1750	592
TVEC Multi 1500 Electric post heater integrated + F7 + CAV	100	550	495
TVEC Multi 2500 Electric post heater integrated + F7 + CAV	100	650	595
TVEC Multi 3500 Electric post heater integrated + F7 + CAV	100	800	745
TVEC Multi 5000 Electric post heater integrated + F7 + CAV	100	900	845
TVEC Multi 7000 Electric post heater integrated + F7 + CAV	100	1050	995
TVEC Multi 10 000 Electric post heater integrated + F7 + CAV	100	1310	592
TVEC Multi 12 000 Electric post heater integrated + F7 + CAV	100	1600	592
TVEC Multi 15 000 Electric post heater integrated + F7 + CAV	100	1600	592
TVEC Multi 1500 Additionnal water change-over module	100	700	
TVEC Multi 2500 Additionnal water change-over module	100	800	
TVEC Multi 3500 Additionnal water change-over module	100	950	
TVEC Multi 5000 Additionnal water change-over module	100	1050	
TVEC Multi 7000 Additionnal water change-over module	100	1200	
TVEC Multi 10 000 Additionnal water change-over module	100	1460	
TVEC Multi 12 000 Additionnal water change-over module	100	1750	
TVEC Multi 15 000 Additionnal water change-over module	100	1750	
DX TVEC Multi 1500 Additionnal DX coil module	100	700	
DX TVEC Multi 2500 Additionnal DX coil module	100	800	
DX TVEC Multi 3500 Additionnal DX coil module	100	950	
DX TVEC Multi 5000 Additionnal DX coil module	100	1050	
DX TVEC Multi 7000 Additionnal DX coil module	100	1200	
DX TVEC Multi 10 000 Additionnal DX coil module	100	1460	
DX TVEC Multi 12 000 Additionnal DX coil module	100	1750	
DX TVEC Multi 15 000 Additionnal DX coil module	100	1750	
TVEC Multi 1500 Mixing box	100	195	
TVEC Multi 2500 Mixing box	100	195	

TVEC Multi 3500 Mixing box	100	195
TVEC Multi 5000 Mixing box	100	195
TVEC Multi 7000 Mixing box	100	195
TVEC Multi 10 000 Mixing box	100	195
TVEC Multi 12 000 Mixing box	100	195
TVEC Multi 15 000 Mixing box	100	195

2.5. Air connections

Fresh airflow towards the right and electrical box near the supply air fan (on all versions and sizes) as seen in the bottom view scheme below.



2.6. Servicing filters



CAUTION: Filters must be exchanged by skilled technician, with the machine switched off.

Filters can be replaced according to a clogging indicator (filter fouling). This indicator is produced by a pressure sensor which will trigger at the following recommended final head losses:

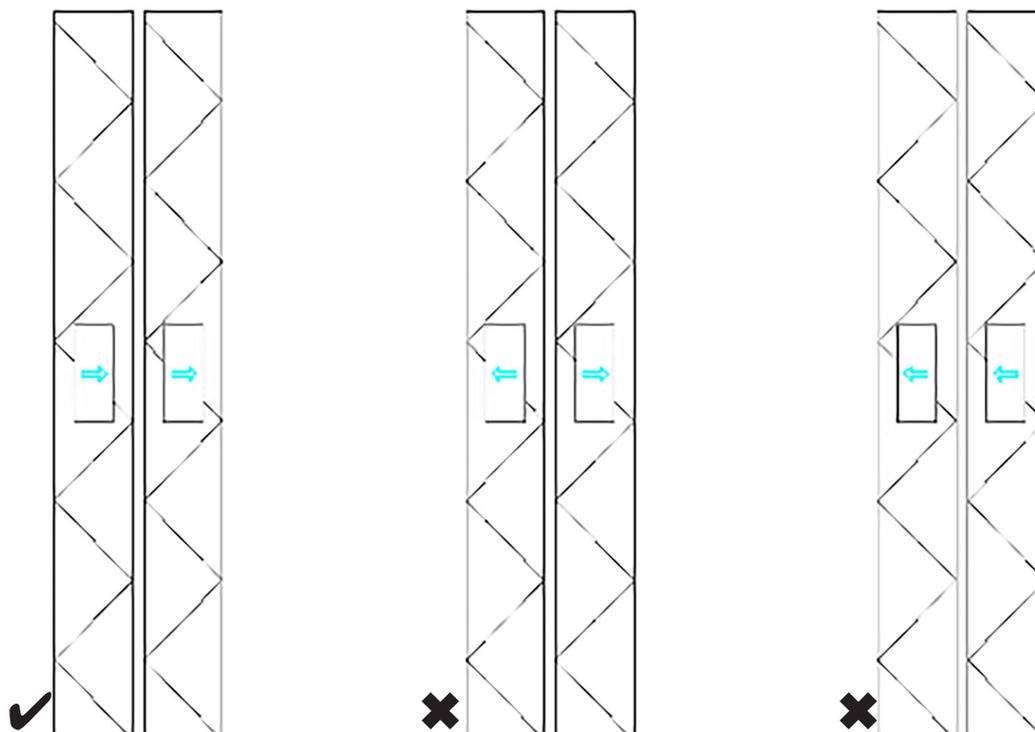
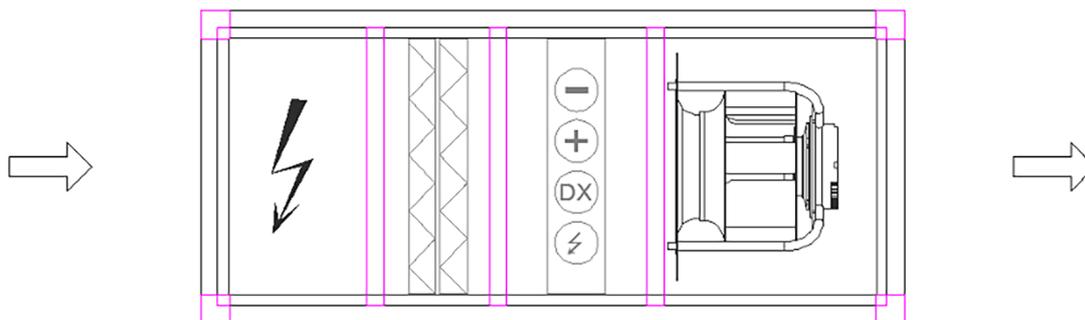
Model	F7 [Pa]	M5 [Pa]	M5 + F7 [Pa]
TVEC Multi 1500 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 2500 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 3500 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 5000 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 7000 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 10 000 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 12 000 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 15 000 Change hydraulic coil + F7 + CAV	250	250	350
TVEC Multi 1500 DX coil + F7 + CAV	250	250	350
TVEC Multi 2500 DX coil + F7 + CAV	250	250	350
TVEC Multi 3500 DX coil + F7 + CAV	250	250	350
TVEC Multi 5000 DX coil + F7 + CAV	250	250	350
TVEC Multi 7000 DX coil + F7 + CAV	250	250	350
TVEC Multi 10 000 DX coil + F7 + CAV	250	250	350
TVEC Multi 12 000 DX coil + F7 + CAV	250	250	350
TVEC Multi 15 000 DX coil + F7 + CAV	250	250	350

TVEC Multi 1500 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 2500 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 3500 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 5000 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 7000 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 10 000 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 12 000 Electric post heater integrated + F7 + CAV	250	250	350
TVEC Multi 15 000 Electric post heater integrated + F7 + CAV	250	250	350

TVEC Multi	Number of filters	Number of rows	Number of columns
TVEC Multi 1500	1	1	1
TVEC Multi 2500	1	1	1
TVEC Multi 3500	1	1	1
TVEC Multi 5000	1	1	1
TVEC Multi 7000	1	1	1
TVEC Multi 10000	4	2	2
TVEC Multi 12000	5	2	3
TVEC Multi 15000	5	2	3

2.6.1. Maintenance filters

Maintenance of Filters is recommended at least once a year depending on external and internal rate and type of pollutants.



Care about the filter position, look at sticker put on frame filter with arrow direction for airstream



2.7. Main control

The main control can be set to make the TVEC Multi work according to 3 different flow regulation type:

Fan control

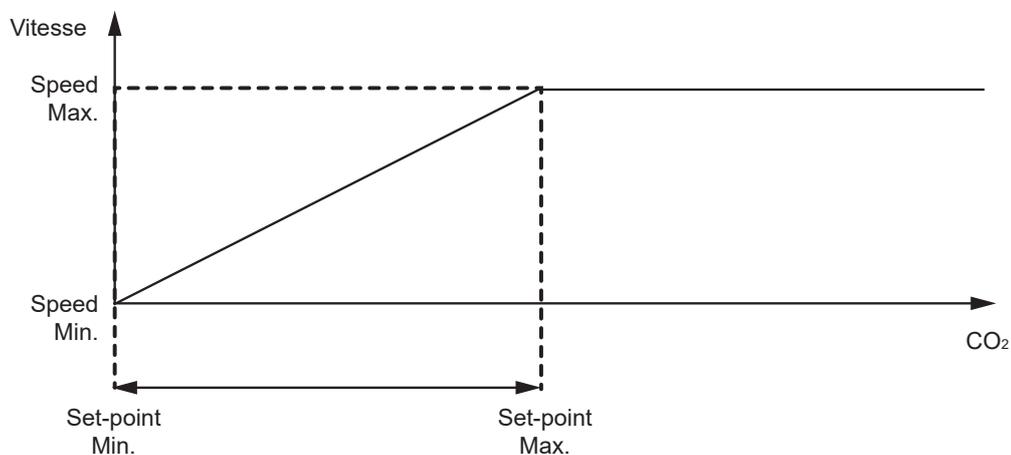
In units without the constant flow or CO₂ control accessory, fan speed variation is carried out via the controller (EC fans). In cases where the fans are regulated manually, they are adjusted in the main window by pressing the UP/DOWN buttons for a few seconds (until you hear a second confirmation beep) to increase or decrease the rotation speed of the fans. The variations are made in steps of 5%. The variation applies to both the supply and return fans.

Constant flow

The constant flow accessory makes it possible to keep the flow constant regardless of the variation in the system's pressure drop. This accessory cannot be added to the equipment at a later date; if necessary, it must be requested when ordering the equipment. The set-point can be defined in the user menu, corresponding to the differential pressure value. It is not possible to use constant flow control and CO₂control at the same time.

CO₂ Control

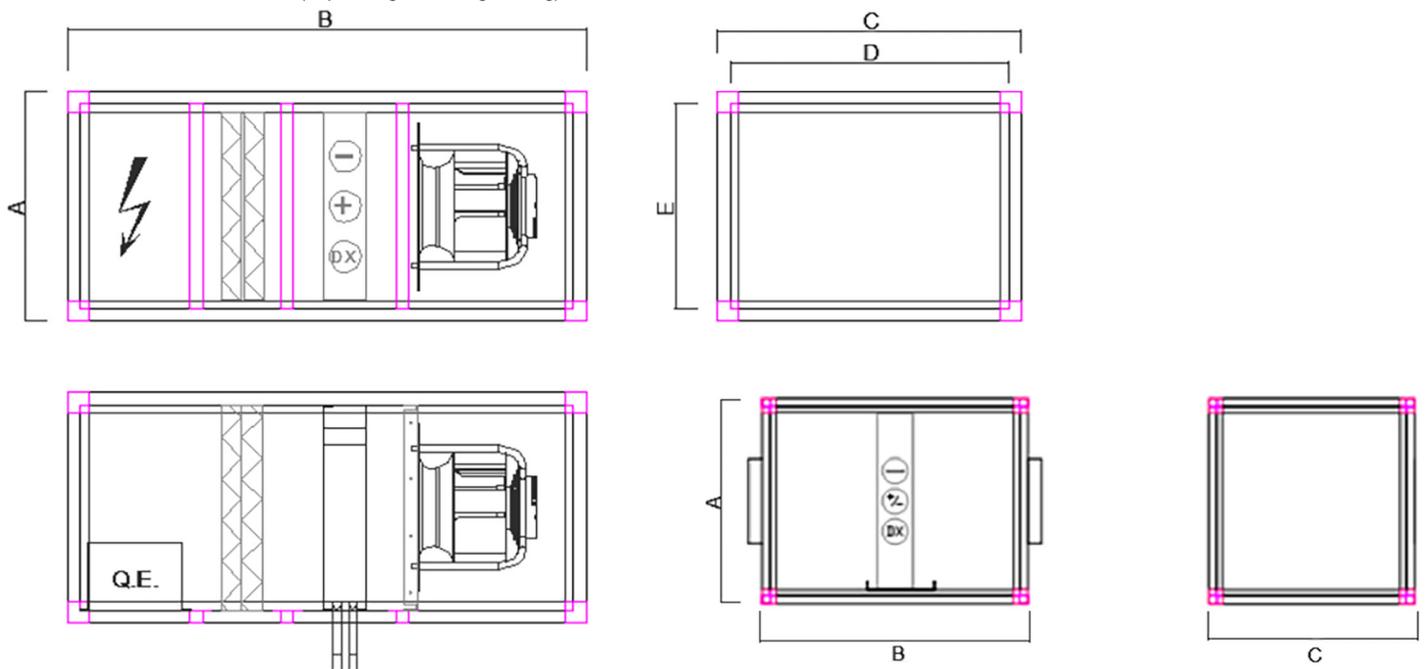
The purpose of the CO₂ control accessory is to monitor the concentration of carbon dioxide in the air in real time and adjust the fan according to the value of the measured and desired carbon dioxide concentration. If this accessory is purchased at a later date, the controller must be reprogrammed. CO₂ control is carried out as follows:



It is not possible to use constant flow control and CO₂ control at the same time.

3. DIMENSIONS

The rubber feet are 15 to 20 mm (depending on the tightening). The handles are 20 mm wide.



Model	A	B	C	D	E	Spigot (mm)	Poids (kg)
TVEC Multi 1500 Change hydraulic coil + F7 + CAV	550	1230	550	490	490	400	131
TVEC Multi 2500 Change hydraulic coil + F7 + CAV	650	1280	650	590	590	500	151
TVEC Multi 3500 Change hydraulic coil + F7 + CAV	720	1350	800	740	660	560	182
TVEC Multi 5000 Change hydraulic coil + F7 + CAV	810	1450	900	840	750	840x750	233
TVEC Multi 7000 Change hydraulic coil + F7 + CAV	950	1540	1050	990	890	990x890	285
TVEC Multi 10 000 Change hydraulic coil + F7 + CAV	1000	1820	1310	1250	940	1250x940	386
TVEC Multi 12 000 Change hydraulic coil + F7 + CAV	1000	1915	1600	1540	940	1540x940	458
TVEC Multi 15 000 Change hydraulic coil + F7 + CAV	1200	1915	1600	1540	1140	1540x1140	517
TVEC Multi 1500 DX coil + F7 + CAV	550	1230	550	490	490	400	131
TVEC Multi 2500 DX coil + F7 + CAV	650	1280	650	590	590	500	150
TVEC Multi 3500 DX coil + F7 + CAV	720	1350	800	740	660	560	181
TVEC Multi 5000 DX coil + F7 + CAV	810	1450	900	840	750	840x750	229
TVEC Multi 7000 DX coil + F7 + CAV	950	1540	1050	990	890	990x890	279
TVEC Multi 10 000 DX coil + F7 + CAV	1000	1820	1310	1250	940	1250x940	381
TVEC Multi 12 000 DX coil + F7 + CAV	1000	1915	1600	1540	940	1540x940	447
TVEC Multi 15 000 DX coil + F7 + CAV	1200	1915	1600	1540	1140	1540x1140	499
TVEC Multi 1500 Electric post heater integrated + F7 + CAV	550	1230	550	490	490	400	121
TVEC Multi 2500 Electric post heater integrated + F7 + CAV	650	1280	650	590	590	500	138
TVEC Multi 3500 Electric post heater integrated + F7 + CAV	720	1350	800	740	660	560	166
TVEC Multi 5000 Electric post heater integrated + F7 + CAV	810	1450	900	840	750	840x750	210
TVEC Multi 7000 Electric post heater integrated + F7 + CAV	950	1540	1050	990	890	990x890	253
TVEC Multi 10 000 Electric post heater integrated + F7 + CAV	1000	1820	1310	1250	940	1250x940	346
TVEC Multi 12 000 Electric post heater integrated + F7 + CAV	1000	1915	1600	1540	940	1540x940	402
TVEC Multi 15 000 Electric post heater integrated + F7 + CAV	1200	1915	1600	1540	1140	1540x1140	451
TVEC Multi 1500 Additionnal water change-over module	550	480	550	490	490	-	57
TVEC Multi 2500 Additionnal water change-over module	650	480	650	590	590	-	71
TVEC Multi 3500 Additionnal water change-over module	720	480	800	740	660	-	84
TVEC Multi 5000 Additionnal water change-over module	810	480	900	840	750	-	107
TVEC Multi 7000 Additionnal water change-over module	950	480	1050	990	890	-	134

Model	A	B	C	D	E	Spigot (mm)	Poids (kg)
TVEC Multi 10 000 Additionnal water change-over module	1000	480	1310	1250	940	-	163,72
TVEC Multi 12 000 Additionnal water change-over module	1000	480	1600	1540	940	-	198,45
TVEC Multi 15 000 Additionnal water change-over module	1200	480	1600	1540	1140	-	224,00
DX TVEC Multi 1500 Additionnal DX coil module	550	480	550	490	490	-	57,79
DX TVEC Multi 2500 Additionnal DX coil module	650	480	650	590	590	-	70,24
DX TVEC Multi 3500 Additionnal DX coil module	720	480	800	740	660	-	83,45
DX TVEC Multi 5000 Additionnal DX coil module	810	480	900	840	750	-	103,61
DX TVEC Multi 7000 Additionnal DX coil module	950	480	1050	990	890	-	128,55
DX TVEC Multi 10 000 Additionnal DX coil module	1000	480	1310	1250	940	-	158,72
DX TVEC Multi 12 000 Additionnal DX coil module	1000	480	1600	1540	940	-	187,45
DX TVEC Multi 15 000 Additionnal DX coil module	1200	480	1600	1540	1140	-	206,00
TVEC Multi 1500 Mixing box	550	550	550	490	490	-	42,00
TVEC Multi 2500 Mixing box	650	650	650	590	590	-	52,66
TVEC Multi 3500 Mixing box	720	720	800	740	660	-	62,88
TVEC Multi 5000 Mixing box	810	810	900	840	750	-	74,70
TVEC Multi 7000 Mixing box	950	950	1050	990	890	-	95,00
TVEC Multi 10 000 Mixing box	1000	1000	1310	1250	940	-	108,90
TVEC Multi 12 000 Mixing box	1000	1000	1600	1540	940	-	125,78
TVEC Multi 15 000 Mixing box	1200	1200	1600	1540	1140	-	156,71

Piping diameter

Model with change-over coil (water)	Inlet & outlet diam.	Model with DX coil	Inlet diam. mm	Outlet diam. mm
TVEC Multi 1500 Water Change-over Coil	3/4"	TVEC Multi 1500 DX Coil	22	12
TVEC Multi 2500 Water Change-over Coil	1"	TVEC Multi 2500 DX Coil	28	12
TVEC Multi 3500 Water Change-over Coil	1"	TVEC Multi 3500 DX Coil	28	12
TVEC Multi 5000 Water Change-over Coil	1/2"	TVEC Multi 5000 DX Coil	28	16
TVEC Multi 7000 Water Change-over Coil	2"	TVEC Multi 7000 DX Coil	35	22
TVEC Multi 10 000 Water Change-over Coil	2"	TVEC Multi 10 000 DX Coil	42	28
TVEC Multi 12 000 Water Change-over Coil	1/2"	TVEC Multi 12 000 DX Coil	42	28
TVEC Multi 15 000 Water Change-over Coil	1/2"	TVEC Multi 15 000 DX Coil	54	35

Note: The pipe diameters are valid for coils integrated into the TVEC units and coils integrated into the additional modules.

4. CONTROL OPTIONS



CAUTION: electrical connections must be made by a qualified electrician, wearing the appropriate Personal Protection Equipment. Never work on a live TVEC Multi. The electrical connection will be in compliance with NF-C 15-100. Keep the TVEC Multi watertight and prevent dust from accumulating.

Every TVEC Multi has an electrical connection box on the side panel, near the supply air fan. This box gives access to the electrical power and control components (disconnect switches, cut-off supply, electronic control board, etc.). The TVEC Multi has a general supply electrical circuit and, depending on the options, an electrical coil circuit (heating).

Connection box:

- Access electrical board with ¼ turn press-on screws
- TVEC Multi power supply

Models	Power
TVEC Multi 1500	230V / ~1 / 50 + N + T

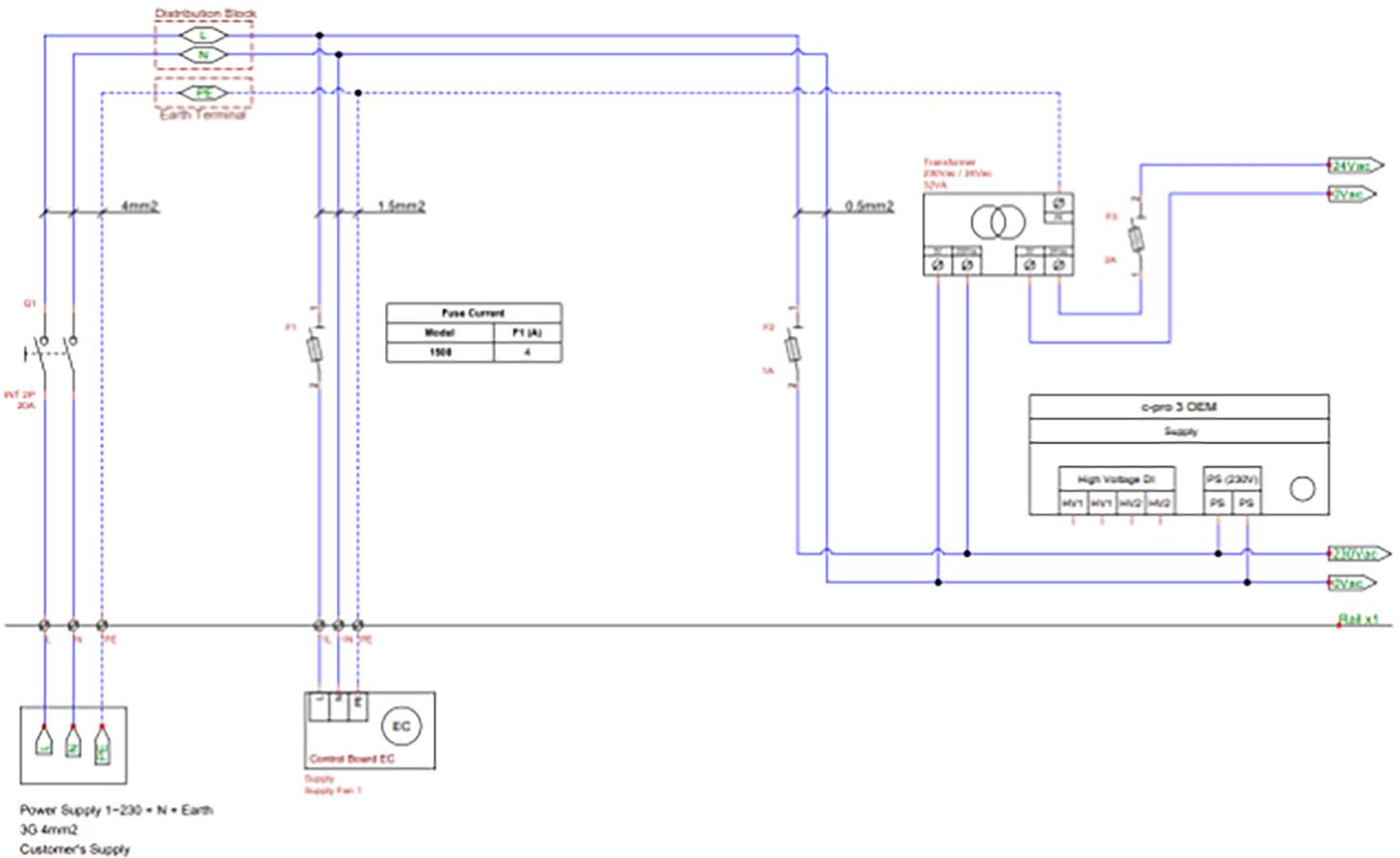
TVEC Multi 2500	400V /~ 3 / 50 + N + T
TVEC Multi 3500	
TVEC Multi 5000	
TVEC Multi 7000	
TVEC Multi 10 000	
TVEC Multi 12 000	
TVEC Multi 15 000	

- Reheater power supply

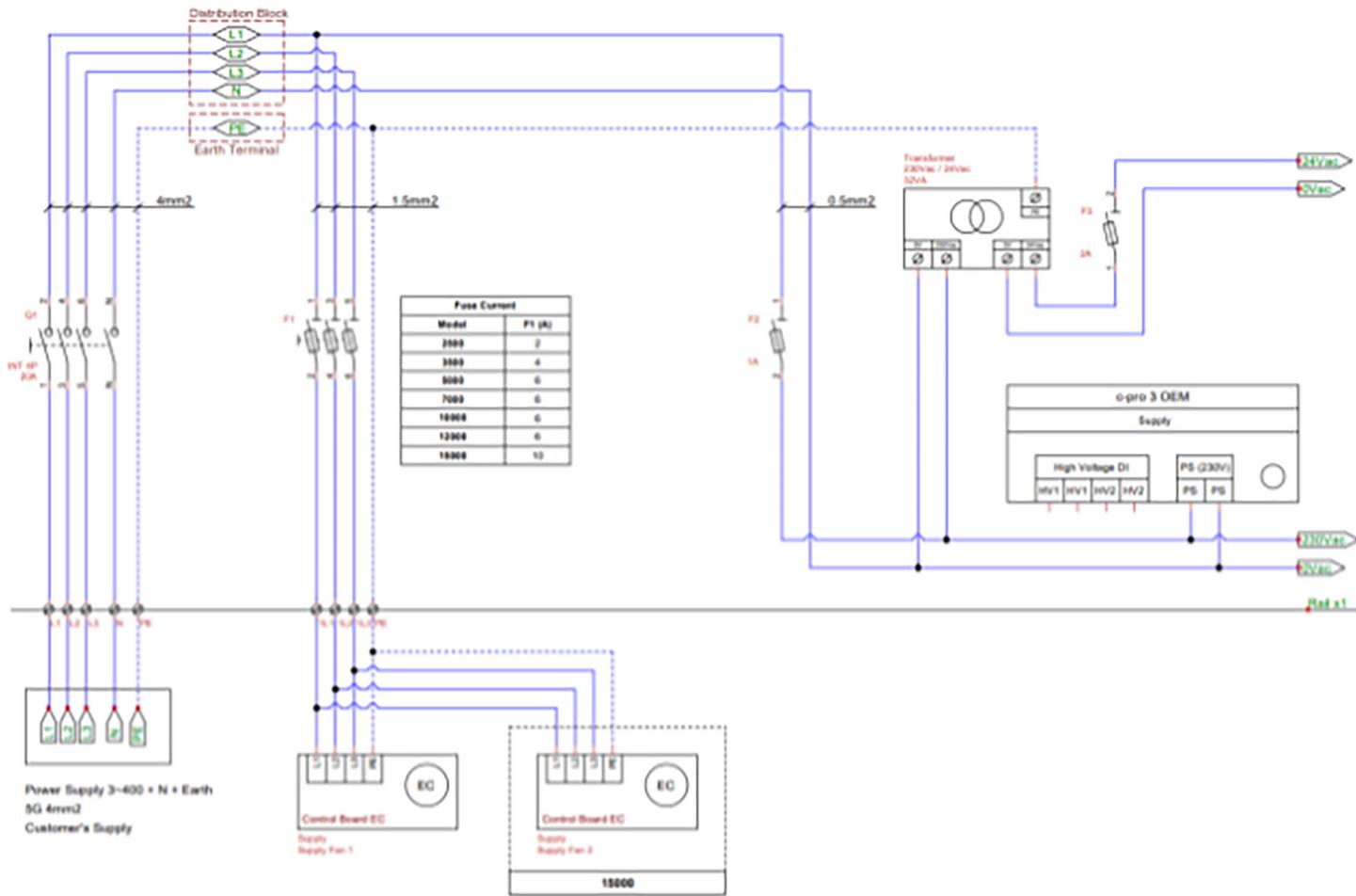
Models	Power
TVEC Multi 1500	400V /~ 3 / 50 + T
TVEC Multi 2500	
TVEC Multi 3500	
TVEC Multi 5000	
TVEC Multi 7000	
TVEC Multi 10 000	
TVEC Multi 12 000	
TVEC Multi 15 000	

Electrical power supply

TVEC Multi 1500



TVEC Multi 2500 / 3500 / 5000 / 7000 / 10 000 / 12 000 / 15 000

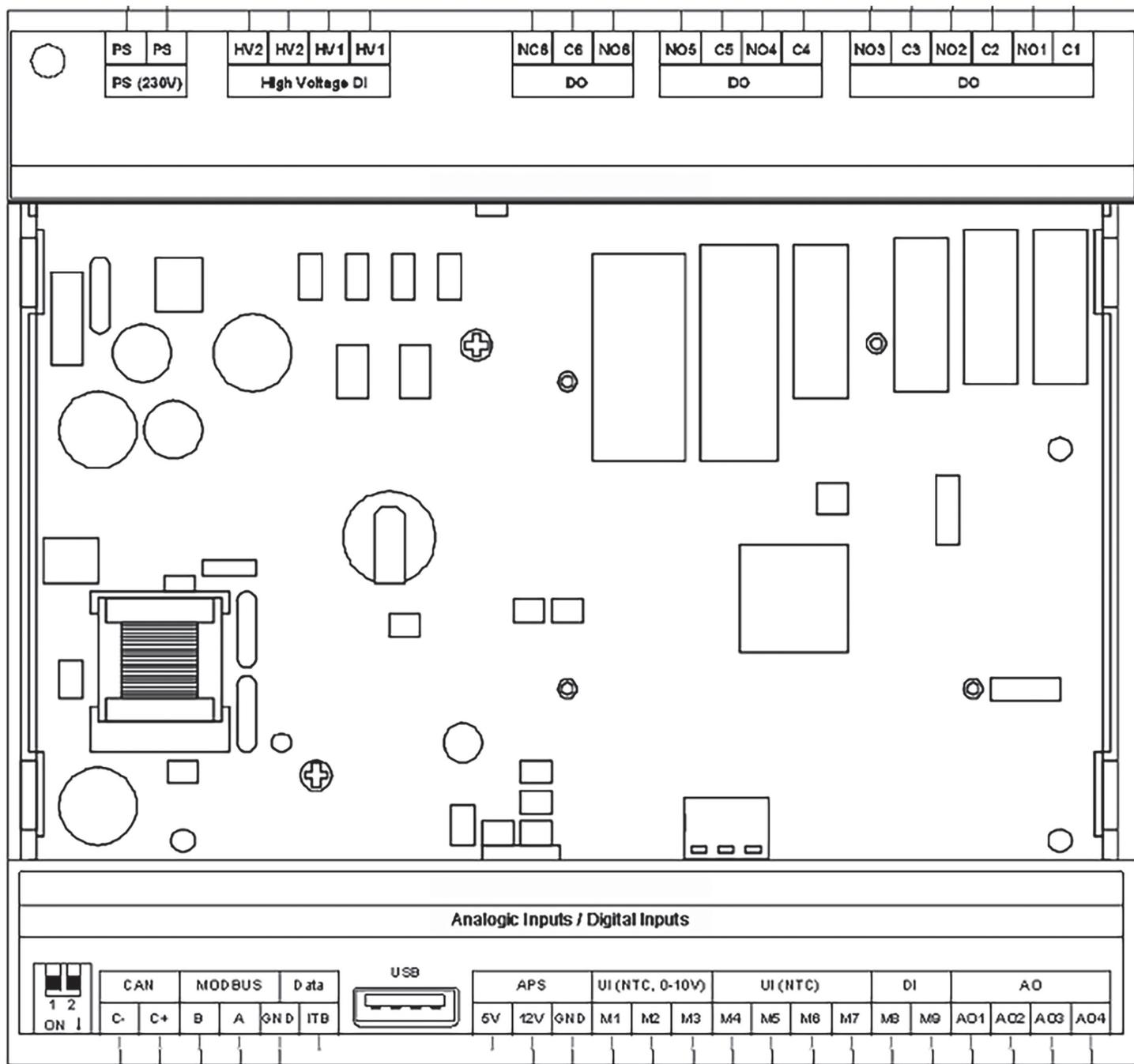


Size of TVEC Multi	Power supply type for all versions	Max absorbed current TVEC Multi only [A]	Max absorbed power TVEC Multi only [kW]	Overcurrent protection calibrate for TVEC Multi only (Fuse)	Wire size [mm²]
TVEC Multi 1500	230V + N + T	3.30	0.70	4 A	3 G 4
TVEC Multi 2500	400V + N + T	1.90	1.10	3x2 A	5 G 4
TVEC Multi 3500		2.40	1.40	3x4 A	5 G 4
TVEC Multi 5000		4.20	2.50	3x6 A	5 G 4
TVEC Multi 7000		4.20	2.50	3x6 A	5 G 4
TVEC Multi 10 000		4.40	2.77	3x6 A	5 G 4
TVEC Multi 12 000		4.40	2.70	3x6 A	5 G 4
TVEC Multi 15 000		8.40	5.00	3x10 A	5 G 4

Size of TVEC Multi (only reheater)	Power supply type for all versions	Max absorbed current with reheater [A]	Max absorbed power with reheater [kW]	Overcurrent protection calibrate for model with reheater	Wire size [mm²]
TVEC Multi 1500	400V + T	17.40	12	20 A	4 G 4
TVEC Multi 2500		26.00	18	32 A	4 G 6
TVEC Multi 3500		39.00	27	40 A	4 G 10
TVEC Multi 5000		52.00	36	63 A	4 G 25
TVEC Multi 7000		78.00	54	80 A	4 G 35
TVEC Multi 10 000		104.00	72	63 A + 63 A	4 G 25 + 4 G 25
TVEC Multi 12 000		130.00	90	80 A + 63 A	4 G 35 + 4 G 25
TVEC Multi 15 000		108.00	108	80 A + 80 A	4 G 35 + 4 G 35

Reference	Description
Q1	Main switch
F1	Fuse Protection Fan Inflation
F2	Fuse Protection Control (230Vac)
F3	Fuse Protection Control (24Vac)
L	Power Supply Phase Terminal Block
N	Power Supply Neutral Terminal Block
PE	Earth Terminal Block
1L	Supply Fan Phase Terminal Block
1N	Supply Fan Neutral Terminal Block
M	Ground Terminal Block
VAC	24Vac Supply Terminal Block
PD1	Supply Pressure Transmitter Terminal Block (AI)
CO2	CO2 Sensor / External 0-10V Signal Terminal Block (AI)
T1	Outside Air Temperature Sensor Terminal Block (AI)
T2	Supply Air Temperature Sensor Terminal Block (AI)
T3	Return Air Temperature Sensor Terminal Block (AI)
AAG	Anti-freeze Alarm Terminal Block (DI)
AVI	Supply Fan Differential Press. Switch Terminal Block (DI)
P3	Exterior Air Clogged Filter Differential Press. Switch Terminal Block (DI)
DI1	Remote ON / OFF Terminal Block (DI)
VVI	Supply Fan Modulation Terminal Block (AO)
V1	Cooling / Heating Valve Modulation Terminal Block (AO)
V2	Heating Valve Modulation Terminal Block (AO)
VRE	Electric Coil Modulation Terminal Block (AO)
R13	Outside / Return Air Damper Terminal Block (AO)
1DO1	Unit's Alarm Signal Terminal Block (DO)
1DO2	Unit's Alarm Signal Terminal Block (DO)
2DO1	Unit's State Signal Terminal Block (DO)
2DO2	Unit's State Signal Terminal Block (DO)
A	Signal + RS-485 MODBUS Master/Slave Port Terminal Block
B	Signal - RS-485 MODBUS Master/Slave Port Terminal Block
GND	Ground Terminal Block
C1	Signal + CAN Port Terminal Block
C2	Signal - CAN Port Terminal Block
VDC	12Vdc Supply Terminal Block

Control board wiring



Reference	Description	Cable Kit Colour	Terminal
C1	Digital output common contact for alarm signal	Pink	1D01
NO1	Digital output normally open contact for alarm signal (5A res. 250VAC)	Pink	1D02
C2	Digital output common contact for state signal	Pink	2D01
NO2	Digital output normally open contact for state signal (5A res. 250VAC)	Pink	2D02
C3	Digital output common contact for enabling electric heaters (EH)	Yellow	-
NO3	Digital output NO contact for enabling EH (5A res. 250VAC)	Pink	VRE
C4	Not used	-	-
NO4	Not used	-	-
C5	Not used	-	-
NO5	Not used	-	-
NO6	Not used	-	-
C6	Not used	-	-

Reference	Description	Cable Kit Colour	Terminal
NC6	Not used	-	-
HV1	Not used	-	-
HV1	Not used	-	-
HV2	Not used	-	-
HV2	Not used	-	-
PS	Device power supply (115... 230 VAC)	Brown	-
PS	Device power supply (115... 230 VAC)	Blue	-
AO1	0-10V for controlling fan	Yellow	VI
AO2	0-10V 3-way cooling valve	Yellow	V1
AO3	0-10V for control electric reheater or 0-10V 3-way heating valve	Yellow	V2
AO4	0-10V for outdoor and mix dampers	Yellow	R13
M1	Analogue input 0-10V for pressure sensor	Orange	PD1
M2	Analogue input 0-10V for CO2 sensor or fan external control signal	Orange	CO2
M3	Analogue input NTC for outdoor temperature probe	Orange	T1
M4	Analogue input NTC for supply temperature probe	Orange	T2
M5	Analogue input NTC for return temperature probe	Orange	T3
M6	Digital input for antifreeze thermostat alarm	Purple	AAG
M7	Digital input for fan's malfunction alarm	Purple	AVI
M8	Digital input for clogged filter alarm	Purple	P3
M9	Digital input for remote ON/OFF control	Purple	DI1
5V	Not used	-	-
12V	Auxiliary power supply (12 VDC) for remote display	Red	VDC
GND	Reference (GND)	White	M
ITB	Not used	-	-
A	Signal + RS-485 MODBUS master/slave port	Green	A
B	Signal - RS-485 MODBUS master/slave port	Brown	B
C+	Signal + CAN port for remote display	Grey	C1
C-	Signal - CAN port for remote display	Grey	C2
USB port	USB port for communication and programming	-	-

Appendix – Electrical Wiring Diagram (TVEC Multi)

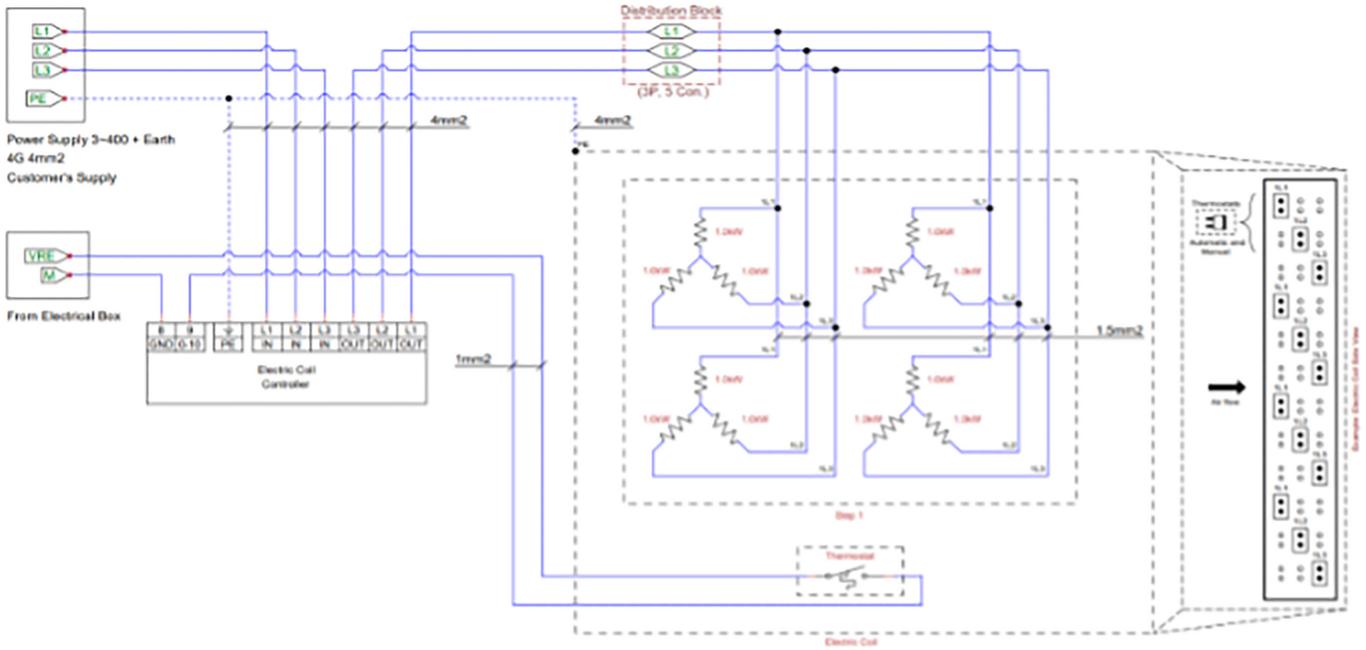
Refer to the following electrical diagram for terminal identification, controller connections, and power supply details.

Model	Power (kW)	Maximum current (A)	Supply (V/F/Hz)
TVEC Multi 1500	12.00	17.40	400/3/50
TVEC Multi 2500	18.00	26.00	400/3/50
TVEC Multi 3500	27.00	39.00	400/3/50
TVEC Multi 5000	36.00	52.00	400/3/50
TVEC Multi 7000	54.00	78.00	400/3/50
TVEC Multi 10 000	72.00	104.00	400/3/50
TVEC Multi 12 000	90.00	130.00	400/3/50
TVEC Multi 15 000	108.00	155.90	400/3/50

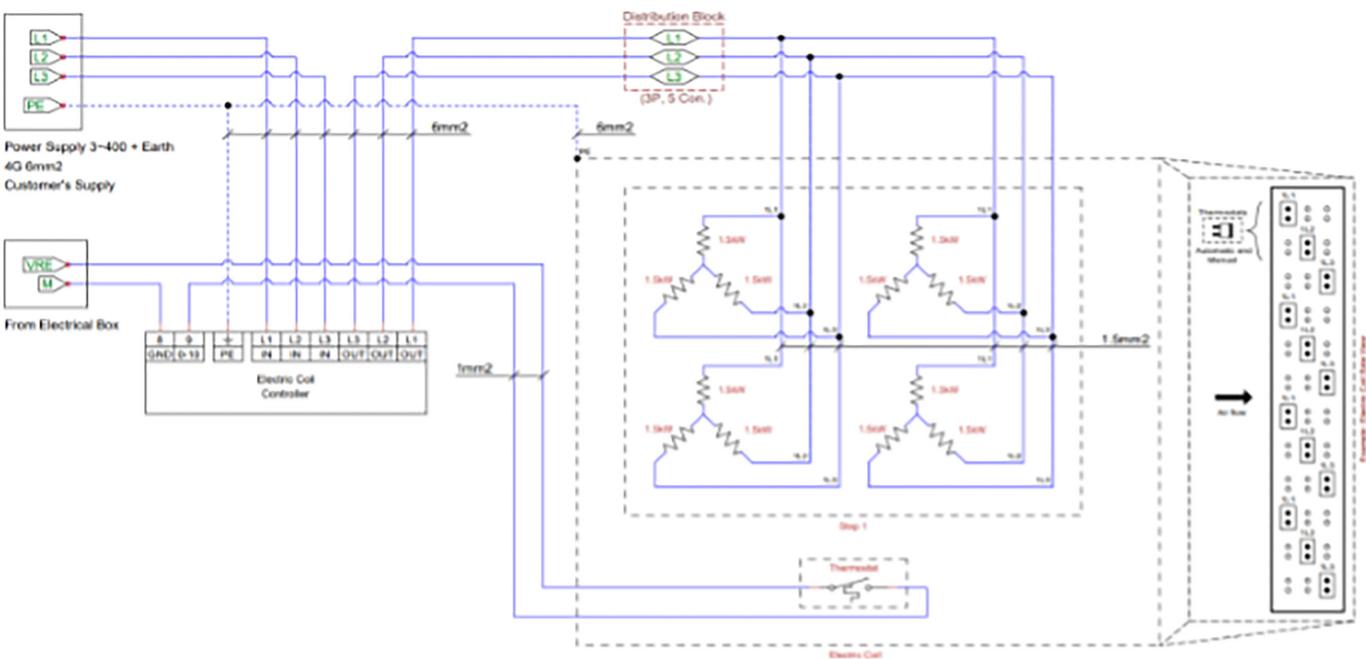
Electrical Characteristics

Supply	400 Vac 3~ 50Hz
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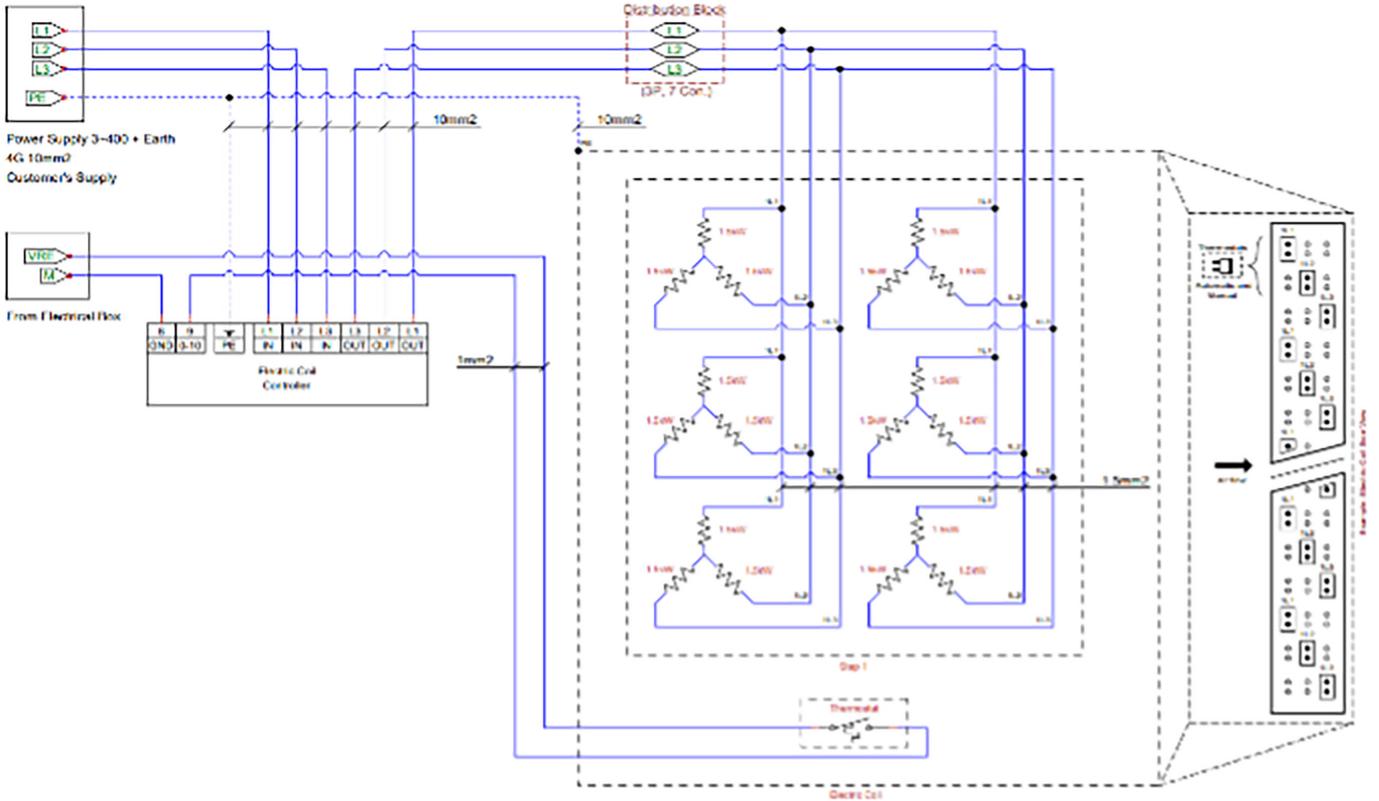
Electric coil diagram (TVEC Multi 1500)



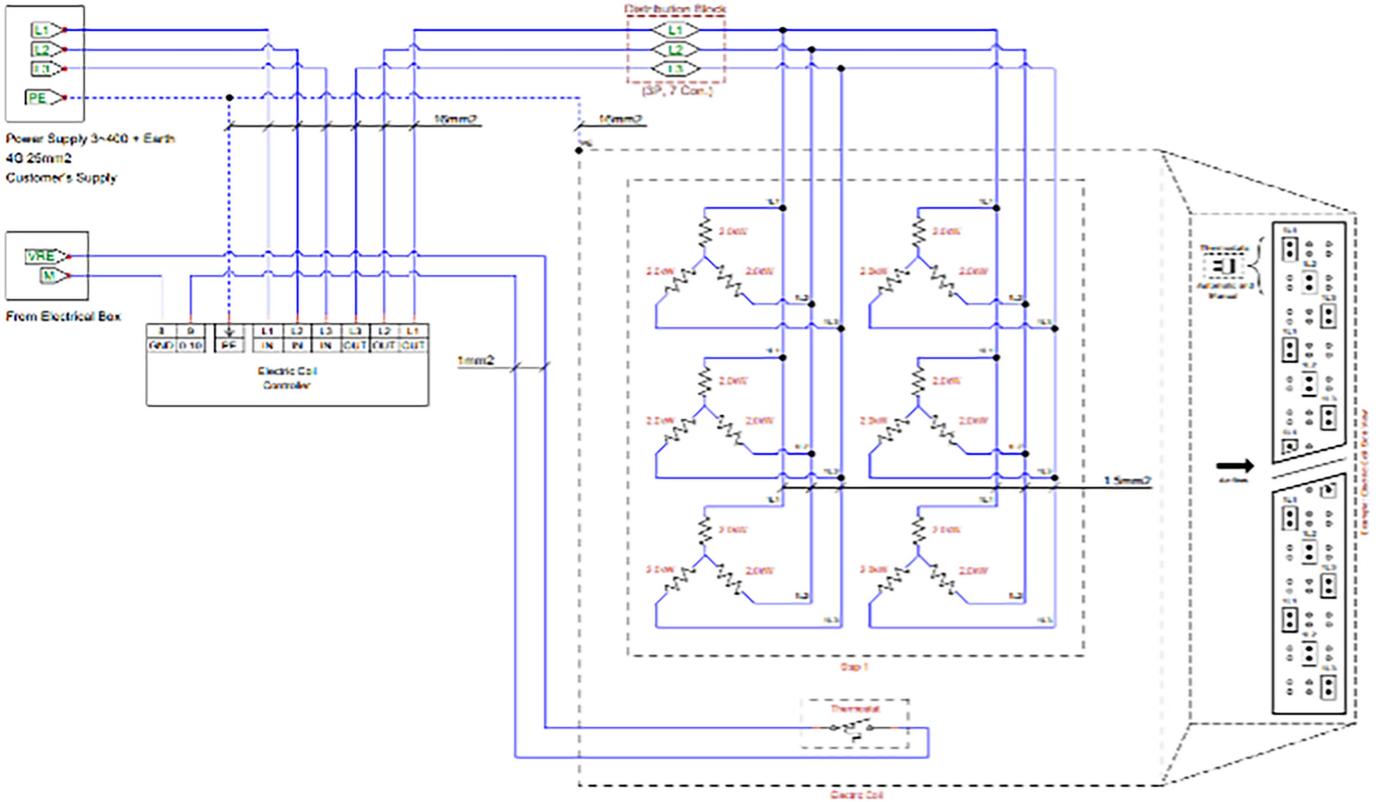
Electric coil diagram (TVEC Multi 2500)



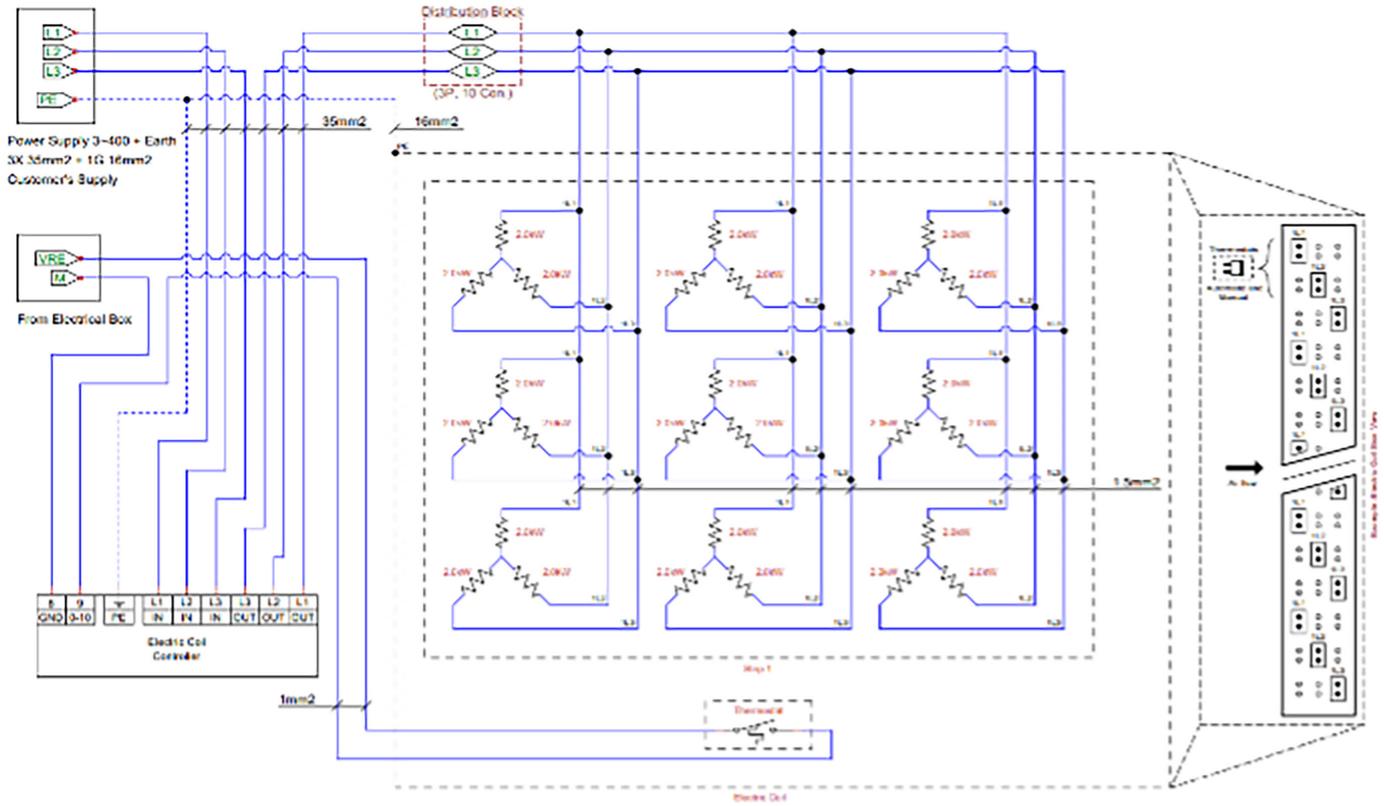
Electric coil diagram (TVEC Multi 3500)



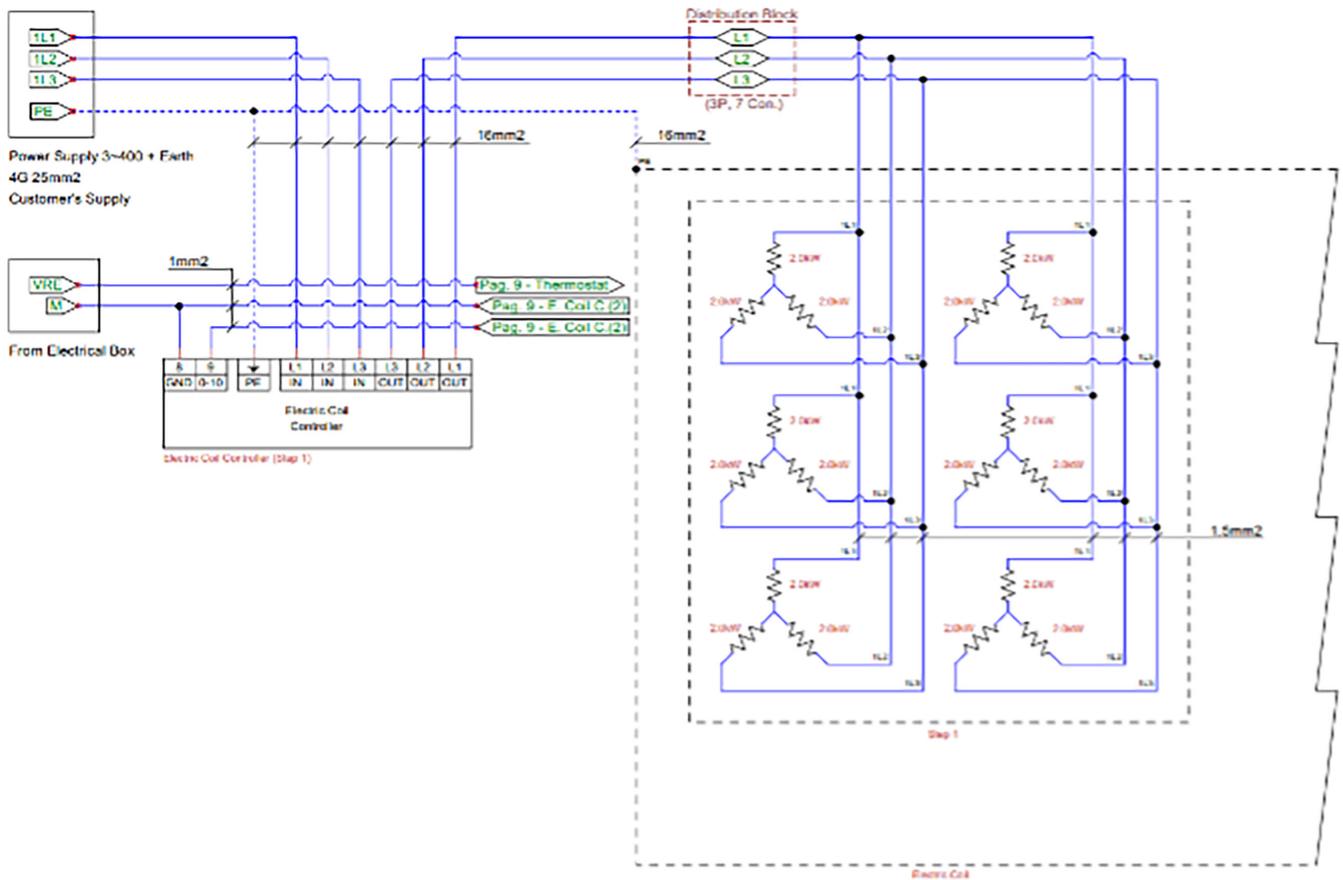
Electric coil diagram (TVEC Multi 5000)



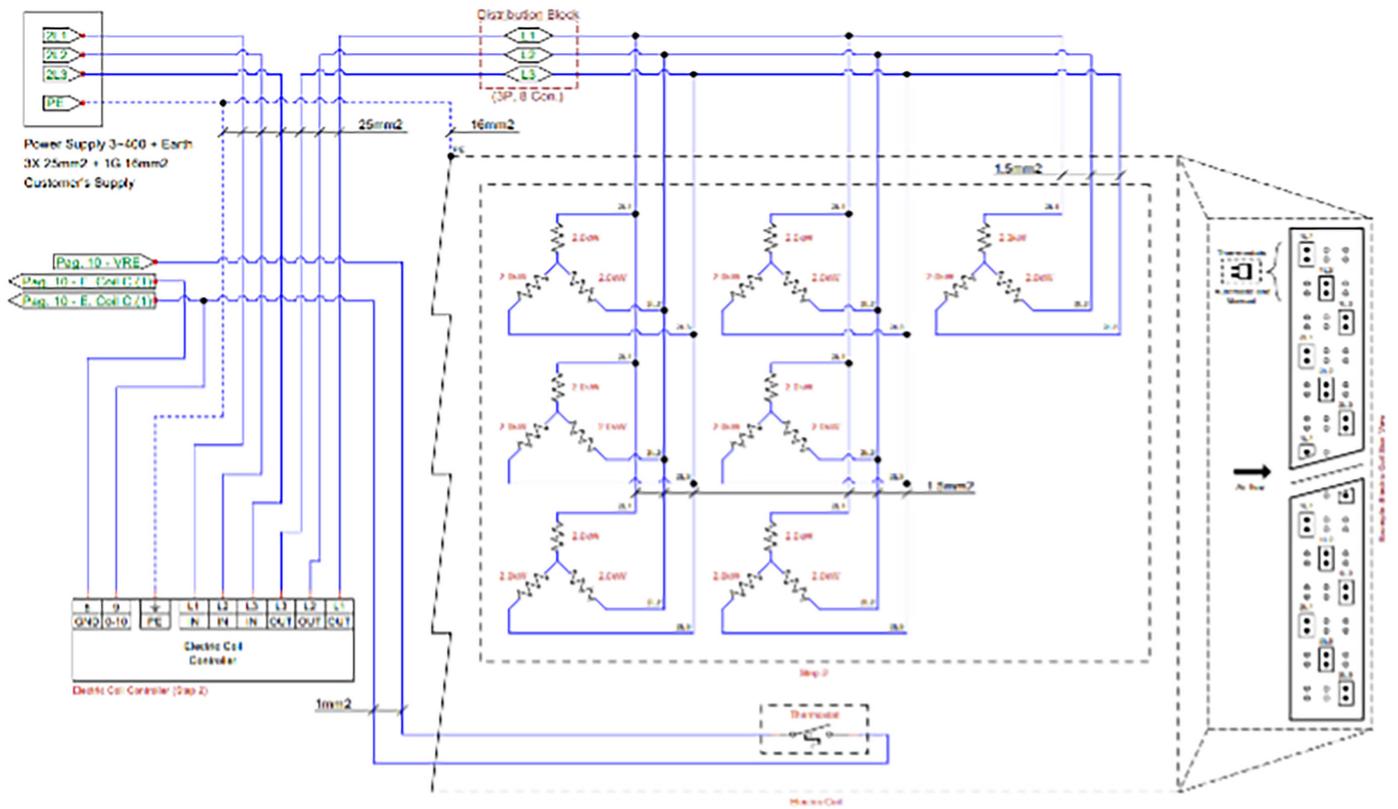
Electric coil diagram (TVEC Multi 7000)



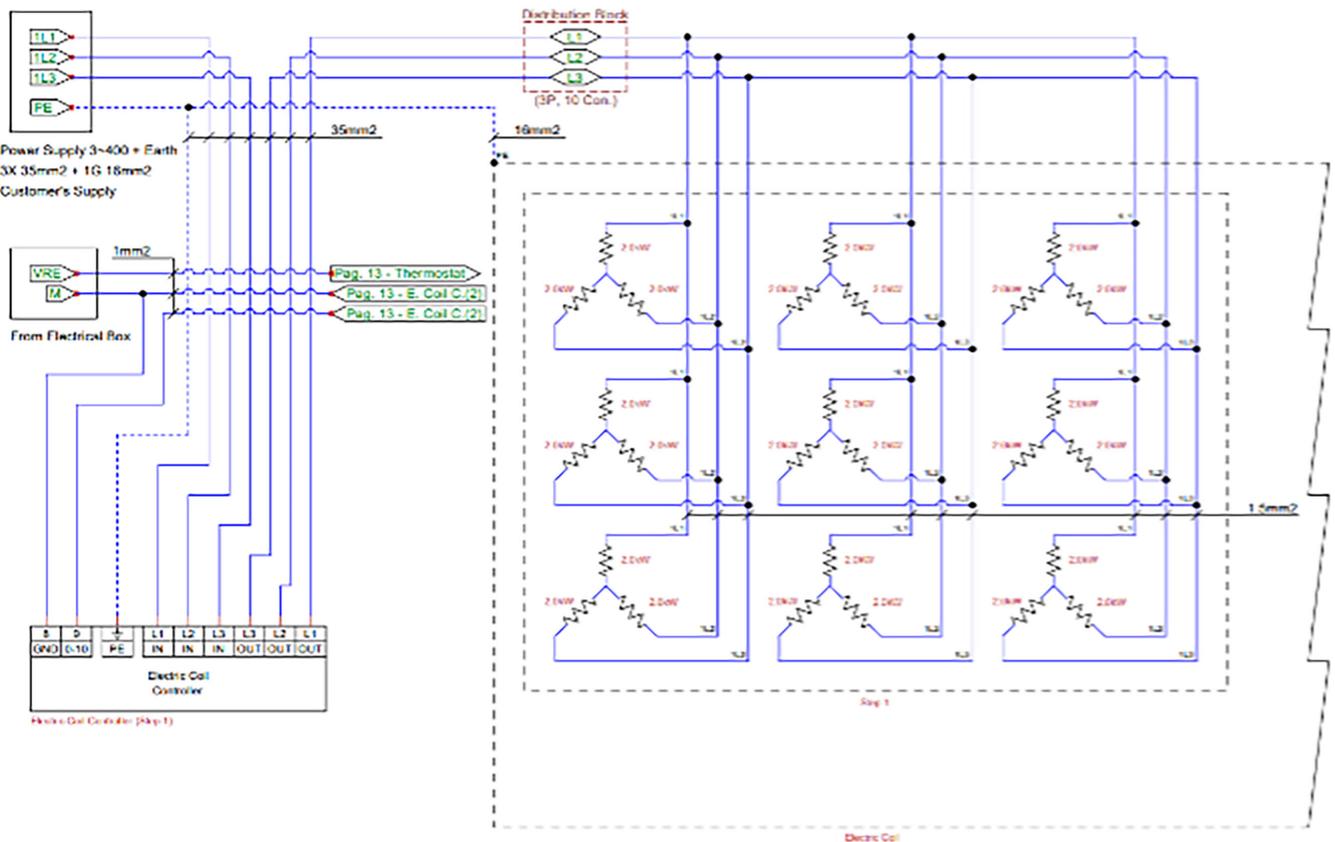
Electric coil diagram (TVEC Multi 10 000)



Electric coil diagram Cont. (TVEC Multi 12 000)



Electric coil diagram (TVEC Multi 15 000)



8. EXTENDED DOWNTIME

In case of extended downtime with the TVEC Multi connected to the ventilation system, close the suction/ injection and periodically check the absence of humidity inside the machine. In case of condensation, dry it immediately.

9. MAINTENANCE

Component	Operations	Annual frequency
TVEC Multi interior	Check the general state of contamination, deterioration and corrosion	1
	Check if there's any condensation	2
	Check if the control and regulation equipment are working correctly	1
Filters	Check for contamination, odours and deterioration (leaks)	4
	Check the pressostat	2
	Maximum filter replacement interval	1
Ventilator	Check if the fan is operating correctly	2
	Check the general state of contamination, deterioration and corrosion	2
Condensate drip tray	Check the condition of the condensate drip tray and clean it if necessary	2
	Check the condition and function of the siphon	4
	Check that the pipe is in good condition - water must be able to drain freely	2
External air inlet and outlet	Check if they are in good condition and allow air to circulate freely.	1
	Check the general state of contamination, deterioration and corrosion	1
Electrical coil	Check if the coil is operating correctly (warms up)	1
	Check if the manual reset thermostat is working correctly	1
Water coil	Check if the actuator and the 3- way valve operate correctly.	1
Electrical enclosure	Check that there are no traces of moisture.	1

10. TROUBLESHOOTING

Fault	Causes	Remedies
Difficult start	a) Reduced supply voltage b) Insufficient motor static torque	a) Check motor plate data b) Close the air locks to reach full speed. If necessary, replace the motor
Insufficient airflow	a) Clogged ducts or suction points b) Clogged fan c) Clogged filter d) Insufficient rotation e) Clogged coil	a) Clean pipelines and suction point cleaning b) Clean the fan's impeller c) Filter cleaning or replacement d) Check supply voltage and if necessary, correct it e) Clean coil
Excess airflow	a) Filters not or wrongly placed b) Excessive available static pressure	a) Place or adjust the filters b) Adjust signal 0-10 V, 4-20 mA
Airflow performance drop after a period of acceptable operation	a) Air leak before and/or after the fan b) Damaged impeller	a) Circuit check and restore to original condition b) Check impeller, if necessary, replace with an original spare part
Low performance coil	a) Low internal coil flow b) Low airflow	a) Adjust internal coil flow b) Clean coil
Air pulsation	The fan performance set to near zero- flow causing instability, Clogged or wrong ductwork connection	Increase minimum speed on the electronic speed regulator (insufficient voltage) Modify the circuit and/or replace the fan. Clean and/or replace the suction duct
Filter alert	Clogged filters	Replace the filters
Condensates leakage	a) Excessive condensation b) Obstruction of the condensate tray outlet c) Lack of siphon / insufficient slope	a) Measure the water flow and adjust the installation to the recommended battery flow rate b) Clean the condensate tray c) Place/correct the slope

11. DISPOSAL

Directive 2024/884/EU of the European Parliament and of the Council of 13 March 2024 on waste electrical and electronic equipment (WEEE).



The WEEE symbol on the product or on its packaging indicates that the product must not be disposed of with normal household waste. Instead, such marked waste equipment must be disposed of by arranging to return to a designated collection point for the recycling of waste electrical and electronic equipment. By separating and recycling this waste equipment at the time of disposal will help to conserve natural resources and ensure that the equipment is recycled in a manner that protects human health and the environment.

The final user will provide to deliver the product no longer in use in municipal electrical and electronic waste collection, or return it to the retailer as follows:

- distributors provide for the collection, at retail shops with sales areas relating to EEE of at least 400 m², or in their immediate proximity of very small WEEE (no external dimension more than 25 cm) free of charge to end-users and with no obligation to buy EEE of an equivalent type
- for products with external dimension more than 25 cm, distributors are responsible for ensuring that such waste can be returned to the distributor at least free of charge on a one-to-one basis as long as the equipment is of equivalent type and has fulfilled the same functions as the supplied equipment.

The Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive.



FRANCE

Besoin d'une assistance technique après-vente ou d'une demande de prestation service Aldes ?

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- Vous êtes un client particulier : 09 69 32 39 74 (n° Cristal, prix d'un appel local) • service-conso@aldes.com



Séparez les éléments avant de trier

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Aldes se réserve le droit d'apporter à ses produits
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