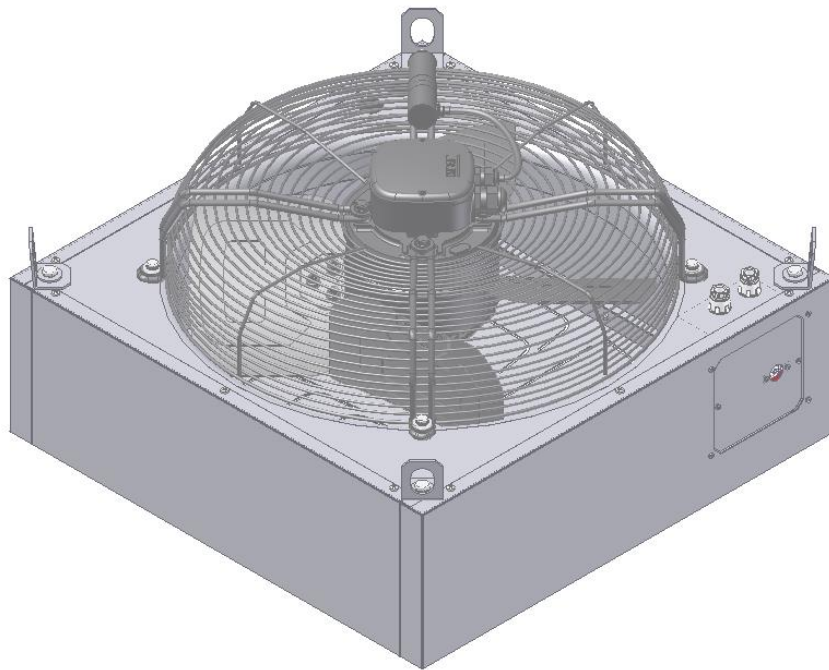


DESTRATIFYER

DST SERIES

TECHNICAL INFORMATION, ASSEMBLY
INSTRUCTIONS, USE AND MAINTENANCE




tecnoclima[®]
PRESIDIO DELL'ARIA

Dear Customer

Thank you for choosing a **DESTRATIFYER DST** series, an innovative and modern, quality and high performance product which will assure safe and silent working for a long time. This is particularly the case if the destratifyer is put in the hands of **TECNOCLIMA's** Technical Assistance Department which is specially trained and equipped to keep it working at maximum efficiency with low running costs and has a large number of original spares in stock.

Thank you again

Tecnoclima S.p.A.

COMPLIANCE NOTICES

The destratifyers **DST** comply with the following directives:

- 2006/42/CE Machine Directive.
- 2006/95/CE Low tension Directive.
- Electromagnetic Compatibility Directive 2004/108/CE

RANGE

In this manual we refer to the **TYPE**. In the following table we indicate the range and the correspondence between the TYPE and the COMMERCIAL NAME.

TYPE	COMMERCIAL NAME
1	DST 35
2	DST 85

GUARANTEE

The destratifyers **DST** series are covered by a **SPECIFIC GUARANTEE** that starts on the date of purchase of the device, which date the buyer should document; if he cannot do this, the guarantee starts on the date of manufacture of the device.

The guarantee conditions are specified in detail in the **GUARANTEE CERTIFICATE**, supplied with the device, and we suggest you read them carefully.

DISPOSAL



The machine includes electronic devices, therefore it cannot be disposed of as the household waste. For its disposal, the relevant local laws on special waste should be complied with.

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In some part of the manual are used the following symbols:



CAUTION !

Requiring special care and adequate training.



FORBIDDEN!

For actions which **SHOULD NEVER** be done

This manual consists of 20 pages.

GENERAL NOTES



This Instruction Manual is an integral part of the device and as such must always be kept with the device, also when the heater is sold to another user. The Manual must therefore be conserved carefully and consulted attentively before any action. In the case of damage or loss, you can at any time ask the local After Sales Service for a copy of the Manual.

After removing the packing, first make sure that the contents are complete and undamaged. If the heater does not correspond in any way, contact the Agency that sold the heater.

Installation of destratifiers must be carried out by qualified companies. On completion of the job, they provide the owner with a declaration of conformity of the installation correctly carried out that is according to the requisites of current applicable Norms and according to the indications provided by the Manufacturer in this Instruction Manual.

The appliances have been manufactured for room heating and they must be used for this purpose, compatibly with their performance characteristics.

The Manufacturer takes no contractual or extra-contractual responsibility for damage caused to persons, animals or property, due to errors in installation, adjustment and maintenance or due to improper use.

Excess temperature is damaging to health and represents a waste of energy. Avoid leaving rooms closed for long periods of time. Open the windows periodically to ensure adequate air change.

On leaving the heater unused for a long period, you should carry out at least the following operations:

- Turn off the main heater switch and the main plant switch;

If the destratifier is not used for a long period of time, we suggest you contact the After Sales Service or other professionally qualified personnel for restarting.

All appliances must be fitted exclusively with original accessories. The Manufacturer is not responsible for any damage caused by improper use of the appliance and by the use of accessories that are not original.

All references to Law, standards, directives and technical rules in this manual are to be considered as informative only and valid at the date of printing of the Manual. The enforcing of new dispositions or the alteration of current ones do not create any Manufacturer obligations towards third parties.

Repairs and maintenance must be carried out by the After Sales Service or by qualified personnel as specified in this Manual. Do not alter or tamper with the appliance: this can create dangerous situations and the Manufacturer will not be responsible for any damage.

The systems that must be installed (gas or oil pipes, electrical supplies etc) must be suitably fastened and must not create obstacles that could cause tripping.

The Manufacturer is responsible for conformity of his product to laws, directives and construction standards current at the date of sale. Knowledge and observation of legislative instruments and of standards for the design of systems, and for installation, operation and maintenance are the exclusive responsibility of respectively the designer, the installation personnel and the user.

The Manufacturer is not responsible for failure to observe the instructions in this Manual, for the consequences of any operation carried out that is not specifically foreseen, or for any translations causing erroneous interpretations.

SAFETY RULES



Children and unassisted disabled persons must not use the appliance.

Do not touch the appliance if you are barefoot or if parts of your body are wet.

Do not carry out any cleaning or maintenance operation without first deactivating the heater by setting the main system switch to "OFF" and without first closing the fuel supply.

Do not alter the safety and adjustment systems without prior authorisation and indications by the destratifier Manufacturer.

Do not pull, detach or twist the electric cables that exit the heater, even if the heater is not connected to the electrical supply.

Do not abandon or leave available to children the heater packing materials (cartons, nails, plastic bags etc), as these are a potential source of danger.

Do not install the appliance near flammable material, or in areas where there is a corrosive atmosphere.

Do not place any object on the appliance or push anything through the grilles neither in the casing nor in the flue-gas ducts.

Do not use any adapters, multiple sockets and cable extensions for the electrical connection of the appliance.

Do not install the heater directly in limited spaces without adequate ventilation, as the burner air suction can create a pressure drop in the room and consequently cause serious problems

DESCRIPTION OF EQUIPMENT

The destratifier is an appliance that constantly mixes the air contained in a wide environment, in order to keep temperature and humidity to a same level.

As everybody knows in heated environments, the temperature under the ceiling is always higher.

The need to realize an air mixer comes from the requirement to remove heat and humidity stratification phenomena in very wide environments.

A control thermostat ensures the automatic and independent working of every single appliance.

Destratifiers allow some more benefits:

- Using the heat produced by technological installations, such as ovens, dryers etc. they reduce thermal requirement.
- Evenly spread the heat all over the environment without creating an irritating draught.

In summertime allow to accelerate the change of air, reducing the concentration of smokes and smells.

RECEIPT OF THE PRODUCT

Destratifier is supplied with:

- DESTRATIFYER OF AIR;
- ENVELOPE IN A TRANSPARENT PLASTIC that contains:
 - Instruction manual;
 - Certification of guarantee;

HANDLING AND TRANSPORT

The moving should be carried out by expert personnel and with correct instruments. Destratyfier is supplied protected by a cardboard wrapping and it must be handled respecting the direction of the indicator on the packaging.

WARNING!

The handling and transport should be carried out in safety, avoiding damages and dangers for individuals.



During the transport do not stop near the appliance.



If stacking is required, please respect the limits on the packaging and pay attention to avoid a subsiding of the packing and accidental discharge of the product.

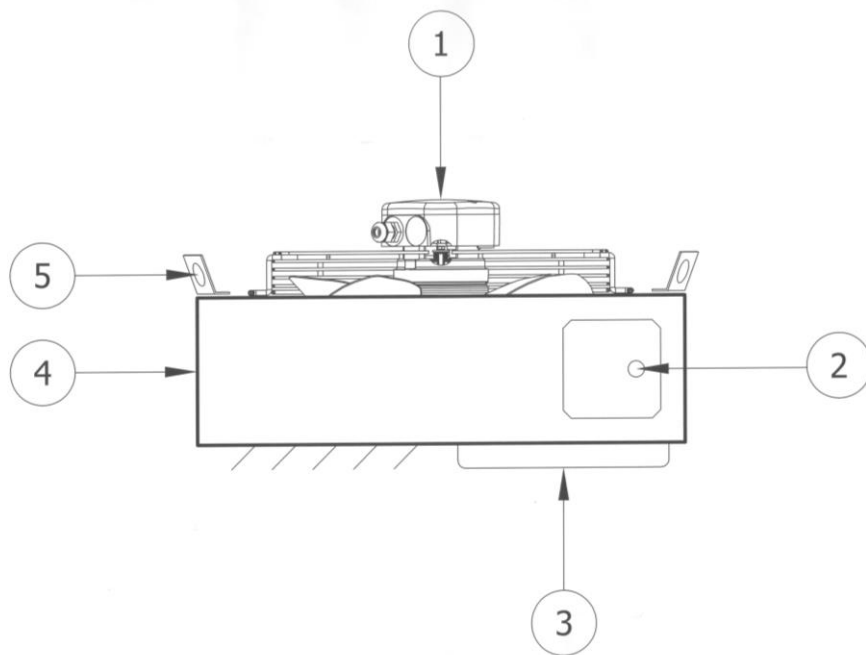


In case of handling moving, be sure to have sufficient human force in relation to the weight indicated in the manual.



During the handling operation is recommended to wear systems of individual protection.

STRUCTURE



1. Propeller fan, with electrical three-mono phase motor
2. Control Thermostat
3. Diffuser with louvers for air flow adjustment
4. Dust painted steel cabinet
5. Ringbolt for suspension

IDENTIFICATION

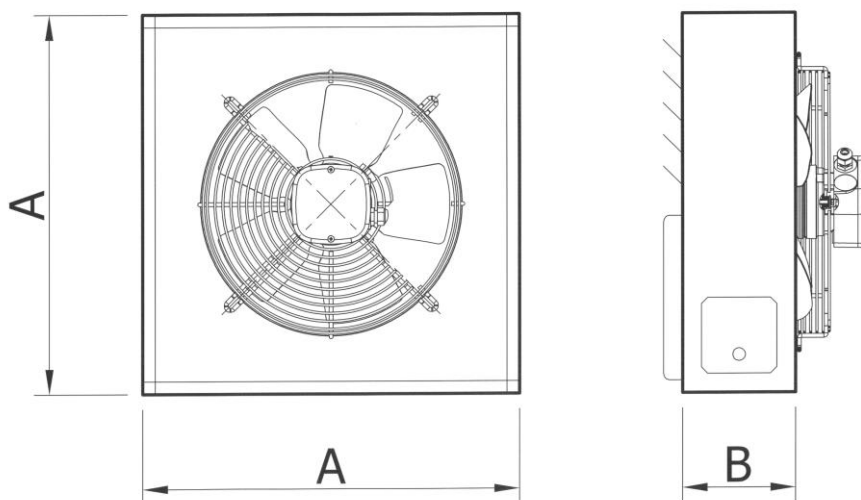
The destratifiers can be identified through:

- Technical Data Sheet with the most important technical and performance data on the appliance.



En case of damage or lost, ask for a copy to the authorized After Sales Service.

DIMENSION AND WEIGHT



TYPE	1	2	
A	555	180	mm
B	735	180	mm
NET WEIGHT	16	25	mm

TECHNICAL DATA

TYPE		1	2
AIR FLOW RATE	m ³ /h	3.500	8.500
MOTOR BRAND HIDRIA			
Type		HIDRIA	VIP
power electric motor			
230V ~ 50Hz 1Ph+N	W	115	311
230V ~ 50Hz 3Ph+N	W	110	311
400V ~ 50Hz 3Ph+N	W	110	311
Max absorbed current			
230V 50Hz 1Ph+N	A	0,50	1,6
230V 50Hz 3Ph+N	A	0,37	1,1
400V 50Hz 3Ph+N	A	0,21	0,7
protection degree	IP	54	55
rotation speed	rpm	840	787
condenser	microF/400V	6,3	16,0
IMPELLER BRAND HIDRIA	mm		
nominal diameter	mm	450	600
SOUND LEVEL (1)	dB(A)	46	59
MOUNTING WEIGHT	metri	3,5 ÷ 6,5	6,0 ÷ 10,0

(1) Data refers to a normal installation and measured at a ground distance of 4 m.

NOTES ON FUNCTIONING

To solve stratification problems, it is necessary to create a constant mix of warm air, that usually is located in the upper part of the environment, and cold air, that is located at ground level, in order to keep temperatures, humidity and pressure uniform and to reduce to a minimum the heat dispersion.

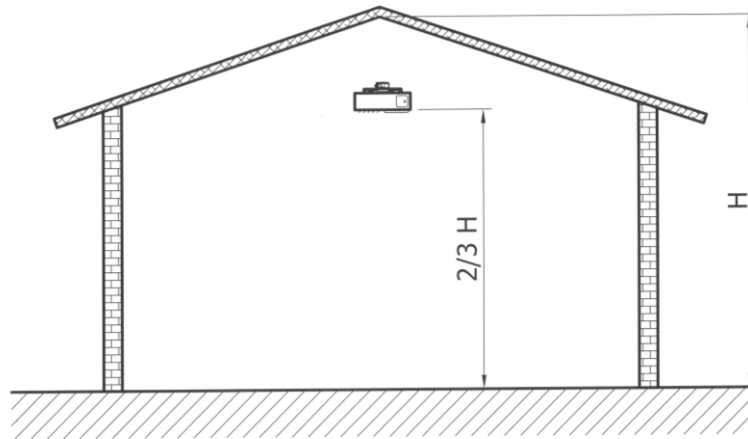
The destratifyer operates by inhaling warm air from the upper part and afterwards discharging it from the lower part at low speed and with adjustable direction.

This kind of operation keeps on producing a mixing of strata of the air that exchange temperature, humidity and pressure values, maintaining them balanced.

Furthermore, the augmentation or the recycle of air volumes of the environment help supporting the air mix.

INSTALLATION HEIGHT

The destratifyer has to be installed at a height from the ground equal to the $\frac{2}{3}$ of the environment's total height, according to the data reported in chapter TECHNICAL DATA.

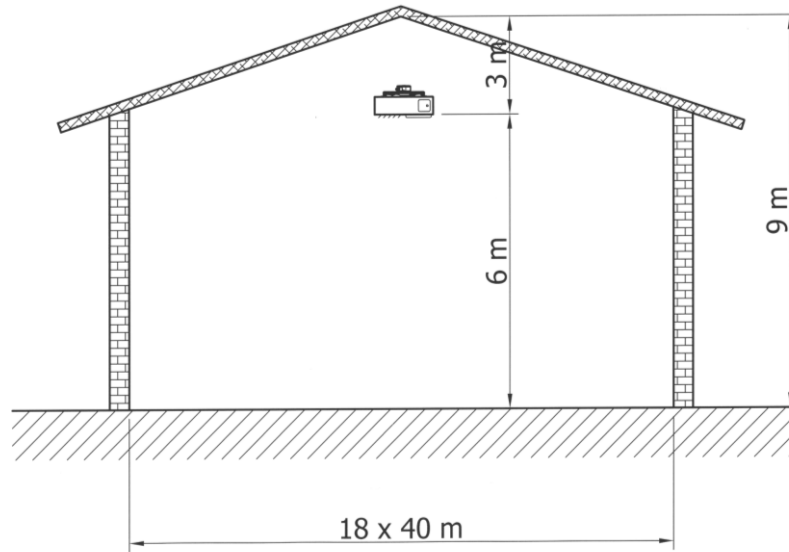


EXAMPLES OF CALCULATION

The dimensioning has to be made as follows:

- Reckoning of mounting height (**H**)
- Calculation of the overhanging destratifyer's volume (**VS**)
- Reckoning of the volume to recirculate (**VR**), multiplying **VS** by 6 (six)
- Reckoning the number of appliances to be installed (**N**), dividing the volume to recirculate (**VR**) by the single air flow rate of every single appliance (rounding it up). The model should be chosen, considering mounting height estimated by the planning of the room and tolerated sound level.

Example of dimensioning:



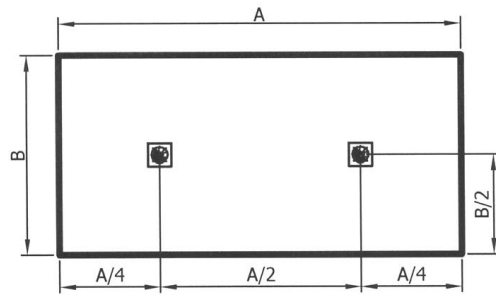
H	mounting height	→	$(9 \times 2) / 3 = 6$	6 m
	↓			
VS	volume overhanging zone	→	$(18 \times 40 \times 3) / 2$	1.080 m³
	↓			
VR	volume to recirculate	→	$1.080 \times 6 = 6.480$	6.480 m³/h
	↓			
N	number of appliances	→	$6.480 / 3.500 = 1,85$	N° 2

LOCATION

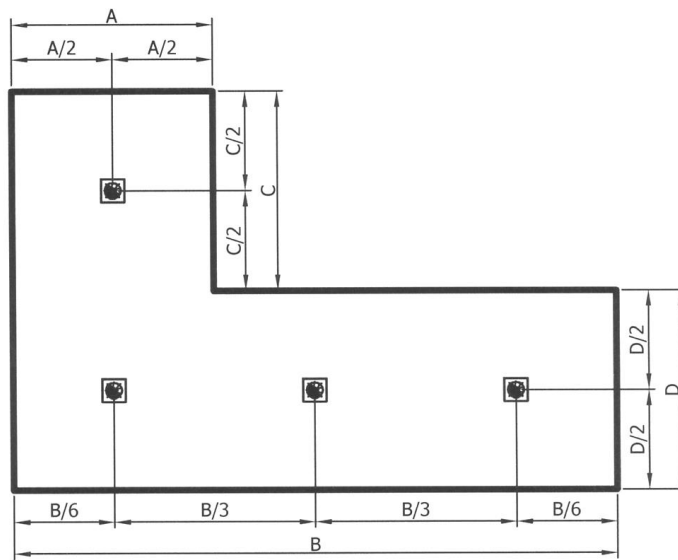
The location of the number of appliances resulting from the calculation has to be made considering the planning of the room, where the destratifyer has to be installed, paying attention that in front of the diffuser there are not obstacles that might disturb its normal flow.

Examples of location:

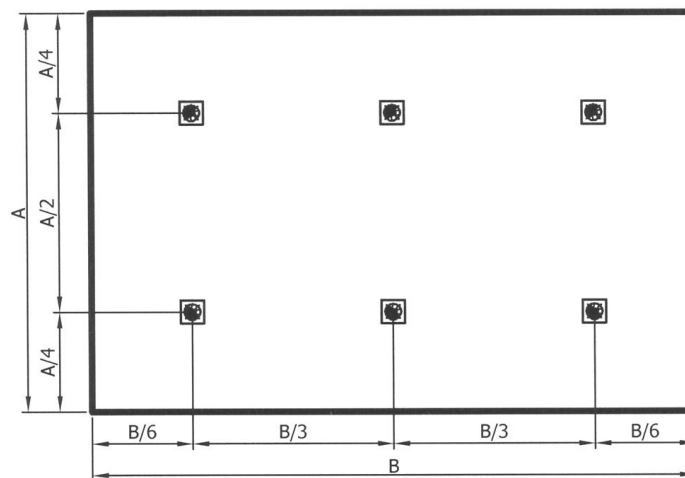
IN SMALL ENVIRONMENTS



IN ASYMMETRIC ENVIRONMENTS



IN MEDIUM ENVIRONMENTS

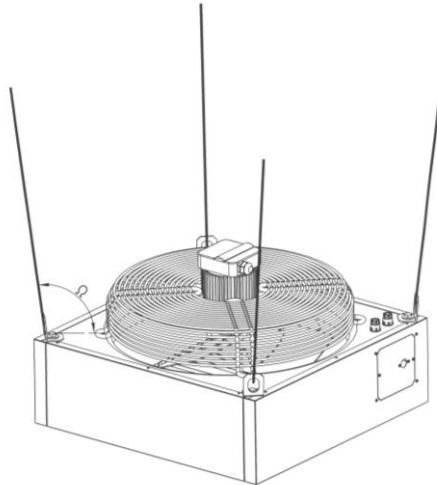


SUSPENSION

The destratifier is preset for suspension with special ringbolts. The installer has to verify:

- The correct dimensioning of the anchoring system in the respect of the weight indicated in the chapter TECHNICAL DATA.
- The correct dimensioning of the pulling cables in the respect of the weight indicated in the TECHNICAL DATA.
- To avoid noising swinging of the destratifier during the normal functioning, it is suggested to **put the pulling cables in order to create a corner with the appliance over 90 °C.**

Example of polling cables setting:



$\Omega > 90^\circ$

ELECTRICAL CONNECTIONS

The destratifier is delivered with all the interior connections done and it is **arranged to function with a single phase electrical supply 230 ~ 50Hz.**

The installer is asked to:

- Bring the electrical supply near the appliance well dimensioned for the power described in the chapter TECHNICAL DATA, by installing up stream a manometric switch.
- Take off the cover of the electric box.
- Put the electrical supply cable through the cable holder.
- Connect the electrical supply to the electrical box connection as indicated in the electrical diagram.

It is possible to transform the connections so that the appliance works with a three phase supply 230-400V/50 Hz.

In that case the installer shall:

- Disconnect electrically the condenser.
- Modify the electrical connection to the fan motor (see following diagrams)
- Connect the supply to the electrical box connection as indicated hear under.



WARNING!

Check the right sense of rotation of the fan and eventually invert two phases of the three-phase electrical supply.

ADJUSTMENT OF FINS

The diffuser is equipped with a series of fins single individually adjustable to better adapt the flow to the different geometries of the installation.

The installer must do the regulation, considering the following parameters:

- Never close the fins completely.
- Regulate the fins in order to have a light air low, but no bother current.



WARNING !

The regulation of the diffuser is a very important parameter for the good performance of the appliance, and if necessary is must be done through more attempts.

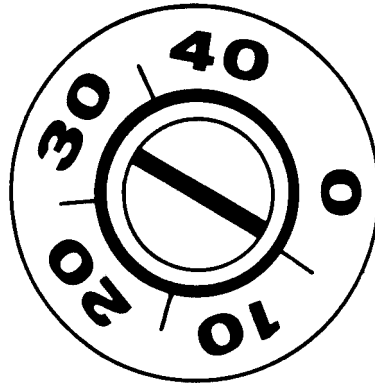
Opening sequence of the fins of diffuser:



ADJUSTMENT OF CONTROL THERMOSTAT

The thermostat of the appliance has to control automatically and independently every single unit. Once the temperature arranged on the thermostat disc is obtained, the fan starts, and when the temperature goes under this value, the fan stop. In this way we are sure that the destratifyer works only when the temperature next to the appliance is high, and it prevents that fresh air goes to the ground.

Adjustment of control thermostat:



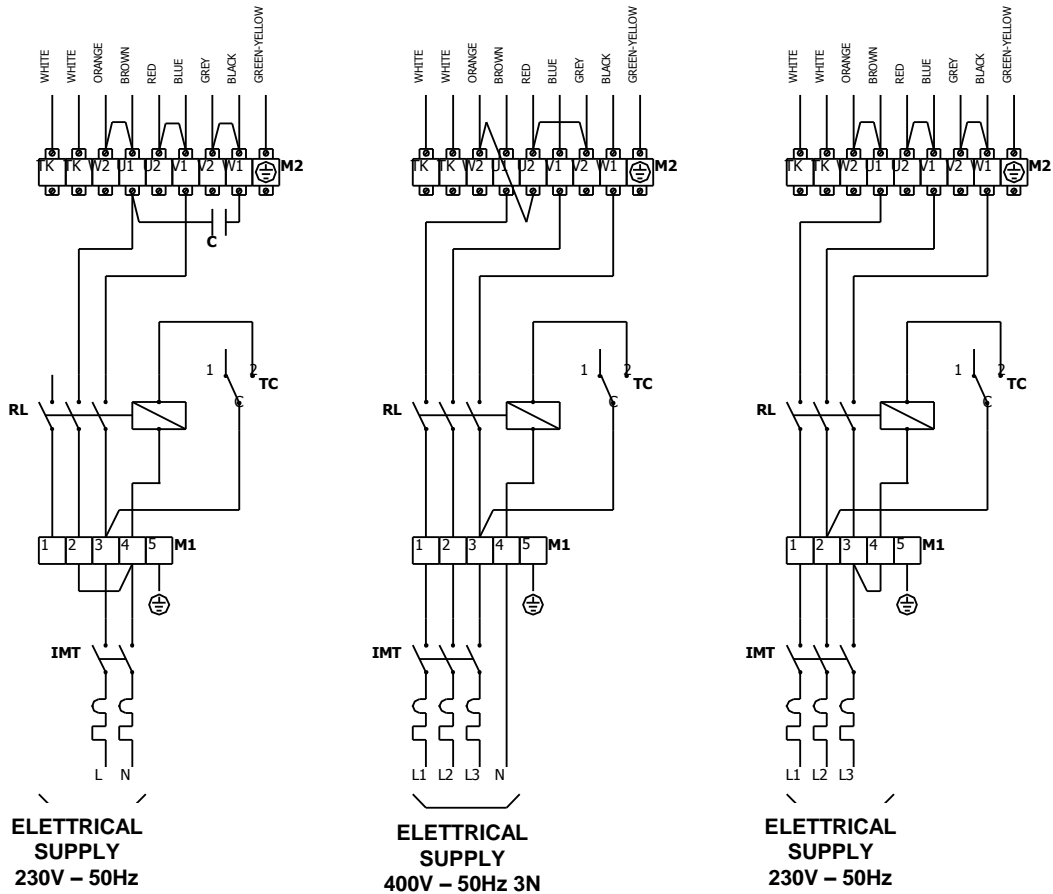
WARNING !

The thermostat shall be calibrated, with a screw driver, by setting on the disc a value higher of 2°C than the required temperature on the ground (he one set on the ambient thermostat of the heating installation).

Example:

- Temperature set on the ambient thermostat of the heating installation 18°C
- Temperature to set on the thermostat of the destratifyer 21°C

WIRING DIAGRAM TYPE 1



Components:

- M1** Electrical box connections
- RL** Relè ventilation control
- TC** Control thermostat of fan
- M2** Electrical box connection brand HIDRIA
- C** Fan condenser
- IMT⁽¹⁾** DIfferential Manometric switch

(1) not included in the supply, to install by the client.

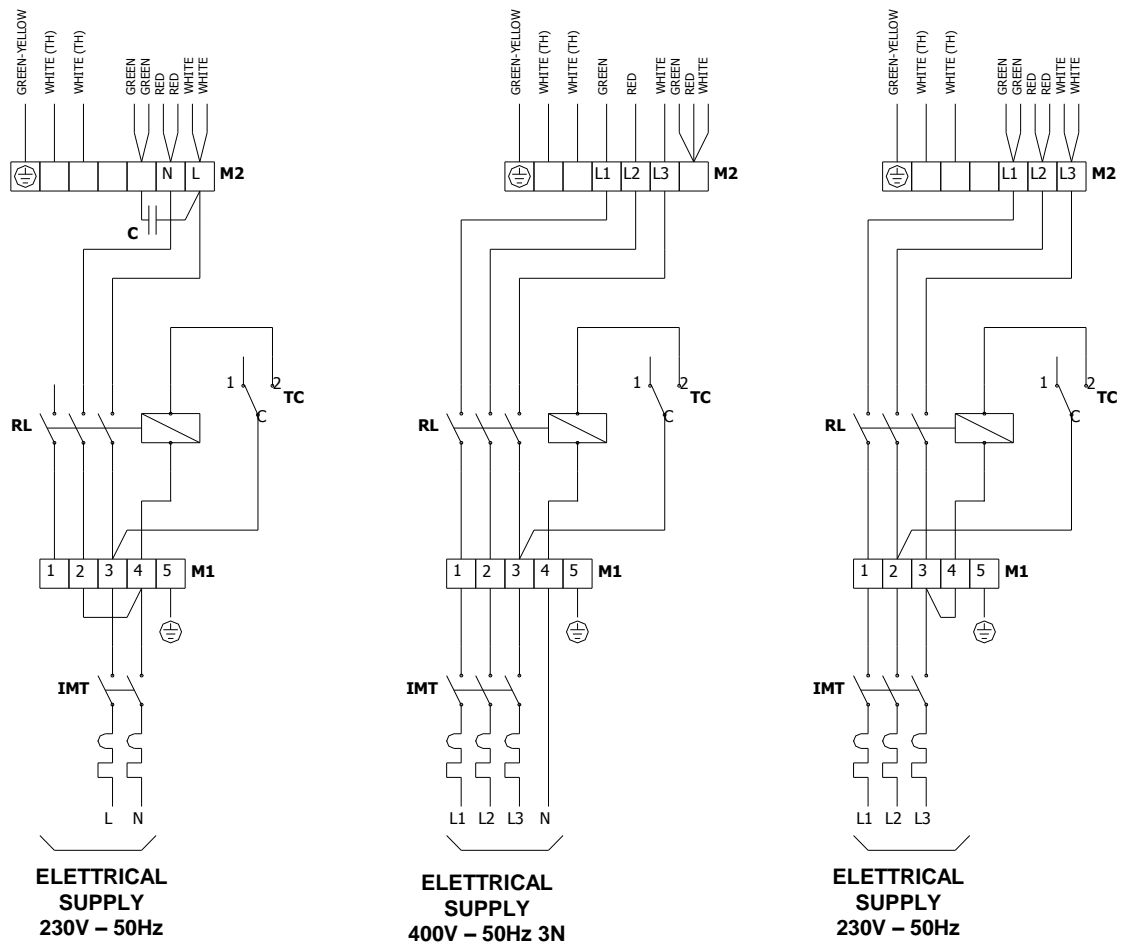
In case of three-phase electrical supply, to invert the sense of rotation, invert the general electrical supply cables L1 with L2.



WARNING!

The motor is not suitable to be combined with an inverter. Contact the Manufacturer for this need.

WIRING DIAGRAM TYPE 2



Components:

- M1** Electrical box connections
- RL** Relè ventilation control
- TC** Control thermostat of fan
- M2** Electrical box connection brand VIP
- C** Fan condenser
- IMT⁽¹⁾** Differential Manometric switch

(1) not included in the supply, to install by the client.

In case of three-phase electrical supply, to invert the sense of rotation, invert the general electrical supply cables L1 with L2.



WARNING!

The motor is not suitable to be combined with an inverter. Contact the Manufacturer for this need.

PREPARATION TO INITIAL START-UP

Before starting-up and testing the appliance, check that:

- The appliance is in the correct position;
- Electrical connections are correct and the fan turn in the correct sense of rotation;
- **The electrical voltage is correct and compatible to the appliance arrangement;**
- The fins are open and correctly regulated.

INITIAL START-UP

FORCED ACTIVATION:

- Put the general switch on "on"
- Set the thermostat on a temperature higher than that of the environment
- At this point the fan group is activated
- Check the correct air diffusion in the implied environment

FORCES DEACTIVANTION:

- Set the thermostat on a temperature lower than that of the environment
- At this point the fan group is deactivated

AUTOMATIC ACTIVATION - DISACTIVATION:

- Set the thermostat on the correct temperature
- The appliance, if supplied, will function automatically

CONTROLS DURING AND AFTER THE START-UP

Once the start-up begins, make sure that the appliance makes a stop and a following start-up.

With the appliance on work:

- Check the free and correct sense of rotation of the fan
- Check that the current consumption is next to but smaller than the one indicated in chapter TECHNICAL DATA
- Check the absence of anomalous vibrations and/or noises.
- Check that the fins are not too closed and that there are no obstacles to the free air circulation
- Check the solidity of the appliance installation in the respect of the frame

Once all conditions satisfied, re-start the appliance.

SWITCH OFF FOR LONG PERIODS

The switch-off of the appliance for long periods implies the following operations:

- Put the general switch on "OFF".

MAINTENANCE

The periodic maintenance is very important for the safety, the performance and the duration of the appliance.

Before starting the maintenance operations:

- Take off the electrical supply by putting the switch o installation on "off";

COTROL OF ELECTRIC VOLTAGE

With a voltmeter check that the supply voltage is the one indicated on the technical data sheet with tolerance $\pm 5\%$.

CONTROL OF CURRENT CONSUMPTION

With ampermeter check that the electrical supply of every phase is lower than the value indicated in the technical data sheet.

CONTROL OF ELECTRICAL CONNECTIONS

Take down the box of the electrical connections and check that all the electrical box connections are well fixed.

CLEANING OF THE EXTERNAL WRAPPING

Clean the external piece using water-damp cloths. It is VORBIDDEN using sponges with corrosive detergents.

CLEANING OF THE AXIAL FAN

Take off with compressed air all possible intrusion elements on the fan and/or on the protection grill.

CONTROL OF SUSPENSION SYSTEM

Control the preservation of the suspension system.

SCREW FASTENING

Control the fastening of all screws of the appliance.

ASSISTANCE

In order to know the local Authorized Assistance Service, please contact the Agency that has sold you the appliance. It will indicate you the nearest Assistance Service.



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