AERMEC

la prima per il clima

HRS-HRS W

HEAT RECOVERY UNIT
Installation, Use and Maintenance Manual

CE

AERMEC

COMPANY QUALITY SYSTEM

ICIM

ISO 9001:2000 - Cert. n° 0128/5

CISQ IQNet

AERMEC S.P.A.

4530600_00 dated 0904

This instruction book is an integral part of the appliance and as a consequence must be kept carefully and must ALWAYS accompany the appliance even if transferred to other owners or users or transferred to another plant. If damaged or lost, request another copy from the Manufacturer.

Repair and maintenance interventions must be carried out by authorised staff or staff qualified according to that envisioned by this book. Do not modify or tamper with the appliance as dangerous situations can be created and the appliance manufacturer will not be liable for any damage caused.

After having removed the packaging ensure the integrity and completeness of the content. If this is not the case, contact the Company that sold the appliance.

The appliances must be installed by enabled companies in compliance with the Law 5 March n° 46 which, at the end of the job issues a declaration of conformity regarding installation to the owner, i.e. in compliance with the Standards in force and the indications supplied in this book.

Any contractual or extracontractual liability of the Manufacturer is excluded for injury/damage to persons, animals or objects owing to installation, regulation and maintenance errors or improper use.

We remind you that the use of products that employ electrical energy and water requires that a number of essential safety rules be followed, including:

This appliance must not be used be children and unaided disabled persons.

It is prohibited to touch the appliance when you are barefoot and with parts of the body that are wet or damp.

It is prohibited to perform any maintenance or cleaning operation before having disconnected the appliance from the mains electricity network, by positioning the plant master switch at "off"

It is prohibited to modify the safety or adjustment devices without the manufacturer’s authorisation and precise instructions

It is prohibited to pull, detach or twist the electrical cables coming from the unit even if it is disconnected from the electrical mains

It is prohibited to climb onto the unit, sit on it and/or rest any type of object on it.

It is prohibited to spray or jet water directly onto the unit.

It is prohibited to open the doors for accessing the internal parts of the appliance without first having switched off the master switch of the "system".

It is prohibited to disperse, abandon or leave the packing materials within the reach of children, as they are a potential source of danger

A the Manufacturer is constantly committed in the continuous improvement of its entire production, the aesthetic and dimensional features, the technical data, equipment and accessories may be subject to variation.

SYMBOLS

	**WARNING**
	**DANGER**
	**DANGER RISK F ELECTRIC SHOCK**
	**ATTENTION ONLY AUTHORISED STAFF**
	**PROHIBITION**

Important Note
The heat recovery unit is a machine designed and built exclusively to change air in the civil environments, incompatible with toxic and inflammable gases. Therefore it cannot be used in those environments where the air is mixed and/or altered by other gaseous composites and/or solid particles.
The use of the same for different purposes from those envisioned, not conform to that described in this manual, will make any direct and/or indirect liability of the Manufacturer automatically become null and void.

INDEX

INTRODUCTION

The heat recovery units for horizontal installation are characterised by small dimensions and easy assembly.
The heat recovery units allow to join maximum environmental comfort with sure energy saving.
Forced ventilation must be created in current air conditioning and treatment plants, which leads to the expulsion of treated air, determining large energy consumption and increase in costs.
The HRS heat recovery unit range intend to solve these problems using a static heat recovery unit that saves more than 50% of the energy that would otherwise be lost.

SECTION 1 - GENERAL FEATURES

1.1 Manual presentation

This manual states the information and that deemed necessary for transport, installation, use and maintenance of the HRS range heat recovery units.
The user will find that which is normally useful to know for correct safe installation of the heat recovery units described.
Failure to comply with that described in this manual and inadequate installation of the heat recovery unit causes the annulment of the warranty that the Manufacturer gives its heat recovery units. Moreover, the Manufacturer is not liable for any direct and/or indirect damage due to incorrect installation or damage caused by units installed by unskilled and unauthorised staff. On purchase, check that the machine is integral and complete.
Any claims must be made in writing within 8 days from receipt of the goods.

1.2 Construction features

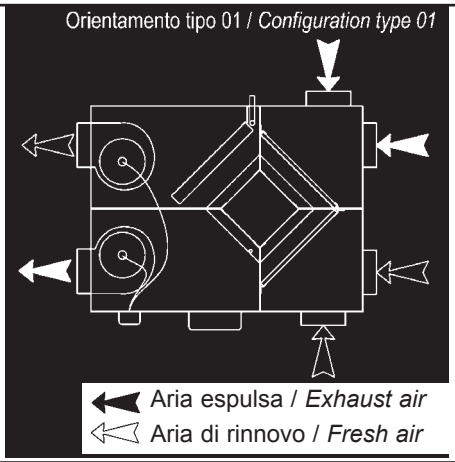
- Panels realised in Aluzink sheet steel, removable for inspection and maintenance.
- Acoustic and heat insulation of the panels using polyethylene/polyester with average thickness of 20 mm.
- Fresh air intake and double intake centrifugal type expulsion fans (for the HRS 30 model with simple intake) with directly coupled electric motor.
- Fan body mounted onto anti-vibration mounts so as not to transmit any vibrations.
- Air filters with G3 efficiency, easily extractable laterally, to allow periodical cleaning.
  for the HRS range
- Terminal boards on machine to ease the electric connections and fan control.
- Condensate drip tray in ABS with low condensate drain connection.

1.3 HRS possible orientations and clearance

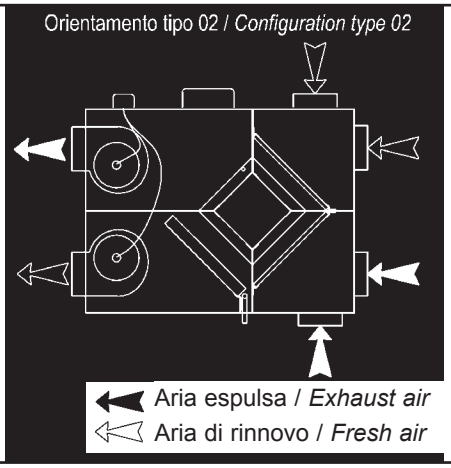
• STANDARD ORIENTATION TYPE 03

Depending on the configuration of the network and the space available, it is possible to choose the other 3 orientations AT THE TIME OF PLACING THE ORDER, (TYPE 01 - 02 - 04).

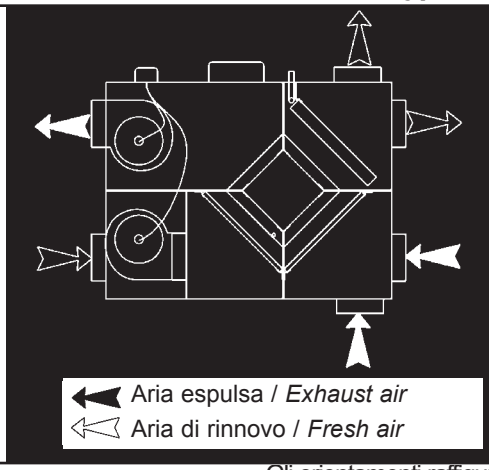
ORIENTAMENTO TIPO 01 / *CONFIGURATION TYPE* 01



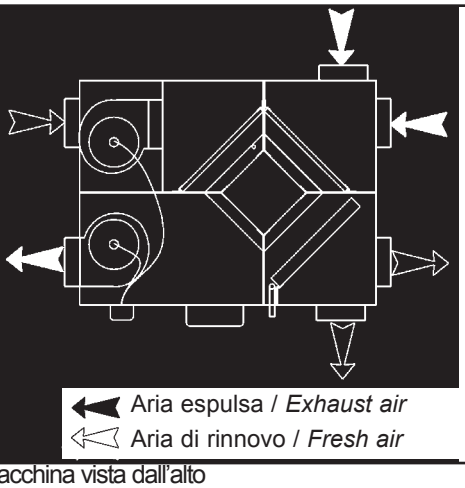
ORIENTAMENTO TIPO 02 / *CONFIGURATION TYPE* 02



ORIENTAMENTO TIPO 03 / *CONFIGURATION TYPE 03*
(Tipo standard / *Standard type*)



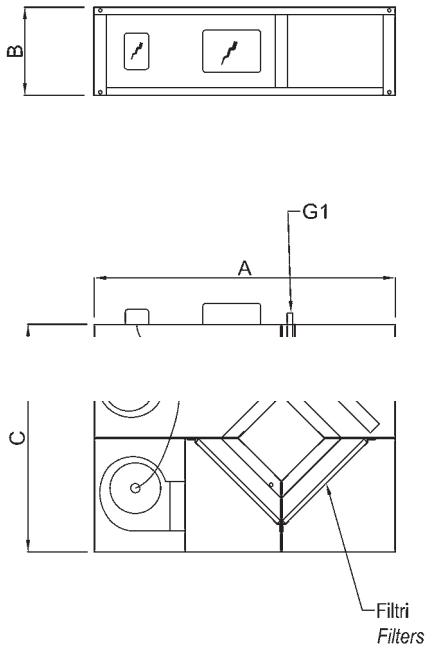
ORIENTAMENTO TIPO 04 / *CONFIGURATION TYPE 04*



Gli orientamenti raffigurati sono relativi alla macchina vista dall'alto
La batteria di post-riscaldamento (ad acqua) disponibile solo sulla versione HRS-W /
The configurations are referred to the top view
The post-heating water coils is available only for model HRS-W

1.4 HRS range unit technical data

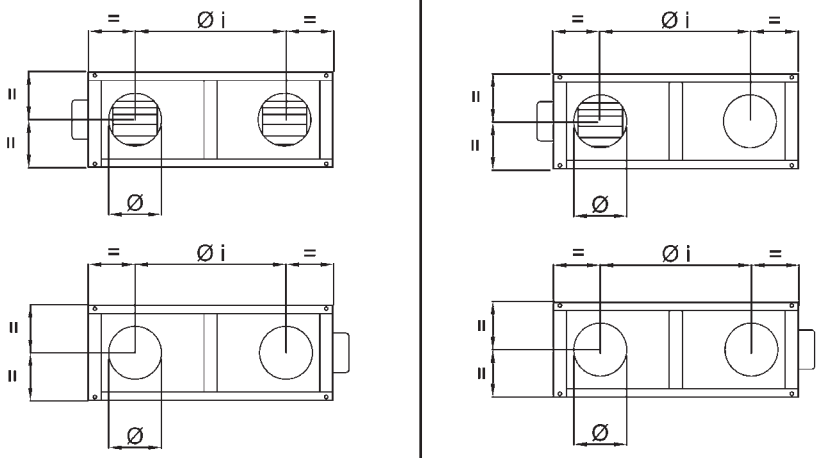
MODEL / Size		HRS 030	HRS 060	HRS 090 HRS 090W	HRS 160 HRS160W	HRS 190 HRS190W	HRS 230 HRS 230W	HRS 300 HRS 300W	HRS 390 HRS 390W
A	mm	990	990	1140	1300	1380	1650	1650	1750
B	mm	290	290	410	500	500	600	600	600
C	mm	750	750	860	860	960	1230	1230	1230
D	mm	/	/	260	290	310	410	410	410
D1	mm	/	/	95	77	87	91	91	116
E	mm	/	/	210	310	330	410	410	410
F	mm	/	/	220	225	225	288	321	321
F1	mm	/	/	115	109	129	152	135	160
G	mm	/	/	200	255	255	255	280	280
G1	Ø gaz	/	/	3/4	3/4	3/4	3/4	3/4	3/4
Y	mm	/	/	50	75	75	162	125	125
Ø	mm	160	200	/	/	/	/	/	/
Øi	mm	460	355	/	/	/	/	/	/
Weight	kg	41	45	80	125	138	160	174	190



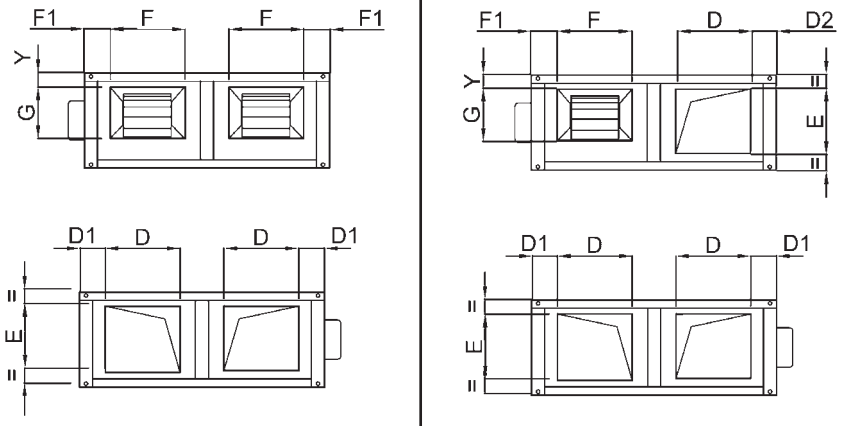
Orientamento 1 e 2 / Configuration 1 and 2

Orientamento 1 e 2 / Configuration 3 and 4

HRS mod. 030 - 060



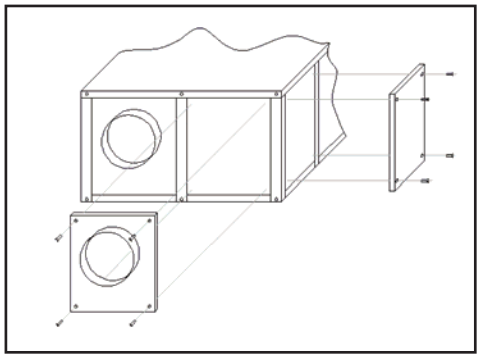
HRS mod. 090-160-190-230-300-390



La batteria di post-riscaldamento ad acqua disponibile solo sulla versione MRS_W /
The post-heating water coils is available only for model HRS-W

It is possible to intake or expel the air frontally and laterally by simply changing the position of the panels, as illustrated at the side.

This can simplify the realisation of the air ducts greatly, bringing an effective saving to installation times.



1.5 HRS - HRS W range unit technical data

MODELLO / *MODEL* HRS		**030**	**060**	**090**	**160**	**190**	**230**	**300**	**390**
Portata aria nominale / *Nominal air flow*	m³/h	300	620	920	1580	1850	2250	2950	3920
Pressione statica utile / *External static pressure* (1)	Pa	45	55	65	70	77	80	100	100
Assorbimento max. totale macchina / *Total max absorbed current*	A	0,75	1,8	2,2	4,4	4,8	5,2	8,3	5
Pressione sonora / *Sound pressure level* (2)	db (A)	43	51	50	53	52	51	54	56
VENTILATORI / *FANS*		**030**	**060**	**090**	**160**	**190**	**230**	**300**	**390**
Potenza disponibile all'asse / *Power input*	W	92 x 2(3)	90 x 2	147 x 2	350 x 2	350 x 2	350 x 2	550 x 2	750 x 2
Poli / *Poles*	n°	4							
Numero velocità / *Speed number*	n°	1(4)		3(5)					1(6)
Grado di protezione / *Enclosure protection*	IP	44					55	44	55
Classe di isolamento / *Insulation class*		F							
Alimentazione elettrica / *Electrical supply*	V/ph/Hz	230/1/50							400/3/50

(1) Values referring to the nominal air flow rate including recovery unit and filters
(2) Noise pressure level: values referring to 1.5 metres from machine intake in free field. The operational noise level differs from the values indicated according to the functioning conditions, the reflex noise and peripheral noise
(3) Input power at the electric mains.
(4) Can be adjusted electronically with WM regulator

1.6 Accessories available

- **HRS_CS:** Section of water cooling/heating (with stainless steel condensate drip tray).
- **HRS_ED:** Regulation shutter.
- **HRS_S:** N° 4 circular connection kits for direct connection of the unit to the circular conduits.
  - HRS090S (ø 315 mm)
  - HRS160S (ø 355 mm)
  - HRS230S (ø 400 mm)
- **HRS_SC:** Electronic speed regulator.Anti-freeze thermostat, allows to control that the temperature does not fall below a pre-established value. . **Accessory installed in the factory, to be requested when placing the order for the HRS W version.**
- **PX:** Control panel with switch-over. Wall installation. (from size 090 to 300)
- **PX2:** Control panel with switch-over. Wall installation (from size 090 to 300)

Accessories compatibility

	HRS 030	HRS 060	HRS 090 HRS 090W	HRS 160 HRS 160W	HRS 190 HRS 190W	HRS 230 HRS 230W	HRS 300 HRS 300W	HRS 390 HRS 390W
HRS090CS			✔					
HRS160CS				✔				
HRS190CS					✔			
HRS230CS						✔		
HRS300CS							✔	
HRS390CS								✔
HRS090ED			✔					
HRS160ED				✔				
HRS190ED					✔			
HRS230ED						✔	✔	✔
HRS090S			✔					
HRS160S				✔	✔			
HRS230S						✔	✔	✔
HRS030SC	✔							
HRS060SC		✔						
HRS01AT *			✔	✔	✔	✔	✔	✔
PX			✔	✔	✔	✔	✔	
PX2			✔	✔	✔	✔	✔	

* Accessory installed in the factory, **compatible only with HRS W version**, to be requested when placing the order.

HRS_W UNIT WITH WATER POST-HEATING SECTION

The use of the coil is requested when post-heating is necessary and must be fixed directly inside the heat recovery unit.

BATTERIA POST-RISCALDAMENTO *WATER HEATING COIL - BCR*		**090**	**160**	**190**	**230**	**300**	**390**
Resa termica / *Heating capacity*	kW	8.2	12.2	14.4	20.3	24.2	29.9
Geometria / *Geometry*		25x22	25x22	25x22	25x22	25x22	25x22
Tubi per rango / *Pipes per row*	n°	14	18	18	22	22	22
Ranghi / *Rows*	n°	2	2	2	2	2	2
Passo alette / *Fins spacing*	mm	2.5	2.5	2.5	2.5	2.5	2.5
Temp. uscita aria / *Outlet air temperature*	°C	33.4	30.8	30.2	33.2	31.3	29.7
Perdita di carico lato aria / *Air pressure drop*	Pa	25	32	35	24	36	38
Perdita di carico lato acqua / *Water pressure drop*	kPa	8	14	15	17	22	30
Diametro collettori / *Connection diameter*	Ø gas	3/4	3/4	3/4	3/4	3/4	3/4
Peso / *Weight*	kg	2.5	2.5	2.5	5	5	6.5

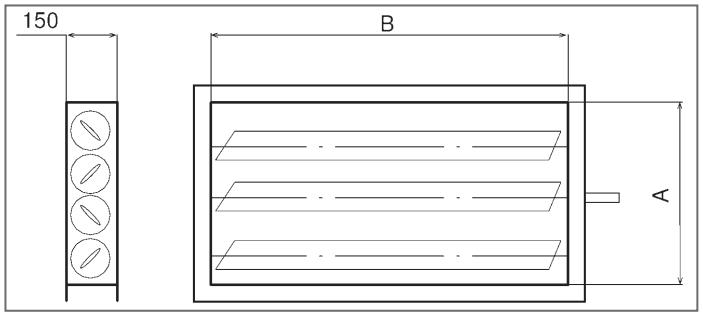
Values referring to the following conditions: Water 70/60 °C; Air inp. T = 8°C; Nominal air flow rate.

1.7 Accessories technical data

HRS_ED ADJUSTMENT DAMPER

The adjustment damper is made up from a galvanised sheet steel frame with adjustable louvered fins.

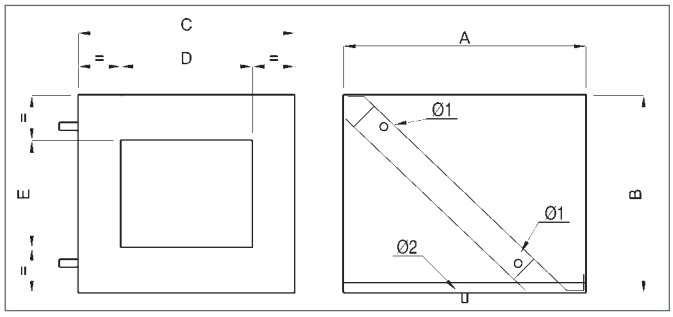
Model	**B (mm)**	**A (mm)**
HRS090ED	260	210
HRS160ED	290	310
HRS190ED	330	310
HRS230-ED	410	410



HRS_CS SECTION WITH WATER COIL

The HRS_CS module contains a water coil and must be positioned outside the machine in front of the introduction vent.
The condensate drip tray in stainless steel with low condensate drain connection.

Model	**090**	**160**	**190**	**230**	**390**
A (mm)	500	600	700	700	700
B (mm)	410	500	500	600	600
C (mm)	450	450	480	660	710
D (mm)	260	290	310	410	410
E (mm)	210	310	330	410	410
Ø1 (gas)	3/4"	3/4"	3/4"	3/4"	1"
Ø2 (mm)	22	22	22	22	22



HRS – CS TECHNICAL DATA

HRS with HRS_CS							
Geometry		25x22	25x22	25x22	25x22	25x22	25x22
Pipes for row	n°	16	22	25	26	26	26
Rows	n°	3	3	3	3	3	3
Louver pitch	mm	2,1	2,1	2,1	2,1	2,1	2,1
Heating		**HRS090**	**HRS160**	**HRS190**	**HRS230**	**HRS300**	**HRS390**
Heating capacity (1)	kW	12	19,65	23,7	30,5	37	46,2
Air outlet temperature	°C	45	43,4	45	46,5	43,7	41,5
Water flow rate	m3/h	1,02	1,65	2,08	2,64	3,1	3,73
Water side pressure drops	kPa	4	11	20	18	22	21
Air side pressure drops	Pa	28	41	39	27	40	53
Cooling		**HRS090**	**HRS160**	**HRS190**	**HRS230**	**HRS300**	**HRS390**
Cooling capacity (2)	kW	5	8,8	11,1	14,7	17,4	20,93
Sensitive cooling capacity	kW	3,3	5,8	7,2	9,4	11,4	13,9
Air outlet temperature	°C	19,2	18,9	18,2	17,3	18,3	19,13
Water flow rate	m3/h	0,92	1,65	2,16	2,87	3,2	3,83
Water side pressure drop	kPa	4	15	27	26	30	30
Air side pressure drop	Pa	38	50	53	45	48	60

(1) Values referring to: In/out water 70/60 °C; Air inp. T = 8°C and nominal air flow rate.
(2) Values referring to: Input air temp. 30 °C, RH 50%. In/out water temp. 7/12 - °C. Nominal air flow rate

SECTION 2 - TRANSPORT

2.1 Packaging

- The heat recovery unit and their accessories are inserted into cardboard boxes (or polyethylene bubble pack), which must remain integral until assembly.

2.2 Handling and transport

- Depending on the weight, to handle use suitable means envisioned by the 89/391/EEC Directive and successive amendments.
- The weight of each individual machine is stated on the following manual.
- Great care must be taken with loading operations. All machines must be loaded and stored on the lorry, positioning relevant spacers in order to protect all projecting parts such as hydraulic connections, handles and hinges.

2.3 Control and receipt

On receipt of the unit please control al parts in order to check that they have not been damaged during transport. Any damage must be communicated to the carrier, affixing the reserve clause on the way bill, specifying the type of damage.

2.4 Storage

In the case of prolonged storage, keep the machines protected from dust and away from sources of vibrations and heat.

The Manufacturer declines all liability for damage owing to bad draining or no protection from atmospheric agents.

SECTION 3 - INSTALLATION AND START-UP

3.1 Safety Standards

The Manufacturer declines all responsibility for the failure to comply with the Safety and Accident-prevention Standards described below.
It also declines all liability for damage caused by improper use of the heat recovery unit and/or modifications performed without authorisation.

- Specialised staff must perform installation.
- Wear suitable and accident-prevention clothing during installation, for example: goggles, gloves etc. as indicated in the 686/89/EEC Standard and successive amendments.
- During installation operate in complete safety, clean environment and free from obstructions.
- Respect the laws in force, in the country in which the machine is installed, relative to use and disposal of packaging and the products used for cleaning and maintenance of the machine, as well as complying with that recommended by the producer of these products.
- Before starting the unit, check the perfect integrity of the various components of the entire plant.
- Do not touch moving parts or intervene between these.
- Do not perform maintenance and cleaning until the electric line has been connected.
- The maintenance and replacement of damaged or worn parts must only be performed by specialised staff and following the indications given in this manual.
- The spare parts must correspond to the requirements defined by the Manufacturer.
- If the heat recovery unit must be dismantled, follow the envisioned anti-pollution standards.

N.B. When using the heat recovery unit, the installer and user must consider and solve all risks connected to the plant. For example, risks deriving from the entry of foreign bodies or risks due to the conveying of dangerous inflammable or toxic gases at a high temperature.

3.2 Preliminary operations

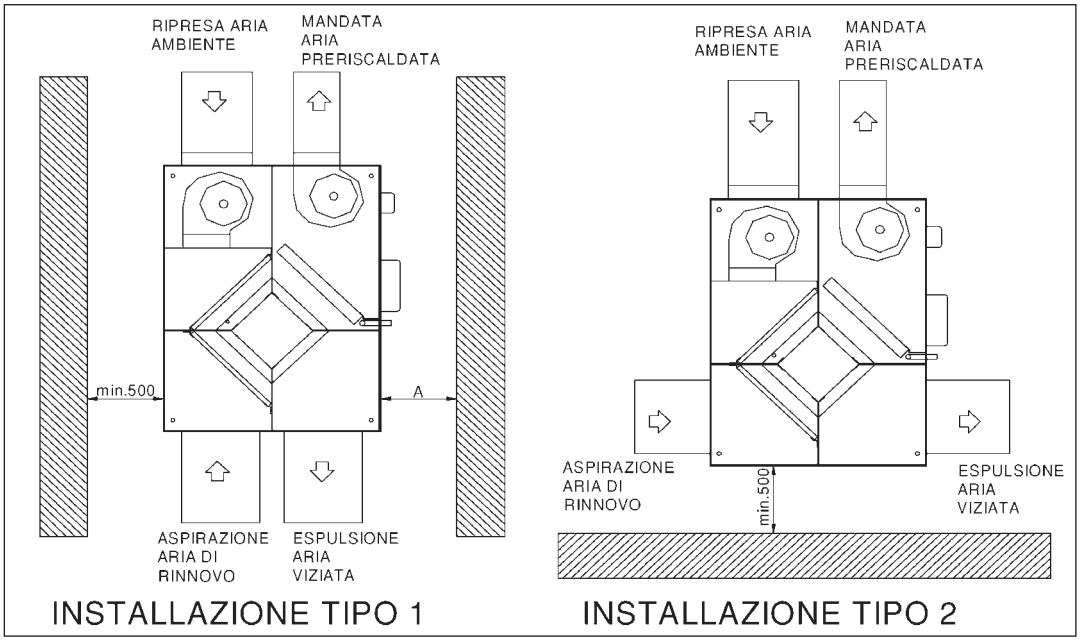
- Check the perfect integrity of the various components of the unit.
- Check that the packaging contains the accessories for installation and the documentation.
- Transport the packaged section as near as possible to the place of installation.
- Do not place tools or weights on the packaged unit.

3.3 Choice of place of installation

- Position the heat recovery unit on a solid structure that does not cause vibrations and that can support the weight of the machine.
- Do not position the unit in places where inflammable gases, acid and aggressive and corrosive substances are present, which can damage the various components irreparably.
- Envision a minimum free space as indicated in the following figures, in order to make installation and routine and extraordinary maintenance possible.

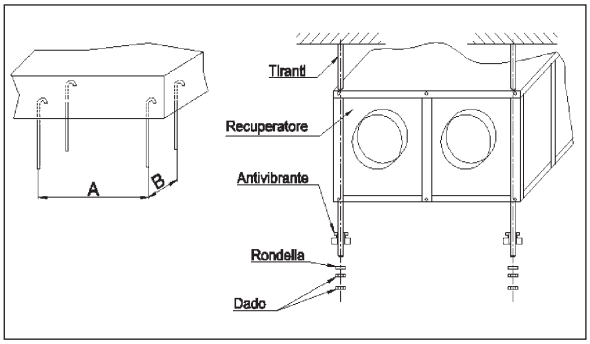
HRS range models

HRS model	030	060	090	160	190	230	300	390
A (mm)	300	300	350	400	400	450	450	450



3.4 Positioning the machine

Some assembly sequences are illustrated below:
1. Drill the ceiling and fix four M8 threaded tie-rods, as indicated in the figure.
2. Position the unit on the four tie-rods
3. Block the unit by fastening the fixing bolt



Model HRS	030	060	090	160	190	230	300	390
A (mm)	930	930	1075	1240	1320	1590	1590	1690
B (mm)	690	690	800	800	900	1170	1170	1270

HRS range models:
with the purpose of favouring the regular flow of condensate, it is advised to mount the machine inclined by 3 mm towards the condensate drain.

3.5 Connection to the ducts

IMPORTANT: IT IS PROHIBITED TO START THE HRS UNIT IF THE FAN VENTS ARE NOT DUCTED OR PROTECTED WITH ACCIDENT-PREVENTION MESH ACCORDING TO UNI 9219 STANDARD AND SUCCESSIVE AMENDMENTS

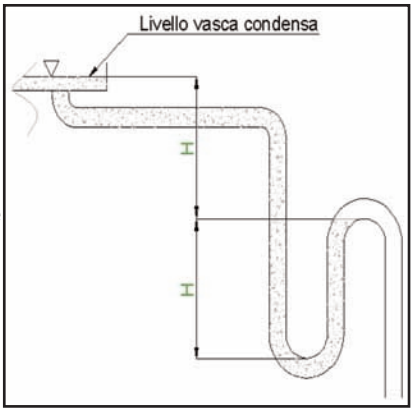
- The ducts must be dimensioned depending on the plant and the aeraulic features of the unit fans. An incorrect calculation of the ducting causes a loss of power or the intervention of any devices present on the plant.
- It is recommended to use insulated ducts to prevent the formation of condensate and attenuate the noise level.
- To prevent transmission of any machine vibrations into the environment it is recommended top lace an anti-vibration joint between the fan vents and the ducts. The electrical continuity must however be guaranteed between the duct and the machine via the earth cable.

3.6 Hydraulic connections

- The installation and connection operations of the hydraulic pipes are operations that can compromise the good functioning of the plant or worse, cause irreversible damage to the machine. These operations must **only be performed by specialised staff.**

3.6.1 Condensate drain connection (HRS range)

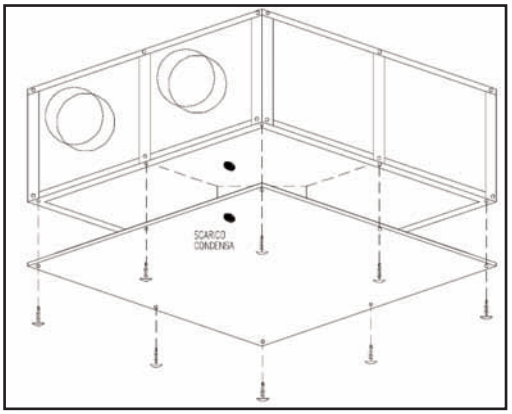
- The HRS range units are all equipped with condensate drip tray.
- The stainless steel condensate drip tray has a drain with D. 21 mm.
- The drain system must have a suitable siphon for preventing the undesired entry of air into the depressurised systems or the undesired exit of air in pressurised systems. This siphon is also useful to prevent the infiltration of odours or insects.
- The dimensioning and the version of the siphons in the case of the depressurised tray (or pressurised) must guarantee that H>P, where P expressed in mm.w.c. is equal to the useful static pressure of the machine installed (figure at the side).
- The siphon must finally have a cap for cleaning the lower part or must however allow quick disassembly for periodical cleaning.
- The route f the condensate drain pipe must always slope towards the outside. It must also be as short as possible and with the least number of bends.



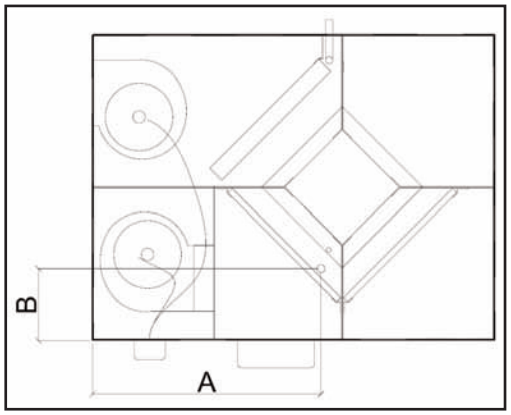
- Always make sure that the condensate flow pipe does not stress the unit drain connection, envisioning appropriate bracketing if necessary.

HRS range models

- To access the drain, remove the base counter panel as highlighted in the figure at the side.



- The position of the drain is made clear in the following table



Model HRS	030	060	090	160	190	230	300	390
A (mm)	355	315	640	810	840	965	965	965
B (mm)	225	195	250	250	151	290	290	290
Hole (mm)	28	28	28	28	28	28	28	28

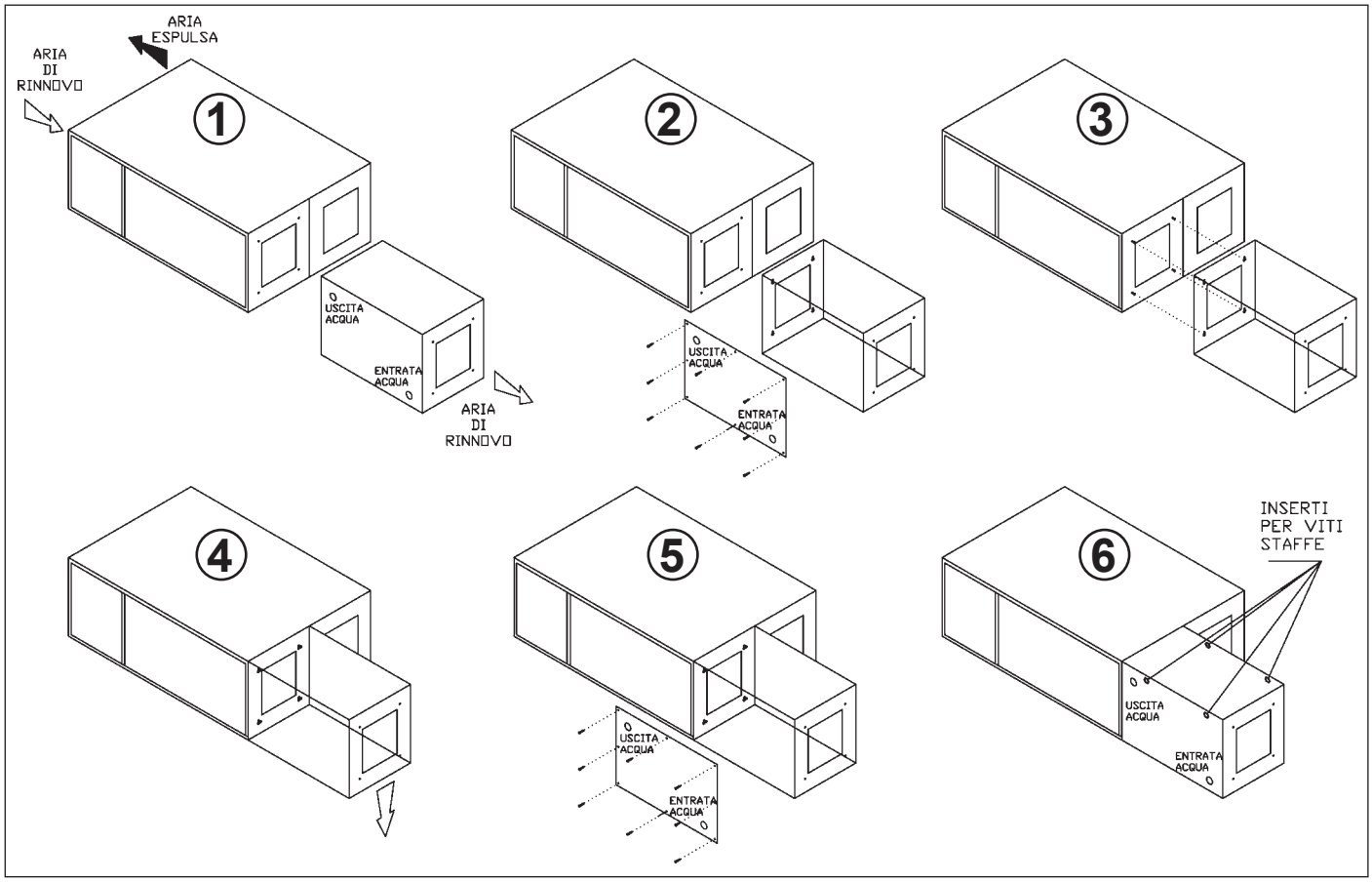
3.7 IAny installation of the section with water coil HRS_CS

Attention: the installation of the section with water coil leads to additional pressure drops in the introduction circuit. These drops are stated in the table on page 9 (“Coil air side pressure drop”)

A plastic bag is also supplied with the section with water coil. It contains:
- n. 4 anti-vibration mounts
- n. 4 attachment brackets
- n. 8 M8 x 20 screws
- n. 4 notched washers diam. 8 mm.

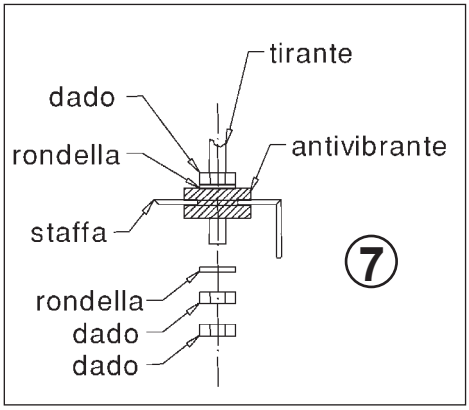
Positioning

- The section with water coil must be positioned in front of the machine flow vent. The collector marked by the "WATER OUTLET" label must be at the side of the machine **(1)**
- Remove the side panel of the section with water coil, loosening the screw fasteners **(2)**
- Partially tighten the 4 M8 screws into the inserts present at the tops of the machine event **(3)**
- Hitch the section with water coil to the machine, passing the head of the projecting screws through the holes and push the section down, in a way that the head of the screws is blocked in the upper part of the hole. Access the 4 screw fasteners from the side of the section and tighten them **(4)**
- Fix the side of the section again **(5)**



Ceiling fixture

- Fix the supplied brackets to the section using the 4 M8 screws to be tightened in the relevant inserts **(6)**
- Fix four threaded M8 tie-rods to the ceiling in correspondence with the brackets. Block the unit by tightening the fixing bolts **(7)**

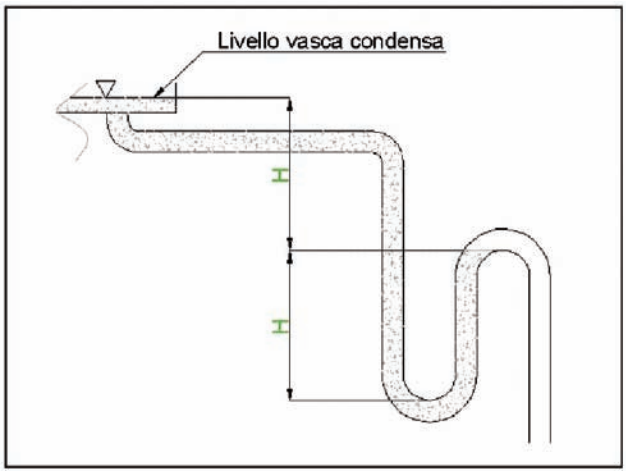


3.8 Hydraulic connection of the section with water coil HRS_CS

- The installation and connection operations of the pipes are operations that can compromise the good functioning of the plant or worse, cause irreversible damage to the machine. These operations must only be performed by specialised staff.
- The section with water coil is supplied with "male" connections with gas threading.
- Tightening must be performed carefully to prevent damage to the copper collectors in the coil.
- The route of the pipes must be studied in a way not to create obstacles if the unit coil is extracted.
- Water inlet/outlet must be such to allow countercurrent heat exchange: follow the indications of the WATER INLET and WATER OUTLET plates
- Envision a high vent valve and a low discharge valve.
- Clamp the pipes adequately to the outside of the section to prevent the weight being unloaded onto the coil.
- When connection has been made, push the external gasket well against the panel to prevent seepage of air.
- Insulation must be flush to the panel in order to prevent the danger of condensation.
- Envision anti-freeze device.
- Envision on-off valves to isolate the coil from the rest of the circuit in the case of extraordinary maintenance.
- In the case of installation in zones with particularly cold climates, empty the plant for long standstill periods.

3.8.1 Condensate drain connection of the section with water coil HRS_CS

- The stainless steel condensate drip tray has a drain with external diameter of 22 mm.
- The drain system must have a suitable siphon in order to prevent the undesired entry of air into the depressurised system. This siphon is also useful to prevent the infiltration of odours or insects.
- The dimensioning and version of the siphon must guarantee that H ³ P, where P expressed in mm.w.c and equal to the useful static pressure of the machine installed.
- The siphon must finally have a cap for cleaning the lower part or must however allow quick disassembly for cleaning.
- The route of the condensate drain pipe must always slope towards the outside.
- Make sure that the condensate flow pipe does not stress the unit drain connection.



SECTION 4 - ELECTRIC CONNECTIONS

Before starting any operation, make sure that the main power supply line has been isolated

- The electric connections to the control board must be made by specialised staff according to the diagrams supplied.
- Make sure that the voltage and the frequency stated on the plate correspond with those of the electric connection line.
- The use of adapters, multiple sockets and/or extensions is not allowed to power the heat recovery unit.

Make the connection using cables with suitable section for the power used and in compliance with the local regulations. Their dimension must be such to realise a voltage drop in the start-up phase, lower by 3% of the nominal value

- **It is the installer's responsibility to assemble the unit as near as possible to the power supply isolator and the necessary to protect the electric parts.**
- Connect the unit to an efficient earth socket, using the relevant screw inserted in the unit itself.

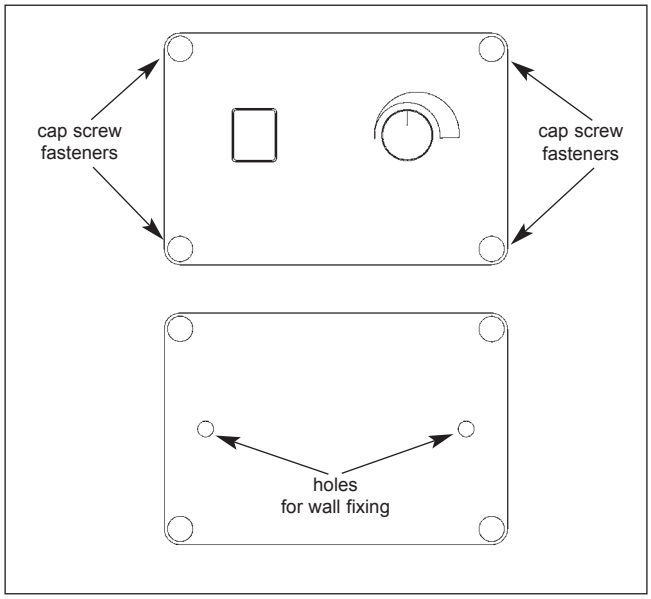
4.1 Electronic speed adjuster HRS_SC (mod. 30 - 60)

The speed adjuster is suitable for wall installation and allows the adjustment of the fan with one-speed single-phase motor. Two adjuster models are envisioned according to the fan motor input current: HRS 030SC and HRS060SC.

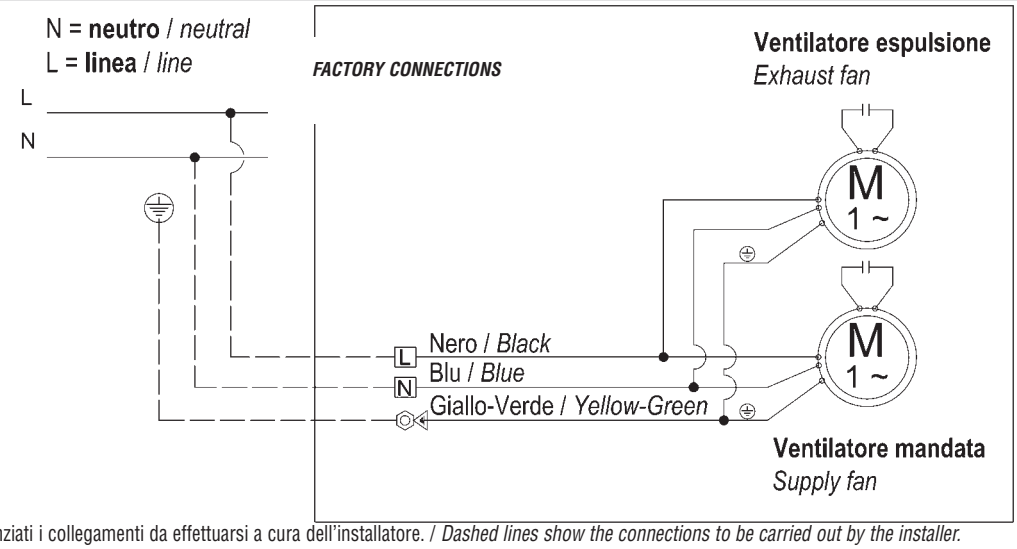
The following are present on the front of the contropanel:
• on/off switch
• knob for continuous speed adjustment.

Installation et montage

1. Loosen the 4 screw fasteners and slide out the cap;
2. Fix the small base to the wall using the relevant holes, at about 1.5 metres from the floor;
3. Make the electric connections;
4. Re-position the cap and tighten the screws.

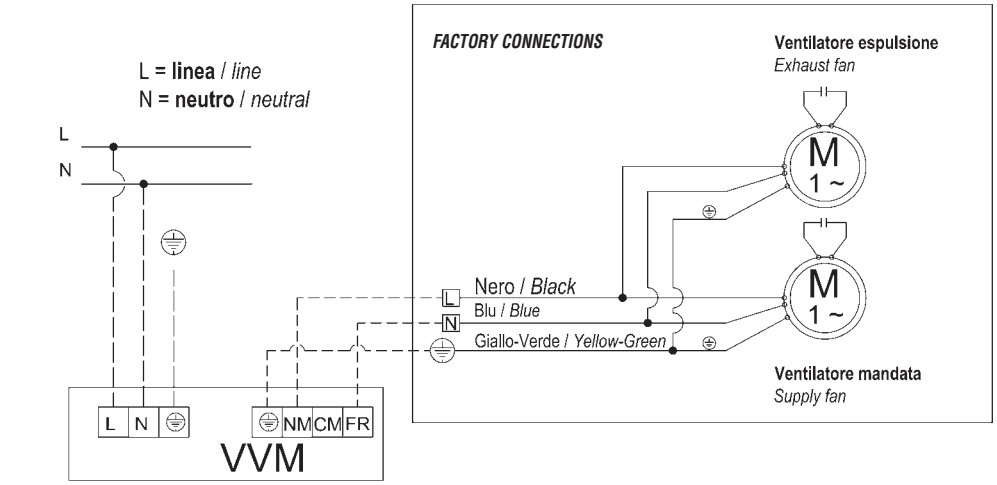


HRS 030 – 060 DIRECT WIRING DIAGRAM



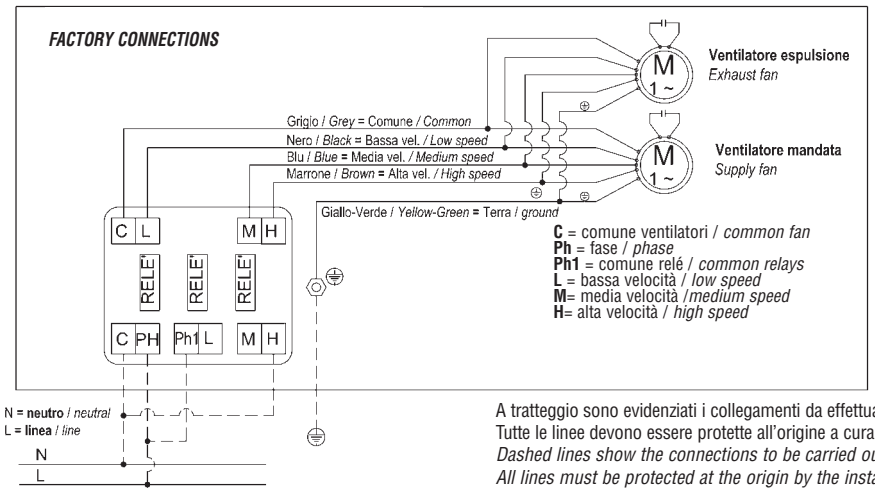
A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore. / *Dashed lines show the connections to be carried out by the installer.*
Tutte le linee devono essere protette all'origine a cura dell'installatore. / *All lines must be protected at the origin by the installer.*

HRS 030 – 060 WITH ELECTRONIC ADJUSTER HRS_SC WIRING DIAGRAM



A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore. / *Dashed lines show the connections to be carried out by the installer.*
Tutte le linee devono essere protette all'origine a cura dell'installatore. / *All lines must be protected at the origin by the installer.*

HRS090 - 160 - 190 DIRECT WIRING DIAGRAM

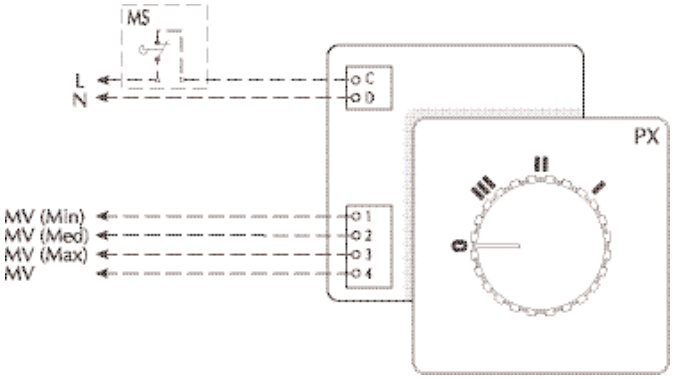


Nello schema è indicato il funzionamento alla massima velocità.Per il funzionamento alla media velocità collegare il neutro con il morsetto M, per la bassa con il morsetto L.

The diagram shows operation at the high speed. For the medium speed connect the neutral with clamp named M, for the low speed with clamp named L.

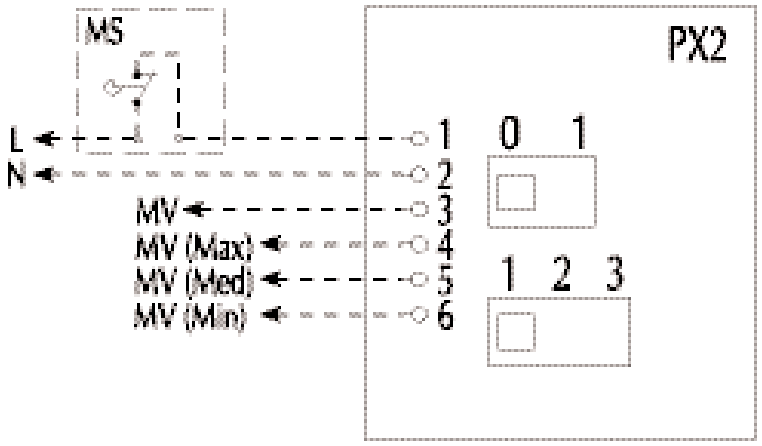
A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.
Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

HRS 090 - 160 - 190 WITH SPEED SELECTOR SWITCH PX WIRING DIAGRAM



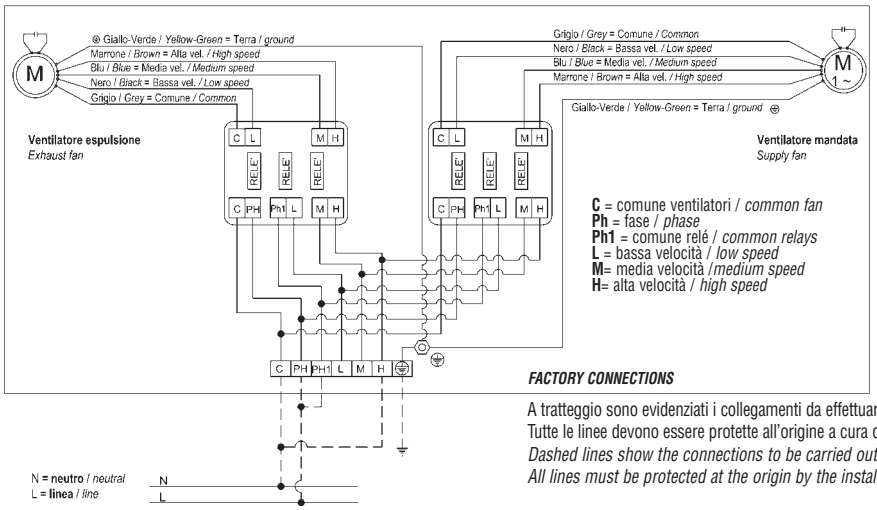
The connections that the installer must make are dotted.
All lines must be protected at the origin by the installer.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

HRS 090 - 160 - 190 WITH SPEED SELECTOR SWITCH PX2 WIRING DIAGRAM



A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.
Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

HRS 230-300 DIRECT WIRING DIAGRAM

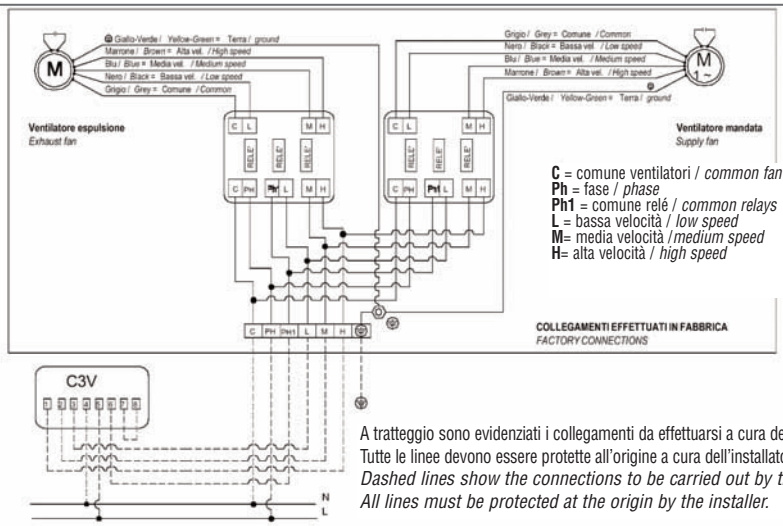


Nello schema è indicato il funzionamento alla massima velocità.
Per il funzionamento alla media velocità collegare il neutro con il morsetto M, per la bassa con il morsetto L.

The diagram shows operation at the high speed. For the medium speed connect the neutral with clamp named M, for the low speed with clamp named L.

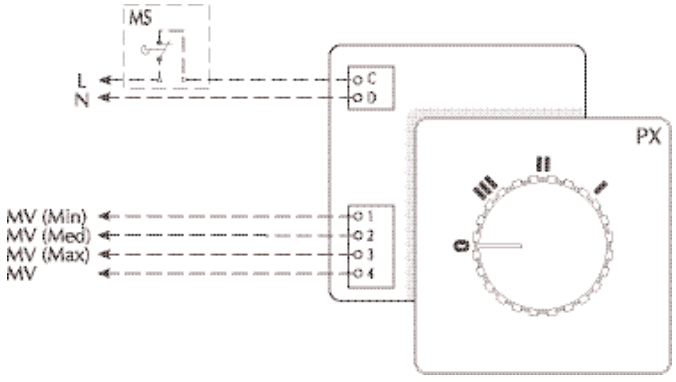
A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.
Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

HRS 230-300 WITH SPEED SELECTOR SWITCH HRS_SC WIRING DIAGRAM



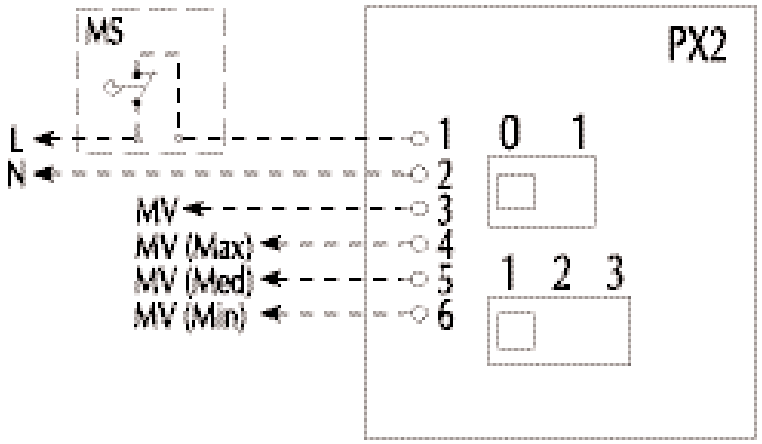
A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.
Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

HRS 230 - 300 WITH SPEED SELECTOR SWITCH PX WIRING DIAGRAM



A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.
Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

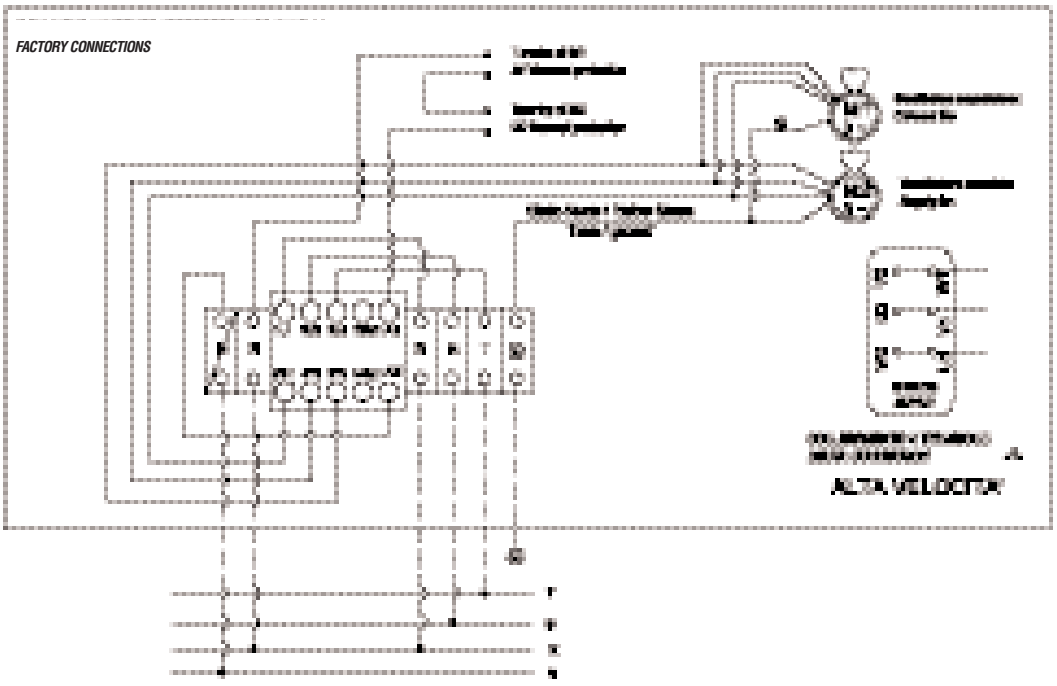
HRS 230-300 WITH SPEED SELECTOR SWITCH PX2 WIRING DIAGRAM



A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.
Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer.
All lines must be protected at the origin by the installer.

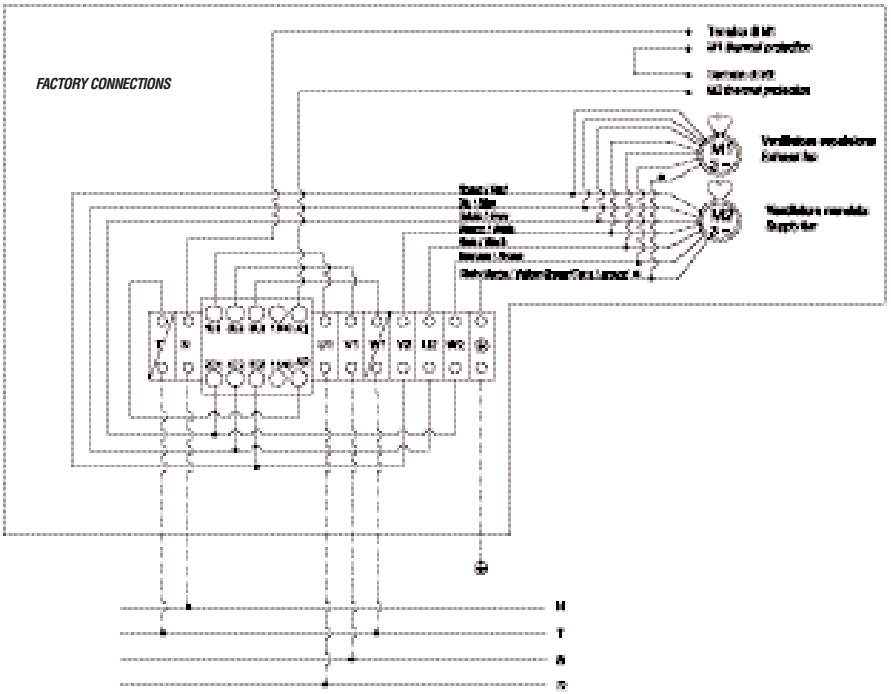
HRS390 THREE-PHASE DIRECT WIRING DIAGRAM

A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer. All lines must be protected at the origin by the installer.



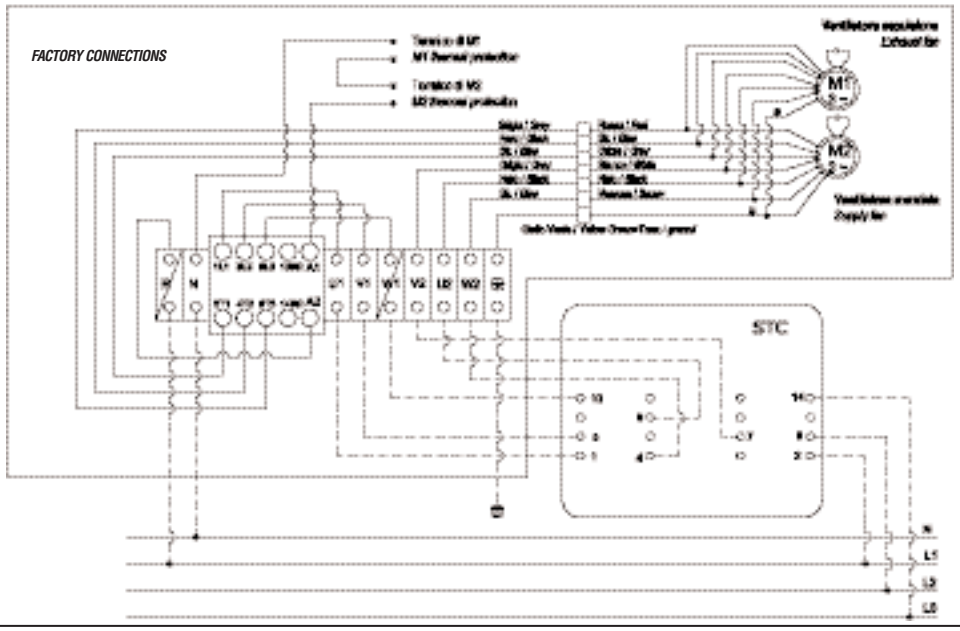
HRS390 THREE-PHASE DIRECT WIRING DIAGRAM

A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer. All lines must be protected at the origin by the installer.



HRS390 THREE-PHASE DIRECT WITH STAR DELTA SWITCH-OVER STC WIRING DIAGRAM

A tratteggio sono evidenziati i collegamenti da effettuarsi a cura dell'installatore.Tutte le linee devono essere protette all'origine a cura dell'installatore.
Dashed lines show the connections to be carried out by the installer. All lines must be protected at the origin by the installer.



SECTION 5 - CONTROLS BEFORE START-UP

Check the following before starting the unit:
- Anchorage of the unit to the ceiling or the wall.
- Connection of the aeraulic ducts.
- Connection and continuity of the earth cable.
- Tightness of all electric clamps.

SECTION 6 - ROUTINE MAINTENANCE

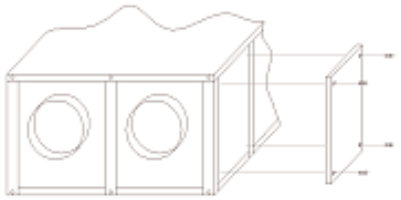
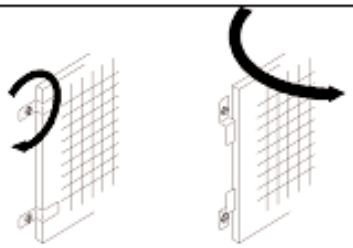
6.1 Warnings

BEFORE UNDERTAKING ANY MAINTENANCE OPERATION, MAKE SURE THAT THE MACHINE IS NOT AND CANNOT BE CASUALLY OR ACCIDENTALLY BE POWERED ELECTRICALLY. IT IS THEREFORE NECESSARY TO REMOVE THE ELECTRIC POWER SUPPLY EVERY TIME MAINTENANCE IS PERFORMED.

- The customer must carry out maintenance on the heat recovery unit.
- Only authorised, previously trained and qualified staff can perform the maintenance operations.
- If the unit must be disassembled, protect the hands using work gloves.

6.2 Monthly checks

6.2.1 Check the HRS range filtering section

Modelli orizzontali (/O)	
Aprire il pannello laterale togliendo le 4 viti come evidenziato in figura.	
Ruotare le staffette di sostegno del filtro, togliere quindi il filtro lateralmente come esemplificato nella figura. Una volta eseguita la pulizia ripetere le operazioni in ordine inverso. Per la pulizia utilizzare un aspirapolvere o lavare con detergente comune in acqua tiepida, lasciando asciugare in modo accurato. Ricordarsi sempre di rimontare il filtro prima dell'avviamento dell'unità.	

6.2.2 HRS range other checks

- **Check the heat recovery unit**
  Check that the plate heat exchanger is free from all impurities that could lower its efficiency greatly.
- **Check the condensate drain**
  Remove the lateral panel and if necessary remove the deposits and impurities that have formed in the condensate drip tray. Also check siphon efficiency.
- **Check the water coils**
  Check that the exchange coils (special version and accessory) are clean and in perfect working order in order to guarantee the normal performance.

Once cleaned, repeat the operations in the reverse order.
Always remember to re-mount the filter before re-starting the unit.

6.3 Yearly checks

- Check all electric appliances and particularly the tightness of the electric connections.
- Check the tightness of all bolts, nuts, flanges and water connections that vibrations may have loosened.

SECTION 7 - IDENTIFYING BREAKDOWNS

SYMPTOMS	POSSIBLE CAUSES
The fans do not work	The power supply is not inserted. The thermostat switches are not in the exact functioning position. There are foreign bodies that block the rotors. Loosened electric connections.
Motor out of absorption	Static pressure at that requested and therefore excessive flow rate: it is possible to intervene by increasing the load using dampers and adjusters. Rotation speed too fast.
Excessive air flow rate	System pressure drops over-estimated.
Low air flow rate	System pressure drops under-estimated. Obstructions in the ducts. Rotation speed too slow: check that the connection is correct on the motor terminal board and also that the voltage corresponds to that on the plate. The rotor turns in reverse.
Noise	Excessive flow rate. Wear or cracks in the bearings. Unbalanced fan. Presence of foreign material in the auger.
Strong vibrations	Rotor unbalanced due to wear or deposits of dust. The rotor rubs against the auger due to deformations. Obstructions in the ducts.
The heat exchanger does not turn	The power supply is not inserted. The plug that feeds the induction motor is not connected. There are foreign bodies that block the rotor. The electric connections have loosened.

If the breakdown cannot be easily solved, disconnect the appliance from the electric power supply and contact the after-sales assistance or the nearest authorised dealer, stating the identification data of the unit stated on the relative plate.

SECTION 7 - DISPOSAL

At the end of their life span the heat recovery units in the HRS - HRS W range must be disposed of in compliance with the Standards in force. In particular, the European Community Directive 2002/96/CE regarding electric and electronic appliance waste, prescribe the disposal out of the normal flow of solid urban waste. The appliances that are no longer used must be collected separately in order to optimise the rate of recovery and recycling of the materials of which they are made and to prevent potential damage to the health and environment.
The materials making up the heat recovery units are:

- Aluzink sheet steel
- Galvanised sheet steel
- Aluminium
- Copper
- Polyurethane
- Polyethylene
- Plastic
- Stainless steel

HRS - HRSW

SERIAL NUMBER

CE DECLARATION OF CONFORMITY

The company named
AERMEC S.p.a.
With Legal Offices in Via Roma, 996
37040 Bevilacqua (VR)
ITALIY

DECLARES
under its own responsibility that
the HRS HRSW heat recovery units
are in compliance with that prescribed by the following Directives:

- Directive for electromagnetic compatibility EMC 2004/108/CE and successive amendments
- 98/37/CE Machinery Directive and successive amendments according to attachment II paragraph B

The unit, subject of this declaration, cannot be put into service before the machine or plant in which it is incorporated has been declared in compliance with the provisions of the 98/37/CE Machinery Directive and its successive amendments.

This declaration looses all validity in the case of improper use or any modifications, we have not authorised, made to the unit.

Bevilacqua, 01.04.09

Directeur commercial
Luigi Zucchi

AERMEC

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