

WESPAK

1.39, 2.69 & 3.99



English

Français

Direct drive compact air handling units

Centrales compactes de traitement d'air à entraînement direct

IOM WPKDD-N.3GBF/09.08

Part number / Code : **Q3NSTE878**

Supersedes / Annule et remplace : **IOM WPKDD-N2GBF/11.06**



Table of Contents

Introduction	p.2
Safety Precautions	p.2
Description	p.3
Inspection and storage	p.3
Electrical data	p.3
Operating limits	p.3
Dimensional Data and Weight	p.4
Installation	p.7
Unit handling	p.7
Installation location	p.7
Instructions d'installation	p.7
Water Connections	p.8
Water coil connections	p.8
Condensate drain connection	p.8
Electrical Connections	p.9
Unit connection	p.9
Controls.....	p.9
Electric heater	p.9
Standard wiring diagram	p.9
Example of wiring diagram with CMVM fan speed switch.....	p.10
Example of wiring diagram with TRM-FA remote control	p.11
Example of wiring diagram with electric heater and TRM-VP remote control	p.12
Preliminary Checks Before Start-up	p.13
Operation	p.13
Maintenance	p.13-14

1 - Introduction

The purpose of this manual is to provide the installation, start-up, operating and maintenance rules to the users of the small packaged air handling units.

It does not give a full description of all maintenance works assuring the long life and reliability of this type of equipment. Only the services of qualified personnel, member of a registered maintenance company, can guarantee a reliable and durable running of the machine.

2 - Safety Precautions

Before installing the unit, please read the following safety precautions carefully.



Warning

Installation, operation and maintenance must be performed by qualified personnels who are familiar with local codes and regulations and experienced with this type of equipment.



Warning

Confirm the unit is switched OFF before installing or servicing the unit.



Warning

All field wiring must be installed in accordance with the national wiring regulations.



Caution

Handling of the unit must be done by using the systems designed to support its weight.



Warning

Ensure the rated voltage of the unit corresponds to the name plate before carrying out wiring according to the supplied wiring diagram.



Caution

It is forbidden to undertake any work on electrical components of the unit before disconnecting the power supply.



Warning

The unit must be GROUNDED to prevent possible hazards due to insulation failures.



Caution

It is forbidden to undertake any work on electrical components of the unit, if there is presence of water and humidity.



Warning

All wiring must not touch the heat source or any moving parts of fan motor.



Caution

When undertaking water connection, make sure that any foreign matters will not be introduced into water piping.

The manufacturer warranty will not be applied, if all installation instructions stated in this manual have not been followed.

3 - Description

3.1 - Inspection and storage

When the equipment is received, all items must be carefully checked against the bill of lading to be sure all crates and cartons have been received. The units are shipped on pallet. Inspect all units for visible or concealed damages.

In case of deterioration, formulate the precise reserves on the transport document and send immediately a registered letter to the forwarder, mentioning clearly the occurred damages and a copy of the letter to the manufacturer or its representative.

Do not stand or transport the unit on its end. Temporary storage must be indoor, completely sheltered from rain, snow, etc.

Change in the weather (high and low temperatures) should not damage the unit. Excessively high temperature (60 °C or more) may deteriorate certain plastic materials and cause permanent damages.

In addition, some electric components and solid-state circuit boards may not operate correctly.

3.2 - Electrical Data

Motor absorbed current - 230 V / 1 ph / 50 Hz

MODELS		1.39	2.69	3.99
Low speed	A	1.40	2.02	3.30
Medium speed	A	2.40	3.00	3.95
High speed	A	3.30	4.22	5.01

Electric heaters - 400 V / 3 ph / 50 Hz

MODELS	1.39			2.69			3.99		
Coils	BE1	BE2	BE3 *	BE1	BE2	BE3 *	BE1	BE2	BE3 *
Capacity (kW)	3	6	9	6	12	18	12	24	36
Voltage	400 V / 3 / 50 Hz – (230 V / 3 / 50 Hz : optional)								
Number of stages	1	2	3	1	2	3	1	2	3

(*) BE3 is to be used on fan discharge only.

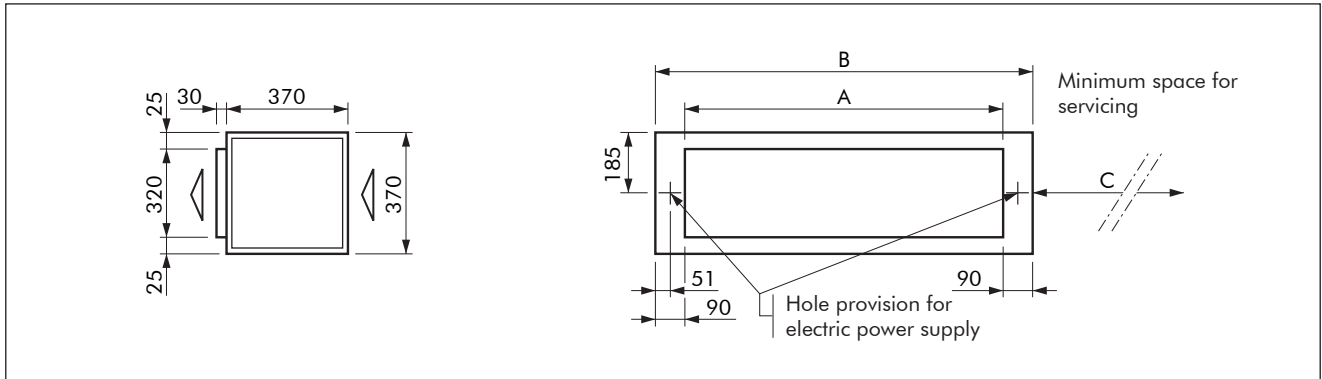
3.3 - Operating Limits

WATER PIPING SYSTEM	Maximum operating pressure	10 bars
	Minimum entering temperature	+ 4 °C
	Maximum entering temperature	+ 90 °C
ROOM AIR TEMPERATURE	Minimum temperature	5 °C
	Maximum temperature	32 °C
SUPPLY VOLTAGE	230 V ± 10 % / 1 ph / 50 Hz	

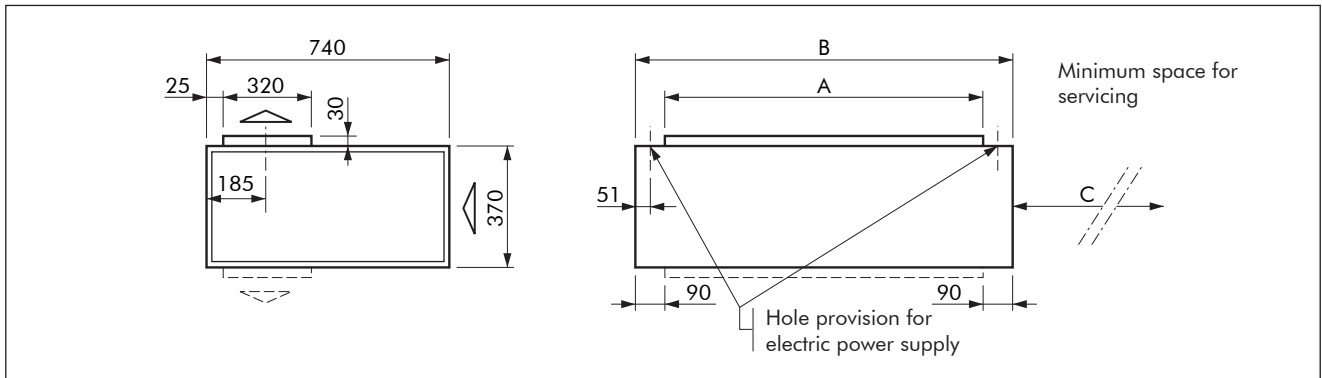
4 - Dimensional Data and Weight

4.1 - Dimensional Data

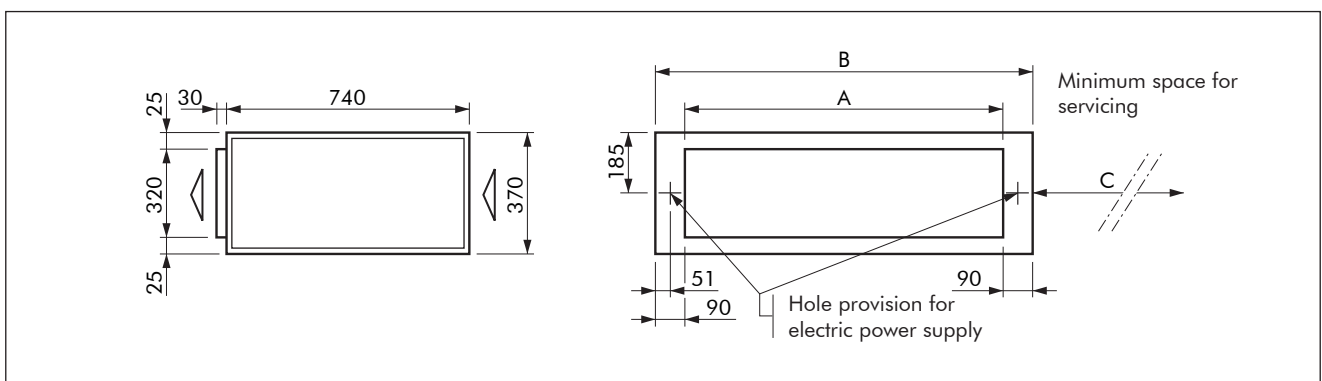
Modules : 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, HM8, HM9, VM8, VM9



Modules: HM49, HM59, HM69, HM79



Modules: HP4, HP5, HP6, HP7. HM80, HM81, HM83, HM90, HM91, HM92, HM93, MFP, PAS



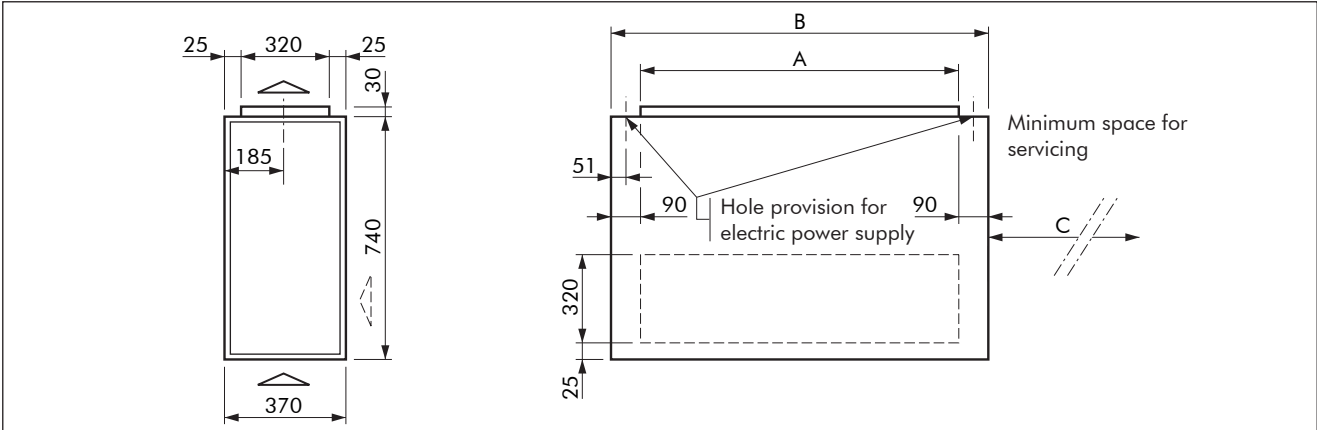
MODELS	1.39	2.69	3.99
A	582	970	1320
B	762	1150	1500
C	779	1167	1517

Dimensions in mm.

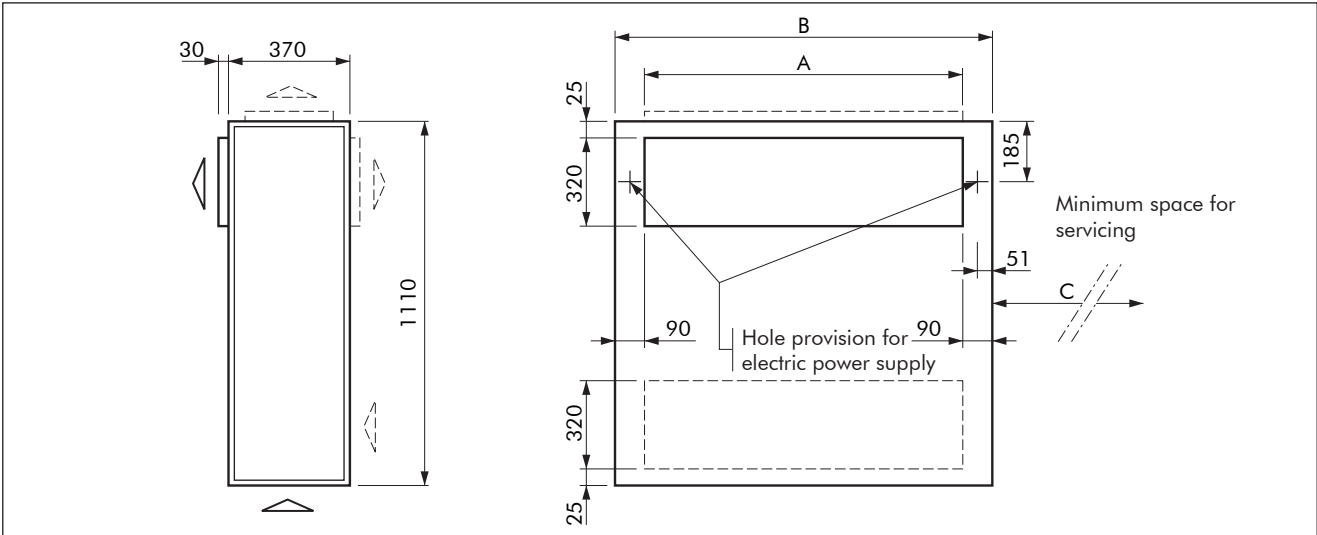
4 - Dimensional Data and Weight (cont'd)

4.1 - Dimensional Data (cont'd)

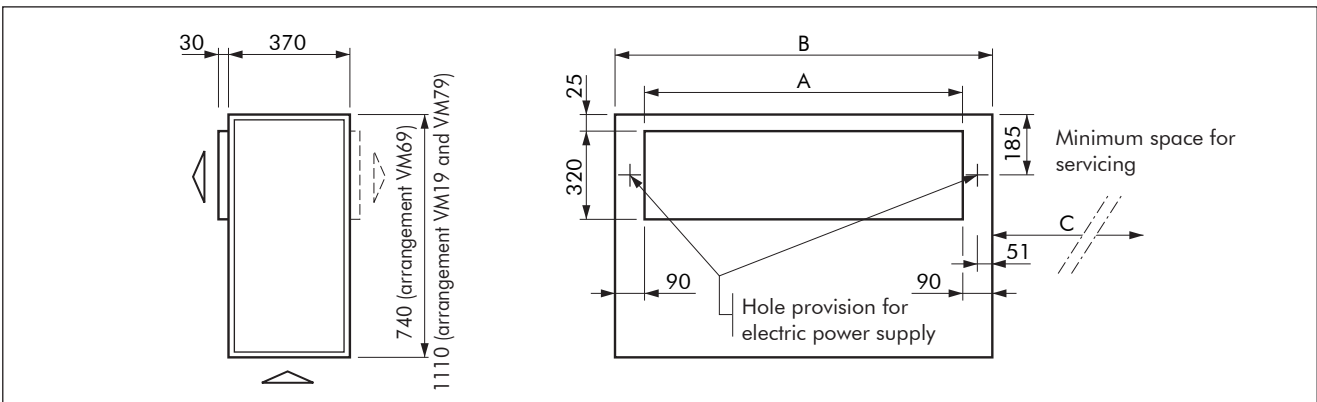
Modules : VP1, VP6, VP7, VM80, VM90



Modules : VM39, VM49, VM59



Modules : VM19, VM69, VM79



MODELS	1.39	2.69	3.99
A	582	970	1320
B	762	1150	1500
C	779	1167	1517

Dimensions in mm.

4 - Dimensional Data and Weight (cont'd)

4.2 - Weight

MODELS	1.39		2.69		3.99	
	SP	DP	SP	DP	SP	DP
BASIC SECTIONS						
0 - 6	14	19	21	28	29	37
1 - 7	18	23	27	34	37	45
2 - 3 - 4 - 5	23	28	34	41	46	54
8 - 9	24	29	32	39	41	49
HORIZONTAL UNITS						
HP4 - HP5 - HM49 - HM59	46	57	66	80	85	102
HP6 - HM69 - HM80 - HM90 - MFP	37	48	53	67	68	85
HP7 - HM79 - HM81 - HM91 - PAS	41	52	59	73	76	93
HM8 - HM9	24	29	32	39	41	49
HM82 - HM83 - HM92 - HM93	46	57	66	80	85	102
VERTICAL UNITS						
VP1 - VP7	41	52	59	73	76	93
VP6 - VM80 - VM90	37	48	53	67	68	85
VM19 - VM79	50	66	73	94	96	121
VM39 - VM49 - VM59	55	71	80	101	105	130

SP : single skin

DP : double skin

Weights are given for empty coils.

Extra weight for electric heating coils (replacing hot water coil)

MODELS	1.39	2.69	3.99
BE1	3	5	10
BE2	6	11	17
BE3	10	17	21

Weight of accessories

MODELS	MD1/2	MD3	AG	FA1/2/3	RP	PLE	R
1.39	9	17	5	3	32	7	5
2.69	14	28	7	5	55	10	8
3.99	20	38	9	7	94	12	10

Weights are in kg.

5 - Installation

5.1 - Unit Handling

Be careful to avoid rough handling on the unit. **Do not lift the unit by the condensate outlet or by the water connections.** Use a lifting truck to facilitate the unit installation.



Warning

Sharp edges and coil surfaces are a potential hazard. Avoid contact with them.

5.2 - Installation Location

1. The units are designed to be installed above the false ceiling.
2. Install the unit in a position having sufficient strength to carry the weight of the unit.
3. Install the unit in a position where ducts can be connected to inlet and outlet sides of the unit.
4. Install the unit in a position from where condensate can be run to waste easily.
5. Check the distance between the upper slab and false ceiling to ensure the unit will suit the distance.
6. Ensure there is sufficient space around the unit to service it (see table hereafter for minimum clearances on service side of filters and fan-motor assembly access).

Minimum clearances on service side

MODELS	1.39	2.69	3.99
mm	779	1167	1517



Warning

Do not install the unit in a machinery shop or kitchen where vapour from oil or its mist flows into the unit.

5.3 - Installation Instructions

1. Unpack the unit and install the fixing brackets on it (see drawing below).
2. Install the assembling parts on double section units to assemble the two modules (see drawing below).
3. For ceiling suspended unit, fix it directly to the suitable supports or hang it to the ceiling by threaded rods or strengthened screws supplied by the installer (see drawing below).
4. Secure the unit in its final position and **level it with a spirit level** to assure proper drainage and operation.
5. Unit must be mounted in such a way that water will flow toward drain connection.

Fixing brackets		Ceiling mounting												
<table border="1"> <thead> <tr> <th>MODELS</th> <th>1.39</th> <th>2.69</th> <th>3.99</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>992</td> <td>1310</td> <td>1660</td> </tr> <tr> <td>B</td> <td>660</td> <td>1048</td> <td>1398</td> </tr> </tbody> </table>		MODELS	1.39	2.69	3.99	A	992	1310	1660	B	660	1048	1398	
MODELS	1.39	2.69	3.99											
A	992	1310	1660											
B	660	1048	1398											
Assembling parts		Wall mounting												
<p>Supplied by manufacturer</p>														

6 - Water Connections

6.1 - Water Coil Connections

Each water coil is equipped with headers having 1" male threaded type connection on water supply and water return.

Air vent must be installed at highest point of the water piping.

To ensure an optimum heat transfer efficiency, connections of water supply and return should be arranged in such a way that a counter flow configuration between air and water is obtained.

Flexible hoses are recommended for coil connections. Tighten normally the water connections. Note that an excessive tightening can cause too strong material stresses at the time of significant temperature changes.

All water lines should be insulated to prevent sweating and heat loss.



Caution

If the units are not equipped with control valves, the air temperature must not exceed 50 °C.



Warning

To avoid any damage on coil, use two spanners to tighten the water pipe fittings on each header.

Cooling coil water volume

MODELS	1.39	2.69	3.99
Number of rows	4	4	4
Water volume (l)	2.3	3.4	4.5

Heating coil water volume

MODELS	1.39	2.69	3.99
Number of rows	2	2	2
Water volume (l)	1.3	1.9	2.4

6.2 - Condensate Drain Connection

The condensate drain pan is supplied with 5/8" OD copper tube outlet.

Ensure that water condensate will be properly drained out from the drain pan which must be connected to the main drain piping.

The drain line must be installed with a downward slope. Ensure water trap is available on drain piping.

On completion, the drain line should be insulated.



Caution

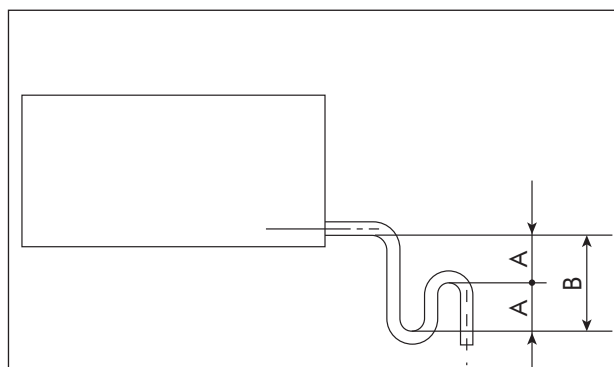
Check that there is no counter-slope which would prevent condensates from flowing.



Warning

All foreign material must be removed from the drain pan.

Siphon for condensate evacuation



The height A must be equal to **2 times** the value of the negative pressure present in the condensate reception zone (example : negative pressure = 40 mm, height A = 80 mm, height B = 160 mm).

7 - Electrical Connections

7.1 - Unit connection

All units are allowed for being connected on a power supply of 230 V ±10 % / 1ph / 50 Hz + Earth.

Before undertaking any electrical connection, make sure that the fan motor is suitable for electrical power supply. Each unit is provided with an electrical junction block located inside the fan section.

All wiring must be done in accordance with applicable electrical codes and regulations.

Earthing of unit is imperative.

The manufacturer or its representative will not be held responsible for accidents caused by incorrect or non-existing earthing.

7.2 - Controls

The standard units are supplied without any controls.

A manual fan speed selector switch or remote control thermostat can be supplied as option. However, they must **control one unit only**.

⚠ Caution

Do not wire two units or more with one fan speed switch or control thermostat without using auxiliary relays.

Check that the current absorbed by the motors is compatible with the cut-out capacity of the control device contacts.

7.3 - Electric Heater

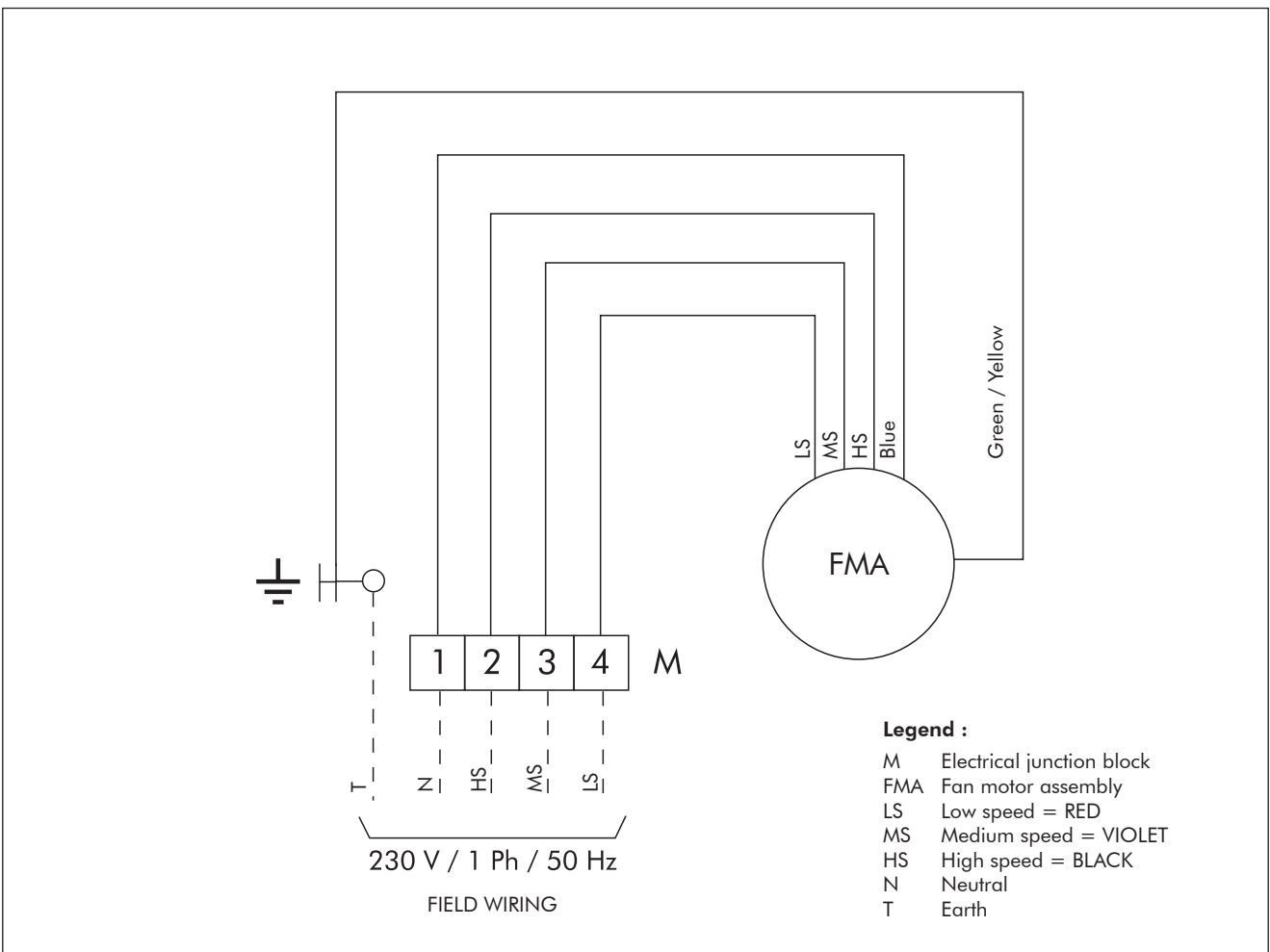
The factory mounted electric heater is fitted with a manual reset high temperature cut-out switch which de-energizes the heater in case of fan motor failure.

For electrical connection, refer to wiring diagram stuck on the unit.

⚠ Caution

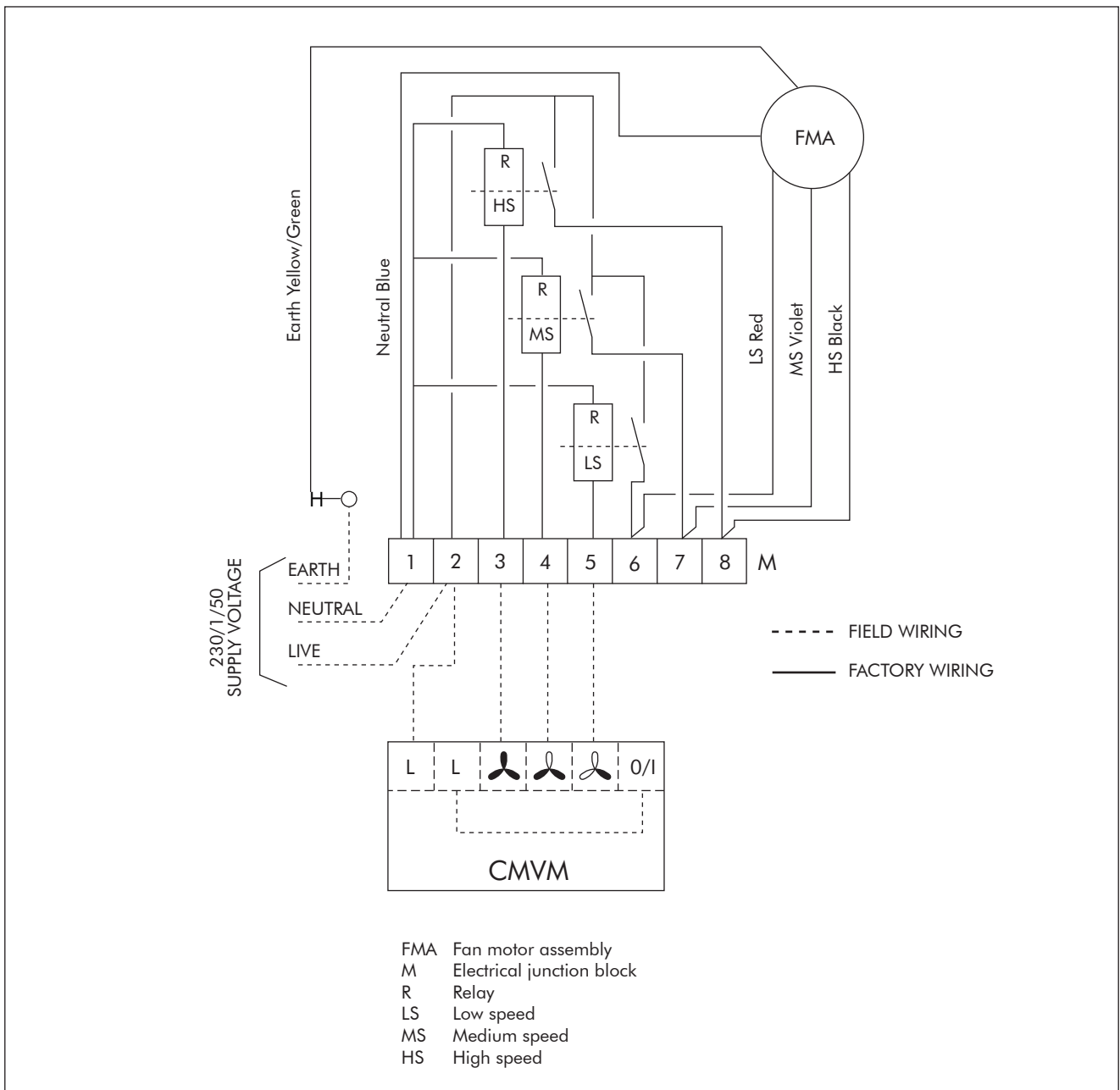
The electric heater must never operate without the ventilation.

Standard wiring diagram



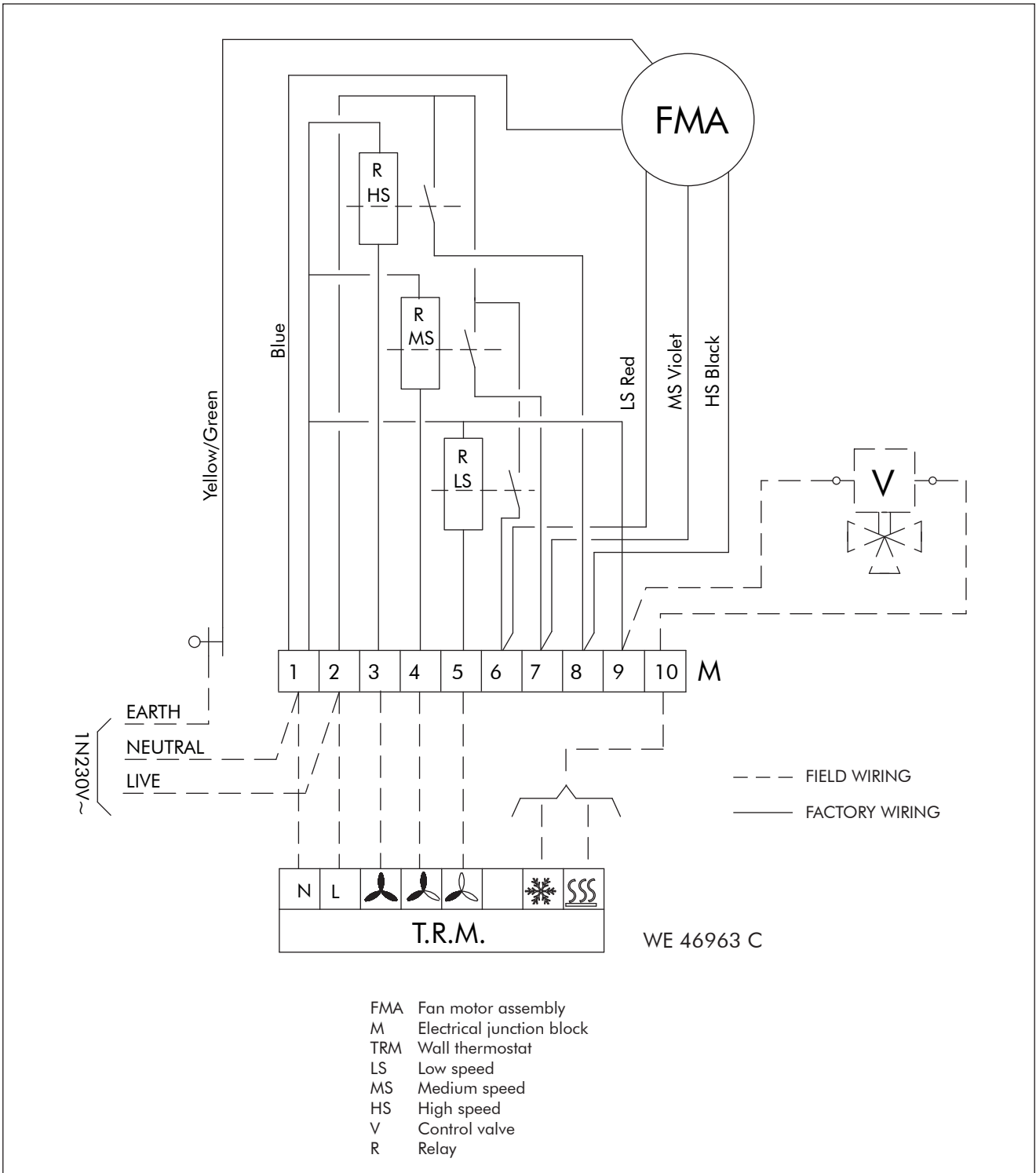
7 - Electrical Connections (cont'd)

CMVM fan speed selector switch



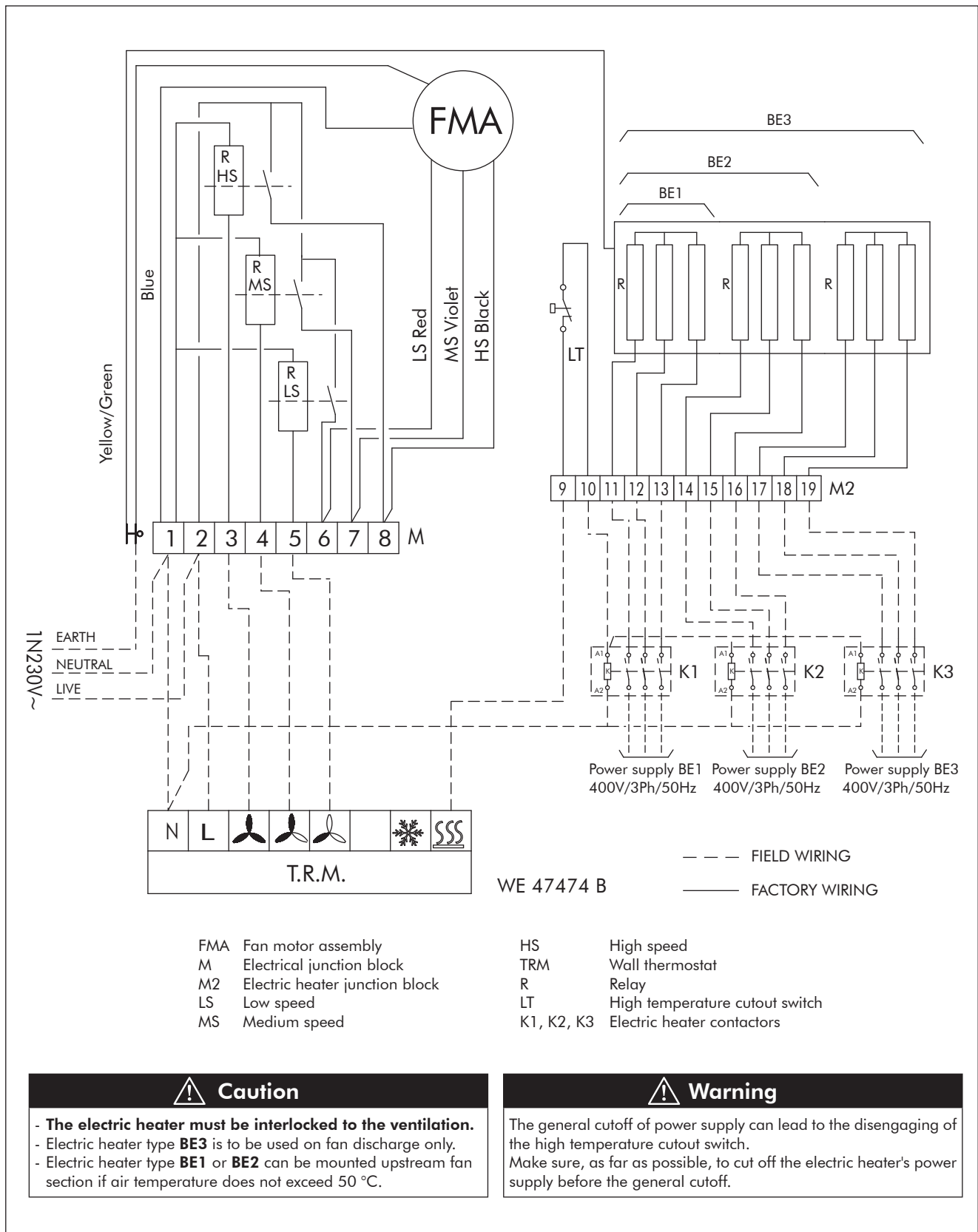
7 - Electrical Connections (cont'd)

Example of wiring diagram with TRM-FA remote control including on/off switch, fan speed switch, room thermostat and summer/winter manual change-over



7 - Electrical Connections (cont'd)

Example of wiring diagram with TRM-VP remote control and electric heater










8 - Preliminary Checks Before Start-up

1. Make sure that system piping has been cleaned and all the air has been purged, before starting up the unit.
2. Check that condensate drain pipe is connected and allows correct drainage. Also check that it is connected to a siphon.
3. Ensure that air filter is clean and properly installed.
4. Make certain that fan rotates freely.
5. Make sure that all water and electrical connections are properly tightened.

9 - Operation

The unit operation is carried out differently according to the control option chosen.

On the TRM remote control (figure opposite), it is controlled by :

- 1) An "I / O" on - off switch,
- 2) A manual fan speed selector materialized by a "Turbine" symbol :
 Symbol  means low speed,
 Symbol  means medium speed,
 Symbol  means high speed,
- 3) A thermostat to regulate and maintain the desired room temperature,
- 4) A summer / winter manual changeover materialized by a  and  symbol, to obtain an operating mode in cooling ( symbol) or heating ( symbol).

TRM remote control



10 - Maintenance

It is recommended to proceed to the following maintenance works in order to ensure a good operation of the unit.



Caution

Before performing any maintenance operation, disconnect the unit main power supply.

10.1 - Air Filter

Filters should be frequently cleaned to avoid clogging. They should be inspected every 3 or 4 months under normal operating conditions and be replaced if necessary.

Unit should never be run without filter.

To remove the filter, operate as follows :

- 1) Release the fixing screws (2 nos on HP module and 4 nos on FA and HM modules) of filter section side panel.
- 2) Remove this side panel.
- 3) Then, pull out the filters (1 no on size 1.39 and 2 nos on sizes 2.69 and 3.99) which are mounted on sliding rails.

10.2 - Condensate Pan

The condensate pan must be checked periodically to make sure that drain piping is not obstructed.

If required, it must be cleaned and rinsed.

10.3 - Coils

Check that coil fins are not clogged or damaged.

To avoid mouldiness of coils caused by an accumulation of fine dusts, it is recommended to clean them frequently. If necessary, comb the coil fins with an appropriate tool.

Care must be taken not to damage the fins while cleaning them.

Set of cooling coil, heating coil or electric heater and drain pan can be removed through the sliding rails after unscrewing the coil section side panel.

10 - Maintenance (cont'd)

10.4 - Fan motor assembly

There is no particular maintenance on fan motor assembly. The units are equipped with permanently lubricated fan motor bearings. It is not necessary to add oil. However, during periodic maintenance, check that fan wheel rotates freely without any friction.

If the fan motor overload protection is tripped, wait for safety automatic reset and try to find out the cause of overload protection tripping.

If fan motor replacement is required, it can be removed as follows :

- 1) Disconnect the unit power supply.
- 2) Release the 4 fixing screws of fan section side panel.
- 3) Release the 4 fixing screws of fan deck.
- 4) Disconnect the electrical cable from the junction block.
- 5) Pull out the fan deck which is mounted on sliding rails.

10.5 - Electrical Connections

Re-tighten periodically the electrical connections.

10.6 - Water Piping System

Once a year, drain the piping system and check the furring-up of the pipes.



Caution

It is not the manufacturer's policy to make recommendations in terms of water treatment (please contact a specialised water treatment company).

However, given the critical nature of this subject, particular care should be taken to ensure that, if treatment is required, it works effectively.

Using untreated or unsuitable water leads to excessive clogging inside the coil tubes (earth and mud deposits, corrosion, etc.) with major consequences on the thermal efficiency of the unit and irreversible damage to the equipment.

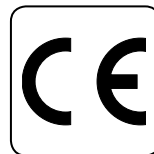
The manufacturer and its representative decline all responsibility in the event of untreated or incorrectly treated water being used.



Caution

If the water pipes are exposed to temperatures below 0 °C, take the necessary precautions (draining, antifreeze, etc.) to avoid the coils freezing.

Adding antifreeze to the circuit reduces the unit's performance (if necessary, please contact our sales network).



As part of our ongoing product improvement programme, our products are subject to change without prior notice. Non contractual photos.

Dans un souci d'amélioration constante, nos produits peuvent être modifiés sans préavis. Photos non contractuelles.

