

Installation and maintenance instruction for **DRY COOLERS**

EAL12 POWER Ø 1250



MANUFACTURED DECLARATION OF INCORPORATION

STANDARDS - The products are provided for incorporation in machines as defined in the EC Machine Directive **2006/42/CE** and subsequent modifications.

• **PED 97/23/CE**

• Directive **2004/108/CE** and subsequent modifications. Electromagnetic compatibility.

• **Low tension** - Reference Directive **2006/95/CE**

However it is forbidden to operate our equipment in advance before the machine incorporating the products or making part thereof has been declared conforming to the EC Machine Directive.

PRECAUTIONS: Accident warning concerning possible personal injury or equipment damage due to inattention to the instructions.

A) For moving, installing and maintenance operations it is obligatory to:

- 1 - Employ authorized personnel only for using moving equipment (cranes, forklift elevators, etc.).
- 2 - Wear work gloves.
- 3 - Never stop below a suspended load.

B) Before proceeding with the electrical wiring it is obligatory to:

- 1 - Employ only authorized personnel
- 2 - Make sure the power line circuit is open
- 3 - Make sure the main switch on the general power panel is open and padlocked in this position.

C) Before proceeding with the collector/distributor connections it is obligatory to:

- 1 - Employ only authorized personnel
- 2 - Make sure the supply circuit is closed (no pressure).
- 3 - When performing welding operations, make sure the flame is not aimed toward the equipment (insert a shield if required).

D) DISPOSAL: LU-VE products are made of:

Plastic materials: polyethylene, ABS, rubber.

Ferrous materials: iron, stainless steel, copper, aluminium (possibly treated).

Refrigerant liquids: follow the instructions relevant to the equipment installation.

E) Remove the transparent protection film from painted metal parts.

CHARACTERISTICS

Heath Exchanger:

- Cu tubes
- Inox tubes on request
- Al fins
- Alupaint fins on request (polyester based corrosion protection, for applications and limits corrosion resistance contact LU-VE)
- Cu fins on request
- Other corrosion protection (Heresite, Blygold, ...) on request

Copper headers:

- with iron connection thread (Flanged on request)

The iron parts of the dry cooler is provided with a coating that provides temporary protection against corrosion.

During the installation should be given permanent protection.

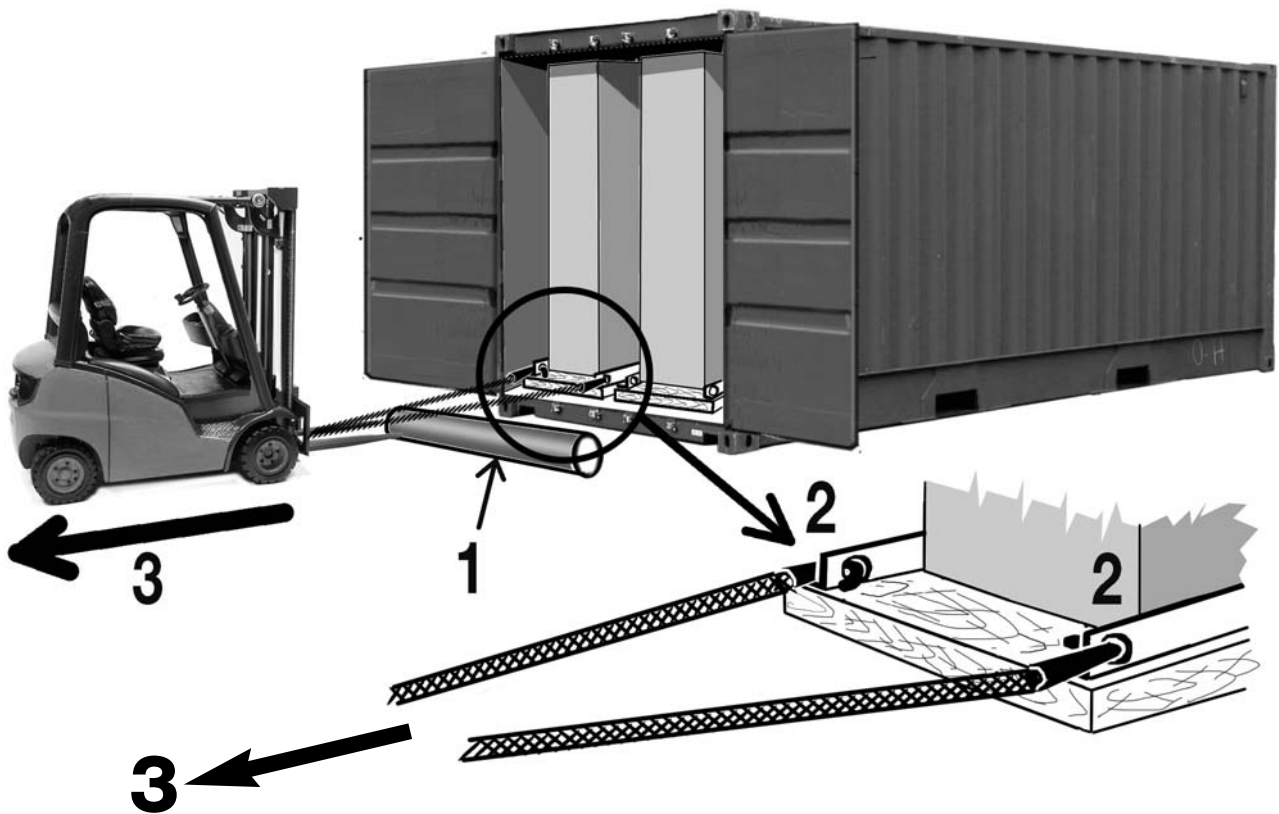
Fluids used:

- water • brine water • other fluid monophasic non-aggressive to copper, contact LU-VE for details.

Max conditions of use:

- 12 bar, T 100 °C fluid inlet (*)

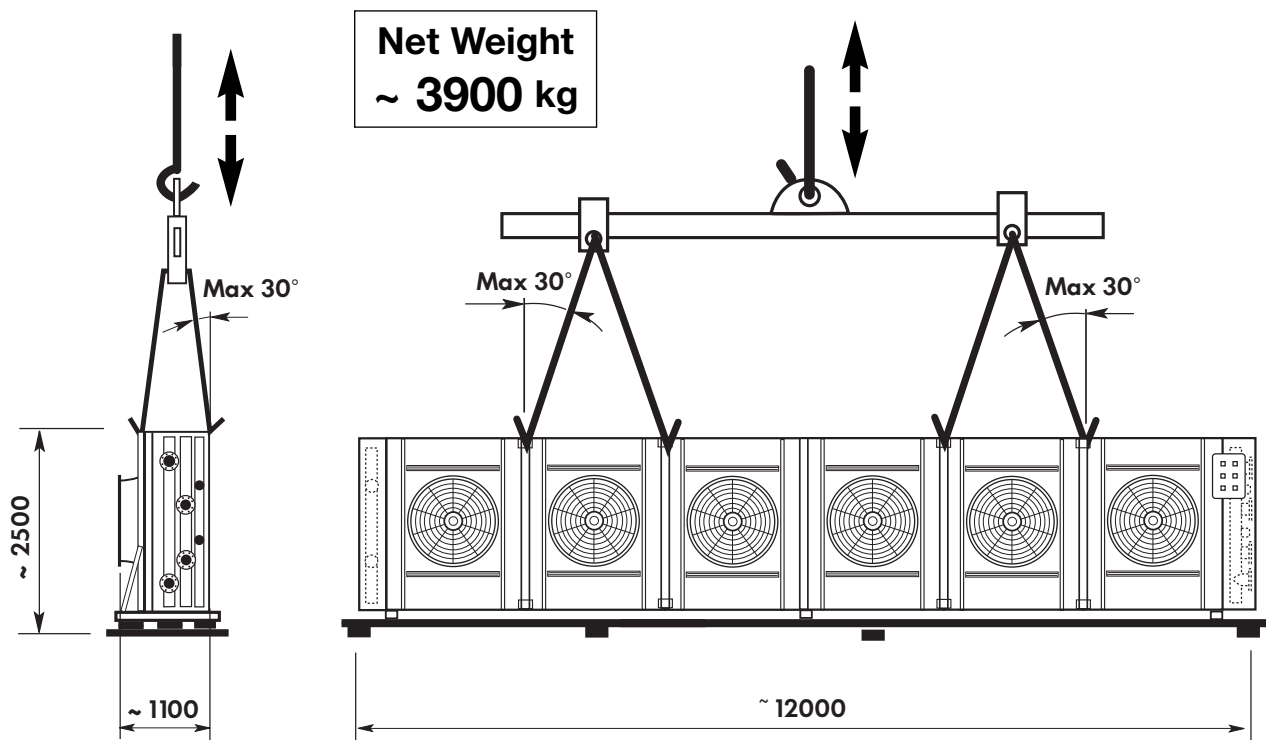
(*) The temperature can be higher for some ventilation, contact LU-VE for more details.

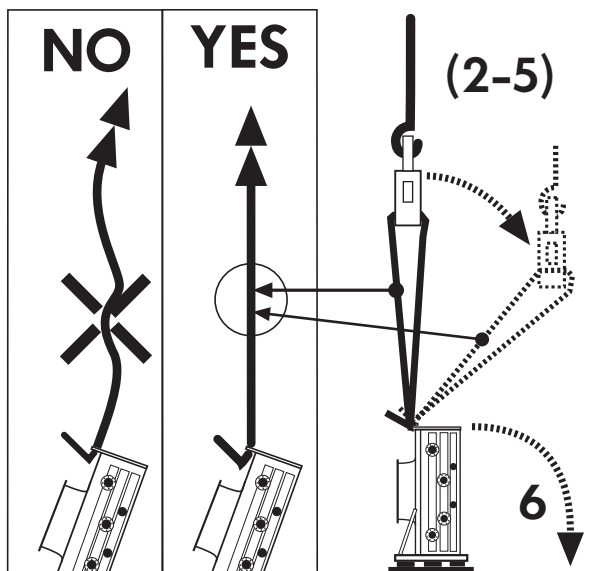


LIFTING SKETCH



Before lifting the units, please check the structural integrity of the lifting devices and their proper fixing to the structure.



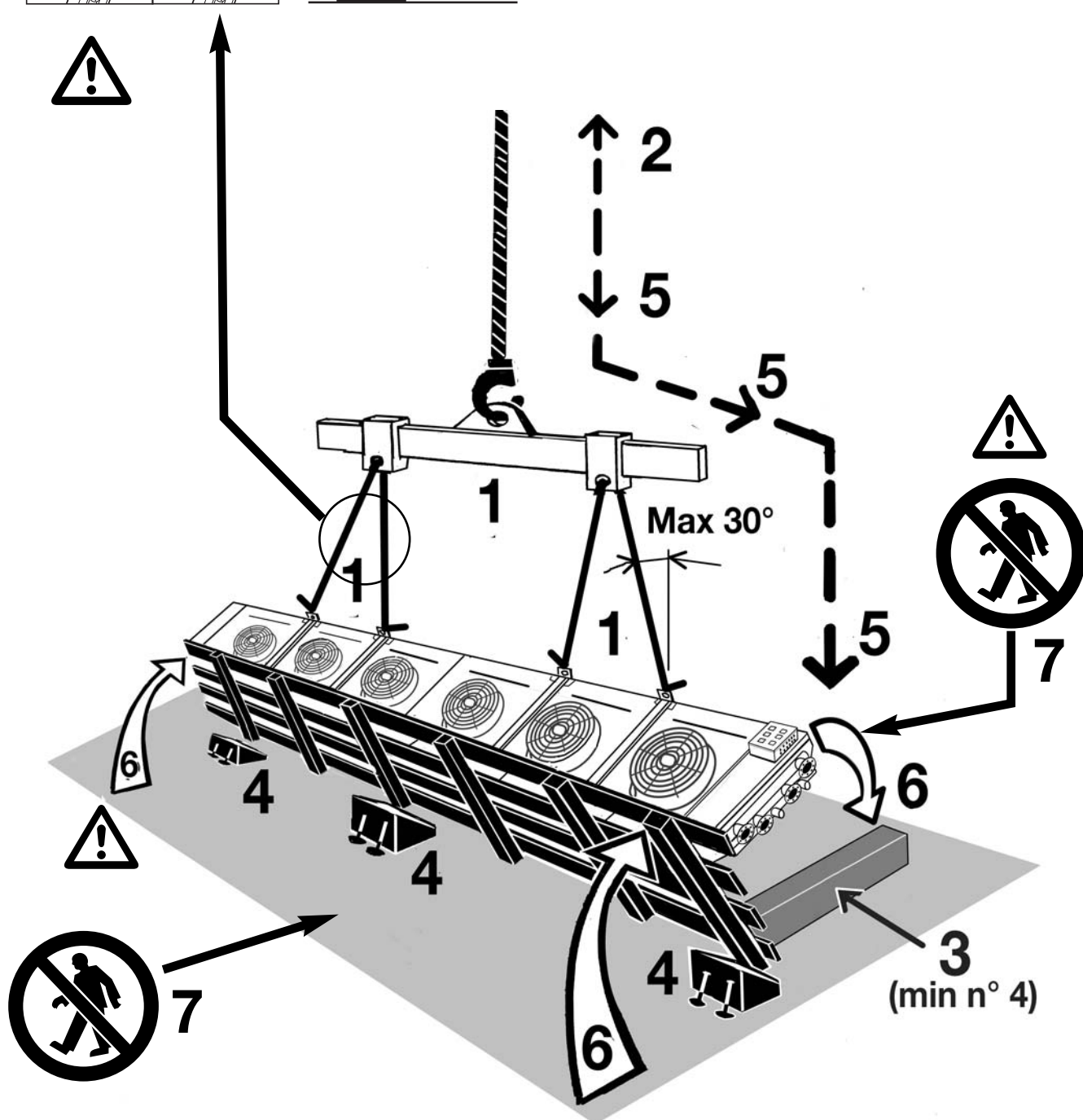


TURNING OVER



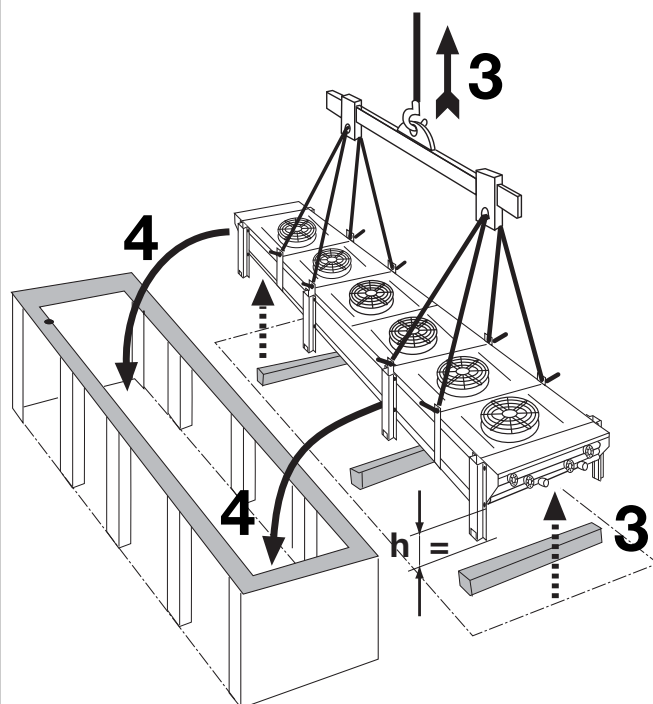
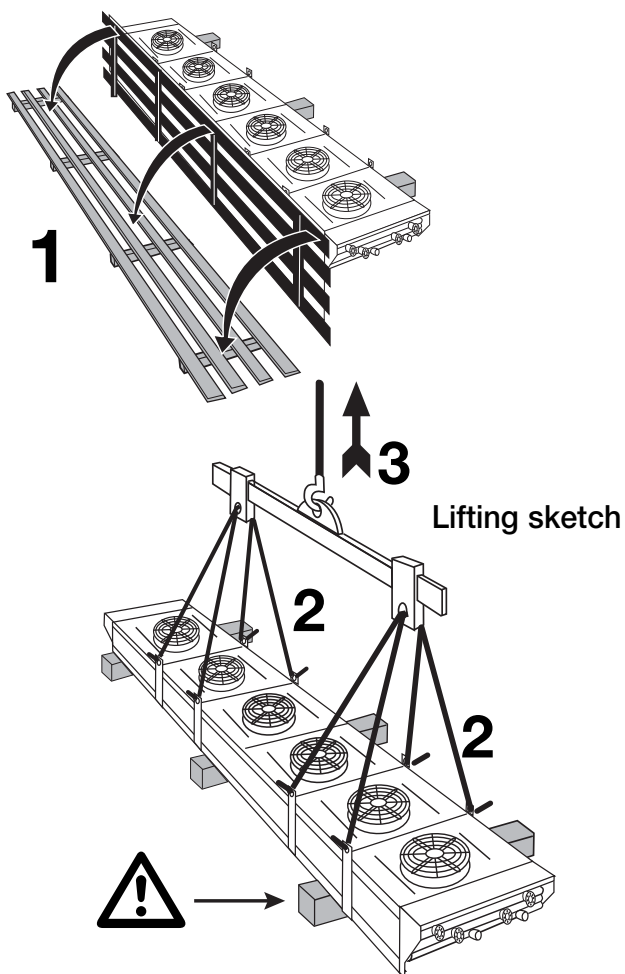
- Before lifting the units, please check the structural integrity of the lifting devices and their proper fixing to the structure.
- When turning over the equipment watch for:
 - rope tension shall be worked vertically (2 - 5)
 - the equipment base shall be locked with suitable devices (4).
- When turning over the equipment the operator shall be located in (7).

Nobody shall walk or stop under a suspended load.

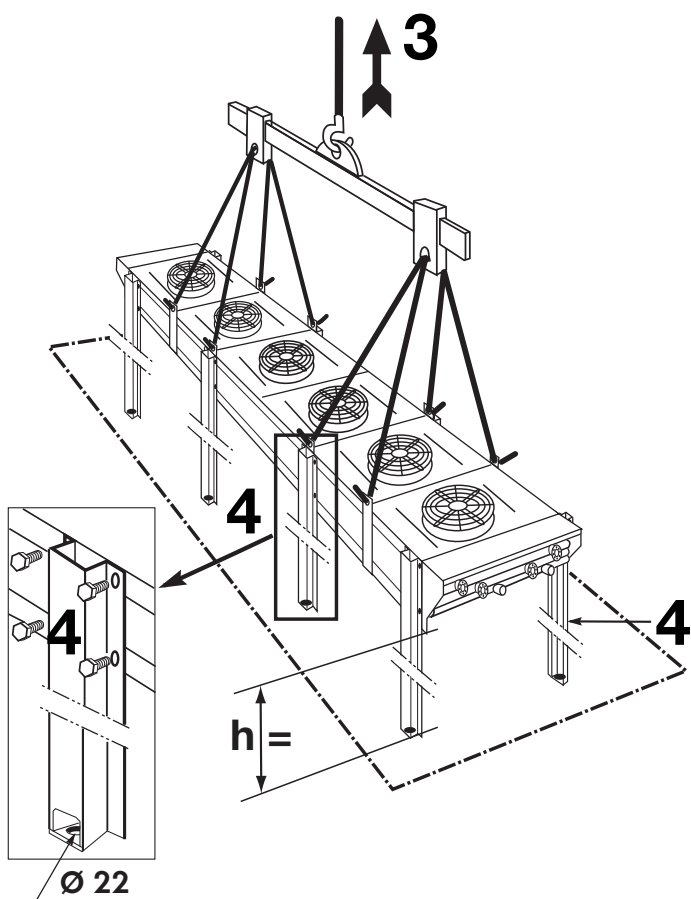


HORIZONTAL INSTALLATION

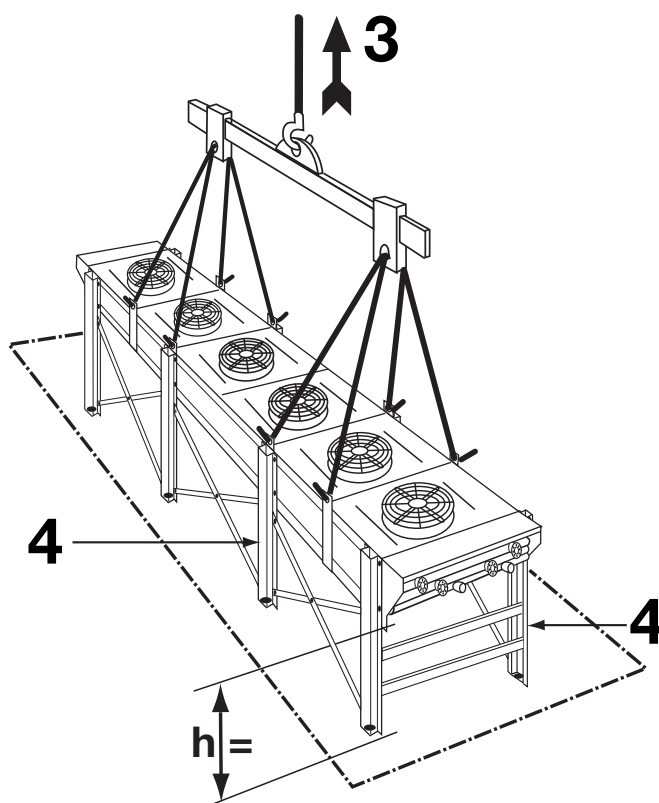
Before lifting the units, please check the structural integrity of the lifting devices and their proper fixing to the structure.



Frame installation
1 - Short feet ($h = 200 \text{ mm}$)

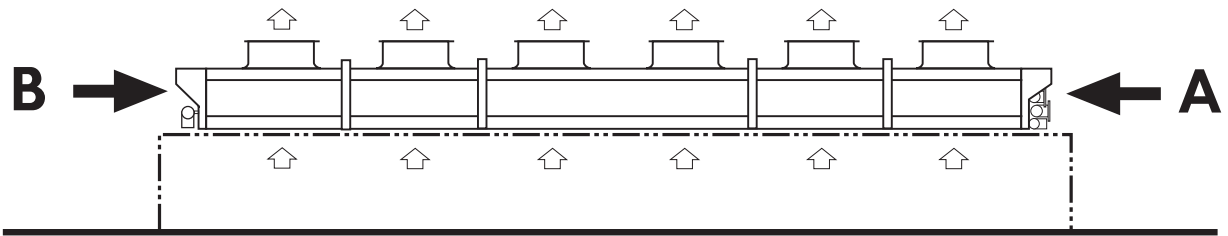


STANDARD
2 - Installation feet ($h = 800, 1000, 1200 \text{ mm}$)



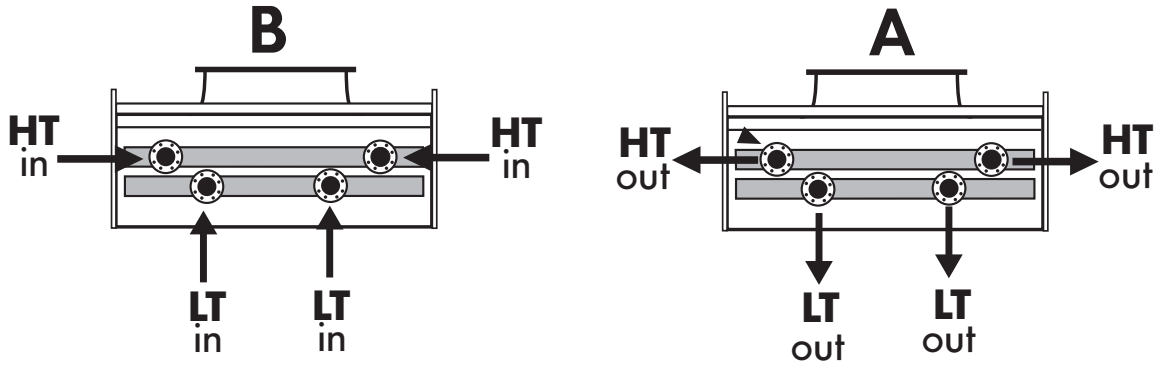
3 - Extended feet ($h = 2000 \text{ mm}$)

HORIZONTAL INSTALLATION

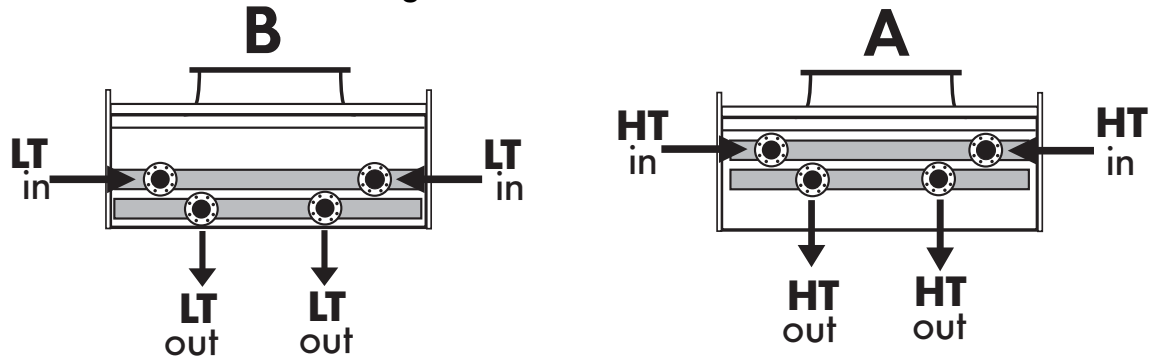


Circuit type combinet LT / HT

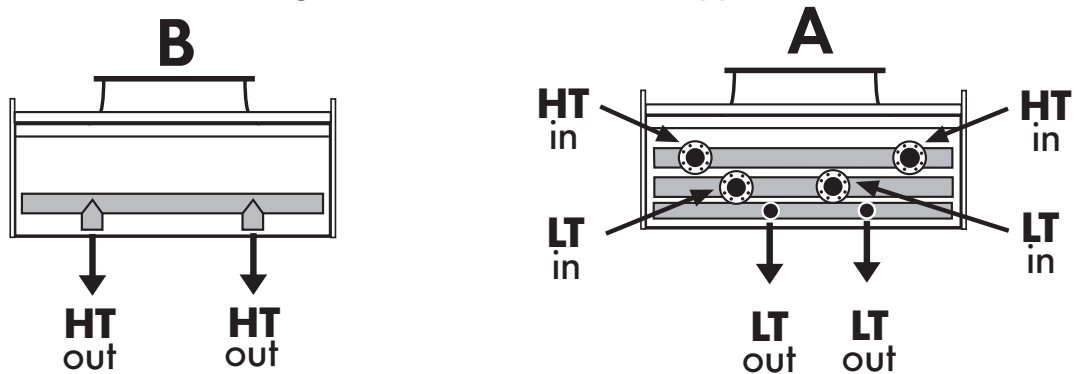
Configuration LT / HT opposite



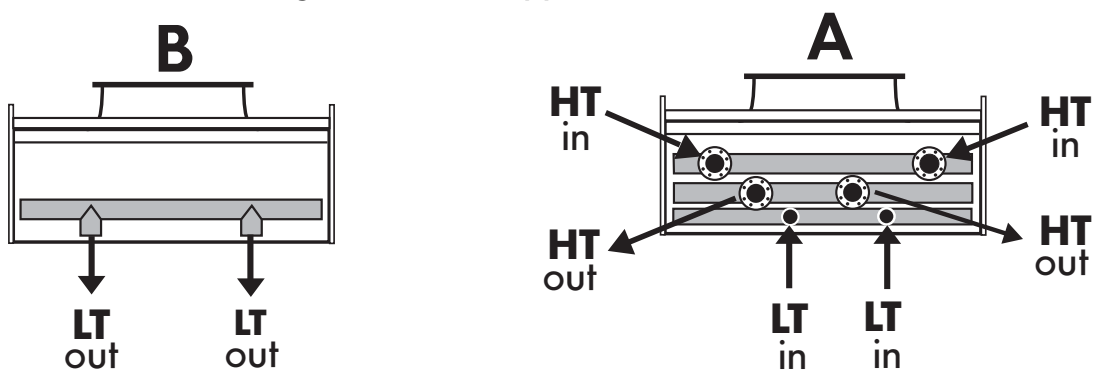
Configuration LT same HT same



Configuration LT same HT opposite

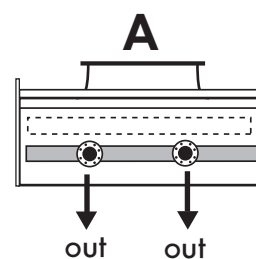
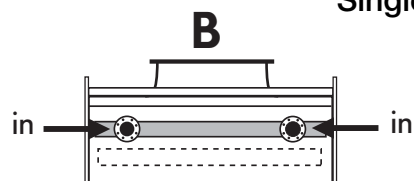


Configuration LT opposite HT same

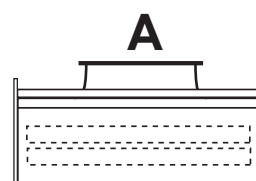
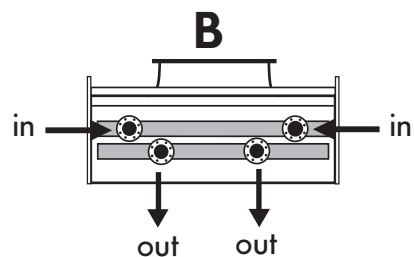


Single Circuit

Opposite sides



Same side



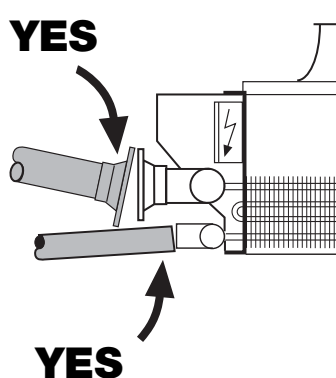
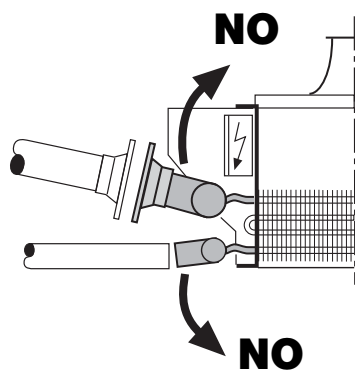
CONNECTIONS

Before to proceed with the collectors/distributors connections it is mandatory to comply as follows:

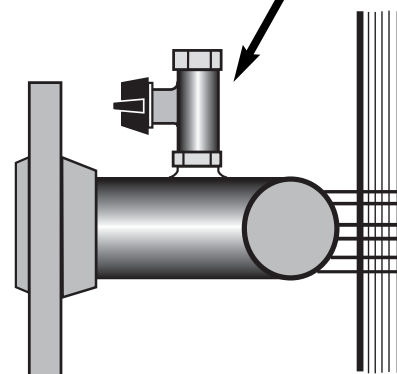
- Make sure the supply circuit is closed (no pressure).
- When performing welding operations, make sure the flame nozzle is not aimed toward the equipment (insert a shield if required).



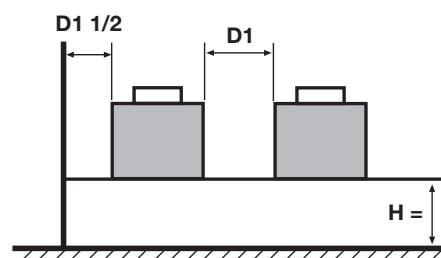
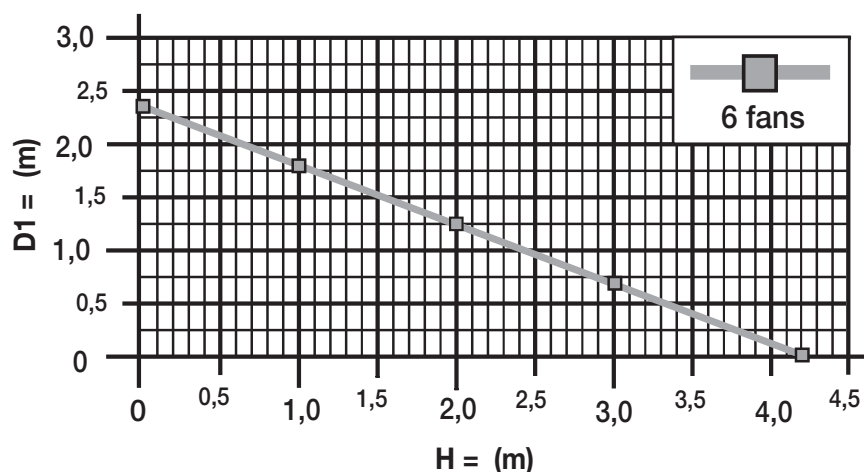
Do not adapt headers position to the suction line



Manual purge valve
OPTIONAL



DISTANCES GUIDE



MOTORS CONNECTION

Type	EAL125N	EAL125S	EAL125T
Motor type:	D1250 6P 11Kw	D1250 8P 7,5 Kw	D1250 8P 5,5 Kw
Tension:	* 3 ~ 400V 50 Hz	* 3 ~ 400V 50 Hz	* 3 ~ 400V 50 Hz
Connection:	\triangle	\triangle	\triangle
Motor power consump. (max) x 1	12500 W - 24 A	7300 W - 15 A	6200 W - 12 A

CABLES TYPE

400/415 V Power Fans Cables	Type: 4G2,5 + (2x1)
Flexible CU conductor	Nominal Voltage = supply cores 600/1000 V control pairs 300 V
Insulation TPE Compound	
Outer Jacket PUR Compound	- Work Temperature -50 +80 °C

SWITCHBOARD TYPE

Switchboard with fans isolator switches

Material	= Stainless Steel AISI 304
Protection degrees	= min. IP55

CABLE GLANDS TYPE

M Thread Cable Glands

Material	= Poyamide Sealing ring = Neoprene
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Protection degrees = IP68

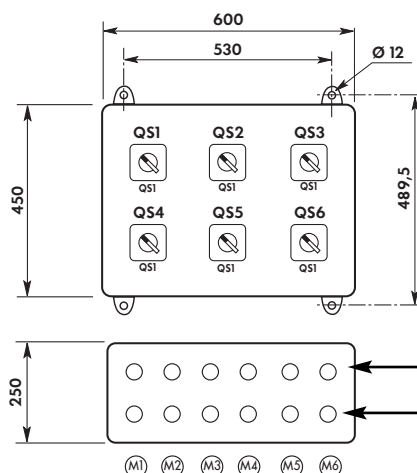
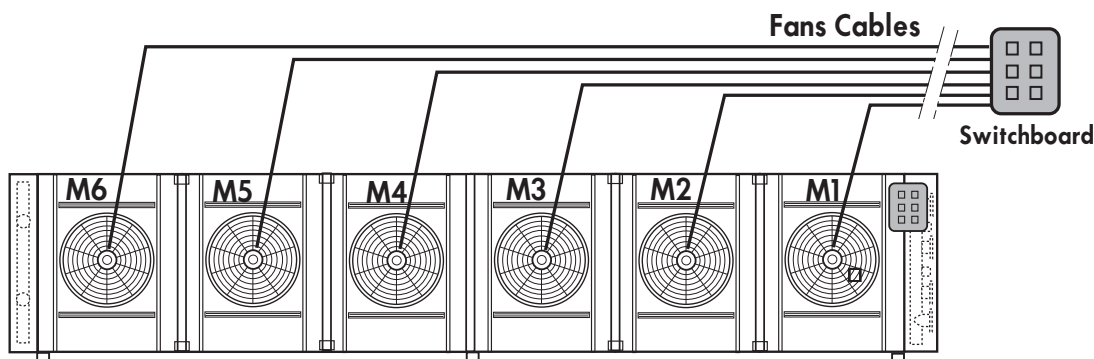
Work Temperature = -40 +90 °C

Wiring to Switchboard



Before to proceed with electrical wirings it is mandatory to comply as follows:

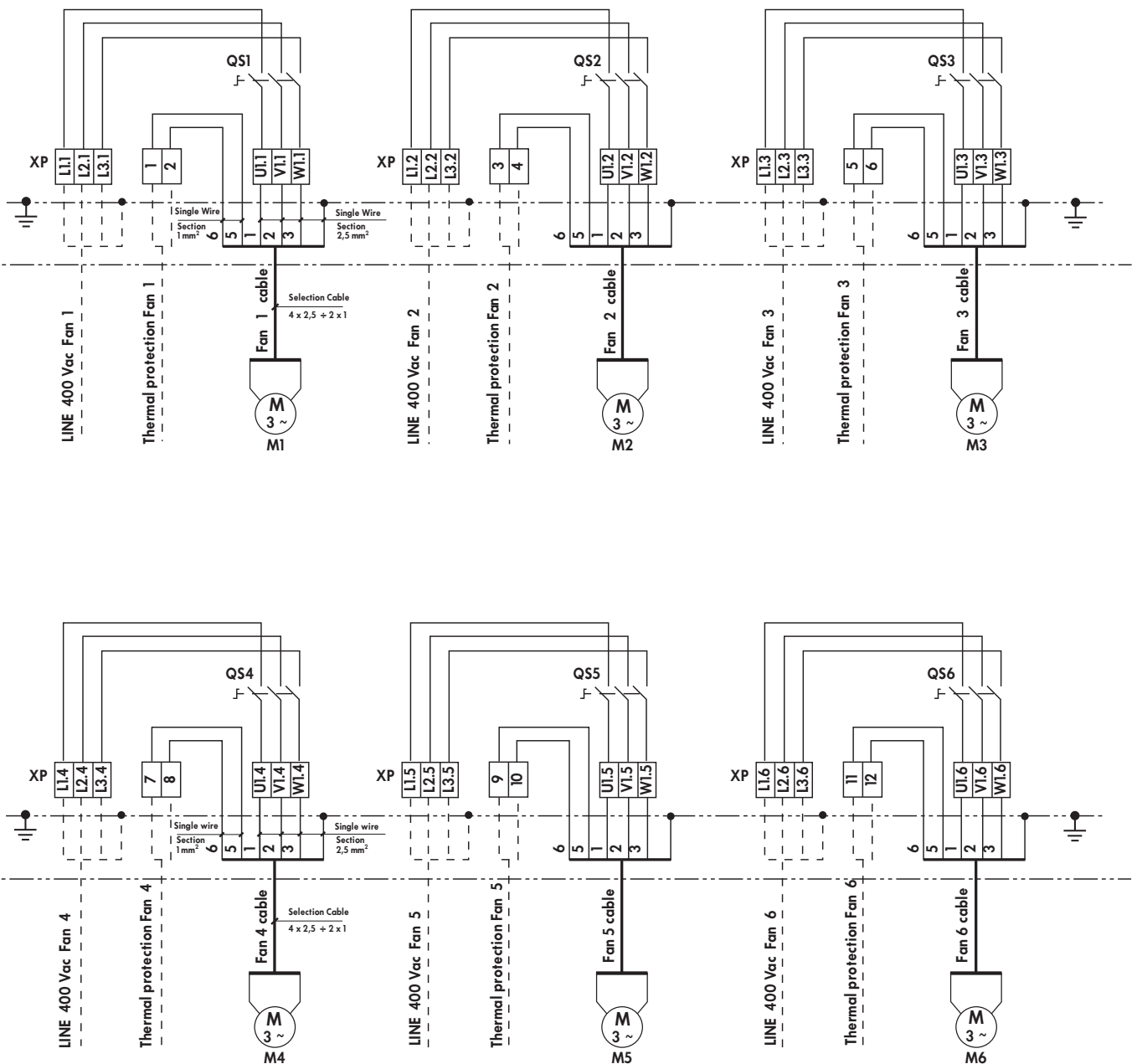
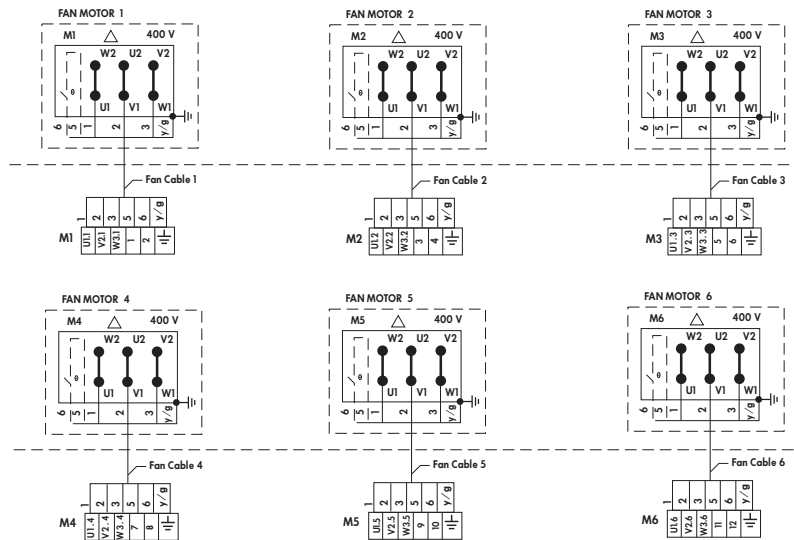
- Make sure the power line circuit is open.

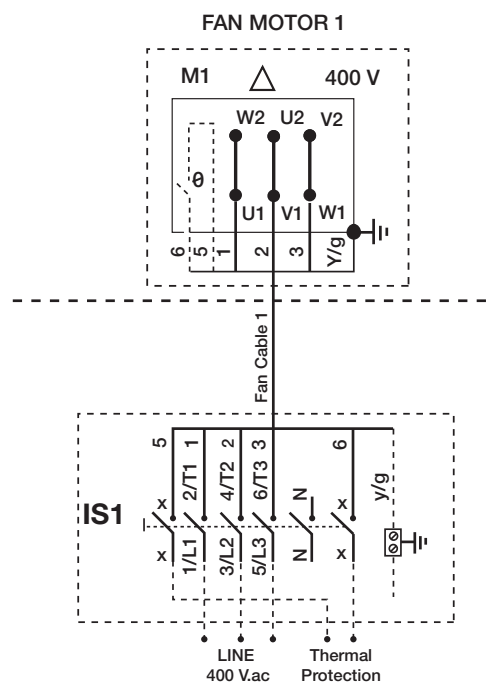
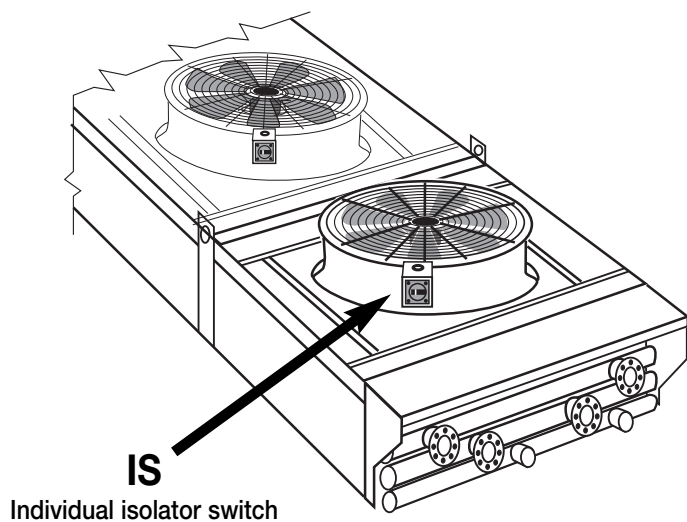


OVERAL DIMENSION Fans Wiring Switchboard

QS1 ÷ QS6 = Fans Isolator Switch

SWITCHBOARD





Instructions for removing and refitting motors



Before carrying out any operation, disconnect the power supply and make sure the fan has stopped rotating.

Tools

- 13mm spanner (for protection grill fastening bolts)
- 24mm spanner 24 (for fan head bolt)
- 22mm spanner (for bolts fastening the motor to its support seat)
- Star screwdriver (for screws in the contacts box)
- Fan extractor implement
- 10mm tube spanner (for contact retaining nuts)
- Motor support bar (photos below)

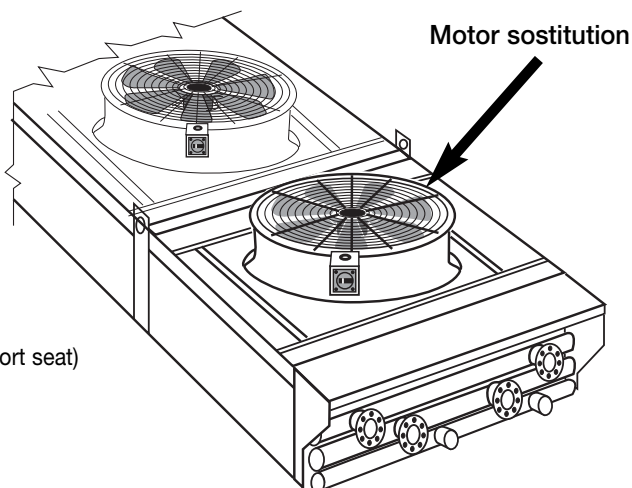
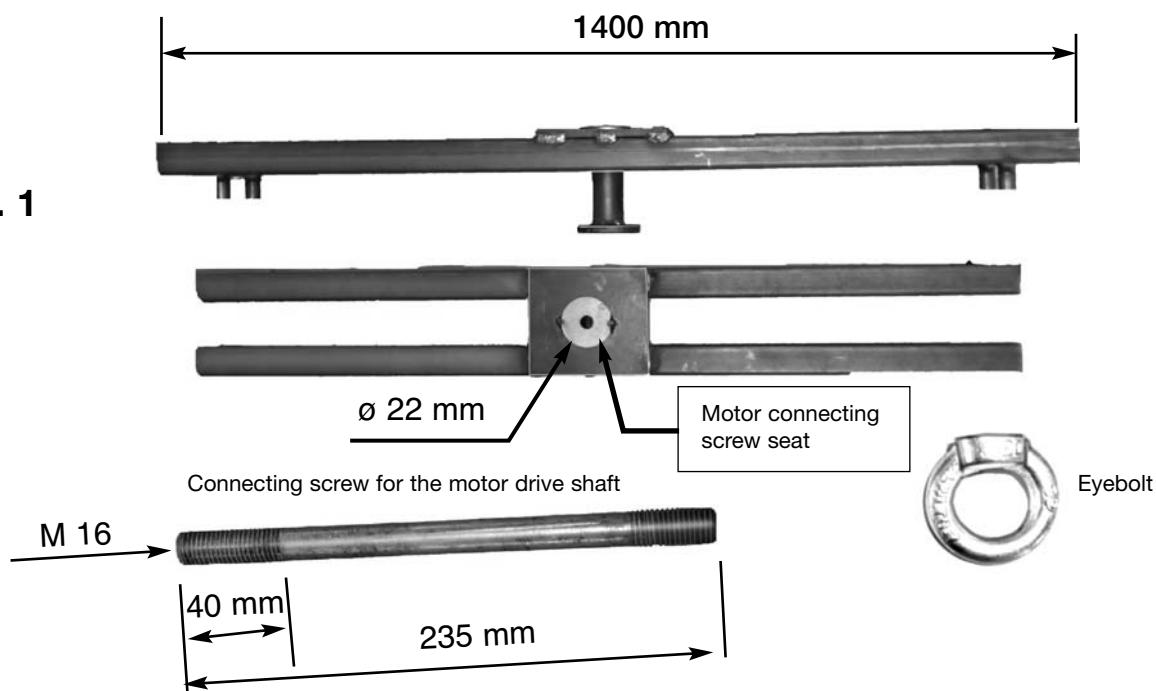
**Fig. 1**

Fig. 2 Removing the fan guard



Remove the fan guard grill by unscrewing the nuts and bolts with the 13mm spanner

Fig. 3 Removing the fan

After the fan guard has been taken off, the fan itself can be accessed.

- It is necessary to first unscrew and remove the 24mm head bolt.
- After the bolt and washer have been removed, it is then possible to extract the fan, being careful not to unbalance it.
- Do not use the fan blades as levers: use instead a suitable extractor implement.



Fig. 4 Removing the motor

Fig. 4/1

Position the support bar on the fan shroud, as in the pictures below:

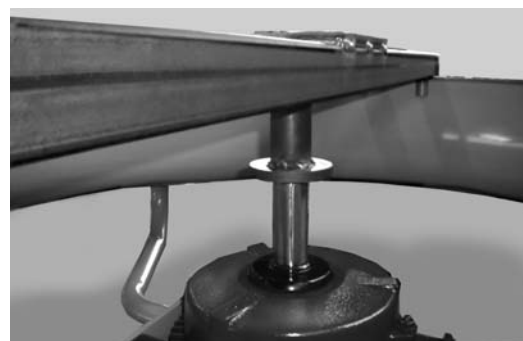


Fig. 4/2 It is now possible to insert the motor drive shaft connection screw into the central hole in the motor support bar, screwing it in completely:

Fig. 4/3 Now screw on the eyebolt, as far as it will go, to the head of the motor connection screw protruding from the motor support bar.

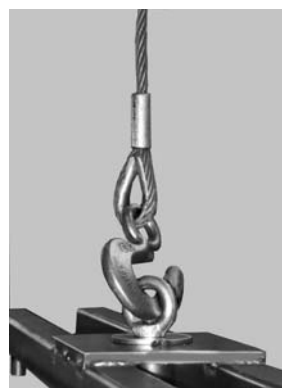
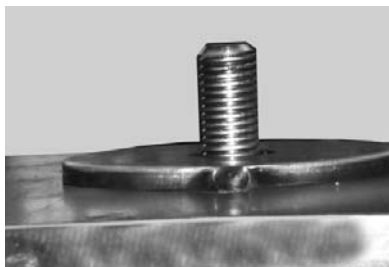
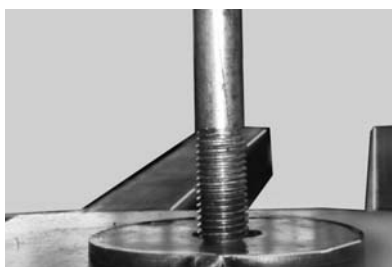


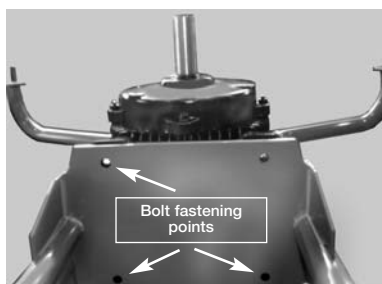
Fig. 4/4

A suitable hoist can then take the strain of the total weight of the support bar/motor group.

Fig. 5 Now the motor can be uncoupled from its support seat. The motor is attached to the seat by four 22mm diameter bolts.



Fig. 6 At this point the motor can be raised and removed, disconnecting the wiring from the motor contacts box.



To refit the motor, follow these instructions in reverse order (Fig. 6 ÷ Fig. 1)



WARNING

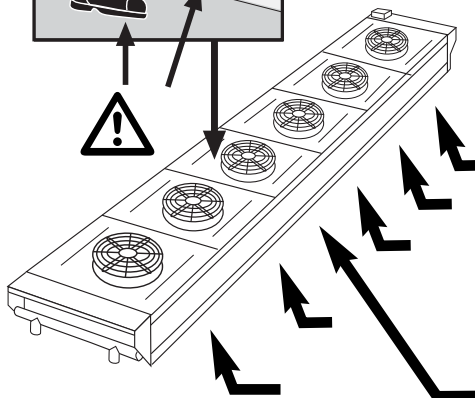


DANGER BURNS,
hot headers



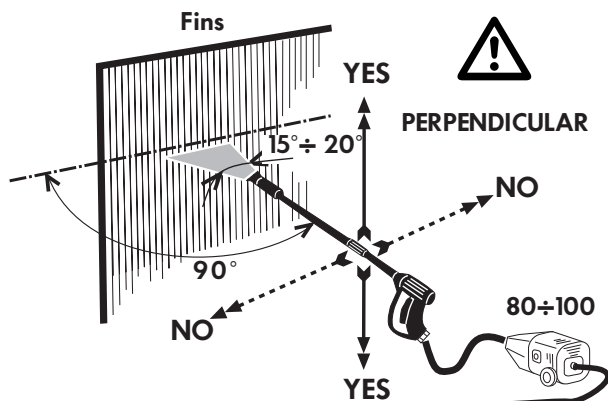
Sharp edges

The machines are mechanically structured to bear the weight of two persons on top of the unit carrying out maintenance tasks. However, the machines are not fitted as standard with protective guards to allow persons to work safely: it is entirely the responsibility of the customer to provide adequate measures to protect the operators.



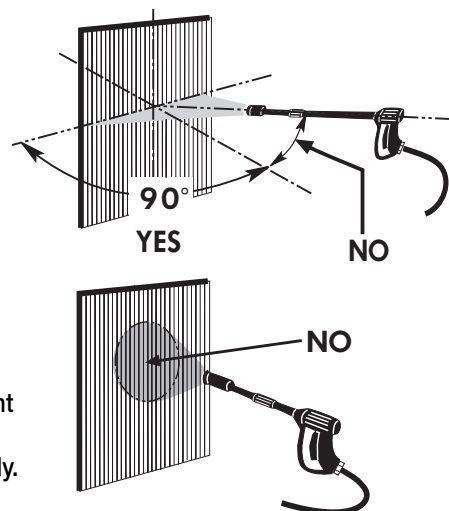
LAVAGGIO / CLEANING	
YES	NO
H ₂ O P max < 2 bar	

CLEANING WITH WATER SPRAY



NOTES FOR CORRECT CLEANING:

- Ø flat fan spray.
- water pressure 80÷100 bar.
- keep the water spray at right angles to the fin edge of the both vertically and horizontally.



NOTES



- IT IS RACCOMENDED **3-5 HOURLY** RUN AT **4 WEEKLY** INTERVALS.



- For water without glycol; make sure that the ambient temperature is always higher than **0 °C**. To prevent freezing during arrest, drain off the dry cooler by blowing air several times and introduce Glycol.

• Some traces of a transparent liquid may remain inside the circuit after the manufacturing process. This is evaporable oil which is compatible with refrigerants. It can easily be verified that this is oil and not water because it evaporates very quickly when touched; if a drop of it is placed on a surface it widens like a stain; and if exposed to the flame of a cigarette-lighter it burns, giving off white smoke.

• We reserve the right to make modifications in order to improve the performance or appearance of our products at any time without notice and without any obligation to previous production.

- All technical characteristics are stated in the products catalogues

