

# Use & Maintenance manual

ROTARY SCREW COMPRESSORS  
5,5-7,5-10-15-20 Hp



Read all the operational instructions, safety recommendations and all warnings provided in the instruction manual.

Most accidents encountered when using the compressor are merely due to the failed observance of basic safety standards.

Accidents are prevented by foreseeing potentially hazardous situations and observing the appropriate safety standards.

The fundamental safety standards are listed in the "SAFETY" section of this manual and also in the section involving the use and maintenance of the compressor.

Hazardous situations to be avoided in order to prevent serious personal injuries and machine damages are listed in the "WARNINGS" section of the instruction manual or are actually printed on the machine.

Never use the compressor improperly but only as recommended by the Manufacturer.

The Manufacturer reserves the right to up-date the technical information given in this manual without notice.

# INDEX

Foreword .....	3	Replacing the belt.....	22
How to read and use the instruction manual .....	3	Draining the condensate.....	22
Importance of the manual.....	3	Cleaning the air/oil radiator.....	22
Conserving the manual.....	3	Electric motor maintenance.....	22
Symbols used .....	3	7.2 Diagnosing the alarm status/inconveniences-faults.....	23
<b>General information .....</b>	<b>4</b>	<b>8. Wiring diagrams .....</b>	<b>24</b>
1.1 Identification data .....	4	8.1 Standard Versions .....	25
Information on machine technical/maintenance service.....	4	8.2 Special Versions (60 Hz).....	29
General safety warnings.....	4	<b>9 . Pneumatic Diagram.....</b>	<b>36</b>
General information.....	5	<b>10. Maintenance Schedule.....</b>	<b>37</b>
<b>2. Preliminary machine information.....</b>	<b>6</b>		
2.1 General description.....	6		
2.2 Intended use.....	6		
2. Preliminary machine information .....	7		
2.3 technical data .....	7		
<b>3 .Transport, Handling, Storage .....</b>	<b>8</b>		
3.1 Transporting and handling the packed machine.....	8		
3.2 Packing and unpacking .....	8		
3.3 Storing the packed and unpacked compressor .....	8		
<b>4. Installation.....</b>	<b>9</b>		
4.1 Admitted surrounding conditions .....	9		
4.2 Space required for maintenance.....	9		
4.3 Positioning the compressor .....	10		
4.4 Connecting the compressor and relative inspections .....	10		
Connecting the compressor to the electrical mains.....	10		
Check the rotation direction.....	11		
Connecting to the pneumatic mains .....	11		
<b>5. Using the compressor.....</b>	<b>12</b>		
5.1 Preparing to use the compressor.....	12		
Operational principle.....	12		
Functions descriptions.....	12		
5.2 Controls, indicators and safety devices .....	13		
Remaining hours to maintenance.....	14		
User Menu - Setting.....	14		
5.3 Check the efficiency of the safety devices before starting... 15			
5.4 Starting the compressor.....	15		
Setting made by the manufacturer .....	15		
Usefull tips .....	15		
5.5 Stopping the compressor.....	15		
<b>6. Dryer .....</b>	<b>16</b>		
6.1 Preparing to use the dryer .....	16		
6.2Fuctional diagram.....	16		
6.3 Control panel .....	16		
6.4 Anomaly Warning.....	18		
6.5 Before start up.....	18		
6.6 Maintenance, troubleshooting and dismantling .....	19		
<b>7 . Compressor maintenance .....</b>	<b>20</b>		
7.1 Instructions relative to inspections and maintenance jobs... 20			
Changing the oil.....	21		
Replacing the oil filter cartridge .....	21		
Replacing the filter cartridge of the oil separator.....	21		
Replacing the air filter cartridge.....	21		
Tightening the belt .....	22		

**HOW TO READ AND USE THE INSTRUCTION MANUAL****IMPORTANCE OF THE MANUAL**

This INSTRUCTION MANUAL has been written to guide you through the INSTALLATION, USE and MAINTENANCE of the compressor purchased.

We recommend that you strictly observe all the indications given within as the ideal operational efficiency and lasting wear of the compressor depend on the correct use and methodical application of the maintenance instructions given hereafter.

Remember that when any doubts or inconveniences arise it is a good rule to always contact the AUTHORISED SERVICE CENTRES. They are at your complete disposal for any explanations or jobs required.

The Manufacturer therefore declines all liabilities regarding the incorrect use and poor maintenance of the compressor.

The INSTRUCTION MANUAL is integral part of the compressor.

Ensure that any up-dates forwarded by the Manufacturer are actually added to the manual.

If the compressor is sold on at a later date the manual must be given to the new owner.

**CONSERVING THE MANUAL**

Use and read the manual with care being careful not to damage any part of it.

Do not remove, tear or re-write any parts of the manual for any reason whatsoever.

Keep the manual in a dry and sheltered place.

**CONSULTING THE MANUAL**

This instruction manual is made up of the following:

- FRONT COVER WITH MACHINE IDENTIFICATION
- DETAILED INDEX
- INSTRUCTIONS AND/OR NOTES ON THE COMPRESSOR

The model and serial number of the compressor to which the manual refers and that you have purchased is found on the FRONT COVER.

The various SECTIONS in which all the notes relative to a certain subject are found in the INDEX.

All the INSTRUCTIONS AND/OR NOTES ON THE COMPRESSOR aim at pointing out safety warnings and procedures required to use the compressor correctly.

**SYMBOLS USED**

The SYMBOLS pointed out below are used throughout this manual and their purpose is that of drawing the operator's attention, informing the latter how to behave and how to proceed in each operational situation.

**READ THE INSTRUCTION MANUAL**

Read the use and maintenance manual carefully before installing and starting the compressor.

**ATTENTION**

Important notice

or

**GENERAL HAZARDOUS SITUATION**

An additional note will point out the type of hazard involved.

**RISK OF ELECTRIC SHOCK**

Warning: the electrical power supply of the compressor must be disconnected before doing any jobs on the compressor.

**RISK OF BURNING**

Warning: be careful when touching the compressor as some parts of it could be very hot.

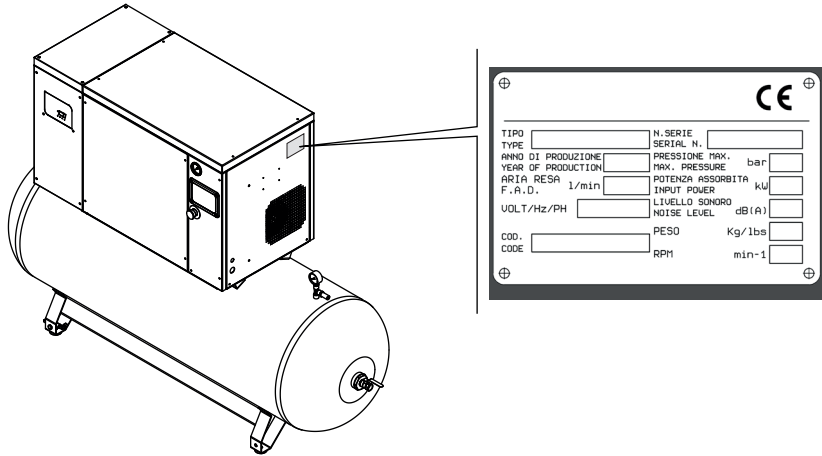
Warning! This points out a potentially hazardous situation, which if ignored, could cause personal injury and machine damage.

Note! This enhances crucial information.

## GENERAL INFORMATION

### 1.1 IDENTIFICATION DATA OF THE MANUFACTURER AND THE COMPRESSOR

COMPRESSOR  
IDENTIFICATION  
NAMEPLATE (Example)



#### INFORMATION ON MACHINE TECHNICAL/MAINTENANCE SERVICE

We remind you that our technical service department is at your complete disposal to help you resolve any problems that may possibly be encountered, or to provide you with any other information necessary.

In the case of need contact Our CUSTOMER TECHNICAL SERVICE department or your local dealer.

The constant and efficient performance of the compressor is ensured only if original spare parts are used.

We recommend therefore that you strictly observe the indications provided in the MAINTENANCE section and to use EXCLUSIVELY original spare parts.

The use of NON ORIGINAL spare parts automatically annuls the guarantee.

#### GENERAL SAFETY WARNINGS



IMPORTANT INSTRUCTIONS FOR THE SAFE USE OF THE COMPRESSOR

THE INAPPROPRIATE USE AND POOR MAINTENANCE OF THIS COMPRESSOR MAY CAUSE PHYSICAL INJURY TO THE USER. YOU ARE RECOMMENDED TO CAREFULLY FOLLOW THE INSTRUCTIONS PROVIDED HEREAFTER TO AVOID SUCH RISKS.

##### 1. DO NOT TOUCH MOVING PARTS

Never put your hands, fingers or other parts of the body near moving parts of the compressor.

##### 2. NEVER USE THE COMPRESSOR WITHOUT THE SAFETY GUARDS FITTED

Never use the compressor without all the safety guards fitted perfectly in their correct place (i.e. panelling, belt guard, safety valve). If these parts are to be removed for maintenance or servicing purposes, ensure that they are put back in their original place perfectly before using the compressor again.

##### 3. ALWAYS WEAR SAFETY GOGGLES

Always wear goggles or equivalent eye protection means. Never direct compressed air towards any part of your body or that of others.

##### 4. PROTECT YOURSELF AGAINST ELECTRIC SHOCKS

Avoid accidentally touching the metal parts of the compressor with your body, such as pipes, the tank or metal parts connected to earth. Never use the compressor where there is water or in damp rooms.

##### 5. DISCONNECT THE COMPRESSOR

Disconnect the compressor from the electric power supply and completely discharge the pressure from the tank before carrying out any service, inspection, maintenance, cleaning, replacing or inspection jobs of each part.

##### 6. ACCIDENTAL START-UP

Never move the compressor while it is connected to the electrical power supply or when the tank is pressurised. Ensure that the main switch is turned OFF before connecting the compressor to the electrical power supply.

##### 7. STORE THE COMPRESSOR APPROPRIATELY

When the compressor is not in use, it must be stored in a dry room away from atmospheric agents. Keep it out of children's reach.

##### 8. OPERATIONAL AREA

Keep the work area clean and remove any tools that are not required. Keep the work area sufficiently ventilated. Never use the compressor in the presence of flammable liquids or gas. The compressor may produce sparks while running. Do not use the compressor where there may be paints, gasoline, chemical compounds, glues and any other flammable or explosive material.

##### 9. KEEP THE COMPRESSOR OUT OF CHILDREN'S REACH

Prevent children or anyone else from touching the power supply cable of the compressor. All outsiders must be kept at a safe distance from the operational area.

##### 10. WORK CLOTHES

Do not wear unsuitable clothing, ties or jewellery as these may get caught up in moving parts. Wear caps to cover your hair if necessary.

##### 11. PRECAUTIONS FOR THE POWER SUPPLY CABLE

Do not disconnect the power supply plug by pulling on the cable. Keep the cable away from heat, oil and sharp edges. Do not stand on the electrical cable or squash it under heavy weights.

##### 12. LOOK AFTER THE COMPRESSOR WITH CARE

Follow the maintenance instructions. Inspect the power supply cable on a periodic basis and if damaged it must be repaired or

replaced by an authorised service centre. Visually check the outside appearance of the compressor, ensuring that there are no visual anomalies. Contact your nearest service centre if necessary.

#### 13. ELECTRICAL EXTENSIONS FOR OUTDOOR USE

When the compressor is used outdoors, use only electrical extensions manufactured for outdoor use and marked as such.

#### 14. WARNING

Pay attention to everything you do. Use your common sense. Do not use the compressor if you are tired. The compressor must never be used if you are under the effect of alcohol, drugs or medicines, which could make you tired.

#### 15. CHECK FAULTY PARTS OR AIR LEAKS

Before using the compressor again, if a safety guard or other parts are damaged, they must be checked carefully to evaluate whether they may operate as established in complete safety.

Check the alignment of moving parts, hoses, gauges, pressure reducers, pneumatic connections and every other part that may be crucial for the normal operational efficiency of the compressor. All damaged parts must be properly repaired or replaced by an authorised service centre or replaced following the instructions provided in instruction manual.

#### 16. USE THE COMPRESSOR EXCLUSIVELY FOR THE APPLICATIONS SPECIFIED IN THIS INSTRUCTION MANUAL.

The compressor is a machine that produces compressed air.

Never use the compressor for purposes other than those specified in the instruction manual.

#### 17. USE THE COMPRESSOR CORRECTLY

Operate the compressor in compliance with the instructions provided in this manual. Do not allow children to use the compressor or those who are not familiar with it.

#### 18. ENSURE THAT EACH SCREW, BOLT AND GUARD IS FIRMLY SECURED IN PLACE.

#### 19. KEEP THE IN-TAKE GRIDS CLEAN

Keep the motor ventilation grids clean. Regularly clean these grids if the work area is particularly dirty.

#### 20. OPERATE THE COMPRESSOR AT THE RATED VOLTAGE

Operate the compressor at the voltage specified on the electric data plate. You could damage or burn-out the motor and other electric components if the compressor is operated at a higher or lower voltage than its rated voltage.

#### 21. NEVER USE THE COMPRESSOR IF IT IS FAULTY

If the compressor is noisy or vibrates excessively when running or it seems to be faulty, stop it immediately and check its efficiency or contact your nearest authorised service centre.

#### 22. DO NOT CLEAN PLASTIC PARTS USING SOLVENTS

Solvents such as gasoline, thinners, gas oil or other compounds that contain hydrocarbons may damage the plastic parts. Clean them with a soft cloth and soapy water or other suitable liquids.

#### 23. USE ORIGINAL SPARE PARTS ONLY

The use of non-original spare parts involves the annulment of the guarantee and the abnormal running conditions of the compressor. Original spare parts are available c/o the authorised dealers.

#### 24. DO NOT MODIFY THE COMPRESSOR

Do not modify the compressor. Contact an authorised service centre for all repairs required. An unauthorised modification may impair the efficiency of the compressor and may also cause serious accidents for those who do not have the technical skill required to make such modifications.

#### 25. TURN THE COMPRESSOR OFF WHEN IT IS NOT IN USE

When the compressor is not in use turn the main ON/OFF switch OFF (position "0").

#### 26. DO NOT TOUCH HOT PARTS OF THE COMPRESSOR

To avoid scolding do not touch pipes, the motor or any other hot part.

#### 27. DO NOT DIRECT THE JET OF AIR DIRECTLY TOWARDS THE BODY

To avoid all risks never direct the jet of air towards people or animals.

#### 28. DO NOT STOP THE COMPRESSOR BY PULLING ON THE POWER SUPPLY CABLE

Use the "O/I" (ON/OFF) buttons of the control panel to stop the compressor.

#### 29. PNEUMATIC CIRCUIT

Use recommended pneumatic hoses and tools that can withstand the same or a higher pressure than the maximum running pressure of the compressor.

#### 30. SPARE PARTS

Use only original and identical spare parts to replace worn or damaged ones.

Repairs must be made exclusively by authorised service centres.

#### 31. CORRECT USE OF THE COMPRESSOR

The operator must be perfectly familiar with all the controls and compressor characteristics before starting to work with the machine.

#### 32. MAINTENANCE JOBS

The use and maintenance jobs of the commercial components fitted on the machine, but not indicated in this manual, are indicated in the enclosed documents.

#### 33. DO NOT UNSCREW THE CONNECTION WHEN THE TANK IS PRESSURISED

Do not unscrew the connection for any reason whatsoever with the tank pressurised without first checking if the tank is discharged.

#### 34. DO NOT MODIFY THE TANK

It is prohibited to intentionally drill, weld or deform the compressed air tank.

#### 35. IF THE COMPRESSOR IS USED FOR PAINTING JOBS

- a) Do not work in closed rooms or near free flames.
- b) Ensure that the room in which you are working is sufficiently ventilated.
- c) Wear face and nose mask.

#### 36. DO NOT PUT OBJECTS OR PARTS OF THE BODY IN THE PROTECTION GRIDS

Do not put objects or parts of the body in the protection grids to prevent physical injuries and damage to the compressor.

## 2. PRELIMINARY MACHINE INFORMATION

### 2.1 GENERAL DESCRIPTION

The rotary screw compressor has been specifically designed aiming at minimising maintenance and labour costs.

The outside cabinet is completely covered in sound-proof and oil-proof panelling thus ensuring its extended and lasting wear.

The components have been arranged so that all vital parts can be easily reached for maintenance purposes simply by opening dedicated panels with quick-release locking devices.

**Note!** Tank and compressor have been manufactured in compliance with European directives 2006/42/CEE e 2009/105/CEE.

### ADVISED LUBRICANTS

Always use oil for turbines with approximately 46 cSt at 40°C and a pour point of at least -8 +10°C. The flash point must be greater than +200°C.

### NEVER MIX DIFFERENT OIL QUALITIES.

Suggested oil :

Screw oil SYNT D46

Use oil with VG32 rating for cold climates and VG68 for tropical climates.

It is advisable to use synthetic oils for very hot and humid climates.

### 2.2 INTENDED USE

The silent rotary screw compressors have been designed and manufactured exclusively to produce compressed air.

EVERY OTHER USE, DIFFERENT AND NOT FORESEEN BY ALL INDICATED, RELIEVES THE MANUFACTURER OF POSSIBLE CONSEQUENT RISKS.

In any event the use of the compressor different to that agreed in the purchase order RELIEVES THE MANUFACTURER FROM ALL LIABILITIES WITH REGARD TO POSSIBLE MATERIAL DAMAGE AND PERSONAL INJURY.

The electrical system is not designed for the use in environments subject to explosion or for flammable products.

NEVER DIRECT THE JET OF AIR TOWARDS PEOPLE OR ANIMALS. NEVER USE THE COMPRESSED AIR PRODUCED BY LUBRICATED COMPRESSORS FOR RESPIRATORY PURPOSES OR IN PRODUCTION PROCESSES WHERE THE AIR IS IN DIRECT CONTACT WITH FOODSTUFFS UNLESS IT HAS BEEN FIRST FILTERED AND CONDITIONED FOR SUCH PURPOSE.

### 2.3 TECHNICAL DATA

Model		HP5,5 / kW 4			HP 7,5 / kW 5,5			HP 10 / kW 7,5		
		Max.Pressure	Bar	8	10	13	8	10	13	8
	psi	116	145	188	116	145	188	116	145	188
Free air delivery (ISO 1217)	l/min	560	450	400	820	720	640	950	860	690
	cfm	19.7	15.8	14.1	28.7	25.4	22.6	33	30.2	24.2
Air outlet fitting	R	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G
Oil quantity	l	3	3	3	3	3	3	3	3	3
Fan capacity	ppm	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
Oil residue in air	Hp	5,5	5,5	5,5	7,5	7,5	7,5	10	10	10
Protection rating	kW	4	4	4	5,5	5,5	5,5	7,5	7,5	7,5
Ambient temperature limit	IP	54	54	54	54	54	54	54	54	54
Max. starts per hour	°C (min/max)	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45
Noise level (*)	dB (A)	65	65	65	66	66	66	67	67	67

Model		HP15 / kW 11			HP 20 / kW 15					
		Max.Pressure	Bar	8	10	13	8	10	13	
	psi	116	145	188	116	145	188			
Free air delivery (ISO 1217)	l/min	1560	1430	1210	2010	1900	1670			
	cfm	55	50.4	42.7	70.9	67	58.9			
Air outlet fitting	R	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G	1/2 G			
Oil quantity	l	5	5	5	5	5	5			
Fan capacity	ppm	< 3	< 3	< 3	< 3	< 3	< 3			
Oil residue in air	Hp	15	15	15	20	20	20			
Protection rating	kW	11	11	11	15	15	15			
Ambient temperature limit	IP	54	54	54	54	54	54			
Max. starts per hour	°C (min/max)	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45	+5 / +45			
Noise level (*)	dB (A)	65	65	65	67	67	67			

(\*) Noise level measured at 4 m distance and max pressure: ±3 dB(A)

## 3 .TRANSPORT, HANDLING, STORAGE



In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

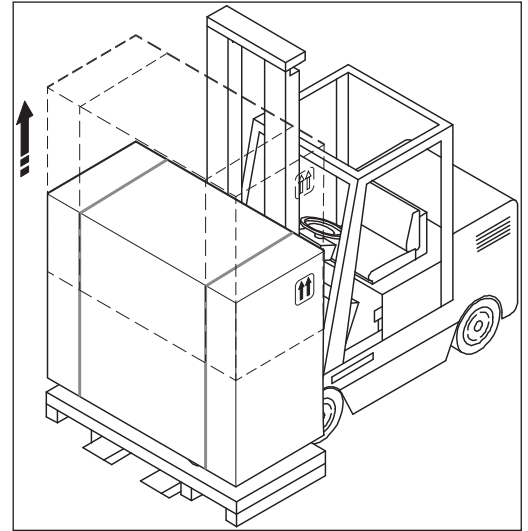
### 3.1 TRANSPORTING AND HANDLING THE PACKED MACHINE

The packed compressor must be transported by qualified personnel using a forklift truck.

Before moving the machine ensure that the load-bearing capacity of the forklift truck is sufficient to take the weight to be lifted.

Position the forks exclusively as illustrated below. Once the forks have been positioned in the points indicated, lift slowly without jerking.

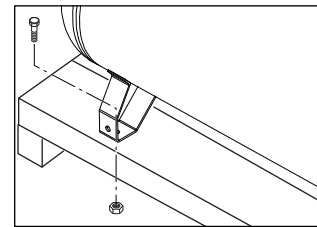
NEVER STAND NEAR THE AREA WHERE THE COMPRESSOR IS BEING HANDLED AND NEVER STAND ON THE CRATE WHILE IT IS BEING MOVED.



### 3.2 PACKING AND UNPACKING

To avoid damages and to protect the compressor during transport it is usually placed on a wooden pallet, to which it is secured by screws and covered with cardboard.

All the shipping and handling information and symbols are printed on the compressor packing. Upon consignment remove the top part of the packing and check if any damages have been encountered during transport. If any damages are found, caused during transport, immediately make a written claim, backed up with photos of the damaged parts if possible and forward everything to your insurance company, with copy to the Manufacturer and transporter.



Using a forklift truck take the compressor as near as possible to the place where it is to be installed then carefully remove the protective packing without damaging it, following the instructions below:

- Remove the packing 1, by sliding it away upwards.
- Unscrew screws 2 that block the feet that secure the compressor to the pallet.

The compressor can be left on the packing pallet to make it easier to move.

Carefully ensure that the contents correspond with all written in the consignment documents.  
Dispose of the packing in compliance with current standards in force in the country of installation.

**Note!** The machine must be unpacked by qualified personnel using appropriate tools and equipment.

### 3.3 STORING THE PACKED AND UNPACKED COMPRESSOR

For the whole time that the compressor is not used before unpacking it, store it in a dry place at a temperature between +5°C and +45°C and sheltered away from weather.

For the whole time that the compressor is not used after unpacking it, while waiting to start it up or due to production stoppages, place sheets over it to protect it from dust, which may settle on the components.

The oil is to be replaced and the operational efficiency of the compressor is to be checked if it is not used for long periods.





In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

#### 4.1 ADMITTED SURROUNDING CONDITIONS

Position the machine as established when the order was placed. Failing this the Manufacturer is not liable for any inconveniences that may possibly arise.

Unless pointed out otherwise when placing the order, the compressor must work regularly in the surrounding conditions indicated below:

##### ROOM TEMPERATURE

For Star/Delta start machines, the room temperature must not be lower than 5°C or higher than 45°C, or for machines equipped with inverter from 5°C to 40°C, to ensure the ideal operational efficiency of the compressor.

If the compressor works at a room temperature lower than the minimum value, the condensate could be separated within the circuit and therefore the water would mix with the oil, thus deteriorating the quality of the latter, failing to guarantee the even formation of the lubricating film between the moving parts with the possibility of seizure.

If the compressor works at a room temperature higher than maximum value, the compressor would take in air that is too hot, which would prevent the heat exchanger from adequately cooling the oil in the circuit, raising the working temperature of the machine, thus causing the thermal safety device to trip, which stops the compressor due to an excessive temperature of the air/oil mixture at the screw outlet.

The maximum temperature of the room is to be measured while the compressor is running.

##### LIGHTING

The compressor has been designed in compliance with legal prescriptions and in the attempt to minimise shadow zones to facilitate the operator's job.

The lighting system of the factory is to be considered as crucial for the operator's safety.

The room in which the compressor is installed must have no shadow zones, dazzling lights or stroboscopic effects due to the lighting.

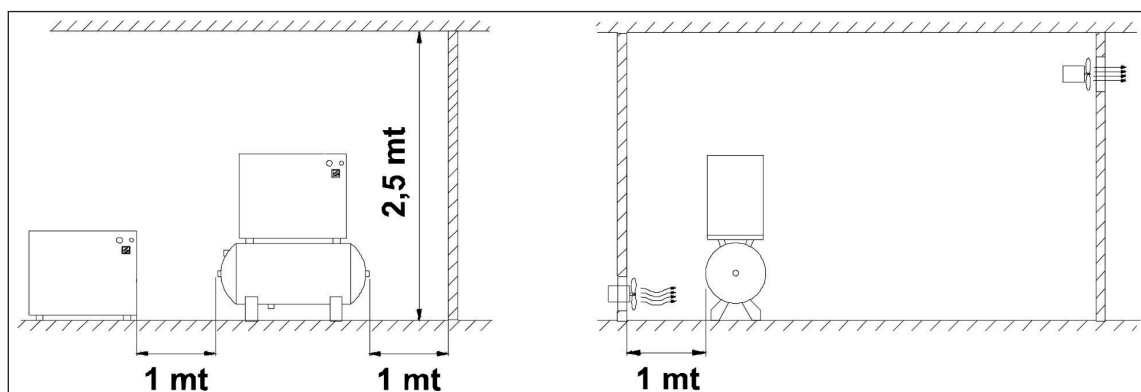
##### ATMOSPHERE WITH RISK OF EXPLOSION AND/OR FIRE

The standard compressor is not pre-arranged or designed to work in rooms subject to the risk of explosion or fire. The performance of the compressor may decrease at the maximum permitted ambient temperature, with relative humidity higher than 80% and at an altitude of more than 1,000 mt.

#### 4.2 SPACE REQUIRED FOR MAINTENANCE

The compressor must be installed in a large room that is well-aired, dust-free and sheltered away from rain and frost. The compressor takes in a large amount of air that is required to ventilate it internally. A dusty atmosphere would in time cause damages and inefficient performance.

Part of the dust once inside is taken in by the air filter causing it to clog rapidly and another part of dust will settle on the components and will be blown against the cooling radiator, consequently compromising the efficiency of the heat exchanger. It is therefore obvious that the cleanliness of the area in which the compressor is installed is crucial for the correct efficiency of the machine, avoiding excessive running and maintenance costs. To facilitate maintenance jobs and to create a favourable circulation of air, the compressor must have a sufficient free space all around it (see fig.).



The room must be provided with outlets that lead outdoors near the floor and ceiling that will allow the natural circulation of air. If this is not possible, install some fans or extractors that guarantee a higher air flow rate than that taken in by the compressor.

Ducts for the inlet and outlet of the air can be used in unfavourable environments. These ducts must be the same size as the in-take and delivery grid. If these ducts are longer than 3 meters contact the Authorised Service Centre.

Note! A conveyance system can be fitted to recover the hot ventilation air delivered, which can be used to heat the room or for other purposes. It is crucial that the cross section of the system that recovers the hot air is greater than the total cross section of the grid slots plus the system must be equipped with a forced extraction system (extractor fan) to favour a constant downflow (min. sect. cm<sup>2</sup> 1200).

## 4. INSTALLATION

### 4.3 POSITIONING THE COMPRESSOR

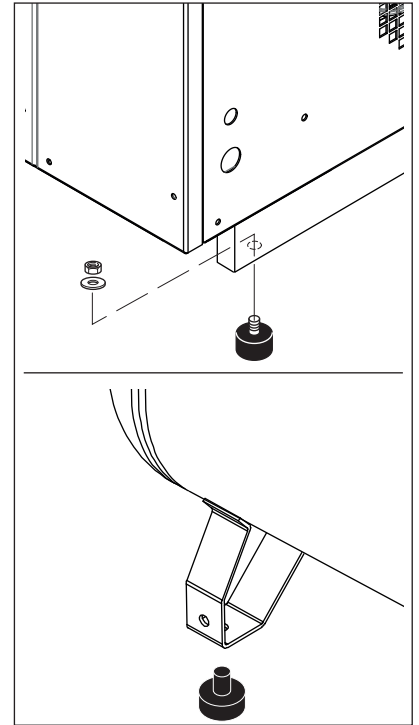
Once the position in which the compressor is to be installed has been identified ensure that the compressor is set on a flat surface.

No special foundations or bases are required for the machine.

Lift the compressor using a forklift truck (forks at least 900 mm long) and fit the vibration-damping feet and block with the nuts under the four resting points where established.

Models on tank are supplied with rubber feet.

Do not secure the compressor rigidly to the floor.



### 4.4 CONNECTING THE COMPRESSOR AND RELATIVE INSPECTIONS

#### CONNECTING THE COMPRESSOR TO THE ELECTRICAL MAINS POWER SUPPLY



The compressor is to be connected to the electrical mains by the customer, to his exclusive liability, employing specialised personnel and in compliance with the Accident Prevention Norms EN 60204.

#### INSTRUCTIONS FOR CONNECTING TO EARTH

This compressor must be connected to earth while in use in order to safeguard the operator against electrical shocks.

The electrical connection must be carried out by a skilled engineer. It is advisable never to dismantle the compressor or even to make any other connections.

All repairs must be carried out exclusively by authorised service centres or other qualified centres. The earth wire of the power supply cable of the compressor must be connected only and exclusively to the PE pin of the terminal board of the actual compressor. Before replacing the plug of the power supply cable ensure that the earth wire is connected.

#### EXTENSION CABLE

Use only extension cables with plug and earth connection. Never use damaged or squashed extension cables. Ensure that the extension cable is in a good state of wear. When using an extension cable, ensure that the cross section of the cable is sufficient to convey the current absorbed by the product to be connected.

If the extension cable is too thin there could be drops in voltage and therefore loss in power and overheating of the equipment.

The extension cable of the three-phase compressors must have a cross section in proportion with its length: see table below:

Valid for max lenght 20 m

HP	kW	220-240V/50-60Hz		380-415 V/50-60Hz	460V/60Hz
5.5	4	4 mm <sup>2</sup>	AWG 12	2,5 mm <sup>2</sup>	-
7,5	5.5	6 mm <sup>2</sup>	AWG 10 (AWG 6 for single phase)	2,5 mm <sup>2</sup>	-
10	7.5	10 mm <sup>2</sup>	AWG 8	4 mm <sup>2</sup>	AWG11
15	11	16 mm <sup>2</sup>	AWG 6	10 mm <sup>2</sup>	AWG 8
20	15	25 mm <sup>2</sup>	AWG 4	16 mm <sup>2</sup>	AWG 7



Avoid all risks of electrical shocks. Never use the compressor with damaged electrical cables. Regularly check the electrical cables. Never use the compressor in or near water or hazardous area where electrical shocks may be encountered

#### ELECTRICAL CONNECTION

Compressors are supplied without cable and plug. The power supply cable must be fed into the electrical cabinet through the dedicated cable clamps situated on the left side.

The cross section of power supply cable (max. lengths of 4 m, max ambient temperatures 50°C) must be as follows:

Hp / kW	V 220/240		V 380/415		V 460	
	Magneto thermal switch (A)	Fuse(A)	Magneto thermal switch (A)	Fuse(A)	Magneto thermal switch (A)	Fuse(A)
<b>direct start (D.O.L)</b>						
5,5 / 4	25	35	20	25	-	-
7,5 / 5,5	40	50	-	-	-	-
<b>Star-delta start</b>						
5,5 / 4	20	25	16	20	-	-
7,5 / 5,5	32	36	25	25	-	-
10 / 7,5	40	40	25	30	20	25
15 / 11	63	80	40	40	32	40
20 / 15	80	80	50	50	40	50

It is advisable to install the connector, magneto thermal switch and fuses near the compressor (max. 3 m away).

**Note!**

The fuse parameters indicated in the table above refer to the gl type (standard). If cartridge fuses type aM are used (delayed) the parameters in the table are to be reduced by 20%.

The parameters of the magneto thermal switches refer to switches type K.

Ensure that the installed power in kW is at least double the input of the electric motor.

The mains voltage must correspond with that indicated on the electrical data nameplate of the machine; the admitted tolerance must remain within +/- 6%.

**EXAMPLE:**

Voltage, 400 Volt: minimum tolerance 376 Volt

Voltage, 400 Volt: maximum tolerance 424 Volt



Never use the earth connection instead of the neutral. The earth connection must be achieved according to the EN 60204 industrial safety standards.

Ensure that the mains voltage corresponds with that required for the correct operation of the compressor.

**CHECK THE ROTATION DIRECTION**



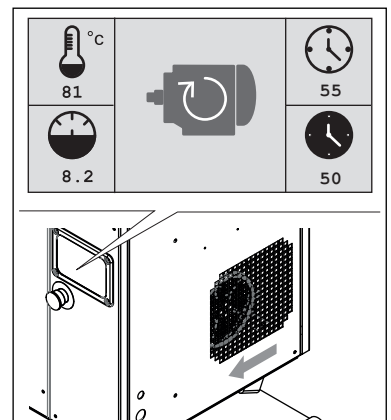
Compressor is equipped with a phase sequence relay (KR).

This alarm points out the incorrect connection order of the electrical power supply cables (relative to the three phases) that causes the incorrect rotation direction of the screw unit. In this event compressor stops.

Invert a wires of the terminal board and connect to the main supply.

Start compressor and visually check the rotation direction, as shown by the arrow on the back side.

**Warning!** The incorrect rotation direction for more than 20 seconds will irreparably damage the compressor.



**CONNECTING TO THE PNEUMATIC MAINS**



Always use pneumatic hoses for compressed air with the maximum pressure characteristics and cross section suitable for the compressor.

Do not try to repair a faulty hose.

Compressor with tank

Connect the compressor to the pneumatic mains using the tank outlet connection.

Use hosing with a greater or same diameter as the tank outlet.

Compressor without tank

Connect the compressor to the pneumatic mains using the outlet connection placed on the rear side.

Install two ball taps with capacity suitable for the compressor between the compressor and tank and between the tank and line.

Do not install non-return valves between compressor and tank. The non-return valve is already installed inside the compressor.

## 5. USING THE COMPRESSOR



In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section..

### 5.1 PREPARING TO USE THE COMPRESSOR

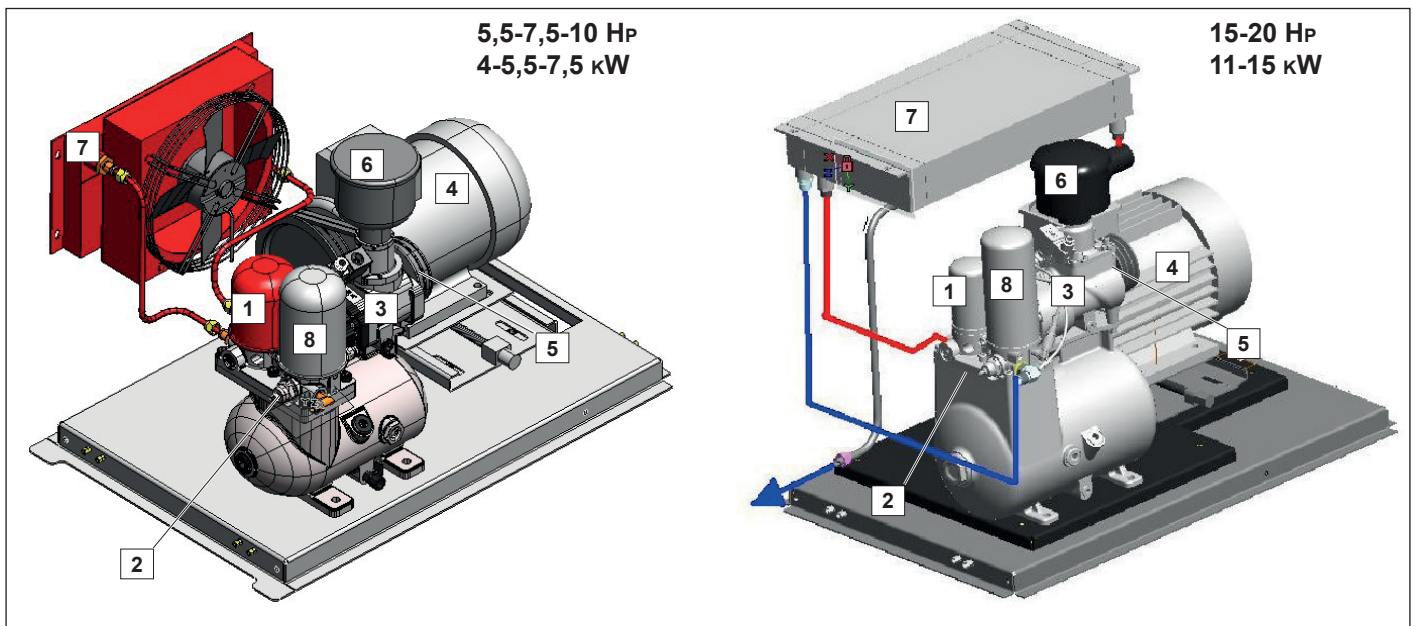
#### OPERATIONAL PRINCIPLE

The air taken-in by the filter passes through a valve that controls its flow rate to the screw where, mixing with the oil, it is compressed. The air/oil mix produced by compression reaches a tank where the initial separation by gravity is achieved; as the oil is heavier, it settles on the bottom, it is then cooled and sent through a heat exchanger, filtered and injected into the screw again.

(The temperature is kept under control by an electric fan that is directly controlled by a thermostat fitted on the heat exchanger and based on the indication of the same).

The oil is required to reduce the heat produced by compression, to lubricate the bearings and to maintain the coupling of the screw lobes. The air is sent through an oil separator filter to be additionally purified from residue oil particles. It is cooled by means of another heat exchanger and is finally outlet to be used at low temperature and with acceptable oil residues (<3p.p.m.).

A safety system controls the crucial points of the machine and points out any abnormal conditions. The temperature of the air/oil mix at the screw outlet is controlled by a thermostatic probe, which stops the compressor if the temperature is too high



1. Oil filter
2. Minimum pressure valve
3. Air end
4. Electric motor

5. Transmission belt
6. Air filter
7. Oil radiator
8. Oil separator

#### FUNCTIONS DESCRIPTIONS:

When the compressor is connected to power supply, display shows initial screen shot (see next page).

By pushing the button (1), the star-delta start up procedure begins.

Main parameters are shown on the display (see next page).

When the maximum pressure is reached, set by the pressure switch, the compressor starts the idle running and the solenoid valve is unexcited. The idle running time lasts 120 seconds, if during this time there's no air requirement from the line, motors turns off, and it will restart as soon as the air pressure drop down the minimum set.

By pushing button (2) compressor stops.

If button (1) is pushed during the stop procedure, after 30 seconds (restart time) compressor is ready to start again.

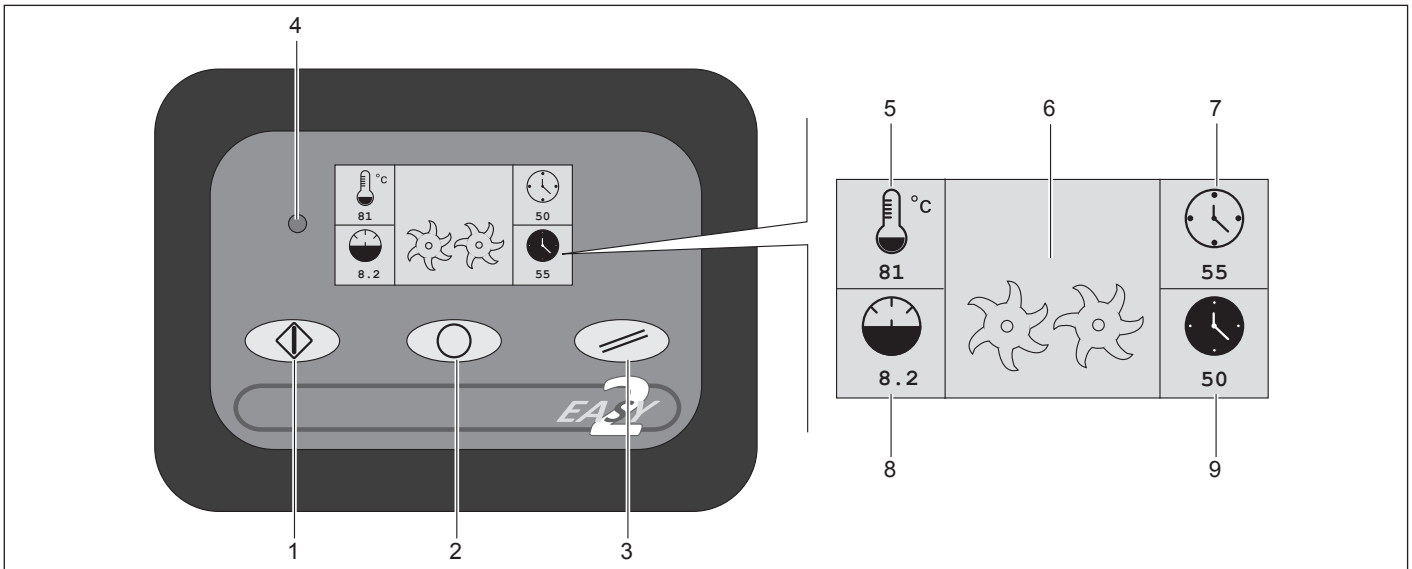
Note:

in case the button (2) is accidentally pushed immediately after button (1), and when the motor is still in "star" connection, the motor stops immediately and the display shows the text "OFF". Pushing the button (1) (even after very short time) the motor starts immediately as described above.

## 5.2 CONTROLS, INDICATORS AND SAFETY DEVICES

### EASY AIR 2 CONTROL PANEL

The control panel is made up of a set of buttons required for the main operational and control functions of the compressor.



#### Control panel

- 1 - START button
- 2 - STOP button
- 3 - RESET button
- 4 - Alarm Led

#### Display

- 5 - Air-end delivery temperature
- 6 - Compressor state
- 7 - Working hours (total)
- 8 - Pressure
- 9 - Working hours (duty)

#### Compressor state (6) - Meaning of symbols

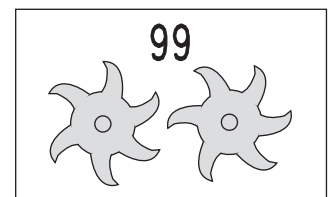
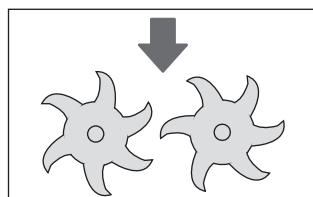
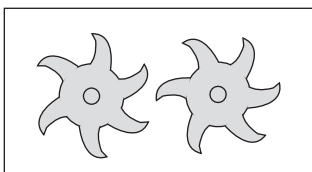
Compressor ON  
(rotors moving)

Compressor is charging  
(rotors moving)

Idle running time  
(rotors moving + countdown)

OR

Restart time  
(rotors flashing + countdown)



#### Air-end delivery temperature (5) - Possible alarms

The display shows the compressor temperature in °C or °F, it depends on the setting.

The high temperature alarm is 105°C (221 °F) and to reset the alarm the temperature has to decrease under 95 °C (203 °F). In case of high temperature alarm, the compressor stops (regardless its status) and is not possible to start it again.


The LOW temperature alarm is -5 °C (23°F), and to reset the alarm the temperature has to be above 10°C (50°F). In case of low temperature alarm, the compressor stops (regardless its status) and is not possible to start it again.

If the air-end temperature drops below – 40°C (- 40 °F) it means that the temperature sensor is short circuit; in this case the compressor stops immediately regardless of its status and it's not possible to start it again.

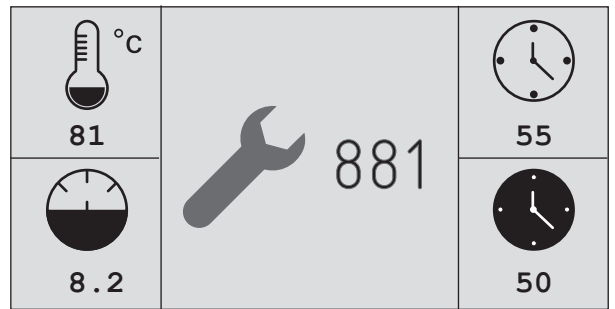
Check page 23, in order to recognize alarms signal and find a solution.

## 5. USING THE COMPRESSOR



### REMAINING HOURS TO MAINTENANCE

Push button  for 5 seconds to see **remaining hours to maintenance**.

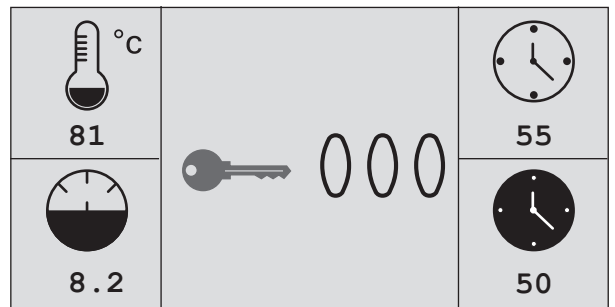
If time is already expired, a negative number will be shown (e.i -3) alternately to the compressor status.





### USER MENU - SETTING

Push button  and  together for at least 5 seconds to enter the **Setting parameters Area**.

The setting menus are accesible to different levels only entering a password.



#### To enter the password (111)

Push  once (display shows 100) and confirm pressing 

Push  once (display shows 110) and confirm pressing 

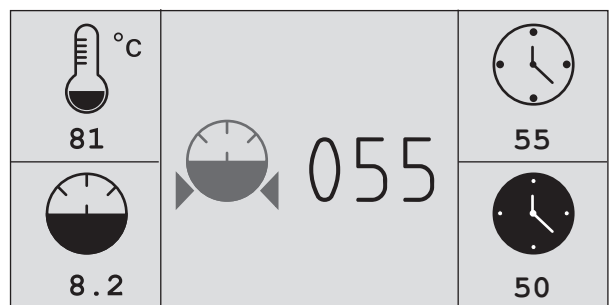
Push  once (display shows 111) and confirm pressing 

#### **MINIMUM PRESSURE** setting (\*)

Min = 5,5 bar / 80 psi - Max.15 bar / 218 psi

N.B display does not show comma/dot:

055 = 5,5 bar (as shown on the example)

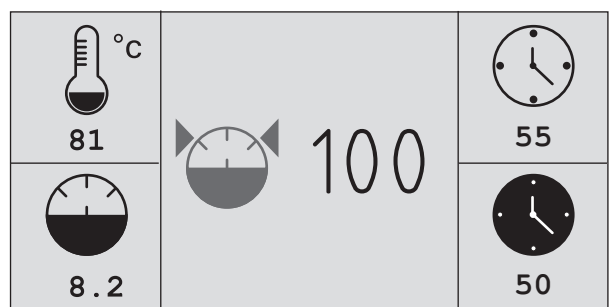


#### **MAXIMUM PRESSURE** setting (\*)

Min = 6 bar / 87 psi - Max.15,5 bar / 225 psi


N.B display does not show comma/dot:




100 = 10,0 bar (as shown on the example)




(\*)To be ignored for version with pressure switch.

#### TO MODIFY setting

push  (value is flashing) :

Push buttons  and  to change values , and  to confirm.

By pushing  you can confirm setting and move forward.

If you don't want to change the setting press  to move forward, or  to move backward.



At the end of the menus, display will show "OUT", press  to exit and go back to the compressor status .

During the setting procedure, if any button is not pushed for 60 seconds, the control panel will exit automatically.



### 5.3 CHECK THE EFFICIENCY OF THE SAFETY DEVICES BEFORE STARTING



Check the oil level as indicated in Section "Compressor maintenance".

**DO NOT START THE COMPRESSOR WITH THE GUARDS OPEN TO AVOID INJURY DUE TO MOVING COMPONENTS OR ELECTRICALLY POWERED EQUIPMENT.**

### 5.4 STARTING THE COMPRESSOR

Following an electrical shortage the compressor will start only if the START (1) button is pressed. VENTILATION MUST OCCUR AS ILLUSTRATED BELOW.



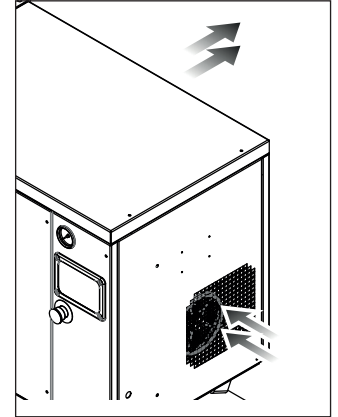
IT IS OF CRUCIAL IMPORTANCE THAT THE COMPRESSOR WORKS WITH ALL THE PANELS FIRMLY CLOSED.

The failed observance of these and the following standards may lead to accidents that could cause personal injury and serious damages to the compressor or its equipment.

Before initially starting the compressor or following extended inoperative periods, start the machine intermittently by pressing the START(I)-STOP(O) buttons on and off for 3 or 4 seconds. After this it is advisable to run the compressor for a few minutes with the air outlet tap open.

Then gradually shut-off the air tap and load to maximum pressure, checking if the inputs on each phase of the power supply are within the limits and also if the pressure switch trips.

At this stage, when the max pressure value is arrived, the pressure switch start the idle running for 2 minutes; after this time, if there's not air consumption, the compressor stop in stand-by condition. Discharge the air from the tank until the starting pressure is reached (2 bar difference compared to maximum pressure ). Shut-off the air outlet tap and wait for the pressure switch to trip, which will shut-on the in-take valve and close the internal discharge.



#### SETTING MADE BY THE MANUFACTURER

The minimum setting pressure is: 6,8 and 11 bar , dependign from the maximum pressure (8,10 or 13 bar)

The thermal relay is set according to the table below:

Power(Hp/kW))	V380/415-50-60Hz	V220-240/50-60Hz
Direct (DOL)		
5,5 / 4	8.7 A	15.1 A
Star-delta		
5,5 / 4	5,0 A	8,7 A
7,5 / 5,5	6,5 A	11,2 A
10 / 7,5	7,5 A	13,0 A
15 / 11	13,5 A	23,4 A
20 / 15	17,0 A	29,5 A



Disconnect the electrical power supply form the compressor before opening the electrical cabinet.

The setting of trip switch 1 must not differ from the table given above; if the trip switch should trip, check the input of the motor of the compressor, the voltage on the line terminals L1+L2+L3 during operation and the power connections inside the electric control panel and of the terminal board of the motor and compressor.

#### USEFULL TIPS

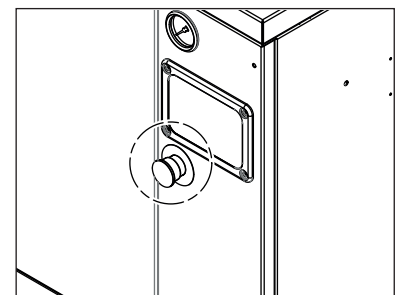
For the correct operational performance of the machine under full continuous load at the maximum working pressure, ensure that the temperature of the work area in a closed room does not exceed +45°C.

It is advisable to use the compressor with a maximum service of 80% in one hour under full load in order to ensure the correct efficiency of the product in time.

### 5.5 STOPPING THE COMPRESSOR

Press the emergency stop button on control panel the compressor fail immediately.

Note! By disconnecting the power supply from the external switch the compressor is completely without power.



## 6. DRYER

In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

### 6.1 PREPARING TO USE THE DRYER

#### DESCRIZIONE

Functional description

Drying systems with refrigeration cycle have been designed for a cost effective elimination, with minimal overall dimensions, of the condensate contained in compressed air by cooling it down to approximately + 3°C.

The operation principle of the dryers described in this manual is shown in the air and refrigeration circuit diagrams (attachment A).

The air delivered to the services is virtually humidity free, and the condensate collected in the separator is discharged through appropriate draining devices. In order to limit the size of the machine and to avoid condensation on the external surface of the tubing, before exiting the dryer, treated air is counter current pre-heated by the air entering the system.

The dryer comes provided with all the control, safety and adjustment devices, therefore no auxiliary devices are needed.

A system overload not exceeding the maximum operative limits can worsen the operational performances of the dryer (high dew point), but it will not affect its safety.

The electric diagram (attachment B) shows the minimum protection degree IP 42. The user must provide the dryer with a line protection and a ground terminal.

#### USE OF THE MACHINE IN SAFE CONDITIONS



This system has been designed and manufactured in compliance with the European safety directive in force, therefore any installation, use and maintenance operations must be performed respecting the instructions contained in this manual.

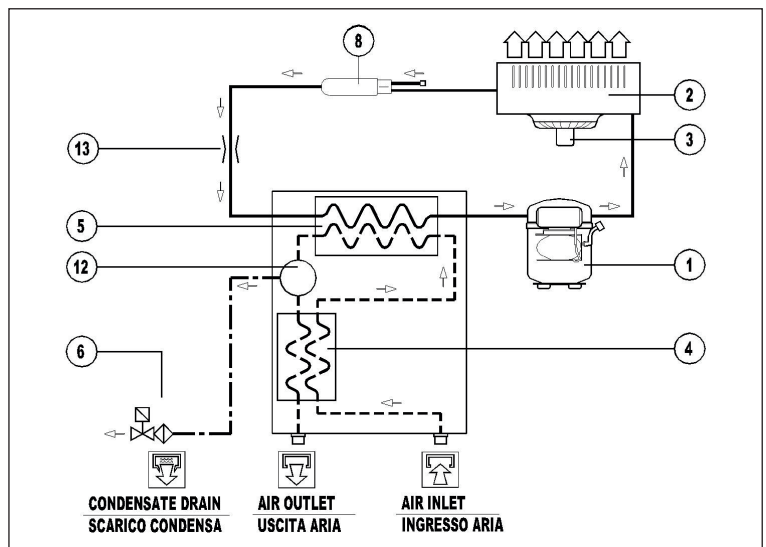


Any installation, use and maintenance operation requiring to access the internal parts of the dryer must be performed by qualified personnel.

The manufacturer will not be liable in case of uses different or not complying with those foreseen in this manual.

### 6.2 FUNCTIONAL DIAGRAM

- 1 Compressor
- 2 Condenser
- 3 Ventilator Motor
- 4 Air-air preexchanger
- 5 Evaporator
- 6 Condensate drain
- 8 Dehydrator filter
- 12 Condensate separator
- 13 Capillary tube



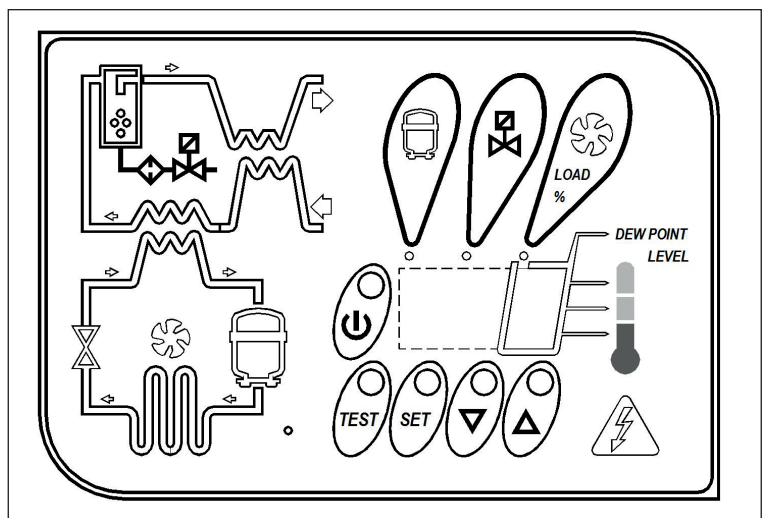
### 6.3 CONTROL PANEL

The machines belonging to this series are provided with an electronic system for parameters modification, so eventual reset operations can be performed by means of the digital panel located on the front of the dryer.

The control panel illustrated in PIC.1 is composed of 5 keys (ON/OFF, TEST, SET, DOWN e UP) and a 3 digit display, with three signalling LEDs indicated by icons.




#### DISPLAY

- On            unit is ON with low load;
- On ---      unit is ON with normal load;
- On ---      unit is ON with normal-high load;
- 
- On ---      the unit is ON with high load;
- 
- 





## LED

	STATUS	DESCRIPTION
	ON	Compressor energized
	Blinking	Programming mode activated
	ON	Condensate drain energized
	ON	Speed of the fan = 100%
	Blinking	Speed of the fan < 100%

## KEYS FUNCTION

TEST: Pushed for 3 sec. during normal operation, it allows to activate a condensate drainage cycle.

SET: When pushed and released during normal operation, it displays the set-point value (decimal).

When pushed for 10 seconds, it allows to enter the C8 and C9 condensate drain parameters programming menu (see relevant table).

When pushed after having set new configuration values, it stores the applied modifications.

DOWN: When pushed while setting the set point or the configuration parameters, it decreases the displayed value of one unit per second, during the first 10 seconds, than of one unit every 0,1 sec.

When pushed for 10 seconds during normal operation, it starts an automatic test cycle of the controller.

UP: When pushed while setting the set point or the configuration parameters, it increases the displayed value of one unit per second, during the first 10 seconds, than of one unit every 0,1 sec.

ON / OFF: Pushed for 3 seconds, it activates or deactivates the process. When the process is deactivated, the display shows OFF.

NOTE: when the controller is in OFF position, some parts of the dryer are kept under tension therefore, for safety purposes, disconnect the electrical power before performing any operation on the machine.

**CONDENSATE DISCHARGE PARAMETERS PROGRAMMING.**

Push the SET key for 10 seconds to enter the parameters configuration menu: the display will show in sequence the set point value, the code of the first modifiable parameter (C8) and its value).

Only if strictly necessary, use the UP and/or DOWN keys to change the displayed parameter value.

Press the SET key to store the previously changed parameter value or to browse the parameters without changing them.

15 seconds after the last performed operation, the controller will return automatically to the normal operation mode.

PARAMETER	DESCRIPTION	RANGE	SET VALUE
C8	Delay between condensate discharges	1 ÷ 999 (min)	1
C9	Time required for condensate discharge	1 ÷ 999 (sec)	1

Changes entered for timing values will be effective only after exiting the programming, while changes to other variables will be immediately effective.

Please remember that eventual changes to the configuration parameters of the machine could negatively affect its efficiency. Thus, changes have to be arranged in collaboration with the manufacturer.

## WARNING FOR USER:

IT'S FORBIDDEN TO MODIFY THE OTHER CONFIGURATION PARAMETERS OF THE ELECTRONIC CONTROLLER WITHOUT THE SERVICE CENTER'S AUTHORIZATION

## 6. DRYER

### 6.4 ANOMALY WARNING

The controller is capable to recognize certain types of anomalies to the drying circuit. In such cases, an alarm message will blink on the display, alternated to the current dew – point value.

MESSAGE (BLINKING)	CAUSE	OUTPUT	AZIONI
HtA	Dew - point elevato (allarme con ritardo)	Alarm output ON Refrig. Compressor output OFF Fan output ON Discharge cycle standard	Resettable by switching off the control board when dew-point returns to preset range. If it persists call our Service Centre.
Ht2	Dew - point molto elevato (allarme immediato)		
LtA	Dew - point basso	Alarm output ON Refrig. Compressor output OFF Fan output OFF Discharge cycle standard	Automatic reset when dew-point returns to preset range. If it persists call our Service Centre.
PF1	Interruzione o corto circuito della linea di ingresso della sonda PTC	Alarm output ON Refrig. Compressor output OFF Fan output OFF Discharge cycle standard	Resettable by switching off the control board and replacing the faulty probe. Call our Service Centre.
ESA	Energy saving attivo	Alarm output OFF Refrig. Compressor output OFF	No action necessary. Automatic Reset
ES2		Fan output OFF Discharge cycle standard	
ASt	Serie di allarmi ravvicinati	Alarm output ON Refrig. Compressor output OFF Fan output ON Discharge cycle standard	call our Service Centre.

Note: PF1 has priority on all other alarm messages.

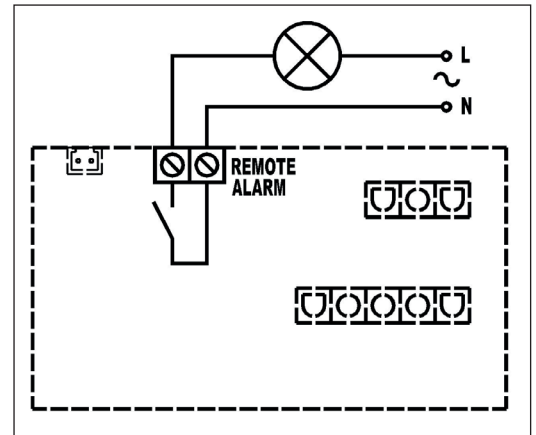
#### REMOTE SIGNALLING ALARM

The dryer control board is equipped with a digital output for the remote signalling alarm. This digital output is controlled by a relays configured as normally open: when an alarm is detected, this relays closes a circuit.

Proceed as follows to activate a remote alarm output:

- The User must provide a signaller in compliance with output relays electrical features (solenoid coil, light bulb, acoustic signaller, ...).
- Disconnect the dryer from electrical power supply, remove cover and left side panel.
- Connect the signaller to the terminal blocks (See PIC.2).

Alarm Output relays electric features: 250VAC / 3A – AC 15 (Amp. Inductive)



### 6.5 BEFORE START UP

Before starting the machine, make sure that all operating parameters correspond to the nominal data.

The dryer is supplied already tested and preset for normal operation, and it doesn't require any calibration. Nevertheless, it's necessary to check the operating performances during the first working hours.

#### START UP

The operations specified below must be performed after the first start up and at each start up after a prolonged inactive period of time due to maintenance operations, or any other reason.

- Make sure that all instructions contained in chapters INSTALLATION SITE and INSTALLATION have been respected.
- Check if by-pass is locked properly (if existent).
- Activate current supply and press the ON/OFF switch on the control panel for at least 1 second.
- Wait 5 to 10 minutes until machine has achieved its standard operating parameters.
- Slowly open the air outlet valve and successively open the air inlet valve.
- If existent, close the by-pass.
- Check if the condensate drainer is working properly. Check if all connecting pipes are properly tightened and fixed.

Before disconnecting the dryer from electrical power supply, use ON/OFF key to stop the dryer. Otherwise wait 10 minutes before switching the dryer on again, in order to allow freon pression re-balance.

### 6.6 MAINTENANCE, TROUBLESHOOTING AND DISMANTLING.

**MAINTENANCE**

Before attempting any maintenance operation, make sure that:

**No parts of the system is under pressure.**

**No parts of the system is electrically powered.**

**WEEKLY OR EVERY 40 HOURS OF OPERATION**

Verify the temperature on the control panel display.

visually check if the condensate is drained regularly.

**MONTHLY OR EVERY 200 HOURS OF OPERATION**

Clean the condenser with a compressed air jet, taking care not to damage the cooling battery aluminium wings.

At the end of the above mentioned operations, check if the dryer is working properly.

**YEARLY OR EVERY 2000 HOURS OF OPERATION**

Check if the flexible tube used for condensate drainage is damaged and replace it if necessary.

Check if all connecting pipes are properly tightened and fixed.

At the end of the above mentioned operations, check if the dryer is working properly.

**TROUBLESHOOTING**

NOTE: FOLLOWING BEHAVIORS ARE NORMAL CHARACTERISTIC OF OPERATION AND NOT TROUBLES:

- Variable speed of the fan.
- Visualization of message ESA in case of operation without load.
- Visualization of negatives values in case of operation without load.

Troubleshooting and eventual control and/or maintenance operations must be performed by qualified personnel. For maintaining the refrigerating circuit of the machine, contact a refrigeration engineer.	
PROBLEM	CAUSE/REMEDY
Luminous switch / Display of the control panel OFF.	<ol style="list-style-type: none"> <li>1. Check if the line is electrically powered.</li> <li>2. Check cabling.</li> <li>3. Check the electronic control board; if the trouble persists, replace it.</li> </ol>
The compressor doesn't start.	<ol style="list-style-type: none"> <li>1. Check cabling and control.</li> <li>2. Activation of compressor's internal thermal protection; wait one hour and check again. If the fault persists: stop dryer and call a refrigeration engineer.</li> <li>3. Check the compressor's electrical components.</li> <li>4. Short circuit in the compressor. Replace it.</li> </ol>
The fan doesn't work.	<ol style="list-style-type: none"> <li>1. Check the protection fuse (if present), and in case replace it.</li> <li>2. Check cabling.</li> <li>3. Check the electronic control board; if the trouble persists, replace it.</li> <li>4. Short circuit in the fan. Replace it.</li> </ol>
Condensate drain absent (no water nor air).	<ol style="list-style-type: none"> <li>1. Check cabling.</li> <li>2. Pre-filter of the drainage system dirty, clean it.</li> <li>3. The coil of the drainage solenoid vale is burned out, replace it.</li> <li>4. Drainage solenoid valve clogged/jammed, clean or replace it. (fig.2)</li> <li>5. Check the electronic card, if the trouble persists, replace it.</li> <li>6. The temperature on the display of the control panel is lower then the nominal value, call a refrigeration engineer.</li> </ol>
Air flows continuously through the condensate drainage.	<ol style="list-style-type: none"> <li>1. Drainage solenoid valve jammed, clean or replace it.</li> <li>2. Verify the condensate drainage times.</li> <li>3. Check the control. If the trouble persists, replace it.</li> </ol>
Water in the pipes downstream the dryer.	<ol style="list-style-type: none"> <li>1. The dryer is off; turn it on.</li> <li>2. Close by-pass (if present).</li> <li>3. Condensate drainage absent; see specific section.</li> <li>4. The temperature on the control panel display is higher than the nominal value; see specific section.</li> </ol>
The temperature on the control panel display is higher than the nominal value.	<ol style="list-style-type: none"> <li>1. Check if the compressed air inlet/outlet is connected properly.</li> <li>2. The compressor doesn't start; see specific section.</li> <li>3. The fan doesn't turn; see specific section.</li> <li>4. The flow rate and/or temperature of the air entering the dryer are higher than the nominal values; restore the nominal conditions.</li> <li>5. The ambient temperature is higher than the nominal values; restore the nominal conditions.</li> <li>6. The condenser is dirty; clean it.</li> <li>7. Condensate drain absent (no water nor air); see specific section.</li> <li>8. Check if the temperature control probe in the evaporator is positioned improperly or faulty.</li> <li>9. Gas leakage in the refrigerating circuit: stop dryer and call a refrigeration engineer.</li> <li>10. Check cabling.</li> </ol>
The dryer does not let compressed air flow through.	<ol style="list-style-type: none"> <li>1. Check if the compressed air inlet/outlet is connected properly.</li> <li>2. The temperature on the control panel display is lower than the nominal value; call a refrigeration engineer.</li> <li>3. Check if the temperature control probe in the evaporator is positioned improperly or faulty.</li> <li>4. Check if the connecting tubing are clogged; eventually proceed accordingly.</li> <li>5. Check if by-pass (if present) is installed properly.</li> <li>6. Check electronic control board. If the trouble persists, replace it.</li> </ol>

## 7 . COMPRESSOR MAINTENANCE



In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

### 7.1 INSTRUCTIONS RELATIVE TO INSPECTIONS AND MAINTENANCE JOBS.

The table that follows summarises the periodic and preventative maintenance jobs required to keep the compressor in an efficient operational state in time.

A brief description of the running hours after which the type of maintenance job is required.

**Before performing any jobs within the sound-proof cabinet, ensure that:**

The main line switch is turned off (position "0")

The compressor is disconnected from the compressed air system

All the pressure has been released from the compressor and internal pneumatic circuit.

Weekly: it is advisable to inspect the compressor, paying special attention to oil leaks and scale due to settled dust and oil.

Note! If the compressor is used for more than 3000 hours/year the jobs indicated herewith are to be performed more often.

TIME	MAINTENANCE
<b>WEEKLY</b>	Check if the filters of the electric cabinet are clogged Check if the anti-dust pre-filter is clogged
<b>500 hours after first start</b>	Change oil Check the electrical connections and tighten if necessary
<b>every 2500 hours once a year</b>	Replace the oil filter cartridge Replace the filter cartridge of the oil separator Replace the air filter cartridge Check the transmission Clean the air/oil radiator Check filters in electrical cabinet and replace if necessary Clean inverter dissipator (if equipped ) Check the safety valve Check the electrical connections and tighten if necessary. Drain condensate Change oil
<b>every 7500 hours</b>	Check the hydraulic seals Overhaul the suction valve
<b>every 12500 hours</b>	Check the hoses and replace if necessary Overhaul oil separator flange Grease the minimum pressure valve Replace Fluorflon pipes 6x4 and 10x10 Replace the screw oil seal Replace the bearings of the radiator fan motor Replace the bearings of the motor Replace the delivery OR flange Clean the compressor
<b>every 20000 hours</b>	Replace inverter fan (if equipped). Replace the bearings of the screw (to be done by Technical Service centre)

The above described maintenance schedule has been planned bearing in mind all the installation parameters and recommended use of the Manufacturer.

The Manufacturer advises the customer to keep a record of all maintenance jobs performed on the compressor.



Read all the information provided in Section 7.1 before proceeding with any maintenance jobs.

### CHANGING THE OIL

Change the oil following the initial 500 hours of use and then every 2500 hours and in event once a year.

In case of not frequently use (few hours of duty per day) you should change the oil every 6 months.

When you open the knurled fitting 2, oil starts to drain from the screw unit, therefore you need to have a pipe and container ready to collect the oil

Unscrew the cap 1 situated at the base of the screw unit.

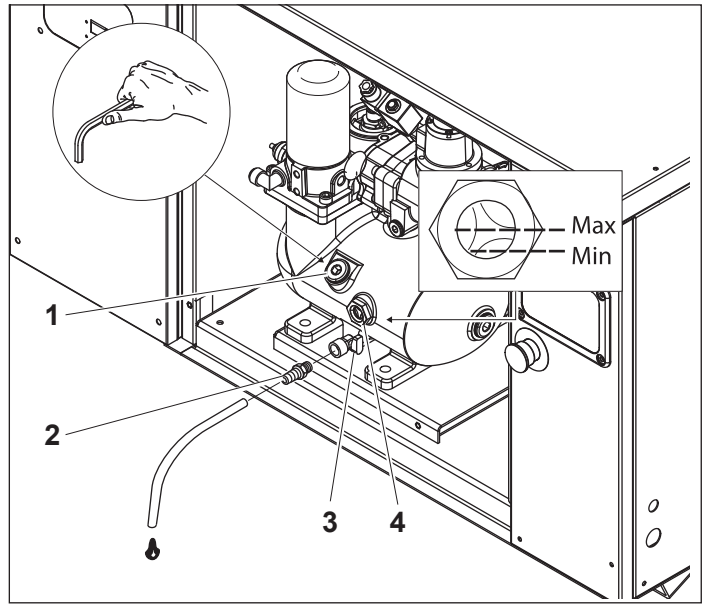
Screw an attachment with tail piece 2 (supplied together with the compressor).

Open tap 3.

Once emptied, shut-off tap 3 and remove the attachment with tail piece.

Fill-up with oil to the half of the union 4, then screw cap 1 back in place and close-up the compressor again.

Once the oil and oil filter have been changed leave the compressor to run for roughly 5 minutes then turn it off and check the oil level again. Add oil if necessary.



Check the oil level once a month.



**Never mix different types of oil**, therefore always ensure that the circuit is completely empty before filling-up with oil. Each time the oil is changed the filter is also to be replaced

### REPLACING THE OIL FILTER CARTRIDGE

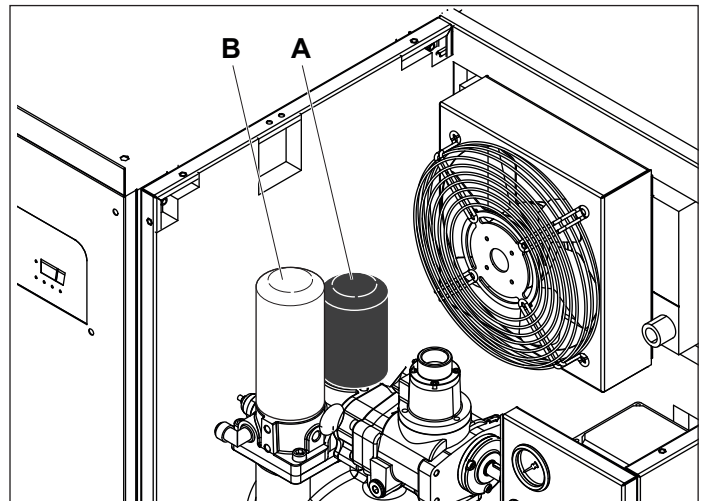
Replace the oil filter cartridge after the first 500 hours of use then every 2500/3000 hours and in any event each time the oil is changed.

Open the rear panel.

Disassemble filter cartridge A, using a chain spanner and replace with a new one.

Lubricate the sealing gasket before screwing the filter cartridge tight.

Manually tighten the new filter cartridge.



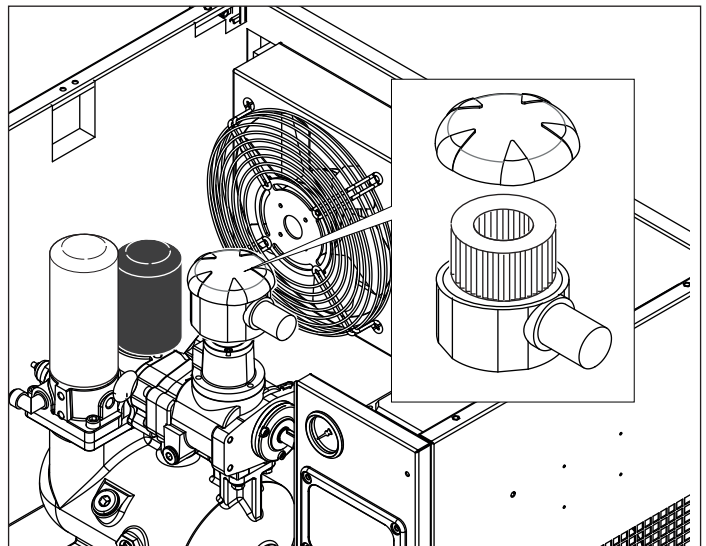
### REPLACING THE FILTER CARTRIDGE OF THE OIL SEPARATOR

Open the side panel to gain access to inside the compressor.

Disassemble filter cartridge B, using a chain spanner and replace with a new one.

Lubricate the sealing gasket before screwing the filter cartridge tight.

Manually tighten the new filter cartridge.



### REPLACING THE AIR FILTER CARTRIDGE

Open the side panel to gain access to inside the compressor.

Remove the cover.

Replace the cartridge of the air filter and replace the cover.



## 7 . COMPRESSOR MAINTENANCE



Read all the information provided in Section 7.1 before proceeding with any maintenance jobs.

### TIGHTENING THE BELT

Open the side panel to gain access to inside the compressor.  
Every 500 hours of use it is advisable to check and maybe tighten the belt if necessary.

Using a dynamo meter apply a perpendicular force in point A of between 25N and 35N, the belt must give by roughly 5mm.

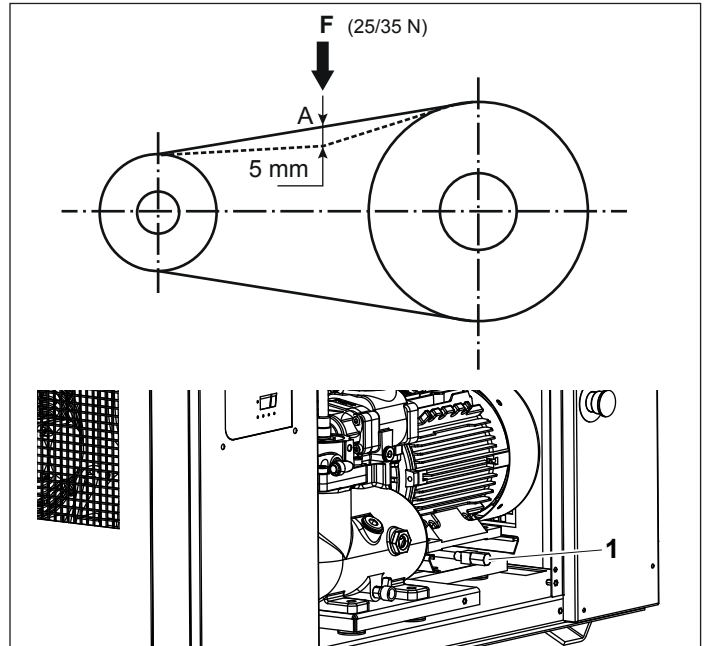
Turn the nut 1 to tighten the belt.

Apply max 40 N of force. An excessive force could be damage the paraoil and the screw unit!

### REPLACING THE BELT.

Turn the nut 1 to slacken the belt.

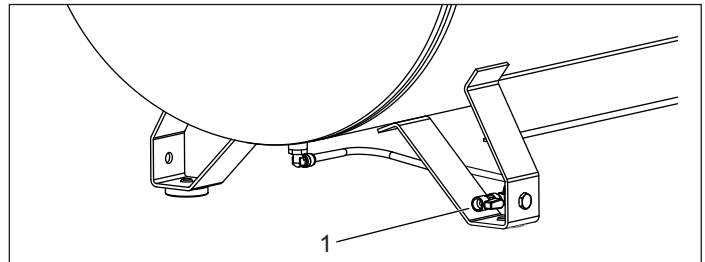
Slide the belt out, replace it with a new one and tighten as described in the previous section.



### DRAINING THE CONDENSATE

Drain the condensate from the air tank at least once a month by opening tap 1 secured to the foot of the tank.

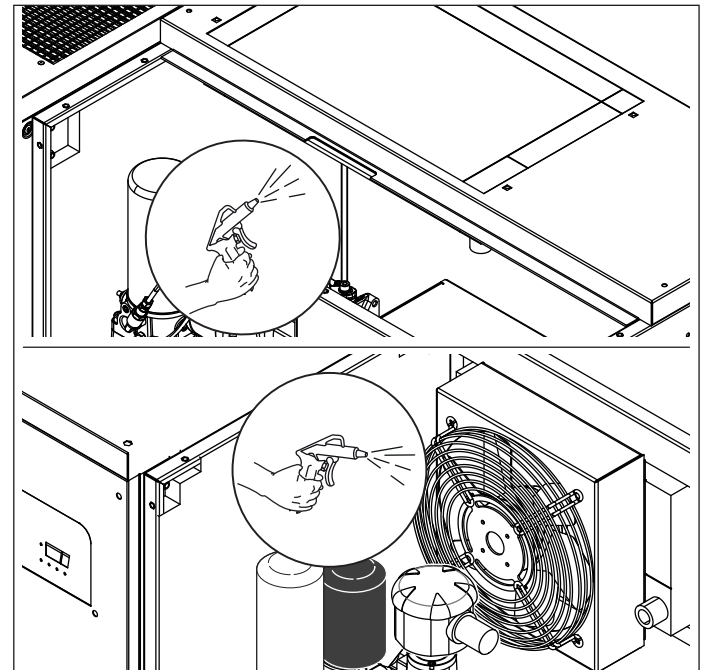
The condensate drained is considered as polluting mix that must not be thrown away outdoors. It is advisable to use special water/oil separators for its disposal.



### CLEANING THE AIR/OIL RADIATOR

It is advisable to clean the radiator 1 on a weekly basis to remove impurities, blowing it with an air gun from inside.

low compressed air through the radiator, from inside outwards, making sure that no dirt settles inside the compressor



### ELECTRIC MOTOR MAINTENANCE

The bearings of the electric motor are already lubricated and are maintenance free.

In normal surrounding conditions (ambient temperature up to 30°C) replace the motor bearings every 12500 hours of use. In more severe surrounding conditions (ambient temperature up to 40°C) replace the motor bearings every 8000 hours of use.

The bearings are to be replaced in any event every 4 years at the most.

#### Attention!

Before replacing the motor bearings, contact our customer service department, as established by the maintenance schedule.

## 7.2 DIAGNOSING THE ALARM STATUS/INCONVENIENCES-FAULTS


Before doing any job on the compressor ensure that:

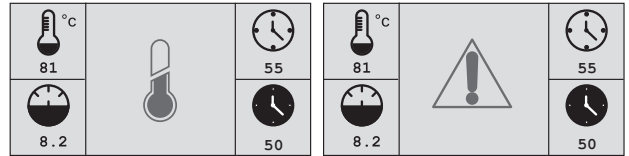
- The main ON/OFF switch is turned Off (position "0")
- The button EMERGENCY/STOP is pressed in security position
- The compressor is shut-off from the compressed air system
- The compressor and the internal pneumatic circuit are completely de-pressurised

If you are unable to rectify the anomaly encountered on your compressor contact your nearest authorised service centre.


*when these symbols are flashing alarm is ON*

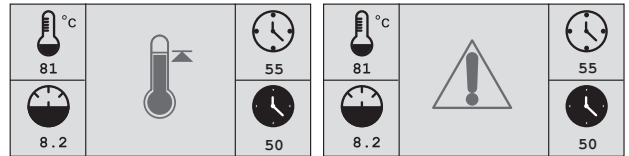
Alarm  
TEMPERATURE SENSOR broken or disconnected Compressor does not star or stops.

Press  to reset.  
Alarm can be reset only once the problem is solved.




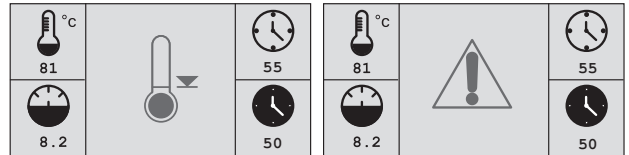
Alarm  
HIGH TEMPERATURE (> 105°C/221°F)  
Compressor stops.

Press  to reset, only when the temperature is lowered at least 10°C.




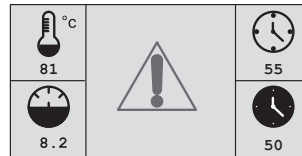
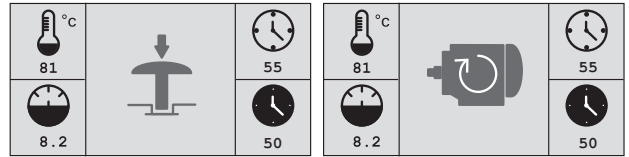
Alarm  
LOW TEMPERATURE (< -5°C/23°F)  
Compressor does not star or stops.

Press  to reset, only if the temperature is +10°C / 50°F or more.




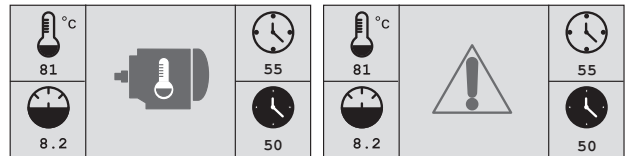
Alarm  
MOTOR WRONG SENSE OF ROTATION or  
EMERGENCY STOP PRESSED  
Compressor does not star or stops.

Press  to reset.  
Alarm can be reset only once the problem is solved.




Alarm  
MOTOR TERMAL PROTECTION  
Compressor stops.

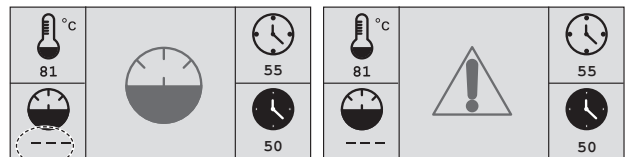
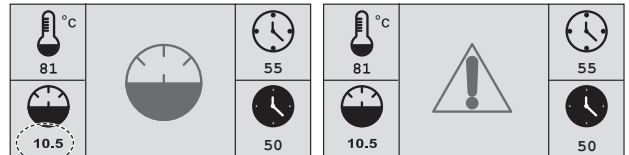
Press  to reset.  
Alarm can be reset only once the motor temperature reaches acceptable value.



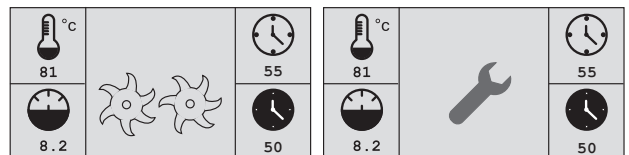
Alarm  
HIGH PRESSURE or  
PRESSURE SENSOR broken or disconnected (\*)  
Compressor does not star or stops.

Press  to reset.  
Alarm can be reset only once the problem is solved.

(\*)To be ignored for version with pressure switch.



Alarm  
MAINTENANCE TIME ESPIRED  
Compressor keep on working.  
Alarm can be reset only after maintenance is done.  
Contact your local after sale service.



## 8. WIRING DIAGRAM

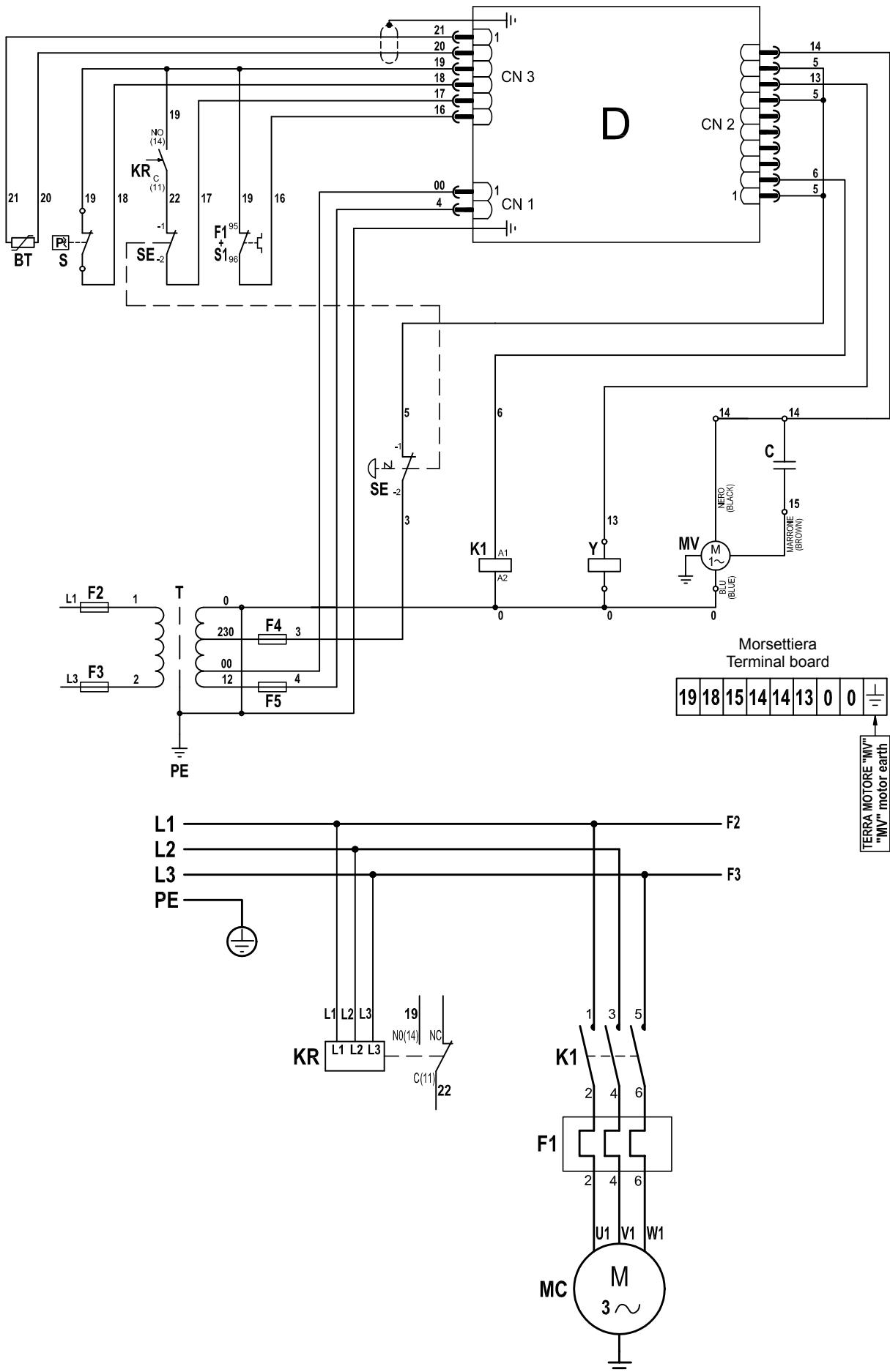
### KEYS

	en	fr	de	it
<b>F2-F3</b>	<i>Fuse 5x20 1A</i>	Fusible 5x20 1A	SCHMELZSICHERUNG 5x20 1A	Fusibile 5x20 1A
<b>F4</b>	<i>Fuse 5x20 1A</i>	Fusible 5x20 1A	SCHMELZSICHERUNG 5x20 1A	Fusibile 5x20 1A
<b>F5</b>	<i>Fuse 5x20 630mA</i>	Fusible 5x20 630mA	SCHMELZSICHERUNG 5x20 630mA	Fusibile 5x20 630mA
<b>FV</b>	<i>Fuse mot. ventilatore</i>	Fusible mot. ventilateur	SCHMELZSICHERUNG VENTILATORMOTOR	Fusibile mot. ventilatore
<b>MC</b>	<i>Compressor Motor</i>	Moteur	MOTOR	Motore compressore
<b>MV</b>	<i>Fan Motor</i>	Moteur ventilateur	VENTILATORMOTOR	Motore ventilatore
<b>C</b>	<i>Fan motor condenser</i>	Condensateur Moteur ventilateur	KONDENSATOR (VENTILATORMOTOR)	Condensatore motore ventilatore
<b>T</b>	<i>Capacitor</i>	Transformateur	WANDLER	Trasformatore
<b>K1</b>	<i>Line contactor</i>	Contacteur moteur	SCHALTGLIED	Contattore linea motore
<b>K2</b>	<i>Delta contactor</i>	Contacteur triangle	SCHALTGLIED	Contattore triangolo mot.
<b>K3</b>	<i>Star contactor</i>	Contacteur Étoile	SCHALTGLIED	Contattore Stella motore
<b>KV</b>	<i>Fan motor contactor</i>	Contacteur Moteur ventilateur	SCHALTGLIED (VENTILATORMOTOR)	Contattore motore ventilatore
<b>KR</b>	<i>Phase sequence relay</i>	Relais sequence phases	RELAIS FÜR PHASESEQUENZ	Relè sequenza fasi
<b>Y</b>	<i>Solenoid valve</i>	Electrovanne	MAGNETVENTIL	Elettrovalvola
<b>D</b>	<i>Control unit</i>	Easy air	STEUERGEHÄUSE	Centralina elettronica
<b>BT</b>	<i>Oil temp. probe</i>	Sonde temp. huile	TEMPERATURSENSOR (ÖL)	Sensore temp. olio
<b>SE</b>	<i>E-stop button</i>	Poussoir d'urgence	NOT-AUS-TASTE	Pulsante emergenza
<b>F1+S1</b>	<i>Thermal relay + reset</i>	Relay termique + Reset	RELAY "TEMPERATURSTEUERUNG MOTOR+RESET"	Relè termico + Reset
<b>S</b>	<i>Pressure switch</i>	Pressostat	DRUCKSCHALTER	Pressostato
<b>STMV</b>	<i>Fan motor temperature probe</i>	Sonde temperature moteur ventilateur	VENTILATORMOTOR, TEMPERATURSONDE	Sensore temp. motore ventilatore



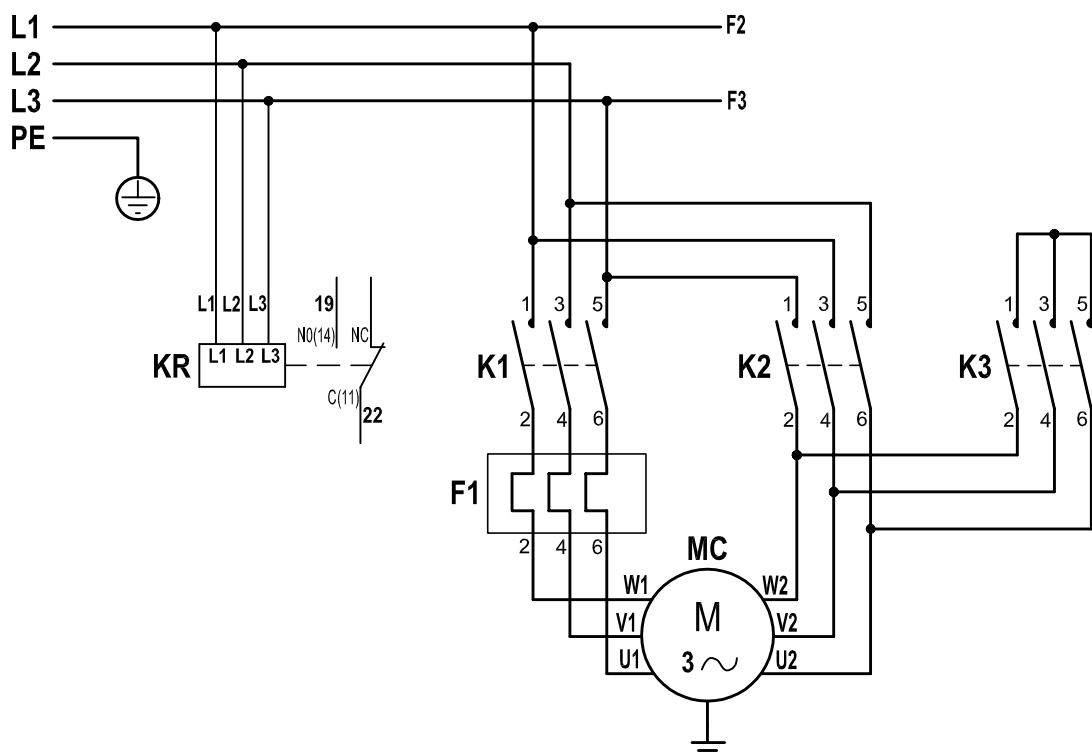
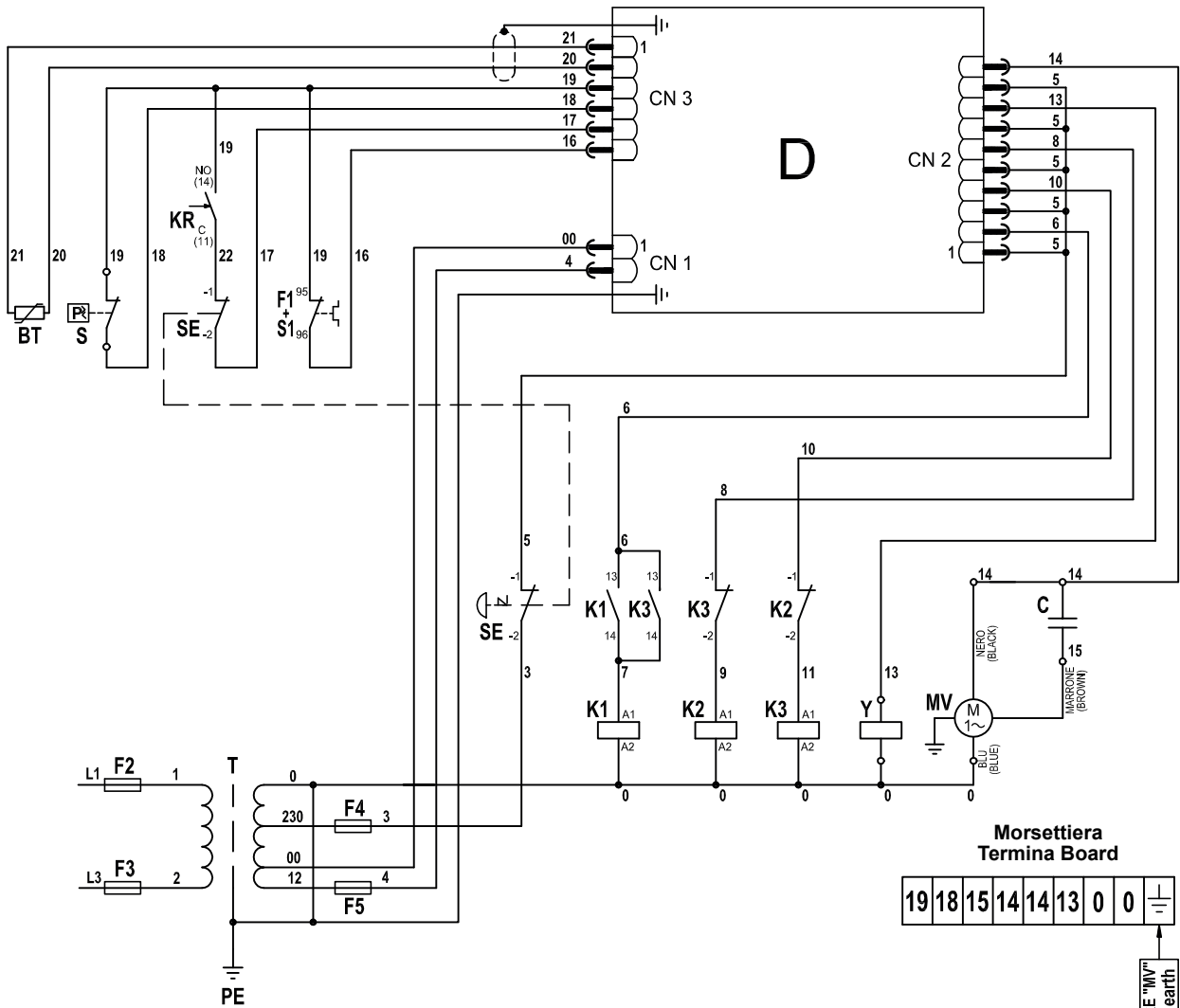
## 8.1 STANDARD VERSIONS

### 5,5 HP / 4 kW - DOL (DIRECT START)



# 8. WIRING DIAGRAM

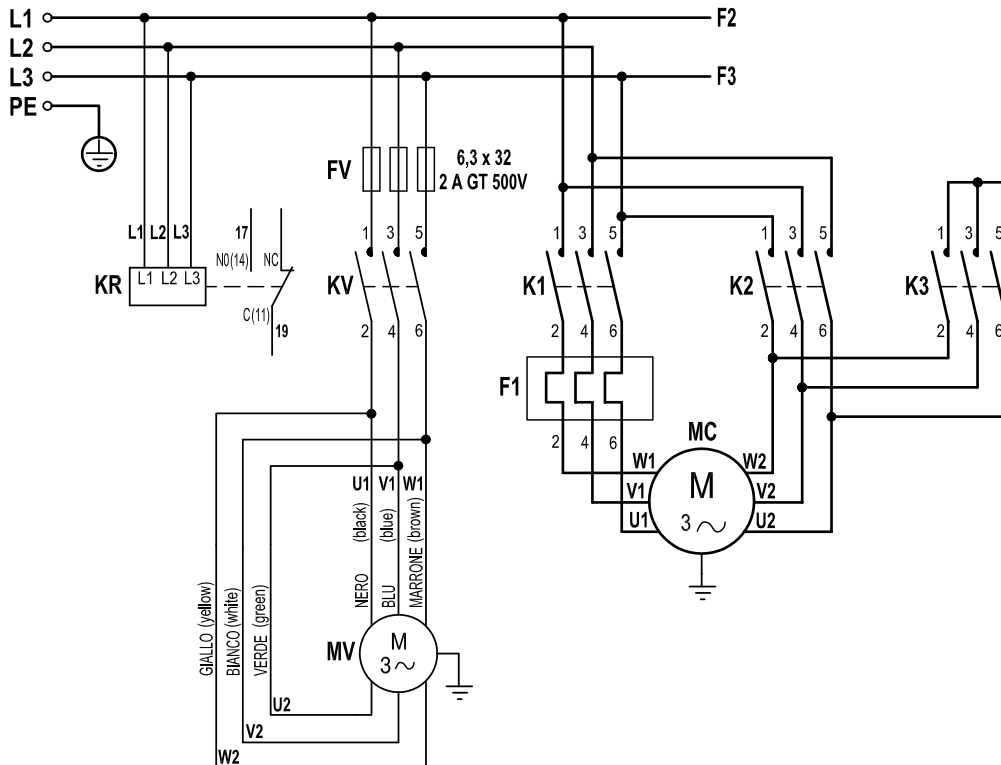
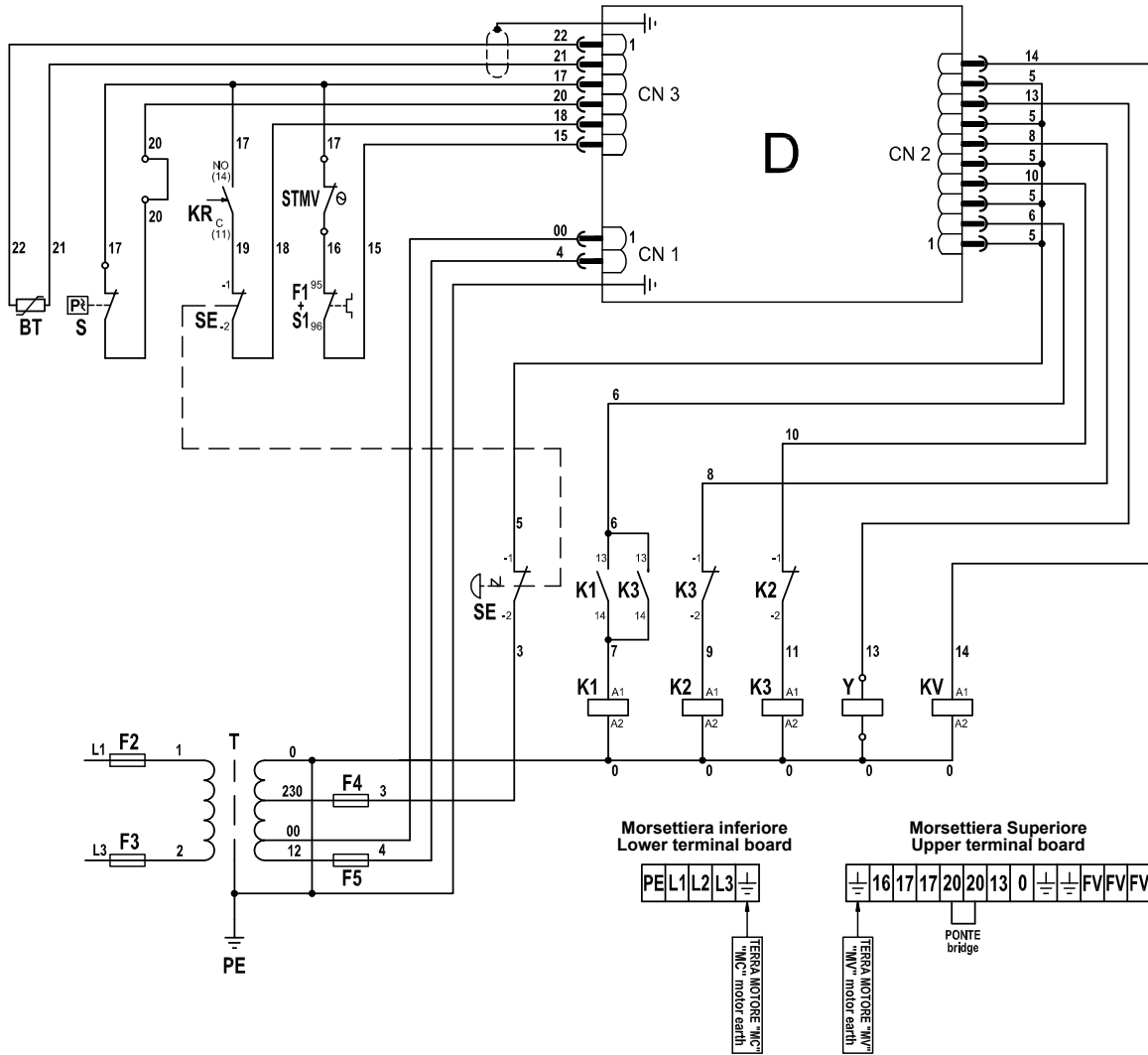
**5,5-7,5-10 HP / 4-5,5-7,5 kW - STAR-DELTA START - V380-415/50-60Hz**



# 8. WIRING DIAGRAM

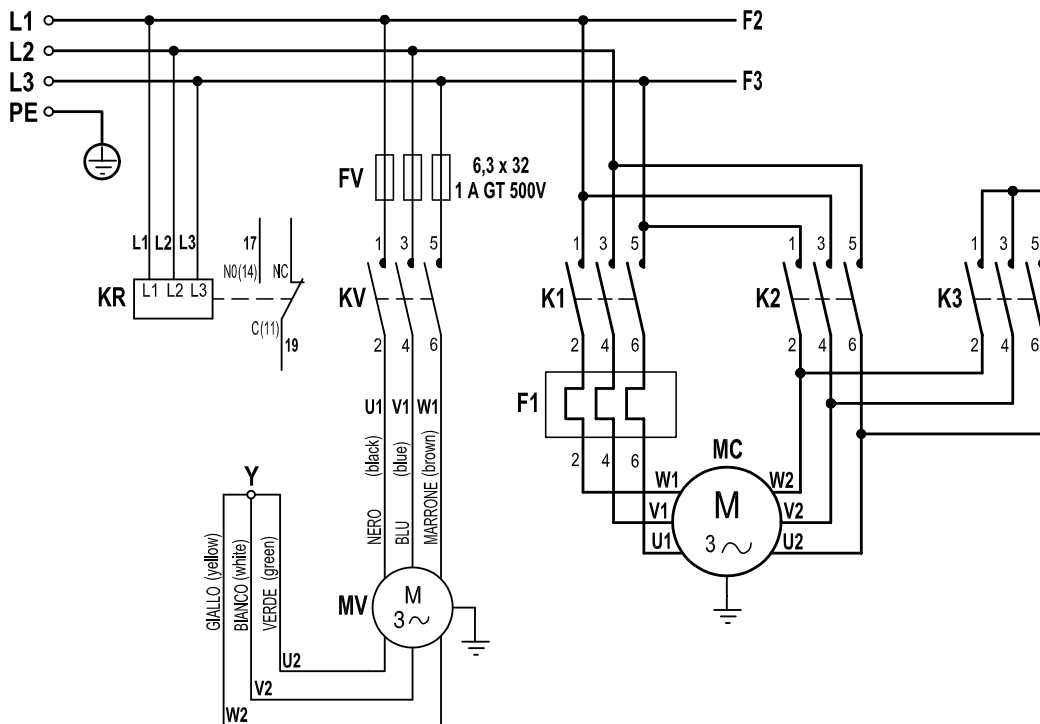
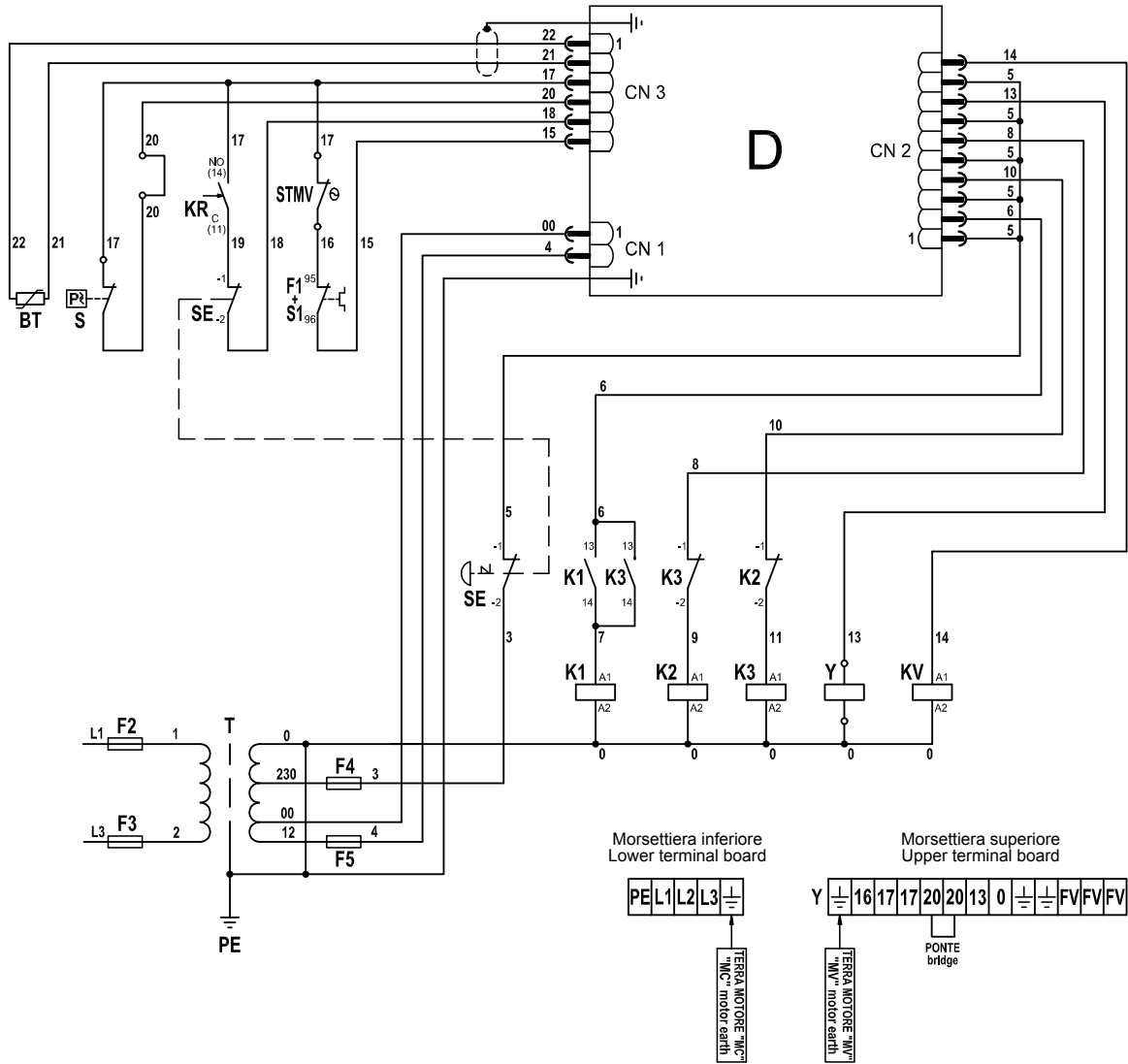
EN

15-20 HP / 11-15 kW - STAR-DELTA START - V220-240/50-60Hz



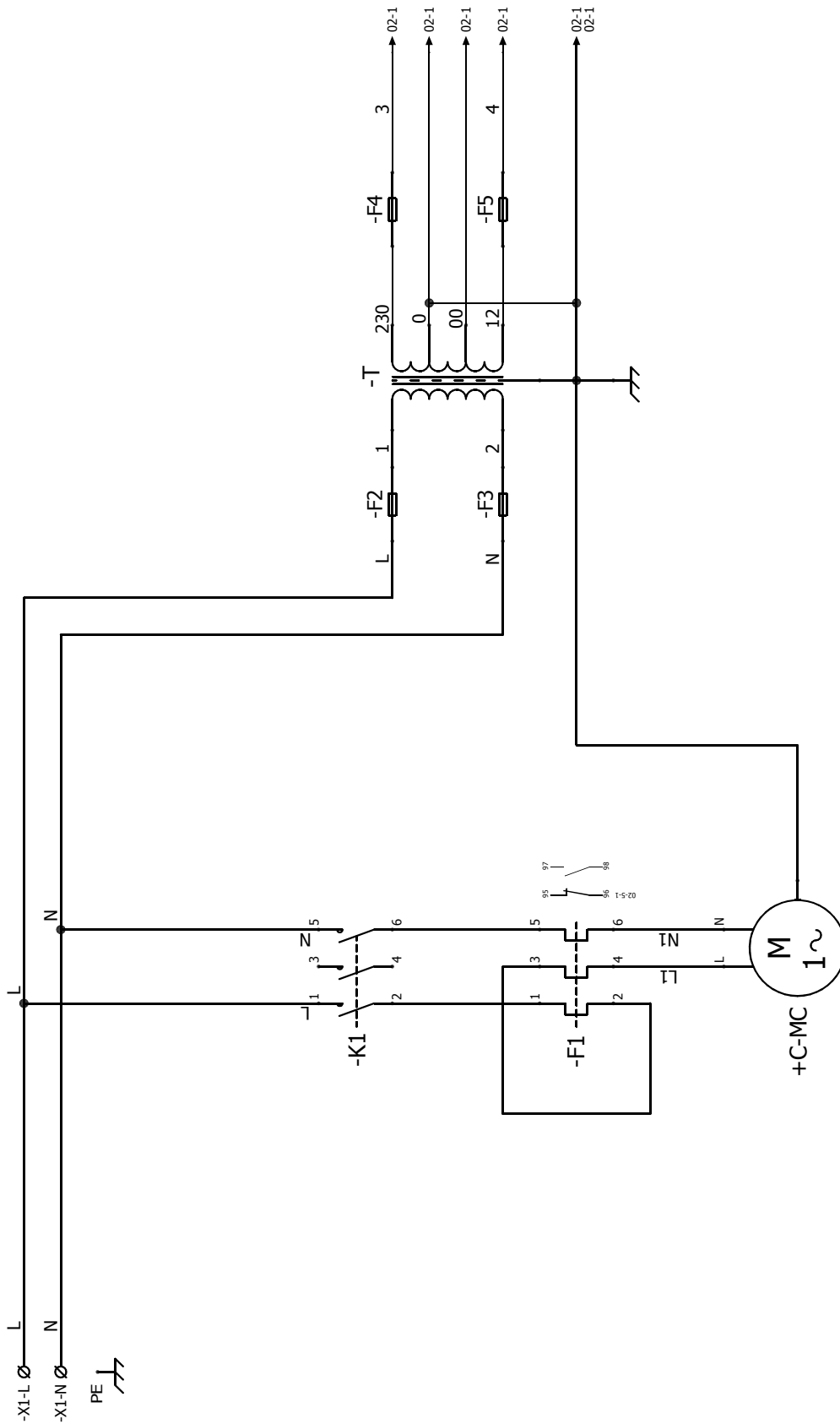
# 8. WIRING DIAGRAM

15-20 HP / 11-15 kW - STAR-DELTA START - V380-415/50-60Hz



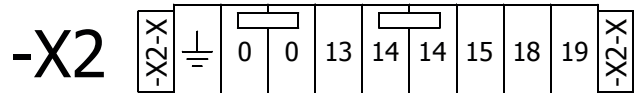
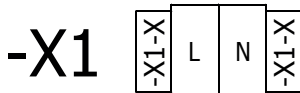
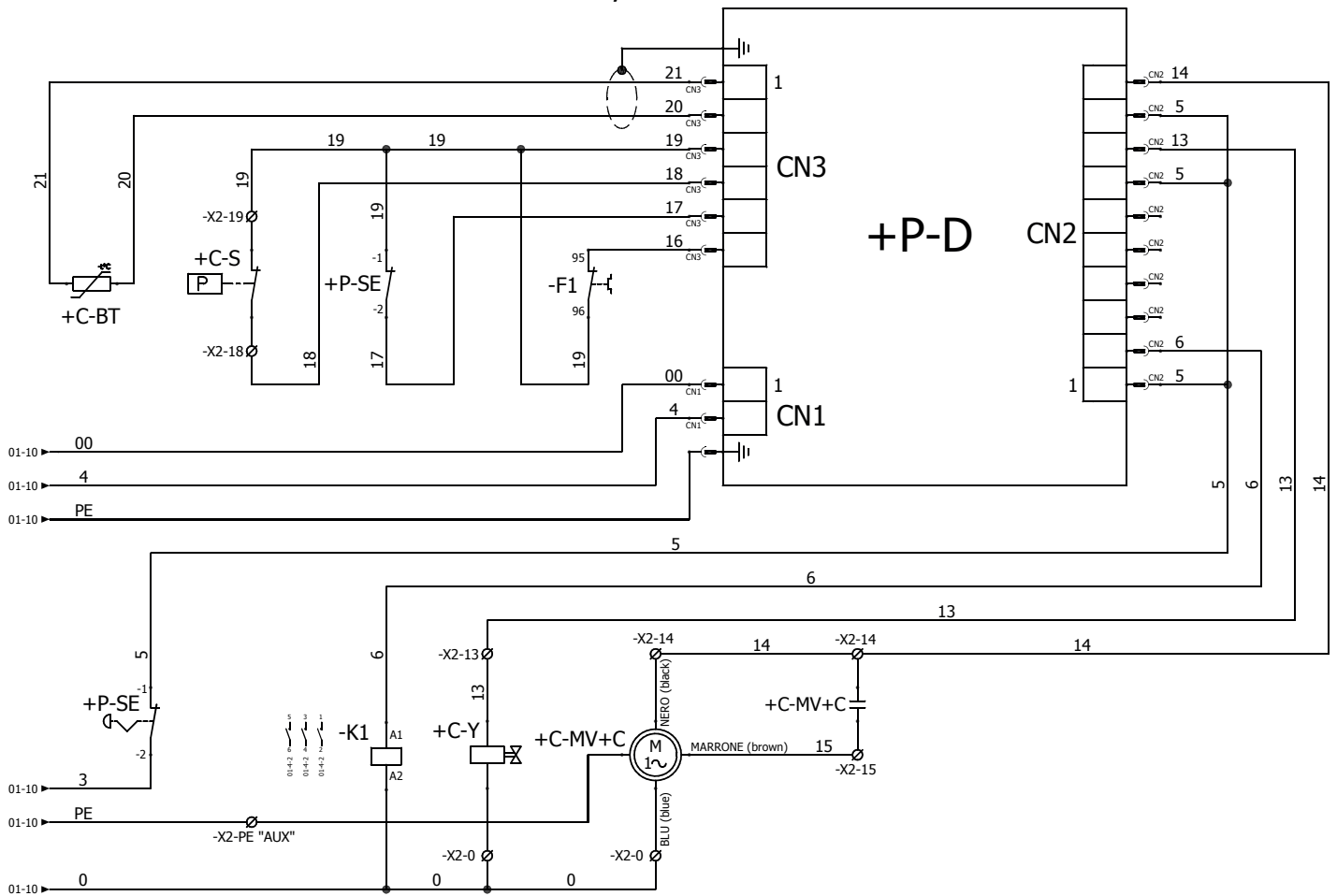
## 8.2 SPECIAL VERSIONS (60 Hz)

7,5 HP / 5,5 kW  
V220/60Hz/1 D.O.L



## 8. WIRING DIAGRAMS

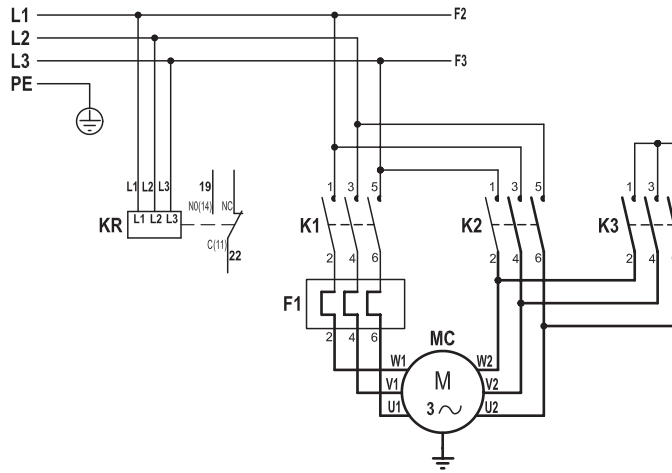
**7,5 Hp / 5,5 kW**  
**V220/60Hz/1 D.O.L**



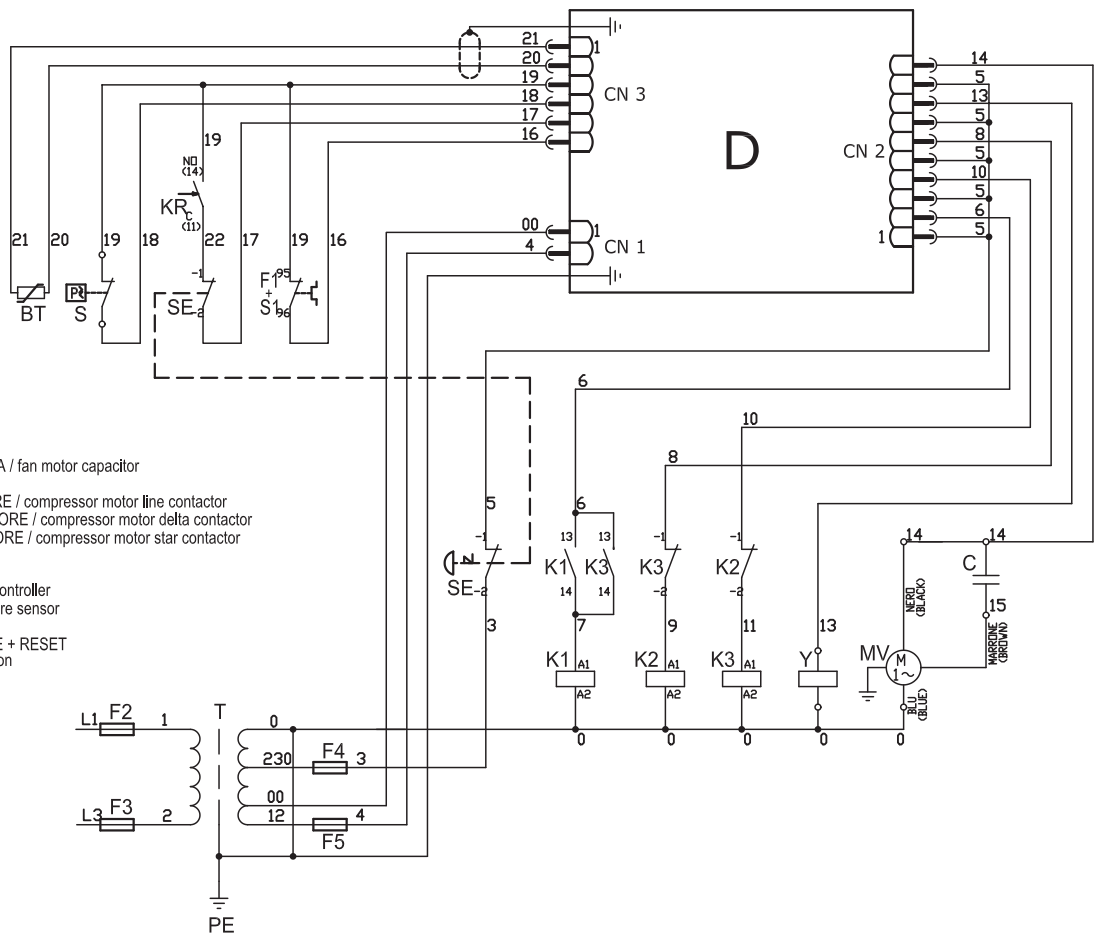
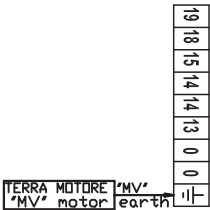
**LEGENDA / KEY:**

- F2-F3: FUSIBILI / FUSES 10,3x38 "WKLD-R-CC" 1A 600V
- F4: FUSIBILE / FUSE 5x20 1A (F)
- F5: FUSIBILE / FUSE 5x20 630mA (T)
- MC: MOTORE COMPRESSORE / COMPRESSOR MOTOR
- MV+C: MOTORE ELETTROVENTOLA+CONDENSATORE / FAN MOTOR AND CAPACITOR
- T: TRASFORMATORE / TRANSFORMER
- K1: CONTATTORE MOTORE COMPRESSORE / COMPRESSOR MOTOR CONTACTOR
- F1: RELE' TERMICO MOTORE COMPRESSORE+RESET / COMPRESSOR MOTOR THERMAL RELAY WITH RESET BUTTON
- Y: ELETTROVALVOLA / SOLENOID VALVE
- D: CENTRALINA "FIAC EASY AIR" / "FIAC EASY AIR" CONTROLLER
- BT: SENSORE TEMPERATURA OLIO / OIL TEMPERATURE SENSOR
- SE: PULSANTE DI EMERGENZA / EMERGENCY STOP BUTTON
- S: PRESSOSTATO / PRESSURE SWITCH

5,5 Hp / 4 kW  
 7,5 Hp / 5,5 kW  
 V208-240/60Hz STAR-DELTA



DISPOSIZIONE MORSETTIERA  
 Terminal board



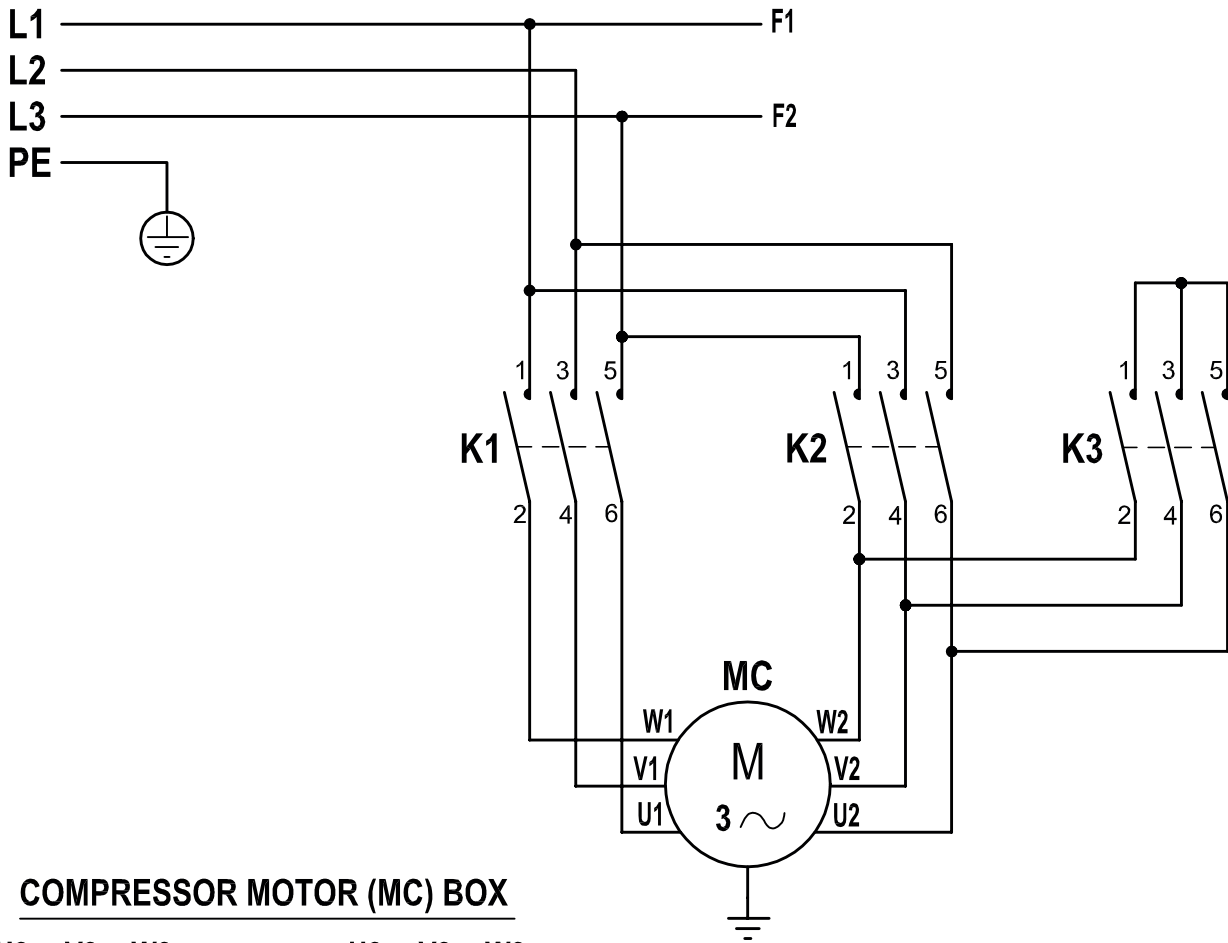
LEGENDA / key:

- F2-F3: FUSIBILI / fuses 5x20 1A (T)
- F4: FUSIBILE / fuse 5x20 1A (F)
- F5: FUSIBILE / fuse 5x20 630mA (T)
- MC: MOTORE COMPRESSORE / compressor motor
- MV: MOTORE ELETTROVENTOLA / fan motor
- C : CONDENSATORE MOTORE ELETTROVENTOLA / fan motor capacitor
- T: TRASFORMATORE / transformer
- K1: CONTATTORE LINEA MOTORE COMPRESSORE / compressor motor line contactor
- K2: CONTATTORE TRIANG. MOTORE COMPRESSORE / compressor motor delta contactor
- K3: CONTATTORE STELLA MOTORE COMPRESSORE / compressor motor star contactor
- KR: RELE' SEQUENZA FASI / phase sequency relay
- Y: ELETTROVALVOLA / solenoid valve
- D: CENTRALINA "FIAC EASY AIR" / "Fiac easy air" controller
- BT: SENSORE TEMPERATURA OLIO / oil temperature sensor
- SE: PULSANTE EMERGENZA / emergency button
- F1+S1: RELE' TERMICO MOTORE COMPRESSORE + RESET  
 compressor motor thermal relay with reset button
- S: PRESSOSTATO DI SERVIZIO / pressure switch

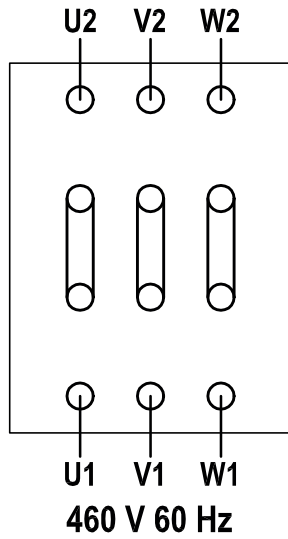
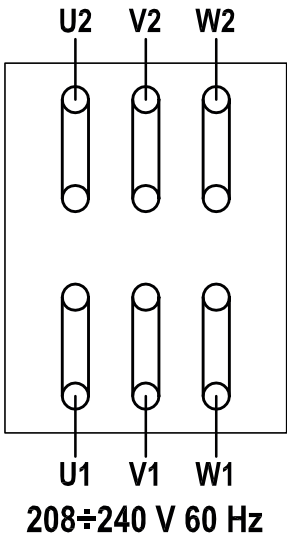
## 8. WIRING DIAGRAMS

10 HP / 7,5 kW

V208÷240/460 - 60Hz - STAR DELTA



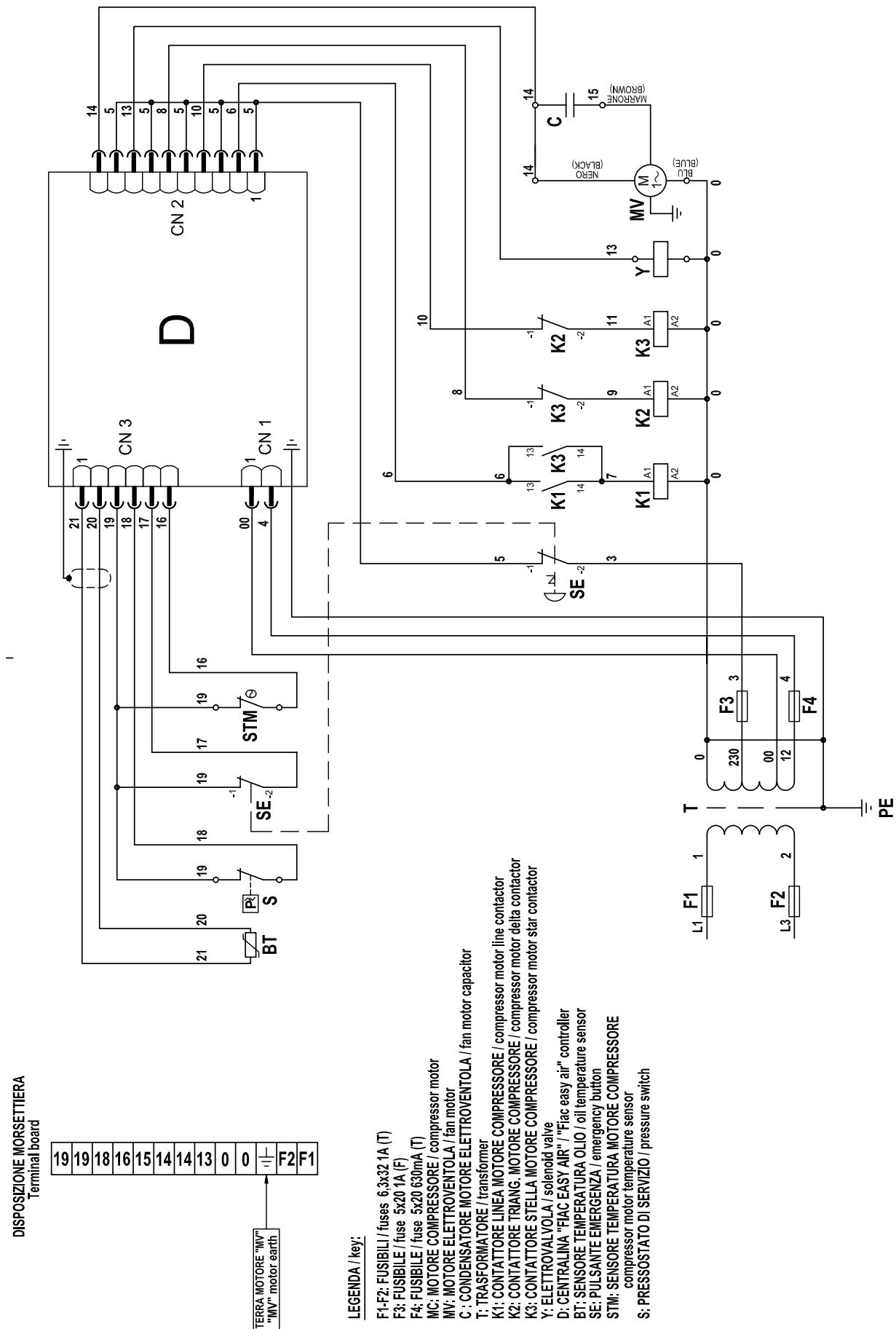
### COMPRESSOR MOTOR (MC) BOX





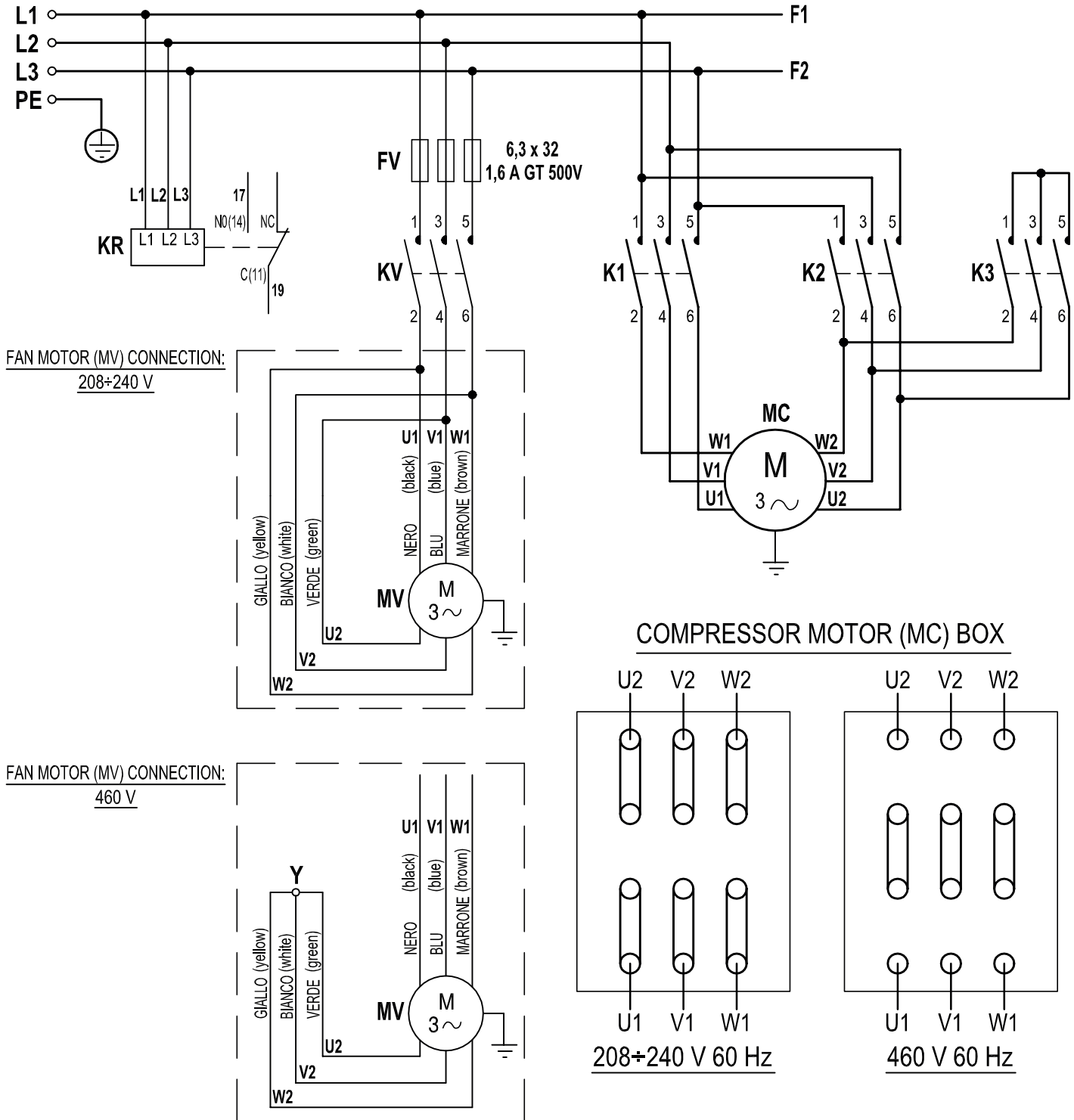
10 HP / 7,5 kW

V208÷240/460 - 60Hz - STAR DELTA

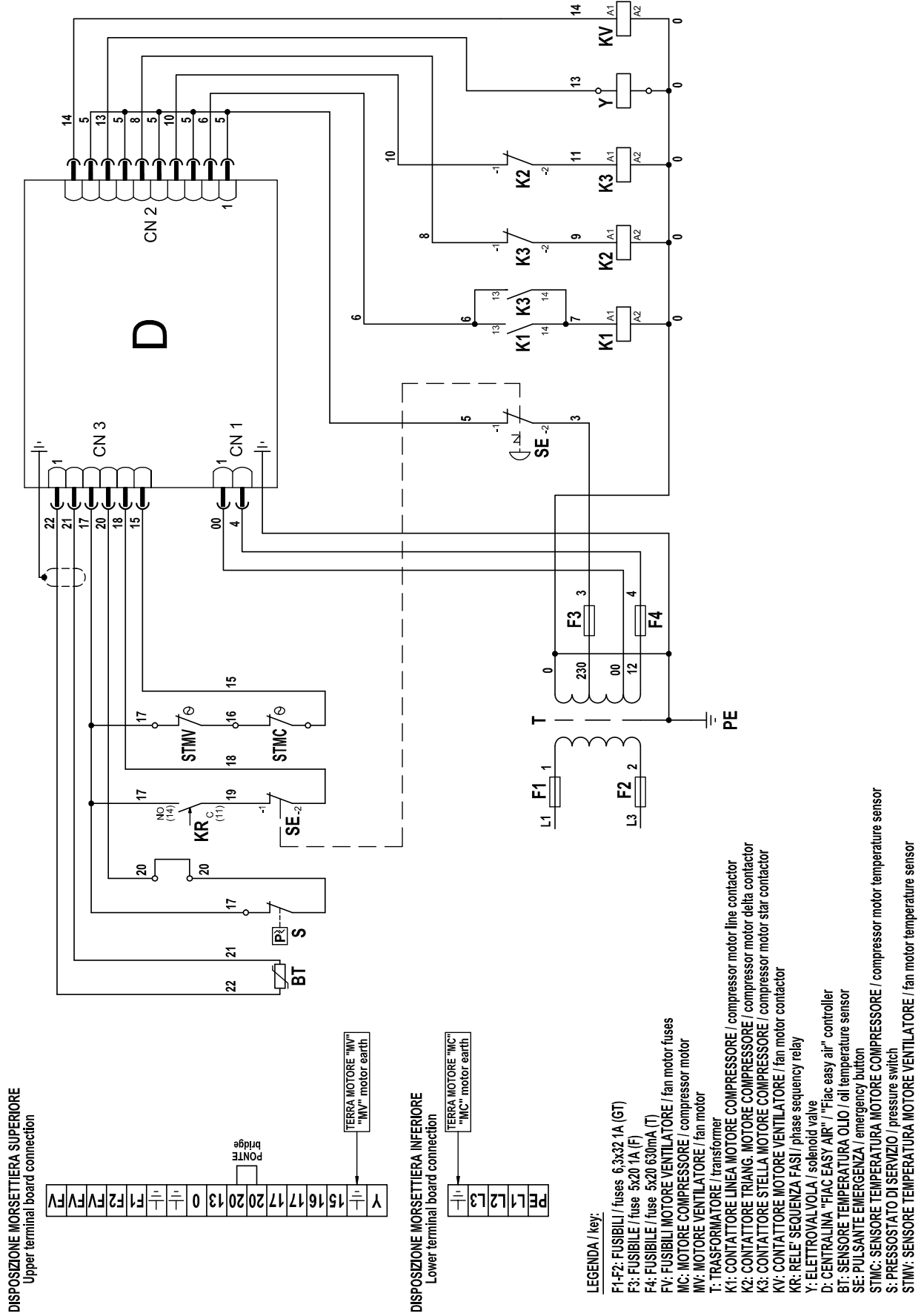


# 8. WIRING DIAGRAMS

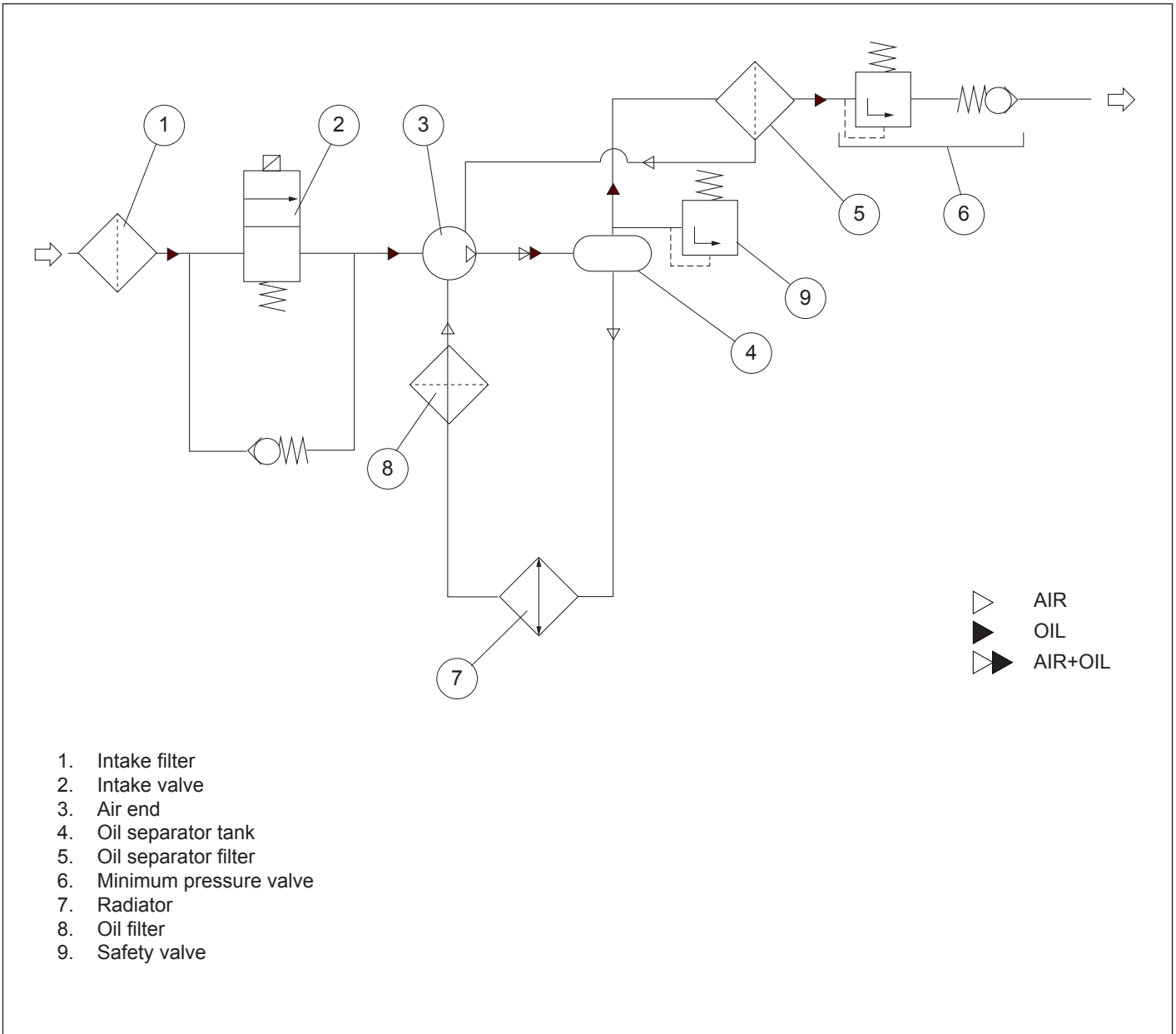
15 HP / 11 kW  
 20 HP / 15 kW  
 V 230/460 - 60Hz - STAR DELTA



15 HP / 11 kW  
 20 HP / 15 kW  
 V 230/460 - 60Hz - STAR DELTA



## 9 . PNEUMATIC DIAGRAM



<b>MODEL</b>	.....	<b>SERIAL No.</b>	.....
<b>DATE</b>	<b>INTERVENTION</b>	<b>WORKING HOURS</b>	<b>SIGNATURE</b>





