OPERATION AND MAINTENANCE MANUAL FOR RK-3 and RK-4 COMPRESSORS

SUMMARY

1 GENERAL WARNINGS AND INFORMATION FOR THE USER 5

1.1 DEFINITION OF REGULATED RELATIONSHIPS 5
1.1.1 DECLARATIONS 5
1.1.2 WARRANTY 6
1.1.3 RETURNS 6

1.2 APPLICABLE STANDARDS 7
1.2.1 CE MARKING 7

1.3 CAUTIONS AND SAFETY WARNINGS 8
1.3.1 INSTRUCTIONS FOR SAFE OPERATION 8

1.4 CONTACTS AND USEFUL ADDRESSES 11

2 DESCRIPTION OF THE MACHINE AND OPERATING PRINCIPLE 12

2.1 MACHINE DESCRIPTION 12

2.2 OPERATING PRINCIPLE 13

3 PRESENTATION OF THE MANUAL: CONTENT AND CONSULTATION 14

3.1 SYMBOLS, GLOSSARY AND NOTES ON GRAPHIC LAYOUT 14

4 DATA AND TECHNICAL SPECIFICATION 15

5 DIMENSIONS 17

6 INSTALLATION 22

6.1 CHARACTERISTICS AND STORAGE CONDITIONS 22

6.2 TRANSPORT 22

6.3 UNPACKING 22

6.4 HANDLING 23

6.5 LOCATION 23

6.6 CONNECTION AND START-UP 24
6.6.1 GENERAL WARNINGS 24
6.6.2 ELECTRICAL CONNECTION OF COMPRESSOR 25
6.6.3 AIR CIRCUIT CONNECTION 33

6.7 FIRST START-UP 34

6.8 HEATING OIL RESISTANCE 35

6.9 CLEANING AND DISINFECTION 36
6.10 REINSTALLATION AND REUSE 36
6.11 DEMOLITION AND DISPOSAL 36
7 OPERATION AND USE 37
7.1 DESCRIPTION OF THE OPERATION 37
7.2 RANGE OF APPLICATIONS 37
7.3 PROPER AND IMPROPER USE 37
7.4 OPERATING AND ENVIRONMENTAL LIMITS 37
7.5 WORKSTATION AND DANGEROUS AREAS 37
7.6 SAFETY DEVICES AND SIGNALS 38
7.6.1 POSITION OF THE LABELS 39
7.7 COMPRESSOR LUBRICATION 40
7.7.1 GENERAL RECOMMENDATIONS 40
7.8 USING THE COMPRESSOR WITH SYNTHETIC OILS 41
8 INSTRUCTIONS FOR THE USER 42
8.1 DESCRIPTION OF THE CONTROL DEVICES 42
8.1.1 BUTTON LAYOUT 43
8.1.2 SYMBOL LAYOUT 44
8.1.3 ALARMS LIST 45
8.2 DESCRIPTION OF THE OPERATIONS TO BE PERFORMED 47
8.2.1 STARTING THE COMPRESSOR 47
8.2.2 PROGRAMMING 49
8.2.3 STOPPING THE COMPRESSOR 51
8.3 REMOTE CONTROL 52
8.4 AUTOMATIC RESTART 52
8.5 DESCRIPTION OF THE CONTROL DEVICES (BASIC VERSION) 53
9 COMPRESSOR MAINTENANCE 54
9.1 SCHEDULED MAINTENANCE 54
9.2 REPLACING OIL FILTER 56
9.3 REPLACING OIL SEPARATOR FILTER 57
9.4 CHANGING THE OIL 58

9.5 REPLACING THE AIR FILTER 59

9.6 MAINTENANCE SCHEDULE 60

9.7 UNSCHEDULED MAINTENANCE, COMMERCIAL PARTS, SPARE PARTS AND PERTINENT DOCUMENTATION 60

10 TROUBLESHOOTING 61

11 APPENDIX 63

11.1 MAINTENANCE CHECK SHEET 63

1 GENERAL WARNINGS AND INFORMATION FOR THE USER

1.1 DEFINITION OF REGULATED RELATIONSHIPS

1.1.1 DECLARATIONS

The compressor must be used exclusively as indicated in this manual. This manual must be kept on hand in a known, easily accessible place because it should be used throughout the machine's entire working life.
For any request, always indicate model and serial number.

TEST CERTIFICATE

We hereby declare that the compressor has passed testing.

The following checks were performed:

-All parts have been assembled correctly and are functioning properly;

-The unit has passed electrical testing;

-The pressurized parts have passed testing;

-There are no leakages in the oil and air circuits;

-The outside of the machine is not defective;

-The air yield, power consumption and operating temperature parameters are all within normal ranges.

The Tester

_____

DECLARATION OF CONFORMITY

PneuTech, the manufacturer, on its own responsibility, declares that the air compressor identified by the label on the front page of this document, complies with the essential requirements laid out in the following DIRECTIVES – STANDARDS

2009/105/EC - 2006/95/EC – 2006/42/EC – 2004/108/EC - EN60204-1 - EN60335-1 - EN1012-1

PneuTech holds the relevant technical dossier.

1.1.2 WARRANTY

PneuTech guarantees its products from manufacturing or design defects for a period of 12 months from the date of initial start-up. To inform PneuTech of this date, fill out the special form supplied with the machine technical documentation and send it in.
If no communication is received, the warranty shall be recognized for 12 months starting from the date on which the unit was shipped; that is the date indicated on the PneuTech invoice.

The warranty does not cover parts subject to wear.

Repair works covered under the warranty can only be performed by PneuTech or a PneuTech Authorized Service Center.

Shipment of any product being returned for service under the warranty must be authorized in advance, and in writing, by PneuTech. Moreover, PneuTech, in its unquestionable wisdom, can decide whether to authorize such shipment or have one of its Authorized Service Centers do the work.

In both cases, shipment to PneuTech must be made carriage paid with shipping costs charged in the invoice. Repairs or replacements covered by the warranty include free replacement of parts of the machine that are recognized as defective.

The warranty does not cover damages caused by negligence, by incorrect use or installation or by non compliance with the warnings indicated in the “Operation and Maintenance Manual”.
Moreover the warranty is voided if modifications or repairs are made with non original PneuTech spare parts or performed by anyone not authorized to do so by PneuTech.

Defective parts replaced under the warranty are retained by the Authorized Service Center. The warranty does not cover repairs or reimbursement for damage due to shipping (to or from the Authorized Service Center). The warranty does not cover any type of reimbursement for injuries or damages to people or things derived from improper use of the model purchased or due to machine down time (the customer must take steps to prevent this). Service covered under the warranty is guaranteed only to purchasers who have met their contractual and administrative obligations and who are able to show the documentation certifying the purchase period. This is the only valid warranty recognized by PneuTech.

1.1.3 RETURNS

Returns are made using the RMA (return material authorization) procedure.
To open said procedure, the customer must send a request to PneuTech.

1.2 APPLICABLE STANDARDS

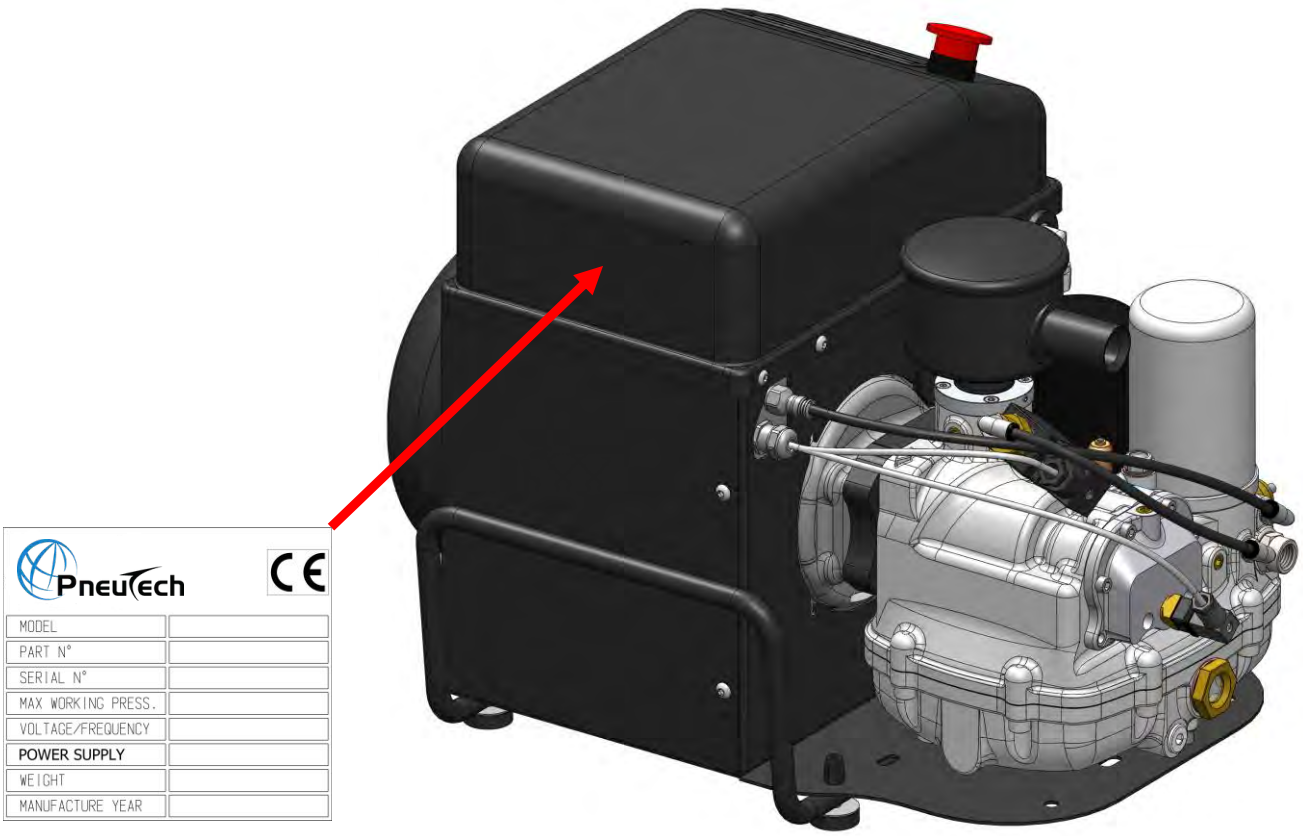
As outlined in the declaration of conformity (chap. 1.1.1.), the air compressor identified by the label on the front page of this document complies with the essential requirements outlined in the following DIRECTIVES – STANDARDS

2009/105/EC - 2006/95/EC – 2006/42/EC – 2004/108/EC - EN60204-1 - EN60335-1 - EN1012-1

1.2.1 CE MARKING

The CE marking certifies that the compressor complies with the health and safety requirements The marking is printed with silver lettering on a black polyester adhesive label (L:90mm H:80mm). The label is placed as indicated in figure 1 and bears the following information:

- **Manufacturer name**
- **CE marking**
- **Compressor model**
- **Serial number**
- **Maximum working pressure**
- **Power supply voltage and frequency**
- **Nominal power**
- **Weight**
- **Manufacture year**



1.3 CAUTIONS AND SAFETY WARNINGS

Read this operation manual carefully before performing any operations. Non-compliance with the instructions contained herein can lead to injury and property damage.

The machine has been designed and built to operate as reported below. Any other use is considered unacceptable.

Only qualified personnel can install and service the machine. Always follow accident prevention standards.

The manufacturer is relieved of any responsibility for injuries and machine or property damage caused by incorrect use of the compressor, non-compliance or inadequate compliance with the safety criteria reported herein, modifications (even minor modifications) and by use of non original spare parts.

1.3.1 INSTRUCTIONS FOR SAFE OPERATION

CAUTION!
Below is a list of important instructions for safe use of the compressor. Follow these instructions carefully. Improper use or maintenance of the compressor can cause user injury.

1. Never Touch any Moving Parts
Never allow parts of the body to come near moving parts of the machine.

2. Never Use the Compressor if the Protection Guards have been Removed
Never use the compressor unless all guards are assembled. If maintenance requires removing any of the guards, make sure that they are properly reinstalled before starting up the unit. Never bypass the safety devices installed on the compressor. This is strictly forbidden.

3. Protective Grids
Never insert objects or body parts into protective grids as this can cause injury and can damage the compressor.

4. Use the Compressor Correctly
Always operate the compressor following the instructions given in this manual. Never allow children or unauthorized persons to use the machine.

5. Always Wear Eye Protection
Always wear goggles or other equivalent form of eye protection. Do not direct air toward parts of the body, your own or others.

6. Work Clothing
Do not wear inappropriate clothing or accessories. If necessary, wear a cap that covers the hair.

7. Use the Compressor Sensibly
Never use the compressor while under the effect of alcohol, drugs or medications that can cause drowsiness.

8. Personnel Intervention
Before performing any form of intervention, the personnel must be aware of all compressor functions and controls.

9. Compressor Usage
Never use the compressor for any purpose other than those specified in the user's manual.

10. Air Jets
Never direct air jet toward persons or animals.

11. Hot Parts
To prevent burns, never touch the hoses, motor or other hot parts.

12. Work Area
Keep the compressor work area clean and well ventilated. Never use the compressor in a place containing paints, solvents or combustible/explosive materials.

13. Compressor Maintenance
Check the outside of the compressor. If the power supply cord is damaged, repair or replace it. If necessary, contact an Authorized Service Center.

14. Check for Defective Parts and Air Leaks
Check alignment of moving parts, hoses, pressure gauges, pressure reducers, pneumatic connections or other parts important to compressor function. Make certain that all screws, bolts and lids are thoroughly secured. Any damaged parts must be repaired by an Authorized Service Center.

15. Protect yourself against Thermal Shocks
Prevent accidentally coming into contact with metal parts of the compressor such as hoses, tanks or grounded parts. Never use the compressor if water or moisture is present in the area.

16. Disconnect the Compressor
When servicing the compressor or when it is not running, always disconnect it from the power supply and completely vent the pressure in the tank.

17. Handling
Never move the compressor while it is connected to the power supply or when the tank is pressurized. Before unplugging the compressor make certain that the switch is set to OFF.

18. Precautions for the Power Supply Cord
Never unplug the unit by pulling on the cord. Never step on or crush the power supply cord.
Keep it away from heat, oil or sharp surfaces. Never turn off the compressor by pulling on the power supply cord. Use the red emergency button to stop the compressor.

19. Electrical Extension Cords
If the compressor is used outdoor, use power supply cords rated for outdoor use.

20. Cleaning of the Intake Grid and Plastic Parts
Keep the ventilation grid clean. If the unit is used in a particularly dirty environment, clean the grid regularly. Never use solvents, thinners or other substances containing hydrocarbons as they can damage the plastic parts. Clean with soapy water or an appropriate liquid cleaner.

21. Compressor Rated Voltage
Use the compressor at the voltage indicated on the label. Using the compressor at a different voltage can burn out or damage the electric motor.

22. Compressor Defects
If the compressor makes strange noises or vibrates excessively during operations, check that it is functioning properly and, if necessary, contact an Authorized Service Center.

23. Spare Parts
Use only original spare parts which can be purchased from our distributors. Use of non original spare parts voids the warranty and can lead to compressor malfunction. Repairs must be carried out by an Authorized Service Center.

24. Pneumatic Circuit
Use hoses, connections and pneumatic tools rated to handle pressures above the operating pressure.

25. Tank
Never unscrew any tank connections without first checking to ensure that the pressure has been vented. Never make holes, welds or modifications on the tank.

26. Compressor Modifications
Never make any unauthorized modifications to the compressor. Such modifications can cause damage and serious injury. Consult an Authorized Service Center for any operations.

27. Using the Compressor for Painting
Never use the compressor in confined spaces or near open flames. Make certain that the work area is adequately ventilated. In addition, wear a special mask to protect nose and mouth.

KEEP THIS MANUAL INTACT AND ON HAND, AVAILABLE TO ANYONE USING THE COMPRESSOR!

WE RESERVE THE RIGHT TO MAKE ANY MODIFICATIONS DEEMED NECESSARY WITHOUT PRIOR NOTICE!

1.4 CONTACTS AND USEFUL ADDRESSES

Our technical services department is at your disposal, ready to provide any information you may need and to help you resolve any problems that may arise.

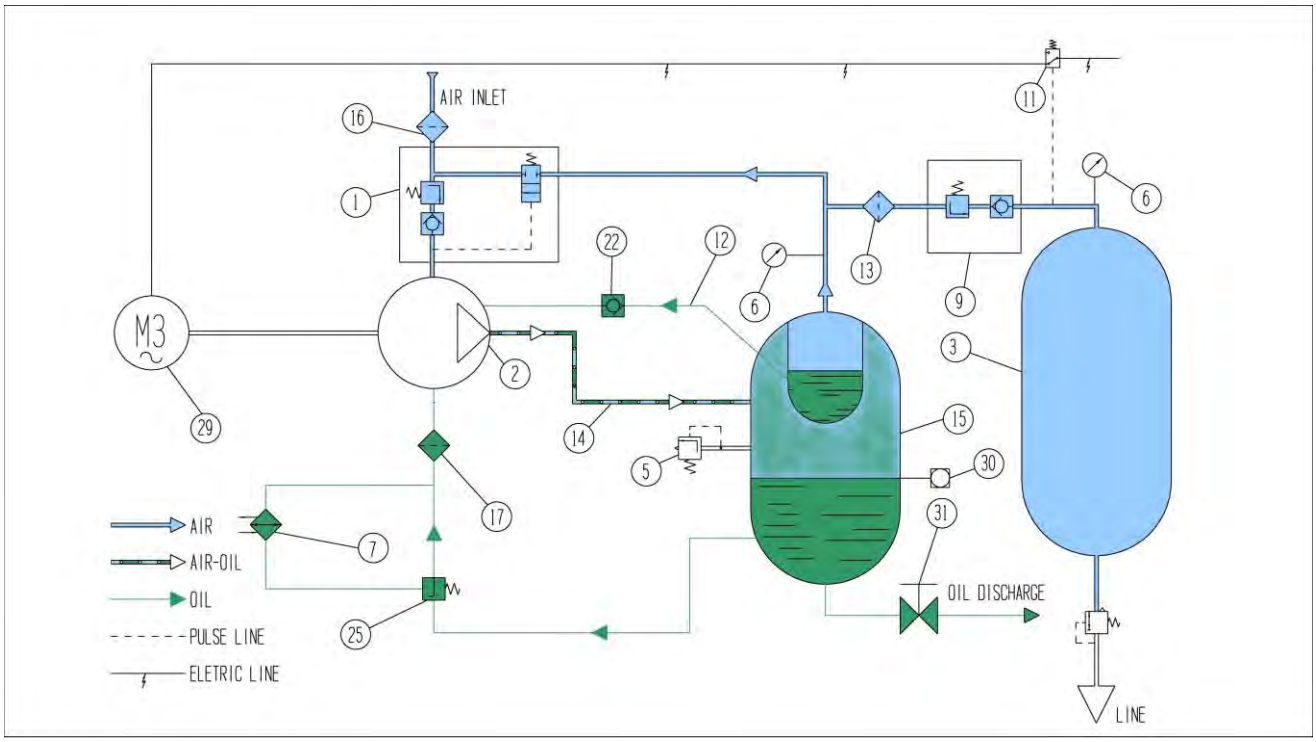
For any information, please log onto our website **www.pneutechgroup.com**

For any clarifications you may require, contact our **customer services department** or your area **retailer**.
Only original spare parts can guarantee best performance of our compressors.
We recommend carefully following the instructions given in the chapter on **maintenance** and **always use only original spare parts.**

Using non original parts automatically voids the warranty.

2 DESCRIPTION OF THE MACHINE AND OPERATING PRINCIPLE

2.1 MACHINE DESCRIPTION



1	Suction valve
2	Screw compressor
3	Air tank (if present)
5	Pressure relief safety valve
6	Manometer
7	Oil radiator
9	Minimum pressure valve
11	Pressure switch / Pressure transmitter
12	Oil return from separator
13	Oil separator filter
14	Air/oil delivery hose from screw assembly
15	Air/oil separator tank
16	Suction filter
17	Oil filter
22	Oil recovery window
25	Thermostatic valve
29	Electric motor
30	Oil level
31	Oil discharge

2.2 OPERATING PRINCIPLE

During the initial phase (unload), the electric motor ref. 29 reach the set operating RPM. The solenoid valve is not powered and thus the suction valve ref. 1 remains closed. The length of this phase can be set.

During the second phase (load), the solenoid valve is powered and the suction valve ref. 1 is opened, thus allowing air to pass through the suction filter ref. 16 and enter the screw compressor ref. 2. This starts the compression phase.

The air/oil mixture delivered by the screw compressor ref. 2 is conveyed into the air/oil separator tank ref. 15.

An initial portion of the oil is separated from the air mechanically and deposits at the bottom of the tank while the air collects at the top.

By force of pressure the air is forced to flow through the oil separator filter ref. 13 and, after further separation of the oil, it is sent on to the minimum pressure valve ref. 9. This allows passage of the air only after the pressure set point has been reached. When this happens, the air passes through the air tank ref. 3 (if present).
The oil removed from the air inside the oil separator filter is sent, through the oil return from separator line ref. 12, into the screw compressor. The amount of oil can be monitored through oil recovery window ref. 22.

The pressure sends oil at the bottom of the tank to the thermostatic valve ref. 25. This valve sends the oil with a temperature above the set point to the oil radiator ref. 7 where it is cooled. Once cooled, the oil returns to the thermostatic valve, is mixed with hot oil coming from the tank and is again checked by the thermostatic valve. Once the temperature set point (low) is exceeded, the oil is sent to the oil filter ref. 17 and then into the screw compressor.

When the set maximum working pressure is reached, the pressure switch ref. 11 remove power from the solenoid valve and trips the circuit. The suction valve ref. 1 closes air flow and the compressor enters in "unload" operating mode. This situation remains in force until the system minimum pressure setting is reached.
If consumption is low or has stopped unit will continue operate in no-load mode for a set amount of time and then reverts to stand-by mode.

3 PRESENTATION OF THE MANUAL: CONTENT AND CONSULTATION

3.1 SYMBOLS, GLOSSARY AND NOTES ON GRAPHIC LAYOUT

This manual uses symbols to highlight situations that require utmost attention. These symbols can be located beside a text, a figure or at the top of a page.
Pay utmost attention to the meaning of the symbols: They are used to avoid redundant repetition of technical concepts or safety warnings and must be considered as “reminders”. Always refer to this page whenever you have any doubts as to their meaning.

CAUTION: indicates an important note regarding hazardous conditions, safety warnings, information of primary importance.

MACHINE DOWN: all operations must be performed with the machine down.

CAUTION: MACHINE PRESSURIZED: all operations must be performed with the machine depressurized, with no pressure in oil separator tank.

UNPLUG: all operations must be performed with the machine unplugged from the power supply.

QUALIFIED PERSONNEL: all operations indicated with this symbol must be performed only by specially trained personnel.

4 DATA AND TECHNICAL SPECIFICATION

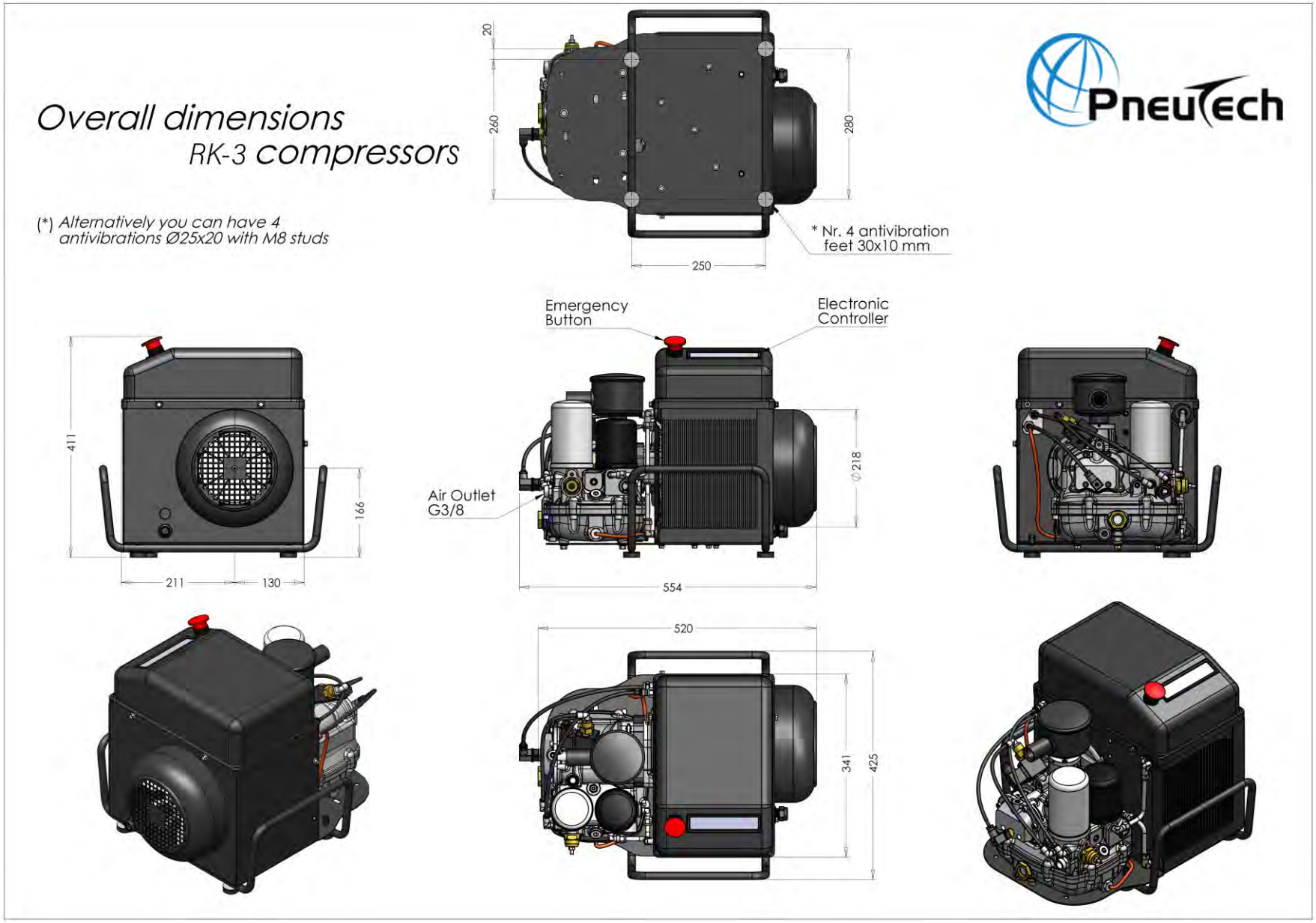
Model	RK-3	RK-3	RK-3	RK-3
Machine type	Oil injected screw compressor	Oil injected screw compressor	Oil injected screw compressor	Oil injected screw compressor
Drive	direct drive	direct drive	direct drive	direct drive
Type of screw	ADAM S60	ADAM S60 C	ADAM S60	ADAM S60
Type of fluid handled	Air	Air	Air	Air
Flow rate (ISO 1217 annex B 1996)	0.29 m^3/min - 10.24 cfm	0.24 m^3/min - 8.5 cfm	0.29 m^3/min - 10.24 cfm	0.29 m^3/min - 10.24 cfm
Max. working pressure	**8 bar g - 116 psi g**	**10 bar g - 145 psi g**	**10 bar g - 145 psi g**	**10 bar g - 145 psi g**
Min. working pressure	5 bar g - 72.5 psi g	5 bar g - 72.5 psi g	5 bar g - 72.5 psi g	5 bar g - 72.5 psi g
Maximum power consumption**	2.7 kW - 3.6 hp	2.7 kW - 3.6 hp	3.0 kW - 4 hp	3.0 kW - 4 hp
Max. air/oil outlet temperature	105 °C - 221°F	105 °C - 221°F	105 °C - 221°F	105 °C - 221°F
Max. environmental temperature	45 °C - 113 °F	45 °C - 113 °F	45 °C - 113 °F	45 °C - 113 °F
Min. environmental temperature*	5 °C - 41 °F*	5 °C - 41 °F*	5 °C - 41 °F*	5 °C - 41 °F*
Weight	39 kg - 86 lb 75 kg - 165 lb (100 lt) 82 kg - 181 lb (150 lt)	39 kg - 86 lb 75 kg - 165 lb (100 lt) 82 kg - 181 lb (150 lt)	39 kg - 86 lb 75 kg - 165 lb (100 lt) 82 kg - 181 lb (150 lt)	39 kg - 86 lb 75 kg - 165 lb (100 lt) 82 kg - 181 lb (150 lt)
Power supply voltage	See Machine Label			
Max. current consumption	15 A**	15 A**	11.5 A**	6 A**
Resistenza riscaldante olio	220V - 35W - 0,16A	220V - 35W - 0,16A	220V - 35W - 0,16A	400V - 35W - 0,1A
Electric motor protection rating	IP 54	IP 54	IP 54	IP 54
Insulation class	F	F	F	F
Service factor	S1	S1	S1	S1
Oil charge	1.5 litre	1.5 litre	1.5 litre	1.5 litre
Air outlet connection	3/8”	3/8”	3/8”	3/8”
Oil residue in air	< 3 ppm	< 3 ppm	< 3 ppm	< 3 ppm
Electric motor	MEC90	MEC90	MEC90	MEC90
Noise level***	< 70 dB(A)***	< 70 dB(A)***	< 70 dB(A)***	< 70 dB(A)***

* When the environmental temperature is below 41°F, an ISO VG 32 lubricant must be used
** Value detected with the respective max working pressure
*** Noise measured in an open field at 1 metre from the unit ±3 dB(A) at maximum working pressure

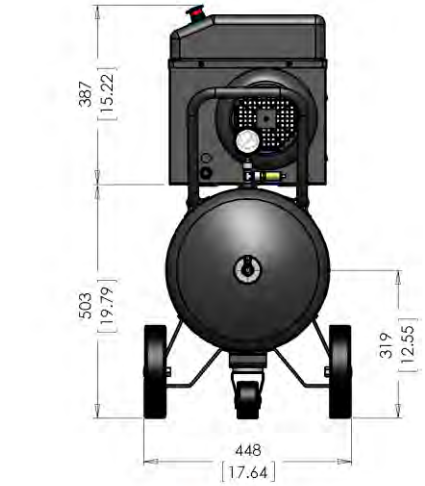
Model	RK-4	RK-4	RK-4
Machine type	Oil injected screw compressor	Oil injected screw compressor	Oil injected screw compressor
Drive	direct drive	direct drive	direct drive
Type of screw	ADAM S60	ADAM 60 ccw	ADAM 60 ccw
Type of fluid handled	Air	Air	Air
Flow rate (ISO 1217 annex B 1996)	0.29 m^3/min - 10.24 cfm	0.36 m^3/min - 12,7 cfm	0.36 m^3/min - 12,7 cfm
Max. working pressure	**12.5 bar g - 181.3 psi g**	**10 bar g - 145 psi g**	**10 bar g - 145 psi g**
Min. working pressure	5 bar g - 72.5 psi g	5 bar g - 72.5 psi g	5 bar g - 72.5 psi g
Maximum power consumption**	3.3 kW - 4.4 hp	3.5 kW - 4.7 hp	3.5 kW - 4.7 hp
Max. air/oil outlet temperature	105 °C - 221°F	105 °C - 221°F	105 °C - 221°F
Max. environmental temperature	45 °C - 113 °F	45 °C - 113 °F	45 °C - 113 °F
Min. environmental temperature*	5 °C - 41 °F*	5 °C - 41 °F*	5 °C - 41 °F*
Weight	39 kg - 86 lb 75 kg - 165 lb (100 lt) 82 kg - 181 lb (150 lt)	43 kg - 95 lb 77 kg - 170 lb (100 lt) 86 kg - 190 lb (150 lt)	43 kg - 95 lb 77 kg - 170 lb (100 lt) 86 kg - 190 lb (150 lt)
Power supply voltage	See Machine Label		
Max. current consumption	7.5 A**	14.5 A**	8.5 A**
Resistenza riscaldante olio	400V - 35W - 0,1A	220V - 35W - 0,16A	400V - 35W - 0,1A
Electric motor protection rating	IP 54	IP 54	IP 54
Insulation class	F	F	F
Service factor	S1	S1	S1
Oil charge	1.5 litre	1.5 litre	1.5 litre
Air outlet connection	3/8”	3/8”	3/8”
Oil residue in air	< 3 ppm	< 3 ppm	< 3 ppm
Electric motor	MEC100	MEC100	MEC100
Noise level***	< 70 dB(A)***	< 70 dB(A)***	< 70 dB(A)***

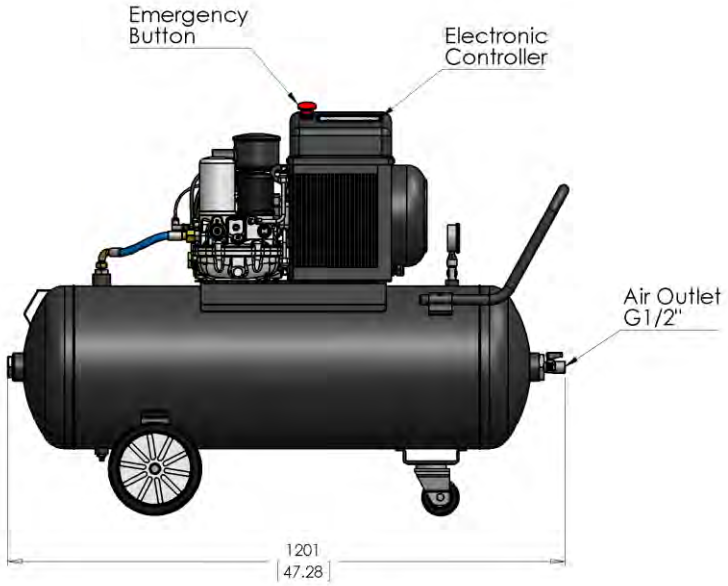
***** When the environmental temperature is below 41°C, an ISO VG 32 lubricant must be used
** Value detected with the respective max working pressure
*** Noise measured in an open field at 1 metre from the unit ±3 dB(A) at maximum working pressure

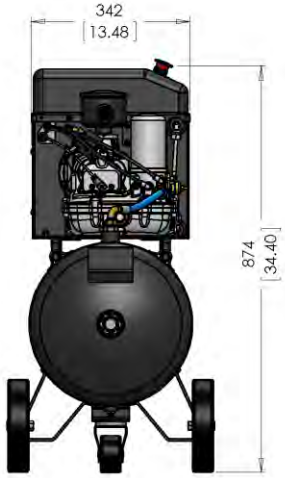
5 DIMENSIONS

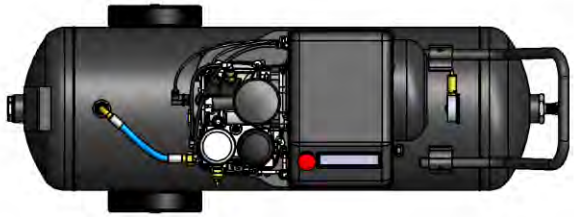


Overall dimensions RK-3 compressor with 100 Lt Air Tank



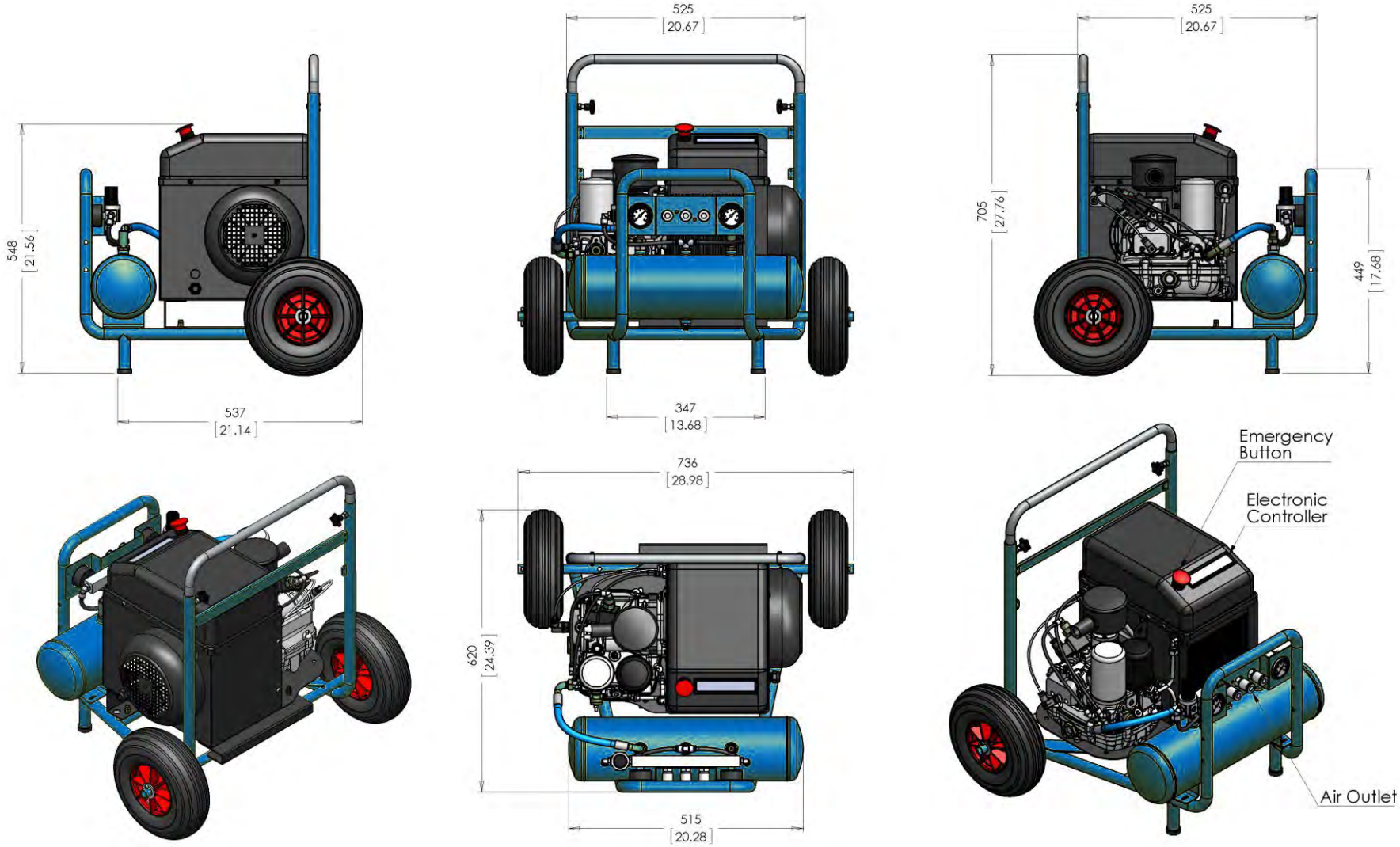






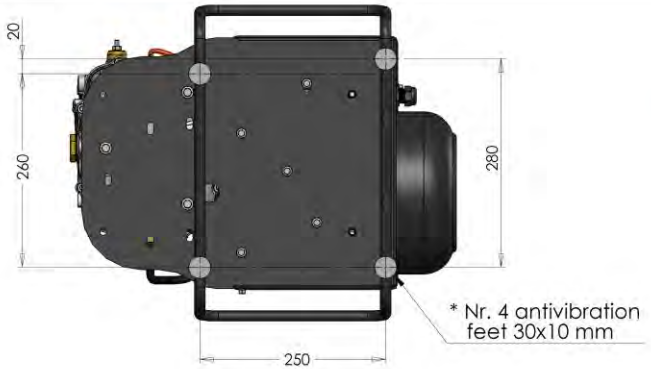
Overall dimensions RK-3 compressor with 150 Lt Air Tank

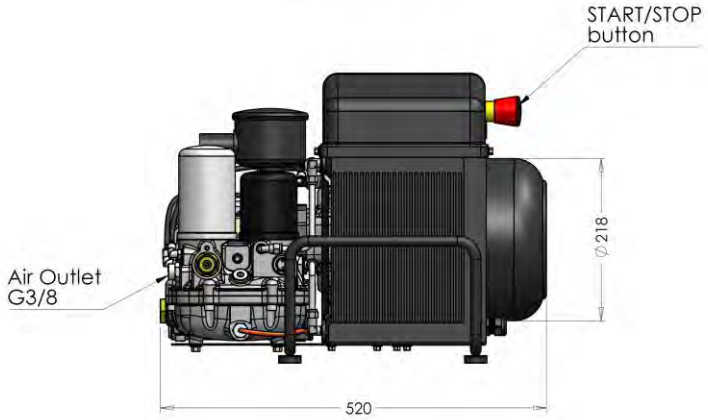
Overall dimensions
RK-3 compressor

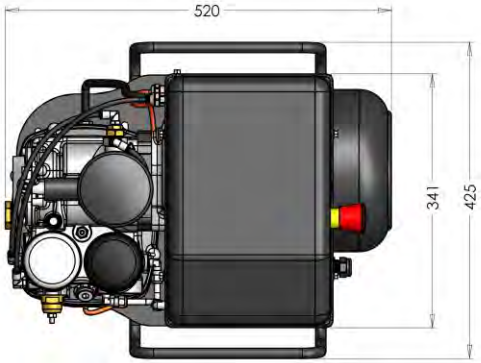


Overall dimensions
RK-3 and RK-4 compressors

(*) Alternatively you can have 4 antivibrations Ø25x20 with M8 studs







6 INSTALLATION

6.1 CHARACTERISTICS AND STORAGE CONDITIONS

During periods of inactivity, before being unpacked (storage), the compressor must be kept at a temperature of between +41 °F and +113 °F.
If the compressor has remained inactive for a long period of time, before starting it up again, change the oil and check function.

6.2 TRANSPORT

To ensure that the unit is protected and does not incur shipping damages, the compressor is covered with a cardboard box.
All shipping information is printed on the compressor package (data and pictograms).

6.3 UNPACKING

When unpacking the unit, carefully check that the contents match what is indicated in the shipping documents.

The user must dispose of packaging in compliance with current national regulations.

The machine must be unpacked by qualified personnel using suitable tools.

6.4 HANDLING

- Check that the outside packaging is intact.
- Unpack the machine carefully.
- Check that the outside of the machine is intact.
- Dispose of the packaging in compliance with current environmental regulations.

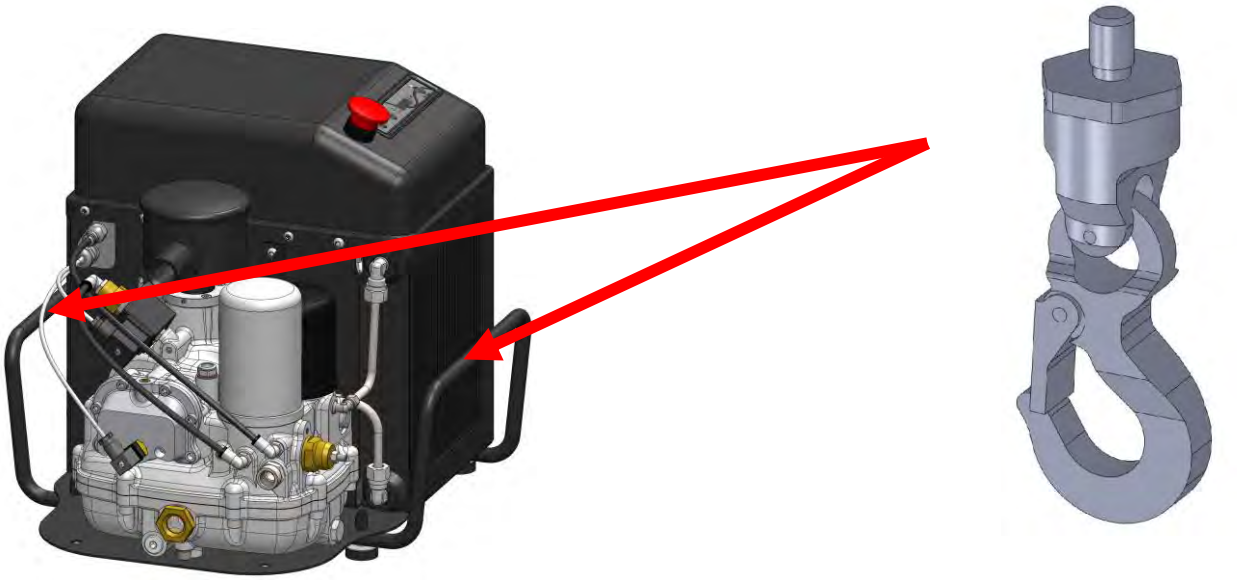


Figure 4

Use lifting hooks for compressor moving (see figure 4).

6.5 LOCATION

Install the compressor at the site point indicated at the time the order was placed. If the unit is installed at a different site, **the manufacturer cannot be held responsible for any ensuing problems.**

Unless specified otherwise at the time the order is placed, the compressor must run normally under the environmental conditions indicated below.

The room where the compressor is installed must comply with current accident prevention standards and must meet the following requirements:

- Adequately ventilated and of such size that environmental temperature remains steady (min. 41°F, max. 113°F) when the machine is running. At the maximum admissible environmental temperature (113°F) and with a relative humidity above 80% machine performance can reduce. Likewise, machine performance may be reduced when the unit is installed at an altitude of 1000 m above sea level.
- Lighting: the compressor is built considering current standards and seeking to reduce shadow zones to the barest minimum, thus facilitating operator intervention; as the compressor room lighting system is deemed important for personnel safety, there must not be any shadows, glaring lights or stroboscopic effects due to the lighting.
- Potentially explosive and/or flammable atmospheres: in its standard configuration, the compressor is not designed to work in environments where there is the risk of explosion and/or fire;

6.6 CONNECTION AND START-UP

6.6.1 GENERAL WARNINGS

When starting up the unit for the first time, make certain that:

- The power supply matches the requirements indicated on the label.
- The wall-mounted general switch is proportioned according to the indications in the technical data table **(**see chapter 6.6.2.1).
- The oil is at the correct level (see chapter 9.4).
- The electrical connections have been made using cables of adequate section (see chapter 6.6.2.3)

CAUTION!
Carefully comply with the SAFETY WARNINGS regarding use of the machine.

Check the label on the compressor and at the beginning of this manual for indication of your model.

6.6.2 ELECTRICAL CONNECTION OF COMPRESSOR

The electrical connection to the electrical line is carried out by the end user. He bear the costs and responsibility for quality and compliance standards, which must be performed by trained personnel in accordance with accident prevention regulations EN 60204.

6.6.2.1 FUSE AND BREAKER

It is recommended to install the connector, the circuit breaker and fuses near the compressor (not more than 3 meters). The circuit breaker and the fuses must have the characteristics shown in the following table:

- The voltage (volts) must correspond to that indicated on the nameplate of the electrical machine; tolerance must be within the + / -5%.
- The plug of the power cable should not be used as a switch. Do not remove power while unit is running; for emergency action to switch of the compressor or on the appropriate line switch (breaker), see table.

KW	Voltage V230/1/50-60		Voltage V230/3/50-60		Voltage V400/3/50-60	
	Magnetothermic Curve " D " 1 pole + N **	Fuse with delay*	Magnetothermic Curve " D " 3 poles **	Fuse with delay*	Magnetothermic Curve " D " 3 poles **	Fuse with delay*
3.0	16 A	16 aM	16 A	16 aM	10 A	10 aM
4.0	---	---	20 A	20 aM	10 A	10 aM

* Raccomended type of fuse refer to class of use: gL/gG, aM

** Magnetotermic switch with "D" curve, characteristics of adjustment according to IEC 60 898 specific motors starter

Never use the ground instead of neutral. Verify that the mains voltage corresponds to that required for the proper functioning of the compressor.

6.6.2.2 GROUND CONNECTION

The compressor must be connected to the ground during its use, in order to protect the operator from accidental electric shocks. It's necessary that the connections are made by a technician or an authorized service center. The grounding conductor yellow / green wire of the power of the compressor must only be connected to terminal of the compressor. The ground wire connected to a facility must be properly equipped with mandatory safety switch.

6.6.2.3 SIZING OF ELECTRIC CABLE

Do not use a damaged cable but make sure it is in good condition. This section must be appropriate to the current requested by the compressor. A little section of power cable can cause a voltage drop with consequent loss of power and excessive heating of the cable itself, which can cause irreparable consequences on the device supply. The cable section must be in proportion to its length. For variations and modifications contact a qualified service center.

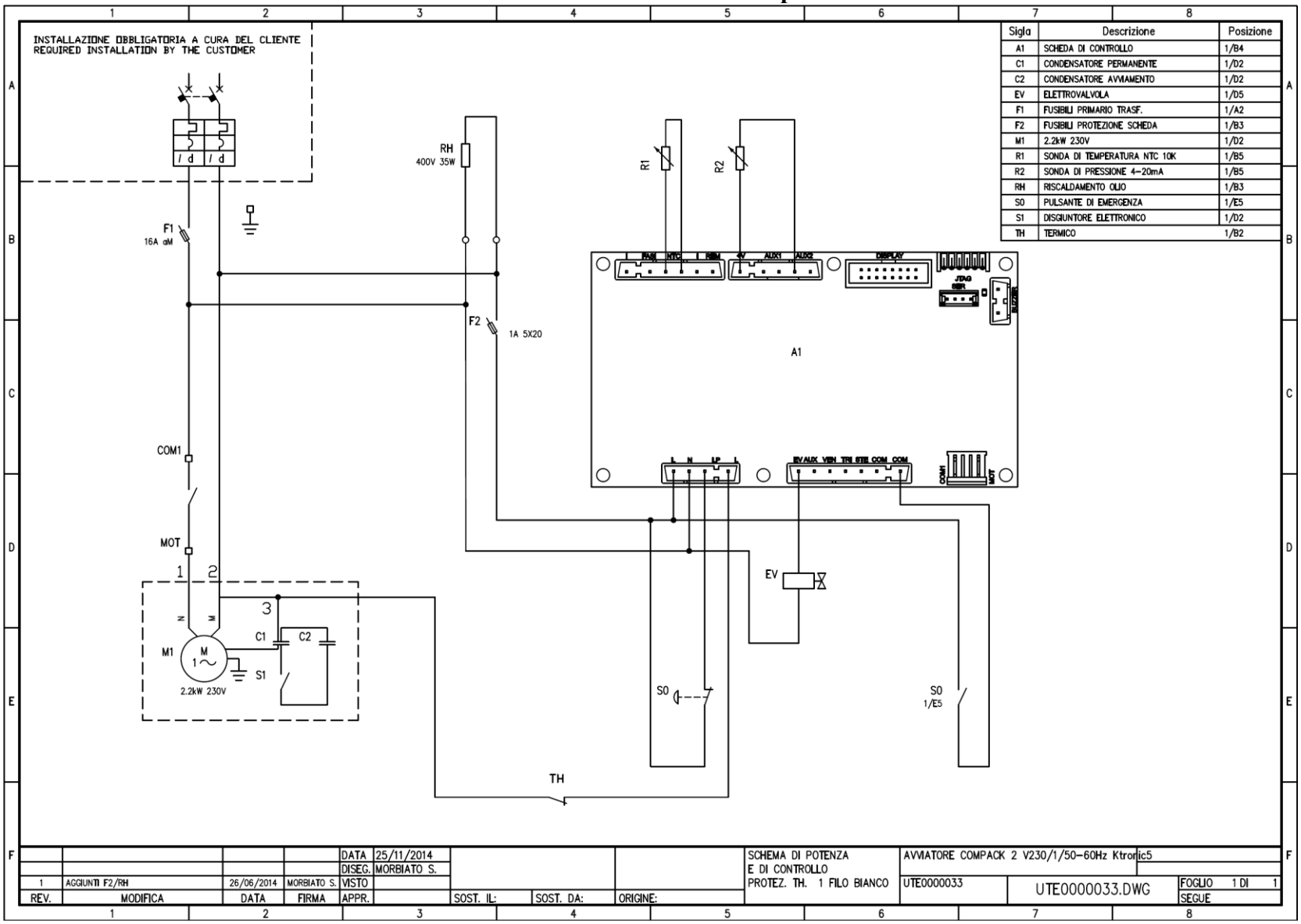
kW	230V/ 1ph 60 Hz	230-400V/ 3ph 60 Hz
3.0	**2.5 mm²**	**1.5 mm²**
4.0	**----**	**1.5 mm²**

Avoid any risk of electric shock. Never use the compressor with a damaged power cable. It is recommended to be checked periodically by a qualified power cords. Never use the compressor in areas where they can be hazardous leakage current.

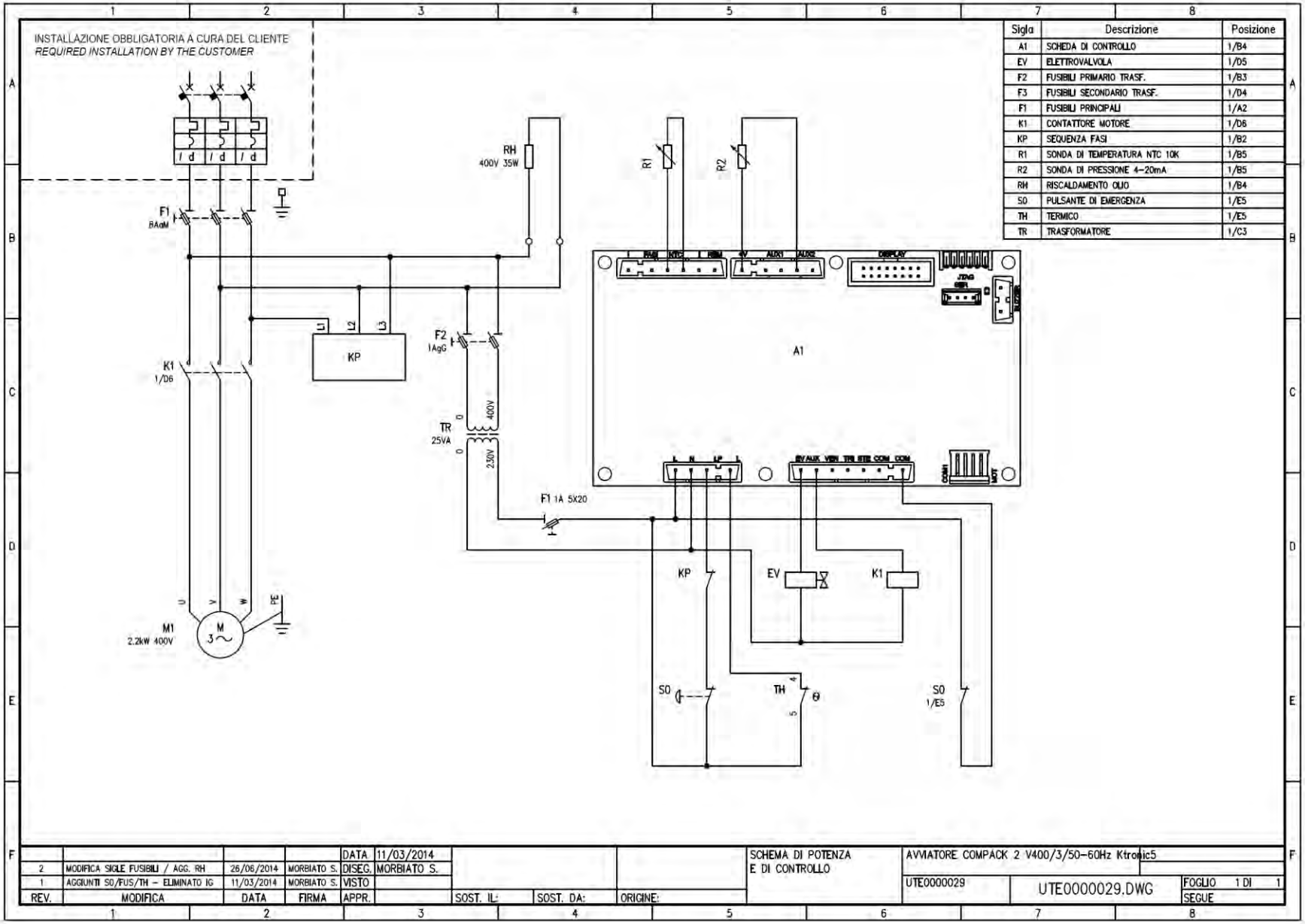
All electrical installations and maintenance on facility must be performed by a qualified technician.

6.6.2.4 WIRING DIAGRAM

ELECTRONIC VERSION - 230V / 1ph / 60Hz



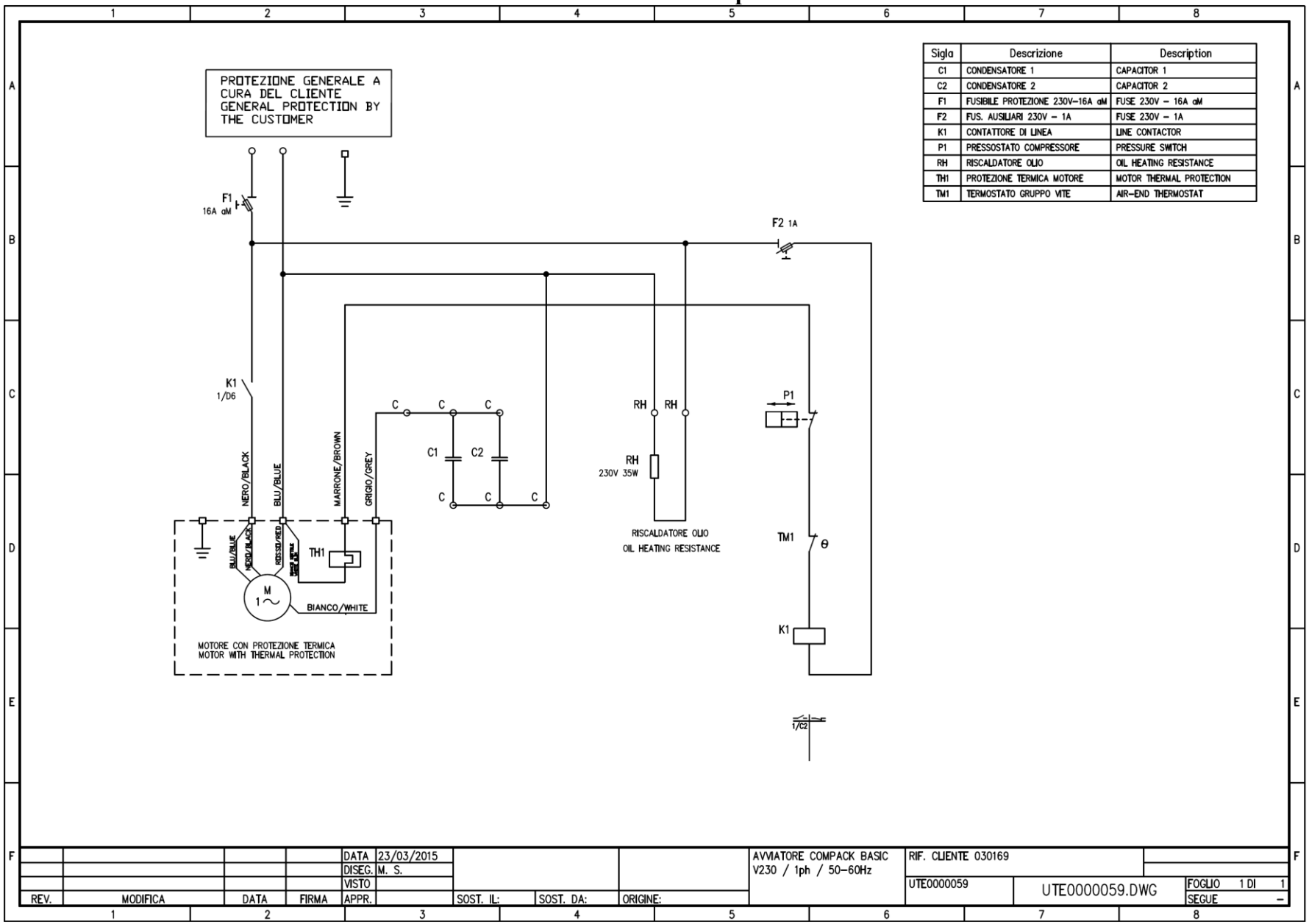
ELECTRONIC VERSION - 230/400V / 3ph / 60Hz



COMPONENTS

		SERIES - POWER	**RK-3**	**RK-3 and RK-4**	**RK-3 and RK-4**
		POWER SUPPLY	**230V 1ph 60Hz**	**230V 3ph 60Hz**	**400V 3ph 60Hz**
		STARTING	**DIRETTO**	**DIRETTO**	**DIRETTO**
		CODE	**030165**	**030155**	**030155**
CODE	*DESCRIPTION*	*MANUFACTURER*	*MODEL*	*MODEL*	*MODEL*
S0	*EMERGENCY BUTTON*	SIEMENS	3SB3000-1HA20	3SB3000-1HA20	3SB3000-1HA20
S0	*ACCESSORIES*	SIEMENS	X	3SB3400-0C	3SB3400-0C
K1	*LINE CONTACTOR*	SIEMENS	X	3RT1016-1AB01	3RT1016-1AB01
F1	*FUSE-HOLDER*	MERSEN	CMS10 1P / 10.3X38	CMS10 1P / 10.3X38	CMS10 1P / 10.3X38
F1	*FUSE*		16A aM	20A aM	10A aM
F2	*FUSE-HOLDER*	MERSEN	8WA1011-1SF12 / 5X20	CMS10 1P / 10.3X38	CMS10 1P / 10.3X38
F2	*FUSE*		1A gG	1A gG	1A gG
F3	*FUSE-HOLDER TERMINAL*	SIEMENS	X	8WA1011-1SF12 / 5X20	8WA1011-1SF12 / 5X20
F3	*FUSE*		X	1A	1A
KP	*PHASES SEQUENCY RELAY*	GAVAZZI	X	DPA51	DPA51
TR	*AUXILIARY TRANSFORMER*		X	0-230-400-440V/0-230V 250VA	0-230-400-440V/0-230V 250VA

BASIC VERSION - 230V / 1ph / 60Hz



Sigla	Descrizione	Description
C1	CONDENSATORE 1	CAPACITOR 1
C2	CONDENSATORE 2	CAPACITOR 2
F1	FUSIBILE PROTEZIONE 230V–16A aM	FUSE 230V – 16A aM
F2	FUS. AUSILIARI 230V – 1A	FUSE 230V – 1A
K1	CONTATTORE DI LINEA	LINE CONTACTOR
P1	PRESSOSTATO COMPRESSORE	PRESSURE SWITCH
RH	RISCALDATORE OLIO	OIL HEATING RESISTANCE
TH1	PROTEZIONE TERMICA MOTORE	MOTOR THERMAL PROTECTION
TM1	TERMOSTATO GRUPPO VITE	AIR–END THERMOSTAT

REV.	MODIFICA	DATA	FIRMA

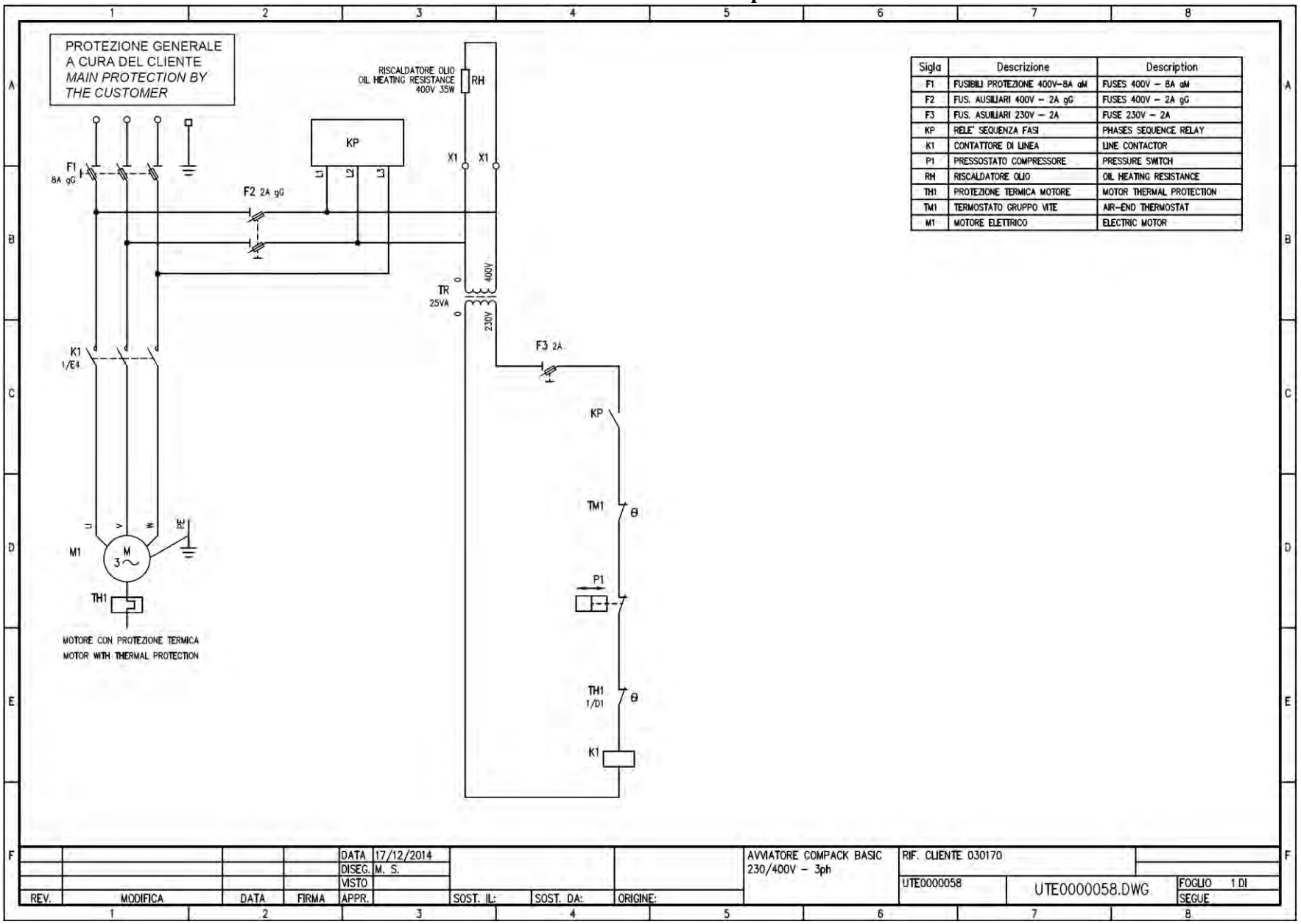
DATA 23/03/2015 · DISEG. M. S. · VISTO · APPR. · SOST. IL: · SOST. DA: · ORIGINE:

AVVIATORE COMPACK BASIC V230 / 1ph / 50–60Hz

RIF. CLIENTE 030169

UTE0000059 · UTE0000059.DWG · FOGLIO 1 DI 1 · SEGUE –

BASIC VERSION - 230/400V / 3ph / 60Hz

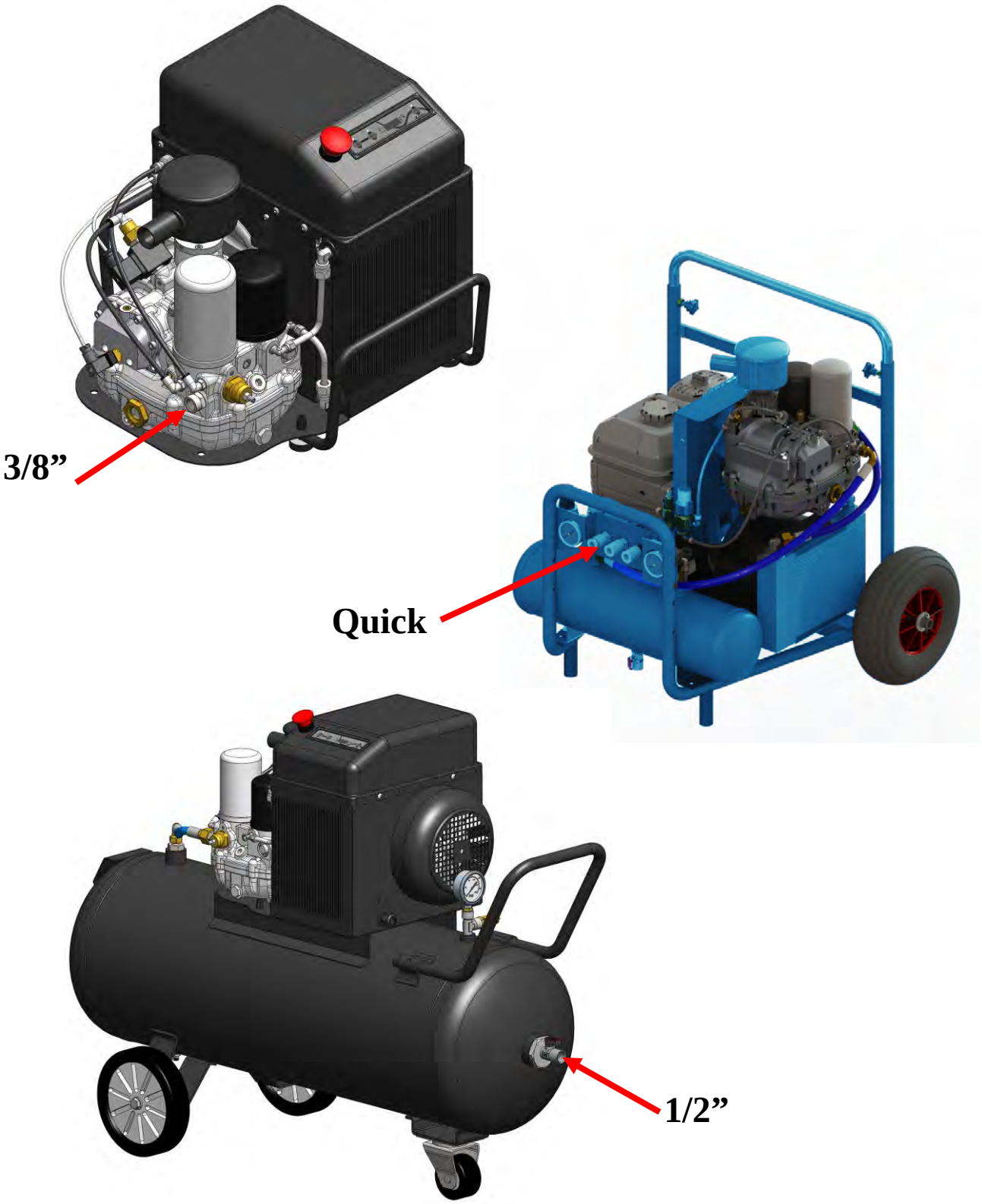


		SERIES - POWER	COMPACK BASIC 2	COMPACK BASIC 2 -3
		POWER SUPPLY	230V 50/60Hz 1ph	230/400V 50/60Hz 3ph
		TYPE OF START	DIRECT	DIRECT
		CODE	034060	034061
		ELECTRICAL DIAGRAM	UTE0000059	UTE0000058
SIGN	DESCRIPTION	SUPPLIER	MODEL	MODEL
S0	EMERGENCY BUTTON	SIEMENS	3SB3000-1HA20	3SB3000-1HA20
S0	ACCESSORIES	SIEMENS	3SB3400-0C	3SB3400-0C
K1	LINE CONTACTOR	SIEMENS	3RT1016-1AP01	3RT1016-1AP01
F1	FUSE-HOLDER	MERSEN	CMS10 1P / 10.3X38	CMS10 3P / 10.3X38
F1	FUSE		16A aM	10A aM (400V) 16A aM (230V)
F2	FUSE-HOLDER	MERSEN	8WA1011-1SF12 / 5X20	CMS10 2P / 10.3X38
F2	FUSE		1A	2A
F3	FUSE-HOLDER TERMINAL	SIEMENS	X	8WA1011-1SF12 / 5X20
F3	FUSE		X	2A
KP	PHASES SEQUENCE RELAY	GAVAZZI	X	DPA51
TR	AUXILIARY TRANSFORMER		0-230-400V/0-230V 25VA RESINATO	0-230-400V/0-230V 25VA RESINATO

6.6.3 AIR CIRCUIT CONNECTION

Make certain that the compressed air hoses used have adequate maximum pressure rating and section for the compressor. Never repair defective hoses; they must always be replaced.

Connect the compressor to the pneumatic system using the 3/8” end 1/2” or quick port indicated in the figures.



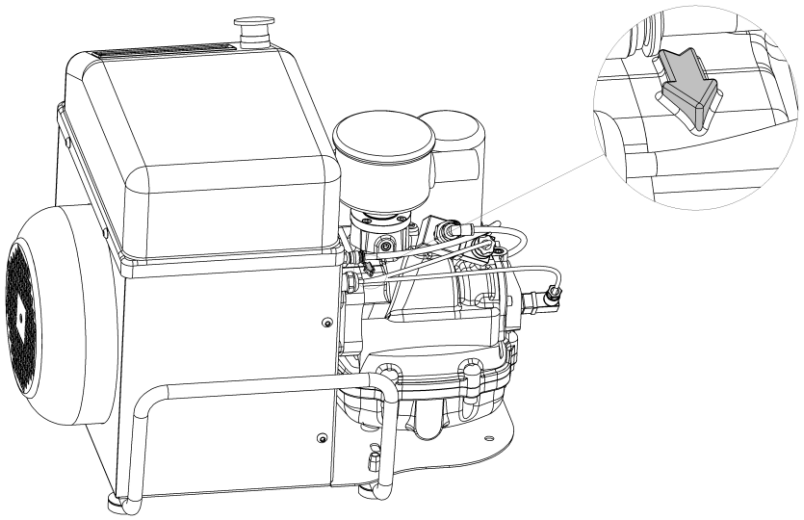
6.7 FIRST START-UP

The first compressor start up (operational testing) must be performed by a qualified technician.
Remember, for the technical warranty to be valid, that the registered test report (R.C.R.) attached to the documentation must be filled out (see notes on sales clauses).
After having taken all compressor assembly steps illustrated in **chapter 6**, prepare the machine for first start-up.

For the three-phase version, is present in the compressor a control device which ensures the correct rotation of the screw unit each time the compressor starts.
If the supply phases are correctly positioned the compressor will start as indicated on the arrow on the body of the screw as shown in Picture 10.

This control must be carried out making performing a start with an immediate shutdown and checking that the electric motor fan turns in the same direction of the arrow placed over the screw

If the phases of the supply line are positioned incorrectly, the compressor does not start.
Swap the connections of two phases of power line and restart the compressor.



Picture 10

The reverse rotation of the screw from the direction of the arrow shown on the body (See picture 10) may damage the screw!

In case of replacement of the electric motor, at the time of restart is absolutely necessary to visually check the direction of rotation of the screw unit.

It's absolutely necessary to strictly follow the SAFETY PRECAUTIONS on the use of the machine.

CAUTION!
Always carefully follow the SAFETY WARNINGS regarding use of the machine. This is extremely important.

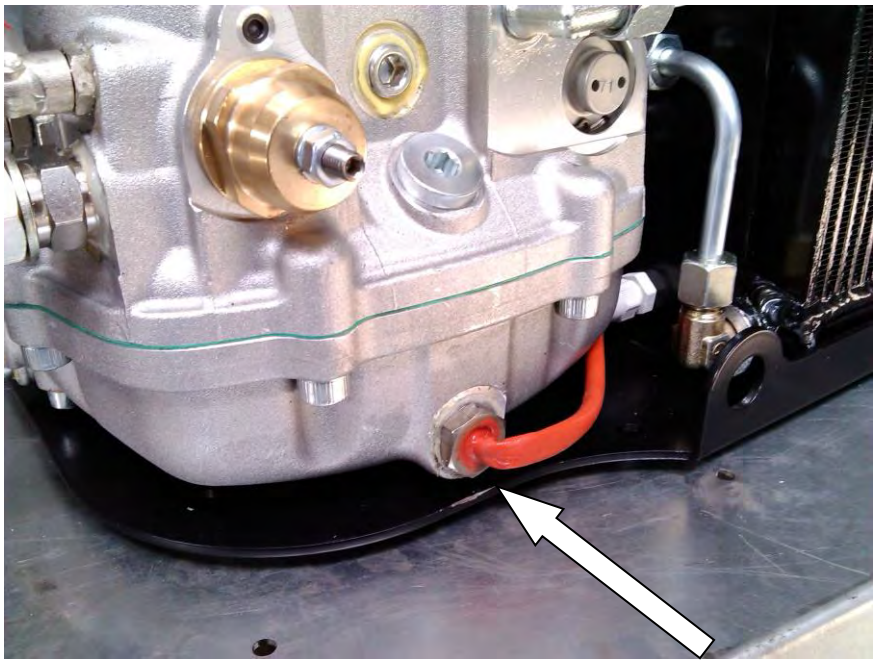
6.8 HEATING OIL RESISTANCE

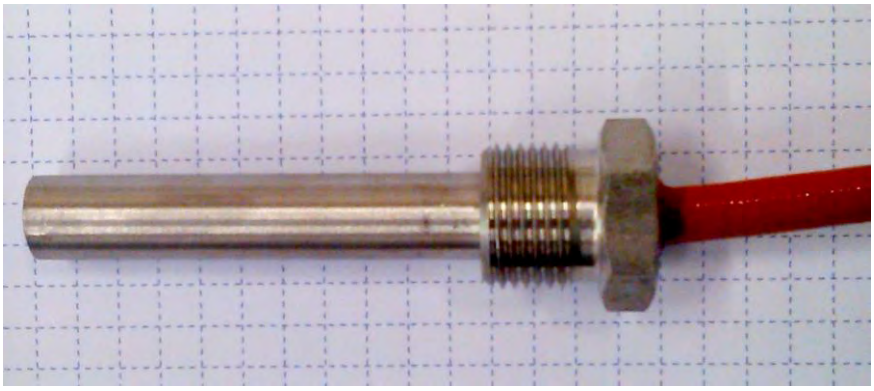
WARNING!

INTO COMPRESSOR IS INSTALLED AN ELECTRICAL HEATING OIL RESISTANCE, WHICH HAS THE FUNCTION TO MAINTAINING THE OIL OF THE COMPRESSOR AT A TEMPERATURE OF ABOUT 122-140°F EVEN WHEN IT NOT RUNNING, IN ORDER TO PREVENT THE FORMATION OF CONDENSATION INSIDE THE AIR/ OIL SEPARATOR TANK.
FOR ELECTRICAL CHARACTERISTICS SEE Ch. 2

IMPORTANT!

IT IS ESSENTIAL THAT THE RESISTANCE IS POWER SUPPLIED EVEN WHEN THE COMPRESSOR IS OFF, SO IT IS SUFFICIENT TO MAINTAIN THE POWER CABLE CONNECTED TO THE MAINS.
HOWEVER, IN ORDER TO CONTRIBUTE TO SAVE ENERGY, IN THE CASE OF A LONG PERIOD THAT THE COMPRESSOR IS UNUSED, YOU SHOULD UNPLUG THE POWER CABLE TO THE MAINS.





6.9 CLEANING AND DISINFECTION

Keeping the installation site and the compressor clean is essential to good machine operation and keeps operating and maintenance costs down.

Installation site and compressor disinfection is essential to guarantee good air quality in the compressor room and in the area where the compressed air is used (workshop).

6.10 REINSTALLATION AND REUSE

Reinstallation and reuse of the machine must be performed by qualified personnel and only after checking the condition of the machine itself.
The points indicated in the previous chapters hold here as well.

6.11 DEMOLITION AND DISPOSAL

If the compressor is to be demolished and disposed of, this must be performed in compliance with current regulations.
Always contact an authorized waste disposal and recycling facility.

7 OPERATION AND USE

7.1 DESCRIPTION OF THE OPERATION

For the machine functions, see chap. 2.

7.2 RANGE OF APPLICATIONS

The machine is suited to all those applications requiring compressed air at the flow rate and pressure outlined in the technical data sheet (see chap. 4).

7.3 PROPER AND IMPROPER USE

CAUTION!
The compressor is designed and built solely to produce compressed air.
The manufacturer is relieved of any responsibility for risks ensuing from any other use.

CAUTION!
Any use of the compressor that differs from the agreements made at the time of purchase relieves the manufacturer of any responsibility for ensuing injury or property damage or damage to the machine itself.

CAUTION!
The electrical system cannot be used in flame-proof areas and with flammable products.

CAUTION!
Never direct air jet toward persons or animals.
Never use compressed air for breathing or in production processes where the air produced is in direct contact with foodstuffs, unless previously treated and filtered.

7.4 OPERATING AND ENVIRONMENTAL LIMITS

The operating and environmental limits are indicated in the table containing the technical data and characteristics (see chap.4).

7.5 WORKSTATION AND DANGEROUS AREAS

During normal operation of the machine, the operator works on the side where the electronic controller is located. Once correctly connected to the electrical and pneumatic system (see chap. 6), the machine is completely protected on the outside and thus there are no dangerous areas accessible during normal operation.

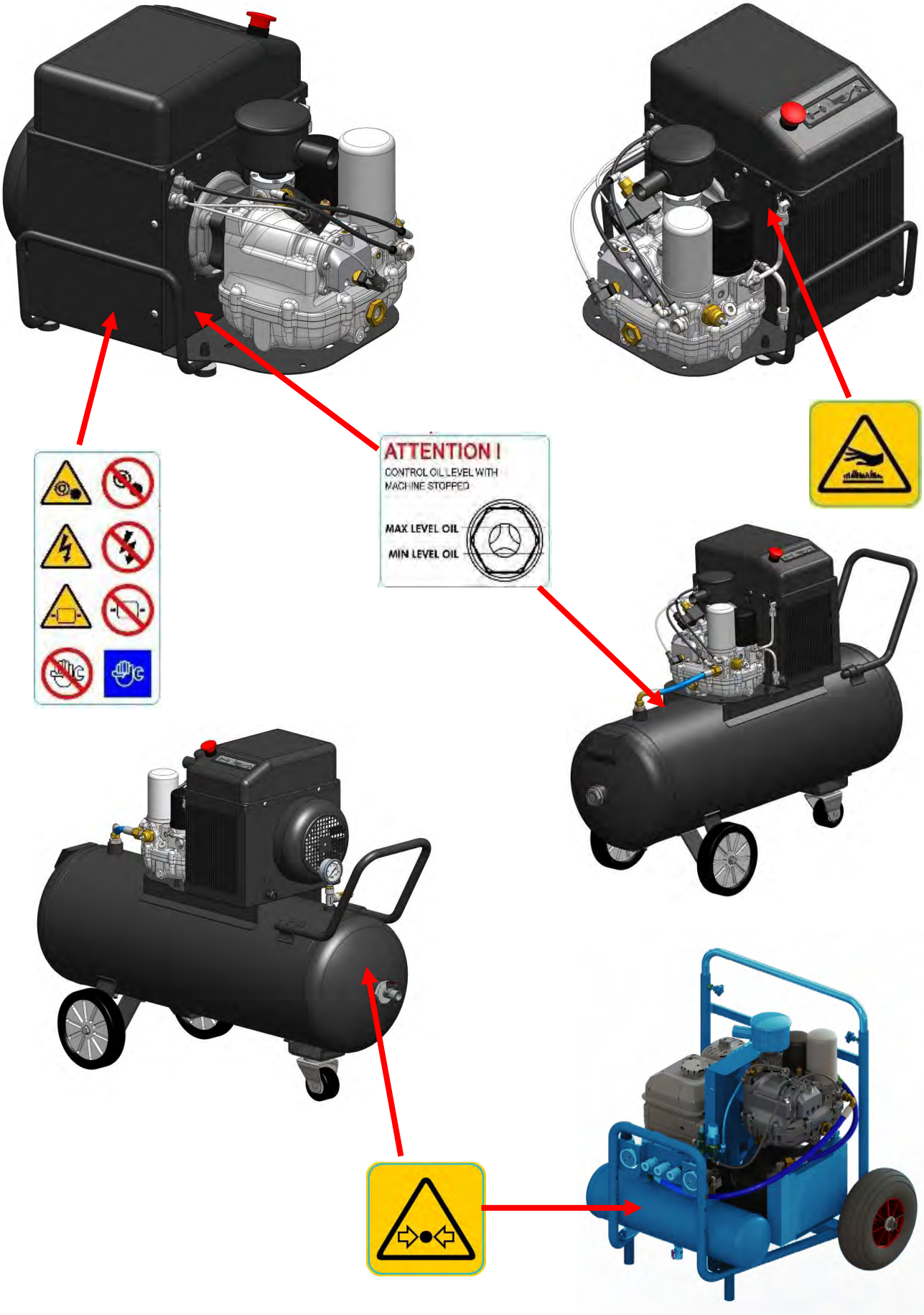
When scheduled and unscheduled maintenance is performed, the machine is completely open. These operations must be performed under safe conditions by qualified personnel.

7.6 SAFETY DEVICES AND SIGNALS

The machine is equipped with safety devices and signals to prevent situations dangerous for the operator and the machine itself.
These devices and signals come in the form of labels placed at dangerous points, and alarms that are displayed on the electronic controller.

	SIGNAL	MEANING
7.6.1		**CAUTION:** **Never perform any maintenance on this machine without having unplugged it from the power supply and completed vented the air pressure**
		**CAUTION:** **Hot surface**
		**CAUTION:** **pressurized part or system**

7.6.1 POSITION OF THE LABELS



7.7 COMPRESSOR LUBRICATION

7.7.1 GENERAL RECOMMENDATIONS

CAUTION!
Before performing any operation involving draining or topping up compressor oil, unplug the compressor and wait until the system has reached atmospheric pressure.
Use adequate protection when handling lubricants.

We recommend a lubricant compatible with the ISO VG 46 oil (mineral-based oil) used during testing. The pour point must be at least -8+10°C and the flash point higher than +200°C.

Oilscrew plus 46

For use of incompatible oils, follow the procedure described in chapter 7.7.2

Never mix different types of oil

We recommend using oil with a VG32 rating for cold climates and VG68 for tropical climates.

Before starting up compressors without oil, feed **approximately 0.1 *lt*** of lubricant in through the regulator intake opening while keeping the suction valve shutter lowered and manually turning the screw rotors in the right direction.

CAUTION!
When lowering the suction valve shutter be careful not to damage the throttle valve O-ring.

Feed the mineral-based lubricant into the oil tank using the special top-up hole and fill until the right level is read on the window. The amount of oil to be fed in is **approximately 1 *lt.***

Start up the compressor, initially switching it on and off sequentially and quickly and then starting it up.

Once initially filled with oil, turn off the compressor, vent the pressure and, if necessary, top up the lubricant from the top-up hole until the right level is read on the window.

7.8 USING THE COMPRESSOR WITH SYNTHETIC OILS

If you wish to use a synthetic lubricant, carefully follow the procedure below.

- Drain all mineral oil from the compressor circuit using the oil drain ball valve.

- Feed the synthetic lubricant or detergent oil into the oil tank through the top-up hole and fill up to the correct level.

- Before starting up the compressor or the first time after installation, feed **approximately 0.1 *l*** of lubricant in through the regulator intake opening while keeping the suction valve shutter lowered and manually turning the screw rotors in the right direction.

CAUTION!
When lowering the suction valve shutter be careful not to damage the throttle valve O-ring.

- Start up the compressor, initially switching it on and off sequentially and quickly and then starting it up.

- Then turn off the compressor and drain all lubricant from the system using the ball valve.

- Through the oil top-up hole, feed new synthetic lubricant in until it reaches the set level; then start up the compressor and run it steady for about 10 minutes.

- Turn off the compressor, vent the pressure and, if necessary, top up by feeding the lubricant through the top-up hole until the right level is read on the window.

CAUTION!
If the above-mentioned "washing" cycle is not performed, the mixing of incompatible lubricants may cause problems in lubrication. Use adequate protection when handling lubricants.
Dispose of mineral lubricants in compliance with current environmental regulations.

CAUTION!
Before performing any operation involving draining or topping up compressor oil, unplug the compressor and wait until the system has reached atmospheric pressure.
<u>Use adequate protection when handling lubricants.</u>

8 INSTRUCTIONS FOR THE USER

8.1 DESCRIPTION OF THE CONTROL DEVICES

ELECTRONIC CONTROLLER

Ktronic 5

8.1.1 BUTTON LAYOUT

START STOP BUTTON
when pressed, this button starts and stops the compressor

MENU' BUTTONS (1-2)
In programming mode, when pressed, those buttons change parameters values

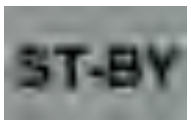
BUTTON PROGRAMMING (1)
When pressed, it shows the total work hours.

BUTTON PROGRAMMING (2)
In working mode, when pressed, it compares system temperature.

ALLARM RESET BUTTON (3)
In alarm mode, if pressed for more than 2 seconds, it resets the alarms.

8.1.2 SYMBOL LAYOUT

LOAD SYMBOL
when LED is on, compressor is in load phase



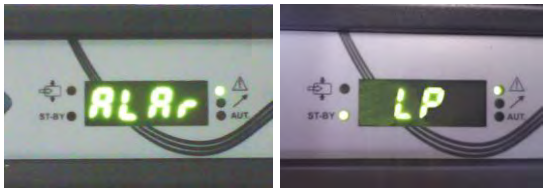
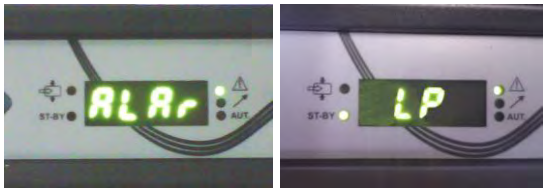
STAND BY SYMBOL
when led is on, compressor is in stand by phase

ALARM SYMBOL
when led is on, compressor is in alarm state

REMOTE CONTROL SYMBOL
when led is on, compressor is in remote control state

AUTOMATIC RESTART SYMBOL
when led is on, compressor is in automatic restart state

8.1.3 ALARMS LIST

TYPE OF ALARM	DESCRIPTION
 "MOTOR THERMAL"	**Main motor thermal relay setting exceeded**
 "ALARM TEMP"	**MAX TEMP. setting exceeded**
 "OVERLOAD PRESSURE"	**P. MAX setting exceeded**
 "WRONG ROTATION"	**EMERGENCY BUTTON PRESSED or WRONG ROTATION VERSE OF THE MOTOR (reversing one of the 3 phases)**
 "FAN THERMAL PROTECTOR"	**FAN THERMAL CONTACTOR setting exceeded (only in the presence of electric fan)**

TYPE OF ALARM	DESCRIPTION
 **"MAINTENANCE ALARM"**	**MAINTENANCE ALARM** **if needed perform maintenance and reset the maintenance hours by P8 parameter (by entering the security key)**

8.2 DESCRIPTION OF THE OPERATIONS TO BE PERFORMED

8.2.1 STARTING THE COMPRESSOR

When machine is powered it appears the following flashing screen:

for few seconds, then:

By pressing

it appears the following flashing screen:

for few seconds, then the machine start to load. It appears the value of system pressure.

By pressing

it appears the value of system temperature:

By pressing

it appears the flashing value of working hours:

8.2.2 PROGRAMMING

With machine stopped, by pressing:

machine stopped it appear programmable parameters (P1 ---- P6).

By pressing

it is possible to change the parameter to modify

By pressing

the selected parameter can be changed

By pressing

it is possible to modify the selected parameter

By pressing

the changed parameter is confirmed

8.2.2.1 PARAMETER

PARAMETER	NAME	DESCRIPTION	PRESET VALUES
P1	Stand by time	When air is not requested, compressor stays in stand by for this time, then stops	180 sec
P2	System temperature	Under this temperature the system doesn't stop after stand by time	140°F
P3	Maximum temperature	Above this temperature it appear temperature alarm	212°F
P4	Fan temperature	Above this value electric fan starts	167°F
P5	Maximum system pressure	Above this value compressor goes in unload mode	116.03 psi
P6	Minimum system pressure	Under this value compressor goes in load mode	101.53 psi
P7	Maintenance hours	Is the time setted between one maintenance and the next (protected by key parameter, that is required every time it is accessed)	500 ore
P8	Maintenance hours resetting	Enter the code key to reset the maintenance alarm	Only for maintenance workers
P9	Hours remaining to maintenance	It shows hours remaining to the next maintenance / control	---

8.2.3 STOPPING THE COMPRESSOR

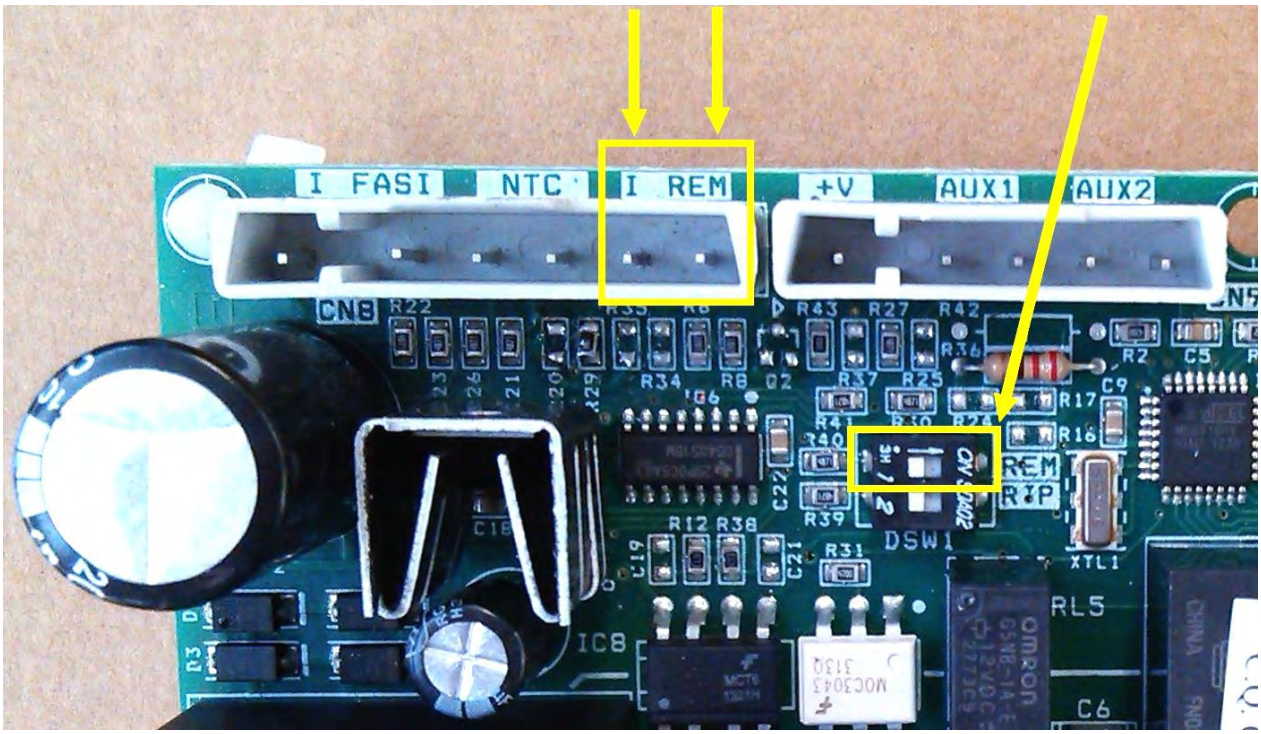
By pressing

for 2 seconds, it appears the following flashing screen:

After 10 seconds, the compressor stops.

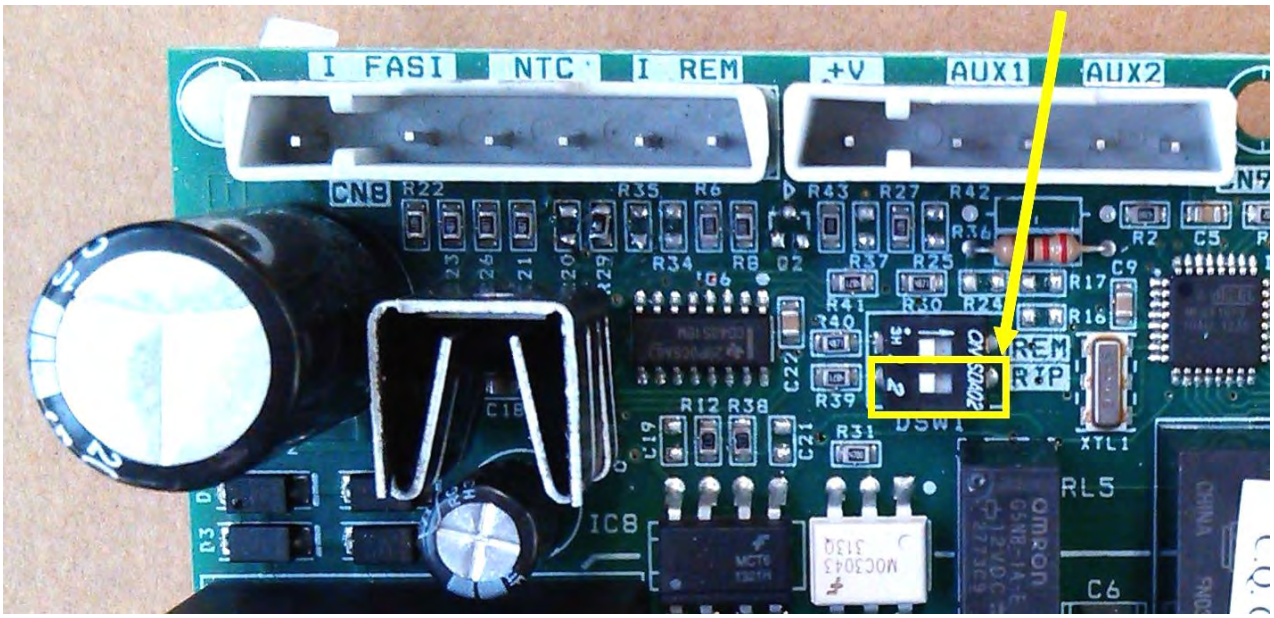
8.3 REMOTE CONTROL

For the remote control of the compressor, activate SWITCH 1 ON and connect your controller to Pin shown in the picture below:



8.4 AUTOMATIC RESTART

To activate the AUTOMATIC RESTART of compressor, place the SWITCH 2 in the ON position as shown in the picture below:

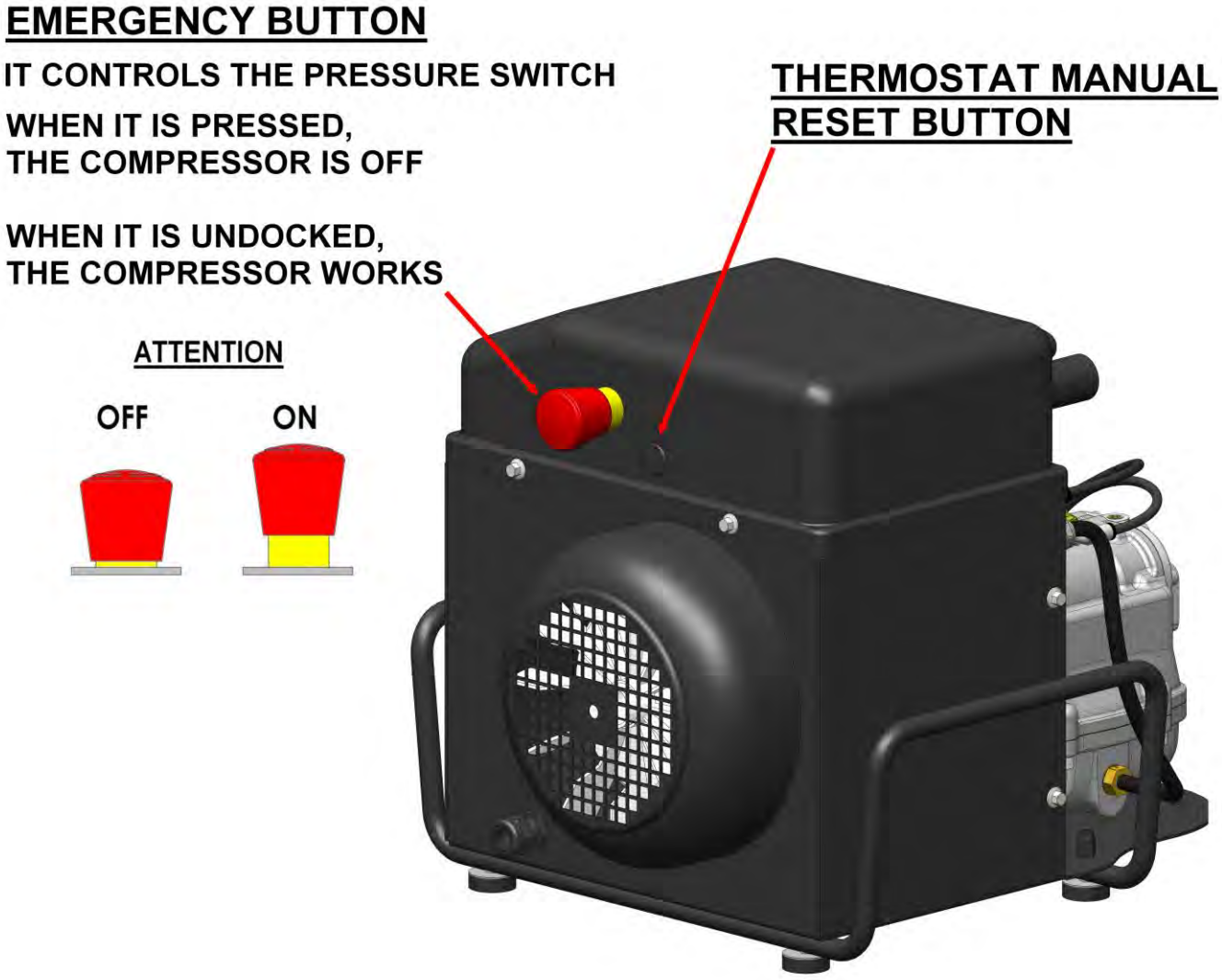


ATTENTION

The rules stipulate the need for manual reset of the system in case of arrest for the absence of voltage. The above-mentioned change is at the discretion of the user, therefore KTC Srl doesn't accept any responsibility for damage to persons and property with this type of use.

8.5 DESCRIPTION OF THE CONTROL DEVICES (BASIC VERSION)

BASIC VERSION

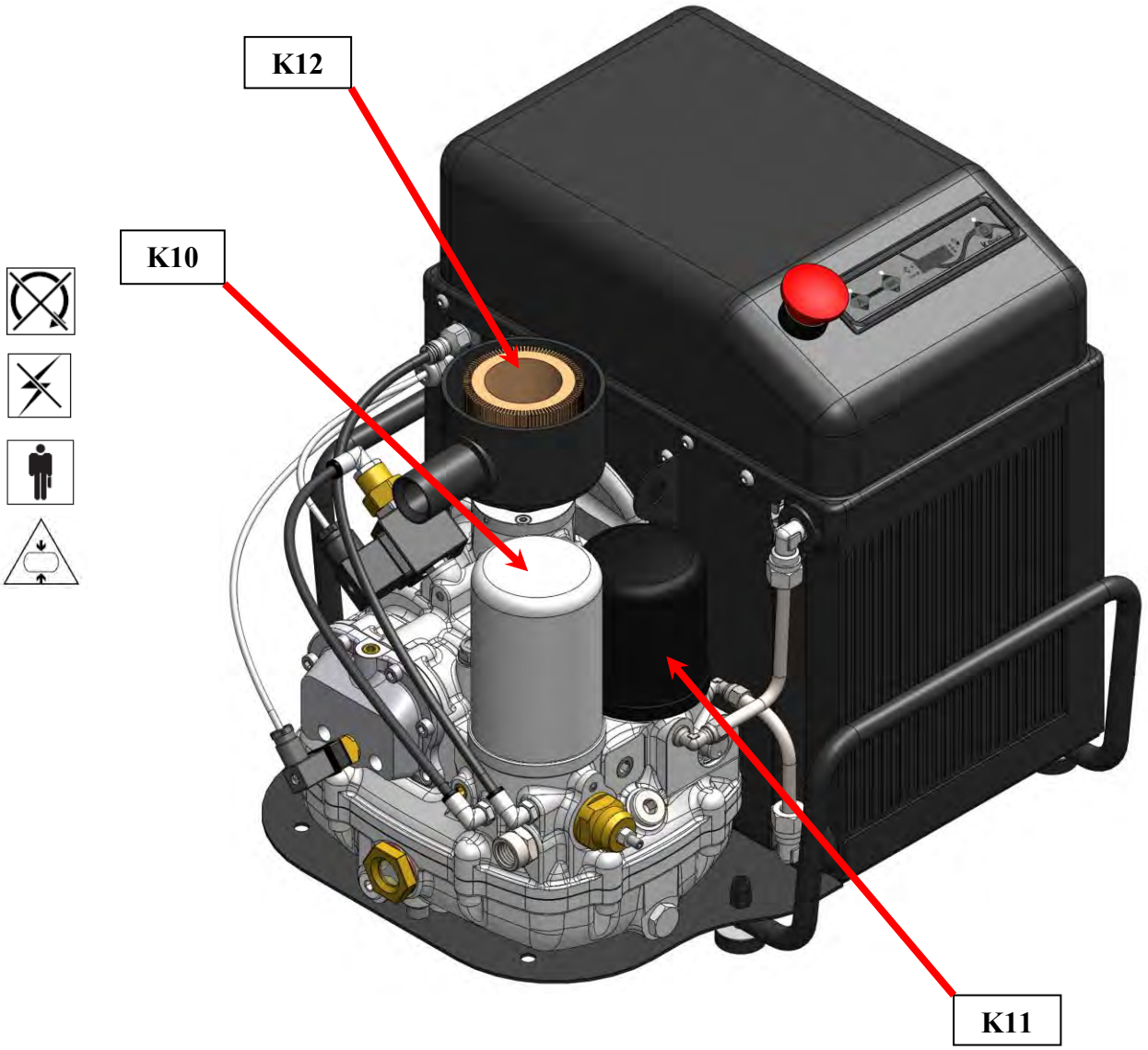


ATTENTION!
The manual control of the compressor (ON/OFF) can be managed only by the EMERGENCY BUTTON that control the pressure switch inside the electrical box. Any other control will be managed by the final user (via controller or inverter) which shall be solely responsible. How to manage the various controls, refer to the wiring diagram.

ATTENTION!
After an emergency stop caused for high temperature, press the emergency button to keep the compressor in OFF mode.
Reset the thermostat, pushing the rubber cap and after it is possible to restart the compressor (undocked the emergency button).

9 COMPRESSOR MAINTENANCE

9.1 SCHEDULED MAINTENANCE



The table below reports the compressor maintenance schedule.
The hours of operation indicated in the table refer to optimal use of the machine and can thus vary depending on the work site and number of cycles.

KIT	MACHINE	CODE	CODE DESCRIPTION	HOURS OF OPERATION
K10	RK-3 and RK-4	N11L0100	Oil separator filter	every 2000 hours or at least once a year
K11			Oil filter	
K12			Air filter cartridge	
			Oil	

CAUTION!!! USE ONLY ORIGINAL SPARE PARTS!!!

CAUTION!!! HOT PARTS INSIDE!!!

OIL LEVEL CHECKS AND TOP UPS MUST BE PERFORMED WITH THE MACHINE OFF AND WITH THE UNIT AT ATMOSPHERIC PRESSURE.

THE OIL REMOVED MUST BE DISCARDED IN COMPLIANCE WITH CURRENT LAW.

IN SEVERE WORKING ENVIRONMENTS (e.g.: PARTICULARLY DUSTY WORK SITES), THE MAINTENANCE INTERVAL MUST BE SHORTER.

INCORRECT MAINTENANCE OF THE OIL FILTER, AIR FILTER AND OIL SEPARATOR CAN DAMAGE THE UNIT.
LEAVING CARTRIDGES IN OPERATION FOR LONGER THAN THE INDICATED TIME CAN DAMAGE THE COMPRESSOR.

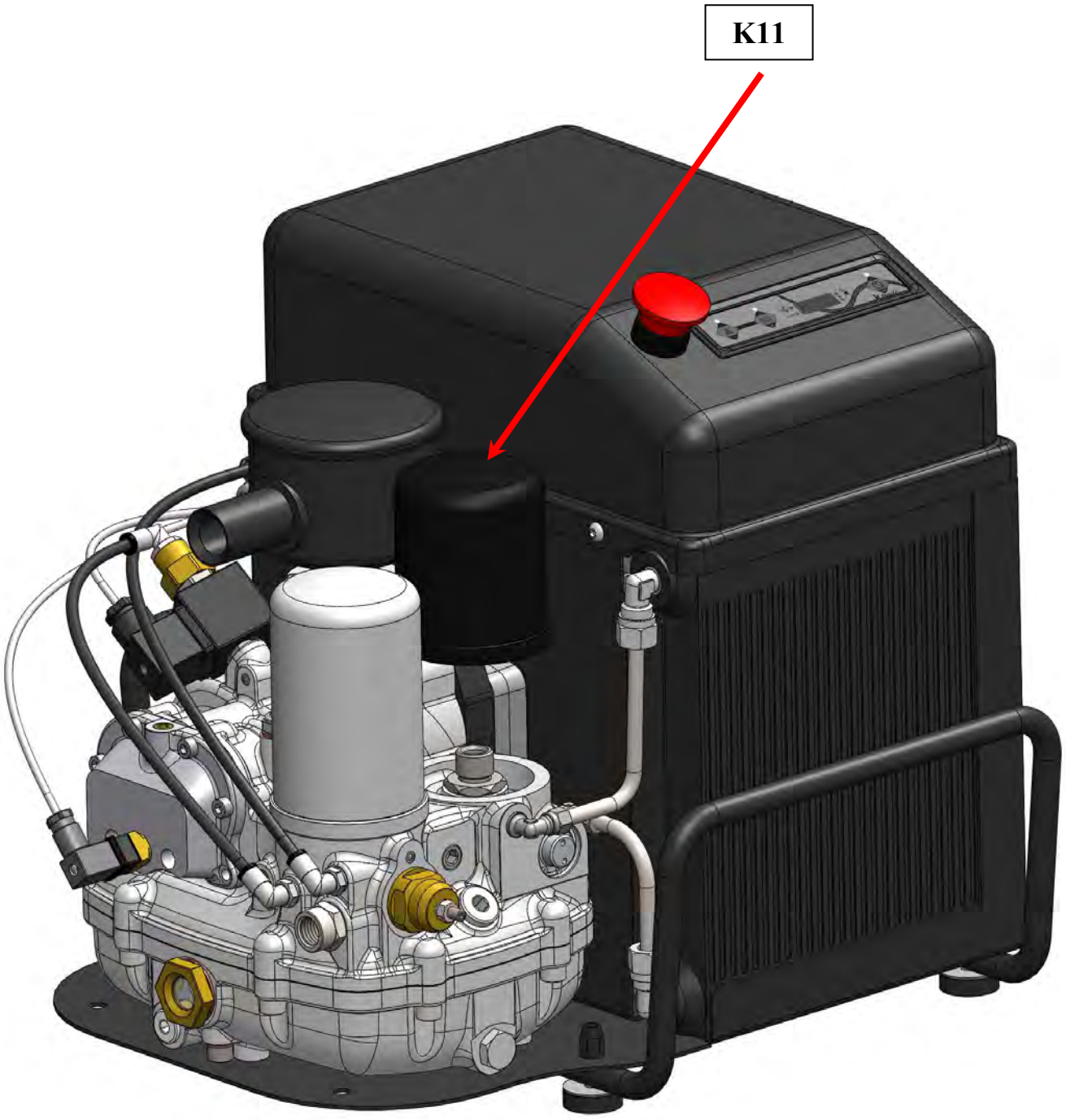
ALWAYS CAREFULLY COMPLY WITH THE SAFETY WARNINGS REGARDING USE OF THE MACHINE. THIS IS ABSOLUTELY ESSENTIAL.

MAINTENANCE MUST BE CARRIED OUT BY SPECIALISED PERSONNEL. ALWAYS FOLLOW CURRENT ACCIDENT PREVENTION STANDARDS (USE ADEQUATE PROTECTION).

9.2 REPLACING OIL FILTER

Perform all maintenance as described in this manual or following the indications provided by the retailer or Authorized Service Center. Open cover panel and remove the filter cartridge using the special spanner. Then replace the spent cartridge with a new one.

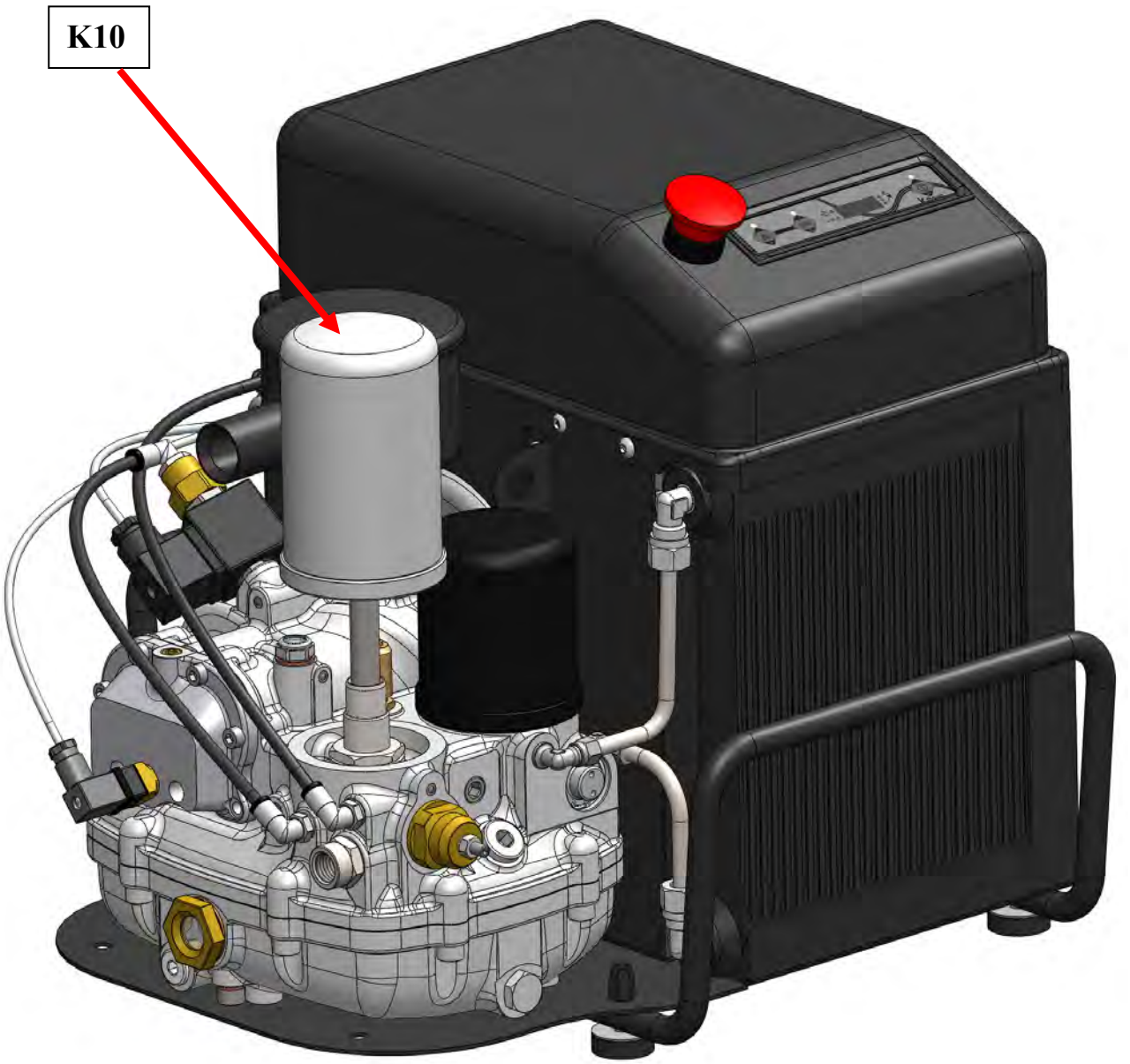
Before screwing down the filter cartridge, oil the gasket.
Manually screw down the new cartridge.



9.3 REPLACING OIL SEPARATOR FILTER

Replace the oil separator filter after the number of hours indicated in the manual or after checking its differential pressure. To do so, open the rear panel and remove the filter cartridge using the special spanner. Then replace the spent cartridge with a new one.

Before screwing down the oil separator cartridge, oil the gasket.
Manually screw down the new cartridge.

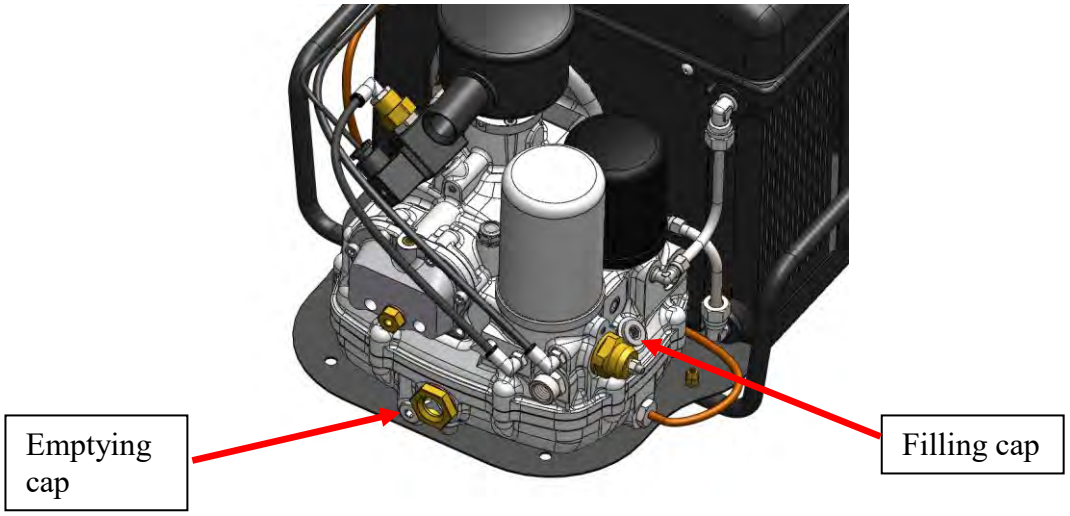


9.4 CHANGING THE OIL

Change the oil as indicated in the table on cap 9.1 extending the number of hours before replacement depends on the type of oil used but in no case can oil be used for more than one year**.**
If the compressor is not used frequently (a couple of hours a day), we recommend changing the oil every 6 months and periodically opening the oil drain ball valve to check for condensation residues.

When the oil drain ball valve is opened, oil starts flowing out of the screw assembly. Always keep on all necessary equipment to collect the oil.

Open filling cap.
Open emptying cap.



Once emptied, close the emptying cap.

Then top up the oil until the right level is read on the window (see figure 12). Then tighten the oil filling cap once more.
After having replaced the oil and oil filter, run the compressor for about 10 minutes, turn it off and check the oil level. If necessary, top up.

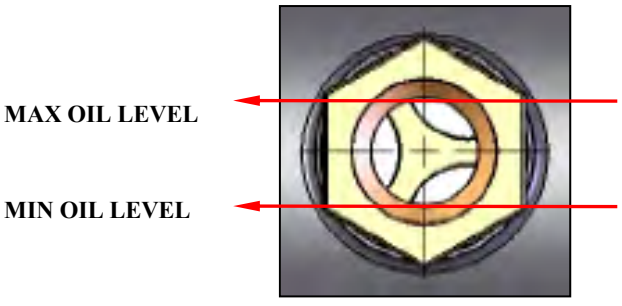
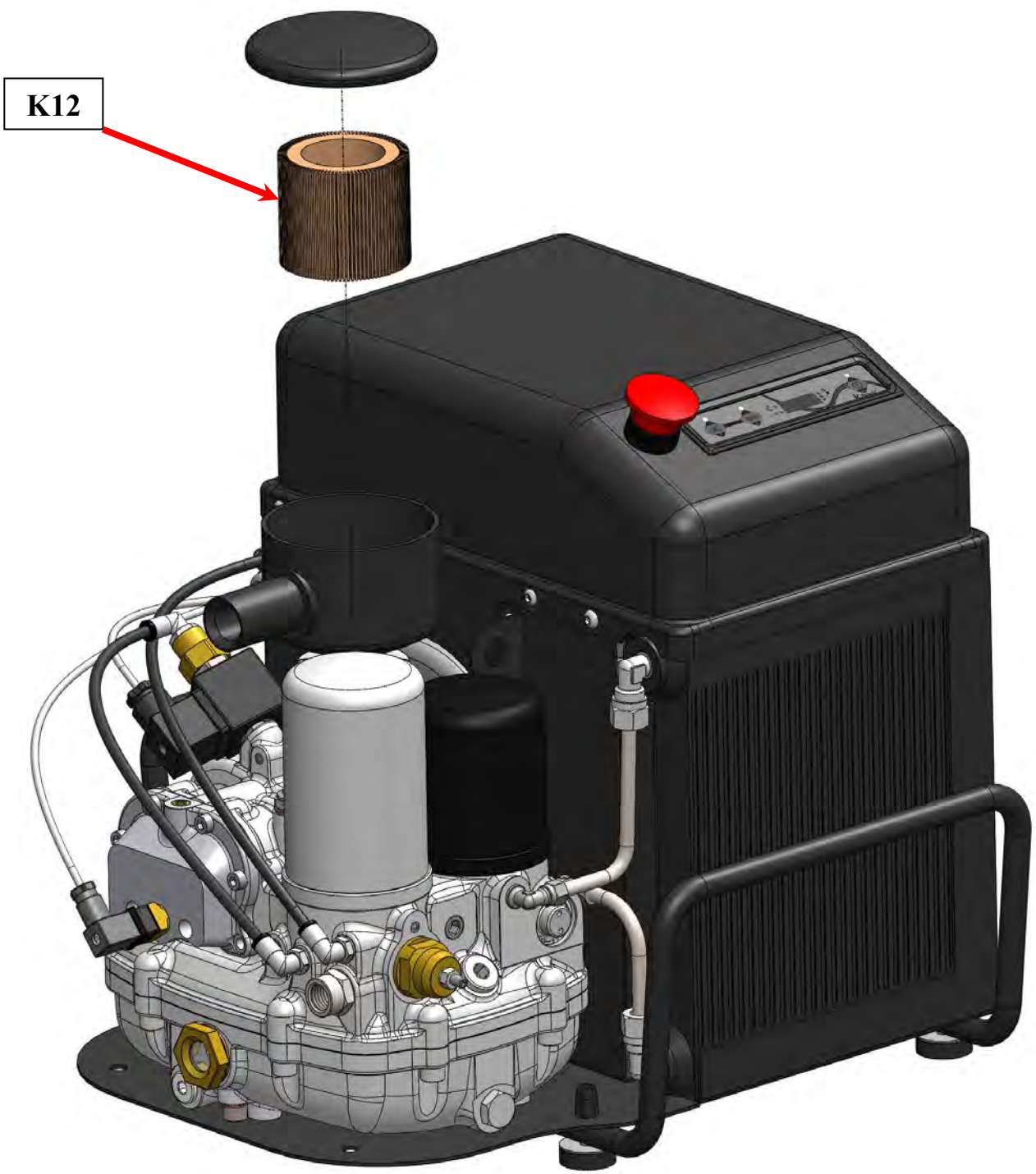


Figure 13

Never mix different types of oil. Make certain that the oil circuit is completely empty before performing any maintenance. Always replace the filter at each oil change.

9.5 REPLACING THE AIR FILTER

Replace the cartridge following the indications in the maintenance table.
Take particular attention not to let any material fall into the suction valve.
The duration of the air filter and proportionate to the type of environment and air contamination by dust.
If the environment is heavily contaminated it is necessary to intensify the replacement of the air filter.



9.6 MAINTENANCE SCHEDULE

Period (hours)	Recommended operation	Spare parts kit
500 **at least once a month**	Check the oil level Cleaning the oil cooler Check and/or cleaning the air filter cartridge	- - -
2000 **at least once a year**	Oil change (screw) Replace oil filter cartridge Replace oil separator filter cartridge Replace air filter cartridge Tighten control switch cable screws Cleaning the oil cooler Check and/or change the elastic ring of the transmission	- K11 K10 K12 - - -
8000	Change the V60 oil splashguard Change the RH30E-nr components Change the thermostatic valve Change the minimum pressure valve Control (eventual replace) the motor bearing	see the SPARE PARTS LIST
20000	Change the V60 bearings	see the SPARE PARTS LIST

The maintenance programme is set considering all installation and operating parameters recommended by the **Manufacturer**.

The work hours given in the table are referred to an optimal use of the machine and therefore may vary depending on the working environment and the number of cycles.

The **Manufacturer** recommends keeping a log of the maintenance works performed on the compressor.

9.7 UNSCHEDULED MAINTENANCE, COMMERCIAL PARTS, SPARE PARTS AND PERTINENT DOCUMENTATION

Unscheduled maintenance must be performed by an Authorized Service Center.

For any information, please log onto our website **www.pneutechgroup.com**

For any clarifications you may require, contact our **customer services department** or your area **retailer**.

10 TROUBLESHOOTING

Problem	Cause	Resolution
High oil temperature limit trips causing machine to stop.	Low oil level, High environmental temperature Oil cooler clogged Temperature probe failure	Top up oil level Check environmental temperature Clean oil cooler Replace temperature probe.
Motor thermal trip causes machine to stop. Main motor overloaded.	Low line voltage. High pressure of the oil separator.	Check the correct calibration of the thermal protection. Check that the electric power supply is correct. Check that power cables are firmly secured to the terminal. Check that the cables are not damaged. Check the main motor ventilation is free of any fouling or foreign objects. The oil separator differential pressure is above 1.0 bar causing high system absorption. Check the unit by qualified personnel.
Stopping the machine for intervention of the high pressure safety	The pressure exceeds the alarm set point. Transducer does not detect pressure properly.	Check the line pressure Check for proper operation of the transducer, if necessary replace it.
Stopping the machine because of the low temperature	Oil temperature lower than the value set on the electronic controller. Temperature probe faulty.	Check the environmental temperature and, if necessary, Use a heating resistance on the oil circuit. Contact an authorized Service Center.
Compressor runs but does not charge.	Suction valve does not open. Auxiliary power disconnected. Solenoid valve fuse blown. Breaking transmission elements between the motor and the screw.	Check that the transducer is connected both electrically and pneumatically. Check that the solenoid valve installed on the suction regulator is functioning properly. Check valve or minimum pressure valve failure. Contact an Authorized Service Center. Check the fuses for the solenoid valve installed on the terminal inside the starter itself. Check and replace the elements of transmission failures.

Problem	Cause	Resolution
Oil leaking from air filter.	High oil level. Defective suction valve. The compressor during transport has been tilted excessively.	Drain the oil until the correct level is reached. For the valve, contact an Authorized Service Center.
Opening of the safety valve	Working pressure too high Overpressure in the internal circuit. The oil separator cartridge is clogged. Safety valve is damaged	Restore correct working pressure from rating plate. Replace oil separator filter. Replace any defective safety valve.
Excessive oil consumption.	Oil not suitable for the compressor operation. Air-oil separator cartridge spent or defective. Oil recovery window clogged. Oil level too high.	Replace oil Fill machine with the oil indicated by the manufacturer. Replace oil separator cartridge. Clean or replace oil recovery window. Top up oil until it reaches the level indicated in the manual.

11 APPENDIX

11.1 MAINTENANCE CHECK SHEET

MAINTENANCE CHECK SHEET

Operation hours	Prefilter panel		Air filter cartridge		Oil filter cartridge		Separator filter cartridge			Oil		Belt			Date	Sign
	Cleaning	Replacement	Cleaning	Replacement	Replacement		Pressure difference	Replacement	Check	Topping	Replacement	Check	Tension	Replacement		

CAUTION!

- Never touch moving parts while the compressor is running.

- All compressor maintenance operations must be performed with the machine off (at environmental pressure and temperature) and with the unit unplugged.

- Maintenance must be carried out by qualified personnel. Always follow current accident prevention standards (use adequate protection).

The manufacturer reserves the right to make any modifications to the present manual it deems fit and to do so without prior notice.

The manufacturer is relieved of any responsibility for injuries and property damage caused by incorrect use of the compressor assembly, non-compliance or inadequate compliance with the safety criteria indicated herein, modifications (even minor modifications) and by tampering and use of non original spare parts.