

CNG - 5.0

HIGH PRESSURE COMPRESSOR FOR NATURAL
GAS



User's and Maintenance Manual

CNG-5.0 ENG. rev.01/14

This User's and Maintenance Manual contains general information and instructions for the operation and maintenance of high pressure compressor CNG 5.0 to be used exclusively to compress natural gas. All users must read this manual carefully and understand it in its entirety before operating the machine.

WARNING. The operation of this machine is to take place only after having read this manual in all its parts.

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1.01 WARNING SYMBOL EXPLAINED :

This manual contains special messages to bring your attention to important information regarding safety and proper operation of the machine. The symbol below is placed in different parts of the manual next to paragraphs that all users must be fully familiar with. Make sure you read all the information carefully to avoid injury and/or machine damage.

**1.02 PRECAUTIONS :**

The compressors are manufactured in accordance with the EC Machinery Directive 2006/42/EC, in accordance with the Law on General Product Safety dated 01/05/2004 on noise emissions and in accordance with the Machinery Directive, Annex I, Section 1.7.4. and following. The machine is constructed in a workmanlike manner and in accordance with technical and operational aspects of safety management of Directive PED 97/23/CE and in accordance with Directive ATEX 94/9/CE.

CE  **II 3G IIB T3 X**

The NARDI COMPRESSORS also declares that the compressor has been subjected to a test in constructive pressure, certifying that the product complies with the 'DECLARATION OF CONFORMITY' 'according to the Pressure Equipment Directive 2006/42 / EC.

Before using the compressor we recommend reading carefully the following indications:

1. Read carefully the manual for the proper operation of the compressor.
2. Do not allow the air that comes out from the compressor to be directed to people or animals.
3. Use the machine ONLY outdoors where natural gas will not accumulate.
4. Do not place the compressor in closed environments even if well ventilated.
5. Make sure the compressor is placed in a stable position and away from sources of corrosion, explosion and fire.
6. The maximum pressure of the compressor is clearly indicated on the compressor itself.
7. When using the compressor place it in a fresh, well ventilated location and away from heat sources and sparking appliances.
8. The compressor can reach high temperatures during operation.
9. Do not to allow children to handle the compressor even when it is switched off.
10. Do not use the compressor to suck/compress gases other than natural gas.

1.03 BRIEF INTRODUCTION :

CNG-5.0 is a high pressure compressor used to compress natural gas to be used in the refueling of vehicles or for storage in high pressure cylinders.

The compressor can reach a maximum pressure of 330 bar (4785 psi) with the safety valve adjusted at 336 bar (4875 psi).

Main parts of the compressor:

- Compressor Block or Pump Unit
- Electric Motor
- Series of separators
- Refueling hoses and connectors
- Protection and anti-vibration system
- Automatic condensate drain and automatic hose depressurization
- Electronic control system

1.04 DESCRIPTION OF THE COMPRESSOR BLOCK:

The compressor block CNG-5.0 has a range of use for compression of natural gas at high pressure up to a maximum pressure of 330 bar (4785 psi). The compressor consists of three stages driven by three pistons. The first stage is in the center, the second is on the right (fig.1) and the third is on the opposite side.

The compressor block is a single body unit including several intermediate separators that are placed between the cooling serpentine (inter-cooler) of the various stages. The flywheel of the compressor does not require balancing because it is made of ultra-light alloy materials while the compressor has a crankshaft complete with counterweights that eliminate vibration due to dead times or non-compression times.

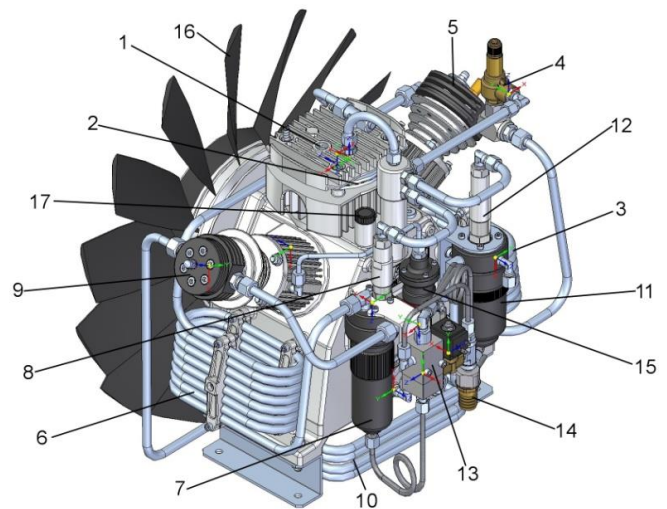
The movement of pistons is transmitted through the connecting rods using roller bearings. The roller bearings have a high workload and as a result the mechanism is very strong. Cylinders are made in aluminum with a barrel in cast iron inside.

This allows the machine to be the most technologically advanced product available in the market. The main advantage is that the cooling fins dissipate heat much faster and is more resistant to corrosion, compared to cast-iron.

The machine has a large capacity oil storage sump of 3,5 liters, a gear oil pump for forced-feed lubrication followed by an oil filter and a magnet that holds back all the iron particles inside the sump. This way the oil will remain clean which in turn makes the machine more reliable.

COMPRESSOR BLOCK COMPONENTS:

1. Intake 1st Stage
2. Compression Valve 1st Stage
3. Intercooler 1st Stage
4. Conveyed Safety Valve 1st Stage
5. Compression Head 2nd Stage
6. Intercooler 2nd Stage
7. Intermediate Separator 2nd Stage
8. Conveyed Safety Valve 2nd Stage
9. Compression Head 3rd Stage
10. Intercooler 3rd Stage
11. Intermediate Separator 3rd Stage
12. Conveyed Safety Valve 3rd Stage
13. Depressurization Valve for filters and hoses
14. Depressurization Valve Discharge
15. Lubrication Oil Pump Filter
16. Anti-static Fan
17. Lubrication oil plug



1.05 DESCRIPTION OF CNG-5.0 for NATURAL GAS:

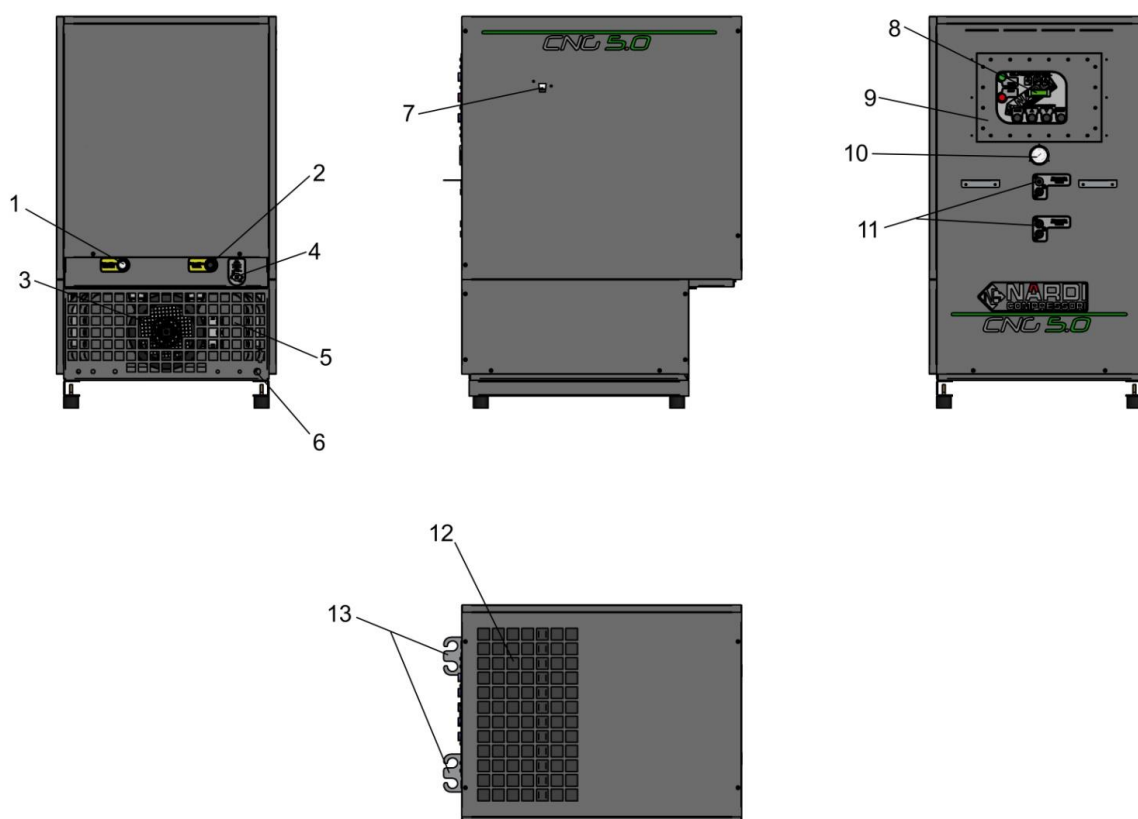
The structure of the **CNG-5.0** is very robust, designed to suppress vibration, discharging it on the ground and thus reducing up to 60% of noise. This is possible thanks to an internal thermo acoustic insulation that guarantees noise levels lower than 70db(A).

All the elements, the internal structure and the walls around the internal structure are painted with epoxy coatings which grant an extraordinary resistance to corrosion. This ensures longer lasting of the equipment and as a consequence it extends the life of the compressor block inside.

In the front, we also find the electronic control panel and the final pressure gauge. Four connections are available to connect refueling hoses. The condensate drain hose is placed in the back of the compressor.

COMPRESSOR COMPONENTS:

1. Natural Gas Intake - 1" G (Pipe DN25) (Min. Pressure: 60 Mbar / 1.0 psi – Max. 450 Mbar / 6.5 psi)
2. Natural Gas Switch Off Discharge Outlet
3. Electric Motor
4. Rear exit for gas storage (AUTOMATIC SYSTEM) or Vehicle Refueling (MANUAL SYSTEM)
5. Air intake for the ventilation of the compressor
6. Power Cord (ATTENTION the original power cord must not be replaced)
7. Rainwater discharge
8. Display Electronic Control Panel
9. ATEX Certified Electronic Control Panel (ATTENTION: It is absolutely forbidden to open this panel as it is certified and tested)
10. Manometer or Pressure Gauge – Measures the Pressure of the Compressor
11. Front exit connections for hoses to refuel vehicles (MANUAL SYSTEM)
12. Exit of air ventilation from the compressor
13. Support bracket refueling nozzle – Vehicle Refueling (MANUAL SYSTEM)



1.06 TECHNICAL DATASHEET CNG-5.0 :

TECHNICAL DATASHEET - CNG 5.0				
Description	Descrizione	Unità - Unit	CNG-5.0	
Working Pressure	Pressione di esercizio	PN	200	300
Charging rate	Aria Resa	L/min. – m ³ /h – cfm	300 – 18 – 10,6 – (5.0 GGE)	
Safety Valve Pressure	Pressione di esercizio	Bar – Psi	225-3200	330-4785
Compressor block	Gruppo pompante	Name – Nome	CNG-5.0	
Number of stages	Numero di stadi	N°	3	
Number of connecting rods	Numero di bielle	N°	3	
INTAKE PRESSURE	Pressione INGRESSO	Mbar / Psi	Min 50Mbar/1.0 psi – Max 650Mbar/6,5psi	
Pressure 1st Stage	Pressione 1° stadio	Bar / Psi	7 – 100	
Pressure 2nd Stage	Pressione 2° stadio	Bar / Psi	65 – 1000	
Pressure 3rd Stage	Pressione 3° stadio	Bar / Psi	330 - 4700	
Compressor Block Oil capacity	Capacità coppa dell'olio	Liter – gal(US)	3,5 – 0,924	
Speed Compressor	Giri Compressore	r.p.m.	1550	
Oil Type	Tipo di Olio	Name – Nome	NARDI SYNTHETIC 150	
Environment working temperature	Temperatura ambiente di lavoro	°C / °F	From -20°C to +40°C / From -4°F to +104°F	
Max inclination of compressor	Max inclinazione del compressore	Grade – Gradi	5°	
Max operating height	Max altezza dal livello del mare	Meter / Feet	2000 / 6500	
Power pump weight	Peso gruppo pompante	Kg. / lb	51 / 112	
Dry and oil intermediate separator	Separatori acqua olio	N°	2	
Interstage coolers and after coolers	Tubi di raffreddamento	Material – Materiale	Acciaio Inox – Stainless Steel	
Electric Motor	Motore elettrico	Phase – Fasi	Three	
Operating Voltage	Tipo di Voltaggio	Volt / Hz	230 → 690	
Power	Potenza Motore	Kw	7,5	
Noise level	Pressione Sonora	dB	65	
Type of enclosure	Protezione	IP	54	
Current Rating	Assorbimento	Ampere	25,8 (230) - 15(400)	
Weight	Peso	Kg. / lb (US)	275 / 607	

1.07 ATEX – GENERAL INSTRUCTIONS:

The machine is built in conformity with ATEX Directive 94/9/EC.
Each compressor is equipped with an identification label containing the basic characteristics of the compressor.

CE : CE Conformity Mark

Ex : ATEX Specific Marking of Explosive Protection

II : Equipment Group (II: Electrical Equipment Not for Mines)

3G : Product Category and Type of Explosive Atmosphere (3G = Zone 2)

IIB : Gas Group

T3 : Maximum Surface Temperature of the Equipment (T3 = 200°C)

X : Assembly (Applicable to the machine as a complete unit)

		Nardi Compressori srl via Marco Polo, 2 36075 Montebelluna M. Venezia - ITALY	 MADE IN ITALY
Ex II 3G IIB T3 X (ASSEMBLE)			
MODEL		CNG 5.0	
SERIAL NUMBER/MONTH-YEAR		146347	Dec. 2012
VOLTAGE		400/690	50 Hz
TEMPERATURE		-20°C ≤ Tamb ≤ +40°C	

The most important parts of the identification label are: Compressor Model, Serial Number and date of manufacture, Voltage and frequency of use, minimum and maximum ambient temperature for the operation of the compressor. Each component mounted on the machine is part of the assembly described above, and they are all classified ATEX.

CLASSIFICATION OF HAZARDOUS ZONES

Hazardous Zones with the presence of GAS	Hazardous Zones with the presence of DUSTS	Definitions
Zone 0	Zone 20	Explosive Gas atmosphere is present continuously or for long periods
Zone 1	Zone 21	Explosive Gas atmosphere is likely to occur during normal operation
Zone 2	Zone 22	Explosive Gas atmosphere is not likely to occur during normal operation

CATEGORIES OF THE EQUIPMENT

Level of Protection	Categories	Gas Categories	Dusts Categories
Very High	M1	1G	1D
High	M2	2G	2D
Normal	Not Provided	3G	3D

TEMPERATURE CLASSES

Ignition temperature of the flammable substance in °C	Temperature Class	Maximum surface temperature of the equipment with ambient Temperature of 40°C
> 450	T1	450
> 300	T2	300
> 200	T3	200
> 135	T4	135
> 100	T5	100
> 85	T6	85

1.08 TECHNICAL DOCUMENTATION CNG 5.0:

The manual, the Declaration of conformity CE/ATEX and related technical documentation, are an integral part of the machine and must be kept in a protected environment and close to the machine, in a place accessible at any time by the operator.

2 SAFETY RULES FOR USING THE COMPRESSOR

2.01 IDENTIFICATION OF SAFETY FOR OPERATORS:



It's very important to check and know the danger points of the machine before using it. To help in this, we placed the stickers that help you with stylized images to identify: High Voltage, valves in pressure, Fans rotation, etc ... Hot Spots

In addition to this, the machine are mounted some components for accident prevention and global security in the event of a malfunction or failure, intervene so as not to cause danger to the life of the operators.

These items must always be present and can not be changed.

In case of intervention contact our technicians.

The operator must ensure the good condition of the equipment and the perfect functioning of the safety items.

The compressor must be monitored periodically by the operator and technicians who will replace worn or damaged.

2.02 SAFETY RULES FOR THE OPERATOR AND THE CORRECT USE OF THE COMPRESSOR:



The clerk at the compressor must have technical knowledge on the ATEX zone, on the regulations and must know perfectly functioning machine. In case of delegation of work must provide to inform the second person of all operations to be performed.

The compressor is constructed to compress natural gas.

If drawing the gas from the home network, make sure that the pipe section and the suction pressure are adequate. Natural gas must be filtered before being sucked by the compressor (input / Suction NATURAL GAS).

If the gas is taken from one storage already pressure, adjust the input pressure (minimum and maximum pressure) as described in the technical specifications, and if necessary, enter between storage and compressor, a regular membrane pressure. Be very careful to pressure input, even if the compressor is equipped with alarms in case of pressure too low or too high pressure inlet gas.

2.03 RULES AND GUIDELINES FOR PROPER USE OF THE COMPRESSOR:

This compressor has been constructed in a workmanlike manner according to ATEX 94/9 / EC, there was also refer to the following documents: EN 1127-1, EN13463-1, EN 60079-14, EN 60079-0, EN 60079-15, EN 60204-1, 2006/42/EC, 97/23/EC, 2009/105/EC, 2006/95/EC, 2004/108/EC, 2002/95/EC, 2002/96/EC, EN 13857:2010, 2006/121/EC, EN 1012-1/2, EN1217:2009, 2000/14/CE, EN4126-1, EN 837-1.

2.04 BASIC SAFETY:



- Wait at least 30 minutes after turning off the compressor before performing maintenance or otherwise.
- Recharge only inspected cylinders never exceed the working pressure.
- The compressor must not draw air or mixtures of air and natural gas.
- The compressor must not be placed in dusty areas, potentially explosive atmospheres, corrosion, fire and away from electrical panels or plugs.

- CAN NOT 'use the compressor indoors and in areas which may cause gas accumulations (AREA ATEX).
- Make sure that when you do maintenance or you want to replace some part of the compressor, it is not under pressure and the power plug is disconnected from the power line.
- When not using the compressor off the power, never give jerks to the wires but use the plug to unplug it. Make sure that the cable does not run against sharp edges or bend angle, in case of damage, the cable must be replaced by a technician from NARDI COMPRESSORS.
- All devices and components that are located at a distance less than 1 meter (3.3 ft) from the compressor must be certified for ATEX zone 2 or higher.
- Periodically check the condition of the hoses (high pressure hoses) especially in the vicinity of the connections and in the case of the present small defects must be replaced. Must be replaced every 24 months.
- Periodically check the tightness of connections.
- Do not repair damaged parts if you do not have original parts Nardi Compressors.
- Do not modify the machine unless expressly authorized in writing by Nardi Compressors.
- In case of visible wear and tear of any component of the compressor, do not use it until they are replaced with one original and check that it has damaged other parts of the machine.
- When the machine is turned on, make sure that there are people in contact with it.
- Be careful of all the moving and not going to contact them.
- Do not change the cooling system of the compressor and make sure it is positioned so as to ensure proper air circulation.
- In the ignition phase check that the direction of rotation of the compressor is equal to that indicated by the arrow on the crankcase.

2.05 GENERAL SAFETY:

1. The operator trained compressor, must be aware of all the rules and controls of the machine, tools, indicators and all the various plates.
2. Always have material for first aid, and a fire extinguisher to CO2. Make sure the fire extinguisher is charged and working.
3. When operating the compressor, use of appropriate protective clothing, such as safety shoes, safety glasses, gloves ...
4. Unplug the power cord when performing tasks within the compressor, never perform operations on it with the power on or at work.



3.01 WARRANTY COMPRESSOR:

The compressor CNG-5.0 of our production is guaranteed by NARDI COMPRESSORS for a period of twelve months from the date of purchase and stated on the label on the compressor.

In the time of production and testing will be placed a label that will make the machine complies with CE regulations and that will bring this symbol, in the event that it is disconnected or altered license plate of the car, the Guarantee will be void.

For that guarantee to be valid, the purchaser has complied with the provisions of the contract and that the compressor has been used as indicated by us and has not been altered or modified granted and confirmed by NARDI COMPRESSORS.

Do not answer the warranty:

- If the machine has not been used properly (as described in this instruction manual)
- Not guaranteed to consumables and regular maintenance, especially if used improperly.
- If you were not used original parts NARDI COMPRESSORS.
- If you are sucked / compressed gases other than natural gas.

The replacement of the defective part will be performed free of charge at the plant in Montecchio Maggiore of Nardi Compressors or in the seat of our authorized dealers.

Repairs and replacements made by NARDI compressors or from an authorized dealer, during the warranty period, will not extend its duration.

In the event that the repair done outside of Nardi Compressors, will be charged the shipping of spare parts (replacement of defective components should be performed only by trained technically by NARDI compressors or one of our employees will have to evaluate the operator before it is made the replacement).

If replacing the piece needs a technical NARDI COMPRESSORS, travel expenses and travel expenses will be paid by the purchaser.

3.02 WARRANTY AND SUPPORT :

To order parts please contact or visit our local retailers.

In case of difficulties in finding the piece, contact the NARDI compressors that will be available for any clarification and will put you in contact with the safety officer.

If you want a service or assistance, send the request directly to the:

NARDI COMPRESSORI

info@nardicompressori.com o via fax al n° 0039.0444.694885.

4.01 UNPACKING AND HANDLING :

The compressor is shipped on a pallet, is covered by a box and at the end secured with a strap. After unpacking it is important to check if it has transport damage and, in the presence of these, it is important to inform the carrier and the dealer as soon as possible but no later than 7 days from delivery.

Along with the compressor, are: User manual and maintenance, EC declaration of conformity.

The compressor CNG-5.0 was designed to facilitate the handling. In fact, if you look at the bottom, has an opening which serves to be able to enter with a trans-pallet or with a forklift.

The compressor is mounted on anti-vibration who avoid transmitting vibrations to other things nearby. However, must be positioned in a stable point.

In case come into contact with corrosive agents is recommended to clean the surface and protect it with protective sprays corrosion. Always be careful to the electrical part.

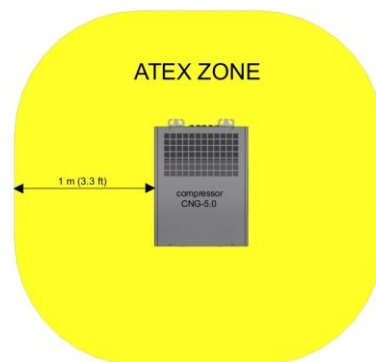
4.02 POSITIONING IN THE OPEN:



For dangers of explosion is very important to the positioning of the air compressor.

In the time of installation to assess the ATEX zone by a technician in order to ensure that there are no dangers of explosions.

The compressor can be exposed to the weather, but to protect it adequately, it is advisable to place it under a shed or a shelter, paying attention to the points which may form an accumulation of gas.



4.03 INTAKE / INPUT METHANE:

The tube of input / Suction is attached to the compressor via the sleeve 1 "G positioned at the rear of the compressor CNG-5.0, is identified with the adhesive" NATURAL GAS SUCTION ".

The pipe must have a minimum DN25 and the inlet pressure to the compressor must be 20MBar

If the inlet pressure is too low or too little flow (suction pipe too small), the moment of ignition will generate an alarm and the compressor.

In the event that the alarm is present all the time might be the cause:

- Line pressure too low.
- Pipe section too small.

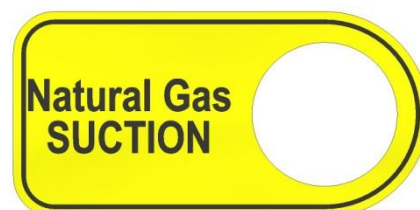
Suction connection to the home network or industrial:

The home network or industrial, transports natural gas at various pressures and flow rates, however, care must be taken to the filters, pressure regulators, the diameter of the tubes or counters that are installed before aspiration of the compressor, which are appropriate for the job must play, which have flow rates or adjustments appropriate to this type of work.

It's very important that the suction of the compressor, never goes negative, otherwise it incurs unpleasant drawbacks such as the suction of the lubricating oil, causing it to leak through the discharge Natural Gas VENTIL, then the running out of oil in the compressor. If this were to happen, the compressor is equipped with oil level alarm, which immediately stops the machine, and alerts the operator of the problem, which will look for the problem and add oil missing. The machine is however equipped with pressure transducers, which communicate in a timely manner with the electrical panel, and generate an alarm in case of lack of gas or too high pressure of the intake gas.

Free suction gas storage:

In case we want to connect the inlet to a storage of natural gas, it is mandatory to place a filter and a pressure regulator between the stock and the suction of the compressor.



The suction pressure must necessarily be controlled, and should be followed the parameters described in the specifications table, always making sure that the vacuum flow is adequate to the demand of the compressor.

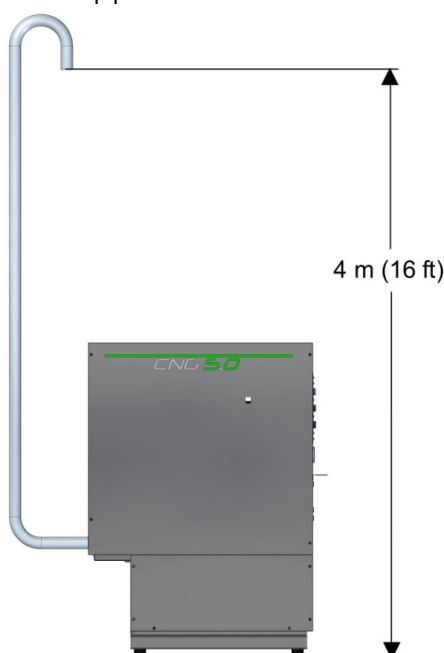
The machine is however equipped with pressure transducers, which communicate in a timely manner with the electrical panel, and generate an alarm in case of lack of gas or too high pressure of the intake gas. The compressor is equipped with oil level alarm, which immediately stops the machine, and alerts the operator of the problem, which will look for the problem and add oil missing.

4.04 DRAINING OR VENTING PIPE :

Make sure the vent of the compressor is connected to a pipe of at least 4 m (13 ft.) In height from the ground and that the terminal is facing down so as not to let rain water or anything that may obstruct the passage to the exhaust gas. Also make sure to place the output high exhaust gas away from sources of heat or possible elements sparking.

This sleeve 1 "G is located in the rear of the compressor and is identified with the adhesive "NATURAL GAS VALVE ".

The exhaust pipe shall have an internal diameter at least 25 mm.



The exhaust gas, serves to empty the compressor and the related pipes or hoses from natural gas, in such a way as not to create gas accumulations, or areas with gas under pressure.

Each time the compressor terminates charging, the solenoid valve opens the exhaust gas, releasing all residual gas present inside of the pump unit and its connection pipes.

This is vital for the safety of the operator, which can operate without danger of gas accumulation.

4.05 ELECTRIC CONNECTION :

For electrical installation must follow the following points:

- On this manual is schematized the electric control of the compressor that indicates how to connect the compressor to the mains.
- Have an electrician that the system is in accordance with and bear the maximum absorption of the compressor indicated on EC NARDI COMPRESSORS.
- E 'need to connect the compressor to a switch (outside the ATEX zone)
- It is recommended to install a circuit breaker or fuse appropriate for the power absorbed by the motor.
- Check that power is coming to the voltage required by the compressor and the power cord you use is not undersized.
- CAUTION: When connecting the plug to make sure that the fan of the compressor turns in the right direction indicated by the arrow on the internal sleeve. Your compressor has the control of phase sequence, in this case will not turn on until it will invert the wires of the phase as indicated above.
- Make sure the grounding is connected firmly on the plug and electrical work.
- Do not change absolutely the power cord. E 'can only shorten it.
- The plug and electrical connections to the network must not be located within the area otherwise you have to use all ATEX certified components for explosive area.

5.01 PREPARATION FOR POWER:

This machine is designed to compress NATURAL GAS / METHANE.

And 'forbidden to modify the intake by compressing gases other than natural gas or mixture of gas and air.

A suction / compression of gases other than natural gas or mixture of air and gas, can lead to breakage or to 'EXPLOSION compressor.

All compressors are tested by NARDI COMPRESSORS before being sold, but for the power you need to follow these steps:

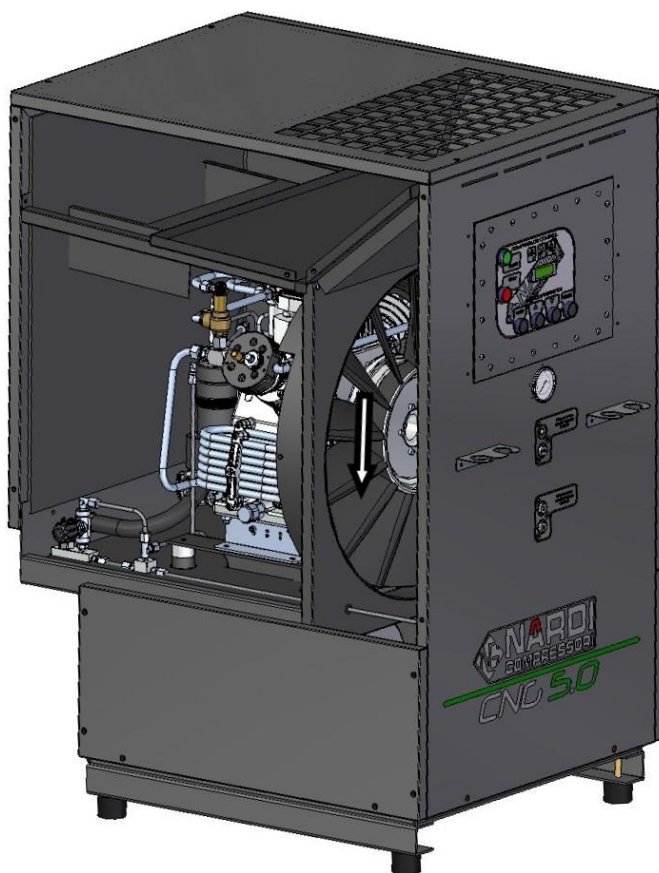
- Before turning on the machine, all the people who will use the compressor must read carefully the instruction booklet.
- If the compressor has been standing for a period exceeding twelve months, it is advisable to change the oil and the presence of a technician perform a check-up.
- Check that the hose fittings and hoses are tight well.
 - Check that the air passage (rear) for cooling the compressor is not covered or obstructed.
- Check that the output of the upper air is not covered or obstructed.
- Check that the electrical panel is lit with white light LINE on.
- Ensure that the safety zone ATEX there are people over designated operator.
- Every time you turn on the compressor do these checks and if something is not working properly, do not turn on the compressor and perform maintenance or contact a technician to fix the problem.

This model is equipped with an electronic panel that controls the compressor in all its functions.

Before switching to follow the above steps and then press the START button to start the compressor. The compressor will shut down only once at maximum pressure (automatically set by the electronic panel P30 / P36), or the pressure set manually by the operator.

In an emergency, press the red STOP button, and the compressor will stop immediately.

In case of active alarm, correct the problem and press the RESET button.



5.02 ELECTRONIC BOARD:

This compressor is equipped with a control panel that will check the proper functioning of all its components.

Description of the keys:

1- START BUTTON which when pressed, to consent to the departure of the compressor.

2- BUTTON STOP which when pressed stops the operation of the compressor. In order to start you have to press the button "START".

3- PAGE BUTTON Used to display data on the display, pressing and releasing the button, we advance the pages where data is displayed.

4- BUTTON UP (▲) serves to advance the numbers

5- BUTTON DOWN (▼) is used to push back the numbers

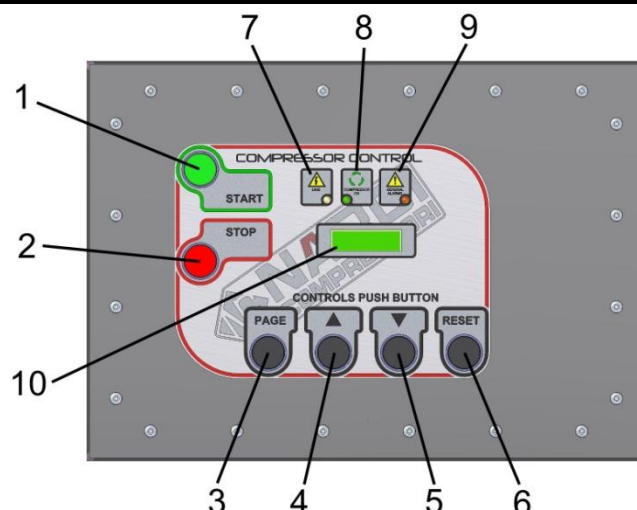
6- RESET BUTTON Used to reset the alarm or alarms compressor that are highlighted on the display.

7- white LED indicates voltage under.

8- Green led compressor running (COMPRESSOR ON).

9- Led red general alarm (GENERAL ALARMS).

10- DISPLAY



When the machine is powered, is displayed for a few seconds, the message "NARDI - GAS COMPRESSOR 900 393" DISPLAY.

The following screen will display on its own and will indicate the system pressure "PRESSURE" in BAR or PSI, hours of work "WORK TIME" in hours "h" and the stop pressure compressor "STOP PRE.", In this case, the compressor will shut down to 240 bar.

To go to the next page, you must press the PAGE button.

This screen displays the suction pressure of the compressor GAS input values displayed are bar / psi / MPa

To go to the next page, you must press the PAGE button.

This page displays the maximum pressure to stop the compressor that can be displayed in bar / psi / MPa. If the pressure exceeds the set value is stopped the operation of the compressor. THIS PAGE 'DISPLAYED ONLY IF THE COMPRESSOR WORK AUTOMATICALLY.

To go to the next page, you must press the PAGE button.

This page displays the minimum pressure of starting the compressor that can be displayed in bar / psi / MPa. If the pressure drops below the set value is put into operation the compressor. THIS PAGE 'DISPLAYED ONLY IF THE COMPRESSOR WORK AUTOMATICALLY.

To go to the next page, you must press the PAGE button.

This screen displays the time in hours "h" that remain at the next service with maintenance technician.

It is important to this value for proper maintenance of the compressor. The control panel 200 and 100 hours of service, will send a signal to remind you to contact your dealer to schedule an appointment for periodic maintenance. These two alarms will appear with the word "SERVICE TIME ALERT", will turn on the red light of "GENERAL ALARMS" and put a sound signal. Pressing the "RESET" everything will return to normal until the third alarm that will appear with the word "TIME SERVICE / MAINTENANCE NEED", will turn on the red light of "GENERAL ALARMS" and put a sound signal. Pressing the "RESET", the compressor will run again but the word "TIME SERVICE / MAINTENANCE NEED" will continue to appear until the service personnel will provide the service and the reset of the alarm.

To go to the next page, you must press the button again PAGE

This screen displays the voltage of the power line in Volts "LINE VOLTAGE" and absorption of the compressor in Ampere "MOTOR CURRENT". These data are used to monitor the proper functioning of the engine according to the voltage. If the motor has an abnormal absorption, it will generate an alarm, the display will show "OVER CURRENT MOTOR", will turn on the red light of "GENERAL ALARMS" and put a sound signal and the compressor turns off automatically. Pressing the "RESET" everything will return to normal, but you should pay attention to this warning because the engine has been absorbing more than they should, and if it occurs more than once, contact technical support.

To go to the next page, you must press the button again PAGE.

This page displays the temperature in ° C or ° F according to the selection made in the page. "TEMPERATURE / SELECTION ° C / F"

5.03 USE MODE 'AUTOMATIC (CHARGING STORAGE, REAR OUTPUT):

Mode "AUTOMATIC" is set, with the parameters of the control panel, the operator at the time of installation of the machine.

This mode is used when you want to load a storage of cylinders.

With the AUTO mode, the operator must set the maximum pressure in the technical parameters of the compressor off, and the minimum pressure to restart the compressor. In this mode, we can always have load of gas storage, and the time in which the gas falls below the minimum threshold, the compressor restarts automatically, stopping at the set maximum pressure.

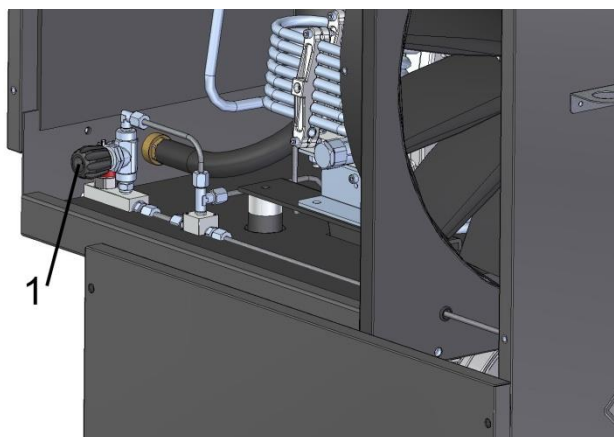
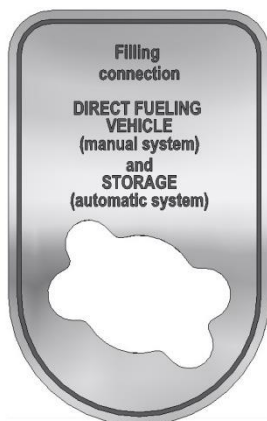
With this mode, we must also close the fuel valve

"AUTOMATIC = CLOSED" place inside the cabinet of the compressor (visible on the picture and indicated with the No. 1), and also this will be made by the operator at the time installation.

After the charging of the storage, the compressor discharge gas remaining in the pumping unit, leaving the pressure in the outlet pipe that goes back to the stock.

The fitting connection with the ramp is located in the back and you can identify with the adhesive FILLING CONNECTION visible on the right.

The maximum pressure that can be set, is 330 bars. Above this pressure, comes into action, the safety valve conveyed, and after some minutes the compressor also stops and goes into alarm.



5.04 USE MODE 'MANUAL (CHARGING VEHICLE OUTPUT FRONT or REAR OUTPUT):

The "MANUAL" mode is set, with the parameters of the control panel, the operator at the time of installation of the machine.

This mode is used when you want to load a car or cylinder, manually, by the front exits, up to a maximum of four devices.

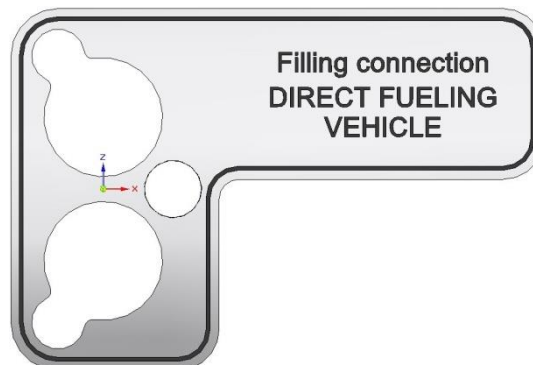
With this mode, we must also open the tap inside the cabinet of the compressor to "MANUAL = OPEN", and this will be made by the operator at installation.

In manual mode, the maximum pressure charging, is calculated by the electronic control panel on the basis of a given logarithm (P30 / P36) that is based on the outside temperature. The outside temperature is communicated to the control panel via the temperature sensor located inside the compressor.

Whenever a charging ends, the compressor will not restart automatically, but the operator will have time to remove the vehicle or canister, stick 'a blank, and press the "START" to restart charging.

After the charging, the solenoid valve of the compressor discharge, will clear both the compressor and the tube connection fittings hoses.

Moreover, in manual mode, it is mandatory to check the presence of the cap back on the output for charging storage.



5.05 FITTINGS AVAILABLE FOR CHARGING VEHICLES AND WHIPS CONNECTION:

The mandrels available for charging the vehicles are various and diverse. You should be sure how well it will use the compressor and only then you can decide what type of spindle to use, as in the photo below.

NGV1-P30 (Black)
NGV1-P36 (Yellow)



QUICK START UP



WARNING: This QUICK does not replace the user manual and maintenance, but is intended to help the operator when the compressor starts, with fast and practical advice, which should be followed with extreme caution, and only after taking vision of all the points of the following booklet.

It is also recalled, for periodic maintenance of the compressor to avoid disappointment.

Getting Started:

- Position the compressor in the desired "ATEX ZONE"
- Connect the pipe rear exhaust
- Connect the rear suction pipe natural gas
- Connect the compressor to the mains
- Turn the main switch on I - ON
- Pay attention to the phase sequence of the electric motor.
- You can see the correct direction of rotation, making
Ensure that air comes out from the top of
compressor, and not from the bottom. (With control sequence
stages the compressor will not turn on and send an error signal)



Recharging operations

- Connect the spindle / tube to the vehicle or to the stock
- Check the page SUCTION PRESSURE there is
input pressure gas
- Open the tap of the vehicle / stock if present
- Start the compressor
- After charging the compressor turns off automatically
- Disconnect the spindle from the vehicle, only when the compressor
vented gas from the rear vent
- Repeat the steps from the first point to the following
Recharge

Maintenance

- Follow the maintenance described on
board of periodic coupons
- Periodically replace the suction filter (if present)
- Periodically replace the refill hoses
- Periodically check the connecting pipes
compressor / vehicle

7.01 MAINTENANCE - MAINTENANCE AND SERVICE:

Because the machine is maintained in an efficient, needs a periodic assistance that, in addition to longer life, will keep its performance constant and efficient.

During his work cycles the compressor requires regular maintenance that will be performed by technicians trained by Nardi Compressors.

If this was not done by our technicians, is very important to follow the guidelines of the sheet of coupons in all its parts.

In the following paper we will find the scheduled maintenance operations to follow based on the hours of work done by the compressor.

It 'very important to record any maintenance performed on the compressor, in order to have a historic materials replaced, with the date of the day of service, the working hours of the compressor up to that point and the signature of the technician who worked on machine.



IMPORTANT: All maintenance operations must be carried out by the technical staff NARDI COMPRESSORS or by qualified personnel.

IMPORTANT: All maintenance operations must be performed at machine switched off and the plug disconnected

7.02 LUBRICATION SYSTEM:

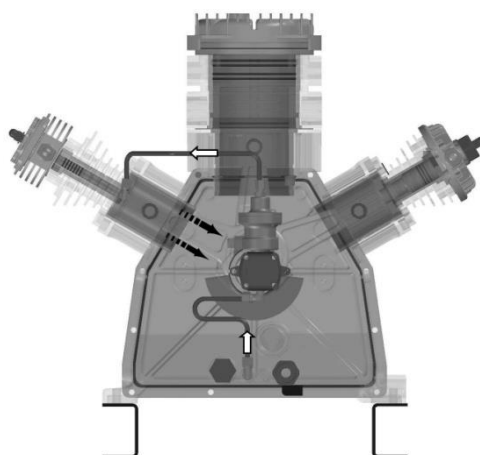
The compressors Nardi have two different lubrication systems:

- **Splash lubrication:** This type of lubrication is carried out in a mechanical way with the movement of the connecting rods.

At their lower ends have a tang that in the rotation it goes to dip into the oil at high speed causing a spray that goes to lick the cylinders and the crankshaft assembly.

- **Forced lubrication:** This type of lubrication is via a gear pump that takes power directly from the tree.

The oil sucked from the lowest point of the case is pumped and filtered by a filter micronic and is sent to the piston guide of the last stage. In his motion goes to spray the oil to all moving parts.



7.03 OIL:

The oil is a component important for the life of the compressor in time. The Nardi Compressors has studied in detail the machine so that it has a large capacity in the hot oil and filtering it. On the case was screwed a magnet to attract all the metallic impurities that are deposited on the bottom.

We recommend the use of oil-specific Nardi Compressors for natural gas, a special oil, designed and tested specifically for this machine. The compressor is usually provided with an oil to be used only for natural gas.

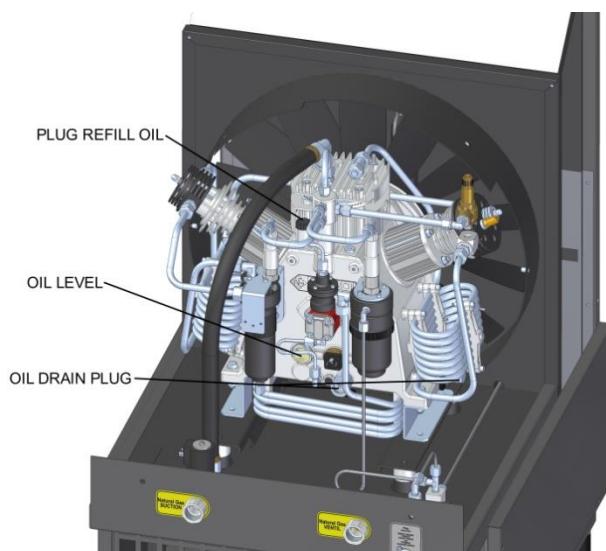
Oil characteristics:

- Minimum deposit
- Effect anti-carbonizzante
- Excellent anti-corrosion properties
- Adaptation physiological and toxicological

7.04 CHANGE OIL :

The steps for oil changes are as follows:

- Make sure you have enough oil to make the change.
- Turn on the compressor for 15-20 minutes to heat the oil and make it more fluid.
- Remove the filler plug together with the oil breather extension.
- Remove the oil drain plug and before opening the tap make sure you have a container.
- Close the drain valve and replace the cap.
- Pour the oil slowly from the cap load.
- Make sure that the maximum (MAX). Do not exceed this level.
- Close the filler cap.



7.05 CHANGE TYPE OIL:

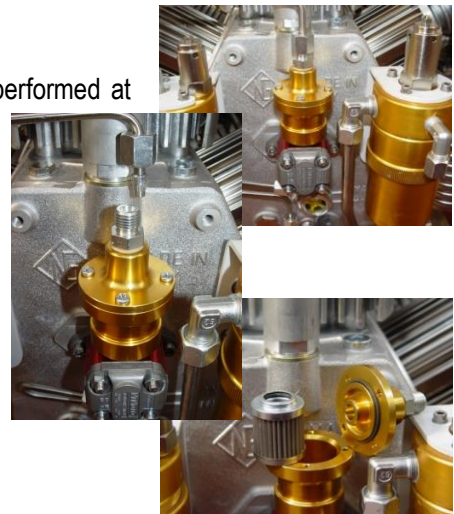
To avoid serious damage to the compressor when changing the type of oil, you need to follow closely the following measures:

- Follow the steps on the oil change Cap. 7:05.
- Change or clean all parts that have old oil.
- After 10 hours of compressor operation check if there is contamination.
- If the oil has been contaminated cater to execute another change.
- Do not mix different types of oil and use the same.

7.06 CHANGE OIL FILTER:

The steps for changing the oil filter are as follows (this operation is to be performed at every oil change)

- Unscrew the union nut that secures the oil feed pipe on the cylinder with a 14mm wrench and unlock it.
- Unscrew the four screws of the tank filter holder with a Phillips screwdriver.
- Lift the cap oil tank with the hose and remove the filter.
- Check if you want to change the O-ring of the oil tank cap.
- Close, turn on the compressor and make sure not leaking oil.



7.07 LEVEL OIL ALARM:

When the oil level drops below the minimum threshold, an alarm is generated visual and sound, with a message on the display alerts the operator that the scarcity of oil in the compressor casing.

E 'need to top up the oil to the compressor, as described above, until to the maximum level. Press "RESET" button on the front panel, so as to reset the alarm and then "START" to share with charging.

In the event that, within a short time, the alarm is persistent oil level, must call a technician who controls the possible fault.



7.08 SEPARATOR:

The machine is equipped with two intermediate separators, which have the function of blocking the impurities present in the gas, before they reach the last stage, and then the compressor outlet.

Mounted on the separators, safety valves are conveyed, which come into action in the event of malfunctions or anomalies during compression.

Inside of the separators there are filter elements that must be changed periodically.

The operations to be performed for the change of the filter elements are the following:

- Wait 30 minutes after the compressor stop, before performing the operation.
- Unscrew the lower part of the separators.
- Unscrew the filter element and replace it with the new one.
- Clean the bottom of the inside with a damp cloth and check that there is no corrosion.
- Replace the O-ring seal.
- Replace the filter with force.

7.09 SOLENOID INTAKE AND EXHAUST GAS:

The machine is built with the safety key, such as the solenoid valve in the suction, which opens the passage of the intake gas only with the compressor on, and closes again when the compressor is switched off or has finished charging.

The solenoid valve of the exhaust gas, however, works on the contrary, closing the exhaust passage while the compressor is working, and opens the outlet immediately after turning off of the latter, while leaving the remaining gas in the various stages of compression and emptying the rest of the residual gas in the various parts of the compressor.

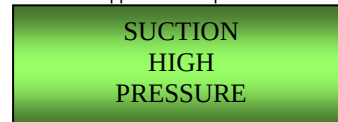
7.10 MINIMUM AND MAXIMUM PRESSURE TRANSDUCERS:

To ensure the proper compressor suction, place the transducer at the compressor, check the pressure in the suction and communicates to the control panel if the pressure is adequate or too low or too high. If the inlet pressure were to be too low or too high, the electronic control panel general alarm as described below

Pressione bassa in aspirazione

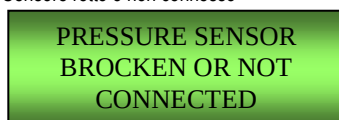


Pressione troppo alta in aspirazione



The maximum pressure transducer instead, is located at the outlet of the compressor, and communicates with the electronic control panel transmitting the actual pressure of the gas outlet, visible on the main page of the display. In the case where the transducer is damaged, the display generates an alarm as described below. You should immediately call a technician who will replace the part

Sensore rotto o non connesso

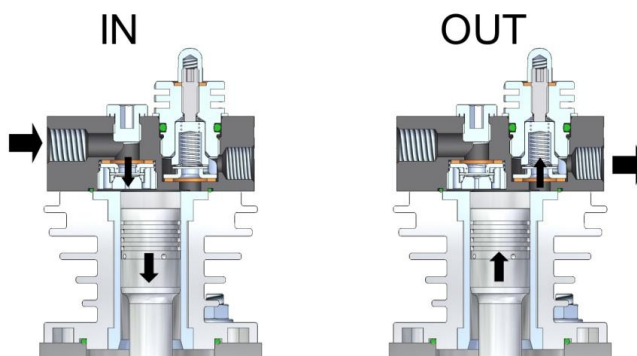


7.11 HEADS AND VALVES COMPRESSION:

The intake valves or exhaust are or plates or lamellae. Normally the first stage it is constituted by a reed valve and they will open and close according to the flow of air that is created by the moving piston.

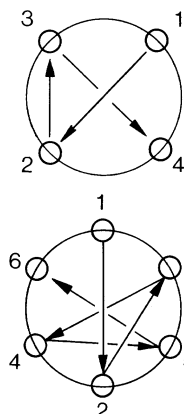
The system operation is the same for all stages but change the size of the valves and of the plates.

It 'important that valve replacement and cleaning of them is performed by trained personnel.



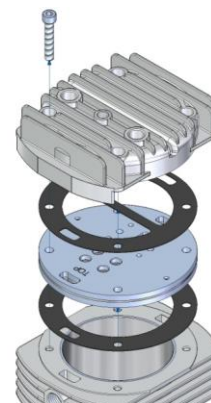
The rules to follow to restore are:

- Replace all the parts that make up the valve and not just some details.
- Carefully clean the valves and remove all carbon deposits without scratching the valve.
- Be careful when the sequence of the components are reassembled.
- If the valve of the nicks are present due to wear, change the valve.
- Replace o-ring seal.
- Pay attention to the figure appears indicating the closing sequence of the screws of the head.
- After performing the maintenance of valves, turn on the compressor for 30 - 40 minutes, turn it off and check the closing of the screws and the grains that compress the exhaust valve / flow cylinder side.
- The valves can be inspected every 500 hours of work.
- After 1500 hours of work should be replaced in all their components.



7.12 VALVE REPLACEMENT 1ST STAGE:

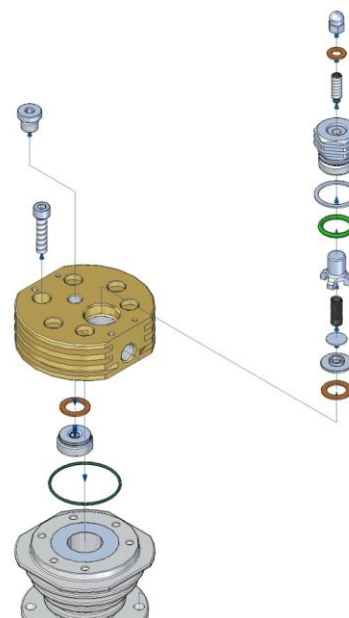
Observe very well the figure for the exact positioning of the valve and make sure the letters TOP or the letter T is facing upwards. If the seals or O-rings are not intact, replace them.



7.13 VALVE REPLACEMENT 2ND STAGE:

The steps for the replacement or cleaning of the valve are the following:

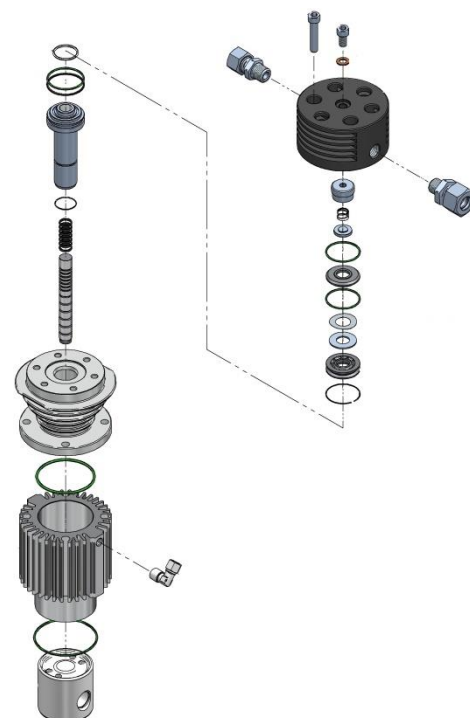
- Disconnect the cooling tubes from the fittings.
- Remove the screws and detach completely from the cylinder head.
- Fix the head in a vice.
- Unscrew the valve bodies (one of these bodies must be unscrewed with a particular key to be requested at Nardi Compressors).
- Clean and remove all debris.
- If signs of wear, change the worn parts.
- Replace all components with the same sequence by changing the seal rings.
- On the lower part of the head there are three points that need to be incised with a punch after it has set the valve.
- Test the operation of the valve by blowing compressed air in the flow direction.
- Check the O-ring seal and replace if damaged.
- Attach the head to the cylinder.
- Secure the cooling pipes.



7.14 VALVE REPLACEMENT 3RD STAGE:

The steps for the replacement or cleaning of the valve are the following:

- Disconnect the cooling tubes from the fittings.
- Remove the screws and detach completely from the cylinder head.
- Fix the head in a vice.
- Unscrew the valve bodies (one of these bodies must be unscrewed with a particular key to be requested at Nardi Compressors).
- Clean and remove all debris.
- If they are worn to change the worn parts.
- Replace all components with the same sequence, changing the seal rings.
- On the lower part of the head there are two points that should be engraved with an awl after it has set the valve.
- Test the operation of the valve by blowing compressed air in the flow direction.
- Check the O-ring seal and replace if damaged.
- Attach the head to the cylinder.
- Secure the cooling pipes.



7.15 SAFETY VALVES:

These valves are critical to the safety of the operator and the compressor. Valves are calibrated to a certain pressure, that discharge air in the event of faults or malfunctions. thou
Each cylinder is equipped with a safety valve, and each valve has a calibration set different:

SAFETY VALVE	MAX PRESSURE
1 STAGE	7 BAR
2 STAGE	65 BAR
3 STAGE	330 BAR



**NOT 'ALLOWED TO CHANGE THE PRESSURE CALIBRATION
NONE OF VALVE. ANY CHANGES CAN 'CAUSE SERIOUS INJURY AND
VOID THE WARRANTY !!**



7.16 FITTING TUBE CONNECTION:

It's very important to keep in optimal conditions the whips of connection, and replace them periodically.

We recommend replacing the hoses every 2 years, or in the presence of abrasions or scratches on the tube, or the presence of rust on fittings.

Must visually inspect the hoses before each refill.

Keep whips away from direct sunlight to prevent premature aging of the tube, and keep at a temperature between 80 / -40 ° C.

The minimum bending radius must not be less than 400mm.

Do not operate the compressor if you just turned off. Wait for the system to cool and control very well the tightening of connections when replacing whips.

The tube Nardi Compressors is designed especially for natural gas, micro and antistatic.



The spindle for the charge of methane, is placed at the end of the pipe charging, on the fitting that goes directly to the vehicle. In this way is maintained under pressure throughout the system, including whips, so as to eliminate any infiltration of moisture in the latter, further optimizing the quality of the gas.

Moreover, once the charging is completed, the pressurized gas in the tube and in the spindle, is automatically downloaded without the need to do it manually.

Place the spindle in the bracket housing, at the front of the compressor.

7.17 SPECIAL WASTE DISPOSAL:

Disposal of the compressor or components must be done in accordance with the rules in force in the country of installation.

7.18 ELECTRONIC BOARD ALLARM:

“SEQUENCE OR/PHASE FAILURE” the alarm sequence or phase failure.

When this alarm is audible and visual, the electrical panel remains locked in this page until the time when it will be restored to the correct phase. The alarm can not be reset by the RESET button.

SEQUENCE OR
PHASE FAILURE

“OVER CURRENT/MOTOR” the alarm of excessive current absorption of the motor above the set value.

When this alarm is audible and visual display is instantly switched off the electric motor and will remain until such time as the defect will be restored. The alarm can be reset by the RESET button.

OVER CURRENT
MOTOR

“UNDER CURRENT/MOTOR” The alarm not to absorption of motor current.

If you were to break one or more fuses or stop one or more connecting wires to the electric motor, the current no longer flows through the electric motor, below the electronic system detects this abnormality by generating the alarm is audible and visual, simultaneously is off the electric motor. The minimum current is set by default to half of the value set in Pag. 11 The alarm can be reset by the RESET button

UNDER CURRENT
MOTOR

“LINE/OVER VOLTAGE” Warn of excessive line voltage.

If the mains voltage exceeds the value of 10% over the voltage selected is the alarm is audible and visual "LINE / OVER VOLTAGE".

The alarm can be reset by the RESET button when the voltage falls below 10%.

LINE
OVER VOLTAGE

“LINE/UNDER VOLTAGE” below the alarm line voltage.

If the voltage drops below the value of 15% from the voltage selected is the alarm is audible and visual "LINE / UNDER VOLTAGE".

The alarm is reset by the RESET button when the voltage value drops below 15%.

LINE
UNDER VOLTAGE

“SERVICE TIME/ALERT” 1 maintenance alarm.

After the appearance of this alarm, the compressor can continue to work after you press the RESET button and then press the START button. The compressor will work for a second time the hours set in page 13 "SERVICE TIME BEFORE 000h".

SERVICE TIME
ALERT
(First alarm)

“SERVICE TIME/ALERT” 2 ° maintenance alarm.

After the appearance of this alarm, the compressor can continue to work after you press the RESET button and then press the START button. The compressor will work for a second time the hours set in page 13 "SERVICE TIME BEFORE 000h".

SERVICE TIME
ALERT
(Second alarm)

“000h BEFORE/SERVICE TIME” 3 ° the maintenance alarm.

After the appearance of this alarm "NEED SERVICE" the compressor MAY 'work even after you press the RESET button and then press the START button. AT THIS POINT YOU MUST CALL THE SERVICE.

NEED
SERVICE
(Third alarm)

“PRESSURE SENSOR/BROCKEN OR NOT CONNECTED” Alarm pressure sensor broken or not connected.

After the appearance of this alarm is off the compressor immediately. The reset of this alarm can only occur after you restore the defect and then press the RESET button. The restart of the compressor can take place after pressing the START button.

PRESSURE SENSOR
BROCKEN OR NOT
CONNECTED

“OIL LEVEL” the alarm of lack of oil in the compressor.

After the appearance of this alarm is off the compressor immediately. Default Reset the alarm may occur only after restoring the defect and then press the RESET button. The restart of the compressor can take place after pressing the START button.

OIL LEVEL

“WRONG FILLING TIME” error alarm filling the tank when the pressure in the same were to have a pressure drop of more than 20 bar, or if the pressure in the reservoir should remain constant for a time of 5min.

After the appearance of this alarm is off the compressor immediately. Default Reset the alarm may occur only after restoring the defect and then press the RESET button. The restart of the compressor can take place after pressing the START button.

WRONG
FILLING
TIME

“LOW ROOM TEMPERATURE” the low temperature alarm below -24 ° C) in the environment where it is placed the compressor and electrical panel.

After the appearance of this alarm is off the compressor immediately. Default Reset the alarm may occur only after the temperature rises above -23 ° C and then pressing the RESET button. The restart of the compressor can take place after pressing the START button.

LOW ROOM
TEMPERATURE

“HIGHT ROOM TEMPERATURE” the alarm of the high temperature (above 45 ° C) in the environment where it is placed on the compressor and the electrical panel.

After the appearance of this alarm is off the compressor immediately. Default Reset the alarm may occur only after the temperature has dropped below + 44 ° C and then

HIGHT ROOM
TEMPERATURE

pressing the RESET button. The restart of the compressor can take place after pressing the START button.

“LACK INPUT GAS” failure alarm inlet pressure of the compressor.

After the appearance of this alarm is off the compressor immediately. Default Reset the alarm may occur only after restoring the defect and then press the RESET button.

LACK
INPUT
GAS

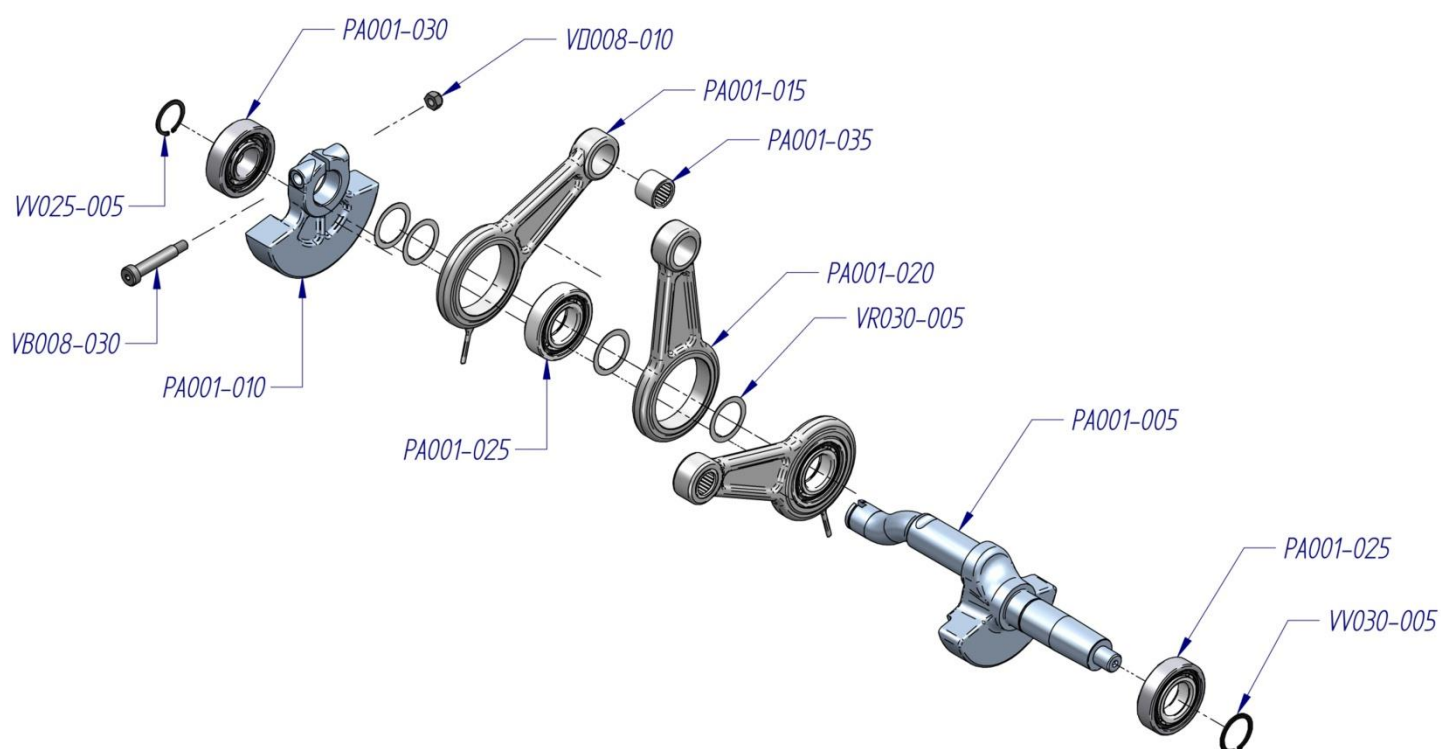
“SUCTION HIGH PRESSURE” he alarm high pressure inlet of the compressor.

After the appearance of this alarm is off the compressor immediately. Default Reset the alarm may occur only after restoring the defect and then press the RESET button.

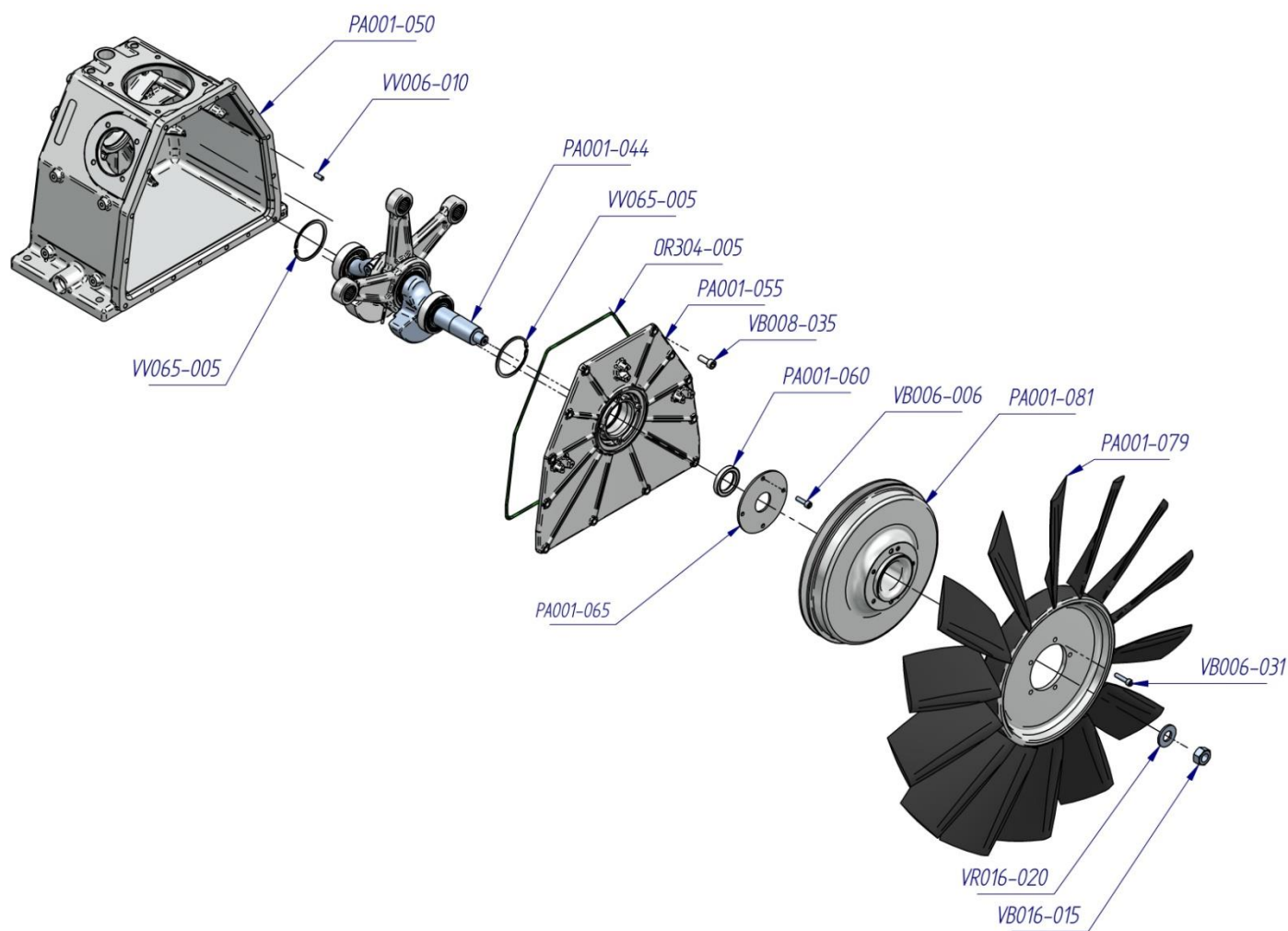
SUCTION
HIGH
PRESSURE

7.20 TROUBLESHOOTING:

PROBLEM	CAUSE	SOLUTION
The compressor will not turn on	- Electric current absent - Checking fuses - Electric current is too low	- Control power line - Sostituzione defective fuse - Control power line
The compressor discharge oil from the exhaust gas back	- Shallow gas flow in the suction - Pressure too close to the minimum allowable suction - Elastic band piston route	- Increase the range - Increase the pressure of the suction gas - Replace the piston ring broken
The electric motor does not work	- Problems with the electrical circuit - No phase current	- Reverse the motor phases - Check fuses - Check that there is sufficient electrical current - Check that power is coming to the engine
The speed of rotation and the flow rate decrease	- The current to the motor is insufficient - The belt slips	- Check that there is sufficient electrical current - Check the electric motor - Check the belt tension - Belt Replacement
The flow rate decreases (no lowering of rotation)	- Loose fittings - Seals worn - Suction filter clogged - Piston rings worn - Extension suction clogged - Valves not working	- Tighten fittings - Replace the seals - Replacing or cleaning filter - Replace the piston rings - Check the suction pipe - Replacing or cleaning valves - Increase the suction capacity
Does not reach the maximum pressure	- Shallow gas flow in the suction - Piston rings worn - Piston overly consumed - Premature opening of the safety valve	- Replacing piston rings worn - Replace worn piston - Cleaning safety valve - Safety valve calibration - Replace safety valve
The safety valve of an intermediate stage loses air	- Pressure stage too high - Premature opening of the safety valve - Valves dirty or not working	- Problems pressure next stage - Cleaning safety valve - Safety valve calibration - Replace safety valve - Replacing the intake valves cylinders
The compressor overheats	- Direction of rotation opposite - Step cooling air obstructed - Closing the valves incorrect	- Invert the phases of the electric motor - Prolonged exposure to the sun - Checking, cleaning or replacing valves ° T too high ambient (+45 ° C Max) - Check the cooling air passages
Excessive oil consumption	- Piston rings worn - Piston overly consumed - Clogged suction filter - Shallow gas flow in the suction	- Replacing piston rings worn - Replace worn piston - Clean suction filter - Replace suction filter - Increase the gas flow in the intake
The compressor will not turn off automatically The speed of rotation and the flow rate decrease	- Safety valve last stage not working - Transducer communicates hurt	- Cleaning safety valve - Safety valve calibration - Replace safety valve - Replacement transducer

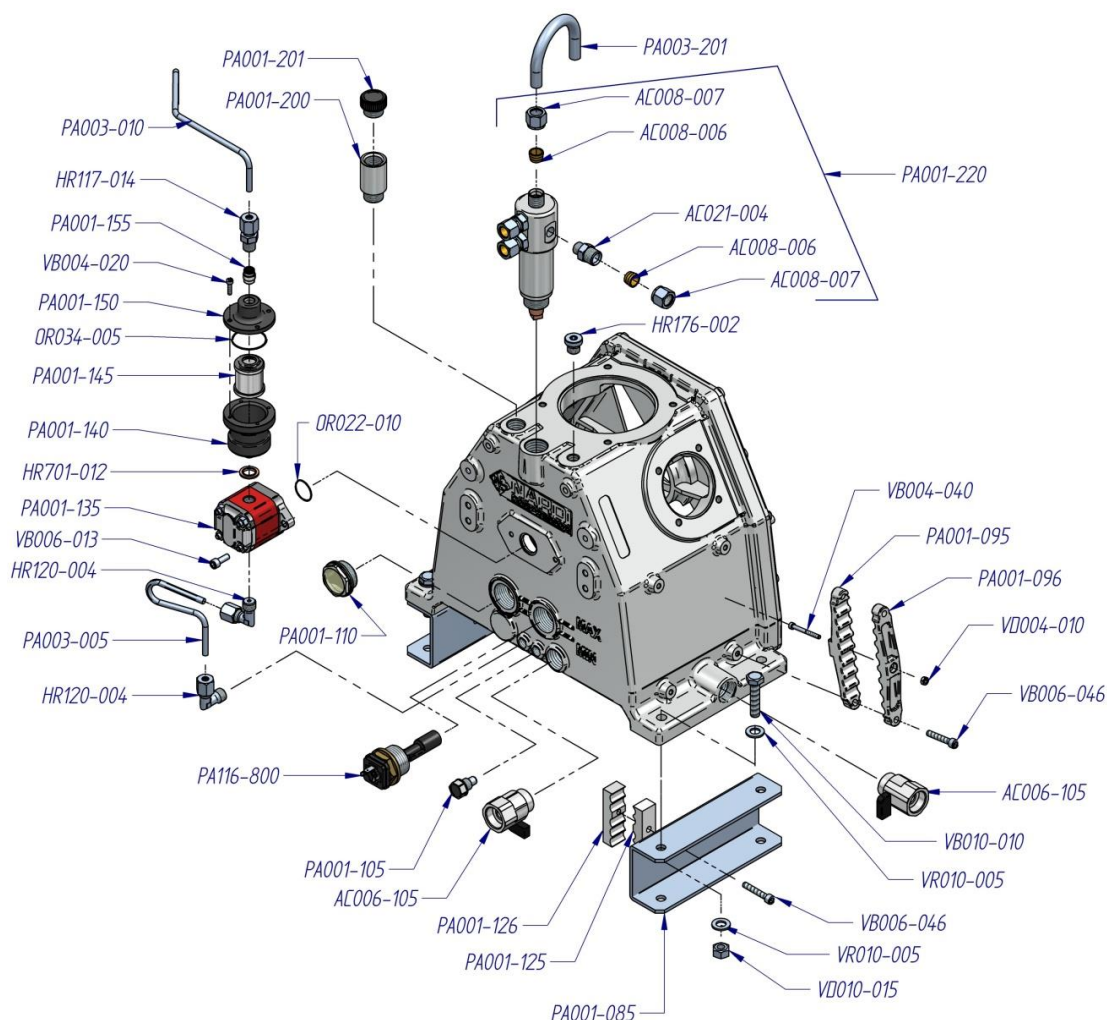


CODE	DESCRIPTION		CODE	DESCRIPTION		CODE	DESCRIPTION	
PA001-005	Albero motore		PA001-025	Cuscinetto		VD008-010	Dado	
PA001-010	Contrappeso albero		PA001-030	Cuscinetto		VR030-005	Rondella	
PA001-015	Biella con sbatti olio		PA001-035	Cuscinetto		VV025-005	Anello di sicurezza	
PA001-020	Biella		VB008-030	Vite		VV030-005	Anello di sicurezza	

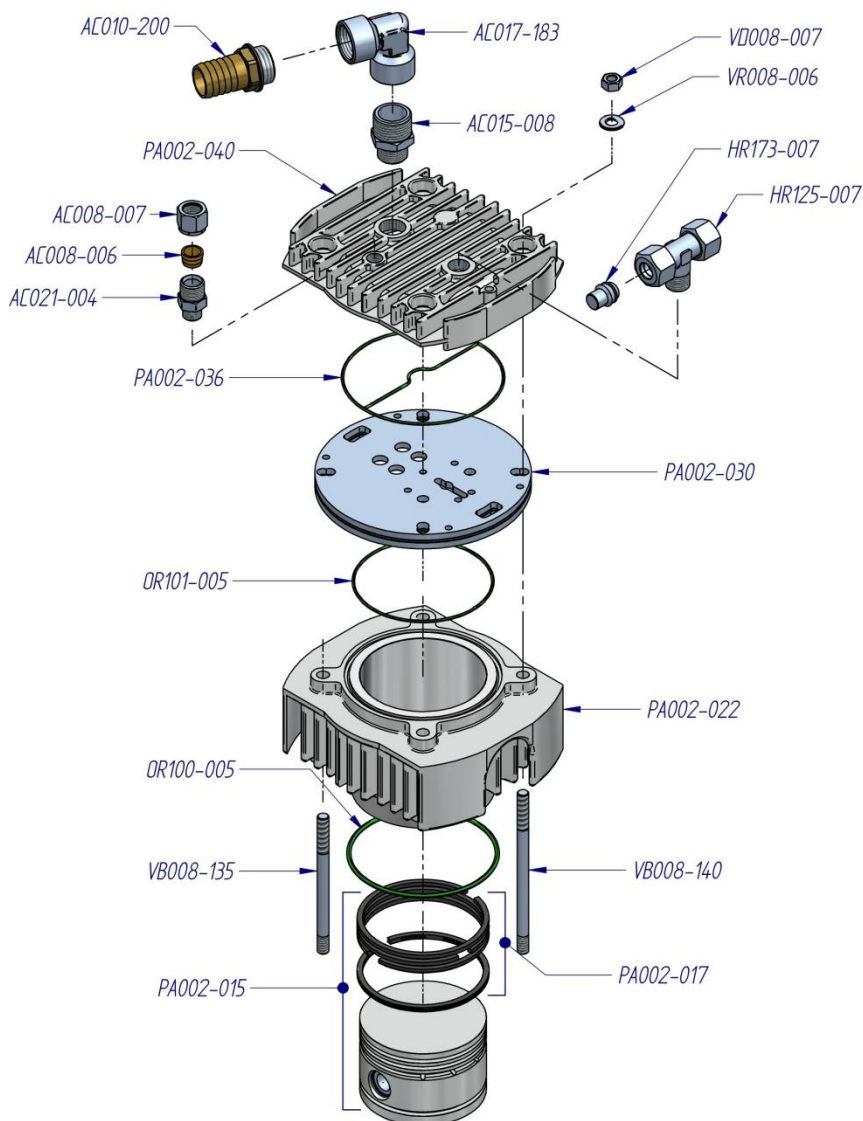


CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
OR304-005	O-ring	PA001-065	Flangia paraolio	VB008-035	Vite
PA001-044	Albero completo con bielle	PA001-081	Puleggia	VB016-015	Dado
PA001-050	Monoblocco	PA001-079	Ventola	VR016-020	Rondella
PA001-055	Flangia monoblocco	VB006-006	Vite	VV006-010	Spina di centraggio monoblocco
PA001-060	Paraolio	VB006-031	Vite	VV065-005	Anello di sicurezza

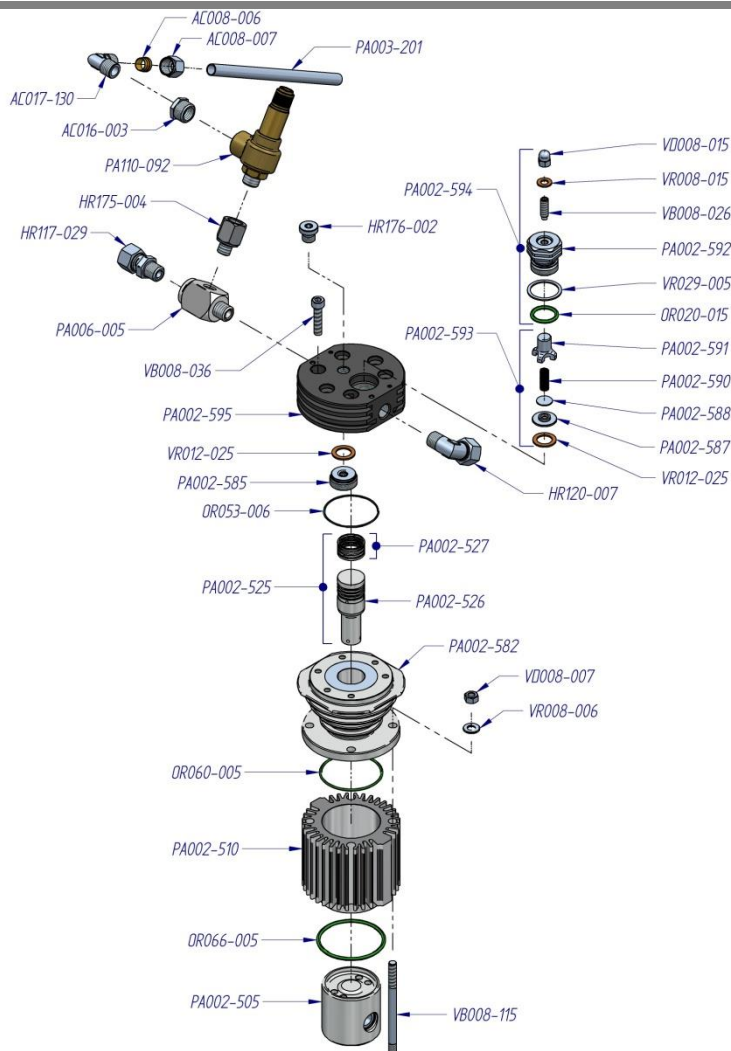
**PEZZI DI RICAMBIO
CNG 5
CASSA CON ACCESSORI**



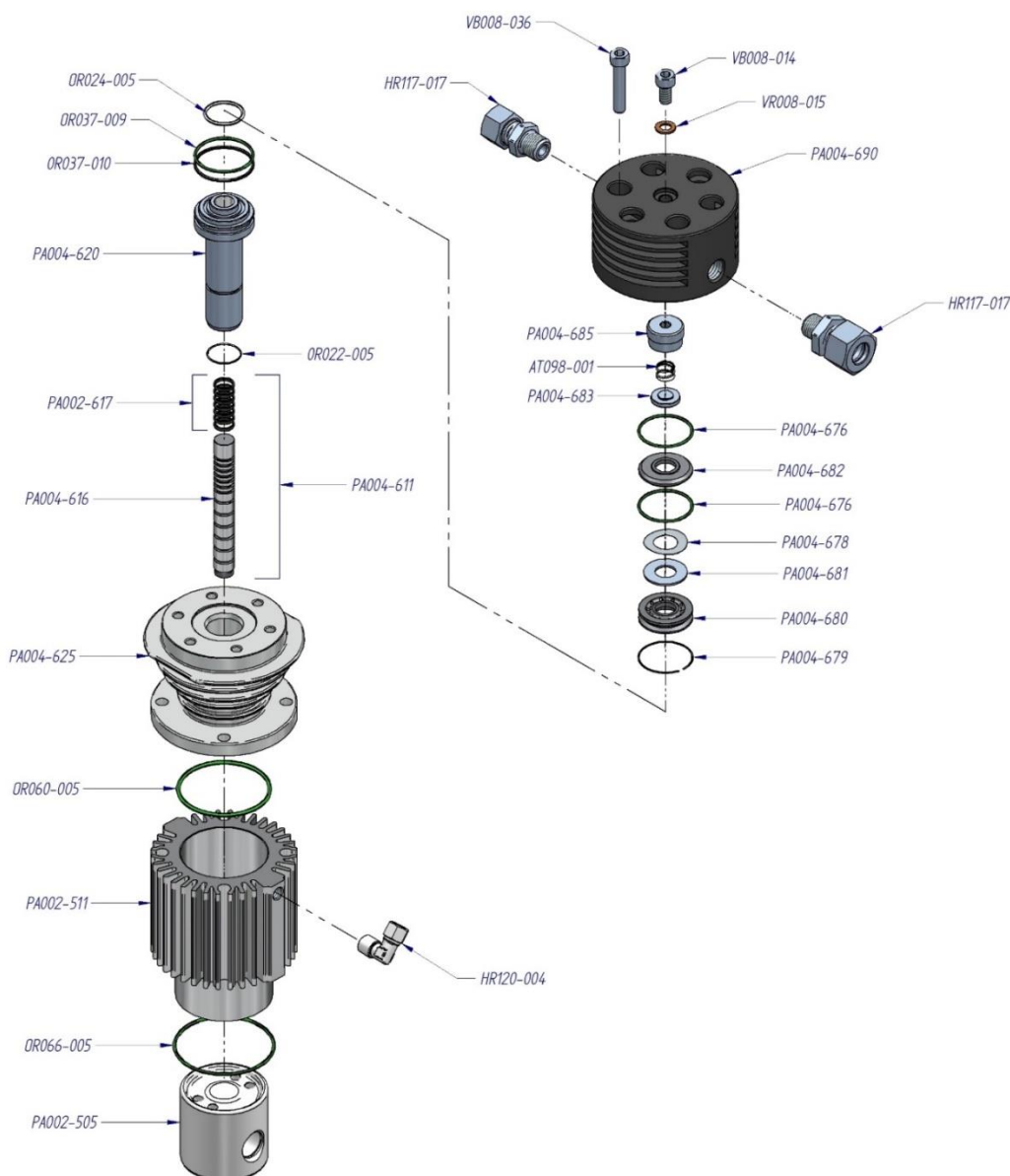
<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>	
AC006-105	Valvola a sfera		PA001-105	Tappo magnetico		PA003-010	Tubo pompa olio	
AC008-006	Ogiva per tubo 12mm		PA001-110	Indicatore livello olio		PA003-201	Tubo sfciato olio	
AC008-007	Dado per tubo 12 mm		PA001-125	Supporto tubo di raffreddamento		PA116-800	Livellostato olio	
AC021-004	Raccordo riduzione		PA001-126	Supporto tubo di raffreddamento		VB004-020	Vite	
HR117-014	Raccordo G1/4" per tubo 6mm		PA001-135	Pompa olio		VB004-040	Vite	
HR120-004	Raccordo "L" G1/4" per tubo 6mm		PA001-140	Corpo vaschetta filtro olio		VB006-013	Vite	
HR176-002	Tappo di chiusura G1/4"		PA001-145	Filtro olio		VB006-046	Vite	
HR701-013	Rondella		PA001-150	Tappo vaschetta filtro olio		VB010-010	Vite	
OR022-010	O-ring		PA001-155	Valvola di non ritorno olio		VD004-010	Dado	
OR034-005	O-ring		PA001-200	Vaschetta rabbocco olio		VD010-015	Dado	
PA001-085	Staffa supporto compressore		PA001-201	Tappo		VR010-005	Rondella	
PA001-095	Supporto tubo di raffreddamento		PA001-220	Assieme sfciato olio				
PA001-096	Supporto tubo di raffreddamento		PA003-005	Tubo pompa olio				

PEZZI DI RICAMBIO
CNG 5
1° STADIO


CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC008-006	Ogiva	OR100-005	O-ring	VB008-135	Vite
AC008-007	Dado	OR101-005	O-ring	VB008-140	Vite
AC010-200	Raccordo resca DN25	PA002-015	Pistone completo	VD008-007	Dado
AC015-008	Raccordo riduzione	PA002-017	Set segmenti pistone	VR008-006	Rondella
AC017-183	Raccordo "L"	PA002-022	Cilindro 1° stadio		
AC021-004	Raccordo riduzione	PA002-036	Guarnizione		
HR125-007	Raccordo T	PA002-030	Piastra valvolare 1° stadio		
HR173-007	Tappo di chiusura 12 mm	PA002-040	Testa 1° stadio		

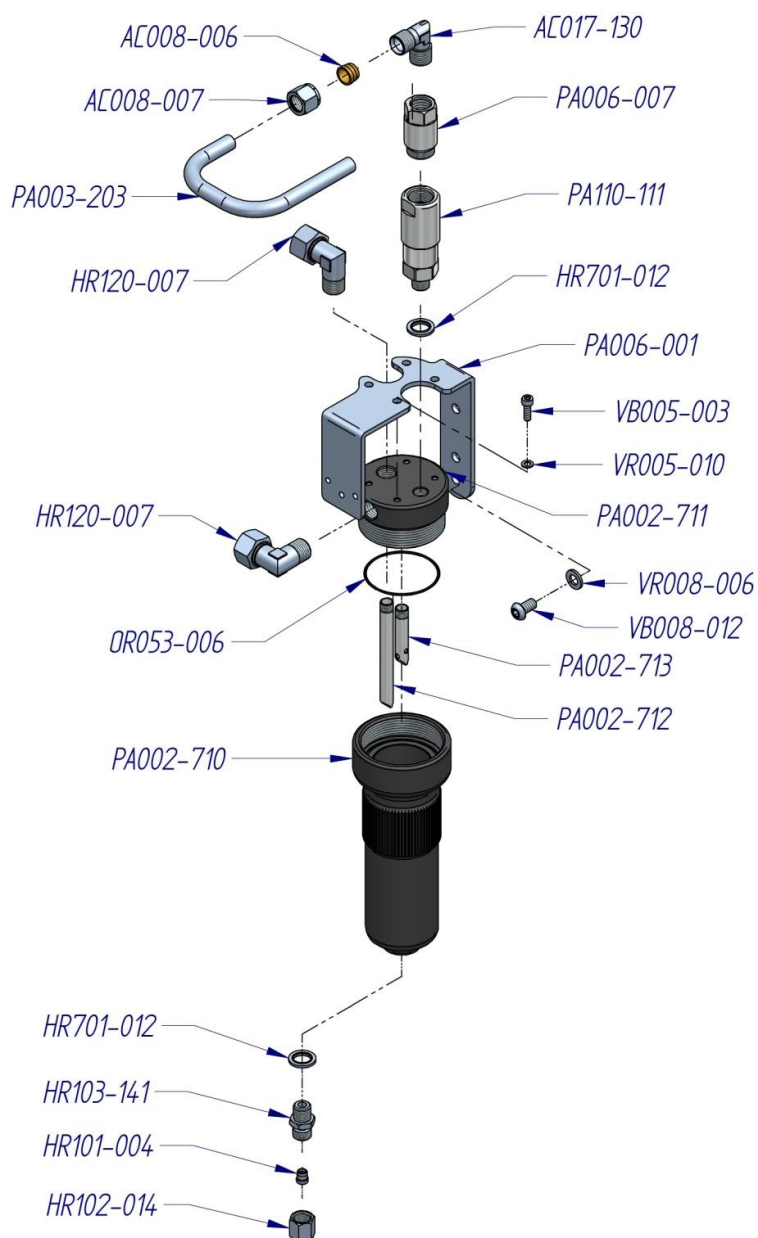
PEZZI DI RICAMBIO
CNG 5
2° STADIO


CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC008-006	Rondella	PA002-510	Cilindro	PA002-595	Valvola testa
AC008-007	Dado	PA002-525	Pistone completo con segmenti	PA003-201	Tubo raccordo
AC016-003	Raccordo riduzione	PA002-526	Pistone	PA006-005	Raccordo valvola
AC017-130	Raccordo L	PA002-527	Set segmenti pistone	PA110-092	Valvola di sicurezza
HR117-029	Raccordo HP	PA002-582	Cilindro	VB008-026	Vite
HR120-007	Raccordo "L" 3/8"G per tubo 12 mm	PA002-585	Valvola aspirazione	VB008-036	Vite
HR175-004	Raccordo riduzione	PA002-587	Base valvola	VB008-115	Vite
HR176-002	Tappo 1/4"	PA002-588	Piastra valvolare	VD008-007	Dado
OR020-015	O-ring	PA002-590	Molla valvola di scarico	VD008-015	Dado
OR053-006	O-ring	PA002-591	Inserto valvola	VR008-006	Rondella
OR060-005	O-ring	PA002-592	Corpo valvola	VR008-015	Rondella
OR066-005	O-ring	PA002-593	Inserto valvola di scarico	VR012-025	Rondella
PA002-505	Guida pistone	PA002-594	Corpo valvola completo	VR029-005	Rondella

**PEZZI DI RICAMBIO
CNG 5
3° STADIO**


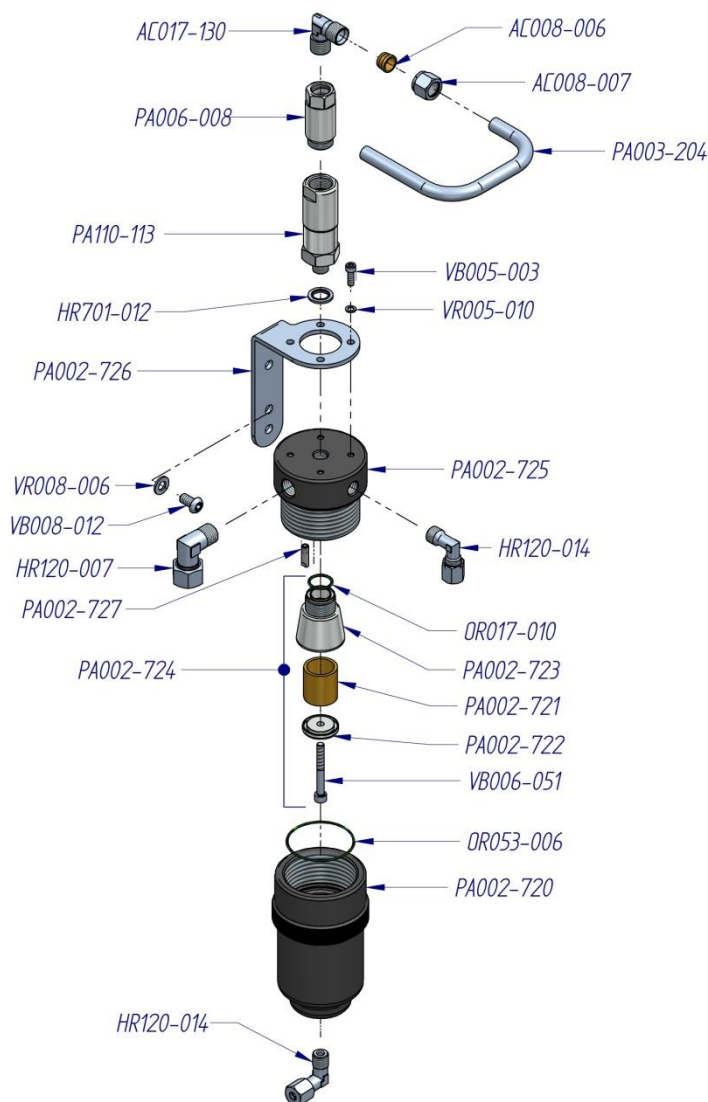
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
HR117-031	Raccordo dritto	PA002-615	Pistone completo con segmenti	VB008-026	Vite
HR120-004	Raccordo "L"	PA002-616	Pistone	VB008-060	Vite
OR017-010	O-ring	PA002-617	Set segmenti pistone	VB008-115	Vite
OR022-005	O-ring	PA002-620	Canna cilindro	VD008-007	Dado
OR024-005	O-ring	PA002-625	Cilindro	VD008-015	Dado
OR060-005	O-ring	PA002-685	Valvola aspirazione	VR008-006	Rondella
OR066-005	O-ring	PA002-690	Valvola testa	VR008-015	Rondella
PA002-505	Guida pistone	PA002-695	Valvola di scarico		
PA002-511	Cilindro	PA002-698	Coperchio chiusura piastra valvolare		

PEZZI DI RICAMBIO CNG 5 Filtro separatore

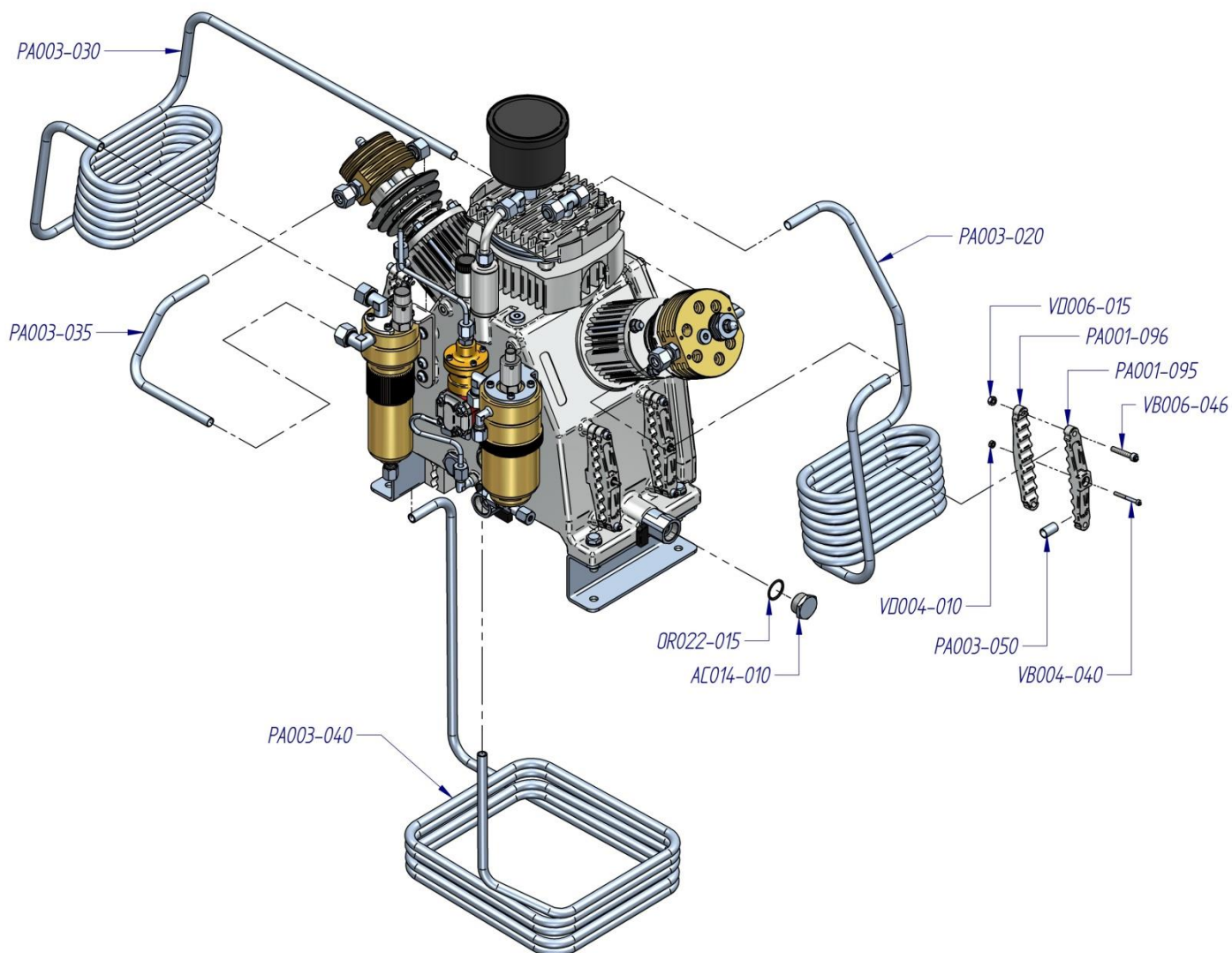


CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC008-006	Raccordo	OR053-006	O-ring	PA110-111	Valvola sicurezza
AC008-007	Dado	PA002-710	Corpo filtro separatore	VB005-003	Vite
AC017-130	Raccordo L	PA002-711	Tappo filtro separatore	VB008-012	Vite
HR101-004	Raccordo ogiva	PA002-712	Ugello lungo	VR005-010	Rondella
HR102-014	Dado	PA002-713	Ugello corto	VR008-006	Rondella
HR103-141	Raccordo dritto	PA003-203	Tubo connessione		
HR120-007	Raccordo L	PA006-001	Staffa supporto filtro		
HR701-012	Rondella	PA006-007	Raccordo valvola		

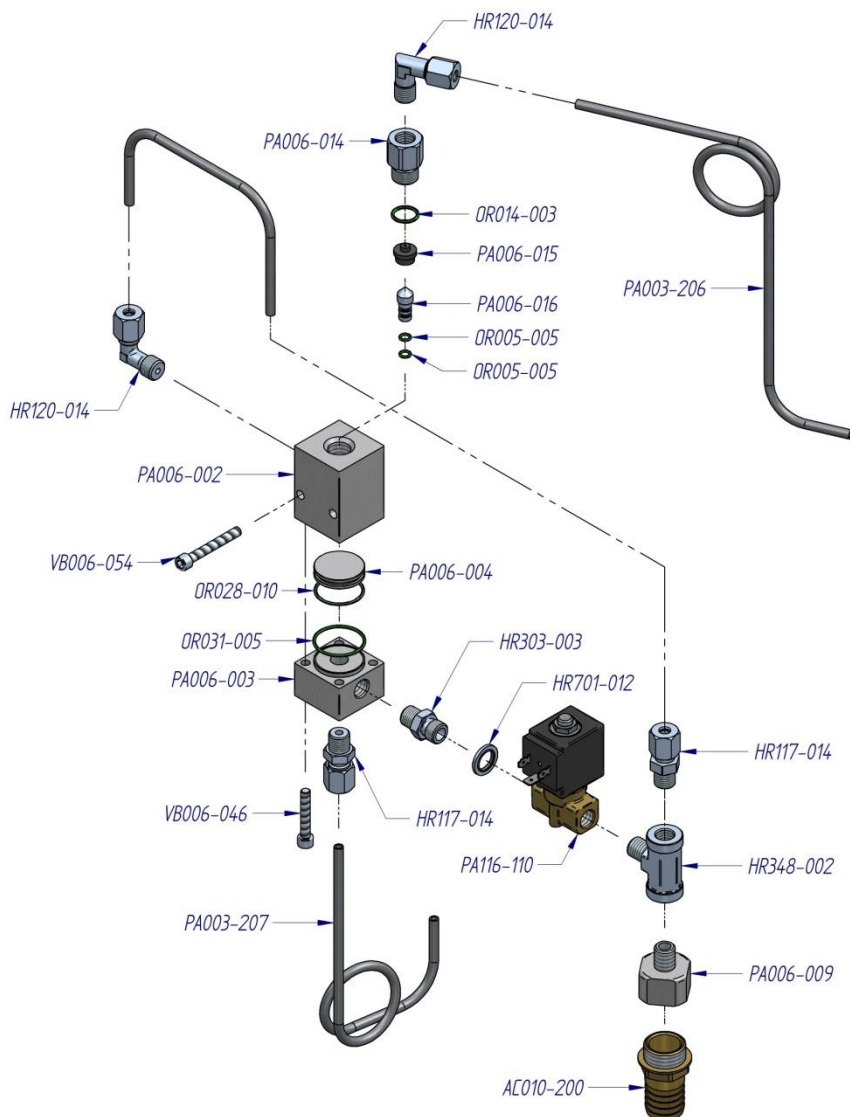
SPARE PARTS CNG 5 Filter separator



CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC008-006	Raccordo	OR053-006	O-ring	PA006-008	Raccordo valvola
AC008-007	Dado	PA002-720	Corpo filtro separatore	PA110-113	Valvola sicurezza
AC017-130	Raccordo L	PA002-721	Filtro	VB005-003	Vite
HR101-004	Raccordo ogiva	PA002-722	Piattello filtro	VB006-051	Vite
HR102-014	Dado	PA002-723	Filtro superiore	VB008-012	Vite
HR103-141	Raccordo dritto	PA002-724	Insieme filtro	VR005-010	Rondella
HR120-007	Raccordo L	PA002-725	Tappo filtro separatore	VR008-006	Rondella
HR120-014	Raccordo	PA002-726	Staffa supporto filtro		
HR701-012	Rondella	PA002-727	Ugello corto		
OR017-010	O-ring	PA003-204	Tubo connessione		

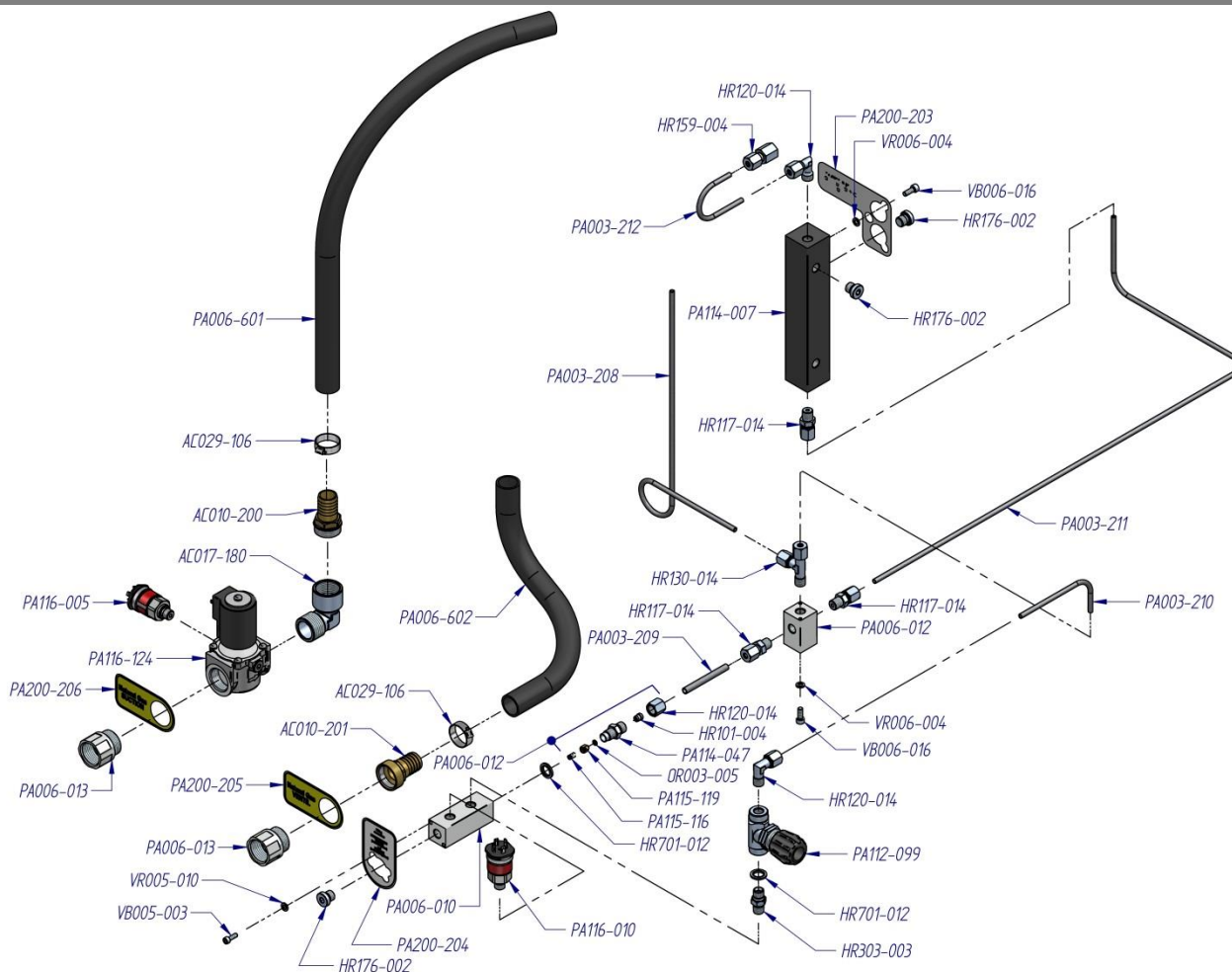


CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC014-010	Tappo	PA003-030	Serpentina di raffreddamento	VB006-046	Vite
OR022-015	O-ring	PA003-035	Tubo di collegamento	VD004-010	Dado
PA001-095	Staffa bloccaggio serpentine	PA003-040	Serpentina di raffreddamento	VD006-015	Dado
PA001-096	Staffa bloccaggio serpentine	PA003-050	Tubo		
PA003-020	Serpentina di raffreddamento	VB004-040	Vite		

PEZZI DI RICAMBIO
CNG 5
Scarico gas


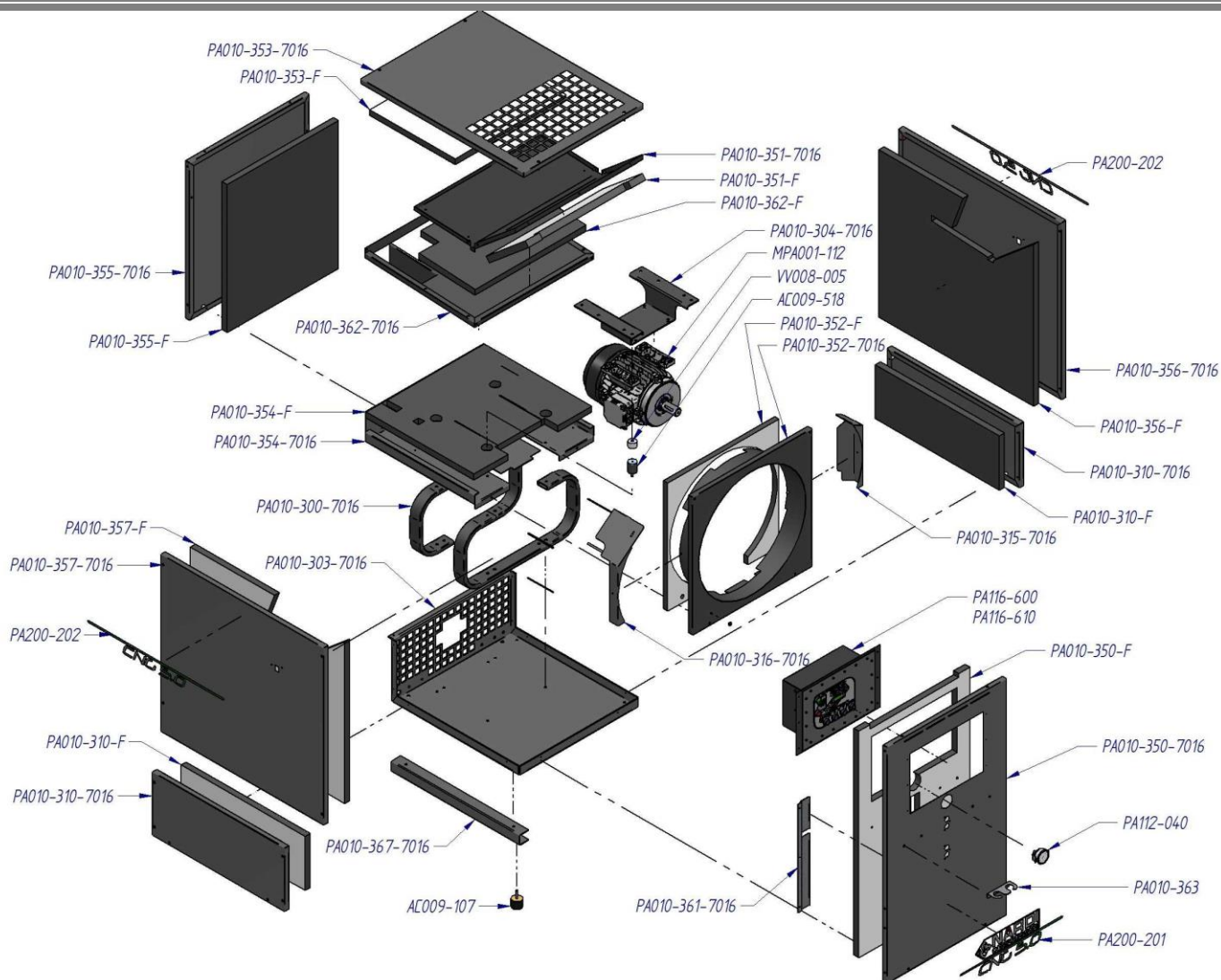
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC010-200	Resca DN25	OR028-010	O-ring	PA006-014	Raccordo blocchetto
HR117-114	Raccordo dritto	OR031-005	O-ring	PA006-015	Piattello scarico
HR120-014	Raccordo L	PA003-206	Tubo connessione	PA006-016	Inserto piattello scarico
HR303-003	Raccordo dritto	PA003-207	Tubo connessione	PA116-110	Elettrovalvola EVM
HR348-002	Raccordo T	PA006-002	Blocchetto Scarico	VB006-054	Vite
HR701-012	Rondella	PA006-003	Base blocchetto	VB006-046	Vite
OR005-005	O-ring	PA006-004	Piattello blocchetto scarico		
OR014-003	O-ring	PA006-009	Raccordo riduzione		

PEZZI DI RICAMBIO
CNG 5
Passaggio gas



CODE	DESCRIPTION		CODE	DESCRIPTION		CODE	DESCRIPTION	
AC010-200	Resca DN25		PA003-209	Tubo connessione		PA116-010	Trasduttore TPM	
AC010-201	Resca DN25		PA003-210	Tubo connessione		PA116-005	Trasduttore TPA	
AC017-180	Raccordo L		PA003-211	Tubo connessione		PA116-124	Elettrovalvola aspirazione gas	
AC029-106	Fascetta stringi tubo		PA003-212	Tubo connessione		PA200-203	Adesivo	
HR101-004	Oqiva		PA006-010	Bloccetto uscita gas		PA200-204	Adesivo	
HR117-014	Raccordo dritto		PA006-012	Bloccetto 3 vie		PA200-205	Adesivo	
HR120-014	Raccordo L		PA006-013	Raccordo uscita gas		PA200-206	Adesivo	
HR130-014	Raccordo T		PA006-601	Tubo aspirazione gas		VB005-003	Vite	
HR159-004	Raccordo dritto		PA006-602	Tubo scarico gas		VB006-016	Vite	
HR176-002	Tappo		PA114-007	Bloccetto uscita gas frontale		VR005-010	Rondella	
HR303-003	Raccordo dritto		PA114-047	Raccordo dritto		VR006-004	Rondella	
HR701-012	Rondella		PA112-099	Rubinetto AUT-MAN				
OR003-005	O-ring		PA115-116	Molla Valvola Non Ritorno HP in acciaio inox				
PA003-208	Tubo connessione		PA115-119	Inserto valvola non ritorno				

PEZZI DI RICAMBIO CNG 5 Passaggio gas



CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC009-107	Piede antivibrante	PA010-351-7016	Mobile CNG5 CONVOG. SUP.	PA010-361-7016	Mobile CNG5 STAFFA CAVI
AC009-518	Antivibrante	PA010-352-F	Fonoassorbente PANNELLO CONVOGLIATORE	PA010-362-F	Fonoassorbente PANNELLO CONV. INT.
MPA001-112	Motore 7,5 Hp trifase ATEX	PA010-352-7016	Mobile CNG5 PANNELLO CONVOGLIATORE	PA010-362-7016	Mobile CNG5 PANNELLO CONVOG.INT.
PA010-300-7016	Tubi supporto telaio	PA010-353-F	Fonoassorbente PANNELLO CONVOG. INTERNO	PA010-363	SUPPORTO MANDRINO
PA010-303-7016	Mobile CNG5 BASE	PA010-353-7016	Mobile CNG5 PANNELLO CONVOG. INTERNO	PA010-367-7016	Mobile CNG5 STAFFA BASE
PA010-304-7016	Mobile CNG5 OMEGA	PA010-354-F	Fonoassorbente PANNELLO BASE COMP.	PA112-040	MANOMETRO 0-400 BAR POSTERIORE
PA010-310-F	Fonoassorbente PANNELLO LATERALE INF.	PA010-354-7016	Mobile CNG5 BASE COMP.	PA116-600	QUADRO ELETTRONICO ATEX 400V.
PA010-310-7016	Mobile CNG5 PANNELLO LATERALE INF.	PA010-355-F	Fonoassorbente PANNELLO POSTERIORE	PA116-610	QUADRO ELETTRONICO ATEX 480V.
PA010-315-7016	Mobile CNG5 DEFLETTORE	PA010-355-7016	Mobile CNG5 PANNELLO POSTERIORE	PA200-201	ADESIVO FRONTALE CNG5
PA010-316-7016	Mobile CNG5 DEFLETTORE	PA010-356-F	Fonoassorbente PANNELLO SUP. DESTRO	PA200-202	ADESIVO LATERALE CNG5
PA010-350-F	Fonoassorbente PANNELLO ANTERIORE	PA010-356-7016	Mobile CNG5 PANNELLO SUP. DESTRO	VV008-005	SPESSORE ANTIVIBBRANTE
PA010-350-7016	Mobile CNG5 PANNELLO ANTERIORE	PA010-357-F	Fonoassorbente PANNELLO SUP. SINISTRO		
PA010-351-F	Fonoassorbente PANNELLO CONVOGLIAT.	PA010-357-7016	Mobile CNG5 PANNELLO SUP. SINISTRO		

9

TABLE PERIODIC CHECKS

EVERY 500 HOURS	DATA	FIRMA OPERATORE
Cleaning the filter inlet compressor		
Control fittings external front and rear		
Checking the connecting pipes spindle		
EVERY 1000 HOURS	DATA	FIRMA OPERATORE
Contact the professional Nardi Compressors		
Replacing suction filter (if present)		
oil change		
Control valve setting security		
EVERY 1000 HOURS	DATA	FIRMA OPERATORE

EVERY 2000 HOURS	DATA	FIRMA OPERATORE
Contact the professional Nardi Compressors		
replacing valves		
ANNUAL OR IF REQUIRED	DATA	FIRMA OPERATORE
Contact the professional Nardi Compressors		
oil change		
Safety relief valve setting		
AFTER REPAIR	DATA	FIRMA OPERATORE
Control operation and sealing		

charge connections		
Cleaning suction filter		
Sealing pipes and fittings cooling pipes		
AFTER A LONG PERIOD OF INACTIVITY '	DATA	FIRMA OPERATORE
Control operation and sealing charge connections		
Cleaning suction filter		
Control pressure transducer / pressure gauge		
ANNUAL OR IF REQUIRED	DATA	FIRMA OPERATORE
Contact the professional Nardi Compressors		
oil change		
Safety relief valve setting		
AFTER REPAIR	DATA	FIRMA OPERATORE
Control operation and sealing charge connections		
Cleaning suction filter		
Sealing pipes and fittings cooling pipes		