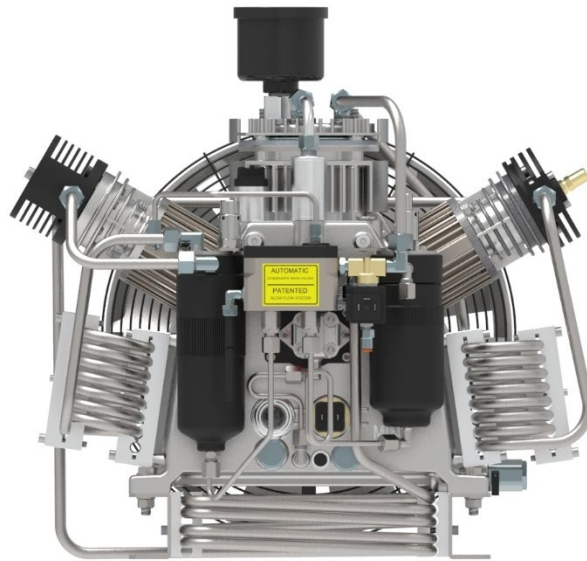




User & Maintenance Manual

Nuvair Compact 300 Compressor Block



Nardi Pacific 30 Block
Nuvair Compact 300
SKU 8033.x-PL-N

Notes

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DESCRIPTION OF THE COMPRESSOR BLOCK

The **Nardi PACIFIC 30** (built into the **Nuvair Compact 300**) compressor block has a range of use for high pressure air up to a maximum of 330 bar (4700 psi). The block consists of three stages driven by three pistons. The first stage is in the center, the second is on the right 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 pipes) 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.

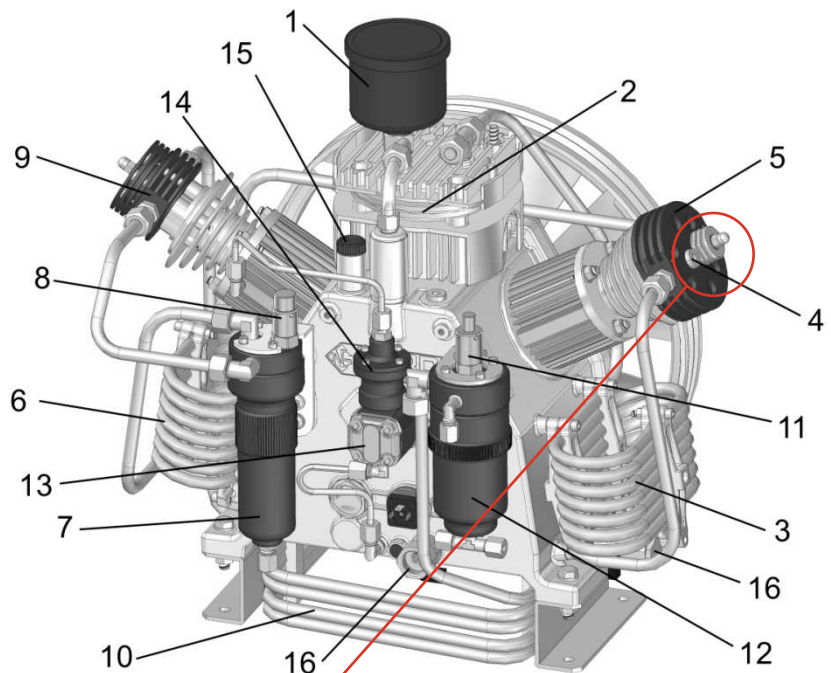
The movement of pistons is transmitted through the connecting rods using roller bearings. The roller bearings have a high workload and as a result the mechanism is very strong. Cylinders are made in aluminum with a barrel in cast iron inside.

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-fed 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 filter 1st stage
2. Compression valve 1st stage
3. Intercooler 1st stage
4. Safety valve 1st stage relocated to bottom of 1st interstage pressure gauge
5. Head 2nd stage
6. Intermediate separator 2nd stage
7. Intercooler 2nd stage
8. Safety Valve 2nd stage
9. Head 3rd stage
10. Intercooler 3rd stage
11. Safety valve 3rd stage and relief valve
12. Intermediate separator 3rd stage
13. Gear oil pump for forced-feed lubrication
14. Oil filter
15. Oil refill plug
16. Oil sump drain plug and tap



MAINTENANCE AND SERVICE

MAINTENANCE OPERATIONS

Your compressor block needs regular maintenance and service over time. In addition to increasing the life of the machine, regular maintenance keeps it performing consistently and running efficiently.

It is very important to track all maintenance operations performed on the compressor, keep a historical record of the parts that have been replaced, the date maintenance was done, the hours of operation of the machine up to the date maintenance is done, and the signature of the qualified technician who serviced the machine.



IMPORTANT: All maintenance operations must be performed by the technical staff of NARDI COMPRESSORI or by qualified technical staff.

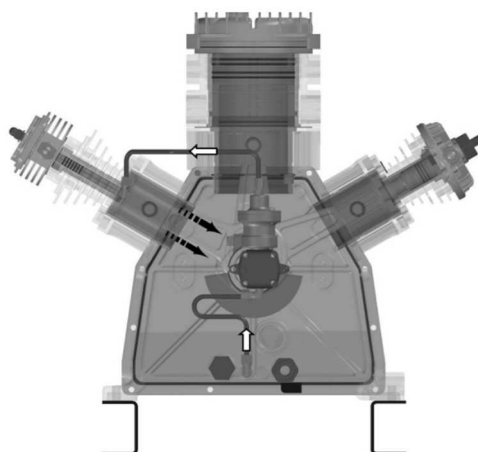
IMPORTANT: All maintenance operations must be performed with the machine switched off and the power cable disconnected.

LUBRICATION SYSTEM

NARDI compressors have two different lubrication systems:

- **Splash Lubrication:** This method of lubrication is done mechanically with the movement of the connecting rod. With every rotation, a dipper, at the bottom of the connecting rod is submerged in oil at high speed. When the dipper emerges from the oil sump in the lower part of the crankcase, the oil is thrown upward as droplets or fine mist, providing adequate lubrication to the cylinders and the crankshaft.

- **Force-feed Lubrication:** This type of lubrication is done through an oil gear pump that force-feeds oil and that is driven by the shaft. Oil sucked from the sump is pumped to the piston of the last stage and filtered by a micron filter. In its movement the oil pump sprays oil to all moving parts.



OIL

Oil is a very important component for the life of the compressor over time. Nardi Compressori has studied in detail the compressor so that it has a large capacity oil sump and oil filter. A magnet has been fixed on the case to attract all metallic impurities that settle at the bottom of the case.

Nardi Compressori recommends using our oil that has been designed and tested specifically for this machine. The compressor is usually supplied with oil to be used only with non-mixed air (21% oxygen).

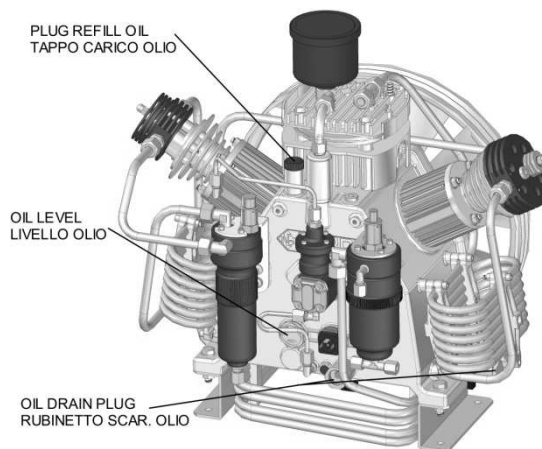
Oil Characteristics:

- Low carbon deposit
- No carbonizing effect
- Good anticorrosive properties
- Physiological and toxicological suitability

OIL CHANGE

The steps for changing the oil of the compressor are as follows:

- Make sure you have enough oil on hand to make the change.
- Switch the compressor on for 15 - 20 minutes to heat the oil and make it more fluid.
- Remove the oil refill plug along with the oil breather extension.
- Remove the oil drain plug and before opening the tap make sure you have a container to catch the exhausted oil.
- Close the tap and replace the oil drain plug.
- Pour the new oil slowly down the oil filler neck.
- Make sure that it reaches the maximum level (MAX).
- Do not exceed this level.
- Close the oil refill plug.



CHANGE TYPE OF OIL

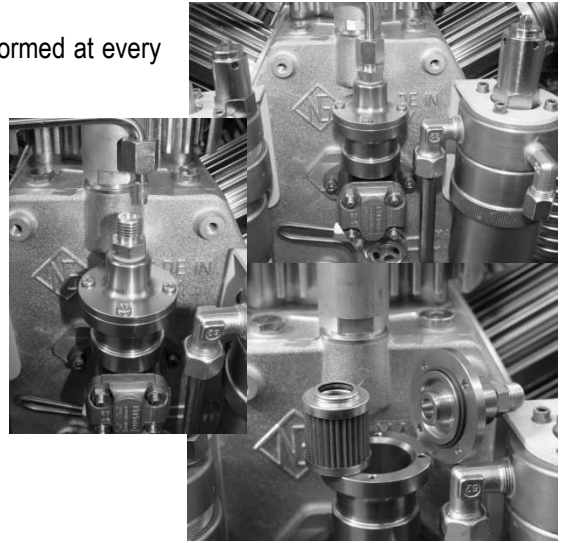
To avoid serious damage to the compressor when changing the type of oil, you must strictly follow the following steps:

- Follow the steps on the oil change.
- Change or clean all parts that have old oil.
- After 10 hours of operation of the compressor check if there is contamination.
- If the oil has been contaminated change it again.
- Do not mix different types of oil and always use the same type of oil.

CHANGE OIL FILTER (Only for compressors with oil pump)

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

- Unscrew the nut of the fitting that holds the tube that delivers the oil to the last cylinder using a 14mm wrench and disconnect it.
- Unscrew the four screws of the oil filter housing using a Phillips screwdriver.
- Lift the oil filter housing cap with the tube attached to it and remove the filter.
- Check if it is necessary to change the O-ring on the oil filter house housing.
- Close everything, turn on the compressor and make sure there are no oil leaks.



OIL LEVEL SHUTDOWN

When the oil level drops below the minimum threshold, the low oil level switch will shut down the compressor.

In some cases, when the oil level is close to the minimum, it may trigger a shutdown. After a short period, the compressor may restart as the oil in the process trickles back into the sump. However, upon restarting, the compressor can lower the sump level again, triggering another low oil shutdown. To prevent this, ensure that the pump oil is at the required level.

CHANGE INTAKE FILTER

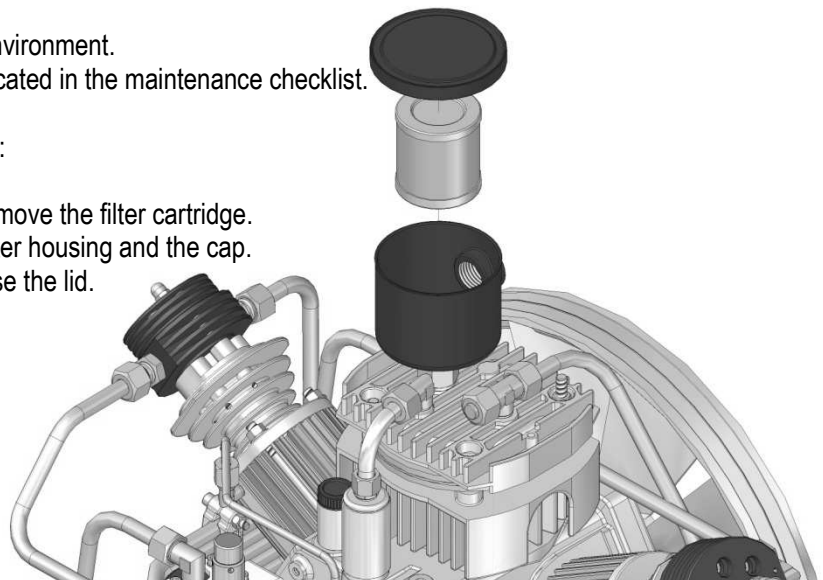
The filter traps any impurities present in the environment.

It must be replaced at regular intervals as indicated in the maintenance checklist.

It should not be washed but replaced.

The steps for changing the filter are as follows:

- Release the latches on the lid and remove the filter cartridge.
- Clean with a damp cloth inside the filter housing and the cap.
- Insert the new filter cartridge and close the lid.



MAINTENANCE OF INTERMEDIATE SEPARATORS

In the compression phase the air undergoes a temperature increase that from one stage and the other is cooled by a series of cooling coils (intercooler). This sudden thermal change produces condensation which is eliminated by intermediate separators. Within the intermediate separators there are filtering elements that need to be changed periodically.

The steps for changing the filtering elements are as follows:

- With the compressor switched off, depressurize the separators using the condensate drain tap.
- Unscrew the bottom part of the separators.
- Unscrew the filtering element and replace it with a new one.
- Wipe the bottom of the separator housing with a damp cloth and make sure there is no corrosion.
- Replace the O-rings.
- Close the separator securely.



When used at a pressure exceeding 300 bar (4351 psi), intermediate separators must be replaced after 10,000 hours.

CARBON FILTER FOR BREATHING AIR

The carbon filter is used to remove the water and oil residues that have passed the intermediate separators. The filter operates in a chemical fashion, not mechanical, with materials that absorb water and oil particles, making the compressed air breathable.

Replacement filters:

NUV65240-MHC: Replacement filter for Molecular Sieve, Carbon, and Hopcolite Breathing air filter.

NUV65240-MC: Replacement filter for Molecular Sieve and Carbon Suitable for breathing air, but cannot convert CO to CO₂.

NUV65240-M: Replacement filter for industrial drying only.



AUTO DRAIN

Automate your compressor condensate draining process with auto drains. Eliminate the need for an operator to manually drain the compressor every 10 to 15 minutes. Improper condensate draining practices may lead to diminished filter life, increased operating temperature, and compressor damage.

The interior of the Filter Bowls can be cleaned using a mild diluted cleaning solution, followed by a thorough rinse with clean water. This helps to extend the lifespan of the element, bowl, and auto drain assembly.



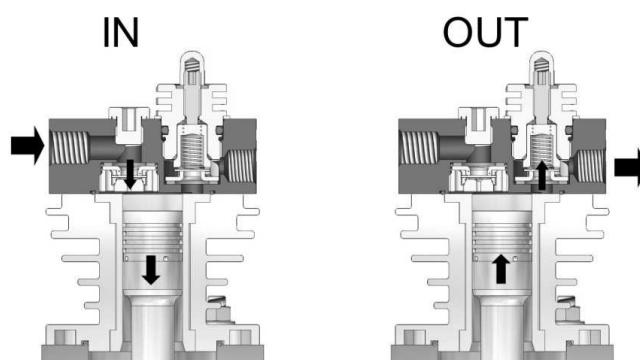
PRESSURE MAINTAINING VALVE

This type of valve has the purpose of maintaining constant pressure in the final filter. In this way, it is possible to eliminate a greater volume of water, improving the air quality and the life of the cartridge. When the compressor is switched on, the valve stays closed until the entire system reaches 150 bar (2176 psi), and subsequently it opens.

This valve is factory set. No further calibration is required.

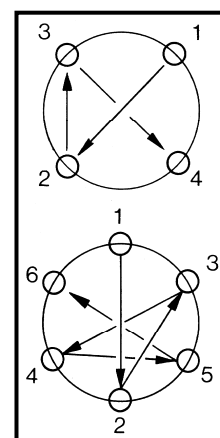
HEADS AND COMPRESSION VALVES

The intake or exhaust compression valves are either reed type or plate type. Normally in the first stage there is a reed valve which opens and closes according to the flow of air that is created by the piston motion. The system operation is the same in all the various stages. The only thing that changes is the type and size of the valves and the plates. It is important that the valve replacement and cleaning is performed by trained personnel.



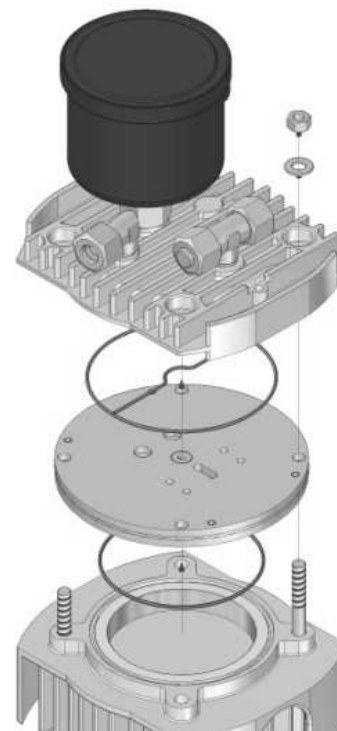
The steps for replacement of the valves are the following:

- Replace all the parts of the valve and not just some elements.
- Carefully clean the valves and remove all carbon deposits without scratching the valve.
- Be careful when reassembling the valves to follow the right sequence of the components. If the valve show scratches due to wear, it must be replaced.
- Replace the O-rings.
- Pay close attention to the image on the right, which shows the tightening sequence of the head screws.
- After performing the maintenance of the valves, switch on the compressor for 30 - 40 minutes, then switch it off and check again the closing of the screws and the dowels that compress the discharge/outlet valve of the lateral cylinders.
- The valves must be checked every 500 hours of operation.
- After 1000 hours of operation the valves and all of their components must be replaced.



VALVE REPLACEMENT – FIRST STAGE

Look carefully at the image below for the exact positioning of the valve and make sure that the written word “TOP” or the letter “T” is facing upwards. If seals or O-rings are not in good condition, they must be replaced.

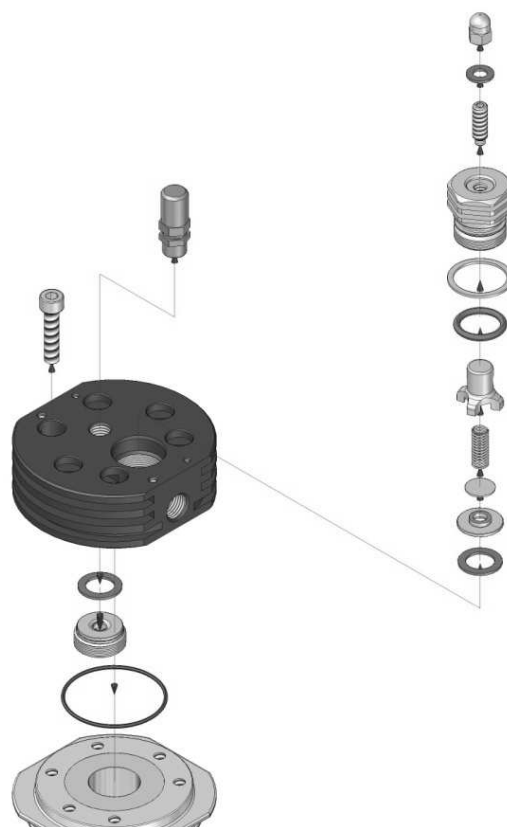


VALVE REPLACEMENT – SECOND STAGE

The steps for replacement or cleaning of this valve are as follows:

To replace the valve, you need to:

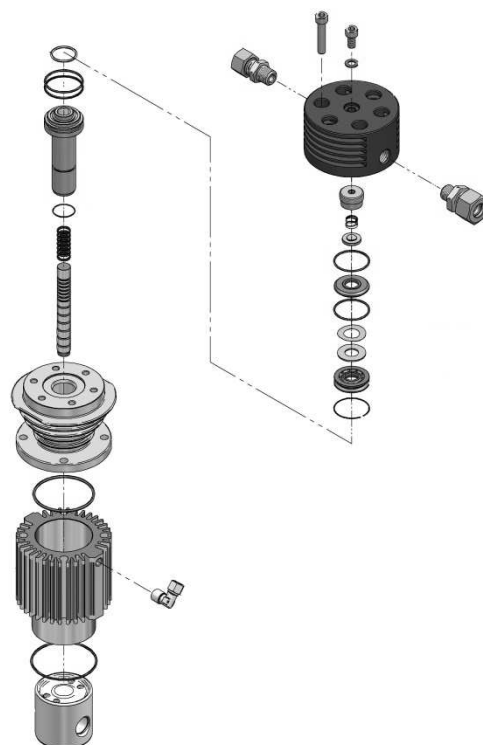
- Disconnect the cooling hoses from the fittings.
- Remove the screws and detach completely the head from the cylinder.
- Put the head in a vice.
- Unscrew the valve bodies (one of these bodies is unscrewed with a special tool that is to be requested to Nardi Compressori).
- Clean and remove all debris.
- If the parts show signs of wear, change the worn parts.
- Mount all the components following the same sequence and changing the seals.
- On the bottom of the head there are three points that need to be engraved with a punch after the valve is set.
- Test 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 tubes.



VALVE REPLACEMENT – THIRD STAGE

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

- Disconnect the cooling hoses from the fittings.
- Remove the screws and detach completely the head from the cylinder.
- Put the head in a vice.
- Unscrew the valve bodies (one of these bodies is unscrewed with a special tool that is to be requested to Nardi Compressori).
- Clean and remove all debris.
- If the parts show signs of wear, change the worn parts.
- Mount all the components following the same sequence and changing the seals.
- On the bottom of the head there are three points that need to be engraved with a punch after the valve is set.
- Test 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 tubes.



SAFETY VALVES

Queste valvole hanno un'importanza fondamentale per la sicurezza dell'operatore e del compressore. Sono valvole tarate ad una certa pressione, che scaricano l'aria nel caso di anomalie o malfunzionamenti. Ogni cilindro è dotato di una valvola di sicurezza, ed ogni valvola ha impostata una taratura differente:

SAFETY VALVE	MAXIMUM PRESSURE
1st STAGE	11 BAR
2nd STAGE	80 BAR
3rd STAGE	225/330 BAR



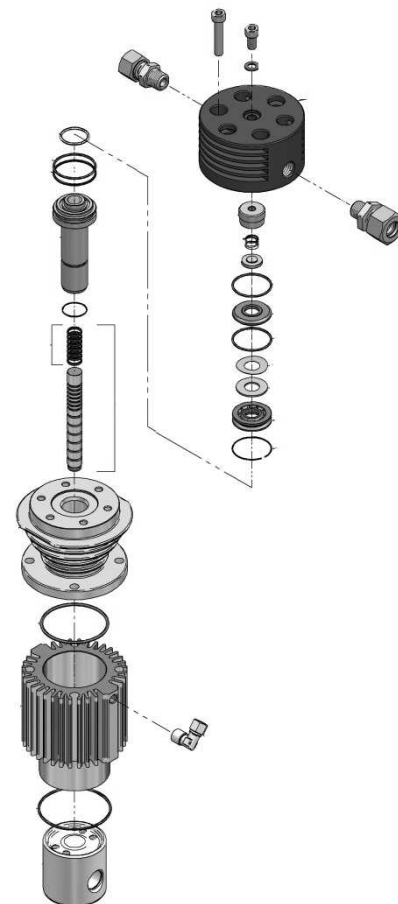
IT IS NOT ALLOWED TO CHANGE THE MAXIMUM PRESSURE CALIBRATION OF ANY VALVE. ANY CHANGES CAN CAUSE SERIOUS DAMAGE AND CONSEQUENT VOID OF THE WARRANTY!!



VALVE REPLACEMENT – THIRD STAGE

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

- Disconnect the cooling hoses from the fittings.
- Remove the screws and detach completely the head from the cylinder.
- Put the head in a vice.
- Unscrew the valve bodies (one of these bodies is unscrewed with a special tool that is to be requested to Nardi Compressori).
- Clean and remove all debris.
- If the parts show signs of wear, change the worn parts.
- Mount all the components following the same sequence and changing the seals.
- On the bottom of the head there are three points that need to be engraved with a punch after the valve is set.
- Test 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 tubes.



SAFETY VALVES

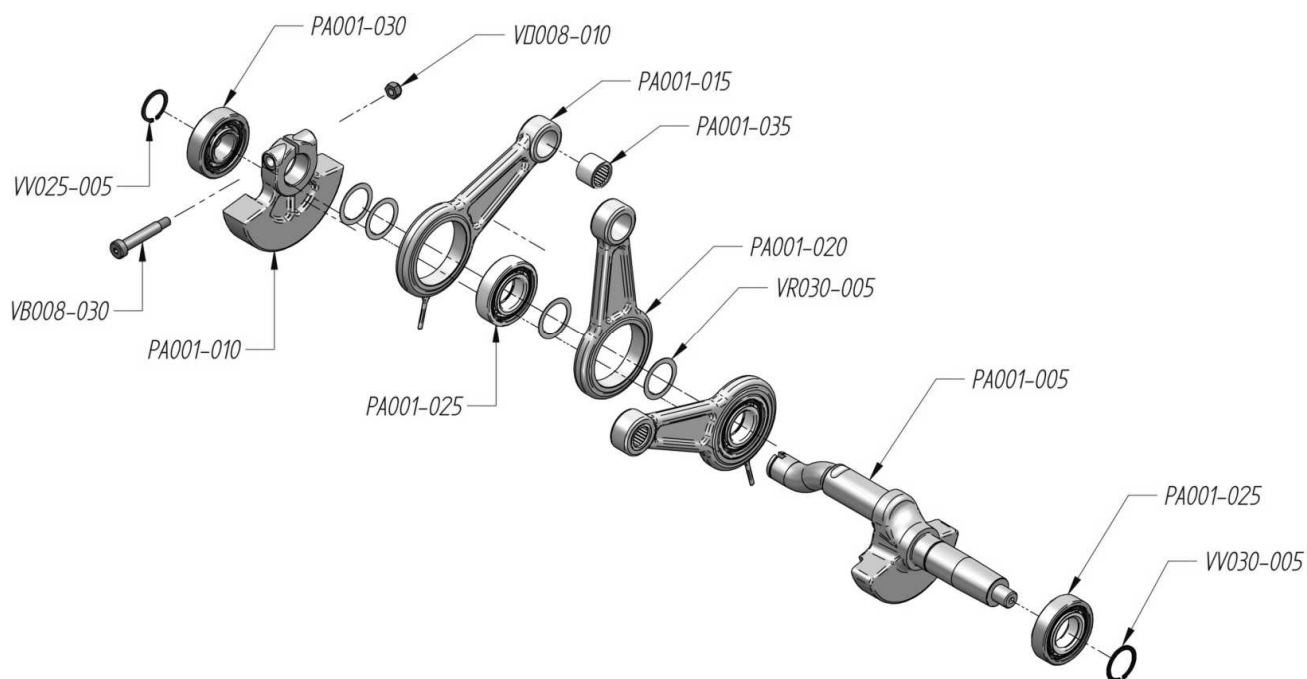
These valves are of fundamental importance for the safety of the operator and the compressor. They are valves calibrated at a certain pressure, which discharge the air in the event of anomalies or malfunctions. Each cylinder is equipped with a safety valve, and each valve has a different calibration set:

SAFETY VALVE	MAXIMUM PRESSURE
1st STAGE	11 BAR
2nd STAGE	80 BAR
3rd STAGE	225/330 BAR

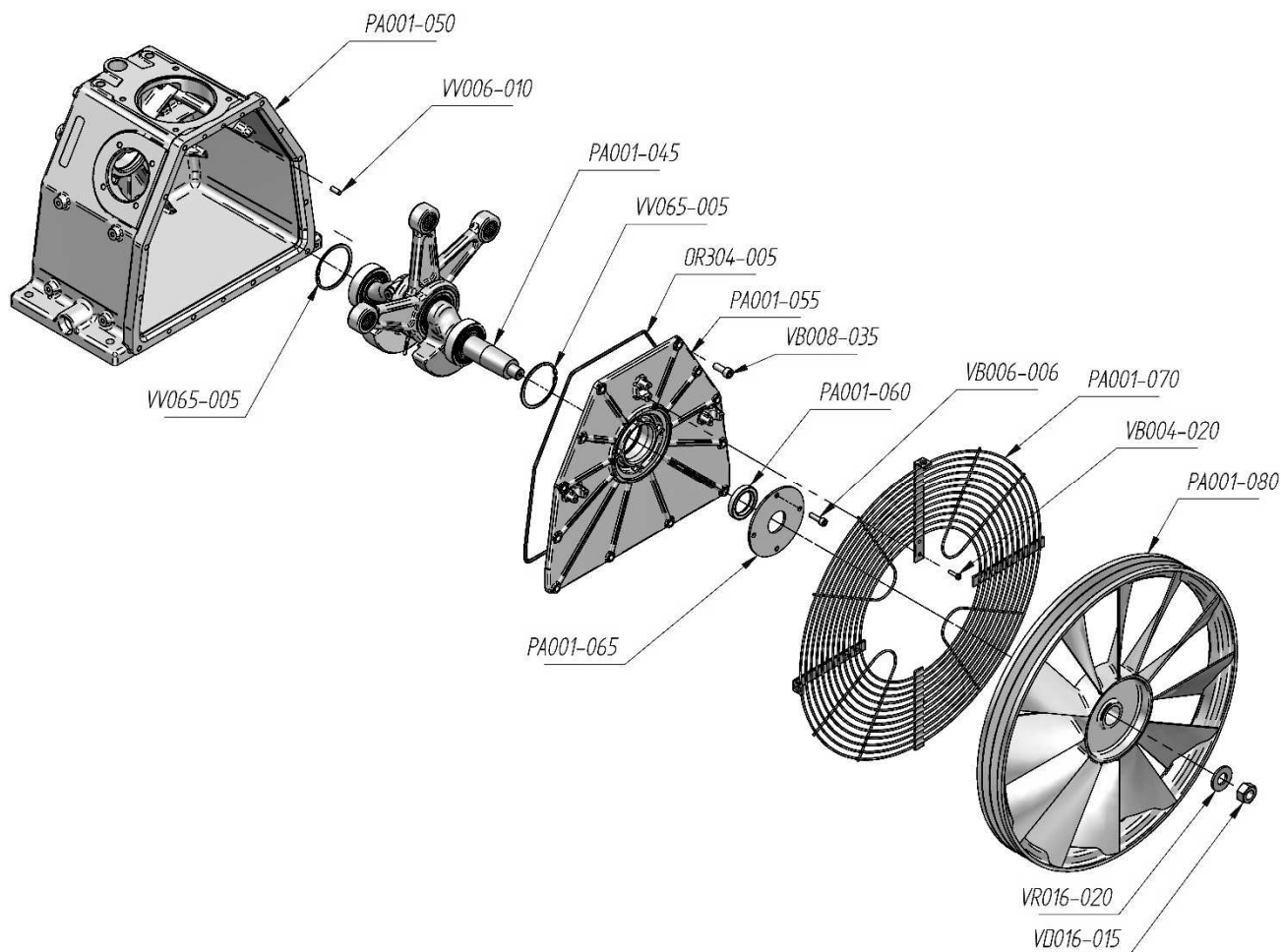


IT IS NOT ALLOWED TO CHANGE THE MAXIMUM PRESSURE CALIBRATION OF ANY VALVE. ANY CHANGES CAN CAUSE SERIOUS DAMAGE AND CONSEQUENT VOID OF THE WARRANTY!!

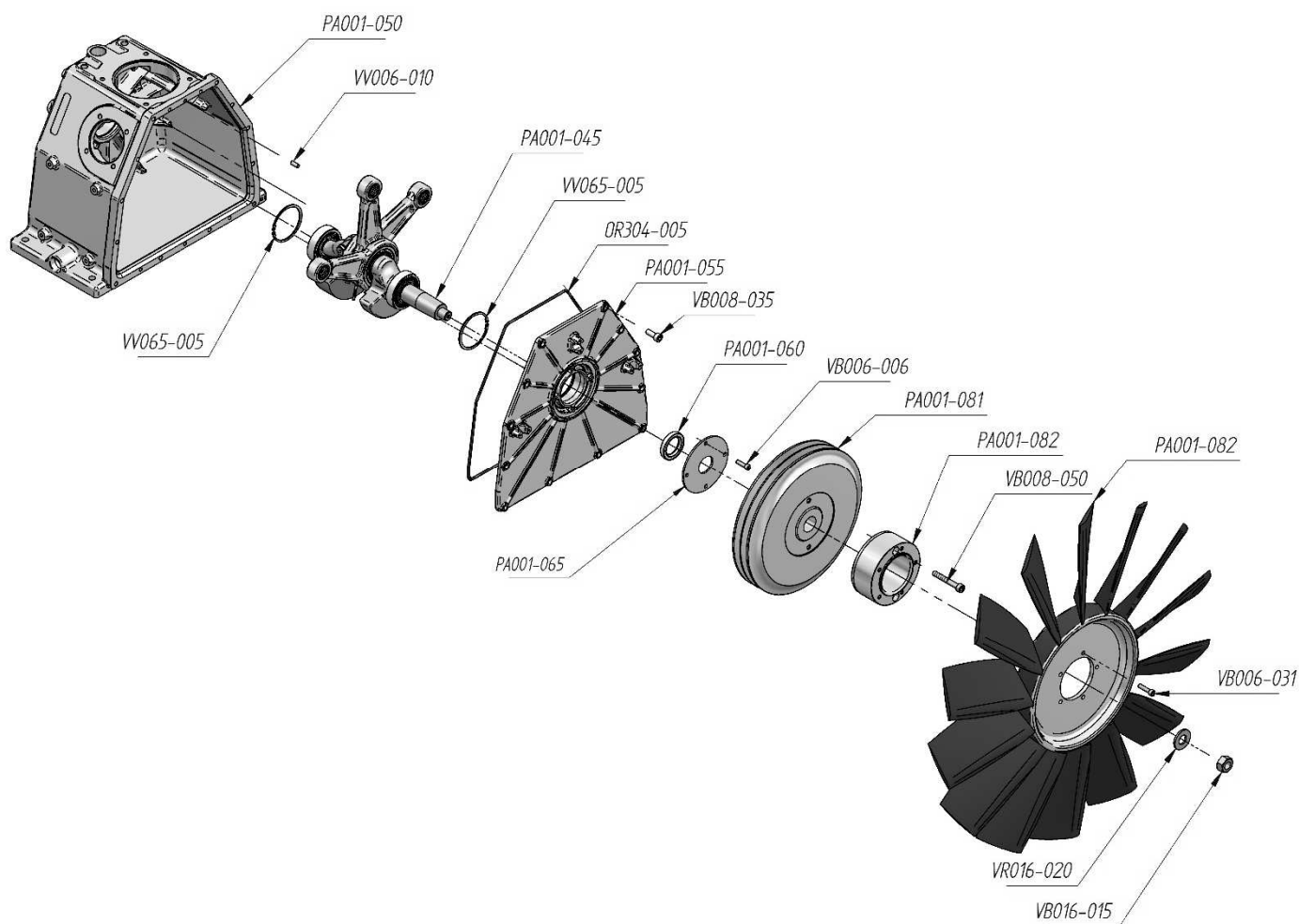




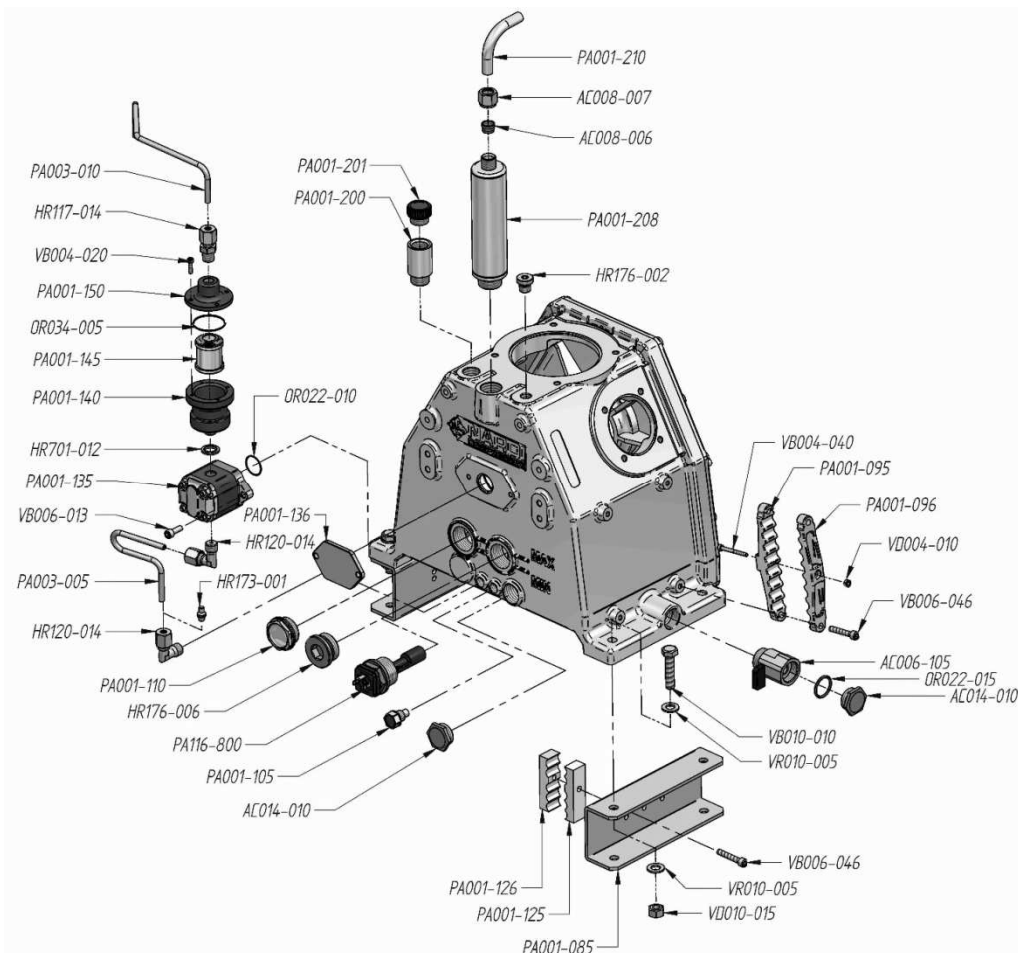
CODE	DESCRIPTION		CODE	DESCRIPTION		CODE	DESCRIPTION	
PA001-006	Shaft		PA001-025	Roller bearing		VD008-010	Nut	
PA001-011	Counterbalance		PA001-030	Roller bearing		VR030-005	Washer	
PA001-015	Connecting rod with oil thrower pin		PA001-035	Roller bearing		VV025-005	Safety ring	
PA001-020	Connecting rod		VB008-030	Screw		VV030-005	Safety ring	



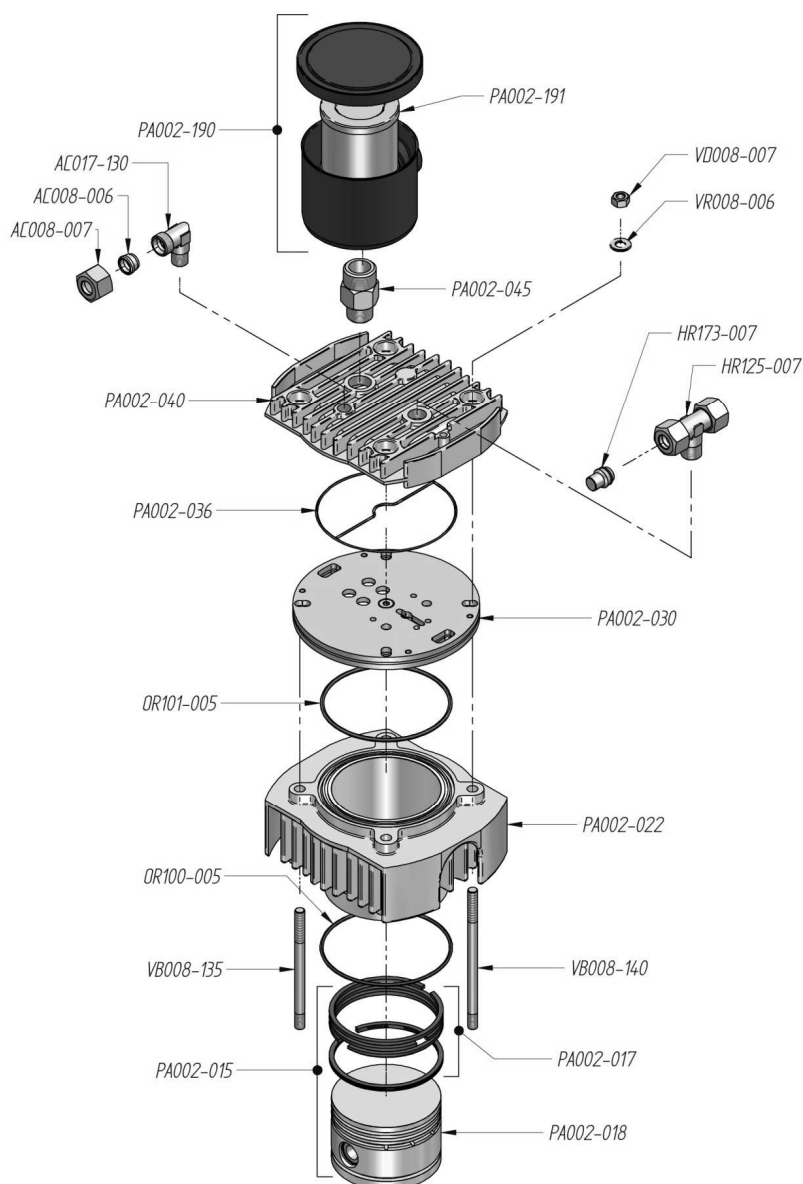
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
OR304-005	O-ring	PA001-065	Oil seal flange	VB008-035	Screw
PA001-045	Shaft complete of connecting rod	PA001-070	Metal protection	VD016-015	Nut
PA001-050	Compressor crankcase	PA001-080	Pulley-fan compressor	VR016-020	Washer
PA001-055	Closing crankcase flange	VB004-020	Screw	VV006-010	Pin
PA001-060	Oil seal	VB006-006	Screw	VV065-005	Safety ring



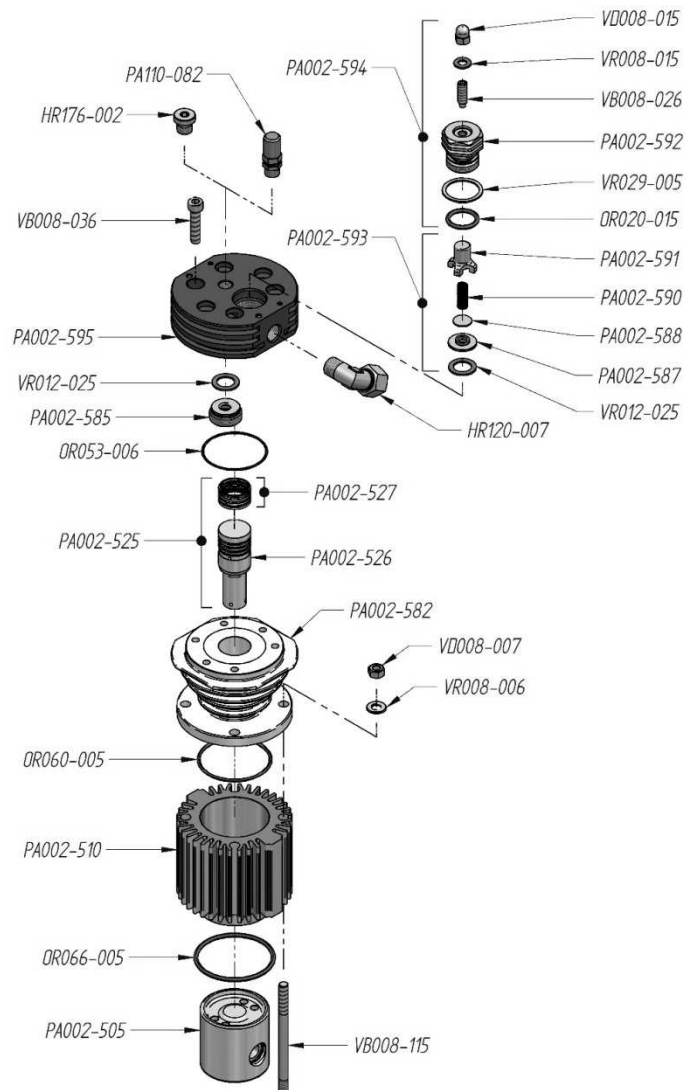
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
OR304-005	O-ring	PA001-065	Oil seal flange	VB008-035	Screw
PA001-045	Shaft complete of connecting rod	PA001-081	Pulley	VD016-015	Nut
PA001-050	Compressor crankcase	PA001-082	Fan	VR016-020	Washer
PA001-055	Closing crankcase flange	VB006-006	Screw	VV006-010	Pin
PA001-060	Oil seal	VB006-031	Screw	VV065-005	Safety ring



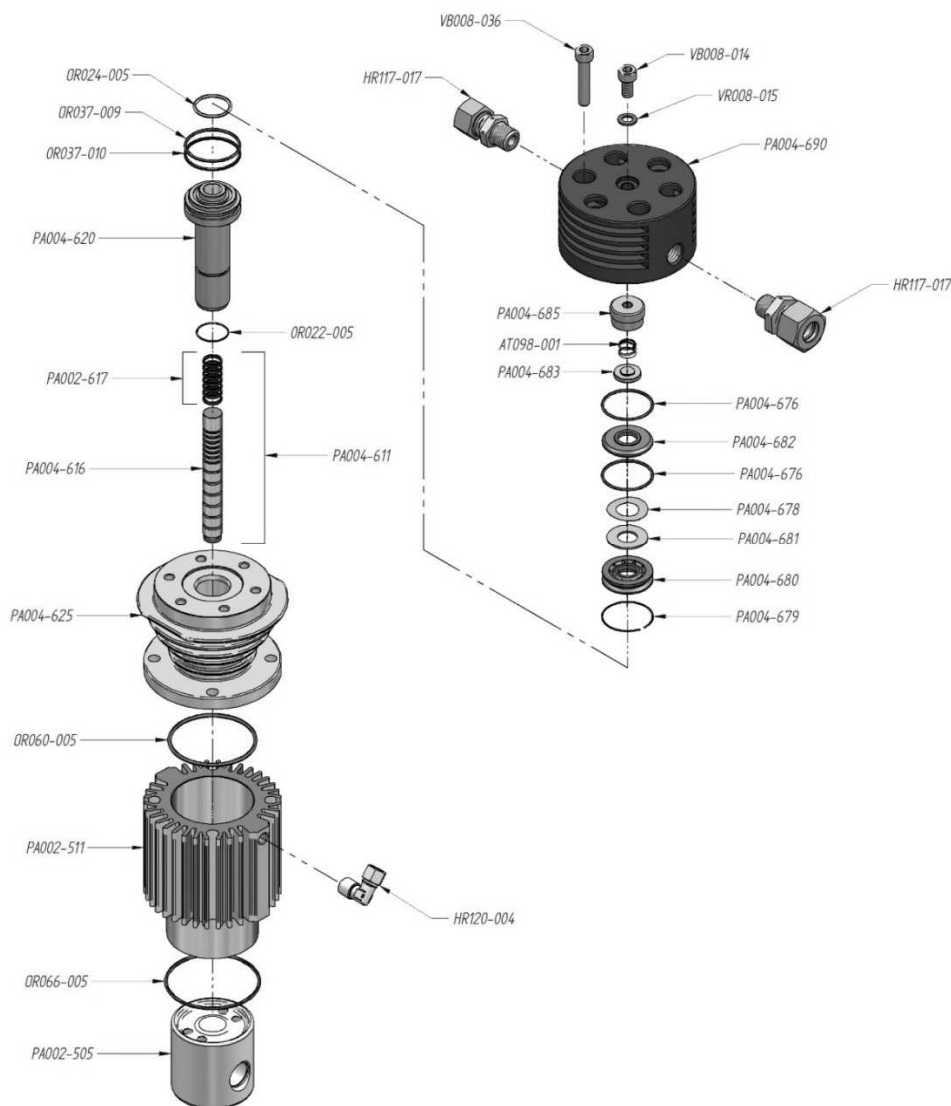
<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>	
AC006-105	Ball valve		PA001-096	Support cooling tube		PA003-010	Tube oil pump	
AC008-006	Oqive for tube 12mm		PA001-105	Maqnetic plug		PA116-800	Oil alert	
AC008-007	Nut for tube 12 mm		PA001-110	Visual oil level plug		VB004-020	Screw	
AC014-010	Closure plug		PA001-125	Support cooling tube		VB004-046	Screw	
HR117-014	Pipe fitting		PA001-126	Support cooling tube		VB006-013	Screw	
HR120-014	Pipe fitting "L"		PA001-135	Oil pump		VB006-046	Screw	
HR173-001	Closure connection tube		PA001-136	Closure flange		VB010-010	Screw	
HR176-002	Closure plug		PA001-140	Oil filter holder chamber		VD004-010	Nut	
HR176-006	Closure plug		PA001-145	Oil filter		VD010-015	Nut	
HR701-012	Washer gasket		PA001-150	Closure oil filter chamber		VR010-005	Washer	
OR022-010	O-ring		PA001-200	Oil fitting pipe				
OR022-015	O-ring		PA001-201	Plug				
OR034-005	O-ring		PA001-208	Oil separator				
PA001-085	Support compressor		PA001-210	Tube				
PA001-095	Support cooling tube		PA003-005	Tube oil pump				



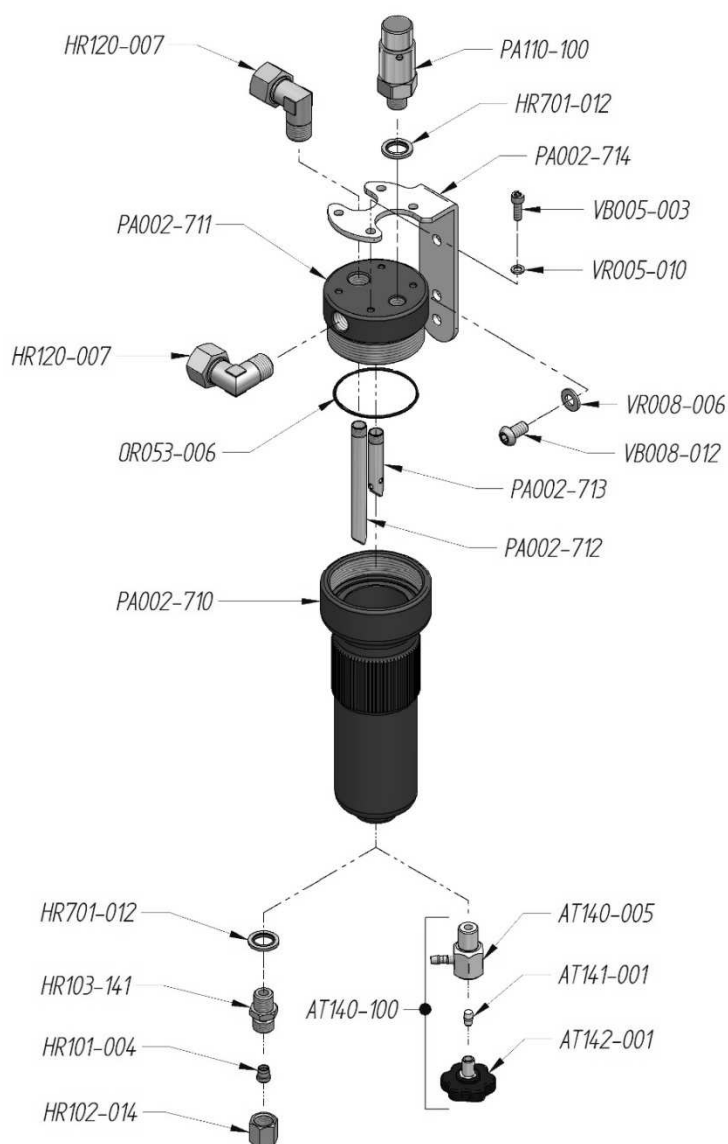
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC008-006	Ogive	PA002-015	Complete piston	PA002-190	Complete intake filter
AC008-007	Nut	PA002-017	Set Piston rings	PA002-191	Intake filter cartridge
AC017-130	Pipe fitting "L"	PA002-018	Piston	VB008-135	Screw
HR125-007	Pipe fitting "T"	PA002-022	Cylinder 1 st stage	VB008-140	Screw
HR173-007	Closure connection	PA002-030	Plate valve 1 st stage	VD008-007	Nut
OR094-005	O-ring	PA002-036	O-ring	VR008-006	Washer
OR100-005	O-ring	PA002-040	Head 1 st stage		
OR101-005	O-ring	PA002-045	Connection		



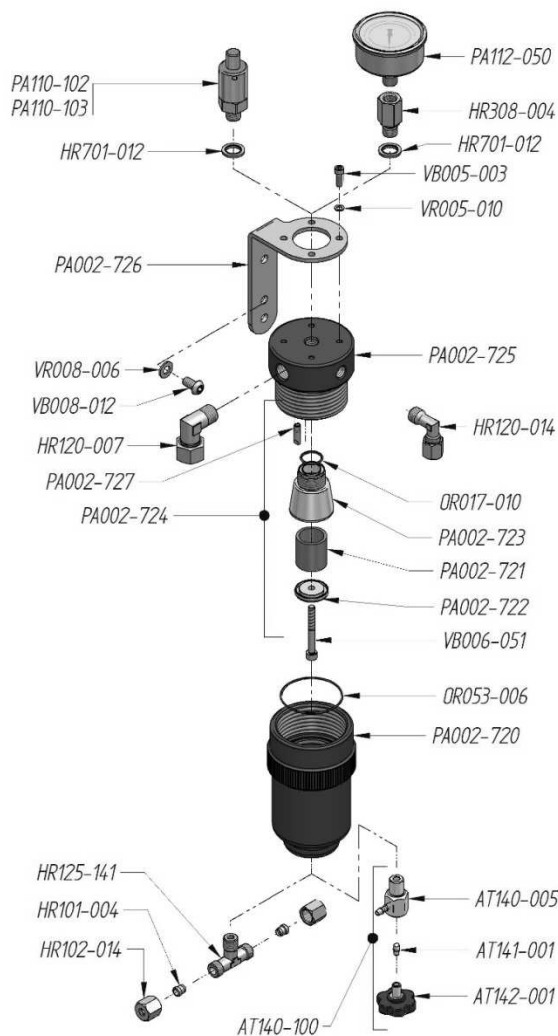
<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>	
HR120-007	Pipe fitting "L" 3/8"G for tube 12 mm		PA002-582	Cylinder		VB008-026	Screw	
HR176-002	Closure pluq 1/4"		PA002-585	Suction valve		VB008-036	Screw	
OR020-015	O-ring		PA002-587	Valve seat		VB008-115	Screw	
OR053-006	O-ring		PA002-588	Valve plate		VD008-007	Nut	
OR060-005	O-ring		PA002-590	Valve spring		VD008-015	Nut	
OR066-005	O-ring		PA002-591	Pressure valve insert		VR008-006	Washer	
PA002-505	Piston guide		PA002-592	Valve coupling		VR008-015	Washer	
PA002-510	Cylinder		PA002-593	Pressure valve insert		VR012-025	Washer	
PA002-525	Complete piston with rings		PA002-594	Complete coupling pressure valve		VR029-005	Washer	
PA002-526	Piston		PA002-595	Valve head				
PA002-527	Set piston rings		PA110-082	Safety valve				



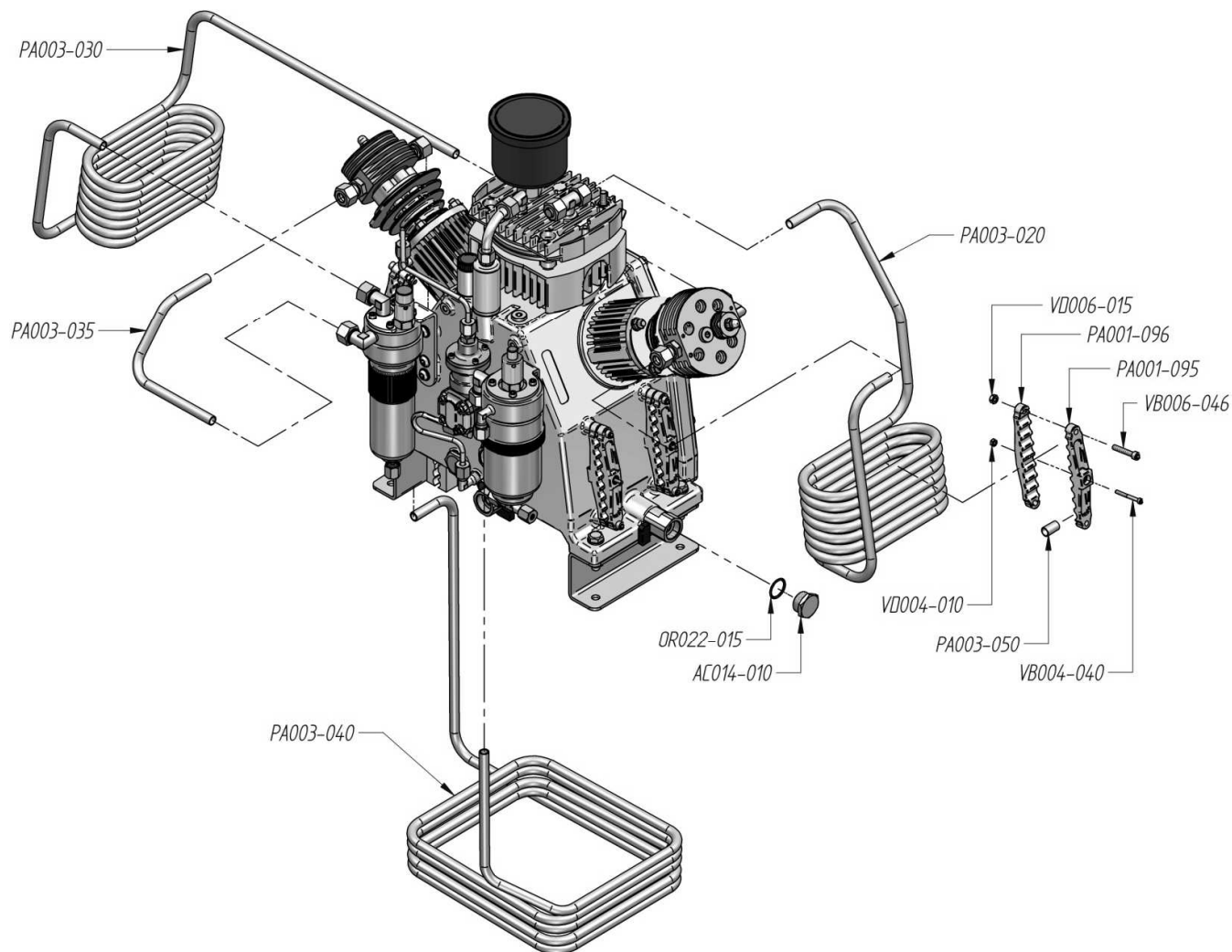
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AT098-001	Spring	PA004-611	Complete piston with rings	PA004-683	Valve top
HR117-017	Pipe fitting direct	PA004-616	Piston	PA004-685	Suction valve
HR120-004	Pipe fitting "L"	PA002-617	Set piston rings	PA004-690	Valve head
OR037-009	O-ring	PA004-620	Cylinder's pipe	VB008-014	Screw
OR037-010	O-ring	PA004-625	Cylinder	VB008-036	Screw
OR022-005	O-ring	PA004-680	Coupling pressure valve	VR008-015	Washer
OR024-005	O-ring	PA004-681	Pressure valve		
OR060-005	O-ring	PA004-682	Top valve		
OR066-005	O-ring	PA004-676	Special O-Ring		
PA002-505	Piston guide	PA004-678	Special spring		
PA002-511	Cylinder	PA004-679	Setger valve		



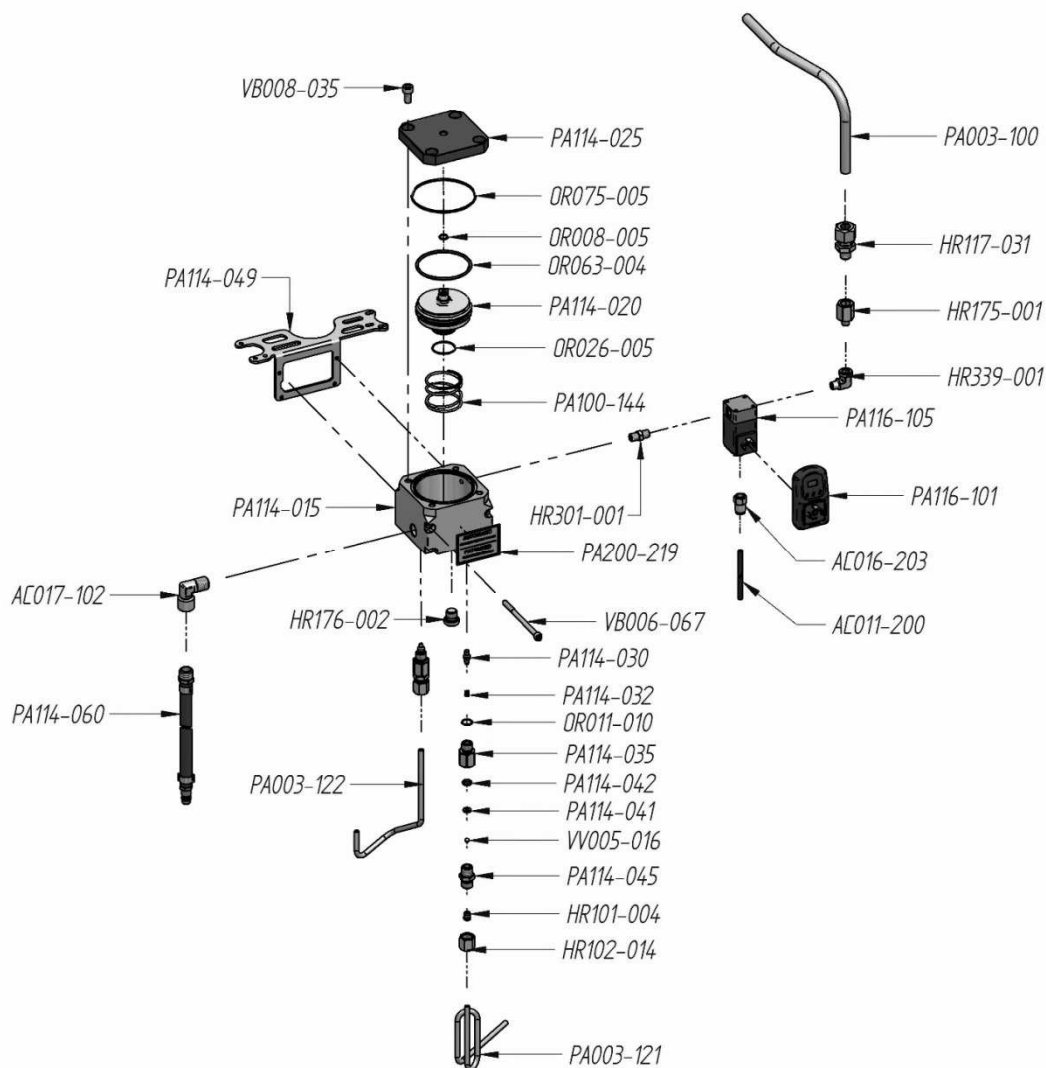
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AT140-005	Body drain valve complete	HR120-007	Pipe fitting "L"	PA002-714	Support filter separator
AT140-100	Condensate drain valve complete	HR701-012	Washer gasket	PA110-100	Safety valve
AT141-001	Rilsan nut	OR053-006	O-ring	VB004-021	Screw
AT142-001	Black screw of discharge	PA002-710	Body filter separator	VB008-012	Screw
HR101-004	Ogive	PA002-711	Head filter separator	VR004-010	Washer
HR102-014	Nut fitting pipe	PA002-712	Tube separator	VR008-006	Washer
HR103-141	Body pipe fitting	PA002-713	Tube separator		



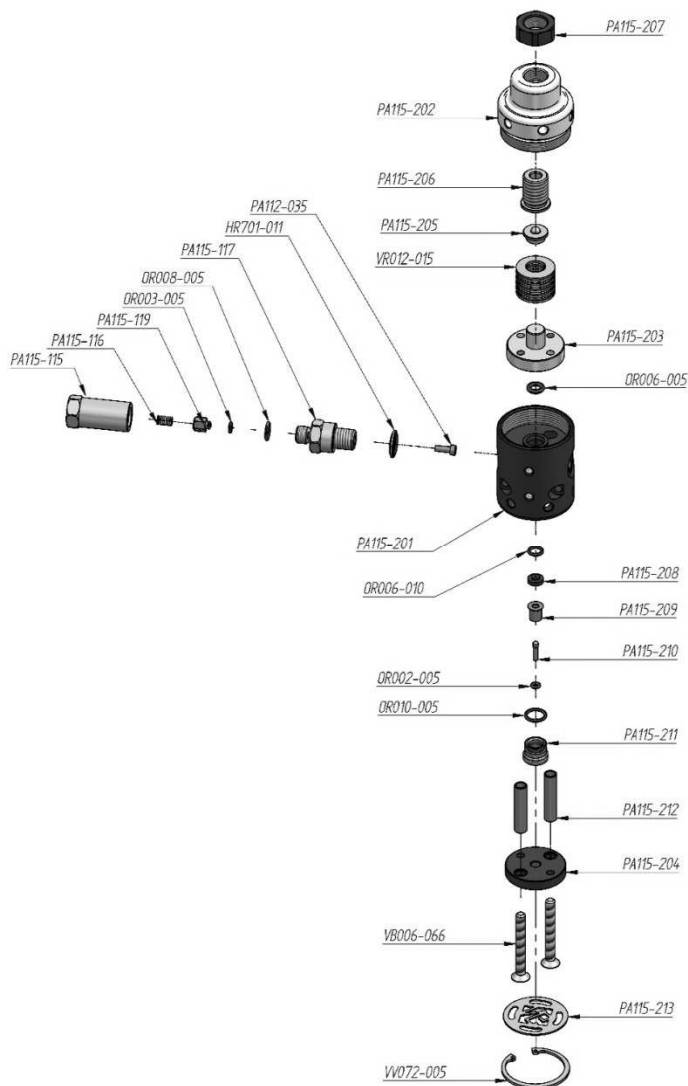
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AT140-005	Body drain valve complete	OR017-010	O-ring	PA110-103	Safety valve PN 300 bar
AT140-100	Condensate drain valve complete	OR053-006	O-ring	PA112-050	Manometer
AT141-001	Rilsan nut	PA002-720	Body filter separator	VB005-003	Screw
AT142-001	Black screw of discharge	PA002-721	Sintered filter	VB006-051	Screw
HR101-004	Ogive	PA002-722	Flange	VB008-012	Screw
HR102-014	Nut filling pipe	PA002-723	Flange	VR005-010	Washer
HR120-007	Pipe fitting "L"	PA002-724	Complete filter separator cartridge	VR008-006	Washer
HR120-014	Pipe fitting "L"	PA002-725	Head filter separator		
HR125-141	Body pipe fitting "T"	PA002-726	Support filter separator		
HR308-004	Connection	PA002-727	Tube separator		
HR701-012	Washer gasket	PA110-102	Safety valve PN 200 bar		



CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
AC014-010	Nut	PA003-030	Inter cooler	VB006-046	Screw
OR022-015	O-ring	PA003-035	Connecting tube	VD004-010	Nut
PA001-095	Fixing for cooler	PA003-040	Inter cooler	VD006-015	Nut
PA001-096	Fixing for cooler	PA003-050	Tube		
PA003-020	Inter cooler	VB004-040	Screw		



<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>		<i>CODE</i>	<i>DESCRIPTION</i>	
AC011-200	Rilsan tube		OR011-010	O-ring		PA114-030	Piston	
AC016-203	Connection		OR026-005	O-ring		PA114-032	Spring	
AC017-102	Pipe fitting "L"		OR063-004	O-ring		PA114-035	Drain valve connection	
HR101-004	Ogive		OR075-005	O-ring		PA114-041	Sealing Ring	
HR102-014	Nut fitting pipe		PA003-100	Tube		PA114-042	Reducer	
HR117-031	Pipe fitting		PA003-121	Tube		PA114-045	Connection INOX	
HR175-001	Connection		PA003-122	Tube		PA114-049	Support condensate drain	
HR176-002	Closure plug		PA110-010	Spring		PA114-060	Hose with fittings for collecting vessel	
HR301-001	Nipple		PA114-015	Drain valve body		PA116-101	Timer	
HR339-001	Connection "L"		PA114-020	Drain valve piston		PA116-105	Solenoid valve 12 Volt DC	
OR008-005	O-ring		PA114-025	Top flange		VV005-016	Sphere	



CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
HR701-011	Washer	PA115-119	Piston no return valve	PA115-211	Flange
OR002-005	O-ring	PA115-201	Body	PA115-212	Cylinder
OR003-005	O-ring	PA115-202	Flange	PA115-213	Flange
OR006-005	O-ring	PA115-203	Flange	VB006-066	Screw
OR006-010	O-ring	PA115-204	Flange	VR012-015	Washer
OR008-005	O-ring	PA115-205	Spring support	VV072-005	Safety ring
OR010-005	O-ring	PA115-206	Screw		
PA112-035	Filter	PA115-207	Nut		
PA115-115	Body no return Valve	PA115-208	Washer		
PA115-116	Spring no return valve	PA115-209	Cylinder		
PA115-117	Body no return valve	PA115-210	Piston		



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