



ORIGINAL INSTRUCTIONS



**INSTALLATION, USE AND
MAINTENANCE MANUAL**



Rev. 01
23-02-2017

COMPANY WITH
QUALITY SYSTEM
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= ISO 9001 =

2017 – **Juop** – Azzano Decimo (PN)

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1. General warnings

1.1. Introduction

- This booklet contains the necessary instructions for a correct installation, running, use and maintenance of the pump, as well as some practical suggestions for a safe operating.
- The knowledge of the following pages will grant a long and trouble-free operation of the pump.
- Following the instructions below contributes to limiting pump repair expenses by extending its duration, as well as preventing hazardous situations, thereby increasing its reliability.
- If the pump is driven by an hydraulic motor please refer to manufacturer's specific manual.
- It is recommended to:
 - Read, understand and apply carefully the instructions before running the pump.
 - Keep the booklet at hand and have it known to all operators.
- Below is a brief description of the symbols used in this manual.



If these safety rules are not respected, operators can be injured and the pump or oilers damaged remarkably.



If these safety rules are not respected, the pump or system can be damaged.

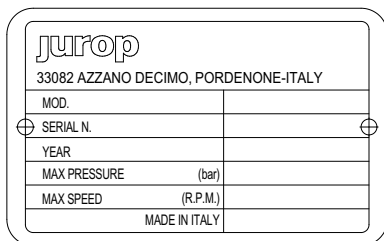


Suggestions for an environment friendly use of the pump.



Useful information for an easy usage and maintenance of the pump.

- The graphic representations and photographs contained in this manual are there to illustrate the product in the parts that make it up and in specific operating phases. Though the model shown in the manual may differ from the one purchased, the operating principle at the base of the illustrated operating phase is the same.
- Every R260 has to be fitted with its own tag reporting the following data: Model, Serial number, Year, Max speed, Max pressure.



Pic. 1.1

1.2. Spare part request

- Use only **genuine spare parts** for maintenance and repairs. To order spare parts, provide the following details:

EXAMPLE:

- | | |
|---|--------------|
| a) The model of the pump (see pump tag) | R 260 |
| b) The serial number of the pump (see pump tag) | K60001 |
| c) A description of the parts (see parts list) | VANE |
| d) The quantity (see parts list) | 5 |
| e) The code number of the part (see parts list) | 16016 042 00 |

1.3. Warranty terms and conditions

- Compliance with the installation, use and maintenance instructions provided by this manual **is crucial for the recognition of warranty** against defective parts.

2. Technical data

- Sliding vanes vacuum pump injection cooled. Is meant for heavy duty.
- Manifold with non-return valve on the pump inlet.
- Rear oil tank. Side oil tank available on request.
- Built-in vacuum-pressure changeover valve. Pneumatic or hydraulic actuator are available.
- Transmission:
 - Direct with smooth or splined shaft.
 - Hydraulic motor.

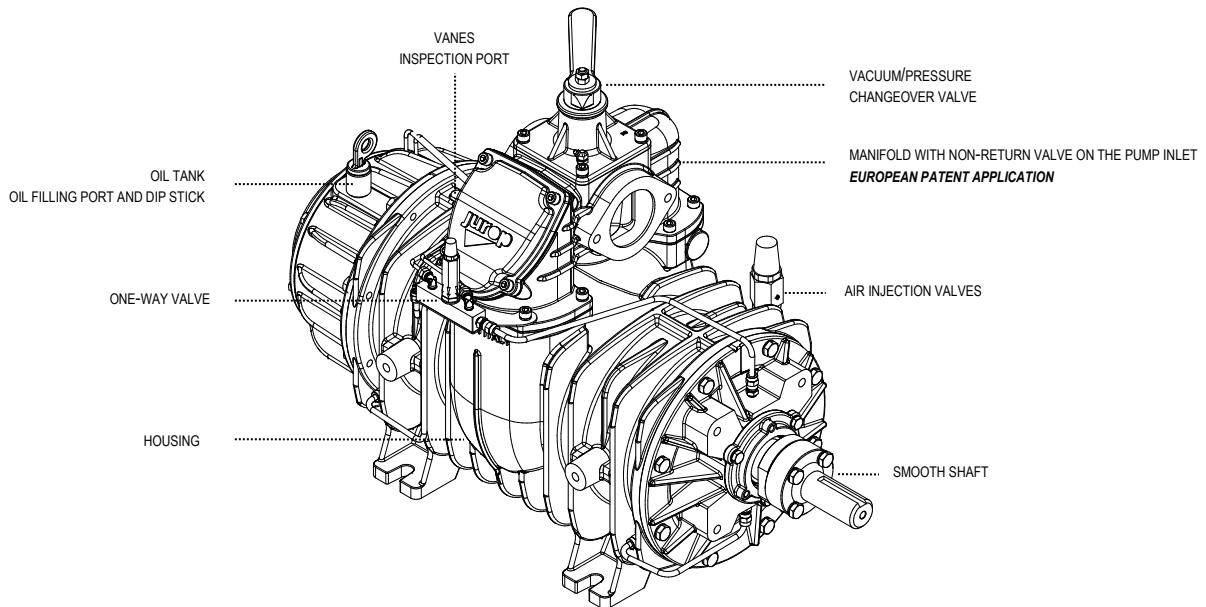
STANDARD EQUIPMENT

AVAILABLE ON REQUEST

- Sliding-vanes, air cooled **vacuum pump**.
- Asbestos-free **sliding vanes**.
- Automatic lubrication by means of a **volumetric pump** and an **oil tank**.
- Asymmetrical manifold with **check valve** installed on the pump inlet.
- Pivoting suction and exhaust **conveyors** in aluminum alloy.
- **Direct transmission** with smooth or splined shaft (ASAE 1 3/8").
- **Counter clockwise rotation**.
- **Injection cooled**.

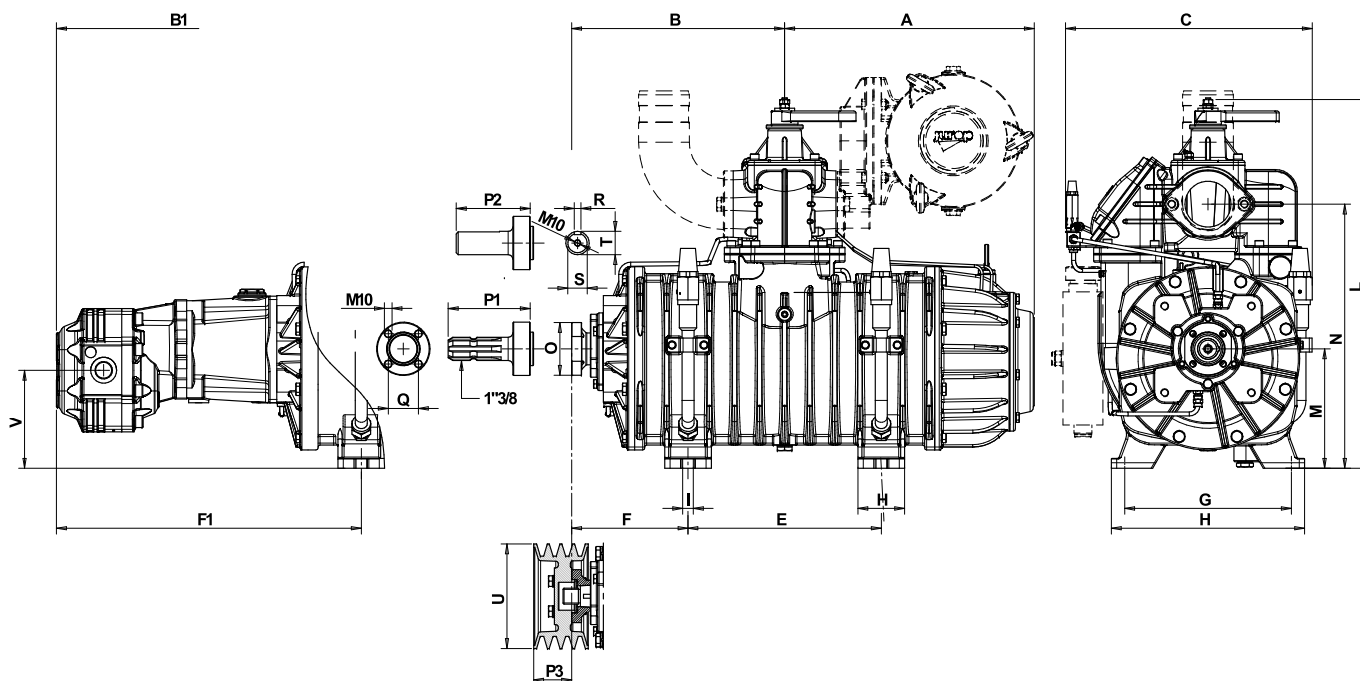
- **Clockwise rotation**.
- **Serbatoio olio laterale**.
- Transmission with **hydraulic motor**.
- **Gearbox transmission**.
- **Pulley** for the belt drive.
- **Pneumatic actuator** for the vacuum/pressure changeover valve.
- **Hydraulic actuator** for the vacuum/pressure changeover valve.

R260



WEIGHT	R 260
Direct transmission (smooth or splined shaft)	170 kg (375 lbs)
Hydraulic motor	205 kg (450 lbs)

2.1 Dimensions and arrangements



Mod.		A	B	B1	C	D	E	F	F1	G	H	I	L
R260	mm	374	320	602	370	290	290	175	457	250	70	16	554
	(in)	(14,8)	(12,6)	(23,7)	(14,5)	(11,4)	(11,4)	(6,9)	(18)	(9,8)	(2,7)	(6,2)	(21,8)

Mod.		M	N	O	P1	P2	P3	Q	R	S	T	U	V
R260	mm	179	396	79	123	111	57	45	10	29	35	157 / 207	147
	(in)	(7)	(15,6)	(3,1)	(4,9)	(4,4)	(2,2)	(1,8)	(0,4)	(1,1)	(1,4)	(6,2 / 8,1)	(5,8)

2.2 Performances

Performances	R 260
Maximum speed	1300 rpm
Air flow at free air condition	10300 l/min (364 cfm)
Air flow at 60% vacuum rate	8600 l/min (304 cfm)
Maximum vacuum	95 % (28,5" Hg)
Maximum vacuum at continuous duty	70 % (21,0" Hg)
Power required at 0,5 bar rel (1,5 abs) at maximum vacuum	14,5 kW (18,0 hp)
Max operating rel. pressure	2 bar abs (29 psi)
Oil consumption	130 g/h (80 drops/min)
Rear oil tank capacity	2,3 l

REFERENCE CONDITIONS

Conveyed gas: air

Ambient reference temperature: 20°C (68°F)

Absolute reference pressure: 1013mbar (14.7psi)

Vacuum condition: atmospheric discharge

Pressure condition: atmospheric suction

Actual performance may vary of ± 5%

2.3 Usage limitations

Model	Max. Speed (rpm) Direct - HDR	P (bar ABS)	T (°C)	Room Temperature
R 260	1300	2 bar abs	180 °C	-20 / +40°C

P: absolute pressure during delivery

T: temperature during delivery

2.4 Sound pressure level

Sound pressure level

60% vacuum rate, distance of 7 meter

dB (A)

78

2.5 Lubrication

Room T°	Viscosity	Tipo	ENI	ESSO	SHELL	TOTAL	MOBIL	BP	TEXACO HAVOLINE
-20°C / +5°C	ISO VG 46	Mineral Oil	Acer 46	Nuto 46	Morlina oil 46	Drosera MS 46	Nuto H 46	Bartran HV 46	Rando HD 46
0°C / +40°C	ISO VG 150	Mineral Oil	Acer 150	Nuto 150	Morlina oil 150	Drosera MS 150	Nuto H 150	Bartran HV 150	Rando HD 150

3. Safety and accident prevention



Attention: carefully apply these prescriptions.

3.1 General recommendations

- Installation and maintenance must be carried out with the unit totally disengaged from its drive system and must be performed by qualified personnel.
- Use adequate clothing (avoid ties, loose sleeves, necklaces and so on) and suitable protection equipment (gloves, protection glasses, boots...).
- To prevent errors and hazardous situations, establish what each operator is responsible for in the different maintenance operations.
- When transporting the compressor use proper slinging. Store the compressor in stable places.
- Before each maintenance operation, stop the pump and restore the atmospheric pressure.
- Make sure that all the parts of the unit are idle and cool, before performing any maintenance operation.
- When the pump is running, some parts may reach very high temperatures (above 100°C). Use all necessary precautions to avoid contact.
- Operators working nearby must avoid prolonged exposure to the noise emitted by the aspirator, if not equipped with the proper ear-protection devices.
- Avoid accidental suction of solids: solids may be projected at high speed through the exhaust manifold and cause injuries. A filter must be mounted on the suction line (Mesh 55).
- Do not start the machine if the protection devices provided for transmissions are removed. Replace damaged part.
- Pressure relief valve: point the air flux away from the operators.
- Do not use the aspirator over its designed limits: the machine may be damaged and the operator may be injured.



Do not exceed the speed and the power supply parameters indicated in the technical tables (see par. 2.2 - 2.3).

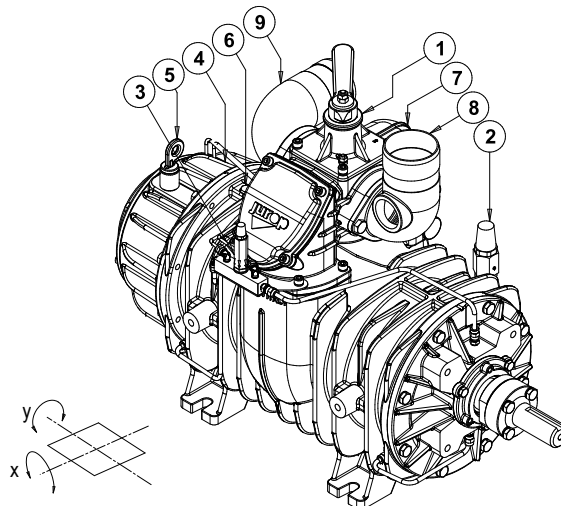
3.2 Intended use

- Air-cooled and consequently foreseen for a non-continuous duty. R260 do not accept operating temperatures over 180 °C, checked at not more than 150 mm from the discharge connections.
- In order to the maximum efficiency of the forced air cooling system the filters of the injection valves must be kept clean.
- Do not suck toxic substances and inflammable or explosive gasses, since the internal components of the pump may reach high temperatures.
- Avoid suction of liquids or solids, they can seriously damage the pump.
- Do not run the pump over its designed operating limits (see par. 2.3): it may break and transmission can be damaged.

4. Installation

Main components legend

- | | |
|--|---------------------------------------|
| 1. Vacuum/Pressure change-over valve | 5. Oil filling port and dip stick |
| 2. Air injection valves (with sintered filter) | 6. Vanes inspection port |
| 3. One-way valve | 7. Non-return valve (Intake manifold) |
| 4. Oil tank | 8. Suction conveyor |
| | 9. Exhaust conveyor |



Pic. 4.1

4.1. Checking upon receipt

- When the goods are delivered, make sure that all parts listed on the delivery note are in perfect condition and have suffered no damage during shipping.

- Make sure the vacuum pump has its identification plate. Pumps without such identification are to be considered anonymous and potentially dangerous: in such an event, they must not be used, otherwise the manufacturer will be deemed free from any liability whatsoever.

- Pump must be kept in a dry storage area. During storage, inlet and outlet ports must be kept closed.

4.2. Storing in the warehouse

- If the compressor will not be installed inside a short time after delivery:

- Remove the guards from the ports and spray a film of protective oil over the inner surfaces of the body, rotors and sides. Then attach again the guards;
- Store in a closed and dry place. Renew the preserving oil periodically.

- To temporarily store a used pump, follow the instructions below:

- Thoroughly clean the pump.
- Equip the pump with suitable anti-corrosion protection.

4.3. Mounting

- The pump must be assembled for an easy access for maintenance operations and secured rigidly to a frame or levelled base (max. 3° slant to the horizontal plane. See Fig. 4.1). The base must be such as to avoid vibrations, bending or deformation.

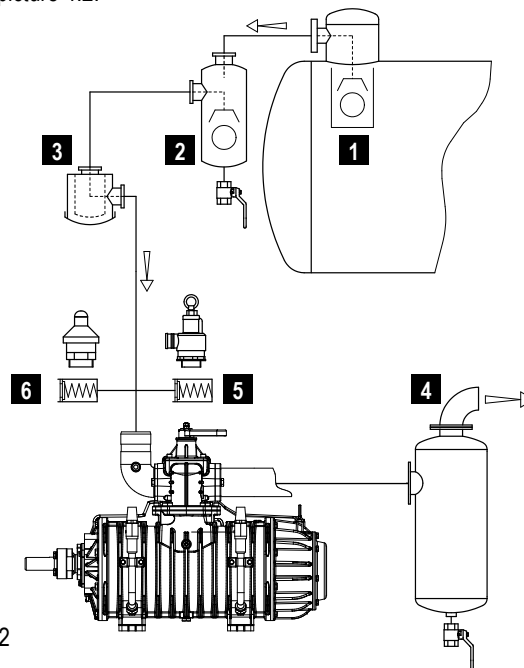
- Leave enough space around the pump to allow the free circulation of air for cooling; avoid exposure to dirt and debris.

- Provide the necessary space to reach all points of lubrication control (oil level), and the oil tank filler cap, the lever of the 4-way switch, vanes inspection ports. See Pic. 4.1.

- In case of R260 with hydraulic motor, provide the necessary space to disassemble the motor itself and proceed with joint lubrication.

4.4. Vacuum / Pressure line

- See picture 4.2.



Pic. 4.2

- The hoses connecting the suction and exhaust ports of the vacuum pump must be of adequate diameter (suggested not less than 3") and of oil and corrosion resistant materials and before connecting them, make sure that they are perfectly clean in the inside.

Vacuum / Pressure line components

- | | |
|---|-----------------------------------|
| 1 | Primary shutoff |
| 2 | Secondary shutoff |
| 3 | Suction filter |
| 4 | Silencer |
| 5 | Over-pressure safety relief valve |
| 6 | Vacuum control valve |

- The weight or dimensions of the pipes must in no way stress the R body. Use high temperature resistant rubber sleeves.

- Remove the port guards when mounting. The pipes and components of the whole line must be clean.
- Avoid constrictions and tight curves where they are not essential.
- Connect the pump to the tank through the suction manifold (Fig. 4.1 - pos. 8) which has a threaded port for fitting the over-pressure valve.
- The exhaust pipes can reach high temperatures. Protect those adequately from the operator reach.
- A clapet valve on suction pipe avoids rotation in the opposite direction when the pump stops.
- To avoid that foreign liquids will enter the vacuum pump it is necessary to mount on the suction line an over-flow valve of “floating-ball” type (Fig. 4.2. - pos. 1). The flow section of this valve must be equivalent to the suction hose’s one.
- It is also necessary to have on the line a suitable air filter for preventing solids to be sucked inside the vacuum pump. It is also recommended to mount a “secondary shutoff” of floating-ball type (Fig. 4.2 - pos. 2) between vacuum pump and over-flow (primary shutoff), along with the previously mentioned air filter (Fig. 4.2 - pos. 3).
- Called also 4-way valve, normally is manually operated but it can be at any time transformed in pneumatically or hydraulic operated upon request of the appropriate kit.
- During normal running of the pump the resulting noise should be reduced by means of a suitable silencer (Fig. 4.2 - pos. 4) mounted as close as possible to the pump itself. It has to be dimensioned for the air flow produced by the pump model. The oil used for the pump’s inside lubrication has to be separated from the exhausted air by means of an adequate oil-separator, placed directly inside the silencer. The silencer is fitted also with a draining tap for the collected oil and condensed liquids

• Over-pressure safety relief valve. It must be dimensioned to discharge the entire air-flow of the pump. The adjustment of this valve has to be kept inside 10% of tolerance of the pump’s working pressure and in any case it has to stay inside the given value of the tank’s work pressure.

• For pumps that reach, during normal operating, discharge air temperature close to 150 °C (300°F) - (checked at not more than 150 mm from the discharge connection) it is necessary to use a device (overheating limiter) that will not allow to exceed such temperature. Contact our Technical Department.

• An adjustable curved pipe is installed on the outlet of the silencer, in order to prevent rain from entering and to enable positioning (during installation) of the output airflow.

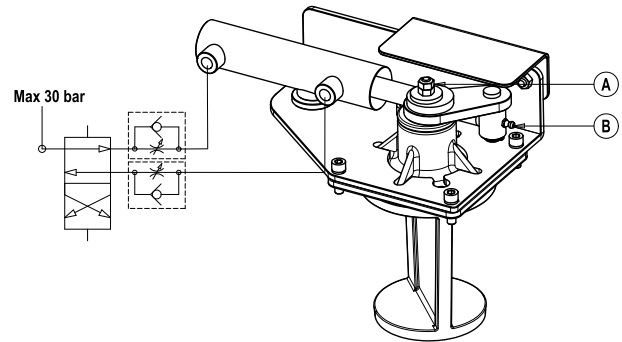
• Direct the silencer discharge output away from the silencer suction inlet in order to prevent the input of hot fluids into the injection inlet.

Attention: direct the silencer discharge output away from the silencer suction inlet.

4.5 Hydraulic actuator adjustment

• Extraordinary maintenance operations can require the upper cover (and that of the actuator, either manual or pneumatic) to be removed. We recommend ensuring enough space to carry out such operations.

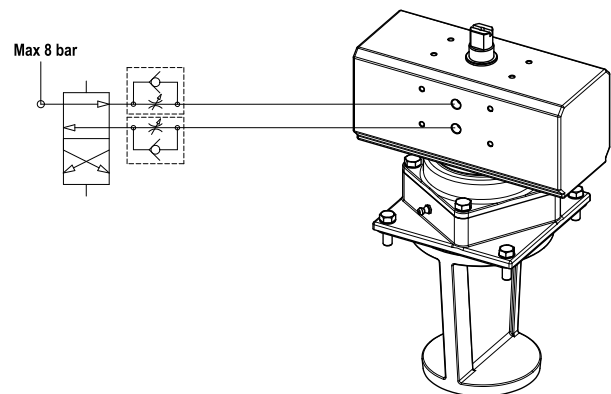
- If the cock blocks or it moves with friction, screw up the clearance regulation nut (A). Screw up ¼ of turn each time. Block the nut rotation with the safety nut.
- The lubrication points (B) and the clearance regulation bolt (A) must be accessible. See Fig. 4.5.
- Lubricate with grease every 1000 cycles. Grease type NLGI 2.
- It is suggested to install 2 one-way flow controller between the hydraulic switch and the hydraulic actuator. Set the flow controllers in order to prevent hard hitting through the end of stroke. Minimum commutation time: 1 second.
- Maximum feed pressure: 30 bar.
- To order spare parts see spare parts list at the end of this manual.



Pic. 4.3

4.6 Pneumatic actuator adjustment

• In the event of 4-way valves equipped with pneumatic actuator, we recommend installing two one-way flow regulators between the pneumatic “control” and the pneumatic actuator. The following figure shows a schematic view of a possible pneumatic installation.



Pic. 4.4

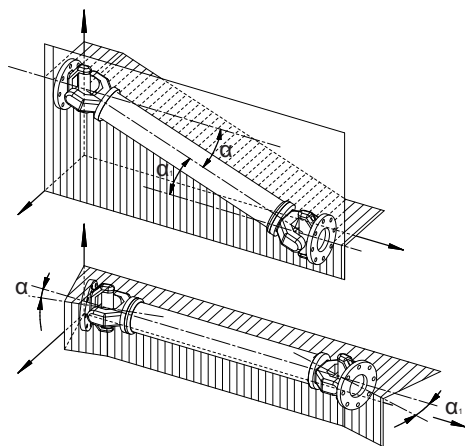
• We recommend adjusting the two flow regulators in order for rotation to occur without knocks and with a switching time of at least one second.

4.7. Pump mounting - drive connection

A) Cardan shaft drive

- Use telescopic cardan shafts.

- In order to achieve a uniform motion of the driven shaft, the following requirements must be met (see Pic. 4.5):
 - Equal working angle α and $\alpha 1$ of both couplings;
 - The internal fork joints must be coplanar;
 - Both driven and driving shafts must be coplanar.



Pic. 4.5

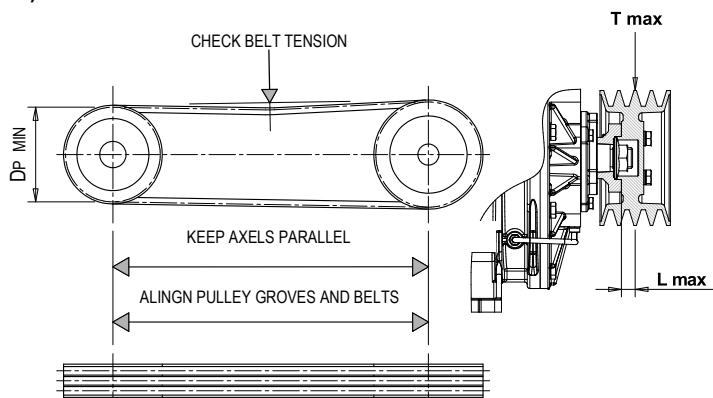
- It is also recommended working with limited articulated joint angles (max 15° at 1000 rpm and max 11° at 1100 rpm) and disengaging the transmission for those operations requiring great angles (steering or lifting).

Follow the rotation direction as indicated on the pump front conveyor protection. Follow the instructions of the cardan shaft's manufacture.

- Use the protection that comes with the Julia group shaft.

Use the cardan protection supplied with the pump. The pump installation must fulfill the current EC injury prevention specifications.

B) Belt drive



Pic. 4.6

- When using the belts and pulley, the pulley can be mounted directly on the rotor shaft.
- Always use pulleys that are suitable to be installed on the shaft end. Pulleys supplied by Jurop are strongly recommended. Look at the parts breakdown at the end of this manual.
- Install the pulley, max. overhanging. L Max 20 mm.
- Max belt tension: 2500 N Max.

Model	Max. Speed (rpm)	T. max (N)	L. max (mm)	Pitch diameter (mm)	Nr. Grooves	Belts type
R 260	1300	2500	20	150	4	XPB

Pitch Diameter. min.: Minimum drive of pulley pitch diameter.

C) Hydraulic drive transmission

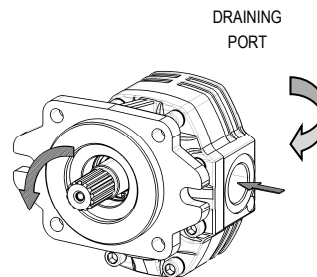
Model	Displacement	Operating pressure (max. vac.)	Flow	Max pressure draining line	Max. pressure motor exhaust	Max pressure
R 260	72 cc/rev	120 bar	100 l/min (1300rpm)	5 bar	5 bar	220 bar

(*) : Oil temperature, used in the main circuit.

- **Fluid:** mineral oil for hydraulic systems in compliance with ISO/DIN.

Temperature	Optimum viscosity ale	Max. viscosity allowed
-20 / +80 °C	12 – 100 cSt	750 cSt

- **Filtration:** class 21/19/16 contamination according to ISO 4406 to be obtained with a $\beta x = 75$ filter.
- **Check circuit connections:** they must be applied in the same rotation direction as that indicated by the arrow on the pump front flange.
- **Draining:** connect directly to the tank above the maximum oil level. Operating without draining line may damage the motor.

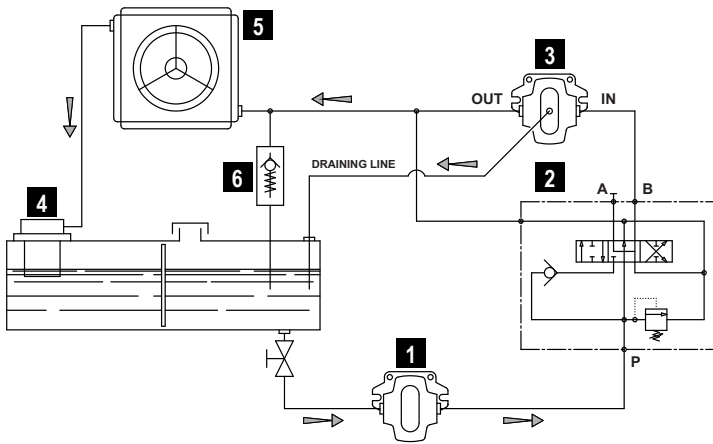


Pic. 4.7

- **Distributor:** open-centre distributor in central idle position (vacuum pump off). It must be equipped with an adjustable overpressure safety valve.

- **Motor pipeline:** outlet pipe must not be of a smaller diameter than that of the inlet port. Inlet pipes always have a diameter smaller than outlet pipes. Choose preferably flexible pipes to avoid vibration transmission.

- **Tank:** with suction pipe and return separated by baffles. If necessary, use a heat exchanger to avoid oil heating above 70-80°C and protect it from extreme pressure with a pressure relief valve. Minimum approximate capacity: as twice as the circulation flow.



Pic. 4.8

1	Hdr pump	4	Oil filter
2	Distributor	5 *	Heat exchanger
3	Hdr motor	6 *	Safety valve

* optional components

- **Starting-up:** be sure that the system is well cleaned and pour oil into the tank and into the motor housing (necessary to lubricate the internal bearings).

- Vent the circuit and adjust the overpressure safety valve to the lowest possible value.
- Check the oil tank level.
- Increase pressure and rotation speed until operating values are reached.

- The machine/system manufacturer is responsible for dimensioning the lines.

The machine/system manufacturer is responsible for dimensioning the lines.

5. Start up

5.1. Pump starting-up

- Before starting the equipment check the lubricating oil level of the pump.
- Refill the tank with lubrication oil.
- Check the oil level in the gear box (if the pump is provided with it).
- In order to choose the most suitable oil, see paragraph. 2.5.
- Check that all protection and safety devices are correctly installed.
- Check that no obstacles obstruct the vacuum and pressure line or the air injection cooling system.
- Check rotation direction: open all system valves and start running at slow speed.



Do not rotate in the wrong direction: pump may be damaged.

- Check which position of the 4-way integrated valve lever allows vacuum or pressure functioning.
- If the pump has been in storage for a long time: inlet. liter of oil in the pump for an easy cleaning of internal parts.
- Close the valve and increase vacuum rate (or operating pressure).
- Check loading and operating speed for vibrations or unusual noises.



This vacuum pump is designed to work at maximum speed. For longer operating we recommend the pump be run at working speed.

- Prepare adequately transmission.

5.2. Operating precautions

- Run the vacuum pump at a room temperature of -20°C e +40°C.
- Do not make the vacuum pump overheat. Maximum air temperature on exhaust (or delivery) side: 180°C.
- Do not operate the pump without lubrication: it may cause quick wear and possible breakdown of vanes.
- Do not start running the pump under load: that causes stress to the drive system and the hydraulic motor.
- Check rotation speed. The vacuum pump must never exceed the maximum speed or run below the minimum speed.
- Do not accidentally operate the pump in the wrong direction: it may break the vanes.
- Do not convey the exceeding delivery outlet towards the suction port, otherwise it will suck warm gas.
- Control the air flow by adjusting the rotation speed: do not use the pressure relief valve to discharge the exceeding flow.
- Once that the wanted vacuum rated has been attained it is recommendable to decrease the speed. (see par. 2.3): This useful procedure, that will not increase the time requested to fill up the tank, will however result in a lesser wear of the vanes. It is suggested to reduce the speed also when operating with pressure.
- When, exhaust temperature is reduced, vane durability is increased and both oil consumption and power absorption are reduced.



Once the needed vacuum rate has been reached, we recommend reducing the vacuum pump speed to its working speed.

- Internal wash-up is necessary after prolonged inactivity, after working in dusty environments or in case of accidental suction of liquids. Such operation must be carried out only on cooled pumps.
1. Disconnect the exhaust silencer, if possible;
 2. Start running the pump at low speed;
 3. Suck some water (about 1-2 litres) through the inlet port;
 4. Then suck oil (about 1 litre) to complete the wash-up and lubricate internal components.



In case the exhaust line cannot be disconnected, drain the liquids accumulated in the separator of the exhaust silencer.

- After prolonged inactivity, suck some oil (about ½ litre) through the suction connection to lubricate internal components.
- The air injection cooling system grants the use of the vacuum pump at high vacuum rates. Anyway it has to be remembered that the pump has been designed for non-continuous work. This cooling system allows to dissipate part of the accumulated heat still at satisfactory lubrication conditions. Continuous, heavy-duty work, or prolonged work periods will cause an over-heating of the pump, consequently reducing performances and durability.

6. Maintenance

6.1. Ordinary maintenance

- Installation and maintenance must be operated only by qualified personnel wearing the proper clothes and the necessary tools as well as protection devices.
- Use suitable protection equipment (gloves, protection glasses, boots...)
- In the following table summarizes the main controls to be performed and the frequency of intervention.

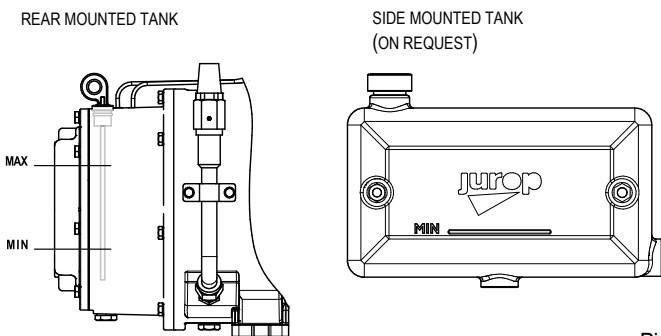
Operating condition	Maintenance Area	Check	8H	50H	500H	1000H
OPERATING	Vacuum line	Check safety valve (non-return valve)				
		Operating pressure				
	Transmission / Pump	Rotation speed				
		Sound pressure level (also HDR motor)				
STANDSTILL	Vacuum line	Suctions filters				
		4-way changeover valve: check and lubricate				
	Pump	Sintered filter cleaning				
		Check vanes wear				
		Change oil in the gear box, if the pump is provided with it (*)				
		Pump's inner washing (**)				
	Overall	Greasing				
		Check cardan shaft drive				
		Check transmission pulley				

(*) The first oil change must be done inside 500 hours operation. Following changes every 5000 hours or 12 months. In order to choose the most suitable oil, see paragraph 2.5.

(**) After operation in dusty environments, after accidental sucking of liquids inside the pump or before a long inoperativity period it is recommended to wash the pump inside according to the procedure described at paragraph 5.2.

Checking the oil tank level

- Check the oil tank level.
- Do not run the pump with oil level under the minimum level: that may lead to dry functioning and cause serious damages. (Fig. 6.1).



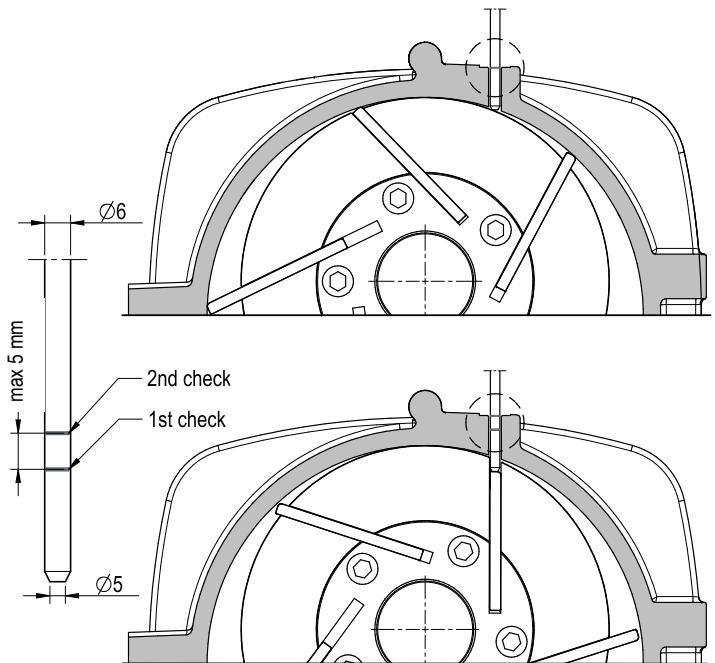
Pic. 6.1

- Rear mounted tank capacity: 2,3 l.
- Side mounted tank capacity: 4 l.
- Use pure and fresh oil. In order to choose the most suitable oil, see paragraph 2.5.

Checking the vanes wear

- Unscrew the vanes wear check-plug on the rear flange. See Pic. 4.1.

- Turn the shaft by hand until vanes appearance.
- Vanes usually slip on seat bottom due to gravity. Check their right entry in the seat.
- Insert a $\varnothing 6$ mm stick until it touches the rotor and then mark like in Pic. 6.2.
- Turn the rotor slowly until the stick touches the vane in idle position in its seat. The vanes slide to the bottom of the seat due to gravity: check they really do and mark again on the stick.
- Repeat the same procedure for all the vanes. If wear exceeds 5 mm: replace the vanes as soon as possible.



Pic. 6.2

- Replace all the pump vanes at the same time.

Replace the vanes when their wear exceeds 5 mm (L – L min): they may break. Replace all vanes at the same time.

- Replace the cap after the measurement.

6.2. Extraordinary maintenance

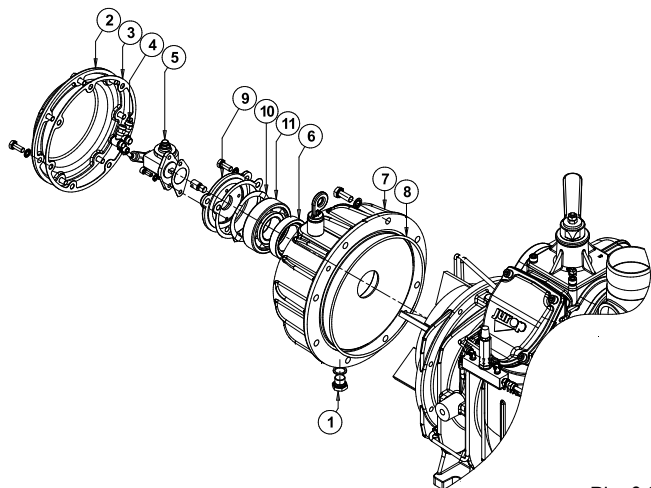
• Before starting any extraordinary maintenance operation, be sure the pump stands still and follow the safety prescriptions as described in Cap. "Safety and accident prevention".

Replacing the vanes (R260 with rear oil tank)

• Remove the vacuum pump from its bearing frame and wash it before disassembling.

• It is suggested to remove the oil tank on the rear part because generally the pump's drive components are fitted on the front flange. Use always the specific kit of gaskets for the pump model at hand (see also spare parts list).

- Material that is subject to wear: replace.



Pic. 6.3

Pos.	Code	Description
1	1684000000	PLUG 3/8
2	1640101100	TANK'S CAP
3	1680707500	CAP'S GASKET
4	4026706101	PIPE'S FITTING
5	4024251500	OIL PUMP (RIGHT)
	4024251000	OIL PUMP (LEFT)
6	4022200111	SEAL 72X48X15
7	1612500300	OIL TANK
8	4022200341	OR
9	1610508500	PUMP'S FLANGE
10	4026300020	COMPENSATION RING
11	4023100140	BEARING

Disassemble operation

- Drain the oil tank through the proper port (pos. 1).

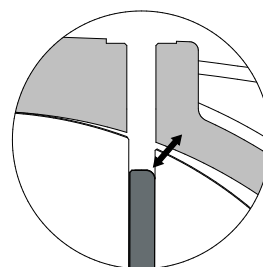
• Remove the tank's cap (pos. 2) and change the gasket (pos. 3); unscrew the lubrication pipe's fittings (pos. 4) connecting the oil pump to the oilers.

- Remove the oil pump (pos. 5).

• Remove the screws fixing the oil tank (pos. 7) and carefully remove it, eventually using two screws partially winded inside the threads. Avoid that the rotor falls down inside the housing, supporting it if necessary with adequate tools. Change the OR (pos. 8). Remove the oil pump's flange (pos. 9), the compensation ring (pos. 10) and the bearing (pos. 11) this will make the reassembly of the oil tank much easier (pos. 7).

- Lubricate the new vanes before inserting them in the rotor's slots.

• The new vanes have to be inserted with the rounded corner facing towards the housing (See Pic. 6.4).



Pic. 6.4

Assemble operation

• Reassemble everything again in the right sequence, absolutely avoiding to leave foreign parts inside the pump. Always change all the gaskets and the OR after having them properly lubricated and also the seal (pos. 6) if necessary add some grease in the space between the bearing (pos. 11) and the flange (pos. 9).

• Reassemble the oil tank (pos. 7) and the OR (pos. 8) carefully inserting the drive shaft without damaging the seal.

• Insert the bearing (pos. 11), the compensation ring (pos. 10), and the oil pump's flange (pos. 9).

• Insert correctly the lubrication pump in the driving slot and refit the flange.

- Reassemble the lubrication pipes and fittings.

• Reassemble the tank's cap (pos. 2) and the gasket (pos. 3).

• Replace the plug on the tank (pos. 1) and refill it with lubrication oil.

M Mounting the hydraulic drive

• We recommend the drive coupling be oiled when vanes are being replaced.

- However lubricate the drive coupling every 1500 hours.

We recommend the drive coupling be oiled every 1500 hours.

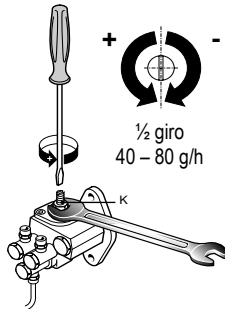
• Apply coupling hub to vacuum pump axis respecting the position marked during disassembly: the grain must go back into the seat on the rim.

• Mount the coupling and lubricate internally with NLGI 2 Lithium grease. Provide an adequate quantity of fat, in order to have a medium filling.

- Reassembly the motor without forcing onto the seals.

Adjusting the self-lubricating pump

- The automatic lubricating pump is adjusted by the manufacturer before the shipping.
- If consumption noticeably differs from the indicated value, adjust it as follows:
 - Remove the upper protection cover;
 - Using a screwdriver and a 10 mm wrench, adjust the adjusting screw (K). Close the nut and remount the upper protection cover;
 - It is advisable to turn the screw of $\frac{1}{4}$ of turn and verify the actual consumption.



Pic. 6.5



Do not reduce oil consumption below the value indicated in par. 2.2 (for functioning at speeds different from the maximum, flow is proportionate to rotating speed).

- $\frac{1}{2}$ turn of the adjusting screw causes a variation in the flow of approximately **40 - 80 g/h**, depending on using conditions.

Cleaning of the inside exhaust port of the pump housing and the 4-way manifolds

- Frequency: at every changing of the vanes.
- How to proceed: dismantle the manifold and remove possible oil scales or other foreign parts.
- The clogging-up of this manifold and the exhaust port depends mainly from heavy duty use of the pump and causes an increase of temperature and a non-perfect closing of the check valve. A careful cleaning of all components, including the insides of the housing and the non-return check valve and its seat, is therefore strongly recommended.

7. Malfunctions: troubleshooting

PROBLEMS

Overheating

Cause	Solution
• Faulty lubrication	• Check the oil pump
• Missing oil	• Fill up the oil tank
• Revolutions too high	• Reduce the speed
• Operating time too long at too high vacuum rate	• Decrease the vacuum rate
• Clogged filters on the air injection system	• Clean the filters
• Insufficient diameter of vacuum and discharge line	• Check the correct dimensions of the line (minimum suggested 3")

Il compressore non gira

Cause	Solution
• Broken vanes: - due to foreign parts - due to faulty lubrication	• Dismantle the pump and change the vanes • Check/clean the filters and elements on the vacuum line • Check the lubrication pump
• Damaged drive system	• Change the damaged parts
• Frozen up pump	• Warm-up the pump

Riduzione delle prestazioni

Cause	Solution
• 4-way valve handle in neutral position	• Move the handle against the resting pin
• Worn vanes	• Change the vanes
• Leaking check valve	• Clean the check valve
• Worn O-rings	• Change the seals
• Leaking gaskets and/or valves on the vacuum tank	• Change that damaged parts
• Clogged connecting pipeline	• Change the damaged hoses - pipes
• Floating ball or air filter obstructed	• Dismantle and clean
• Crusted up exhaust manifold	• Dismantle and clean
• Vacuum line components under-dimensioned	• Check the dimensioning for the pump model at hand
• Rubber connection obstructed or damaged	• Change the connections

Anomalo consumo d'olio

Cause	Solution
• Insufficient lubrication	• Adjust the oil pump flow
• Excessive oil consumption	• Loss of adjustment of the oil pump • Probable wear or breakage of the seal rings of the vacuum pump shaft. Replace them • Check the fittings built on the automatic oil pump and screw tight

8. Scrapping

• Recycling materials allow reducing the environmental impact and respecting the environment.

• Before scrapping the machine, the following materials need to be separated and suitably disposed of



Do not dispose of in the environment. Dispose of in compliance with the standards in force.

Material	Cast Iron	Steel	Aluminum	Copper	Bronze	Rubber	Vaness	Oil	Plastic
R 260	91 %	7 %	0,3 %	0,2 %	0,1 %	0,1 %	0,8 %	0,3 %	0,2 %

R 260

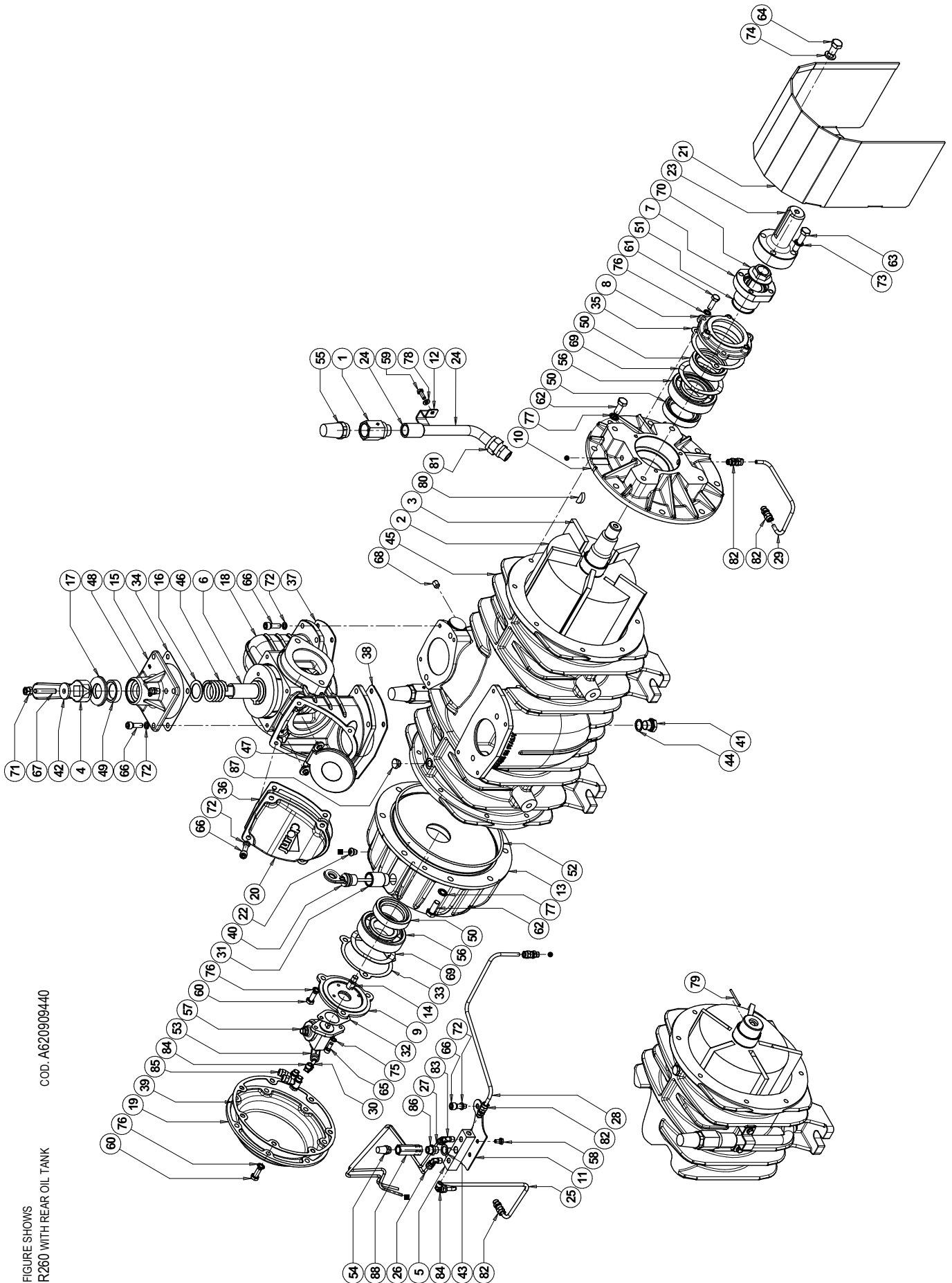
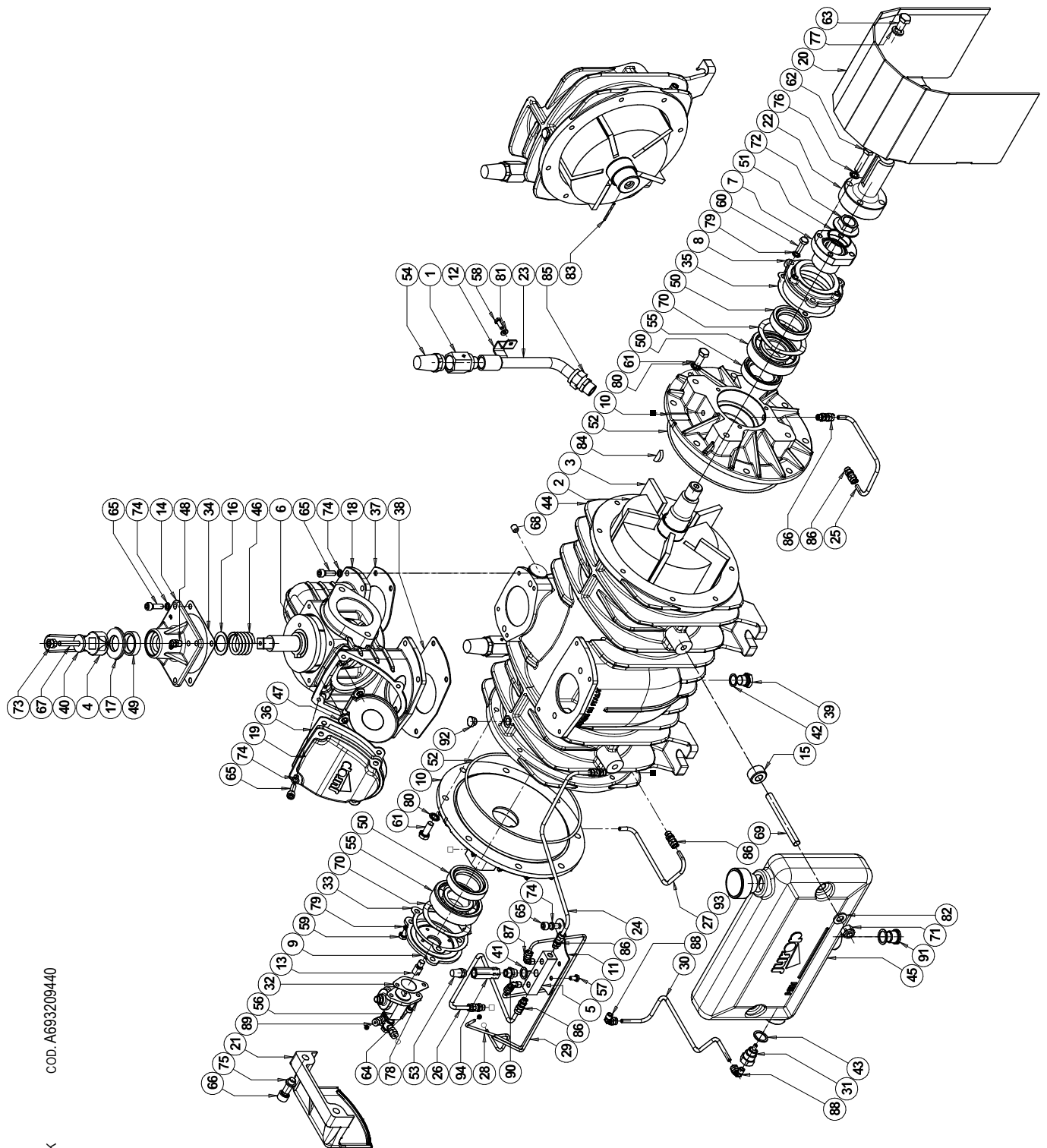


FIGURE SHOWS
R260 WITH REAR OIL TANK
COD. A620909440

R 260

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1493300200	AIR INJECTION VALVE 1/2"	2	53	4022300001	FILTER	1
2	1521500900	ROTOR R 260	1	54	4022301001	OIL BLOCK FILTER ¼	1
3	1601604200	VANE	5	55	4022301004	OIL BLOCK FILTER ¾	2
4	1605500000	HANDLE	1	56	4023100140	BEARING 6308	2
5	16081001E0	DISTRIBUTOR	1	57	4024251500	OIL PUMP (RIGHT)	1
6	1608503100	CONVEYOR	1		4024251000	OIL PUMP (LEFT)	1
7	1610006600	FLANGE	1	58	4026102702	SCREW TE M6X12	2
8	1610500400	FLANGE	1	59	4026102704	SCREW TE M6X16 ZINC.	4
9	1610508500	OIL PUMP FLANGE	1	60	4026102806	SCREW TE M8X20	10
10	16105E5BB0	FLANGE	1	61	4026102807	SCREW TE M8X25	3
11	16120816F0	PLATE	1	62	4026102907	SCREW TE M10X25	16
12	16120820E0	PLATE	2	63	4026102911	SCREW TE M10X45 ZINC.	4
13	1612500300	OIL TANK	1	64	4026103000	SCREW TE M12X20 ZINC.	4
14	1622002600	OIL-PUMP DRIVE PIN	1	65	4026121305	SCREW TCEI M6X16 ZINC.	2
15	1623100800	COCK MANIFOLD	1	66	4026121407	SCREW TCEI M8X25 ZINC.	16
16	162409YKBO	SPACER	1	67	4026135414	SCREW M8X45	1
17	1624202300	SPACER	1	68	4026135504	SCREW M10X10	1
18	16275008E0	MANIFOLD	1	69	4026300020	COMPENSATION RING	2
19	1640101100	CAP	1	70	4026305614	NUT	1
20	16401098E0	CAP	1	71	4026308005	NUT M8.	2
21	1642003000	PROTECTION	1	72	4026350505	WASHER GROWER 8 ZINC.	15
22	1642600000	PROTECTION	2	73	4026350708	WASHER GROWER 10 ZINC.	4
23	1650004300	FRONT SMOOTH SHAFT	1	74	4026350709	WASHER GROWER 12 ZINC.	4
	1650004700	FRONT SPLINED SHAFT	1	75	4026351504	WASHER M 6 ZINC.	2
24	1663014000	PIPE	2	76	4026351505	WASHER M 8 ZINC.	13
25	16630254E0	PIPE	1	77	4026351506	WASHER M10 ZINC.	16
	16630259E0	PIPE	1	78	4026357003	WASHER M6 ZINC.	4
26	16630255E0	PIPE	1	79	4026414617	PIN 3X40	1
	16630261E0	PIPE	1	80	4026500018	TAB 6X10	1
27	16630256E0	PIPE	1	81	4026701301	FITTING 1/2X18	2
	16630260E0	PIPE	1	82	4026702004	FITTING 6X1/8	5
28	16630257E0	PIPE	1	83	4026706000	FITTING 90°4X1/8	2
	16630262E0	PIPE	1	84	4026706003	FITTING 90° 6X1/8	2
29	16630258E0	PIPE	1	85	4026706101	FITTING 4-1/8	2
	16630263E0	PIPE	1	86	4026740011	FITTING G1/4	1
30	1663041200	PIPE	1	87	4026905002	PLUG 1/4	1
31	1673004100	OIL DIP-STICK SLEEVE	1	88	4027409920	ONE-WAY VALVE G1/4	1
32	1680609700	GASKET	1				
33	1680609800	GASKET	1				
34	1680700200	GASKET	1				
35	1680700400	GASKET	1				
36	16807020E0	GASKET	1				
37	16807021E0	GASKET	1				
38	16807022E0	GASKET	1				
39	1680707500	GASKET	1				
40	1683600300	ASTA LIVELLO	1				
41	1684000000	TAPPO SCARICO 3/8	4				
42	1685002800	RONDELLA FE 30X8,5 SP.4	1				
43	1685100000	RONDELLA OLIAT 14X20X1,5	1				
44	1685100200	RONDELLA PIANA 17X22X1,5	4				
45	16875026E0	OIL STICK	1				
46	1691000000	SPRING	1				
47	18930009E0	CLAPET	1				
48	4022100107	GREASER	1				
49	4022200030	SEAL 41X27X10	1				
50	4022200111	SEAL 72X48X15	3				
51	4022200313	OR 2162	1				
52	4022200341	OR 4825	2				

R 260 SIDE OIL TANK

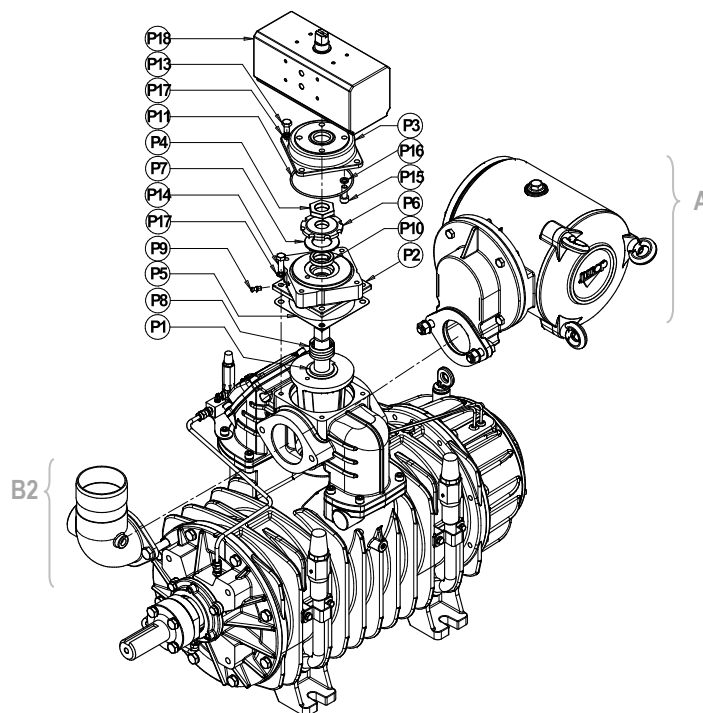
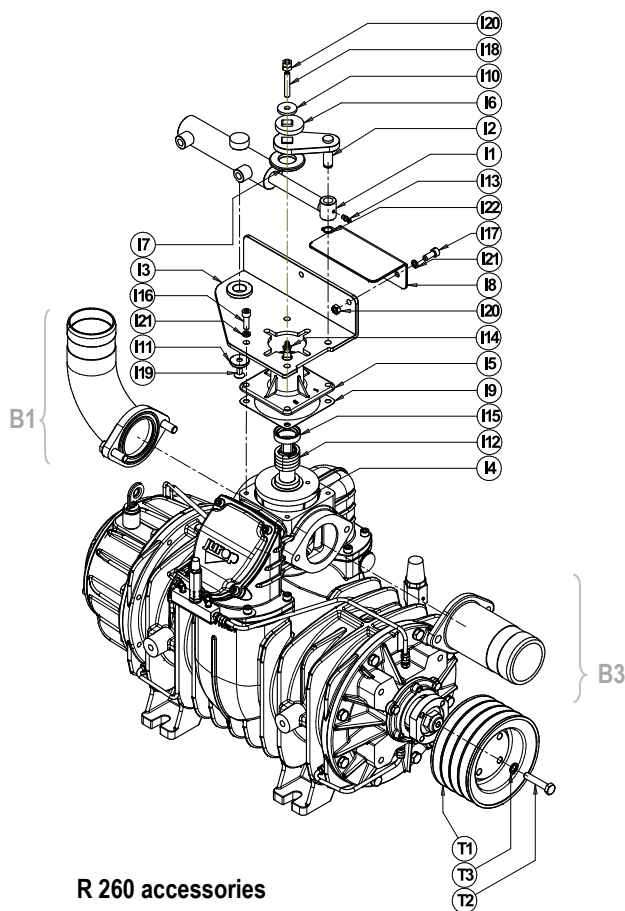


COD. A693209440
IN FIGURA
R 260 WITH SIDE OIL TANK

R 260 with side oil tank

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1493300200	AIR INJECTION VALVE 1/2"	2	51	4022200313	OR 2162	1
2	1521500900	ROTOR R260	1	52	4022200341	OR 4825	2
3	1601604200	VANE	5	53	4022301001	OIL BLOCK FILTER ¼	1
4	1605500000	HANDLE	1	54	4022301004	OIL BLOCK FILTER ¾	2
5	16081001E0	DISTRIBUTOR	1	55	4023100140	BEARING 6308	2
6	1608503100	CONVEYOR	1	56	4024251500	OIL PUMP (RIGHT)	1
7	1610006600	FLANGE	1		402451000	OIL PUMP (LEFT)	1
8	1610500400	FLANGE	1	57	4026102702	SCREW TE M6X12 ZINC.	2
9	1610508500	OIL PUMP FLANGE	1	58	4026102704	SCREW TE M6X16 ZINC.	4
10	16105E5BB0	FLANGE	2	59	4026102806	SCREW TE M8X20 ZINC.	3
11	16120816F0	PLATE	1	60	4026102807	SCREW TE M8X25 ZINC.	3
12	16120820E0	PLATE	2	61	4026102907	SCREW TE M10X25 ZINC.	16
13	1622002600	OIL-PUMP DRIVE PIN	1	62	4026102911	SCREW TE M10X45 ZINC.	4
14	1623100800	COCK MANIFOLD	1	63	4026103000	SCREW TE M12X20 ZINC.	4
15	1624042800	SPACER	4	64	4026121305	SCREW TCEI M6X16 ZINC.	2
16	162409YKB0	SPACER	1	65	4026121407	SCREW TCEI M8X25 ZINC.	16
17	1624202300	SPACER	1	66	4026121710	SCREW TCEI M12X35 ZINC.	2
18	16275008E0	MANIFOLD	1	67	4026135414	SCREW M8X45 ZINC.	1
19	16401098E0	CLAPET CAP	1	68	4026135504	SCREW M10X10 ZINC.	1
20	1642003000	PROTECTION	1	69	4026171213	SCREW M12X100	2
21	1642100200	REAR PROTECTION	1	70	4026300020	COMPENSATION RING	2
22	1650004300	FRONT SMOOTH SHAFT	1	71	4026305508	DADO M12 ESAG. AUTOBLOCC.	2
	1650004700	FRONT SPLINED SHAFT	1	72	4026305614	DADO FLANGIATO AUTOFR. M24X2	1
23	1663014000	PIPE	2	73	4026308005	NUT M8	2
24	16630257E0	PIPE	1	74	4026350505	WASHER GROWER 8 ZINC.	16
	16630262E0	PIPE	1	75	4026350508	WASHER GROWER 12 ZINC.	2
25	16630258E0	PIPE	1	76	4026350708	WASHER GROWER 10 ZINC.	4
	16630263E0	PIPE	1	77	4026350709	WASHER GROWER 12 ZINC.	4
26	16630262E0	PIPE	1	78	4026351504	WASHER M6 ZINC.	2
	16630257E0	PIPE	1	79	4026351505	WASHER M8 ZINC.	6
27	16630263E0	PIPE	1	80	4026351506	WASHER M10 ZINC.	16
	16630258E0	PIPE	1	81	4026357003	WASHER M6 ZINC.	4
28	16630270E0	PIPE	1	82	4026357007	WASHER M12 ZINC.	2
	16630274E0	PIPE	1	83	4026414617	PIN 3X40	1
29	16630271E0	PIPE	1	84	4026500018	TAB 6X10	1
	16630275E0	PIPE	1	85	4026701301	FITTING 1/2X18	2
30	16630272E0	PIPE	1	86	4026702004	FITTING 6X1/8	8
	16630276E0	PIPE	1	87	4026706000	FITTING 90° 4X1/8	2
31	1673001000	OIL FITTING	1	88	4026706003	FITTING 90° 6X1/8	2
32	1680609700	GASKET	1	89	4026706101	FITTING 4-1/8	2
33	1680609800	GASKET	1	90	4026740011	FITTING G1/4	1
34	1680700200	GASKET	1	91	4026904503	PLUG M20X1,5	1
35	1680700400	GASKET	1	92	4026905002	PLUG 1/4	1
36	16807020E0	GASKET	1	93	4026910103	PLUG	1
37	16807021E0	GASKET	1	94	4027409920	ONE-WAY VALVE	1
38	16807022E0	GASKET	1				
39	1684000000	PLUG 3/8	3				
40	1685002800	WASHER FE 30X8,5	1				
41	1685100000	WASHER 14X20X1,5	1				
42	1685100200	WASHER 17X22X1,5	3				
43	1685100300	WASHER	2				
44	16875026E0	HOUSING R260	1				
45	1687600000	SIDE OIL TANK	1				
46	1691000000	SPRING	1				
47	18930009E0	CLAPET	1				
48	4022100107	GREASER	1				
49	4022200030	SEAL 41X27X10	1				
50	4022200111	SEAL 72X48X15	3				

R 260 ACCESSORIES



R 260 accessories

Pos.	Code	Description	Q.ty
A	185219N7B0	KIT SUCTION FILTER	
B1	1852104800	TURNING CONVEYOR Ø76	
B2	1852108800	FIXED CONVEYOR Ø60	
B2	1852108900	FIXED CONVEYOR Ø76	
B2	1852104700	FIXED CONVEYOR Ø80	
B3	1627100700	FIXED CONVEYOR 60 MIX	
B3	1627100900	FIXED CONVEYOR80 MIX	
	143029K2B0	KIT ATTUATORE IDRAULICO	
I1	143027T6B0	HYDRAULIC ACTUATOR	1
I2	150206XXB0	ACTUATOR LEVER	1
I3	151309JVB0	ACTUATOR SUPPORT	1
I4	1608503200	CONVEYOR	1
I5	1623100800	COCK MANIFOLD	1
I6	16240A0IB0	SPACER	1
I7	1624202300	SPACER	1
I8	164206XYB0	PROTECTION	1
I9	1680700200	GASKET	1
I10	1685002800	WASHER 30X8,5 ZINC.	1
I11	168509U0B0	WASHER	1
I12	1691000000	SPRING	1
I13	4022100100	GREASER M6X1	1
I14	4022100107	GREASER M10X1	1
I15	4022200030	SEAL 41X27X10	1
I16	4026120405	SCREW TCEI M8X25	4
I17	4026121405	SCREW TCEI M8X20 ZINC.	2
I18	4026135414	SCREW M8X45	1
I19	4026155705	SCREWT SPEI M8X16 ZINC.	1

Pos.	Code	Description	Q.ty
I20	4026308005	NUT M8	4
I21	4026350505	WASHER GROWER M8	6
I22	4026510012	SEEGER	1
	143028B7B0	KIT PNEUMATIC ACTUATOR	
P1	160858KNB0	CONVEYOR	1
P2	161258B4B0	ACTUATOR SUPPORT	1
P3	1640580QB0	ACTUATOR COVER	1
P4	167007ZAB0	CONVEYOR NUT	1
P5	1680700200	GASKET	1
P6	168409PQB0	RING NUT	1
P7	168529TFB0	SPACER	1
P8	1691000200	CONVEYOR SPRING	1
P9	4022100100	IGREASING NIPPLE M6X1	1
P10	4022200005	Y-SEAL 37X27X7	1
P11	4022200330	OR 3375	1
P12	4022200331	OR 2137	1
P13	4026102804	SCREW TE M8X16 ZINC.	4
P14	4026107110	SCREW TE M8X25	4
P15	4026120403	SCREW TCEI M8X20	4
P16	4026350505	WASHER GROWER 8 ZINC.	4
P17	4026350909	WASHER M8	8
P18	4027100405	PNEUMATIC ACTUATOR	1
		TRASMISSIONE CON PULEGGIA	
T1	1653500900	PULEGGIA SPB 200X4	1
	1653501000	PULEGGIA SPB 150X4	1
T2	4026102910	VITE TE M10X40 ZINC	4
T3	4026350708	RONDELLA GROWER 10 ZINC	4

Model	Issue date	Revision No.	Revision date	Filled out by	Viewed by
R	25-03-2013	01	23-02-2017	U.T.	A.T.

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Juop SpA reserves the right to modify the products described in this manual without prior notice.