LK Series

LK36 – LK40 – LK45

LK50 – LK55 – LK60

Use and Maintenance Manual

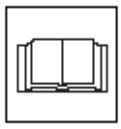
INDEX

1. INTRODUCTION

This manual contains the instructions for the use and maintenance of the LK pump. It must be carefully read and understood before the pump is used.
The proper functioning and lifetime of the pump depends on correct use and proper maintenance.
Interpump Group declines all responsibility for damage caused due to negligence and/or failure to observe the instructions described in this manual.
Upon delivery, check that the pump is undamaged and complete.
Report any problems before installing and starting the pump.

2. SYMBOL DESCRIPTION

Warning



Carefully read the contents of the manual before every operation.

Danger
Danger of electrocution.

Danger
Use a protective mask.

Danger
Use protective goggles.

Danger
Put on protective gloves before every operation.

Danger
Use safety boots

3. SAFETY

3.1 General safety warnings

Improper use of pumps and high-pressure systems, and/or failure to observe the installation and maintenance instructions, can cause serious injury to persons and/or damage to property. Anyone preparing to assemble or use high-pressure systems must have the necessary skills to do so, must be aware of the characteristics of the components to be assembled/used, and must adopt all possible precautions necessary to ensure maximum levels of safety in any operating condition. No reasonably applicable precaution must be omitted in the interests of safety, either by the installer or the operator.

3.2 Essential safety elements in the high-pressure system.

1. The pressure line must always have a safety valve.
2. The components of the high pressure system, particularly for systems that operate predominantly outdoors, must be adequately protected from rain, cold and heat.
3. The electrical parts of the system, as well as being adequately protected from water sprays, must meet the standards specified in the regulations currently in force.
4. High-pressure pipes must be correctly dimensioned for the maximum operating pressure of the system, and must always and only be used within the range of working pressures indicated by the maker of the pipe.
   These precautions must be observed for all other accessories of the system which are connected in any way with high pressure.
5. The ends of high-pressure pipes must be sheathed and anchored to a solid structure, to prevent dangerous whiplashes in the event of bursting or breakage of the connections.
6. Suitable protective casings must be installed at the pump transmission systems (junctions, belts and pulleys, auxiliary power take-offs).

3.3 Safety during operation.

The environment or area within which a high-pressure system operates must be clearly indicated and access prohibited to unauthorised personnel and, as far as possible, it must be restricted and/or fenced off.
Personnel who are authorised to access this area must be trained in advance on how to conduct themselves in this area, and they must be informed of the risks deriving from defects or malfunctions of the high-pressure system.
Before starting the system, the Operator is required to verify that:

1. The high-pressure system is correctly fed (see 9.4).
2. The pump inlet filters are perfectly clean; we recommend inserting a device (any type) that indicates the level of congestion.
3. The electrical parts are adequately protected and in perfect working order.
4. The high-pressure pipes do not show any evident signs of abrasion and the fittings are in perfect order.

Any anomaly or reasonable doubt that may arise before or during operation must be immediately reported and checked by qualified and authorised personnel. In such cases the pressure must immediately be brought down to zero and the high-pressure system must be stopped.

3.4 Instructions for using nozzles.

1. The operator must always put his/her health and safety, and also the health and safety of third parties that may be directly affected by the operator's actions, above all else and above any other interest. Everything the operator does must be dictated by good sense and responsibility.
2. The operator must always wear a hard hat with a protective visor, impermeable clothing, and suitable boots that will provide a good grip on the floor when it is wet.

Note: proper clothing provides good protection from water sprays, but not from the direct impact of a water jet or from sprays at extremely close range. In such circumstances further protection will be necessary.

3. It is good practice to work in teams of at least two persons, so as to provide each other with immediate assistance if necessary, and to take over from each other during long and demanding tasks.
4. Access to the work area reached by the radius of action of the jet must be absolutely prohibited, and the area itself must be free from objects which, if inadvertently hit by the pressure jet, could cause damage and/or create dangerous situations.
5. The water jet must always, and only, be pointed in the direction of the work area. This rule also applies when conducting tests or preliminary checks.
6. The operator must always pay attention to the trajectory of the debris removed by the water jet. Where necessary, adequate bulkheads must be installed by the operator to protect anything that could be accidentally exposed.
7. While working, the operator must not be distracted for any reason whatsoever. Any persons needing to access the operational area must wait for the operator to suspend activities on his/her own initiative, and then make their presence known immediately.
8. For reasons of safety, it is essential that all members of the team are always completely aware of each other's intentions, in order to prevent dangerous misunderstandings.
9. The high pressure system must not be started and brought up to pressure without all members of the team first being in position and the operator having already directed the nozzle towards the work area.

3.5 Safety during system maintenance

1. Maintenance of the high-pressure system must be carried out at the time intervals specified by the maker, who is legally responsible for the entire assembly.
2. Maintenance must always be carried out by authorised specialist personnel.
3. The pump and the various different components must be assembled and dismantled exclusively by authorised personnel using the proper equipment, in order to prevent damage to the components and especially to the connections.
4. To guarantee total reliability and safety, only ever use original spare parts.

4. PUMP IDENTIFICATION

Every pump has a rating plate bearing the following information:

Pump model and version
Serial number
Max rpm
Power consumption HP – kW
Pressure in bar – P.S.I.
Flow in l/min – RPM

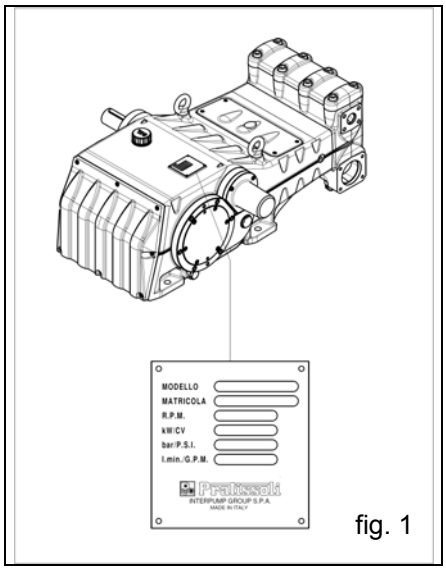


fig. 1

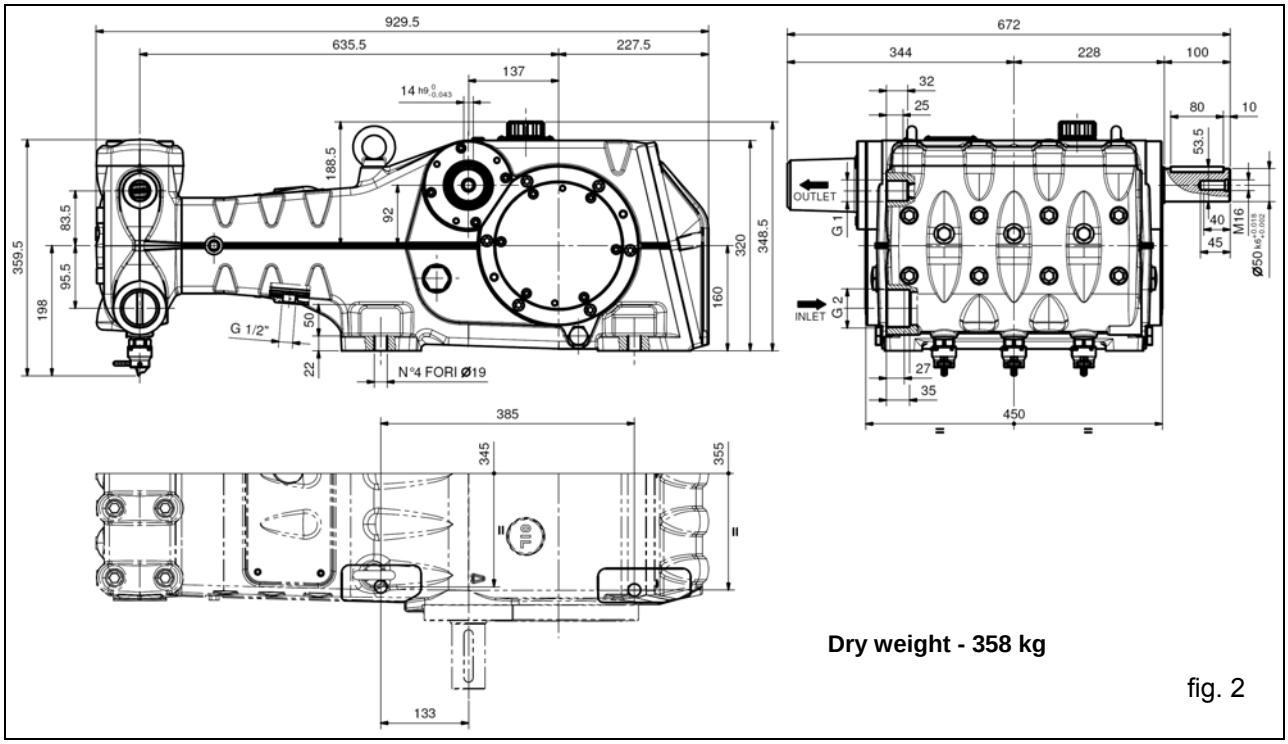
The model, version and serial number must always be specified when ordering spare parts.

5. TECHNICAL CHARACTERISTICS

Model	Revs/1'	Flow		Pressure		Power	
		l/min	RPM	bar	PSI	kW	HP
LK 36	1500	140	37.0	400	5800	107	145
	1750	152	40.2	400	5800	116	158
	1900	154	40.7	400	5800	118	161
LK 40	1500	173	45.7	350	5075	115	157
	1750	188	49.7	350	5075	126	171
	1900	190	50.2	350	5075	127	173
LK 45	1500	218	57.6	280	4060	117	159
	1750	238	62.9	280	4060	127	173
	1900	241	63.7	280	4060	129	176
LK 50	1500	269	71.1	230	3335	118	161
	1750	294	77.7	230	3335	129	176
	1900	297	78.5	230	3335	130	177
LK 55	1500	326	86.1	190	2755	118	161
	1750	355	93.8	190	2755	129	176
	1900	360	95.1	190	2755	131	178
LK 60	1500	388	102.5	160	2320	118	161
	1750	423	111.8	160	2320	129	176
	1900	428	113.1	160	2320	131	178

6. DIMENSIONS AND WEIGHTS

For dimensions and weights of the LK36, LK40 and LK45 pumps, please see fig. 2.

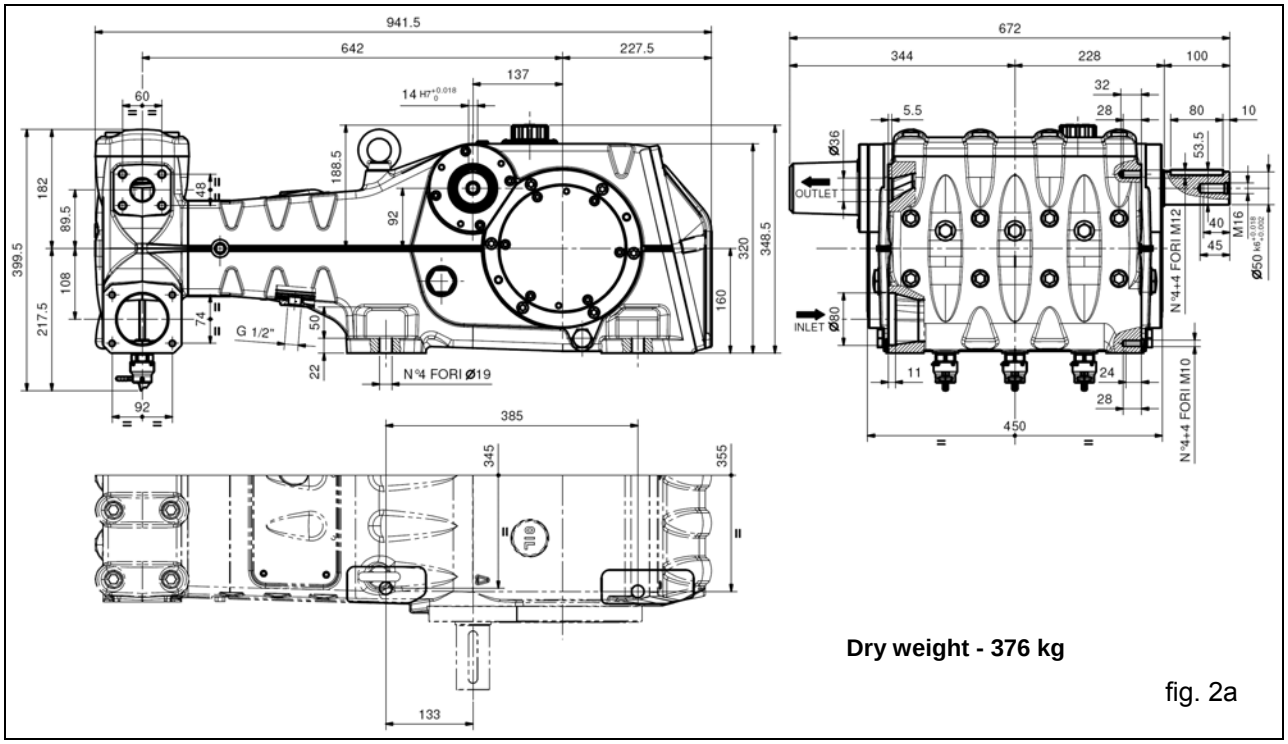


Dry weight - 358 kg

fig. 2

FORI = HOLES

For dimensions and weights of the LK50, LK55 and LK60 pumps, please see fig. 2/a.



Dry weight - 376 kg

fig. 2a

FORI = HOLES

7. INSTRUCTIONS FOR USE

The LK pump is designed to work with filtered water (see paragraph 9.6) and at a maximum temperature of 40°C.
Other liquids can only be used if previously approved by the ***Technical Office or Customer Assistance Service.***

7.1 Water temperature.

The maximum water temperature permitted is 40°C. However, the pump can be used with water at temperatures of up to 60°C, but only for brief periods. In such cases we recommend consulting the ***Technical Office or Customer Assistance Service.***

7.2 Maximum flow and pressure.

The performance figures given in the catalogue are for the maximum performance levels that the pump can provide. **Independently** of the power used, the maximum pressure and RPM indicated on the plate cannot be exceeded unless explicitly authorised by the ***Technical Office or Customer Assistance Service.***

7.3 Running at minimum speed

Any running speed other than the one specified in the performance table (see section 5) must be explicitly authorised by the ***Technical Office or Customer Assistance Service.***

7.4 Recommended brands and types of oil

The pump is delivered with oil suitable for use in ambient temperatures of from 0°C to 30°C.
Some recommended types of oil are given in the table below. These are oils combined with additives to increase protection from corrosion and resistance to fatigue (to DIN 51517 part 2).
Alternatively, Automotive SAE 85W-90 lubricant oils for gearing can be used.

Hersteller Manufacturer Producteur	Schmieröl Lubricant Lubrifiant
Agip	AGIP ACER 220
ARAL	Aral Degol BG 220
BP	BP Energol HLP 220
Castrol	CASTROL HYSPIN VG 220, CASTROL MAGNA 220
DEA	Falcon CL 220

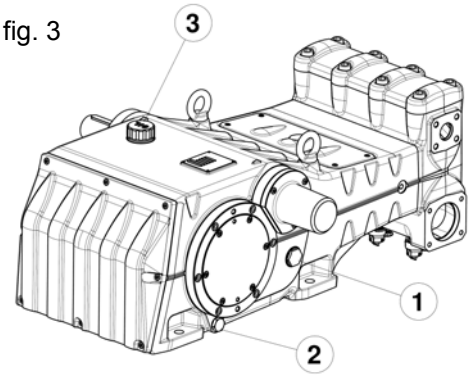
Hersteller Manufacturer Producteur	Schmieröl Lubricant Lubrifiant
elf	ELF POLYTELIS 220, REDUCTELF SP 220
Esso	NUTO 220, TERESSO 220
FINA	FINA CIRKAN 220
FUCHS	RENOLIN 212, RENOLIN DTA 220
Mobil	Mobil DTE Oil BB

Hersteller Manufacturer Producteur	Schmieröl Lubricant Lubrifiant
Shell	Shell Tellus Öl C 220
SRS	Wintershall Ersolan 220, Wintershall Wiolan CN 220
TEXACO	RANDO HD 220
TOTAL	TOTAL Cortis 220

Check the oil level with the oil level lights located on the sides ①, fig.3.

If necessary, top up via the oil plug ③, fig.3.
To correctly check the oil level the pump must be at ambient temperature. To change the oil the pump must be at operating temperature, and is done by removing the plug pos.②, fig.3.
Checking and changing the oil must be done as shown in section 11.
The quantity necessary is ~14 litres.

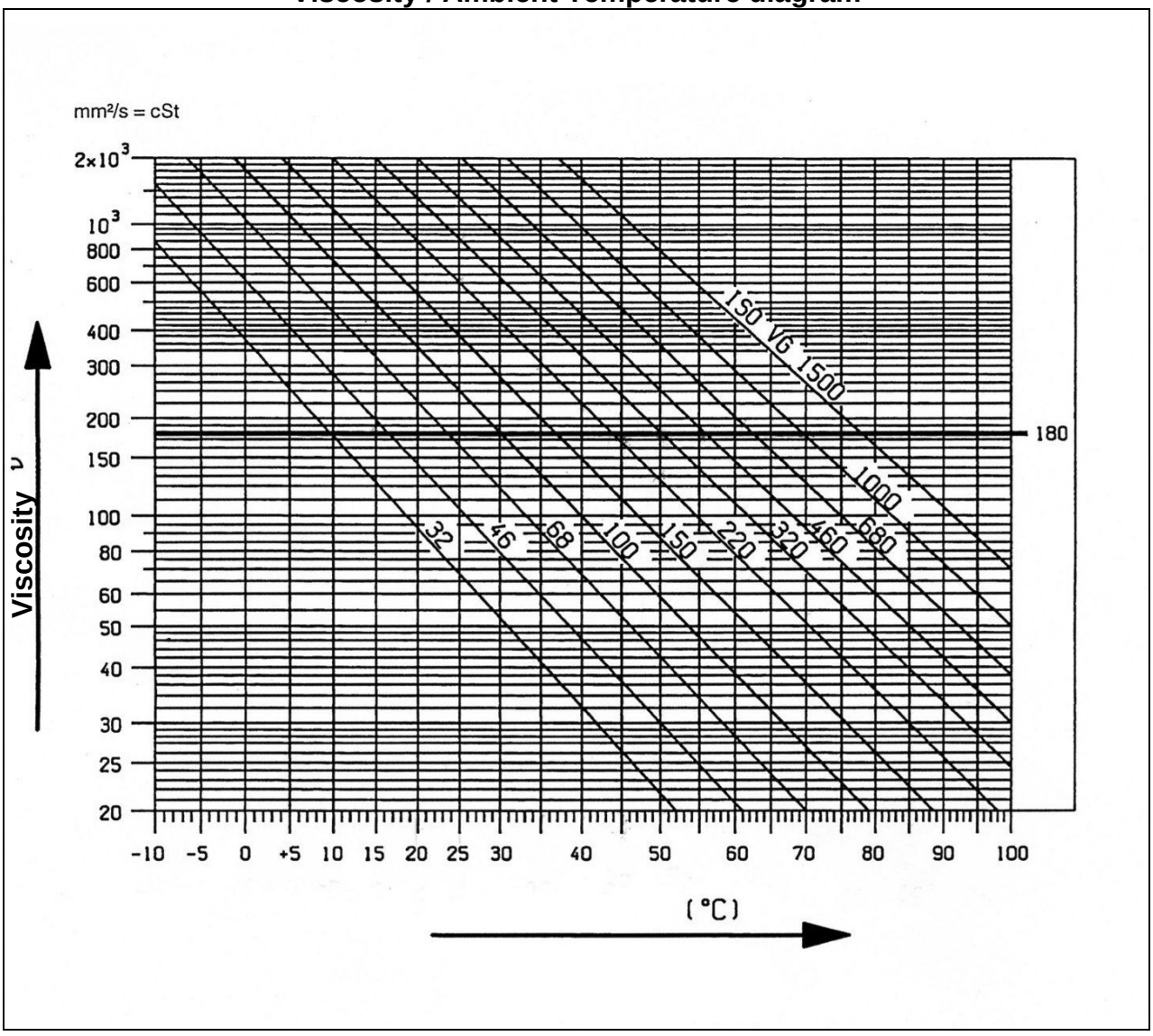
fig. 3



The oil must always be changed at least once a year because it can deteriorate due to oxidation.

For ambient temperatures other than 0°C to 30°C, follow the indications in the diagram below, bearing in mind that the oil must have a minimum viscosity of 180 cSt.

Viscosity / Ambient Temperature diagram



The spent oil must be placed in a suitable container and disposed of properly at an authorised centre. Do not under any circumstances discard it in the environment.

8. PORTS AND CONNECTIONS

The LK series of pumps have (see fig.4 and fig.5):

2 inlet ports, "IN": G2” (in LK36, LK40, and LK45 versions)
Ø80 mm (in LK50, LK55, and LK60 versions)

For the pump to work properly, it does not matter which of the two ports the line is connected to. Unused ports must be hermetically sealed.

2 outlet ports, "OUT": G1” (in LK36, LK40, and LK45 versions)
Ø36 mm (in LK50, LK55, and LK60 versions)

1 "DRAIN" port: with G1/2" hole in the lower cover, to monitor for any water leakage due to wearing of the pressure gaskets. If leaks should occur, refer to the repair manual.
This hole must always be kept open and clear.

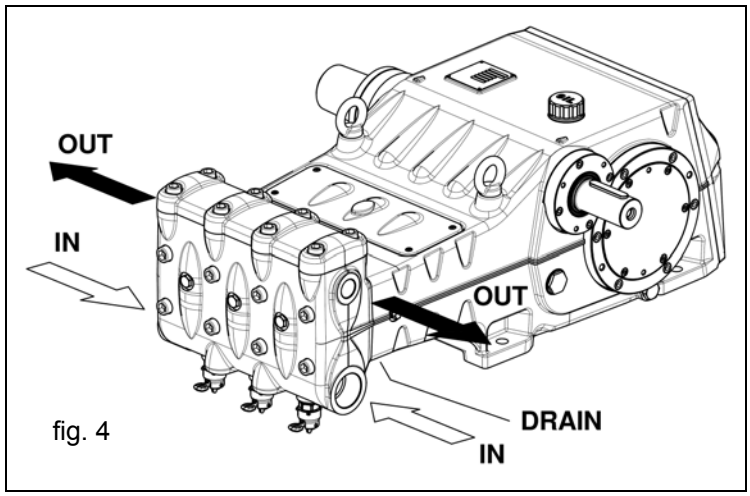


fig. 4

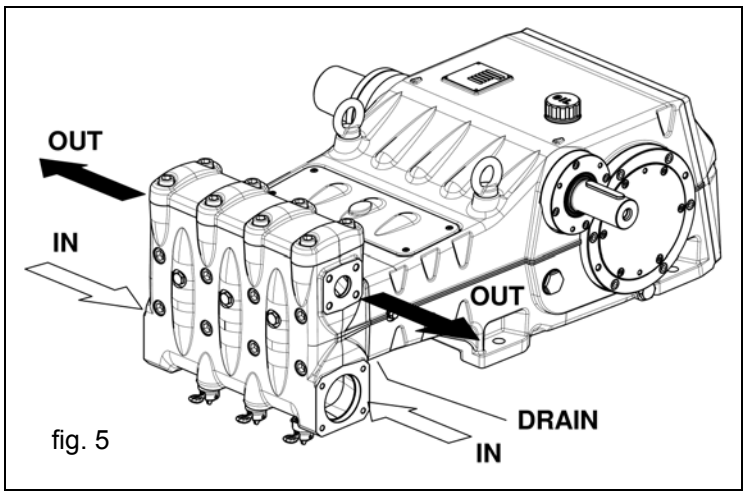


fig. 5

9. PUMP INSTALLATION

9.1 Installation

The pump must be fixed in a horizontal position, using the drilled Ø19 support feet.
The base must be perfectly flat and sufficiently rigid to not permit flexion and de-alignment on the pump/transmission coupling axis as a result of the torque transmitted during operation.

On the pump two lifting eyebolts are installed to facilitate installation, as shown in the figure below.

The eyebolts are designed for lifting the pump only, and they must never, under any circumstances, be used to lift additional loads.

The pump shaft (PTO) must not be rigidly connected to the propulsion group.
We recommend the following transmission types:

- Flexible coupling.
- Cardan coupling (follow the maximum working angles recommended by the makers).

9.2 Direction of rotation

The direction of rotation is indicated by an arrow positioned near the power take-off (PTO) shaft.
If you stand in front of the pump head, the direction of rotation should be as in fig.6.

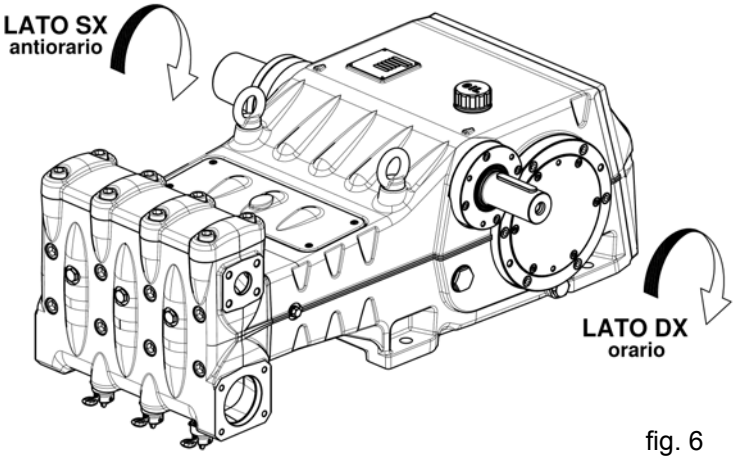


fig. 6

LATO SX = LEFT SIDE
antiorario = anticlockwise
LATO RX = RIGHT SIDE
orario = clockwise

The power take-off can be taken from either side of the pump.
Generally the pump is supplied with the PTO shank for the right-hand side (see fig.6)
To get the power off-take from the left hand side, the shaft end cover must be taken off and remounted on the right hand side of the pump (see 2.1.1 in the repair manual).
Vice-versa, the lug must be removed from the right hand side and inserted in the shank of the left hand side.

9.3 Hydraulic connections

To isolate the plant from the vibrations produced by the pump, we recommend building the first section of pipe adjacent to the pump (for both intake and outlet) with flexible piping. The solidity of the intake section must be enough to prevent deformation caused by the depression produced by the pump.

9.4 Pump supply

LK pumps must always be installed under a positive suction head, i.e. it must receive water falling from above or from a supply under pressure, and it must never "suck" water from a lower level.
The pumps can tolerate minimum water heads of 1 metre. However, to obtain the best volumetric output and, especially, to prevent cavitation, the available net positive suction head (NPSH avail), measured at the inlet flange at the head, must be greater than or equal to the values below:

	LK36	LK40	LK45	LK50	LK55	LK60
$NPSH_r$(m)	4	4.5	5.5	6.5	7.5	8

For pumps of greater capacity, i.e. LK50, LK55, and LK60, supply under pressure from a booster pump is strongly recommended to avoid cavitation, due to the geometry of the hydraulic part and the high flow rates. The booster pump must have a flow rate of at least double that of the rated flow rate of the piston pump, and a pressure of between 2 and 3 bar.
These supply conditions must be respected for any and all working regimes.

The booster pump must always be started before the piston pump. **We recommend installing a pressure switch on the supply line downstream of the filters, to protect the pump.**

9.5 Inlet line

For the pump to function well, the inlet line must have the following specifications:

1. Minimum internal diameter as specified by the chart in 9.8 and in any case greater than or equal to that of the pump head.
   Prevent localised restrictions along the pipe line, as they may cause loss of load with consequent cavitation. At all costs, do not use 90° elbow corners, connections with other pipes, bottlenecks, counterslopes, overhead "U" curves, or "T" connections.
2. The layout must be designed to avoid cavitation.
3. It must be completely hermetic and built in such a way as to ensure perfect seals over time.
4. Avoid situations where stopping the pump can result in emptying, even if only partial.
5. Do not use hydraulic fittings, 3 or 4 way connections, adaptors, swivel joints etc. because they could prejudice the pump's performance.
6. Do not install Venturi pipes or injectors for detergent intake.
7. Avoid the use of foot valves or other types of one-directional valve.
8. Do not recirculate the discharge of the by-pass valve directly to the intake.
9. Have bulkheads in the tank to prevent the water flows coming from the by-pass and from the tank supply line from creating vortices or turbulence near the pump supply pipe port.
10. Make sure that, before being connected to the pump, the inlet line is absolutely clean inside.
11. Install the pressure gauge for checking the pressure of the booster pump near the inlet port of the piston pump, and always install the gauge downstream of the filters.

9.6 Filtration

Two filters must be installed on the pump inlet line, positioned as shown in fig.7 and fig.7/a.

With manually-actuated control valve.

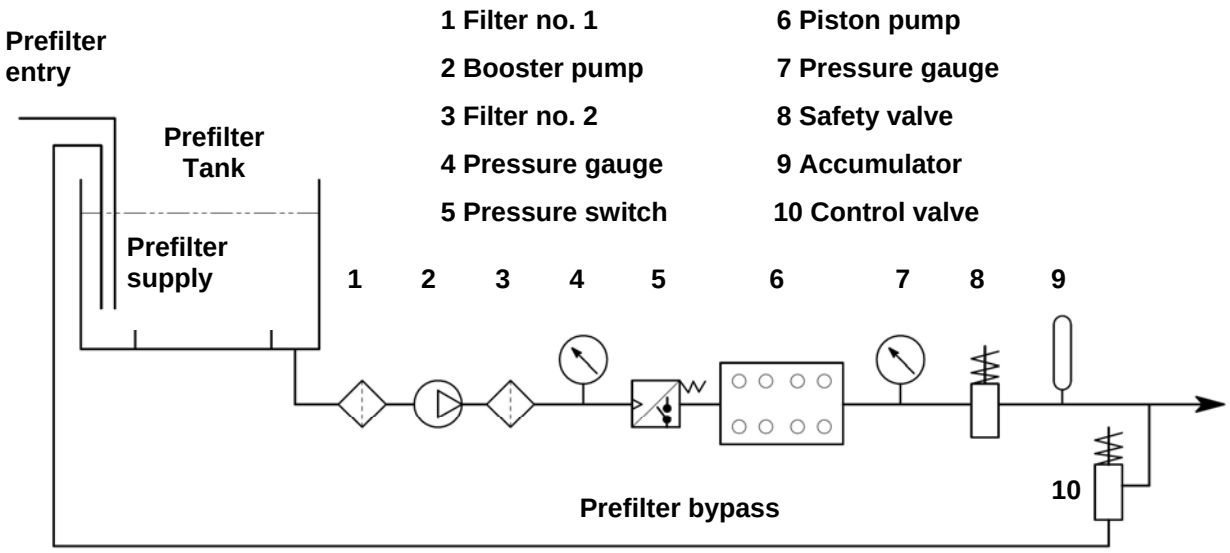


fig. 7

With pneumatically-actuated control valve.

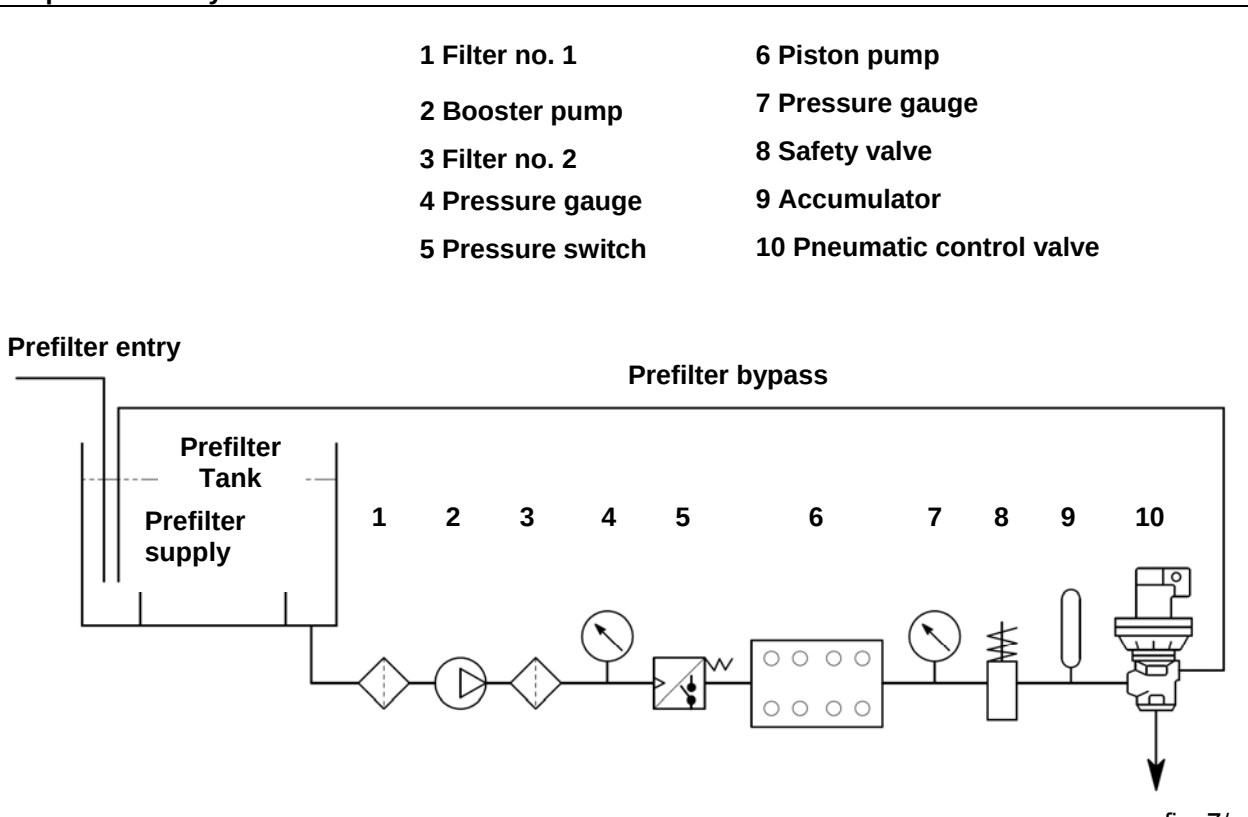


fig. 7/a

The filter must be installed as near as possible to the pump. It must be easily accessible for inspection and it must have the following specifications:

1. Flow rate minimum 3 times greater than the pump's rated flow rate.
2. Diameter of the entry/exit apertures not less than the diameter of the pump's inlet port.
3. Filtration grade between 200 and 360 μm.

For the pump to operate efficiently, the filter must be cleaned periodically. The cleaning frequency will need to be planned to complement the actual use of the pump, and it should also take into account the quality of the water used and the effective congestion conditions.

9.7 Outlet line

For a correctly-installed outlet or delivery line, follow these specifications:

1. The internal diameter of the pipe must be sufficient to ensure the correct speed of the fluid. See the chart in 9.8.
2. The first section of pipe connected to the pump must be flexible, to isolate the vibrations produced by the pump from the rest of the system.
3. Use pumps and fittings made for high-pressure use, which guarantee ample safety margins in all operating conditions.
4. Install a safety valve on the outlet line.
5. Use pressure gauges that are designed to withstand the pulsing loads typical of piston pumps.
6. In the design phase, take account of load loss on the line, which translates to a drop in usage pressure from the pressure measured at the pump.
7. For applications where the pulsations produced by the pump on the outlet line would be damaging or undesired, install a suitably-dimensioned pulsation damper.

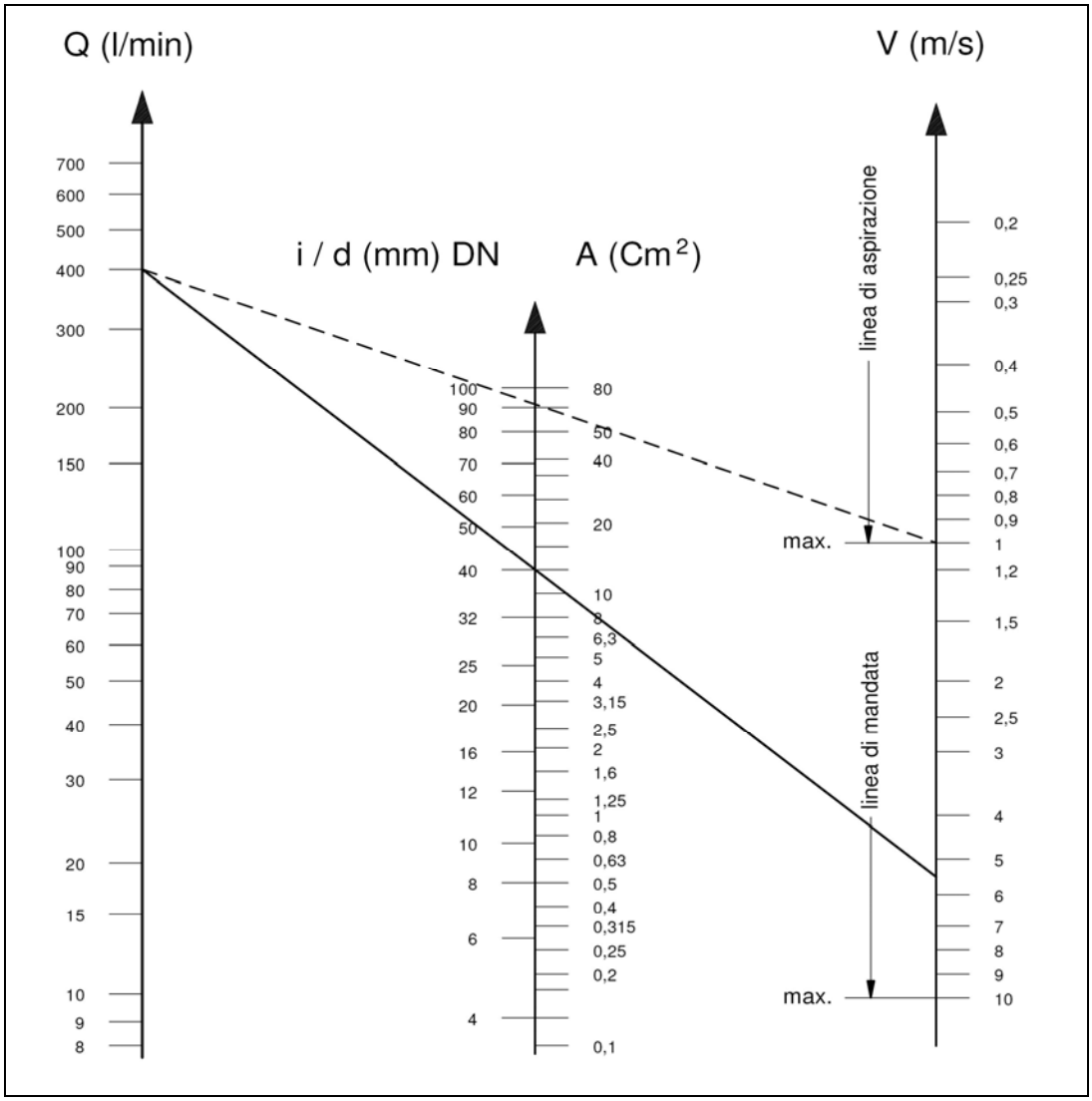
9.8 Calculation of the internal diameter of the pipes in the pipelines.
To determine the internal diameter of the pipeline, refer to the following diagram:

Inlet pipeline
With a flow rate of ~ 400 l/min and a water speed of 1 m/sec. The line in the chart joining the two outside scales meets the centre scale, indicating the diameters, at a value corresponding to ~ 90 mm.

Outlet pipeline
With a flow rate of ~ 400 l/min and a water speed of 5.5 m/sec. The line in the chart joining the two outside scales meets the centre scale, indicating the diameters, at a value corresponding to ~ 40 mm.

Optimal speeds that can be obtained with a booster pump:

- Inlet: ≤ 1 m/sec.
- Outlet: ≤ 5.5 m/sec.



linea di aspirazione = inlet line
linea di mandata = outlet line

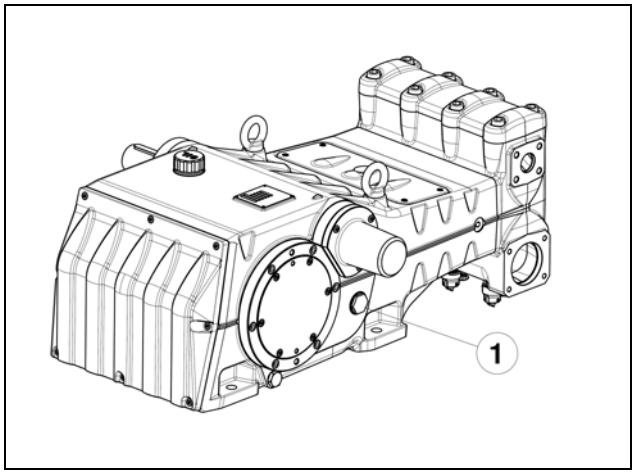
The chart does not consider: the resistance of the pipes, the valves, the load loss produced by the length of the pipelines, the viscosity of the liquid pumped or the liquid's temperature.
If necessary contact the Technical Office or Customer Assistance Service.

10. START-UP AND OPERATION

10.1 Preliminary checks
Before starting up the pump make sure that:

The inlet line is connected and is under pressure (see section 9): the pump must NEVER operate dry.

1. The inlet line guarantees a hermetic seal over time.
2. All interception valves (if present) between the source of the water supply and the pump are completely open. The outlet line is open, to allow the air in the pump head to exit quickly and so favour rapid priming.
3. All fittings and connections, both inlet and outlet, are properly fastened.
4. The coupling tolerances on the pump/transmission axis (de-alignment of half-couplings, inclination of Cardan joint etc.) are within the limits specified by the maker of the transmission.
5. The oil in the pump casing is at the correct level, verified using the oil level lights located on the sides of the casing (pos. 1 fig.8).



If the pump has been in storage or inactive for a lengthy period, the inlet valves must be restored to their proper working condition by opening the three valve lifters (see position 2, fig. 9). Make sure the valves are closed again before starting the pump.
For the "working" and "stop" positions see fig. 10.

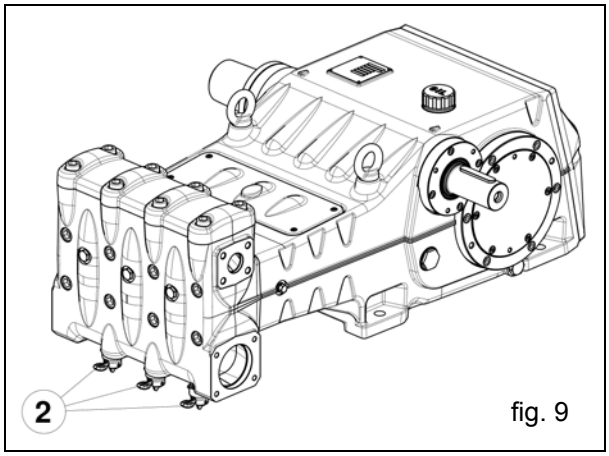


fig. 9

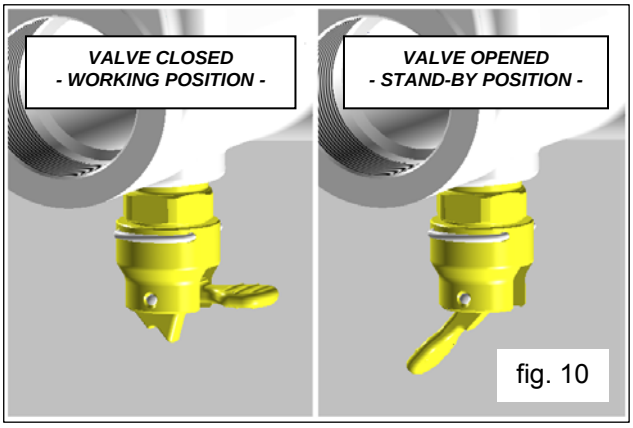


fig. 10

10.2 Start-up

1. At the first startup, verify that the direction of rotation is correct.
2. Check the pump's water supply is correct.
3. Start the pump with no load.
4. Verify that when operating, the rotation speed does not exceed the rated speed.
5. Allow the pump to operate for not less than 3 minutes before putting it under pressure.
6. Before stopping the pump, always bring the pressure down to zero first, using the control valve or (if present) relief devices.

If there are problems with priming because of insufficient supply, this can be addressed by removing the three plugs on the front of the head (this does not apply to the LK36 version) as shown in position 3, fig.11.

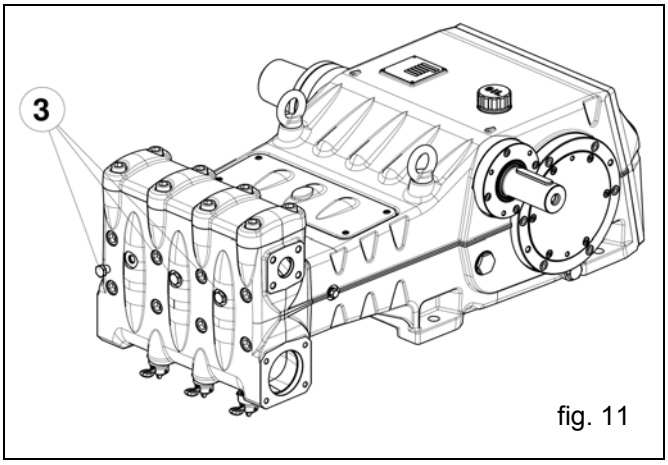


fig. 11

11. PREVENTIVE MAINTENANCE

To keep the pump reliable and efficient, the maintenance intervals shown in the table below must be observed.

PREVENTIVE MAINTENANCE	
Every 500 hours	**Every 1500 hours**
Check oil level	Change oil
	Check / Replace* : Valves Valve seats Valve springs Valve holders
	Check / Replace* : H.P. seals L.P. seals

* for replacement, follow the instructions given in the repair manual.

12. STOPPING THE PUMP FOR LONG PERIODS

12.1 Method for filling the pump with anticorrosion emulsion or anti-freeze solution using an external diaphragm pump based on the layout shown in section 9.6

a) Close the filter drainage, if it is open.
b) Make sure that the connection pipe is clean. Spread it with grease and connect it to the high-pressure discharge.
c) Connect the inlet pipe to the diaphragm pump. Open the inlet connection of the pump, and connect the pipe between this and the diaphragm pump.
d) Fill the container with solution/emulsion.
e) Put the free ends of the high-pressure inlet pipe and outlet pipe in the container.
f) Start the diaphragm pump.
g) Pump the emulsion until you see it coming out of the high-pressure outlet pipe.
h) Continue pumping for at least another minute. The emulsion can be made stronger if necessary, by adding (e.g.) Shell Donax to the solution.
i) Stop the pump, remove the pipe from the inlet connection and close it with a plug.
j) Remove the pipe from the high-pressure discharge. Clean, grease and plug both connections and the pipes.

12.2 Pipes

a) Before greasing and protecting the pipes according to the procedure described previously, dry the connections using compressed air.
b) Cover with polyethylene.
c) Do not wrap them too tightly. Make sure that there are no folds.

13. PRECAUTIONS AGAINST FREEZING

In areas and at times of year where/when cold is a risk, follow the instructions in section 12 (see point 12.1).

If ice is present, DO NOT start the pump for any reason until the circuit has been completely thawed. If ice is still present when the pump starts, it could be very seriously damaged.

14. WARRANTY TERMS

The guarantee period and conditions are contained in the purchasing contract.
The guarantee is invalidated if:

a) The pump is used for purposes other than those agreed.
b) The pump is driven with an electric motor or endothermic motor of greater performance than the levels indicated in the table.
c) The safety devices are unset or disconnected.
d) The pump is used with accessories or parts not supplied by Interpump Group.
e) The damage is caused by:
    1) Improper use
    2) Failure to follow the maintenance instructions
    3) Utilisation other than that described in the operating instructions
    4) Insufficient flow
    5) Defective installation
    6) Incorrect positioning or dimensioning of the pipes
    7) Unauthorised modifications to the design
    8) Cavitation

15. TROUBLESHOOTING

When the pump is started, it gives no flow:
- The pump is not primed and is operating dry.
- No water is supplied to the inlet.
- The valves are blocked.
- The outlet line is closed and this is stopping the air in the pump head from exiting.

The pump pulses irregularly:
- Intake of air.
- Insufficient water supply.
- Curves, elbows, and/or fittings along the inlet line are choking the passage of the liquid.
- The inlet filter or dirty or too small.
- The booster pump provides insufficient pressure or flow.
- The pump is not primed because the water head is insufficient, or the outlet is closed during priming.
- The pump is not primed because a valve is stuck.
- Worn valves.
- Worn pressure gaskets.
- Imperfect operation of the pressure control valve.
- Problems with the transmission.

The pump does not provide the rated flow / makes excessive noise:
- Insufficient water supply (various different causes listed above).
- The number of revs is lower than the rated RPM.
- Excessive throttling by the pressure control valve.
- Worn valves.

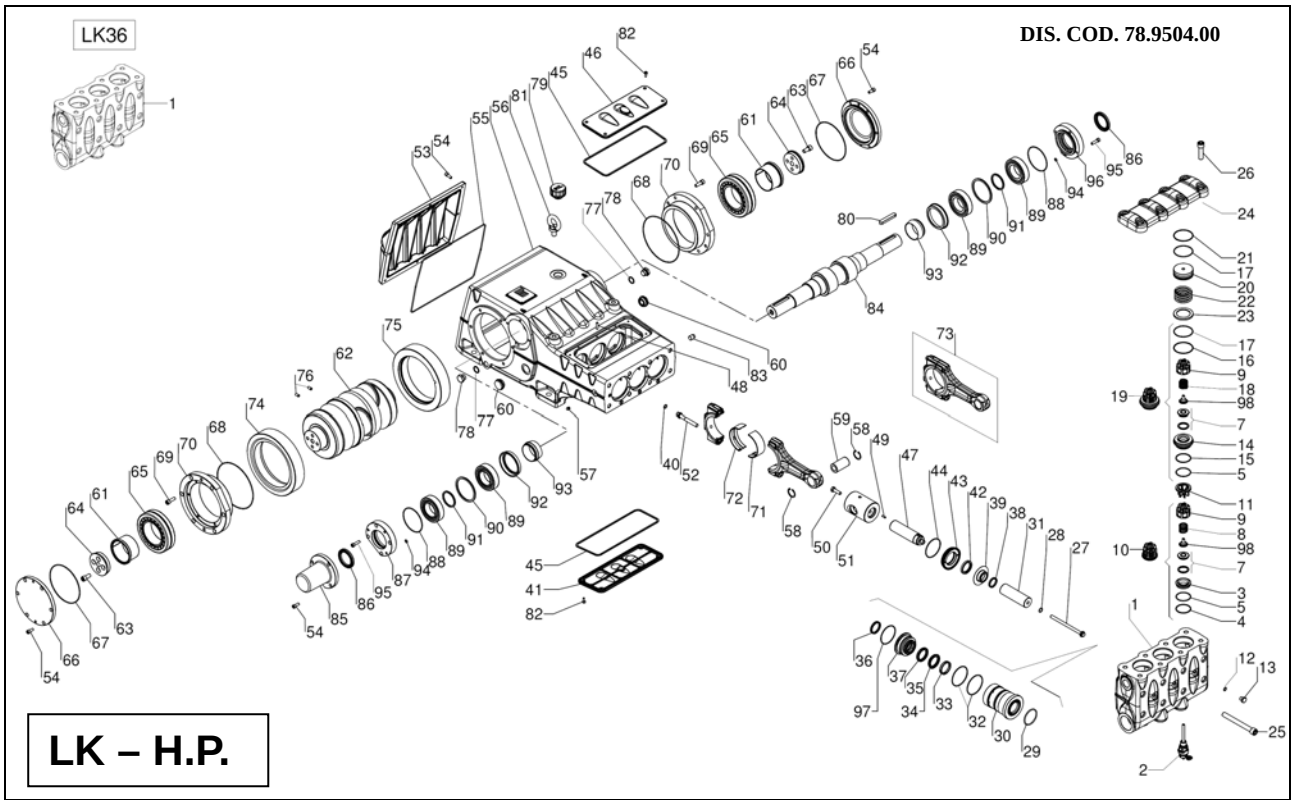
- Excessive throttling by the pressure gaskets.
- Cavitation, due to:
    1. Incorrect dimensioning of inlet pipes / underdimensioned diameters.
    2. Insufficient flow.
    3. High water temperature.

The pressure provided by the pump is insufficient:
- The usage (nozzle) is or has become greater than the pump's capacity.
- The RPM is insufficient.
- Excessive throttling by the pressure gaskets.
- Imperfect operation of the pressure control valve.
- Worn valves.

The pump overheats:
- The pump is working under excess pressure, or the RPM is higher than the rated level.
- The oil in the pump casing is below the correct level, or it is not of the recommended type, indicated in section 7 (see point 7.4).
- The alignment of the coupling is not perfect.
- The inclination of the pump during operation is excessive.

Vibrations or knocks on the pipes:
- Intake of air.
- Imperfect operation of the pressure control valve.
- Malfunction in the valves.
- Non-uniform movement in the transmission.

16. EXPLODED VIEW AND PART LIST



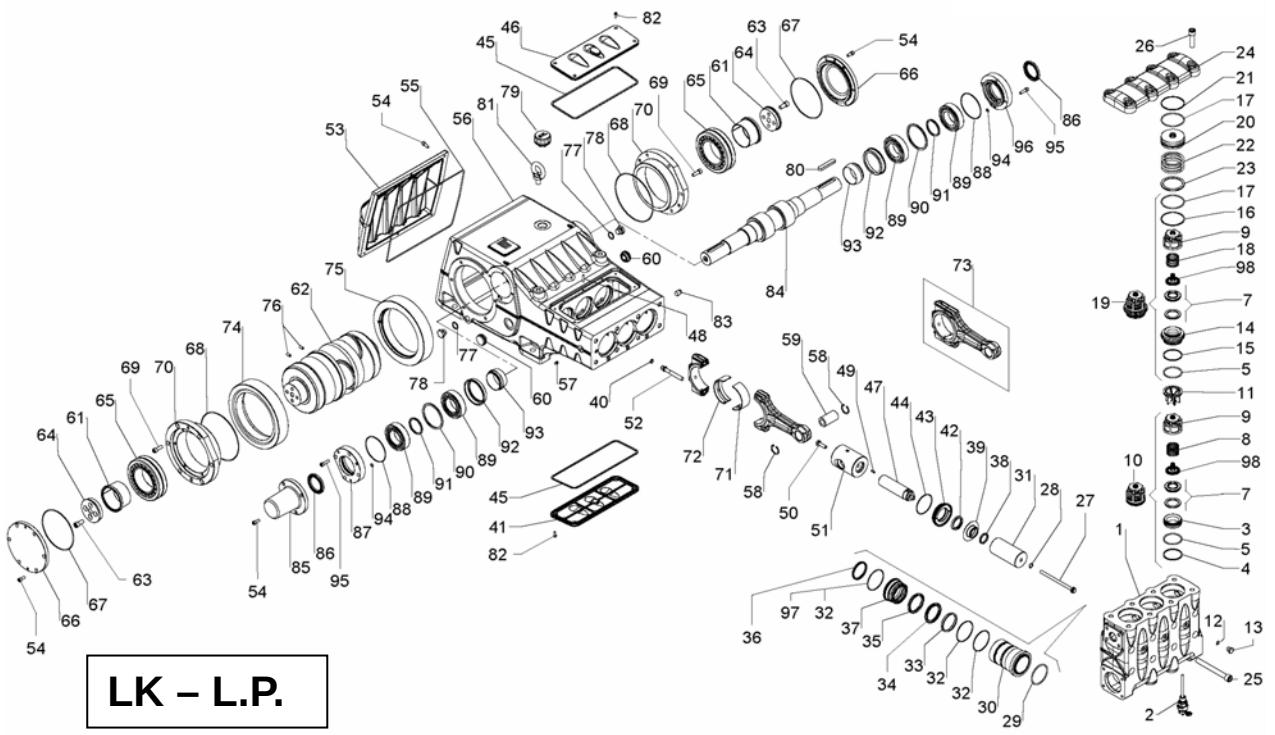
KIT RICAMBIO – SPARE KIT		LK36	LK40	LK45
A	Kit tenute pompanti – Plunger packing kit	KIT 2113	KIT 2114	KIT 2115
B	Kit valvole – Valves kit	KIT 2055		
C	Kit tenute complete – Complete seals kit	KIT 2116	KIT 2117	KIT 2118
D	Kit bronzine bielle – Conrod bushing kit	KIT 2076		

Pratissoli

LK36 – LK40 – LK45

POS	CODE CODICE	DESCRIPTION DESCRIZIONE	KIT	NR. PCS
1	78.1203.15	Testata pompa Ø 36 LK – H.P.		1
	78.1205.15	Testata pompa Ø 36 LK NPT – H.P.		1
	78.1204.15	Testata pompa Ø 40 - 45 LK – H.P.		1
	78.1206.15	Testata pompa Ø 40 - 45 LK NPT – H.P.		1
2	9030.0052.0	Dispositivo apertura valvole asp.		3
3	36.2067.66	Sede valvola d'aspirazione		3
4	90.5260.00	Anello antiest. Ø 51.5x56x1.5	C	3
5	90.3890.00	OR Ø 50.47x2.62 (3200)	C	6
7	36.2088.01	Valvola sferica - Completa		6
8	94.7600.00	Molla Ø 28.3x30.7		3
9	36.2061.51	Guida valvola asp. / mand.		6
10	36.7151.01	Gruppo valvole d'aspirazione	B	3
11	74.2106.51	Distanziale guida valvola H.P.		3
12	90.3584.00	OR Ø 10.82x1.78 (2043)	C	3
13	98.2046.00	Tappo G 1/4"x13 – INOX		3
14	36.2069.66	Sede valvola di mandata		3
15	90.5265.00	Anello antiest. Ø 51.7x56.2x1.5	C	3
16	90.5276.00	Anello antiest. Ø 67.5x72x1.5	C	3
17	90.3911.00	OR Ø 66.35x2.62 (3262)	B-C	6
18	94.7605.00	Molla Ø 28.5x32		3
19	36.7153.01	Gruppo valvola di mandata	B	3
20	74.2110.70	Tappo valvola di mandata H.P.		3
21	90.5280.00	Anello antiest. Ø 67.7x72.2x1.5	B-C	3
22	94.7750.00	Molla Ø 58x45.4		3
23	74.2108.66	Anello sede valvola di mandata H.P.		3
24	74.2103.15	Coperchio valvole H.P.		1
25	99.5212.00	Vite TCEI M16x150 UNI 5931		8
26	99.5147.00	Vite TCEI M16x55 UNI 5931		8
27	74.2104.56	Vite fissaggio pistone		3
28	90.3677.00	OR Ø 14x2 (140-20)	C	3
29	90.4102.00	OR Ø 58.74x3.53 (162)	A-C	3
30	78.2160.56	Camicia pistone Ø 36		3
	78.2161.56	Camicia pistone Ø 40		3
	78.2162.56	Camicia pistone Ø 45		3
31	78.0412.09	Pistone Ø 36x127		3
	74.0400.09	Pistone Ø 40x127		3
	74.0401.09	Pistone Ø 45x127		3
32	90.3914.50	OR Ø 75.87x2.62 (3300)	A-C	6
33	78.1001.92	Anello di testa pistone Ø 36		3
	74.1000.92	Anello di testa pistone Ø 40		3
	74.1001.92	Anello di testa pistone Ø 45		3
34	90.2820.00	Anello ten. Ø 36x48x6/3.5 H.P.	A-C	3
	90.2832.00	Anello ten. Ø 40x55x7.5/4.5 H.P.	A-C	3
	90.2850.00	Anello ten. Ø 45x60x4.5/7.5 H.P.	A-C	3
35	90.2818.00	Anello RESTOP Ø 36x48x6/3	A-C	3
	90.2838.00	Anello RESTOP Ø 40x55x8/4.5	A-C	3
	90.2848.00	Anello RESTOP Ø 45x60x3/6.5	A-C	3
36	90.2798.00	Anello ten. alt. Ø 36x44x5.5 L.P.	A-C	3
	90.2828.00	Anello ten. alt. Ø 40x48x5.5 L.P.	A-C	3
	90.2846.00	Anello ten. alt. Ø 45x53x5.5 L.P.	A-C	3
37	78.2163.68	Supporto guarnizione Ø 36		3
	78.2164.68	Supporto guarnizione Ø 40		3
	78.2165.68	Supporto guarnizione Ø 45		3
38	78.2146.70	Anello distanziale parspruzzi		3
39	78.2153.02	Paraspruzzi		3
40	90.3825.00	OR Ø 10.78x2.62 (3043)	C	3
41	74.1502.22	Coperchio ispezione aperto		1
42	90.1679.00	Anello rad. 40x52x7	C	3
43	78.2137.71	Coperchio paraolio guida pistone		3
44	90.3914.00	OR Ø 72.69x2.62 (3287)	C	3
45	90.4500.00	OR Ø 266.06x5.34 (61050)	C	2
46	74.1501.22	Coperchio ispezione chiuso		1
47	78.0501.66	Stelo guida pistone		3
48	99.1916.00	Vite STEI M6x30 UNI 5927		3
49	97.6740.00	Spina elastica Ø 5x16 UNI EN 28748		3
50	99.3697.00	Vite TE M10x35 UNI 5739		3
51	74.0500.43	Guida pistone		3
52	99.4410.00	Vite serraggio biella M12x1.25x87		6
53	78.1600.20	Coperchio carter		1
54	99.3059.00	Vite TCEI M8x20 UNI 5931 – Zinc.		23
55	90.4170.00	OR Ø 355.19x3.53 (41400)	C	1
56	78.0100.13	Carter pompa		1
57	98.1955.00	Tappo Koenig Ø 9x10		1
58	90.0697.00	Anello 35 UNI 7437		6
59	97.7450.00	Spinotto Ø 35x64		3
60	97.5978.00	Spia livello olio G 1"		2
61	78.2142.00	Bussola di pressione		2
62	78.0200.35	Albero a gomiti C. 90		1
63	99.4268.00	Vite TCEI M12x25 UNI 5931		8
64	78.2139.55	Flangia bloccaggio bussola		2
65	91.8862.00	Cuscinetto a rulli 22218CCK/C3		2
66	78.1502.20	Coperchio cuscinetto		2
67	90.3929.00	OR Ø 152.07x2.62 (3600)	C	2
68	90.3940.00	OR Ø 183.62x2.62 (3725)	C	2
69	99.3686.00	Vite TCEI M10x30 UNI 5931		12
70	78.1500.13	Coperchio portacuscinetto		2
71	90.9310.00	Semicusc. testa biella – Superiore	D	3
72	90.9300.00	Semicusc. testa biella – Inferiore	D	3
73	78.0301.01	Biella completa		3
74	10.0727.35	Corona SX Z59 R2.95 Elicoidale		1
	10.0731.35	Corona SX Z61 R3.389 Elicoidale		1
	10.0729.35	Corona SX Z60 R3.158 Elicoidale		1
75	10.0728.35	Corona DX Z59 R2.95 Elicoidale		1
	10.0732.35	Corona DX Z61 R3.389 Elicoidale		1
	10.0730.35	Corona DX Z60 R3.158 Elicoidale		1
76	97.6185.00	Spina Ø 8x18 UNI 1707		2
77	96.7514.00	Rosetta Ø 21.5x27x1.5		2
78	98.2183.00	Tappo G 1/2"x13 – NICKEL		2
79	98.2328.00	Tappo carico olio G 1"		1
80	91.5010.00	Linguetta 14x9xx80 UNI 6604		1
81	93.1050.00	Golfare M16 UNI 2947 – Zinc.		2
82	99.1837.00	Vite TCEI M6x14 8.8 – Zinc.		8
83	98.2087.00	Tappo 3/8" conico – INOX		1
84	10.0733.55	Pignone Z20 R2.95 Elicoidale		1
	10.0735.55	Pignone Z18 R3.389 Elicoidale		1
	10.0734.55	Pignone Z19 R3.158 Elicoidale		1
85	78.1501.20	Coperchio estremità albero		1
86	90.1724.00	Anello rad. Ø 55x75x8 – VITON	C	2
87	78.1503.20	Coperchio cuscinetto PTO – SX		1
88	90.3918.00	OR Ø94.92x2.62 (3375)	C	2
89	91.8597.00	Cuscinetto a rulli NJ2211ECP/C3		4
90	78.2140.89	Distanziale cuscinetto – esterno		2
91	78.2141.89	Distanziale cuscinetto – interno		2
92	78.2144.89	Bussola lubrificante cuscinetto		2
93	78.2143.89	Cono lubrificazione cuscinetti		2
94	90.3581.00	OR Ø 8.73x1.78 (108)	C	2
95	99.3084.00	Vite TCEI M8x30 UNI 5931 8.8 – Zinc.		8
96	78.1504.20	Coperchio cuscinetto PTO – DX		1
97	90.3913.50	OR Ø 71.12x2.62 (3281)	A-C	3
98	36.2090.51	Guida interna valvola		6

DIS. COD. 78.9502.00



LK – L.P.

KIT RICAMBIO – SPARE KIT		LK50	LK55	LK60
A	Kit tenute pompanti – Plunger packing kit	KIT 2093	KIT 2094	KIT 2095
B	Kit valvole – Valves kit	KIT 2048		
C	Kit tenute complete – Complete seals kit	KIT 2097	KIT 2098	KIT 2099
D	Kit bronzine bielle – Conrod bushing kit	KIT 2076		

Pratissoli

LK50 – LK55 – LK60

POS	CODE CODICE	DESCRIPTION DESCRIZIONE	KIT	NR. PCS
1	78.1201.15	Testata pompa LK – L.P.		1
2	9030.0051.0	Dispositivo apertura valvole asp.		3
3	36.2066.66	Sede valvola d'aspirazione		3
4	90.5270.00	Anello antiest. Ø62.1x67x2	C	3
5	90.4105.00	OR Ø59.92x3.53 (4237)	C	6
7	36.2087.01	Valvola sferica - Completa		6
8	94.7698.00	Molla Ø41.5x37.9		3
9	36.2060.51	Guida valvola asp. / mand.		6
10	36.7150.01	Gruppo valvole d'aspirazione	B	3
11	74.2105.51	Distanziale guida valvola L.P.	B	3
12	90.3584.00	OR Ø10.82x1.78 (2043)	C	3
13	98.2046.00	Tappo G1/4"x13 – INOX		3
14	36.2068.66	Sede valvola di mandata		3
15	90.5273.00	Anello antiest. Ø61.4x67.2x1.5	C	3
16	90.5290.00	Anello antiest. Ø77.2x83x1.5	C	3
17	90.4134.00	OR Ø75.8x3.53 (4300)	B-C	6
18	94.7700.00	Molla Ø41.5x41.1		3
19	36.7152.01	Gruppo valvola di mandata	B	3
20	74.2109.70	Tappo valvola di mandata L.P.		3
21	90.5293.00	Anello antiest. Ø77.4x83.2x1.5	B-C	3
22	94.8000.00	Molla Ø75x49.6		3
23	74.2107.66	Anello sede valvola di mandata L.P.		3
24	74.2101.15	Coperchio valvole L.P.		1
25	99.5212.00	Vite TCEI M16x150 UNI 5931		8
26	99.5147.00	Vite TCEI M16x55 UNI 5931		8
27	74.2104.56	Vite fissaggio pistone		3
28	90.3677.00	OR Ø14x2 (140-20)	C	3
29	90.4185.00	OR Ø72x4	A-C	3
30	78.2147.56	Camicia pistone Ø50		3
	78.2148.56	Camicia pistone Ø55		3
	78.2149.56	Camicia pistone Ø60		3
31	74.0402.09	Pistone Ø50x127		3
	74.0403.09	Pistone Ø55x127		3
	74.0404.09	Pistone Ø60x127		3
32	90.3914.50	OR Ø75.87x2.62 (3300)	A-C	6
33	74.1002.92	Anello di testa pistone Ø50		3
	74.1003.92	Anello di testa pistone Ø55		3
	74.1004.92	Anello di testa pistone Ø60		3
34	90.2863.00	Anello ten. Ø50x65x7.5/4.5 H.P.	A-C	3
	90.2873.00	Anello ten. Ø55x70x7.5/4.5 H.P.	A-C	3
	90.2883.00	Anello ten. Ø60x76x8/4.8 H.P.	A-C	3
35	90.2875.00	Anello RESTOP Ø50x65x8/4.5	A-C	3
	90.2885.00	Anello RESTOP Ø55x70x8/4.5	A-C	3
	90.2895.00	Anello RESTOP Ø60x76x8/4.5	A-C	3
36	90.2860.00	Anello ten. alt. Ø50x58x5.5 L.P.	A-C	3
	90.2870.00	Anello ten. alt. Ø55x63x5.5 L.P.	A-C	3
	90.2880.00	Anello ten. alt. Ø60x68x5.5 L.P.	A-C	3
37	78.2150.68	Supporto guarnizione Ø50		3
	78.2151.68	Supporto guarnizione Ø55		3
	78.2152.68	Supporto guarnizione Ø60		3
38	78.2146.70	Anello distanziale parspruzzi		3
39	78.2153.02	Paraspruzzi		3
40	90.3825.00	OR Ø10.78x2.62 (3043)	C	3
41	74.1502.22	Coperchio ispezione aperto		1
42	90.1679.00	Anello rad. 40x52x7	C	3
43	78.2137.71	Coperchio paraolio guida pistone		3
44	90.3914.00	OR Ø72.69x2.62 (3287)	C	3
45	90.4500.00	OR Ø266.06x5.34 (61050)	C	2
46	74.1501.22	Coperchio ispezione chiuso		1
47	78.0501.66	Stelo guida pistone		3
48	99.1916.00	Vite STEI M6x30 UNI 5927		3
49	97.6740.00	Spina elastica Ø5x16 UNI EN 28748		3
50	99.3697.00	Vite TE M10x35 UNI 5739		3
51	74.0500.43	Guida pistone		3
52	99.4410.00	Vite serraggio biella M12x1.25x87		6
53	78.1600.20	Coperchio carter		1
54	99.3059.00	Vite TCEI M8x20 UNI 5931 – Zinc.		23
55	90.4170.00	OR Ø355.19x3.53 (41400)	C	1
56	78.0100.13	Carter pompa		1
57	98.1955.00	Tappo Koenig Ø9x10		1
58	90.0697.00	Anello 35 UNI 7437		6
59	97.7450.00	Spinotto Ø35x64		3
60	97.5978.00	Spia livello Olio G1"		2
61	78.2142.00	Bussola di pressione		2
62	78.0200.35	Albero a gomiti C.90		1
63	99.4268.00	Vite TCEI M12x25 UNI 5931		8
64	78.2139.55	Flangia bloccaggio bussola		2
65	91.8862.00	Cuscinetto a rulli 22218CCK/C3		2
66	78.1502.20	Coperchio cuscinetto		2
67	90.3929.00	OR Ø152.07x2.62 (3600)	C	2
68	90.3940.00	OR Ø183.62x2.62 (3725)	C	2
69	99.3686.00	Vite TCEI M10x30 UNI 5931		12
70	78.1500.13	Coperchio portacuscinetto		2
71	90.9310.00	Semicusc. Testa biella – Inferiore	D	3
72	90.9300.00	Semicusc. Testa biella – Superiore	D	3
73	78.0301.01	Biella completa		3
74	10.0727.35	Corona SX Z59 R2.95 Elicoidale		1
	10.0731.35	Corona SX Z61 R3.389 Elicoidale		1
	10.0729.35	Corona SX Z60 R3.158 Elicoidale		1
75	10.0728.35	Corona DX Z59 R2.95 Elicoidale		1
	10.0732.35	Corona DX Z61 R3.389 Elicoidale		1
	10.0730.35	Corona DX Z60 R3.158 Elicoidale		1
76	97.6185.00	Spina Ø 8x18 UNI 1707		2
77	96.7514.00	Rosetta Ø21.5x27x1.5		2
78	98.2183.00	Tappo G1/2"x13 – NICKEL		2
79	98.2328.00	Tappo carico olio G1"		1
80	91.5010.00	Linguetta 14x9xx80 UNI 6604		1
81	93.1050.00	Golfare M16 UNI 2947 – Zinc.		2
82	99.1837.00	Vite TCEI M6x14 8.8 – Zinc.		8
83	98.2087.00	Tappo 3/8" conico – INOX		1
84	10.0733.55	Pignone Z20 R2.95 Elicoidale		1
	10.0735.55	Pignone Z18 R3.389 Elicoidale		1
	10.0734.55	Pignone Z19 R3.158 Elicoidale		1
85	78.1501.20	Coperchio estremità albero		1
86	90.1724.00	Anello rad. Ø55x75x8 – VITON	C	2
87	78.1503.20	Coperchio cuscinetto PTO – SX		1
88	90.3918.00	OR Ø94.92x2.62 (3375)	C	2
89	91.8597.00	Cuscinetto a rulli NJ2211ECP/C3		4
90	78.2140.89	Distanziale cuscinetto – esterno		2
91	78.2141.89	Distanziale cuscinetto – interno		2
92	78.2144.89	Bussola lubrificante cuscinetto		2
93	78.2143.89	Cono lubrificazione cuscinetti		2
94	90.3581.00	OR Ø8.73x1.78 (108)	C	2
95	99.3084.00	Vite TCEI M8x30 UNI 5931 8.8 – Zinc.		8
96	78.1504.20	Coperchio cuscinetto PTO – DX		1
97	90.3913.50	OR Ø71.12x2.62 (3281) – LK50	A-C	3
	90.3914.50	OR Ø75.87x2.62 (3300) – LK55-60	A-C	3
98	36.2089.51	Guida interna valvola		6

Code 78980203 rev.0 - Code IE 2860000050 – 11/03/2009
The information contained in this document may change without notice.

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