



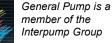
# **Owner's Manual**

## Installation

- Use
- Maintenance







Imp is a the Group



Ref 300670 Rev. F 02-21

## **MKS SERIES**

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## **GENERAL PUMP**

A member of the Interpump Group

## MKS SERIES

## **1. INTRODUCTION**

This manual describes the use and maintenance instructions of the MKS pump, and should be care-fully read and understood before using the pump.

Correct use and adequate maintenance will guarantee the pumps trouble-free operation for a long time. General Pump declines any responsibility for damage caused by misuse or the non-observance of the instructions indicated in this manual.

Upon receiving the pump, check that it is complete and in perfect condition.. Should anything be found out of order, please contact us before installing and starting the pump.

## 2. SYMBOL DESCRIPTIONS



Warning Potential Danger



Read carefully and understand the manual before operating the pump



**Danger** High Voltage



**Danger** Wear protective mask



**Danger** Wear goggles

**Danger** Wear protective gloves



**Danger** Wear protective boots

## 3. SAFETY

#### 3.1 General Safety Indications

The misuse of pumps and high pressure units, and the non-observance of installation and maintenance instructions may cause severe injury to people and/or damage to property. Anyone requested to assemble or use high pressure units must possess the necessary competence to do so, should be aware of the characteristics of the components assembled/used, and must adopt all the necessary precautions in order to guarantee maximum safety in any operating condition. In the interest of safety, no precaution that is reasonably feasible must be neglected, both by the Manufacturer and the Operator.

#### 3.2 High pressure unit safety requirements

- 1. The pressure line must always be equipped with a safety valve.
- 2. High pressure unit components, in particular for those units working outside, must be adequately protected against rain, frost and heat.
- The units electrical parts must be adequately protected from water spray, and must comply with the specific norms in force.
- 4. High pressure hoses must be correctly sized for the unit's maximum operating pressure, and must only be used within the pressure range indicated by the hose manufacturer. The same conditions apply to all other unit accessories where high pressure is involved.
- 5. The extremeties of high pressure hoses must be sheathed and fastened to a steady structure in order to avoid dangerous whiplashes should they burst or should their connections break.
- 6. Appropriate safety guards must be provided for the pump transmission systems (joints, pulleys and belts, auxiliary drives).



### 3.3 Safety During Operation

The working area of a high pressure system must be clearly signalled. Access must be prohibited to non-authorized personnel and, if possible, the area must be fenced in. The personnel authorized to access this area must be previously trained, and informed about the risks that may arise from failures or malfunctions of the high pressure unit.

Before starting the unit, the operator must check:

1. That the high pressure unit is correctly fed (see paragraph 9.5).





#### 3.3 Safety of Operation (continued)

- 2. That pump intake filters are perfectly clean; we advise to use a device that indicates the filters clogging level.
- 3. That electrical parts are adequately protected and in perfect condition.
- 4. That high pressure hoses do not show apparent signs of abrasion, and that fittings are in perfect shape.

Any anamoly or reasonable doubt that may arise before or during operation must be promptly reported and verified by competent personnel. In these cases, pressure must be immediately released and the high pressure unit stopped.



#### 3.4 General Procedures For Using Nozzles

- The Operator must always place his own and other worker's safety before any other interest; his actions should always be governed by good sense and responsibility.
- 2. The Operator must always wear a helmet with a protective visor, waterproof clothing, and appropriate boots capable of guaranteeing grip on wet pavement.

Note: appropriate clothing will effectively protect against water spray, but it may not offer adequate protection against the direct impact of water jets or sprays from a close distance. Some circumstances may require further protection.

- 3. We advise to employ a team of at least two Operators, able to provide mutual and immediate assistance if needed, and to rotate their duties in case of long and heavy work.
- 4. Access to the work area that is within the water jets' range must be absolutely forbidden; the area must be free of objects that may be unintentionally hit by the pressurized jet, causing damage or dangerous situations.
- 5. The water jet must only and always be directed towards the work area, even during testing or preliminary inspections.
- The Operator must always pay attention to the trajectory of the debris removed by the water jet. If necessary, adequate side guards must be provided by the Operator in order to protect anything that may be accientally exposed.
- 7. For no reason must the Operator be distracted during operation. The personnel that needs to access the working area must wait for the Operator to suspend their work, and then immediately make his presence known.
- 8. For safety reasons, it is important that each member of the team is perfectly aware of the intentions and actions of other team members in order to avoid dangerous misunderstandings,

 The high pressure unit must not be started and brought up to pressure unless each member of the team is in his designated position, and the Operator has already directed the nozzle towards the work area.

#### 3.5 Safety During Unit Maintenance

- 1. The maintenance of the high pressure unit must be done within the time intervals indicated by the Manufacturer, who is responsible for the entire unit's compliance with the norms in force.
- 2. Maintenance must always be carried out by special ized and authorized personnel.
- Assembly and disassembly of the pump and its various components must be performed exclusively by authorized personnel, using appropriate tools in order to avoid damage to components and connections.
- 4. To guarantee total reliability and safety, always use original spare parts.

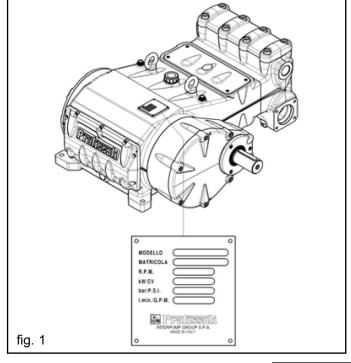
### 4. PUMP IDENTIFICATION

Each pump (fig. 1) is equipped with a rating plate that indicates:

Pump model and version Serial Number Maximum RPM Power absorbed Hp-kW Flow Rate I/mn - GPM Pressure bar/PSI

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







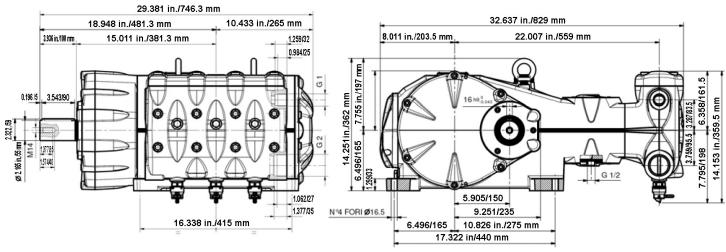
## **MKS SERIES**

### **5. TECHNICAL FEATURES**

MODEL	RPM	FLOW	RATE	PRES	SURE	PO	VER
MODEL	RPINI	GPM	l/min	PSI	Bar	Нр	kW
MKS40A	1500/1800	48.4	183	5800	400	194	144
MKS45A	1500/1800	61.3	232	4350	300	184	137
MKS50A	1500/1800	75.8	288	3625	250	187	140
MKS55A	1500/1800	91.7	348	2900	203	185	138
MKS60A	1500/1800	109.1	414	2465	170	187	140
MKS65A	1500/1800	128.2	486	2175	150	183	136

### 6. DIMENSIONS AND WEIGHT

For dimensions and weight of MKS40A, MKS45A and MKS50A pumps, please refer to fig. 2.



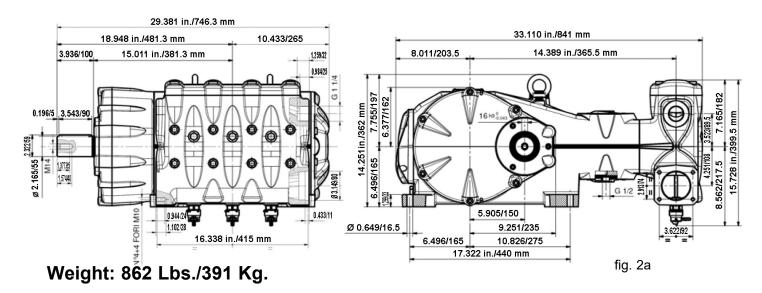
Weight: 833 Lbs./378 Kg.

fig. 2

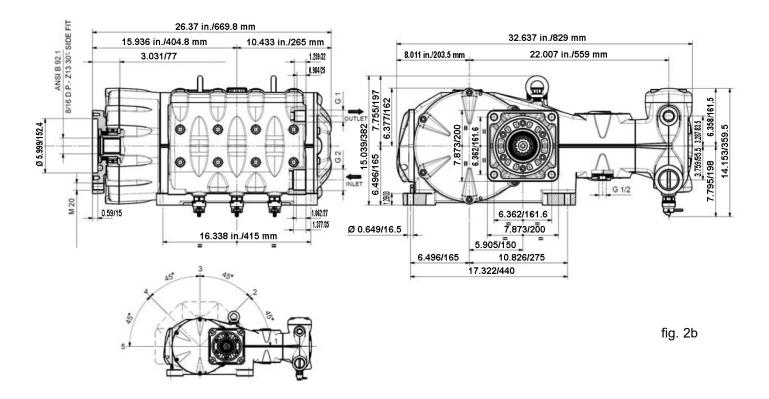
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## 6. DIMENSIONS AND WEIGHT (cont.)

For dimensions and weight of MKS55A, MKS60A and MKS65A pumps, please refer to fig. 2a.



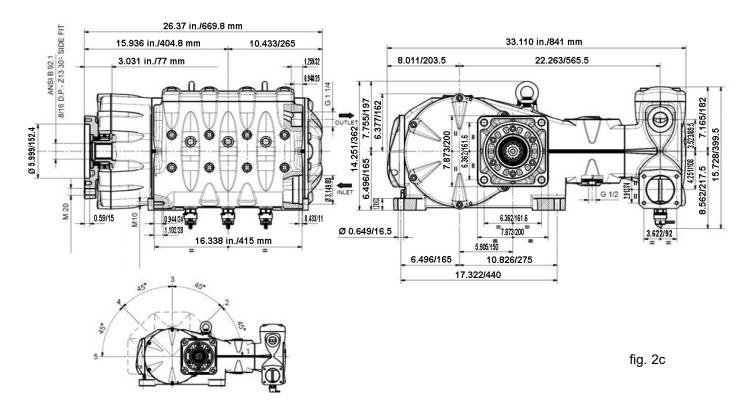
For dimensions of MKS40A, MKS45A and MKS50A pumps with Hydraulic Pack, please refer to fig. 2b.



## **MKS SERIES**

## 6. DIMENSIONS AND WEIGHT (cont.)

For dimensions MKS55A, MKS60A and MKS65A pumps with Hydraulic Pack, please refer to fig. 2c.





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### 7.INFORMATION ABOUT PUMP USE



The MKS pump has been designed to operate with filtered water (see paragraph 9.7) and at maximum temperature of  $104^{\circ}$  F ( $40^{\circ}$  C).

Other fluids may be used only upon the approval of The Customer Service Department .



#### 7.1 WaterTemperature

The max water temperature is  $104^{\circ}$  F ( $40^{\circ}$  C). Nonetheless, it is possible to use the pump at temperatures of up to  $140^{\circ}$ F ( $60^{\circ}$ C) for short periods of time. In this case we advise consulting the Customer Service Department.

#### 7.2 Max Flow Rate and Pressure Values

The performance values indicated in the catalog refer to the maximum performance of the pump. Regardless of the power used, pressure and maximum RPM values indicated on the plate may not be exceeded unless expressly authorized by the **Customer Service Department**.

#### 7.3 Lowest RPM

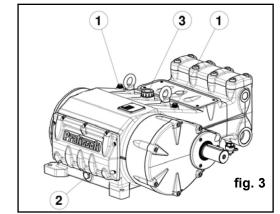
Any RPM value different from what is indicated in the performance table (see chapter 5) must be expressly authorized by the **Customer Service Department**.

#### 7.4 Recommended Lubricant Oil Types & Manufacturers

The pump is delivered with lubricant oil compliant with room temperatures ranging between  $32^{\circ}$  and  $89.6^{\circ}$  F ( $0^{\circ}$  and  $30^{\circ}$ C). Some recommended lubricant types are indicated in the table below; these lubricants are treated with additives in order to increase corrosion protection and resistance to fatigue. As an alternative, Automotive SAE 85W-90 gearing lubricants may also be used.

BRAND	TYPE
GENERAL PUMP	SERIES 220
ARAL	Aral Degol BG220
BP	ENERGOL HLP 220
CASTROL	Hyspin VG 220, Magna 220
ELF	POLYTELIS 220
ESSO	NUTO 220
FINA	Cirkan 220
FUCHS	RENOLIN 220
MOBIL	DTE OIL BB
SHELL	TELLUS C 220
TEXACO	RANDO HD 220
TOTAL	CORTIS 220

Check the oil level by using the oil level dipstick with minimum and maximum value notches (1), fig. 3. Refill if needed from the oil cap (3), fig 3. Correct oil level inspection is done with the pump at room temperature; oil is changed with the pump at working temperature, by removing the rear plug (2), fig 3. Checking and changing oil is to be carried out as indicated in Chapter 11. The amount required is 456.5 oz. (13.5 liters).

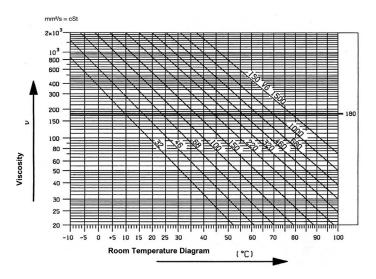




In any case, oil must be changed at least once a year since it may deteriorate by oxidation.

For room temperatures that differ from that mentioned earlier, follow the indications contained in the diagram below, keeping in mind that the oil must have a minimum viscosity of 180 cSt.

#### VISCOSITY/ROOM TEMPERATURE DIAGRAM





Exhausted oil must be collected in an appropriate recipient and disposed of in appropriate locations. In absolutely no case may it be dispersed into the environment.

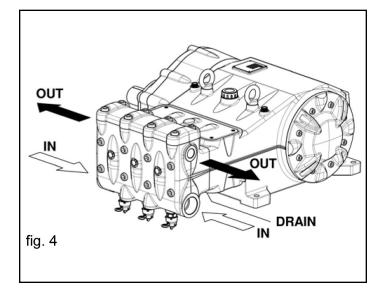
## MKS SERIES

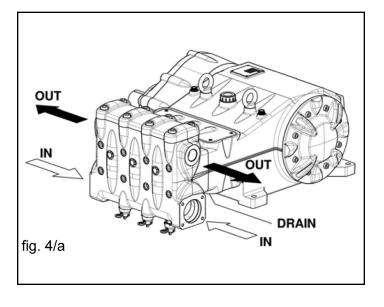
### 8. PORTS AND CONNECTIONS

MKS Series pumps (see fig. 4 and 4a) are provided with:

- 2 inlet ports "IN", 2" NPT (MK40A, MK45A, MK50A).
   2 inlet ports "IN", 3" NPT (MK55S, MK60A, MK65A). The line can be connected to either of the two inlet ports; the ones not being used must be hermetically sealed.
- 2 outlet ports "OUT", Ø 1" NPT-F (MKS40A, 45A, 50A).
   2 outlet ports "OUT", Ø 1-1/4" NPT-F (MKS55A, 60A, 65A).
- 1 drain port "DRAIN" with G1/2" hole in the lower cover to moniter any water leakage due to wear of the pressure packings. In case of leaks, please consult the repair manual.

This hole must always be kept open.





## 9. PUMP INSTALLATION

#### 9.1 Installation

The pump must be installed in a horizontal position using the correct perforated feet  $\emptyset$  .649in (16.5 mm). The base must be perfectly flat and sufficiently rigid in order to avoid bending and misalignments on the pump/transmission coupling axis due to the torque applied during operation.

The pump is equipped with two lifting eye bolts to facilitate installation, as shown in the following figure.



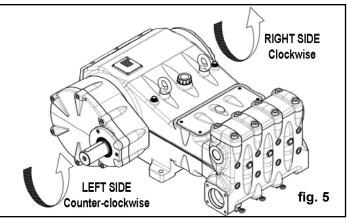


The pump's shaft (PTO) must not be rigidly connected to the motor unit. The following transmission types are suggested:

- Flexible joint
- Cardan Joint (please respect the maximum working angles indicated by the manufacturer)
- Belts; for correct application, please contact the Customer Service Department.

#### 9.2 Direction of rotation

An arrow situated on the crankcase near the shaft indicates the correct direction of rotation. Standing in front of the pump head, the direction of rotation must be as shown in fig. 5.



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**9.3 Version Change and Reducer Positioning** A right version pump is defined when: observing the

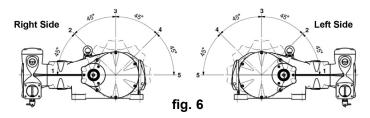
pump from the head side, the PTO shank of the pump shaft is on the right side.

A left version pump is defined when: observing the pump from the head side, the PTO shank is on the left side. See fig. 5.



#### The version may be changed only by specialized and authorized personnel by carefully following the instructions in the repair manual.

Furthermore, it is possible to position the reducer in 5 different positions, both on the right and left sides, as shown in fig. 6.



The reducer's position may be changed only by specialized and authorized personnel by carefully following the instructions in the repair manual.

#### 9.4 Hydraulic Connections

In order to isolate the system from the vibrations produced by the pump, we advise to build the first section of the duct near the pump (both for intake and delivery) with flexible hose. The consistency of the intake section must allow to avoid deformation caused by the depressurization produced by the pump.

#### 9.5 Pump Feeding

MKS pumps must always be installed under positive head, i.e. they must receive water by gravity or by forced feeding, and never suck from a lower level. The pumps can tolerate minimum NPSH even as low as 1 m. (3.28 ft.), however, to obtain a better volumetric efficiency and above all to avoid cavitation, the minimum NPSH available, measured at the pump inlet flange, will have to be at least equal or higher than the values shown in the chart below.

	MKS40A	MKS45A	MKS50A	MKS55A	MKS60A	MKS65A
NPSH <sub>r</sub> (ft)	14.8	18	21.3	24.6	26.2	29.5

For the pumps with higher displacement (MKS55A-60A-65A), it is strongly recommended to use a booster pump to avoid cavitation, in view of the geometry on the hydraulic section and of the remarkably high flow rates. The booster pump must have the following specifications: flow rate at least double the rated flow rate of the pump, and pressure between 30 to 45 PSI (2 to 3 Bar). These feeding conditions must be respected in all running conditions.



Booster start-up must always precede plunger pump start-up. In order to protect the pump, we advise to install a pressure switch on the feeding line after the filters.

#### 9.6 Suction Line

For the pump's correct operation, the suction line must have the following characteristics:

1. Minimum internal diameter as indicated in the diagram in paragraph 9.9, and in any case equal or greater than the pump head's value.



Along the duct, avoid localized diameter reductions that may cause pressure drops with subsequent cavitation. Absolutely avoid 90<sup>o</sup> elbows, connections with other hoses, bottlenecks, counter-slopes, upside down "U" shaped curves, "T" connections.

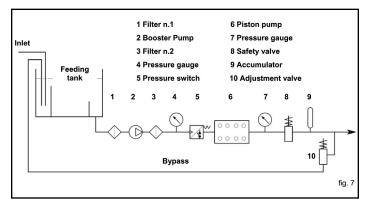
- 2. The selected lay-out must allow to avoid cavitation.
- 3. It should be perfectly airtight, and built in a way that guarantees perfect sealing over time.
- 4. Avoid pump emptying when stopping (even partial emptying).
- 5. Do not use hydraulic-type fittings, 3 or 4 way fittings, adapters, etc. , since they may hinder the pump's performance.
- 6. Do not install Venturi tubes or injectors for detergent intake.
- 7. Avoid the use of standing valves, check valves, or any other type of one-way valves.
- 8. Do not connect the by-pass line from the valve directly to the pump suction line.
- 9. Provide appropriate baffle plates inside the tank in order to avoid water flows coming from both the bypass and feeding lines may create turbulence near the tank's outlet port.
- 10. Make sure that the suction line is perfectly clean inside before connecting it to the pump.
- 11. The pressure gauge for checking booster pressure must be installed near the plunger pump's outlet port, and always after the filters.



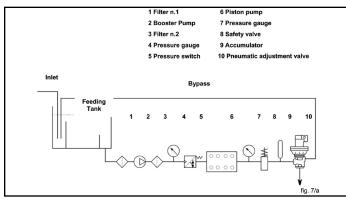
#### 9.7 Filtering

On the suction line, install two filters as indicated in fig. 7 and fig. 7/a.

#### With the manual adjustment valve:



#### With the pneumatic adjustment valve:



The filter must be installed as close as possible to the pump, should allow easy inspection and have the following characteristics:

- 1. Minimum capacity 3 times greater than the pump's rated flow value.
- 2. Filter port diameters must not be smaller than the pump inlet ports.
- 3. Filtration degree ranging between 200 and 360 µm.



In order to guarantee correct pump operation, it is important to plan periodical cleaning of the filter depending on actual pump usage, water quality and real clogging conditions.

#### 9.8 Delivery Line

To obtain a correct delivery line, please comply with the following installation instructions:

1. The internal diameter of the pump must allow to guar antee correct fluid speed; see digram in paragraph 9.9

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- 2. The first section of the hose connected to the pump must be flexible in order to isolate pump vibrations from the rest of the system.
- 3. Use high pressure hoses and fittings that guarantee wide safety margins in any working condition.
- 4. Install a safety valve on the delivery line.
- 5. Use pressure switches suitable for the pulsating loads typical of plunger pumps.
- 6. In the design phase, take into proper account the pressure drop along the line, since this causes a reduction in usage pressure with respect to the value measured at the pump.
- 7. If the pump pulsations are harmful for particular appli cations, install an appropriately sized pulsation damp ener on the delivery line.

#### 9.9 Internal Diameter of the Hose Line

To determine the internal diameter of the hose, please refer to the following diagram.

#### **Suction Hose**

With a flow rate of ~128 GPM (485 l/mn) and water speed of 1 m/sec. the diagram line that connects the two scales intersects the central scale, indicating the diameters, at a value of ~ 3.9 inch (100 mm).

#### **Delivery Hose**

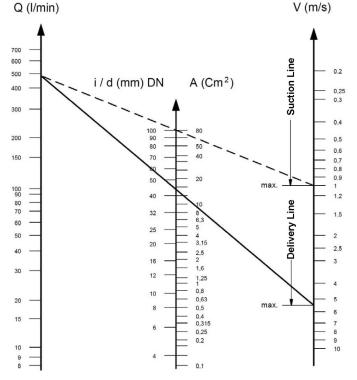
With a flow rate of ~128 GPM (485 l/mn) and water speed of 5.5 m/sec. The diagram line that connects the two scales intersects the central scale, indicating the diameters at a value of ~ 1.7 inch (43 mm).

Optimum speed values:

- Suction:  $\leq 1 \text{ m/sec.}$
- Delivery:  $\leq 5.5$  m/sec.



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The diagram does not take into account the hose and valve resistance, the pressure drop due to the pipe length, the viscosity and the temperature of the pumped fluid. If necessary, contact our Customer Service Department.

#### 9.10 V-belt Transmission

As indicated in paragraph 9.1, only in exceptional cases may the pump be driven by a v-belt system. For correct lay-out sizing, please contact our Customer Service Department.

### **10. START-UP AND OPERATION**

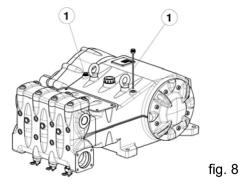
#### **10.1 Preliminary Inspections**

Before Start-up Be sure that:



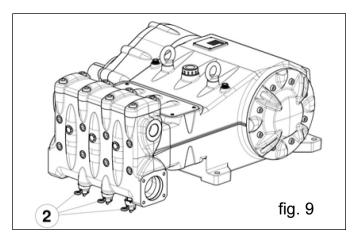
The suction line is connected and up to pressure (see Chapter 9) the pump must never run dry.

- 1. The suction line must be perfectly airtight.
- 2. All the On-Off valves between the pump and the feeding source are completely open. The delivery line must discharge freely in order to allow the air in the pump to be expulsed easi ly, thus facilitating pump priming.
- 3. All suction/delivery connections and fittings must be correctly tightened.
- 4. Coupling tolerances on the pump/transmis sion axis (half-joint misalignment, Cardan inclination, belt tightening, etc.) must remain within the limits indicated by the transmission Manufacturer.
- 5. The pump's oil level must be verified using the correct dipsticks (position 1, fig 8).

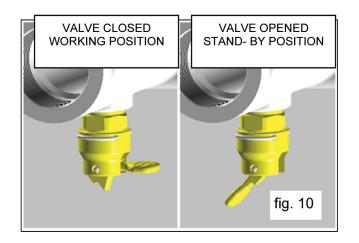




In case the pump has not run for a long period of time, recover the correct operation of the suction valves by opening the three valve-lifting devices (see position 2, fig. 9). Be sure to re-close the valves before the pump start-up. See fig. 10 for the valve positions.





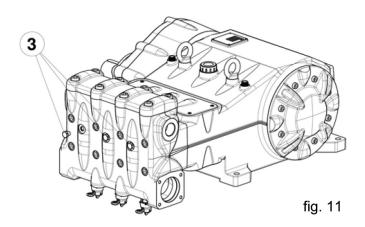


#### 10.2 Start-up

- 1. When starting the pump for the first time, check for the correct direction of rotation.
- 2. The pump must be started off-load.
- 3. Verify correct feeding pressure.
- 4. During operation, check that the rotating speed does not exceed the rated value.
- 5. Before putting the pump under pressure let it run for at least 3 minutes.
- 6. Before stopping the pump, release the pressure by acting on the adjustment valve or on any discharging device.



In case of priming problems caused by insufficient feeding, it's possible to intervene by removing the three front caps on the head (see position 3, fig. 11).



### **11. PREVENTIVE MAINTENANCE**

To guarantee pump reliability and efficiency, respect the maintenance intervals as indicated in the table below.

PREVENTIVE MAINTENANCE							
EVERY 500 HOURS	EVERY 1500 HOURS						
Check oil level	Change oil						
	Check / Replace: • Valves • Valve seats • Valve springs • Valve guides						
fig. 14	Check / Replace: • H.P packings • L.P. packings						

### **12. STOPPING THE PUMP FOR LONG PERIODS**

#### 12.1 Filling the Pump With An Anti-Corrosion Emulsion or Anit-freeze By Using An External Diaphragm Pump As In The Layout Shown in Paragraph 9.7.

- a) Close the filter draining, if open.
- b) Be sure that the connecting hose is clean, spread with grease and connect it to the high pressure outlet port.
- c) Fit a suction hose to the membrane pump. Open the pump suction connection and fit hose between it and the membrane pump.
- d) Fill the container with the solution/emulsion.
- e) Put the free extremeties of the suction line and the high pressure outlet hose inside the container.
- f) Start up the diphragm pump.
- g) Pump the emulsion until it comes out of the high pressure hose.
- h) Continue pumping for at least another minute; if needed, the emulsion can be reinforced by adding, for example, Shell Donax
- i) Stop the pump, remove the hose from the suction connection and close it with a plug.
- Remove the hose from the high pressure outlet port. Clean, grease and plug both connections and the hoses.

#### 12.2 Hoses

- a) Before greasing and protecting the hoses according to the previously described procedure, dry the con nections using compressed air.
- b) Cover with polyethylene.
- c) Do not wrap them too tightly; be sure there is no bending.



### **13. PRECAUTIONS AGAINST FREEZING**



In areas and periods of the year where there is risk of freezing, follow the instructions indicated in Chapter 12 (see paragraph 12.2).



In the presence of ice, in no case must the pump be started until the entire circuit has been completely thawed out; not complying with this indication may cause serious damage to the pump.

### **14. WARRANTY TERMS**

The pump is guaranteed for a period of 12 months from the delivery date or for 1000 hours of operation, with the exception of parts subject to wear. In any case, please refer to the contract terms for other warranty conditions. The warranty is void if:

- a) The pump has been used for purposes that differ from that agreed.
- b) The pump has been fit with an electric or diesel engine with performance greater than that indicated in the table.
- c) The required safety devices were un-adjusted or dis connected.
- d) The pump was used with accessories or spare parts not supplied by General Pump.
- e) Damage was caused by:
  - 1) improper use
  - 2) the non-observance of maintenance instructions
  - 3) use not compliant with operating instructions
  - 4) insufficient flow rate
  - 5) faulty installation
  - 6) incorrect positioning or sizing of the hoses
  - 7) non-authorized design changes
  - 8) cavitation

### **15. TROUBLESHOOTING**



The pump does not produce any noise at start-up:

The pump is not primed and is running dry

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- There is no water in the inlet line
- The valves are blocked
- The delivery line is closed and does not allow the air in the pump to be discharged

#### The pump pulses irregularly (knocking):

- Air suction
  - Insufficient feeding
  - Bends, elbows, fittings along the suction line obstruct the fluid's passage
  - The inlet filter is dirty or too small
  - The booster pump, where provided, supplies insufficient pressure or flow rate
  - The pump is not primed due to insufficient head or the delivery line is closed during priming
  - The pump is not primed due to valve seizing
  - Worn valves
  - Worn pressure packings
  - Incorrect operation of the pressure adjust ment valve
  - Transmission problems

## The pump does not deliver the rated flow / is noisy:



- Insufficient feeding (see the causes listed above)
- RPM are less than the rated value
- Excessive amount of water by-passed by the pressure adjustment valve
  Worn valves



- Leakage from the pressure packings
  - Cavitation due to:
  - 1) Wrong sizing of the suction hose/ undersized diameters
  - 2) Insufficient flow rate
  - 3) High water temperature

#### Insufficient pump pressure:

The nozzle (or has become)too large



- Insufficient RPM
- Leakage from the pressure packings
   Incorrect operation of the pressure adjustment valve
- Worn valves



## **MKS SERIES**

### **15. TROUBLESHOOTING (continued)**

#### Overheated pump:



٠

- The pump is overloaded (pressure or RPM exceed the rated values)
- Oil level is too low, or the oil is not of a suit able type, indicated in Chapter 7 (see para graph 7.4)
- · Incorrect alignment of the joint or pulleys
- Excessive inclination of the pump during operation

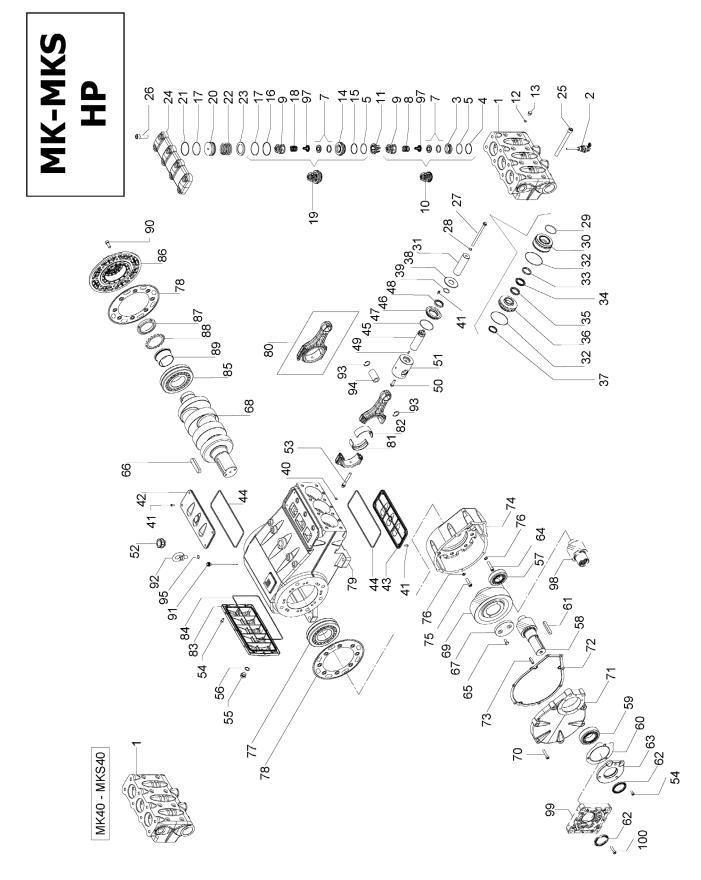
#### Pump vibrations or knocking:

- Air suction
- Incorrect operation of the pressure adjust ment valve
- Valve malfunction
- Irregular drive transmission motion



**MKS45 SERIES** 

16. EXPLODED VIEW AND PARTS LIST



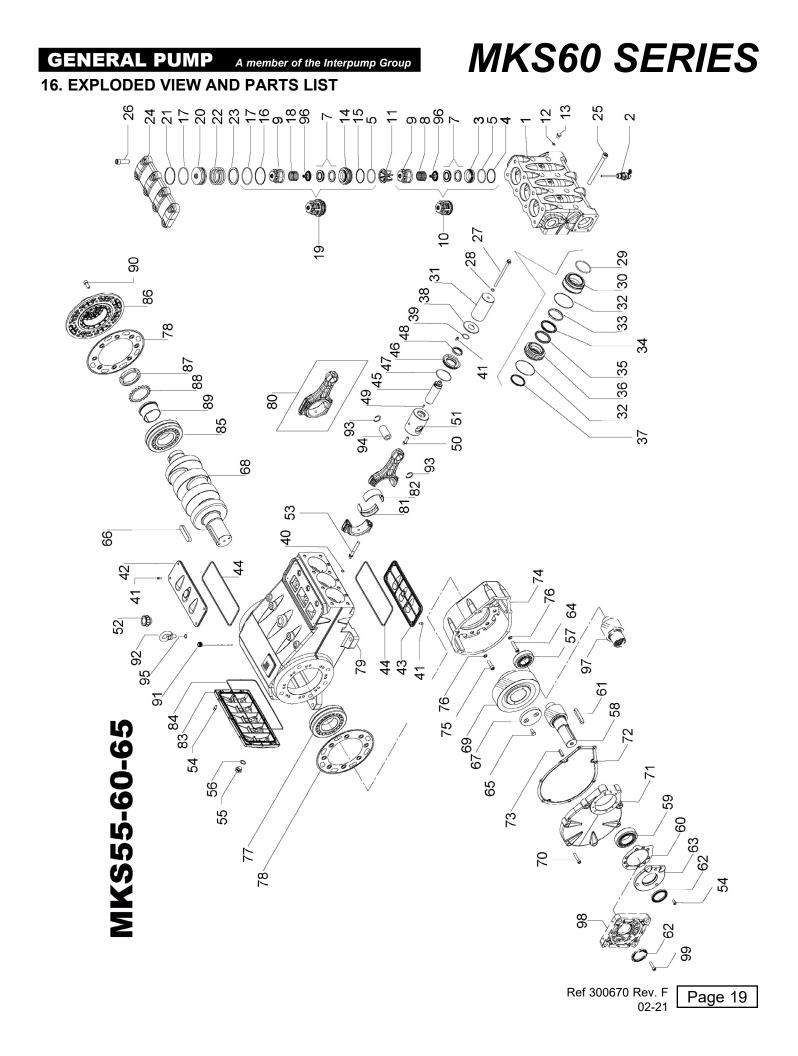
## **MKS45 SERIES**

em	Part No.	Description	QTY
1	F74120501	Manifold, MKS45A, MKS50A	1
	F74120715	Manifold, MKS40A	1
2	F10744401	Suction Valve Device	3
3	F36206766	Inlet Valve Seat	3
4	F90526000	Anti-extrusion Ring, Suction Vlave Spring61.2 x 67 x 2	3
5	F90389000	O-ring, Ø 50.47 x 2.62	6
7	F36208801	Suction Valve Spring	6
8	F94760000	Spring, Ø 28.3 x 30.7	3
9	F36206151	Suction/Delivery Valve Guide	6
10	F36715101	Suction Valve Assembly	3
11	F74210651	Spacer, Valve Guide	3
12	F90358400	O-ring, Ø 10.82 x 1.78	3
13	F98204600	Plug, G 1/4" x 13	3
4	F36206966	Valve Seat	3
5	F90526500	Anti-extrusion Ring, Ø 51.7 x 56.2 x 1.5	3
6	F90527600	Anti-extrusion Ring, Ø 67.5 x 72 x 1.5	3
7	F90391100	O-ring, 66.35 x 2.62	6
8	F94760500	Spring, Ø 28.5 x 32	3
9	F36715301	Outlet Valve Assembly	3
0	F74211070	Valve Plug, H.P.	3
1	F90528000	Anti-extrusion Ring, Ø 67.7 x 72.2 x 1.5	3
2	F94775000	Spring, Ø 58 x 45.4	3
3	F74210866	Ring, Valve Seat	3
4	F74210305	Valve Cover, H.P.	1
<del>-</del> 5	F99522200	Screw, M16 x 180	8
.5 :6	F99514700	Screw, M16 x 55	8
27	F99385000	Plunger Screw	3
.7	F96710500	Washer, Ø 10x18x0.9	3
.0 9	F90410200	O-ring, Ø 58.74 x 3.53	3
~	F74211156	Plunger Sleeve, MKS40A	3
0	F74211156	Plunger Sleeve, MKS40A Plunger Sleeve, MKS45A	3
	F74211256		3
31	F74040009	Plunger Sleeve, MKS50	3
		Plunger, MKS40A	
	F74040109	Plunger, MKS45A	3
12	F74040209	Plunger, MKS50A	3
2	F90372200	O-ring,Ø 96 x 2	6
22	F74100092	Head Ring, MKS40	3
33	F74100192	Head Ring, MKS45	3
	F74100292	Head Ring, MKS50	3
	F90283200	H.P. Packing, MKS40A	3
34	F90285000	H.P. Packing, MKS45A	3
	F90286300	H.P. Packing, MKS50A	3
_	F90283800	Restop Ring, MKS40A	3
5	F90284800	Restop Ring, MKS45A	3
	F90286500	Restop Ring, MKS50A	3
	F74211768	Gasket Holder, MKS40A	3
6	F74211868	Gasket Holder, MKS45A	3
	F74211968	Gasket Holder, MKS50A	3
	F90282800	L.P. Packing, MKS40A	3
7	F90284600	L.P. Packing, MKS45A	3
	F90286000	L.P. Packing, MKS50A	3
8	F74213351	Wiper	3
9	F90386500	O-ring, Ø 29.82 x 2.62	3
0	F90382500	O-ring, Ø 10.78 x 2.62	3
1	F99183700	Screw, M6 x 14	14
2	F74150122	Upper Cover	1
3	F74150222	Lower Cover	1
4	F90450000	O-ring, Ø 266.06 x 5.34	2
5	F74050166	Plunger	3
6	F74213171	Plunger Oil Seal Cover	3
7	F90391400	O-ring, Ø 72.69 x 2.62	3
18	F90167900	Ring, Ø 40 x 52 x 7	3
19	F97674000	Retainer Pin, Ø 5 x 16	3
9			
	F99369700	Screw, M10 x 35	3

Item	Part No.	Description	QTY.				
51	F74050043	Plunger Guide	3				
52	F98233300	Oil Plug	1				
53	F99441000	Connecting Rod Screw, M12 x 1.25 x 87	6				
54	F99304500	Screw, M8 x 18	13				
55	F98218300	lug, G 1/2" x 13					
56	F96751400	/asher, Ø 21.5 x 27 x 1.5					
57	F91858000	Bearing	1				
01	F10070235	Pinion, Z20 R.2.65 - Elicoid	1				
58	F10070235	Pinion, Z17 R.3.29 - Elicoid	1				
00	F10073755	Pinion, Z23 R.2.22 - Elicoid	1				
59	F91860000	Bearing	1				
60	F74212984	Gearbox Flange Gasket	1				
61	F91503000	Key, 16 x 10 x 90	1				
62	F90180000	Ring, Ø 60 x 80 x 8	1				
63	F74212722	Gearbox Flange	1				
64	F99433500	Screw, M12 x 50	2				
65	F99366700	Screw, M10 x 25	2				
66	F91512000	Pinion Key	1				
67	F74213255	Gear Stop	1				
68	F74213255 F74020235	Crankshaft	1				
00	F10073635	Gear, Z51 R.2.22 - Elicoid	1				
69	F10073635	Gear, 251 R.2.22 - Elicold Gear, 253 R.2.65 - Elicold	1				
09	F10070535	Gear, Z53 R.2.05 - Elicold Gear, Z56 R.3.29 - Elicold	1				
70							
70	F99373000	Screw, M10 x 50 Gearbox Cover	8				
71	F74212613 F74212884		-				
		Gearbox Gasket	1				
73	F97630000	Retainer Pin, Ø 12 x 40	3				
74	F74212413	Gearbox Housing	1 6				
75	F99430500	Screw, M12 x 40					
76	F96717000	Washer, Ø 12	8				
77	F91885000	Bearing					
78	F74213084	Gasket, Lateral	2				
79	F74010113	Pump Body	1				
80	F74030201	Connecting Rod Assembly	3				
	F90930000	Bearing, Lower	3				
81	F90930100	Bearing, +0.25, Lower	3				
	F90930200	Bearing, +0.50, Lower	3				
	F90931000	Bearing, Upper	3				
82	F90931100	Bearing, +0.25, Upper	3				
	F90931200	Bearingm +0.50, Upper	3				
83	F74160022	Crankcase Cover	1				
84	F90416000	O-ring, Ø 304.39 x 3.53	1				
85	F91885200	Bearing	1				
86	F74150022	Bearing Cover	1				
87	F93080000	Ring Nut	1				
88	F96830000	Washer, MB	1				
89	F91880000	Bearing Bushing	1				
90	F99428000	Screw, M12 x 30	8				
91	F98209200	Dipstick	2				
92	F93105000	Eye Bolt	2				
93	F90069700	Ring	6				
94	F97745000	Piston Pin, Ø 35 x 64	3				
95	F90383300	O-ring, Ø 13.95 x 2.62	2				
97	F36209051	Internal Valve Guide	6				
98	F74215156	Bushing	3				
99	F90526880	Anti-extrusion Ring, Ø59x65x1.5	6				
100	F90917300	Bushing	3				
101	F10072555	Pinion, Z20-1500 - Elicoid	1				
102	F10072620	Motor Flange	1				
103	F99368600	Vite, M10 x 30	6				
			1				

#### REPAIR KITS

KIT NUMBER	KIT2052 (MKS40A)	KIT2053 (MKS45A)	KIT2054 (MKS50A)	KIT2055	KIT2056 (MKS40A)	KIT2057 (MKS45A)	KIT2058 (MKS50A)	KIT2076
	Plunger Packing Kit	Plunger Packing Kit	Plunger Packing Kit	Valve Kit	Complete Seals Kit	Complete Seals Kit	Complete Seals Kit	Connecting Rod Kit
Positions Included	29, 32, 34, 35, 37, 40	29, 32, 34, 35, 37, 40	29, 32, 34, 35, 37, 40	10, 11, 19	4, 5, 12, 15, 16, 17, 21, 28, 29, 32, 34, 35, 37, 39, 44, 47, 48, 60, 62, 72, 78, 84, 95	35, 37, 39, 44, 47, 48,		81, 82



## **MKS60 SERIES**

Item	Part #	Description	QTY.
1	F74120415	Manifold	1
2	F10744301	Suction Valve Device	3
3	F36206666	Inlet Valve Seat	3
4	F90527000	Anti-extrusion Ring, Suction Valve Spring61.2 x 67 x 2	3
5	F90410500	O-ring, Ø 50.47 x 2.62	6
7	F36208701	Suction Valve Spring	6
8	F94769800	Spring, Ø 28.3 x 30.7	3
9	F36206051	Suction/Delivery Valve Guide	6
10	F36715001	Suction Valve Assembly	3
11	F74210551	Spacer, Valve Guide	3
12	F90358400	O-ring, Ø 10.82 x 1.78	3
13	F98204600	Plug, G 1/4" x 13	3
14	F36206866	Valve Seat	3
15	F90527300	Anti-extrusion Ring, Ø 61.4 x 676.2 x 1.5	3
16	F90529000	Anti-extrusion Ring, Ø 77.2 x 83 x 1.5	3
17	F90413400	O-ring, 75.8 x 3.53	6
18	F94770000	Spring, Ø 41.5 x 38.3	3
19	F36715201	Outlet Valve Assembly	3
20	F74210970	Valve Plug, H.P.	3
21	F90529300	Anti-extrusion Ring, Ø 77.4 x 83.2 x 1.5	3
22	F94800000	Spring, Ø 75 x 49.6	3
23	F74210766	Ring, Valve Seat	3
24	F74210100	Valve Cover, H.P.	1
25	F99522200	Screw, M16 x 180	8
26	F99514700	Screw, M16 x 55	8
20	F99385000	Plunger Screw	3
28		Washer, Ø 10x18x0.9	3
	F96710500		
29	F90418500	O-ring, Ø 72 x 4	3
~	F74211456	Plunger Sleeve, MKS55A	3
30	F74211556	Plunger Sleeve, MKS60A	3
	F74211656	Plunger Sleeve, MKS65A	3
	F74040309	Plunger, MKS55A	3
31	F74040409	Plunger, MKS60A	3
	F74040509	Plunger, MKS65A	3
32	F90372200	O-ring,Ø 96 x 2	6
	F74100392	Head Ring, MKS55A	3
33	F74100492	Head Ring, MKS60A	3
	F74100592	Head Ring, MKS65A	3
	F90287300	H.P. Packing, MKS55A	3
34	F90288300	H.P. Packing, MKS60A	3
	F90289300	H.P. Packing, MKS65A	3
	F90287500	Restop Ring, MKS55A	3
35	F90288500	Restop Ring, MKS60A	3
	F90289500	Restop Ring, MKS65A	3
	F74212068	Gasket Holder, MKS55A	3
36	F74212168	Gasket Holder, MKS60A	3
	F74212268	Gasket Holder, MKS65A	3
	F90287000		3
37	F90288000	L.P. Packing, MKS60A	3
<i>.</i>	F90289000	L.P. Packing, MKS65A	3
38	F74213351	Wiper	3
30 39	F90386500	· ·	3
		O-ring, Ø 29.82 x 2.62	_
40	F90382500	O-ring, Ø 10.78 x 2.62	3
41	F99183700	Screw, M6 x 14	14
42	F74150122	Upper Cover	1
43	F74150222	Lower Cover	1
44	F90450000	O-ring, Ø 266.06 x 5.34	2
45	F74050166	Plunger	3
46	F74213171	Plunger Oil Seal Cover	3
47	F90391400	O-ring, Ø 72.69 x 2.62	3
	F90167900	Ring, Ø 40 x 52 x 7	3
48		D ( ) D' ( C ) ( )	
48 49	F97674000	Retainer Pin, Ø 5 x 16	3
	F97674000 F99369700	Retainer Pin, Ø 5 x 16           Screw, M10 x 35	3

tem	Part #	Description	QTY
52	F98233300	Oil Plug	1
53	F99441000	Connecting Rod Screw, M12 x 1.25 x 87	6
54	F99304500	Screw, M8 x 18	13
55	F98218300	Plug, G 1/2" x 13	1
56	F96751400	Washer, Ø 21.5 x 27 x 1.5	1
57	F91858000	Bearing	1
01	F10070235	Pinion, Z20 R.2.65 - Elicoid	1
50			
58	F10070335	Pinion, Z17 R.3.29 - Elicoid	1
	F10073755	Pinion, Z23 R.2.22 - Elicoid	1
59	F91860000	Bearing	1
60	F74212984	Gearbox Flange Gasket	1
61	F91503000	Key, 16 x 10 x 90	1
62	F90180000	Ring, Ø 60 x 80 x 8	1
63	F74212722	Gearbox Flange	1
64	F99433500	Screw, M12 x 50	2
65	F99366700	Screw, M10 x 25	2
66	F91512000	Pinion Key	1
67	F74213255	Gear Stop	1
68	F74020235	Crankshaft	1
	F10073635	Gear, Z51 R.2.22 - Elicoid	1
69	F10070535	Gear, Z53 R.2.65 - Elicoid	1
	F10070635	Gear, Z56 R.3.29 - Elicoid	1
70	F99373000	Screw, M10 x 50	8
71	F74212613	Gearbox Cover	1
72	F74212884	Gearbox Gasket	1
73	F97630000	Retainer Pin, Ø 12 x 40	3
74			
	F74212413	Gearbox Housing	1
75	F99430500	Screw, M12 x 40	6
76	F96717000	Washer, Ø 12	8
77	F91885000	Bearing	1
78	F74213084	Gasket, Lateral	2
79	F74010113	Pump Body	1
80	F74030201	Connecting Rod Assembly	3
	F90930000	Bearing, Lower	3
81	F90930100	Bearing, +0.25, Lower	3
01	F90930200		
		Bearing, +0.50, Lower	3
	F90931000	Bearing, Upper	3
82	F90931100	Bearing, +0.25, Upper	3
	F90931200	Bearingm +0.50, Upper	3
83	F74160022	Crankcase Cover	1
84	F90416000	O-ring, Ø 304.39 x 3.53	1
85	F91885200	Bearing	1
86	F74150022	Bearing Cover	1
87	F93080000	Ring Nut	1
88	F96830000	Washer, MB	1
89	F91880000		1
		Bearing Bushing	
90	F99428000	Screw, M12 x 30	8
91	F98209200	Dipstick	2
92	F93105000	Eye Bolt	2
93	F90069700	Ring	6
94	F97745000	Piston Pin, Ø 35 x 64	3
95	F90383300	O-ring, Ø 13.95 x 2.62	2
96	F36208951	Internal Valve Guide	6
97	F74215056	Manifold Bushing	3
98	F90528500	Anti-extrusion Ring, Ø 72.5x72.5x1.5	6
99	F90412900	O-ring, Ø 72.62x3.53	6
100	F90917300	Bushing	3
101	F10072555	Pinion, Z20-1500 - Elicoid	1
102	F10072620	Motor Flange	1
103	F99368600	Vite, M10 x 30	6
	1		1

#### REPAIR KITS

KIT NUMBER	KIT2045 (MKS55A) Plunger Packing Kit	KIT2046 (MKS60A) Plunger Packing Kit	KIT2047 (MKS65A) Plunger Packing Kit		KIT2049 (MKS55A) Complete Seals Kit	KIT2050 (MKS60A) Complete Seals Kit	KIT2051 (MKS650A) Complete Seals Kit	KIT2076 Connecting Rod Kit
Positions Included	29, 32, 34, 35, 37, 40	29, 32, 34, 35, 37, 40	29, 32, 34, 35, 37, 40	10, 11, 17, 19, 21	4, 5, 12, 15, 16, 17, 21, 28, 29, 32, 34, 35, 37, 39, 40, 44, 47,48, 60, 62, 72, 78, 84, 95	4, 5, 12, 15, 16, 17, 21, 28, 29, 32, 34, 35, 37, 39, 40, 44, 47,48, 60, 62, 72, 78, 84, 95	4, 5, 12, 15, 16, 17, 21, 28, 29, 32, 34, 35, 37, 39, 40, 44, 47,48, 60, 62, 72, 78, 84, 95	81, 82

## MKSR SERIES

### **17. MKSR PUMP VERSION**

The following information is helpful in deciding how to use the MKSR pump.

Unless specified, use the above instructions for the standard MK pump.

#### 17.1 MKR Pump

#### **17.1.1 Operating Instructions**



The MKSR series pumps have been designed to operate in environments that are not potentially explosive and use water that contains particulates, they are ideal for systems with fluid recirculation.

The durability of the plunger seals are directly related to the amount of solids in the fluid as regards to size and density.

For a long seal life it is recommended that particulates size no larger than 200 micron and 20% max. in volume.

For more infromation and a general system layout, see par. 17.2.6.

#### 17.1.2 Max Pressure and Flow Rate

The specifications stated in our catalog are the maximum performance of the pump. Regardless of the power used, pressure, and maximum RPM values indicated on the label plate may not be exceeded unless authorized by the **Customer Service Department.** 

17.1.3 Technical Features	
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Madal	RPM	Flow Rate		Pres	sure	Power	
Model	RPIN	GPM	l/min	PSI	Bar	HP	kW
MKSR50	1500	63.4	240	3625	250	156	115
WINSKOU	1800	61.3	232	3625	250	151	111
MKSR55	1500	76.6	290	2900	200	151	111
WINSKSS	1800	74.2	281	2900	200	146	107
MKODCO	1500	91.4	346	2465	170	153	112.5
MKSR60	1800	88.2	334	2465	170	147	108
MKODOS	1500	107.3	406	2175	150	158	116
MKSR65	1800	103.6	392	2175	150	153	112.5

#### 17.1.4 Dimensions and Weight

For dimensions and weight of pump, refer to the diagrams in chapter 6.

#### 17.1.5 Pump Supply

The pump must be installed with a positive suction head, that recevies the water by gravity or by forced feeding, while never drawing water lower than pump.

The pump is able to withstand minimum suction heads of even 1 meter. For best volumetric efficiency and to avoid cavitation, the available positive suction head

(NPSH avail) measured at the suction flange in the manifold must be equal to or greater that the values below

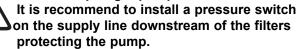
	NPSH (m)
MKSR50	21.33' (6.5)
MKSR55	24.61' (7.5)
MKSR60	26.25' (8)
MKSR65	29.53 (9)

#### 17.1.5 Pump Supply (continued)

For greater displacements, of pumps with plungers Ø 55 - 60 - 65, forced feeding by a booster pump is recommended in order to avoid cavitation, considering the geometry of the hydralics and the considerable flow rates. The booster pump must have at least twice the flow rate of the rated flow rate of the plunger pump and a pressure of 2 and 3 bars.

These supply conditions must be observed at all operating speeds

> The booster pump must always be started up before the plunger pump.

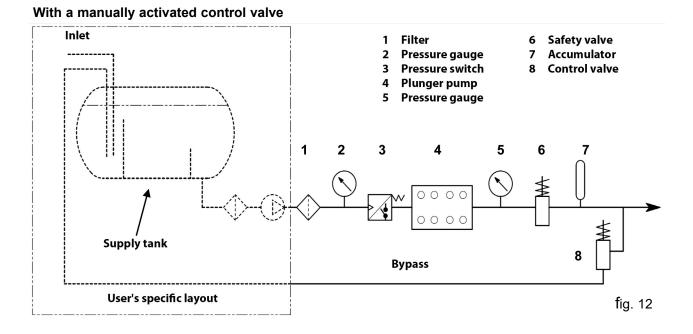




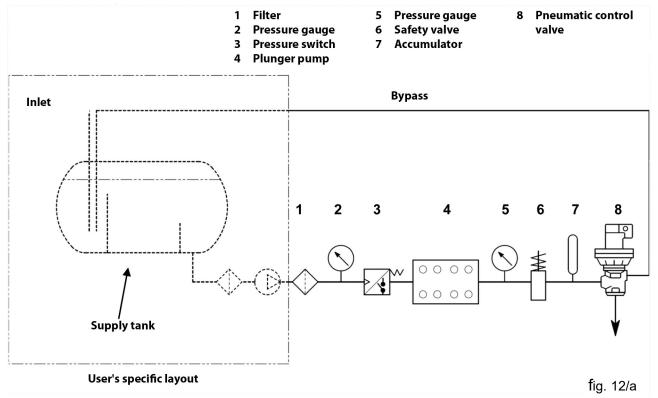
## **MKSR SERIES**

#### 17.1.6 Filtration

Our customer service department is at your disposal to define the system better, as examples, we provide the following layouts. (fig. 12 and fig. 12/a).



#### With a pneumatically activated control valve



## **MKSR SERIES**

The filter must be installed as close as possible to the pump and be easily inspected.



For the pump to work properly, the degree of filtration and accumulating capacity of the filtering system must be sized to achieve the best compromise between each filling with water.

The best recommended compromise is the one illustated in par. 17.1.1.

It is important that after using the pump, to wash it with particulate-free water.

#### 17.1.7 Preventive Maintenance

For pump reliability and efficiency, comply with maintenace intervals as shown in the table below.

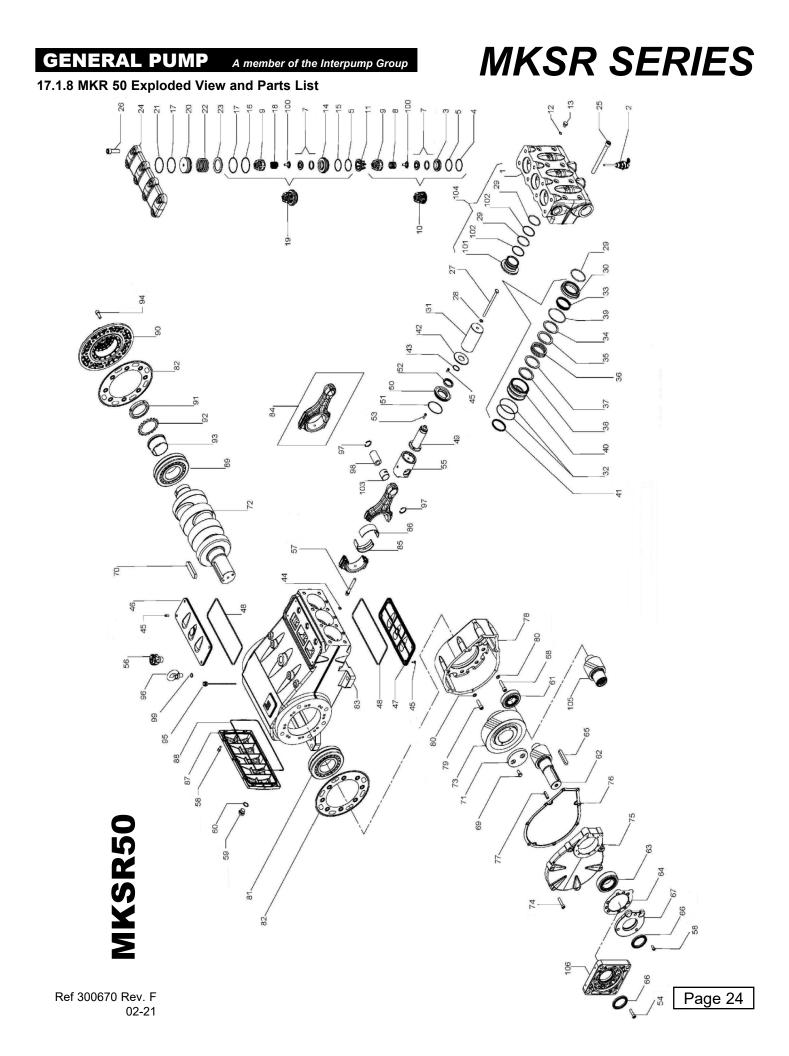
Preventive Maintenance							
Every 500 Hours	Every 1000 Hours						
Check Oil Levels	Change Oil						
	Check/Replace*: Valves Valve Seats Valve Springs Valve Guides						



HP-LP seals: durability depends on the degree of filtration, type of fluid and percentage in volume (see chapter 7)

\* To replace, follow instructions contained in the **Repair** Manual.





## **GENERAL PUMP**

A member of the Interpump Group

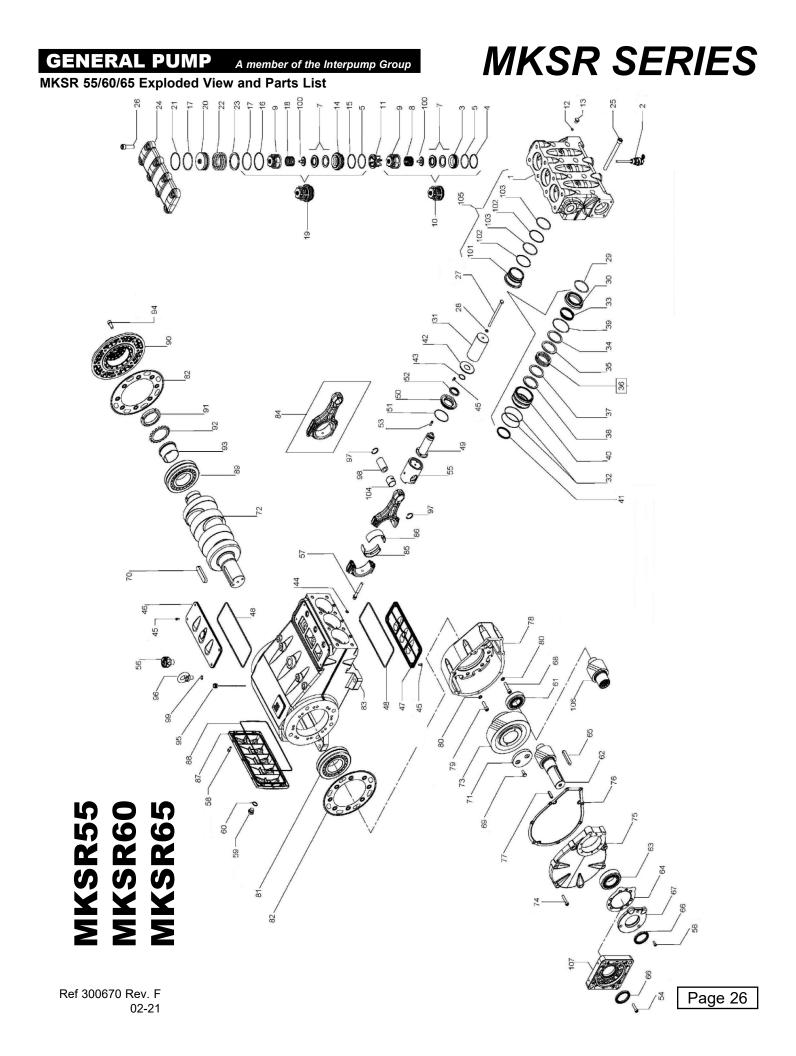
#### MKSR 50 Parts List

Item	Part No.	Description	QTY
	F74120315	Manifold 45-50 HP	1
1	F74120501	Manifold 45-50 HP NPT	1
2			
	F10744401	Suction Valve	3
3	F36206766	Inlet Valve Seat	3
4	F90526000	Antiextrusion Ring, Ø 51.5 x 56 x 1.5	3
5	F90389000	O-ring, Ø 50.47 x 2.62	6
7	F36208801	Suction Valve Spring	6
8	F94760000	Spring, Ø 28.3 x 30.7	3
9	F36206105	Valve Cage	6
10	F36715101	Suction Valve Assembly	3
11	F74210651		3
		Spacer, Valve Guide	
12	F90358400	O-ring, Ø 10.82 x 1.78	3
13	F98204600	Plug, G 1/4" x 13	3
14	F36206966	Valve Seat	3
15	F90526500	Anti-extrusion Ring, Ø 51.7 x 56.2 x 1.5	3
16	F90527600	Anti-extrusion Ring, Ø 67.5 x 72 x 1.5	3
17	F90391100	O-ring, 66.35 x 2.62	6
18	F94760500	Spring, Ø 28.5 x 32	3
19	F36715301	Outlet Valve Assembly	3
20	F74211070	Valve Plug, H.P.	3
21	F90528000	Anti-extrusion Ring, Ø 67.7 x 72.2 x 1.5	3
22	F94775000	Spring, Ø 58 x 45.4	3
23	F74210866	Ring, Valve Seat	3
24	F74210115	Valve Cover, H.P.	1
25	F99522200	Screw, M16 x 180	8
26	F99514700	Screw, M16 x 55	8
27	F99385000	Plunger Bolt, M10 x 160	3
28	F96710500	Washer, Ø 10 x 18 x 0.9	3
29	F90410200	O-ring Ø 58.74 x 3.53	9
30	F74100656	Plunger Sleeve, Ø 50	3
31	F74040209	Plunger, Ø 50 x 127	3
32	F90372200	O-ring, Ø 96 x 2	6
33	F94777000	Spring, Ø 61.5 x 35	3
34	F74213456	Ring, Spring Ø 50	3
35	F74213882	Scraper Ring, Ø 50	3
36	F90570000	Packing, Ø 50	3
37	F90524500	Anti-extrusion Ring, Ø 50 x 66 x 2.5	3
38	F74214260	Support Ring, Ø 50	3
39	F90413400	O-ring, 75.9 x 3.53	3
40	F74214656	Packing Support, Ø 50	3
41	F90286000	Ring, Ø 50 x 58 x 5.5	3
42	F74213351	Splash Guard	3
43	F90386500	O-ring. Ø 29.82 x 2.62	3
44	F90382500	O-ring, Ø 10.78 x 2.62	3
45	F99183700	Screw, M6 x 14	14
46	F74150122	Upper Cover	1
40	F74150122	Lower Cover	1
48	F90450000	O-ring, Ø 266.06 x 5.34	2
49	F74050336	Plunger Guide	3
50	F74213171	Plunger Oil Seal Cover	3
51	F90391400	O-ring Ø 72.69 x 2.62	3
52	F90167900	Ring, Ø 40 x 52 x 7	3
53	F99188400	Screw, M6 x 20	3
54	F99368600	Screw, M10 x 30	6
	F79050443	Piston Guide	3
55			
50	F79050543	Piston Guide, +1.0	3
56	F98233300	Oil Plug	1
57	F99441000	Connecting Rod Screw	6
58	F99304500	Screw, M8 x 18	13
59	F98218700	Plug, G 1/2" x 13	1
60	F96751400	Washer, Ø 21.5 x 27 x 1.5	1
61	F91858000	Bearing	1
~	10100000	Boaring	

ltem	Part No.	Description	QTY.
63	F91860000	Bearing	1
64	F74212984	Gear Box Flange Gasket	1
65	F91503000	Key, 16 x 10 x 90	1
66	F90180000	Ring, Ø 60 x 80 x 8	1
67	F74212722	Gearbox Flange	1
68	F99433500	Screw, M12 x 50	2
69	F99366700	Screw, M10 x 25	2
70	F91512000	Pinion Key, 22 x 14 x 100	1
71	F74213255	Gear Stop	1
72	F74020235	Crankshaft	1
73	F10073635	Gear, Z53 R.2.22 - Elicoid	1
74	F99373000	Screw, M10 x 50	8
75	F74212613	Gearbox Cover	1
76	F74212884	Gearbox Gasket	1
77	F97630000	Retainer Pin, Ø 12 x 40	3
78	F74212413	Gearbox Housing	1
79	F99430500	Screw, M12 x 40	6
80	F96717000	Washer, Ø 12	8
81	F91885000	Bearing	1
82	F74213084	Gasket, Lateral	2
83	F74010113	Pump Body	1
84	F74030201	Connecting Rod Assembly	3
	F90930000	Bearing, Lower	3
85	F90930100	Bearing, +0.25, Lower	3
	F90930200	Bearing, +.050, Lower	3
	F90931000	Bearing, Upper	3
86	F90931100	Bearing, +0.25, Upper	3
	F90931200	Bearing, +0.50, Upper	3
87	F74160022	Crankcase Cover	1
88	F90416000	O-ring, Ø 304.39 x 3.53	1
89	F91885200	Bearing	1
90	F74150022	Bearing Cover	1
91	F93080000	Ring Nut	1
92	F96830000	Washer, MB	1
93	F91880000	Bearing Bushing	1
94	F99428000	Screw, M12 x 30	8
95	F98209200	Dipstick, G 3/8" x 168	2
96	F93105000	Eye Bolt, M16	2
97	F90069700	Seeger Ring, Ø 35	6
98	F97745000	Piston Pin, Ø 35 x 64	3
99	F90383300	O-ring, Ø 13.95 x 2.62	2
100	F36209051	Internal Valve Guide	6
101	F74215156	Bushing	3
102	F90526880	Anti-extrusion Ring Ø 59 x 65 x 1.5	6
103	F90947300	Bushing	3
104	F74120301	Head Bushing	1
105	F10072555	Pinion, Z20-1500 -Elicoid	1
106	F10072620	Motor Flange	1

#### REPAIR KITS

KIT No.	KIT2100	KIT2055	KIT2101	KIT2076	KIT2077 (+0.25)	KIT2078 (+0.50)
	Plunger Packing Kit	Valves Kit	Complete Seal Kit	Connecting Rod Kit	Connecting Rod Kit	Connecting Rod Kit
Positions Included	29, 35, 36, 37, 39, 40, 41, 44	10, 11, 17, 19, 21	4, 5, 12, 15, 16, 17, 21, 29, 35, 36, 37, 39, 40, 41, 43, 44, 48, 51, 52, 64, 66, 76, 82, 88, 99	85, 86	85, 86	85, 86



## **GENERAL PUMP**

A member of the Interpump Group

#### MKSR 55/60/65 Parts List

## **MKSR SERIES**

Item	Part No	Description	QTY.	Item	Part #	De
1	F74120115	Manifold LP	1	47	F74150222	Lo
	F74120415	Manifold LP - NPT	1	48	F90450000	0-1
2	F10744301	Suction Valve Device	3	49	F74050336	Plu
3	F36206666	Inlet Valve Seat	3	50	F74213171	Plu
4	F90527000	Anti-extrusion Ring, Suction Valve Spring 61.2 x 67 x 2	3	51	F90391400	0-1
5	F90410500	O-ring, Ø 59.92 x 3.53	6	52	F90167900	Rir
7	F36208701	Suction Valve Spring	6	53	F99188400	Sc
8	F94769800	Spring, Ø 41.5 x 37.9	3	54	F99368600	Sc
9	F36206005	Suction/Delivery Valve Guide	6	55	F79050443	Pis
10	F36715001	Suction Valve Assembly	3		F79050543	Pis
11	F74210551	Spacer, Valve Guide	3	56	F98233300	Oil
12	F90358400	O-ring, Ø 10.82 x 1.78	3	57	F99441000	Co
13	F98204600	Plug, G 1/4" x 13	3	58	F99304500	Sc
14	F36206866	Valve Seat	3	59	F98218700	Plu
15	F90527300	Anti-extrusion Ring, Ø 61.4 x 67.5 x 1.5	3	60	F96751400	Wa
16 17	F90529000	Anti-extrusion Ring, Ø 77.2 x 83 x 1.5	3	61	F91858000	Be
17 18	F90413400	O-ring, 75.8 x 3.53		62	F10073755	Pir
	F94770000	Spring, Ø 41.5 x 38.3	3	63	F91860000	Be
19	F36715201	Outlet Valve Assembly		64	F74212984	Ge
20	F74210970	Valve Plug, L.P. Anti-extrusion Ring, Ø 77.4 x 83.2 x 1.5	3	65	F91503000	Ke
21 22	F90529300 F94800000	Anti-extrusion Ring, Ø 77.4 x 83.2 x 1.5 Spring, Ø 75 x 49.6	3	66	F90180000	Rir
22 23	F94800000 F74210766	Ring, Valve Seat	3	67 68	F74212722 F99433500	Ge
23 24	F74210700	Valve Cover, L.P.	1			
24 25	F99522200	Screw, M16 x 180	8	69 70	F99366700 F91512000	Sc Pir
26	F99514700	Screw, M16 x 55	8	70	F74213255	Ge
20 27	F99385000	Plunger Screw, M10x160	3	71	F74213235	Cra
28	F96710500	Washer, Ø 10 x 18 x 0.9	3	72	F10073635	Ge
29	F90418500	O-ring, Ø 72 x 4	3	73	F99373000	Sc
	F74100756	Plunger Sleeve, Ø 55	3	74	F74212613	Ge
30	F74100756	Plunger Sleeve, Ø 60	3	76	F71212884	Ge
30	F74100056	Plunger Sleeve, Ø 65	3	70	F97630000	Re
	F74040309	Plunger, Ø 55 x 127	3	78	F74212413	Ge
31	F74040309	Plunger, Ø 60 x 127	3	70	F99430500	Sc
,	F74040509	Plunger, Ø 65 x 127	3	80	F96717000	Wa
32	F90372200	O-ring, Ø 96 x 2	6	81	F91885000	Be
	F94777000	Spring, Ø 61.5 x 35, MKSR 55	3	82	F74213084	Ga
33	F94790000	Spring, Ø 71.5 x 35, MKSR 60, MKSR 65	3	83	F74010113	Pu
	F74213556	Ring, Spring, Ø 55	3	84	F74030201	Co
34	F74213656	Ring, Spring, Ø 60	3		F90930000	Be
	F74213756	Ring, Spring, Ø 65	3	85	F90930100	Be
	F74213982	Scraper Ring, Ø 55	3		F90930200	Be
35	F74214082	Scraper Ring, Ø 60	3		F90931000	Be
	F74214182	Scraper Ring, Ø 65	3	86	F90931100	Be
	F90572500	Packing, Ø 55	3		F90931200	Be
36	F90575000	Packing, Ø 60	3	87	F74160022	Cra
	F90577500	Packing, Ø 65	3	88	F90416000	0-
	F90526700	Anti-extrusion Ring, Ø 55 x 71 x 2.5	3	89	F91885200	Be
37	F90526900	Anti-extrusion Ring, Ø 60 x 76 x 2.5	3	90	F74150022	Be
	F90527500	Anti-extrusion Ring, Ø 65 x 81 x 2.5	3	91	F93080000	Rir
	F74214360	Support Ring, Ø 55	3	92	F96830000	Wa
38	F74214460	Support Ring, Ø 60	3	93	F91880000	Be
	F74214560	Support Ring, Ø 65	3	94	F99428000	Sc
20	F90413400	O-ring, Ø 75.8 x 3.53, MKSR 55	3	95	F98209200	Dip
39	F90414100	O-ring, Ø 85.32 x 3.53, MKSR 60, MKSR 65	3	96	F96105000	Ey
	F74214759	Packing Support, Ø 55	3	97	F90069700	Se
40	F74214856	Packing Support, Ø 60	3	98	F97745000	Pis
	F74214956	Packing Support, Ø 65	3	99	F90383300	0-
	F90287000	Ring, Ø 55 x 63 x 5.5, LP	3	100	F36208951	Int
41	F90288000	Ring, Ø 60 x 68 x 5.5, LP	3	101	F74215056	Bu
	F90289000	Ring, Ø 65 x 73 x 5.5, LP	3	102	F90528500	An
42	F74213351	Splash Guard	3	103	F90412900	0-
43	F90386500	O-ring, Ø 29.82 x 2.62	3	104	F90917300	Bu
44	F90382500	O-ring, Ø 10.78 x 2.62	3	105	F74120101	He
45	F99183700	Screw, M6 x 14	14	106	F10072555	Pir
	F74150122	Upper Cover	1	107	F10072620	Mo

Item         Part #         Description         QTY.           47         F74150222         Lower Cover         1           48         F94050000         Oing, Ø 266.06 x 5.34         3           50         F742171         Plunger Caidé         3           51         F9031400         C-ing, Ø 72.69 x 2.62         3           52         F90167800         Screw, M0 x 20         3           53         F99188400         Screw, M0 x 10         6           54         F99305600         Screw, M0 x 10         3           56         F99305430         Piston Guide, +10         3           57         F99441000         Connecting Rod Screw         6           58         F99305600         Screw, M8 x 18         13           59         F9821700         Plug, G 12" x 13         11           61         F9180000         Bearing         11           62         F10073755         Pinion 223 R, 2.22 - Elicoid         11           63         F91800000         Reig, #0 64 80 x 8         11           64         F94120208         Gearbox Flange         11           64         F9412000         Screw, M1 2 x 50         22 <t< th=""><th></th><th>-</th><th></th><th></th></t<>		-		
48         F90450000         O-ring, 0 266.06 x 5.34         2           49         F74050336         Plunger Guide         3           50         F742171         Plunger OI Seal Over         3           51         F90391400         O-ring, 0 7 2.69 x 2.62         3           52         F9016700         Ring, 0 40 x 52 x 7         3           53         F9938400         Screw, M10 x 10         6           55         F7905043         Piston Guide         3           56         F9933300         OII Plug, G1*         1           57         F99304500         Screw, M8 x 18         13           59         F9821700         Plug, C1* x 13         1           60         F9973000         Plug, C1* x 13         1           61         F9163000         Bearing         1           62         F10073755         Plinoin 223 R 2.22 - Elicoid         1           64         F94153000         Rey, 16 x 10 x 90         1           66         F90158000         Rey, 16 x 10 x 90         1           66         F90158000         Rey, 16 x 10 x 90         1           7         F74212722         Gearbox Flange Gasket         1	Item	Part #	Description	QTY.
49         F74050336         Plunger Guide         3           50         F74213171         Plunger Oil Seal Over         3           51         F9037000         Ring, Ø 27.26 x 2.62         3           52         F90167900         Ring, Ø 40 x 52 x 7         3           53         F99186400         Screw, Mt x 20         3           54         F99366600         Screw, Mt x 20         3           55         F79050543         Piston Guide, +10         3           56         F99304500         Screw, M8 x 18         13           57         F99814100         Connecting Rod Screw         6           58         F99304500         Berew, M8 x 18         13           59         F98218700         Pulug, G 1/2" x 13         1           61         F9185000         Bearing         1           62         F9180000         Bearing         1           63         F9180000         Bearing         1           64         F9413000         Bearing         1           65         F9150000         Rein Reing         1           66         F90180000         Rein Reing         1           77         F1073350 <t< td=""><td>47</td><td>F74150222</td><td>Lower Cover</td><td>1</td></t<>	47	F74150222	Lower Cover	1
50         F74213171         Plunger Oil Seal Over         3           51         F9016700         Ring, <i>a</i> 04 x 52 x 7         3           53         F9916800         Screw, M0 x 20         3           54         F9936800         Screw, M0 x 10         6           55         F7805043         Piston Guide         3           56         F7805043         Piston Guide, +1.0         3           57         F99441000         Connecting Rod Screw         6           58         F99304500         Screw, M8 x 18         13           59         F98218700         Pilug, G 1/2 x 13         1           60         F98751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F91503000         Bearing         1           62         F10073755         Pinion Z23 R. 222. Elicoid         1           64         F74212944         Gear Box Flange Gasket         1           64         F9403000         Key, 16 x 10 x 90         1           64         F9402000         Key, 06 x 80 x 8         1           67         F9150000         Key, 16 x 10 x 90         1           68         F99433500         Screw, M10 x 25         2	-			
51         F90391400         O-ing, Ø 72.69 × 2.62         3           52         F9016700         Ring, Ø 40 × 52 × 7         3           53         F9938600         Screw, M0 × 10         6           54         F9938604         Pieton Guide         3           57         F99405043         Pieton Guide, +1.0         3           56         F98233300         Oil Plug, G1"         1           57         F9941000         Connecting Rod Screw         66           58         F9930400         Screw, M8 × 18         13           59         F98213700         Bearing, 21 × 1.5         1           61         F9165000         Bearing, 21 × 27 × 1.5         1           62         F10703755         Pinion 223 R. 2.2 × Elicoid         1           63         F91860000         Ring, Ø 60 × 80 × 8         1           64         F74212242         Gearbox Flange         1           65         F9150000         Pion K9, 22 × 14 × 100         1           71         F74212232         Gearbox Cover         2           67         F17421200         Pion K9, 22 × 14 × 100         1           71         F174212335         Gearbox Cover         1 <td></td> <td></td> <td></td> <td></td>				
52         F90167900         Ring, Ø 40 x 52 x 7         3           53         F9936800         Screw, M6 x 20         3           54         F9936800         Screw, M10 x 10         6           57         F79050543         Piston Guide, +1.0         3           56         F9923300         Oil Piug, G1"         1           57         F99341000         Connecting Rod Screw, M8 x 18         13           58         F9930500         Screw, M8 x 18         13           59         F98218700         Plug, G 12" x 13         1           60         F99751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F91503000         Bearing         1         1           64         F74212944         Gear Box Flange Gasket         1         1           65         F91503000         Key, 16 x 10 x 90         1         1           66         F90160000         Ring, Ø 60 x 80 x 8         1         1           67         F74212722         Geartox Flange         1         1           7         F74212722         Geartox Flange         1         1           7         F74212722         Geartox Flange         1         1 <td></td> <td></td> <td></td> <td></td>				
53         F99188400         Screw, M6 x 20         3           54         F9905643         Piston Guide         3           55         F7905043         Piston Guide, 11.0         3           56         F9823300         Oil Plug, G1"         1           57         F99441000         Connecting Rod Screw         6           58         F9920700         Pug, G12" x 13         1           60         F96751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F91680000         Bearing         1           62         F1007355         Pinion Z23 R. 2.2 - Elicoid         1           63         F91680000         Bearing         1           64         F74212944         Cear Box Flange Gasket         1           65         F91500000         Ring, Ø 60 x 80 x 8         1           66         F99386700         Screw, M12 x 50         2           69         F9930500         Screw, M12 x 50         2           69         F9930500         Screw, M12 x 50         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74212325         Gear Z51, R.2.22 - Elocoid         1      <	-			
54         F99368600         Screw, M10 x 10         6           55         F79050543         Piston Guide         3           56         F9823300         Oil Plug, G1"         1           57         F99341000         Connecting Rod Screw         6           58         F99304500         Screw, M8 x 18         13           59         F98218700         Plug, G1" x 13         1           60         F96751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F9180000         Bearing         1           62         F9160000         Bearing         1           63         F9180000         Regring         1           64         F74212984         Gear Box Flange Gasket         1           65         F9100000         Ring, Ø 0 x 80 x 8         1           66         F9010000         Ring, Ø 0 x 80 x 8         1           67         F94212722         Gearbox Flange         1           68         F99303500         Screw, M10 x 25         2           70         F91512000         Prinon Key, 22 x 14 x 100         1           71         F74212722         Gearbox Cousing         1           74	-			
55         F79050443         Piston Guide         3           65         F9823300         Di Plug, G1*         1           67         F99341000         Connecting Rod Screw         6           58         F99304500         Screw, M8 x 18         13           59         F9821700         Plug, G1*         1           60         F99751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F9185000         Bearing         1           62         F10073755         Pinion Z23 R. 2.22 - Elicoid         1           63         F91850000         Bearing         1           64         F74212944         Cear Box Flange Gasket         1           65         F91503000         Key, 10 x 10 x 90         1           66         F99380700         Screw, M12 x 50         2           69         F99380700         Screw, M12 x 50         2           69         F99380700         Screw, M12 x 50         1           71         F74212055         Gear Stop         1           72         F1470335         Gear, 251, R.2.22 - Elocoid         1           74         F9933000         Screw, M10 x 50         8           75				
55         F79050543         Piston Guide, +1.0         3           56         F9823300         Oil Plug, G1"         1           57         F9941000         Connecting Rod Screw         66           58         F98218700         Plug, G1/2" x 13         1           60         F96751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F91658000         Bearing         1           62         F10073755         Plinion Z23 R. 2.22 - Elicoid         1           63         F91680000         Bearing         1           64         F74212984         Cear Box Flange Gasket         1           65         F9153000         Krey, N10 x 90         1           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99433500         Screw, M10 x 25         2           70         F91512000         Prinon Key, 22 x 14 x 100         1           71         F74020235         Crankshaft         1           72         F74212813         Gearbox Cover         1           74         F9933000         Screw, M10 x 50         8				
57         F99441000         Connecting Rod Screw         6           58         F99204500         Screw, M8 x 18         13           60         F96751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F9165000         Bearing         1           62         F10073755         Prino T23 R. 2.2 - Elicoid         1           63         F91860000         Bearing         1           64         F74212984         Cear Box Flange Gasket         1           65         F91503000         Key, N2 x 10 x 90         1           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F9433500         Screw, M12 x 50         2           70         F91512000         Prinor Key, 22 x 14 x 100         1           71         F7421255         Gear Stop         1           72         F7400235         Crankshaft         1           73         F7421261         Gearbox Cover         1           74         F9933000         Screw, M10 x 50         8           75         F7421284         Gearbox Housing         1           74 <td>55</td> <td></td> <td></td> <td></td>	55			
58         F99304500         Screw, Må x 18         13           59         F98218700         Plug, G 1/2" x 13         1           60         F96721400         Washer, Ø 21.5 x 27 x 1.5         1           61         F91858000         Bearing         1           62         F10073755         Prino 223 R. 2.22 · Elicoid         1           63         F9180000         Rearing         1           64         F74212984         Gear Box Flange Gasket         1           65         F91503000         Key, 16 x 10 x 90         6           66         F90130000         Ring, 60 x 80 x 8         1           67         F74212722         Gearbox Flange         2           70         F91512000         Pring, 60 x 80 x 8         2           71         F7420235         Grankshaft         1           72         F74020235         Grankshaft         1           73         F7421213         Gearbox Cover         1           74         F9937000         Screw, M12 x 40         6           76         F74212814         Gearbox Housing         1           77         F97630000         Retainer Pin, Ø 12 x 40         6           78 </td <td>56</td> <td>F98233300</td> <td>Oil Plug, G1"</td> <td>1</td>	56	F98233300	Oil Plug, G1"	1
59         F98218700         Plug, G 1/2" x 13         1           60         F96751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F9185000         Bearing         1           62         F10073755         Plnion 223 R. 2.22 - Elicoid         1           63         F91850000         Key, 16 x 10 x 90         1           64         F74212284         Gear Box Flange Gasket         1           65         F91503000         Key, 16 x 10 x 90         1           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F7421722         Gearbox Flange         1           68         F99433500         Screw, M10 x 25         2           69         F99366700         Screw, M10 x 25         2           70         F91512000         Prinic Key, 22 x 14 x 100         1           71         F74020325         Crankshaft         1           72         F7403635         Gear Z51, R. 22 - Elocoid         1           74         F99373000         Screw, M10 x 50         8           75         F74212813         Gearbox Coasket         1           76         F71212844         Gearbox Coasket         1     <	57	F99441000	Connecting Rod Screw	6
60         F96751400         Washer, Ø 21.5 x 27 x 1.5         1           61         F91658000         Bearing         1           62         F10073755         Phion 223 R. 2.2 - Elicoid         1           63         F9180000         Bearing         1           64         F74212984         Gear Box Flange Gasket         1           65         F91503000         Key, 16 x 10 x 90         6           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99433600         Screw, M10 x 25         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F7420235         Crankshaft         1           73         F10073635         Gear, Z51, R.2.22 - Elocoid         1           74         F9937000         Screw, M10 x 50         8           75         F7421213         Gearbox Casket         1           76         F7121284         Gearbox Casket         1           77         F9630000         Screw, M12 x 40         6           80         F96771000         Washer, Ø 12         8	58	F99304500	Screw, M8 x 18	13
61         F91858000         Bearing         1           62         F10073755         Pinion Z23 R. 2.2 - Elicoid         1           63         F91860000         Bearing         1           64         F74212984         Gear Box Flange Gasket         1           65         F91503000         Key, 16 x 10 x 90         1           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99366700         Screw, M12 x 50         2           69         F99366700         Screw, M10 x 25         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74020335         Gear Stop         1           72         F7412284         Gearbox Cover         1           74         F9933600         Screw, M10 x 50         8           75         F7421284         Gearbox Casket         1           77         F9763000         Retainer Pin, 0 12 x 40         6           80         F96717000         Washer, 012 x 40         6           81         F9185000         Bearing, 10 per         3           7421	59	F98218700	Plug, G 1/2" x 13	1
62         F10073755         Pinion Z23 R. 2.22 - Elicoid         1           63         F9180000         Bearing         1           64         F74212984         Gear Box Flange Gasket         1           65         F9150300         Key, 16 x 10 x 90         1           66         F99180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99433500         Screw, M12 x 50         2           69         F99366700         Screw, M12 x 50         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74212355         Gear Stop         1           72         F742128300         Grankshaft         1           73         F10073305         Gearbox (M10 x 50         8           75         F74212813         Gearbox Cover         1           76         F7630000         Retainer Pin, 0 12 x 40         6           80         F96717000         Washer, 0 12         8           81         F91885000         Bearing         1           82         F74212413         Gearbox Housing         1           83 <td></td> <td></td> <td></td> <td></td>				
63         F91860000         Bearing         1           64         F74212944         Gear Box Flange Gasket         1           65         F91503000         Key, 16 x 10 x 90         1           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99368700         Screw, M10 x 25         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74202235         Carankshaft         1           72         F74202235         Carankshaft         1           73         F10073635         Gear, Z51, R.2.22 - Elocoid         1           74         F9637000         Screw, M10 x 50         8           75         F74212813         Gearbox Cover         1           76         F71212844         Gearbox Coustet         1           77         F97630000         Retainer Pin, Ø 12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F9183000         Bearing         1           82         F74212413         Gearbox Housing         1           82 <td>-</td> <td></td> <td></td> <td></td>	-			
64         F74212984         Gear Box Flange Gasket         1           65         F91503000         Key, 16 x 10 x 90         1           67         F74212722         Gearbox Flange         1           68         F90466700         Screw, M12 x 50         2           69         F99366700         Screw, M10 x 25         2           70         F91512000         Pninon Key, 22 x 14 x 100         1           71         F74213255         Gear Stop         1           72         F740002355         Crankshaft         1           73         F10073635         Gearbox Cover         1           74         F99373000         Screw, M10 x 50         8           75         F74212843         Gearbox Cover         1           76         F71212843         Gearbox Cover         1           77         F9630000         Retainer Pin, Ø 12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74210113         Pump Body         1           84         F9030200         Bearing, +0.50, Lower         3           F90930100	-			
65         F91503000         Key, 16 x 10 x 90         1           66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99433500         Screw, M12 x 50         2           69         F9936700         Screw, M12 x 50         2           70         F74212325         Gearbox Flange         1           71         F74212325         Crankshaft         1           72         F74020235         Crankshaft         1           73         F10073635         Gear, Z51, R.2.22 - Elocoid         1           74         F9937000         Screw, M10 x 50         8           75         F74212613         Gearbox Cover         1           76         F71212884         Gearbox Cover         1           77         F9630000         Reariner Pin, Ø 12 x 40         3           78         F74212413         Gearbox Housing         1           79         F99430500         Screw, M12 x 40         6           80         F90717000         Washer, Ø 12         8           81         F91885000         Bearing, Lower         3           82				
66         F90180000         Ring, Ø 60 x 80 x 8         1           67         F74212722         Gearbox Flange         1           68         F99433500         Screw, M12 x 50         2           69         F999366700         Screw, M10 x 25         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74213255         Gear Stop         1           72         F74000235         Crankshaft         1           73         F10073655         Gear, Z51, R.2.22 - Elocoid         1           74         F99373000         Screw, M10 x 50         8           75         F74212841         Gearbox Cover         1           76         F71212844         Gearbox Cover         1           77         F9630000         Retainer Pin, Ø 12 x 40         3           78         F74212413         Gearbox Cover         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74210344         Gasket, Lateral         2           83         F7401001         Washer, Ø 12         8           84	-			
67       F74212722       Gearbox Flange       1         68       F994366700       Screw, M12 x 50       2         69       F99366700       Screw, M10 x 25       2         70       F91512000       Pinion Key, 22 x 14 x 100       1         71       F74213255       Gear Stop       1         72       F7073635       Gear Stop       1         73       F10073635       Gearbox Cover       1         74       F99373000       Screw, M10 x 50       8         75       F74212613       Gearbox Cover       1         76       F71212884       Gearbox Cover       1         77       F97630000       Retainer Pin, Ø 12 x 40       3         78       F74212413       Gearbox Housing       1         79       F9485000       Bearing       1         81       F91885000       Bearing       1         82       F74213044       Gasket, Lateral       2         83       F91885001       Bearing, Lower       3         84       F74030201       Connecting Rod Assembly       3         85       F90930000       Bearing, Upper       3         86       F90931000       Bear				
88         F99433500         Screw, M10 x 25         2           99         F99366700         Screw, M10 x 25         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74213255         Gear Stop         1           72         F74020235         Crankshaft         1           73         F10073635         Gear, Z51, R.2.22 - Elocoid         1           74         F99373000         Screw, M10 x 50         8           75         F74212613         Gearbox Cover         1           76         F74212413         Gearbox Gasket         1           77         F97630000         Retainer Pin, Ø 12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F9185000         Screw, M12 x 40         6           82         F7421004         Gasket, Lateral         2           83         F74010113         Pump Body         1         1           84         F743030201         Connecting Rod Assembly         3           790930100         Bearing, U.05, Upper         3         3           790930100         Bearing, U.05, Upper         3         3 <td></td> <td></td> <td></td> <td></td>				
69         F99366700         Screw, M10 x 25         2           70         F91512000         Pinion Key, 22 x 14 x 100         1           71         F74213255         Gear Stop         1           72         F74020235         Crankshaft         1           73         F10073636         Gear, Z51, R.2.22 - Elocoid         1           74         F99373000         Screw, M10 x 50         8           75         F74212813         Gearbox Cover         1           76         F71212884         Gearbox Cover         1           77         F97630000         Retainer Pin, Ø 12 x 40         3           78         F74212413         Gearbox Housing         1           79         F99430500         Screw, M12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           85         F90931000         Bearing, 10.25, Lower         3           86         F90931000         Bearing, 10.50, Upper         3 <td< td=""><td>-</td><td></td><td></td><td></td></td<>	-			
71       F74213255       Gear Stop       1         72       F74020235       Crankshaft       1         73       F10073635       Gear, Z51, R.2.22 - Elocoid       1         74       F99373000       Screw, M10 x 50       8         75       F74212613       Gearbox Cover       1         76       F71212884       Gearbox Gosket       1         77       F97630000       Retainer Pin, Ø 12 x 40       3         78       F74212413       Gearbox Housing       1         79       F99430500       Screw, M12 x 40       6         80       F96717000       Washer, Ø 12       8         81       F91885000       Bearing       1         82       F74210113       Pump Body       1         84       F74030201       Connecting Rod Assembly       3         85       F90930100       Bearing, +0.25, Lower       3         86       F90930100       Bearing, +0.25, Upper       3         87       F7416002       Crankcase Cover       1         86       F90416000       O-ring, Ø 304.39 x 3.53       1         87       F74150022       Bearing       1         91       F93080000	69			2
72       F74020235       Crankshaft       1         73       F10073635       Gear, Z51, R.2.22 - Elocoid       1         74       F9373000       Screw, M10 x 50       8         75       F74212613       Gearbox Cover       1         76       F71212884       Gearbox Cover       1         77       F97630000       Retainer Pin, Ø 12 x 40       3         78       F74212413       Gearbox Housing       1         79       F99430500       Screw, M12 x 40       6         80       F96717000       Washer, Ø 12       8         81       F91885000       Bearing       1         82       F74213084       Gasket, Lateral       2         83       F74010113       Pump Body       3         84       F90930000       Bearing, tower       3         85       F9093000       Bearing, tower       3         86       F9093000       Bearing, Upper       3         87       F7416002       Crankcase Cover       1         87       F7416000       O-ring, Ø 304.39 x 3.53       1         87       F9093000       Bearing Cover       1         91       F9308000       Be	70	F91512000	Pinion Key, 22 x 14 x 100	1
73       F10073635       Gear, Z51, R.2.22 - Elocoid       1         74       F99373000       Screw, M10 x 50       8         75       F74212613       Gearbox Cover       1         76       F71212884       Gearbox Cover       1         77       F97630000       Retainer Pin, Ø 12 x 40       3         78       F74212413       Gearbox Housing       1         79       F9963000       Screw, M12 x 40       6         80       F96717000       Washer, Ø 12       8         81       F91885000       Bearing       1         82       F74213084       Gasket, Lateral       2         83       F74010113       Pump Body       1         84       F74030201       Connecting Rod Assembly       3         7       F90930100       Bearing, +0.25, Lower       3         7       F90931000       Bearing, +0.25, Upper       3         7       F74160022       Crankcase Cover       1         80       F90931000       Bearing, 40.25, Upper       3         774150022       Bearing Cover       1       1         90       F74150022       Crankcase Cover       1         91 <td< td=""><td>71</td><td>F74213255</td><td>Gear Stop</td><td>1</td></td<>	71	F74213255	Gear Stop	1
74         F99373000         Screw, M10 x 50         8           75         F74212613         Gearbox Cover         1           76         F71212844         Gearbox Cover         1           77         F97630000         Retainer Pin, Ø 12 x 40         3           78         F74212413         Gearbox Housing         1           79         F99430500         Screw, M12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74213084         Gasket, Lateral         2           83         F74010113         Pump Body         3         1           84         F74030201         Connecting Rod Assembly         3         5           F90931000         Bearing, +0.25, Lower         3         7         5           F90931000         Bearing, +0.25, Upper         3         7         5           F90931000         Bearing, +0.20, Upper         3         1           80         F91885200         Bearing         1         1           81         F91885200         Bearing Cover         1         1           91         F	72	F74020235	Crankshaft	1
75         F74212613         Gearbox Cover         1           76         F71212884         Gearbox Gasket         1           77         F97630000         Retainer Pin, Ø 12 x 40         3           78         F74212413         Gearbox Housing         1           79         F99430500         Screw, M12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74213044         Gasket, Lateral         2           83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           84         F74030201         Bearing, +0.25, Lower         3           790930000         Bearing, +0.25, Upper         3           790931000         Bearing, +0.25, Upper         3           790931200         Bearing, +0.50, Upper         3           790931200         Bearing, 0.004.39 x 3.53         1           87         F74160022         Crankcase Cover         1           18         F90418000         O-ring, Ø 304.39 x 3.53         1           90         F74150022         Bearing Uover	-			
76         F71212884         Gearbox Gasket         1           77         F97630000         Retainer Pin, Ø 12 x 40         3           78         F74212413         Gearbox Housing         1           79         F99430500         Screw, M12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74213084         Gasket, Lateral         2           83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           790930000         Bearing, +0.25, Lower         3           790930100         Bearing, +0.25, Lower         3           790931000         Bearing, +0.50, Lower         3           86         F90931000         Bearing, +0.50, Upper         3           790931200         Bearing, 034.39 x 3.53         1         1           87         F74160022         Crankcase Cover         1           88         F90418000         O-ring, Ø 34.39 x 3.53         1           90         F74150022         Bearing Bushing         1           91         F93880000				-
77         F97630000         Retainer Pin, Ø 12 x 40         3           78         F74212413         Gearbox Housing         1           79         F99430500         Screw, M12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74213084         Gasket, Lateral         2           83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           790930000         Bearing, +0.25, Lower         3         7           790931000         Bearing, +0.25, Upper         3         7           790931000         Bearing, +0.25, Upper         3         7           790931000         Bearing, +0.25, Upper         3         7           774160022         Crankcase Cover         1         1           87         F74160022         Crankcase Cover         1           90         F74150022         Bearing Boon         1           91         F9380000         Ring Nut         1           92         F96830000         Washer, MB         1           93	-			
78       F74212413       Gearbox Housing       1         79       F99430500       Screw, M12 x 40       6         80       F96717000       Washer, Ø 12       8         81       F91885000       Bearing       1         82       F74213084       Gasket, Lateral       2         83       F74010113       Pump Body       1         84       F74030201       Connecting Rod Assembly       3         85       F90930000       Bearing, t-0.25, Lower       3         86       F90930100       Bearing, t-0.50, Lower       3         87       F90931000       Bearing, t-0.50, Upper       3         86       F90931000       Bearing, t-0.50, Upper       3         87       F74160022       Crankcase Cover       1         88       F90416000       O-ring, Ø 304.39 x 3.53       1         89       F91885200       Bearing       1         90       F74150022       Bearing Rover       1         91       F9380000       Ring Nut       1         92       F96830000       Washer, MB       1         93       F9188000       Bearing Jost x 168       2         94       F99428000 </td <td></td> <td></td> <td></td> <td></td>				
79         F99430500         Screw, M12 x 40         6           80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74213084         Gasket, Lateral         2           83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           85         F90930100         Bearing, +0.25, Lower         3           86         F90930100         Bearing, +0.25, Lower         3           87         F90930200         Bearing, +0.25, Upper         3           86         F90931100         Bearing, +0.25, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           90         F74150022         Bearing Bushing         1           91         F9380000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95				
80         F96717000         Washer, Ø 12         8           81         F91885000         Bearing         1           82         F74213084         Gasket, Lateral         2           83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           85         F90930100         Bearing, +0.25, Lower         3           790930200         Bearing, +0.25, Lower         3           790931000         Bearing, +0.25, Upper         3           790931200         Bearing, +0.50, Upper         3           790931200         Bearing, +0.50, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing Bushing         1           90         F74150022         Bearing Bushing         1           91         F9380000         Ring Nut         1           92         F96830000         Bearing Bushing         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30	-			
81         F91885000         Bearing         1           82         F74213084         Gasket, Lateral         2           83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           85         F90930000         Bearing, Lower         3           85         F90930100         Bearing, +0.25, Lower         3           86         F90931000         Bearing, +0.50, Lower         3           86         F90931000         Bearing, +0.25, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing, Ø 35         6           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97				
83         F74010113         Pump Body         1           84         F74030201         Connecting Rod Assembly         3           85         F90930000         Bearing, Lower         3           85         F90930100         Bearing, +0.25, Lower         3           86         F90931000         Bearing, +0.50, Lower         3           87         F74160022         Bearing, +0.25, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing Cover         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Ring Nut         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F9015000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98	81			1
84         F74030201         Connecting Rod Assembly         3           F90930000         Bearing, Lower         3           85         F90930100         Bearing, t-0.25, Lower         3           86         F90930200         Bearing, t-0.50, Lower         3           86         F90931000         Bearing, t-0.50, Lower         3           87         F7415002         Bearing, t-0.25, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98	82	F74213084	Gasket, Lateral	2
F9093000         Bearing, Lower         3           F90930100         Bearing, Lower         3           F90930200         Bearing, +0.25, Lower         3           F90930200         Bearing, +0.50, Lower         3           F90931000         Bearing, Upper         3           F90931000         Bearing, +0.25, Upper         3           F90931200         Bearing, +0.25, Upper         3           F90931200         Bearing, +0.50, Upper         3           F90931200         Bearing, +0.50, Upper         3           F74160022         Crankcase Cover         1           8         F90416000         O-ring, Ø 304.39 x 3.53         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F9615000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35 x 64<	83	F74010113	Pump Body	1
85         F90930100         Bearing, +0.25, Lower         3           F90930200         Bearing, +0.25, Lower         3           F90931000         Bearing, Upper         3           F90931100         Bearing, +0.25, Upper         3           F90931200         Bearing, +0.25, Upper         3           F90931200         Bearing, +0.25, Upper         3           F90931200         Bearing, +0.20, Upper         3           F74150022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F9015000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3 <t< td=""><td>84</td><td>F74030201</td><td>Connecting Rod Assembly</td><td>3</td></t<>	84	F74030201	Connecting Rod Assembly	3
F90930200         Bearing, +0.50, Lower         3           F90931000         Bearing, Upper         3           F90931100         Bearing, +0.25, Upper         3           F90931200         Bearing, +0.50, Upper         3           F90931200         Bearing, +0.50, Upper         3           F7         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Bearing Bushing         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 713.95 x 2.62         2<		F90930000		3
F90931000         Bearing, Upper         3           86         F90931100         Bearing, +0.25, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F9038300         O-ring, Ø 713.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101	85			
86         F90931100         Bearing, +0.25, Upper         3           87         F9031200         Bearing, +0.50, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F91885200         Bearing Cover         1           92         F96830000         Washer, MB         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F9038300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6				
F90931200         Bearing, +0.50, Upper         3           87         F74160022         Crankcase Cover         1           88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6 <td< td=""><td></td><td></td><td></td><td></td></td<>				
87       F74160022       Crankcase Cover       1         88       F90416000       O-ring, Ø 304.39 x 3.53       1         89       F91885200       Bearing       1         90       F74150022       Bearing Cover       1         91       F93080000       Ring Nut       1         92       F96830000       Washer, MB       1         93       F91880000       Bearing Bushing       1         94       F99428000       Screw, M12 x 30       8         95       F98209200       Dipstick, G 3/8" x 168       2         96       F96105000       Eye Bold. M16       2         97       F90069700       Seeger Ring, Ø 35       6         98       F97745000       Piston Pin, Ø 35 x 64       3         99       F90383300       O-ring, Ø 13.95 x 2.62       2         100       F36208951       Internal Valve Guide       6         101       F74215056       Bushing       3         102       F90528500       Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5       6         103       F90412900       O-ring, Ø 72.6 2 x 3.53       6         104       F90917300       Bushing       3         1	80			
88         F90416000         O-ring, Ø 304.39 x 3.53         1           89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.6 2 x 3.53         6           104         F90917300         Bushing         3	87			
89         F91885200         Bearing         1           90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1	-			
90         F74150022         Bearing Cover         1           91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1			· · ·	
91         F93080000         Ring Nut         1           92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1			-	
92         F96830000         Washer, MB         1           93         F91880000         Bearing Bushing         1           94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1			-	1
94         F99428000         Screw, M12 x 30         8           95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1	92		Washer, MB	1
95         F98209200         Dipstick, G 3/8" x 168         2           96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F9038300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1	93	F91880000		1
96         F96105000         Eye Bold. M16         2           97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
97         F90069700         Seeger Ring, Ø 35         6           98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
98         F97745000         Piston Pin, Ø 35 x 64         3           99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
99         F90383300         O-ring, Ø 13.95 x 2.62         2           100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
100         F36208951         Internal Valve Guide         6           101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
101         F74215056         Bushing         3           102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
102         F90528500         Anti-extrustion Ring, Ø 72.5 x 78.5 x 1.5         6           103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
103         F90412900         O-ring, Ø 72.62 x 3.53         6           104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
104         F90917300         Bushing         3           105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
105         F74120101         Head Bushing         1           106         F10072555         Pinion, Z20 - 1500 - Elicoid         1				
106         F10072555         Pinion, Z20 - 1500 - Elicoid         1			-	
107 F10072620 Motor Flange 1	106	F10072555	Pinion, Z20 - 1500 - Elicoid	1
	107	F10072620	Motor Flange	1

REPAIR KITS

KIT No.	KIT2102 (MKR 55)	KIT2103 (MKR 60)	KIT2104 (MKR 65)	KIT2048	KIT2105	KIT2106	KIT2107	KIT2076	KIT2077 (+0.25)	KIT2078 (+0.50)
	Plunger Packing Kit	Plunger Packing Kit	Plunger Packing Kit	Valves Kit	Complete Seal Kit	Complete Seal Kit	Complete Seal Kit	Connecting Rod Kit	Connecting Rod Kit	Connecting Rod Kit
Positions Included	29, 32, 35, 36, 37, 39, 41, 44	29, 32, 35, 36, 37, 39, 41, 44	29, 32, 35, 36, 37, 39, 41, 44	10, 11, 17, 19, 21	4, 5, 12, 15, 16, 17, 21, 29, 32, 35, 36, 37, 39, 41, 43, 44, 48, 51, 52, 64, 66, 76, 82, 88, 99	4, 5, 12, 15, 16, 17, 21, 29, 32, 35, 36, 37, 39, 41, 43, 44, 48, 51, 52, 64, 66, 76, 82, 88, 99	4, 5, 12, 15, 16, 17, 21, 29, 32, 35, 36, 37, 39, 41, 43, 44, 48, 51, 52, 64, 66, 76, 82, 88, 99	85, 86	85, 86	85, 86

**MKS SERIES** 

## **18. MAINTENANCE LOG**

### **HOURS & DATE**

OIL CHANGE				
GREASE				
PACKING REPLACEMENT				
PLUNGER REPLACEMENT				
VALVE REPLACEMENT				



GP Companies, Inc. 1174 Northland Drive Mendota Heights, MN 55120 Phone:651.686.2199 Fax: 800.535.1745 www.generalpump.com email: sales@gpcompanies.com

Ref 300670 Rev. F 02-21