



Owner's Manual

Installation

- Use
- Maintenance



MW SERIES

INDEX

1.		Page 4
2.	DESCRIPTION OF SYMBOLS	Page 4
3.	SAFETY3.1 General safety instructions3.2 High pressure unit safety requirements3.3 Safety during operation3.4 General procedures for using nozzles3.5 Safety during unit maintenance	Page 5 Page 5 Page 5 Page 5
4.	PUMP IDENTIFICATION	Page 6
5.		Page 7
6.	DIMENSIONS AND WEIGHT	Page 8
7.	OPERATING INSTRUCTIONS 7.1 Water temperature. 7.2 Maximum flow and pressure rates. 7.3 Minimum RPM 7.4 Recommended lubricant types and Manufacturers.	Page 9 Page 9 Page 9
8.	PORTS AND CONNECTIONS	Page 11
9.	PUMP INSTALLATION 9.1 Installation 9.2 Direction of rotation 9.3 Version change and reducer positioning 9.4 Hydraulic connections 9.5 Pump power supply 9.6 Suction line 9.7 Filtration 9.8 Outlet line 9.9 Internal diameter of hose 9.10 V-belt transmission	Page 12 Page 13 Page 13 Page 14 Page 14 Page 15 Page 15 Page 16 Page 17
10.	START UP AND OPERATION 10.1 Preliminary inspections 10.2 Starting up	Page 18
11.	PREVENTATIVE MAINTENANCE	Page 19
12.	PUMP STORAGE 12.1 Filling the pump with anti-corrosion emulsion or anti-freeze 12.2 Hoses	Page 20
13.	PRECAUTIONS AGAINST FREEZING	Page 20
14.	WARRANTY TERMS	Page 20
15	TROUBLESHOOTING	Page 21
16.	EXPLODED VIEWS AND PARTS	Page 22-25

INDEX

17.	SPECIAL VERSIONS 17.1 MWN Pump 17.1.1 Operating instructions. 17.1.2 Water temperature 17.1.3 Maximum pressure and flow rate. 17.1.4 Minimum RPM 17.1.5 Technical characteristics 17.1.6 Dimensions and weight 17.1.7 Exploded view	Page 26 Page 26 Page 26 Page 26 Page 26 Page 26 Page 27
	17.2 MWR Pump . 17.2.1 Operating instructions. 17.2.2 Water temperature 17.2.3 Maximum pressure and flow rate. 17.2.4 Minimum RPM 17.2.5 Technical characteristics 17.2.6 Dimensions and weight 17.2.7 Exploded view	Page 32 Page 32 Page 32 Page 32 Page 32 Page 33
	17.3 MWNR Pump 17.3.1 Operating instructions. 17.3.2 Water temperature 17.3.3 Maximum pressure and flow rate. 17.3.4 Minimum RPM 17.3.5 Technical characteristics 17.3.6 Dimensions and weight 17.3.7 Exploded view	Page 38 Page 38 Page 38 Page 38 Page 38 Page 39
	17.4 MWF Pump 17.4.1 Operating instructions. 17.4.2 Water temperature 17.4.3 Maximum pressure and flow rate. 17.4.4 Minimum RPM 17.4.5 Technical characteristics 17.4.6 Dimensions and weight 17.4.7 Minimum Rotating Speed 17.4.8 Flushing circuit diagram of use	Page 44 Page 44 Page 44 Page 44 Page 44 Page 44 Page 44
18.	REPAIR TOOLS	Page 46
19.	MAINTENANCE LOG	Page 47



MW SERIES

1. INTRODUCTION

This manual describes the use and maintenance instructions of the MW pump, and should be carefully 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 Wear protective mask



Danger Wear goggles



Danger Wear protective gloves



Danger Wear protective boots



3. SAFETY

3.1 General Safety Indications

Improper use of pumps and high pressure systems, and the non-compliance with installation and maintenance instructions may cause severe injury to people and/or damage to property. Anyone assembling or using high pressure systems must possess the necessary competence to do so, should be aware of the characteristics of the components assembled/used, and must take all precautions necessary to ensure maximum safety in any operating condition. In the interest of safety, both for the Installer and the Operator, no reasonably applicable should be omitted.

3.2 High pressure unit safety requirements

- 1. The pressure line must always be equipped with a safety valve.
- 2. High pressure system components, in particular for those units working outside, must be adequately protected against rain, frost and heat.
- 3. The electrical control system must be adequately protected from water spray, and must comply with the specific regulations in force.
- 4. High pressure hoses must be properly sized for maximum operating pressure of the system and always and only used within the operating pressure range specified by the hose manufacturer. The same rules should be observed for all other auxiliary systems affected by high pressure.
- 5. The ends of high pressure hoses must be sheathed and secured to a solid structure to prevent dangerous whiplash in case of bursting or broken connections.
- 6. Appropriate safety guards must be provided for the pump transmission systems (couplings, pulleys and belts, auxiliary drives).



3.3 Safety During Operation

The working area of a high pressure system must be clearly marked. Access must be prohibited to unauthorized personnel and, wherever possible, the area should restricted or fenced. The personnel authorized to access this area should first be 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 system is properly powered (see paragraph 9.5).
- 2. That pump intake filters are perfectly clean; we advise the use of a device that indicates the filters clogging level.
- 3. Electrical parts are adequately protected and in perfect condition.
- 4. The high pressure hoses do not show apparent signs of abrasion, and that fittings are in perfect shape.

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



3.4 General Procedures For Using Nozzles

- 1. The Operator must always place his own and other worker's safety before any other interest; his and 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.



MW SERIES

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. It is generally best to organize personnel into teams of at least two people capable of giving mutual and immediate assistance in case of necessity and of taking turns during long and demanding operation.
- 4. Access to the work area that is within the water jets' range must be absolutely prohibited to and free from objects that, inadvertently under a pressure jet, can be damaged and or create dangerous situations.
- 5. The water jet must only and always be directed in the direction of the work area, including during testing or preliminary tests or checks.
- 6. The Operator must always pay attention to the trajectory of the debris removed by the water jet. If necessary, suitable guards must be provided by the Operator to protect anything that may be accidentally exposed.
- 7. The Operator should not be distracted for any reason during operation. Workers needing to access the operating area must wait for the Operator to stop work, and then immediately make their presence known.
- 8. For safety reasons, it is important that each member of the team is fully aware of the intentions and actions of other team members in order to avoid dangerous misunderstandings.
- 9. The high pressure system must not be started up and run under pressure without all team members in position and without the Operator having already directed his/her lance toward the work area.

3.5 Safety During System Maintenance

- 1. The pressure system maintenance must be carried out in the time intervals set by the manufacturer who is responsible for the whole group according to law.
- 2. Maintenance should always be carried out by trained and authorized personnel.
- 3. Assembly and disassembly of the pump and its various components must be performed exclusively by authorized personnel, using appropriate equipment in order to avoid damage to components and connections.
- 4. Always use original spare parts to ensure total reliability and safety.

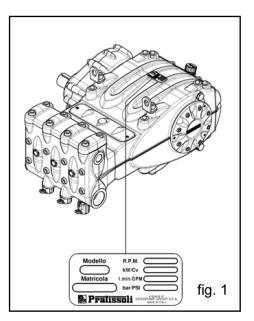
4. PUMP IDENTIFICATION

Each pump has a specific label which contains:

Pump model and version Serial Number Flow Rate - GPM Pressure - PSI Power - Hp-kW Maximum RPM



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





MW SERIES

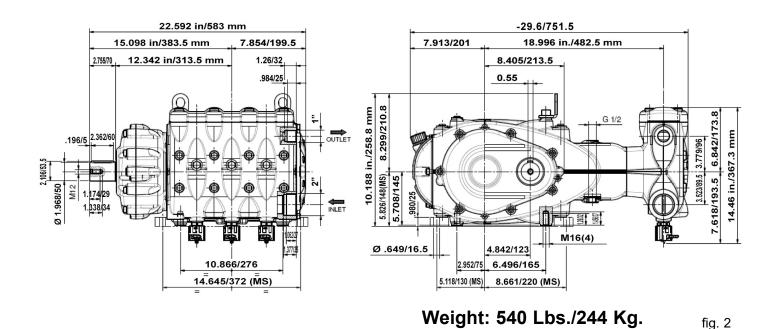
5. TECHNICAL FEATURES

MODEL	RPM	FLOW	RATE	PRES	SURE	POWER		
WODEL		GPM	l/min	PSI	Bar	Нр	kW	
MW32A	1500/1800/2200	36.0	136	4350	300	106	79	
MWS36A	1500/1800/2200	45.5	172	3900	269	121	90	
MWS40A	1500/1800/2200	56.0	213	3050	210	117	87	
MWS45A	1500/1800/2200	71.0	269	2500	172	121	90	
MWS50A	1500/1800/2200	87.5	333	2000	138	119	88	
MWS55A	1500/1800/2200	105.5	400	1450	100	104	77.5	



6. DIMENSIONS AND WEIGHT

For dimensions and weight of MW32A, MWS36A and MWS40A pumps, please refer to fig. 2.



For dimensions and weight of MWS45A, MWS50A and MWS55A pumps, please refer to fig. 2a.

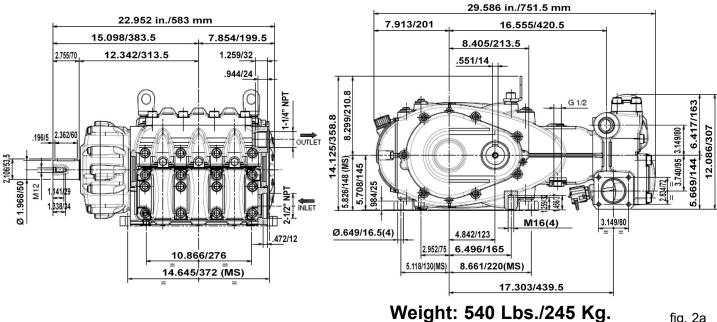


fig. 2a

MW SERIES

7.INFORMATION ABOUT PUMP USE



The MW/S pump was designed to operate with filtered water (see paragraph 9.7) and at maximum temperature of 104^0 F (40^0 C).

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



7.1 WaterTemperature

The max water temperature is 104^{0} F (40^{0} C). However, it is possible to use the pump at temperatures of up to 140^{0} F (60^{0} 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**.

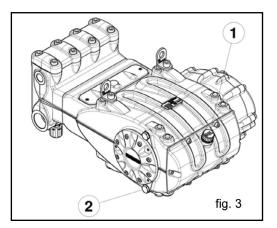
7.4 Recommended Lubricant Oil Types & Manufacturers

The pump is delivered with lubricant oil compliant with room temperatures ranging between 32^o and 89.6^o F (0^o and 30^oC). 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 (1), fig. 3. Refill if necessary to top off level. 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 304 oz. (9 liters).

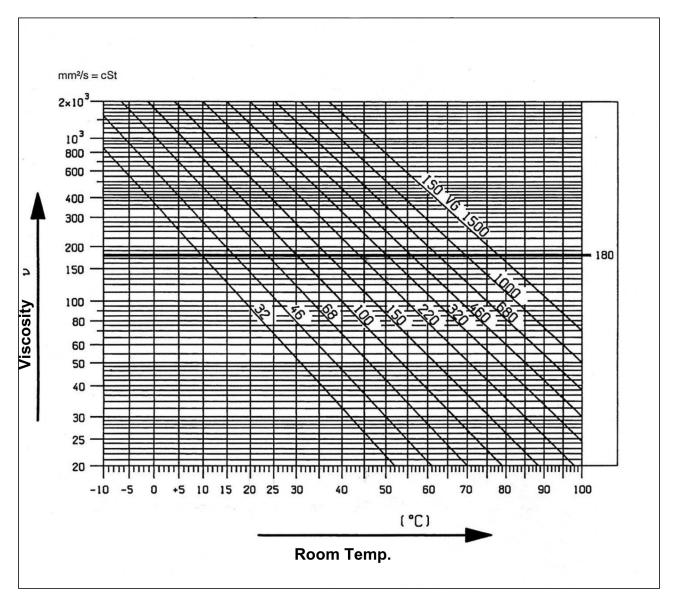






In any case, oil must be changed at least once a year since it may deteriorate by oxidation.

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.



MW SERIES

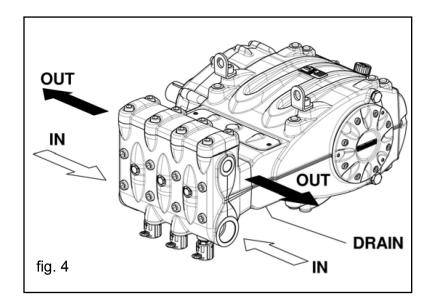
8. PORTS AND CONNECTIONS

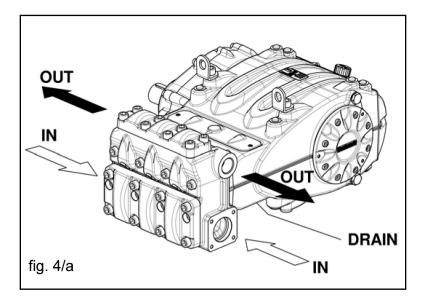
MW/S Series pumps are equipped with (see fig. 4 and 4a):

2 inlet ports "IN", 2" NPT (MW32A, MWS36A, MWS40A).
 2 inlet ports "IN", 2-1/2" NPT (MWS45A, MWS50A, MWS55A).

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 (MW32A, MWS36A, MWS40A).
 2 outlet ports "OUT", Ø 1-1/4" NPT-F (MWS45A, MWS50A, MWS55A).
- 1 drain port "DRAIN" with G1/2" hole in the lower cover to monitor 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.







MW SERIES

9. PUMP INSTALLATION

9.1 Installation

The pump must be installed in a horizontal position using the M16 threaded support feet. Tighten the screws with a torque of 200 Nm (147.5 Ft-Lb)

The base must be perfectly flat and rigid enough as not to allow bending or misalignment on the pump coupling and axis/transmission due to torque transmitted during operation.

Two lifting brackets are mounted on the pump for easy installation, as per the figure below.





The brackets are sized soley for pump lifting and therefore are absolutely not permitted for use of additional loads.



Replace the oil filling hole closing service plug positioned on the rear casing cover with the plug with oil dipstick. Check the correct quantity.

The dipstick must always be reachable, even when the unit is assembled.

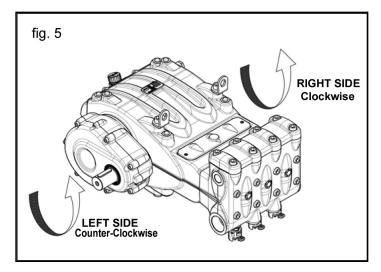


The pump's shaft (PTO) must not be rigidly connected to the motor unit.

- 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

The PTO rotation is indicated by an arrow located on the reduction gear cover. From a position facing the pump head, the rotation direction will be as in fig. 5.



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 trained and authorized personnel by carefully following the instructions in the repair manual.

- 1. Separate the pump head from the power end (crankcase) as indicated in Chapter 2 in points 2.2.1 and 2.2.3 of the Repair Manual.
- 2. Turn the power end (crankcase) 180° and reposition the rear casing cover in such a way that the oil dipstick is turned upward. Reposition the lifting bracket and relative hole closing plugs in the upper part of the casing. Invert the two inspection covers, ensuring that the open one is positioned lower. Finally, properly reposition the specification label in its housing on the casing.



Make sure that the lower inspection cover draining holes are open.

3. Reassemble the pump head with the power end (crankcase(as indicated in Chapter 2 in points 2.2.1 and 2.2.4 of the Repair Manual.

It is also possible to place the reduction gear in 5 different positions as per fig. 6.

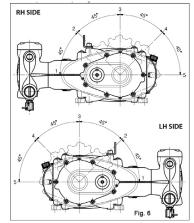


fig. 6

The reducer's position may be changed only by trained 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 Power Supply

MW/S pumps must always be installed under positive head, i.e. they must receive water by gravity or by forced feeding, and never suctioned 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.

	MW32A	MWS36A	MWS450A	MWS45A	MWS50A	MWS55A
NPSH _r (ft)	4.5	5.5	6.5	7.5	8	9

For higher cylinder capacity pumps (MWS45A-S50A-S55A), 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 40 PSI (2 to 3 Bar). These feeding conditions must be respected at any operating RPM.



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^o elbows, connections with other hoses, bottlenecks, counter-slopes,

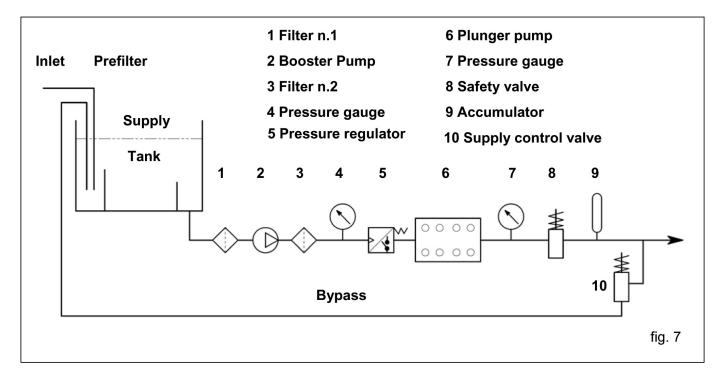
- upside down "U" shaped curves, "T" connections.
- 2. With a layout that is set in such a way to prevent cavitation.
- 3. It should be perfectly airtight, and built in a way that guarantees perfect sealing over time.
- 4. Avoid pump emptying when stopping (even partial emptying).
- 5. Do not use hydraulic 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 by-pass and feeding which lines may create turbulance 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 inlet port, and always downstream from the filters.

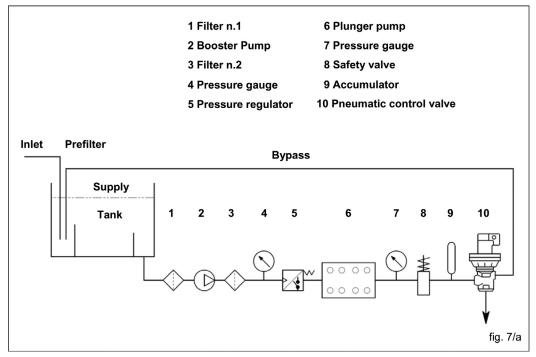
9.7 Filtering

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 μ m.

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 actual clogging conditions.

9.8 Outlet Line

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

- 1. The internal diameter of the hose must allow to guarantee correct fluid speed; see digram in paragraph 9.9
- 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 applications, install an appropriately sized pulsation dampener on the outlet 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

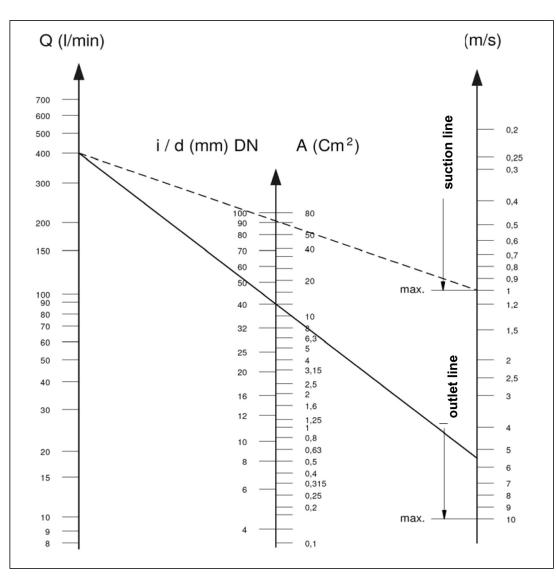
With a flow rate of ~105 GPM (400 l/mn) and water speed of 1 m/sec. the diagram line that connects the two scales intersects the central scale, indicating the diameters, at a value of ~ 3.5 inch (90 mm).

Delivery Hose

With a flow rate of ~105 GPM (400 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 ~ 1.6 inch (40 mm).

Optimal speed to be obtained with the booster pump:

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



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:

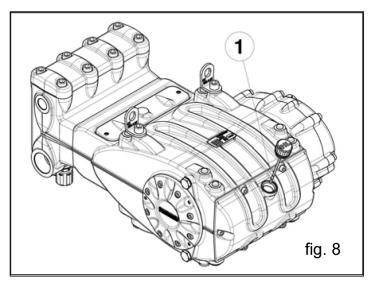


The suction line is connected and up to pressure (see Chapter 9) the pump must never run dry.

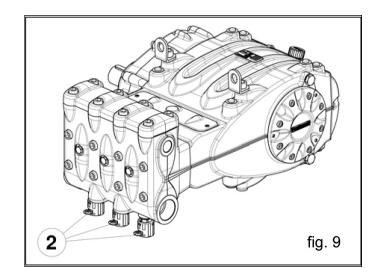
1. The suction line must be perfectly airtight.

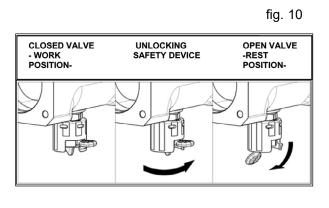
2. All the On-Off valves between the pump and the feeding source are completely open. The delivery line must discharge freely in order to allow the air in the pump to be expulsed easily, thus facilitating pump priming.

- 3. All suction/delivery connections and fittings must be correctly tightened.
- 4. Coupling tolerances on the pump/transmission 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 reclose the valves before the pump start-up. See fig. 10 for "work" and "rest" positions.



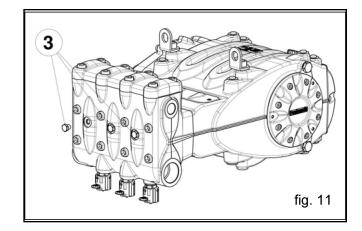


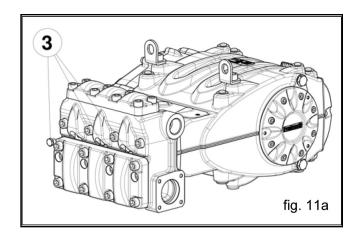
Ref 300790 Rev. L 12-21 Page 18

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.

Whenever priming problems arise due to insufficient feeding, intervene by removing the three front plugs on the head (see position 3, fig. 11 and 11a).





11. PREVENTIVE MAINTENANCE

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

PREVENTIVE MAINTENANCE									
EVERY 500 HOURS	EVERY 1000 HOURS								
Check oil level	Change oil								
	Check / Replace:*								
	 Valves 								
	 Valve seats 								
	 Valve springs 								
	 Valve guides 								
	Check / Replace:								
	 H.P packings 								
	 L.P. packings 								

* For replacement follow instructions contained in the repair manual.

Ref 300790 Rev. L 12-21 Page 19

12. PUMP STORAGE

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 extremities of the suction line and the high pressure outlet hose inside the container.
- f) Start up the diaphragm 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.
- j) 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 connections 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 12.1).



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 5 years from the delivery date, 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 unadjusted or disconnected.
- 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



MW SERIES

15. TROUBLESHOOTING



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

- The pump is not primed and is running dry
- 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 ٠
- Incorrect operation of the pressure adjustment 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 flow
- 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/

- 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

Overheated pump:

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

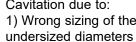
Pump vibrations or knocking:

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

Ref 300790 Rev. L 12-21 Page 21

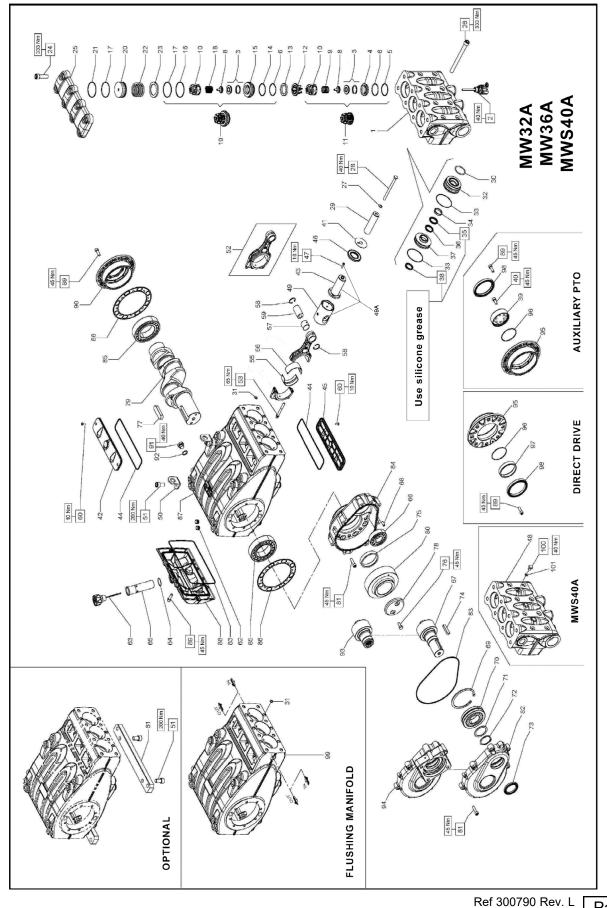






MW32A/S36A/S40A SERIES





MW32A/S36A/40A SERIES

ltem	Part #	Description	QTY.
1	F73120215	MANIFOLD-NPT	1
2	F10744401	DRAIN VALVE	3
3	F36208801	BALL VALVE ASSEMBLY	6
4	F36206766	INLET VALVE HOUSING	3
5	F90526000	ANTIEXTRUSION RING Ø51.5x56x1.5	3
6	F90389000	OR, Ø50.47X2.62	6
8	F36209051	INTERNAL VALVE GUIDE	6
9	F94760000	SPRING Ø 28.3X30.7	3
10	F36206105	INLET/OUTLET VALVE GUIDE	6
11	F36715101		3
12	F74210651	HP VALVE GUIDE SPACER	3
13	F73212270	OR, Ø 10.82X1.78	3
14	F90526500	ANTIEXTRUSION RING Ø 51.7X56.2X1.5	3
15	F36206966		3
16	F90527600	ANTIEXTRUSION RING Ø 67.7X72.2X1.5	3
17	F90391100	OR, Ø 66.35X2.62	6
18	F94760500	SPRING Ø 28.5X32	3
19	F36715301		3
20	F74211070		3
21	F90528000	ANTIEXTRUSION RING Ø 67.7X72.2X1.5	3
22 23	F94775000	SPRING Ø 58X45.4 OUTLET VALVE HOUSING RING	3
23	F74210866 F99514700	SCREW, M16x180	3
24	F73210715	VALVE COVER	8
<u> </u>	F73210715 F99522200	SCREW, M16x180	8
26 27	F99522200	WASHER Ø 10X18X0.9, SS, PTFE	3
27	F99383000	SCREW, M10X140	3
20	F73040009	PLUNGER Ø 32	3
29	F73040009	PLUNGER Ø 32	3
29	F73040209	PLUNGER Ø 49	3
30	F90408500	O-RING, 49.21X3.53	3
31	901111	O-RING, 10.78X2.62	6
- 51	F73211656	PLUNGER LINER Ø 32	3
32	F73211756	PLUNGER LINER Ø 36	3
52	F73211856	PLUNGER LINER Ø 40	3
33	F90371000	OR, Ø 81X2	6
	F73100092	PLUNGER HEAD RING Ø 32	3
34	F78100192	PLUNGER HEAD RING Ø 36	3
	F74100092	PLUNGER HEAD RING Ø 40	3
	F90278800	ALT. SEAL RING, Ø 32, HP	3
35	90282060	ALT. SEAL RING, Ø 36, HP	3
	F90283200	ALT. SEAL RING, Ø 40, HP	3
<u> </u>	F90278400	RESTOP RING Ø 32	3
36	90281800	RESTOP RING Ø 36	3
	F90283800	RESTOP RING Ø 40	3
	F73211068	SEAL SUPPORT, Ø 32	3
37	F73211168	SEAL SUPPORT, Ø 36	3
	F73211268	SEAL SUPPORT, Ø 40	3
	F90278000	ALT. SEAL RING, LP, Ø 32	3
38	F90279800	ALT. SEAL RING, LP, Ø 36	3
	F90282800	ALT. SEAL RING, LP, Ø 40	3
41	F96735500	WASHER, Ø16X65X1	3
42	F73150022	CLOSED INSPECTION COVER	1
43	F73050336	PISTON GUIDE ROD	3
44	F90414800	OR, Ø 202.8X3.53	2
45	F73150122	OPEN INSPECTION COVER	1
46	F90168500	RAD. RING, Ø 40X72X7/8.5	3
47	99188400	SCREW, M6X20	3
48	F73120815	MANIFOLD FOR PISTON	1
40	F73050443	PISTON GUIDE	3
49	F73050543	PISTON GUIDE, +0.10	3
49A	F73606201	PISTON GUIDE ASSEMBLY	3
50	F73210674	LIFTING BRACKET	2
51	F99513000	SCREW, M16x30, UNI 5931	4
52	F73030101	CONNECTING ROD ASSY.	3
53	F99378800	CONNECTING ROD SCREW	6
	F90928300	CONROD HEAD SEMI-BUSHING, LOWER	3
55	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
	F90928500	CONROD HEAD SEMI-BUSHING, LOWER, +0.23	3
			1 5

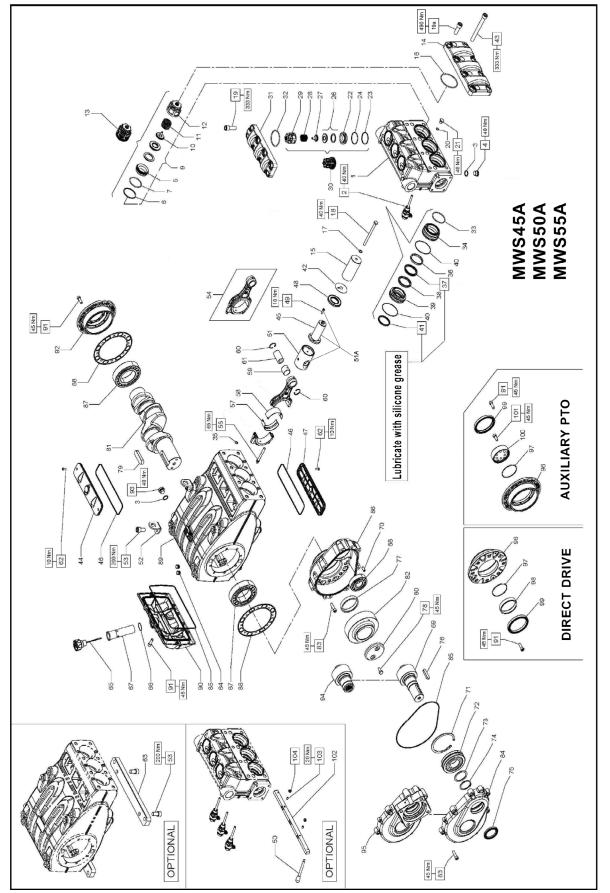
			1
ltem	Part #	Description	QTY.
	F90928000	CONROD HEAD SEMI-BUSHING, UPPER	3
56	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.50	3
F7		· · ·	_
57	F90915800	CONROD FOOT BUSHING	3
58	F90069000	STOP RING, Ø 32, UNI 7437	6
59	F97744000	SPINDLE	3
60	99183700	SCREW, M6x14, UNI 5931	4
61	F73200064	FOOT	2
	98206000		-
62		HOLE PLUG. Ø 15, TTN18	6
63	F98233500	OIL FILLING PLUG, G1" WITH ROD	1
64	90361600	OR, Ø 34.65X1.78	1
65	F73210295	TUBE FOR OIL FILLING PLUG, G1"	1
66	F91854000	CYL. ROLLER BEARING	1
	F10076735	PINION, Z24 R1.875, HELICOL	1
67	F10076835	PINION, Z21 R2.238, HELICOL	1
0.	F10076935	PINION, Z18 R2.722, HELICOL	1
	F10082255	PINION, Z19 R3.211, HELICOL	1
68	F97623000	TMP. CYL. PIN. Ø 10X24, UNI 6364	2
69	F90101000	STOP RING, Ø 120, UNI 7437	1
			_
70	F91859900	ADJUST ROLLER BEARING	11
71	F73210455	BEARING SUPPORT RING	1
72	F90081000	STOP RING, Ø 55, UNI 7435	1
73	F90172400	RAD. RING, Ø 55X75X8, VITON	1
74	F91500500	TAB, 14X9X60, UNI 6604	1
75			
	F73210589	RING GEAR SUPPORT RING	1
76	99366700	SCREW, M10X25, UNI 5739	2
77	F91511000	TAB, 22X14X80, UNI 6604	1
78	F74213255	RING GEAR STOP	1
79	F73020035	CRANKSHAFT C. 70	1
	F10077035	RING GEAR, Z45 R1.875, HELICAL	1
80	F10077135	RING GEAR, Z47 R2.238, HELICAL	1
	F10077235	RING GEAR, Z49 R2.722, HELICAL	1
	F10082355	RING GEAR, Z61 R3.211, HELICOL	1
81	F99371000	SCREW, M10X40, UNI 5931	15
82	F73210113	REDUCTION GEAR COVER	1
83	F90415000	OR, Ø 253.6.X3.53	2
84	F73210013	REDUCTION GEAR BOX	1
85	F91881000	CYL ROLLER BEARING	2
86	F73210384	SIDE SEAL	2
87	F73010013	PUMP CASING	1
	-		1
88	F73160022	CASING COVER	
89	F99368600	SCREW, M10X30, UNI 5931	14
90	F73150222	BEARING COVER	1
91	F98218700	PLUG, G1/2"X13, SS	2
92	91751400	WASHER, Ø 21.5x27x1.5	2
100	98204600	PLUG, 1/4"X13	3
			_
101	90358400	O-RING, Ø10.82X1.78	3
		FLUSHING MANIFOLD	
99	F73010113	PUMP CASING, FLUSHING	1
		WITH HYDRAULIC MOTOR	
	F10079455	PINION, Z18 R. 2.722	1
93		PINION, Z24 R. 1.875	1
33	F10077355		-
L	F10077455	PINION, Z21 R. 2.238	1
94	F73215513	HYDRAULIC GEAR COVER	1
		DIRECT DRIVE	
89	F99368600	SCREW, M10X30, UNI 5931	8
95	F73150322	BEARING COVER, OPEN	1
	-		
96	F90391450	O-RING, Ø75.87X2.62	1
97	F73215654	RING	1
98	F90195000	RING, RAD., Ø90X110X12	1
		AUXILIARY PTO	
39	F73215754	DRAIN	1
40	99367100	SCREW, M8X25	6
89	F99368600	SCREW, M10X30, UNI 5931	8
95	F73150322	BEARING COVER, OPEN	1
	F90391450	O-RING, Ø75.87X2.62	1
96			_
96 98		RING RAD Ø90X110X12	1
98	F90195000	RING, RAD., Ø90X110X12	1
		RING, RAD., Ø90X110X12 PTO OUTLET SCREW, M10X25	1 1 6

REPAIR KITS

KIT NUMBER	F2136 (MW32A) Plunger Packing Kit			F2055 Valve Kit		F2145 (MWS36A) Complete Seals Kit		F2150 Conn,Rod Kit	F2151 Conn. Rod Kit +0.25	F2153 Conn. Rod Kit +0.50
Positions Included	30, 31, 33, 35, 36, 38,	30, 31, 33, 35, 36, 38,	30, 31, 33, 35, 36, 38,	11, 12, 19, 21	5, 6, 14, 16, 17, 21, 30, 31, 33, 35, 36, 38, 44, 46, 64, 73, 83, 86, 101	21 30 31 33 35	5, 6, 14, 16, 17, 21, 30, 31, 33, 35, 36, 38, 44, 46, 64, 73, 83, 86, 101	55, 56	55, 56	55, 56

MWS45-S50-S55 SERIES

16. EXPLODED VIEW AND PARTS LIST



tem	Part #	Description	QTY.
1	F73121601	MANIFOLD, NPT, HR	1
2	F10744501	VALVE OPENING DEVICE	3
3	F96751400	WASHER, Ø 21.5X27X1.5	5
4	F98218500	STEEL PLUG, 1/2"	3
5	F36206666	INLET VALVE HOUSING	3
6	F90527000	ANTI-EXTRUSION RING, Ø 61.2X67X2	3
7	F90410500	OR, Ø 59.62X3.53	3
9	F36208701	BALL VALVE ASSY.	3
10	F36208951	INTERNAL VALVE GUIDE	3
11	F94769800	SPRING, Ø41.5X37.9	3
12	F36206005		3
	-		
13	F36715001		3
14	F73225615	INLET VALVE COVER	1
	F73040309	PLUNGER, Ø 45X117	3
15	F73040409	PLUNGER Ø 50X117	3
	F73040509	PLUNGER Ø 55X117	3
16	F90414200	OR, Ø 85.32X3.53	3
17	F96710500	WASHER, Ø 10X18X0.9,SS, PTFE	3
18	F99383000	SCREW, M10X140	3
19	F99514200	SCREW, M16X45	8
19a		SCREW, M18	8
20	F90358400	OR, Ø 10.82X1.78	3
20	F98204600	PLUG, G ¼"X13, SS	3
22	F36206766	OUTLET VALVE HOUSING	3
23	F90526000	ANTI-EXTRUSION RING, Ø 51.5X56X1.5	3
24	F90389000	OR, Ø 50.47X2.62	3
26	F36208801	BALL VALVE ASSY.	3
27	F36209051	INTERNAL VALVE GUIDE	3
28	F94760500	SPRING, Ø 28.5X32	3
29	F36206105	OUTLET VALVE GUIDE	3
30	F36207701	OUTLET VALVE UNIT	3
31	F73210915	OUTLET VALVE COVER	1
32	F90412000	OR, Ø 68.26X3.53	3
33	F90411500	OR, Ø 63.5X3.53	3
	F73211956	LINER, Ø 45	3
34	F73212056	LINER, Ø 50	3
54	F73212050	LINER, Ø 55	3
25			
35	F90382500	OR, Ø 10.78X2.62	6
~~	F74100192	PISTON HEAD RING, Ø 45	3
36	F74100292	PISTON HEAD RING, Ø 50	3
	F74100392	PISTON HEAD RING, Ø 55	3
	F90285000	ALT. SEAL RING, HP, Ø 45	3
37	F90286300	ALT. SEAL RING, HP, Ø50	3
	F90287300	ALT. SEAL RING, HP, Ø 55	3
	F90284800	RESTOP RING, Ø 45	3
38	F90286500	RESTOP RING, Ø 50	3
	F90287500	RESTOP RING, Ø 55	3
	F73211368	SEAL SUPPORT, Ø 45	3
39	F73211468	SEAL SUPPORT, Ø 50	3
	F73211568	SEAL SUPPORT, Ø 55	3
40			6
40	F90371000		
	F90284600	ALT. SEAL RING, LP, Ø 45	3
41	F90286000	ALT. SEAL RING, LP, Ø 50	3
	F90287000	ALT. SEAL RING, LP, Ø 55	3
42	F96735500	WASHER, Ø 16X65X1	3
43	F99521200	SCREW, M16X150	8
44	F73150022	CLOSED INSPECTION COVER	1
45	F73050336	PLUNGER GUIDE ROD	3
46	F90414800	OR, Ø202.8X3.53	2
47	F73150122	OPEN INSPECTION COVER	1
48	F90168500	RAD. RING, Ø40X72X7/8.5	3
49	F99188400	SCREW, M6XX20	3
	F94540000	SCREW, M8X107	1
50			
51	F73050443	PLUNGER GUIDE	3
	F73050543	PLUNGER GUIDE, +0.10	3
51A	F73606201	PISTON GUIED ASSEMBLY	3
52	F73210674	LIFTING BRACKET	2
53	F99513000	SCREW, M16x30, UNI 5931	4
54	F73030101	CONNECTING ROD ASSY.	3
55	F99378800	CONNECTING ROD SCREW, M10X1.5X80	6

MWS45-S50-S55 SERIES

Item Part # Description QTY. F9022800 CONROD HEAD SEMI-BUSHING, LOWER, +0.25 3 F9022800 CONROD HEAD SEMI-BUSHING, LOWER, +0.50 3 F9022800 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 F9022800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 F9092800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 F19028000 STOP RING, Ø 32 UNI 7437 6 F61 F94280000 HOLE PLUG, Ø 15 4 F1 F9208000 OILF, HUING PLUG, G1* 1 F61 F9828000 OILF, HUING PLUG, G1* 1 F1 F9027300 TWP, CVL, PIN, Ø 10X24 1 F1 F9027300 TWP, CVL, PIN, Ø 10X24 1 F1 F9017400 RAD, RING, Ø 52 1 F1 F9017400 RAD, RING, Ø 52 1			V343-330-333 3Er	VIL J	
57 F90228400 CONROD HEAD SEMI-BUSHING, LOWER, +0.50 3 58 F90228300 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 58 F90228100 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 59 F90228000 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 50 F9092800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 51 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 50 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 51 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 51 F9017500 SCREW, M6X14, UNI 5931 4 52 F3023000 SCREW, M6X14, UNI 5931 4 53 F3020500 OLFILING PLUG, G1, WITH ROD 1 64 F93210265 TUBE FOR OLI FILLING PLUG, G1, C1, WITH ROD 1 67 F3210295 TUBE FOR OLI FILLING PLUG, G1, C1, T 1 68 F91630500 TLR, 1475, HELICOL 1 71 F3210435 PINION, Z18 PZ, 72, HELICOL 1 <t< th=""><th>Item</th><th>Part #</th><th>Description</th><th>QTY.</th></t<>	Item	Part #	Description	QTY.	
57 F90228400 CONROD HEAD SEMI-BUSHING, LOWER, +0.50 3 58 F90228300 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 58 F90228100 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 59 F90228000 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 50 F9092800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 51 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 50 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 51 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 51 F9017500 SCREW, M6X14, UNI 5931 4 52 F3023000 SCREW, M6X14, UNI 5931 4 53 F3020500 OLFILING PLUG, G1, WITH ROD 1 64 F93210265 TUBE FOR OLI FILLING PLUG, G1, C1, WITH ROD 1 67 F3210295 TUBE FOR OLI FILLING PLUG, G1, C1, T 1 68 F91630500 TLR, 1475, HELICOL 1 71 F3210435 PINION, Z18 PZ, 72, HELICOL 1 <t< td=""><td></td><td>F90928000</td><td>· ·</td><td>3</td></t<>		F90928000	· ·	3	
F90028500 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 F90028200 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 58 F90028200 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 59 F90058000 CONROD HEAD SOT BUSHING 3 61 F974000 SPINDLE 3 61 F974000 SPINDLE 3 62 F99183700 SCREW, M6X14, UNI 5931 4 63 F73200064 FOOT 2 64 F9826000 OL FILLING FLUG, G1* 1 66 F99383700 OR, ASK3178 1 67 F73210295 TUBE FOR OL FILLING FLUG, G1* 1 68 F9983600 OL, FILLER BEARING 1 70076735 PINION, Z24 R1.875, HELICOL 1 1 71 F90101000 TOP RING, Ø 120 1 1 72 F9185900 ADJUST, ROLLER BEARING 1 1 74 F90051000 TAP, CLY, PIN, Ø 10X24 2 2 74 F91007	57			3	
F9028300 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 F9028200 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 F90915800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 60 F909015800 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 61 F9474000 SPINDLE 3 62 F901700 SCREW, M6X14, UNI 5931 4 63 F73200064 FOOT 2 64 F98206000 HOLE PLUG, Ø 15 6 65 F98235000 OL FILING PLUG, G'1', WITH ROD 1 67 F7321029 TUBE FOR OIL FILING PLUG, G1' 1 67 F7321029 TUBE FOR OIL FILING PLUG, G1' 1 68 F91854000 CY, ROLLER BEARING 1 7 F10076935 PINION, Z1R 223, HELICOL 1 7 F10076935 PINION, Z1R 223, HELICOL 1 7 F9321000 STOP RING, Ø 120 1 7 F73210455 BEARING SUPPORT RING 1 7 F73210000 STOP RING,		F90928500		3	
68 F90928100 CONROD HEAD SEMI-BUSHING, UPPER, +0.25 3 59 F90918500 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 60 F90068000 STOP RING, Ø 32 UNI 7437 6 61 F9474000 SPINDLE 3 62 F99183700 SCREW, M6X14, UNI 5931 4 63 F73200064 F0OT 22 64 F98208000 HOLE PLUG, 0'15 6 65 F99823500 OLI, FILLING FLUG, G'1', WITH ROD 1 66 F9936100 CX, AGX173 1 67 F9923500 OLI, FILLING FLUG, G'1', WITH ROD 1 67 F9363000 OL, FILLING FLUG, G'1' 1 67 F90107835 PINION, Z24 R1875, HELICOL 1 71 F90101000 STOP RING, Ø 52 1 72 F91859000 ADJUST, ROLLER BEARING 1 73 F73210458 BRAING, SUPPORT RING 1 74 F9001000 STOP RING, Ø 55 1 75 F90172400					
F90928200 CONROD HEAD SEMI-BUSHING, UPPER, +0.50 3 59 F90915800 CONROD HEAD FOOT BUSHING 3 60 F90968000 STOP RING, Ø 32 UN 7437 6 61 F94744000 SPINDLE 3 62 F9187000 SCREW, M6X14, UN 5931 4 63 F73200064 FOOT 2 64 F98208000 HOLE PLUG, G'I, WITH ROD 1 65 F9823300 OIL FILLING FLUG, G'I, WITH ROD 1 66 F9923500 OIL FILLING FLUG, G'I, WITH ROD 1 67 F73212029 TUBE FOR OIL FILLING FLUG, G'I, " 1 68 F91854000 CY, ROLLER BEARING 1 7 F73210455 PINION, Z'I R 23, HELICOL 1 7 F91076935 PINION, Z'I R 23, ELICOL 1 7 F9301000 STOP RING, Ø 10 1 74 F90081000 STOP RING, Ø 55 1 75 F90172400 RAD, RNO, Ø 55 1 76 F9017000 SCREW, M1	58				
59 F90915800 CONROD HEAD FOOT BUSHING 3 60 F90069000 STOP RING, Ø 32 UNI 7437 6 61 F94744000 SPINDLE 3 62 F99183700 SCREW, M8X14, UNI 5931 4 63 F73200064 FOOT 2 64 F9823600 OIL FILLING PLUG, G1', WITH ROD 6 65 F9823500 OIL FILLING PLUG, G1', WITH ROD 1 66 F98208000 FUG ASK1.78 1 67 F73210295 TUBE FOR OLL FILLING PLUG, G1' 1 68 F91854000 CY, ROLLER BEARING 1 7 F0076355 PINION, Z1R R22, HELICOL 1 7 F0070300 TIME, CVL, PIN, Ø 10X24 2 71 F90101000 STOP RING, Ø 52, TELICOL 1 73 F73210455 BEARING SUPPORT RING 1 74 F9001000 STOP RING, Ø 55, TS 1 75 F9017200 RAD, RING, Ø 55, TS 1 76 F912000 RA 22X1					
60 F90069000 STOP RING, Ø 32 UNI 7437 6 61 F94744000 SOREW, MSX14, UNI 5931 4 63 F73200064 FOOT 2 64 F98233500 OIL FILLING PLUG, Ø 15 6 65 F98233500 OIL FILLING PLUG, Ø 15 6 66 F90361600 OCR, 34.65X.178 1 67 F7321029 TUBE FOR OL FILLING PLUG, G1 " 1 67 F7321025 TUBE FOR OL FILLING PLUG, G1 " 1 67 F7321025 TUBE FOR OL FILLING PLUG, G1 " 1 69 F10076335 PINION, Z1 R 22.38, HELICOL 1 71 F0076335 PINION, Z1 R 22.21, HELICOL 1 72 F9165900 ADUST. ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F90361000 STOP RING, Ø 55 1 74 F9036000 STOP RING, Ø 55 1 74 F90361000 SCREW, M10X25, WIN 5739 2 74 F90361000	59				
61 F94744000 SPINDLE 3 62 F99183700 SCREW, M6X14, UNI 5931 44 63 F73200064 FOOT 2 64 F98206000 HOLE PLUG, Ø 15 66 65 F9823500 OIL FILLING PLUG, G1", WITH ROD 61 67 F73210295 TUBE FOR OIL FILLING PLUG, G1" 1 67 F73210295 TUBE FOR OIL FILLING PLUG, G1" 1 68 F9183000 CV, RULER BEARING 1 69 F10076335 PINION, Z18 R2722, HELICOL 1 71 F90101000 STOP RING, Ø 102 1 71 F9010200 STOP RING, Ø 50 1 73 F73210455 BEARING SUPPORT RING 1 74 F90172400 RAD. RING, Ø 55X7538, VITON 1 75 F90172400 RAD. RING, Ø 55X7538, VITON 1 76 F9151000 TAB, 22X14X80 UNI 6604 1 77 F73210589 RING GEAR, Z47 R2 238, HELICAL 1 718 F73050005					
62 F99183700 SCREW, M6X14, UNI 5931 4 63 F7320064 F0OT 22 64 F98260600 HOLE PLUG, Ø 15 6 65 F98233500 OIL FILLING PLUG, G1", WITH ROD 1 66 F9036100 CR, 34 65X1.78 1 67 F73210295 TUBE FOR OIL FILLING PLUG, G1" 1 68 F91854000 CY, ROLLER BEARING 1 69 F10076935 PINION, Z24 R1275, FELICOL 1 61 F003500 TMP. CYL. PIN, Ø 10X24 2 71 F9010000 STOP RING, Ø 120 1 72 F91859900 ADJUST, ROLLER BEARING 1 74 F90081000 STOP RING, Ø 55 1 74 F90081000 STOP RING, Ø 55X 753, VITON 1 76 F9150500 TAB. AX9X60, UNI 6004 1 77 F73210455 BEARING SUPPORT RING 1 78 F9305000 SCREW, M10X25, UNI 5739 2 79 F91511000 TAB, 221					
63 F73200064 FOOT 2 64 F9820500 HOLE PLUG, Ø 15 66 65 F9823050 OIL FILLING PLUG, G1", WITH ROD 1 66 F9823050 OIL FILLING PLUG, G1", WITH ROD 1 67 F73210295 TUBE FOR OIL FILLING PLUG, G1" 1 68 F91854000 CY. ROLLER BEARING 1 F10076735 PINION, Z18 R23, HELICOL 1 F10076835 PINION, Z18 R23, HELICOL 1 F10076835 PINION, Z18 R23, HELICOL 1 F10076835 PINION, Z18 R23, HELICOL 1 71 F90101000 STOP RING, Ø 100X4 2 71 F91859900 ADJUST. ROLLER BEARING 1 72 F91859900 ADJUST. ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 STOP RING, Ø 55X75X8, VITON 1 76 F9151000 TAB. 22X14X80 UNI 6604 1 77 F73210638 RING GEAR Z47 R23, R15LICAL 1					
64 F9823600 HOLE PLUG, Ø 15 6 65 F9823600 OIL, FILLING, PLUG, G1", WITH ROD 1 66 F9361600 OR, 344 65X1.78 1 67 F73210295 TUBE FOR OLL FILLING PLUG, G1" 1 68 F91854000 CY, ROLLER BEARING 1 69 F10076835 PINION, Z24 R1 875, HELICOL 1 61 F10076835 PINION, Z18 R272, EHELCOL 1 70 F97623000 TMP. CYL. PIN, Ø 10X24 2 71 F901000 STOP RING, Ø 120 1 72 F91859900 ADJUST. ROLLER BEARING 1 74 F90031000 STOP RING, Ø 55 1 74 F90031000 STOP RING, Ø 55 1 76 F91500500 TAB, 14X9X80, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 78 F9306700 SCREW, M10X25, UNI 5739 2 79 F91510000 TAB, 22X14X80 UNI 6604 1 71 F7007735					
65 F98233500 OIL FILLING PLUG, G1", WITH ROD 1 66 F90361600 OR, 34.65X1.78 11 67 F73210295 TUBE FOR OIL FILLING PLUG, G1" 1 68 F91854000 CY. ROLLER BEARING 1 69 F10076735 PINION, Z18 R2.72, HELICOL 1 61 F10076935 PINION, Z18 R2.72, HELICOL 1 70 F97623000 TMP. CYL. PIN, Ø 10X24 2 71 F90101000 STOP RING, Ø 120 1 72 F9185900 ADJUST. ROLLER BEARING 1 74 F90081000 STOP RING, Ø 55 1 75 F90172400 RAD. RING, Ø 55X758, VITON 1 76 F91500500 TAB, 14X9K30, UNI 6604 1 77 F7321055 RING GEAR SUPPORT RING 1 76 F91501000 SCREW, M10X25, UNI 5739 2 79 F91511000 TAB, 22X14X80 UNI 6604 1 71 F7322035 CRAWSHAFT C, 70 1 81 F732020					
66 F90381600 QR, 34.65X1.78 1 67 F73210295 TUBE FOR OIL FILLING PLUG, G1** 1 68 F9180400 CY. ROLLER BEARING 1 69 F10076735 PINION, Z21 R2.238, HELICOL 1 610076935 PINION, Z18 R2.72, HELICOL 1 7 F97623000 TMP. CYL. PIN, Ø 10X24 2 71 F90101000 STOP RING, Ø 120 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 STOP RING, Ø 55 1 75 F90172400 RAD. RING, Ø 55X75X8, VITON 1 76 F9105000 TAB, IX43X60, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 77 F73210589 RING GEAR STOP 1 78 F99366700 SCREW, M10X26, UNI 6739 2 79 F91511000 TAB. Z214X80 UNI 6064 1 70 F9161000 GRA. Z47 R238, HELICAL 1 81 F73010001 SCREW, M10X2					
67 F73210295 TUBE FOR OIL FILLING PLUG, G1 * 1 68 F91854000 CY. ROLLER BEARING 1 69 F10076835 PINION, Z4 R 1875, HELICOL 1 70 F97823000 TIMP, CYL, PIN, Ø 10X24 1 71 F9105000 STOP RING, 0 120 1 72 F91859900 ADJUST, ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 STOP RING, Ø 55 1 75 F91172400 RAD, RING, Ø 55X7528, VITON 1 76 F91500500 TAB, 14X9800, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 78 F9366700 SCREW, M10X25, UNI 5739 2 79 F91511000 TAB, 22X14X80 UNI 6604 1 80 F74213255 RING GEAR, 247 R2238, HELICAL 1 81 F7320035 CRAMKSHAFT C. 70 1 81 F7320035 CRAMKSHAFT C. 70 1 81 F7320035 CRAMKSHAFT C. 70 1 81 F7321003 <td< td=""><td></td><td></td><td></td><td></td></td<>					
68 F91854000 CY. ROLLER BEARING 1 F10076735 PINION, Z24 R1:875, HELICOL 1 F10076835 PINION, Z21 R2:28, HELICOL 1 F10076835 PINION, Z18 R2:722, HELICOL 1 F10076835 PINION, Z18 R2:722, HELICOL 1 F10076835 PINION, Z18 R2:722, HELICOL 1 F10076935 PINION, Z18 R2:722, HELICOL 1 T7 F90171000 STOP RING, Ø 120 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 TAB, HXXX60, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 78 F939366700 SCREW, M10X25, UNI 5739 2 79 F9151000 TAB, 22X14X80 UNI 6604 1 81 F732055 RING GEAR, 247 R2:28, HELICAL 1 81 F7320355 RING GEAR, 247 R2:28, HELICAL 1 81 F7320355 RING GEAR, 247 R2:28, HELICAL 1 81 F7321037 RING GEAR, 247 R2:28, HELICAL 1					
F10076735 PINION, Z24 R1875, HELICOL 1 69 F10076835 PINION, Z18 R2238, HELICOL 1 F10076835 PINION, Z18 R222, HELICOL 1 70 F9762300 TMP, CYL, PIN, Ø 10X24 2 71 F90101000 STOP RING, Ø 120 1 72 F91859900 ADJUST. ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F9001000 STOP RING, Ø 55 1 75 F90172400 RAD, RING, Ø 55X75X8, VITON 1 76 F73210589 RING GEAR SUPPORT RING 1 77 F73210589 RING GEAR SUPPORT RING 1 78 F9366700 SCREW, M10X25, UNI 5739 2 79 F91511000 TAB, 22X14X80 UNI 6604 1 80 F74213255 RING GEAR, 245 PR 2722, HELICAL 1 81 F7302035 CRAWKSHAFT C. 70 1 81 F1007735 RING GEAR, 247 R2238, HELICAL 1 81 F1007135 RING GEAR,					
69 F10076835 PINION, Z21 R2.238, HELICOL 1 71075935 PINION, Z18 R2.722, HELICOL 1 710 F97623000 TMP. CYL. PIN, Ø 10X24 2 71 F97623000 TMP. CYL. PIN, Ø 10X24 2 71 F936900 ADJUST. ROLLER BEARING 1 72 F9165900 ADJUST. ROLLER BEARING 1 73 F73210405 BEARING SUPPORT RING 1 74 F9068000 STOP RING, Ø 55X75X8, VITON 1 75 F90172400 RAD. RING, Ø 55X75X8, VITON 1 76 F91501700 TAB, 14X9X60, UNI 6604 1 77 F91511000 TAB, 22X14X80 UNI 6604 1 80 F74213255 RING GEAR STOP 1 81 F7302035 CRANKSHAFT C. 70 1 81 F10077035 RING GEAR, Z47 R2.238, HELICAL 1 81 F10077355 RING GEAR, Z41 R2.238, HELICAL 1 81 F73210013 REDUCTION GEAR ROVER 1 84 F73210013<	68				
69 F10076935 PINION, Z18 R2.722, HELICOL 1 71 F70622255 PINION, Z19 R3.211, HELICOL 1 70 F9762000 TMP, CYL, PIN, Ø 10X24 22 71 F90101000 STOP RING, Ø 120 1 72 F73210455 BEARING SUPPORT RING 1 73 F73210589 RING GEAR SUPPORT RING 1 76 F9150500 TAB, 1432860, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 76 F915000 TAB, L432860, UNI 6604 1 77 F73210589 RING GEAR STOP 1 81 F74213255 RING GEAR Z45 R1875, HELICAL 1 82 F1007735 RING GEAR, Z45 R1875, HELICAL 1 81 F7321013 REDUCTION GEAR Z45 R1875, HELICAL 1 82 F1007735 RING GEAR, Z47 R2.238, HELICAL 1 81 F7321013 REDUCTION GEAR COVER 1 84 F7321013 REDUCTION GEAR COVER 1 85					
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70 F97623000 TMP. CYL. PIN, Ø 10X24 2 71 F97623000 STOP RING, Ø 120 1 72 F91859900 ADJUST. ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 STOP RING, Ø 55 1 75 F90172400 RAD. RING, Ø 55X75X8, VITON 1 76 F91500500 TAB, 14X9X60, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 76 F9150000 TAB, 2X14X80 UNI 6604 1 80 F74213255 RING GEAR, Z45 R1875, HELICAL 1 81 F73020035 CRANKSHAFT C. 70 1 82 F10077135 RING GEAR, Z45 R1875, HELICAL 1 81 F10077035 RING GEAR, Z49 R2.722, HELICAL 1 81 F10077135 RING GEAR, Z49 R2.722, HELICAL 1 81 F13210113 REDUCTION GEAR COVER 1 82 F3731013 RUDUTION GEAR BOX 1 88 <td< td=""><td></td><td></td><td></td><td></td></td<>					
71 F90101000 STOP RING, Ø 120 1 72 F91859900 ADJUST. ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 STOP RING, Ø 55 1 75 F93172400 RAD. RING, Ø 55X75X8, VITON 1 76 F91500500 TAB, 14X9X60, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 78 F793210580 RING GEAR STOP 1 80 F74213255 RING GEAR STOP 1 81 F73020035 CRANKSHAFT C. 70 1 81 F10077135 RING GEAR, Z47 R2.238, HELICAL 1 81 F10077135 RING GEAR, Z47 R2.238, HELICAL 1 81 F030100 SCREW, M0X40, UNI 5931 15 84 F73210113 REDUCTION GEAR COVER 1 85 F9301000 CV, ROLLER BEARING 2 86 F73210038 REDUCTION GEAR BOX 1 87 F9418000 CV, ROLLER BEARING 2 88 F73160022 CASING COVER <td></td> <td></td> <td></td> <td></td>					
72 F91859900 ADJUST. ROLLER BEARING 1 73 F73210455 BEARING SUPPORT RING 1 74 F90081000 STOP RING, Ø 55 1 75 F90172400 RAD. RING, Ø 55 1 76 F91500500 TAB, 14X9X60, UNI 6604 1 77 F73210589 RING GEAR SUPPORT RING 1 78 F99366700 SCREW, MI0X25, UNI 5739 2 79 F91511000 TAB, 22X14X80 UNI 6604 1 80 F74213255 RING GEAR SUPPORT RING 1 81 F73020035 CRANKSHAFT C. 70 1 81 F73020035 CRANKSHAFT C. 70 1 82 F10077035 RING GEAR, Z47 R2.238, HELICAL 1 81 F1007735 RING GEAR, Z47 R2.238, HELICAL 1 82 F01013 REDUCTION GEAR COVER 1 83 F9331000 SCREW, M10X40, UNI 5931 15 84 F7321013 REDUCTION GEAR BOX 1 85 F90415000 OR, Ø35.63.53 2 86 F73101013 PLUP, CASING<	70	F97623000	TMP. CYL. PIN, Ø 10X24	2	
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81 F73020035 CRANKSHAFT C. 70 1 82 F10077035 RING GEAR, Z45 R1.875, HELICAL 1 82 F10077135 RING GEAR, Z47 R2.238, HELICAL 1 82 F10077235 RING GEAR, Z47 R2.238, HELICAL 1 83 F99371000 SCREW, M10X40, UNI 5931 15 84 F73210113 REDUCTION GEAR COVER 1 85 F90415000 OR, Ø 253.6X3.53 2 86 F73210013 REDUCTION GEAR BOX 1 87 F91881000 CY. ROLLER BEARING 2 88 F73210384 SIDE SEAL 2 89 F73010013 PUMP CASING 1 90 F73160022 CASING COVER 1 91 F99368600 SCREW, M10X30, UNI 5931 14 92 F73150222 BEARING COVER 1 94 F99301800 SCREW, M0X30 2 94 F99301800 SCREW, M8210 2 94 F10077455 PINION, Z18 R.2.722					
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REPAIR KITS

KIT No.	F2139 (MW45A) Plunger Packing Kit	F2140 (MW50A) Plunger Packing Kit	F2141 (MW55A) Plunger Packing Kit	F2142 Inlet Valve Kit	F2062 Outlet Valve Kit	F2147 (MW45A) Complete Seals Kit	F2148 (MW50A) Complete Seals Kit	F2149 (MW55A) Complete Seals Kit	F2150 Con. Rod Kit	F2151 Con. Rod Kit	F2153 Con. Rod Kit	F2482 Manifold Conv. Kit
Positions Included	33, 35, 37, 38, 40, 41	33, 35, 37, 38, 40, 41,	33, 35, 37, 38, 40, 41,	13	30	6, 7, 16, 20, 23, 24, 32, 33, 35, 37, 38, 40, 41, 46, 48, 66, 75, 85, 88	6, 7, 16, 20, 23, 24, 32, 33, 35, 37, 38, 40, 41, 46, 48, 66, 75, 85, 88	6, 7, 16, 20, 23, 24, 32, 33, 35, 37, 38, 40, 41, 46, 48, 66, 75, 85, 88	57, 58	57, 58	57, 58	1, 14, 19a



MWN SERIES

17. SPECIAL VERSIONS

The MW pump is also available in the following special versions:

MWN, MWR, MWNR, MWF, MWN

The following information is helpful in deciding how to choose and use these versions. Unless specified otherwise, observe the previous instruction for the standard MW/S pump.

17.1 MWN PUMP

17.1.1 Operating instructions

The MWN pump is ideal for pumping salt water and particularly aggressive fluids. It has been designed to operate in environments with atmospheres that are not potentially explosive, and with filtered water (see 9.7).

17.1.2 Water temperature

The maximum permissible water temperature is 104° F (40° C). However the pump can be used with tater up to a temperature of 140° F (60° C), but only for short periods.

17.1.3 Maximum pressure and flow rate

The rated specifications stated in our catalog are the maximum that can be obtained by the pump. Independently of the power used, the maximum pressure and RPM indicated on the specification label can never be exceeded unless upon prior formal authorization by our Customer Service Department.

17.1.4 Maximum RPM

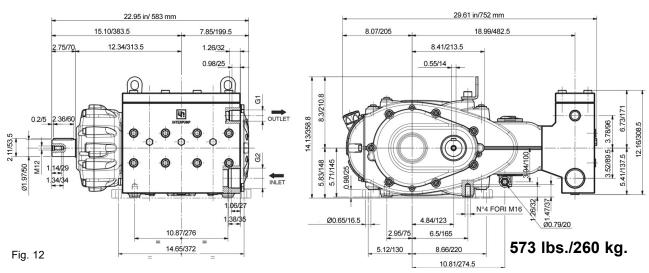
Any rotating speed other than that indicated in the performance table (see 17.1.5) must be expressly authorized by our Customer Service Department.

17.1.5	Maximum	RPM	
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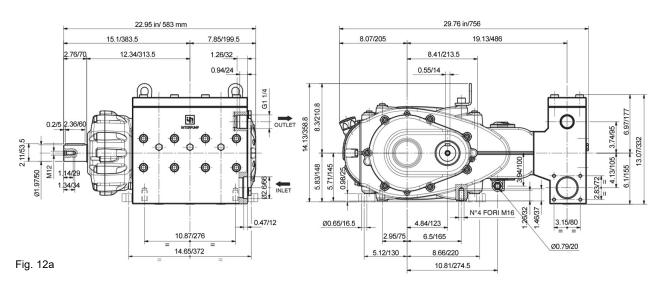
MODEL	RPM	FLOW	RATE	PRES	SURE	POV	VER
MODEL	RPIVI	GPM	l/min	PSI	Bar	Нр	kW
MWN32	1500/1800/ 2200/2600	36.0	136	4,350	300	100	73.5
MWN36	1500/1800/ 2200/2600	45.4	172	3,500	240	100	73.5
MWN40	1500/1800/ 2200/2600	56.0	212	2,750	190	116	85.3
MWN45	1500/1800/ 2200/2600	71.0	269	2,250	155	100	73.5
MWN50	1500/1800/ 2200/2600	87.5	332	1,800	125	100	73.5
MWN55	1500/1800/ 2200/2600	106.0	401	1,450	100	100	73.5

17.1.6 Dimensions and weight

For dimensions and weight of MWN32, MWN36 and MWN40 pumps, please refer to fig. 12.



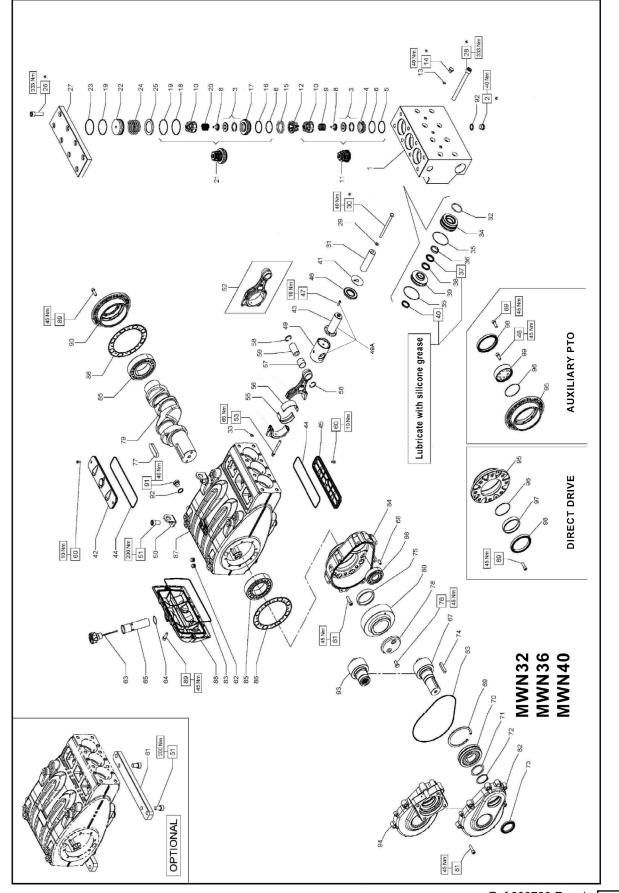
For dimensions and weight of MWN45, MWN50 and MWN55 pumps, please refer to fig. 12a.



Ref 300790 Rev. L 12-21 Page 27

GENERAL PUMP A member of the Interpump Group 17.1.7 EXPLODED VIEW AND PARTS LIST

MWN32/36/40 SERIES



MWN32/36/40 SERIES

2 F9 3 F3 4 F3 5 F9 6 F9 8 F3 9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 20 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 30 F9 30 F9 33 F9 33 F9	36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301	Description MANIFOLD MANIFOLD PLUG, G 1/4*X14, SS BALL VALVE ASSY. INLET VALVE HOUSING ANTI-EXTRUSION RING, Ø51.5x56X1.5 OR, Ø50.47x2.62 INTERNAL VALVE GUIDE SPRING, Ø 28.3x30.7 INLET/OUTLET VALVE GUIDE INLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4*X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 28.5X32 OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING SCREW, M16X55, UNI 5931	QTY. 1 3 6 3 3 6 6 3 3 3 3 3 3 3 3 3 3 3 3 3
3 F3 4 F3 5 F9 6 F9 8 F3 9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 20 F9 20 F9 20 F9 20 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 29 F9 30 F9 33 F9	36208801 36306766 90526000 90389000 36209051 94760000 36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94770500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	BALL VALVE ASSY. INLET VALVE HOUSING ANTI-EXTRUSION RING, Ø51.5X56X1.5 OR, Ø50.47x2.62 INTERNAL VALVE GUIDE SPRING, Ø 28.3X30.7 INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4*X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	6 3 3 6 6 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
3 F3 4 F3 5 F9 6 F9 8 F3 9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 20 F9 20 F9 20 F9 20 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 29 F9 30 F9 33 F9	36208801 36306766 90526000 90389000 36209051 94760000 36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94770500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	BALL VALVE ASSY. INLET VALVE HOUSING ANTI-EXTRUSION RING, Ø51.5X56X1.5 OR, Ø50.47x2.62 INTERNAL VALVE GUIDE SPRING, Ø 28.3X30.7 INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4*X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 6 6 3 3 3 3 3 3 3 3 3 3 3 3 3
5 F9 6 F9 8 F3 9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 731 F7 32 F9 33 F9 57 F7	90526000 90389000 36209051 94760000 36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	INLET VALVE HOUSING ANTI-EXTRUSION RING, Ø51.5X56X1.5 OR, Ø50.47x2.62 INTERNAL VALVE GUIDE SPRING, Ø 28.3X30.7 INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4*X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 6 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
6 F9 8 F3 9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 31 F7 32 F9 33 F9	90389000 36209051 94760000 36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	OR, Ø50.47x2.62 INTERNAL VALVE GUIDE SPRING, Ø 28.3x30.7 INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE PLUG ANTL-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE PLUG ANTL-EXTRUSION RING, Ø 67.7X72.2X1.5	6 6 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
8 F3 9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 30 F9 30 F9 30 F9 33 F9 33 F9	36209051 94760000 36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	INTERNAL VALVE GUIDE SPRING, Ø 28.3X30.7 INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	6 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
9 F9 10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 33 F9 33 F9	94760000 36206105 36715101 74210651 90358400 90524500 38204600 73213756 90526500 36206966 90527600 90391100 94770500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	SPRING, Ø 28.3X30.7 INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 6 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
10 F3 11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 29 F9 30 F9 31 F7 33 F9 53 F9	36206105 36715101 74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94770500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	INLET/OUTLET VALVE GUIDE INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4*X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	6 3 3 3 3 3 3 3 3 3 6 6 3 3 3 3 3 3 3 3
11 F3 12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 731 F7 32 F9 33 F9 33 F9	36715101 74210651 90358400 98204600 73213756 90526500 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	INLET VALVE UNIT HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3 3 3 3 3 3 6 3 3 3 3 3 3 3 3
12 F7 13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 30 F9 33 F9 33 F9	74210651 90358400 98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	HP VALVE GUIDE SPACER OR. Ø 10.82X1.78 PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3 3 3 3 3 6 3 3 3 3 3 3
13 F9 14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 30 F9 33 F9 33 F9	90358400 98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	OR. Ø 10.82X1.78 PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3 3 3 3 6 3 3 3 3 3 3
14 F9 15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 33 F9 33 F9	98204600 73213756 90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	PLUG G 1/4"X13, SS VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3 3 3 6 3 3 3 3 3 3
15 F7 16 F9 17 F3 18 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 730 F9 731 F7 732 F9 33 F9	73213756 90526500 38200966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	VALVE HOUSING SPACER RING ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3 6 3 3 3 3 3
16 F9 17 F3 18 F9 19 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 71 F7 31 F7 731 F7 732 F9 33 F9 77 F7	90526500 36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5 OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 6 3 3 3 3 3
17 F3 18 F9 19 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 31 F7 32 F9 33 F9 33 F9	36206966 90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	OUTLET VALVE HOUSING ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 6 3 3 3 3 3
18 F9 19 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 31 F7 32 F9 33 F9	90527600 90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 6 3 3 3 3
19 F9 20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 30 F9 30 F9 31 F7 33 F9 33 F9	90391100 94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	OR, Ø 66.35X2.62 SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	6 3 3 3 3
20 F9 21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 30 F9 30 F9 30 F9 30 F9 31 F7 32 F9 33 F9	94760500 36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	SPRING, Ø 28.5X32 OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3 3
21 F3 22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 30 F9 30 F9 31 F7 732 F9 33 F9 33 F9	36715301 78215856 90528000 94774900 78215991 99514700 73212356 99522200	OUTLET VALVE UNIT HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3 3
22 F7 23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 30 F9 31 F7 32 F9 33 F9	78215856 90528000 94774900 78215991 99514700 73212356 99522200	HP OUTLET VALVE PLUG ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3 3
23 F9 24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 30 F9 31 F7 77 31 F7 732 F9 33 F9 33 F9	90528000 94774900 78215991 99514700 73212356 99522200	ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5 SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	3
24 F9 25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 30 F9 31 F7 731 F7 732 F9 33 F9 57	94774900 78215991 99514700 73212356 99522200	SPRING, Ø 58X45.4, SS OUTLET VALVE HOUSING RING	
25 F7 26 F9 27 F7 28 F9 29 F9 30 F9 30 F9 31 F7 31 F7 32 F9 33 F9 57	78215991 99514700 73212356 99522200	OUTLET VALVE HOUSING RING	3
26 F9 27 F7 28 F9 29 F9 30 F9 31 F7 31 F7 32 F9 33 F9 33 F9	99514700 73212356 99522200		
27 F7 28 F9 29 F9 30 F9 31 F7 31 F7 32 F9 33 F9 33 F9	73212356 99522200	SCREW, M16X55, UNI 5931	3
28 F9 29 F9 30 F9 31 F7 31 F7 7 32 F9 33 F9 F7	99522200		8
29 F9 30 F9 31 F7 31 F7 32 F9 33 F9 F7		VALVE COVER, SS	1
30 F9 31 F7 31 F7 32 F9 33 F9	96710500	SCREW, M16x180	8
31 F7 31 F7 32 F9 33 F9 57		WASHER, Ø 10x18x0.9, SS, PTFE	3
31 F7 F7 32 F9 33 F9 F7	99383000	SCREW, M10x140, UNI 5737	3
F7 32 F9 33 F9 F7		PLUNGER, Ø 32	3
32 F9 33 F9 F7		PLUNGER, Ø 36	3
33 F9 F7		PLUNGER, Ø 40	3
F7	90408500	OR, Ø49.21X3.53	3
	90382500	OR, Ø10.78X2.62	6
		PLUNGER LINER, Ø 32	3
		PLUNGER LINER, Ø 36	3
		PLUNGER LINER, Ø 40	3
	90371000	OR, Ø 81x2	6
		PISTON HEAD RING, Ø 32	3
		PISTON HEAD RING, Ø 36	3
		PISTON HEAD RING, Ø 40	3
		ALT. SEAL RING, Ø 32,HP	3
		ALT. SEAL RING, Ø 36,HP	
		ALT. SEAL RING, Ø 40,HP	3
		RESTOP RING, Ø 32	3
		RESTOP RING, Ø 36	3
<u> </u>		RESTOP RING, Ø 40 SEAL SUPPORT, Ø 32	3
		SEAL SUPPORT, Ø 32 SEAL SUPPORT, Ø 36	3
		SEAL SUPPORT, Ø 40	
	73212692 90278000	ALT. SEAL RING, Ø 32, LP	3
		ALT. SEAL RING, Ø 32, LP ALT. SEAL RING, Ø 36, LP	3
			3
		ALT. SEAL RING, Ø 40, LP WASHER, Ø 16X65X1	3
	73150022	CLOSED INSPECTION COVER	3
		PISTON GUIDE ROD	3
		OR, Ø 202.8X3.53	2
	73150122	OR, 0 202.6x3.55 OPEN INSPECTION COVER	1
L	90168500	RAD. RING, Ø 40X72X7/8.5	3
	9188400	SCREWN M6X20	3
		PISTON GUIDE	3
1 44		PISTON GUIDE PISTON GUIDE, +0.10	3
		PISTON GUIDE, +0.10 PISTION GUIDE ASSEMBLY	3
		LIFTING BRACKET	2
		SCREW, M16X30, UNI 5931	4
	73030101	CONNECTING ROD ASSY.	3
		CONROD SCREW, M10X1.5X80	6

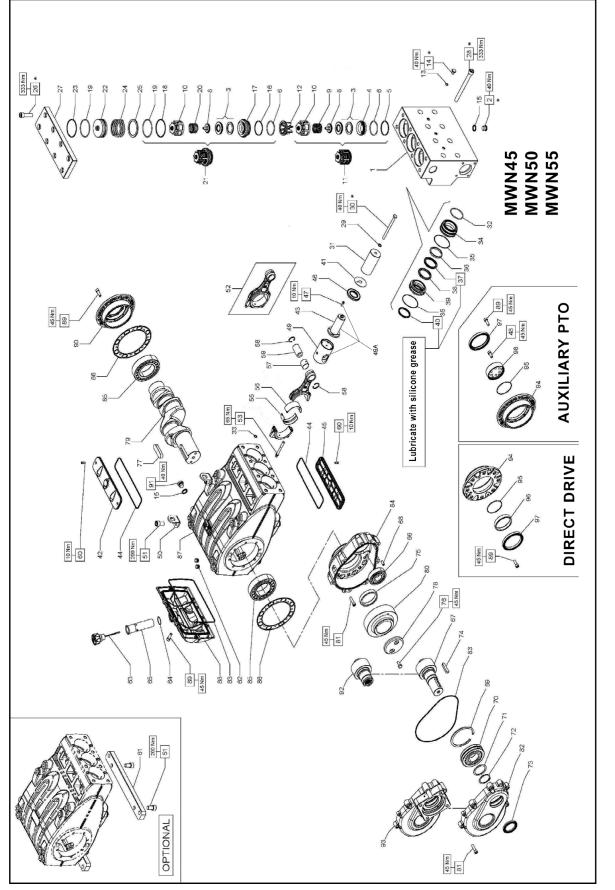
ltem	Part #	Description	QTY.
nom	F90928300	CONROD HEAD SEMI-BUSHING, LOWER	3
55	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
	F90928500	CONROD HEAD SEMI-BUSHING, LOWER, +0.55	3
	F90928000	CONROD HEAD SEMI-BUSHING, UPPER	3
56	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.55	3
57	F90915800	CONROD FOOT BUSHING	3
58	F90069000	STOP RING, Ø 32, UNI 7437	6
59	F97744000	SPINDLE	6
60	F99183800	SCREW, M6X14, UNI 5931	6
61	F73200064	FOOT	2
62	F98206000	HOLE PLUG, Ø 15, TTN18	6
63	F98233500	OIL FILLING PLUG, G1" WITH ROD	1
64	F90361600	OR, 34.65X1.78	1
65	F73210295	TUBE FOR OIL FILLING PLUG, G1"	1
66	F91854000	CYL. ROLLER BEARING	1
	F10076735	PINION, Z24 R1.875, HELICOL	1
	F10076835	PINION, Z21 R2.238, HELICOL	1
67	F10076935	PINION, Z18 R2.7225, HELICOL	1
	F10082255	PINION, Z19 R3.211, HELICOL	1
68	F97623000	TMP. CY. PIN, Ø 10X24, UNI 6364	2
69	F90101000	STOP RING, Ø 120, UNI 7437	1
70	F91859900	ADJUST. ROLLER BEARINGS	1
71	F73210455	BEARING SUPPORT RING	1
72	F90081000	STOP RING, Ø 55, UNI 7435	1
73	F90172400	RAD. RING, Ø 55Xx75X8, VITON	1
74	F91500500	TAB, 14X9X60, UNI 6604	1
75	F73210589	RING GEAR SUPPORT RING	1
76	F99366700	SCREW, M10X25, UNI 5739	2
77	F91511000	TAB, 22X14X80, UNI 6604	1
78	F74213255	RING GEAR STOP	1
79	F73020035	CRANKSHAFT C. 70	1
	F10077035	RING GEAR, Z45 R1.875, HELICAL	1
00	F10077135	RING GEAR, Z45 R1.875, HELICAL	1
80	F10077235	RING GEAR, Z49 R2.722, HELICAL	1
	F10082355	RING GEAR, Z61 R3.211, HELICOL	1
81	F99371100	SCREW, M10X40, UNI 5931	15
82	F73210113	REDUCTION GEAR COVER	1
83	F90415000	OR, 253.6X3.53	2
84	F73210013	REDUCTION GEAR BOX	1
85	F91881000	CYL. ROLLER BEARING	2
86	F73210384	SIDE SEAL	2
87	F73010013	PUMP CASING	1
88	F73160022	CASING COVER	1
89	F99368500	SCREW, M10X30, UNI 5931	14
90	F73150222	BEARING COVER	1
91	F98218100	PLUG, G1/2"X13, NICKEL	2
92	F93197100	SEAL WASHER, G 1/2", SS	5
		WITH HYDRAULIC MOTOR	
	F10079455	PINION, Z18 R.2.722	1
93	F10077355	PINION, Z24 R.1.875	1
	F10077455	PINION, Z21 R.2.238	1
94	F73215513	HYDRAULIC GEAR COVER	1
		DIRECT DRIVE	
89	F99368500	SCREW, M10X30, UNI 5931	14
95	F73150322	BEARING COVER, OPEN	1
96	F90391450	O-RING, Ø 75.87X2.62	1
97	F73215654	RING	1
98	F90195000	RING, RAD. Ø 90X110X12	1
		AUXILIARY PTO	
48	F99367100	SCREW, M10X25	6
89	F99368500	SCREW, M10X30, UNI 5931	8
95	F73150322	BEARING COVER, OPEN	1
96	F90391450	O-RING, Ø 75.87X2.62	1
98	F90195000	RING, RAD. Ø 90X110X12	1
		PTO OUTLET	1

REPAIR KITS

KIT	F2136 (MWN32)	F2137 (MWN36)	F2138 (MWN40)	F2055	F2144 (MWN32)	F2145 (MWN36)	F2146 (MWN40)	F2150	F2151	F2153
NUMBER	Plunger Packing Kit	Plunger Packing Kit	Plunger Packing Kit	Valve Kit	Complete Seals Kit	Complete Seals Kit	Complete Seals Kit	Conn,Rod Kit	Conn. Rod Kit	Conn. Rod Kit
Positions Included	32, 33, 35, 37, 38, 40	32, 33, 35, 37, 38, 40	32, 33, 35, 37, 38, 40		5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 37, 38, 40, 44, 46, 64, 73, 83, 86	19, 23, 32, 33, 35,		55, 56	55, 56	55, 56



MWN45/50/55 SERIES



MWN45/50/55 SERIES

ltem	Part #	Description	QTY.
1	F73120556	MANIFOLD	1
2	F99218600	PLUG, G 1/4"X14, SS	3
3	F36208701	BALL VALVE ASSY.	6
4	F36206666	INLET VALVE HOUSING	3
5	F90527000	ANTI-EXTRUSION RING, Ø 61.2X67X2	3
6	F90410500	OR Ø 59.62 X 3.53 (4237)	6
8	F36208951	INTERNAL VALVE GUIDE	6
9	F94769800	SPRING, Ø 41.5X37.9	3
10	F36206005	INLET/OUTLET VALVE GUIDE	6
11	F36715001	INLET VALVE UNIT	3
12	F74210551	HP VALVE GUIDE SPACER	3
13	F90358400	OR, Ø 10.82X1.78	3
14	F90204600	PLUG, G 1/4"X13, SS	3
14	F93197100	SEAL WASHER, G 1/2", SS	5
16			
L	F90527300	ANTI-EXTRUSION RING,Ø 61.4X67.2X1.5	3
17	F36206866		3
18	F90529000	ANTI-EXTRUSION RING, Ø 61.4X67.2X1.5	3
19	F90413400	OR, Ø 75.8X3.53	6
20	F94770000	SPRING, Ø 41.5X41.1	3
21	F36715201	OUTLET VALVE UNIT	3
22	F73213656	OUTLET VALVE PLUG, LP	3
23	F90529300	ANTI-EXTRUSION RING, Ø 77.4X83.2X1.5	3
24	F94800100	SPRING, Ø 75X49.6, SS	3
25	F73213891	OUTLET VALVE HOUSING RING	3
26	F99514700	SCREW, M16X55M UNI 5931	8
27	F73212356	VALVE COVER, SS	1
28	F99522200	SCREW, M16X180, UNI 5931	8
29	F96710500	WASHER, Ø 10X18X0.9, SS, PTFE	3
30	F99383000	SCREW, M10X140, UNI 5737	3
	F73040309	PLUNGER, Ø 45	3
31	F73040409	PLUNGER, Ø 50	3
51			
	F73040509	PLUNGER, Ø 55	3
32	F90411500	O-RING, Ø 63.5X3.53	3
33	F90382500	O-RING, Ø 10.785X2.62	6
	F73213356	PLUNGER LINER, Ø 45	3
34	F73213456	PLUNGER LINER, Ø 50	3
	F73213556	PLUNGER LINER, Ø 55	3
35	F90371000	OR, Ø 81X2	6
	F78100391	PISTON HEAD RING, Ø 45	3
36	F73100291	PISTON HEAD RING, Ø 50	3
	F73100391	PISTON HEAD RING, Ø 55	3
	F90285000	ALT. SEAL RING, HP, Ø 45	3
37	F90286300	ALT. SEAL RING, HP, Ø 50	3
	F90287300	ALT. SEAL RING, HP, Ø 55	3
	F90284800	RESTOP RING, Ø 45	3
38	F90286500	RESTOP RING, Ø 50	3
	F90287500	RESTOP RING, Ø 55	3
	F73212792	SEAL SUPPORT, Ø 45	3
39	F73712892	SEAL SUPPORT, Ø 50	3
	F73212992	SEAL SUPPORT, Ø 55	3
	-	ALT. SEAL RING, LP, Ø 45	3
40	F90284600 F90286000		
40		ALT. SEAL RING, LP, Ø 50	3
<u> </u>	F90287000	ALT. SEAL RING,LP, Ø 55	3
41	F96735500	WASHER, Ø16X65X1	3
42	F73150022	CLOSED INSPECTION COVER	1
43	F73050336	PISTON GUIDE ROD	3
44	F90414800	OR, Ø 202.8X3.53	2
45	F73150156	OPEN INSPECTION COVER	1
46	F90168500	RAD. RING, Ø 40X72X7/8.5	3
47	F99188400	SCREW, M6X20	3
	F73050443	PISTON GUIDE	3
49	F73050543	PISTON GUIDE, +0.10	3
49A	F73606201	PISTON GUIDE ASSEMBLY	3
	F73210674	LIFTING BRACKET	2
50			
50 51		SCREW_M16x30_UNL5931	4
50 51 52	F99513100 F73030101	SCREW, M16x30, UNI 5931 CONNECTING ROD ASSY.	4 3

ltem	Part #	Description	QTY.
	F90928000	CONROD HEAD SEMI-BUSHING, LOWER	3
55	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
	F90928500	CONROD HEAD SEMI-BUSHING, LOWER, +0.50	3
	F90928300	CONROD HEAD SEMI-BUSHING, UPPER	3
56	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.50	3
57	F90915800	CONROD FOOT BUSHING	3
58	F90069000	STOP RING, Ø 32, UNI 7437	6
59	F97744000	SPINDLE	6
60	F99183800	SCREW, M6x14, UNI 5931	6
61	F73200064	FOOT	2
62	F98206000	HOLE PLUG. Ø 15, TTN18	6
63	F98233500	OIL FILLING PLUG, G1" WITH ROD	1
64	F90361600	OR, Ø 34.65X1.78	1
65	F73210295	TUBE FOR OIL FILLING PLUG, G1"	1
66	F91854000	CYL. ROLLER BEARING	1
	F10076735	PINION, Z24 R1.875, HELICOL	1
07	F10076835	PINION, Z21 R2.238, HELICOL	1
67	F10076935	PINION, Z18 R2.722, HELICOL	1
	F10082255	PINION, Z19 R3.211, HELICOL	1
68	F97623000	TMP. CYL. PIN. Ø 10X24, UNI 6364	2
69	F90101000	STOP RING, Ø 120, UNI 7437	1
70	F91859900	ADJUST ROLLER BEARING	1
71	F73210455	BEARING SUPPORT RING	1
72	F90081000	STOP RING, Ø 55, UNI 7435	1
73	F90172400	RAD. RING, Ø 55X75X8, VITON	1
74	F91500500	TAB, 14X9X60, UNI 6604	1
75	F73210589	RING GEAR SUPPORT RING	1
76	F99366700	SCREW, M10X25, UNI 5739	2
77	F91511000	TAB, 22X14X80, UNI 6604	1
78	F74213255	RING GEAR STOP	1
79	F73020035	CRANKSHAFT C. 70	1
	F10077035	RING GEAR, Z45 R1.875, HELICAL	1
	F10077135	RING GEAR, Z47 R2.238, HELICAL	1
80	F10077235	RING GEAR, Z49 R2.722, HELICAL	1
	F10082355	RING GEAR, Z61 R3.211, HELICOL	1
81	F99371100	SCREW, M10X40, UNI 5931	15
82	F73210100	REDUCTION GEAR COVER	1
83	F90415000	OR, Ø 253.6.X3.53	2
84	F73210013	REDUCTION GEAR BOX	1
85	F91881000	CYL ROLLER BEARING	2
86	F73210384	SIDE SEAL	2
87	F73010013	PUMP CASING	1
88	F73160022	CASING COVER	1
89	F99368500	SCREW, M10X30, UNI 5931	14
90	F73150222	BEARING COVER	1
91	F98218100	PLUG, G1/2"X13, SS	2
51	1. 002.0100	WITH HYDRAULIC MOTOR	<u> </u>
	F10079455	PINION, Z18 R.2.722	1
92	F10077355	PINION, Z24 R.1.875	1
52	F10077455	PINION, 224 R.1.873	1
94	F73215513	HYDRAULIC GEAR COVER	1
	1. 102 100 10	DIRECT DRIVE	
89	F99368500	SCREW, M10X30, UNI 5931	14
94	F73150322	BEARING COVER, OPEN	14
95	F90391450	O-RING, Ø 75.87X2.62	1
95	F73215654	RING	1
90	F90195000	RING, RAD. Ø 90X110X12	1
91	1 30 133000	AUXILIARY DRIVE	
49	F99367100	SCREW, M10X25	6
49 89	F99367100	SCREW, M10X25 SCREW, M10X30, UNI 5931	8
94	F73150322	BEARING COVER, OPEN	1
95	F90391450	O-RING, Ø 75.87X2.62	1
97	F90195000	RING, RAD. Ø 90X110X12	1
98	F73215754	PTO OUTLET	1

REPAIR KITS

KIT NUMBER	F2139 (MWN45) Plunger Packing Kit	F2140 (MWN50) Plunger Packing Kit	F2141 (MWN55) Plunger Packing Kit		-	F2160 (MWN50) Complete Seals Kit	-	F2150 Conn,Rod Kit	F2151 Conn. Rod Kit	F2153 Conn. Rod Kit
Positions Included	32, 33, 35, 37, 38, 40	32, 33, 35, 37, 38, 40,	32, 33, 35, 37, 38, 40	11, 12, 23	5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 37, 38, 40, 44, 46, 64, 73, 83, 86	5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 37, 38, 40, 44, 46, 64, 73, 83, 86	23, 32, 33, 35, 37,	55, 56	55, 56	55, 56

Ref 300790 Rev. L 12-21

Page 31

17.2 MWR PUMP

17.2.1 Operating instructions

The MWR pump has been designed to operate in environments with atmospheres that are not potentially explosive and for using water rich in particulate, therefore it is considered ideal for systems with fluid recirculation.

The durability of the plunger seals is directly in relation to the percentage of the presence of solids in the fluid as regards both their size and their density. For a long seal life we recommend a particulate grain size of no more than 200 micron and 20% max. in volume. For more information and a general system layout see paragraph 9.7.

17.2.2 Water temperature

The maximum permissable water temperature is 104° F (40° C). However the pump can be used with water up to a temperature of 140° F (60° C), but only for short periods.

17.2.3 Maximum pressure and flow rate

The rated specifications stated in our catalog are the maximum that can be obtained by the pump. Independently of the power used, the maximum pressure and RPM indicated on the specification label can never be exceeded unless upon prior formal authorization by our Customer Service Department.

17.2.4 Maximum RPM

Any rotating speed other than that indicated in the performance table (see 17.2.5) must be expressly authorized by our Customer Service Department.

MODEL	RPM	FLOW	RATE	PRES	SURE	PO	VER
WODEL	RPIVI	GPM	l/min	PSI	Bar	Нр	kW
	800	55.7	211	3,045	210	115	84.6
MWR40A	1500	55.7	211	3,045	210	115	84.6
	1800	56	212	3,045	210	116	85.3
	2200	56.3	213	3,045	210	116	85.3
	800	70.6	267	2,247	155	100	73.5
MWR45A	1500	70.6	267	2,247	155	100	73.5
IVI V K43A	1800	71	269	2,247	155	100	73.5
	2200	71.3	270	2,247	155	100	73.5
	800	87.2	330	1,812	125	100	73.5
MWR50A	1500	87.2	330	1,812	125	100	73.5
WWWINJUA	1800	87.6	332	1,812	125	100	73.5
	2200	88	333	1,812	125	100	73.5
	800	105.4	399	1,450	100	100	73.5
MWR55A	1500	105.4	399	1,450	100	100	73.5
WWWRJJA	1800	106	401	1,450	100	100	73.5
	2200	106.5	403	1,450	100	100	73.5

17.2.5 Technical Characteristics

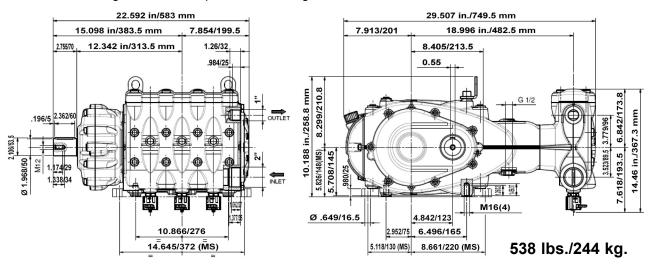
Ref 300790 Rev. L 12-21

Page 32

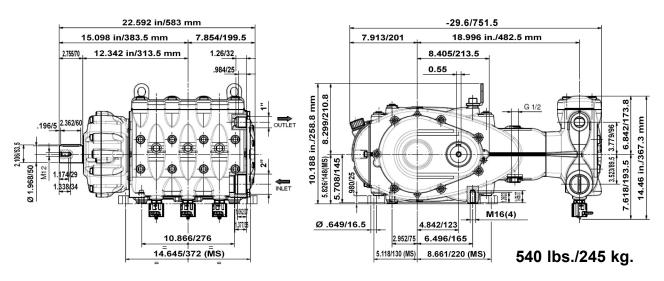
MWR SERIES

17.2.6 Dimensions and weight

For dimensions and weight of MW40A, please refer to fig. 13.



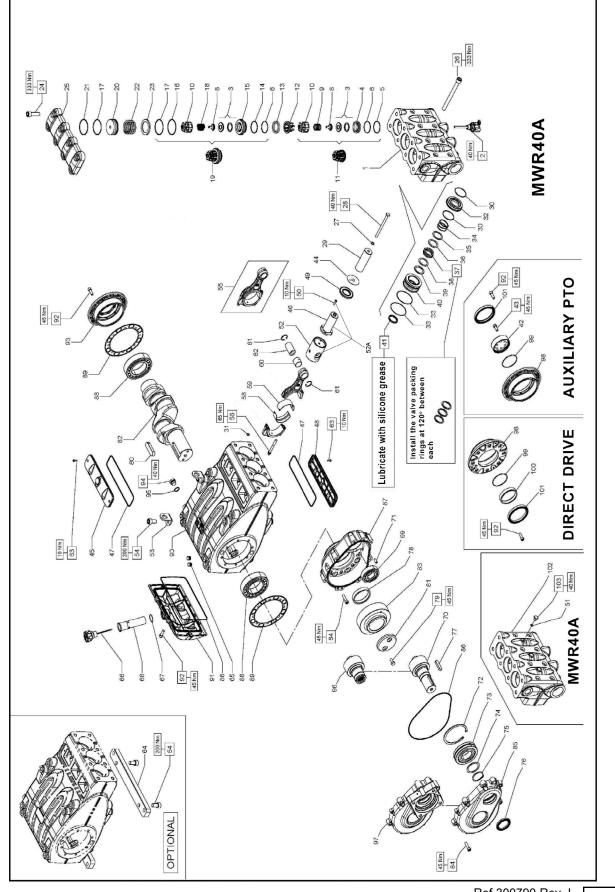
For dimensions and weight of MWR45A, MWR50A and MWR55A pumps, please refer to fig. 13a.





MWR40A SERIES

17.2.7. EXPLODED VIEW AND PARTS LIST



MWR40A SERIES

ltem	Part #	Description	QTY.
1	F	MANIFOLD-NPT	1
2	F10744401	VALVE OPENING DEVICE	3
3	F36208801	BALL VALVE ASSEMBLY	6
4	F36306766	INLET VALVE HOUSING	3
5	F90526000	ANTIEXTRUSION RING Ø51.5x56x1.5	3
6	F90389000	OR, Ø50.47X2.62	3
8	F36209051	INTERNAL VALVE GUIDE	3
9	F94760000	SPRING Ø 28.3X30.7	3
10	F36206105	INLET/OUTLET VALVE GUIDE	3
11	F36715101	INLET VALVE UNIT	3
12	F74210651	HP VALVE GUIDE SPACER	3
13	F73212270	VALVE HOUSING SPACER RING	3
14	F90526500	ANTIEXTRUSION RING Ø 51.7X56.2X1.5	3
15	F36206966	OUTLET VALVE HOUSING	3
16	F90527600	ANTIEXTRUSION RING Ø 67.7X72.2X1.5	3
17	F90391100	OR, Ø 66.35X2.62	6
18	F94760500	SPRING Ø 28.5X32	3
19	F36715301	OUTLET VALVE UNIT	3
20	F74211070	HP OUTLET VALVE PLUG	3
21	F90528000	ANTIEXTRUSION RING Ø 67.7X72.2X1.5	3
22	F94775000	SPRING Ø 58X45.4	3
23	F74210866	OUTLET VALVE HOUSING RING	3
24	F99514700	SCREW, M16x180	8
25	F73210715	VALVE COVER	1
26	F99522200	SCREW, M16x180	8
27	F96710500	WASHER Ø 10X18X0.9, SS, PTFE	3
28	F99383000	SCREW, M10X140	3
29	F73040209	PLUNGER Ø 40	3
30	F90389800	OR, Ø 56.82x2.62	6
31	F90382500	OR, Ø 10.78x2.62	6
32	F73100456	HEAD PACKING RING, Ø 40	3
33	F90371000	OR, Ø 81x2	6
34	F94772000	SPRING Ø 47x30-INOX	3
35	F73213956	SPRING RING, Ø40	3
36	F73214382	SCRAPER, Ø 40	3
37	F90565000	PACKING, Ø 40x53x15	3
38	F90521000	ANTI-EXT. RING, Ø 40x53x2	3
39	F73214760	SUPPORT RING, Ø 40	3
40	F73215156	PACKING SUPPORT, Ø40	3
41	F90282800	ALT. SEAL RING,LP, Ø 55	3
44	F96735500	WASHER, Ø 16x65x1	3
45	F73150022	CLOSED INSPECTION COVER	1
46	F73050336	PISTON GUIDE ROD	3
47	F90414800	OR, Ø 202.8X3.53	2
48	F73150122	OPEN INSPECTION COVER	1
49	F90168500	RAD. RING, Ø 40X72X7/8.5	3
50	F99188400	SCREW, M6x20	3
51	F90358400	O-RING, Ø10.82x1.78	3
	F73050443	PLUNGER GUIDE	3
52	F73050543	PLUNGER GUIDE, +0.10	3
52A	F73606201	PISTON GUIDE ASSEMBLY	3
53	F73210674	LIFTING BRACKET	2
	F99513000	SCREW, M16x30, UNI 5931	4
55	F73030101	CONNECTING ROD ASSY.	3
56	F99378800	CONROD SCREW, M10X1.5X80	6
	F90928300	CONROD HEAD SEMI-BUSHING, LOWER	3
58	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
	F90928500	CONROD HEAD SEMI-BUSHING, LOWER, +0.50	3
	F90928000	CONROD HEAD SEMI-BUSHING, UPPER	3
59	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
00	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.23	3
61	F90069000	STOP RING, Ø 32, UNI 7437	6
62	F90009000	SPINDLE	6
	1		
63	F99183700	SCREW, M6x14 UNI 5931	6
64	F73200064	PUMP FEET	2

ltem	Part #	Description	QTY.
65	F98206000	HOLE PLUG. Ø 15, TTN18	6
66	F98233500	OIL FILLING PLUG, G1" WITH ROD	1
67	F90361600	OR, Ø 34.65X1.78	1
68	F73210295	TUBE FOR OIL FILLING PLUG, G1"	1
69	F91854000	CYL. ROLLER BEARING	1
	F10076735	PINION, HELICAL, Z24 R1.875	1
	F10076835	PINION, HELICAL, Z21 R2.238	1
70	F10076935	PINION, HELICAL, Z18 R2.722	1
	F10082255	PINION, Z19 R3.211, HELICOL	1
71	F97623000	TMP. CYL. PIN. Ø 10X24, UNI 6364	2
72	F90101000	STOP RING, Ø 120, UNI 7437	1
73	F91859900	ADJUST ROLLER BEARING	1
74	F73210455	BEARING SUPPORT RING	1
75	F90081000	STOP RING, Ø 55, UNI 7435	1
76	F90172400	RAD. RING, Ø 55X75X8, VITON	1
77	F91500500	TAB, 14X9X60, UNI 6604	1
78	F73210589	RING GEAR SUPPORT RING	1
79	F99366700	SCREW, M10X25, UNI 5739	2
80	F91511000	TAB, 22X14X80, UNI 6604	1
81	F74213255	RING GEAR STOP	1
82	F73020035	CRANKSHAFT C. 70	1
02			
	F10077035 F10077135	RING GEAR, Z45 R1.875, HELICOL RING GEAR, Z47 R2.238, HELICOL	1
83			1
	F10077235	RING GEAR, Z49 R2.722, HELICOL	
	F10082355	RING GEAR, Z61 R3.211, HELICOL	1
84	F99371000	SCREW, M10X40, UNI 5931	15
85	F73210113	REDUCTION GEAR COVER	1
86	F90415000	OR, Ø 253.6.X3.53	2
87	F73210013	REDUCTION GEAR BOX	1
88	F91881000	CYL ROLLER BEARING	2
89	F73210384	SIDE SEAL	2
90	F73010013	PUMP CASING	1
91	F73160022	CASING COVER	1
92	F99368600	SCREW, M10X30, UNI 5931	14
93	F73150222	BEARING COVER	1
94	F98218700	PLUG, G 1/2" x 13, NICKEL	2
95	F96751400	ALUMINUM WASHER, Ø 21.5X27X1.5	2
102	F73120915	MANIFOLD	1
103	F98284600	PLUG	
		WITH HYDRAULIC MOTOR	
	F10079455	PINION, HELICAL, Z18 R 2.722	1
96	F10077355	PINION, HELICAL, Z24 R1.875	1
	F10077455	PINION, HELICAL, Z21 R2.238	1
97	F73215513	GEAR BOX COVER	1
		DIRECT DRIVE	
92	F99368600	SCREW, M10X30, UNI 5931	8
98	F73150322	OPEN BEARING COVER	1
99	F90391450	OR, Ø75.87X2.62	1
100	F73215654	RING FOR DIRECT DRIVE	1
101	F90195000	RING, RAD, Ø 90X110X12, VITON	1
		WITH AUXILIARY P.T.O.	
42	F73215754	P.T.O. OUTLET	1
43	F99367100	SCREW, M10X25, UNI 5931	6
92	F99368600	SCREW, M10X20, UNI 5931	8
-	F73150322	OPEN BEARING COVER	1
Q X			1
98 99	F90391450	OR, Ø75.87X2.62	1

REPAIR KITS

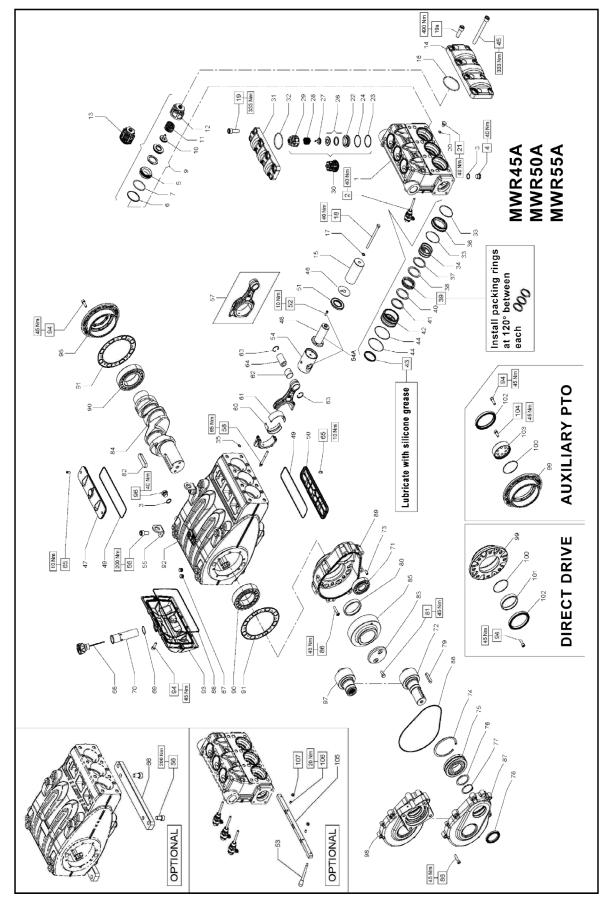
KIT	F2162	F2055	F2166	F2150	F2151	F2153	F2152
NUMBER	Plunger Packing Kit	Valve Kit	Complete Seals Kit	Conn,Rod Kit	Conn. Rod Kit	Conn. Rod Kit	Rail Kit
Positions Included	30, 31, 33, 36, 37, 38, 41	11, 12, 19, 21	5, 6, 14, 16, 17, 21, 30, 31, 33, 36, 37, 38, 41, 47, 49, 67, 76, 86, 89	58, 59	58, 59	58, 59	64

Ref 300790 Rev. L 12-21

Page 35



MWR45-50-55A SERIES



GENERAL PUMP

A member of the Interpump Group

MWR45-50-55 SERIES

F73120315 MANIFOLD - NPT 1 2 F1074401 VALVE OPENING DEVICE 3 3 5 56200 STEEL PLUG, 1/2" 3 4 F98218500 STEEL PLUG, 1/2" 3 3 5 F98206066 INLET VALVE HOUSING 3 3 6 F990527000 ANTI-EXTRUSION RING, Ø 612X67X2 3 3 7 F99410500 OR, Ø 562X3.53 3 3 1 10 F96208671 INTERNAL VALVE GUIDE 3 3 1 3 11 F94768800 SPRING, Ø41ASX37.9 3 1 3 1 12 F3620805 INLET VALVE GUIDE 3 3 1 1 1 3 13 F361400 INLET VALVE GUIDE 3 3 1 1 1 3 14 F73240309 PLUNCER Ø 55X117 3 3 1 1 1 18 18 8 1 19 1996252000 S	Item	Part #	Description	QTY.
2 F10744501 VALVE OPENING DEVICE 3 3 F96219500 STEEL PLUG, 1/2" 3 6 F96209666 INLET VALVE HOUSING 3 6 F96209700 ANTI-EXTRUSION RING, Ø 61.2X67X2 3 7 F96410500 OR, Ø 59.62X3.53 3 9 F36208905 IINTERNAL VALVE GUIDE 3 11 F94708000 SRPIIC, Ø 41.5X37.9 3 12 F36208900 SIRTIK, Ø 41.5X37.9 3 13 F3710900 PLUNGER, Ø 45X117 3 14 F7304009 PLUNGER Ø 56X117 3 15 F7304009 PLUNGER Ø 56X117 3 16 F98054200 SCREW, MT6X140 3 18 F98054000 OR, Ø 50.27X.78 3 21 F9820400 SCREW, MT6X140 3 22 F98054000 OR, Ø 50.47X.28 3 23 F9042000 SCREW, MT6X140 3 24 F98024000 OR, Ø 50.47X.28 3 <t< td=""><td></td><td></td><td></td><td></td></t<>				
3 F96751400 WASHER, Ø 215 X27X15 5 4 F9620600 STEL PLUG, 12" 3 6 F9620700 ANTI-EXTRUSION RING, Ø 61 2267X2 3 7 F90410500 OR, Ø 59 62X3 53 3 3 9 F96208700 ANTI-EXTRUSION RING, Ø 61 2267X2 3 3 10 F96208701 BALL VALVE GUIDE 3 3 11 F94208005 INLET VALVE GUIDE 3 3 12 F862087015 INLET VALVE GUIDE 3 3 13 F36715001 INLET VALVE GUIDE 3 3 14 F73240309 PLUNCER Ø 55X117 3 3 15 F73040409 PLUNCER Ø 55X117 3 3 16 F9031400 SCREW, M16X40 8 8 19a F9822600 SCREW, M16X405 8 8 19a F9822600 SCREW, M16X45 3 3 3 21 F98204000 R,Ø 650X17.8 3 3				
4 F98216500 STEEL PLUG, 1/2" 3 5 F9822000 ANTI-EXTRUSION RING, Ø 61 2X67X2 3 7 F9041050 OR, Ø 59 62X3 53 3 9 F982060701 BALL VALVE ASSY 3 10 F58208051 IINTERNAL VALVE GUIDE 3 11 F9476800 SPRINC, Ø41 5X37 9 3 12 F58208005 FINIER, Ø41 5X37 9 3 13 F3710501 INLET VALVE GUIDE 3 14 F73204009 PLUNCER Ø 5X117 3 15 F73040039 PLUNCER Ø 55X117 3 16 F90414200 OR, Ø 55 2X3 53 3 17 FØ671000 WASHER, Ø 10X180, 9,SS, PTFE 3 18 F98384000 SCREW, M10X140 3 19 F98624000 SCREW, M10X140 3 21 F98204000 SCREW, M10X140 3 22 F98208000 SCREW, M10X140 3 23 F9032000 SCREW, M10X 440 3				
5 F93208666 INLET VALVE HOUSING 3 6 F932070 ANT-EXTRUSION RING, Ø 61 2x67x2 3 7 F93010 BALL VALVE ASSY. 3 10 F936208951 INTERNAL VALVE GUIDE 3 11 F94769800 SPRING, Ø41 5X37.9 3 12 F36206005 INLET VALVE GUIDE 3 13 F73040309 PLUNCER, Ø 45X117 3 14 F73264009 PLUNCER Ø 55X117 3 15 F73040409 PLUNCER Ø 55X117 3 16 F0914200 SCREW, M10X140 3 19 F98038000 SCREW, M10X140 3 19 F98042000 SCREW, M16X45 8 19 F98042000 SCREW, M16 3 21 F98025000 OR, Ø 10 82X1 78 3 21 F98025000 OR 00 10 82X1 78 3 22 F93026000 OR Ø 50 47X2 62 3 23 F90025000 OR Ø 50 47X2 62 3 <		F98218500	STEEL PLUG, 1/2"	
7 F90410500 OR, Ø 99.623.53 3 9 F38208051 INTERNAL VALVE GUIDE 3 11 F34768005 INIET VALVE GUIDE 3 12 F38208005 INIET VALVE GUIDE 3 13 F37515001 INIET VALVE GUIDE 3 14 F7325515 INIET VALVE COVER 1 17 F73040309 PLUNGER Ø 55X117 3 15 F73040409 PLUNGER Ø 55X117 3 16 F090414200 OR, Ø 65.32X353 3 3 17 F96710500 WASHER, Ø 10X18X0.9,SS, PTFE 3 18 F99958400 SCREW, M18X45 8 19 F99674200 SCREW, M18X45 3 21 F3820600 R,016.2X1.78 3 22 F3820600 R,016.2X1.78 3 22 F3820600 R,016.2X1.78 3 22 F3820600 R,016.2X1.78 3 23 F90520000 R,07.69.047.226 3 24 F0033000 R,07.69.047.226 3 25	5			3
9 F38208701 BALL VALVE ASSY. 3 10 F38208051 INTERNAL VALVE GUIDE 3 11 F94769800 SPRING, Ø41,5X37,9 3 12 F38715001 INLET VALVE GUIDE 3 13 F38715001 INLET VALVE COVER 1 14 F73240400 PLUNGER Ø 50X117 3 15 F73040409 PLUNGER Ø 55X117 3 16 F90414200 OR, Ø 852X33,53 3 17 F98710500 WASHER, Ø 10X18X0,9,SS, PTFE 3 18 F99838000 SCREW, M10X140 3 19 F99552000 SCREW, M18 8 20 F90358400 PLU,G,G 3'X13,SS 3 21 F982000 AUA EXTRUS 3 24 F90389000 OR, Ø 50A722,62 3 27 F3820801 BALL VALVE HOUSING 3 28 F93620801 DALL VALVE GUIDE 3 33 F90390100 CR, Ø 6925222 3 2	6	F90527000	ANTI-EXTRUSION RING, Ø 61.2X67X2	3
10 F38208951 INTERNAL VALVE GUIDE 3 11 F9478900 SRING, Ø41.8X37.9 3 12 F36715001 INLET VALVE GUIDE 3 13 F73245051 INLET VALVE COVER 1 14 F7325515 INLET VALVE COVER 1 15 F73040409 PLUNGER Ø 50X117 3 16 F09041400 ROL MORER Ø 50X117 3 16 F09041400 ROL Ø 55X117 3 17 F96710500 WASHER, Ø 10X18X0.9,SS, PTFE 3 18 F99053000 SCREW, M10X140 3 19 F9954200 SCREW, M18 8 20 F90358000 ROL 10.2,G 'X'13, SS 3 21 F3820400 ROL 10.2,G 'X'13, SS 3 22 F3620600 ANTI-EXTRUSION RING, Ø 51.5X56X1.5 3 24 F90358000 ROL VALVE AUSY 3 25 F3620801 BALL VALVE GUIDE 3 26 F3620800 ROL VALVE GUIDE 3 <	7	F90410500	OR, Ø 59.62X3.53	3
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12 F38206005 INLET VALVE GUIDE 3 13 F38715001 INLET VALVE OVER 1 F73040309 PLUNGER, Ø 6X117 3 15 F73040409 PLUNGER, Ø 6X117 3 16 F90414200 OR, Ø 6532X353 3 17 F96710500 WASHER, Ø 10X18X0.9,SS, PTFE 3 18 F99383000 SCREW, M16X45 8 19 F99624200 SC REW, M16X45 8 19 F99525000 SCREW, M18 8 20 F90326766 OUTLET VALVE HOUSING 3 21 F98204600 PLUG, G 'X713, SS 3 3 24 F90389000 OR, Ø 50.47262 3 3 25 F36208601 BALL VALVE ASSY. 3 3 26 F36208601 BALL VALVE ASSY. 3 3 27 F36209051 SRLL VALVE GUIDE 3 3 28 F9476000 SR (# 6228353 3 3 30 F36202		F36208951	INTERNAL VALVE GUIDE	
13 F38715001 INLET VALVE UNIT 3 14 F73225615 INLET VALVE COVER 1 15 F73040309 PLUNGER, Ø 5X117 3 15 F73040309 PLUNGER, Ø 5X117 3 16 F99014200 OR, Ø 85.282.353 3 17 F96710500 WASHER, Ø 10X18X0.9.SS, PTFE 3 18 F99354000 SCREW, M10X140 3 19 F99514000 SCREW, M18 8 20 F9925000 SCREW, M18 8 21 F9926000 SCREW, M18 8 22 F38206766 OUTLET VALVE HOUSING 3 23 F9035000 GR, Ø 50.47X2.62 3 24 F90389000 OR, Ø 50.47X2.62 3 25 F3820801 BALL VALVE AUSE GUDE 3 32 F90350051 NTERNAL VALVE GUIDE 3 3 33 F173210951 OUTLET VALVE GUIDE 3 3 34 F93030300 OR, Ø 63.253.2		F94769800		
14 F73040309 PLUNGER, Ø 45X117 3 15 F73040309 PLUNGER, Ø 55X117 3 16 F90414200 OR, Ø 65.32X3.53 3 17 F96710500 WASHER, Ø 10X18X0.9.SS, PTFE 3 18 F9333000 SCREW, M10X140 3 19 F99514200 SCREW, M16X45 8 19a F99525000 SCREW, M18 8 20 F90358400 OR, Ø 10.82X1.78 3 21 F98204600 PLUC, G 'X713, SS 3 22 F3620660 OTLET VALVE HOUSING 3 23 F90526000 ANTLEXTRUSION RING, Ø 51.5X56X1.5 3 24 F90389000 OR, Ø 50.47X2.62 3 25 F3620600 PRING, Ø 28.5X32 3 26 F36200500 SPRING, Ø 28.5X32 3 33 F93206105 OUTLET VALVE GUIDE 3 34 F9477000 SPRING, Ø 43.5, INOX (MWR55) 3 35 F90391330 OR, Ø 69.222.62 MWA				
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F73215256 PACKING SUPPORT, Ø 45 3 F73215356 PACKING SUPPORT, Ø 50 3 F73215356 PACKING SUPPORT, Ø 50 3 F73215456 PACKING SUPPORT, Ø 55 3 F90284600 WASHER, Ø 45X53X5.5 L.P. 3 F90286000 WASHER, Ø 55X63X5.5 L.P. 3 F90287000 WASHER, Ø 55X63X5.5 L.P. 3 F90287000 WASHER, Ø 55X63X5.5 L.P. 3 44 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3				
42 F73215356 PACKING SUPPORT, Ø 50 3 F73215456 PACKING SUPPORT, Ø 55 3 F90284600 WASHER, Ø 45X53X5.5 L.P. 3 43 F90286000 WASHER, Ø 50X58X5.5 L.P. 3 590287000 WASHER, Ø 55X63X5.5 L.P. 3 44 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3				
F73215456 PACKING SUPPORT, Ø 55 3 F90284600 WASHER, Ø 45X53X5.5 L.P. 3 43 F9028000 WASHER, Ø 45X53X5.5 L.P. 3 F90287000 WASHER, Ø 55X63X5.5 L.P. 3 44 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	42			
F90284600 WASHER, Ø 45X53X5.5 L.P. 3 F90286000 WASHER, Ø 50X58X5.5 L.P. 3 F90287000 WASHER, Ø 50X58X5.5 L.P. 3 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3				
43 F90286000 WASHER, Ø 50X58X5.5 L.P. 3 F90287000 WASHER, Ø 55X63X5.5 L.P. 3 44 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3				
44 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	43	F90286000		3
44 F90371000 OR, Ø 81X2 6 45 F99521200 SCREW, M16X150 8 46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F7305036 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3		F90287000	WASHER, Ø 55X63X5.5 L.P.	3
46 F96735500 WASHER, Ø 16X65X1 3 47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	44	F90371000	OR, Ø 81X2	6
47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	45	F99521200	SCREW, M16X150	8
47 F73150022 CLOSED INSPECTION COVER 1 48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	46			3
48 F73050336 PLUNGER GUIDE ROD 3 49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	-			
49 F90414800 OR, Ø202.8X3.53 2 50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	-			
50 F73150122 OPEN INSPECTION COVER 1 51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	48	F73050336		3
51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	49	F90414800	OR, Ø202.8X3.53	2
51 F90168500 RAD. RING, Ø40X72X7/8.5 3 52 F99188400 SCREW, M6x20 3	50	F73150122	OPEN INSPECTION COVER	1
52 F99188400 SCREW, M6x20 3	<u> </u>	-		
	<u> </u>			-
53 F94540000 SCREW, M8x107 3				
	53	F94540000	SCREW, M8x107	3

<i>,</i>			
ltem	Part #	Description	QTY.
	F73050443	PLUNGER GUIDE	3
54			
	F73050543	PLUNGER GUIDE +0.10	3
54A	F73606201	PISTON GUIDE ASSEMBLY	3
55	F73210674	LIFTING BRACKET	2
56	F99513000	SCREW, M16x30, UNI 5931	4
57	F73030101	CONNECTING ROD ASSY.	3
58	F99378800	CONNECTING ROD SCREW, M10X1.5X80	6
00			
	F90928000	CONROD HEAD SEMI-BUSHING, LOWER	3
60	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
	F90928500	CONROD HEAD SEMI-BUSHING, LOWER, +0.50	3
	F90928300	CONROD HEAD SEMI-BUSHING, UPPER	3
61	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
01			_
	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.50	3
62	F90915800	CONROD HEAD FOOT	3
63	F90069000	STOP RING, Ø 32 UNI 7437	6
64	F97744000	SPINDLE	3
65	F99183700	SCREW, M6X14, UNI 5931	4
66	F73200064	FOOT	2
67	F98206000	HOLE PLUG, Ø 15	6
68	F98233500	OIL FILLING PLUG, G1", WITH ROD	1
69	F90361600	OR, 34.65X1.78	1
70	F73210295	TUBE FOR OIL FILLING PLUG, G1 "	1
71	F91854000	CY. ROLLER BEARING	1
	F10076735	PINION, Z24 R1.875, HELICOL	1
70	F10076835	PINION, Z21 R2.238, HELICOL	1
72	F10076935	PINION, Z18 R2.722, HELICOL	1
1	F10082255	PINION, Z19 R3.211, HELICOL	1
70			
73	F97623000	TMP. CYL. PIN, Ø 10X24	2
74	F90101000	STOP RING, Ø 120	1
75	F91859900	ADJUST. ROLLER BEARING	1
76	F73210455	BEARING SUPPORT RING	1
			1
77	F90081000	STOP RING, Ø 55	
78	F90172400	RAD. RING, Ø 55X75X8, VITON	1
79	F91500500	TAB, 14X9X60, UNI 6604	1
80	F73210589	RING GEAR SUPPORT RING	1
81	F99366700	SCREW, M10X25, UNI 5739	2
82	F91511000	TAB, 22X14X80 UNI 6604	1
83	F74213255	RING GEAR STOP	1
84	F73020035	CRANKSHAFT C. 70	1
	F10077035	RING GEAR, Z45 R1.875, HELICAL	1
	F10077135	RING GEAR, Z47 R2.238, HELICAL	1
85	F10077235	RING GEAR, Z49 R2.722, HELICAL	1
	F10082355	RING GEAR, Z61 R3.211, HELICOL	1
86	F99371000	SCREW, M10X40, UNI 5931	15
87	F73210113	REDUCTION GEAR COVER	1
88	F90415000	OR, Ø 253.6X3.53	2
89	F73210013	REDUCTION GEAR BOX	1
-			
90	F91881000	CY. ROLLER BEARING	2
91	F73210384	SIDE SEAL	2
92	F73010013	PUMP CASING	1
93	F73160022	CASING COVER	1
94			14
-	F99368600	SCREW, M10X30, UNI 5931	
95	F73150222	BEARING COVER	1
96	F98218700	PLUG, G1/2"X10, NICKEL	2
105	F73215864	VALVE UNION BRACKET	1
106	F99301800	SCREW, M8X10	2
107	F92221800	NUT, M8X1.25X5X13	2
L		WITH HYDRAULIC PACK	
		PINION, Z18, R 2.722, HELICOL	
97	F10077355	PINION, Z24, R1.875, HELICOL	1
1	F10077455	PINION, Z21, R2.238, HELICOL	1
00			1
98	F73215513	GEAR BOX COVER	
L	-	DIRECT DRIVE	
94	F99368600	SCREW, M1-X30	8
99	F73150322	OPEN BEARING COVER	1
100	F90391450	OR, Ø 78.87X2.62	1
101	F73215654	RING FOR DIRECT DRIVE	1
102	F90195000	RING, RAD, Ø 90X110X12, VITON	1
		WITH AUXILIARY P.T.O.	
94	F99368600	SCREW, M10X30, UNI 5931	8
	F73150322	OPEN BEARING COVER	1
99			
99	F90391450	OR, Ø 78.87X2.62	1
99 100			1
99 100 102	F90195000	RING, RAD, Ø 90X110X12, VITON	1
99 100			

REPAIR KITS

KIT NUMBER	F2163 (MWR45A) Plunger Pack.	F2164 (MWR50A) Plunger Pack.	F2165 (MWR55A) Plunger Pack.	F2142 Inlet Valve	Outlet	F2167 (MWR45A) Complete Seals Kit	F2168 (MWR50A) Complete Seals		F2150 Conn. Rod	F2151 Conn. Rod	F2153 Conn. Rod	F2152 Mounting Feet	F2482 Manifold Conv. Kit
Positions Included	33, 35, 38, 39, 40, 43, 44	33, 35, 38, 39, 40, 43, 44	33, 35, 38, 39, 40, 43, 44	13	30	6, 7, 16, 20, 23, 24, 32, 33, 35, 38, 39, 40, 43, 44, 49, 51, 69, 88, 91	6, 7, 16, 20, 23, 24, 32, 33, 35, 38, 39, 40, 43, 44, 49, 51, 69, 88, 91	6, 7, 16, 20, 23, 24, 32, 33, 35, 38, 39, 40, 43, 44, 49, 51, 69, 88, 91	60, 61	60, 61	60, 61	56, 66	1, 14, 19

MWNR SERIES

17.3 MWNR PUMP

17.3.1 Operating instructions

The MWNR pump has been designed to operate in environments with atmospheres that are not potentially explosive and for using salt water rich in particulate, therefore it is considered ideal for systems with fluid recirculation.

The durability of the plunger seals is directly in relation to the percentage of the presence of solids in the fluid as regards both their size and their density. For a long seal life we recommend a particulate grain size of no more than 200 micron and 20% max. in volume. For more information and a general system layout see paragraph 9.7.

17.3.2 Water temperature

The maximum permissable water temperature is 104° F (40° C). However the pump can be used with water up to a temperature of 140° F (60° C), but only for short periods.

17.3.3 Maximum pressure and flow rate

The rated specifications stated in our catalog are the maximum that can be obtained by the pump. Independently of the power used, the maximum pressure and RPM indicated on the specification label can never be exceeded unless upon prior formal authorization by our Customer Service Department.

17.3.4 Maximum RPM

Any rotating speed other than that indicated in the performance table (see 17.3.5) must be expressly authorized by our Customer Service Department.

MODEL	RPM	FLOW	RATE	PRES	SURE	POV	VER
MODEL		GPM	l/min	PSI	Bar	Нр	kW
	800	55.7	211	3,045	210	115	84.6
MWNR40A	1500	55.7	211	3,045	210	115	84.6
	1800	56	212	3,045	210	116	85.3
	2200	56.3	213	3,045	210	116	85.3
	800	70.6	267	2,247	155	100	73.5
	1500	70.6	267	2,247	155	100	73.5
MWNR45A	1800	71	269	2,247	155	100	73.5
	2200	71.3	270	2,247	155	100	73.5
	800	87.2	330	1,812	125	100	73.5
MWNR50A	1500	87.2	330	1,812	125	100	73.5
WWWNR50A	1800	87.6	332	1,812	125	100	73.5
	2200	88	333	1,812	125	100	73.5
	800	105.4	399	1,450	100	100	73.5
MWNR55A	1500	105.4	399	1,450	100	100	73.5
NCCANIVAN	1800	106	401	1,450	100	100	73.5
	2200	106.5	403	1,450	100	100	73.5

17.3.5 Specifications

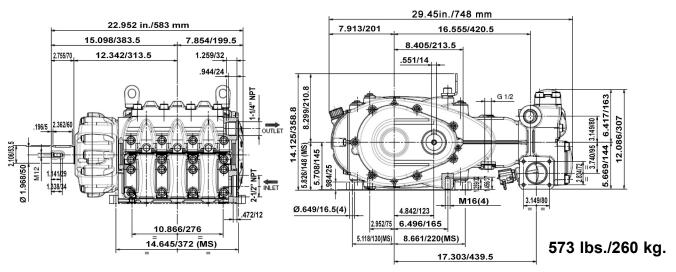
Ref 300790 Rev. L 12-21

Page 38

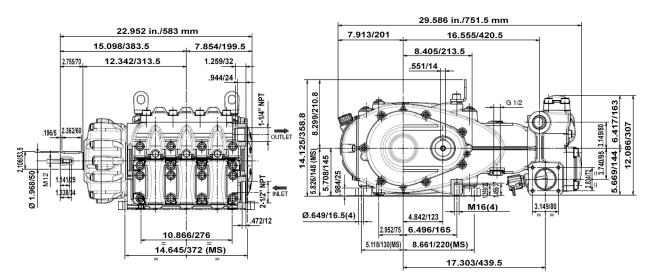
MWNR SERIES

17.3.6 Dimensions and weight

For dimensions and weight of MWNRNR40A, please refer to fig. 14.



For dimensions and weight of MWNR45A, MWNR50A and MWNR55A pumps, please refer to fig. 14a.

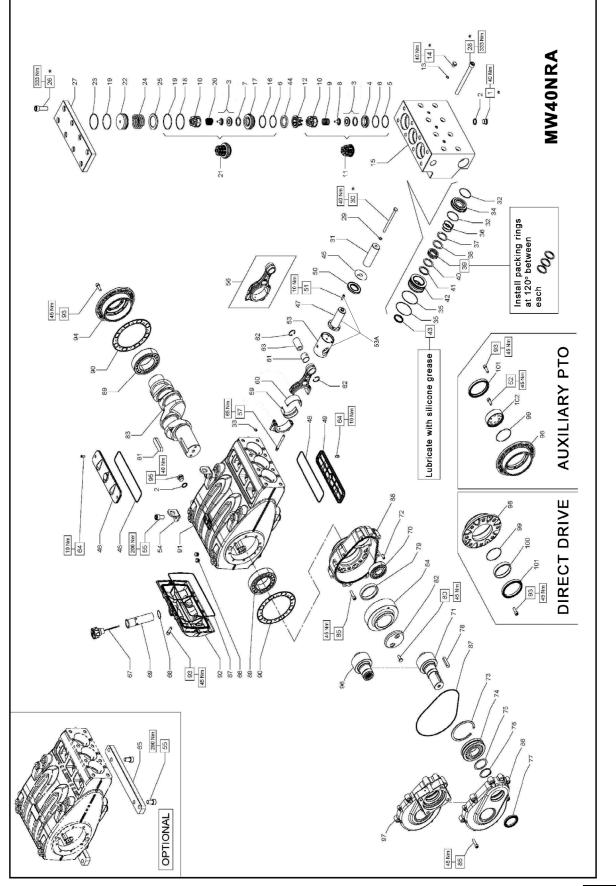


573 lbs./260 kg.

Ref 300790 Rev. L 12-21 Page 39

MWNR40A SERIES

17.3.7. EXPLODED VIEW AND PARTS LIST



tem	Part #	Description	QTY.
1	F98218600	Plug, 1/2"x14	3
2	F93197100	WASHER WITH SEAL	5
3	F36208801	BALL VALVE ASSY.	6
4	F36206766	INLET VALVE SEAT	3
5	F90526000	ANTI-EXTRUSION RING, Ø 51.5X56X1.5	3
6	F90389000	O-RING, Ø 50.47X2.62	6
8	F36209051		3
9 10	F94760000	SPRING, Ø 28.3X30.7 VALVE GUIDE	3
10	F36206105 F36715101	INLET VALVE UNIT	6
12	F74210651	VALVE GUIDE SPACER	3
13	90358400	O-RING, Ø10.82X1.78	3
14	F98204600	PLUG, G ¼"X13, SS	3
15	F73120456	MANIFOLD	1
16	F90526500	ANTI-EXTRUSION RING, Ø 51.7X56.2X1.5	3
17	F36206966	VALVE SEAT HOUSING	3
18	F90527600	ANTI-EXTRUSION RING, Ø 67.7X72X1.5	3
19	F90391100	OR, Ø 66.35X2.62	6
20	F90760500	SPRING, Ø 28.5X32	3
21	F36715301	OUTLET VALVE UNIT	3
22	F78215856	PLUG, OUTLET VALVE	3
23	F90528000	ANTI-EXTRUSION RING, Ø 67.7X72.2X1.5	3
24	F94774900	SPRING, Ø 58X45.4	3
25	F78215991	OUTLET NALVE SEAT RING	3
26	F99514700	SCREW, M16X55	8
27	F73212356	VALVE COVER	1
28	F99522200	SCREW, M6X180	8
29	F96710500	WASHER, Ø 10X18X0.9,SS, PTFE	3
30	F99383000	SCREW, M10X140	3
31	F73040209	PLUNGER, Ø 45X117, 40	3
32	F90389800	OR, Ø 56.82X2.62	6
33	F90382500	OR, Ø 10.78X2.62	6
34	F73100856	HEAD PACKING RING, Ø 40	3
35	F90371000	OR, Ø 81X2	6
36	F94772000	SPRING, Ø 47X30	3
37	F73216156	SPRING RING, Ø 40	3
38	F73214382	SCRAPER, Ø 40	3
39	F90565000	PACKING, Ø 44	3
40	F90521000	ANTI-EXT. RING, Ø 40X53X2	3
41	F73216556	SUPPORT RING, Ø 40	3
42	73216956	PACKING SUPPORT, Ø 40	3
43 44	F90282800	WASHER, Ø 40X48X5.5 L.P. VALVE SEAT SPACER RING	3
44	F73213756		3
45 46	F96735500 F73150022	WASHER, Ø 16X65X1 CLOSED INSPECTION COVER	1
40	F73150022	PLUNGER GUIDE ROD	3
47	F90414800	OR, Ø 202.8X3.53	2
40	F73150122	OPEN INSPECTION COVER	1
50	F90168500	RAD. RING, Ø40X72X7/8.5	3
51	F99188400	SCREW, M6X20	
51	F73050443	PLUNGER GUIDE	3
53			
	F73050543	PLUNGER GUIDE +0.10	3
3A	F73606201	PISTON GUIDE ASSEMBLY	3
54	F73210674	LIFTING BRACKET	2
55	F99513100	SCREW, M16x30, UNI 5931	4
56	F73030101	CONNECTING ROD ASSY.	3
57	F99378800	CONNECTING ROD SCREW, M10X1.5X80	6
	F90928300	CONROD HEAD SEMI-BUSHING, LOWER	3
59	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
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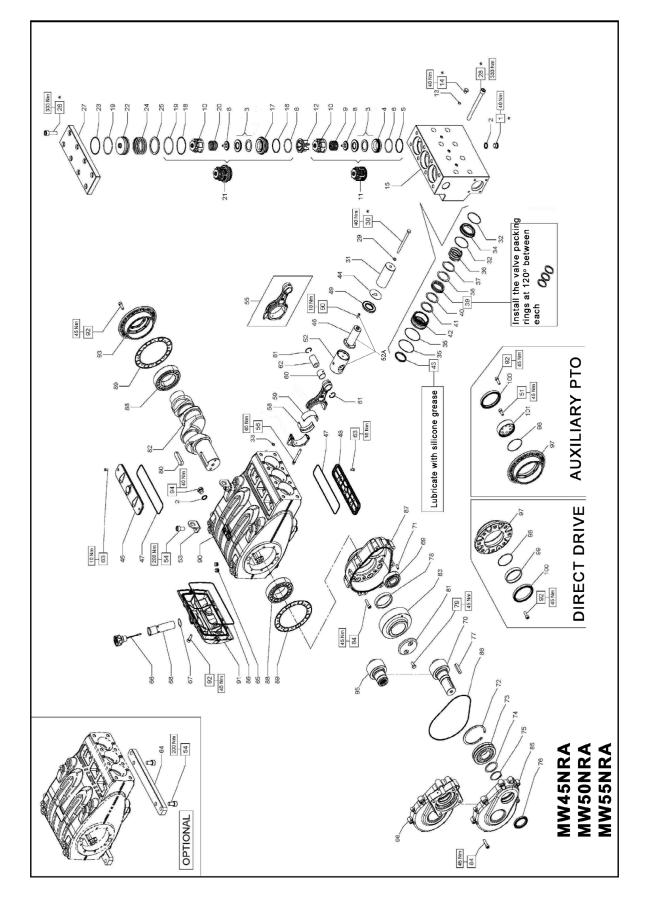
		MWNR40A SER	IES
tem	Part #	Description	QTY.
	F90928000	CONROD HEAD SEMI-BUSHING, UPPER	3
60	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.50	3
61	F90915800	CONROD HEAD FOOT	3
62	F90069000	STOP RING, Ø 32 UNI 7437	6
63	F97744000	SPINDLE	3
64	F99183800	SCREW, M6X14, UNI 5931	4
65	F73200064	FOOT	2
66	F98206000	HOLE PLUG, Ø 15	6
67	F98233500	OIL FILLING PLUG, G1", WITH ROD	1
68	F90361600	OR, 34.65X1.78 TUBE FOR OIL FILLING PLUG, G1 "	1
69 70	F73210295 F91854000		1
70		CY. ROLLER BEARING	
	F10076735	PINION, Z24 R1.875, HELICOL	1
71	F10076835	PINION, Z21 R2.238, HELICOL	1
	F10076935	PINION, Z18 R2.722, HELICOL	1
70	F10082255	PINION, Z19 R3.211, HELICOL	
72 73	F97623000 F90101000	TMP. CYL. PIN, Ø 10X24 STOP RING, Ø 120	2
73	F90101000	ADJUST. ROLLER BEARING	1
75	F73210455	BEARING SUPPORT RING	1
76	F90081000	STOP RING, Ø 55	1
77	F90081000	RAD. RING, Ø 55X75X8, VITON	1
78	F90172400	TAB, 14X9X60, UNI 6604	
79	F73210589	RING GEAR SUPPORT RING	1
80	F99366700	SCREW, M10X25, UNI 5739	2
81	F91511000	KEY, 22X14X80 UNI 6604	1
82	F74213255	RING GEAR STOP	1
83	F73020035	CRANKSHAFT C. 70	1
03	F10077035	RING GEAR, Z45 R1.875, HELICOL	1
	F10077135	RING GEAR, Z47 R2.238, HELICOL	1
84	F10077235	RING GEAR, Z49 R2.722, HELICOL	1
	F10077235	RING GEAR, Z49 R2.722, HELICOL RING GEAR, Z61 R3.211, HELICOL	1
85	F99371000	SCREW, M10X40, UNI 5931	15
86	F73210113	REDUCTION GEAR COVER	13
87	F90415000	OR, Ø 253.6X3.53	2
88	F73210013	REDUCTION GEAR BOX	1
89	F91881000	CY. ROLLER BEARING	2
90	F73210384	SIDE SEAL	2
91	F73010013	PUMP CASING	1
92	F73160022	CASING COVER	1
93	F99368500	SCREW, M10X30, UNI 5931	14
94	F73150222	BEARING COVER	1
95	F98218100	PLUG, G1/2"X10, NICKEL	2
	1.002.10100	WITH HYDRAYLIC MOTOR	
	F10079455	PINION, Z18, R 2.722, HELICOL	
96	F10077355	PINION, Z24, R1.875, HELICOL	1
	F10077455	PINION, Z21, R2.238, HELICOL	1
97	F73215513	GEAR BOX COVER	1
0.	110210010	DIRECT DRIVE	· ·
93	F99368600	SCREW, M1-X30	8
98	F73150322	OPEN BEARING COVER	1
99	F90391450	OR, Ø 78.87X2.62	1
100	F73215654	RING FOR DIRECT DRIVE	1
101	F90195000	RING, RAD, Ø 90X110X12, VITON	1
		WITH AUXILIARY P.T.O.	·
52	F99367100	SCREW, M10X25, UNI 5931	6
93	F99368500	SCREW, M10X20	8
98	F73150322	OPEN BEARING COVER	1
99	F90391450	OR, Ø 78.87X2.62	1
101	F90195000	RING, RAD, Ø 90X110X12, VITON	1
102	F73215754	P.T.O. OUTLET	1

REPAIR KITS

	•						
KIT	F2162	F2055	F2166	F2150	F2151	F2153	F2152
NUMBER		Valves kit			Conn. Rod	Conn. Rod	Mounting
NUMBER	Plunger Pack.	valves kit	Complete Seals Kit	Conn. Rod	+0.25	+0.50	Feet
Positions Included	32, 33, 35, 38, 39, 40, 43	11, 12,19, 21, 23,	5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 38, 39, 40, 43, 48, 50 68, 77, 87, 90,	59, 60	59, 60	59, 60	55, 65



MWNR45-50-55-A SERIES



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MWNR45-50-55-A SERIES

Item	Part #	Description	QTY.
1	F98218600	Plug, 1/2"x14	3
2	F93197100	WASHER WITH SEAL	5
3	F36208701	BALL VALVE ASSY.	6
4	F36206666	INLET VALVE SEAT	3
5	F90527000	ANTI-EXTRUSION RING, Ø 51.5X56X1.5	3
6	F90410500	O-RING, Ø 50.47X2.62	6
8	F36208951	INTERNAL VALVE GUIDE	3
9	F94768900	SPRING, Ø 28.3X30.7	3
10	F36206005	VALVE GUIDE	6
11	F36715001	INLET VALVE UNIT	3
12	F74210551	VALVE GUIDE SPACER	3
13	F90358400	O-RING, Ø10.82X1.78	3
14	F98204600	PLUG, G ¼"X13, SS	3
15	F73120556	MANIFOLD	1
16	F90527300	ANTI-EXTRUSION RING, Ø 61.4X67.2X1.5	3
17	F36206866	VALVE SEAT HOUSING	3
18	F90529000	ANTI-EXTRUSION RING, Ø 77.2X83X1.5	3
19	F90413400	OR, Ø 75.8X3.53	6
20	F90770000	SPRING, Ø 41.5X41.1	3
21	F36715201	OUTLET VALVE UNIT	3
22	F73215656	PLUG, OUTLET VALVE	3
23	F90529300	ANTI-EXTRUSION RING, Ø 77.5X83.2X1.5	3
24	F94800100	SPRING, Ø 75X49.6	3
25	F78213891	OUTLET VALVE SEAT RING	3
26	F99514700	SCREW, M16X55	8
27	F73212356	VALVE COVER	1
28 29	F99522200 F96710500	SCREW, M6X180	8
		WASHER, Ø 10X18X0.9,SS, PTFE	3
30	F99383000	SCREW, M10X140	3
31	F73040309	PLUNGER, Ø 45X117 PLUNGER, Ø 50X117	3
31	F73040409 F73040509	PLUNGER, Ø 55X117	3
	F90390300	OR, Ø 60X2.62, MW45NRA	6
32	F90391300	OR, Ø 69.52X2.62	6
33	F90382500	OR, Ø 10.78X2.62	6
	F73100956	HEAD PACKING RING, Ø 45	3
34	F73101056	HEAD PACKING RING, Ø 50	3
04	F73101156	HEAD PACKING RING, Ø 55	3
35	F90371000	OR, Ø 81X2	6
	F94777000	SPRING, Ø 61X35, MW45NRA	3
36	F94773500	SPRING, Ø 54X38.5	3
	F73216256	SPRING RING, Ø 45	3
37	F73216356	SPRING RING, Ø 50	3
-	F73216456	SPRING RING, Ø 55	3
	F73214482	SCRAPER, Ø 40	3
38	F73214582	SCRAPER, Ø 50	3
	F73214682	SCRAPER, Ø 55	3
	F90567500	PACKING, Ø 45	3
39	F90569500	PACKING, Ø 50	3
	F72065000	PACKING, Ø 55	3
	F90523500	ANTI-EXT. RING, Ø 45X58X2	3
40	F90524300	ANTI-EXT. RING, Ø 50X63X2	3
	F90526600	ANTI-EXT. RING, Ø 55X68X2	3
	F73216656	SUPPORT RING, Ø 45	3
41	F73216756	SUPPORT RING, Ø 50	3
	F73216856	SUPPORT RING, Ø 55	3
	F73217056	PACKING SUPPORT, Ø 45	3
42	F73217156	PACKING SUPPORT, Ø 50	3
	F73717256	PACKING SUPPORT, Ø 55	3
	F90284600	WASHER, Ø 45X56X5.5 L.P.	3
43	F90286000	WASHER, Ø 50X58X5.5 L.P.	3
	F90284000	WASHER, Ø 55X63X5.5 L.P.	3
44	F96735500	WASHER, Ø 16X65X1	3
45	F73150022	CLOSED INSPECTION COVER	1
46	F73050336	PLUNGER GUIDE ROD	3
47	F90414800	OR, Ø 202.8X3.53	2
49	F73150122	OPEN INSPECTION COVER	1
50	F90168500	RAD. RING, Ø40X72X7/8.5	3
51	F99188400	SCREW, M6X20	3
50	F73050443	PLUNGER GUIDE	3
52	F73050543	PLUNGER GUIDE +0.10	3
52A	F73606201	PISTON GUIDE ASSEMBLY	3
JZA	1 3000201		3

Item	Part #	Description	QTY.
53	F73210674	LIFTING BRACKET SCREW, M16x30, UNI 5931	2
54 55	F99513100 F73030101	CONNECTING ROD ASSY.	4
56	F99378800	CONNECTING ROD SCREW, M10X1.5X80	6
- 50	F90928000	CONROD HEAD SEMI-BUSHING, LOWER	3
58	F90928400	CONROD HEAD SEMI-BUSHING, LOWER, +0.25	3
	F90928500	CONROD HEAD SEMI-BUSHING, LOWER, +0.50	3
	F90928300	CONROD HEAD SEMI-BUSHING, UPPER	3
59	F90928100	CONROD HEAD SEMI-BUSHING, UPPER, +0.25	3
	F90928200	CONROD HEAD SEMI-BUSHING, UPPER, +0.50	3
60	F90915800	CONROD HEAD FOOT	3
61	F90069000	STOP RING, Ø 32 UNI 7437	6
62	F97744000	SPINDLE	3
63	F99183800	SCREW, M6X14, UNI 5931	4
64	F73200064	FOOT	2
65	F98206000	HOLE PLUG, Ø 15	6
66	F98233500	OIL FILLING PLUG, G1", WITH ROD	1
67	F90361600	OR, 34.65X1.78	1
68	F73210295	TUBE FOR OIL FILLING PLUG, G1 "	1
69	F91854000	CY. ROLLER BEARING	1
	F10076735 F10076835	PINION, Z24 R1.875, HELICOL PINION, Z21 R2.238, HELICOL	1
70	F10076835	PINION, Z21 R2.236, HELICOL PINION, Z18 R2.722, HELICOL	1
	F10070935	PINION, Z19 R3.211, HELICOL	1
71	F97623000	TMP. CYL. PIN, Ø 10X24	2
72	F90101000	STOP RING, Ø 120	1
73	F91859900	ADJUST. ROLLER BEARING	1
74	F73210455	BEARING SUPPORT RING	1
75	F90081000	STOP RING, Ø 55	1
76	F90172400	RAD. RING, Ø 55X75X8, VITON	1
77	F91500500	TAB, 14X9X60, UNI 6604	1
78	F73210589	RING GEAR SUPPORT RING	1
79	F99366700	SCREW, M10X25, UNI 5739	2
80	F91511000	KEY, 22X14X80 UNI 6604	1
81	F74213255	RING GEAR STOP	1
82	F73020035	CRANKSHAFT C. 70	1
	F10077035	RING GEAR, Z45 R1.875, HELICAL	1
83	F10077135	RING GEAR, Z47 R2.238, HELICAL	1
	F10077235 F10082355	RING GEAR, Z49 R2.722, HELICAL RING GEAR, Z61 R3.211, HELICOL	1
84	F99371100	SCREW, M10X40, UNI 5931	15
85	F73210113	REDUCTION GEAR COVER	1
86	F90415000	OR, Ø 253.6X3.53	2
87	F73210013	REDUCTION GEAR BOX	1
88	F91881000	CY. ROLLER BEARING	2
89	F73210384	SIDE SEAL	2
90	F73010013	PUMP CASING	1
91	F73160022	CASING COVER	1
92	F99368500	SCREW, M10X30, UNI 5931	14
93	F73150222	BEARING COVER	1
94	F98218100	PLUG, G1/2"X10, NICKEL	2
	1	WITH HYDRAYLIC MOTOR	
	F10079455	PINION, Z18, R 2.722, HELICOL	
95	F10077355	PINION, Z24, R1.875, HELICOL	1
	F10077455	PINION, Z21, R2.238, HELICOL	1
96	F73215513	GEAR BOX COVER	1
	E00268500		-
92	F99368500	SCREW, M10X30	8
97	F73150322	OPEN BEARING COVER	1
98 99	F90391450 F73215654	OR, Ø 78.87X2.62 RING FOR DIRECT DRIVE	1
	F90195000	RING FOR DIRECT DRIVE RING, RAD, Ø 90X110X12, VITON	1
100	1 90 193000	WITH AUXILIARY P.T.O.	
51	F99367100	SCREW, M10X25, UNI 5931	6
92	F99368500	SCREW, M10X20, UNI 5931	8
92	F73150322	OPEN BEARING COVER	0
97	F90391450	OR, Ø 78.87X2.62	1
100	F90195000	RING, RAD, Ø 90X110X12, VITON	1
100	F73215754	P.T.O. OUTLET	1
101	1 1 32 13/ 34		

REPAIR KITS

KIT NUMBER	F2163 (MWNR45A) Plunger Pack.	F2164 (MWNR50A) Plunger Pack.	F2165 (MWNR55A) Plunger Pack.	F2048 Valves	F2167 (MWNR45A) Complete Seals Kit	F2168 (MWNR50A) Complete Seals	F2169 (MWNR55A) Complete Seals	F2150 Conn. Rod	F2151 Conn. Rod +0.25	F2153 Conn. Rod +0.50	F2152 Mounting Feet
Positions Included	32, 33, 35, 38, 39, 40 43	32, 33, 35, 38, 39, 40 43	32, 33, 35, 38, 39, 40 43	11, 12	5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 38, 39, 40, 43, 47, 49, 67, 76, 86, 89	5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 38, 39, 40, 43, 47, 49, 67, 76, 86, 89	5, 6, 13, 16, 18, 19, 23, 32, 33, 35, 38, 39, 40, 43, 47, 49, 67, 76, 86, 89	58, 59	58, 59	58, 59	54, 64

17.4 MWF PUMP

17.4.1 Operating instructions



The MWF pump has been designed to operate in environments with atmospheres that are not potentially explosive it is ideal for pumping aggressive, poorly lubricating or abrasive fluids. Other fluids can be used only upon formal approval by the Customer Service Department.

17.4.2 Water temperature

The maximum permissable water temperature is 140° F (60° C).

17.4.3 Maximum pressure and flow rate

The rated specifications stated in our catalog are the maximum that can be obtained by the pump. Independently of the power used, the maximum pressure and RPM indicated on the specification label can never be exceeded unless upon prior formal authorization by our Customer Service Department.

17.4.4 Maximum RPM

Any rotating speed other than that indicated in the performance table (see 17.3.5) must be expressly authorized by our Customer Service Department.

17.4.5 Technical characteristics

For the technical characteristics of MWF36A and MWF40A, refer to table 5 for MW pumps (page 7).

17.4.6 Dimensions and weight

For the dimensions and weight of the MWF36A and MWF40A pumps, refer to the diagram of the MW pump, fig. 2 (page 8).

17.4.7 Minimum rotating speed

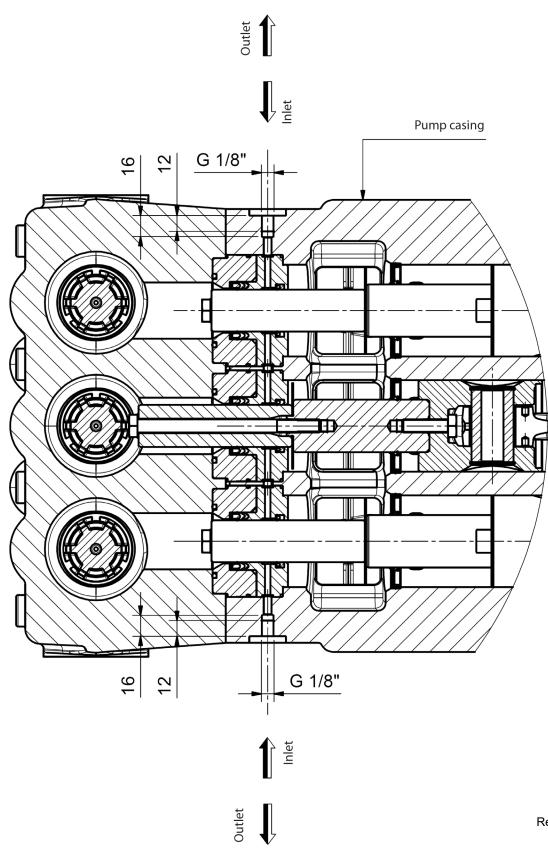
For the exploded drawing and list of spare parts for the MWF36A and MWF40A pumps, refer to the exploded view of the MW pumps on pages 22 and 23.

Ref 300790 Rev. L 12-21 Page 44



17.4.8. FLUSHING DIAGRAM

Adhere to the following values for proper system operation: minimum circuit flow rate is 2 GPM (8 l/m), maximum fluid pressure is 87 PSI (6 bar).



18. REPAIR TOOLS

Pump maintenance may be carried out using simple tools for assembling and disassembling components. The following tools are available:

KIT	For Assembly:	
	Shaft (con-rod interlocking)	F27566200
	Bearing on crankshaft	F27604700
	Pinion bearing on reduction gear box	
	Crankshaft bearing on the reduction gear box	F27605000
	Crankshaft bearing on the bearing cover	
В	Oil seal insertion tool, MW/S	
В	Oil seal insertion cone, MW/S	
	Bearing on pinion	
	• Pinion seal ring	
D	Outlet valve housing O-ring MW32A, MWS36A, MWS40A	
ΚΙΤ	For Disassembly:	
В	Oil seal extraction tool	F27644300
В	Bolt for oil seal extraction tool	
	Shaft (con-rod interlocking)	F27566200

D	Outlet and suction valve units
D	Suction valve housing MW32A, MWS36A, MWS40A
С	Cylinder removal tool w/handle, MW/S series
А	Slide hammer, MW/S valve toolF26019400
А	8mm x 10mm adapter, MW/S slide hammer F27513600
А	32mm collett for MW/S discharge seat

RECOMMENDED REPAIR KITS

520426

FKITMWV - MWS4	45A, MWS50A, I	MWS55A Valve removal / Ir	nstallation Tool Kit A						
Includes:	F26019400	Slide Hammer	Qty. 1						
	F27513600	10mm Adapter	Qty. 1						
	520339	32mm Collet	Qty. 1						
	520340	42mm Collet	Qty. 1						
	520426	Valve Cage Adapter	Qty. 1						
FKITMWP - Piston Oil Seal Removal / Installation Tool Kit B									
Includes:	F27605300	Insertion Tool	Qty. 1						
	F27634400	Insertion Cone	Qty. 1						
	F27644300	Extraction Tool	Qty. 1						
	99366900	Extraction Tool Bolt	Qty. 1						
F27632500 - Cylin									
Includes:	F27632500	Spacer with Handle	Qty. 1						
530078 - Splined Du	Qty. 1								
FKITMKVHP - MW32A, MWS36A, MWS40A Valve removal / Installation Tool Kit D									
Includes:	F27516000	Outlet valve housing O-ring	Qty. 1						
	F27516400	Outlet and suction valve units	Qty. 1						
	27516200	Suction valve housing	Qty. 1						

MW SERIES

19. MAINTENANCE LOG

HOURS & DATE

OIL CHANGE				
GREASE				
PACKING REPLACEMENT				
PLUNGER REPLACEMENT				
VALVE REPLACEMENT				



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Ref 300790 Rev. L 12-21 Page 47