Neptune™

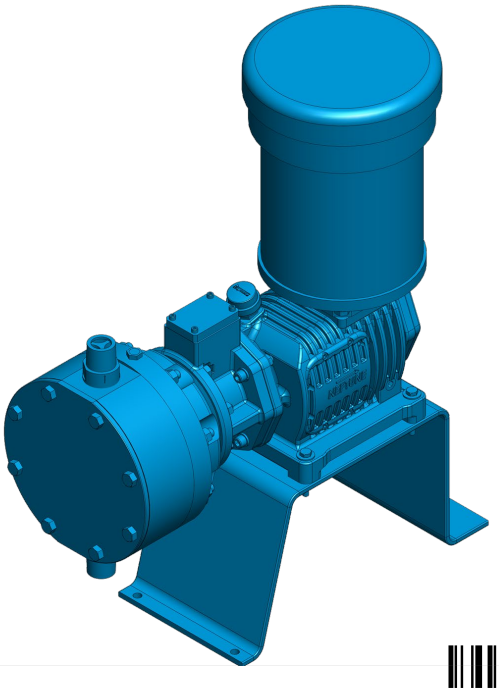
INSTALLATION OPERATION & MAINTENANCE

NEPTUNE

Series 7000 Non-Controlled Mechanical "dia-PUMP"

Models

MP7100, MP7120, MP7130, MP7150, MP7180



NEP-ZL129306

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PSG
a DOVER company
psgdover.com

WARNING

LOCKOUTS ARE REQUIRED BEFORE
SERVICING THIS EQUIPMENT.

SAFETY INSTRUCTIONS:

Shut off/Lockout Pump Power before Servicing.
Be certain pump isolation valves are
Closed and chemical is shut off.
Bleed pressure before servicing.

WARNING

Please read thoroughly before installation, operation or maintenance of any Neptune pump

EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended use.
- Do not alter or modify this equipment.
- Be certain all operators of this equipment have been trained for safe working practices, understand its limitations, and wear safety goggles and/or equipment when required.
- Do not exceed the maximum working pressure of the system as mentioned on the pump tag.
- Do not use the pump head or the suction or discharge piping to pull the equipment.
- Do not move pressurized pump.
- Use fluids or cleaning agents for cleaning that are compatible with the pump parts. Read the fluid and cleaning agent manufactures warnings and also refer to the material compatibility chart
- Comply with all applicable local, state and national safety regulation.
- Do not allow pump to run dry for a long periods of time.

PRESSURIZED EQUIPMENT HAZARD

Spray from leaks, ruptured components can splash fluid in the eyes or on the skin and cause serious injury.

- Shut off the pump and depressurize before performing any maintenance.
- Do not tamper with or perform unspecified alteration of this device .
- Use only pipe, hose, and hose fittings rated for maximum rated pressure of the pump or the pressure at which the pressure relief valve is set at.
- Always wear protective clothing, face shield, safety glasses and gloves when working on or near your metering pump.
- Additional precautions should be taken depending on the solution being pumped. Refer to MSDS precautions from your solution supplier.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Tighten all fluid connections before operating the equipment.
- Replace worn, damaged, or loose parts immediately.
- Before performing any maintenance requiring pump head and or valve (wetted parts) disassembly, be sure to relieve pressure from the piping system and where hazardous process chemicals are present.
- Make the pump safe to handle for the personal and the environment by cleaning and chemically neutralizing the pump as appropriate.
- Wear protective clothing and use proper tools as appropriate to avoid any injury.
- If the diaphragm has failed, process chemical may have contaminated the pump oil. Handle with appropriate care and personnel equipment. Clean the pump and replace oil as necessary. Discard the contaminated oil as per the local code.

FIRE AND EXPLOSION HAZARD

Improper grounding, poor air ventilation, open flames, or sparks can cause a hazardous condition and result in fire or explosion and serious injury.

- Ground the equipment. See motor installation instruction for grounding procedure.
- Do not pump non recommended flammable or explosive fluids.
- Static electricity may generate by fluid moving through pipes and hoses. A static spark could be produced by high fluid flow rate. Earthling of the pump is a must.
- Provide fresh air ventilation to avoid the possible buildup of flammable fumes from the process chemicals.
- Keep the pump area free of debris, including cleaning agent, rags, and any flammable material.
- Follow the cleaning agent and other cleaning recommendations as mentioned in the operation and instruction manuals.
- Use cleaning agent with the highest possible flash point to clean the pump parts if needed.
- If there is any static sparking while using the equipment, stop operation at once. Identify and correct the problem before starting up the pump.

TOXIC FLUID HAZARD

Hazardous fluids or toxic fumes can cause serious injury or death if splashed in eyes or on the skin, swallowed, or inhaled.

- Know the specific hazards of the fluid you are using. Read the fluid manufactures warnings.
- Store hazardous fluid in an approved container. Dispose of hazardous fluid according to all local, state and national guidelines.
- Wear the appropriate protective clothing, gloves, eyewear and respirator.
- Pipe and dispose of the exhaust air safely. If diaphragm fails, the fluid may be exhausted along with the air in mechanical diaphragm pump. Also oil vapor may flow through the air breather installed on the gear box.

SOUND HAZARD

The sound pressure level of the pump may exceed 80dBA in some pumps.

- Observe all safety precautions when operating the pump within close proximity for extended periods by wearing hearing protectors.
- Extended exposure to elevated sound levels will result in permanent loss of hearing acuteness, tinnitus, tiredness, stress, and other effects such as loss of balance and awareness.

MECHANICAL HAZARD

The pump may shake or vibrate during operation.

- Vibration could occur due to loose mechanical component and foundation bolts, causing piping rupture and leakage of chemical to cause bodily injury. The pump should be bolted down to the base during operation.
- Spills or drips of oil may occur during maintenance of pump, causing the operator to slip or fall. Clean and neutralize the area as soon as possible with an appropriate cleaning agent. Always wear protective clothing and gears.
- Pump may overturn when being transported if the motor is too heavy. Secure the pump on its base before transportation.

SECTION I

GENERAL DESCRIPTION

The Neptune MP7000 Mechanical Diaphragm metering pump is a reliable metering pump of the low-pressure diaphragm type. Under constant conditions of temperature, pressure, and capacity setting, a +/- 2% metered discharge volume is maintained. Rugged contoured composite diaphragm designed for high metering accuracy.

A reciprocating rod set at a fixed stroke length and rate actuates a flexible, chemically inert, Teflon faced diaphragm creating the pumping action.

Precision-engineered liquid ends meters mild solutions, aggressive chemicals, high viscosity polymers (up to 2500cP) and slurries (hydrated lime slurries up to 4 lb/gallon of water, activated carbon slurries up to 1 lb/gallon of water). If metering of liquids with higher viscosity is required please contact factory.

Metering accuracy is maintained by the ball check valves in the suction and discharge pump heads. Screw-in cartridge ball check valves eases maintenance.

Temperature limitations on the plastic heads are: 36 – 125°F (2 - 52°C) for PVC; 36 - 200°F (2-93°C) for PVDF.

PLEASE READ INSTRUCTION MANUAL COMPLETELY BEFORE INSTALLING PUMP.

SECTION I

NEPTUNE CHEMICAL PUMP COMPANY
LIMITED WARRANTY

All Neptune Pumps are tested at the factory prior to shipment. Each part used in their construction has been carefully checked for workmanship.

If the pump is installed properly, Neptune Chemical Pump Company warrants to the purchaser of this product for a period of twelve months from the date of first use or eighteen months from shipment, whichever occurs first, this product shall be free of defects in material and/or workmanship, as follows:

1 Neptune Chemical Pump Company will replace, at no charge, any part that fails due to a defect in material and/or workmanship during the warranty period, FOB our factory, North Wales, Pennsylvania. To obtain warranty service, you must forward the defective parts to the factory for examination, freight pre-paid.[1]

2 This warranty period does not cover any product or product part, which has been subject to accident, misuse, abuse or negligence. Neptune Chemical Pump Company shall only be liable under this warranty if the product is used in the manner intended by the manufacturer as specified in the written instructions furnished with this product.

Any express warranty not provided in this warranty document, and any remedy for breach of contract that, but for this provision, might arise by implication or operation of law, is hereby excluded and disclaimed. Under no circumstances shall Neptune Chemical Pump Company be liable to purchaser or any other person for any charge for labor, repairs, or parts, performed or furnished by others, nor for any incidental consequential damages, whether arising out of breach of warranty, express or implied, a breach of contract or otherwise. Except to the extent prohibited by applicable law, any implied warranty of merchantability and fitness for a particular purpose are expressly limited in duration to the duration of this limited warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long any implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may have other rights, which may vary from state to state.

IMPORTANT

SHOULD IT BE NECESSARY TO SEND THE PUMP TO THE FACTORY FOR REPAIR OR MAINTENANCE REBUILDING; DRAIN ALL OIL AND CHEMICAL FROM PUMP BEFORE SHIPPING. FAILURE TO DO SO CAN CAUSE EXTENSIVE DAMAGE TO THE MOTOR.

[1] SEE IMPORTANT NOTICE – RETURN GOODS AUTHORIZATION

IMPORTANT NOTICE
RETURN GOODS AUTHORIZATION

(1) All equipment returned to Neptune Chemical Pump Company requires proper Returned Goods Authorization Number (RGA) and tags.
(2) All equipment returned to the factory for repair or service must first be thoroughly flushed and have all chemical contact areas neutralized.
(3) All equipment which has been in contact with chemicals must be accompanied by a copy of the Chemical Product Material Safety Data Sheet (MSDS).
(4) Failure to comply with the above instructions will result in equipment being returned to sender, freight collect, without service.

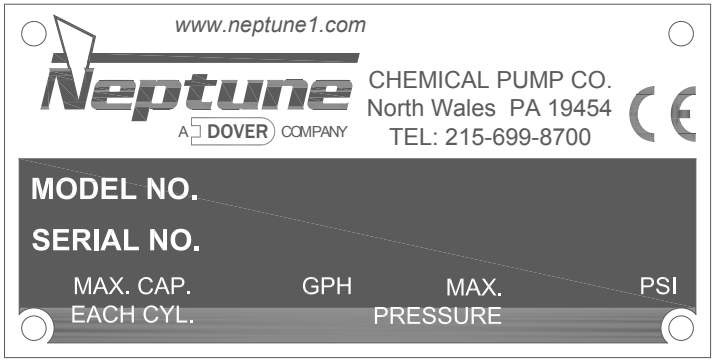
SECTION I

PARTS ORDERING INSTRUCTIONS

The complete model number and serial number of the pump must be furnished to insure prompt and accurate parts service. These numbers are found on the name plate (sample below) located on the back cover of the pump.

Please refer to page number (17), (18), (19) for parts list. Ballooned drawing of the pumps can be found on pages (13), (14), (15), (16) and (18).

Spare Parts Kits are found on page 21.



Send all orders or inquiries for parts to:

Parts Department
Neptune Chemical Pump Company, Inc.
295 DeKalb Pike
North Wales, PA 19454
Tel.: 215-699-8700
1 -888-3NEPTUNE (888-363-7886)
FAX: 215-699-0370
Web: www.neptune1.com
Email: pump@neptune1.com

NOTE: PLEASE SUPPLY BOTH MODEL AND SERIAL NUMBERS.

SECTION II

INSTALLATION INSTRUCTIONS

1.0 GENERAL

1.0.1 UNPACKING & INSPECTION
When unpacking a pump or chemical feed system, be certain that no parts are thrown away. Examine the equipment for possible damage. If damage has occurred, file claim with the common carrier within 24 hours. Neptune will assist in estimating the repair costs.

1.0.2 The Mechanically Actuated Diaphragm metering pumps should be located on a level surface. Four mounting holes are provided to anchor the pump base securely to the mounting surface. All piping to the pump should be supported to prevent stress on the pump inlet and discharge fittings.

1.0.3 Before connecting the pump make sure that all fittings are completely clean by flushing thoroughly. Foreign matter with sharp edges entering the pump can damage the diaphragm and severely limit the life of the pump.

1.0.4 A “Y” STRAINER (AT LEAST ONE PIPE SIZE LARGER THAN SUCTION PORT SIZE OF THE PUMP) MUST BE INSTALLED IN THE SUCTION LINE OF THE PUMP TO INSURE AGAINST FOREIGN MATTER ENTERING THE PUMP

1.0.5 It is recommended that isolation valves and unions be placed in the suction and discharge lines if possible. Such an arrangement will facilitate servicing the pump.

1.0.6 The electrical supply to the pump must match the motor nameplate characteristics. The motor rotation is counterclockwise when viewed from the top of the motor or looking down on the pump. An arrow mark on the side cover of the gearbox is indicating the correct rotation (Figure 1).

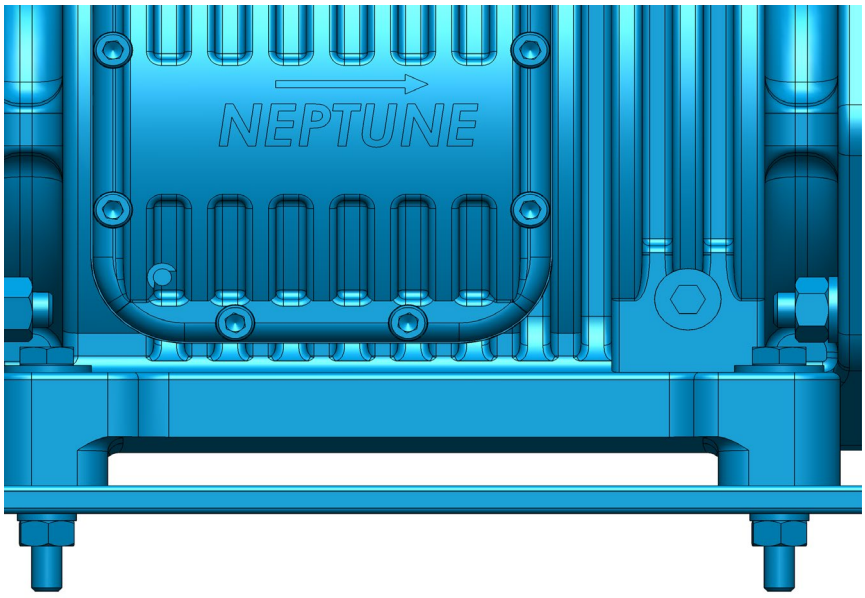


FIGURE 1

Operation with the incorrect rotation will damage the pump and motor.

IMPORTANT: On single-phase units, the rotation is set at the factory and must not be changed

1.0.7 Fill gearbox and pump by removing the breather and pouring the specified gear oil (drive lubricant) or oil provided with pump through the Breather port. Pour oil in slowly until it covers the worm gear.

1.0.8 For dry pump (pump shipped from factory without oil) the oil volume is 27ozs (800cc) to fill the pump.

The oil supplied by Neptune is: PREMIUM PERFORMANCE HYPOID GEAR OIL SAE 80W-90, Common sources for Gear Oil are:

Alternate Oils	Manufacturer
Spirax S3 80W-90 Advance transmission Hypoid Gear Oil	Shell Oil
Mobil Delvac Gear Oil 80W-90	Mobil Oil
MULTIGEAR 80W-90 Geartex EP-A 85W-90	Texaco
Pennzoil® Gearplus®SAE 80W- 90 GL-5 Gear Oil	Pennzoil

NOTE: THE FACTORY SUPPLIED CHECK VALVES ARE FITTED WITH VITON O-RINGS. CHECK CHEMICAL COMPATIBILITY, IF NOT COMPATIBLE REPLACE WITH SUPPLIED TEFLON O-RINGS.

All piping systems should include:

1.1.1 A separate system relief valve to protect piping and process equipment, including the pump, from excess process pressures.

*An **external relief valve** is required to safeguard pump and the piping system.

1.1.2 Isolation valves and unions (or flanges) on suction and discharge piping. This permits check valve inspection without draining long runs of piping. Isolation valves should be of the same size as connecting pipe. Full flow ball valves are preferred since they offer minimum flow restriction.

1.1.3 An inlet strainer, if the product is not slurry. Pump check valves are susceptible to dirt and other solid contaminants unless designed for that service, and any accumulation can cause malfunction. The strainer should be located between the suction isolation valve and the pump suction check valve. It must be sized to accommodate the flow rate and the anticipated level of contamination. A 100-mesh screen size is recommended.

1.1.4 Check valve housings or other portions of the liquid head must not support piping weight, as the resulting stresses can cause leaks. In piping assembly, use a sealing compound chemically compatible with the process material.

SUCTION PRESSURE REQUIREMENTS

Although Mechanical Diaphragm metering pumps have suction lift capability, a flooded suction is preferable whenever possible. The pump should be located as close as possible to the suction side reservoir or other source keeping suction piping as short as possible.

The pump will self-prime with 10 ft. (3 meters) of water suction lift (wetted valves, zero back pressure, full stroke and speed, water like solutions). A foot valve is required to maintain prime. Once primed, the pump is capable of up to 20 feet (6 meters) of water suction lift.

Neptune Mechanically Actuated Diaphragm metering pumps are designed for continuous service at the rated discharge pressure. The discharge pressure must exceed suction pressure by at least 25 psiA (or 1.75 Bar). This can be achieved where necessary by the installation of a backpressure valve in the discharge line.

2.0 SUCTION PIPING

2.0.1 The suction piping to the pump must be absolutely airtight for optimum operation any leakage in the suction line will reduce or even eliminate pumping capacity. Suction pipe should be at least one size larger than suction port size of the pump's Liquid Head. It is suggested that the suction piping be tested with low air pressure and a soap solution to assure that no leaks exist. Limit the total length of the suction line to 5-8 feet for suction lift or 8-10 feet for flooded suction. Minimize bends, elbows, or other restrictions for better pumping efficiency.

2.0.2 NEPTUNE RECOMMENDS THAT THE MECHANICALLY ACTUATED DIAPHRAGM METERING

PUMPS BE OPERATED WITH A FLOODED SUCTION, AS THIS WILL FACILITATE START-UP AND INCREASE THE SERVICE LIFE OF THE PUMP.

2.0.3 It is recommended that all solution tanks be furnished with a low level cut off switch or low-level alarm and cut off switch to prevent the pump from running dry. Although the pump can run dry for a few minutes, OPERATION AGAINST A DRY SYSTEM UNDER THE PRESSURE FOR A PROLONGED PERIOD MAY CAUSE DAMAGE TO THE PUMP DIAPHRAGM AND REDUCE THE OPERATING LIFE OF THE PUMP.

3.0 DISCHARGE PIPING

3.0.1 It is recommended that the Mechanically Actuated Diaphragm metering pump operate against a suitable back pressure to facilitate better operation of the check valves.

3.0.3 To protect the pump, it is recommended that an external relief valve as manufactured by Neptune Chemical Pump Company, or equal, be placed in the discharge line of the pump to avoid over pressure.

3.0.4 Discharge piping should at least equal to discharge port size of the pump's Liquid Head.

NOTE: All pipes and valves must have a working pressure at least twice the system maximum pressure.

CAUTION : Do not attempt to run the pump in excess of its nameplate rating.

4.0 INSTALLATION OUTDOORS

The Mechanically Actuated Diaphragm metering pump is a totally enclosed pump, which can be used outdoors or indoors. When installed outdoors, make sure that the pump is protected against extremes of nature as follows:

4.0.1 Running of the pump when exposed to tropical sunshine with ambient temperature above 100°F (37.8°C) would cause excessive oil and motor temperatures. The pump should be shaded and located in such a way as to permit an ample degree of air circulation.

4.0.2 Under cold conditions, the pump should be insulated and a heat tracing should be supplied in order to maintain the hydraulic fluid at an ambient temperature above 36°F (2°C.)

5.0 START UP PROCEDURE

The following start up procedure is complete and does repeat instructions on filling the gearbox and pump.

5.0.1 Open suction and discharge valves. (See recommendation 1.0.5)

5.0.2 Adjust backpressure close to zero.

5.0.3 Start pump.

5.0.4 On initial start-ups: Check for proper motor rotation (Refer to Paragraph 1.0.6). Listen for any abnormal motor or crank noises, and if present, refer to trouble shooting chart (page 20)

5.0.5 Adjust system pressure to requirement.

SECTION III

NORMAL MAINTENANCE

6.0 MAINTENANCE

Under normal conditions, the Mechanically Actuated Diaphragm metering pumps should not require any

significant amount of maintenance. It is advised that periodic visual observations be made of the oil level to make sure that it is over the worm gear. The liquid end of the pump should also be inspected for leakage and check the liquid head bolt torque. These observations should be made regularly.

The gear oil should be drained and replaced at least every 6 months. Oil changes are usually scheduled with the normal factory maintenance at seasonal periods. The recommended oil change intervals are dependent upon the operating environment and hours of pump usage.

6.1.0 **OIL CHANGE**

6.1.1 Disconnect the power source to the drive motor

6.1.2 Relieve all pressure from the piping system.

6.1.3 Drain the oil by removing the drain plug (item#71) at the lower side of the gearbox. (Same side where the side cover is located)

6.1.4 Replace the drain plug (item#71)

6.1. 5 Remove breather from the gearbox.

6.1.6 Fill gear box with oil as recommended in 1.0.7

6.1.7 Replace breather.

6.2.0 **CHECK VALVE REMOVAL CLEANING AND REPLACEMENT**.

Should the valves need cleaning, remove as follows:

6.2.1 Disconnect the power source to the drive motor.

6.2.2 Relieve all pressure from the piping system.

6.2.3 Close the isolation valves on suction and discharge piping.

6.2.4 Loosen and remove the suction and discharge check valves gradually to drain any trapped liquid.

6.2.5 Clean valves with suitable solvent. Both valves are complete and integral units and should not be disassembled for cleaning. If the valves are found to be worn and in need of replacement, an entire valve in either suction or discharge should be ordered.

6.2.6 To replace, reverse above procedures. Make sure that the port orientation is correct.

6.2.7 For valves with O-rings make sure that the O-rings are in good condition. Install new O-rings if necessary.

6.3.0 LIQUID HEAD REMOVAL, INSPECTION, AND REINSTALLATION

CAUTION: If the diaphragm failed, process fluid will pass through the bleed hole located behind the diaphragm. Handle any liquid with appropriate care. (Refer to liquid manufacturer's MSDS)

Mechanical diaphragms should operate for approximately 2000+ hours under normal operating conditions; however, the accumulation of foreign material or debris and abnormal operating condition or simply age can cause failure. Failure can also occur as a result of hot pumping fluid or system over pressure. Periodic diaphragm inspection and replacement are recommended.

6.3.1 Disconnect the power source to the drive motor.

6.3.2 Relieve all system pressure from the piping system.

6.3.3 Take all precautions described under "Caution" to prevent environmental and personnel exposure to hazardous materials.

6.3.4 Disconnect piping to the Liquid Head and drain any process liquid.

6.3.5 Drain gear box oil.

6.3.6 Place a pan underneath the pump head adaptor to catch any liquid leakage.

6.3.7 Remove all but two top Liquid Head bolt. Process fluid or Oil or both will leak out between the pump head adaptor and Liquid Head as the bolts are loosened.

6.3.8 Tilt the head and pour out any liquids retained by the check valves into a suitable container, continue to follow safety precautions as appropriate.

6.3.9 Remove the final bolt and rinse or clean the Liquid Head with an appropriate material.

6.3.10 Inspect the diaphragm. The diaphragm must be replaced if it is cracked, separated, or obviously damaged. Remove the diaphragm if necessary, by turning counter-clockwise.

6.3.11 If diaphragm cannot be unscrewed from push rod, remove 1/8 NPT dry seal plug (item #69) from the interim chamber.

6.3.12 Use a 1/8" diameter steel implement, insert it through the hole for the dry seal plug and into the cross hole in the push rod. Start to turn diaphragm to feel the steel implement engage the hole in push rod. This will lock the push rod from turning with diaphragm allowing diaphragm removal.

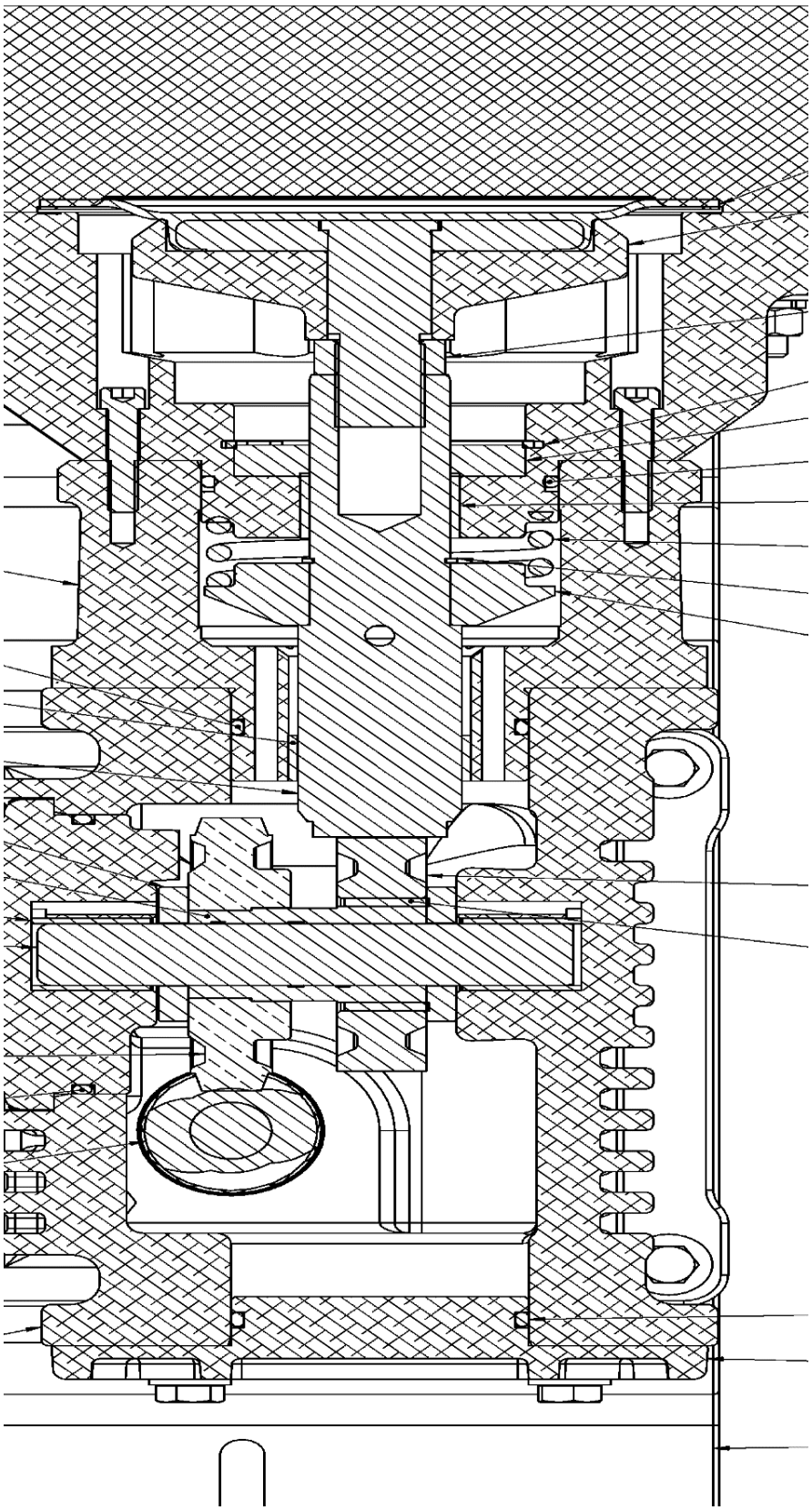
6.3.13 To install a diaphragm, first ensure that the critical sealing areas of: diaphragm, Liquid Head, and pump head adapter are clean and free of debris. Assemble the diaphragm with backup plate (item #28). For MP71XX-3N3, 5, 8 and MP71XX-4N3, 5, 8 install spacer nut (item #30) onto the diaphragm threads.

6.3.14 Thread the diaphragm (clockwise) completely on the push rod. Use step 6.3.11 to hold push rod in place when turning the diaphragm. Put back dry seal plug in interim chamber, and add oil as specified in 6.1.0.

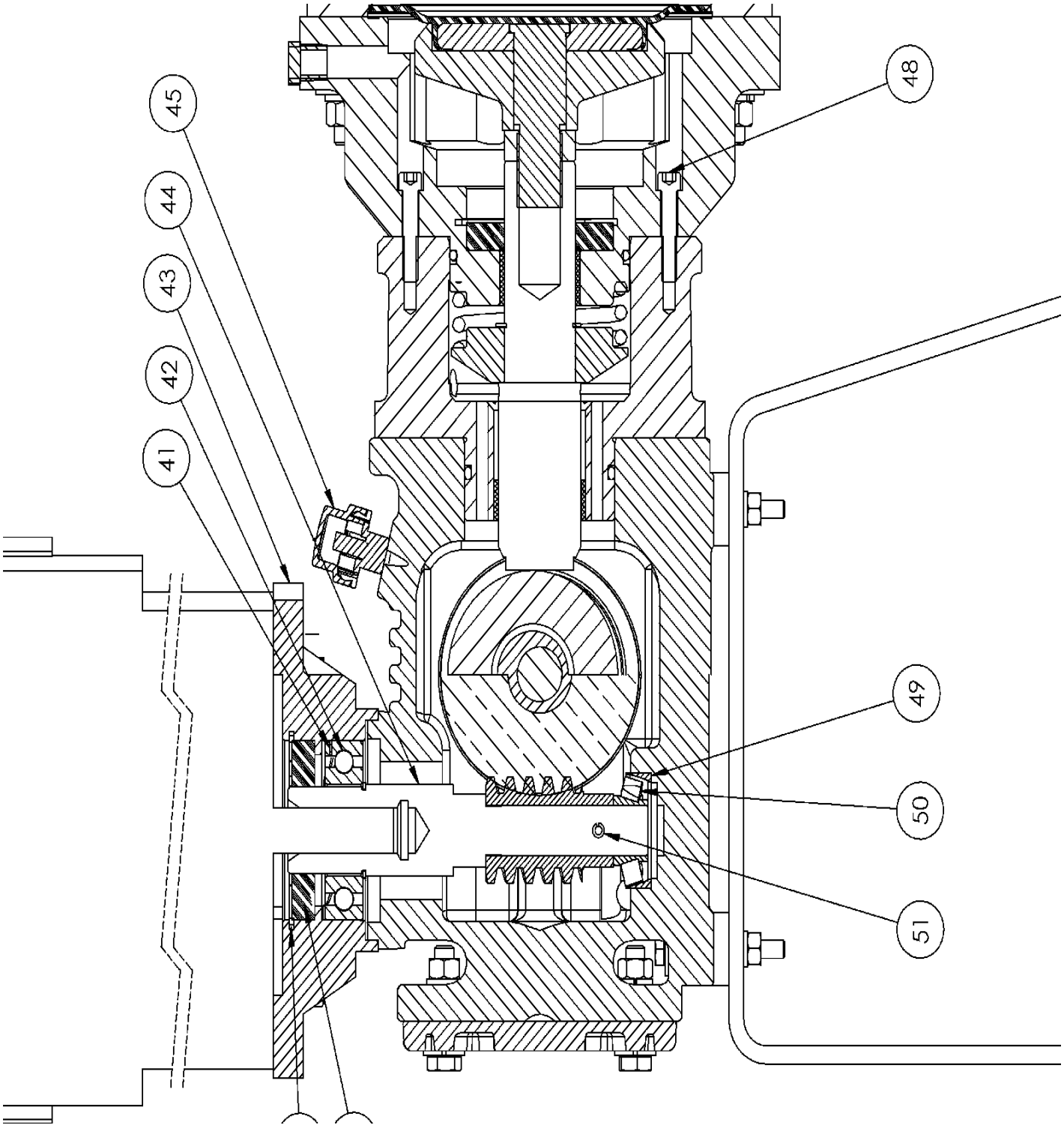
6.3.15 Install the liquid head, faceplate (for plastic heads), and bolts. Tighten bolts in an alternating crossing pattern to ensure an even pressure on all bolts. Recommended torque is 12-13 ft-lb for pump MP 71XX-2N3, 5, 8 and 18-19 ft-lb for pump MP71XX-3N3, 5, 8, MP71XX-4N3, 5, 8

MODEL MP7120-3N5
MECHANICALLY ACTUATED PUMP
(SHOWN WITH PVC #3 LIQUID HEAD)

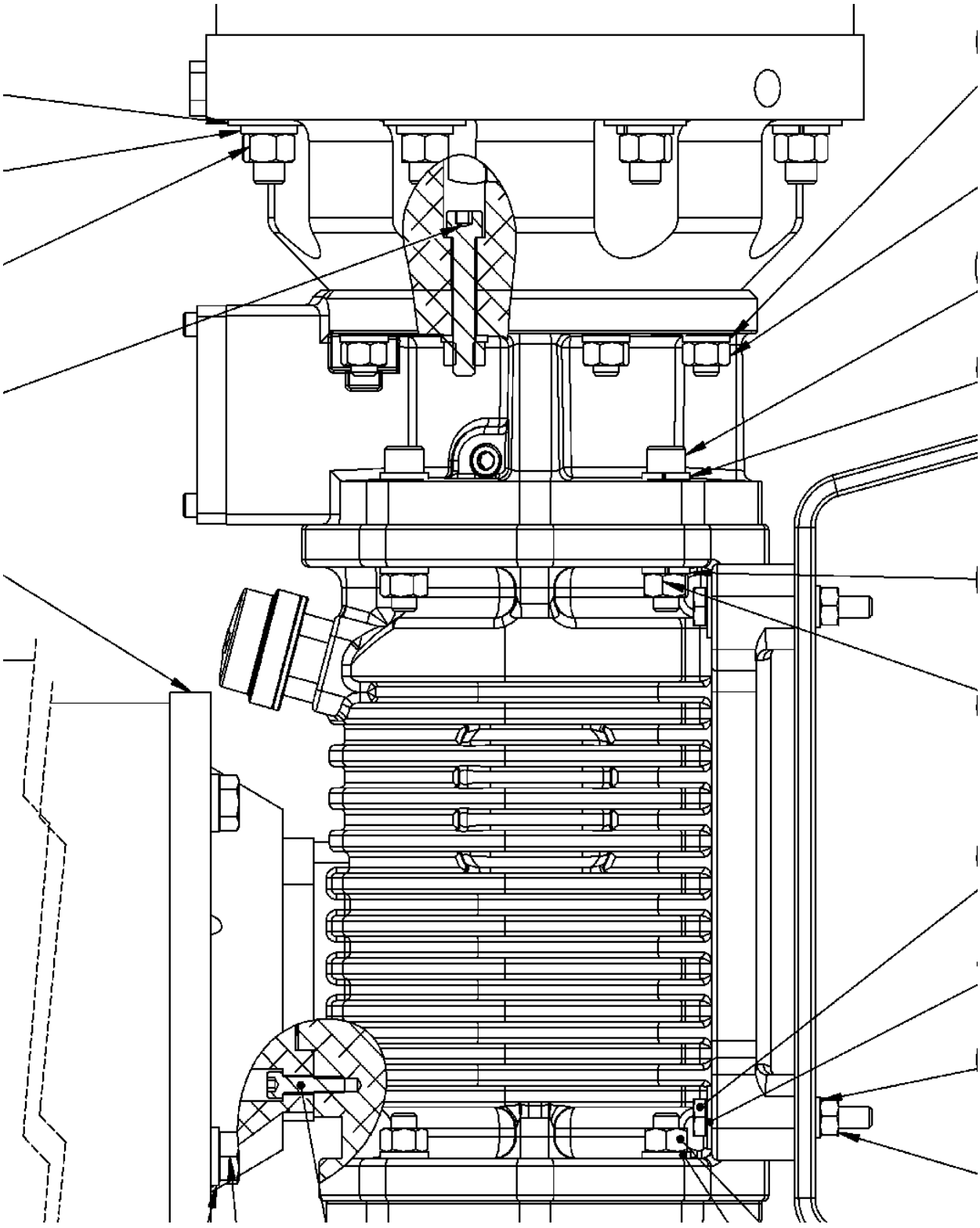
HORIZONTAL CROSS SECTION



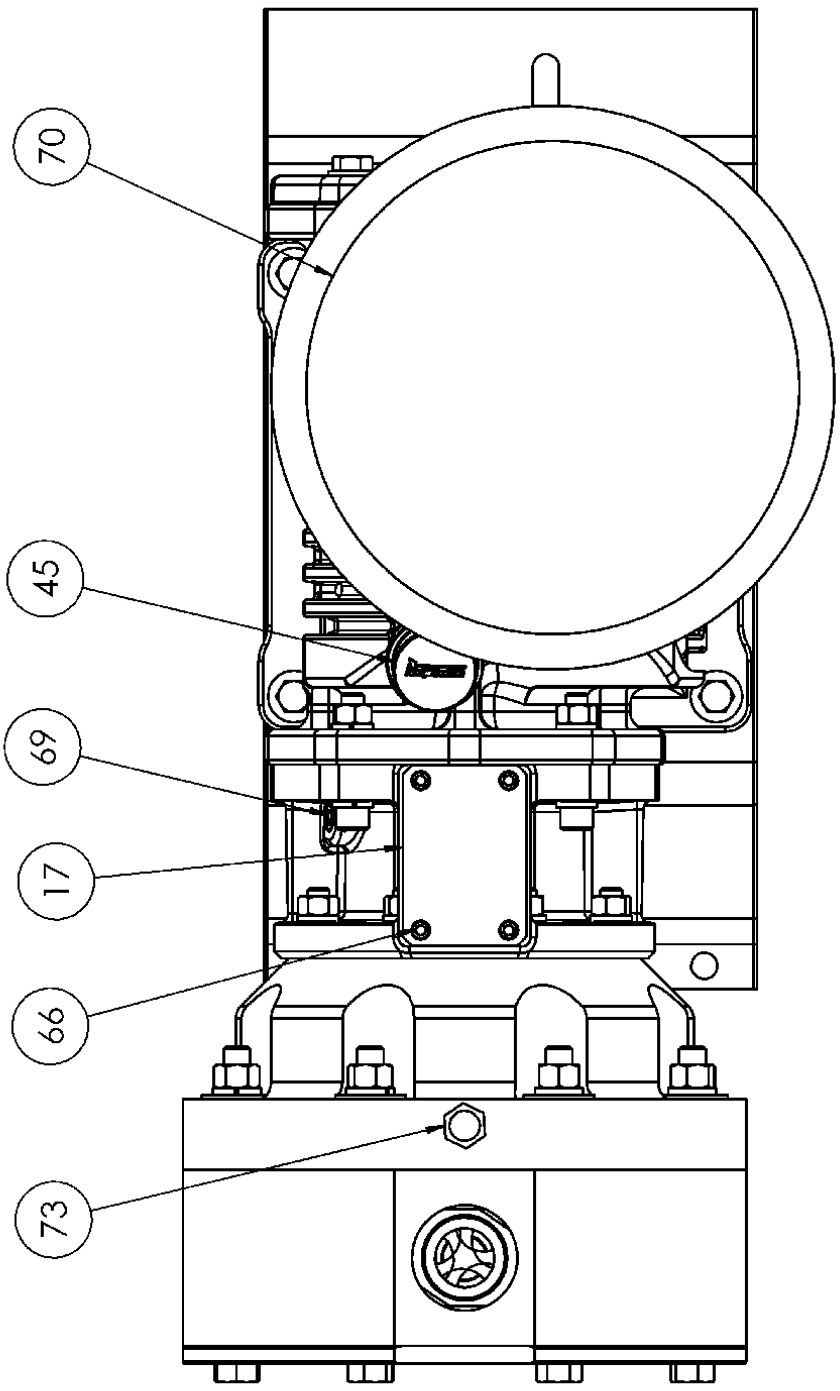
VERTICAL CROSS SECTION



PUMP SIDE VIEW (LEFT SIDE)



PUMP SIDE VIEW (TOP VIEW)



PARTS LIST

COMMON PARTS LIST

ITEM NO.	DESCRIPTION	QTY.	PART NO.
1	Gear Box	1	004760
2	GEARS		
	Worm Gear 37 SPM*		004778
	Worm Gear 72 SPM*		004779
	Worm Gear 58 SPM*		004780
	Worm Gear 117 SPM*		004781
	Worm Gear 176 SPM*		004782
3	SIDE COVER	1	005124
4	O-RING, VITON	1	104756
6	SLEEVE BUSHING FOR ALUM GEAR BOX	2	104673
7	GEAR SHAFT	1	104677
8	TRUST COLLAR	1	004785
9	PUSH ROD	1	004786
10	BUSHING	1	104674
11	O-RING, VITON	2	104757
12	INTERMEDIATE CHAMBER	1	004849
17	BLANK COVER INTERMEDIATE CHAMBER	1	005191
20	O-RING, NITRILE	1	107580
24	RETAINING RING EXTERNAL	2	106593
31	RETAINING RING INTERNAL	2	106592
32	OIL SEAL	2	106586
33	O-RING, NITRILE	1	107600
34	BUSHING	1	104675
35	SPRING	1	108023
38	BACK COVER MECH DIAPH PUMP	1	004793

ITEM NO.	DESCRIPTION	QTY.	PART NO.
40	WORM	1	
	WORM 37 SPM		000170
	WORM 72 SPM		000172
	WORM 58 SPM		004710
	WORM 117 SPM		000169
	WORM 176 SPM		000171
41	BEARING WAVE SPRING	1	107599
42	BALL BEARING	1	106180
43	MOTOR FLANGE ADAPTER, 56C & IEC 71	1	004812
44	MOTOR WORM SHAFT	1	004156
45	BREATHER	1	000191
48	BOLT	2	100267
49	BEARING CUP	1	100179
50	BEARING CONE	1	100180
51	SPRING PIN	1	100181
52	SCREW	4	105108
58	LOCK WASHER	20	100170
59	NUT	16	108175
60	BOLT	4	100648
61	WASHER	4	108426
62	LOCK WASHER	4	100169
63	NUT	4	100448
64	WASHER	4	100069
65	BOLT	4	100109
66	SCREW	8	100358
67	SCREW	4	100216
68	SCREW	4	128032
69	PIPE PLUG	1	100196
70	MOTOR	1	
71	PIPE PLUG	1	100332
73	BREATHER VENT	1	104447

GEAR BOX PARTS LIST PER MODEL

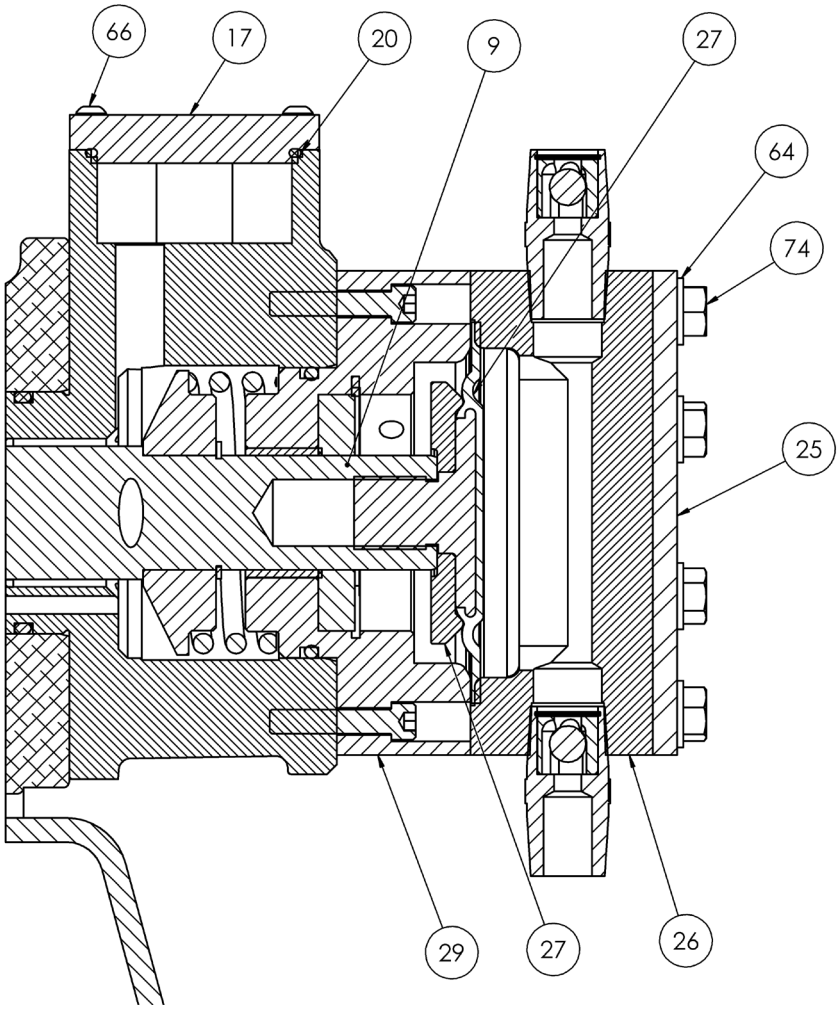
PUMPS MP7100, 120, 130, 150, 180-2NX

ITEM NO.	DESCRIPTION	QTY.	PART NO.
5	UNIVERSAL CAM	1	005029
23	STROKE ADJUSTER DISK	1	001133
36	BALL BEARING	1	100359
39	PUMP MOUNTING BRACKET	1	001415

PUMPS MP120, 130, 150, 180-2NX

ITEM NO.	DESCRIPTION	QTY.	PART NO.
5	UNIVERSAL CAM	1	004784
23	STROKE ADJUSTER DISK	1	004857
36	BALL BEARING	1	004683
37	BEARING, SLEEVE	1	104735
39	PUMP MOUNTING BRACKET	1	004852

CROSS SECTION (HEAD AREA) MP7120-2N5,-2N8



LIQUID HEAD PARTS LIST PER MODEL

FOR PUMPS: MP7100, 120, 130, 150, 180			-2N3	-2N5	-2N8
ITEM NO	DESCRIPTION	QTY.	PART NO.	PART NO.	PART NO.
25	PLATE, HEAD, #2	1	N/A	004858	004858
26	LIQUID HEAD #2 316SS	1	0047959	N/A	N/A
26	LIQUID HEAD, #2, PVC	1	N/A	004950	N/A
26	LIQUID HEAD, #2, PVDF	1	N/A	N/A	004951
27	DIAPHRAGM , #2 ASSEMBLY	1	104743	104743	104743
28	BACK-UP PLATE #2	1	004774	004774	004774
29	PUMP HEAD ADAPTER, #2	1	004797	004797	004797
46, 47	CHECK VALVE ASSEMBLY, 1/2” NPT, 316SS	2	005011	N/A	N/A
46, 47	CHECK VALVE ASSEMBLY, 1/2” NPT, PVC	2	N/A	003279	N/A
46, 47	CHECK VALVE ASSEMBLY, 1/2” NPT, PVDF	2	N/A	N/A	003332
74	HEX HEAD BOLT	8	N/A	128033	128033
74	SOCKET HEAD CAP SREW	8	100207	N/A	N/A
64	FLAT WASHER	8	N/A	100069	100069

LIQUID HEAD PARTS LIST PER MODEL

FOR PUMPS: MP7100, 120, 130, 150, 180			-3N3	-3N5	-3N8
ITEM NO	DESCRIPTION	QTY.	PART NO.	PART NO.	PART NO.
25	PLATE, HEAD, #3	1	N/A	004859	004859
26	LIQUID HEAD #3 316SS	1	004799	N/A	N/A
26	LIQUID HEAD, #3, PVC	1	N/A	004877	N/A
26	LIQUID HEAD, #3, PVDF	1	N/A	N/A	004809
27	DIAPHRAGM , #3 ASSEMBLY	1	127160	127160	127160
28	BACK-UP PLATE #3	1	004794	004794	004794
29	PUMP HEAD ADAPTER, #3	1	004808	004808	004808
30	SPACER NUT	1	005070	005070	005070
46, 47	CHECK VALVE ASSEMBLY, 1” NPT, 316SS	2	005032	N/A	N/A
46	CHECK VALVE ASSEMBLY, 1” NPS PVC, DISCHARGE	1	N/A	005106	N/A
47	CHECK VALVE ASSEMBLY, 1” NPS PVC, SUCTION	1	N/A	005108	N/A
46	CHECK VALVE ASSEMBLY, 1” NPS, PVDF, DISCHARGE	1	N/A	N/A	005110
47	CHECK VALVE ASSEMBLY, 1” NPS, PVDF, SUCTION	1	N/A	N/A	005112
53	SOCKET HEAD CAP SCREW	12	120831	120831	120831
54	HEX NUT	8	100642	100642	100642
55	LOCK WASHER	12	100217	100217	100217
56	FLAT WASHER	4	106087	106087	106087
57	HEX HEAD BOLT	8	104678	104678	104678
75	O-RING KIT (USED WITH PVC & PVDF CHECK VALVES)	1	N/A	129300	129300

FOR PUMPS: MP7100, 120, 130, 150, 180			-4N3	-4N5	-4N8
ITEM NO	DESCRIPTION	QTY.	PART NO.	PART NO.	PART NO.
25	PLATE, HEAD, #4	1	N/A	004862	004862
26	LIQUID HEAD #4 316SS	1	4810	N/A	N/A
26	LIQUID HEAD, #4, PVC	1	N/A	004878	N/A
26	LIQUID HEAD, #4, PVDF	1	N/A	N/A	004811
27	DIAPHRAGM , #4 ASSEMBLY	1	128035	128035	128035
28	BACK-UP PLATE #4	1	005093	005093	005093
29	PUMP HEAD ADAPTER, #4	1	005091	005091	005091
30	SPACER NUT	1	005070	005070	005070
46, 47	CHECK VALVE ASSEMBLY, 1 1/2” NPT, 316SS	2	005096	N/A	N/A
46	CHECK VALVE ASSEMBLY, 1 1/2” NPS, PVC, DISCHARGE	1	N/A	005098	N/A
47	CHECK VALVE ASSEMBLY, 1 1/2” NPS, PVC, SUCTION	1	N/A	005100	N/A
46	CHECK VALVE ASSEMBLY, 1 1/2” NPS, PVDF, DISCHARGE	1	N/A	N/A	005102
47	CHECK VALVE ASSEMBLY, 1 1/2” NPS, PVDF, SUCTION	1	N/A	N/A	005104
53	SOCKET HEAD CAP SCREW	12	120831	120831	120831
54	HEX NUT	8	100642	100642	100642
55	LOCK WASHER	12	100217	100217	100217
56	FLAT WASHER	4	106087	106087	106087
57	HEX HEAD BOLT	8	104678	104678	104678
75	O-RING KIT (USED WITH PVC & PVDF CHECK VALVES)	1	N/A	129301	129301

SECTION IV

MOTOR OPERATING CONDITIONS

7.0 The normal temperature rise for standard motors is 40°C above ambient temperature and, thus, it might appear that the motor is operating at a higher than normal temperature. This situation is normal.

As a precaution against motor overheating, it is recommended that the pump be located where adequate ventilation is available, It is also recommended that a **MOTOR STARTER WITH THE PROPER OVERLOAD PROTECTION BE SUPPLIED AS AN ADDITIONAL SAFETY DEVICE**.

SECTION V

TROUBLESHOOTING CHART

SYMPTOMS	CAUSES	REMEDIES
1. Pump Motor Will Not Operate.	A. Blown Fuse.	Check for short circuit or overload
	B. Open thermal overload device in starter.	Reset.
	C. Low liquid level in tank (where low level cut-off is used).	Fill tank.
	D. Broken wire.	Locate and repair.
	E. Low voltage.	Check for too light wiring.
	F. Oil “frozen” in pump.	Thaw out.
2. Pump Does Not Deliver Rated Capacity	A. Starved suction.	Look for blockage in suction line.
	B. Leaky suction piping.	Replace suction piping with larger size. Pressure test, repair or replace defective piping.
	C. Excessive suction lift.	Rearrange equipment location to reduce suction lift.
	D. Liquid too close to boiling point.	Lower temperature or increase suction pressure slightly.
	E. Worn or dirty valves or seats, or both	Clean or replace valve assembly.
	F. Viscosity of liquid too high	1. Reduce viscosity by heating or other means 2. Increase size of suction piping 3. Increase suction pressure slightly
	G. Low discharge pressure	A minimum discharge pressure of 25 psi is required to insure proper capacity control Repair or replace piping.
3. Pump delivers erratically.	A. Leaky suction line.	Clean or replace valve assembly.
	B. Worn or dirty valves or seats, or both.	Increase backpressure.
	C. Excessive excursion of ball valves from seats (indicated by ball chatter).	Increase suction pressure.
	D. Insufficient suction pressure	Raise tank level.
	E. Liquid too close to boiling point,	Reduce temperature or raise suction pressure.
	F Leaky system relief valve.	Repair or replace relief valve
4. Motor overheats thermal overload activates,	A. Power supply does not match motor.	Check power supply against motor nameplate data.
	B. Overload caused by operating pump beyond rated capacity	Check operating pressure against pump manufacturer data plate maximum rating
5. Noisy Operation		
5.1. In Pump	A. Pump Valves.	Valves must move to open and close, and they will make a clicking noise as they operate. These noises are sometimes amplified by natural resonances in piping system. They are usually indications of normal valve functioning.
5.2. In Gear Reducer	A. Pounding noise at high discharge pressure	Fluid compressibility causes reversal of load on gears at end of pressure stroke, Not considered detrimental.
6. Oil level Low	A. Flexible diaphragm punctured	Replace diaphragm

SPARE PARTS KITS

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #2 ASSEMBLY	1	104743	**KIT NUMBER 005178**
46, 47	CHECK VALVE ASSEMBLY 1/2" NPT	2	005011	**MP71XX-2N3**

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #2 ASSEMBLY	1	104743	**KIT NUMBER 005179**
46, 47	CHECK VALVE ASSEMBLY 1/2" NPT	2	003279	**MP71XX-2N5**

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #2 ASSEMBLY	1	104743	**KIT NUMBER 005180**
46, 47	CHECK VALVE ASSEMBLY 1/2" NPT	2	00003332	**MP71XX-2N8**

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #3 ASSEMBLY	1	127160	**KIT NUMBER 005181**
46, 47	CHECK VALVE ASSEMBLY 1" NPT	2	005032	**MP71XX-3N3**

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #3 ASSEMBLY	1	127160	**KIT NUMBER 005182**
46	CHECK VALVE ASSEMBLY 1" NPS DISCHARGE	1	005106	**MP71XX-3N5**
47	CHECK VALVE ASSEMBLY 1" NPS SUCTION	1	005108	
75	O-RING KIT	1	129300	

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #3 ASSEMBLY	1	127160	**KIT NUMBER 005183**
46	CHECK VALVE ASSEMBLY 1" NPS DISCHARGE	1	005110	**MP71XX-3N8**
47	CHECK VALVE ASSEMBLY 1" NPS SUCTION	1	005112	
75	O-RING KIT	1	129300	

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #4 ASSEMBLY	1	128035	**KIT NUMBER 005184**
46, 47	CHECK VALVE ASSEMBLY 1 1/2" NPT	1	005096	**MP71XX-4N3**

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #4 ASSEMBLY	1	128035	**KIT NUMBER 005185**
46	CHECK VALVE ASSEMBLY 1 1/2" NPS DISCHARGE	1	005098	**MP71XX-4N5**
47	CHECK VALVE ASSEMBLY 1 1/2" NPS SUCTION	1	005100	
75	O-RING KIT	1	129301	

ITEM NO.	DESCRIPTION	QTY.	PART NUMBER	
27	DIAPHRAGM #4 ASSEMBLY	1	128035	**KIT NUMBER 005186**
46	CHECK VALVE ASSEMBLY 1 1/2" NPS DISCHARGE	1	005102	**MP71XX-4N8**
47	CHECK VALVE ASSEMBLY 1 1/2" NPS SUCTION	1	005104	
75	O-RING KIT	1	129301	

MSDS FOR GEAR OIL SAE 80W-90

ASHLAND®
SAFETY DATA SHEET

Revision Date: 03/28/2013
Print Date: 4/8/2014
MSDS Number: R0091437
Version: 4.4

NAPA® PREM PERF GEAR OIL SAE 80W-90
GEAR OIL
NP75210

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland P.O. Box 2219 Columbus, OH 43216	Regulatory Information Number Telephone Emergency telephone number	1-800-325-3751 614-790-3333 1-800-ASHLAND (1-800-274-5263)

Product name NAPA® PREM PERF GEAR OIL SAE 80W-90 GEAR OIL

Product code NP75210

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, amber

CAUTION! MAY CAUSE EYE IRRITATION. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS.

Potential Health Effects

Exposure routes
Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact
Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact
Can cause skin irritation. Symptoms may include redness and burning of skin, and other skin damage. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, skin burns, and other skin damage.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful.

Inhalation

It is possible to breathe this material under certain conditions of handling and use (for example, during heating, spraying, or stirring). Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material:, Skin, lung (for example, asthma-like conditions)

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:, acne, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways)

Target Organs

No data

Carcinogenicity

This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).Used motor oil has been shown to cause skin cancer in laboratory animals continually exposed by repeated applications. Avoid prolonged or repeated skin contact.

Reproductive hazard

There are no data available for assessing risk to the fetus from maternal exposure to this material.There are no data available for assessing risk to the fetus from maternal exposure to this material.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No. / Trade Secret No.	Concentration
HEAVY PARAFFINIC DISTILLATE	64742-54-7	>=70-<80%

RESIDUAL OILS (PETROLEUM), SOLVENT-DEWAXED	64742-62-7	>=20-<30%
MINERAL OIL		>=1-<1.5%
ALKYL PHOSPHATE		>=1-<1.5%
DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC	64742-65-0	>=0.1-<0.5%
DISTILLATES, PETROLEUM, SOLVENT-REFINED LIGHT PARAFFINIC	64741-88-4	>=0.1-<0.5%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Acute aspiration of large amounts of oil-laden material may produce a serious aspiration pneumonia. Patients who aspirate these oils should be followed for the development of long-term sequelae. Repeated aspiration of small quantities of mineral oil can produce chronic inflammation of the lungs (i.e. lipoid pneumonia) that may progress to pulmonary fibrosis. Symptoms are often subtle and radiological changes appear worse than clinical abnormalities. Occasionally, persistent cough,

irritation of the upper respiratory tract, shortness of breath with exertion, fever, and bloody sputum occur. Inhalation exposure to oil mists below current workplace exposure limits is unlikely to cause pulmonary abnormalities.

Treatment: No information available.

5. FIREFIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Carbon dioxide (CO2), Water spray

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrocarbons, Oxides of phosphorus

Precautions for fire-fighting

Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). DO NOT direct a solid stream of water or foam into hot, burning pools of liquid since this may cause frothing and increase fire intensity. Frothing can be violent and possibly endanger any firefighter standing too close to the burning liquid. Use water spray to cool fire exposed containers and structures until fire is out if it can be done with minimal risk. Avoid spreading burning material with water used for cooling purposes.

NFPA Flammable and Combustible Liquids Classification

Combustible Liquid Class IIIB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions

Prevent spreading over a wide area (e.g. by containment or oil barriers). Do not let product enter drains. Do not flush into surface water or sanitary sewer system.

Methods for cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Other information

Comply with all applicable federal, state, and local regulations.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed.

Storage

Store in a cool, dry, ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

MINERAL OIL			
NIOSH	Recommended exposure limit (REL):	5 mg/m3	Mist.
NIOSH	Short term exposure limit	10 mg/m3	Mist.
OSHA Z1	Permissible exposure limit	5 mg/m3	Mist.
ACGIH	time weighted average	5 mg/m3	Inhalable fraction.

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.
Wear resistant gloves (consult your safety equipment supplier).
Discard gloves that show tears, pinholes, or signs of wear.

Respiratory protection

Respiratory protection is not required under normal conditions of use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Colour	amber
Boiling point/boiling range	(>)424.9 °F / 218.3 °C @ 760.00 mmHg
Flash point	> 432 °F / > 222 °C Cleveland open cup
Evapouration rate	(>)1 Ethyl Ether
Vapour pressure	(<)0.100 mmHg
Relative vapour density	(>)1 AIR=1
Density	0.8916 g/cm3 @ 60.01 °F / 15.56 °C
	7.28 lb/gal @ 60.1 °F / 15.6 °C
Viscosity, kinematic	25.0 - 26.5 mm2/s @ 100 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

None known.

Incompatible products

Strong oxidizing agents

Hazardous decomposition products
carbon dioxide and carbon monoxide, Hydrocarbons

Hazardous reactions
Product will not undergo hazardous polymerization.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation Skin absorption Skin contact Eye Contact Ingestion

Product

Acute oral toxicity	:	no data available
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	no data available
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitisation	:	no data available

Components:

HEAVY PARAFFINIC DISTILLATE:

Acute oral toxicity	:	LD 50 Rat: > 15 g/kg

Acute dermal toxicity : LD 50 Rabbit: > 5 g/kg

DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC:

Acute oral toxicity : LD 50 Rat: > 5,000 mg/kg

Acute dermal toxicity : LD 50 Rabbit: > 5,000 mg/kg

Aspiration toxicity : May be fatal if swallowed and enters airways.

DISTILLATES, PETROLEUM, SOLVENT-REFINED LIGHT PARAFFINIC:

Acute oral toxicity : LD 50 Rat: > 5,000 mg/kg

Acute inhalation toxicity : LD 50 Rat: > 3.9 mg/l
Exposure time: 4 h

Acute dermal toxicity : LD 50 Rabbit: > 2,000 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

no data available

Components:

no data available

Persistence and degradability

Product:

no data available

Components:

no data available

Bioaccumulative potential

Product:

no data available

Components:

no data available

Mobility in soil

Product:

no data available

Components:

no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.

U.S. DOT - ROAD

Not dangerous goods

U.S. DOT - RAIL

Not dangerous goods

U.S. DOT - INLAND WATERWAYS

Not dangerous goods

TRANSPORT CANADA - ROAD

Not dangerous goods

TRANSPORT CANADA - RAIL

Not dangerous goods

TRANSPORT CANADA - INLAND WATERWAYS

Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

Not dangerous goods

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

Not dangerous goods

***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.	

SARA Hazard Classification
SARA 311/312 Classification
Acute Health Hazard

SARA 313 Component(s)

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

New Jersey RTK Label Information

HEAVY PARAFFINIC DISTILLATE	64742-54-7
RESIDUAL OILS (PETROLEUM), SOLVENT-DEWAXED	64742-62-7
LUBRICANT ADDITIVE	
MINERAL OIL	
ALKYL PHOSPHATE	
DISTILLATES (PETROLEUM), SOLVENT-DEWAXED HEAVY PARAFFINIC	64742-65-0
DISTILLATES, PETROLEUM, SOLVENT-REFINED LIGHT PARAFFINIC	64741-88-4

Pennsylvania RTK Label Information

HEAVY PARAFFINIC DISTILLATE	64742-54-7
RESIDUAL OILS (PETROLEUM), SOLVENT-DEWAXED	64742-62-7
LUBRICANT ADDITIVE	

Notification status

US. Toxic Substances Control Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
Japan. ENCS - Existing and New Chemical Substances Inventory	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)

	HMIS	NFPA
Health	1	1
Flammability	1	1
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :
ACGIH : American Conference of Industrial Hygienists
BEI : Biological Exposure Index
CAS : Chemical Abstracts Service (Division of the American Chemical Society).
CMR : Carcinogenic, Mutagenic or Toxic for Reproduction
FG : Food grade
GHS : Globally Harmonized System of Classification and Labeling of Chemicals.
H-statement : Hazard Statement
IATA : International Air Transport Association.
IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO : International Civil Aviation Organization
ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"
IMDG : International Maritime Code for Dangerous Goods
ISO : International Organization for Standardization
logPow : octanol-water partition coefficient
LCxx : Lethal Concentration, for xx percent of test population
LDxx : Lethal Dose, for xx percent of test population.
ICxx : Inhibitory Concentration for xx of a substance
Ecxx : Effective Concentration of xx
N.O.S.: Not Otherwise Specified
OECD : Organization for Economic Co-operation and Development
OEL : Occupational Exposure Limit
P-Statement : Precautionary Statement

PBT : Persistent , Bioaccumulative and Toxic
PPE : Personal Protective Equipment
STEL : Short-term exposure limit
STOT : Specific Target Organ Toxicity
TLV : Threshold Limit Value
TWA : Time-weighted average
vPvB : Very Persistent and Very Bioaccumulative
WEL : Workplace Exposure Level

CERCLA : Comprehensive Environmental Response, Compensation, and Liability Act
DOT : Department of Transportation
FIFRA : Federal Insecticide, Fungicide, and Rodenticide Act
HMIRC : Hazardous Materials Information Review Commission
HMIS : Hazardous Materials Identification System
NFPA : National Fire Protection Association
NIOSH : National Institute for Occupational Safety and Health
OSHA : Occupational Safety and Health Administration
PMRA : Health Canada Pest Management Regulatory Agency
RTK : Right to Know
WHMIS : Workplace Hazardous Materials Information System

EC Declarations for Diaphragm Metering Pumps

Manufacturer:
PSG California
22069 Van Buren Street
Grand Terrace, CA 92313 USA
Director of Engineering: Chris Distaso Signature:

Representative authorized to compile technical files in the European Community:
ALMATEC Maschinenbau GmbH
Carl-Friedrich-Gauß-Straße 5
D – 47475 Kamp-Lintfort Germany
General Manager: Rainer Wulf Signature:

Product: Neptune Diaphragm Metering Pump Models Series 400, 500, 600, 6000, 7000
Date: 05/22/2019
Serial Number: As Applicable

DECLARATION OF INCORPORATION *(Valid for pumps supplied without a motor)*

Neptune declares that the products listed above comply with the essential health and safety requirements relevant to the specific product as follows: All Neptune products listed above conform to the Machinery Directive 2006/42/EC: Part 1 of Annex I and comply with the relevant requirements of EN ISO 12100 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction, and DIN EN 809 Pumps and Pump Units for Liquids – Common Safety Requirements.

This subassembly is incomplete and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of Directive 2006/42/EC ("The Machinery Directive") and any other applicable Directives.

DECLARATION OF CONFORMITY *(Valid for pumps supplied with a motor)*

Neptune declares that the products listed above comply with the essential health and safety requirements relevant to the specific product as follows: All Neptune products listed above conform to the Machinery Directive 2006/42/EC: Part 1 of Annex I and comply with the relevant requirements of EN ISO 12100 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction, DIN EN 809 Pumps and Pump Units for Liquids – Common Safety Requirements, and DIN EN ISO 4871 – Declaration and Verification of Noise Emission Values of Machinery and Equipment. The supplied motor conforms to the 2014/35/EU - The Low Voltage Directive *(compliance exists from the motor manufacturer).*

This product **may not be used** in an explosive environment.

PUMP DATA / MAINTENANCE LOG

Pump Model_____ Serial #_____

Strokes per Minute_____ Maximum Flow_____

Diaphragm diameter _____ Maximum Pressure_____

Spare Parts Kit #_____

NEPTUNE CHEMICAL PUMP CO. Tel.: 215-699-8700 • FAX: 215-699-0370

DATE	SERVICED BY	MAINTENANCE PERFORMED