
Original Instruction Manual

KEEP FOR FUTURE REFERENCE



**9000C-O, 9000C-SP & 9000P-O
Cast Iron and Polypropylene Series
Centrifugal Pumps**

Pentair

375 5th Ave., New Brighton, MN 55112

Phone: (651)766-6300 -OR- 800-424-9776 Fax: 800-323-6496

www.hypropumps.com

EU Authorized Representative:

EC	REP
----	-----

 QNET BV Hommerterweg 286
6436 AM Amstenrade, The Netherlands
KvK Zuid-Limburg 14091511

Contents

EU Language	3
Introduction.....	4
Description.....	4
Intended Uses.....	4
Purpose of Manual.....	4
Misuses.....	4
Pump Identification.....	5
Pump Technical Data.....	5
Fluid Pumping Applications.....	8
Tools.....	8
Lifting, Transport, and Intermediate Storage.....	8
Assembly and Installation.....	9
Assembly.....	9
Installation.....	9
PlumbingDiagram.....	10
Commissioning, Start-Up, Operation, Shutdown.....	13
Information.....	13
Start-Up, Operation, Shutdown.....	13
Maintenance and Servicing.....	15
Information.....	15
Disposal.....	15
Cleaning.....	15
Maintenance, Routine Servicing, and Inspection.....	15
Troubleshooting.....	16
Replacement Parts.....	17
Declaration of Incorporation.....	19
Warranty.....	Last Page

EU Languages

DO NOT attempt to install or operate your pump before reading the manual. Original copies of the manual for Hypro pumps are provided in English. To find a copy in your native language, go to www.hypropumps.com.

Vor dem Ablesen des Handbuches versuchen Sie NICHT, Ihre Pumpe zu installieren. Originale des Handbuches für Hypro-Pumpen werden auf englisch zur Verfügung gestellt. Zu eine Kopie in Ihrer Muttersprache finden, zu www.hypropumps.com zu gehen (German)

N'essayez pas d'installer votre pompe avant de lire le manuel. Des exemplaires originaux du manuel pour des pompes de Hypro sont fournis en anglais. Pour trouver une copie dans votre langue maternelle pour aller a www.hypropumps.com (French)

NON tentare di installare la vostra pompa prima di leggere il manuale. Esempio originale del manuale per Hypro pompe sono in inglese. Per trovare una copia nella vostra lingua andare a www.hypropumps.com (Italian)

Не пытайтесь установить ваш насос до чтения руководства. Оригинальные копии этого руководства для насосы Hypro на английском языке. Найти копию на ваш родной язык перейти к www.hypropumps.com (Russian)

NO intente instalar su bomba antes de leer el manual. Copias originales del manual para Hypro se provee de bombas en ingles. Para encontrar una copia en tu idioma nativo ir a www.hypropumps.com (Spanish)

NIE próbować instalować pompy przed jej odczytaniem instrukcji. Oryginalne kopie instrukcji obsługi pomp Hypro są dostarczane w języku angielskim. Aby uzyskać kopię w twoim ojczystym języku przejdź do www.hypropumps.com (Polish)

Takmaya çalışmayın okumadan önce pompanın manuel. Orijinal kopyalarını Hypro pompaları için İngilizce olarak sunulmuştur. Bir kopyasını bulmak için yerel dil git www.hypropumps.com (Turkish)

Nao tente instalar a bomba antes de ler o manual. As copias originais dos manuais para Hypro bombas sao fornecidos em Ingles. Para encontrar uma copia em sua lingua nativa ir para www.hypropumps.com (Portuguese)

VERGEET NIET uw pomp voor het lezen van het handboek. Exemplaren van de handleiding voor Hypro pompen zijn beschikbaar in het Engels. Op zoek naar een exemplaar in uw eigen taal ga naar www.hypropumps.com (Dutch)

Introduction

Description

Hypro centrifugal pumps are designed for creating and boosting pressure in fluid circuits. The pump operates by taking in fluid from the inlet port after which it is slung by the impeller and expelled through the outlet port. Construction features include housings, impellers and seals which come in a variety of materials in order to be resistant to a range of chemicals. Standard models of centrifugal pumps rotate clockwise, when looking at the front of the pump.

Intended Uses

Hypro centrifugal pumps are intended for creating or boosting dynamic pressure in approved fluids. Hypro centrifugal pumps should never be used to pump liquids above 140°F (60°C), or below 34°F (1°C). Any uses outside of those specified in this manual are considered misuses and are prohibited. Contact Hypro technical service with any questions regarding specific acceptable uses.

Purpose of Manual

This manual provides instructions and requirements that must be met when installing, using and maintaining the product(s) identified on the cover.

If the product is sold, the seller must pass this manual onto the new owner.

The following special attention notices are used to notify and advise the user of this product of procedures that may be dangerous to the user or result in damage to the product.

ATTENTION

Attention is used to notify of installation, operation, or maintenance information that is important but not safety related.



This symbol is used to denote the presence of an electrical hazard that will result in personal injury, death or property damage.



This symbol is used to denote the presence of a hazard that will result in personal injury, death or property damage.

California Proposition 65 Warning -- This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Misuses

Hypro centrifugal pumps are designed to operate effectively within the specified speed, pressure and environmental ranges. Going outside of these ranges will void the warranty and could cause damage to property or serious injury or death.

- **DO NOT** run the pump faster than the maximum specified speed.
- **DO NOT** run the pump higher than the maximum specified pressure.
- **DO NOT** run pumps when the liquid has exceeded the maximum or minimum temperature limit (see Intended Uses).
- **DO NOT** pump non-approved liquids.
- **DO NOT** pump water or other liquids for human consumption.
- **DO NOT** operate any pump under the influence of drugs or alcohol.
- **DO NOT** run the pump dry.

Pump Identification

Hypro uses serialized labeling to enable users to precisely identify the pump's manufacturing date.

Serial Number:

First and second digits: year (14 = 2014)

Third through fifth digits: consecutive day of the year the pump was manufactured.

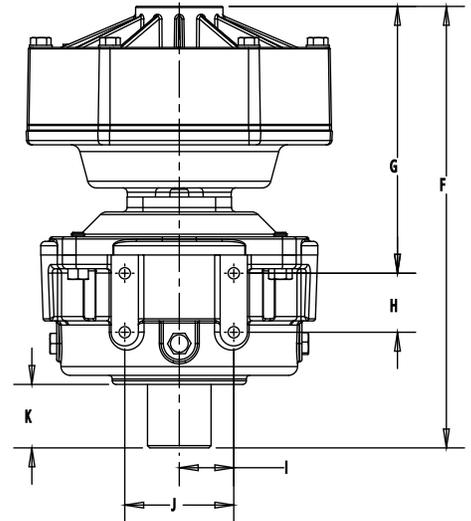
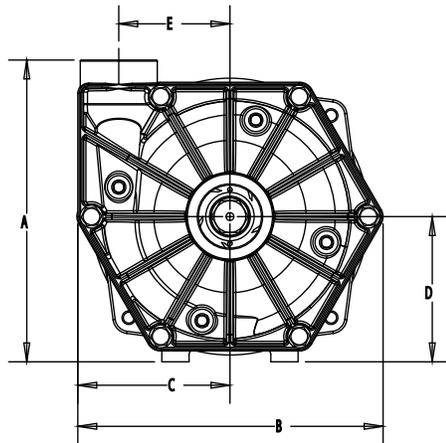
Sixth through tenth digits: unique pump serial number.

Pump Technical Data

(All specifications and performance data are based on water as a carrier fluid.)

9000P-O

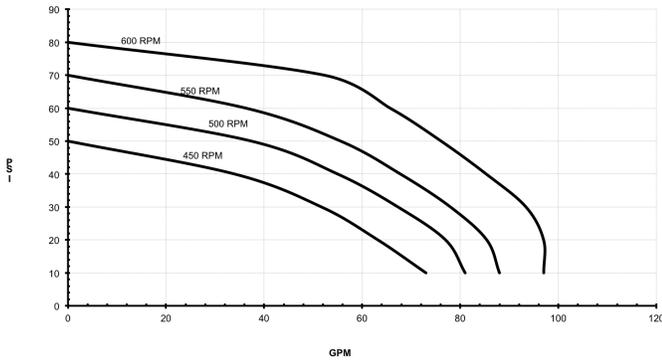
Pump Dimensions			
	Dim.	Inch	mm
All Models	A	8.31	211.1
	B	8.43	214.1
	C	4.21	106.9
	D	4.00	101.6
	E	3.06	77.7
9006P-O	F	12.16	308.9
9008P-O	F	12.29	312.2
9016P-O	F	13.00	330.2
9018P-O	F	13.00	330.2
All Models	G	7.35	186.7
	H	1.63	41.1
	I	1.50	38.1
	J	3.00	76.2
	K	3.75	95.3



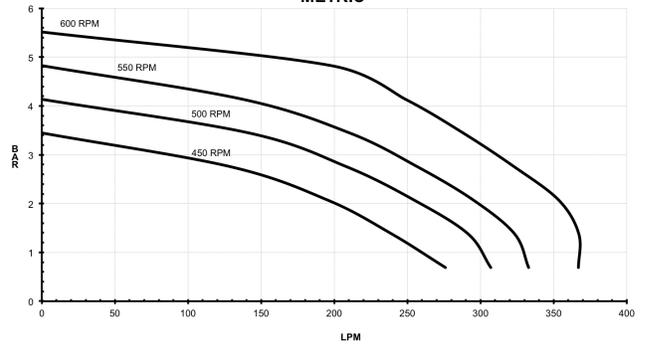
9006P-O, 9008P-O, 9016P-O, and 9018P-O Pump Specifications

Pump	Power Source	PTO or Shaft Output	Max Flow Rate (GPM) [LPM]	Max Pressure (PSI) [BAR]	Max RPM	Ports	Dry Weight	Mounting Bolts
9006P-O	PTO	1-3/8 6 tooth spline	97 [367.2]	83 [5.7]	600	1-1/2" NPT Inlet 1-1/4" NPT outlet	37 lbs (16.8kg)	3/8-16 UNC
9016P-O		1" solid shaft						3/8-16 UNC
9008P-O		1-3/8 21 tooth spline	94 [355.8]	67 [4.6]	1000			3/8-16 UNC
9018P-O		1" solid Shaft						3/8-16 UNC

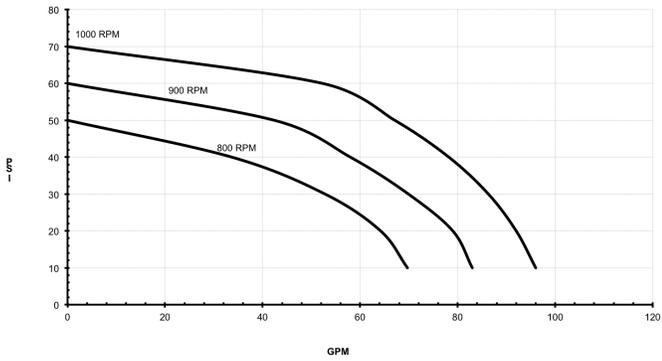
9006P-O & 9016P-O



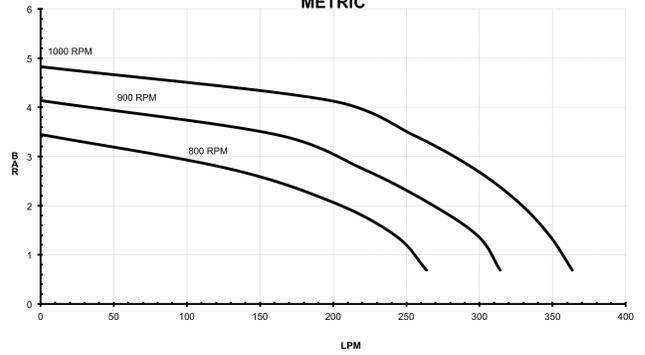
9006P-O & 9016P-O
METRIC



9008P-O & 9018P-O



9008P-O & 9018P-O
METRIC

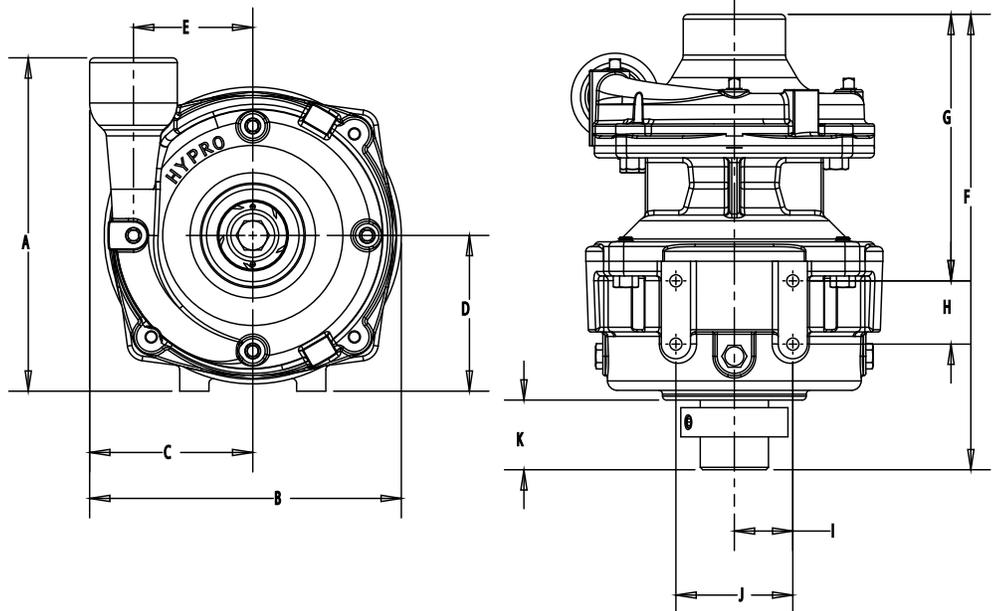


Pump Technical Data

(All specifications and performance data are based on water as a carrier fluid.)

9006C-O, 9016C-O, 9008C-O, 9018C-O, 9028C-O, 90029

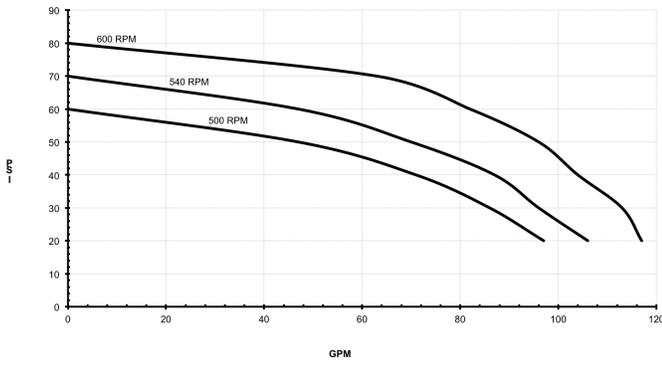
Pump Dimensions			
	Dim.	Inch	mm
All Models	A	8.56	217.4
	B	8.00	203.2
	C	4.19	106.4
	D	4.00	101.6
	E	3.06	77.7
9006C-O	F	11.70	297.2
9016C-O	F	13.28	337.3
9028C-O	F	13.08	332.2
9008C-O	F	11.78	299.2
All Models	G	6.85	174.0
	H	1.63	41.1
	I	1.50	38.1
	J	3.00	76.2
	K	1.79	45.5



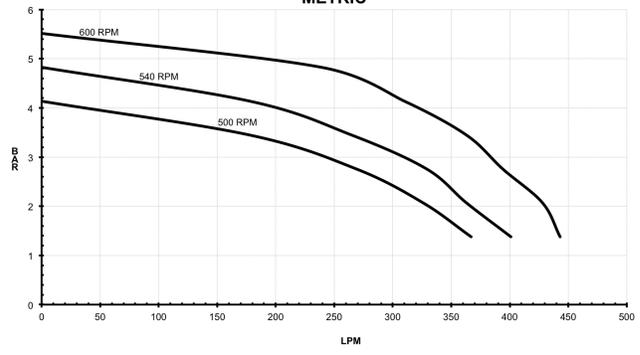
9006C-O, 9016C-O, 9008C-O, 9018C-O, 9028C-O, 90029 Pump Specifications

Pump	PTO or Shaft Output	Max Flow Rate (GPM) [LPM]	Max Pressure (PSI) [BAR]	Max RPM	Ports	Dry Weight	Mounting Bolts
9006C-O	1-3/8 6 tooth spline	117 [442.9]	78 [5.4]	600	1-1/2" NPT Inlet 1-1/4" NPT outlet	44lbs (20kg)	4X 3/8-16 UNC OR M10
9016C-O	1" solid shaft						
9008C-O	1-3/8 21 tooth spline	110 [416.4]	75 [5.2]	1000			
9018C-O	1" solid Shaft						
9028C-O	1-3/4 20 tooth spline						
9038C-O	38mm 8 tooth spline						

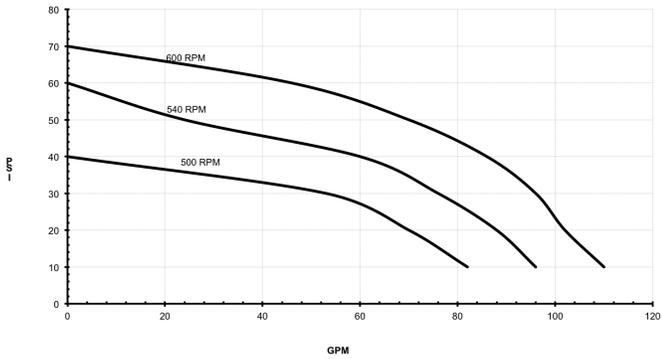
9006C-O & 9016C-O



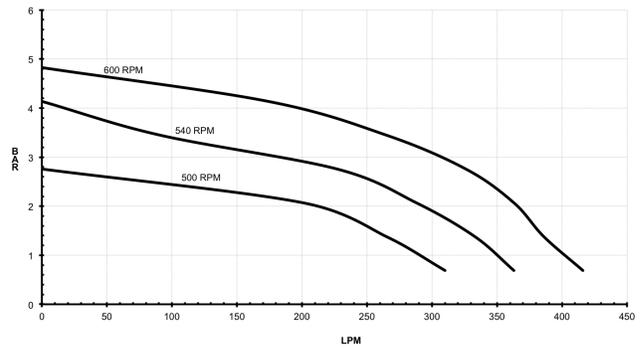
9006C-O & 9016C-O METRIC



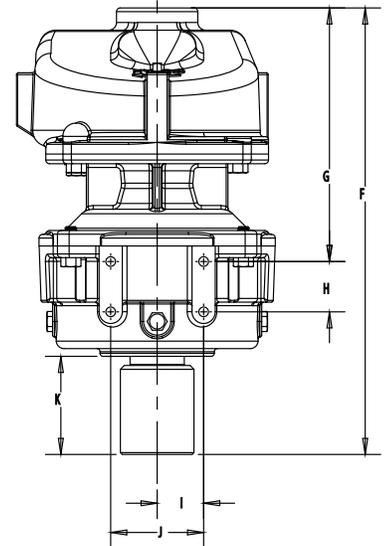
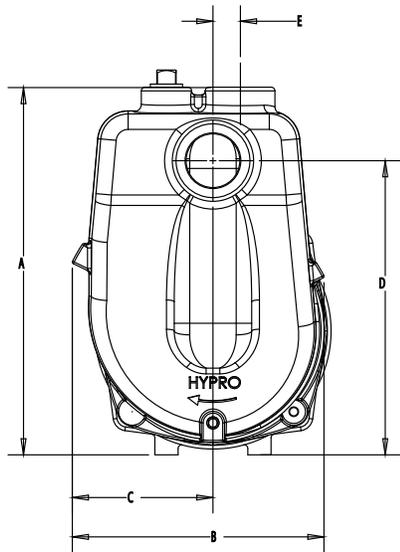
9008C-O & 9018C-O & 9028C-O



9008C-O & 9018C-O & 9028C-O METRIC



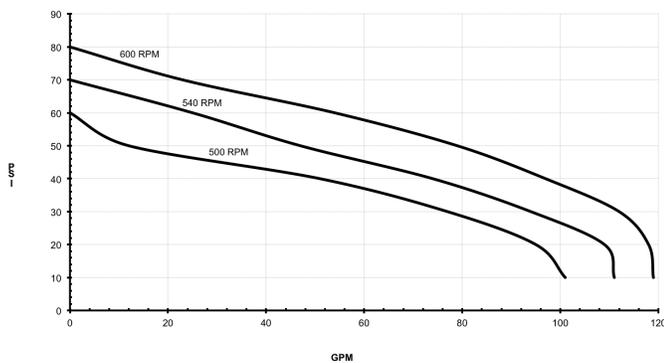
Pump Dimensions			
	Dim.	Inch	mm
All Models	A	11.88	301.8
	B	8.35	212.1
	C	4.54	115.3
	D	9.50	241.3
	E	0.88	22.4
9006C-O-SP	F	13.04	331.2
9016C-O-SP	F	13.84	351.5
9028C-O-SP	F	14.42	366.3
All Models	G	8.19	208.0
	H	1.63	41.4
	I	1.50	38.1
	J	3.00	76.2
	K	3.17	80.5



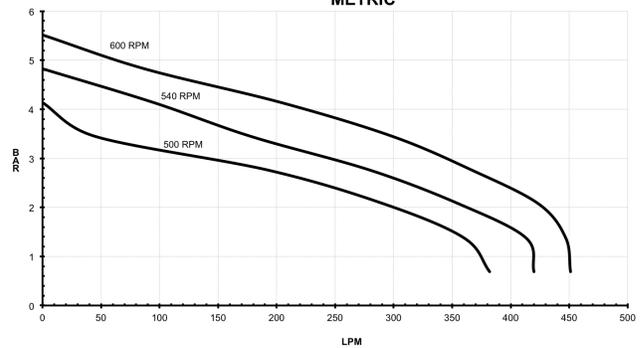
9006C-O-SP, 9016C-O-SP, 9028C-O-SP Pump Specifications

Pump	PTO or Shaft Output	Max Flow Rate (GPM) [LPM]	Max Pressure (PSI) [BAR]	Max RPM	Ports	Dry Weight	Mounting Bolts
9006C-O-SP	1-3/8 6 tooth spline	119 [450.5]	77 [5.3]	600	1-1/2" NPT Inlet 1-1/4" NPT outlet	62lbs [28.2kg]	4 X 3/8 -16 UNC
9016C-O-SP	1" Solid Shaft						
9028C-O-SP	1-3/4 20 Tooth Spline	117 [442.9]	69 [4.8]	1000			

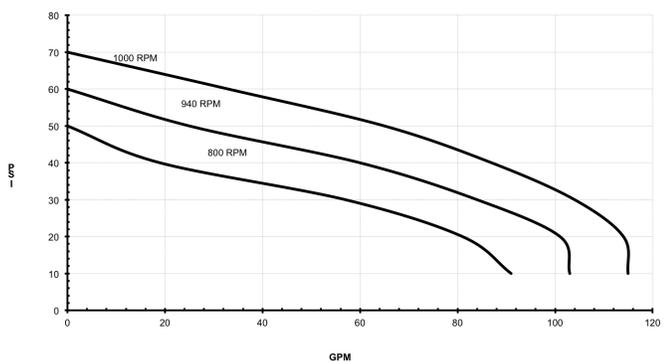
9006C-O-SP & 9016C-O-SP



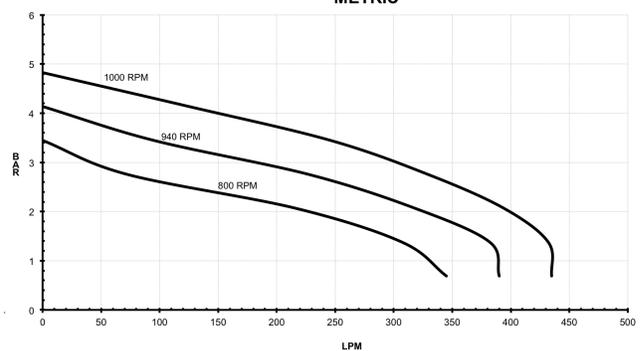
9006C-O-SP & 9016C-O-SP METRIC



9028C-O-SP



9028C-O-SP METRIC



Fluid Pumping Applications

Application	Pump Materials Compatibility			
	Impeller	Pump Housing	Seal	
	Nylon	Cast Iron	Ceramic	Silicon Carbide
Weed Control Chemicals	X	X	X	X
Insect Control	X	X	X	X
Brush Control	X	X	X	X
Pest Control Chemicals and Fumigants	X	X	X	X
Liquid Fertilizers	X		X	X
Powdered Fertilizers	X	X	X	X
Fluid Transfer	X	X	X	X
Acids				X

Table 1

Flammable liquids, sewage or potable water should never be put through any Hypro pump.

Tools

The Hypro centrifugal pumps and mounting assemblies are designed with Imperial (inch) bolts, however, there are many metric (mm) sizes which will work with these mounts. In most cases, an adjustable spanner wrench can also be used.

Lifting, Transport, and Intermediate Storage

Packaging Descriptions and Unpacking Instructions

- Hypro centrifugal pumps are shipped in cardboard boxes for safe transporting.
- When pumps are shipped in large quantities, they may be put on a pallet to allow for easy storage, lifting and handling.
- Before lifting any pump or pallet, determine the weight of the item by looking at the attached packing slips to establish what lifting equipment should be used.
- Before installing the pump, determine if all the components are present and undamaged. If the pump is missing components, contact customer service immediately.
- Once the pump is unpacked, dispose of the packaging in a manner compliant with local and national regulations.

Lifting Instructions

- Before attempting to lift a Hypro pump, ensure that the surrounding working area is free of hazards which could cause injury or damage to property.
- During lifting operations, any personnel not involved in the lift should not enter the working area.
- If lifting hooks, rope or chains are being used for a lift, they must be free of damage and be rated to carry 150% of the weight of the load to be lifted.
-  Always wear steel-toed shoes and cut-resistant gloves when attempting to lift.
- When lifting and carrying, always keep the pump close to your body. (See Figure 1)
- When starting the lift, bend your knees and keep your back straight. (See Figure 1) Tightening the stomach muscles will help keep your back straight.
- During the lift, use your legs to do the work. Never use your back, and make sure your legs are at least shoulder-width apart. (See Figure 1)

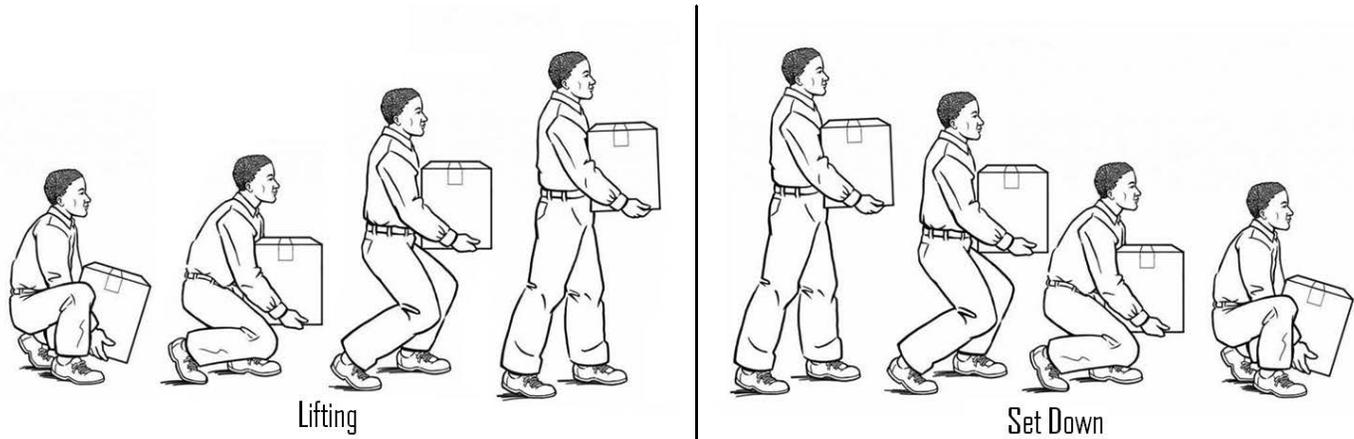


Figure 1

Transport

- All Hypro pumps are capable of being transported by air, sea, rail or motor vehicle. When the pump is shipped, ensure that the pump is moved in accordance with local and national laws and is properly secured to prevent unwanted movement which could cause damage to person or property. Prior to shipping, all fluids should be removed from the pump.

Storage

- New pumps in their boxes can be stored several years as long as the port plugs are not removed. Once the plugs have been removed, if the pump is not to be used for an extended period of time (i.e. more than 30 days), the pump must be winterized as described in the Cleaning section of this manual.

Assembly and Installation

Assembly

- This pump comes completely assembled.

Installation

Before attempting to install your Hypro centrifugal pump, it is imperative to read and understand the following:

- **⚠** Installation of a Hypro pump should only be performed by a technician having the knowledge and skills necessary to install the pump without the risk of property damage or injury.
- **⚠** When handling Hypro pumps, one should wear steel-toed shoes and protective gloves in order to protect the feet in the event the pump is dropped and protect the hands from any sharp surfaces on the pump or chemicals.
- **⚠** Pumping systems must be installed in accordance with Hypro installation instructions. Failure to do so will void your warranty and could cause damage to property, serious personal injury, or death
- **⚠** Electrical power cables and pump hoses must be routed where there is no risk of personnel tripping, walking into, or falling because they have been routed in areas where personnel are expected to move. Electrical power cables and pump hoses should be routed according to local and national standards.
- If a rigid plumbing system is to be used on a Hypro centrifugal pump, the system must be properly aligned with the inlet and outlet ports.
- **⚠** When installing, adjusting or removing a Hypro centrifugal pump ensure that there are no objects which can fall on the installer and make certain that all machinery to which the pump is to be attached is turned off.
- **⚠** Pumps must be installed in a location where they are accessible for any necessary maintenance.

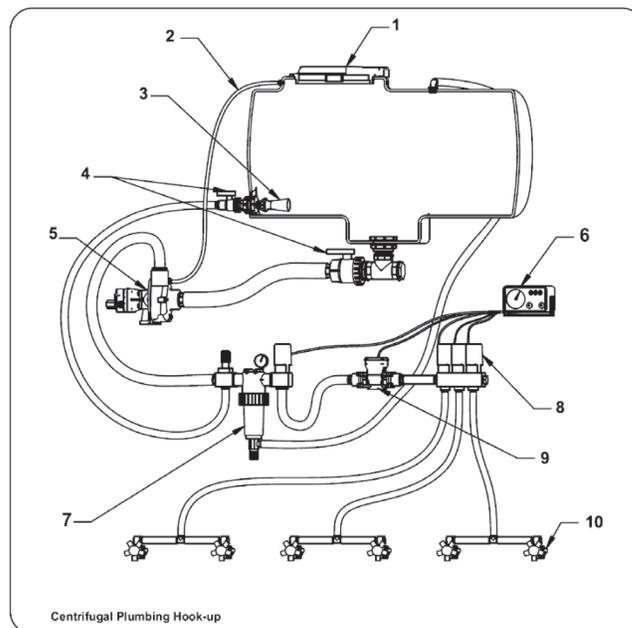
Standard Mounting

- In order to prevent injury or damage to property, all Hypro pumps should be properly mounted to a solid base where there is no danger of the pump falling or breaking loose. All Hypro pumps come with mounting holes which allow bolts to be put into the pump so it can be secured to a sturdy base. When mounting your Hypro centrifugal pump, be sure to use bolts and nuts which are compatible with any chemicals that may come into contact with them as well as choosing the correct grade of bolt based on the pump weight and any expected loads. Pumps should be mounted as close to the liquid source as possible. Non self-priming pumps must be mounted below the liquid level to function properly.

Pump Plumbing

- To achieve maximum pump performance, the outlet port on the pump should be pointing straight up, and pump inlet and outlet lines should be at least the same size as their respective port. Pump plumbing must be capable of withstanding the maximum suction, and pressure, generated by the pump and should have as few restrictions as possible.
- For best priming results, the upper most vent plug can be removed and a vent line can be installed. This line prevents air lock and allows the pump to prime itself by bleeding off trapped air.

Ref. No.	Description
1	Tank Lid
2	Vent Line
3	Jet Agitator
4	Shut-off Ball Valves
5	Centrifugal Pump
6	Spray Control Console
7	Centrifugal Pump Control
8	Manifold Boom Valve
9	Flowmeter
10	Jet Turret Nozzle Body



PTO Installation

The following section documents how to install a pump equipped with a PTO drive.

- On series 9000C units, install the pump using the hypro PTO mounting clip. The mounting clip is used in place of the torque arm and chain.
 - When installed correctly the mounting clip should look like the figure1.
 - Attach the mounting clip to the pump by using the bolts in the pump housing. Do not tighten the bolts at this time. First align the pump on the PTO shaft to make the proper height and depth adjustments.
 - When the mounting clip is firmly located on the PTO shield, tighten the bolts on the pump housing.
- Remove one Pump Casing Outboard Bolt (farthest away from the PTO shaft). Using a 1/4" longer Bolt and two Flat Washers, attach a length of chain or other flexible fastener to the bolt between the washers (See Figure 1) and insert them into the Pump Casing in place of the bolt removed. Secure the other end of the torque chain to something solid on the tractor, preferably above the pump rather than below. If it cannot be attached to anything above the pump, it may be fastened to the draw bar or frame directly below the pump. The torque chain must be in a straight upward or

downward line from the pump. The torque chain should have some slack in it to allow the pump to “float” on the PTO shaft during operation.

- For 9000 series pump if the mounting clip cannot be used the pump should be prevented from rotating on the PTO shaft while in operation by attaching a torque arm to the pump base and securing it to the tractor with a chain as detailed in the section above.

Failure to correctly align the torque chain straight up or down will cause damage to the pump’s bearings

- ⚠ • To prevent start up shock, a spring should be attached to the torque chain.

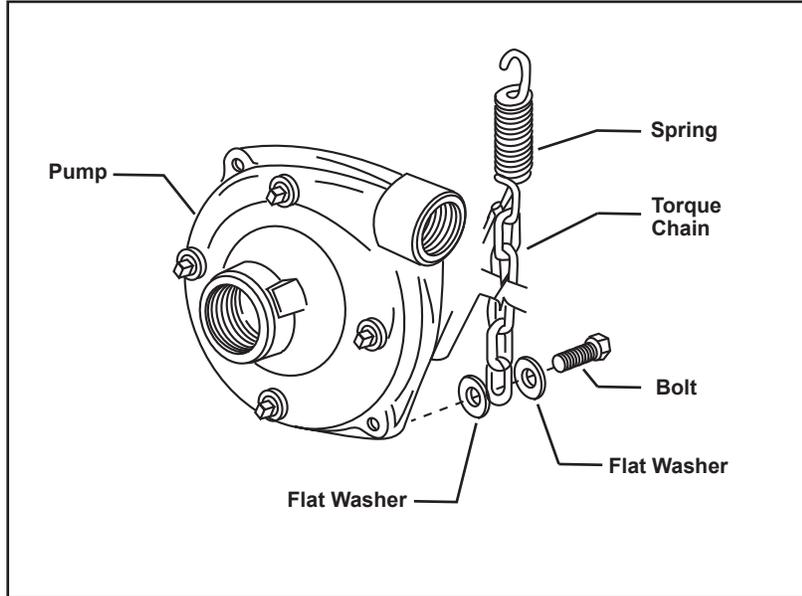


Figure 1

Locking collar Installation (if equipped)

- For pumps using a locking collar to secure the pump drive shaft to the PTO slide the locking collar onto the pump driver shaft (see Figure 2)
- Thread the longer set screw “A” through the locking collar and partially through the threaded hole in the pump driver shaft.

Attention: It is necessary to allow a minimum of 1/8” clearance between the Locking Collar and the Pump Driver Shaft at Set Screw “A”

- Thread the shorter set screw “B” into the other threaded hole in the locking collar
- Slide pump driver hub over PTO shaft. Ensure that PTO groove is under set screw “A”
- Tighten set screw “A” very securely with a 3/16” allen wrench.
- Tighten set screw “B” very securely with a 3/16” allen wrench.

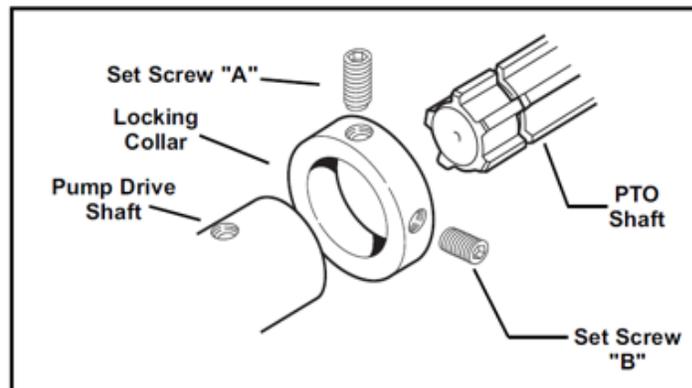


Figure 2

Tumble Rod Drive Installation

- Two mounting holes are pre-drilled and tapped on the adjustment arm of the unit for attachment to the sprayer frame. Use lock washers to assure secure mounting. The tumble rod can be connected directly to the pump driver shaft or with an adapter.

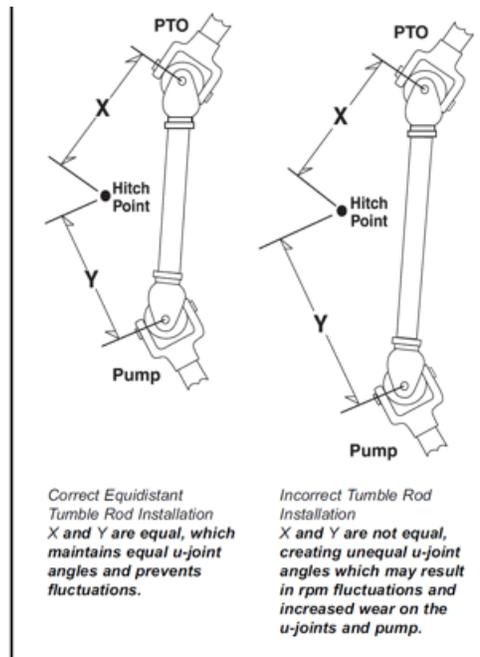


Figure 3

Failure to follow the rules below will cause damage to the pump:

- The tumble rod is level
- The hitch pin is equal distance between the end of the tractor PTO shaft and the end of the pump shaft. (See figure 3)
- The hitch pin is the center point
- Turn angles greater than 45° are avoided.

Control Systems

- For more detail on a typical system installation, see preceding subsections of the “Assembly and Installation” section of this manual.

Commissioning, Start-Up, Operation, Shutdown

Before attempting to start your pump, the following must be understood and followed to ensure safe operation.

Information

-  When running Hypro centrifugal pumps, it is essential that operators use hearing protection as the sound levels can reach levels of 80 decibels.
-  When handling Hypro pumps, one should wear steel-toed shoes and protective gloves in order to protect the feet in the event the pump is dropped and protect the hands from any sharp surfaces on the pump or chemicals.
-  Only authorized operators having the knowledge and skill necessary to safely use a Hypro pump, or any equipment the pump is connected to, may run the pump.
-  When spraying manually, it is recommended that chemical-resistant face masks and clothing be worn to prevent any chemicals from coming into contact with the skin or being inhaled.
-  When spraying manually, always spray upwind of yourself as long as the sprayed chemical will not drift into the vicinity of other people.
-  When installing, adjusting or removing a Hypro centrifugal pump, ensure that there are no objects which can fall on the installer and make certain that all machinery to which the pump is to be attached is turned off.
-  Hypro centrifugal pumps should only be used on tractors or tow-behind spray platforms which have electrically conductive tires in order to reduce the risk of electrocution.
-  Never operate a Hypro centrifugal pump outside while there is a chance of getting struck by lightning.
-  Never leave electrical wires or plumbing components where they can be a tripping hazard or become entangled in a moving component. Ideally, electrical cables, hoses, pipes and fittings should be routed overhead. In the event electrical wiring must be routed over the ground, operators are required to use rubber ramps if they cross a gangway.
-  If users of a Hypro centrifugal pump are using a PTO shaft, flexible coupling or belt drive they are required to use CE approved PTO shafts and guards
-  Hypro centrifugal pumps should not be used if the ambient light is below 200lux.

 **Only use approved chemicals in your pump. For a complete list of approved chemicals, see the “Fluid Pumping Applications” section. Failure to follow this warning will void your warranty and could lead to property damage, serious injury or death.**

Start-up, Operation, Shutdown

Before Starting the Pump

- Ensure all unnecessary personnel are clear of the area.
- For initial setup and test of your system, it is recommended to start with clean water instead of chemicals, and confirm the system and plumbing connections are leak free.
- Ensure that there is fluid in the source tank or supply line. Do not run dry.
- Check line strainer for debris or clogs. Remove any found.
- Check all plumbing connections to make sure they are tight.
- Check power source and connections.
- Check that all valves and regulators are set to the desired setting and are functioning properly.
- Ensure all hoses are properly positioned and are not damaged in any way.
- Ensure PTO shaft shields are in place and are not loose.

Priming the Pump

To help prime the pump, keep the inlet or suction line as short as possible with a minimum of bends, elbows and kinks. Make sure all connections are tight and do not leak air. Non self-priming pumps must have the inlet line and pump flooded with liquid before starting the pump. For self-priming models, the front chamber should be filled with liquid before starting.

Starting, Operation and Shutdown of the Pump

To adjust the sprayer, follow these steps:

1. Prime the pump with all valves open.
 2. Close control valve and agitation line valve; then open the boom shut-off valve. With the pump running, open the control valve until the pressure gauge indicates desired spraying pressure.
-  Engage the PTO clutch slowly and smoothly. Avoid sudden starts and fast clutching that may damage the drive section of the pump.
3. Open the agitation line valve until sufficient agitation is observed. Then, if spraying pressure drops, readjust the control valve to restore desired pressure.

4. Make sure flow is uniform from all nozzles. After spraying adjustments are made, it is only necessary to close the boom shut-off valve to discontinue spraying.

5. To shut down the pump, Disengage the PTO powering the pump.

 When stopping, do not allow the pump to come to a sudden stop as this may damage the drive components of the pump.

Maintenance and Servicing

Information

- All maintenance should be done when machinery is stationary and has been isolated from its energy sources. It is dangerous to perform maintenance while machinery is still connected to its power source. Machinery should be isolated from its electrical, hydraulic or gas engine power source.
-  Be sure to release all pressure from the system before performing any sort of maintenance on a Hypro pump.
-  DO NOT perform service or maintenance to the pump, or attached components, until the pump unit is below 109°F(43°C).
- The lubrication of this pump unit has been done at the factory prior to shipping.
-  When handling Hypro pumps, one should wear steel-toed shoes and protective gloves in order to protect the feet in the event the pump is dropped and protect the hands from any sharp surfaces on the pump or chemicals. If the pump is being repaired while the pump is in service, eye protection should also be worn.

Any hazardous liquids should be disposed of in a manner which complies with local and national regulations. Never dump fluids onto the ground.

Disposal

When disposing of a Hypro pump, be sure to remove all fluids from the pump before scrapping. These fluids should be disposed of in a manner which complies with local and national regulations. Never dump fluids onto the ground. Once the pump is free of all fluids, it may be scrapped in accordance with local and national laws.

Cleaning

Your pump will last longer and give best performance when properly taken care of. Proper pump care depends on the liquid being pumped and when the pump will be used again. After each use, flush pump with a neutralizing solution for the liquid just pumped. Follow with a clean water rinse. This is especially important for corrosive chemicals. It is good practice to clean the pump after each use to prevent deposits from forming and damaging the pump. For infrequent use and before long periods of storage, drain pump thoroughly. Open any drain plugs, remove suction hose from liquid, and blow pump dry with air. An antifreeze/rust inhibitor should be injected into the pump before both ports are plugged and the pump is stored. Plug all ports to keep out air until pump is used again.

Maintenance, Routine Servicing, and Inspection

PREVENTATIVE MAINTENANCE CHECKLIST

Check	Daily	Weekly	250 Hours
Water Leaks	X		
Plumbing		X	
Oil	X		
Change Oil			X

- Each system's maintenance cycle will be exclusive. If system performance decreases, check immediately.
- Duty cycle, temperature, quality, type of fluid being pumped, and inlet feed conditions all affect the life of spray boom assemblies and service cycle.assemblies and service cycle.

Troubleshooting

Before attempting to service your pump, be sure that it is disconnected from all energy sources.

Symptom	Probable Cause(s)	Corrective Action
<i>Pump does not prime</i>	Leak in suction line	Check hose and fittings for leaks and correct
	Obstruction in suction line	Inspect hose for obstructions and remove
	Suction hose stuck to tank	Cut a notch or "V" in end of suction hose
	Clogged strainer	Check strainer and clean regularly
<i>Low discharge</i>	Blocked suction hose	Inspect suction hose and repair as necessary
	Pump worn	Repair pump
	Undersized suction line	See Installation
<i>Pump will not turn</i>	Impeller plugged	Inspect and clear obstruction

Replacement Parts

The following drawings show the pumps and their replacement parts. **Only genuine replacement parts should be used, failure to follow this warning can result in damage to property, serious injury or death.** If the pump malfunctions or is defective it should be sent back to Hypro for service.

9006P-0, 9008P-0, 9016P-0, 9018P-0

NOTE: When ordering parts, give QUANTITY, PART NUMBER, DESCRIPTION, and COMPLETE MODEL NUMBER. Reference number are used ONLY to identify part in the drawing and are NOT to be used as order numbers.

Seal, O-Ring Repair Kit No. 3430-0333 consists of:

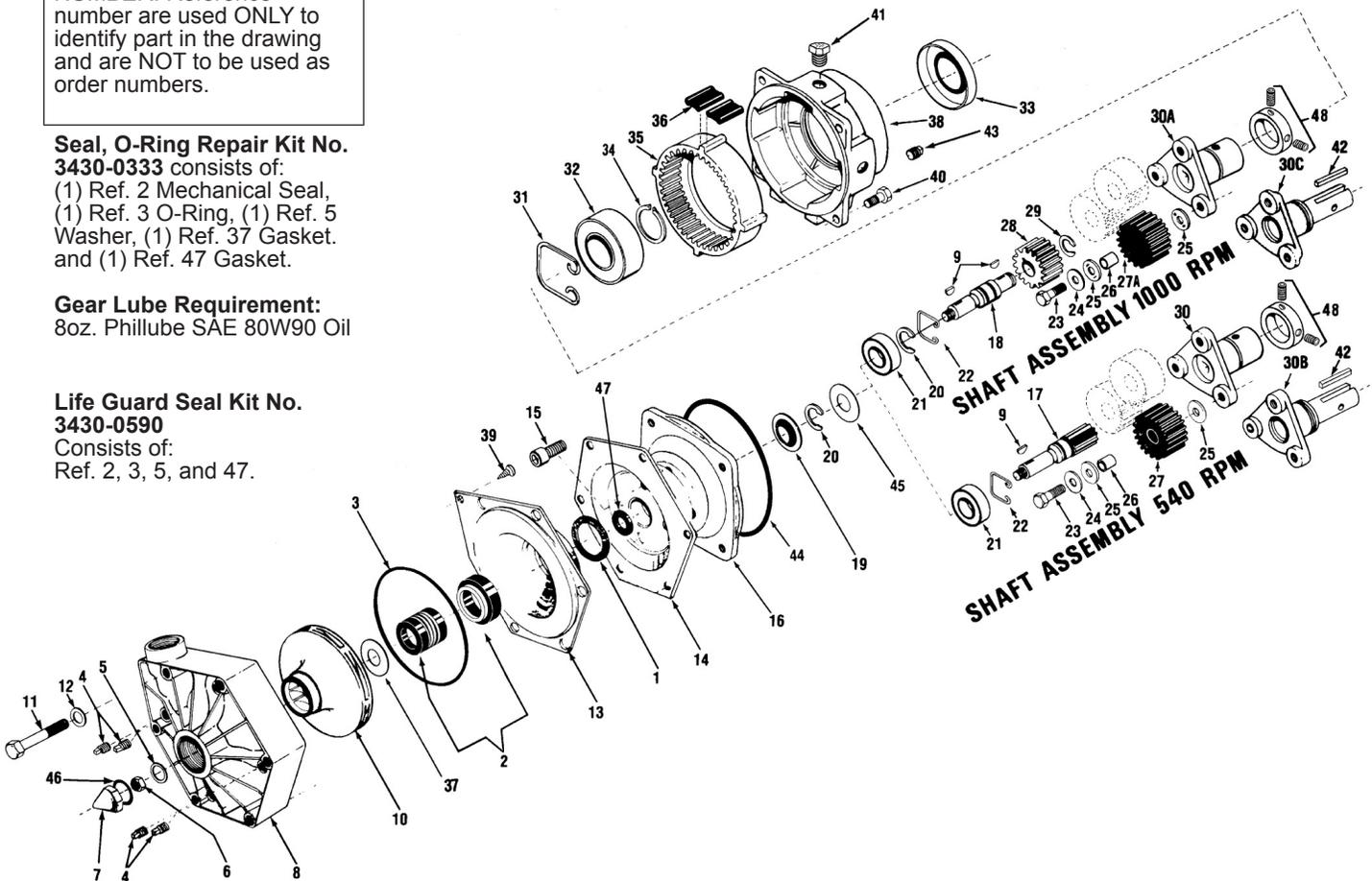
(1) Ref. 2 Mechanical Seal,
(1) Ref. 3 O-Ring, (1) Ref. 5 Washer, (1) Ref. 37 Gasket, and (1) Ref. 47 Gasket.

Gear Lube Requirement:

8oz. Phillube SAE 80W90 Oil

Life Guard Seal Kit No. 3430-0590

Consists of:
Ref. 2, 3, 5, and 47.

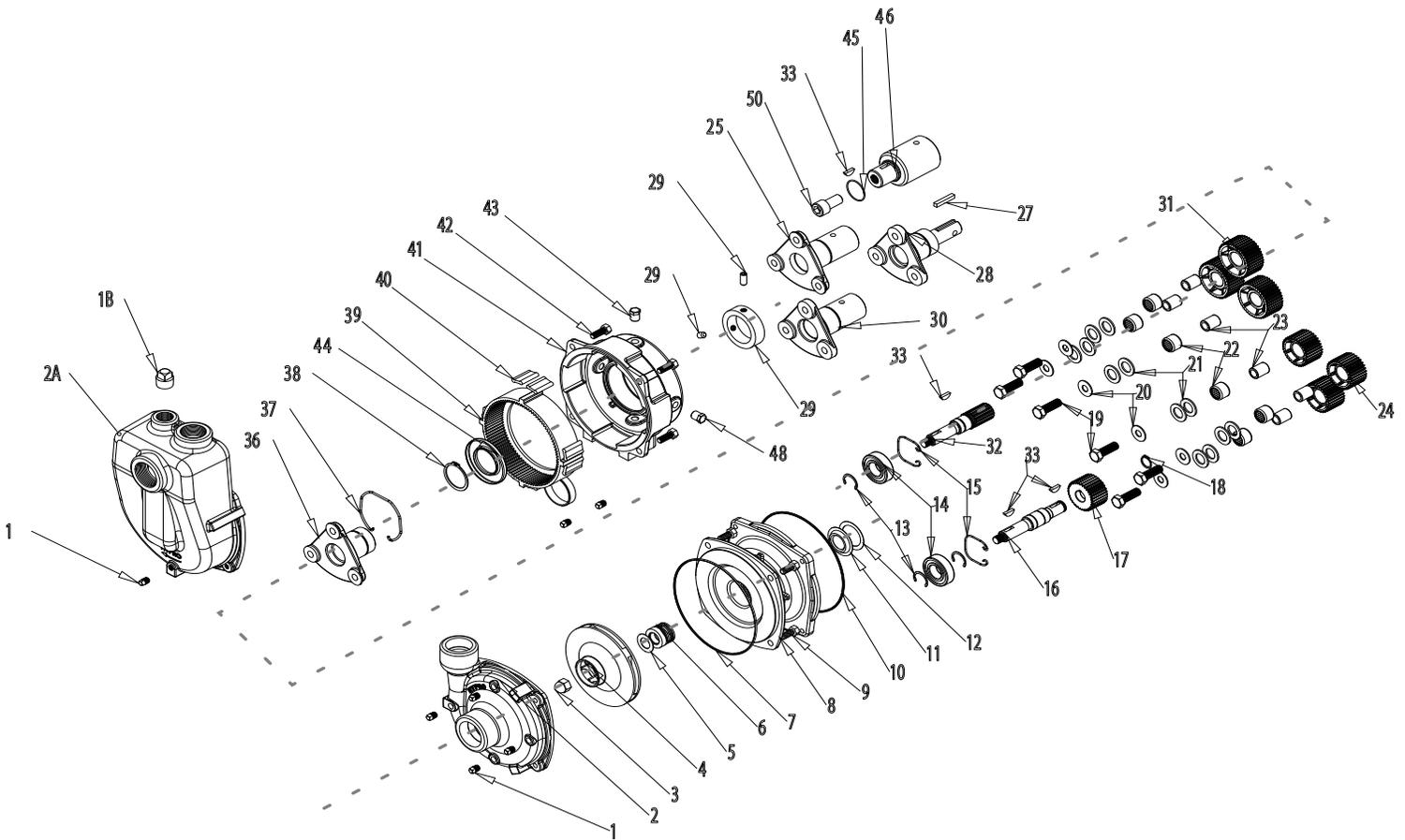


Ref. No.	Qty. Req'd.	Part No.	Description
1	1	1410-0082	Spacer
2	1	2120-0011	Mechanical Seal
3	1	1721-0083	O-Ring
4	4	2406-0016	Plug
5	1	2270-0057	Washer
6	1	2250-0051	Jam Nut
7	1	2250-0052	Impeller Nut
8	1	0700-9000P	Pump Casing
9	**	04432-SHW	Woodruff Key **(1) required for Model 9006P, (2) for Model 9008P
10	1	0403-9000P	Impeller (Polypropylene)
11	6	2210-0087	Capscrew
12	7	2270-0041	Washer
13	1	0750-9000P	Back Cover
14	1	0750-9006C	Flange
15	4	2220-0013	Capscrew
16	1	0752-9006C	Flange
17	1	0503-9000	Shaft (Model 9006P)
18	1	0504-9000	Shaft (Model 9008P)
19	1	2130-0018	Bearing Lip Seal
20	*	1810-0013	Retaining Ring *(1) required for 9006P (2) for 9008P
21	1	2008-0001	Ball Bearing
22	1	1820-0025	Retaining Ring
23	3	2210-0046	Capscrew
24	3	2270-0003	Washer
25	6	2265-0003	Thrustwasher
26	3	2007-0022	Bearing Inner Race
27	3	3900-0039	Driver Gear (Model 9006P) w/ bearing 540
27A	3	3900-0040	Driver Gear (Model 9008P) w/ bearing 1000
28	1	3900-0013	Sun Gear (Model 9008P)
29	1	1810-0011	Retaining Ring (Model 9008P)
30	1	0562-9000D	Driver Hub (9006P) 1-3/8" PTO 540 rpm
30A	1	0562-9002D	Driver Hub (9008P) 1-3/8" PTO 1000 rpm
30B	1	0501-9016D	Shaft (Solid) 540 rpm
30C	1	0501-9018D	Shaft (Solid) 1000 rpm
31	1	1800-0014	Retaining Ring
32	1	2005-0006	Ball Bearing
33	1	2102-0025	Oil Seal
34	1	1810-0001	Retaining Ring
35	1	3900-0009	Ring Gear
36	8	1450-0004	Cushion Bumper
37	1	1700-0101	Gasket
38	1	0754-9000C	Gear Casing
39	1	2210-0088	Hex Head Screw
40	4	2210-0026	Capscrew
41	1	2404-0193	Breather Vent
43	4	2406-0019	Oil Plug
44	1	1720-0139	O-Ring
45	1	1700-0098	Gasket
46	1	1700-0097	Gasket
47	1	1410-0083	Slinger Ring
48	1	3435-0058	Locking Collar Kit (hollow shaft only)
	3	2007-0052	Needle Bearing

Replacement Parts

The following drawings show the pumps and their replacement parts. **Only genuine replacement parts should be used. Failure to follow this warning can result in damage to property, serious injury or death.** If the pump malfunctions or is defective, it should be sent back to Hypro for service.

9006C-O, 9016C-O, 9008C-O, 9018C-O, 9028C-O, 90029, 9006C-O-SP, 9016C-O-SP, 9028C-O-SP



Ref. No.	Qty. Req'd.	Part No.	Description
1	4	2406-0007	Drain Plug
1B	1	2406-0001	Drain Plug
2	1	0150-9000C	Pump Casing (w/ SS wear ring)
2A	1	3430-0480SP	Pump Casing (Self-Priming Units)
3	1	2253-0001	Impeller Nut
4	1	0400-9000P	Impeller (Nylon)
5	1	1700-0101	Gasket
6	1	2120-0010	Mechanical Seal (Optional Buna-N)
6	1	3430-0334	Mechanical Seal (Standard Viton)
7	1	1720-0083	O-Ring
8	1	0752-9000C	Mounting Flange Adapter
9	4	2210-0020	Hex Head Capscrew
10	1	1720-0139	O-Ring
11	1	2130-0018	Bearing Lip Seal
12	1	1700-0098	Gasket
13		1810-0013	Retaining Ring - (1) required for 540 rpm, (2) for 1-3/8" and (3) for 1-3/4" 1000 rpm
14	1	2008-0001	Ball Bearing
15	1	1820-0025	Retaining Ring
15	3	2210-0046	Capscrew

Ref. No.	Qty. Req'd.	Part No.	Description
16	1	0500-9002	Impeller Shaft (1000rpm)
17	1	3900-0013	Sun Gear (1000 rpm)
18	1	1810-0011	Retaining Ring (1000 rpm)
19	3	2210-0046	Hex Head Capscrew
20	3	2270-0003	Washer
21	6	2265-0003	Thrust Washer
22	3	2007-0052	Bearing (included with driver gear)
23	3	2007-0022	Bearing Inner Race
24	3	3900-0040	Driver Gear w/ Bearing (1000 rpm) 32 teeth, Dia. 2.13"
25	1	0562-9002D	Driver Hub (Model 9008C-O)
26	1	0501-9018D	Driver Hub (Model 9018C-O)
27	1	1610-0005	Key
28	1	0501-9016D	Driver Hub (Model 9016C-O)
29	1	3435-0058	Locking Collar Kit (hollow shaft)
30	1	0562-9000D	Driver Hub (Model 9006C-O)
31	3	3900-0039	Driver Gear w/ Bearing (540 rpm) 39 teeth, Dia. 2.6"
32	1	3900-0010	Impeller Shaft/Pinion Gear (540rpm)
33		1610-0012	Woodruff Key *(1) req'd for 540rpm, (2) req'd for 1000 rpm models.
34	1	2220-0035	Capscrew (Model 9028C)
35	1	2403-0012	Bushing (Model 9028C)
36	1	0501-9018D1	Driver Hub (Model 9028C)
37	1	1800-0014	Retaining Ring
38	1	1810-0001	Retaining Ring
39	1	3900-0009	Ring Gear
40	8	1450-0004	Cushion Bumper
41	1	0754-9000C	Gear Casing
42	4	2210-0026	Hex Head Capscrew
43	1	2404-0193	Breather Vent
44	1	2102-0025	Oil Seal
45	1	1720-0022	O-Ring
46	1	0550-1322F4	Driver Hub (9028C-0) 1-3/4"Hub 20 Teeth
47	1	3430-0190	Locking Collar Kit (Model 9028C)
48	4	2406-0019	Oil Plug
49	1	1520-0034	Mounting Clip
50	1	2220-0035	Capscrew
	1	2005-0006	Bearing

NOTE: When ordering parts, give QUANTITY, PART NUMBER, DESCRIPTION, and COMPLETE MODEL NUMBER. Reference number are used ONLY to identify part in the drawing and are NOT to be used as order numbers.

**Seal, O-Ring Repair Kit
No. 3430-0334**

consists of:
(1) Ref. 5 Gasket, (1) Ref. 6 Mechanical Seal and (1) Ref. 7 O-Ring.

Gear Lube Requirement:
8oz. Phillube SAE 80W90 Oil

Life Guard Seal Kit

No. 3430-0591

Consists of:
Ref. 6 and Ref. 7.

Notes

Notes

Notes

EC Declaration of Incorporation

Manufacturers Name: Pentair Flow Technologies, LLC
Manufacturers' Address: 375 Fifth Avenue NW,
New Brighton, MN 55112, USA

Declare that the partially complete machinery described below conforms to applicable health and safety requirements of Parts 1 of Annex I of Machinery Directive 2006/42/EC. This partly completed machinery must not be put into service until the equipment into which it is to be incorporated has been declared in conformity with the provisions of this directive. Confidential technical documentation has been compiled as described in Annex VII Part B of Machinery Directive 2006/42/EC and is available to European national authorities on written request. If a request is received, documentation will be transmitted either electronically or by post. Clauses 1.1.4, 1.1.7, 1.1.8 Section 1.2, Clauses 1.3.5, 1.3.6, 1.3.7, 1.3.8.1, 1.3.8.2, 1.3.9, 1.4.1, 1.4.2.1, 1.4.2.2, 1.4.2.3, 1.4.3, 1.5.2, 1.5.7, 1.5.12, 1.5.14, 1.5.16, 1.6.2, 1.7.1.1, 1.7.1.2, 1.7.2, and 1.7.4.2 are clauses of Machinery Directive 2006/42/EC that have not been met, but could be applicable and must be addressed during installation by a third party.

Description: PENTAIR Pump
Type: Roller Pumps
Series Numbers 1502, 1700, 4001, 4101, 6500, 7560, 7700
Type: Centrifugal Pumps
Series Numbers 1442P, 90XX, 9202, 9203, 9205, 9206, 9208, 9262, 9263, 9253, 9302, 9303, 9305, 9306, 9307, 9308, 9313, 9316, 9742P

The following standards have either been referred to or been complied with in part or in full as relevant:

- | | | | |
|-----------------------|------------------|---|---|
| ENISO 12100 | Machinery Safety | - | General principles for design - Risk assessment and risk reduction |
| EN809-1998 + A1 2009 | Machinery Safety | - | Pumps and pump units for liquids - Common safety requirements |
| EN ISO 13732-1 | Machinery Safety | - | Ergonomics of the thermal environment |
| EN ISO 3744:2010 | Acoustics | - | Determination of sound power levels and sound energy levels of noise sources using sound pressure |
| EN ISO 11202/A1 1997 | Machinery Safety | - | Noise emitted by machinery and equipment |
| EN 12162:2001+A1:2009 | Machinery Safety | - | Liquid pumps - Safety requirements -Procedure for hydrostatic testing |
| EN ISO 4254-6:2009 | Machinery Safety | - | Sprayers and liquid fertilizer distributors |
| 97-68-EC + 2010/26/EU | Gas Emission | - | Non-road gas emissions |

Name **Position**

Signature **Date**

Place of Signing.....

 QNET BV
Hommerterweg 286
6436 AM Amstenrade
The Netherlands

Limited Warranty on Hypro/Shurflo Agricultural Pumps & Accessories

Hypro/Shurflo (hereafter, "Hypro") agricultural products are warranted to be free of defects in material and workmanship under normal use for the time periods listed below, with proof of purchase.

- Pumps: one (1) year from the date of manufacture, or one (1) year of use. This limited warranty will not exceed two (2) years, in any event.
- Accessories: ninety (90) days of use.

This limited warranty will not apply to products that were improperly installed, misapplied, damaged, altered, or incompatible with fluids or components not manufactured by Hypro. All warranty considerations are governed by Hypro's written return policy.

Hypro's obligation under this limited warranty policy is limited to the repair or replacement of the product. All returns will be tested per Hypro's factory criteria. Products found not defective (under the terms of this limited warranty) are subject to charges paid by the returnee for the testing and packaging of "tested good" non-warranty returns.

No credit or labor allowances will be given for products returned as defective. Warranty replacement will be shipped on a freight allowed basis. Hypro reserves the right to choose the method of transportation.

This limited warranty is in lieu of all other warranties, expressed or implied, and no other person is authorized to give any other warranty or assume obligation or liability on Hypro's behalf. Hypro shall not be liable for any labor, damage or other expense, nor shall Hypro be liable for any indirect, incidental or consequential damages of any kind incurred by the reason of the use or sale of any defective product. This limited warranty covers agricultural products distributed within the United States of America. Other world market areas should consult with the actual distributor for any deviation from this document.

Return Procedures

All products must be flushed of any chemical (ref. OSHA section 1910.1200 (d) (e) (f) (g) (h)) and hazardous chemicals must be labeled/tagged before being shipped* to Hypro for service or warranty consideration. Hypro reserves the right to request a Material Safety Data Sheet from the returnee for any pump/product it deems necessary. Hypro reserves the right to "disposition as scrap" products returned which contain unknown fluids. Hypro reserves the right to charge the returnee for any and all costs incurred for chemical testing, and proper disposal of components containing unknown fluids. Hypro requests this in order to protect the environment and personnel from the hazards of handling unknown fluids.

Be prepared to give Hypro full details of the problem, including the model number, date of purchase, and from whom you purchased your product. Hypro may request additional information, and may require a sketch to illustrate the problem.

Contact Hypro Service Department at 800-468-3428 to receive a Return Merchandise Authorization number (RMA#). Returns are to be shipped with the RMA number clearly marked on the outside of the package. Hypro shall not be liable for freight damage incurred during shipping. Please package all returns carefully. All products returned for warranty work should be sent **shipping charges prepaid** to:

HYPRO / PENTAIR
Attention: Service Department
375 Fifth Avenue NW
New Brighton, MN 55112

For technical or application assistance, call the **Hypro Technical/Application number: 800-445-8360**, or send an email to: **technical@hypropumps.com**. To obtain service or warranty assistance, call the **Hypro Service and Warranty number: 800-468-3428**; or send a fax to the **Hypro Service and Warranty FAX: 651-766-6618**.

*Carriers, including U.S.P.S., airlines, UPS, ground freight, etc., require specific identification of any hazardous material being shipped. Failure to do so may result in a substantial fine and/or prison term. Check with your shipping company for specific instructions.

Visit www.hypropumps.com/register today to register your product and stay up-to-date on new products and promotional offers.

The following information is required:

Model # _____ Serial # _____

