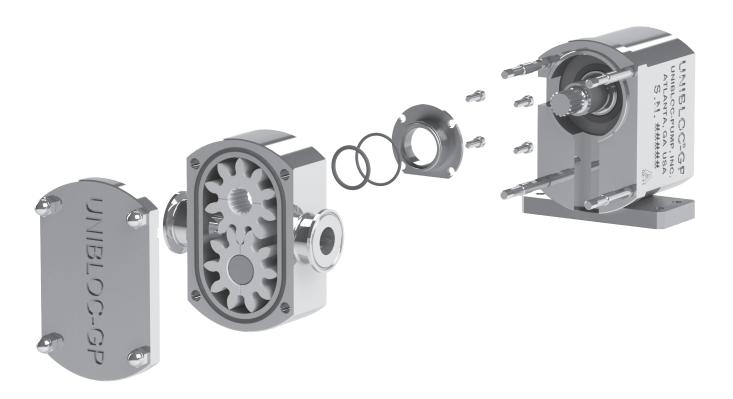
UNIBLOC®-GP

Operation & Service Manual

Models: 200-375



Original Instructions

MANUAL NO.: GP200-375 REVISION: 04/2022





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> Revision Date: 04/2022 Manual No.: GP200-375

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1.0 General

1.1 Declaration of Conformity



EC DECLARATION OF CONFORMITY

We hereby declare that the following machinery is intended for installation into a machine or to be assembled with other machines into a machine. It must **not** be put into service until the machinery into which it is incorporated has been declared in conformity with the provisions of the Machinery Directive 2006/42/EC, 09/392/EEC, amendments 91/368/EEC, 93/44/EEC, 93/68/EEC.

Manufacturer	Manufacturer
Unibloc Hygienic Technologies, LLC	UNIBLOC-RH GmbH
1650 Airport Road	Stromberger Strasse 197
Kennesaw, GA 30144	Beckum 59269
USA	Germany

Machine Description: Rotary Lobe Pump

Type: UNIBLOC-PD

UNIBLOC-GP

Size: PD200-677

GP200-450

Serial Number: *****

These machines have been designed and manufactured in accordance with the following transposed harmonized European Standards.

EN292 Parts 1 and 2: 1991 Safety of Machinery – Basic Concepts, general principles for design.

EN294: 1992 Safety distances to prevent danger zones being reached by the upper limbs. . .

Amendment: CR NO 2023/2006: GMP for materials and articles in contact with food

Amendment: EC NO 1935/2004: Materials and articles in contact with food

Amendment: CR NO 10/2011: Plastic materials and articles in contact with food

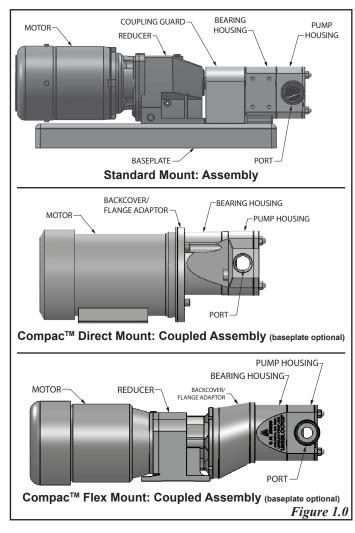
A technical construction file for this machinery is retained at the above address.

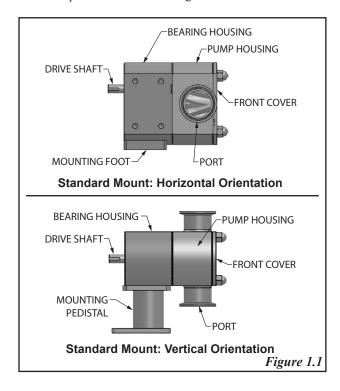
Bhavesh Patel, Operations Manager

Q42.2101.1

1.2 General Description

UNIBLOC-GP is a positive displacement gear pump. It may be supplied with a drive unit (figure 1.0) or without a drive unit (figure 1.1). When supplied with a drive unit it is called UNIBLOC-GP ASSEMBLY. Figure 1.0 indicates various parts of an assembly. UNIBLOC-GP can be supplied in 2 different series; 5000 series with stainless steel bearing housing or 4000A with a Anodized aluminum bearing housing. Different models are available from each series. Each model can be mounted with the inlet and outlet ports in horizontal or vertical orientation. Port orientation should be specified when ordering.



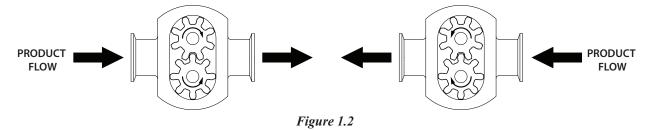


The UNIBLOC-GP is designed to accommodate both vertical and horizontal product flow.

Standard mount models have a pre-drilled bearing housing allowing for custom installation and can be equiped with a mounting foot for horizontal port orientation or a mounting pedestal for vertical port orientation.

CompacTM mount models come equiped with a flange adaptor. The flange adaptor allows the pump to be mounted directly to a motor in either horizontal or vertical port orentation without the need for a pump mounting foot or pedistal.

The pump is designed to operate in both directions without modifications. See figure 1.2



1.2.1 Limitation

The pump should be used for the duty for which it has been specified. The operating pressure, speed and temperature limits have been selected at the time of order and MUST BE ADHERED TO. These details are stated on the original order documentation. If not available, documentation may be obtained from your supplier by referencing the pump serial number and/or invoice number.

1.2.2 Marking - Standard

Standard marking is machined on the side of pumps' bearing housing. See figure 1.4 for details. Pump size is machined on rotor housing next to the ports.

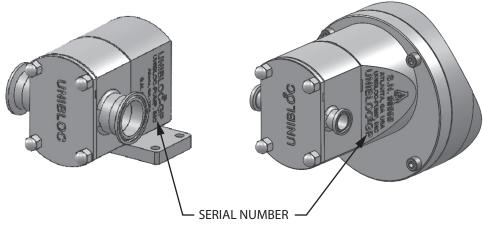


Figure 1.4

2.0 Safety

2.1 General

This information must be read carefully before installation, operation or servicing. The safety instruction must always be available for the pump operator. The following symbols are used.



WARNING: Indicates instructions that can affect personal safety if not followed.



WARNING: Indicates electrical voltage instructions that can affect personal safety if not followed.



ATTENTION: Indicates instructions to be considered for safe operation and to protect the pump and pump unit.

2.2 Safety Instructions

Incorrect installation, operation or maintenance of the equipment can cause serious personal injury and/or damage to the equipment and will invalidate the warranty. Make sure the pipes are well supported as the pump is not meant to serve this purpose. Keep in mind that pipes filled with liquid are very heavy. See figure 2.2.1 for recommended pipe layout.

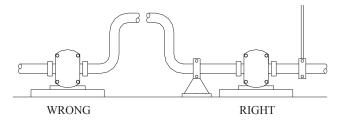


Figure 2.2.1



Pump or pump assembly must be electrically connected by authorized personnel, follow the motor instructions supplied in case of assembly.



Never operate the pump if the front cover and/or suction/discharge pipe-work are not in place. Make sure they are properly installed, see figure 2.2.1. Likewise, never operate the pump if other protection such as coupling and shaft guards are missing or incorrectly installed.



Never stick your appendages or other foreign objects inside the pump housing, connections to the pump housing, or in the back cover if there is any possibility that the pump shafts may rotate.



Do not exceed the pump's maximum operating pressure, speed or temperature. Do not modify the operating parameters/system for which the unit was originally supplied for without first consulting your local supplier.



Pump installation and operation must always comply with prevailing health and safety regulations.

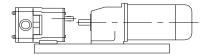


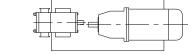
Always make sure the alignment with the drive unit is within proper tolerances. Misalignment between the pump, drive and coupling will result in premature wear, increased operating temperature and noisier environment.

See figure 2.2.2 for vertical misalignment: Place shims under pump or drive; 0.25mm (0.01inch) max deviation.

See figure 2.2.3 for horizontal misalignment: Move pump or drive horizontally; 0.25mm (0.01inch) max deviation.

See figure 2.2.4 for angular misalignment: Rotate pump or drive; 1° max deviation





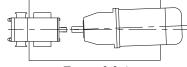


Figure 2.2.2

Figure 2.2.3





Avoid any direct contact with hot surfaces of the pump or drive unit. If the surface temperature of the system exceeds 68°C, the system must be marked with a warning sign for "hot surface".



ALWAYS DISCONNECT THE POWER SUPPLY when performing any kind of maintenance. Make sure the power can not be switched by locking it. Allow the pump and associated parts to cool down to a safe handling temperature.



Never operate the pump with either the suction side or the pressure side blocked.



Never operate the pump without the front cover installed properly



Always make sure any safety/relief valves are depressurized or relieved before dismantling.



Always ensure correct rotation of pump with flow direction before start.

ATTENTION

Installation of safety equipment to prevent pump from exceeding maximum allowable pressure is recommended. If an integrated safety relief valve is installed, do not allow extended periods of recirculation through the valve. **UNIBLOC-PUMP** can either integrate a safety valve with the front cover, or supply one as a separate unit. Please contact your supplier.

ATTENTION

Installation of a non-return device is recommended to prevent reverse flow in the pump when it is being turned off. UNIBLOC-PUMP can supply a check valve as non-returning device. Please contact your supplier.

ATTENTION

Check the pump and motor assembly for adequate oil prior startup.

ATTENTION

Make sure the pump and pipe systems are clean and free from debris or any foreign material before start up.

ATTENTION

Do not install the pump into a system where it may run dry (i.e. without a supply of pumped media) unless it is assembled with a flushed shaft seal that is properly installed with a fully operational flushing system.

ATTENTION

Installation of pressure gauges/sensors in conjunction with the pump's suction and discharge connections is recommended to be able to monitor the pumps pressure.

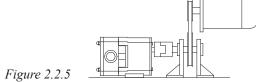
ATTENTION

When cleaning manually or by CIP, SIP methods, the operator must ensure that a suitable procedure is used in accordance with the systems requirements.

ATTENTION

If operating with a pulley, proper support must be selected to prevent excessive bearing wear and bending of the shaft. See figure 2.2.5.

Additional safety guards are a must.

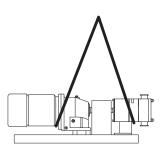


3.0 Installation

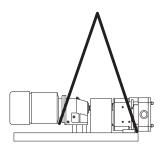
3.1 Handling and Storage



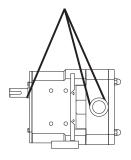
Caution must be taken when lifting the pump or pump unit. For all parts over 20kg we recommend the use of a lifting device or lifting arrangement when unpacking or moving. Check the weight guide in section 5.0 for details. See figure 3.0 and 3.1 for lifting guidance.



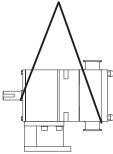
Vertical Port Mounting Figure 3.0



Horizontal Port Mounting



Horizontal Port Mounting Figure 3.1



Vertical Port Mounting

When you receive your product please follow these steps.

- Check packaging for any damage in transit
- Check the packing slip against received goods
- If an assembly, make sure the manual for the drive unit is included
- Visually inspect the product for any signs of damage
- Report any damage immediately to the carrier

If installation of the pump is delayed, store and protect the unit properly by:

- Not removing plastic port protectors.
- Selecting a clean, dry storage location free from vibration. In a moist or dusty atmosphere, further protect the pump/assembly with suitable cover.
- Rotating the pump or pump assembly by hand every week, to prevent bearing damage.

3.2 System Design

When a pump is to be incorporated in a system, it is considered good practice to minimize the length of the pipes and the number of fittings and any other restrictions to product flow. Always consider the following when designing a system:

- Confirm the Net Positive Suction Head-NPSH available from the system exceeds the NPSH required from the pump to ensure smooth operation and avoid cavitation.
- Avoid suction lifts and manifold/common suction lines for two pumps running in parallel, as this may cause vibration or cavitation.
- Protect the pump from unintended blockage from nuts, bolts, welding slag, etc, by installing a strainer. Also protect the pump from unintended operation against a closed valve by installing a safety/pressure relief valve. Strainers and relief valves can be provided by UNIBLOC-PUMP.
- Install monitoring equipment on suction and pressure side of pump for diagnostic purposes.
- Install shut-off valves on suction and pressure side to isolate pump when service is necessary.
- Make sure the pipes are well supported. Do not use the pump to support the piping. See figure 2.3.1
- Make the necessary piping arrangement if pump is supplied with a flushed seal or if the housing is jacketed for heating/cooling.
- Do not expose pump to rapid temperature changes, this may seize the pump as a result from thermal shock.
- Allow at least 1m (3feet) free space around the pump for easy maintenance access.

Figure 3.2.1 shows a typical recommended design and required components for safe operation of the pump. All components are available from **UNIBLOC-PUMP.** Contact your supplier.

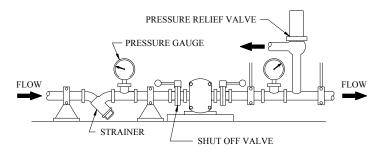


Figure 3.2.1

3.3 Pre-Start Check List

- Check the pipes to make sure they have been purged of debris.
- Check all obstructions to make sure they have been removed from pipe or pump.
- Check pump connections and make sure they are tight.
- Check lubricant levels to make sure they are correct.
- Check that safety guards are in place.
- Check inlet and outlet valve to make sure they are open and functional.
- Check the seal flushing is connected and activated, if applicable.
- Adjust motor speed to achieve desired output flw (consult flow charts for optimum operating range).

4.0 Shaft Seal Service

DISENGAGE POWER TO THE PUMP AND DRIVE SYSTEM BEFORE PROCEEDING WITH THE FOLLOWING STEPS.

4.0.1 Pump Housing Removal (see drawing on p.16)

Disengage power to the pump drive and the system. System pressure must be relieved before working on the pump. Isolate the pump from the rest of the system by shutting off valves at the pump ports. Use caution when removing the cover (2) as there may be product remaining in the pump. Remove the wing nuts (17) and cover (2). Slide off the gears (3a, 3b). If they will not slide off they can be pulled off together with the pump housing (1). Remove the pump housing (1) by tapping gently with a rubber mallet on the ports. Do not rock the housing back and forth as doing so may damage the shaft seal. Service the shaft seals according to the instructions below.

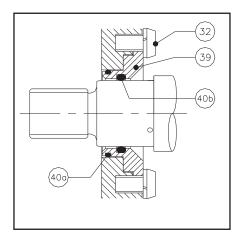
4.0.2 UNIBLOC-GP 200-275 Single O-Ring Seal

Removal:

All seal parts will come off with the housing. Remove the retainer ring (39) by unscrewing the bolts (32). The o-rings (40a, 40b) can now be removed.

Installation:

Check the shaft for wear. If grooves are noticeable, it may have to be replaced or the o-ring (40b) may not seal properly or may fail prematurely. Place new o-rings (40a) into the grooves of the retainer ring (39). Apply a lubricant on the shaft, o-rings, and the pump housing bore with a lubricant approved for use with the pumped product. Attach the retainer ring to the pump housing with the bolts (32). See the Pump Housing Installation instructions below to complete the service.



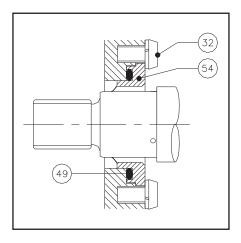
4.0.3 UNIBLOC-GP 200-275 Single Lip® Seal

Removal:

All seal parts will come off with the housing. Remove the Lip Seal® (54) by unscrewing the bolts (32). O-ring (49) can now be removed.

Installation:

Check the shaft for wear. If grooves are noticeable, it may have to be replaced or the seal may leak or fail prematurely. Place a new o-ring (49) into the groove of the Lip Seal® (54). Apply a lubricant on the shaft, o-ring, and the pump housing bore with a lubricant approved for use with the pumped product. Attach the Lip Seal® (54) to the pump housing with the bolts (32). See the Pump Housing Installation instructions below to complete the service.



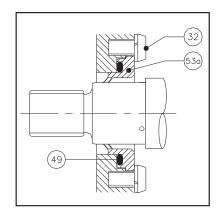
4.0.4 UNIBLOC-GP 200-275 Double Lip® Seal

Removal:

All seal parts will come off with the housing. Remove the Lip Seal® (53a) by unscrewing the bolts (32). O-ring (49) can now be removed.

Installation:

Check the shaft for wear. If grooves are noticeable, it may have to be replaced or the seal may leak or fail prematurely. Place a new o-ring (49) into the groove of the Lip Seal® (54). Apply a lubricant on the shaft, o-ring, and the pump housing bore with a lubricant approved for use with the pumped product. Attach the Lip Seal® (54) to the pump housing with the bolts (32). See the Pump Housing Installation instructions below to complete the service.



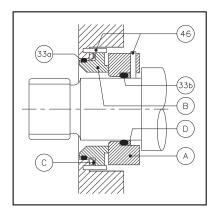
4.0.5 UNIBLOC-GP 200-275 Single Mechanical Seal

Removal:

Remove the seal nose ring (B) and o-ring (33a) by pulling them out of the housing. Remove the mating ring (A), the o-ring (33b), and the washer (D) by sliding them off the shaft. To avoid damage, handle and store the loose seal nose ring (B) and the mating ring (A) so that their lapped sealing surfaces do not get scratched.

Installation:

If missing, insert the dowel pins (46) in the shaft and pump housing. Coat the shaft and pump housing bore with a product compatible lubricant. Place the o-ring (33b) in the mating ring (A) first, and then the washer (D). Slide the mating ring, slotted side first, on the shaft. Place the spring washer (C) between the pins (46) in the pump housing. Place o-ring (33a) in the groove of the mating ring (B). Align the slots of the mating ring with the pins in the pump housing. Push the mating ring into the pump housing, o-ring side first. Press several times to make sure it slides easily. Place a product compatible lubricant on the mating ring and the seal nose ring sealing surfaces. See the Pump Housing Installation instructions below to complete the service.



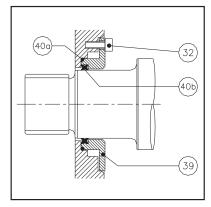
4.0.6 UNIBLOC-GP 300-375 Single O-Ring Seal

Removal:

All seal parts will come off with the housing. Remove the retainer ring (39) by unscrewing the bolts (32). The o-rings (40a, 40b) can now be removed.

Installation:

Check the shaft for wear. If grooves are noticeable, it may have to be replaced or the seal may leak or fail prematurely. Place new o-rings (40a, 40b) into the grooves of the retainer ring (39). Attach the retainer ring to the pump housing with the bolts (32). Coat the o-rings and the shaft with a lubricant approved for use with the pumped product. See the Pump Housing Installation instructions below to complete the service.



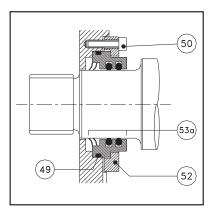
4.0.7 UNIBLOC-GP 300-375 Double O-Lip® Seal

Removal:

All seal parts will come off with the housing. Remove the bolts (50), the split washers (51), and the retainer ring (52). Pull the cartridge (53a) out of the pump housing bore.

Installation:

Check the shaft for wear. If grooves are noticeable, it may have to be replaced. Place new o-rings (49) into the groove of the seal cartridge. Clean the rotor housing seal bore. Apply product compatible lubricant to the bore and shaft. Place the pump housing so that the seal bore is pointing up, push the seal cartridge (53a) in, lip side first. Attach the retainer ring (52) to the pump housing with the split washers (51) and the bolts (52). See the Pump Housing Installation instructions below to complete the service.



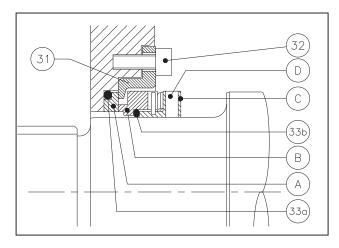
4.0.8 UNIBLOC-GP 300-375 Single Mechanical Seal

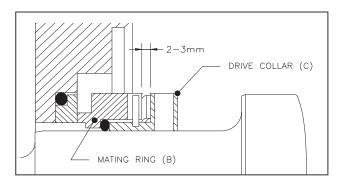
Removal:

The optional retainer ring (31), the bolts (32), the mating ring (A), and the mating ring o-ring (33a) will all come off with the pump housing. Unscrew the bolts (32) to remove the retainer ring (31), the mating ring (A), and the mating ring o-ring (33a). Slide the seal nose ring (B) and the seal nose o-ring (33b) off the shaft. To avoid damage, handle and store the loose seal nose ring and the mating ring so that their lapped sealing surfaces do not get scratched. If not being replaced, the drive collar (C) may remain on the shaft, otherwise loosen the set screws (D) and slide them off the shaft.

Installation:

The shaft and the pump housing bore should be cleaned before installing the seal components. Slide the drive collar (C) on the shaft. Moisten the seal nose o-ring (33b) with water or coat them with a lubricant that is acceptable for use with the product. Slide the seal nose o-ring on the shaft and then the seal nose ring (B), slotted sides first. Align the slots in the seal nose ring with the pins in the drive collar. Push the seal nose ring against the drive collar so that the oring seats properly. Place the mating ring o-ring (33a) in the pump housing seal bore. Only lubricate this o-ring with water or alcohol. Push the mating ring into the pump housing so that it seats flat with the step in the housing. Some applications require pins to be used in the mating ring. When placing it in the pump housing align the pins with the holes in the pump housing and press in the ring. Do not use objects to push it in that will scratch the mating ring seal surface. Place a product compatible lubricant on the sealing surfaces. If the retainer ring (31) was supplied with the pump, bolt it to the pump housing. See the Pump Housing Installa-





tion instructions below to complete the service. After installing the housing push the drive collar toward it compressing the wave spring and leaving a 2-3mm (0.08"-0.12") gap between the collar and the seal nose ring (B). Tighten the set screws (D).

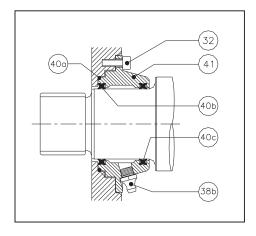
4.0.9 UNIBLOC-GP 300-375 Double O-Ring Seal

Removal:

All seal parts will come off with the housing. Remove the seal housing (41) by unscrewing the bolts (32). The o-rings (40a, 40b, 40c) can now be removed.

Installation:

Check the shaft for wear. If grooves are noticeable, it may have to be replaced or the o-rings (40b, 40c) may leak or fail prematurely. Place new o-rings into the grooves of the seal housing (41). Attach the flush housing to the pump housing with the bolts (32). Coat the o-rings and the shaft with a lubricant approved for use with the pumped product. See the Pump Housing Installation instructions below to complete the service. Fill the cavity between the o-rings with product compatible grease before resuming operation.

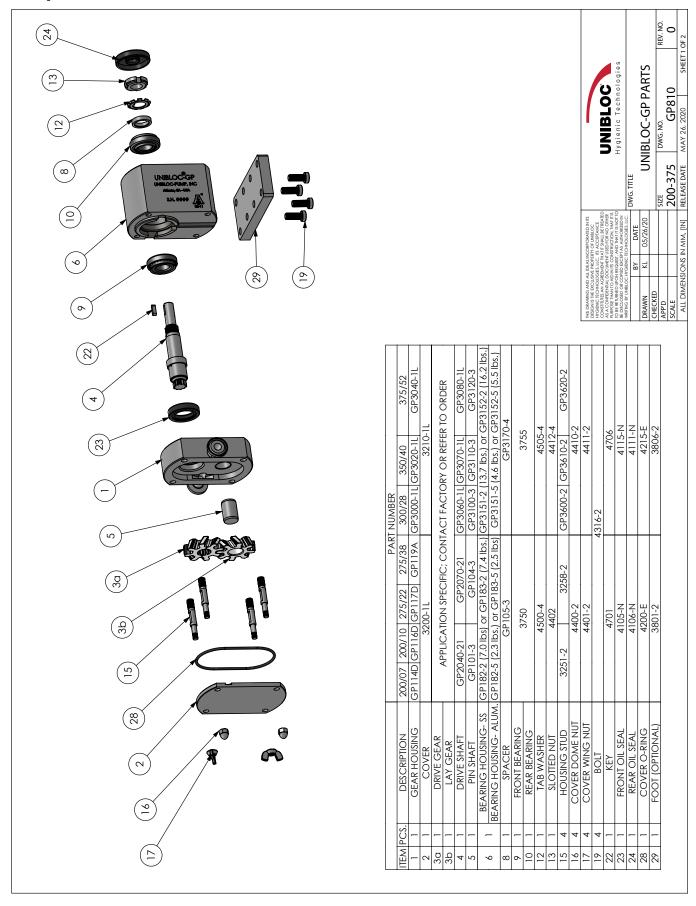


5.0 Bearing Housing Lubricant

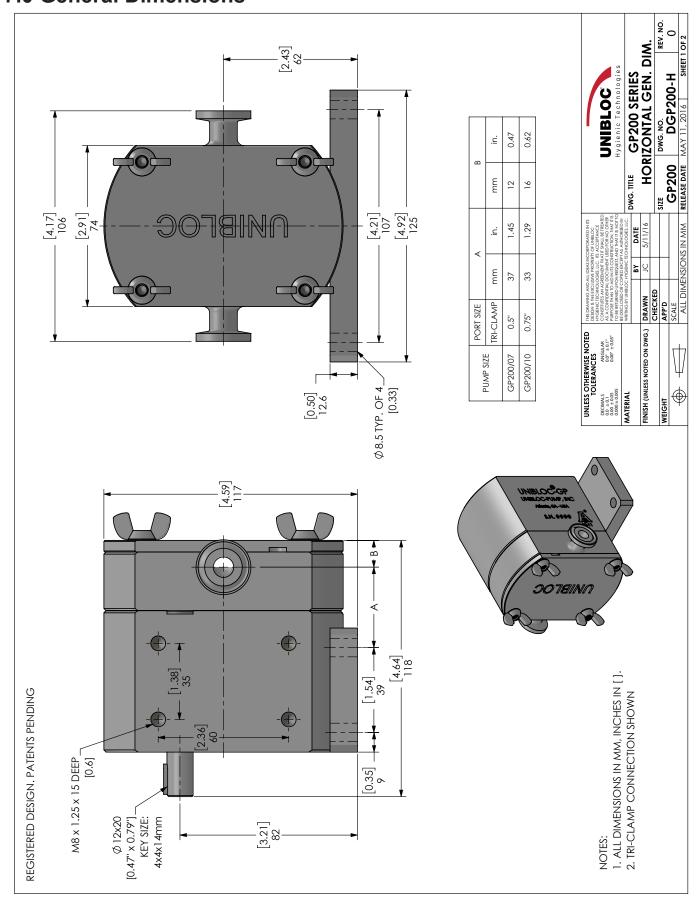
Unibloc-GP gear pumps are factory shipped with Lubriplate® SYNXTREME FG-2 Synthetic Food Machinery Lubricant

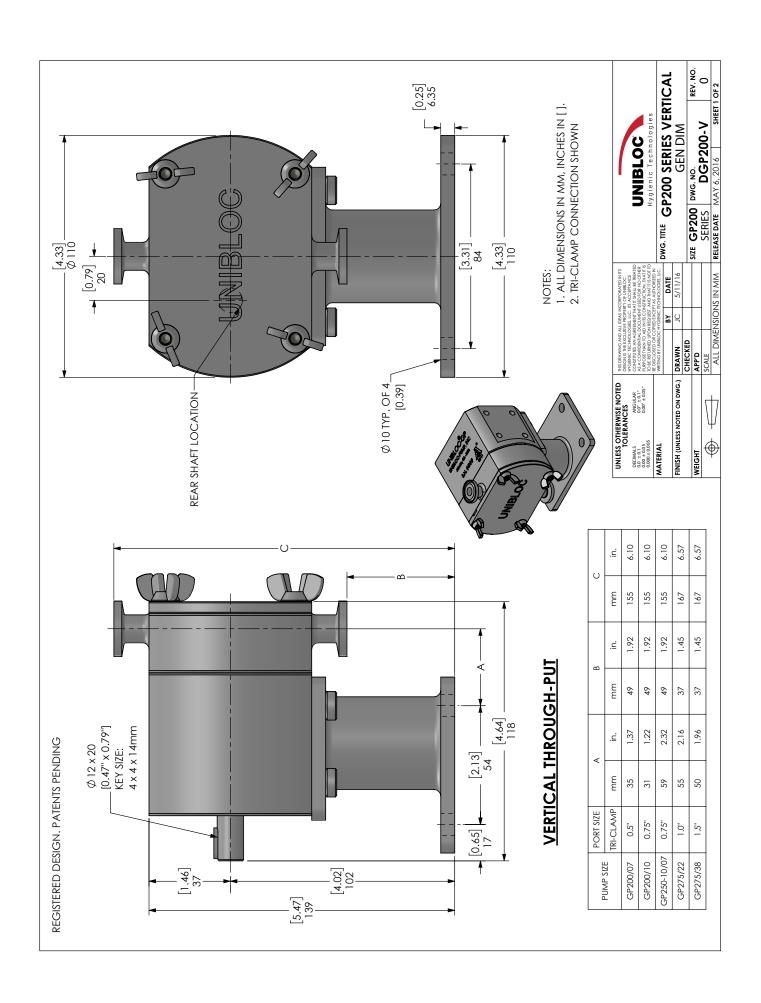
Before checking or replacing lubricant level DISENGAGE THE POWER SUPPLY TO THE MOTOR.

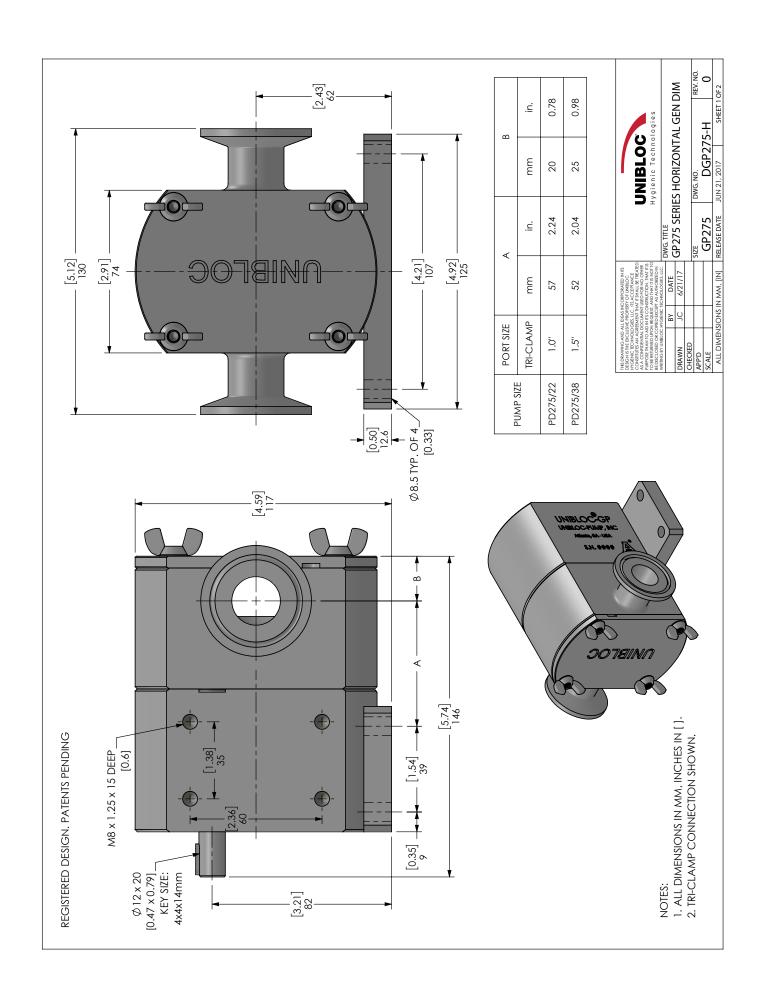
6.0 Spare Parts

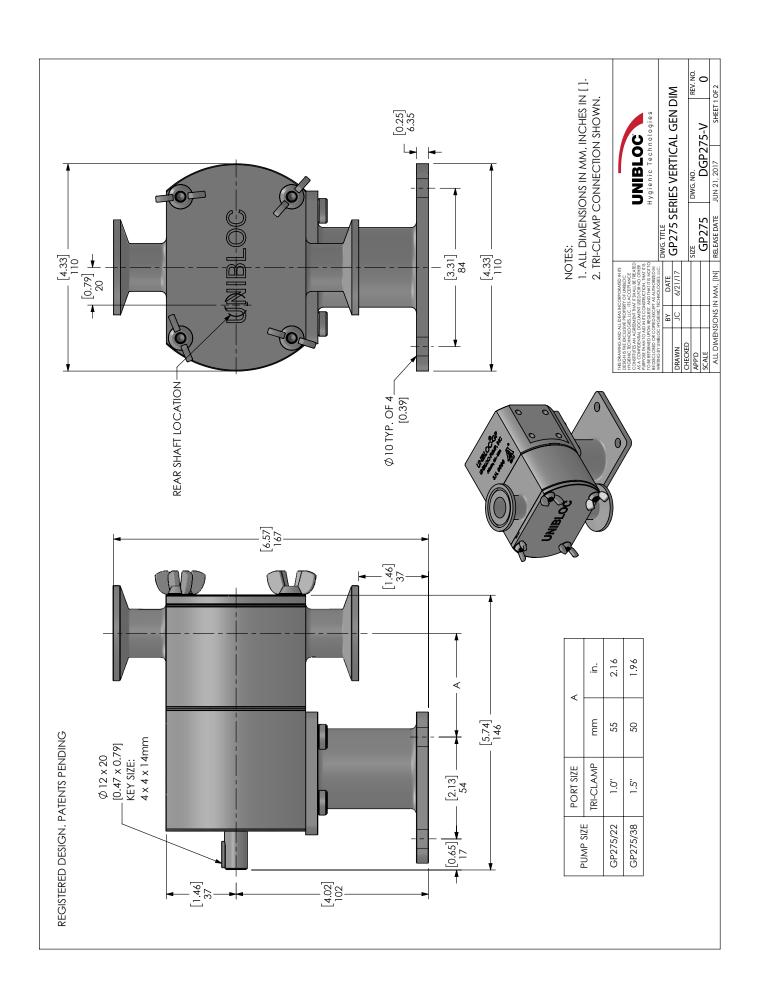


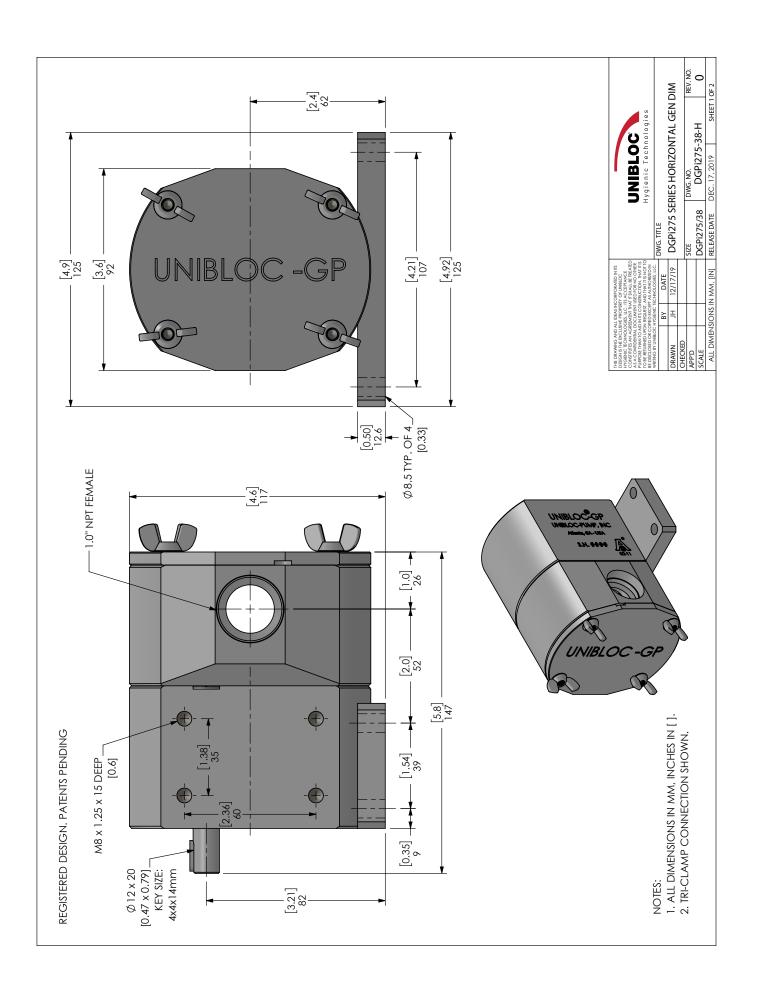
7.0 General Dimensions

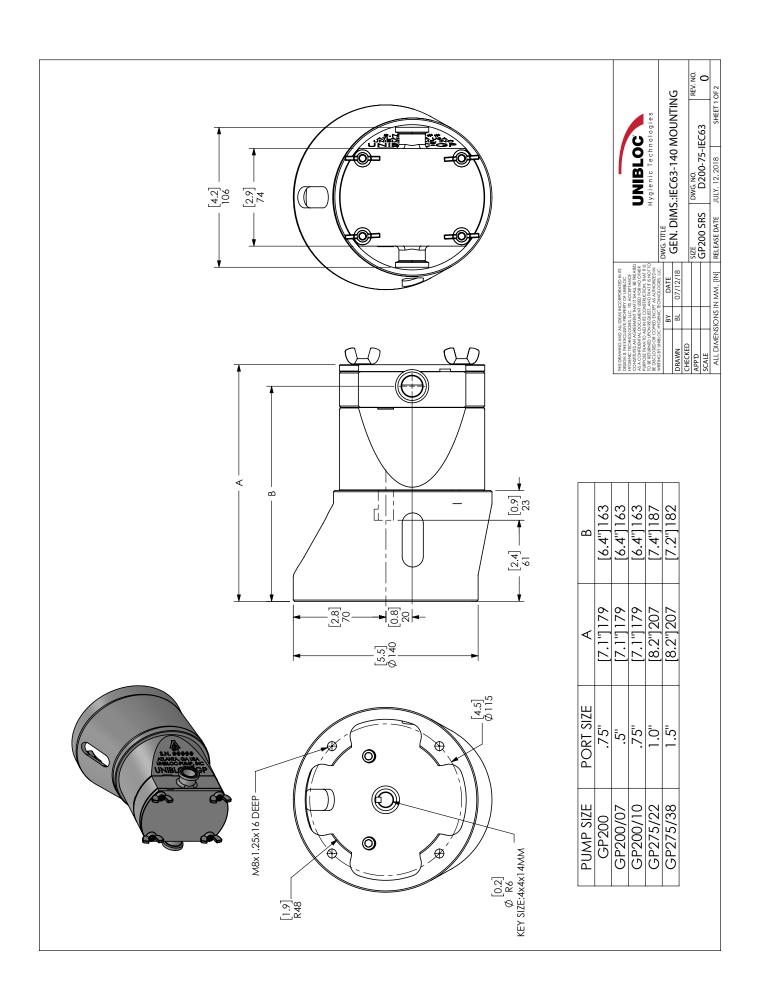


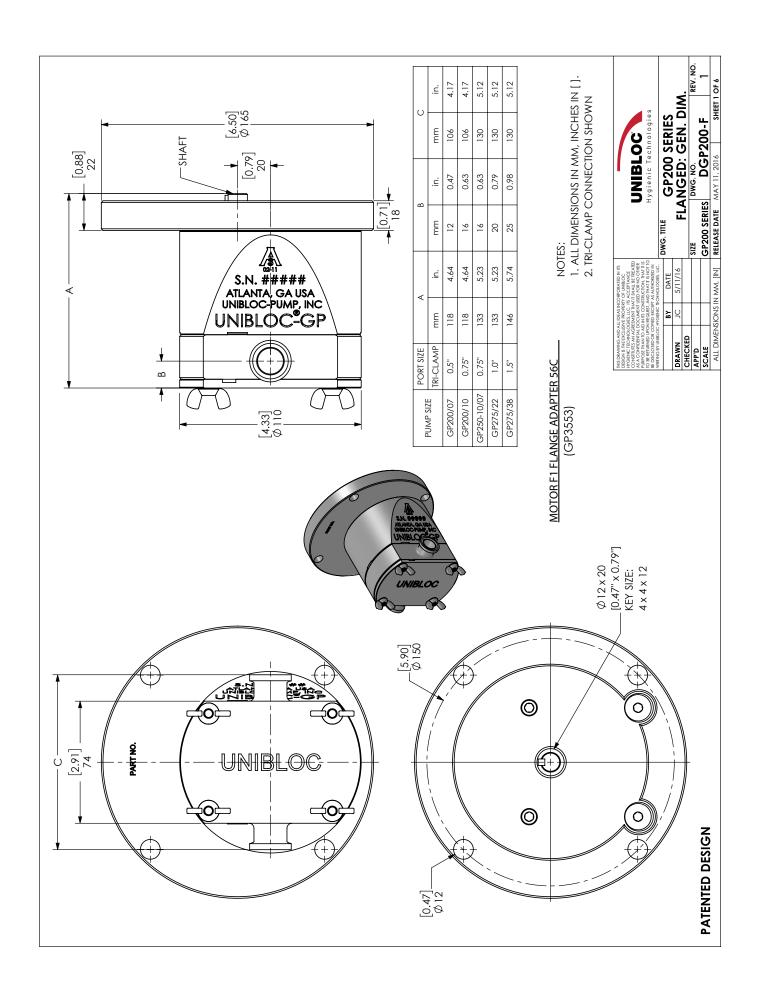












Notes:

Pump Size:	 -
Pump SN:	_

WARRANTY

Unibloc Hygienic Technologies, LLC ("Unibloc") warrants that its product will be free from defects in material and workmanship which results in noncompliance with the Specifications for such product. This warranty shall begin upon delivery and continue for a period of one (1) year from such date. If during this period the product does not comply with its specifications as a result of defects in material or workmanship, contact Unibloc to arrange return of the faulty product, shipping prepaid and fully insured, to an authorized Unibloc service facility. If upon inspection of the item in question, defects in workmanship or materials are revealed, Unibloc's sole obligation under this warranty shall be to supply a repair or replacement for any defective part of a product, and to return such product to the customer by shipping it EX WORKS (as defined in Incoterms 2020) the service facility. Unibloc shall not be required to supply any labor for repairs or replacement of parts. This warranty is void if the product has not been used as recommended or instructed, has been altered or used with unauthorized accessories, has been subject to misuse, abuse or accident, or has been damaged due to causes not related to poor workmanship or defective materials. All parts or components not manufactured by Unibloc are warranted only to the extent of the warranty of the respective manufacturers.

THIS LIMITED WARRANTY IS EXPRESSLY GIVEN IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANT-ABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT, ALL OF WHICH ARE HEREBY EXCLUDED. IN NO EVENT SHALL UNIBLOC OR ITS AFFILIATES BE LIABLE TO ANYONE FOR SPECIAL, COLLATERAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER ARISING IN CONTRACT OR IN TORT.

UNIBLOC RESERVES THE RIGHT TO MAKE TECHNICAL CHANGES WITHOUT NOTICE.



Unibloc Hygienic Technologies, LLC

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