

## Operation Instructions & Parts Manual

**Tanker Pump Models: 501-576**

MANUAL NO.: PD501-576 REVISION: 07/2023





**Unibloc Hygienic Technologies, LLC**

1650 Airport Road NW, Suite 110 • Kennesaw, Georgia 30144 • USA

Tel 1+770-218-8900 E-Mail [info@unibloctech.com](mailto:info@unibloctech.com)

[www.unibloctech.com](http://www.unibloctech.com)

Information contained in this manual is subject to change without notice and does not represent a commitment on the part of Unibloc Hygienic Technologies, LLC. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose, without the express written permission of Unibloc Hygienic Technologies, LLC.

Copyright © 2023  
Unibloc Hygienic Technologies, LLC  
All Rights Reserved

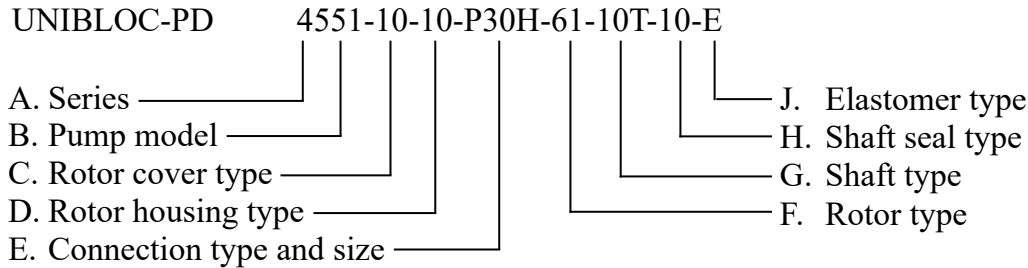
Revision Date: 07/2022  
Manual No.: PD501-576

# Contents

- Pump Identification .....4**
- 1.0 General .....6**
  - 1.1 Declaration of Conformity.....6
  - 1.2 General Description.....7
    - 1.2.1 Limitation .....7
    - 1.2.2 Noise Emission .....7
    - 1.2.3 Marking - CE .....7
    - 1.2.4 Marking - Standard.....7
- 2.0 Before Start-Up .....8**
  - 2.1 Pump Head .....8
  - 2.2 Direction of Flow.....8
  - 2.3 Pipe Layout .....9
  - 2.4 Port Positioning .....9
  - 2.5 Alignment and Mounting Suggestions .....10
  - 2.6 Clean the System Before Start-Up .....10
- 3.0 Shaft Seal Service .....11**
  - 3.1 Double O-Lip™ Seal.....11
    - 3.1.1 Double O-Lip™ Seal Removal .....11
    - 3.1.2 Double O-Lip™ Seal Installation .....11
  - 3.2 Single Mechanical™ Seal .....12
    - 3.2.1 Single Mechanical™ Seal Removal.....12
    - 3.2.2 Single Mechanical™ Seal Installation.....12
  - 3.3 Seal Installation- Final Steps .....13
- 4.0 Gearbox Maintenance and Service .....14**
  - 4.1 Gearbox Disassembly .....14
  - 4.2 Gearbox Assembly .....15
    - 4.2.1 Assembling the Gearbox.....15
    - 4.2.2 Assembling the Gearbox- Final Steps.....15
  - 4.3 Lubricants and Gearbox Volumes.....16
  - 4.4 Torque Requirements and Limits .....16
- 5.0 Rotor Clearances .....17**
- 6.0 Relief Valve Cover Settings and Maintenance .....18**
  - 6.1 Setting the Relief Valve Cover .....19
    - 6.1.1 Setting Relief Valve Cover: P/N 3237 .....19
    - 6.1.2 Setting Relief Valve Cover: P/N 3239B .....19
  - 6.2 Relief Valve Cover Maintenance .....20
    - 6.2.1 Servicing Relief Valve Cover: P/N 3237 .....20
    - 6.2.1 Servicing Relief Valve Cover: P/N 3239B .....20
- 7.0 Troubleshooting .....23**
- 8.0 Pump Dimensions .....25**
- 9.0 Parts Lists .....31**

# Pump Identification

Each pump has a unique serial number machined into the gearbox and stamped on the rotor housing. The type of pump is further described by the series number machined into the gearbox, i.e. 5000, 4000 or 3000. A pump may be described by a part number, as shown below, that indicates its features.



## **A. Series:**

- 5000 - all stainless
- 4000 - stainless rotor housing, aluminum gearbox
- 3000 - stainless rotor housing, steel gearbox

## **B. Pump Model:**

- 501 - UNIBLOC 501 (2 ½" connections)
- 551 - UNIBLOC 551 (3.0" connections)
- 576 - UNIBLOC 576 (3" or 4" connections)

## **C. Rotor Cover Type:**

- 10 - standard cover
- 15 - standard housing with cooling/heating jacket
- 20 - vented cover

## **D. Rotor Housing Type:**

- 10 - standard sanitary housing
- 15 - standard cover with cooling/heating jacket

## **E. Connection Type & Size:**

- B - Bolt-On (Flex Port™)
- P - Clamp
- L - ACME thread
- K - NPT male
- D - DIN threads
- AF - 150# ANSI flange
- DF - DIN flange
- 25 - 2.5 inch
- 30 - 3.0 inch
- 40 - 4.0 inch
- H - horizontal port configuration
- V - vertical port configuration

## **F. Rotor Type:**

- 61 - Class D, 316 stainless steel
- 62 - Class E, 316 stainless steel
- 66 - Class D, 316 stainless steel, Tri-Lobe
- 67 - Class E, 316 stainless steel, Tri-Lobe
- 81 - Class D, nongalling stainless steel
- 82 - Class E, nongalling stainless steel
- 86 - Class D, nongalling stainless steel, Tri-Lobe
- 87 - Class E, nongalling stainless steel, Tri-Lobe
- X - Customized

### ***G. Shaft Type:***

- 10 - standard 316L stainless steel shaft for metallic rotor
- 11 - standard 316L stainless steel shaft with hardened seal area for metallic rotor
- 12 - standard 316L stainless steel shaft with wear sleeve for metallic rotor
- 20 - standard 316L stainless steel drive shaft for metallic rotor and for Charlynn hydraulic motor
- 21 - standard 316L stainless steel drive shaft with hardened seal area for metallic rotor and for Charlynn hydraulic motor
- 22 - standard 316L stainless steel drive shaft with sleeve for metallic rotor and for Charlynn hydraulic motor
- 30 - standard 316L stainless steel drive shaft for metallic rotor and for Danfoss hydraulic motor
- 31 - standard 316L stainless steel drive shaft with hardened seal area for metallic rotor and for Danfoss hydraulic motor
- 32 - standard 316L stainless steel drive shaft with sleeve for metallic rotor and for Danfoss hydraulic motor
- T - top mounted drive shaft
- B - bottom mounted drive shaft

### ***H. Shaft Seal Type:***

- 10 - single mechanical carbon vs stainless steel
- 11a - single mechanical carbon vs tungsten carbide
- 11b - single mechanical carbon vs silicone carbide
- 12a - single mechanical silicone carbide vs tungsten carbide
- 12b - single mechanical silicone carbide vs silicone carbide
- 12c - single mechanical tungsten carbide vs tungsten carbide
- 60 - single O-ring
- 61 - double O-ring seal
- 70 - double O-LIP™ Seal
- 73 - triple O-LIP™ Seal

### ***J. Elastomer Type:***

- E - EPDM
- K - Kalrez
- N - Buna N
- S - Silicone
- T - Teflon encapsulated viton
- V - Viton

# 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 1650 Airport Road Kennesaw, GA 30144 USA	UNIBLOC-RH GmbH Stromberger Strasse 197 Beckum 59269 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.

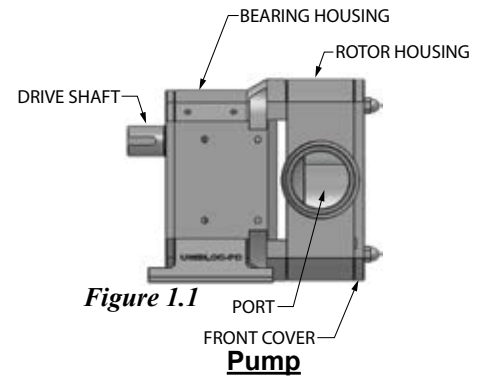
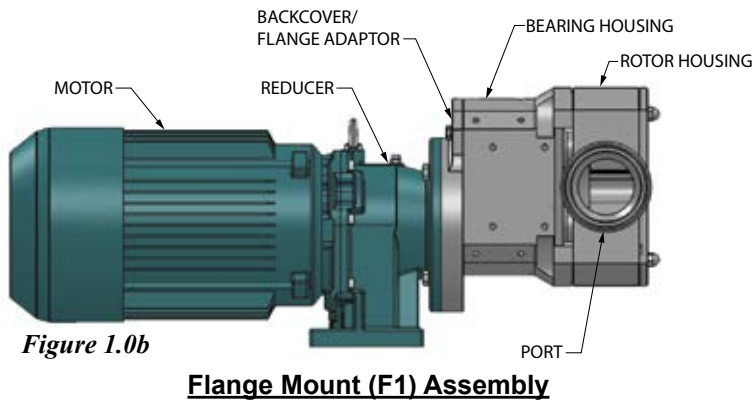
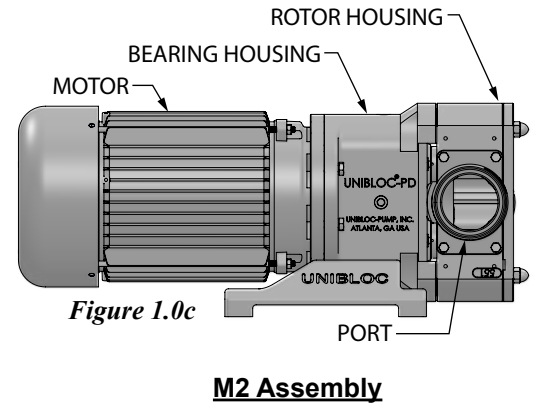
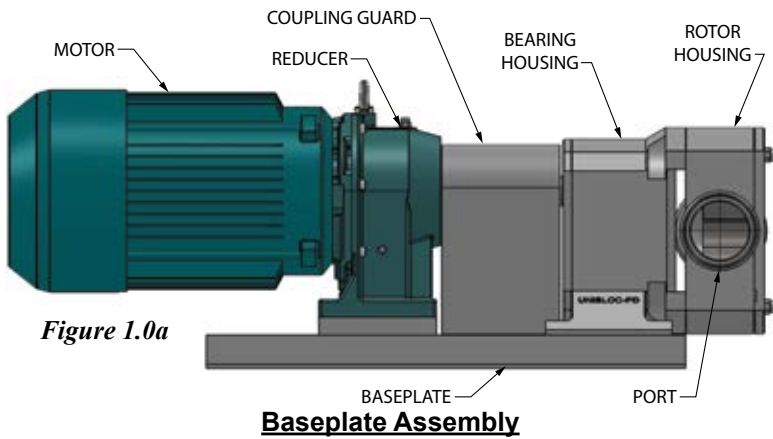
Signed: . Date: January 12, 2021

Bhavesh Patel, Operations Manager

Q42.2101.1

## 1.2 General Description

UNIBLOC-PD is a positive displacement rotary lobe pump. It may be supplied with a drive unit (figure 1.0a-1.0c) or without a drive unit (figure 1.1). When supplied with a drive unit it is called UNIBLOC-PD ASSEMBLY. Figure 1.0 indicates various parts of an assembly. UNIBLOC-PD can be supplied in 3 different series; 5000 series with stainless steel bearing housing, 4000 with aluminum bearing housing, and 3000 series with steel bearing housing. Each model can be mounted with the inlet and outlet ports in horizontal or vertical orientation. Port orientation should be specified when ordering.



### 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 Noise Emission

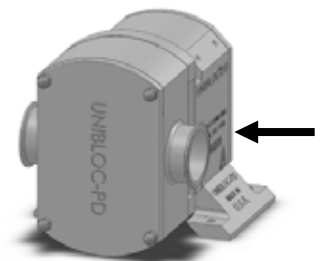
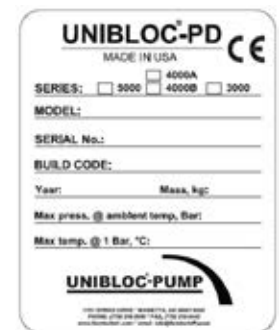
Under certain operating conditions, pumps and/or drives and/or the systems within which they are installed can produce sound pressure levels that exceed 80dB. In such cases ear protection should be used.

### 1.2.3 Marking - CE

Figure 1.3 shows the tag that is attached on the pump bearing housing. If the tag were to be lost for any reason you can find the pumps serial number machined on the side of the bearing housing. See figure 1.4. Always state the pump model and/or serial number when asking for assistance.

### 1.2.4 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.



## 2.0 Before Start-Up



# QUICK CHECK LIST

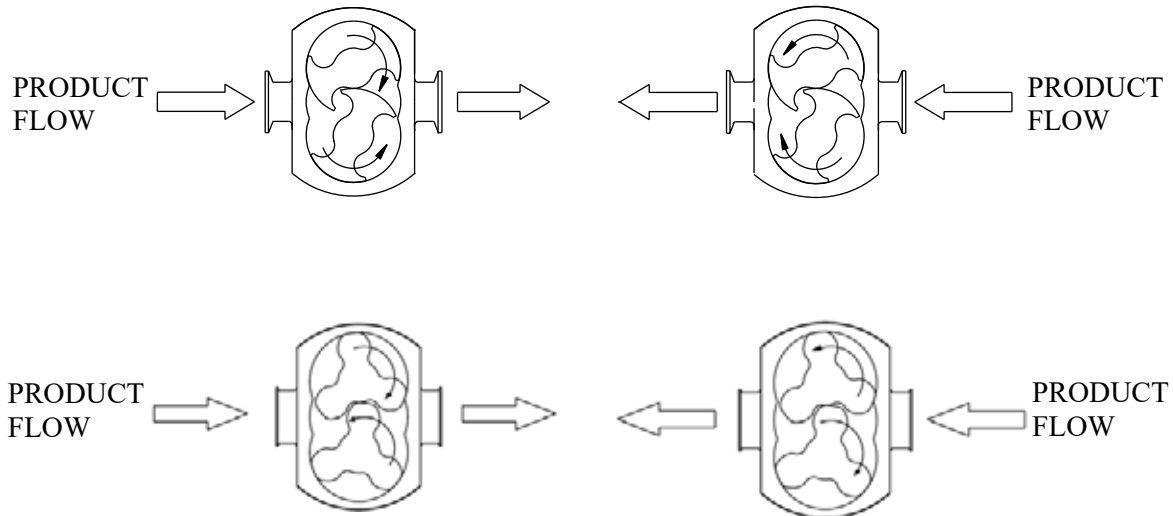
- A. Are pump and motor alignment within proper tolerances?
- B. Do motor and pump gearboxes have adequate amounts of oil?
- C. Has the piping to the pump been installed correctly?
- D. Has the system and all pipes been flushed and cleaned of all debris including weld slag and particles resulting from polishing and grinding?

## 2.1 Pump Head

Remove the front cover and make sure that no particles are trapped inside the rotor housing. Check that the rotor bolts have been securely tightened, if design provides such an option. If possible, make sure pump turns freely. Put back cover, making sure o-ring remains in place, and securely tighten the four front cover nuts.

## 2.2 Direction of Flow

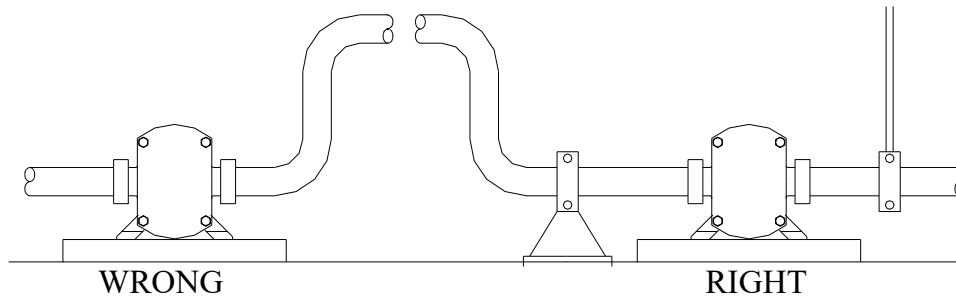
The pump is designed to operate in both directions without modifications. Make sure that the proper direction of rotation applies.





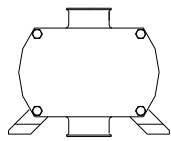
## 2.3 Pipe Layout

When connecting pipes to the pump, make sure they are well supported, as the pump is not meant to serve this purpose. Keep in mind that pipes filled with liquid are very heavy.

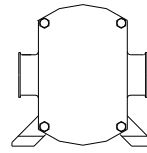


## 2.4 Port Positioning

UNIBLOC-PD is designed to accommodate both vertical and horizontal product through-puts.



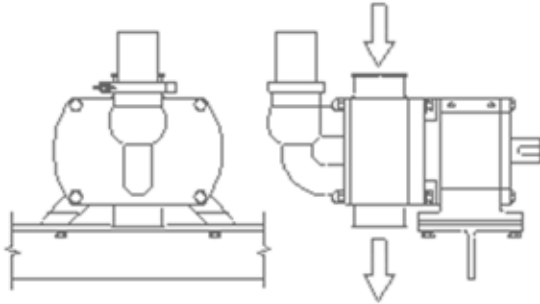
VERTICAL  
THROUGH-PUT



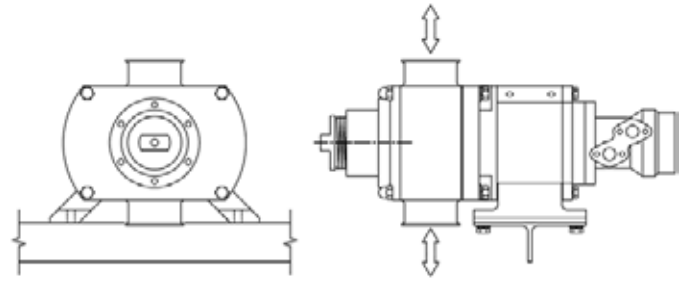
HORIZONTAL  
THROUGH-PUT

## 2.5 Alignment and Mounting Suggestions

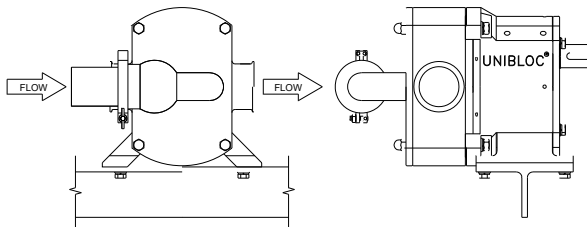
If a PTO pump shaft style is used, it is imperative that the pump and motor are properly aligned before operating. Misalignment can lead to excessive wear and can cause the coupling to rupture. It can also create abnormal stresses on bearings and gears.



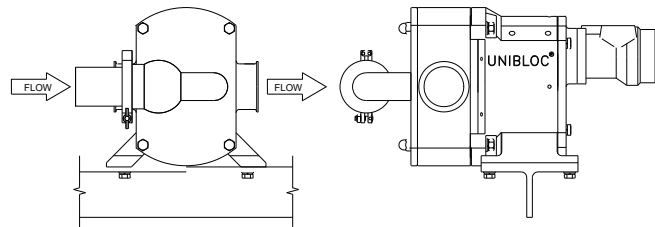
PTO PUMP WITH VERTICAL PORTS



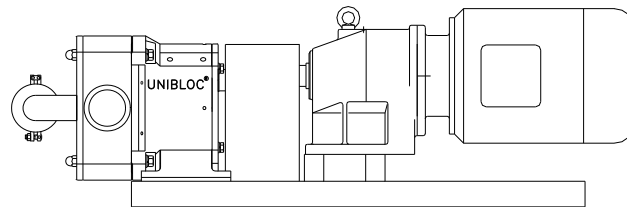
HYDRAULIC DRIVE PUMP WITH ALTERNATE RELIEF VALVE COVER



PTO PUMP WITH HORIZONTAL PORTS



HYDRAULIC DRIVE PUMP WITH HORIZONTAL PORTS



STATIONARY UNIT ON BASEPLATE

## 2.6 Clean the System Before Start-Up

Clean system of all debris before start-up. Any remaining particles larger than 0.002 in. (0.05 mm) can damage the pump if they enter it. A filtering device installed before the pump inlet is highly recommended to insure safe and proper operation. Since such a device will restrict the flow in to the pump, it is necessary to verify that the net positive suction head (NPSH) available is not reduced below that required by the pump.

### 3.0 Shaft Seal Service

To aid in the removal and installation of the shaft seals, plastic mounting sleeves that are the same diameter as the shafts at the seal area are available. The mounting sleeves also protect the seals from the shaft splines. Contact an authorized service center, or Uni-bloc-Pump, to obtain these tools.

Before proceeding with the following steps, **DISENGAGE POWER TO THE HYDRAULIC OR PTO DRIVE**. If the pump is connected to piping, depressurize the system and close valves on both the suction and discharge sides to isolate the pump from the rest of the system. Disconnect the piping from the pump.

Remove the front cover nuts (16) and the front cover (2). Place a non-metal object between the rotors (3a,3b) to keep them from turning. Unscrew the rotor bolts (14a,14b) and then slide the rotors off the shafts. If the rotors will not slide off they can be removed simultaneously with the rotor housing (1). Unless they are being replaced, **DO NOT USE PLIERS OR CHANNEL LOCKS TO REMOVE THE ROTORS**. They will be damaged. See the following sections for further instructions to remove the rotor housing.

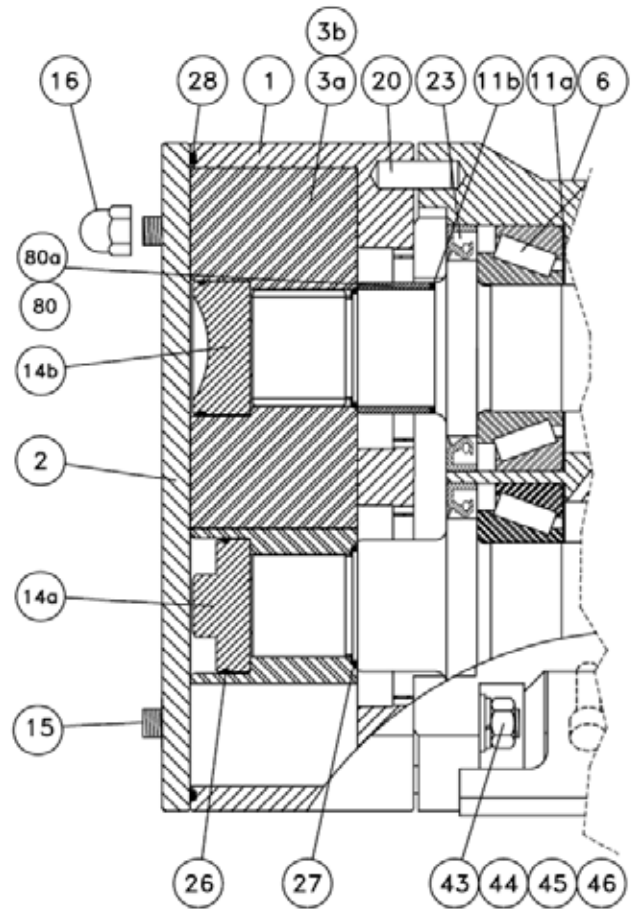


Figure 3.0

### 3.1 Double O-Lip™ Seal

This type of seal is most frequently used with liquids that are very difficult to seal because of high viscosity. The seal comes as a single cartridge that is easily serviced. The maximum shaft rotational speed for this seal is 1.5 m/s (4.8 ft/s), or 500 rpm, and the maximum service pressure should not exceed 10 bar (150 psig). The seal does not require external lubrication and can be run dry for short periods. This seal comes as standard on UNIBLOC 501, 551, 576.

#### 3.1.1 Double O-Lip™ Seal Removal

If the rotors were removed, the rotor housing does not need to be taken off. The seal cartridges (61) can be removed by placing screwdrivers between the rotor housing and gearbox and pushing them out. Be aware that the wear sleeve (80) can slide off with O-lip seal when removing the seal cartridge (61).

#### 3.1.2 Double O-Lip™ Seal Installation

Check the shaft sleeves for wear. If grooves are noticeable, they may have to be replaced. Place new o-rings (49) into the groove of the seal cartridges. Clean the rotor housing seal bores. Apply product compatible lubricant to the bores and the shafts. Slide the assembly sleeves on the splined shaft ends. These must be used to prevent damage to the O-lip seal. Push the seal cartridges (61) in, lip side last, so that they are flush with the back of the rotor housing. See section 3.3 for completing the installation.

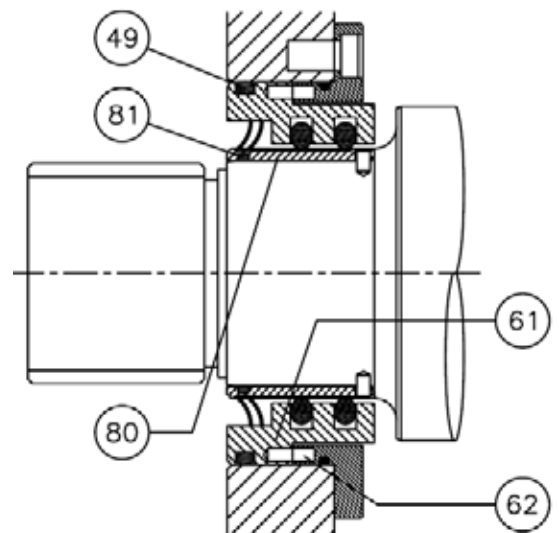


Figure 3.1

## 3.2 Single Mechanical™ Seal

This seal comes with different seal face combinations. (See drawing G812C for details.) Maximum shaft rotational speed for this seal is 2.4 m/s (7.8 ft/s) or 800 rpm and the maximum service pressure should not exceed 15 bar (220 psig). Maximum and minimum temperature limits are +160°C (320°F) and -15°C (5°F).

### 3.2.1 Single Mechanical™ Seal Removal

Remove shaft o-ring (item 27, Fig. 3.1) located behind the shaft splines. Use two long flat head screwdrivers 180° apart to pry the shaft sleeve/rotary seal holder (item 2, Fig. 3.2). Use razor blade or sharp flat head screwdriver to remove rotary seal face (item 3A, Fig. 3.2) from sleeve/rotary seal holder. Use two long flat head screwdrivers 180° apart to remove stationary seal holder (item 5, Fig. 3.2) along with stationary seal face (item 3B, Fig.3.2).

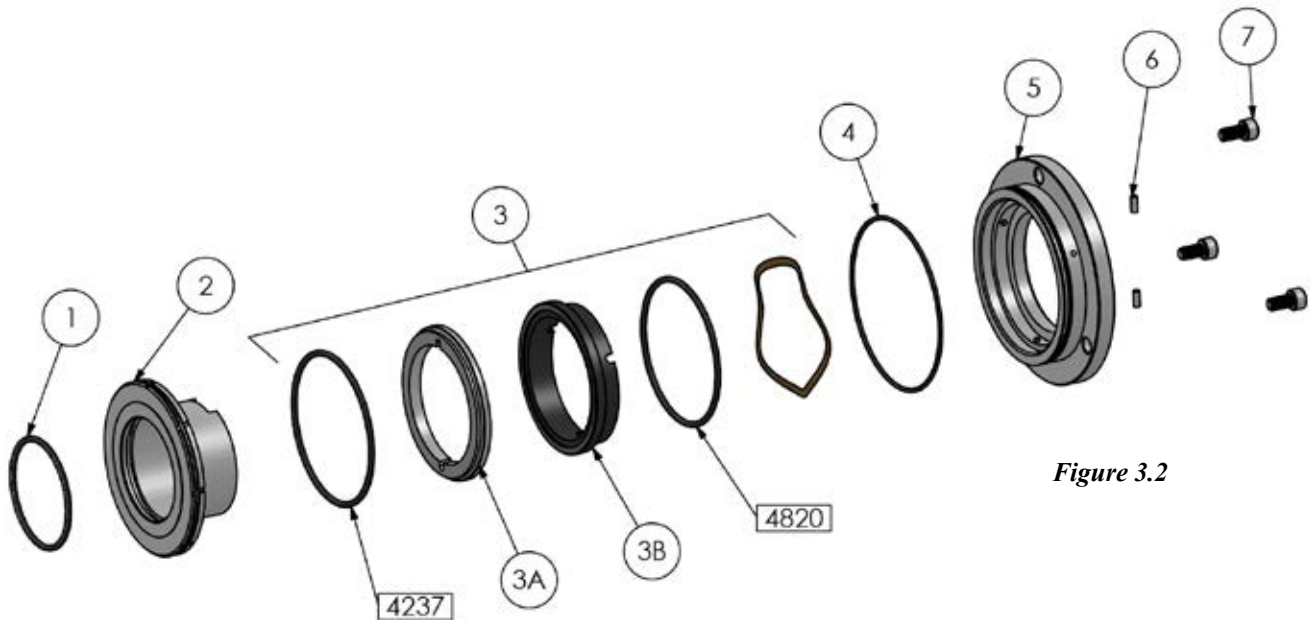


Figure 3.2

### 3.2.2 Single Mechanical™ Seal Installation ref. Figure 3.2

The shaft and rotor housing bores should be cleaned before installing the seal components. Before installing components, note the location of the pin holes on the single mechanical seal retainer ring (5). Small ink markings can be made on the surface of the rotor housing to show pin hole locations. Take the stationary portion of the seal face kit (3) and lubricate o-ring already installed. Note location of pin slots on stationary portion of seal face and on stationary seal holder. Ink markings can be made on surface of rotor housing to show location of pins and similar markings can be made on seal face to show location of pin slots. Align pin slots and pins and evenly hand press stationary seal face until fully seated. Stationary seal face portion will be fully seated once a spring compression can be felt.

Take the rotary portion of the seal face kit (3A) and lubricate the o-ring already installed. Note location of pin slots on rotary portion to pins on shaft sleeve/rotary seal holder (2). O-ring from the rotary portion can be removed and installed on the sleeve/rotary seal holder prior to rotary portion seal face installation. Hand press rotary portion of seal face into the shaft sleeve/rotary seal holder until fully seated. Lubricate the sleeve o-ring (1) located in the inner diameter of the sleeve. Note the location of the pin slots of sleeve and the pins on shaft (6). Hand press rotary seal holder/sleeve assembly evenly until seated and spring tension can be felt. Spring tension will be set by installation of rotor onto shaft.

### 3.3 Seal Installation- Final Steps

See section 4.4 for torque limits. If not part of the shaft seal assembly, slide the plastic mounting sleeves over the splined ends of the shafts. Slide on the rotor housing (1) tap it with a rubber mallet to seat it properly on the dowel pins (20). Make sure the alignment mark on the rotor housing lines up with the one on the gearbox (6). The rotor housing must make firm contact with the gearbox. Fasten the hex nuts (43) with the split washer (44) on the stud ends and tighten in a cross pattern. Remove the plastic sleeves from the shaft ends. Slide the rotor shaft o-rings (27) over the splined shaft ends and on the step, if applicable. One rotor and one shaft have been marked with the same symbol. Slide the rotors over the corresponding shafts and push them making sure the o-rings seat properly. The rotors must make contact with the shafts. Place o-rings (26) on the rotor bolts (14a,14b). Lubricate them and the rotor bores. Place a nonmetal object between the rotors to keep them from turning. Thread the rotor bolts into the shaft ends. Turn the drive shaft to make sure the rotors turn freely. Measure the clearances between the rotor housing and the rotors. Compare these values with those listed in section 6.0. If the measured clearances at positions 1, 7, 8, and 10 are smaller than those listed, the rotors must be ground and polished to achieve the correct values. If the measured clearances at positions 9 and 11 (see Section 5.0) are not within the tolerances listed the shafts must be adjusted by disassembling the gearbox, as instructed in section 4.0, and changing the shims (11a).

Place the front cover (2) and the o-ring (28) on the studs. Tighten the front cover nuts (16). Check the oil level in the gearbox as described in section 4.3. The pump is now ready to be installed in the system. Refer to section 1.0 before starting the pump.

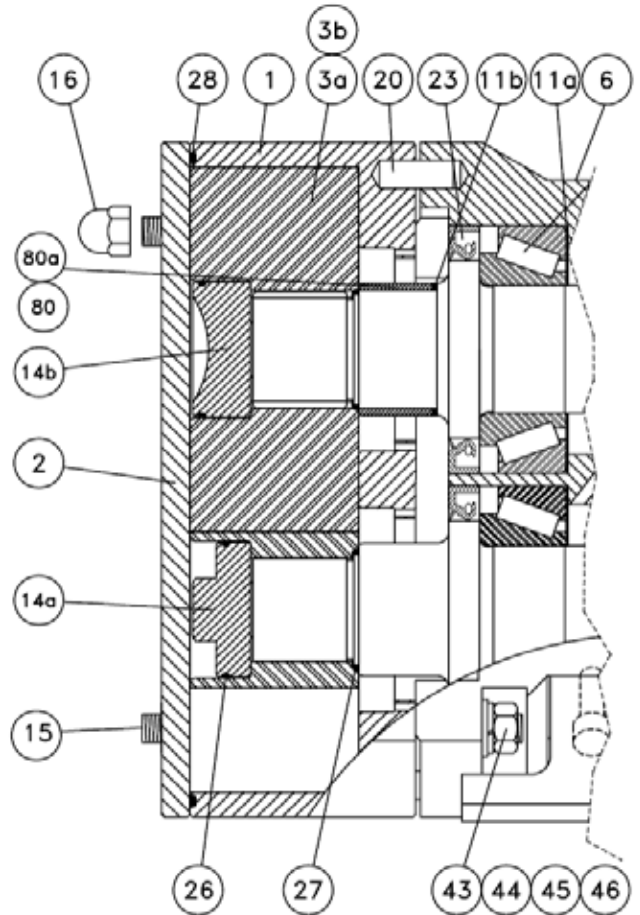
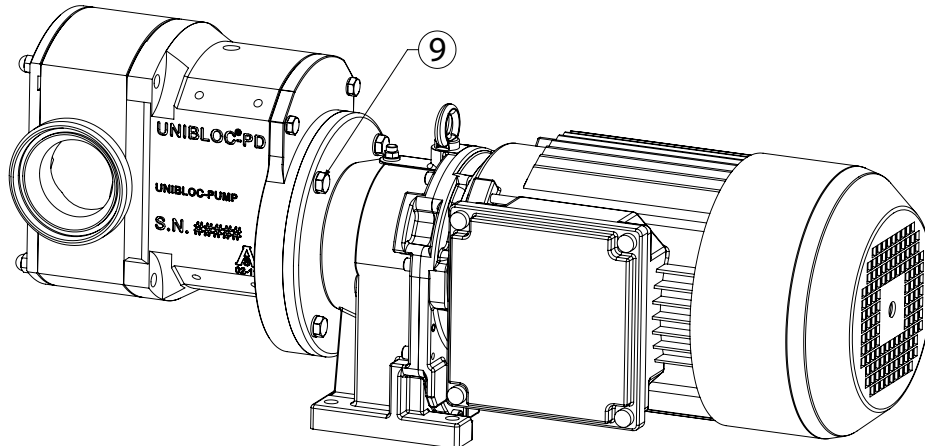


Figure 3.3

## 4.0 Gearbox Maintenance and Service

The UNIBLOC gearbox is supplied with nitrile seals, drain plugs and an optional vent. The oil level should be checked at regular intervals and the seals should be changed once per year or after 2000 hours of service, whichever occurs first. When applications exceed constant service temperatures of 180°C (356°F) high temperature lubricant and seals must be used. For such cases, contact Unibloc-Pump or an authorized service center for an adequate service schedule. Before proceeding with the following steps, **DISENGAGE POWER TO THE HYDRAULIC OR PTO MOTOR.** If the pump is connected to piping, depressurize the system and close valves on both the suction and discharge sides to isolate the pump from the rest of the system. Disconnect the piping and remove the pump from the system. If the pump is flange mounted to the motor, the pump must be unmounted before servicing. Unmount the pump from the motor by removing the four bolts (9) from the motor flange.



Removal of the wet end of the pump (i.e. the cover, rotors, rotor housing, and shaft seals) must be completed first before disassembly of the pump gearbox. The method of removing these parts is dependent upon the type of shaft seals the pump has and is outlined in section 3.

### 4.1 Gearbox Disassembly

Remove the front cover, rotors, housing and shaft seals as described in section 2. Drain oil from the gearbox by removing the drain plug, if available, or by removing the cover (7), PTO drive shown in figure 4.1. Open the tab on the tab washers (12) and remove them and the slotted nuts (13). With a rubber mallet, strike the ends of the shafts where the tab washers were located to loosen the gears (8) and remove them. Be sure not to damage the threads on the shafts. The keys (21) will now be exposed and can be removed with a flat tipped screwdriver. Continue striking the shafts with the rubber mallet to push the shafts and the oil seals (23), which will get damaged and will have to be replaced, out of the gearbox. Each shaft will have one bearing (10) located next to a shoulder. To remove them, if necessary, do so with a hydraulic press or tap with a punch or sleeve on the edge closest to the shoulder. Use caution to prevent damage to the shaft shoulder. Tap the bearing cups (10), in a circular pattern to remove them from the gearbox. Behind one of the cups (10) are the shim rings (11a) which can now be removed.

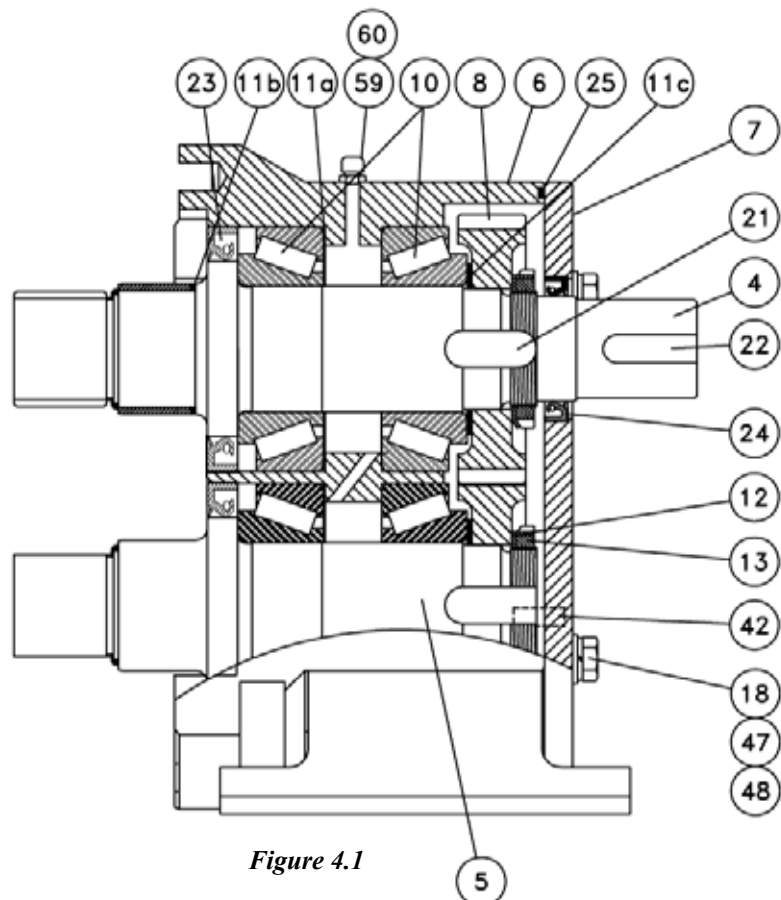


Figure 4.1

## 4.2 Gearbox Assembly

The following steps for assembly assume that the pump has been completely disassembled. Make sure all parts are clean and free of debris before proceeding. New oil seals are required to complete the assembly of the gearbox.

### 4.2.1 Assembling the Gearbox

Insert the shim rings (11a) into the front bores of the gearbox (6). Oil the front and rear bearing (10) cones and tap them into the gearbox so that the tapered edge can be seen when looking into the gearbox. If the bearings have been removed from the shafts, they must be pressed on with a hydraulic press before the shafts are installed into the gearbox. Oil the shafts at the bearing seat location and slide the bearings on so that the text on the bearing shoulder will make contact with the shaft shoulder. Use extreme caution to not damage the bearing components or the splined shaft end when using the hydraulic press. Place a nonmetal object between the splined shaft end and the

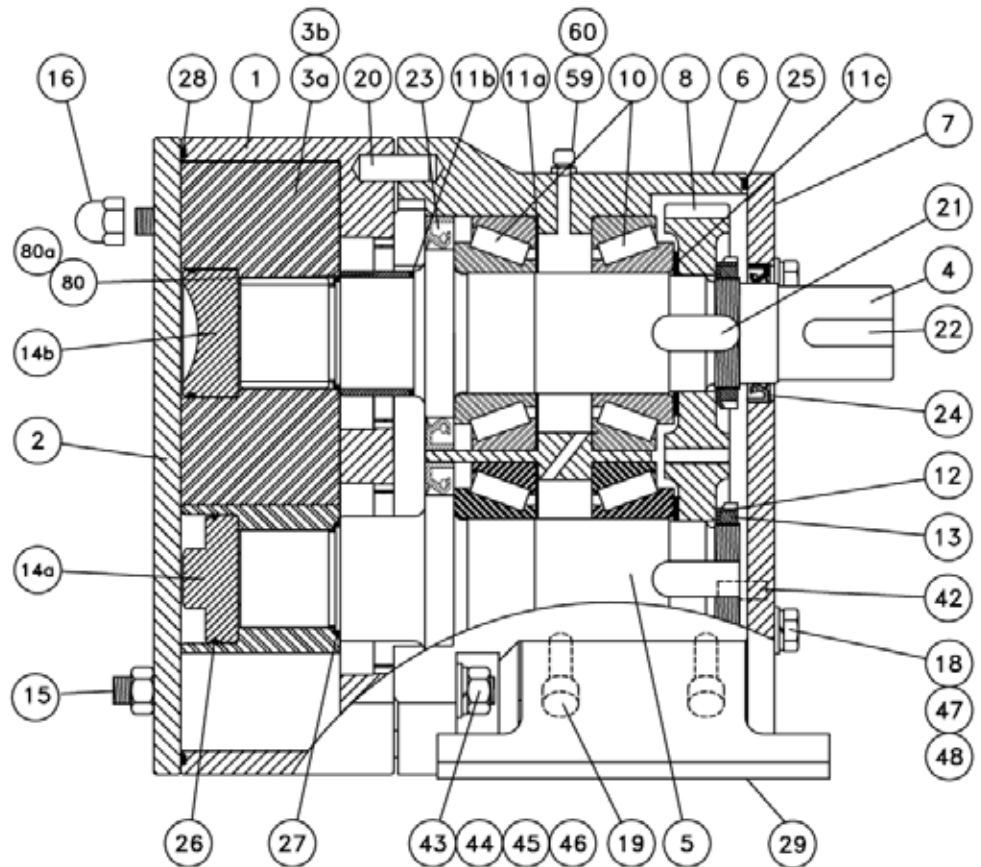


Figure 4.2

hydraulic press to prevent damage to the shaft. Insert both shafts and stand the pump on the splined ends. Slide the rear bearings on, tap the keys (21) into place, and then slide on the gears (8), shoulder side towards the bearings. Make sure the timing marks are aligned. Tap on the gears to seat the bearings properly. Slide on the tab washers (12) and thread on the slotted nuts (13). Slide on the rotors (3a,3b) and place a nonmetal object between the rotors to keep the shafts from turning. Tighten the nuts so that the shaft rotating torques shown in section 4.4 are achieved. The torque can be measured by inserting the rotor bolts (14a,14b) in the splined shaft ends with the rotors on. Do not set the tabs on the tab washers. Remove the rotor bolts and rotors. Push the rotor housing (1) onto the dowels (20) in the gearbox and tap gently with a rubber mallet to seat it properly. Insert the housing studs (15) and secure them with the split washers (44) and hex nuts (43). Slide the rotors (3a,3b) on to the corresponding shaft. One rotor and one shaft will be marked with identical symbols. Secure the rotors with the rotor bolts (14a,14b). Measure the clearances between the rotors and the housing. If the measured values at positions 8-11 do not correspond with those listed in section 5, then the shim ring(s) (11a) must be changed. Remove the rotor bolts, rotors, studs, and then the housing. Unscrew the slotted nuts and remove the tab washers. Remove the shafts, gears, and keys from the gearbox. Tap out the front bearing cups only to reveal the shim ring(s). Insert an appropriate shim, and then repeat the steps described in this section. If the clearances fall within the ranges specified, then proceed to section 4.2.2.

### 4.2.2 Assembling the Gearbox- Final Steps

Lock the nuts in place by bending the tab washer into the slots in the nut. Install the front oil seals (23) by first lubricating with oil all contact areas on the shafts and gearbox. The text on the seals should face out. Push the seals on with a sleeve flush with the gearbox. Stand the pump on the splined ends and fill the gearbox cavity with approved oil listed in section 4.3. Place the oil seal (24) in the gearbox cover, text side out. Place the o-ring (25) into the groove on the rear side of the gearbox. Slide the cover onto the drive shaft taking care not to damage the oil seal lips. Secure the cover with the bolts (18). Tap key (22) into place. Install the shaft seals and rotor housing as described in section 3.

### 4.3 Lubricants and Gearbox Volumes

UNIBLOC pumps come supplied with a synthetic oil, MOBIL 1 15W-50, applicable for service temperatures in the range of -23°C (-10°F) to 221°C (430°F). The following is a list of other synthetic lubricants that may be used. The oil capacity is 0.65 liter (20.3 oz.).

MANUFACTURER	LUBRICANT NAME	TEMP. RANGE °C (°F)
Mobil	SHC 627	-23...121 (-10...250)
	SHC 634	121...152 (250...305)
Exxon	Spartan EP 100	-23...121 (-10...250)
	Spartan EP 150	121...152 (250...305)
Shell	Spirax S 75W90	-23...152 (-10...305)
Sentinel	S140	-26...288 (-15...550)
Royal Purple	150	-26...165 (-15...330)

When checking the oil level in gearboxes that are not permanently lubricated, the pump must first be stopped. Remove the oil level check plug. If oil does not come out of this hole, it must be added through the vent hole until it starts to do so. Reattach the vent and oil plug and resume operation.

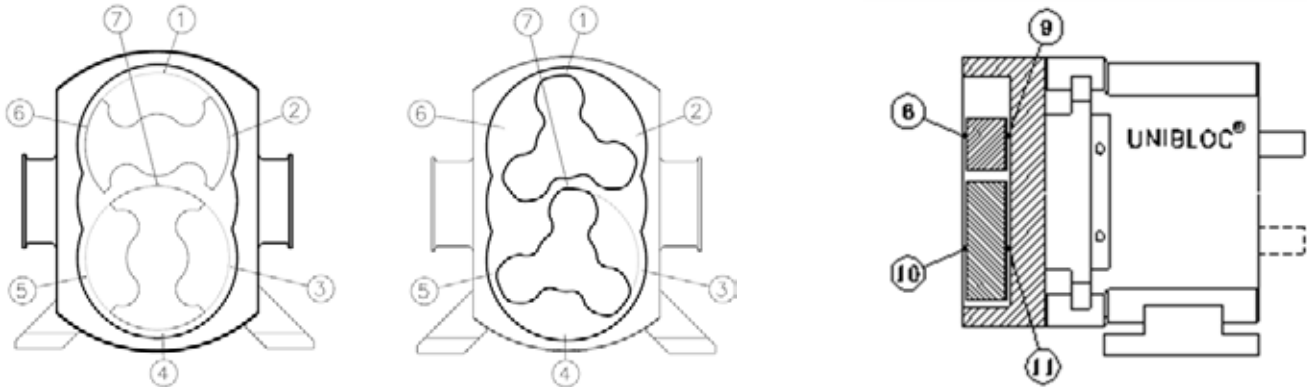
### 4.4 Torque Requirements and Limits

ITEM (FIGURE 4.2)	TORQUE N-M (ft-lbs.)
ROTOR HOUSING STUDS (15)	40 (30)
ROTOR BOLTS (14)	140 (103)
FRONT COVER NUTS (16)	50 (37)
GEARBOX COVER BOLTS (18)	40 (30)
ROTATING SHAFT (4)	10 (7.5)
SLOTTED GEAR NUT (13)	224 (165)



## 5.0 Rotor Clearances

The following tables list the clearances between the rotor housing and the rotors. The rotors are stamped with the rotor class letter underneath the rotor bolt on the spline ends of the rotor.

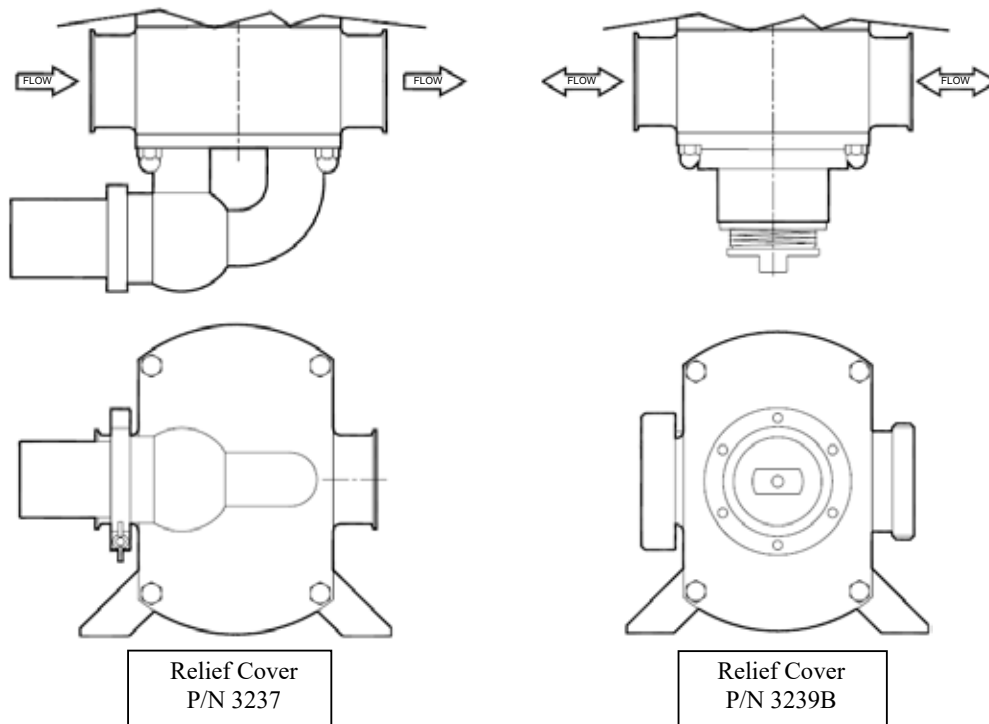


<b>CLEARANCES FOR <u>CLASS D</u></b>				
<b>STAINLESS STEEL ROTORS, x0,01 mm</b>				
<b>UNIBLOC MODEL</b>	<b>POSITION</b>			
	<b>1-6</b>	<b>7</b>	<b>8 &amp; 10</b>	<b>9 &amp; 11</b>
<b>501</b>	20 min (7.9 min)	18 min (7.1 min)	21-24 (8.3-9.4)	12-14 (4.7-5.5)
<b>551</b>	20 min (7.9 min)	18 min (7.1 min)	21-24 (8.3-9.4)	12-14 (4.7-5.5)
<b>576</b>	20 min (7.9 min)	18 min (7.1 min)	21-24 (8.3-9.4)	12-14 (4.7-5.5)

<b>CLEARANCES FOR <u>CLASS E</u></b>				
<b>STAINLESS STEEL ROTORS, x0,01 mm</b>				
<b>UNIBLOC MODEL</b>	<b>POSITION</b>			
	<b>1-6</b>	<b>7</b>	<b>8 &amp; 10</b>	<b>9 &amp; 11</b>
<b>501</b>	25 min (9.8 min)	20 min (7.9 min)	22-26 (8.7-10.2)	15-20 (5.9-7.9)
<b>551</b>	25 min (9.8 min)	20 min (7.9 min)	22-26 (8.7-10.2)	15-20 (5.9-7.9)
<b>576</b>	25 min (9.8 min)	20 min (7.9 min)	22-26 (8.7-10.2)	15-20 (5.9-7.9)

## 6.0 Relief Valve Cover Settings and Maintenance

UNIBLOC pumps may be supplied with one of the relief valve covers, shown in figure 6.0, that will minimize or eliminate problems associated with over pressurizing the pump. Relief valve covers are useful when external relief systems are not practical. No. 3237 functions only in one direction and must be oriented such that the high pressure, or discharge, side of the pump is always at the inlet of the relief valve. No. 3239B functions in both directions. The pressure is set in conjunction with a pressure gauge installed on the discharge side of the pump. By compressing or decompressing the spring inside the valve, the pressure at which the valve will open can be adjusted. This must be done while the pump is operating at the desired flow rate. Extreme caution should be used to prevent damage to the pump or other equipment that is pressure sensitive. If the pump is used to handle hot liquids, do not touch the pump or the valve without protection.



*Figure 6.0*

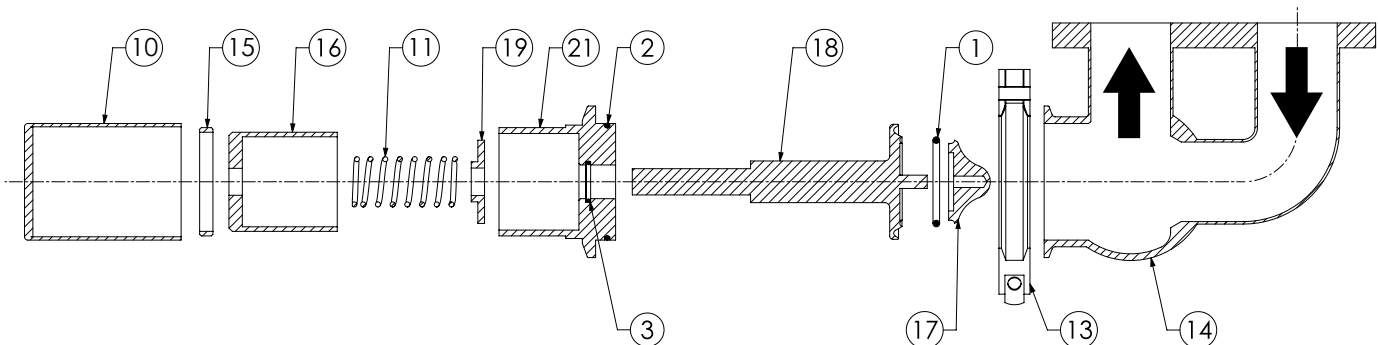


## 6.2 Relief Valve Cover Maintenance

To service the valve seals the pump must not be operating, the system must be depressurized, and the pump isolated from the remainder of the system.

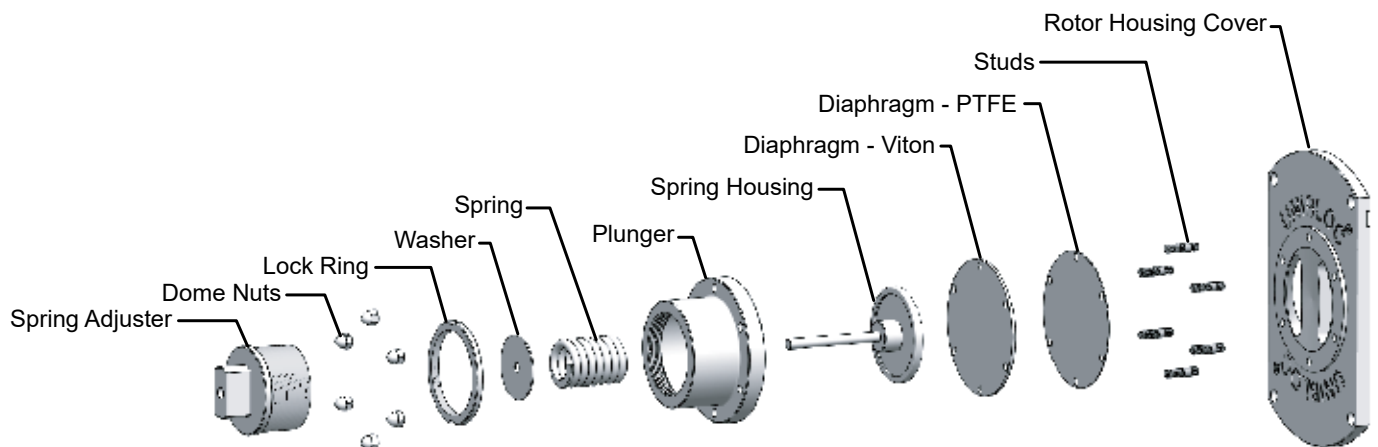
### 6.2.1 Servicing Relief Valve Cover: P/N 3237

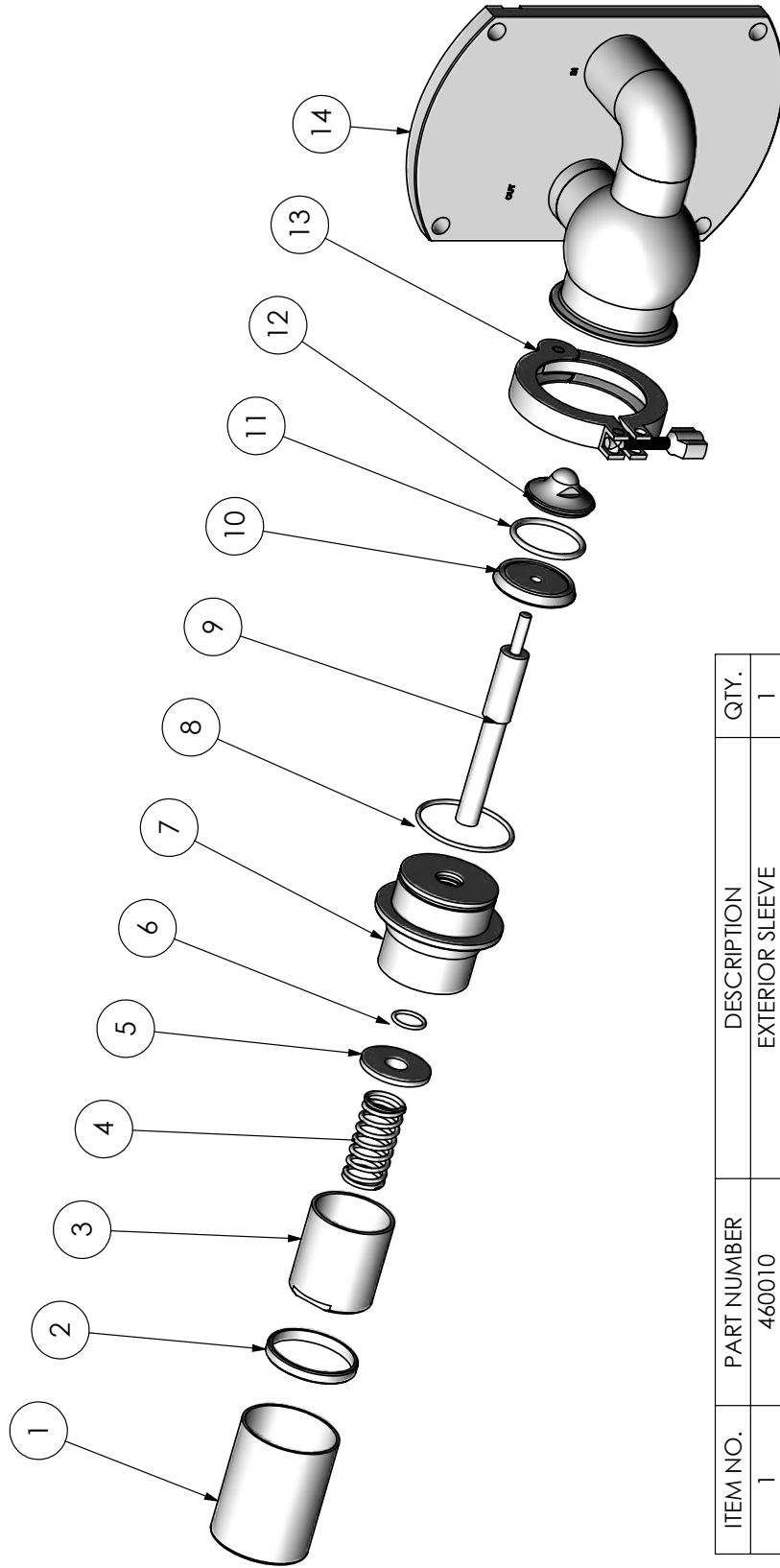
Remove the housing (10) and mark the location of the lock ring (15). Unscrew the adjusting sleeve (16) and remove it. Remove the clamp (13) and separate the valve body and the top containing the spring. Slide the piston, (18) and (17), out and place its stem in a padded vise. Unscrew the tip (17). O-rings (1), (2), and (3) may now be replaced. Screw on the tip (17), roll o-ring (1) into the groove and tighten. Lubricate o-ring (3) and slide in the piston. Place the top with the piston in the valve body (14) and secure with the clamp (13). Turn the lock ring (15) so that it returns to the mark and thread on the adjusting sleeve (16) tight against it. Replace the housing (10) and tighten. The pump may now be returned to service.



### 6.2.1 Servicing Relief Valve Cover: P/N 3239B

Mark the location of the **lock ring** on the **spring adjuster**. Unscrew the **spring adjuster** and remove it. Remove the **spring**. Look for the **washer** either inside the **spring adjuster** or on top of the **spring** for replacement. Unscrew the **dome nuts** on the **spring housing** and separate the **spring housing** from the **rotor housing cover**. The **plunger** will now be removable as one unit. It is now possible to remove the **diaphragms** from the **studs**. Once old diaphragms have been removed, place new diaphragms (**PTFE diaphragm** first, followed by **Viton diaphragm**) onto the **studs**. Next, slide the **spring housing** back on the **studs**, hold the **plunger** on the diaphragms so it stays inside the **spring housing**. Fasten the **spring housing** to the **rotor housing cover** with the **dome nuts**. Place the **spring** over the **plunger** stem. Make sure you have the **diaphragm washer** placed either on top of the **spring** or inside the **spring adjuster**. Turn the **lock ring** back to correct settings on the **spring adjuster**. Thread the **spring adjuster** back into the **spring housing** and tighten. The pump may now be returned to service.





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	460010	EXTERIOR SLEEVE	1
2	3237-8	LOCK RING	1
3	3237-7	TENSION ADJUSTING SLEEVE	1
4	3237-9	SPRING	1
5	3237-5	SPRING SEAT	1
6	4213	O-RING	1
7	3237-6	SPRING HOUSING	1
8	4802	O-RING	1
9	3237-3	STEM	1
10	460500	STEM DISK	1
11	4800	O-RING	1
12	3237-2	STEM CAP	1
13	540087	CLAMP	1
14	3237-1L	ROTOR HOUSING COVER	1

THIS DRAWING AND ALL IDEAS INCORPORATED IN ITS DESIGN ARE THE EXCLUSIVE PROPERTY OF UNIBLOC. UNIBLOC AND ALL UNIBLOC LOGO AND TRADEMARKS ARE TRADEMARKS OF UNIBLOC. UNIBLOC SHALL BE TREATED AS A CONFIDENTIAL DOCUMENT USED FOR NO OTHER PURPOSE THAN THAT FOR WHICH IT IS ISSUED. IT IS TO BE RETURNED UPON REQUEST, AND THAT IT IS NOT TO BE REPRODUCED OR COPIED EXCEPT AS AUTHORIZED IN WRITING BY UNIBLOC-HYGIENIC TECHNOLOGIES, LLC.

**UNIBLOC**  
Hygienic Technologies

DWG. TITLE: #46 STYLE PRESSURE RELIEF VALVE

BY	DATE	REV. NO.
JH	4/27/21	0
CHECKED		
APPROVED		
SCALE		

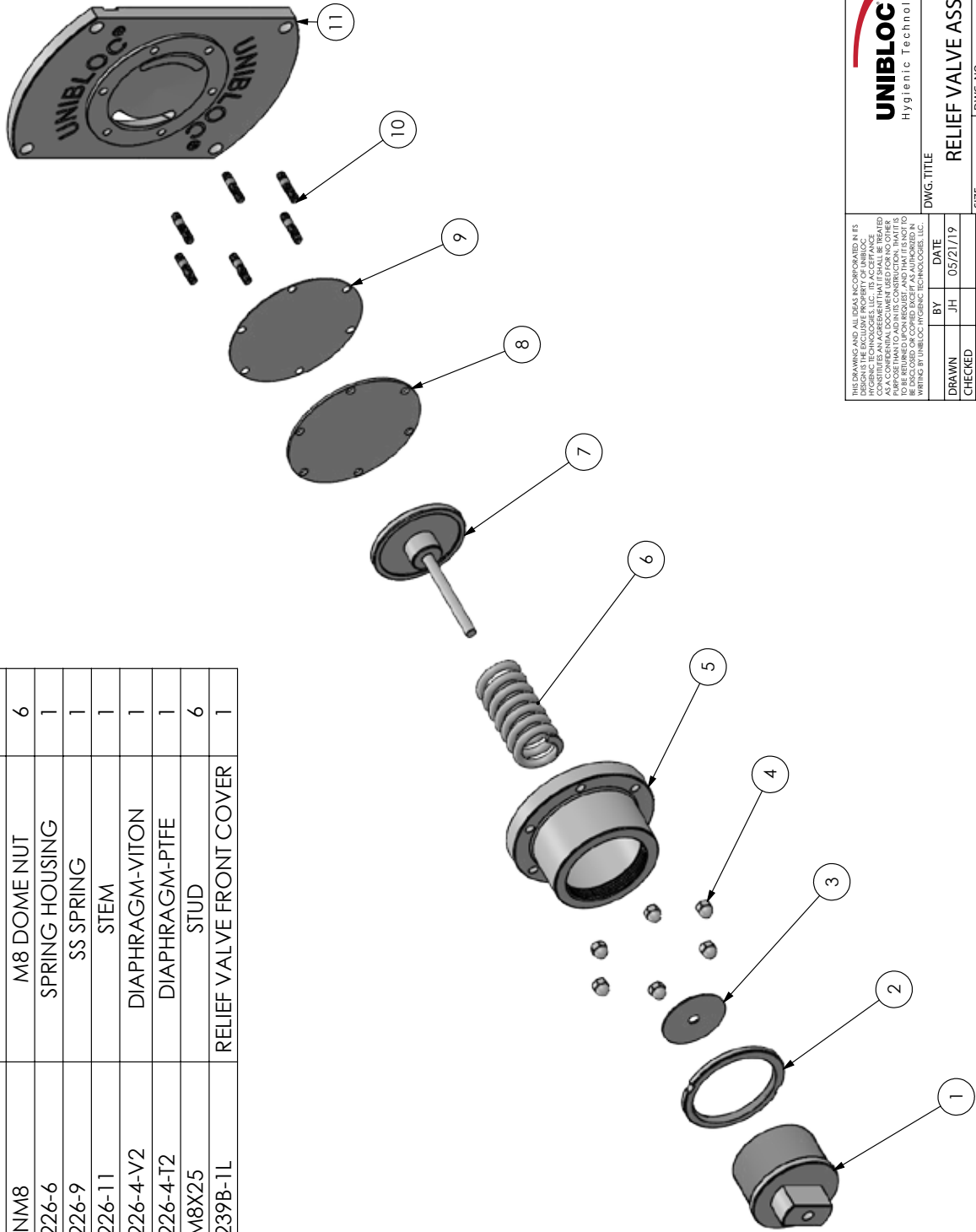
DWG. NO. PD501 SRS 460993

RELEASE DATE APR. 27, 2021

ALL DIMENSIONS IN MM. (IN)

SHEET 1 OF 3

ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	3226-7	SPRING ADJUSTER	1
2	3226-8	LOCK RING	1
3	3226-5	WASHER	1
4	DNM8	M8 DOME NUT	6
5	3226-6	SPRING HOUSING	1
6	3226-9	SS SPRING	1
7	3226-11	STEM	1
8	3226-4-V2	DIAPHRAGM-VITON	1
9	3226-4-T2	DIAPHRAGM-PTFE	1
10	SM8X25	STUD	6
11	3239B-1L	RELIEF VALVE FRONT COVER	1



THIS DRAWING AND ALL IDEAS INCORPORATED IN ITS DESIGN IS THE EXCLUSIVE PROPERTY OF UNIBLOC. ANY REUSE, REPRODUCTION, OR TRANSMISSION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF UNIBLOC TECHNOLOGIES, LLC, CONSTITUTES AN AGREEMENT THAT IT SHALL BE TREATED AS A CONFIDENTIAL DOCUMENT. UNIBLOC TECHNOLOGIES, LLC, ACCEPTS NO LIABILITY FOR ANY DAMAGE OR LOSS OF PROFITS, BUSINESS, OR REPUTATION THAT MAY BE INCURRED BY ANY PARTY WHOSE BUSINESS OR OPERATIONS DEPEND ON THIS DRAWING. THIS DRAWING IS TO BE RETURNED UPON REQUEST, AND THAT IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITING OF UNIBLOC HYGIENIC TECHNOLOGIES, LLC.

**UNIBLOC**  
Hygienic Technologies

DWG. TITLE: **RELIEF VALVE ASSEMBLY**

DRAWN	BY	DATE
CHECKED	JH	05/27/19
APPD		
SCALE		

SIZE: **PD501**      DWG. NO.: **3239B2**      REV. NO.: **1**

RELEASE DATE: **MAR. 15, 2021**      SHEET 1 OF 2

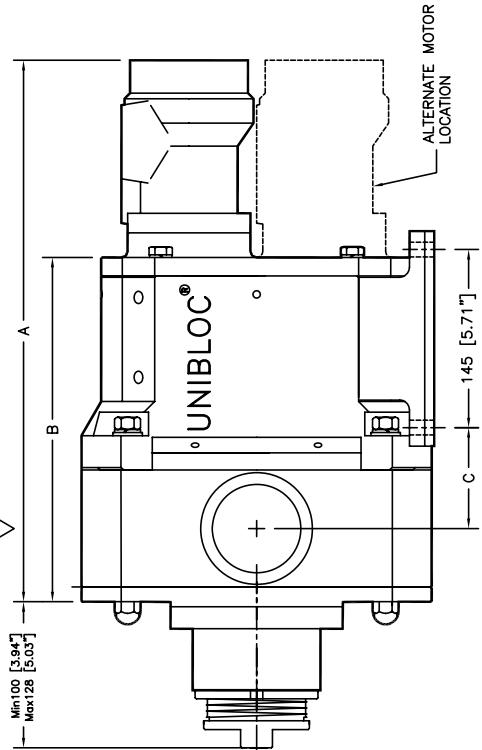
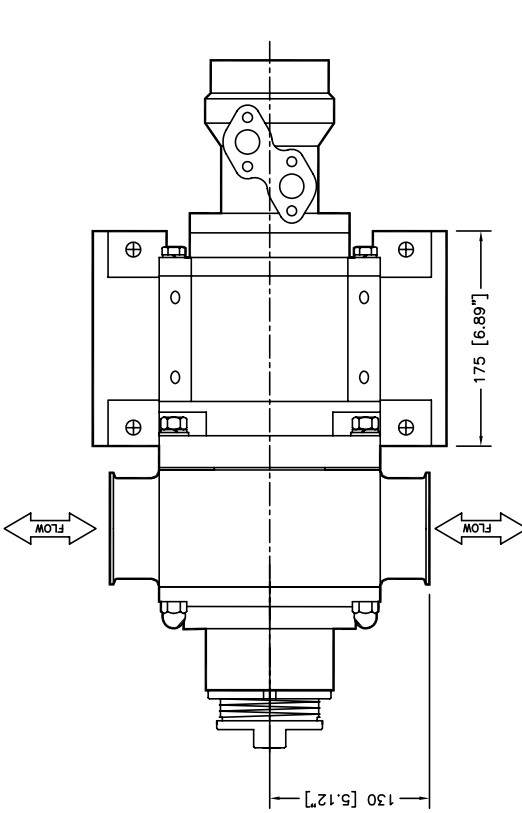
## 7.0 Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
A. No flow, but pump turns. Pump does not prime.	<ol style="list-style-type: none"> <li>1. Motor turning in wrong direction</li> <li>2. Air pocket in pipe or pump.</li> <li>3. NPSHA too low.</li> <li>4. Pump runs too slow.</li> <li>5. Viscosity too high.</li> <li>6. Obstruction in discharge piping, valve closed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reverse motor.</li> <li>2. Fill pipe and pump with liquid. Check pipe fittings for leaks.</li> <li>3. Increase suction pipe diameter or shorten suction pipe length. Decrease pump speed. Raise feed tank or supply liquid level.</li> <li>4. Increase speed. Check hydraulic pressure and filter.</li> <li>5. Lower viscosity if possible.</li> <li>6. Remove obstruction, open valve.</li> </ol>
B. Capacity too low, but pump turns.	<ol style="list-style-type: none"> <li>1. NPSHA too low.</li> <li>2. Pump runs too slow.</li> <li>3. Increased slip in pump.</li> <li>4. Discharge pressure higher than expected.</li> <li>4. Front cover not tight.</li> </ol>	<ol style="list-style-type: none"> <li>1. See A-3</li> <li>2. Increase speed. Check hydraulic pressure and filter.</li> <li>3. Check rotor clearances; replace worn parts if necessary.</li> <li>4. Check discharge piping for closed valves or obstructions. Increase pump speed BUT DO NOT EXCEED PRESSURE LIMITS OF PUMP. Increase discharge pipe size. Increase pump size.</li> <li>4. Tighten cover nuts to torques specified in section 3.4.</li> </ol>
C. Pump is noisy, cavitating.	<ol style="list-style-type: none"> <li>1. Collapsed suction hose.</li> <li>2. Liquid temperature too high.</li> <li>3. Speed too high.</li> <li>4. Viscosity higher than expected.</li> <li>5. NPSHA too low.</li> <li>6. Suction side valve closed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use reinforced hose or rigid piping.</li> <li>2. Reduce speed, increase NPSHA.</li> <li>3. Decrease speed.</li> <li>4. Decrease speed, increase pump size.</li> <li>5. See A-3.</li> <li>6. Open valve, check suction side piping for obstructions.</li> </ol>

PROBLEM	POSSIBLE CAUSE	SOLUTION
D. Rotors gall, pump seizes	<ol style="list-style-type: none"> <li>1. Liquid temperature too high.</li> <li>2. Rotor clearances incorrect.</li> <li>3. Loose rotor bolts/housing studs.</li> <li>4. Bearings worn.</li> <li>5. Gears worn.</li> <li>6. Foreign particles in pump.</li> <li>7. Particles in product too large.</li> <li>8. Discharge pressure too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Lower temperature or increase rotor clearances.</li> <li>2. Adjust to factory recommended clearances.</li> <li>3. Tighten or replace if necessary.</li> <li>4. Replace bearings.</li> <li>5. Replace gears.</li> <li>6. Install suction side filter.</li> <li>7. Increase rotor clearances. Use plastic rotors. Increase pump size.</li> <li>8. See B-4.</li> </ol>
E. Pump is noisy.	<ol style="list-style-type: none"> <li>1. Cavitation.</li> <li>2. Liquid contains air.</li> <li>3. Discharge pressure too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. See C.</li> <li>2. Check pump shaft seals for leaks. Check suction side pipe fittings for leaks. Increase NPSHA.</li> <li>3. Check suction and discharge piping for closed valves or obstructions. Increase pump size.</li> </ol>
F. Motor overheating	<ol style="list-style-type: none"> <li>1. Motor size too small.</li> <li>2. Discharge pressure too high.</li> <li>3. Viscosity higher than expected.</li> <li>4. Motor &amp; pump misalignment.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase motor size.</li> <li>2. Lower pump speed. Lower pressure. Check suction and discharge piping for closed valves or obstructions.</li> <li>3. Decrease pump speed. Increase pipe size or shorten discharge pipe length.</li> <li>4. Correct alignment.</li> </ol>
G. Shaft seals leak.	<ol style="list-style-type: none"> <li>1. Worn parts.</li> <li>2. Seals have been operated without product in pump.</li> <li>3. Seal incompatible with liquid.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace seals and/or o-rings.</li> <li>2. Operate pump only when liquids can come in contact with seals. Replace worn seal parts.</li> <li>3. Contact factory for proper seal selection, operation, and replace if necessary.</li> </ol>



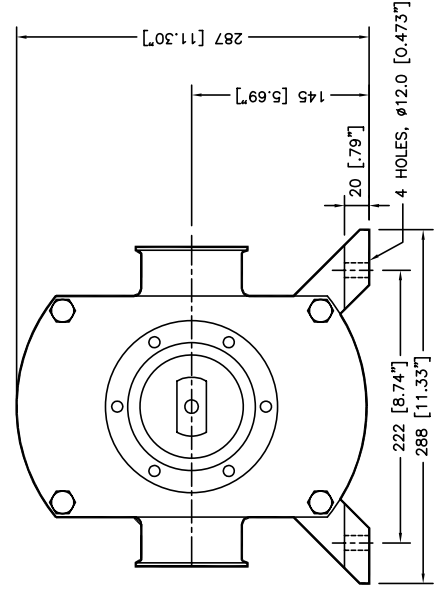
# 8.0 Pump Dimensions



HYDRAULIC MOTOR	DIMENSION A		
	UNIBLOC 501 (2.5")	UNIBLOC 551 (3-4")	UNIBLOC 576 (3-4")
CHARLYNN 2000 (6-2)	463mm (18.2")	479mm (18.9")	498mm (19.6")
CHARLYNN 2000 (8-0)	470mm (18.5")	486mm (19.1")	505mm (19.9")
DANFOSS OMR50	420mm (16.5")	436mm (17.2")	455mm (17.9")
DANFOSS OMR80	425mm (16.7")	441mm (17.4")	460mm (18.1")
DANFOSS OMR100	429mm (16.9")	445mm (17.5")	464mm (18.3")

\*CONNECTIONS AVAILABLE: SANITARY TRI-CLAMP, NPTM, ACME, CAM LOCK, DIN

	DIMENSION B		DIMENSION C	
	UNIBLOC 501 (2.5")	264mm (10.4")	74mm (2.91")	
UNIBLOC 551 (3-4")	280mm (11.03")	82mm (3.23")		
UNIBLOC 576 (3-4")	299mm (11.8")	92mm (3.62")		



3239B	ROTOR HOUSING RELIEF VALVE COVER
PART NO.	DESCRIPTION
	ASSOCIATED PARTS
DWG. TITLE	HYDRAULIC MOTOR ASSEMBLY
BY	DATE
PO	03/19/08
CHECKED	
APPD	
SCALE	0.4:1
SIZE	DWG. NO. D146B
501,551,576	RELEASE DATE MAR 19, 2008
	SHEET 1 OF 1

THIS DRAWING AND ALL RIGHTS INCORPORATED IN IT ARE THE EXCLUSIVE PROPERTY OF UNIBLOC. UNIBLOC DISCLAIMS ANY WARRANTY, WHETHER EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. UNIBLOC SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM OR OUT OF THE USE OF THIS DRAWING. UNIBLOC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM OR OUT OF THE USE OF THIS DRAWING. UNIBLOC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM OR OUT OF THE USE OF THIS DRAWING.

MATERIAL: \_\_\_\_\_

FINISH (UNLESS NOTED ON DWG): \_\_\_\_\_

WEIGHT: \_\_\_\_\_

SCALE: \_\_\_\_\_

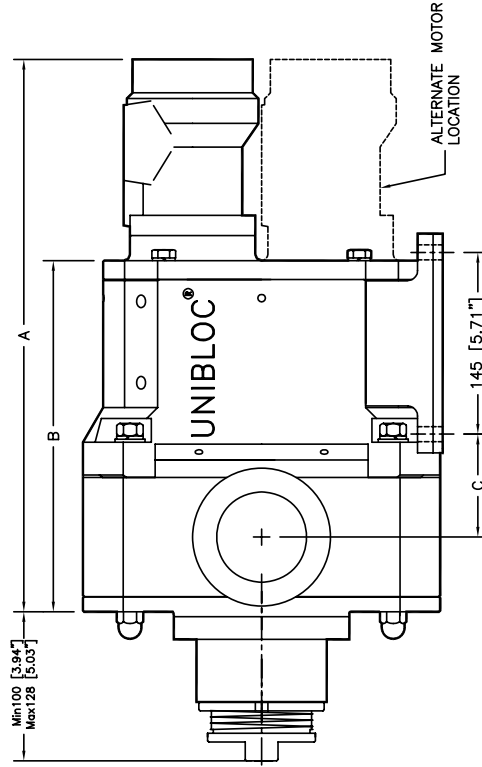
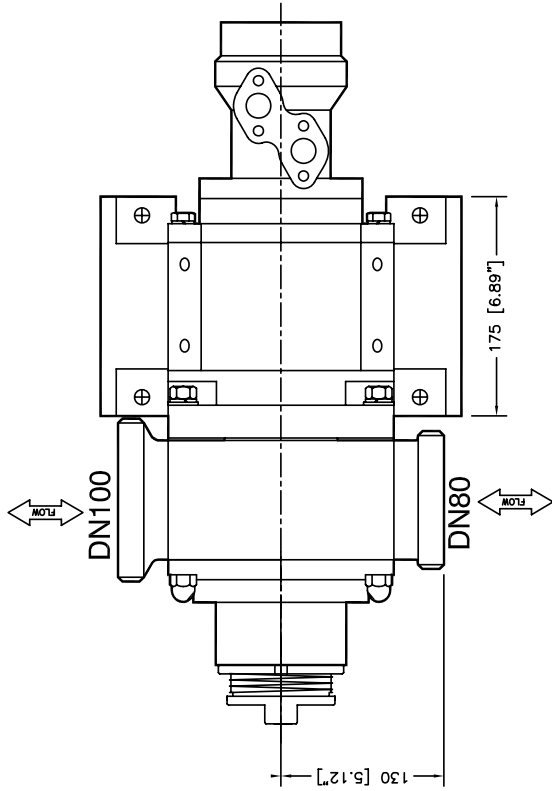
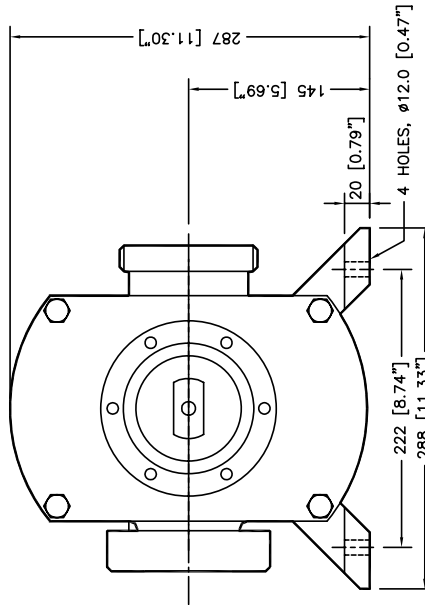
ALL DIMENSIONS IN MM

REGISTERED DESIGN: PATENTS PENDING  
UNIBLOC 551 SHOWN

HYDRAULIC MOTOR	A			
	UNIBLOC 501 (DN65)	UNIBLOC 551 (DN100/80)	UNIBLOC 576 (DN100)	UNIBLOC 576 (DN100)
CHARLYNN 2000 (6-2)	463mm (18.2")	479mm (18.9")	498mm (19.6")	498mm (19.6")
CHARLYNN 2000 (8-0)	470mm (18.5")	486mm (19.1")	505mm (19.9")	505mm (19.9")
DANFOSS OMR50	420mm (16.5")	436mm (17.2")	455mm (17.9")	455mm (17.9")
DANFOSS OMR80	425mm (16.7")	441mm (17.4")	460mm (18.1")	460mm (18.1")
DANFOSS OMR100	429mm (16.9")	445mm (17.5")	464mm (18.3")	464mm (18.3")

\*CONNECTIONS AVAILABLE: SANITARY TRI-CLAMP, NPTM, ACME, CAM LOCK, DIN

	B	C
UNIBLOC 501	264mm (10.4")	74mm (2.91")
UNIBLOC 551	280mm (11.03")	82mm (3.23")
UNIBLOC 576	299mm (11.8")	92mm (3.62")

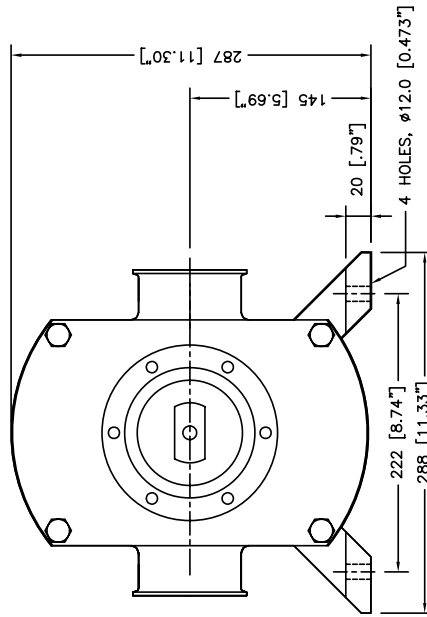
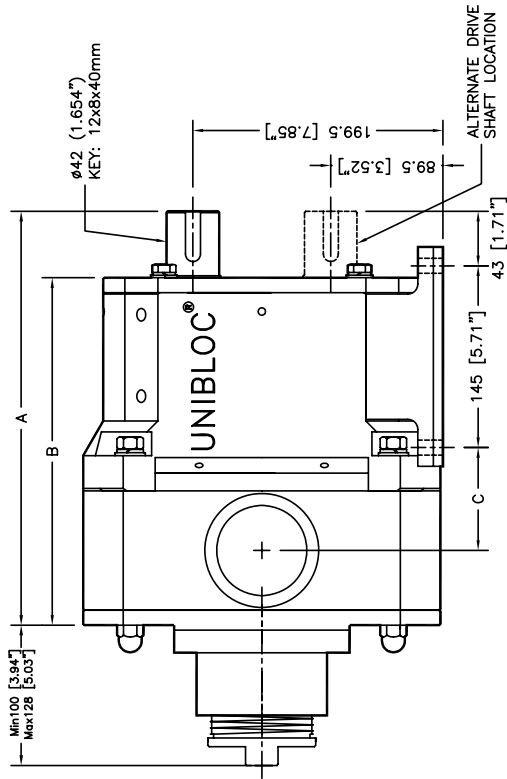
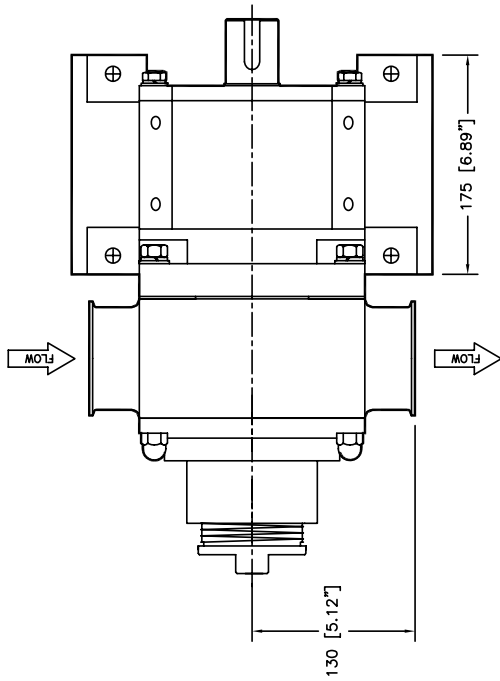


3239B		ROTOR HOUSING RELIEF VALVE COVER	
PART NO.		DESCRIPTION	
ASSOCIATED PARTS			
 UNIBLOC Hygienic Technologies			
BY		DATE	
DRAWN		PO	
CHECKED		DATE	
APP'D		SCALE	
ALL DIMENSIONS IN MM		0.4:1	
MATERIAL		FINISH (UNLESS NOTED ON DWG)	
WEIGHT		SCALE	
DATE		03/19/08	
DWG. TITLE		HYDRAULIC MOTOR ASSEMBLY	
SIZE		501, 551, 576	
DWG. NO.		D146BDIN	
RELEASE DATE		MAR 19, 2008	
SHEET		1 OF 1	

REGISTERED DESIGN: PATENTS PENDING  
UNIBLOC 551 SHOWN

	UNIBLOC 501 (DN65)	UNIBLOC 551 (DN100/80)	UNIBLOC 576 (DN100)
A	314mm (12.4")	330mm (13.00")	349mm (13.7")
B	261mm (10.3")	277mm (10.91")	296mm (11.7")
C	74mm (2.91")	82mm (3.23")	92mm (3.62")

\*CONNECTIONS AVAILABLE: SANITARY TRI-CLAMP, NPTM, ACME, CAM LOCK, DIN



UNIBLOC  
Hygienic Technologies

PTO TRUCK PUMP GEN. DIMS.

501,551,576

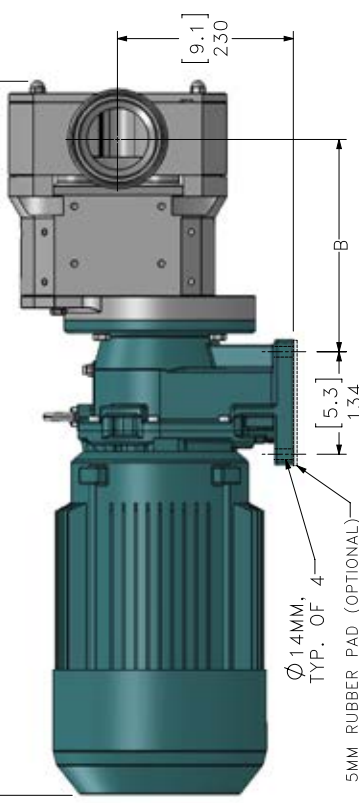
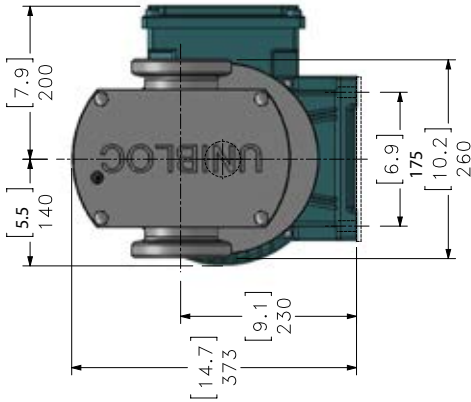
D148B

APRIL 15, 2008

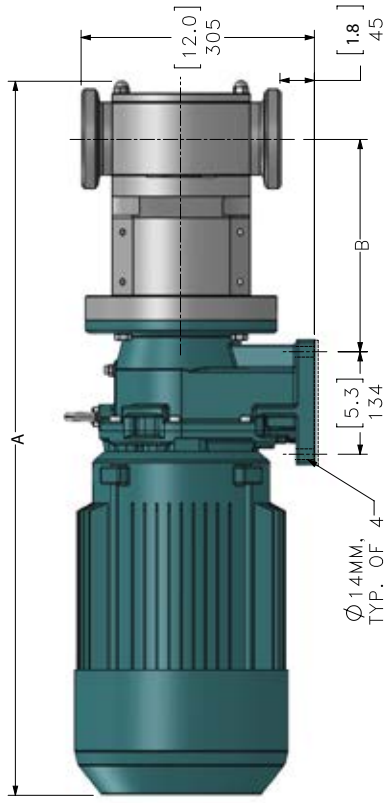
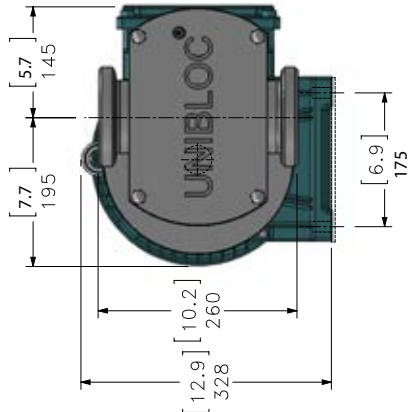
1 OF 1

MATERIAL	BY	DATE	DWG. TITLE
FINISH (UNLESS NOTED ON DWG.)	DRAWN	PO	4/15/08
WEIGHT	CHECKED	APP'D	SCALE
ASSOCIATED PARTS	RELIEF VALVE COVER	DESCRIPTION	

3239B	RELIEF VALVE COVER
PART NO.	DESCRIPTION
	ASSOCIATED PARTS



HORIZONTAL THROUGH-PUT



VERTICAL THROUGH-PUT

Ø14MM, TYP. OF 4  
5MM RUBBER PAD (OPTIONAL)

Ø14MM, TYP. OF 4

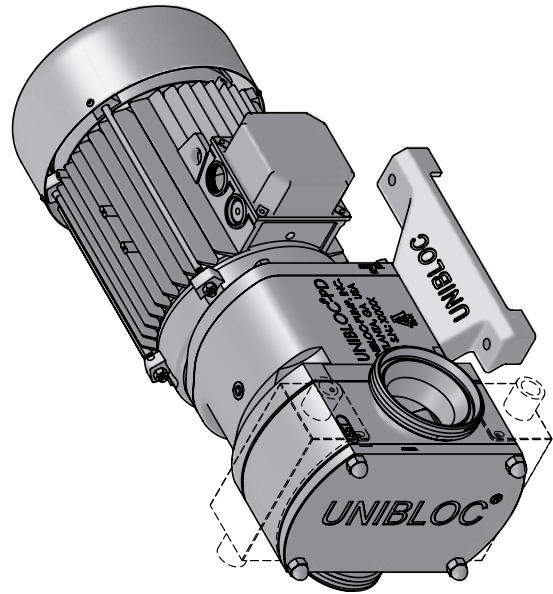
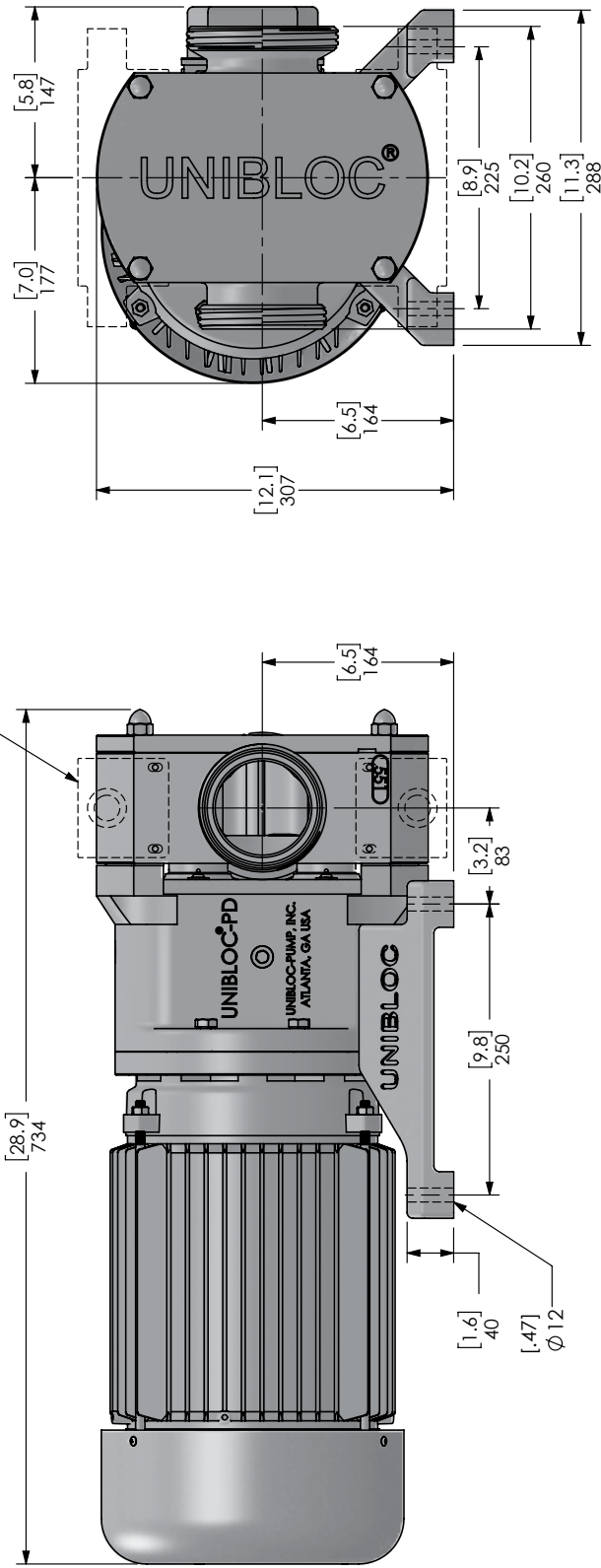
**PATENTED DESIGN**

UNLESS OTHERWISE NOTED: DECIMALS TOLERANCES: 0.0, ±0.05 0.00, ±0.005 ANGULAR 0.0° ±0.1° 0.00° ±0.005°		THIS DRAWING AND ALL DIMENSIONS ARE THE PROPERTY OF UNIBLOC HYDRONIC TECHNOLOGIES, LLC. ITS ACCEPTANCE AS A CONFIDENTIAL DOCUMENT FOR NO OTHER PURPOSES IS LIMITED TO THE PROJECT AND THIS DOCUMENT SHALL NOT BE REPRODUCED OR COPIED EXCEPT AS AUTHORIZED IN WRITING BY UNIBLOC HYDRONIC TECHNOLOGIES, LLC.	
MATERIAL	BY	DATE	DWG. TITLE
FINISH (UNLESS NOTED ON DWG.)	KL	5/27/14	FLANGE MOUNT GEN. DIMS.
WEIGHT	CHECKED		
	APPTD		
	SCALE	1:3	SIZE
			501,551,576
			DWG. NO. D158
			REV. NO. 0
			RELEASE DATE MAY 27, 2014
			SHEET 1 OF 2

	UNIBLOC 501 (DN65)	UNIBLOC 551 (DN100/80)	UNIBLOC 576 (DN100)
A	918mm (36.1")	934mm (36.8")	953mm (37.5)
B	270mm (10.6")	278mm (10.9")	288mm (11.3)

\*CONNECTIONS AVAILABLE: SANITARY TRI-CLAMP, NPTM, ACME, CAM LOCK, DIN

OPTIONAL HEATING JACKETS

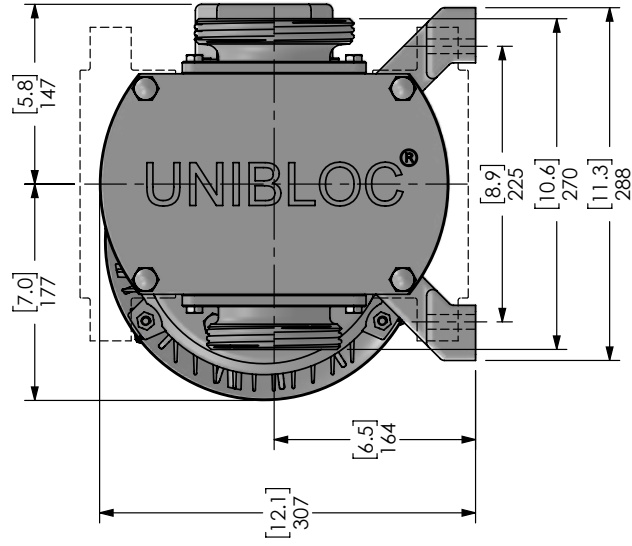
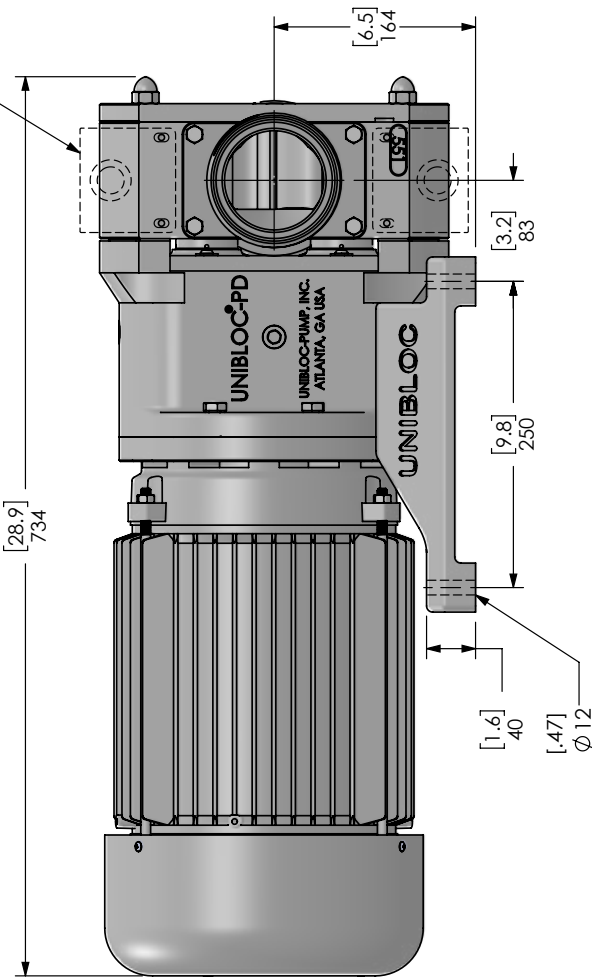


**PATENTED DESIGN**

<p>THE DRAWING AND ALL IDEAS INCORPORATED IN ITS DESIGN IS THE EXCLUSIVE PROPERTY OF UNIBLOC. ANY REPRODUCTION OR TRANSMISSION OF THIS DOCUMENT WITHOUT THE WRITTEN CONSENT OF UNIBLOC IS STRICTLY PROHIBITED. THIS DOCUMENT IS A CONFIDENTIAL DOCUMENT. IT SHALL BE RETURNED TO UNIBLOC UPON REQUEST, AND THAT IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.</p>		
BY	DATE	DWG. TITLE
KL	03/07/19	PD551M2
DRAWN		DWG. NO.
CHECKED		551
APP'D		SIZE
SCALE		D551M2
		REV. NO.
		0
ALL DIMENSIONS IN MM. (IN)		RELEASE DATE
		MAR. 7, 2019
		SHEET 1 OF 2

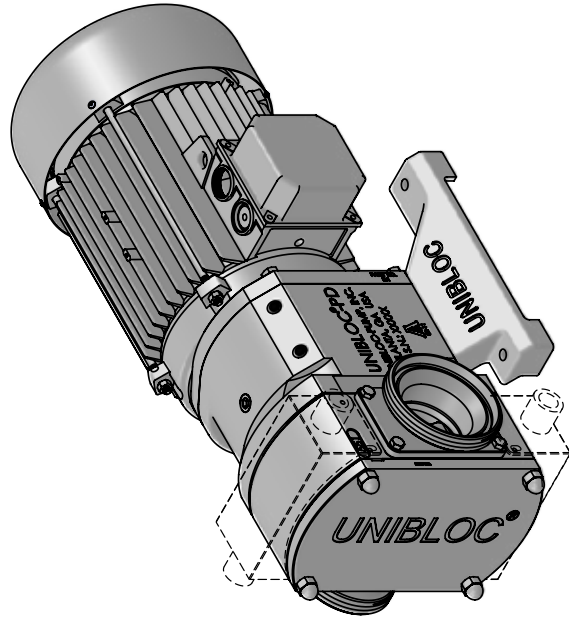


OPTIONAL HEATING JACKETS



FLEX PORT OPTIONS:

- DN80
- DN100
- SMS 101



PATENTED DESIGN

THE DRAWING AND ALL AREAS INCORPORATED IN ITS DESIGN ARE THE EXCLUSIVE PROPERTY OF UNIBLOC HYGIENIC TECHNOLOGIES, LLC. ITS ACCEPTANCE AS A CONFIDENTIAL DOCUMENT USED FOR NO OTHER PURPOSE THAN THAT SPECIFIED HEREIN IS NOT TO BE REPRODUCED OR COPIED EXCEPT AS AUTHORIZED IN WRITING BY UNIBLOC HYGIENIC TECHNOLOGIES, LLC.



BY	DATE	DWG. TITLE	REV. NO.
DRAWN	KL 08/14/19	PD551M2: FLEX PORTS	
CHECKED		SIZE	DWG. NO.
APPROV		551	D551M2-FP
SCALE		RELEASE DATE	REV. NO.
		AUG. 14, 2019	0
ALL DIMENSIONS IN MM. (IN)			SHEET 1 OF 2

# 9.0 Parts Lists

The diagram shows an exploded view of a UNIBLOC PD pump assembly. The main components are labeled with circled numbers: 1 (top housing), 2 (bottom housing), 3a/b (rotor assembly), 4/4a/4b (shaft assembly), 5 (output shaft), 6 (gear assembly), 7/7a/7b (cover plate), 8 (gear), 10 (gear), 12 (gear), 13 (gear), 14a (gear), 15 (gear), 16 (gear), 19 (UNIBLOC logo plate), 20 (cover plate), 21 (gear), 23 (cover plate), 24 (cover plate), 25 (cover plate), 26 (gear), 27 (gear), 28 (gear), 29a/b/c (gear), 30 (gear), 31 (gear), 32 (gear), 33 (gear), 34 (gear), 35 (gear), 36 (gear), 37 (gear), 38 (gear), 39 (gear), 40 (gear), 41 (gear), 42 (gear), 43 (gear), 44 (gear), 45 (gear), 46 (gear), 47 (gear), 48 (gear), 49 (gear), 50 (gear), 51 (gear), 52 (gear), 53 (gear), 54 (gear), 55 (gear), 56 (gear), 57 (gear), 58 (gear), 59 (gear), 60 (gear), 61a/b (gear), 62 (gear), 63 (gear), 64 (gear), 65 (gear), 66 (gear), 67 (gear), 68 (gear).

**UNIBLOC PUMP**

**PARTS LIST**

BY		DATE	DWG. TITLE	
DRAWN	KL		PARTS LIST	
CHECKED			DWG. NO.	REV. NO.
APP'D			501, 551, 576	G807
SCALE			RELEASE DATE	MAY 26, 2020
ALL DIMENSIONS IN MM. (IN)			SHEET 1 OF 2	

THE DRAWING AND ALL IDEAS INCORPORATED HEREIN ARE THE PROPERTY OF UNIBLOC PUMP, LLC. ITS ACCEPTANCE OF THIS DRAWING DOES NOT CONSTITUTE AN ENDORSEMENT OR A CONFIDENTIAL DOCUMENT. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF UNIBLOC PUMP, LLC. UNIBLOC PUMP, LLC IS NOT RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS ARISING FROM THE USE OF THIS DRAWING.

PUMP SIZES 501, 551, 576			
PART NO.	DETAILED DESCRIPTION	NO. PCS.	DESCRIPTION
DPM3x8	M3x8	68 4	Shaft dowel pin
4228A		67 4	Shaftt wear sleeve o-ring
4939B		66 2	Shaftt wear sleeve
WFM6	M6	65 4	Fender washer
BHM6x8	M6x8 (socket)	64 4	Button head screw
3673		63 4	Shim Plate
FHM3x6	M3x6 (socket)	62 8	Flat head screw
HBNPT-0.5"	1/2" NPT (socket)	60 1	Oil Plug
RVD..5	1/2" NPT	59 1	Vent
4534-2	M10	48 4	Split Washer
HBM12X45	M12x45 (hex)	47b 2	Danfoss Motor Bolt
HBM12X40	M12x40 (hex)	47a 2	Charlynn Motor Bolt
WM10	M10	47 4	Washer
SM12x45	M12x45	46 4	Gearbox Stud
4535-2	M12	45 6	Split Washer
WM12	M12	44 4	Washer
4431-2	M12	43 4(8)	Hex Nut
4605	M8x22	42 2	Dowel Pin
3814	RIP30 Drop-In Foot	29c 2	Foot
3815	SIP125 Drop-In Foot	29b 2	Foot
3818	Drum Drop-In Foot	29a 2	Foot
3817	Standard Foot	29 2	Foot
4230	22x3mm	28 1	Cover o-ring
4233	1.799"x0.103" #133	27 2	Rotor-shaft o-ring
4232	2.112"x0.103" #138	26 2	Rotor-bolt- o-ring
4239-N	7.9984"x0.139" #266	25 1	Gearbox Cover o-ring
4130	45x62x10mm	24 1	Rear Oil Seal
4135	75x105x13mm	23 2	Front Oil Seal
4716	12x8x40mm	22 1	Drive Shaft Key
4717	16x10x18mm (sq. key)	21 2	Key
4615	M12x34	20 2	Dowel Pin
SBM10x30	M10x30 (socket)	19 4	Foot Bolt
HBM10x30	M10x30 (socket)	18 4	Cover Bolt
DNM12	M12	16 4	Dome Nut
SM12x30	M12x30	15 4	Front Cover Stud
3381		14b 2	Rotor Bolt (Slotted)
3380		14a 2	Rotor Bolt (Hex)
HBM16x50		61b 2	Rotor Bolt (2-Piece Rotor Bolt)
3382		61a 2	Rotor Bolt Washer (2-Piece Rotor Bolt)
4432		13 2	Slotted Nut
4515		12 2	Tab Washer
3671		11a 2	Shim Ring
3765		10 4	Front & Rear Bearing
3617		8 2	Gears
3584	Cover For Danfoss Drive	7b	Bearing Housing cover
3583	Cover For Charlynn Drive	7a	Bearing Housing cover
3585	Cover For PTO Drive	7	Bearing Housing cover
3532		6 1	Bearing Housing
3239B	Relief cover, 2 way	2b 1	Rotor Housing cover
3237	Relief cover, 1 way	2a 1	Rotor Housing cover
3236	Plain cover	2 1	Rotor Housing cover

PUMP SIZE 501			
PART NO.	DETAILED DESCRIPTION	NO. PCS.	DESCRIPTION
3702B-1L	For Wear Sleeve	5 1	Lay Shaft
3699B-1L	PTO Drive (Wear Sleeve)	4 1	Drive Shaft
3700B-1L	Charlynn Drive (Wear Sleeve)	4a 1	Drive Shaft
3701B-1L	Danfoss Drive (Wear Sleeve)	4b 1	Drive Shaft
3332	Class E Bi-Lobe Rotor	3a 2	SS Rotor
8412	Class E Tri-Lobe Rotor	3b 2	SS Rotor
3164-1	2.5" Tri-Clamp Conn. ***	1 1	Rotor Housing

PUMP SIZE 551			
PART NO.	DETAILED DESCRIPTION	NO. PCS.	DESCRIPTION
3698B-1L	For Wear Sleeve	5 1	Lay Shaft
3695B-1L	PTO Drive (Wear Sleeve)	4 1	Drive Shaft
3696B-1L	Charlynn Drive (Wear Sleeve)	4a 1	Drive Shaft
3697B-1L	Danfoss Drive (Wear Sleeve)	4b 1	Drive Shaft
3335	Class E Bi-Lobe Rotor	3a 2	SS Rotor
8442	Class E Tri-Lobe Rotor	3b 2	SS Rotor
3168-1	3.0" Tri-Clamp Conn. ***	1 1	Rotor Housing


PUMP SIZE 576			
PART NO.	DETAILED DESCRIPTION	NO. PCS.	DESCRIPTION
3706B-1L	For Wear Sleeve	5 1	Lay Shaft
3703B-1L	PTO Drive (Wear Sleeve)	4 1	Drive Shaft
3704B-1L	Charlynn Drive (Wear Sleeve)	4a 1	Drive Shaft
3705B-1L	Danfoss Drive (Wear Sleeve)	4b 1	Drive Shaft
3338	Class E Bi-Lobe Rotor	3a 2	SS Rotor
8472	Class E Tri-Lobe Rotor	3b 2	SS Rotor
3178-1	3" or 4" Tri-Clamp Conn. ***	1 1	Rotor Housing

\*\*\* Connections Also Available In:

- ACME
- DIN 100
- DIN 80
- RJT
- SMS
- NPTM
- CAMLOC

\* See DWG. G812B For Shaft Seal Parts

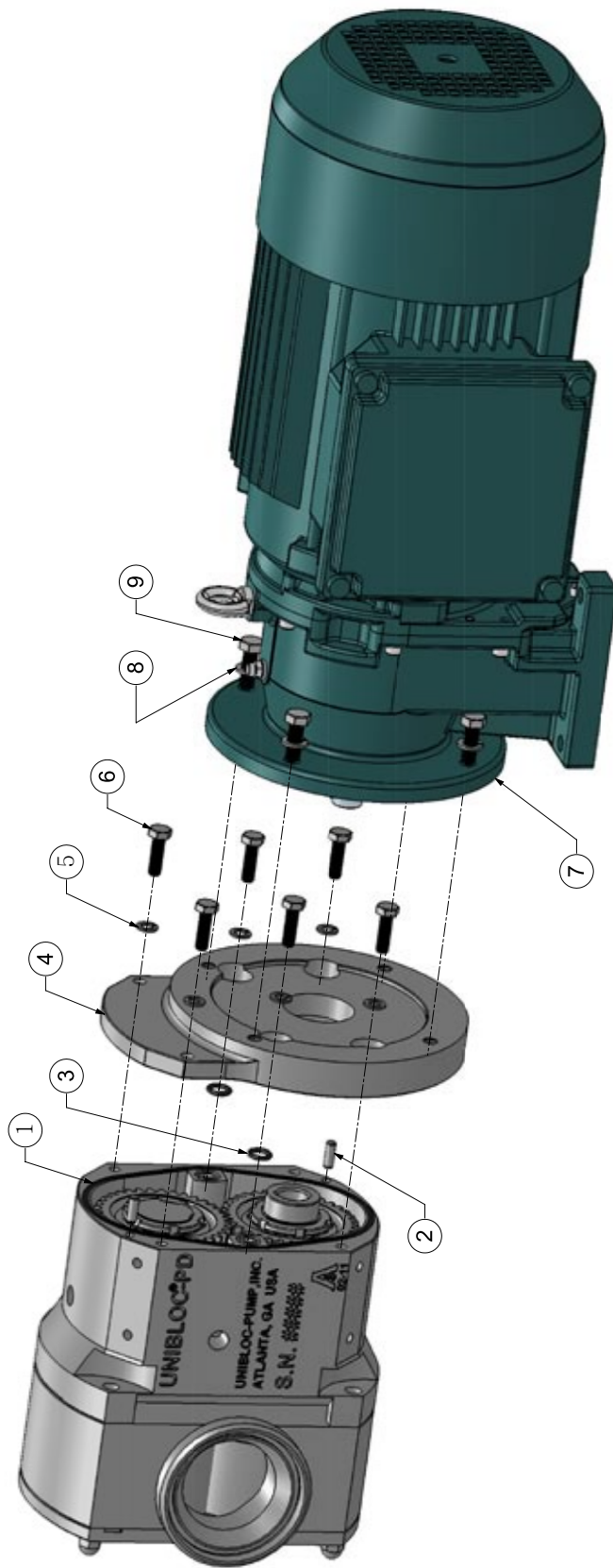
THE DRAWING AND ALL DATA INCORPORATED IN IT ARE THE EXCLUSIVE PROPERTY OF UNIBLOC. UNIBLOC ASSUMES NO LIABILITY FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. UNIBLOC CONSTITUTES AN AGREEMENT THAT IT SHALL BE TREATED AS A CONFIDENTIAL DOCUMENT USED FOR NO OTHER PURPOSE THAN THAT SPECIFIED HEREIN. IT IS TO BE RETURNED UPON REQUEST, AND THAT ITS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.



**UNIBLOC**  
Hygienic Technologies

	BY	DATE	DWG. TITLE
DRAWN	KL		<b>PARTS LIST</b>
CHECKED			
APPD		SIZE	
SCALE		501_551_576	
			DWG. NO. <b>G807</b>
			REV. NO. <b>1</b>
ALL DIMENSIONS IN MM. [IN]			RELEASE DATE MAY 26, 2020
			SHEET 2 OF 2





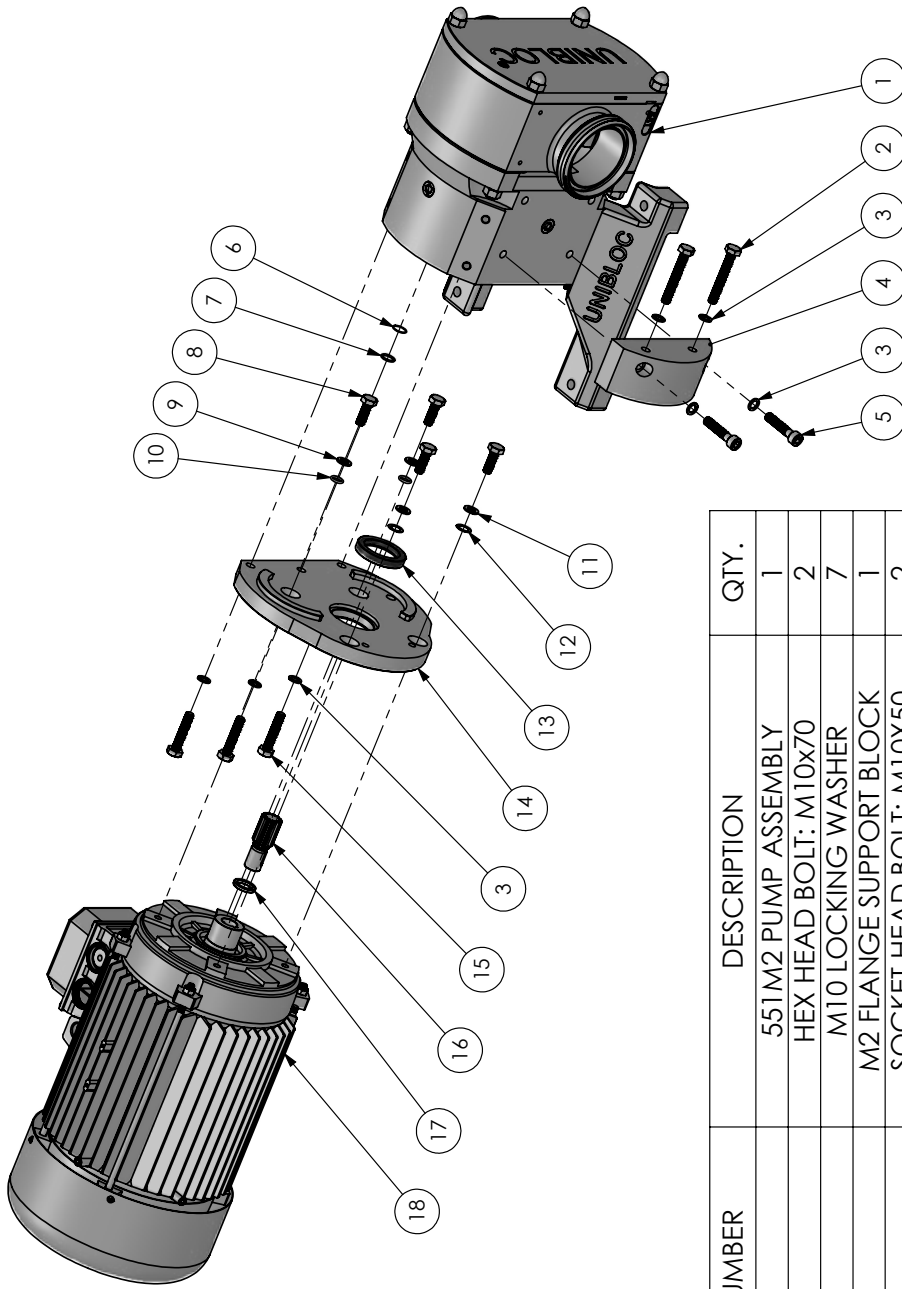
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	4239-N	O-RING	1
2	N/A	M8x20 DOWEL PIN	2
3	4837	O-RING	2
4	3585C	BEARING HOUSING COVER	1
5	N/A	M10 LOCK WASHER	6
6	N/A	M10x35 BOLT	6
7	N/A	GEARMOTOR	1
8	N/A	M12 LOCK WASHER	4
9	N/A	M12x35 BOLT	4

## PATENTED DESIGN



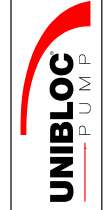
UNLESS OTHERWISE NOTED:  
 DECIMALS TOLERANCES ANGULAR  
 0.0 ± 0.05 0.0° ± 0.1°  
 0.000 ± 0.005 0.00° ± 0.05°  
 MATERIAL

THE DRAWINGS AND ALL PATENTED COMPONENTS ARE THE EXCLUSIVE PROPERTY OF UNIBLOC HYGIENIC TECHNOLOGIES, LLC. ITS ACCEPTANCE AS A CONFIDENTIAL DOCUMENT USED FOR NO OTHER PURPOSE THAN THAT SPECIFICALLY INTENDED TO BE RETURNED UPON REQUEST AND THAT IT IS NOT TO BE REPRODUCED OR COPIED EXCEPT AS AUTHORIZED IN WRITING BY UNIBLOC HYGIENIC TECHNOLOGIES, LLC.		DATE	BY
DRAWN	KL	08/30/13	
CHECKED			
APPROVED			
SCALE	1:5		
ALL DIMENSIONS IN MM			
FINISH (UNLESS NOTED ON DWG.)		DWG. TITLE	
		FLANGE MOUNT ASSEMBLY	
WEIGHT		SIZE	501-551.576
		DWG. NO.	D159
		RELEASE DATE	AUG. 30, 2013
		REV. NO.	1
		SHEET 1 OF 3	



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	-	551M2 PUMP ASSEMBLY	1
2	HBM10x70	HEX HEAD BOLT: M10x70	2
3	LWM10	M10 LOCKING WASHER	7
4	3836M2	M2 FLANGE SUPPORT BLOCK	1
5	SBM10x50	SOCKET HEAD BOLT: M10X50	2
6	4203	O-RING	1
7	4271	O-RING	1
8	HBM10X30	HEX HEAD BOLT: M10X30	4
9	WM10	WM10X18 SEALING WASHER	2
10	4272	O-RING	2
11	WM10	M10 WASHER	2
12	98126A576	SHIM	2
13	4130-V	OIL SEAL (REAR)	1
14	3835M2	BEARING HOUSING COVER	1
15	HMB10X50	HEX HEAD BOLT: M10X50	3
16	3619B	PINION GEAR	1
17	SPCR-3619B	PINION GEAR SPACER	1
18	SM1322_M_B14	MGM MOTOR	1

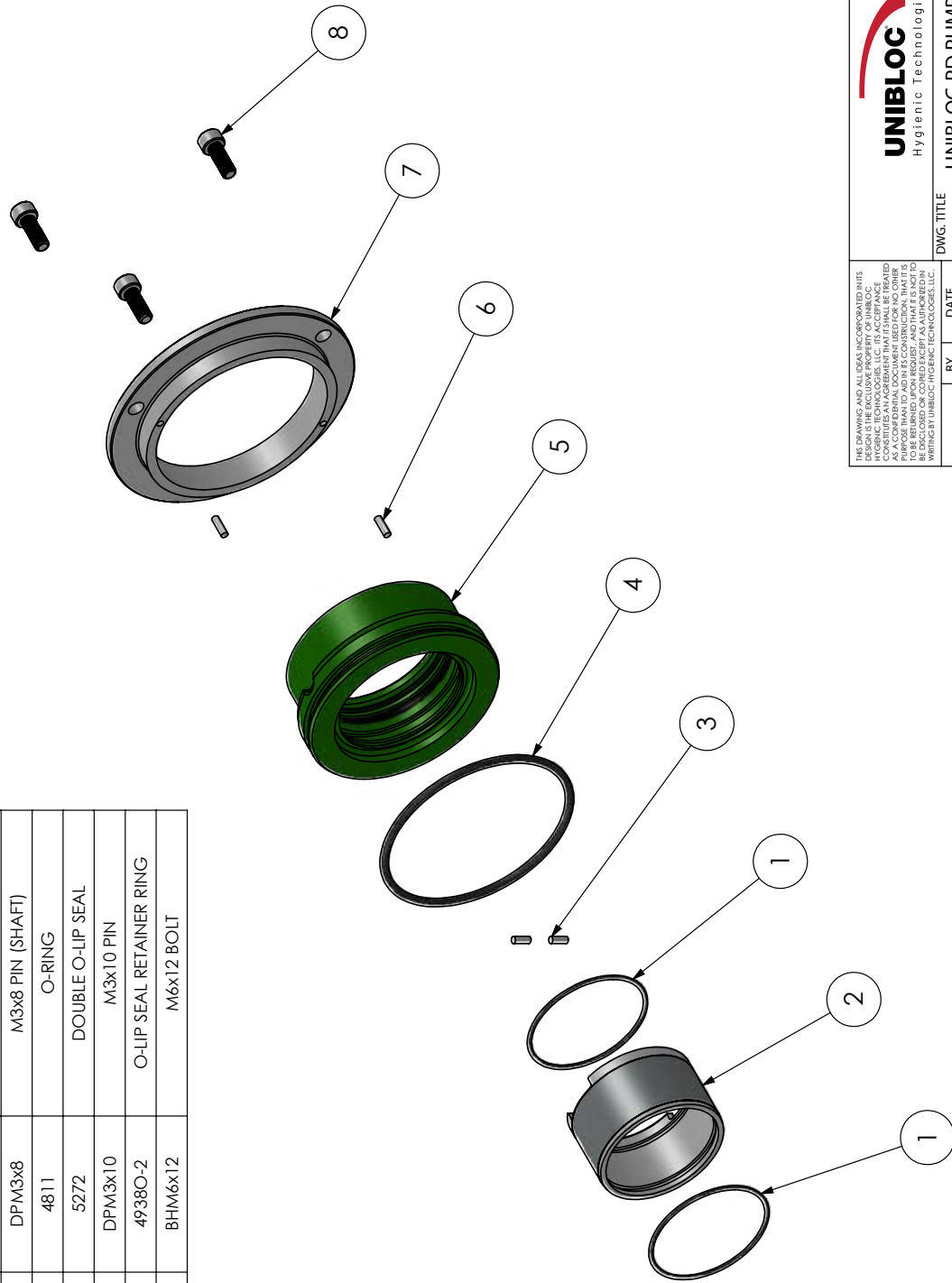
THIS DRAWING AND ALL DEAS INCORPORATED  
HEREIN ARE THE EXCLUSIVE PROPERTY OF  
UNIBLOC PUMP. NO PART OF THIS DRAWING  
CONSTITUTE AN AGREEMENT THAT IT SHALL BE  
CONSIDERED AS A COMMITMENT TO ANY  
PARTICULAR DESIGN OR TO ANY DESIGN  
CONSTRUCTION, THAT IT IS TO BE RETURNED  
TO UNIBLOC PUMP. UNIBLOC PUMP SHALL NOT  
DISCLOSE OR COPY EXCEPT AS AUTHORIZED  
IN WRITING BY UNIBLOC PUMP, L.C.



BY	DATE	DWG. TITLE
JPR	4/13/22	PD551M2 PARTS
CHECKED		SIZE
APP'D		PD551M2
SCALE		REV. NO.
		1
		RELEASE DATE
		APR. 11, 2022
		SHEET 1 OF 2

DOUBLE O-LIP SEAL  
P.N. 5272

ITEM NO.	PCS. PER SEAL	PART NO.	DESCRIPTION
1	2	4228A	O-RING
2	1	4939B	WEAR SLEEVE
3	2	DPM3x8	M3x8 PIN (SHAFT)
4	1	4811	O-RING
5	1	5272	DOUBLE O-LIP SEAL
6	2	DPM3x10	M3x10 PIN
7	1	4938O-2	O-LIP SEAL RETAINER RING
8	3	BHM6x12	M6x12 BOLT



THIS DRAWING AND ALL IDEAS INCORPORATED INTO THIS DESIGN IS THE EXCLUSIVE PROPERTY OF UNIBLOC. UNIBLOC ASSUMES NO LIABILITY FOR THE USE OF THIS DRAWING IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF UNIBLOC. UNIBLOC DISCLAIMS ANY WARRANTY, INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT, IN CONNECTION WITH THE USE OF THIS DRAWING. UNIBLOC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM THE USE OF THIS DRAWING. UNIBLOC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM THE USE OF THIS DRAWING. UNIBLOC SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES, INCLUDING CONSEQUENTIAL DAMAGES, ARISING FROM THE USE OF THIS DRAWING.

BY	DATE
JFZ	06/29/15
DRAWN	
CHECKED	
APPD	
SCALE	
ALL DIMENSIONS IN MM. [IN]	

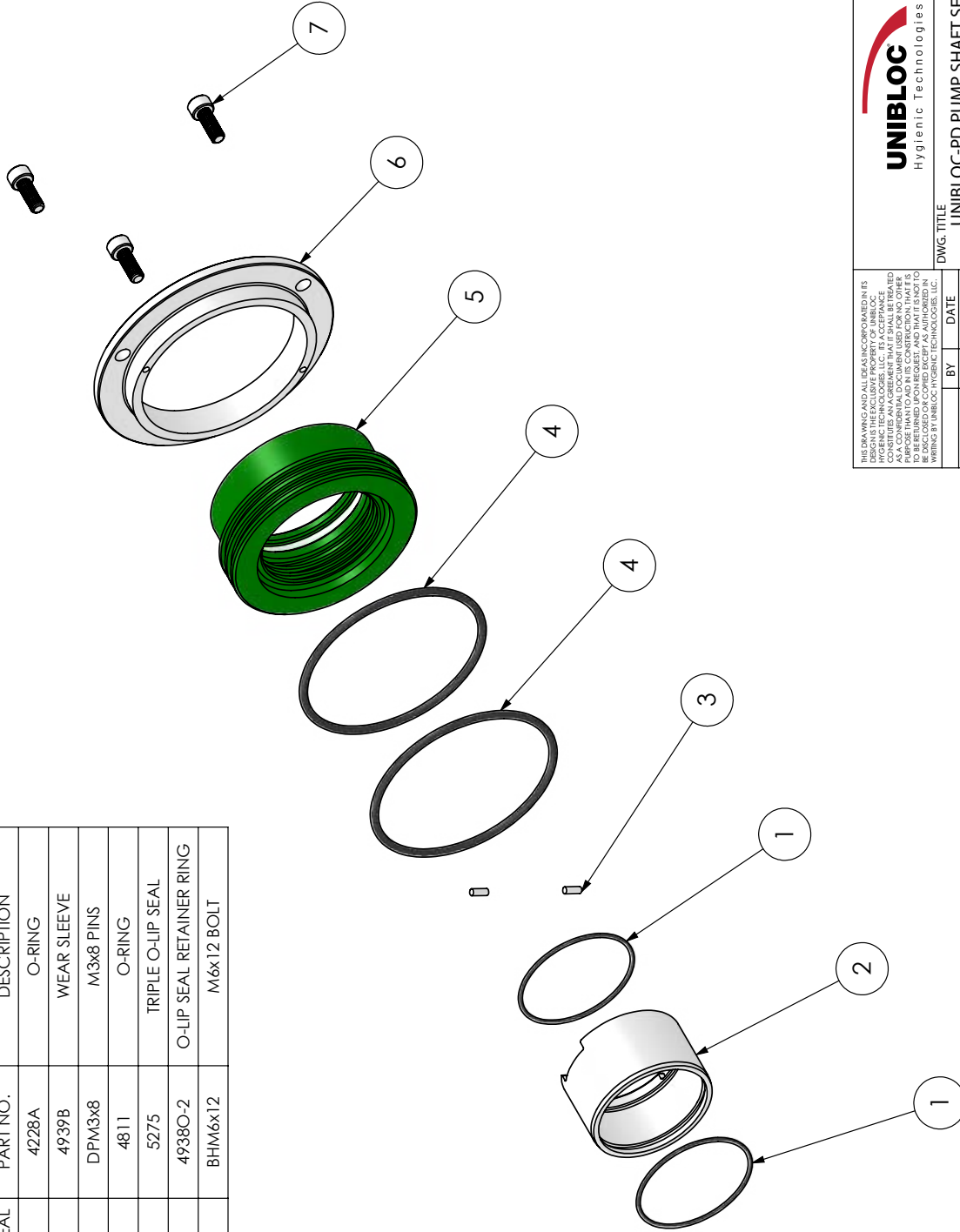
**UNIBLOC**  
Hygienic Technologies

DWG. TITLE: UNIBLOC-PD PUMP SHAFT SEAL PARTS LIST

SIZE	DWG. NO.	REV. NO.
501,551,576	G812B-1	2
RELEASE DATE		SHEET 1 OF 2
APRIL 5, 2004		

TRIPLE O-LIP SEAL  
P.N. 5275

ITEM NO.	PCS. PER SEAL	PART NO.	DESCRIPTION
1	2	4228A	O-RING
2	1	4939B	WEAR SLEEVE
3	2	DPM3x8	M3x8 PINS
4	2	4811	O-RING
5	1	5275	TRIPLE O-LIP SEAL
6	1	49380-2	O-LIP SEAL RETAINER RING
7	3	BHM6x12	M6x12 BOLT



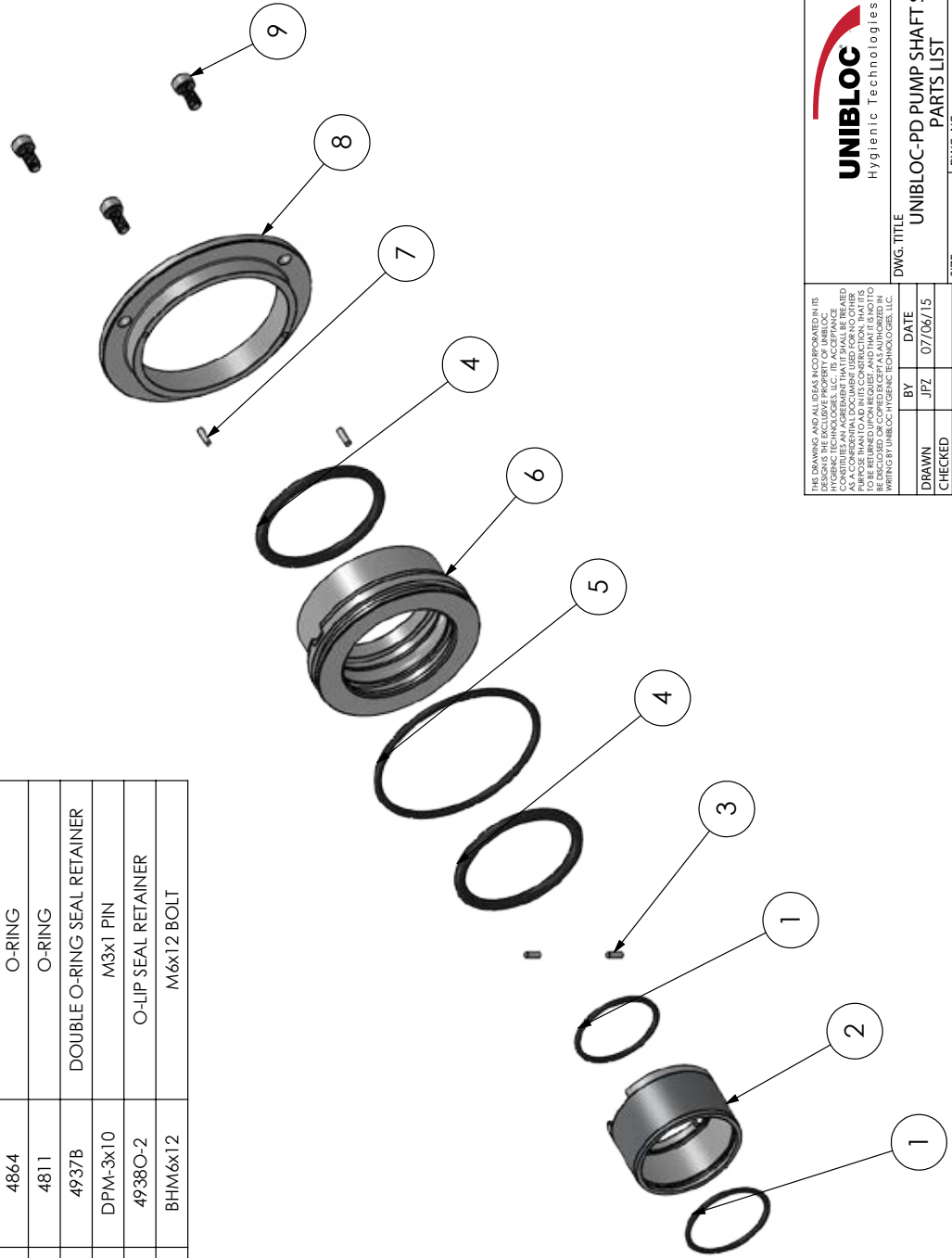
THIS DRAWING AND ALL TECHNICAL INFORMATION HEREIN IS THE EXCLUSIVE PROPERTY OF UNIBLOC HYGIENIC TECHNOLOGIES, LLC. IT IS ACCEPTED AND AGREED THAT THE INFORMATION CONTAINED HEREIN IS A CONFIDENTIAL DOCUMENT USED FOR NO OTHER PURPOSE THAN TO AND IN ITS CONTRIBUTION THAT IT IS BEING DISCLOSED OR COPIED EXCEPT AS AUTHORIZED IN WRITING BY UNIBLOC HYGIENIC TECHNOLOGIES, LLC.

BY	DATE	UNIBLOC PD PUMP SHAFT SEAL PARTS LIST	
DRAWN	07/06/15	SIZE	501,551,576
CHECKED		DWG. NO.	G812B-2
APPD		REV. NO.	2
SCALE		RELEASE DATE	APRIL 5, 2004
ALL DIMENSIONS IN MM. (IN)			SHEET 1 OF 2



DOUBLE O-RING SEAL  
OPTIONAL: SINGLE O-RING SEAL

ITEM NO.	PCS. PER SEAL	PART NO.	DESCRIPTION
1	2	4228A	O-RING
2	1	4939B	WEAR SLEEVE
3	2	DFM3x8	M3x8 PIN
4	2	4864	O-RING
5	1	4811	O-RING
6	1	4937B	DOUBLE O-RING SEAL RETAINER
7	2	DPM-3x10	M3x1 PIN
8	1	4938O-2	O-LIP SEAL RETAINER
9	3	BHM6x12	M6x12 BOLT



THE DRAWING AND ALL ITEMS INCORPORATED IN ITS DESIGN ARE THE EXCLUSIVE PROPERTY OF UNIBLOC HYGIENIC TECHNOLOGIES, LLC. ITS ACCEPTANCE AS A CONFIDENTIAL DOCUMENT IS FOR NO OTHER PURPOSE AND IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF UNIBLOC HYGIENIC TECHNOLOGIES, LLC.

BY	DATE
JFZ	07/06/15
CHECKED	
APPROVED	
SCALE	

ALL DIMENSIONS IN MM. (IN)

**UNIBLOC**  
Hygienic Technologies

DWG. TITLE: UNIBLOC-PD PUMP SHAFT SEAL PARTS LIST

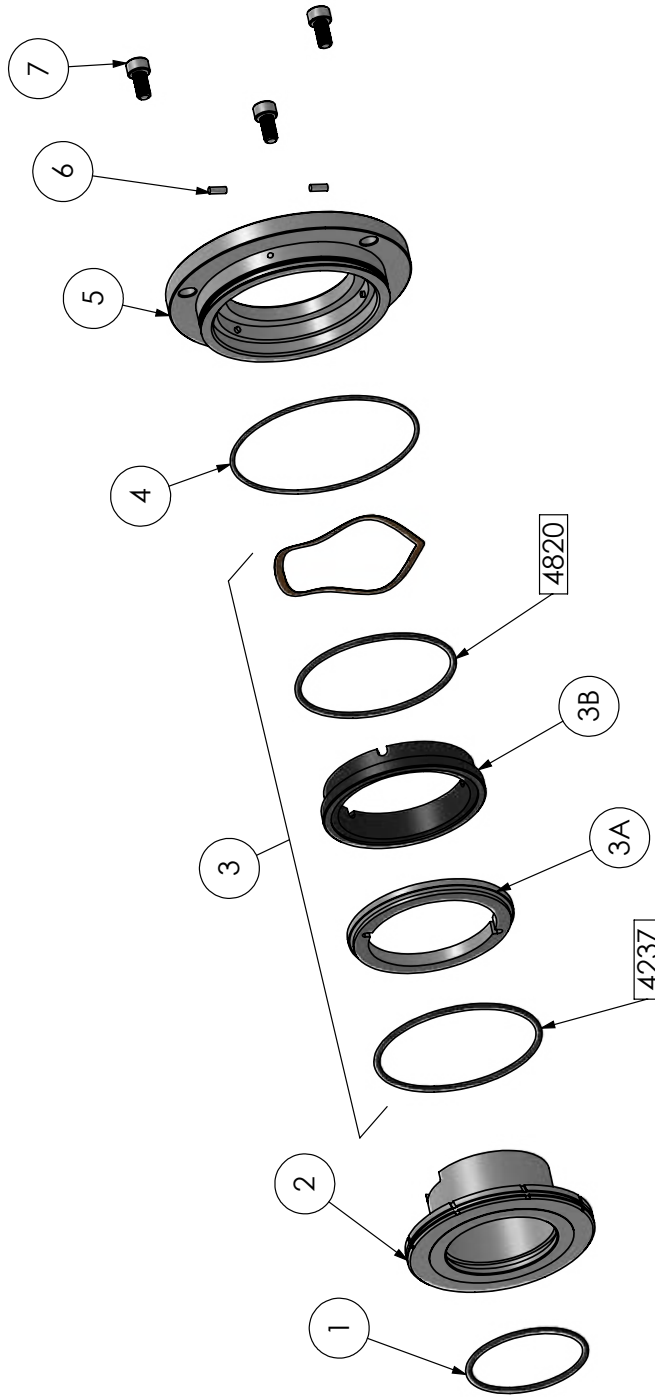
SIZE	DWG. NO.	REV. NO.
501,551,576	G812B-3	3

RELEASE DATE: MAY 10, 2022 SHEET 1 OF 2

SINGLE MECHANICAL SEAL			
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	4225	O-RING	1
2	4939E	SINGLE MECHANICAL SHAFT SLEEVE	1
3	REFERENCE TABLE 2	SINGLE MECHANICAL SHAFT SLEEVE FACE KIT	1
4	4234	O-RING	1
5	4938A-2	SINGLE MECHANICAL RETAINER RING	1
6	DPM3x8	M3x8 PIN (SHAFT)	2
7	SBM6x12	M6x12 SOCKET BOLT	3

TABLE 2

KIT NO.	ITEM NO.	DESCRIPTION
5165-KIT	3A	ROTATING SEAL FACE: STAINLESS
	3B	STATIONARY SEAL FACE: CARBON
5166-KIT	3A	ROTATING SEAL FACE: TUNGSTEN CARBIDE
	3B	STATIONARY SEAL FACE: SILICON CARBIDE
5167-KIT	3A	ROTATING SEAL FACE: SILICON CARBIDE
	3B	STATIONARY SEAL FACE: SILICON CARBIDE
5168-KIT	3A	ROTATING SEAL FACE: TUNGSTEN CARBIDE
	3B	STATIONARY SEAL FACE: TUNGSTEN CARBIDE



THIS DRAWING AND ALL IDEAS INCORPORATED IN ITS DESIGN ARE THE EXCLUSIVE PROPERTY OF UNIBLOC HYDRIC TECHNOLOGIES, LLC. ITS ACCEPTANCE AS A CONFIDENTIAL DOCUMENT USED FOR NO OTHER PURPOSE THAN THAT SPECIFIED HEREIN IS LIMITED TO BE RETURNED UPON REQUEST AND THAT IT IS NOT TO BE REPRODUCED OR COPIED EXCEPT AS AUTHORIZED IN WRITING BY UNIBLOC HYDRIC TECHNOLOGIES, LLC.



BY	DATE	DWG. TITLE
JPR	4/19/22	FRONT LOAD SINGLE MECH. SEAL PARTS
CHECKED		SIZE
APPD		PDS01
SCALE		REV. NO. G812C
ALL DIMENSIONS IN MM. (IN)		RELEASE DATE APRIL 19, 2022
		SHEET 1 OF 2







# 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 MERCHANTABILITY, 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 US, LLC

1650 Airport Rd, Ste 110 • Kennesaw, GA 30144 • USA

Tel 770-218-8900 • E-Mail [info@unibloctech.com](mailto:info@unibloctech.com)



[unibloctech.com](http://unibloctech.com)

