

Progressive Cavity Pump

3A4648B

EN

For the dispensing of highly filled single component fluids for the electronics industry. For professional use only.

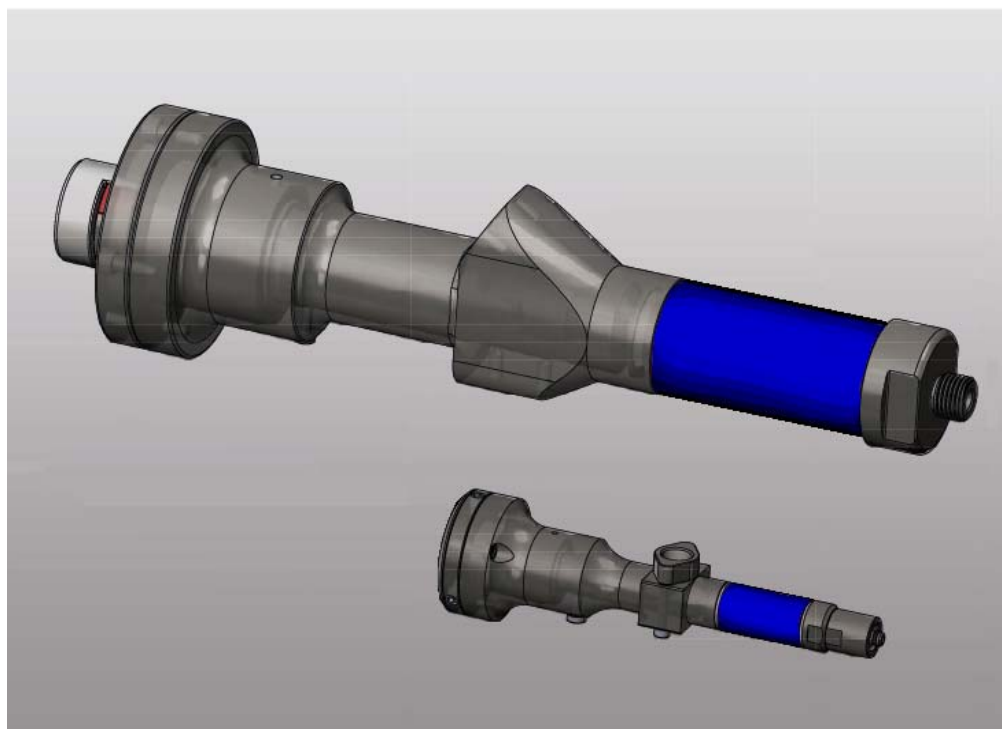
Not approved for use in explosive atmospheres or hazardous locations.

See page 2 for model information, including maximum working pressure and approvals.



Important Safety Instructions

Read all warnings and instructions in this manual.
Save these instructions.



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Models

Part No.	Maximum Working Pressure bar (psi)	Revolutions per Minute
25C614	10 bar (145 psi)	150 rpm
25C615		
25C616		
25C617	20 bar (290 psi)	400 rpm
25C618		
25C619		

Related Manuals

Manual	Description
3A4061	UniXact® Automated Dispense Instructions-Parts
3A3649	UniXact Automated Dispense Setup-Operations

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

 WARNING	
 	MOVING PARTS HAZARD Moving parts can pinch, cut or amputate fingers and other body parts. • Keep clear of moving parts. • Do not operate equipment with protective guards or covers removed. • Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, relieve pressure and disconnect all power sources.
	BURN HAZARD Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns: • Do not touch hot fluid or equipment.
	TOXIC FLUID OR FUMES HAZARD Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed. • Read Safety Data Sheet (SDS) to know the specific hazards of the fluids you are using. • Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
  	PRESSURIZED EQUIPMENT HAZARD Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury. • Follow the Pressure Relief Procedure when you stop spraying/dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses tubes, and couplings daily. Replace worn or damaged parts immediately.



WARNING



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

General Information

Pump Housing

The pump is composed of a pump housing, gasket bearing package, and rotor-stator set. The suction connection is designed as a BSP internal thread and the pressure connection as a Luer internal thread or BSP external thread.

Rotor-Stator Set

The rotor is made from stainless steel, and the geometry of the rotor and stator are custom-matched. These two components form the pump's actual pumping unit.

Shaft, Bearing and Lubrication

The drive shaft is positioned in bearings which have permanent lubrication.

NOTICE

The pump must always be supplied with liquid, but must not be operated with water. Failure to supply the pump with the proper liquid can result in damage to the pump.

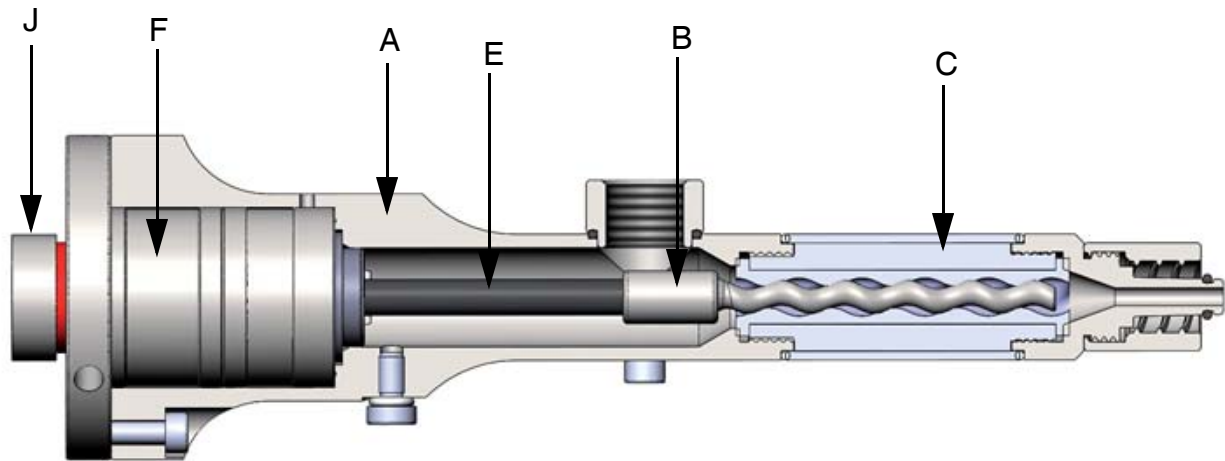
Storage

When storing the pumps, the following points must be noted:

- Drive units should generally be stored indoors.
- Ambient temperature max. 25°C/77°F; relative humidity max. 80%.
- The stator should be removed from the rotor for storage.
- The progressive cavity pump units must be protected against sunlight and UV light.
- No aggressive or corrosive materials or agents must be stored nearby.
- The units must be protected against mechanical strain and the impact of external forces.

Component Identification

Size 1



Size 2

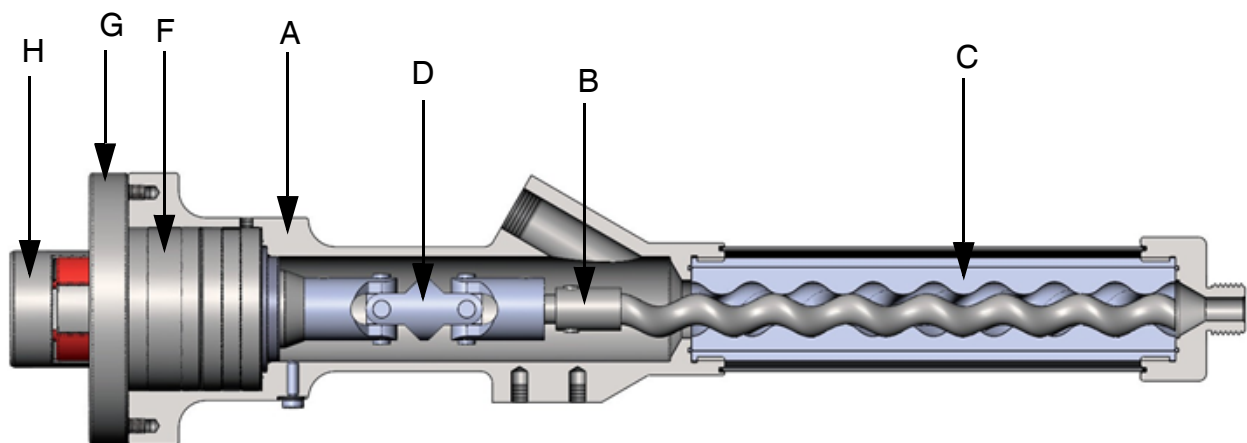


FIG. 1: Component Identification

Key:

- A Suction Chamber
- B Rotor
- C Stator
- D Cardan Joint
- E Flexible Shaft
- F Sleeve Bearing/Seals
- G Motor Connection Flange
- H Coupling
- J Screw Port/Hollow Shaft

Installation - General

				
To avoid serious injury from moving parts, turn off and disconnect power at main switch before servicing or installing equipment.				

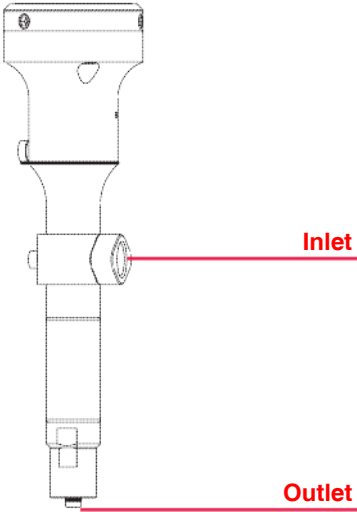
Installation Position

Any

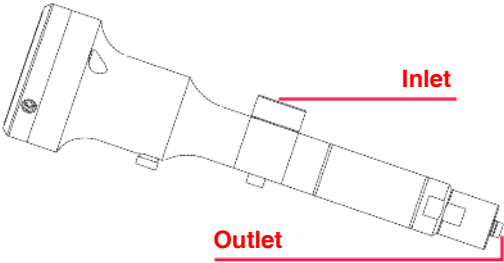
Direction of Rotation

Default direction of rotation to the left (CCW).

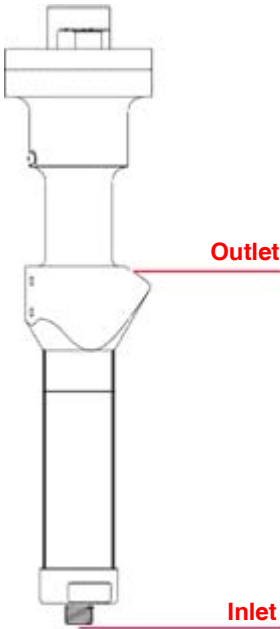
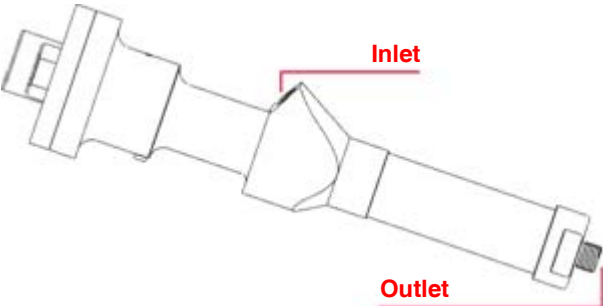
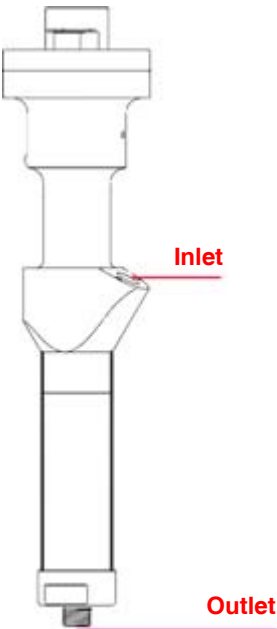
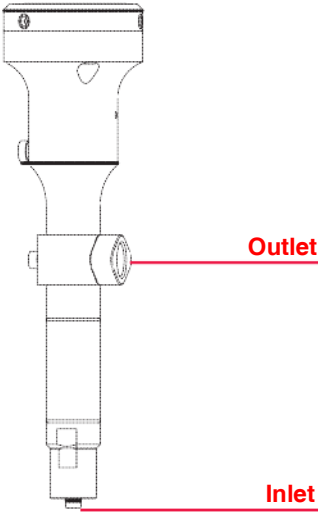
**Metering
CCW**



**Pumping
CCW**



**Draining
CW**



Suction Conditions

The pump is self-priming when certain conditions are met. However, with higher viscosity media, the material must be introduced first (pre-pressure). For more information on the suction conditions of specific material, refer to information provided by the material supplier.

Venting

For the pump to operate properly, all air needs to be removed and the pump needs to be filled with material.

There are 2 options for venting the pump:

Option 1 allows the pump to be filled both with the cartridge open and under pressure or with a hose supply.

Option 2 is only suitable for closed cartridges or direct connections.



Option 1:

1. Open the cartridge or apply pressure to the container / supply line.
2. Loosen the venting screw (1) a few millimeters so that air can escape.
3. Wait until the material exits with no air in it.
4. Once the material is exiting with no air in it, stop the pressurized supply of material.

5. Remove any material that has overflowed and tighten the venting screw.

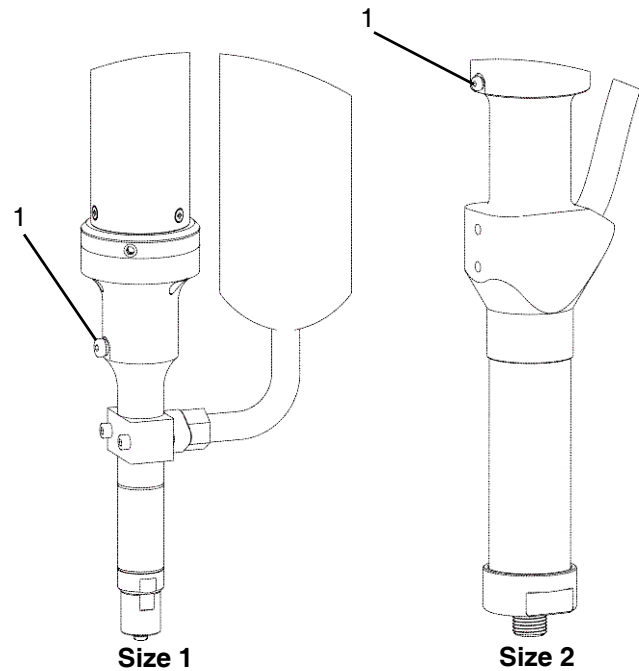


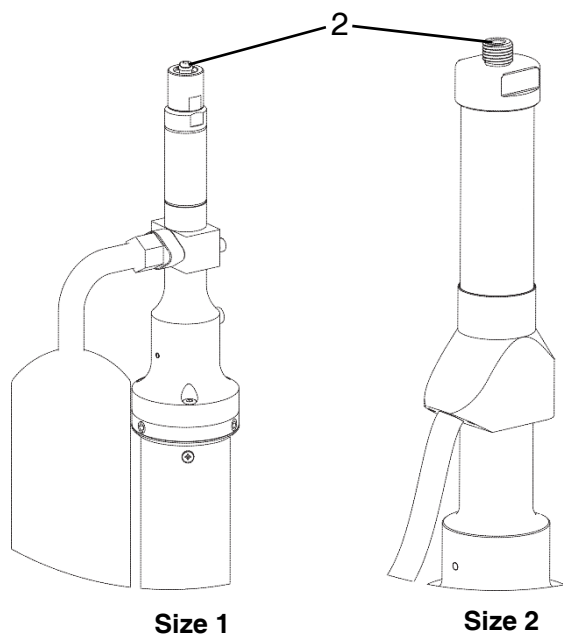
FIG. 2

Option 2:

1. Set up the pump as shown in FIG. 3.
2. Start the pump and pump material until it exits the outlets without air in it (2).

NOTE: To avoid contaminating the product, the material can be evacuated through a hose, for example, at the outlet.

NOTE: Due to the risk of contamination, sealants such as hemp or putty are not permitted.

**FIG. 3**

Maintenance and Repair

Pressure Relief Procedure

 Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing the equipment.

Always de-pressurize the system prior to any repair, following the instructions listed in the appropriate system manual. See **Related Manuals** on page 2.

Pump Maintenance



To prevent injury from moving parts, assembly and maintenance work must only be carried out while the drive is stationary. The unit must be isolated from the power source and secured to prevent accidental start-up.

NOTE: The operating conditions of your particular system determine how often maintenance is required.

Graco progressive cavity pumps are largely maintenance-free. However, gaskets and bearings, as well as the stator and rotor, are subject to wear and must be replaced in certain circumstances at regular intervals. Regular review of the performance data is recommended. When there is maintenance work being carried out anywhere else on the system, the following points must be considered:

- Check all fastening screws and connections to ensure they are securely tightened, and re-tighten if necessary.
- Check the coupling (elastomer) for wear.
- Check the tightness of the pump, especially the shaft seals.

Pump Disassembly and Reassembly



Running the pump at high speed can cause equipment surfaces to become very hot. To avoid burns, do not touch hot fluid or equipment and allow equipment to cool completely before touching it.

To prevent injury from moving parts, make sure the unit is secured so that it cannot be switched back on before starting to disassemble the unit. The shut-off devices in the supply line must be closed.

Disassembling the Pump

Refer to **Component Identification** on page 6 as well as the following instructions/illustrations for the proper disassembly procedures for each corresponding section of the pump. Note the position of the parts respective to each other. We recommend marking the position of the pump parts and numbering them consecutively.

NOTICE
All disassembly must be carried out with care. Due to the risk of breakage, do not use force.

Assembling the Pump

O-rings must be checked for damage and replaced with new ones if necessary. PTFE gaskets must be replaced. All sealant residue must be completely removed.

Disassembly and Reassembly of 25C614, 25C615, 25C616



Stator Disassembly

Unscrew the Luer-fitting (3) and take off the O-Ring (4), screw off Luer-connector (5) then take off the O-Ring (6) and the shell (7).

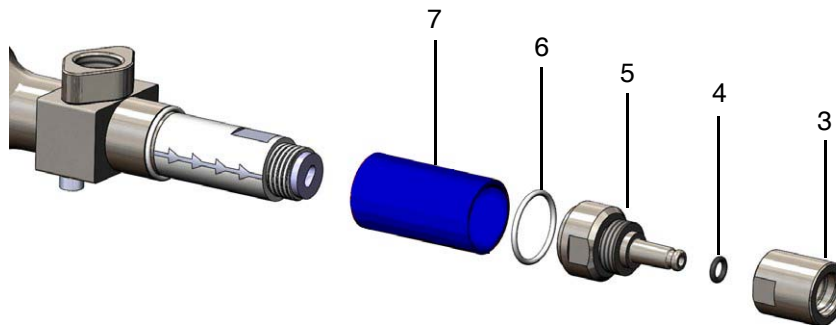


FIG. 4

Storage / Changing

Unscrew stator (8) carefully (CCW) from the housing (9).

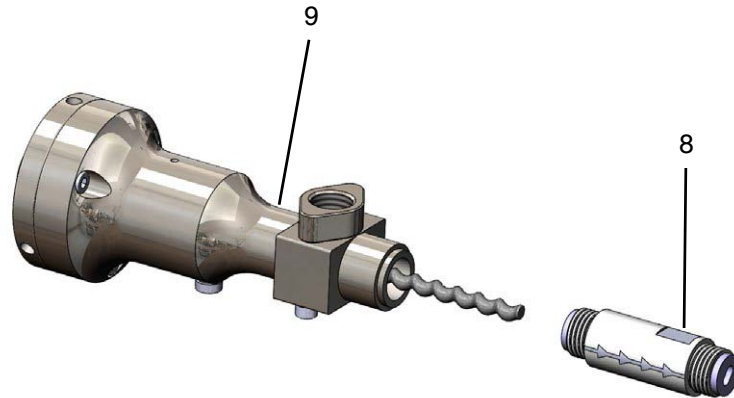


FIG. 5

NOTE: The stator should be stored separately from the rotor.

Seal Kit / Bearing Kit

Loosen the screws (10) and remove the seal and bearing kit (11) with the rotor unit (12) from the pump housing (13).

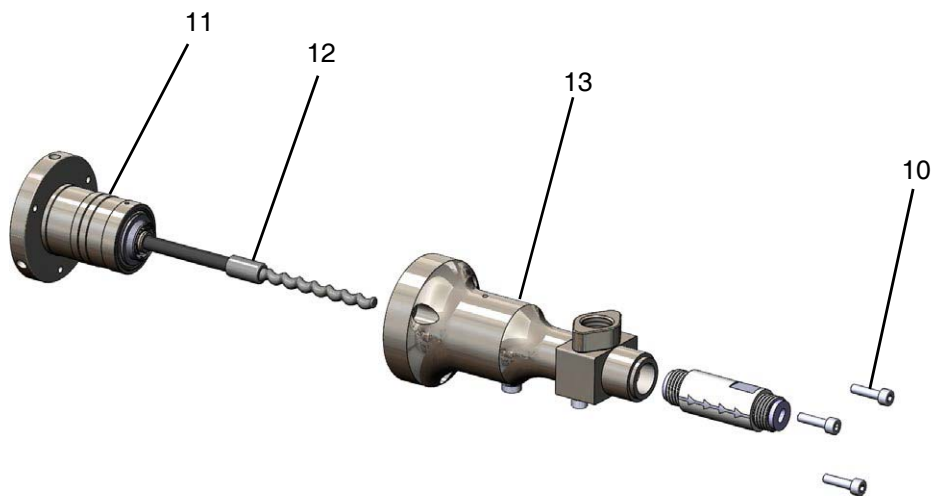
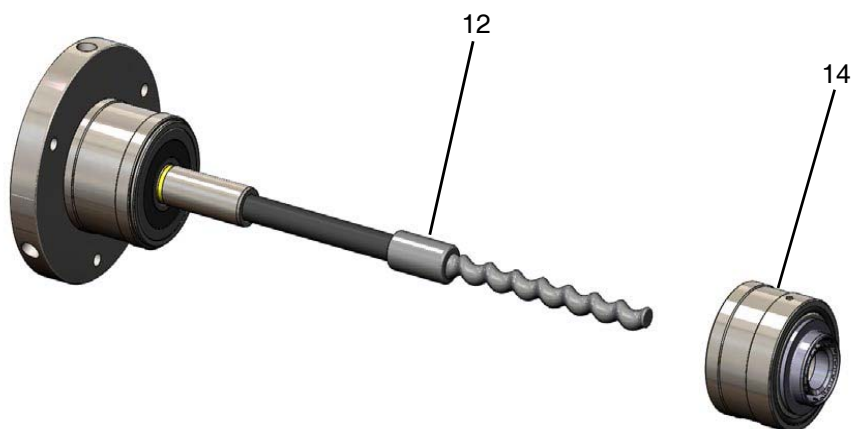


FIG. 6

Seal Kit

Pull the sealing package (14) carefully from the rotor (12).



Sealing Seat (15)

O-Ring (18)

Seal Support (16)

Radial Shaft Seal (17)



FIG. 7

Disassembly and Reassembly of 25C617, 25C618, 25C619



Disassembling the Stator

Unscrew Luer Fitting (1) and Luer connector (2*). Carefully remove the Shell (3).



FIG. 8

Storage / Changing

Unscrew Stator (4) carefully (CCW) from the housing (5).

NOTE: The stator should be stored separately from the rotor.

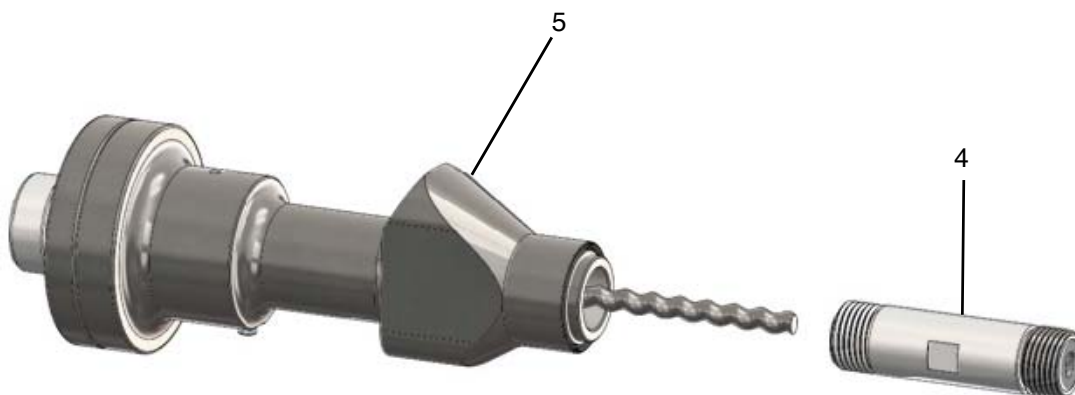


FIG. 9

Seal Kit / Bearing Kit

Loosen the screws (6) and remove the seal and bearing kit (7) with the coupling / drive unit (8) and rotor (9) from the pump housing (5).

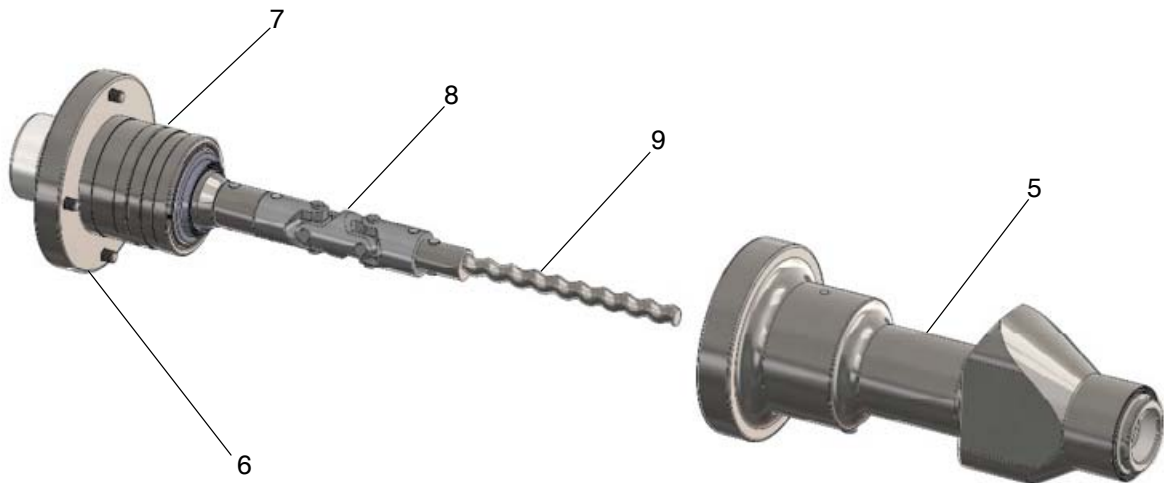


FIG. 10

Coupling / Drive Unit

After removing the seal kit (10) carefully from the coupling / drive unit (8), the locking ring (11) can be disassembled.

The bearing can be removed carefully from the coupling / drive unit (8).

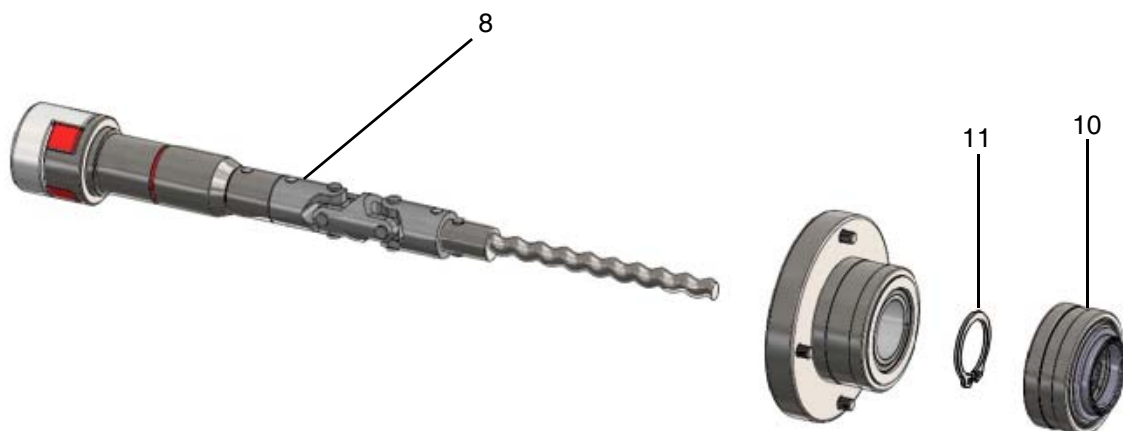


FIG. 11

Seal Kit

Sealing Seat (15)
O-Ring (16)
Seal Support (17)
Radial Shaft Seal (18)
Seal Support (19)

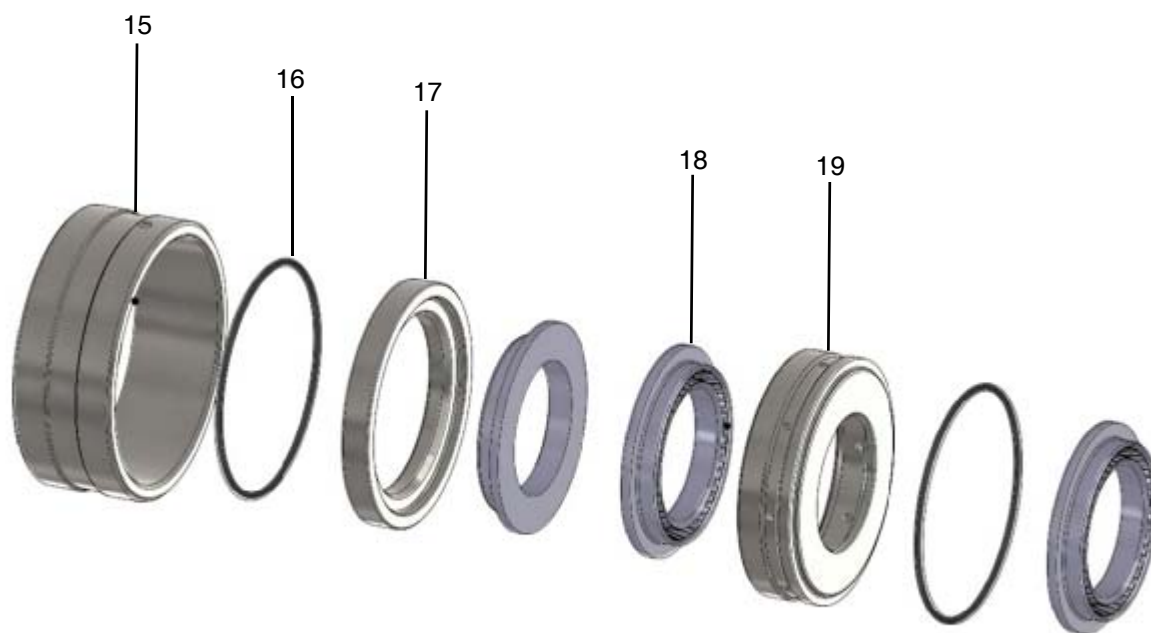


FIG. 12

Parts

25C614, 25C615, 25C616

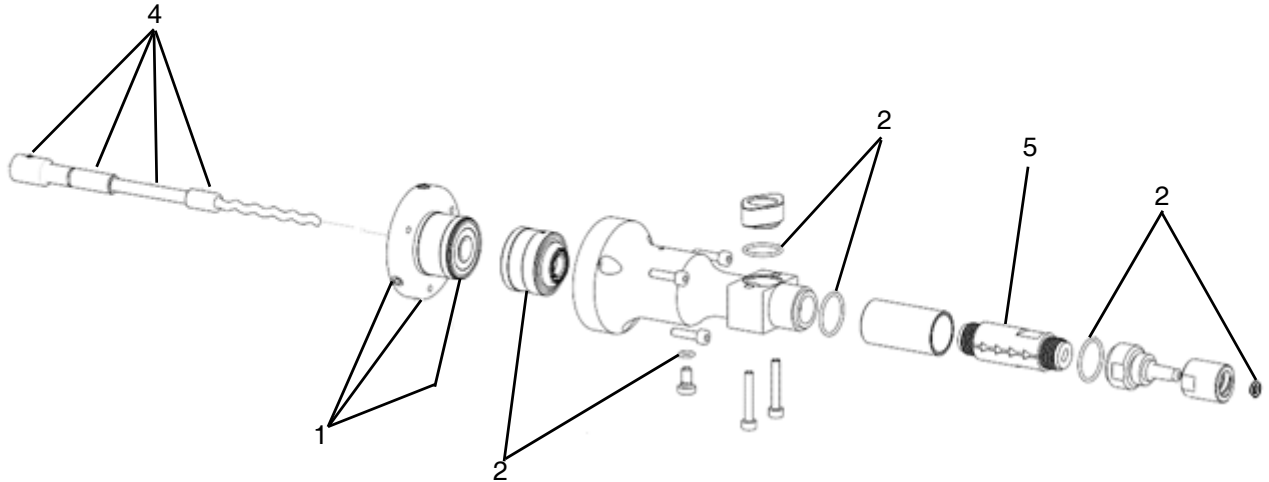


FIG. 13

Item	Replacement Part	Pump		
		0.01 FKM	0.05 FKM	0.15 FKM
1	Seal & Bearing Packages	25C614	25C614	25C629
2	Seal Package	25C621	25C621	25C630
3*	Rotor / Stator Set	25C622	25C626	25C631
4	Rotor Unit	25C623	25C627	25C632
5	Stator	25C624	25C628	25C633

* Item 3 is a kit that includes items 4 and 5.

25C617, 25C618, 25C619

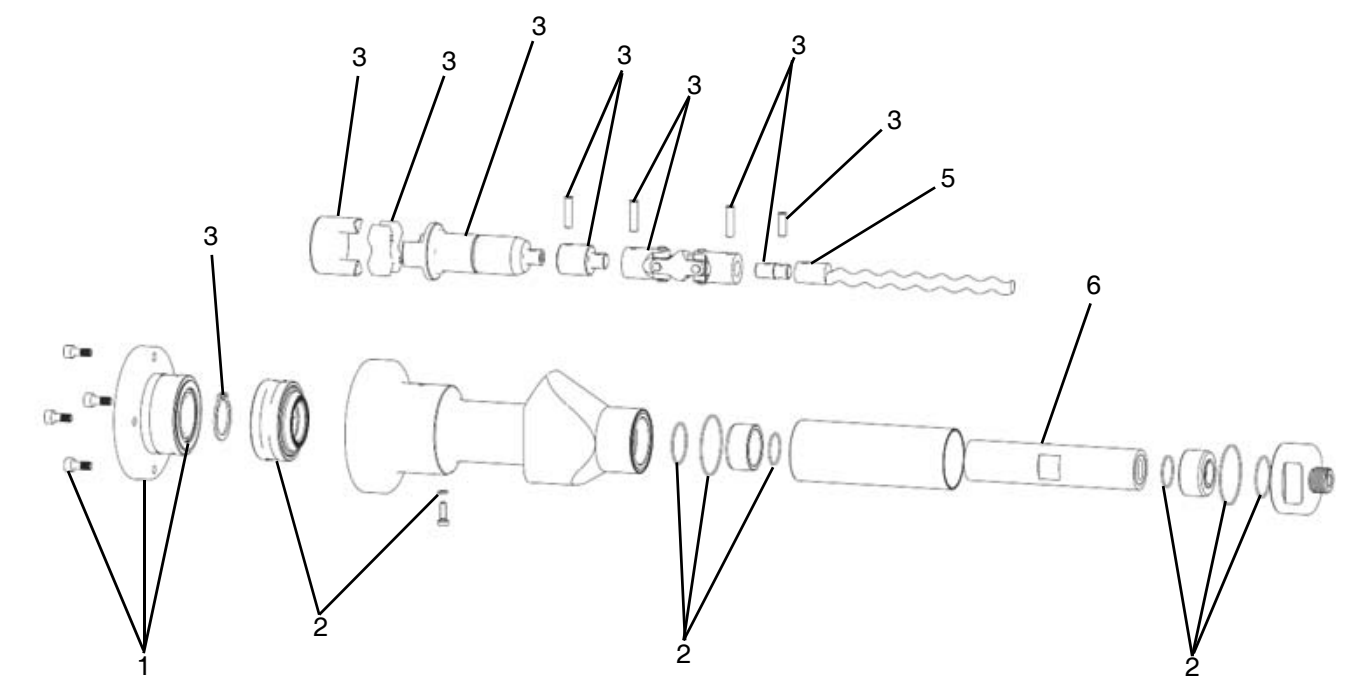


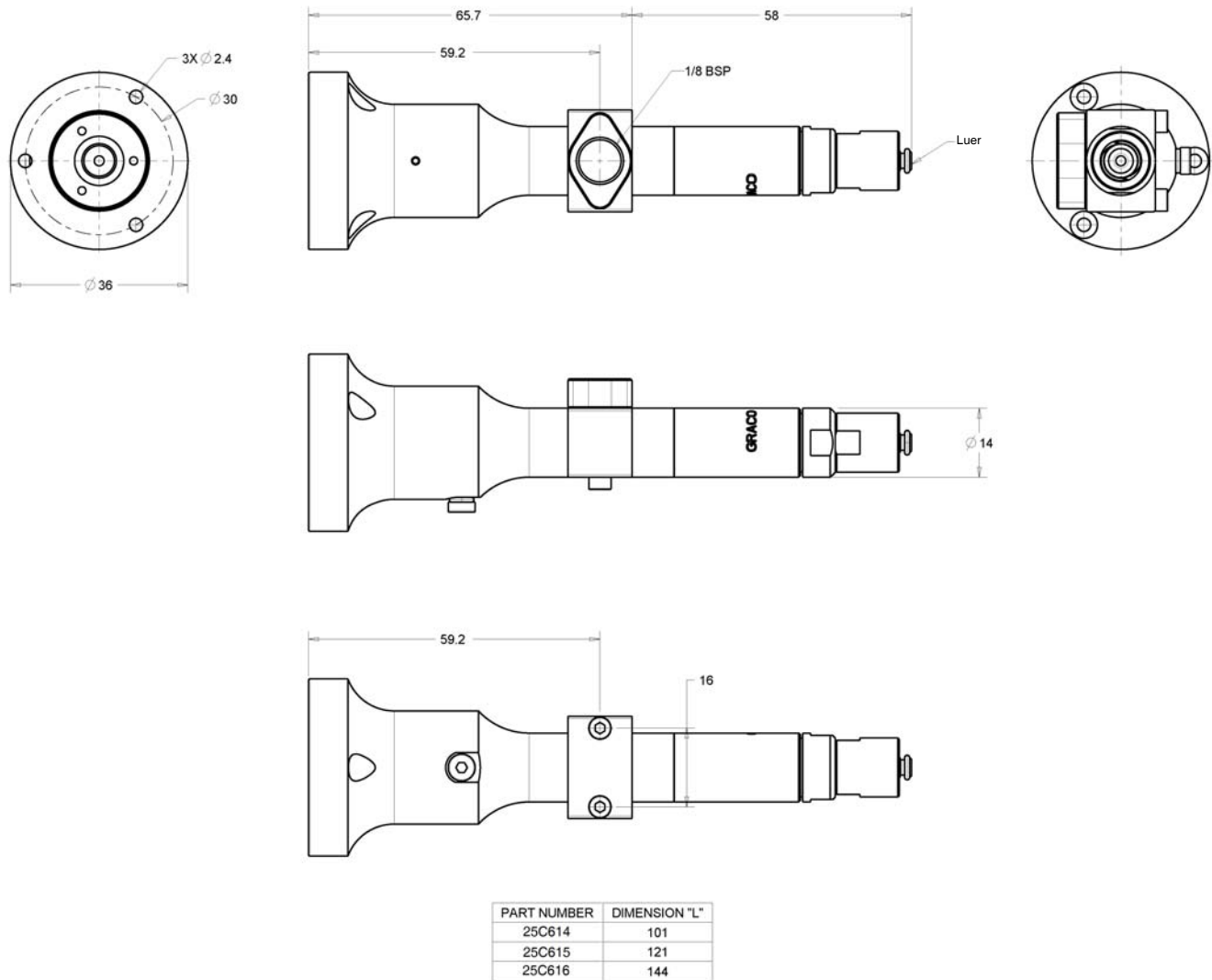
FIG. 14

Item	Replacement Part	Pump		
		0.30 FKM	1.00 FKM	1.45 FKM
1	Seal Kit / Bearing Kit	25C635	25C635	25C644
2	Seal Kit	25C636	25C636	25C645
3	Coupling / Drive Unit	25C640	25C640	25C649
4*	Rotor / Stator	25C637	25C641	25C646
5	Rotor	25C638	25C642	25C647
6	Stator	25C639	25C643	25C648

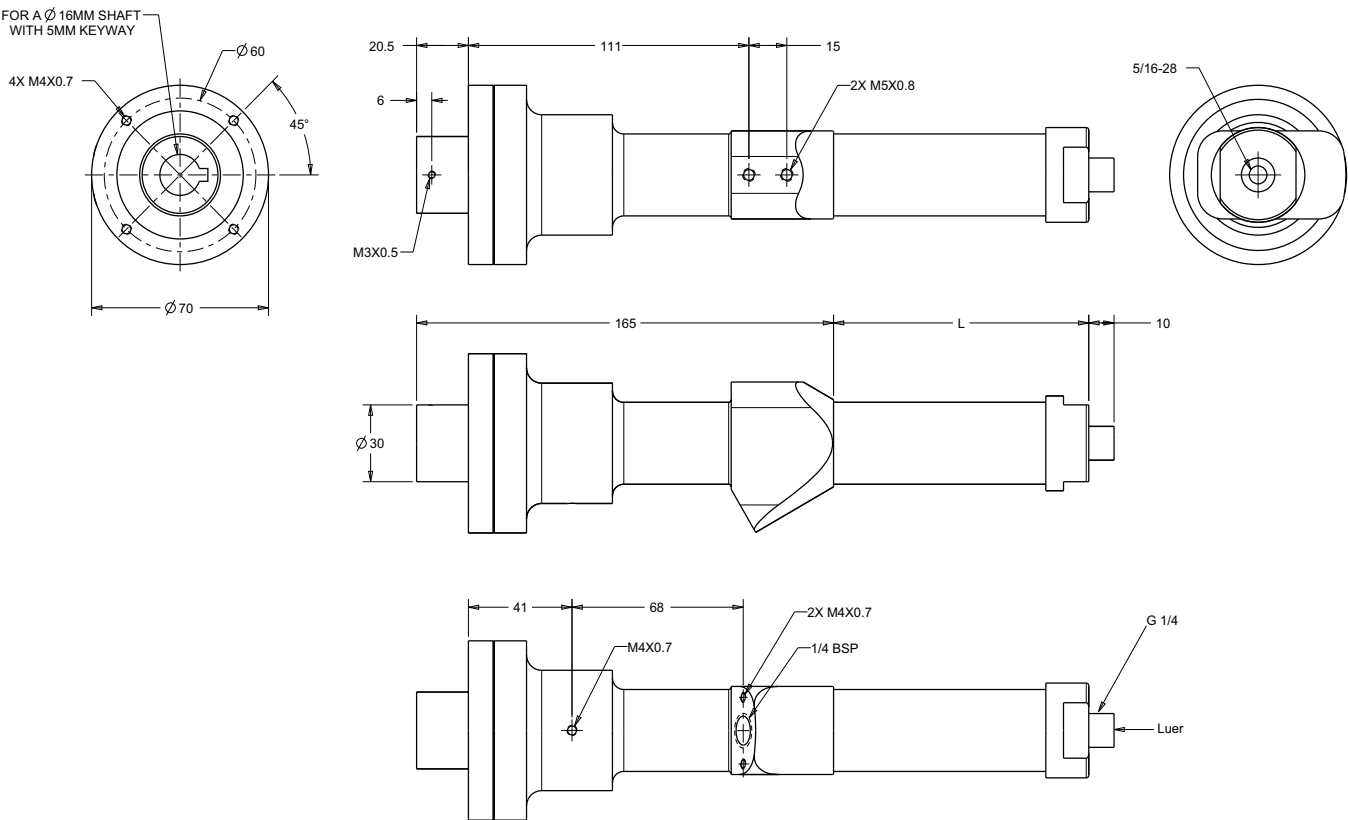
* Item 4 is a kit that includes items 5 and 6.

Dimensions

25C614, 25C615, and 25C616



25C617, 25C618, and 25C619



PART NUMBER	SIZE	DIMENSION "L"
25C617	0.30 CC	101
25C618	1.00 CC	121
25C619	1.45 CC	144

Technical Specifications

Progressive Cavity Pump		
Displacement (ml/rev.)		
25C614, 25C615, 25C616	0.01 / 0.05 / 0.15	
25C617, 25C618, 25C619	0.30 / 1.00 / 1.45	
	US	Metric
Maximum Operating Pressure		
25C614, 25C615, 25C616	145 psi	1.0 MPa, 10 bar
25C617, 25C618, 25C619	290 psi	2.0 MPa, 20 bar
Operating Temperature*		
Ambient temperature range	50°-120° F	10°-50° C
Maximum material temperature	140° F	60° C
Suction Ports		
25C614, 25C615, 25C616	G1/8"	
25C617, 25C618, 25C619	G1/4"	
Maximum pump speed		
25C614, 25C615, 25C616	150 revolutions per minute	
25C617, 25C618, 25C619	400 revolutions per minute	
Material (recommendation of max. speed)**		
to 100%	1 mPa • s - 800 mPa • s	
max. 90%	800 mPa • s - 10,000 mPa • s	
max. 70%	10,000 mPa • s - 25,000 mPa • s	
max. 50%	25,000 mPa • s - 50,000 mPa • s	
max. 25%	50,000 mPa • s - 150,000 mPa • s	
Viscosity		
All pumps	1 - 1,000,000 mPa • s (depending on size)	
Wetted Parts		
All pumps	SST, PTFE, FKM	
Notes		
* Refer to the Temperature section below for more information.		
** Refer to the Speed Recommendation / Viscosity Ranges (without pre-pressure; p1 = 0 bar) section below for more information.		

NOTE: The maximum operating pressures stated in the table above must not be exceeded. These values may change, depending on the speed and viscosity. The recommendations set out in the table under **Material (recommendation of max. speed)** serve as guideline values for this.

Temperature

The minimum and maximum temperature depends on the sealing material. Please note that there is a possible change in the material's viscosity when the temperature changes.

Speed Recommendation / Viscosity Ranges (without pre-pressure; p1 = 0 bar)

These recommendations are only guideline values and depend greatly on the application and in situ conditions. The maximum permitted speed is crucial for the service life or wear of the pump. The inlet pressure must be selected within the permissible limits so that continuous filling of the pump is guaranteed.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

Sealant and Adhesive Dispensing Equipment

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor, go to www.graco.com and select "Where to Buy" in the top blue bar, or call to find the nearest distributor.

If calling from the US: 800-746-1334

If calling from outside the US: 0-1-330-966-3000

*All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.*

Original instructions. This manual contains English. MM 3A4648

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