

SaniForce™ 6:1 Sanitary Pumps

3A5564D
EN

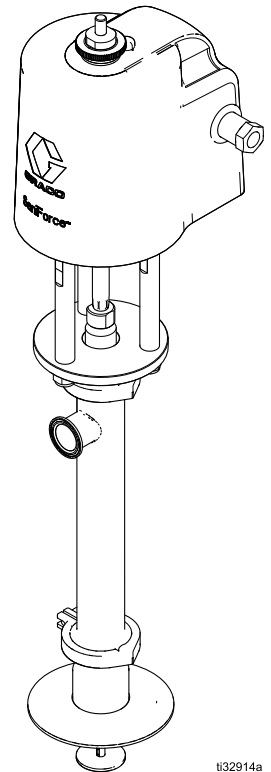
Specially designed for use only in Graco SaniForce pail or drum unloader systems. For professional use only.



Important Safety Instructions

Read all warnings and instructions in this manual and in related system manuals. **Save all instructions.**

*Maximum Working Air Pressure: 100
psi (0.7 MPa, 6.9 bar)*
*Maximum Working Fluid Pressure: 650
psi (4.5 MPa, 44.8 bar)*




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Models

Pump Model	Pump Lower Replacement	Pump Type	Approvals
25M912	25M906	Priming Piston Pump	 EC 1935/2004
25M912C31	— — —		
25N007	25N003	Double Ball Pump	
25N007C31	— — —		
25U790	25U793	Double Ball Pump, Stubby	





Related Manuals

Manual Number	Title
3A5400	SaniForce Pail Unloader (SPU) System, Operation
3A5401	SaniForce Pail Unloader (SPU) System, Repair/Parts
3A5402	SaniForce Drum Unloader, Operation
3A5404	SaniForce Drum Unloader, Parts
3A1211	SaniForce Air Motors

Usage

This pump must be used as part of a SaniForce pail or drum unloader system. Refer to the appropriate system manuals for operation instructions of this pump when installed in those systems.

Cleaning Preparation

 WARNING				
				
<p>PRESSURIZED FLUID HAZARD</p> <p>This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from moving parts, or from pressurized fluid, such as skin injection, splashing in the eyes or on skin, follow the Pressure Relief Procedure in your system manual when you stop pumping and before you clean, check, or service the equipment.</p> <p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, or inhalation of toxic fumes.</p>				

This procedure involves thoroughly disassembling and cleaning the individual parts in the pump lower.

Prior to performing these procedures:

1. Flush the pump and relieve pressure as described in the system manuals.
2. Disconnect all hoses.
3. Remove the pump from the system.

Notes:






- **Be sure** to follow your national and state sanitary standard codes and local regulations.
- Use appropriate cleaning and disinfecting agents, at intervals appropriate for product processed.
- Follow cleaning product manufacturer's instructions.

Cleaning the Air Motor

1. Perform [Cleaning Preparation, page 3](#) .
2. Remove air motor air supply and exhaust fittings (11, 22).
3. Loosen the hand screw (13) and remove the upper shield (6).
4. Clean thoroughly the surface between the upper and lower shields. Replace upper shield, hand nut, and air fittings.
5. Reassemble the air motor
6. Clean the pump lower. See [Priming Piston Displacement Pump Cleaning, page 4](#) or [Double Ball Pump Cleaning, page 6](#) . as applicable for your model.

Priming Piston Displacement Pump Cleaning

Disconnect the Pump

 WARNING			
			
<p>PRESSURIZED FLUID HAZARD</p> <p>This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from moving parts, or from pressurized fluid, such as splashing in the eyes or on skin, follow the Pressure Relief Procedure in your system manual when you stop pumping and before you clean, check, or service the equipment.</p>			
<p>PERSONAL PROTECTIVE EQUIPMENT</p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, or inhalation of toxic fumes.</p>			

This procedure involves thoroughly disassembling and cleaning the individual parts in the pump lower unit. Prior to performing this procedure, flush the pump and relieve pressure as described in the system manuals, disconnect all hoses, and remove the pump from the system.

1. Release the upper clamp (123) holding the displacement pump to the tie rod plate (122).
2. Slide the pump down from the air motor. Tilt the pump and pull the displacement rod (117) out of the coupler (C). Remove the gasket (102).
Note: Be careful not to scratch the displacement rod.

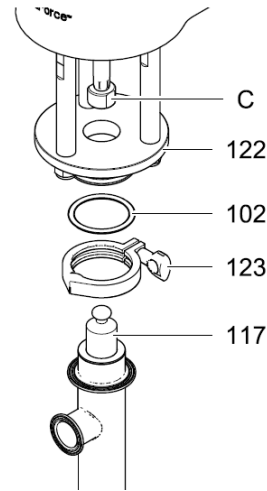


Figure 1 Remove displacement pump.

Disassemble the Pump

Note: Pump Repair Kit 24G550 is available. Purchase the kit separately. Kit parts are marked with an * in the parts section. See [Priming Piston Displacement Pump, page 10](#).

1. Remove the retaining pin (116) from the connecting rod (109). Slide off the priming piston (108).
2. Release the lower clamp (123) to remove the intake valve housing (107) from the pump cylinder (101). Remove the gasket (102).
3. Remove the poppet (114), spring (113), and valve stop (111) off the connecting rod (109).
4. Remove the bearing (112) from the center of the valve stop (111).
5. Remove the packings (115) from the center of the poppet (114).

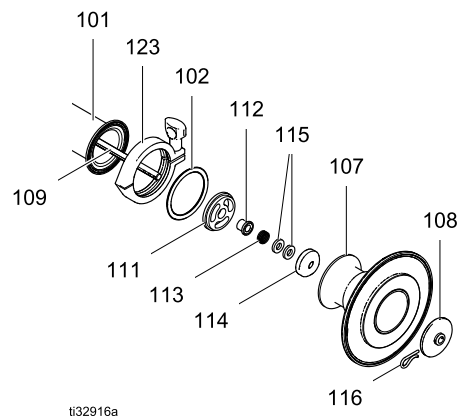


Figure 2 Remove priming piston.

6. Push the displacement rod (117) out through the bottom of the cylinder (101).

- Remove the retaining pin (118), o-ring (119), and ball (110). Pull the connecting rod (109) from the displacement rod (117). Remove the seal (120).

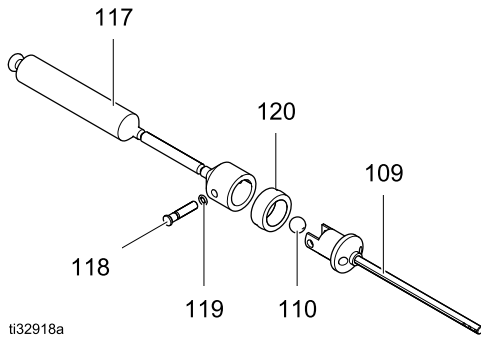


Figure 3 Disassemble piston valve.

- Remove the packing housing (103) from the top of the cylinder (101). Remove the bearing (106), packing (105), and o-ring (104).
- Clean and inspect all parts. Refer to [Cleaning the Air Motor, page 3](#). Replace the parts as necessary.

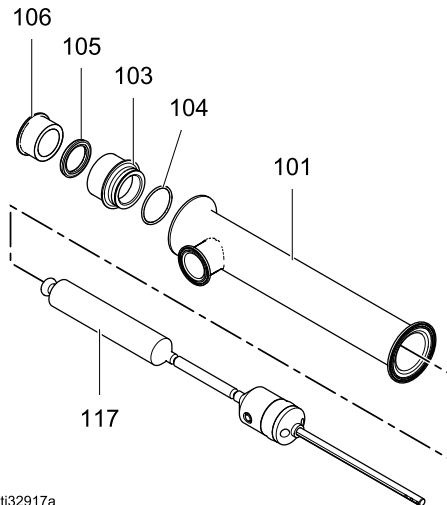


Figure 4 Remove packing housing.

Reassemble After Cleaning






Note: Any damaged parts **must** be replaced.

Note: Lubricate the o-rings, throat packings, and piston seals with appropriate waterproof sanitary lubricant.

- Wash all pump parts with an appropriate cleaning solution at the cleaning product manufacturer's recommended temperature and concentration.
- Rinse all pump parts again with water and allow them to dry.
- Inspect all pump parts and reclean if needed.
- Immerse all pump parts in an appropriate sanitizer before assembly. Take the pump parts out of the sanitizer one-by-one as needed.
- Install the v-block packing (105) and bearing (106) in the packing housing (103). The lips of the packing must face down into the housing, and the lip of the bearing must face up. Install the o-ring (104) on the outside of the housing.
- Install the seal (120) on the piston valve housing at the top of the connecting rod (109). Place the ball (110) on the seat of the housing. Install the displacement rod (117) over the top of the connecting rod so the holes in both parts align. Secure with the retaining pin (118) and o-ring (119).
- Lubricate and place the packing housing (103) in the top of the cylinder.
- Lubricate and slide the displacement rod (117) up through the cylinder so it protrudes from the packing housing (103).
- Lubricate and install the packings (115) into the center of the poppet (114).
- Lubricate and install the bearing (112) into the center of the valve stop (111).
- Slide the valve stop (111), spring (113), and poppet (114) onto the connecting rod (109).
- Install the gasket (102) and the intake valve housing (107). Secure the housing (107) to the cylinder (101) with the clamp (123).
- Install the priming piston (108) and retaining pin (116) on the connecting rod (109).
- Slide the displacement rod (117) into the coupler. Then, attach the clamp (123) to hold the pump to the motor base.

Double Ball Pump Cleaning

Disconnect the Pump

 WARNING				
		 MPa / bar / PSI		
PRESSURIZED FLUID HAZARD				
<p>This equipment stays pressurized until pressure is relieved manually. To help prevent serious injury from moving parts, or from pressurized fluid, such as splashing in the eyes or on skin, follow the Pressure Relief Procedure in your system manual when you stop pumping and before you clean, check, or service the equipment.</p>				
PERSONAL PROTECTIVE EQUIPMENT				
<p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, or inhalation of toxic fumes.</p>				

This procedure involves thoroughly disassembling and cleaning the individual parts in the pump lower unit. Prior to performing this procedure, flush the pump and relieve pressure as described in the system manuals, disconnect all hoses, and remove the pump from the system.

1. Release the upper clamp (123) holding the displacement pump to the tie rod plate (122).
2. Slide the pump down from the air motor. Tilt the pump and pull the displacement rod (117) out of the coupler (C). Remove the gasket (102).
Note: Be careful not to scratch the displacement rod.

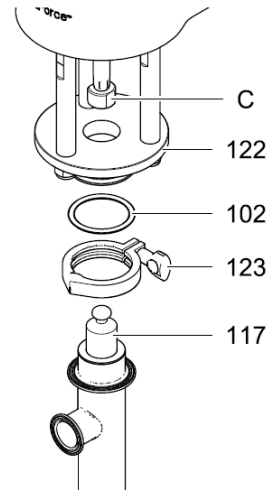


Figure 5 Remove displacement pump.

Disassemble the Pump

1. **For stubby pumps only:** Remove the foot valve housing (124).
2. Remove and disassemble the inlet valve (114) assembly. Clean and inspect the parts.
3. Push the displacement rod (108) out through the bottom of the cylinder (106). Remove the piston housing (109) by removing the retaining pin (116) and the valve stop (111) and pulling the piston from the displacement rod. Disassemble, clean and inspect the parts.
4. Take the packing housing (103) off of the cylinder (106) and remove the bearing (104), packing (123), and o-ring (105).
5. Clean and inspect all parts. Refer to [Cleaning Preparation, page 3](#). Replace the parts as necessary.

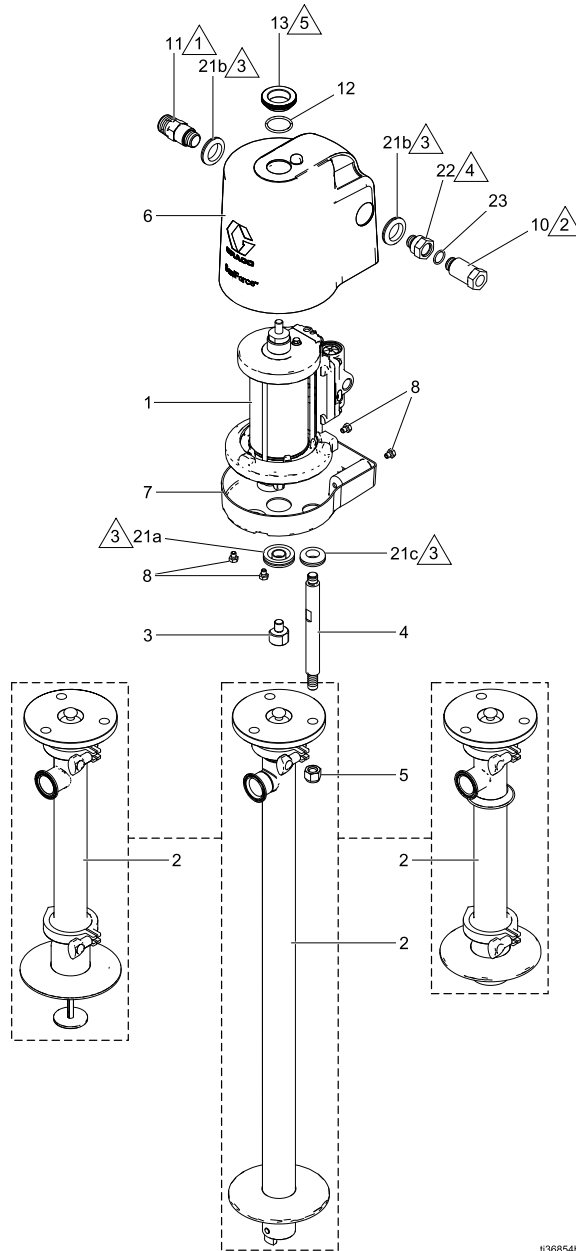
Reassemble After Cleaning

Note: Any damaged parts **must** be replaced as they could harbor microorganisms that can contaminate the fluid.

Note: Lubricate the o-rings, throat packings, and piston seals with appropriate waterproof sanitary lubricant.

1. Wash all pump parts with an appropriate cleaning solution at the cleaning product manufacturer's recommended temperature and concentration.
2. Rinse all pump parts again with water and allow them to dry.
3. Inspect all pump parts and reclean if needed.
4. Immerse all pump parts in an appropriate sanitizer before assembly. Take the pump parts out of the sanitizer one-by-one as needed.
5. Lubricate and install the piston seal (120) on the piston housing (114).
6. Place the ball (113) on the seat of the piston housing (114). Install the housing in the displacement rod (108) so the holes in both parts align. Secure with the retaining pin (110) and one o-ring/retaining clip (111).
7. Install the u-cup packing (123) and throat bearing (104) in the throat packing housing (103). The lips of the u-cup must face down into the housing, and the lip of the bearing must face up. Install the o-ring (105) on the outside of the housing.
8. Lubricate and install the throat packing housing (103) in the top of the cylinder (106).
9. Lubricate and slide the displacement rod (108) up through the cylinder (106) so it protrudes from the top.
10. Install the o-ring (105) on the intake valve housing (114). Place the ball (117) on the seat of the housing (114), and install the ball stop pin (116) in the top holes of the housing.
11. Lubricate and slide the intake valve housing (114) up into the cylinder (106) until the bottom holes of the housing align with the holes in the cylinder. Secure using the retaining pin (110) and two o-rings/retaining clips (111).

Parts



t136854b



Apply PTFE tape to threads.



Hand tighten only.



Apply sanitary lubricant to ease assembly.



Apply medium-strength (blue) thread locker.



Apply an appropriate medium-strength thread locker on the nut (13) every time it is installed to prevent it from coming loose during operation. Torque to 30-36 ft-lb (41-49 N-m). Do not over tighten.

Ref.	Part	Description	Qty.
1	24G785	MOTOR, SaniForce; 3.5 in; see manual 3A1211	1
2		DISPLACEMENT PUMP, type 2.1	1
	25M906	Priming piston	
	25N003	Double ball	
	25U790	Double ball, stubby	
3	16A938	COUPLER	1
4	16A947	TIE ROD, 7 in. (178 mm) between shoulders	3
5	102216	NUT, lock, 5/8-11, sst	3
6	16G464	SHIELD, upper; includes grommets (Ref. 21)	1
7	16G465	SHIELD, lower; includes fasteners (Ref. 8) and grommets (Ref. 21)	1
8	118134	SCREW, cap; M8 x 1.25, sst	4
10	24G862	FITTING, air inlet, 1/2 npt, includes Ref. 23	1
11	16C946	FITTING, 3/4 npt	1
12	165053	O-RING, PTFE	1
13	16C306	NUT, hand	1
15 [▲]	17W547	LABEL, warning, not shown	1
21	—	GROMMET; <i>see Kits</i>	6
22	16G084	FITTING, air inlet, 1/2 npt	1
23	166702	O-RING, air inlet, buna-n, included with Ref. 10	1

▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.

Kits

Grommet Kit 16G628

Ref.	Part	Description	Qty.
21a*	—	GROMMET, air motor piston rod	1
21b	—	GROMMET, air fitting	2
21c	—	GROMMET, tie rod	3

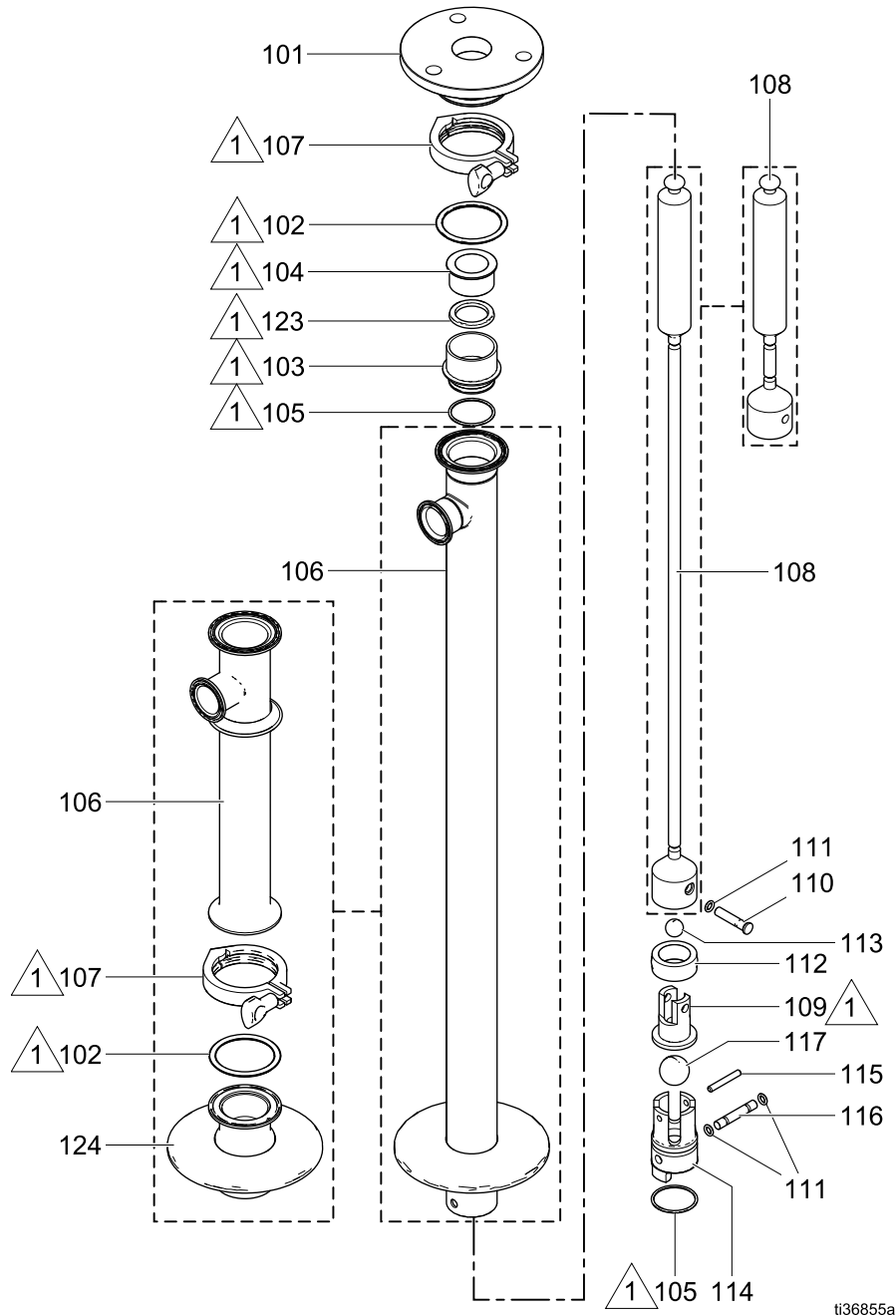
* Order Kit 16H925 for qty. 3 of the piston rod grommet.


Priming Piston Displacement Pump

Ref.	Part	Description	Qty.
101	902980	CYLINDER, pump	1
102*	166117	GASKET, 2 1/2 in. (64 mm), buna-n	2
103	180918	HOUSING, packing	1
104*	166119	CYLINDER SEAL, buna-n	1
105*	180238	THROAT PACKING, buna-n	1
106*	605752	BEARING, sleeve	1
107	17S673	HOUSING, inlet valve	1
108	195214	PISTON, priming	1
109	16C195	ROD, connecting	1
110	103462	BALL, 3/4 in. (19 mm), stainless steel	1
111	195215	STOP, inlet valve	1
112*	604016	BEARING, priming piston	1
113*	501095	SPRING, ball check	1
114	604018	POPPET, inlet valve	1
115*	603778	PACKING, inlet valve, neoprene	2
116	604008	PIN, retaining, priming piston	1
117	902983	ROD, displacement	1
118	169845	PIN, retainer	1
119*	167972	O-RING	1
120*	167971	SEAL, piston, neoprene	1
122	16A945	PLATE, tie rod	1
123	620223	CLAMP, 2 1/2 in. (64 mm)	2
130	172687	TAG, Instruction, not shown	1

* Parts included in Repair Kit 24G550.

Double Ball Displacement Pump



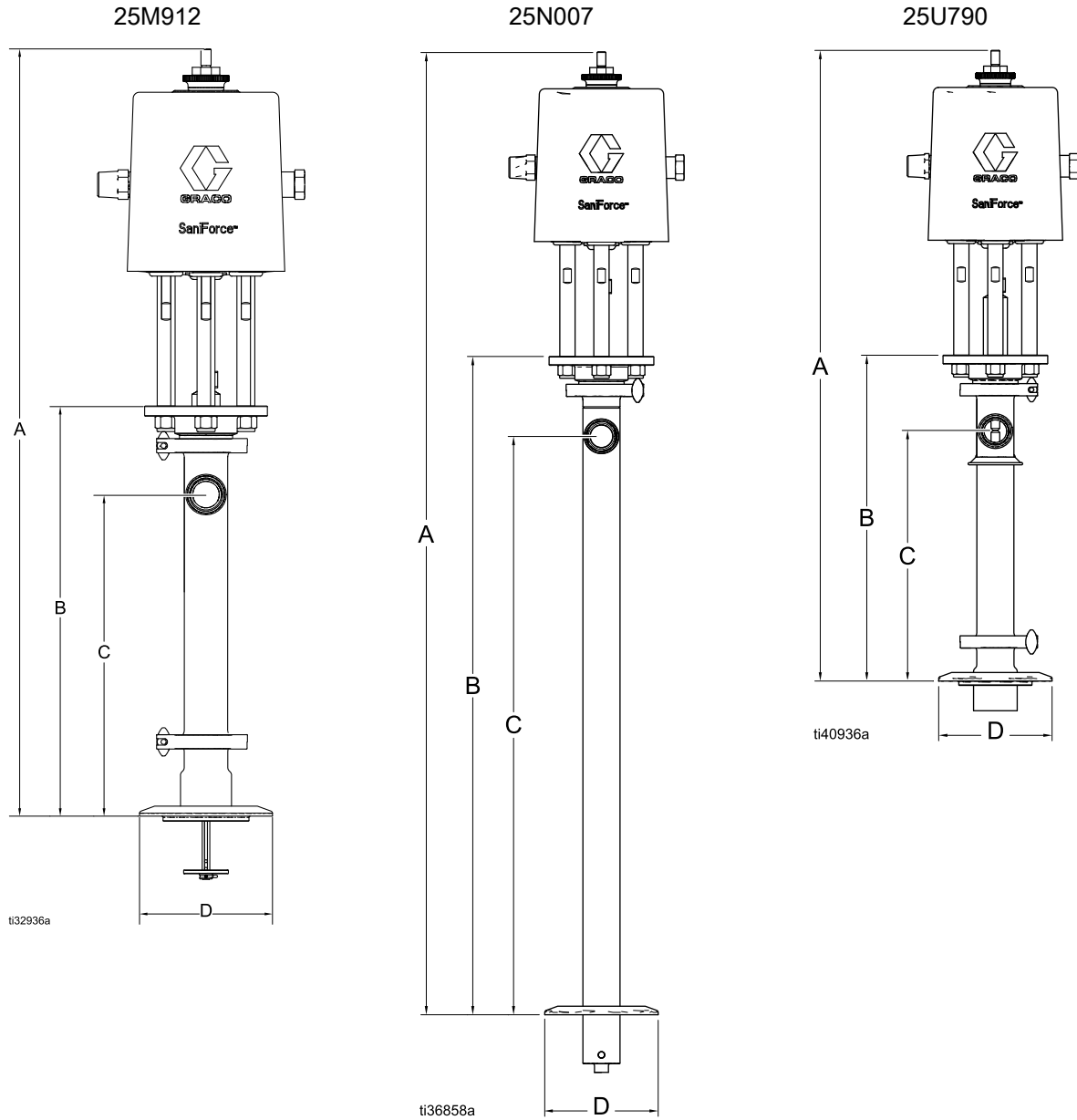
 Apply sanitary lubricant to ease assembly.

Double Ball Displacement Pump

Ref.	Part	Description	Qty.
101	16A945	PLATE, tie rod	1
102*	166117	GASKET, 2 1/2 in. (64 mm), buna-n	1
103	180918	HOUSING, packing	1
104*	605752	BEARING, sleeve	1
105*	166119	CYLINDER SEAL, buna-n	2
106	17S671	CYLINDER, pump, drum length	1
	902980	CYLINDER, pump, stubby pump	
107	620223	CLAMP, 2 1/2 in. (64 mm)	1
108	207552	ROD, displacement, drum length	1
	902981	ROD, displacement, stubby pump	
109	169846	HOUSING, piston	1
110	169845	PIN, retaining, piston housing	1
111*	167972	O-RING	3
112*	167971	SEAL, piston, neoprene	1
113	103462	BALL, 3/4 in. (19 mm), stainless steel	1
114	167970	HOUSING, inlet valve	1
115	169626	PIN, ball stop; straight, headless	1
116	167968	PIN, retaining, intake valve	1
117	103869	BALL, bearing, 1 1/4 in. (32 mm), stainless steel	1
123*	180238	V-PACKING, buna-n	1
124	16C193	HOUSING, foot valve, stubby pump	1

* Parts included in Repair Kit 24G546

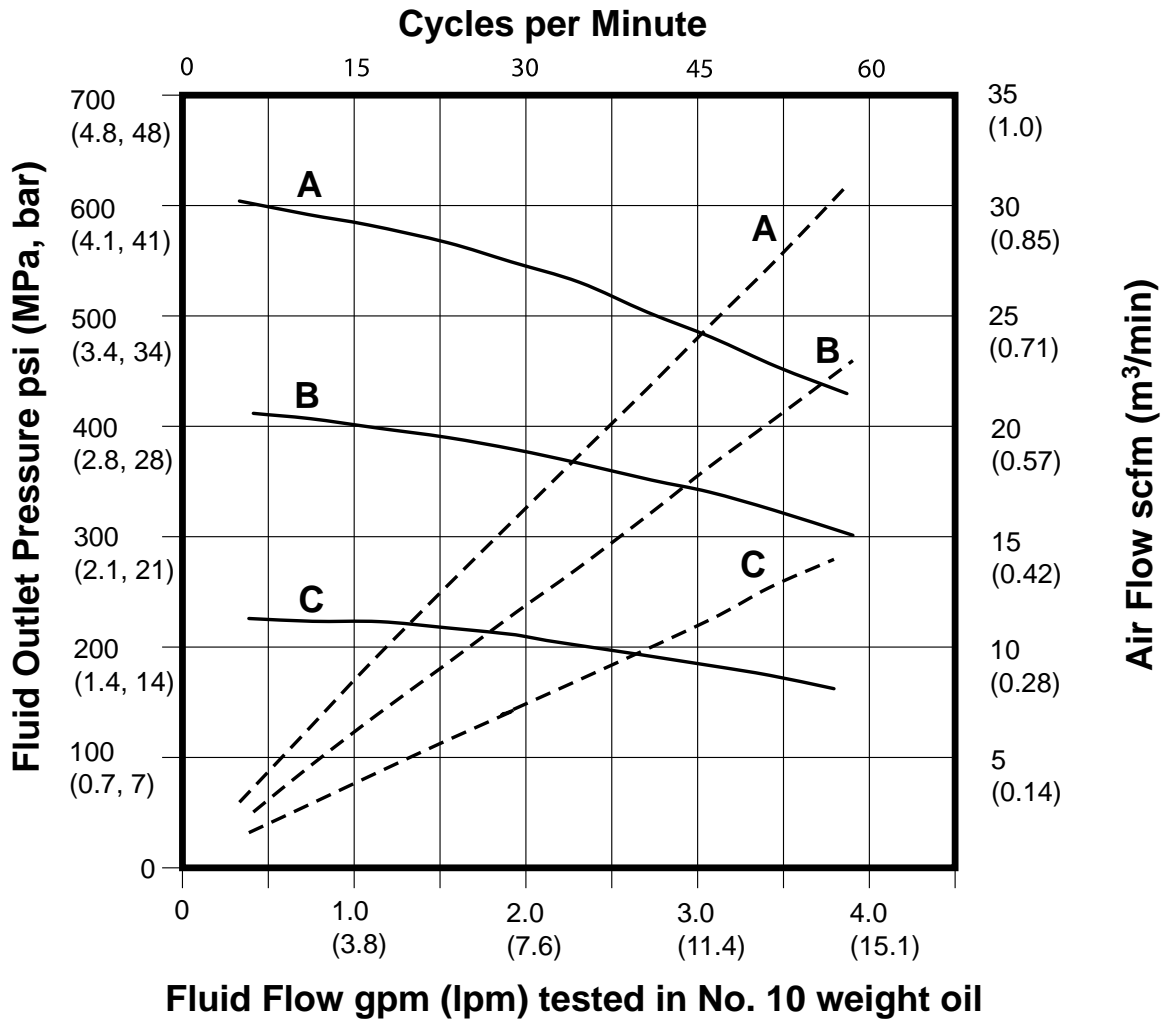
Product Dimensions



Model	A in. (cm)	B in. (cm)	C in. (cm)	D in. (cm)
25M912	40.1 (102)*	20.6 (52)*	16.0 (41)*	6.5 (16.5)
25N007	60.5 (154)	41.0 (104)	36.4 (92)	6.5 (16.5)
25U790	36.1 (91)	18.7 (47)	14.3 (36)	6.5 (16.5)

* Add 2.5 in. (6.3 cm) to allow for full extension of the priming piston rod.

Performance chart



A = 100 psi (0.7 MPa, 7 bar)
 B = 70 psi (0.5 MPa, 5 bar)
 C = 40 psi (0.3 MPa, 3 bar)
 — = fluid flow
 - - - = air consumption

Technical Data

Maximum Fluid Working Pressure	650 psi (4.5 MPa, 44.8 bar)
Maximum Air Inlet Pressure	100 psi (0.7 MPa, 6.9 bar)
Maximum Recommended Pump Speed	60 cycles/min, 4 gpm (15 liters/min) delivery
Air Consumption	<i>See Performance Chart</i>
Pump Cycles per Gallon (3.8 Liters)	13.3
Ratio	6:1
Maximum Fluid Temperature	250°F (121°C)
Maximum Ambient Temperature (Air Motor)	120°F (49°C)
Air Inlet	1/2 npt (f)
Air Exhaust	3/4 npt (m)
Fluid Inlet Type	2.3 in (5.8 cm) Priming Piston with flange for 6 in. (15.2 cm) Clamp
	1.44 in. (3.8 cm) Double Ball with flange for 6 in. (15.2 cm) Clamp
Fluid Outlet	1-1/2 in. (3.8 cm) Tri-clamp®
Weight	35 lb (16 kg)
Wetted Parts	316 Stainless Steel, Buna-N, Polychloroprene, Nitrile, Nylon, UHMWPE. Certain models have PTFE packings.
Sound data	
Sound power*	78.5 dBA
Sound pressure**	71.6 dBA

* Sound power at 70 psi (0.48 MPa, 4.8 bar), 20 cpm. Sound power measured per ISO-9614-2.

** Sound pressure was tested 3.28 feet (1 m) from equipment.

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

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 or call to identify the nearest distributor.

Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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 3A5564

Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

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