

## SaniForce™ 5:1 Sanitary Pumps

3A5798B  
EN

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



### Important Safety Instructions

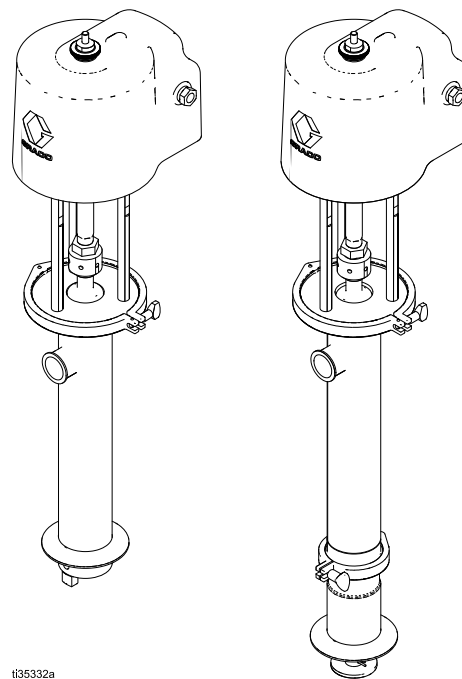
Read all warnings and instructions in this manual and in related system manuals. **Save all instructions.**

*Maximum Working Air Pressure: 80 psi*

*(0.6 MPa, 5.5 bar)*

*Maximum Working Fluid Pressure: 410*


*psi (2.9 MPa, 28.7 bar)*



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# Models

Pump Model	Pump Lower Replacement	Pump Type	Approvals
25N009	25N005	Priming Piston Pump	 EC 1935/2004
25N009C31	— — —		
25N010	25N006	Double Ball Pump	
25N010C31	— — —		






# Related Manuals

Manual Number	Title
3A5402	SaniForce Drum Unloader (SDU), Operation
3A5404	SaniForce Drum Unloader (SDU), Parts
3A5416	SaniForce Tote Unloader (STU), Operation
3A5417	SaniForce Tote Unloader (STU), Repair/Parts
3A1211	SaniForce Air Motors

# Usage

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

## Cleaning Preparation

 <b>WARNING</b>				
				
<p><b>PRESSURIZED FLUID HAZARD</b></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><b>PERSONAL PROTECTIVE EQUIPMENT</b></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 (14, 32).
3. Loosen the hand screw (18) and remove the upper shield (9).
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 Service, page 4](#) .

# Priming Piston Service

## Disconnect the Pump

 <b>WARNING</b>				
				
<p><b>PRESSURIZED FLUID HAZARD</b></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><b>PERSONAL PROTECTIVE EQUIPMENT</b></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. Perform [Cleaning Preparation, page 3](#).
2. Loosen the coupling nut (6) and lower far enough to remove the coupling collars (5).
3. Release the upper clamp (15) holding the displacement pump to the tie rod plate (3).
4. Slide the pump down from the air motor. Remove the gasket (16).  
**Note:** Be careful not to scratch the displacement rod.

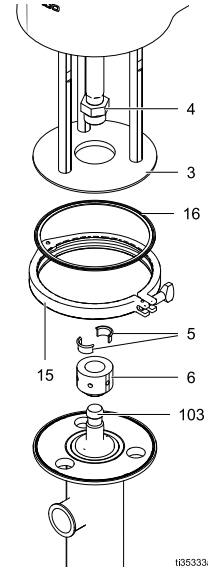
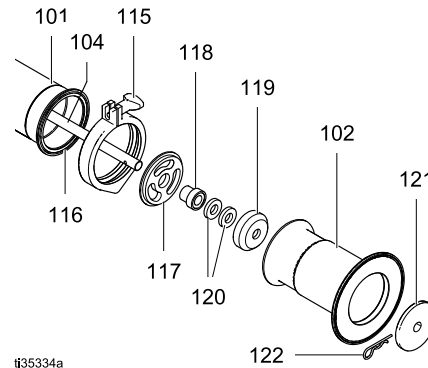


Figure 1 Disconnect displacement pump.

## Disassemble the Pump

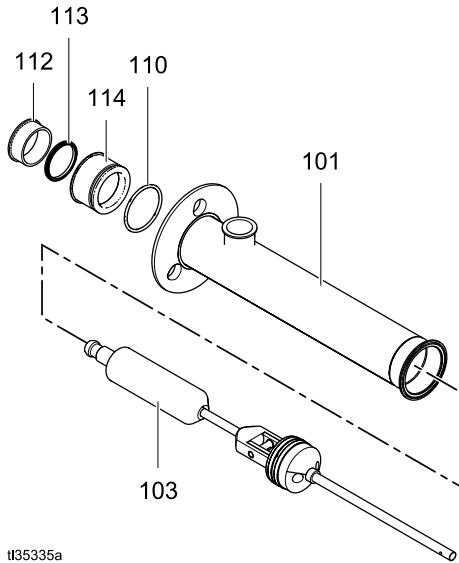
**NOTE:** Pump Repair Kit 24G550 is available. Purchase the kit separately. Kit parts are marked with an \* in the parts section. See [Priming Piston Displacement Pump Model 25N005, page 13](#).

1. Remove the retaining pin (122) from the connecting rod (104). Slide off the priming piston (121).



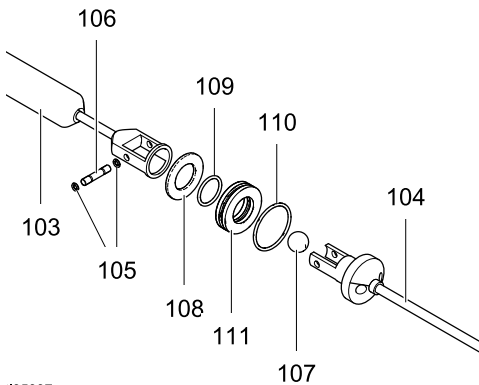
2. Release the lower clamp (115) to remove the inlet valve housing (102) from the pump cylinder (101). Remove the gasket (116).
3. Remove the poppet (119), packings (120), bearing (118), and valve stop (117) off the connecting rod (104).

4. Push the displacement rod (103) out through the bottom of the cylinder (101).



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5. Remove the bearing (112), packing (113), packing housing (114), and o-ring (110).
6. Remove the retaining pin (106) and o-rings (105). Pull the connecting rod (104) from the displacement rod (103). Remove the ball (107), piston ring (108), seal (111), and o-rings (109, 110).



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7. Clean and inspect all parts. Refer to [Cleaning the Air Motor, page 3](#). Replace the parts as necessary.

## 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.

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. Install the v-block packing (113) and bearing (112) in the packing housing (114). The lips of the packing must face down into the housing, and the lip of the bearing must face up. Install the o-ring (110) on the outside of the housing. Place the packing housing in the top of the cylinder.
6. Install the o-rings (109, 110) on the piston seal (111). Install the seal on the piston valve housing at the top of the connecting rod (104). Install the piston ring (108).
7. Place the ball (107) on the seat of the housing (104). Install the displacement rod (103) over the top of the connecting rod so the holes in both parts align. Secure with the retaining pin (106) and o-rings (105).
8. Slide the displacement rod up through the cylinder so it protrudes from the packing housing (114).
9. Slide the valve stop (117) and bearing (118) onto the connecting rod (104). Install the packings (120) in the poppet (119) and slide onto the priming piston rod.
10. Install the gasket (116) on the inlet valve housing (102). Secure the housing to the cylinder (101) with the clamp (115). Slide the priming piston (121) onto the rod. Install the retaining pin (122) in the connecting rod (104).

# Double Ball Service

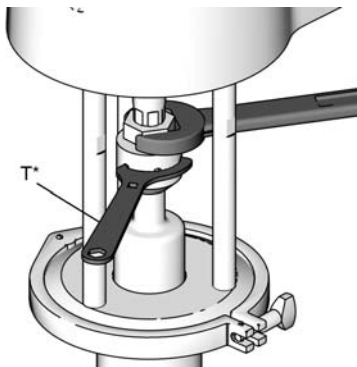
## Disconnect the Pump

 <b>WARNING</b>				
				
<b>PRESSURIZED FLUID HAZARD</b>				
<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>				
<b>PERSONAL PROTECTIVE EQUIPMENT</b>				
<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>				

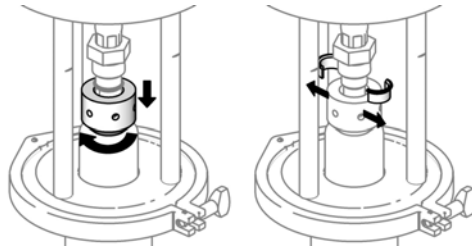
This procedure involves thoroughly disassembling and cleaning the individual parts in the pump lower unit. Prior to performing this procedure, flush the pump and relieve pressure as described in the system manuals, disconnect all hoses, and remove the pump from the system.

1. Hold the reducer fitting with a wrench. Use a spanner wrench (T)\* to loosen the coupling nut.

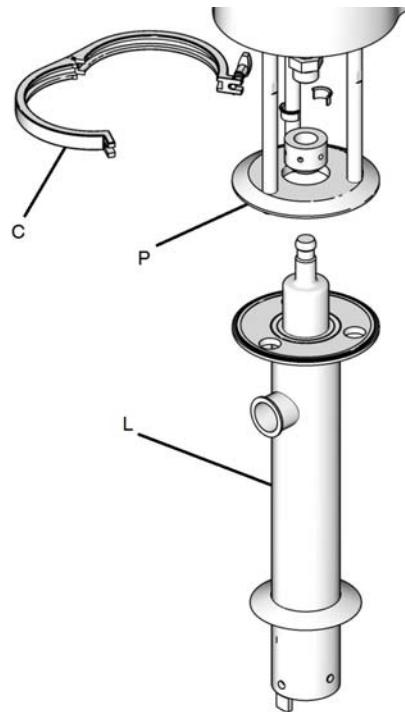
\* A Graco spanner wrench tool (112887) is available.



2. Lower the coupling nut enough to remove the coupling collars.



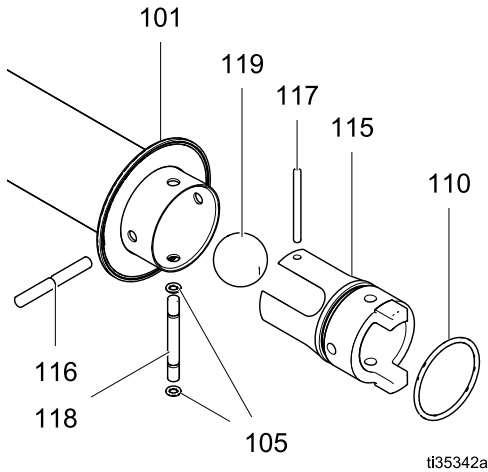
3. Release the clamp (C) holding the displacement pump (L) to the tie rod plate (P).



## Disassemble the Pump

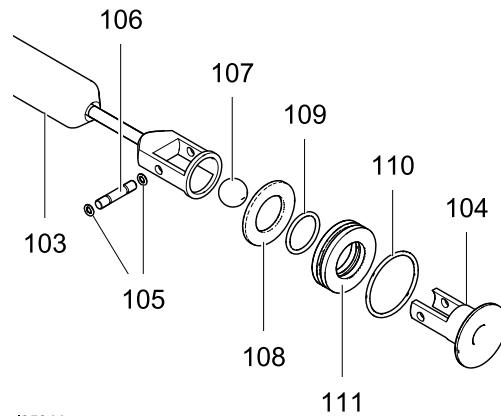
**NOTE:** Pump Repair Kit 24G551 is available. Purchase the kit separately. Kit parts are marked with an \* in the parts section. See [Double Ball Displacement Pump Model 25N006](#), page 15

1. Remove the inlet housing (115) by removing the retaining pins (116, 118) and the o-rings (105) and pulling the valve out of the cylinder (101). Disassemble the valve. Clean and inspect the parts.

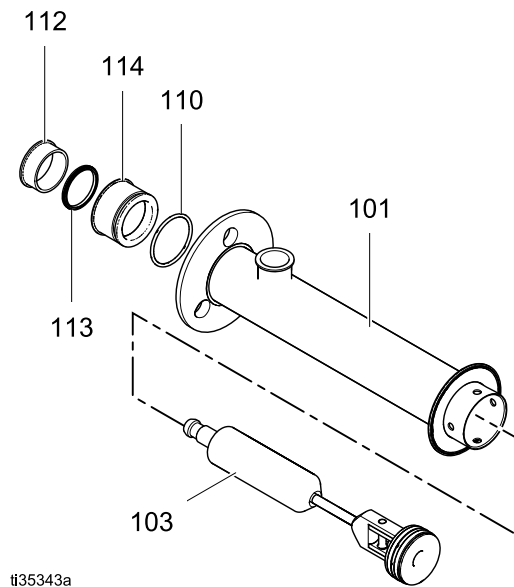


2. Push the displacement rod (103) out through the bottom of the cylinder (101). Remove the piston housing (104) by removing the retaining pin (106) and the o-rings (105) and pulling the piston from the displacement rod. Disassemble, clean and inspect the parts.

3. Take the packing housing (114) out of the cylinder (101) and remove the bearing (112), packing (113), and o-ring (110).



4. Clean and inspect all parts. Refer to [Cleaning the Air Motor](#), page 3 . Replace the parts as necessary.



## 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.






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. Install the v-block packing (113) and bearing (112) in the packing housing (114). The lips of the packing must face down into the housing, and the lip of the bearing must face up. Install the o-ring (110) on the outside of the housing. Place the packing housing in the top of the cylinder.
6. Install the o-rings (109, 110) on the piston seal (111). Install the seal on the piston valve housing. Install the piston ring (108).
7. Place the ball (107) on the seat of the piston housing (104). Install the housing in the displacement rod (103) so the holes in both parts align. Secure with the retaining pin (106) and o-rings (105).
8. Slide the displacement rod up through the cylinder (101) so it protrudes from the packing housing (114).
9. Place the ball (119) on the seat of the inlet housing (115). Install the o-ring (110) on the outside of the housing. Slide the valve stop (117) into the holes in the housing.
10. Insert the inlet valve housing (115) into the cylinder (101), aligning the holes in both parts. Secure with the retaining pins (116, 117) and o-rings (105).

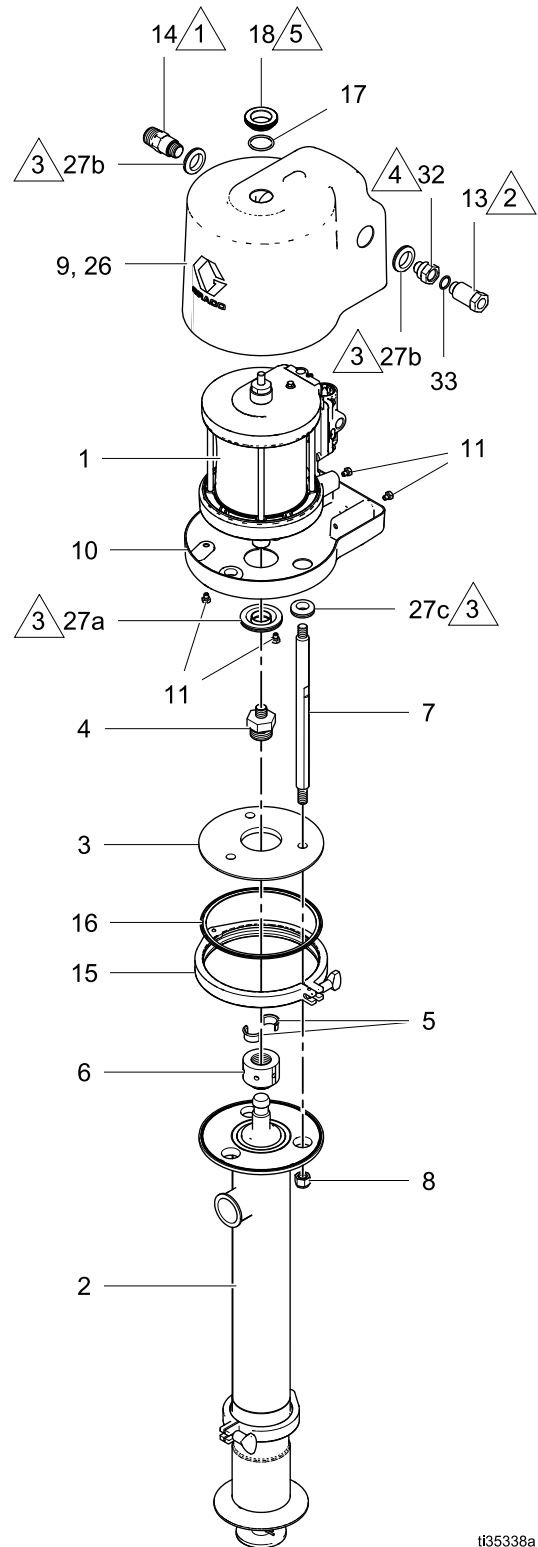


# Parts, Priming Piston Model

Complete Pump Models

25N009  
25N009C31

-  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 (18) 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.



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## Complete Pump Model 25N009, 25N009C31

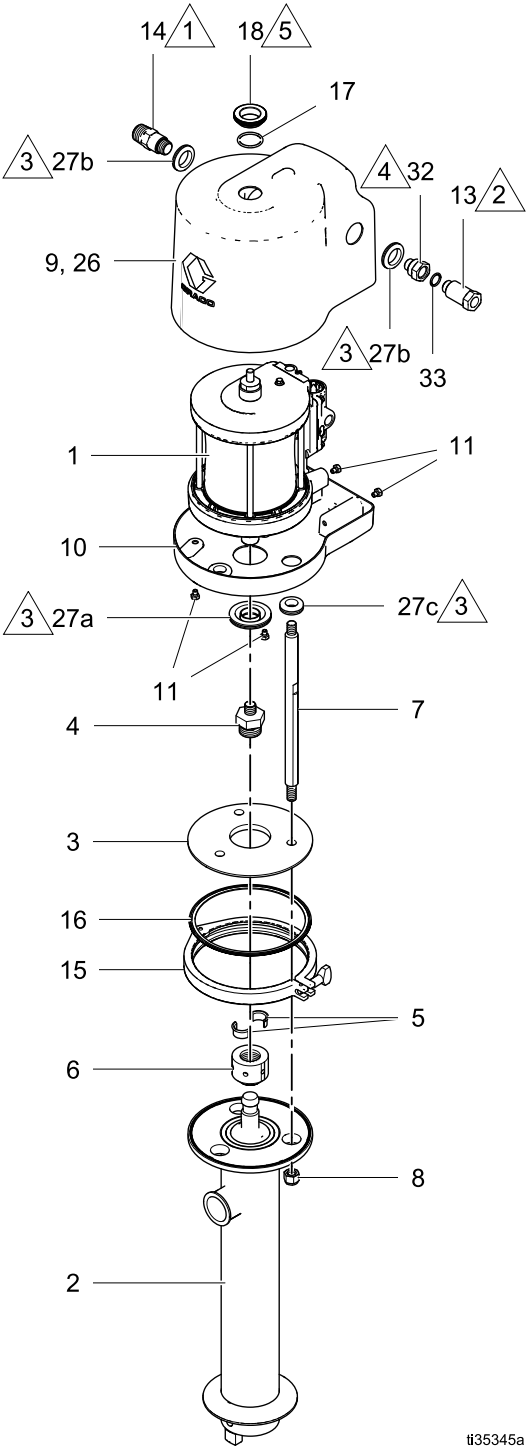
Ref.	Part	Description	Qty.
1	24G786	MOTOR, SaniForce; 6 in; see manual 3A1211	1
2	25N005	DISPLACEMENT PUMP, type 2.1	1
3	624248	PLATE, tie rod	1
4	16A939	COUPLER	1
5	184130	COLLAR	2
6	625045	COUPLING	
7	16A946	TIE ROD	3
8	102216	NUT, lock, 5/8-11, sst	3
9	16E031	SHIELD, upper; includes grommets (Ref. 27)	1
10	16E029	SHIELD, lower; includes fasteners (Ref. 8) and grommets (Ref. 21)	1
11	118134	SCREW, cap; M8 x 1.25, sst	4
13	16G085	FITTING, air inlet, 1/2 npt, includes Ref. 23	1
14	16C946	FITTING, 3/4 npt	1
15	512607	CLAMP	1
16	512606	GASKET, TRI-CLAMP	1
17	165053	O-RING	1
18	16C306	NUT	1
26▲	17W547	LABEL, warning, not shown	1
27	—	GROMMET; <i>see Kits</i>	6
32	16G084	FITTING, air inlet, 1/2 npt	1
33	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.

# Parts, Double Ball Pump

Complete Pump Models

25N010  
25N010C31



- △ 1 Apply PTFE tape to threads.
- △ 2 Hand tighten only.
- △ 3 Apply sanitary lubricant to ease assembly.
- △ 4 Apply medium-strength (blue) thread locker.
- △ 5 Apply an appropriate medium-strength thread locker on the nut (18) 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.

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## Kits

### Complete Pump Model 25N010, 25N010C31

Ref.	Part	Description	Qty.
1	24G786	MOTOR, SaniForce; 6 in; see manual 3A1211	1
2	25N006	DISPLACEMENT PUMP, type 2.1	1
3	624248	PLATE, tie rod	1
4	16A939	COUPLER	1
5	184130	COLLAR, coupling	2
6	626045	COUPLING	1
7	16A946	TIE ROD	3
8	102216	NUT, lock, 5/8-11, sst	3
9	16E031	SHIELD, upper; includes grommets	1
10	16E029	SHIELD, lower; includes grommets	1
11	118134	SCREW, cap; M8 x 1.25, sst	4
13	16G085	FITTING, air inlet, 1/2 npt	1
14	16C946	FITTING, 3/4 npt	1
15	512607	CLAMP	1
16	512606	GASKET	1
17	165053	O-RING	1
18	16C306	NUT	1
26▲	17W547	LABEL, warning, not shown	1
27a-c	—	GROMMET; see Kits	6
32	16G084	FITTING, air inlet, 1/2 npt	1
33	166702	O-RING, air inlet, buna-n	1

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

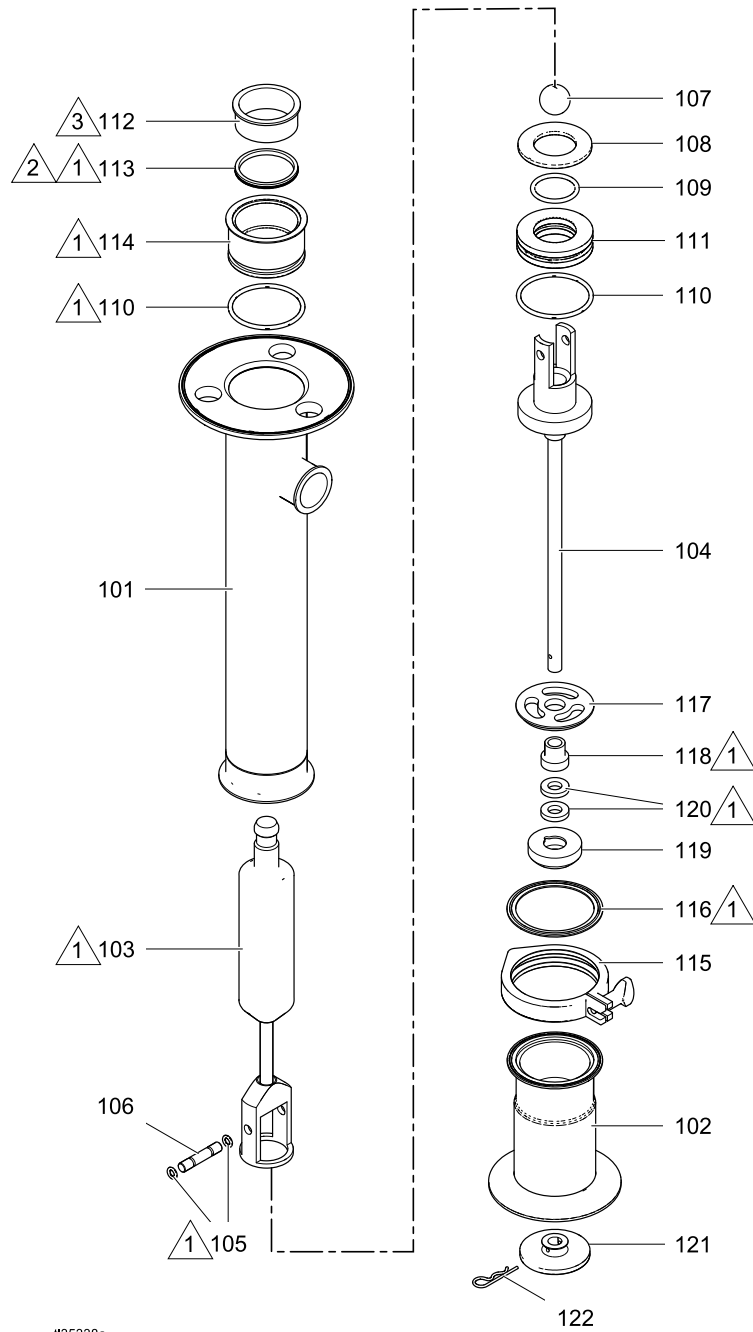
## Kits

### Grommet Kit 16G385




Ref.	Part	Description	Qty.
27a*	—	GROMMET, air motor piston rod	1
27b	—	GROMMET, air fitting	2
27c	—	GROMMET, tie rod	3

\* Order Kit 16G384 for qty. 3 of the piston rod grommet.

# Priming Piston Displacement Pump Model 25N005



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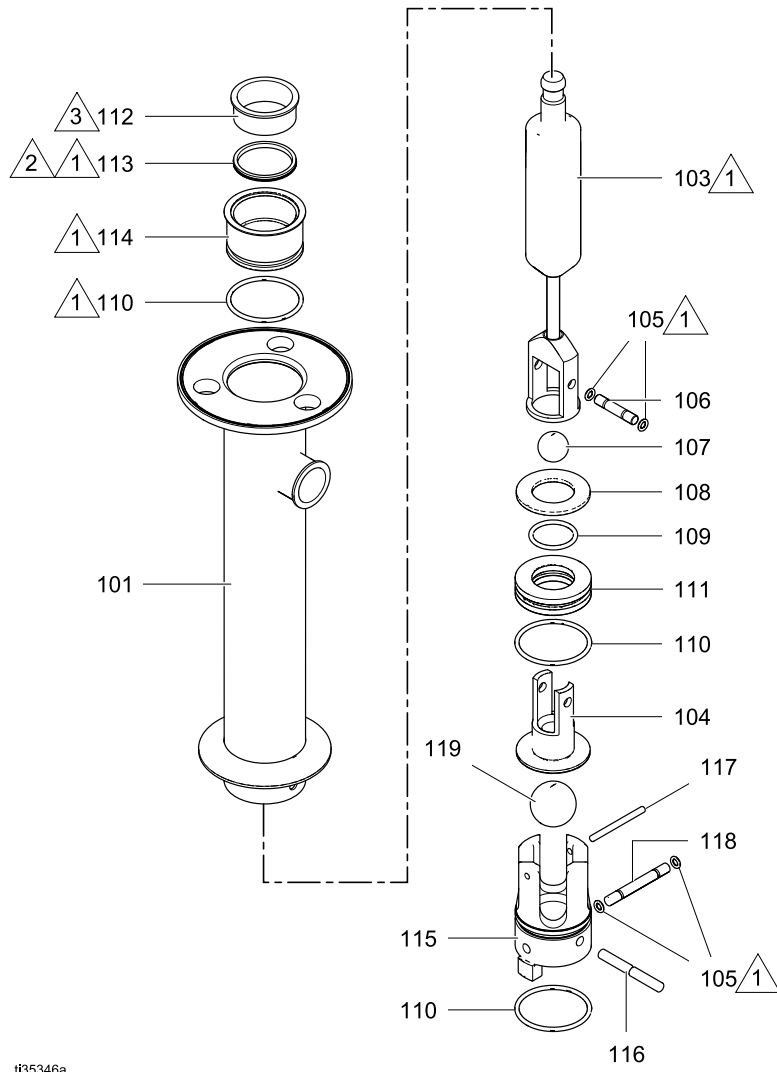
-  Apply appropriate waterproof sanitary lubricant.
-  Throat U-cup lips must face down.
-  Bearing lip must face up.

## Priming Piston Displacement Pump Model 25N005

Ref.	Part	Description	Qty.
101	17X087	CYLINDER, pump	1
102	17S669	HOUSING, packing	1
103	965531	ROD, displacement	1
104	570081	ROD, connecting	1
105	16G659*	PACKING	2
106	624244	PIN, ball stop	1
107	512603	BALL, 1-1/2 in.	1
108	624243	RING, piston	1
109*	512602	O-RING	1
110*	512589	PACKING	2
111*	624242	GLAND, piston	1
112*	624247	BEARING, throat	1
113*	512605	PACKING	1
114	624246	HOUSING, throat	1
115	510490	CLAMP, 4 in.	1
116*	513548	PIN, retaining, priming piston	1
117	626578	STOP, foot valve	1
118*	626579	BEARING, pump	1
119	626582	POPET, foot valve	1
120*	552060	PACKING, foot valve	1
121	626581	PISTON, priming	1
122	626584	PIN, retainer	1

\* Parts included in Repair Kit 24G552

# Double Ball Displacement Pump Model 25N006



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- △<sub>1</sub> Apply appropriate waterproof sanitary lubricant.
- △<sub>2</sub> Throat U-cup lips must face down.
- △<sub>3</sub> Bearing lip must face up.

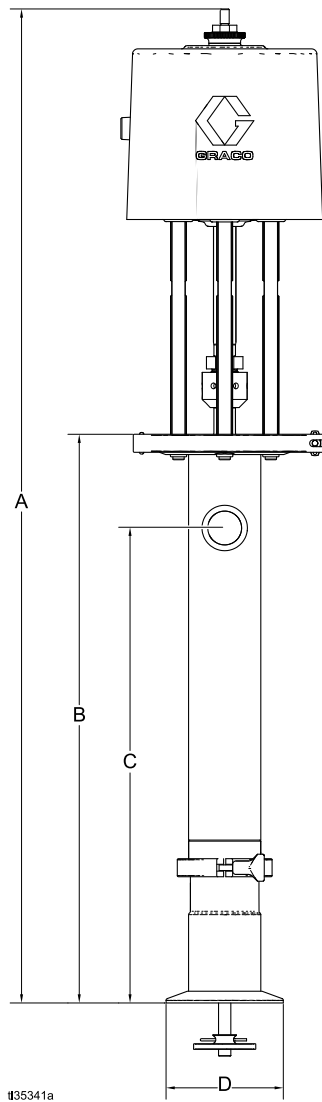
## Double Ball Displacement Pump Model 25N006

Ref.	Part	Description	Qty.
101	17S667	CYLINDER, pump	1
103	965531	ROD, displacement	1
104	624241	HOUSING, piston	1
105*	16G659	PACKING	4
106	624244	PIN, ball stop	1
107	512603	BALL, 1-1/2 in.	1
108	624243	RING, piston	1
109*	512602	O-RING	1
110*	512589	PACKING	3
111*	624242	GLAND, piston	1
112*	624247	BEARING, throat	1
113*	512605	PACKING	1
114	624246	HOUSING, throat	1
115	624222	HOUSING, inlet	1
116	624689	PIN, retaining, priming piston	1
117	624229	PIN, ball stop	1
118	624230	PIN, retainer	1
119	512601	BALL, 2-1/4 in.	1

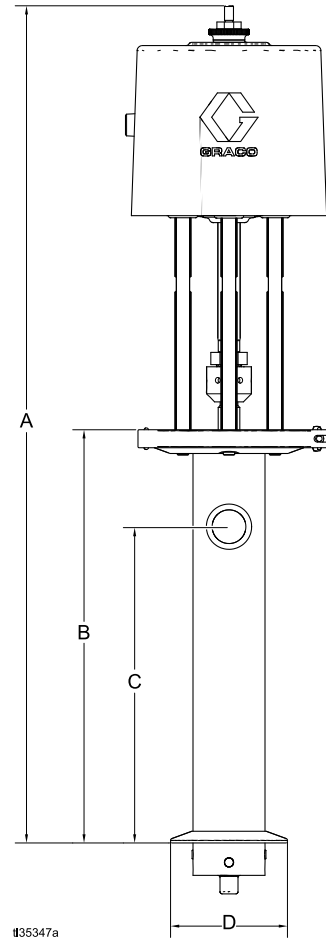
\* Parts included in Repair Kit 24G551



# Product Dimensions



25N009  
25N009C31

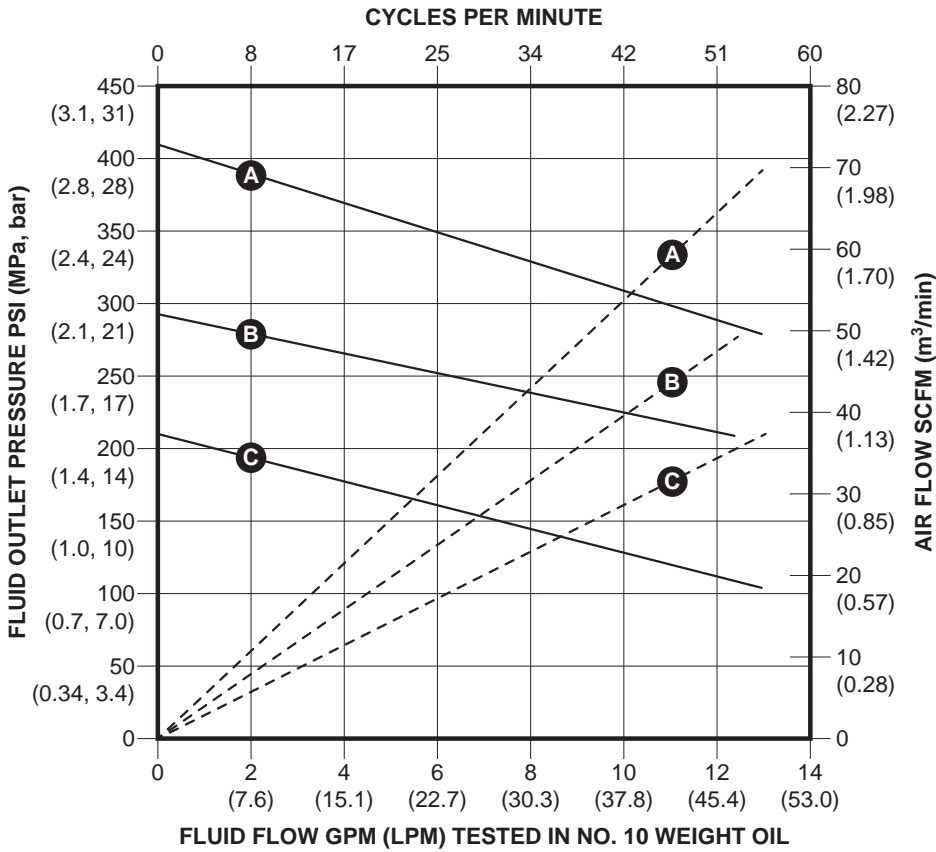


25N010  
25N010C31

Model	A in. (cm)	B in. (cm)	C in. (cm)	D in. (cm)
25N009 & 25N009C31	55.0 (139.7)*	31.5 (80.0)*	26.3 (66.8)*	6.5 (16.5)
25N010 & 25N010C31	46.5 (118.1)	23.0 (58.4)	17.6 (44.7)	6.5 (16.5)

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

# Performance chart



**KEY**

<b>A</b>	= 80 PSI (0.5 MPa, 5.5 bar)
<b>B</b>	= 60 PSI (0.4 MPa, 4 bar)
<b>C</b>	= 40 PSI (0.3 MPa, 3 bar)
—	= Fluid flow
- - -	= Air Consumption

# Technical Data

Maximum Fluid Working Pressure	410 psi (2.9 MPa, 28.7 bar)
Maximum Air Inlet Pressure	80 psi (0.6 MPa, 5.5 bar)
Maximum Recommended Pump Speed	60 cycles/min, 14 gpm (53 liters/min) delivery
Air Consumption	<i>See Performance Chart</i>
Pump Cycles per Gallon (3.8 Liters)	4.3
Ratio	5:1
Maximum Fluid Temperature	140°F (60°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	
Priming Piston pumps	3.4 in (8.6 cm) Priming Piston with flange for 6 in. (15.2 cm) Clamp
Double Ball pumps	flange for 6 in. (15.2 cm) Clamp
Fluid Outlet	2 in. (5.08 cm) Tri-clamp®
Weight	95 lb (43 kg)
Wetted Parts	316 Stainless Steel, Buna-N, Polychloroprene, Nitrile, Nylon, UHMWPE. Certain models have PTFE packings.
Sound data	
Sound power*	77.5 dBA
Sound pressure**	70.7 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.

## FOR GRACO CANADA CUSTOMERS

The Parties acknowledge that they have required that the present document, as well as all documents, notices and legal proceedings entered into, given or instituted pursuant hereto or relating directly or indirectly hereto, be drawn up in English. Les parties reconnaissent avoir convenu que la rédaction du présent document sera en Anglais, ainsi que tous documents, avis et procédures judiciaires exécutés, donnés ou intentés, à la suite de ou en rapport, directement ou indirectement, avec les procédures concernées.

## Graco Information

For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).  
For patent information, see [www.graco.com/patents](http://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

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

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