

SaniForce™ 12:1 Sanitary Pumps

3A5799F
EN

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

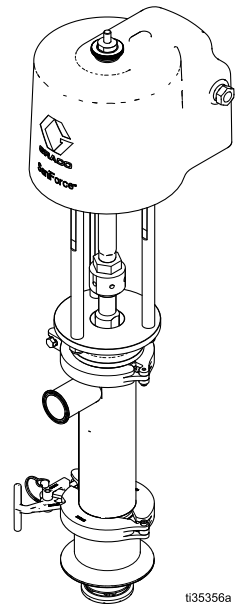


Important Safety Instructions

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

*Maximum Working Air Pressure: 100
psi (0.7 MPa, 6.9 bar)*

*Maximum Working Fluid Pressure:
1450 psi (10.1 MPa, 100.4 bar)*




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Models

Pump Model	Pump Lower Replacement	Pump Type	Approvals
25N008	25N004	Priming Piston Pump	 EC 1935/2004
25N008C31	— — —		




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

 WARNING				
				
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 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>				
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.

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.

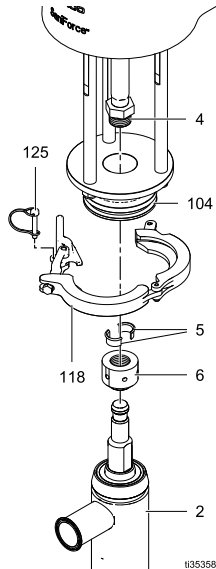
Cleaning the Air Motor

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 (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 Lower Cleaning, page 4](#).

Priming Piston Lower Cleaning

Disconnect the Pump

1. Perform [Cleaning Preparation, page 3](#).
2. Loosen the coupling nut (6) and lower far enough to remove the coupling collars (5).

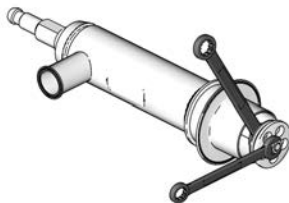


3. Release the upper clamp (118) holding the displacement pump to the tie rod adapter plate (104).

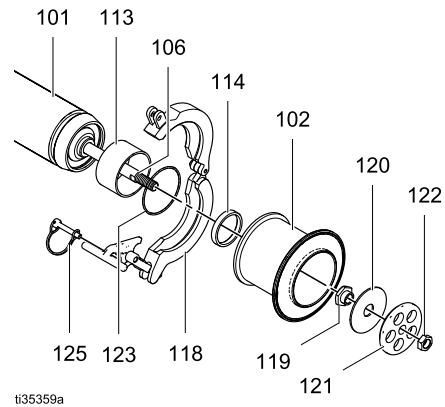
Disassemble the Pump

NOTE: Repair Kits are available. Purchase the kits separately. See the Parts list to select the correct kit for your pump.

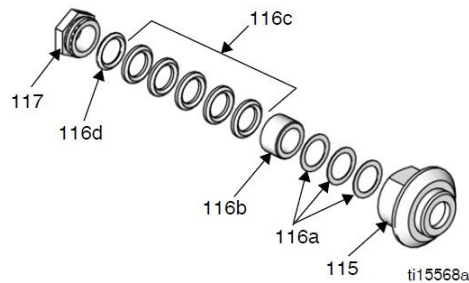
1. With the pump on its side, tap the displacement rod (105) with a rubber mallet to drive the priming piston assembly out of the base (102).
2. Hold the valve plate guide (119) with a wrench. Use another wrench to remove the priming piston nut (122).



3. Remove the priming piston (121) and the valve plate (120).
4. Remove the clamp (118) from the base (102). Then remove the base (102). Tap with a rubber mallet to loosen, if needed.
5. Remove the o-ring (123) and the spacer (113). Tap the displacement rod again to drive the displacement rod/priming piston rod assembly (105/106) out of the cylinder (101).
6. Hold the rod (106) with a wrench and remove the priming piston guide (119).

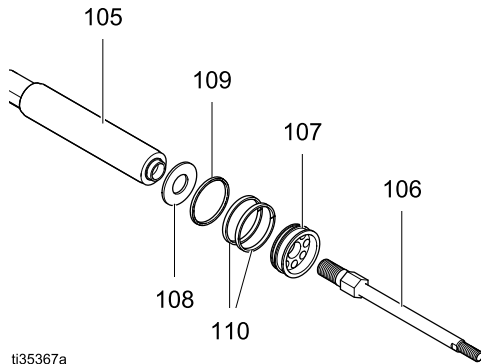


7. Hold the piston rod (106) with a wrench. Use another wrench to loosen the intake valve housing (115), then remove it. If the intake valve housing (115) is stuck to the rod, tap with a plastic rod and mallet.
8. Screw out the packing nut (117) and remove the packing stack (116) from the intake valve housing (115).

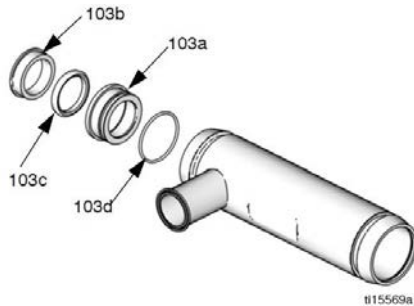


9. Remove the valve plate (112). Use wrenches on the displacement rod flats (105) and the piston rod flats (106) to disconnect.

- Remove the valve plate (108) and the piston (107). Remove the bearings (110) from the piston.



- Stand cylinder upright. Remove the u-cup seal assembly, which includes the base (103a), insert (103b), o-ring (103d), and u-cup (103c).



- Clean the parts and inspect them for wear or damage. Replace them as necessary.

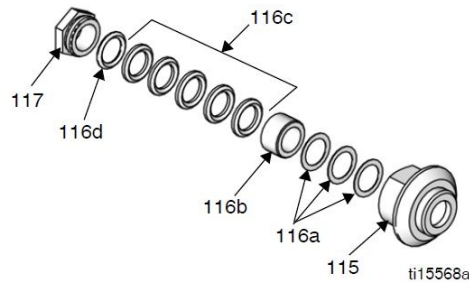
Reassemble After Cleaning

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

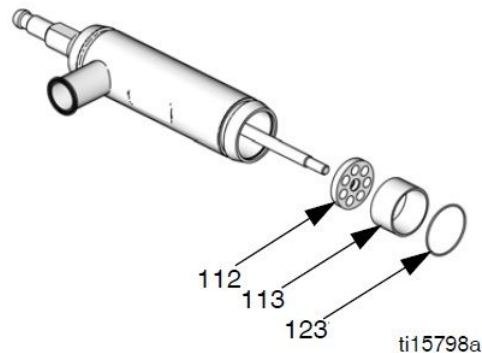
Note: Lubricate the o-rings, throat packings, and piston seals with appropriate waterproof sanitary lubricant prior to installation.

- 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.
- Lubricate the moving pump parts and o-rings, packings, and seals with appropriate waterproof sanitary lubricant.

- Install the bearings (110) and the u-cup seal (109) on the piston (107). The lips of the piston u-cup must face up. Install the valve plate (108) and piston assembly on the displacement rod (105). Cutout on piston must face down.
- Use wrenches on the displacement rod flats and the piston rod flats to reconnect. Torque to 60-70 ft-lb (81-95 N•m).
- Install the packing stack (116*) into the intake valve housing (115). Maintain the following order: shims (116a), female gland (116b), five v-packings (116c) with the lips facing up, and male gland (116d). Loosely thread packing nut (117) into the valve housing (115).



- Install the u-cup (103c) and insert (103b) into the u-cup seal assembly base (103a). Throat u-cup lips must face down. Then install the o-ring (103d).
- Lubricate the displacement rod/piston rod assembly and slide into the cylinder from the top.
- Install the u-cup assembly (103) in the top of the cylinder (101). Reassembly may be difficult. Use steady force until the assembly drops into place.
- Turn the pump on its side. Use a rubber mallet to tap the displacement rod so the piston rod extends well out of the cylinder.
- Install the valve plate (112) and the spacer (113) into the bottom of the cylinder. Install the cylinder o-ring (123).



- Lubricate the piston rod and the inside of the packing nut (117) and intake valve housing (115). Slide the assembly onto the piston rod, then use two wrenches to tighten the valve housing.

Priming Piston Lower Cleaning

15. Stand the pump upright, placing the cylinder (101) into the base (102). Reattach the clamp to hold the base (102) to the cylinder (101). Replace the pin (125).
16. Turn the pump on its side. Use a rubber mallet to tap the displacement rod so the piston rod extends well out of the cylinder.
17. Hold the displacement rod (105) with a wrench. Screw on the guide (119) and use another wrench to tighten.
18. Install the valve plate (120) and the priming piston (121). Hand tighten the priming piston nut (122).
19. Hold the displacement rod (105) with a wrench. Use another wrench to tighten the priming piston nut (122).






Reconnect the Pump

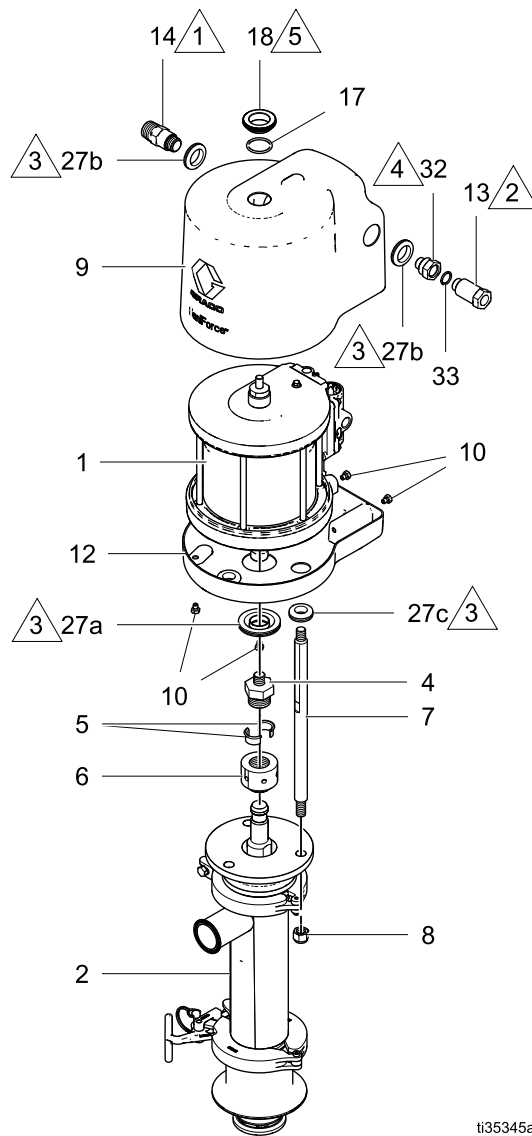
1. Set the displacement pump in place. Align the air motor and set it on top of the displacement pump. Attach the clamp. Replace the pin.
2. Hold the motor shaft up with one hand. With your other hand, put the coupling nut (5) on the rod.
3. Put the coupling collars (5) into the coupling nut so large flanges point upward.
4. Gently let the motor shaft drop onto the rod. Use a spanner wrench to tighten the coupling nut securely. A Graco spanner wrench tool (p/n 112887) is available.
5. Connect the remaining air and fluid hoses and the ground wire.
6. Circulate the sanitizing solution through the pump and the system prior to use.

Parts

Complete Pump Models

25N008
25N008C31

-  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.



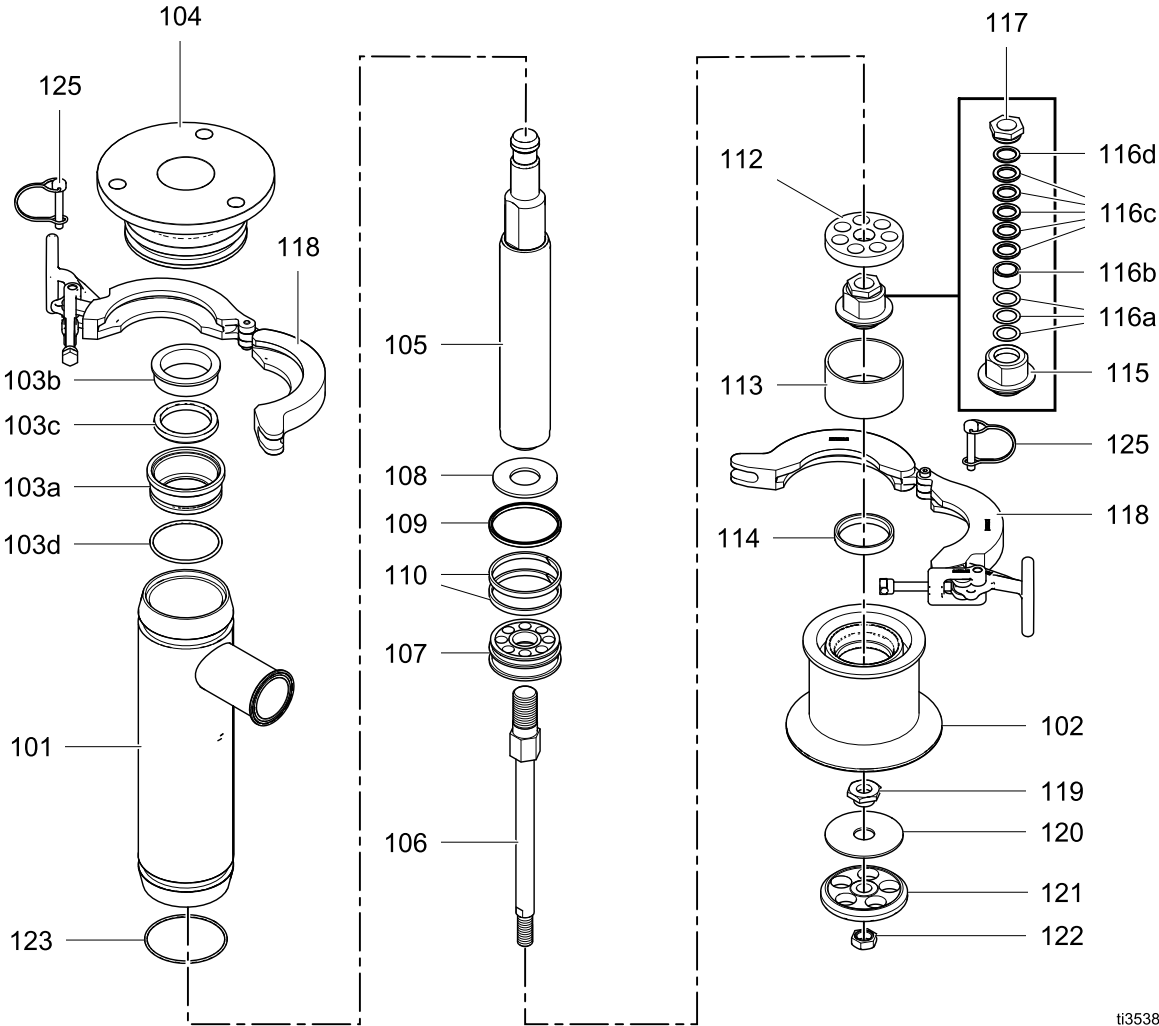
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Complete Pump Model 25N008, 25N008C31

Ref.	Part	Description	Qty.
1	24G787	MOTOR, SaniForce; 7.5 in; see manual 3A1211	1
2		DISPLACEMENT PUMP:	1
	25N004	EN 10204, type 2.1	
	—	EN 10204, type 3.1	
4	16A939	COUPLER	1
5	184130	COLLAR	2
6	626045	COUPLING, checkmate	1
7	16C010	TIE ROD	3
8	102216	NUT, lock, 5/8-11, sst	3
9	16E030	SHIELD, upper; includes grommets (Ref. 27)	1
10	118134	SCREW, cap; M8 x 1.25, sst	4
12	16E028	SHIELD, lower; includes fasteners (Ref. 8) and grommets (Ref. 27)	1
13	16G085	FITTING, air inlet, 1/2 npt, includes Ref. 23	1
14	16C946	FITTING, 3/4 npt	1
17	165053	O-RING, PTFE	1
18	16C306	NUT, hand	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. 12	1

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

Priming Piston Displacement Pump Model 25N004



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Priming Piston Displacement Pump Model 25N004

Ref.	Part	Description	Qty.
101	16A814	CYLINDER, pump	1
102	17S664	BASE	1
103	24C623	SEAL, assembly, u-cup; includes 103a-103d	1
103a	16A817	SEAL, u-cup, base	1
103b*	16A816	SEAL, u-cup, insert	1
103c*	16A818	SEAL, u-cup	1
103d*	16A842	O-RING, seal	1
104	16E465	ADAPTER, tie rod	1
105	16G436	ROD, displacement	1
106	16G437	ROD, priming piston	1
107	181892	PISTON, cylinder	1
108	167493	PLATE, valve	1
109*	108543	PACKING, u-cup	1
110*	181897	BEARING	2
112	16A846	PLATE, valve	1
113	16A847	TUBE	1
114	167481	SEAT, valve	1

Ref.	Part	Description	Qty.
115	167482	HOUSING, intake valve seal	1
116*	223542	STACK, gland packing; includes 116a-116d	2
116a	186106	SHIM	3
116b	186138	GLAND, female	1
116c	167484	PACKING	5
116d	186139	GLAND, male	1
117	167486	NUT, packing	1
118	24C658	CLAMP	2
119	167480	GUIDE, valve plate	1
120	167479	PLATE, valve	1
121	172200	PISTON, priming	1
122	102533	NUT	1
123*	16D164	O-RING	1
125	16F603	PIN, locking	2

* Parts included in kit 24G555.

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.

Lower Shroud Fastener Kit 16G432

Ref.	Part	Description	Qty.
10	118134	SCREW, cap; M8 x 1.25, sst	4

U-cup Seal Assembly Kit 24C623

103a	16A817	SEAL, u-cup, base	1
103b	16A816	SEAL, u-cup, insert	1
103c	16A818	SEAL, u-cup	1
103d	16A842	O-RING, seal	1

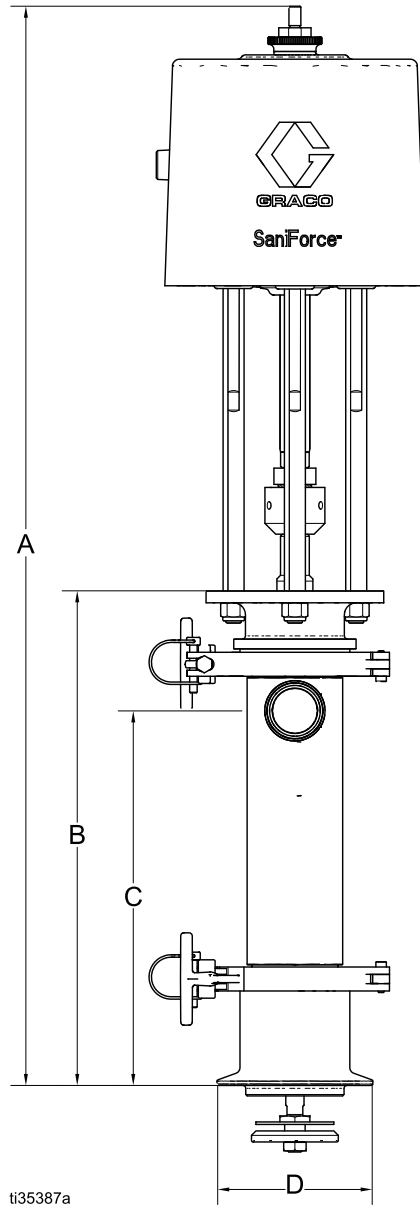
U-cup Seal/O-ring Kit 24G858

103c	16A818	SEAL, u-cup	4
103d	16A842	O-RING, seal	4

Spanner Wrench

112887	WRENCH, spanner	1
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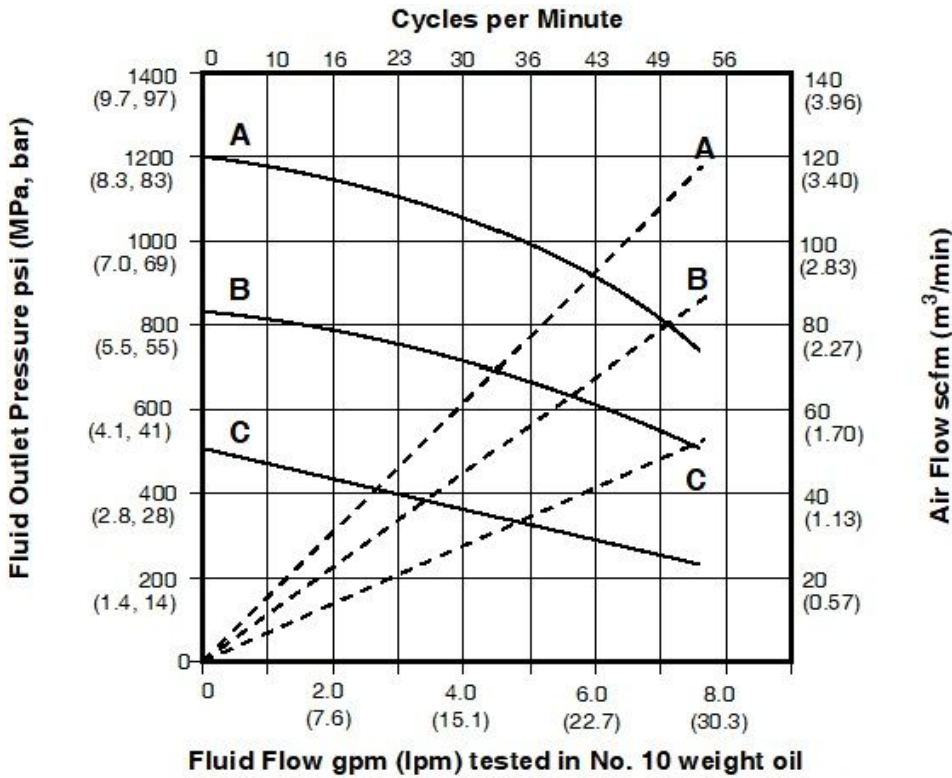
Product Dimensions



Model	A in. (cm)	B in. (cm)	C in. (cm)	D in. (cm)
25D363	45.0 (114.3)*	20.6 (52.3)*	15.6 (39.6)*	6.5 (16.5)

* Add 4.7 in. (12 cm) to allow for full extension of the priming piston rod.

Performance chart



KEY

- 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	1450 psi (10.1 MPa, 100.4 bar)
Maximum Air Inlet Pressure	100 psi (0.7 MPa, 6.9 bar)
Maximum Recommended Pump Speed	60 cycles/min, 8.5 gpm (32 liters/min) delivery
Maximum size pumpable solids	1/4 in. (6.4 mm)
Air Consumption	<i>See Performance Chart</i>
Pump Cycles per Gallon (3.8 Liters)	7.1
Ratio	12:1
Maximum Operating Temperature	160°F (71°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	4.1 in (10.4 cm) Priming Piston with flange for 6 in. (15.2 cm) Tri-Clamp®
Fluid Outlet	2 in. (5.1 cm) Tri-clamp
Weight	122 lb (55.3 kg)
Wetted Parts	316 Stainless Steel, Buna-N, Polychloroprene, Nitrile, Nylon, UHMWPE. Certain models have PTFE packings.
Sound data	
Sound power*	77.2 dBA
Sound pressure**	70.5 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.

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm — www.P65warnings.ca.gov.

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

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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 3A5799

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