



SaniForce®

A Complete Sanitary Pump Line



unleash the
POWER

PROVEN QUALITY. LEADING TECHNOLOGY.

POWERFUL
ADVANCED
TECHNOLOGY

The new SaniForce line **saves you time and money** by pumping the most difficult materials – quickly and safely!

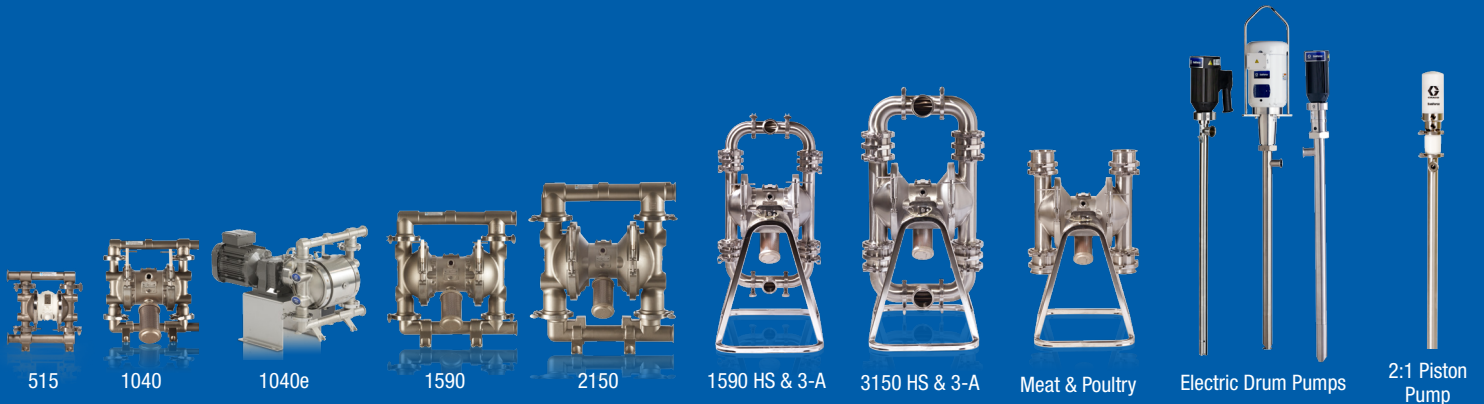
SaniForce Equipment:

- Air-operated double diaphragm pumps
- Electric-operated double diaphragm pumps
- Electric-operated drum pumps
- Piston transfer pumps
- Drum and bin unloaders

Transfer a **broad range of viscosities** from fruit juices and pizza sauce to caramel and peanut butter.

SaniForce Unloaders:

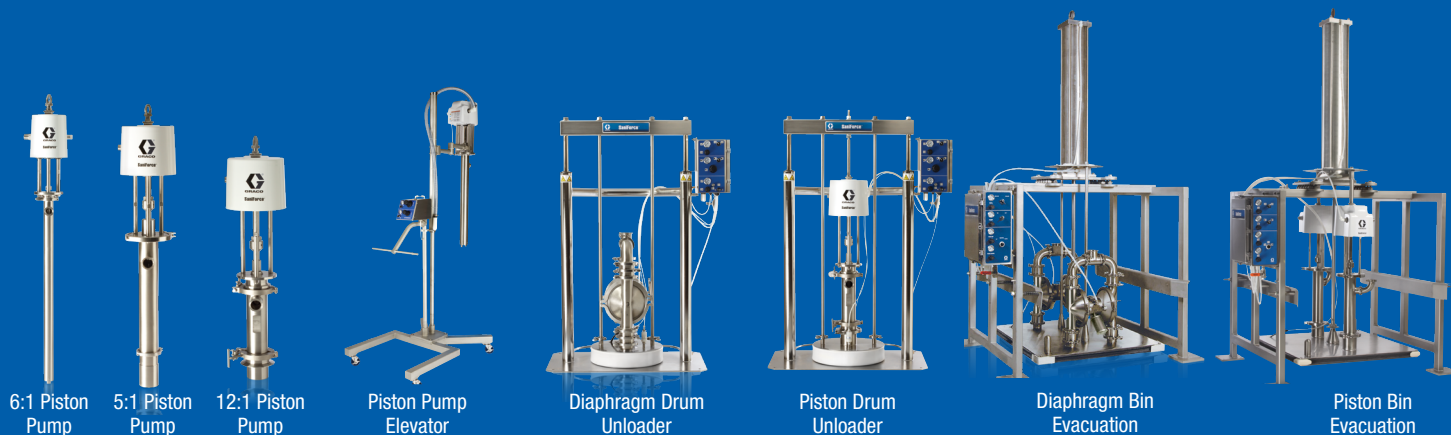
- Move material faster
- Increase efficiency
- Improve processes
- Pump high viscosity materials



Models*	Max Flow Rate	Max Fluid Pressure	Pump Style	Suction Lift (Wet)	Max Pumpable Solids	Viscosity Range	Flyer	Manual
515	16 gpm (61 lpm)	100 psi (7 bar, 0.7 MPa)	Ball	25 ft (7.6 m)	3/32 in (2.38 mm)	Up to 10,000 cps	320462	3A1973
1040	40 gpm (151 lpm)	120 psi (8 bar, 0.8 MPa)	Ball	29 ft (8.84 m)	1/8 in (3.2 mm)	Up to 10,000 cps	320462	311879
1040e	35 gpm (132 lpm)	70 psi (4.8 bar, 0.48 MPa)	Ball	29 ft (8.84 m)	1/8 in (3.2 mm)	Up to 10,000 cps	345061	3A3168
1590	90 gpm (340 lpm)	120 psi (8 bar, 0.8 MPa)	Ball	29 ft (8.84 m)	3/16 in (4.8 mm)	Up to 15,000 cps	320462	311879
2150	150 gpm (568 lpm)	120 psi (8 bar, 0.8 MPa)	Ball	29 ft (8.84 m)	1/4 in (6.4 mm)	Up to 20,000 cps	320462	311879
1590 HS & 3-A	90 gpm (340 lpm)	120 psi (8 bar, 0.8 MPa)	Ball	28 ft (8.5 m)	5/8 in (15.9 mm)	Up to 15,000 cps	338499	310622
3150 HS & 3-A	90 gpm (340 lpm)	120 psi (8 bar, 0.8 MPa)	Ball or Flapper	Ball = 18 ft (5.5 m) Flapper = 10 ft (3 m)	Ball = 1 in (25.4 mm) Flapper = 2.5 in (63.5 mm)	Up to 20,000 cps	3384999	310622
Meat/Poultry	150 gpm (568 lpm)	120 psi (8 bar, 0.8 MPa)	Flapper	10 ft (3 m)	2.5 in (63.5 mm)	Up to 20,000 cps	338067	310622
Centrifugal Drum Pump	35 gpm (132 lpm)	43 psi (0.4 MPa, 3 bar)	Centrifugal	N/A	Not recommended	Up to 1,000 cps	3H1116	3A4586
Progressive Cavity Drum Pump	7 gpm (26 lpm)	87 psi (0.6 MPa, 6 bar)	Progressive Cavity	N/A	0.25 in (6 mm)	Up to 100,000 cps	3H1116	3A4586
2:1 Piston Pump	1.5 gpm (5.7 lpm)	250 psi (17 bar, 1.7 MPa)	Double Ball	N/A	1/8 in (3.2 mm)	Up to 50,000 cps	338591	3A2977
6:1 Piston Pump	4 gpm (15 lpm)	600 psi (41 bar, 4.1 MPa)	Double Ball or Priming Piston	N/A	1/8 in (3.2 mm)	Up to 100,000 cps	338591	3A0733
5:1 Piston Pump	14 gpm (53 lpm)	400 psi (28 bar, 2.8 MPa)	Double Ball or Priming Piston	N/A	1/4 in (6.4 mm)	Up to 100,000 cps	338591	3A0734
12:1 Piston Pump	8.5 gpm (32 lpm)	1200 psi (83 bar, 8.3 MPa)	Priming Piston	N/A	1/4 in (6.4 mm)	Up to 100,000 cps**	338591	3A0735
Piston Pump Elevator	14 gpm (53 lpm)	400 psi (28 bar, 2.8 MPa)	Double Ball	N/A	1/4 in (6.4 mm)	Up to 50,000 cps	345058	333406
Diaphragm Drum Unloaders	Up to 150 gpm (568 lpm)	120 psi (8 bar, 0.8 MPa)	Ball or Flapper	N/A	Ball = 1 in (25.4 mm) Flapper = 2.5 in (63.5 mm)	Up to 100,000 cps	338590	3A0591
Piston Drum Unloaders	Up to 14 gpm (53 lpm)	1200 psi (83 bar, 8.3 MPa)	Double Ball or Priming Piston	N/A	1/8 to 1/4 in (3.2 to 6.4 mm)	Up to 1,000,000 cps with priming piston	338590	3A0591
Diaphragm Bin Evacuation	Up to 300 gpm (1,135 lpm)	120 psi (8 bar, 0.8 MPa)	Ball or Flapper	N/A	Ball = 1 in (25.4 mm) Flapper = 2.5 in (63.5 mm)	Up to 100,000 cps	338589	311163
Piston Bin Evacuation	Up to 56 gpm (212 lpm)	1200 psi (83 bar, 8.3 MPa)	Double Ball or Priming Piston	N/A	1/4 in (6.4 mm)	Up to 1,000,000 cps with priming piston	338589	311163

*Actual performance may vary by application

**When mounted on drum unloader or bin evacuation system



SaniForce Piston Pumps

Move the most difficult materials

Graco's powerful line of piston pumps move extremely difficult materials when others cannot. They have fluid pressures up to 1,200 psi and are ideal for low to medium viscosity materials.

The air motors improve serviceability, increase efficiency and offer a lower cost of ownership. The quick knockdown lowers are made with corrosion resistant stainless steel for long-lasting durability.

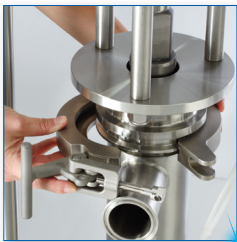
Advanced air motor technology



FDA-Compliant Shroud

- Removable, wash down safe, FDA-compliant shroud lets you easily access the air valve

Available in double ball or priming piston designs



All SaniForce Piston Pumps have Quick Knockdown Lower for Fast and Easy Cleaning!

SaniForce 2:1 Piston Pump

- Up to 50,000 cps
- Flow rates up to 1.5 gpm (5.7 lpm) at 60 cpm
- Pumps available in standard and long lengths

SaniForce 6:1 Piston Pump

- Up to 100,000 cps
- Flow rates up to 4 gpm (15 lpm) at 60 cpm
- Pumps available in stubby, drum and bin lengths

SaniForce 5:1 Piston Pump

- Up to 100,000 cps
- Flow rates up to 14 gpm (53 lpm) at 60 cpm
- Pumps available in stubby and drum lengths

SaniForce 12:1 Piston Pump

- Up to 1,000,000+ cps on a drum unloader or bin evacuation system
- Flow rates up to 8.5 gpm (32 lpm) at 60 cpm
- Stubby length only

Common Applications

- Fluid transfer and supply of low to medium viscosity fluids
- Food-related applications
- Cosmetic applications

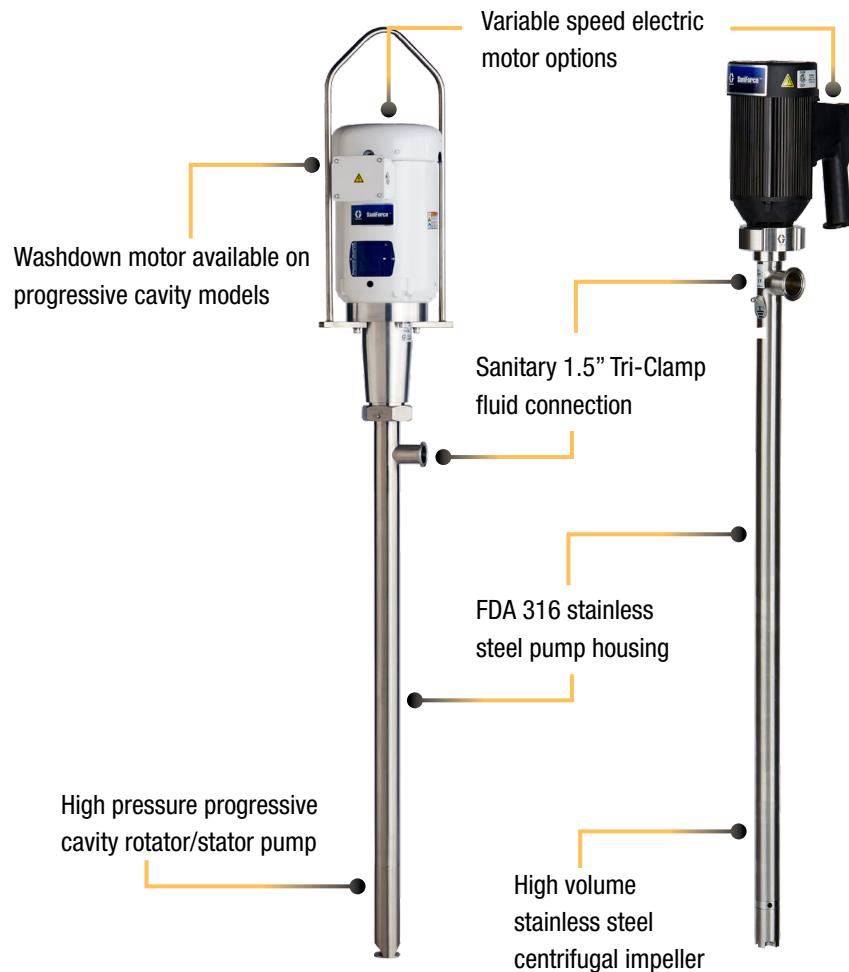
Common Materials

- Fruit juice concentrates
- Cream candy fillings
- Ice cream variegates
- Cosmetics

Save money by increasing efficiency

Reduce downtime at your facility with our quick knock down SaniForce Drum Pump, a centrifugal drum pump featuring easy tri-clamp connections and a simple design to reduce time spent sanitizing and maintaining the pump.

The SaniForce Drum Pump is ideal for applications such as dairy products, pharmaceuticals, juices, concentrates, beer, wine and a cosmetic fragrances and is adaptable to a multitude of containers such as drums, totes and kettles.



SaniForce Electric Centrifugal Drum Pump

- Up to 1,000 cps
- Flow rates up to 35 gpm (132 lpm)
- Quick knock down pump for easy cleaning

SaniForce Electric Progressive Cavity Drum Pump

- Up to 100,000 cps
- Flow rates up to 7 gpm (26 lpm)
- Quick knock down pump for easy cleaning

Common Applications

Fluid transfer and supply of low to medium viscosity fluids
Food-related applications
Cosmetic applications

SaniForce 515, 1040, 1590 & 2150

When other pumps fail, Graco pumps excel!

Graco's SaniForce 515, 1040, 1590 and 2150 air-operated diaphragm pumps not only have **flow rates up to 25% greater** than many competitive pumps with PTFE diaphragms, but have one of the **best, most durable, lube-free air valves** in the industry.

Ideal for applications requiring high flow rates and portability, Graco's dependable diaphragm pumps offer a wide range of food-grade elastomers including Santoprene, PTFE, and overmolded PTFE/EPDM.



Graco Air Valves are durable, reliable and easy to repair!

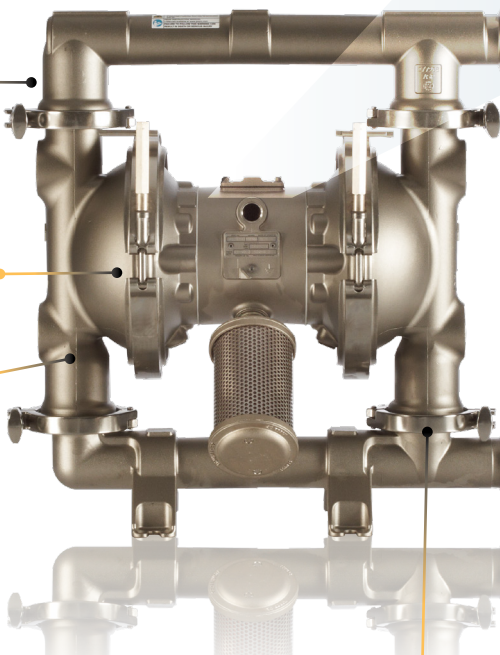
- Increase durability and reduce repair time with fewer moving parts
- Three-way pilot valve for non-stick operation
- Externally serviceable for quick, inexpensive repairs

Pump Finish

- Cast 316 SST
- Sanitary shot-blasted wetted sections

Bolt-through and overmolded diaphragm options available

Fluid contact areas are all FDA-compliant and meet CFR Title 21

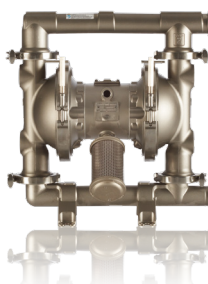


Tri-clamp inlet and outlet connections



2150

- 2.5 in (63.5 mm) tri-clamp connections
- 2 in (50.8 mm) manifold ID
- Flow rates up to 150 gpm (568 lpm)



1590

- 2.0 in (50 mm) tri-clamp connections
- 1.5 in (38.1 mm) manifold ID
- Flow rates up to 90 gpm (340 lpm)



1040

- 1.5 in (38 mm) tri-clamp connections
- 1 in (25.4 mm) manifold ID
- Flow rates of 40 gpm (151 lpm)



515

- 1.0 in (25.4 mm) tri-clamp connections
- 0.96 in (24.3 mm) manifold ID
- Flow rates of 16 gpm (61 lpm)

Common Applications

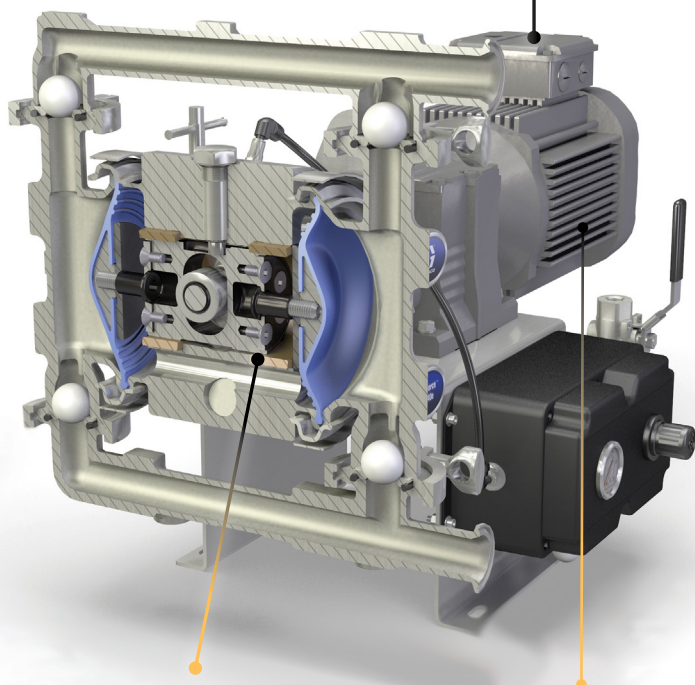
Evacuation of food to mixing kettles
High volume evacuation of liquid concentrates from holding vessels
Repackaging of fluids from original containers to smaller receptacles
Feed filling/packaging stations

Common Materials

Concentrated fruit juices
Sauces, pastes and starches
Wine
Jams and jellies
Edible Oils

Electric-operated double diaphragm pump

Electric drive to reduce energy consumption and accurately meter fluid



Patent pending air charged drive to reduce pulsation on fluid outlet and stalls under pressure

AC or Brushless DC Motor Options

Would you like to **eliminate unnecessary pump failures** for your application? Would you like to improve your facilities energy efficiency and create a quieter and cleaner work environment for your employees? Graco's SaniForce e-Series pump will help you achieve all of those items!

- Patent pending technology allows pump to **stall under pressure** preventing pump failures from clogged lines or closed valves
- **Energy efficient** electric drive reduces energy consumption up to 5x compared to traditional air operated diaphragm pumps
- Seal-less diaphragm pump design **eliminates leaking** and failures due to run-dry pump conditions



Stop Harboring Bacteria!

Graco overmolded the fluid side diaphragm plate with PTFE on the fluid side and EPDM on the air side on our **PTFE/EPDM diaphragms**. This improves wear, durability and cleanability –making SaniForce diaphragm pumps one of the **easiest to clean in the market**.

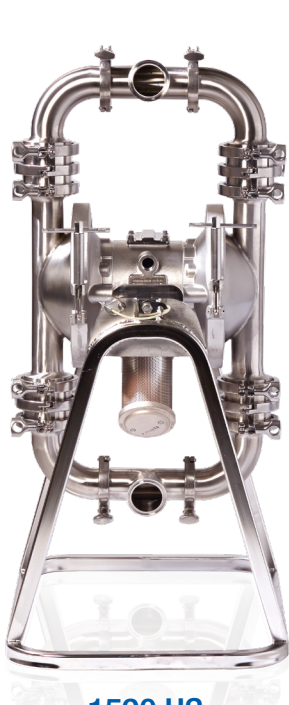
- Improve wear and diaphragm life with no exposed diaphragm plate on the fluid side
- Longer diaphragm life in moderately abrasive applications that still require PTFE
- Available on the SaniForce 515, 1040, 1040e, 1590, 2150 and SaniForce 1590 HS and 3150 HS



SaniForce 1590 and 3150 High Sanitation

Easy to clean, quick knockdown design

Graco's **SaniForce** High Sanitation (HS) FDA-compliant pumps are ideal for applications that require an electropolished 32 Ra finish and benefit from the convenience of a quick knockdown design.



1590 HS

- 2.0 in (50.8 mm) tri-clamp connections
- 1.9 in (48.3 mm) manifold ID
- Maximum flow rates up to 90 gpm (340 lpm)



3150 HS

- Up to 4.0 in (101.6 mm) tri-clamp connections
- 2.9 in (73.7 mm) manifold ID
- Maximum flow rates up to 150 gpm (568 lpm)



3A certifications are available on a variety of SaniForce 1590 and 3150 models.

32 Ra formed/welded stainless steel with sanitary finish

Maximum flow rates range from 90-150 gpm (340-568 lpm)

Patented, durable, lube-free air valve

Interchangeable flapper and ball check

Common Applications	Evacuation of food to mixing kettles
	Transferring from original containers to mixing tanks
	High volume evacuation of liquid concentrates from holding vessels
	Repackaging of fluids from original containers to smaller receptacles

Common Materials	Fruit filling
	Spaghetti sauce
	Muffin and cake batter
	Edible oils
	Lotions
	Cultured dairy products

Designed for Easy Cleaning

EPDM Overmolded Diaphragms

- Approved for 3A applications
- Easy cleaning with smooth, flat surfaces
- No exposed diaphragm plates to help prevent contaminant collection



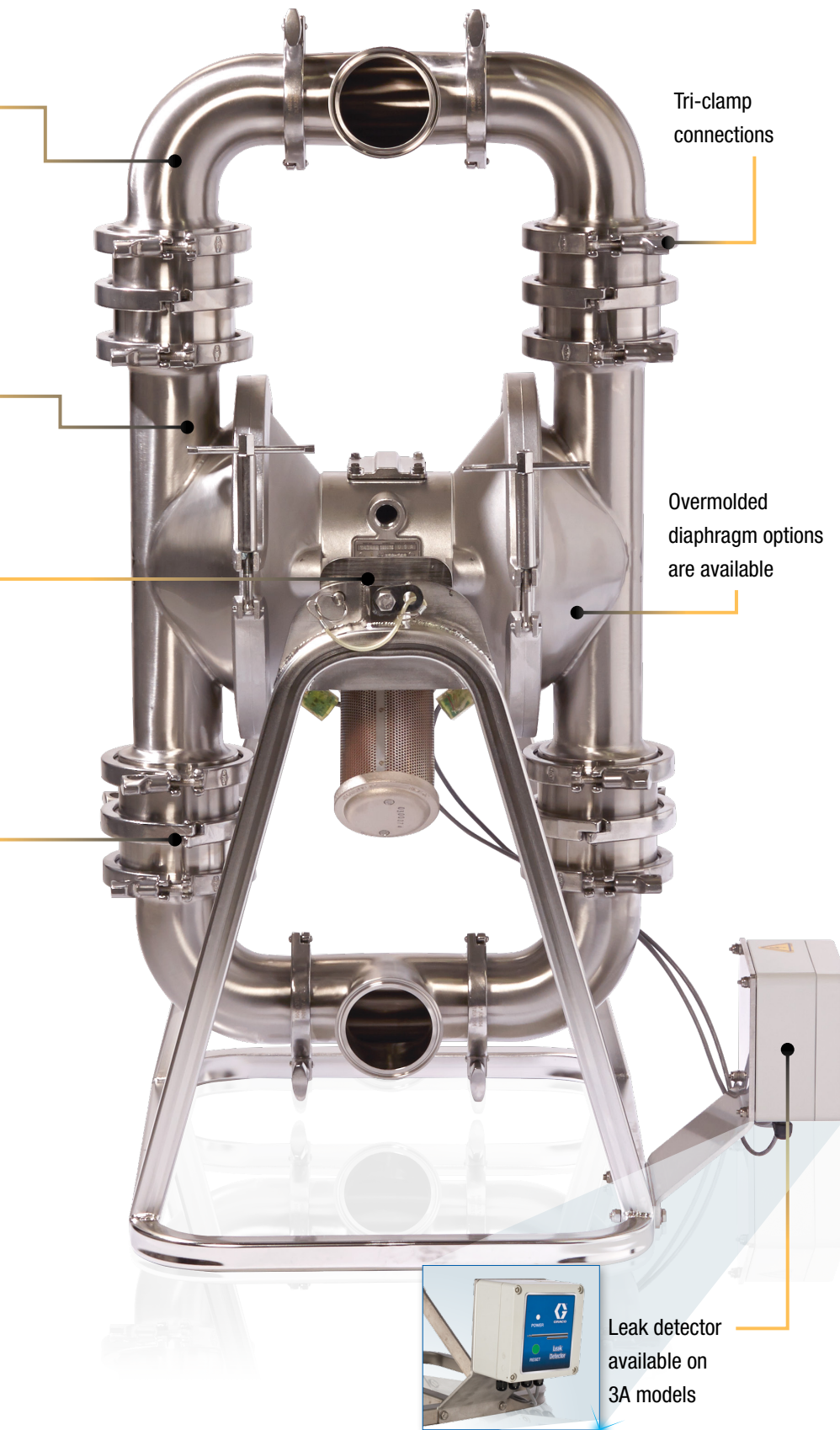
Meat and Poultry Pump

The SaniForce Meat and Poultry Flapper pump handles solids up to 2.5 inches (6.3 cm) in diameter and features Graco's durable, non-sticking air valve.



Common Applications

- Meat and poultry processing
- Pet food manufacturers



Tri-clamp connections

Overmolded diaphragm options are available

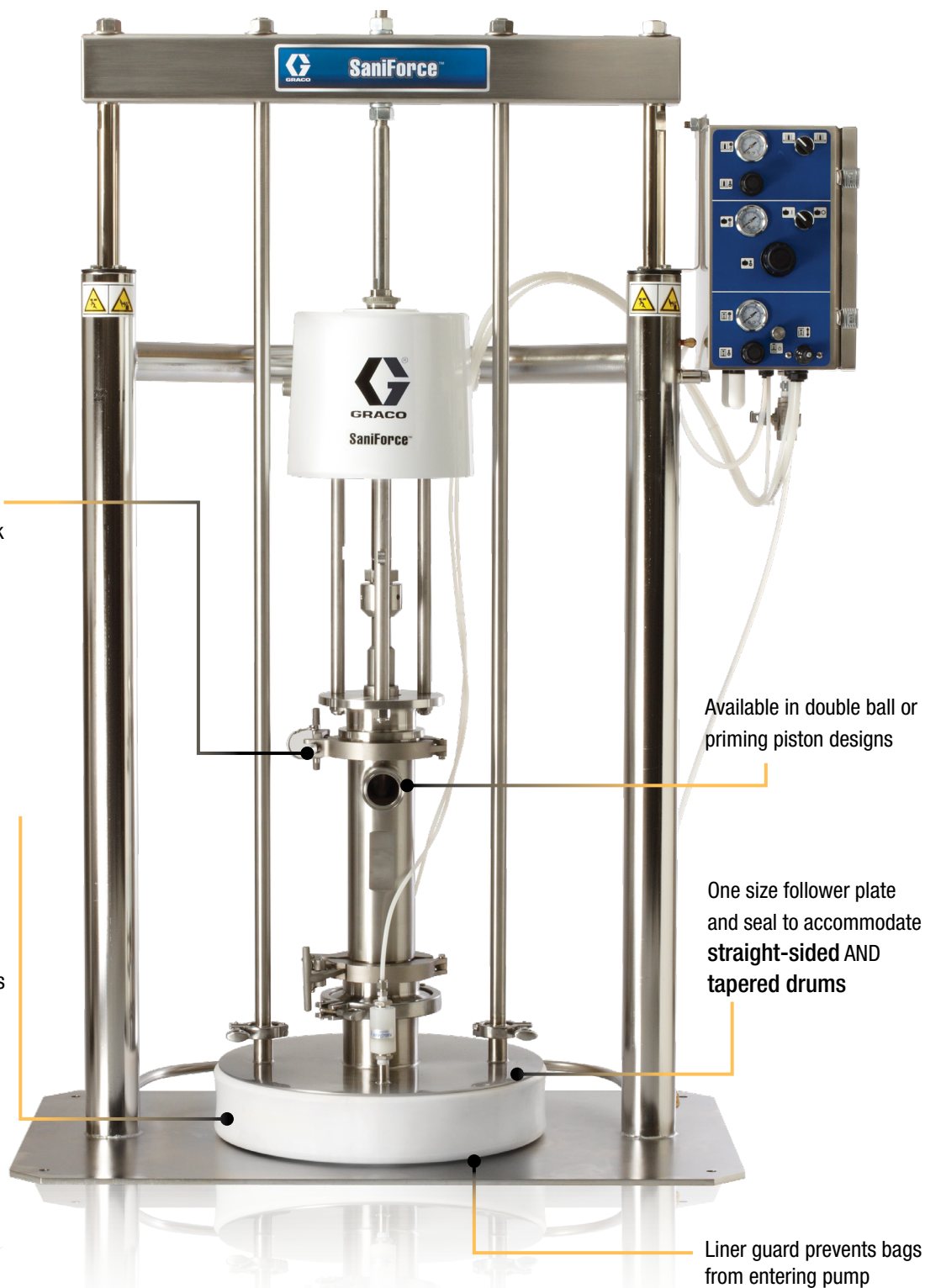
Leak detector available on 3A models

SaniForce Drum Unloaders

Need to transfer 1,000,000 cps* materials? No problem!

Graco's **SaniForce** drum unloaders can evacuate medium to high viscosity products from their original 55-gallon (208 l) containers, without diluting the material.

*Only applies to priming piston drum unloaders



Sanitary flange
clamps for quick
disassembly

Available in double ball or
priming piston designs

One size follower plate
and seal to accommodate
**straight-sided AND
tapered drums**

Liner guard prevents bags
from entering pump

Wiper Seal Features

- FDA-compliant inflatable ram plate seal
- Faster change-out of empty containers
- Up to 99% evacuation rates



Configure your own SaniForce Drum Unloading System

It's easy as 1-2-3.

Choose the Ram Frame Material + Control Type + Piston or Diaphragm Pump to build your own SaniForce Drum Unloading System.

1

Ram Frame Material



Stainless Steel

OR



Painted Carbon Steel

2

Controls Type



Enclosed Controls
(Available with SST frame only)

OR



Exposed Controls

3

SaniForce Piston Pump



SaniForce 6:1



SaniForce 5:1

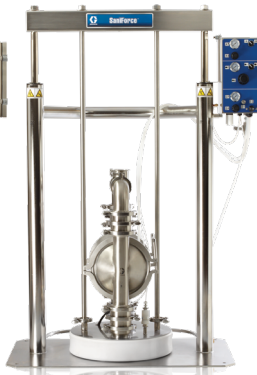


SaniForce 12:1

OR SaniForce Diaphragm Pump



SaniForce 2150



SaniForce 3150 HS

All pumps feature an on-demand workflow capability and can also be taken apart quickly for applications that require frequent sanitation.

Common Applications

Unload medium to high viscosity products, +1,000,000 cps*, from 55-gallon containers without diluting the material

*Only applies to priming piston drum unloaders

Common Materials

Tomato paste	Cosmetics
Peanut butter	Jams and jellies
Icing and frosting	Caramel
Toothpaste	Corn syrup

SaniForce Bin Evacuation Systems (BES)

The **cleanest way** to unload materials without introducing airborne bacteria!

Save time and money in your facility by unloading materials up to 1,000,000+ cps efficiently from 300-gallon (1135.6 l) “bag-in-bin” containers – eliminating manual scooping or bin dumping.

Complete bin unloading saves money and provides better process control while removing the need for costly booster pumps.



SaniForce 3150 BES
with Diaphragm Pumps



SaniForce BES
with Piston Pumps

Common
Applications

Evacuate viscous products from their original 300-gallon containers without dilution

Common
Materials

Tomato paste	Cosmetics
Peanut butter	Jams and jellies
Icing and frosting	Caramel
Toothpaste	Corn syrup

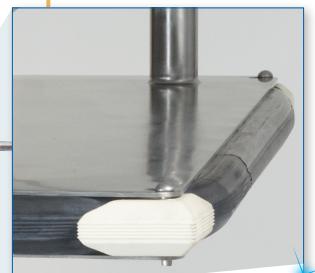
Unload a Tote Without Diluting or Heating the Product!

Keep your product clean,
move it quickly and boost your
bottom line with a SaniForce
bin evacuation system.

Available with
pneumatic or
electronic controls

Up to 99% evacuation rates

Inflatable wiper creates
a tight seal preventing
contaminants from
entering the container



Unique floating ram plate eliminates
the need for exact positioning of bins
under the ram plate

SaniForce Elevators

Stop unloading containers manually.

The SaniForce Elevator is ideal for small to medium sized companies who currently unload less than two containers per hour by either scooping or dumping. Flow rates range from 1.5 to 14 gpm (5.7 to 53 lpm), depending on which SaniForce piston pump is used.

Can be used with SaniForce 2:1, 5:1, & 6:1 ball check piston pumps

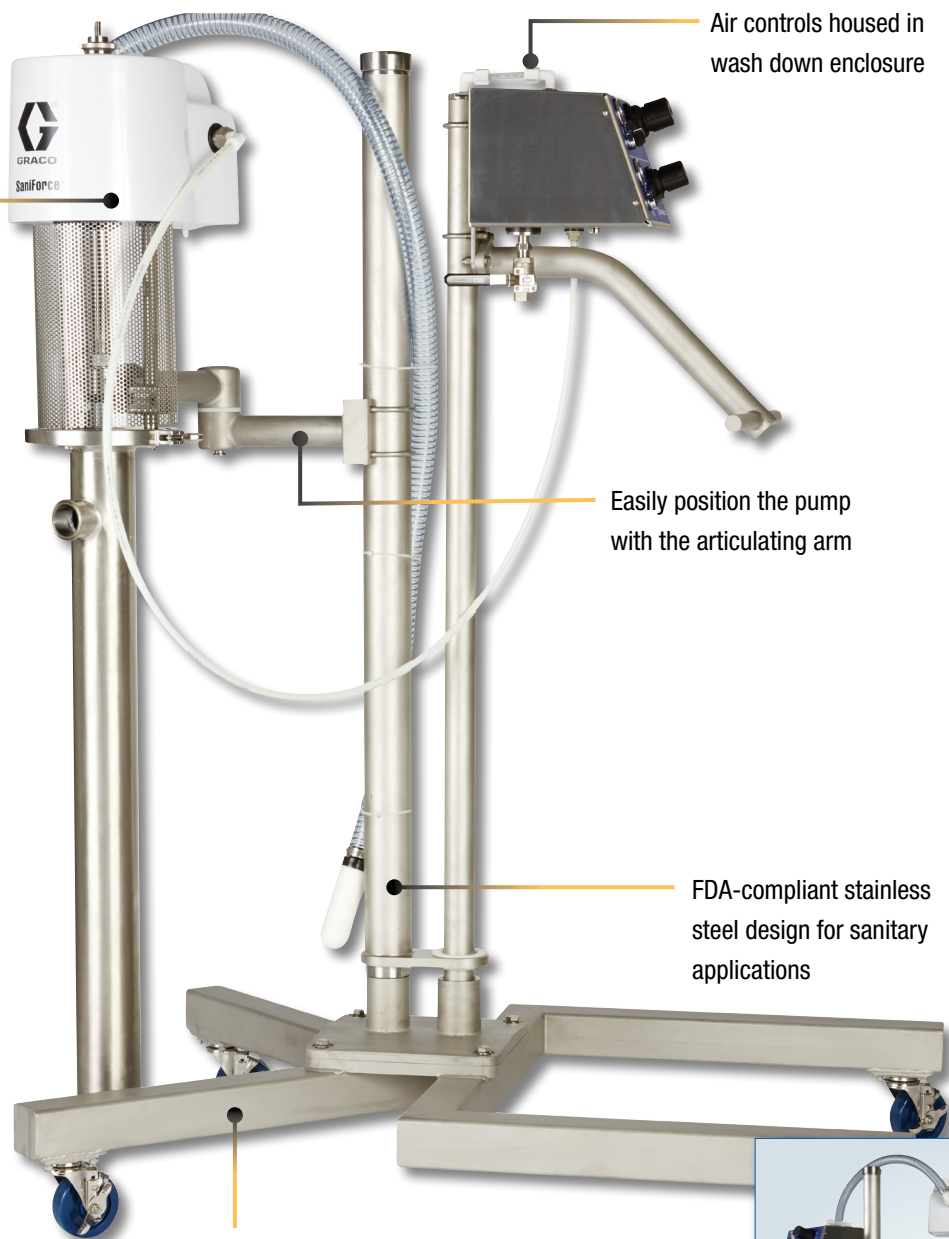
Air controls housed in wash down enclosure

Easily position the pump with the articulating arm

FDA-compliant stainless steel design for sanitary applications

Mobile unit fits around a standard pallet

Stationary unit with base plate mounted to the floor



Hydra-Clean® Pressure Washers

Gas and electric can't be used? Choose the **air-driven or hydraulic** Hydra-Clean pressure washer for your cleaning solution.

Ideal for cleaning and sanitizing food, beverage and pharmaceutical processing facilities, Hydra-Clean pressure washers can be used with hot or cold water, detergents or strong chemical solutions.



A Complete Line of Chemical Transfer Pumps

Graco pumps are a **dependable, easy-to-service** solution for CIP applications.



Husky™ 205 Polypropylene

- 1/4 in (6.3 mm) connection
- Max flow: 5 gpm (19 lpm)



Husky 205 PVDF

- 1/4 in (6.3 mm) connection
- Max flow: 5 gpm (19 lpm)



Husky 307 Polypropylene

- 3/8 in (9.4 mm) connection
- Max flow: 7 gpm (26 lpm)



Husky 515 Polypropylene

- 1/2 in (12.7 mm) connection
- Max flow: 15 gpm (57 lpm)



Husky 515 PVDF

- 1/2 in (12.7 mm) connection
- Max flow: 15 gpm (57 lpm)



Husky 716 SST

- 3/4 in (19.1 mm) connection
- Max flow: 16 gpm (61 lpm)



Husky 1050 Polypropylene

- 1 in (25.4 mm) connection
- Max flow: 50 gpm (189 lpm)



Husky 15120

- 1-1/2 in (38.1 mm) connection
- Max flow: 120 gpm (454 lpm)



Husky 2200

- 2 in (50.8 mm) connection
- Max flow: 200 gpm (757 lpm)

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

Call today for product information or to request a demonstration.
(763-428-5075) or visit us at www.EnDiSys.com.

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