SaniForce™

A complete product line for Food, Beverage and Cosmetics applications

PROVEN QUALITY. LEADING TECHNOLOGY.

SaniForce™

CE 1935/2004 models available

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

SaniForce Pumps:

- Air-operated double diaphragm pumps
- Air-operated and electric piston transfer pumps
- Piston transfer pumps
- Drum and bin evacuation systems
- High pressure cleaning equipment

Models*	Max Flow Rate	Max Fluid Pressure	Pump Style	Suction Lift (Wet)	Max Pumpable Solids	Viscosity Range	Flyer	Manual
515	61 l/min (16 gpm)	7 bar (0.7 MPa, 100 psi)	Ball	7.6 m (25 ft)	2.38 mm (3/32 in)	Up to 10,000 cps	320462	3A1973
1040	151 l/min (40 gpm)	8 bar (0.8 MPa, 120 psi)	Ball	8.84 m (29 ft)	3.2 mm (1/8 in)	Up to 10,000 cps	320462	311879
1040e	132 l/min (35 gpm)	4.8 bar (0.48 MPa, 70 psi)	Ball	8.84 m (29 ft)	3.2 mm (1/8 in)	Up to 10,000 cps	345061	3A3168
1590	340 l/min (90 gpm)	8 bar (0.8 MPa, 120 psi)	Ball	8.84 m (29 ft)	4.8 mm (3/16 in)	Up to 15,000 cps	320462	311879
2150	568 l/min (150 gpm)	8 bar (0.8 MPa, 120 psi)	Ball	8.84 m (29 ft)	6.4 mm (1/4 in)	Up to 20,000 cps	320462	311879
2150e	537 l/min (142 gpm)	6.9 bar (0.69 MPa, 100 psi)	Ball	5.5 m (18 ft)	6.4 mm (1/4 in)	Up to 20,000 cps	3H1120	3A5132
1590 HS & 3-A	340 l/min (90 gpm)	8 bar (0.8 MPa, 120 psi)	Ball	8.5 m (28 ft)	15.9 mm (5/8 in)	Up to 15,000 cps	338499	310622
3150 HS & 3-A	340 l/min (90 gpm)	8 bar (0.8 MPa, 120 psi)	Ball or Flapper	Ball = 5.5 m (18 ft) Flapper = 3 m (10 ft)	Ball = 25.4 mm (1 in) Flapper = 63.5 mm (2.5 in)	Up to 20,000 cps	3384999	310622
Meat/Poultry	568 l/min (150 gpm)	8 bar (0.8 MPa, 120 psi)	Flapper	3 m (10 ft)	63.5 mm (2.5 in)	Up to 20,000 cps	338067	310622
Centrifugal Drum Pump	132 l/min (35 gpm)	3 bar (0.4 MPa, 43 psi)	Centrifugal	N/A	Not recommended	Up to 1,000 cps	3H1116	3A4586
Progressive Cavity Drum Pump	26 l/min (7 gpm)	6 bar (0.6 MPa, 87 psi)	Progressive Cavity	N/A	6 mm (0.25 in)	Up to 100,000 cps	3H1116	3A4586
2:1 Piston Pump	5.7 l/min (1.5 gpm)	17 bar (1.7 MPa, 250 psi)	Double Ball	N/A	3.2 mm (1/8 in)	Up to 50,000 cps	338591	3A2977

515 | 1040 | 1040e | 1590 | 2150 | 2150e | 1590 HS & 3-A | 3150 HS & 3-A | Meat & Poultry | Electric Drum Pump | 2:1 Piston Pump

A Smart Alternative to Hand-mixing

1935/2004 models available

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

SaniForce Pumps and 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
6:1 Piston Pump	15 l/min (4 gpm)	41 bar (4.1 MPa, 600 psi)	Double Ball or Priming Piston	N/A	3.2 mm (1/8 in)	Up to 100,000 cps	338591	3A0733
5:1 Piston Pump	53 l/min (14 gpm)	28 bar (2.8 MPa, 400 psi)	Double Ball or Priming Piston	N/A	6.4 mm (1/4 in)	Up to 100,000 cps	338591	3A0734
12:1 Piston Pump	32 l/min (8.5 gpm)	83 bar (8.3 MPa, 1200 psi)	Priming Piston	N/A	6.4 mm (1/4 in)	Up to 100,000 cps**	338591	3A0735
Piston Pump Elevator	53 l/min (14 gpm)	28 bar (2.8 MPa, 400 psi)	Double Ball	N/A	6.4 mm (1/4 in)	Up to 50,000 cps	345058	333406
Diaphragm Drum Unloaders	Up to 568 l/min (150 gpm)	8 bar (0.8 MPa, 120 psi)	Ball or Flapper	N/A	Ball = 25.4 mm (1 in) Flapper = 63.5 mm (2.5 in)	Up to 100,000 cps	338590	3A0591
Piston Drum Unloaders	Up to 53 l/min (14 gpm)	83 bar (8.3 MPa, 1200 psi)	Double Ball or Priming Piston	N/A	3.2 to 6.4 mm (1/8 to 1/4 in)	Up to 1,000,000 cps with priming piston	338590	3A0591
Diaphragm Bin Evacuation	Up to 1.100 l/min (300 gpm)	8 bar (0.8 MPa, 120 psi)	Ball or Flapper	N/A	Ball = 25.4 mm (1 in) Flapper = 63.5 mm (2.5 in)	Up to 100,000 cps	338589	311163
Piston Bin Evacuation	Up to 212 l/min (56 gpm)	83 bar (8.3 MPa, 1200 psi)	Double Ball or Priming Piston	N/A	6.4 mm (1/4 in)	Up to 1,000,000 cps with priming piston	338589	311163

** Actual performance may vary by application*

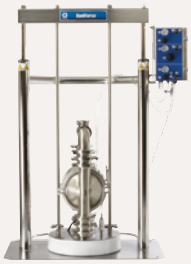
*** When mounted on drum unloader or bin evacuation system*

6:1 Piston Pump

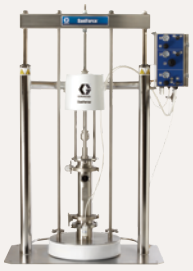
5:1 Piston Pump

12:1 Piston Pump

Piston Pump Elevator



Diaphragm Drum Unloader



Piston Drum Unloader

Diaphragm Bin Evacuation

Piston Bin Evacuation

SaniForce™ Piston Pumps

1935/2004 models available

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 82.5 bar 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 resistent stainless steel for long-lasting durability.

Advanced air motor technology

Available in double ball or priming piston designs

FDA-Compliant Shroud

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

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

SaniForce 2:1 Piston Pump

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

SaniForce 6:1 Piston Pump

- Up to 100,000 cps
- Flow rates up to 15 l/min (4 gpm) 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 53 l/min (14 gpm) 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 32 l/min (8.5 gpm) at 60 cpm
- Stubby length only

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

Common Materials
Fruit juice concentrates
Cream candy fillings
Ice cream variegates
Cosmetics

PISTON

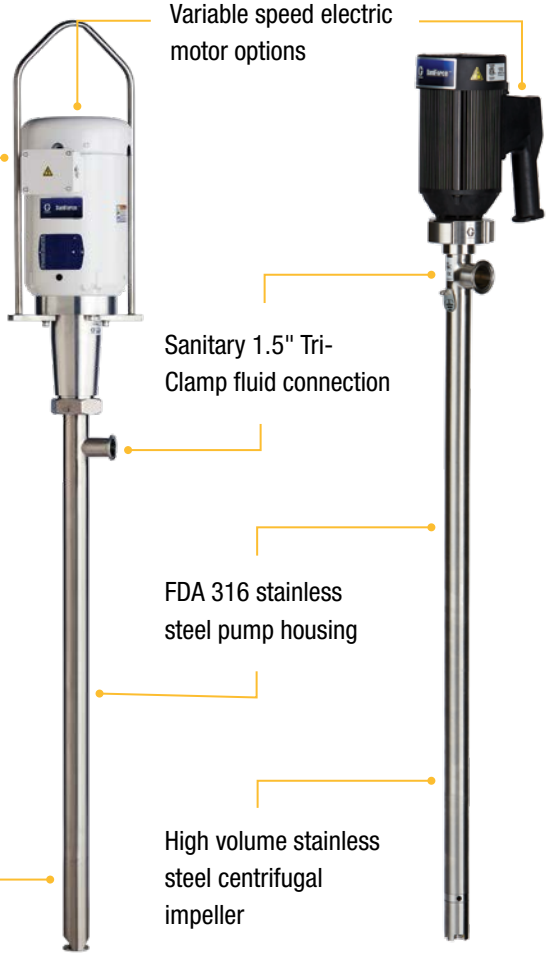
SaniForce Electric Drum Pumps

1935/2004 models available

Save money by increasing efficiency

Reduce downtime at your facility with our quick knock down SaniForce electric 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 fragrences and is adaptable to a multitude of containers such as drums, totes and kettles.



SaniForce Electric Centrifugal Drum Pump

- Can handle up to 1,000 cps
- Flow rates up to 132 l/min (35 gpm)
- Quick knock down pump for easy cleaning

SaniForce Electric Progressive Cavity Drum Pump

- Can handle up to 100,000 cps
- Flow rates up to 26 l/min (7 gpm)
- Quick knock down pump for easy cleaning

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

PROGRESSIVE CAVITY
CENTRIFUGAL

SaniForce™ 515 - 1040 - 1590 - 2150

CE 1935/2004 models available

Graco's **SaniForce** 515, 1040, 1590 and 2150 air-operated diaphragm pumps have one of the **best, most durable, lube-free air valves** in the industry.

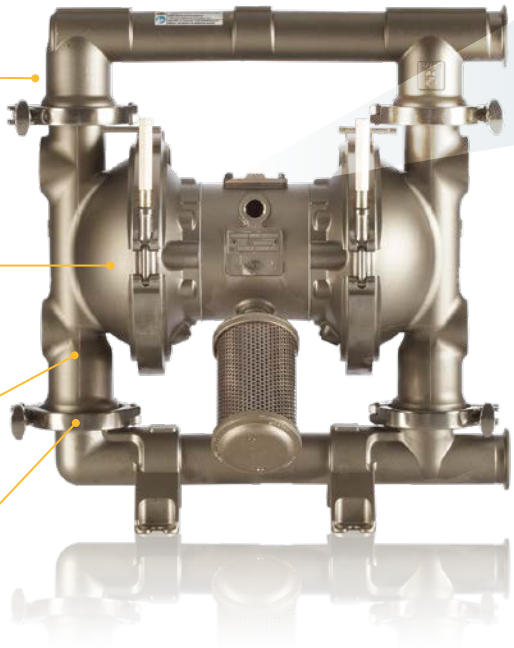
Ideal for applications requiring high flow rates and portability, Graco's dependable diaphragm pumps offer a wide range of food-grade elastomers including Santoprene, PTFE, and overmolded PTFE/EPDM.

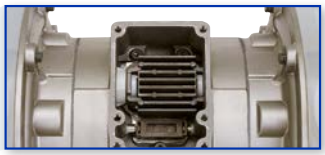
Pump Finish
- Cast 316 SST
- Sanitary shot-blasted wetted sections

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





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

2150
- 63.5 mm (2.5 in) tri-clamp connections
- 50.8 mm (2 in) manifold ID
- Flow rates up to 568 l/min (150 gpm)

1590
- 50 mm (2.0 in) tri-clamp connections
- 38.1 mm (1.5 in) manifold ID
- Flow rates up to 340 l/min (90 gpm)

1040
- 1.5 in (38 mm) tri-clamp connections
- 25.4 mm (1 in) manifold ID
- Flow rates of 151 l/min (40 gpm)

515
- 25.4 mm (1.0 in) tri-clamp connections
- 24.3 mm (0.96 in) manifold ID
- Flow rates of 61 l/min (16 gpm)

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

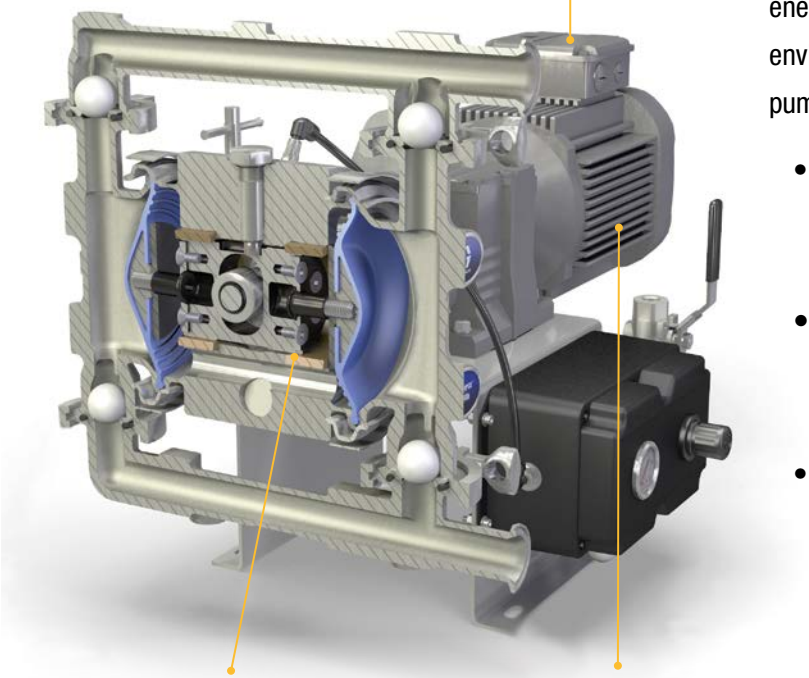
Common Materials
Concentrated fruit juices
Sauces, pastes and starches
Wine
Jams and jellies
Edible Oils

DIAPHRAGM

SaniForce e-series: 1040e - 2150e

1935/2004 models available

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, AC ATEX 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

SaniForce 2150e AC Motor

- 2.5 in sanitary flange or 65 mm DIN 11851
- 3, 5, or 7 HP Motor
- Flow rates of 537 l/min (142 gpm)
- ATEX models available

SaniForce 1040e AC Motor

- 1.5 in sanitary flange or 40 mm DIN 11851
- 2 HP Motor
- Flow rates of 132 l/min (35 gpm)
- ATEX models available

**Available in cart mount and stand alone options*

SaniForce 1040e BLDC Motor

- 1.5 in sanitary flange or 40 mm DIN 11851
- 2.2 HP Motor
- Flow rates of 132 l/min (35 gpm)

Stop Harboring Bacteria!

Graco overmolded the diaphragm plate with PTFE on the fluid side and EPDM on the air side on our **PTFE/EPDM diaphragms** so there is no place to harbor bacteria.

This improves wear, durability and cleanability –making **SaniForce** diaphragm pumps very **easy to clean.**

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

SaniForce™ 1590 and 3150 High Sanitation

1935/2004 models available

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.

32 Ra formed/welded stainless steel with sanitary finish

Maximum flow rates range from 340-568 l/min (90-150 gpm)

Patented, durable, lube-free air valve

Interchangeable flapper and ball check

1590 HS

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

3150 HS

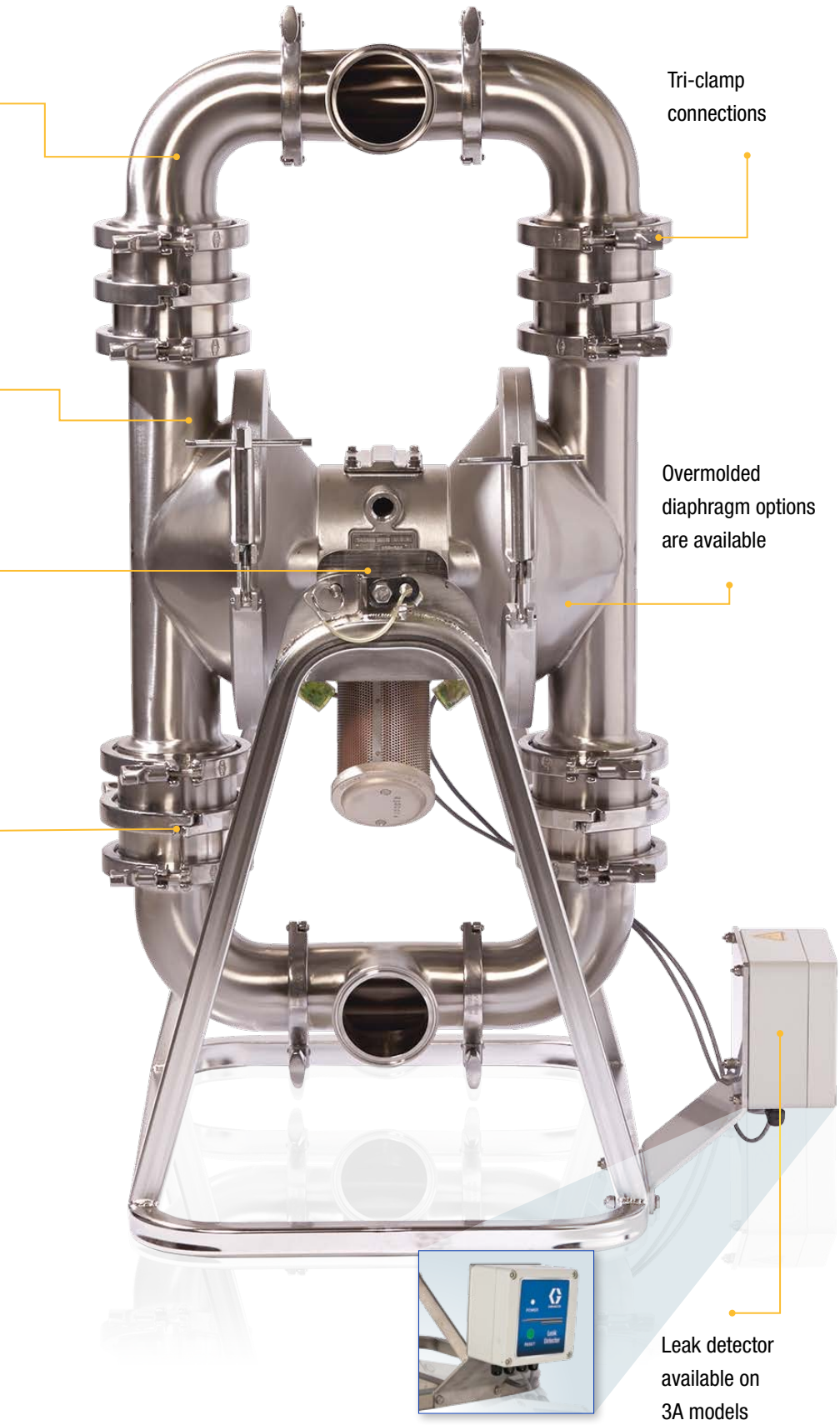
- Up to 101.6 mm (4.0 in) tri-clamp connections
- 73.7 mm (2.9 in) manifold ID
- Maximum flow rates up to 568 l/min (150 gpm)

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

SANITARY

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 6.3 cm (2.5 inches) in diameter and features Graco's durable, non-sticking air valve.

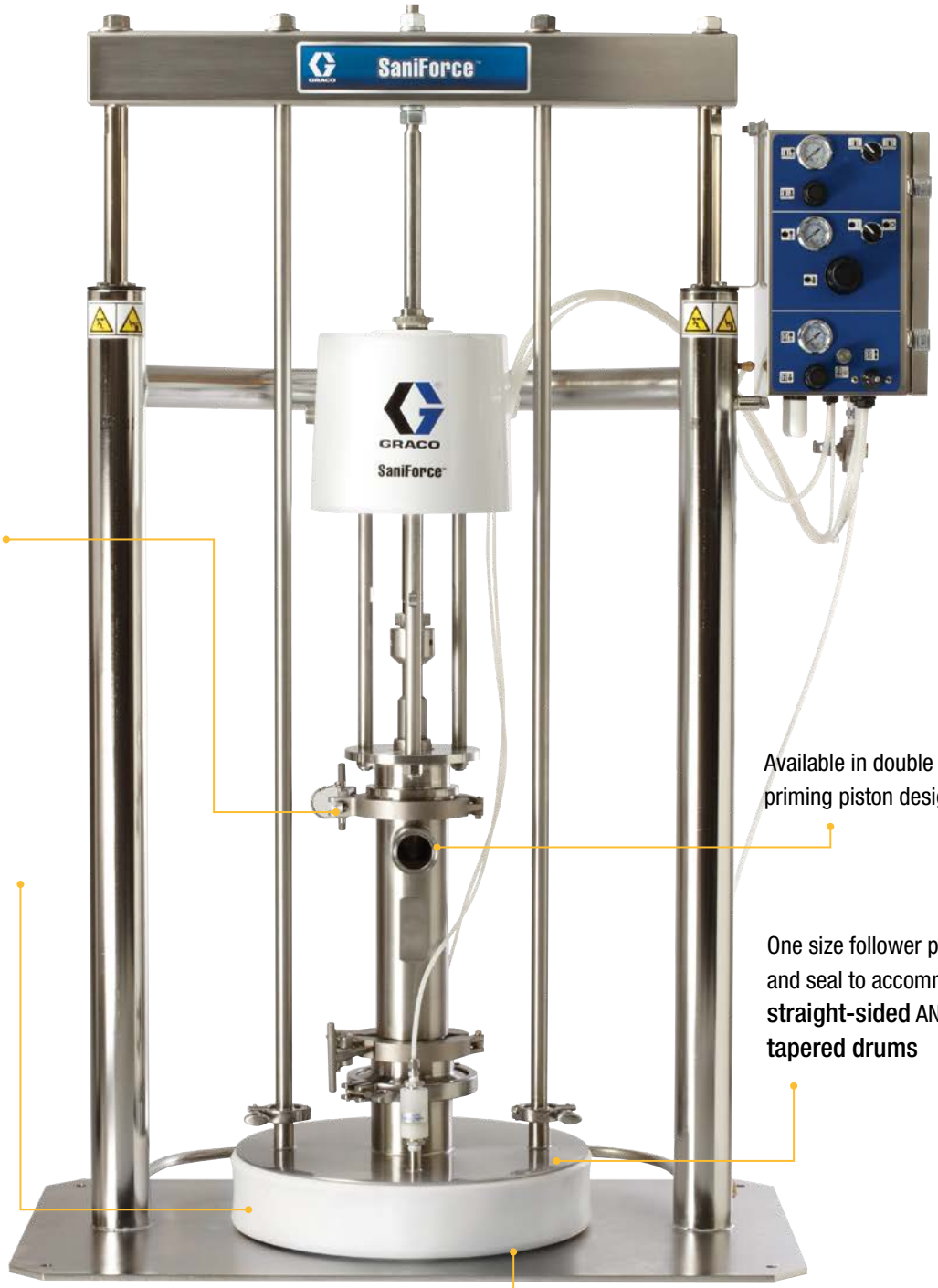
Common Applications	
	Meat and poultry processing
	Pet food manufacturers

SaniForce™ Drum Unloaders

1935/2004 models available

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 208 liter (55-gallon) containers, in less than 5 minutes – without diluting the material.



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 rate

UNLOADING

Configure your own SaniForce Drum Unloading System

It's as easy as 1-2-3.

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

1 Ram Frame Material

300 Series Stainless Steel

OR

Painted Carbon Steel

2 Controls Type

Enclosed Controls*

OR

Exposed Controls

*Available with SST frame only

3 SaniForce Piston Pump

OR SaniForce Diaphragm Pump

SaniForce 6:1

SaniForce 5:1

SaniForce 12:1

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, up to **1,000,000 cps**, from 208 liter (55-gallon) containers without diluting the material

Common Materials

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

SaniForce™ Bin Evacuation Systems (BES)

1935/2004 models available

The **most sanitary way** to unload materials without introducing airborne bacteria!

Save time and money in your facility by unloading materials efficiently from 1.100 liter (300-gallon) “bag-in-bin” containers – eliminating manual scooping or bin dumping.

Complete bin unloading saves water evaporation costs and provides better process control while removing the need for costly booster pumps. Flow rates up to 400 l/min (100 gpm) can easily be achieved on medium to high viscosity products up to 1,000,000 cps.

EVACUATION

- Inflatable wiper seal prevents anything can enter the bin
- Evacuation rate up to 99%
- Unload a bin fast and easy
- Flow rates up to 200l/min for medium to high viscous materials without diluting your material
- Flow rates up to 1,135L/min for low viscous materials

SaniForce 3150 BES
with Diaphragm Pumps

SaniForce BES
with Piston Pumps

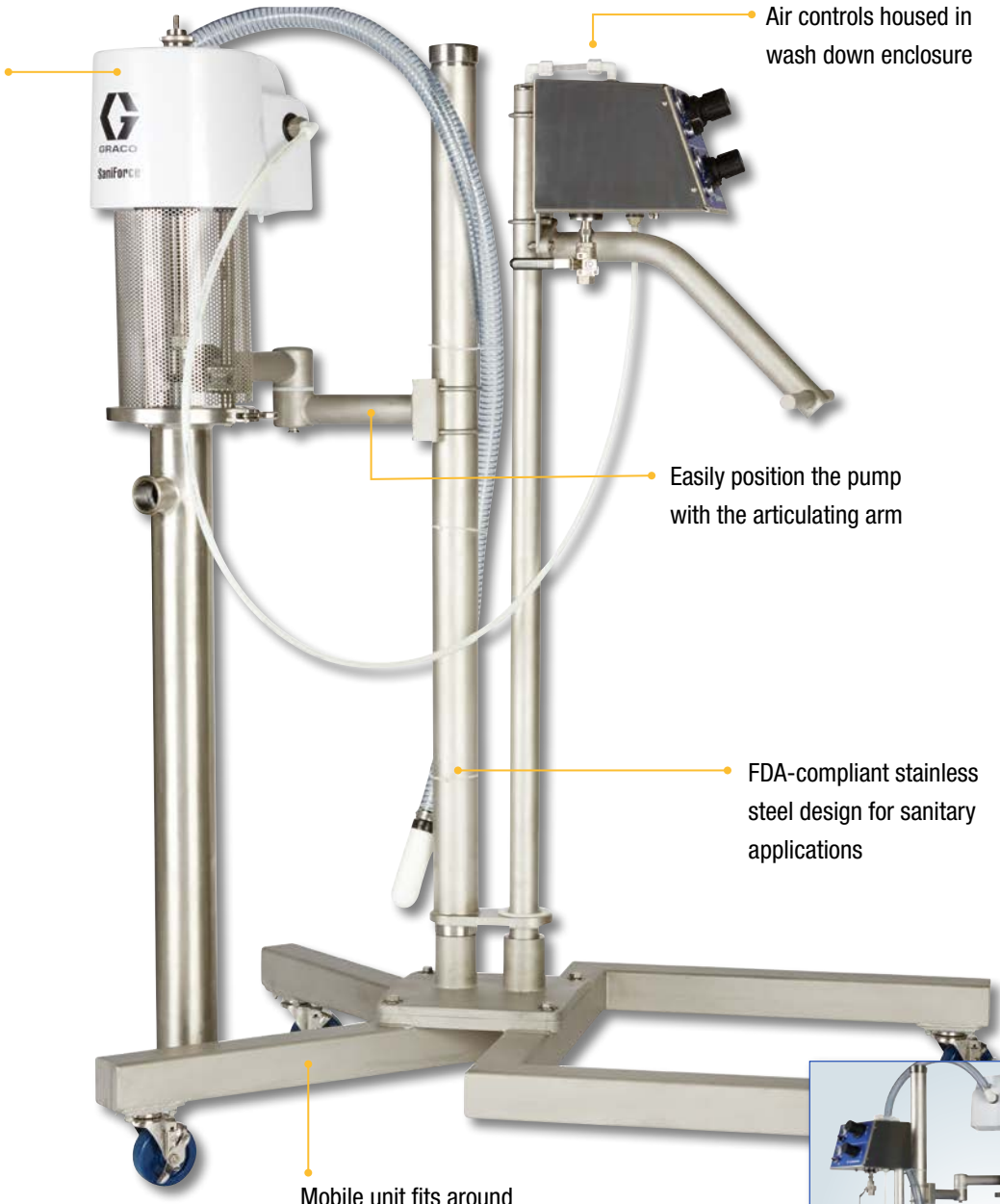
Common Applications	
	Evacuate viscous products from their original 1.100 liter (300-gallon) containers without dilution

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

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 5.7 to 53 l/min (1.5 to 14 gpm), depending on which SaniForce piston pump is used.



Stationary unit with base plate mounted to the floor

ELEVATORS

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.

Available in both wall-mount and cart-mount

Ideal for use with open-head drums

Stainless steel lower is compatible with a variety of chemicals

Hydraulic option

Supports multiple guns

Each package comes standard with five different spray tips

CLEANING

A complete line of Chemical Transfer Pumps

GRACO PUMPS

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

Husky™ 205 Polypropylene

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

Husky 205 PVDF

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

Husky 307 Polypropylene

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

Husky 515 Polypropylene

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

Husky 515 PVDF

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

Husky 716 SST

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

Husky 1050 Polypropylene

- 25.4 mm (1 in) connection
- Max flow: 189 l/min (50 gpm)

Husky 15120

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

Husky 2200

- 50.8 mm (2 in) connection
- Max flow: 757 l/min (200 gpm)

ABOUT GRACO

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company's success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco's ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.

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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.

Graco is certified ISO 9001.

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