

# **A Complete Sanitary Line**

SaniForce® 2.0





# A wide line of fluid transfer solutions for the food, beverage and personal care industry.

With SaniForce® 2.0, Graco provides a fluid transfer solution for almost every application in the food, beverage and personal care industry. Our solutions will save you money, speed up your process, reduce waste and improve safety and hygiene.

### **SaniForce 2.0 Pumps**

The SaniForce double diaphragm pump line consists of five different pump types, available in multiple sizes, that can be electric-operated or air-operated for all kinds of applications in the food, beverage and personal care industry.

Our double diaphragm pumps are designed to last, perform the way you desire, in the easiest and fastest way, with the hygiene you need.

### | Air-Operated pumps |

Designed to pump a broad range of food products with low to medium viscosity. Ideal for applications requiring high flow rates and portability.

- Sizes: ranging from 1/2" up to 4"
- Max flow rate:
   57lpm (15gpm) to 946lpm (250 gpm)
- Viscosity range: up to 25,000 cps

### | Electric-Operated pumps |

Designed to pump a broad range of food products with low to medium viscosity. Ideal for applications requiring high flow rates and portability.

- Sizes: ranging from 1" up to 4"
- Max flow rate:
   132lpm (35gpm) to 537lpm (142gpm)
- Viscosity range: up to 25,000 cps

### | Clean-In-Place (CIP) Pumps |

Designed for a wide range of food, beverage and brewery applications as well as other sanitary environments. Ideal for applications that require frequent clean-in-place activity.

- Sizes: ranging from 1/4" up to 2"
- Max flow rate:
   19lpm (5gpm) to 757lpm (200gpm)









Our SaniForce line also includes pumps and washers to clean and sanitise food, beverage and pharmaceutical processing facilities. The CIP pumps are ideal for applications that require frequent clean-in-place activity and can be configured in various materials to meet most abrasion, temperature and chemical compatibility requirements. The sanitary pressure washers are the quickest, easiest and most efficient method to clean your toughest environments

### | Piston & Drum Pumps |

#### **ELECTRIC DRUM PUMPS**

Designed for the food, beverage and personal care industry to move low to high viscosity fluids.

- Models: centrifugal and progressive cavity configurations
- Max flow rate: 26.5lpm (7gpm) up to 132lpm (35gpm)
- Viscosity range: up to 50,000 cps

#### **PISTON PUMPS**

Designed for food and beverage transfer of low to high viscosity fluids. Ideal to move more extremely difficult material when others cannot

- **Models:** 2:1 5:1 6:1 12:1
- Max flow rate: up to 53 lpm (14 gpm)
- Viscosity range: up to 100,000 cps

### | Pressure Washer |

Designed to operate in hazardous locations as there's no risk of sparking. Available in cart or wall mount.

- Models:
   12:1 23:1 40:1
- Max flow rate: 17.4lpm (4.6gpm) to 34.7lpm (9.2gpm)







# A wide line of fluid transfer solutions for the food, beverage and personal care industry.

### **SaniForce 2.0 Unloaders**

Graco's unloading systems offer the most efficient way to empty your pails, drums, bins and containers in a safe and hygienic way. The extended line gives you solutions for transferring low to exceptionally high viscosity materials (without dilution) and an evacuation rate up to 99%! Every pump is manufactured with your productivity in mind — offering you the most reliable pumps for improved plant efficiency, safety and ergonomics.

### | Pail Unloader |

Designed for medium to high viscosity materials out of 20 to 25 litre pails

- Max flow rate:15 lpm (4gpm)
- Viscosity range: up to 100,000cps

### | Drum Unloader |

#### **DIAPHRAGM DRUM UNLOADERS**

Designed for the food, beverage and personal care industry for unloading medium to high viscosity materials out of 200 litre drums.

- Max flow rate: up to 567.8 lpm (up to 150 gpm)
- Viscosity range: up to 100,000 cps

#### **PISTON DRUM UNLOADERS**

Designed for the food, beverage and personal care industry for unloading medium to high viscosity materials out of 200 litre drums.

- Max flow rate: up to 53 lpm (up to 14 gpm)
- Viscosity range:
   up to 100,000 cps with priming piston









### | Bin Unloader |

#### **DIAPHRAGM DRUM UNLOADERS**

Designed for the food, beverage and personal care industry for unloading medium to high viscosity materials out of 1,000 litre bins.

- Max flow rate: up to 1135.6 lpm (up to 300 gpm)
- Viscosity range: up to 100,000 cps

#### **PISTON DRUM UNLOADERS**

Designed for the food, beverage and personal care industry to move low to high viscosity fluids.

- Max flow rate: up to 212 lpm (up to 56 gpm)
- Viscosity range: up to 1,000,000 cps with priming piston



# SaniForce® 2.0 Air-Operated Double Diaphragm Pumps

SaniForce® 2.0 Air-operated double diaphragm (AODD) pumps are designed to tackle rigorous, continuous use with high flow rates and portability. They are manufactured with your productivity in mind – providing you with one of the most reliable pumps in the market.

#### Stalling under pressure

The pumps can stall under pressure preventing pump failures from clogged lines or closed valves.

#### **Runs dry**

Seal-less diaphragm pump design eliminates leaking and failures due to run-dry pump conditions.

#### **Simple Durable Pump Design**

Our double diaphragm pump consists of as few parts as possible and a large fluid cavity for easy cleaning and maintenance, lowering the total cost of ownership

#### SaniForce® 2.0 Overmoulded Diaphragms

These diaphragms prevent bacteria growth by eliminating any areas that product can get trapped in and bacteria can grow.

#### Externally serviceable air valve

SaniForce air valves have a lube free, non-sticking design with external serviceability for quick, inexpensive repairs.

#### **Tri-Clamp Connections**

The tri-clamp connections offer a quick knockdown design for easy cleanability and a swift maintenance process.

#### **Flapper Check Options**

The AOOD pumps are available in both ball and flapper check design. The flapper check design ensures product quality is not damaged or compromised, resulting in proper transfer of medium to large particles.

#### **Leak Detector Options**

Thanks to our leak detector you know immediately when your precious product is leaking.

#### **Pump Stands**

The optional rotating stand allows quick maintenance and easy draining of the pump without disassembly.







# SaniForce® 2.0 Electric Operated Double Diaphragm Pumps

Graco's SaniForce® 2.0 unique Electric Operated Double Diaphragm pumps combine the advantages of an Air Operated Double Diaphragm Pump like self-priming, stalling under pressure, and increased diaphragm life with the efficiency of an electric drive.

Graco's unique electric operated diaphragm pumps are designed to increase a facility's energy efficiency and create a quieter, cleaner work environment for employees. SaniForce electric operated double diaphragm pumps are designed to eliminate unnecessary pump failures in the most demanding applications. Patent pending technology allows the pumps to stall under pressure, preventing pump failures from clogging or closing lines. Their seal-less diaphragm pump design eliminates leaking and failures due to run-dry pump conditions. The energy efficient electric drive reduces energy consumption up to 5x compared to traditional air-operated diaphragm pumps and they decrease a facility's reliance on compressed air.

#### **Electric Drive**

Electric options are up to 80% more efficient than AODD pumps and also save on maintenance costs.

#### **Patent Pending Air Charged Drive**

Increase diaphragm life without compromising your fluid no hydraulic charge, so no risk of contamination. Less noise disturbance through less than 70 dBa compared to an air operated diaphragm pump

#### **Durable Pump Technology**

Handles the most difficult materials without damaging the pump on the one hand, but is also gentle on shear sensitive material on the other hand.

Electric models offer worry free pump design without rotatable seal prevents leaking and need for flushing.

#### Automation

Our EODD pumps are provided with an easy to operate Graco Motor Control or VFD control panel, depending on your motor choice.

A fully automated sequence is possible with AC motor: thanks to PLC integration hands-free unloading becomes reality.

#### **Optional**

Mobile cart options available for easy and quick movement.





# SaniForce® 2.0 Food Grade Pumps

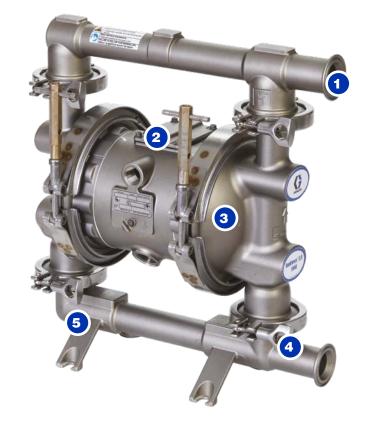
The SaniForce® 2.0 Food Grade pumps meet the strict FDA guidelines, well-known for sanitary process applications. The full line of Food Grade Pumps also complies with all CE, 1935/2004/EC and ATEX requirements.

Increase durability and reduce repair time with fewer moving parts.

- Externally serviceable for quick, inexpensive repairs
- · Designed for rigorous, continuous use with quick knockdown design for easy cleanability and sanitation
- · Ideal for applications requiring high flow rates and portability



- Cast 316 SST
- · Sanitary wetted sections
- 125 Ra finish
- 2 Externally serviceable air valve
- Bolt-through and overmoulded diaphragm options available
- 4 Tri-clamp inlet and outlet connections
- Clamped fluid section for easy cleaning, sanitisation, and service



Sizes	Ranging from 1 1/2" up to 2"
Flow rates	From 60.5lpm (16gpm) up to 681lpm (180 gpm)
Viscosity	Up to 25,000 cps
Fluid pressure	8 bar (120psi, 0.8MPa)
Maximum pumpable solids	Up to 4.6mm (1/4 inch)



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

# SaniForce® 2.0 Pumps

#### **Large Particles Pumps**

The SaniForce Large Particle Pump line is designed to handle solids up to 9.63cm without crushing or damaging the material. They are ideal for transferring meat and poultry, fruit filling materials, ice cream variegates, and more.

### **High Sanitation Pumps**

Designed to meet the stringent sanitation requirements for the most rigorous food, beverage, personal care & pharmaceutical transfer applications.

#### Built to handle solids up to 9.63 cm

- Easy to clean tri-clamp connections for a quick knockdown design
- Durable pump design construction to handle particulates and abrasives in material without damage to pump
- 3 and 4 inch sizes available in both air and electric operated models

### Easy to clean and sanitise pump for high care applications

- Fewer areas for food & bacteria to hide for increased sanitation and easier cleaning
- Three-way pilot valve for non-stick operation
- · Externally serviceable for quick, inexpensive repairs
- 1 and 2 inch sizes available in both air and electric operated models





Handles solids up to 9.63cm without crushing or damaging material





Sizes	Ranging from 1" up to 3"
Flow rates	From 152lpm (16gpm) up to 946lpm (250gpm)
Viscosity	Up to 25,000 cps
Fluid pressure	8 bar (120psi, 0.8MPa)
Maximum pumpable solids	Up to 63.5 mm (2.5 inch)

# SaniForce® 2.0 Pumps

#### **3A Pumps**

The SaniForce 3A pump line is designed to handle applications requiring 3A certification such as dairy, yoghurt, cottage cheese & ice cream ingredient transfer.

# 3A certified diaphragm pump for handling dairy safely and effectively

- Single piece manifold reduces clamps and areas for food/ bacteria to hide for easier cleaning
- Three-way pilot valve for non-stick operation
- · Leak sensors installed with optional control box
- · 2 inch size available in both air & electric operated models

#### **Pharmaceutical Pumps**

The SaniForce Pharmaceutical Pump line is designed to meet pharmaceutical grade sanitation requirements to handle applications such as bio pharmaceuticals, medical lotions and creams, organic reagent, blood products, and alcohol and solvent transfer.

#### **Pharmaceutical Pumps**

- Single piece manifold reduces clamps and areas for food/ bacteria to hide for easier cleaning
- Externally serviceable for quick, inexpensive repairs
- 20Ra electropolished finish
- 1 and 2 inch size available in both air & electric operated models



Sizes	Ranging from 1" up to 3"
Flow rates	From 379lpm (100gpm) up to 946lpm (250gpm)
Viscosity	Up to 25,000 cps
Fluid pressure	8 bar (120psi, 0.8MPa)
Maximum pumpable solids	Up to 63.5 mm (2.5 inch)

Sizes	Ranging from 1" up to 3"
Flow rates	From 151lpm (40gpm) up to 946lpm (250gpm)
Viscosity	Up to 25,000 cps
Fluid pressure	8bar (120psi, 0.8MPa)
Maximum pumpable solids	Up to 63.5 mm (2.5 inch)

# SaniForce® 2.0 Drum Pumps

Graco's SaniForce® 2.0 line of Electric Drum Pumps is designed for the food, beverage and personal care industry to move low to high viscosity fluids. The pumps' lightweight design makes it easy to move them between drums and increases your facility output.

- Transfer from drum to drum of low, medium and high viscosity fluids up to 100,000 cps
- Flow rates up to 132 lpm (35 gpm)
- Easily transferable and adaptable
- All 316 Stainless Steel wetted section

#### **HOW IT WORKS**

Drum pumps consist of a vertical shaft inside a narrow tube which fits inside the drum opening. The pump motor is attached to the vertical shaft at the top of the tube outside and above the drum. The pumping element is located at the end of the shaft inside the drum, sucking up the content in the drum. This configuration allows the drum to be emptied without tipping and so reduces the risk of spills and operator injury.

### Simple, Hygienic Design

Our electric drum pumps are designed with minimal or no moving parts at all for easy cleaning plus reducing maintenance and downtime.

#### Multiple pump sizes.

You can choice from different pump sizes allowing you to adapt the pump according to the size of your container.

### Variable speed electric motor options

The variable speed electric motors give you the flexibility to operate your drum pump anywhere in your facilities. Simply plug it in and it's ready within minutes for transfer.

#### Centrifugal or progressive cavity configurations

Use the centrifugal option when a high flow rate is needed for low to medium viscosity fluids. Use the progressive cavity option when a consistent amount of high-pressure is needed at the outlet for handling liquids containing solids & highly viscous liquids.



# SaniForce® 2.0 Piston Pumps

Graco's SaniForce® 2.0 line of Piston Pumps provides proven quality and leading technology. With a fluid pressure up to 82.7 bar these pumps are ideal to more extremely difficult materials when others cannot.

- Food and beverage transfer and supply of low to high viscosity fluids up to 100,000 cps
- Flow rates ranging from 5.7 lpm to 53 lpm (1.5 gpm to 14 gpm)
- · Bin length, drum length and stubby options available
- Double-ball and priming piston designs

#### **HOW IT WORKS**

A piston pump uses a mechanism to create a reciprocating motion along an axis, which then builds pressure in a cylinder or working barrel to force gas or fluid through the pump. The pressure in the chamber actuates the valves at both the suction and discharge points.



Our Piston pumps consist of as few parts as possible, for easy cleaning and maintenance.

**Advanced Air Motor** 

The air motors improve serviceability, increase efficiency and offer a lower cost of ownership.

FDA-Compliant Shroud

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

**Quick Knockdown Lowers** 

The quick knockdown lowers are made with corrosion resistant stainless steel for long-lasting durability and fast and easy cleaning





Graco's SaniForce® 2.0 Elevator is an articulating arm allowing you to easily unload small batches of fluids.

This is ideal for small and medium sized companies who currently unload by scooping or using chains/hoists.

Available in mobile or stationary option.

# SaniForce® 2.0 Pail Unloader

Graco's Pail Unloader is specially designed for medium to high viscosity materials out of 20 to 25 litre pails. The 6:1 priming piston pump design ensures an evacuation rate up to 99% and the portable, stainless steel construction allows easy maintenance and an overall improved ergonomic work environment.

- · Self-priming and run dry capability
- Full 316 Stainless Steel wetted section
- Flow rates up to 15 lpm (3.9 gpm)

#### **HOW IT WORKS**

Once the pail is put in place, the plate with wiper seal is lowered into the pail, hermetically sealing the bucket. When the pumping starts the product is moved out of the pail and the plate travels down, scraping product from the sides. After the pail is emptied the plate and pump can get lifted out by simply switching a button.

### Tri-clamp connections

The Tri-Clamp connections on the pail unloader make it possible to quickly disconnect the pump lower for cleaning and maintenance purposes.

#### Plate design

The follower plate is designed with a static wiper seal, minimising product waste by scraping the products from the side of the pail.

The wiper seals are available in PTFE and Buna, providing a solution for almost all food, beverage and personal care applications.

#### 3 Sealed Product

When the pail unloader is used, the product is hermetically sealed and guided from beginning to end, preventing product contamination.

#### 4 Portable

This small, lightweight unit is equipped with wheels making it easy to move around the factory.



# Which type of pump works best for your application?

Graco's drum and bun unloaders offer the most efficient way to empty your drums, bins and containers. The extended line gives you solutions for transferring low to exceptionally high viscosity materials (without dilution) and an evacuation rate up to 99%! Every pump is manufactured with your productivity in mind – offering you the most reliable pumps for improved plant efficiency, safety and ergonomics.



#### | PISTON PUMP |

- When the material has a high viscosity e.g. a viscosity between 35,000 & 500,000 cps.
- Use a priming piston when viscosity exceeds 250,000 cps
- When material needs to be pumped for a longer distance e.g. 10 meters
- When the transfer line has many elbows or has a small diameter line that causes too much pressure drop



#### | DOUBLE DIAPHRAGM PUMP |

- When the material has a low to medium viscosity e.g. a viscosity between 35,000 & 100,000 cps
- When large particles, such as diced tomatoes need to be transferred
- When high flow rates are required

# SaniForce® 2.0 Drum Unloader

Graco's new Drum Unloader is specially designed for the food, beverage and personal care industry for unloading medium to high viscous materials out of 200 litre drums. Our drum unloaders are available with double diaphragm or piston pump.

- Evacuation rate up to 99%
- Available in double ball or priming piston design
- · Unload materials from straight-sided or tapered drums
- Sanitary flange clamps for quick disassembly

#### **HOW IT WORKS**

Once the drum is placed below the drum unloader, the ram plate and pump is lowered into the drum, just above the product. Then the seal is inflated to hermetically seal the drum. When the pumping starts, the product is moved out of the drum and the plate with inflatable seal travels down, scraping product from the sides of the drum. After the drum is emptied the plate and pump can get lifted out by simply switching a button.

#### Product care

When using the drum unloader the product is hermetically sealed and guided from beginning to end, excluding any external contamination.

2 Maintenance & Ease of use

Our unit is equipped with drum locators for easy positioning and many unloader options to speed up the process.

3 Control Panel with Automation options

We provide Electro-Pneumatic controls with HMI connection which is loaded with features and a fully automated sequence.

- Fully Automated Unloading Sequence
- Ingredient / Recipe Storage
- Pump Prime Feature
- · Batch output control
- Ram Jog Feature

4 Hygiene

The drum unloaders are designed with cleanability in mind offering sloped control top, laser etched graphics and a simple design



The safety locks prevent possible injuries



# SaniForce® 2.0 Bin Unloader

Graco's new Bin Evacuation System is specially designed for the food, beverage and personal care industry for unloading medium to high viscous materials out of 1,000 litre bins. Our Bin Evacuation System is available with double diaphragm or piston pump.

- Evacuation rate up to 99%
- Available in double ball or priming piston design
- · Sanitary flange clamps for quick disassembly

#### **HOW IT WORKS**

Once the bin is placed below the BES, the ram plate and pump is lowered into the bin, just above the product. Then the seal is inflated to hermetically seal the bin. When the pumping starts, the product is moved out of the bin and the plate with inflatable seal travels down, scraping product from the sides of the drum. After the drum is emptied the plate and pump can get lifted out by simply switching a button.

### Ram Plate

Unique floating ram plate, bin guidelines & end gate with backstop eliminates the need for exact positioning of bins under the ram plate

2 Control Panel with Automation options

We provide Electro-Pneumatic controls with HMI connection which is loaded with features and a fully automated sequence.

#### **Corner Bag Retainer**

We provide a corner guide bag retainer, so the bag easily stays in place while pumping.

3 Easy Maintenance

drums

No need to take off the full pump while cleaning, easily hang the air motor on the hanger and only take off the lower.

The tri-clamp connection offers an easy and fast cleaning solution for the drum unloader.

Due to our new safety latches you can lock the follower plate when you are not using the unit, preventing any possible injuries when working under the plate or when changing



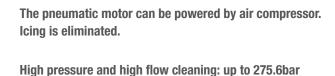
# Hydra-Clean Pressure Washer

Powered by air, Graco's Hydra-Clean Pressure Washers are designed to operate in hazardous locations because there's no risk of sparking. Our sanitary pressure washers are the quickest, easiest and most efficient method to clean your toughest environments.

- · Great for high pressure cleaning and sanitising
- Fits most pressure, flow and material requirements
- Spray down portability
- · Use with open-head universal drums
- · Available in wall-mount, cart-mount and drum-mount

#### **HOW IT WORKS**

Pneumatic power washers or commonly known as air pressure washers are unique by the virtue of how the pump is powered. The entire system does not require electricity or gas to produce pressurised water. A simple air driven motor is used to turn the pump on which conversely converts an ordinary garden hose pressure into a powerful up to 296.5bar. Air pressure washers are economical and easy to operate. The greatest advantage is its quiet operation and ability to use it in applications where gas and diesel powered machines are prohibited due to hazardous conditions



and 34lpm

Supports two guns on one unit at the same time for multiple operators

Efficient cleaning with hot or cold water, detergent or chemical solutions up to 93C° (200°F)

The optional hose reel kit easily mounts on any new or existing cart- or wall-mount unit

The durable 300 series stainless steel piston pump will not corrode with chemical, abrasives or in harsh environments



# Clean-in-Place Pumps

Graco Clean-In-Place (CIP)pumps are designed for a wide line of food, beverage and brewery applications, as well as other sanitary environments. Ideal for applications that require frequent clean-in-place activity. Our CIP pumps have no exposed metals and can be configured in various materials to meet most abrasion, temperature and chemical compatibility requirements.

- · Easy-to-clean thanks to the quick knockdown features and smooth, flat surfaces
- FDA-complaint
- High-flow rates
- · Reduced repair times thanks to fewer moving parts

#### **HOW IT WORKS**

**Clean-in-place (CIP)** is a method of cleaning the interior surfaces of process equipment without disassembly. These systems circulate cleaning liquids in a cleaning circuit through machines, processing lines and other equipment. CIP can achieve efficient cleaning of processing plants with a choice of tank sizes, depending on requirements

Graco has a complete line of chemical transfer pumps. Sizes range from 1/4" up to 2" and are available in various materials.





#### **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 ensures the continued provision of innovative solutions to a diverse global market.

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