



Pumping Solutions

SaniForce® 2.0



PROVEN QUALITY. LEADING TECHNOLOGY.

Air- and Electric Operated Double Diaphragm Pumps

Graco presents a wide range of solutions for food, beverage and personal care applications. Our double diaphragm pumps are designed with your productivity in mind, offering safe and easy handling while meeting the highest standards and requirements in the industry.

The SaniForce Double Diaphragm pump range exists of five different pump types, available in multiple sizes, that come in air-operated and electrically driven designs. Each pump is thoroughly tested before it leaves our factories.



| FOOD GRADE |

Designed for general food and beverage transfer applications such as juices, sauces, condiments and light lotions.

- Surface finish: 125 Ra
- Available sizes ranging from 1/2" up to 2"
- Air and Electric driven options
- Flow Rates:
up to 681 lpm (180 gpm)



| HIGH SANITATION |

Designed for high care applications such as cosmetics, shampoo and personal care products.

- Surface finish: 32 Ra
- Available sizes ranging from 1" up to 3"
- Air and Electric driven options
- Flow Rates:
up to 946 lpm (250 gpm)





| 3A APPROVED |

Designed for 3A applications such as dairy, yogurt and cottage cheese.

- Surface finish: 32 Ra
- Available sizes ranging from 1" up to 3"
- Air and Electric driven options
- Flow Rates:
up to 946 lpm (250 gpm)



| LARGE PARTICLES |

Designed for large particle transfer such as boiled eggs, meats and poultry applications.

- Surface finish: 32 Ra
- Available sizes ranging from 1 1/2" up to 4"
- Air and Electric driven options
- Flow Rates:
up to 491 lpm (130 gpm)



| PHARMACEUTICAL |

Designed for ultra-high care and bio pharmaceutical applications such as medical creams and solvent transfer.

- Surface finish: 20 Ra
- Available sizes ranging from 1" up to 3"
- Air and Electric driven options
- Flow Rates:
up to 946 lpm (250 gpm)

SaniForce® Air-Operated Double Diaphragm Pumps

SaniForce air-operated double diaphragm 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.

SELF-PRIMING

AODD pumps feature strong suction and don't need any fluid, making the chance of damaging much smaller.

STALLING UNDER PRESSURE

Patent pending technology allows pump to 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 little parts as possible and a large fluid cavity, so the pump can be cleaned and maintained in minutes. The rugged construction resists corrosion for reliable performance and the overall cost of ownership lowers.

A SURFACE FINISH FOR MOST APPLICATIONS

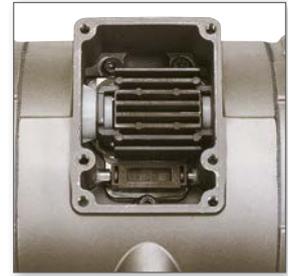
Graco's wide range of SaniForce double diaphragm pumps offers a solution for almost every application with surface roughnesses ranging from 120 Ra up to 20 Ra.

SANIFORCE OVERMOULDED DIAPHRAGMS

Increase your plant's efficiency with Graco's overmoulded diaphragms. All SaniForce pumps are available with our signature overmoulded diaphragms. These diaphragms prevent bacteria growth by eliminating any areas that product can get trapped in and bacteria can grow.

- With PTFE on the fluid side and EPDM on the air side on our PTFE/EPDM diaphragms, SaniForce diaphragm pumps are 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





EXTERNALLY SERVICEABLE AIR VALVE

With fewer moving parts and complete external serviceability, SaniForce air valves offers leading efficiency and less downtime. The lube free, non-stick design is one of most hygienic options on the market.

TRI-CLAMP CONNECTIONS

All SaniForce diaphragm pumps are equipped with inlet and outlet tri-clamp connections, offering a quick knockdown design for easy cleanability and a swift maintenance process.

FLAPPER CHECK OPTIONS

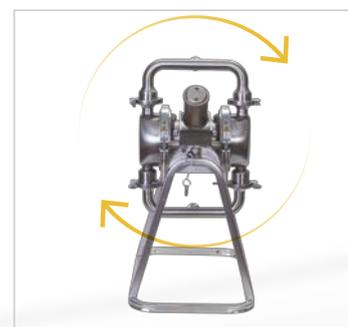
The air-operated diaphragm pumps are available in both ball and flapper check design. The flapper check design provides a delicate, shear-sensitive operation and gently transfers products. This low-shear operation ensures product quality is not damaged or compromised, resulting in the proper transfer of medium to large particles.

LEAK DETECTOR OPTIONS

Thanks to our leak detector you take no risk: you know immediately when your precious product is leaking. The leak detector also contributes to the 3A certificate, as well as the rotating stand and the possibility to disassemble all parts.

PUMP STANDS

Graco offers an optional rotating stand for quick maintenance and to easily draining the pump without disassembly.



SaniForce® Electric Operated Double Diaphragm Pumps

Graco's SaniForce 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.

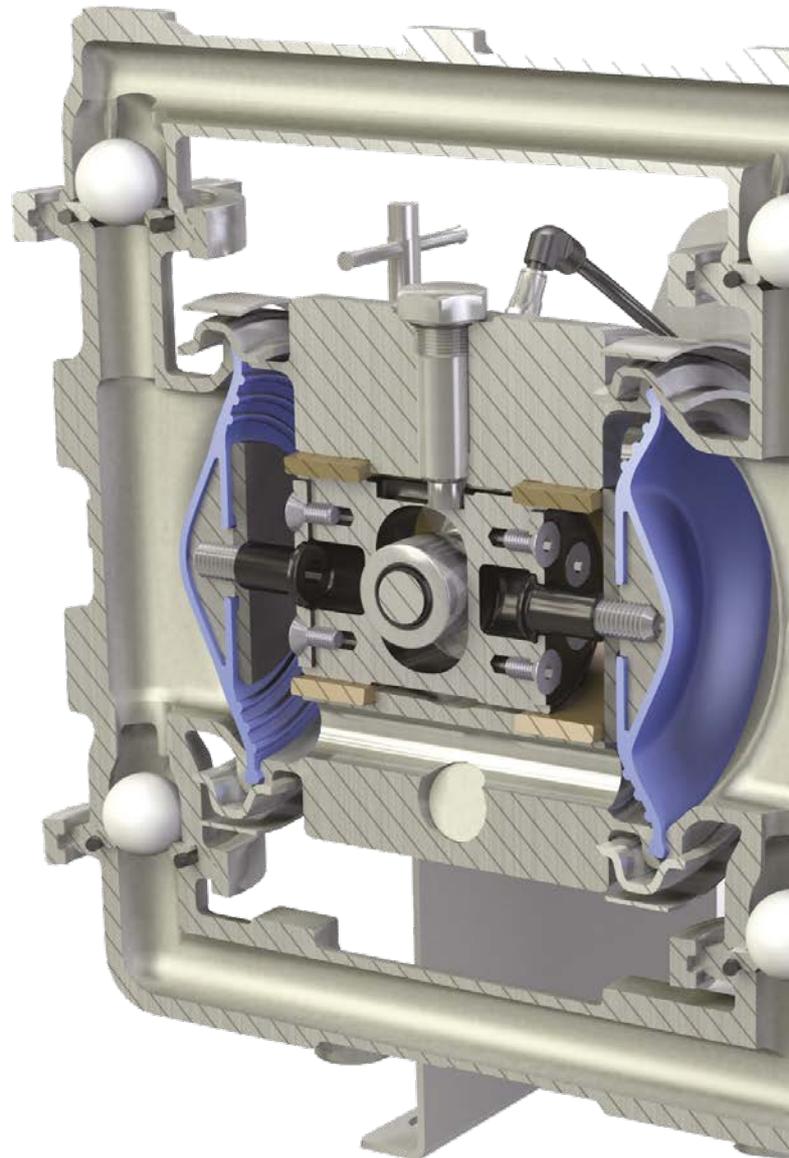
Graco's unique electric operated diaphragm pumps are designed to increase a facility's energy efficiency and create a quieter, cleaner work environment for employees.

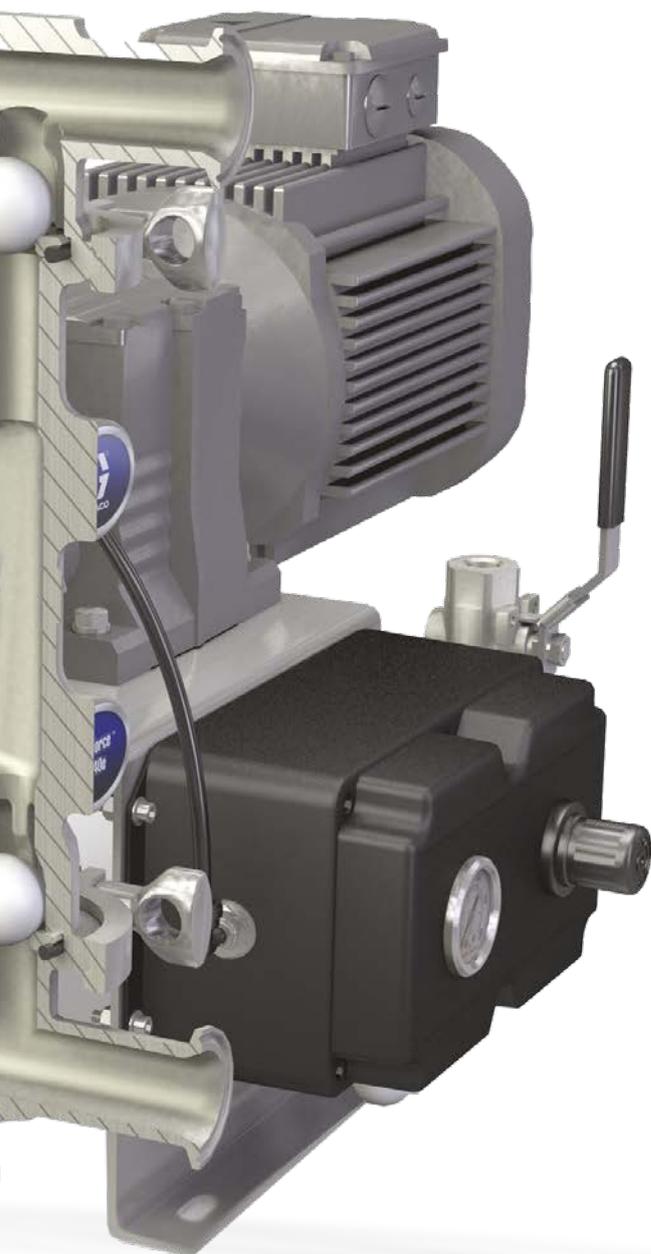
SaniForce electric operated double diaphragm pumps are designed to eliminate unnecessary pump failures in the most demanding applications. Patent pending technology allows the pumps to stall under pressure, preventing pump failures from clogging or closing lines.

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.

HOW IT WORKS

Different than an air-operated diaphragm pump this pump uses an electric drive instead of compressed air to move the diaphragms. The centre section is filled with pressurised air and is mechanically moved left/right by the motor, pushing and pulling the diaphragms from left to right. This back-and-forth motion forces liquid out of one chamber into the outlet manifold, while filling the opposite fluid chamber via the inlet manifold.





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.

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 a worry free pump design without rotatable seal, thus preventing leaking and need for flushing

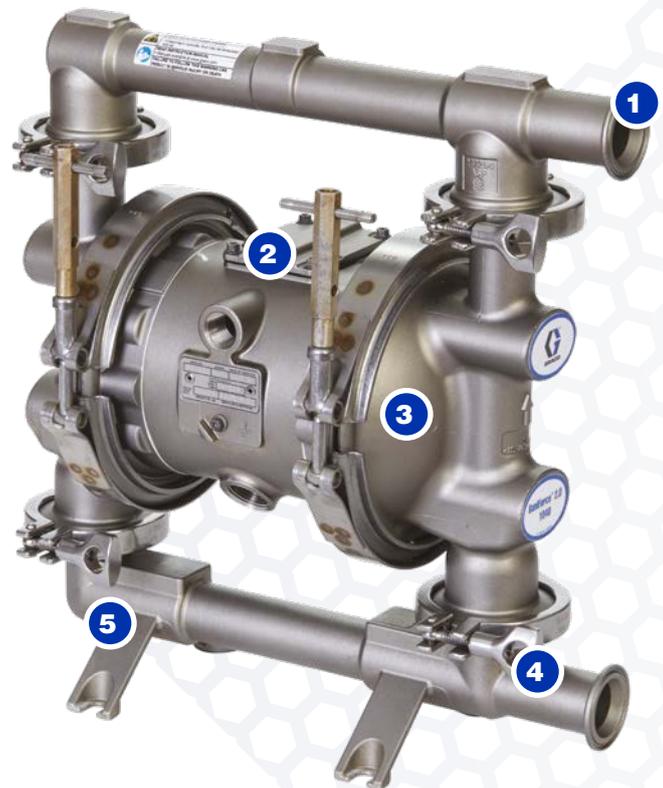
SaniForce® Food Grade Pumps

The SaniForce Food Grade pumps meet the strict FDA guidelines, well-know for sanitary process applications. Further does the full range of Food Grade Pumps comply 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

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



	SaniForce FG 515	SaniForce FG 1040	SaniForce FG 1040e	SaniForce FG 1590	SaniForce FG 2150
Max. Flow rate	57 lpm (15 gpm)	151 lpm (40 gpm)	132 lpm (35 gpm)	341 lpm (90 gpm)	568 lpm (160 gpm)
Max. Fluid pressure	7 bar (100 psi, 0.7MPa)	7 bar (100 psi, 0.7MPa)	4.8 bar (70 psi, 0.48 MPa)	8 bar (120 psi, 0.8 MPa)	8 bar (120 psi, 0.8 MPa)
Max. Pumpable solids	2.4 mm (3./32")	2.4 mm (3./32")	3.2 mm (1/8")	4.8 mm (3/16")	6.4 mm (1/4")
Viscosity range	Up to 5,000 cps	Up to 10,000 cps	Up to 10,000 cps	Up to 15,000 cps	Up to 25,000 cps

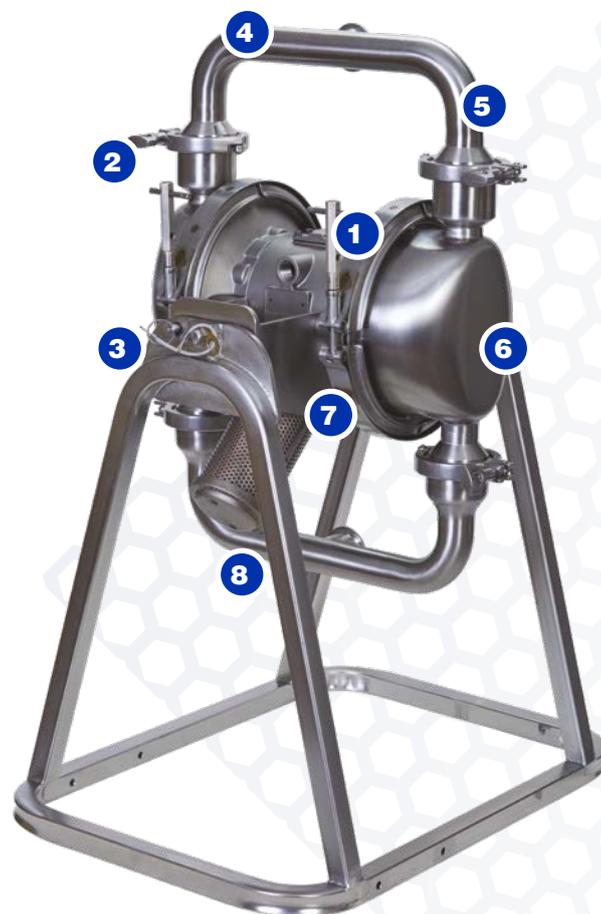
SaniForce® High Sanitation Pumps

The SaniForce High Sanitation pumps are designed to meet stringent sanitation requirements for the most rigorous food, beverage, personal care and pharmaceutical transfer applications.

Easy to clean and sanitise pump for high care applications.

- Fewer areas for food and bacteria to hide for increased sanitation and easier cleaning
- Three-way pilot valve for non-stick operation
- Externally serviceable for quick, inexpensive repairs

- 1 Patented, durable, lube-free air valve
- 2 Tri-clamp and DIN connections
- 3 32 Ra formed/welded stainless steel with sanitary finish
- 4 316 L SST Construction
- 5 Single piece manifold reduces clamps and areas for food/bacteria to hide
- 6 Overmoulded and bolt in diaphragm options are available
- 7 Leak detector available on HS models
- 8 Improved fluid path improves cleanability and sanitisation



	SaniForce HS 1040	SaniForce HS 1040e	SaniForce HS 1590	SaniForce HS 2150	SaniForce HS 2150e	SaniForce HS 3250
Max. Flow rate	151 lpm (40 gpm)	132 lpm (35 gpm)	379 lpm (100 gpm)	681 lpm (180 gpm)	537 lpm (142 gpm) 378 lpm (100 gpm)	946 lpm (250 gpm)
Max. Fluid pressure	8 bar (120 psi, 0.8 MPa)	4.8 bar (70 psi, 0.48 MPa)	8 bar (120 psi, 0.8 MPa)	8 bar (120 psi, 0.8 MPa)	6.9 bar (100 psi, 0.69 MPa)	6.9 bar (100 psi, 0.69 MPa)
Max. Pumpable solids	6.4 mm (1/4")	3.2 mm (1/8")	Ball: 4.8 mm (3/16") Flapper: 30.5 mm (1.2")	6.4 mm (1/4")	6.4 mm (1/4")	19 mm (3/4")
Viscosity range	Up to 10,000 cps	Up to 10,000 cps	Up to 15,000 cps	Up to 25,000 cps	Up to 20,000 cps	Up to 25,000 cps

SaniForce® 3A Pumps

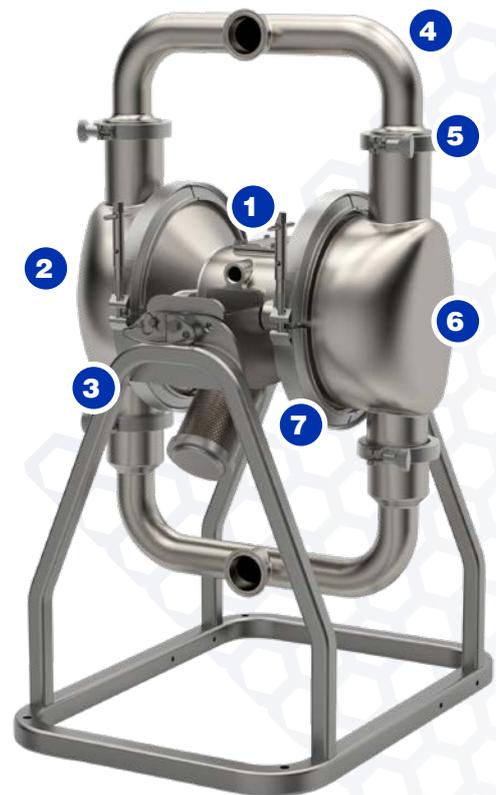


The SaniForce 3A pump range is designed to handle applications requiring 3A certification such as dairy, yoghurt, cottage cheese & ice cream ingredient transfer.

3A Certified diaphragm pump for handling dairy safely and effectively.

- Increase durability and reduce repair time with fewer moving parts
- Three-way pilot valve for non-stick operation
- Externally serviceable for quick, inexpensive repairs
- 2" sizes available in both air and electric operated models

- 1 Patented, durable, lube-free air valve
- 2 32 Ra formed/welded stainless steel with sanitary finish
- 3 Rotatable stand for quick draining and easy servicing
- 4 Single piece manifold reduces clamps and areas for food/bacteria to hide for easier cleaning
- 5 Tri-clamp and DIN connections
- 6 Overmoulded and bolt in diaphragm options are available
- 7 Leak detector installed on 3A models



	SaniForce 3A 1590	SaniForce 3A 2150	SaniForce 3A 2150e	SaniForce 3A 3250
Max. Flow rate	379 lpm (100 gpm)	681 lpm (180 gpm)	378 lpm (100 gpm)	946 lpm (250 gpm)
Max. Fluid pressure	8 bar (120 psi, 0.8 MPa)	8 bar (120 psi, 0.8 MPa)	6.9 bar (100 psi, 0.69 MPa)	6.9 bar (100 psi, 0.69 MPa)
Max. Pumpable solids	Ball: 4.8 mm (3/16")	6.4 mm (1/4")	6.4 mm (1/4")	19 mm (3/4")
	Flapper: 30.5 mm (1.2")			
Viscosity range	Up to 15,000 cps	Up to 20,000 cps	Up to 20,000 cps	Up to 25,000 cps

SaniForce® Large Particle Pumps

The SaniForce Large Particle Pump range is designed to handle solids up to 9.6 cm without crushing or damaging the material. They are ideal for transferring meat and poultry, fruit filling materials, ice cream variegates, and more.

Built to handle solids up to 9.6 cm in diameter.

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

- 1 Patented, durable, lube-free air valve
- 2 32 Ra formed/welded stainless steel with sanitary finish
- 3 Rotatable stand for quick draining and easy servicing
- 4 Single piece manifold reduces clamps and areas for food/bacteria to hide for easier cleaning.
- 5 316 L SST Construction
- 6 Tri-clamp and DIN connections
- 7 Overmoulded and bolt in diaphragm options are available
- 8 Leak detector available on HS models
- 9 Improved fluid path for better cleanability



	SaniForce 1590	SaniForce 3000e	SaniForce 3150	SaniForce 4000e	SaniForce 4150
Max. Flow rate	303 lpm (80 gpm)	237 lpm (62.5 gpm)	491 lpm (130 gpm)	237 lpm (62.5gpm)	341 lpm (90 gpm)
Max. Fluid pressure	8 bar (120 psi, 0.8MPa)	4.1 bar (60 psi, 0.41MPa)	8 bar (120 psi, 0.8MPa)	4.1bar (60 psi, 0.41MPa)	8 bar (120 psi, 0.8MPa)
Max. Pumpable solids	30.5 mm (1/2")	66 mm (2.6")	64 mm (2.5")	96.5 mm (3.8")	96.5 mm (3.8")
Viscosity range	Up to 15,000 cps	Up to 25,000 cps	Up to 25,000 cps	Up to 25,000 cps	Up to 25,000 cps

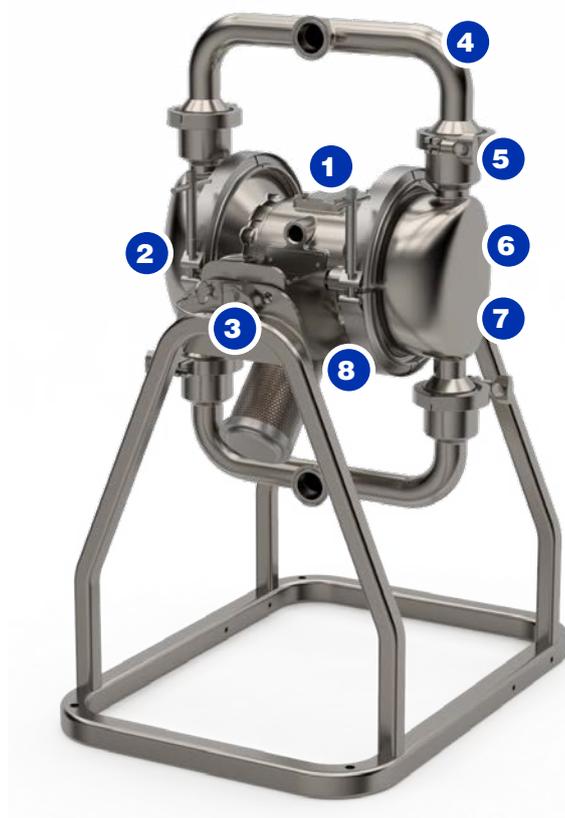
SaniForce® Pharmaceutical Pumps

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

Pharmaceutical grade diaphragm pump.

- Increase durability and reduce repair time with fewer moving parts
- Three-way pilot valve for non-stick operation
- Externally serviceable for quick, inexpensive repairs
- 20Ra electropolished finish

- 1 Patented, durable, lube-free air valve
- 2 20 Ra formed/welded stainless steel with electropolished sanitary finish
- 3 Rotatable stand for quick draining and easy servicing
- 4 Single piece manifold reduces clamps and areas for food/bacteria to hide for easier cleaning
- 5 Tri-clamp and DIN connections
- 6 316L SST wetted sections
- 7 Overmoulded and bolt in diaphragm options are available
- 8 Leak detector available for Pharma models 1590, 2150, and 3250



	SaniForce PH 1040	SaniForce PH 1040e	SaniForce PH 1590	SaniForce PH 2150	SaniForce PH 2150e	SaniForce PH 3250
Max. Flow rate	151 lpm (40 gpm)	132 lpm (35 gpm)	379 lpm (100 gpm)	681 lpm (180 gpm)	378 lpm (100 gpm)	946 lpm (250 gpm)
Max. Fluid pressure	8 bar (120 psi, 0.8 MPa)	4.8 bar (70 psi, 0.48 MPa)	8 bar (120 psi, 0.8 MPa)	8 bar (120 psi, 0.8 MPa)	6.9 bar (100 psi, 0.69 MPa)	7 bar (100 psi, 0.7 MPa)
Max. Pumpable solids	6.4 mm (1/4")	3.2 mm (1/8")	Ball: 4.8 mm (3/16") Flapper: 30.5 mm (1/2")	6.4 mm (1/4")	6.4 mm (1/4")	19 mm (3/4")
Viscosity range	Up to 10,000 cps	Up to 10,000 cps	Up to 15,000 cps	Up to 20,000 cps	Up to 20,000 cps	Up to 25,000 cps



Application Overview

Transfer options available for low to high viscosity materials from food to personal care to pharmaceuticals.

> **FOODS:** Salad dressings and condiments, sauces, juices and flavoured drinks, edible oils, snack food flavourings, light lotions and creams, beer and wine, and more



> **DAIRY:** Yogurt, cottage cheese, ice cream ingredients

> **MEAT** and **POULTRY**



> **PERSONAL CARE:** Cosmetics and high care food



> **PHARMA:** Medical creams & lotions, organic reagent, blood products, bio pharmaceuticals, alcohol and solvent transfer



protect your **PROCESS**

Notes

A series of horizontal dotted lines for writing notes.



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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All written and visual data contained in this document is 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 ISO 9001 certified.



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