RODEM®
SMART SANITARY PROCESSES
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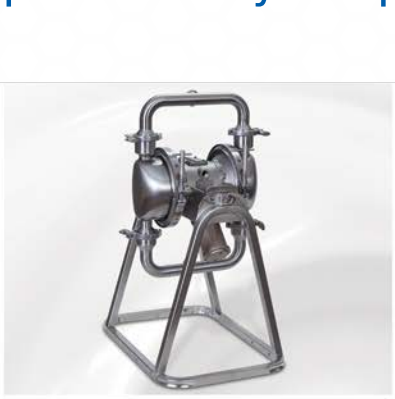
GRACO®

SaniForce® 2.0

A Complete Sanitary Pump Line



protect your **PROCESS**

Diaphragm Pumps | High Sanitation | Piston Pumps | Drum Pumps | Drum Unloaders

PROVEN QUALITY. LEADING TECHNOLOGY.

SaniForce Solutions

Graco's Complete Line of Sanitary Pumps

protect your **PROCESS**

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

	515	1040	1040e	1590	2150
Max Flow Rate	Up to 15 gpm (57 lpm)	Up to 40 gpm (151 lpm)	Up to 35 gpm (132 lpm)	Up to 100 gpm (379 lpm)	Up to 150 gpm (568 lpm)
Max Fluid Pressure	100 psi (7 bar, 0.7 MPa)	120 psi (8 bar, 0.8 MPa)	70 psi (4.8 bar, 0.48 MPa)	120 psi (8 bar, 0.8 MPa)	120 psi (8 bar, 0.8 MPa)
Max Pumpable Solids	3/32 in (2.38 mm)	1/8 in (3.2 mm)	1/8 in (3.2 mm)	Ball - 3/16 in (4.8 mm) Flapper - 1/4 in (31.8 mm)	1/4 in (6.4 mm)
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
Wetted Section Options	FG	FG, HS, PH	FG, HS, PH	FG, HS, PH, 3A	FG, HS, PH, 3A

	2150e	3000e	4000e	3150	4150
Max Flow Rate	Up to 140 gpm (530 lpm)	Up to 140 gpm (530 lpm)	Up to 140 gpm (530 lpm)	Up to 130 gpm (492 lpm)	Up to 90 gpm (341 lpm)
Max Fluid Pressure	100 psi (7 bar, 0.7 Mpa)	100 psi (7 bar, 0.7 Mpa)	100 psi (7 bar, 0.7 Mpa)	120 psi (8 bar, 0.8 MPa)	120 psi (8 bar, 0.8 MPa)
Max Pumpable Solids	1/4 in (6.4 mm)	2.6 in (66 mm)	3.8 in (96.5 mm)	2.6 in (66 mm)	3.8 in (96.5 mm)
Viscosity Range	Up to 25,000 cps	Up to 15,000 cps	Up to 15,000 cps	Up to 15,000 cps	Up to 15,000 cps
Wetted Section Options	FG, HS, PH, 3A	LP	LP	LP	LP

ETY ERGONOMICS

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

	Centrifugal Drum Pump	Progressive Cavity Drum Pump	2:1 Piston Pump	6:1 Piston Pump	5:1 Piston Pump	12:1 Piston Pump
Max Flow Rate	Up to 35 gpm (132 lpm)	Up to 7 gpm (26 lpm)	Up to 1.5 gpm (5.7 lpm)	Up to 4 gpm (15 lpm)	Up to 14 gpm (53 lpm)	Up to 8.5 gpm (32 lpm)
Max Fluid Pressure	43 psi (0.4 MPa, 3 bar)	87 psi (0.6 MPa, 6 bar)	250 psi (17 bar, 1.7 MPa)	600 psi (41 bar, 4.1 MPa)	400 psi (28 bar, 2.8 MPa)	1200 psi (83 bar, 8.3 MPa)
Max Pumpable Solids	Not recommended	1/4 in (6 mm)	1/8 in (3.2 mm)	1/8 in (3.2 mm)	1/4 in (6.4 mm)	1/4 in (6.4 mm)
Viscosity Range	Up to 1,000 cps	Up to 50,000 cps	Up to 50,000 cps	Up to 100,000 cps	Up to 100,000 cps	Up to 100,000 cps**

	Piston Pump Elevator	Diaphragm Drum Unloaders	Piston Drum Unloaders	Diaphragm Bin Evacuation	Piston Bin Evacuation
Max Flow Rate	Up to 14 gpm (53 lpm)	Up to 150 gpm (568 lpm)	Up to 14 gpm (53 lpm)	Up to 300 gpm (1135 lpm)	Up to 56 gpm (212 lpm)
Max Fluid Pressure	400 psi (28 bar, 2.8 MPa)	120 psi (8 bar, 0.8 MPa	1200 psi (83 bar, 8.3 MPa)	120 psi (8 bar, 0.8 MPa)	1200 psi (83 bar, 8.3 MPa)
Max Pumpable Solids	1/4 in (6.4 mm)	Ball = 1 in (25.4 mm) Flapper = 2.5 in (63.5 mm)	1/8 to 1/4 in (3.2 to 6.4 mm)	Ball = 1 in (25.4 mm) Flapper = 2.5 in (63.5 mm)	1/4 in (6.4 mm)
Viscosity Range	Up to 50,000 cps	Up to 100,000 cps	Up to 2,000,000 cps with priming piston	Up to 100,000 cps	Up to 2,000,000 cps with priming piston

*Actual performance may vary by application
**When mounted on drum unloader or bin evacuation system

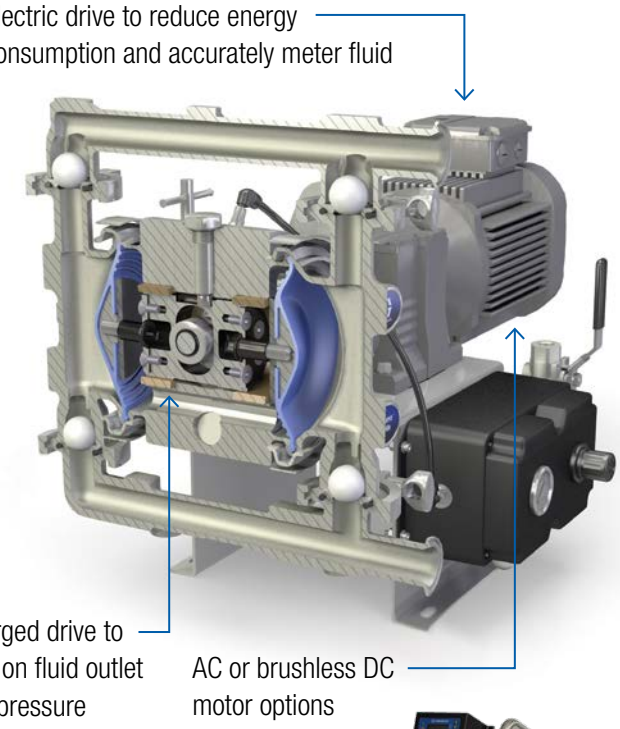
DIAPHRAGM

SaniForce® e-series 1040e & 2150e

Electric-Operated Double Diaphragm Pumps

Graco's SaniForce e-Series pump will help you achieve all of these objectives!

- Patented technology **eliminates unnecessary 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
- Electric-operated pumps create a **quieter and cleaner work environment** over air-operated pumps



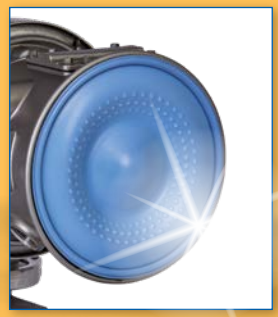
*Available in cart mount and stand alone options

SaniForce 2150e AC Motor	SaniForce 1040e AC Motor	SaniForce 1040e BLDC Motor
2.5 in sanitary flange or 65 mm DIN 11851	1.5 in sanitary flange or 40 mm DIN 11851	1.5 in sanitary flange or 40 mm DIN 11851
3, 5, or 7 HP Motor	2 HP Motor	2.2 HP Motor
Flow rates of 140 gpm (530 lpm)	Flow rates of 35 gpm (132 lpm)	Flow rates of 35 gpm (132 lpm)

Stop Harboring Bacteria!

Graco's overmolded PTFE/EPDM diaphragms improve 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, 3150, 4150, 3250 and SaniForce



SaniForce® FG-Series 515, 1040, 1590 & 2150

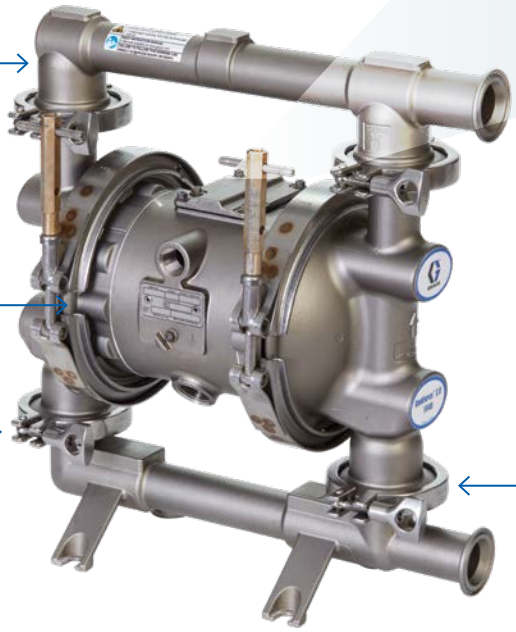
Easy to clean and sanitize pump for food and beverage applications

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

Pump Finish
- Cast 316 SST
- 125 Ra electropolished finish

Bolt-through and overmolded diaphragm options available

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



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

Sanitary flange inlet and outlet connections

515	1040	1590	2150
1.0 in (25.4 mm) sanitary flange connections	1.5 in (38 mm) sanitary flange connections	2.0 in (50 mm) sanitary flange connections	2.5 in (63.5 mm) sanitary flange connections
0.96 in (24.3 mm) manifold ID	1 in (25.4 mm) manifold ID	1.5 in (38.1 mm) manifold ID	2 in (50.8 mm) manifold ID
Flow rates of 16 gpm (61 lpm)	Flow rates of 40 gpm (151 lpm)	Flow rates up to 90 gpm (340 lpm)	Flow rates up to 150 gpm (568 lpm)

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

SANITARY

SaniForce® HS-Series & LP-Series

High Sanitation (HS) Pumps

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

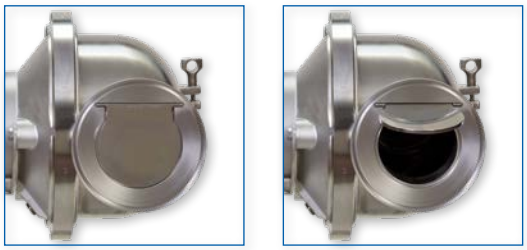
High Sanitation

Large Particle (LP) Pumps

- Built to to handle solids up to 3.8 inches (96.5 mm) in diameter
- Easy cleaning and sanitizing with fewer clamps and rotatable stand
- Durable pump construction handles particulates and abrasives without damage to the pump
- 3 and 4 inch sizes available in both air and electric operated models

Large Particle

Flapper Check



Common Materials	
	Personal care
	Cosmetics
	High care food ingredients

Common Materials	
	Meat & Poultry
	Fruit filling materials
	Ice cream varigates

SaniForce® 3A & PH-Series

3-A Approved Pumps

- Single piece manifold reduces clamps and areas for food and bacteria to hide for easier cleaning
- Increase durability and reduce repair time with fewer moving parts
- Externally serviceable for quick, inexpensive repairs
- Leak sensors installed with optional control box
- 32 Ra electropolished finish

3A Approved

Pharmacutical (PH) Pumps

- Single piece manifold reduces clamps and areas for food and bacteria to hide for easier cleaning
- Increase durability and reduce repair time with fewer moving parts
- Externally serviceable for quick, inexpensive repairs
- 20 Ra electropolished finish
- USP Class IV Approved

Pharma Grade

Common Materials
Dairy
Yogurt
Cottage cheese

Common Materials
Medical creams & lotions
Organic reagent
Blood products
Bio pharmaceuticals
Alcohol & Solvent Transfer

PISTON

SaniForce® Piston Pumps

Move the most difficult materials

Graco's powerful line of piston pumps move extremely difficult materials when others cannot. SaniForce piston pumps have fluid pressures up to 1,200 psi (83 bar) and are ideal for low to medium viscosity materials.

- Air motors improve serviceability, increase efficiency and offer a lower cost of ownership
- Quick knockdown lowers are made with corrosion resistent stainless steel for long-lasting durability

Advanced air motor technology →

SaniForce® 2:1 and 6:1 fit standard drum bung port →

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!

Self-priming and run dry designed for medium viscosity transfer ←

Available in double ball or priming piston designs ←

	SaniForce 2:1	SaniForce 6:1	SaniForce 5:1	SaniForce 12:1
Maximum Viscosity	Up to 50,000	Up to 100,000	Up to 100,000	Up to 100,000 cps
Maximum Flow Rate	Up to 1.5 gpm (5.7 lpm) at 60 cpm	Up to 4 gpm (15 lpm) at 60 cpm	Up to 14 gpm (53 lpm) at 60 cpm	Up to 8.5 gpm (32 lpm) at 60 cpm
Length	Standard and long lengths	Stubby, drum and bin lengths	Stubby and drum lengths	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

ELECTRIC

SaniForce® Electrical Drum Pumps

Reduce downtime with quick knockdown SaniForce centrifugal and progressive cavity drum pumps featuring easy sanitary flange connections and a simple design.

- **Operational flexibility throughout facility** - with electric pump operation, simply plug in the pump to transfer material in minutes
- **Easy mobility** - lightweight design allows all operators to move pumps between drums to increase output

SaniForce Electric Centrifugal Drum Pump	SaniForce Electric Progressive Cavity Drum Pump
Can handle up to 1,000 cps	Can handle up to 100,000 cps
Flow rates up to 35 gpm (132 lpm)	Flow rates up to 7 gpm (26 lpm)
Quick knock down pump for easy cleaning	Quick knock down pump for easy cleaning

Common Applications

Fluid transfer and supply of low to medium viscosity fluids. Ideal for most food, beverage, cosmetic, or personal care applications

Common Materials

- Fruit juice concentrates
- Edible oils
- Distilleries
- Condiments & dressings

SaniForce® Elevators

Stop unloading containers manually

The SaniForce Elevator is ideal for small to medium sized companies that currently unload less than two containers per hour by either scooping or dumping.

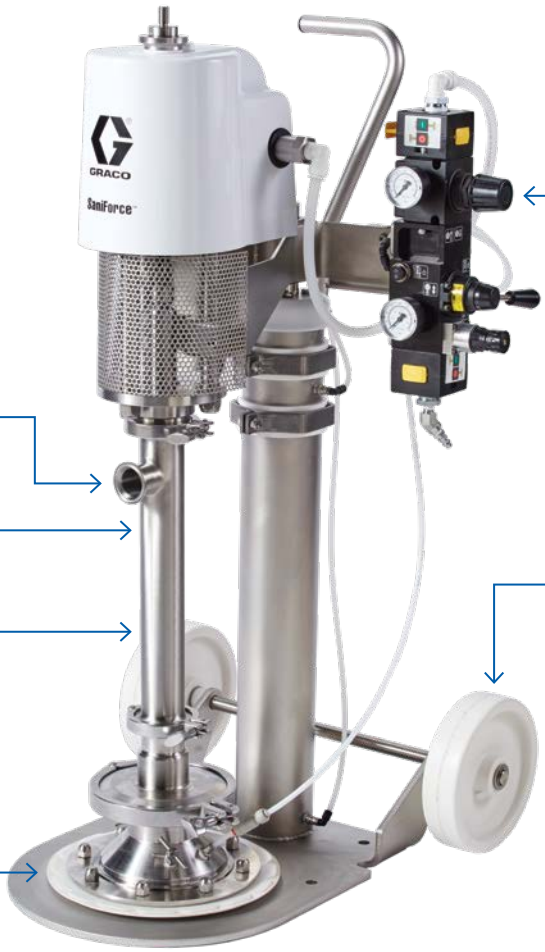
- Designed to lower pumps into and lift pumps out of drums, bins, and totes
- Flow rates range from 1.5 to 14 gpm (5.7 to 53 lpm), depending on which SaniForce piston pump is used

Common Applications	Common Materials
Fluid transfer and supply of medium viscosity fluids. Ideal for most food, beverage, cosmetic, or personal care applications	Fruit juice concentrates Cream candy fillings Condiments & dressings Flowable lotions & cosmetics

SaniForce® Pail Unloaders

Evacuate up to 99% of material

- Designed for quick disassembly, and is portable with stainless steel construction
- One size follower plate and seal to accommodate 5 or 7 gallon pails
- Prevents injuries from lifting and dumping material out of containers



Prevents operator injury by eliminating constant lifting and dumping

Self-priming and run dry capability

Graco 6:1 HP piston pump to transfer your toughest materials

Full 316 SST wetted section

Portable cart for easy transport

Wiper seals container for product contamination prevention

Common Applications

Fluid transfer and supply of medium to high viscosity fluids. Ideal for most food, beverage, cosmetic, or personal care applications

Common Materials

- Icing, frostings & fondants
- Caramels & chocolate
- Fruit Paste & fillings
- Cosmetics

UNLOADING

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.

Remove the food and work safety issues associated with manual scooping.

*Only applies to priming piston drum unloaders

New safety lock for loading/unloading drums

Automated controls remove unnecessary worker interaction and automate the unloading process

Batch dispense available with connection to scale or flow meter

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**

Inflatable Seal Features

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

Common Applications

Unload medium to high viscosity products, up to 2,000,000 cps*, from 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)

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

Save time and money in your facility by unloading materials up to 2,000,000 cps efficiently from 300-gallon (1,135 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.

Fluid outlet piping for easier installation

Evacuate up to 99% of material

Exhaust routed away from food product

Inflatable seal creates better seal for improved evacuation without the crevices and fasteners of a wiper seal

SaniForce BES with Piston Pumps

Inflatable Seal

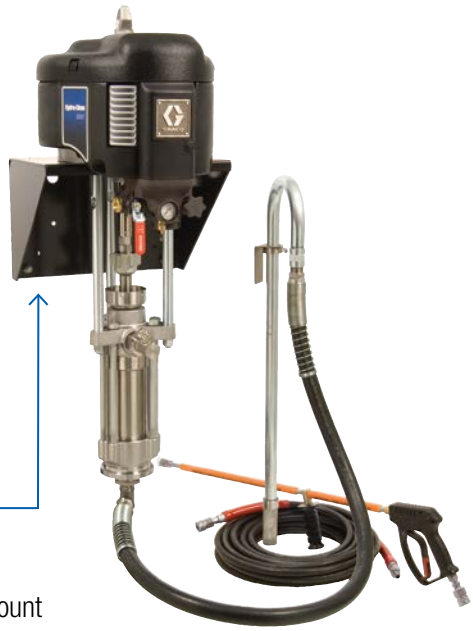
Common Applications	Evacuate viscous products from their original 300-gallon containers without dilution

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

Hydra-Clean® Pressure Washer

Gas or 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

Supports multiple guns

Each package comes standard with five different spray tips

GRACO PUMPS

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)

APPLICATIONS

Application Overview

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

FOODS: Low to high ingredients including juices and flavored drinks, salad dressings & condiments, sauces, edible oils, snack food flavorings, frostings, beer & wine, caramels & chocolate syrups, jams & fruit fillings, tomato paste, peanut butter, and more

DAIRY: Yogurt, cottage cheese, ice cream ingredients

MEAT and **POULTRY**

PERSONAL CARE: Lotions & creams, cosmetics, and high care food

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

protect your **PROCESS**

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.

800.328.0211 or visit us at www.graco.com/sanitary

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