

Electric Diaphragm Pumps

1" and 2" Electric Operated Double Diaphragm Pumps
for industrial, food, beverages and cosmetic applications



Not just an electric double diaphragm pump, it's much more!

- The only electric diaphragm pump on the market that will stall under pressure
- Up to 80% more efficient than air-operated diaphragm pumps
- Reduce pulsation without the addition of pulsation dampeners
- Reduce maintenance costs!



Electric Double Diaphragm Pumps

Graco's electric operated double diaphragm pumps are designed for **industrial, food, beverage and cosmetics** applications.

Why would you go for a GRACO electric operated double diaphragm pump?

- Can handle a wide variety of fluids thanks to many material options
- Can handle abrasive and corrosive materials
- Gentle on shear sensitive materials
- Can run dry
- Can stall under pressure -> closing a valve or clogging a line doesn't create issues
- Self priming (no need to fill the pump to operate)
- No rotating or moving fluid seals
- Compared to an Air-Operated Double Diaphragm pump
 - o Energy savings using an electric drive can save you up to 80% of energy costs versus an air-operated pump
 - o Less noise due to the use of an electric motor
 - o Low pulsation mode, so you don't need to purchase a pulsation dampener
 - o Same lifetime on diaphragms as an air-operated pump

Using Graco's electric diaphragm pump can lower your maintenance cost compared to using other technologies.

We can offer the advantages of an air-operated double diaphragm pump in an electric pump

Feature	Graco Electric Diaphragm Pumps	Other Electric Diaphragm Pumps	Air-Operated Diaphragm Pumps	Hose Pumps	Progressive Cavity Pumps	Rotary Lobe Pumps
Stalls under pressure	✓		✓			
Runs dry	✓	✓	✓	✓		
Self priming	✓	✓	✓	✓	✓	
No rotational shaft seal	✓	✓	✓	✓		
Low pulsation operation mode	✓				✓	✓

Stalls =

avoid damage due to pressure overload (like a closed valve)

Runs dry =

no damage when no fluid is pumped

Self priming =

no need to fill pump manually

No rotational shaft seal =

eliminate leaks and reduce maintenance costs

Low pulsation =

avoid buying a pulsation dampener



Graco's Unique Design Explained

To deliver the features you need, we use a Patent pending air charged drive

The pump is driven by a motor that moves a centre block sideways. By filling the centre block with air, the diaphragms are pushed out using this air. Mechanically, the centre block moves from left to right which means the air is pushing the diaphragms. We don't mechanically push the diaphragms.

We do **NOT** consume air, we only use air to charge the centre.

Durable Pump Technology

- Handles slurries and abrasives all without damage to the pump
- Gentle on shear sensitive material

Diaphragm Pump

- Runs dry
- No rotating or moving fluid seals
- Self priming

Electric Drive

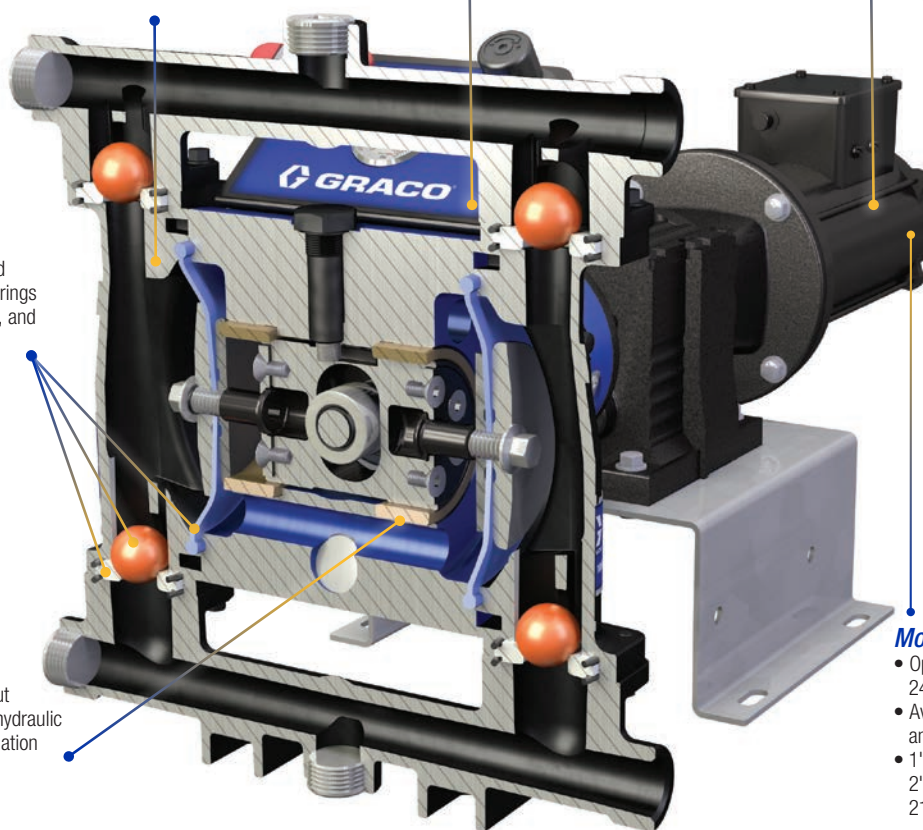
- Reduce energy consumption and operating costs
- Increase pump control
- Accurately meter fluid

Fluid Section

- Create the pump you need with multiple material offerings for manifolds, seats, balls, and diaphragms

Patent Pending Air Charged Drive

- Increase diaphragm life without compromising your fluid - no hydraulic charge, so no risk of contamination
- Ability to reduce pulsation on fluid outlet
- Stalls under pressure without additional switches and controls



Motor Options

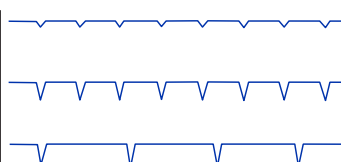
- Operate on 120V (only 1"), 240V or 480V power
- Available in AC, DC (only 1") and AC ATEX
- 1": one gearbox
- 2": 3 gearbox options: 130, 215 & 330 lpm

Husky e-Series (in low pulse mode)

AODD

Peristaltic

Pulsation Chart



Need low pulsation? No Problem!

Another effect of our air charged drive is we can work in a "low-pulsation" mode eliminating the need for pulsation dampeners -> ideal when products are shear-sensitive, can foam, or require a smooth flow. In addition, our diaphragms are supported by air, so there is no hydraulic backing and therefore no risk of contamination.

How much can you save?

Enter your parameters into the Husky Electric Pump ROI Calculator to compare your costs with a traditional air-operated diaphragm pump.

To calculate your ROI, go to the online product pages to find the link to our calculator.

Example of ROI Tool

Electric Double Diaphragm Pumps

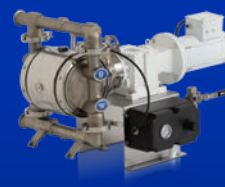
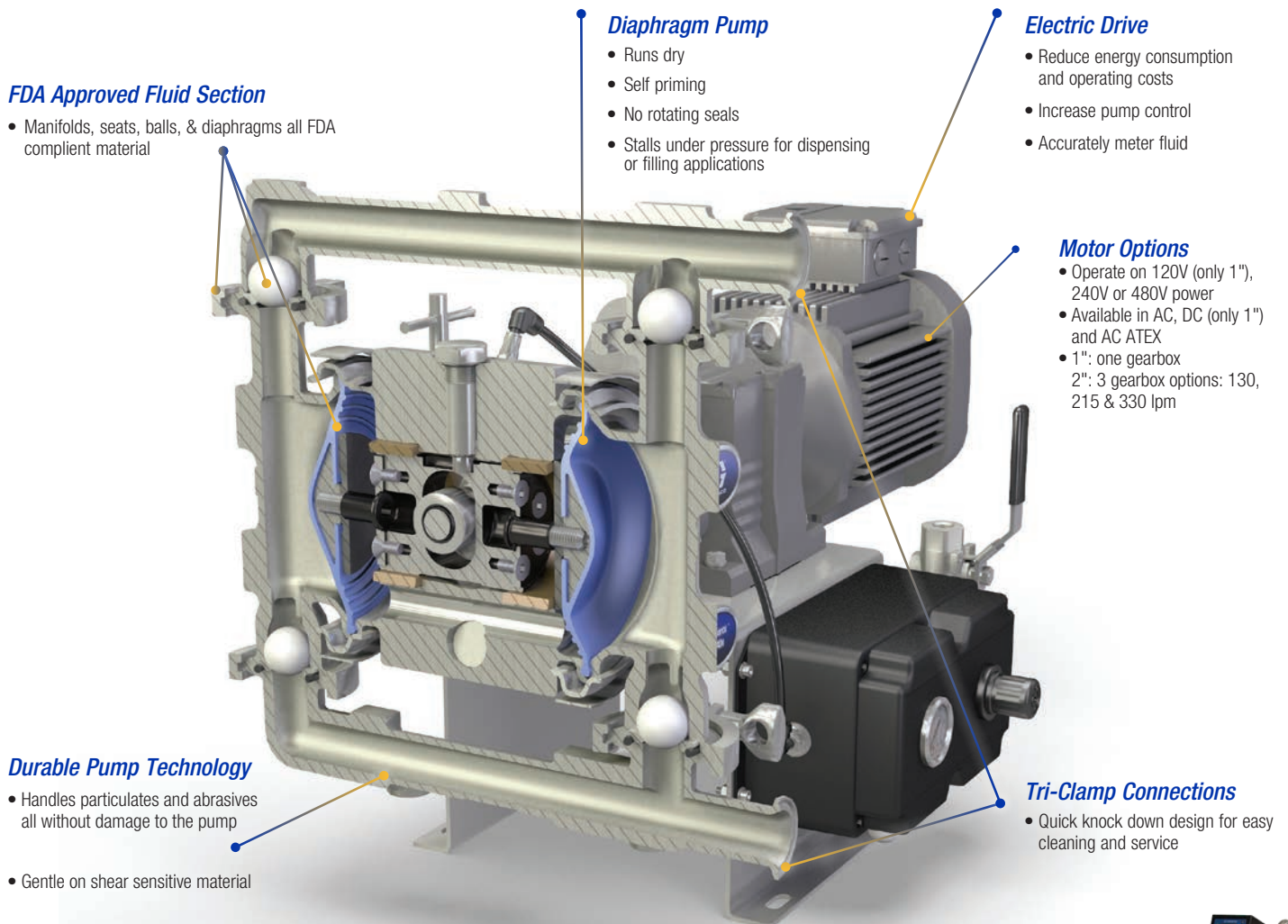
Graco's electric operated double diaphragm pumps are designed for industrial, food, beverage and cosmetics applications.

INDUSTRIAL APPLICATIONS

- 1" or 2" flanged or threaded fluid connections
- AC, DC (1" only) and AC ATEX motors
- Available without motor (1" includes gearbox, 2" = pump only)
- Centre section: Aluminium or Stainless Steel
- Up to 537 lpm

FOOD & BEVERAGE, COSMETICS AND PHARMACEUTICAL MARKETS

- 1" or 2" sized fluid connection in DIN or Tri-clamp
- Certifications: FDA, ATEX & CE1935/2004
- Tri-clamps for easy dismantling and cleaning
- AC, DC (1" only) and AC ATEX motors
- Available without motor (1" includes gearbox, 2" = pump only)
- Centre section: Aluminium or Stainless Steel
- Up to 537 lpm



Where can you use electric operated double diaphragm pumps?

In **INDUSTRY** you can use our pumps to:

- Transfer Water (waste water with or without solids)
- Transfer oils, chemical products
- Emergency spills (1")
- Tank loading
-

In **FOOD, BEVERAGE & COSMETICS** you can use our pumps to:

- Transfer low viscous fluids like edible oils, juices, concentrates, wines, spirits ...
-

APPLICATION EXAMPLES are:

- Transfer of ceramic slip into a small casting in the manufacture of toilets
- Transfer of ceramic slip into a large casting in the manufacture of bath tubs
- Transfer of lime slurry in a water treatment facility
 - Replacing two hose pumps
- Supply of paint to a roll coating applicator in a tile factory
 - Replacing an air-operated pump to reduce cost & pulsation
- Filling a tank with chemical liquids for odor control
 - Replacing an AODD to remove a compressor due to issues of space
- Filling a dosing station in paint manufacturing
 - Replacing a gear pump that was pulling air in the product when the filling tank was nearly empty. Also low pulsation improves the quality of the paint
- Injection of chemicals into a tank to separate polymeres from oil
 - Replacing a progressive cavity pump in order to reduce maintenance costs as a result of running dry issues

How to find the right pump for your application?

Define the flow rate & pressure required

Use our online selector tool to find the right pump:

- Select the size
- Select the materials (use the chemical compatibility tool)
- Select the components (balls, seats, diaphragms)



Edible Oils



*Wineries, Breweries,
and Distilleries*



*Juices, Concentrates,
and Beverages*



Personal Care



*Condiments and
Dressings*



Pharmaceuticals

Find the Right Pump for your Application

Graco is making it easy to select a pump that's right for you.

To order an electric pump, go to the online product pages to find the link to our pump selector.

Example of Product Selector Tool

Technical Specifications

Industrial Pumps



	1050e	2150e
Maximum fluid working pressure	4.8 bar (0.48 MPa / 70 psi)	6.9 bar (0.69 MPa / 100 psi)
Air pressure operating range	1.4 to 5.5 bar (0.14 to 0.55 MPa / 20 - 80 psi)	1.4 to 6.9 bar (0.14 to 0.69 MPa / 20-100 psi)
Air inlet size	3/8 in npt(f)	3/8 in npt(f)
Maximum suction lift*	Wet: 8.8 m (29 ft); Dry: 4.9 m (16 ft)	Wet or Dry: 5.5 m (18 ft)
Maximum size pumpable solids	3.2 mm (1/8 in)	6.3 mm (1/4 in)
Ambient air temperature range for operation and storage**	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Fluid displacement per cycle	0.64 L (0.15 gallons)	2.27 L (0.6 gallons)
Maximum free-flow delivery	158 lpm (42 gpm)	537 lpm (142 gpm)
Gearbox	one gearbox	3 gearbox options: 130, 215 & 330 lpm
Fluid inlet and outlet size		
Metal	1 in npt(f) or 1 in bspt	2 in npt (f) or 2 in bspt
Plastic	1 in ANSI/DIN Raised Face Flange	2 in ANSI/DIN Raised Face Flange
AC motor power	2 HP	3, 5, 7.5 HP
BLDC motor power	2.2 HP	N/A
Operation manual	334188	3A4068

*Reduced, if balls do not seat well due to the balls or seats being damaged, or due to lightweight balls or to extreme cycling speed

**Exposure to extremely low temperatures may result in damage to plastic parts

FDA Approved Pumps



	1040e	2150e
Maximum fluid working pressure	4.8 bar (0.48 MPa / 70 psi)	6.9 bar (0.69 MPa / 100 psi)
Air pressure operating range	1.4 to 5.5 bar (0.14 to 0.55 MPa / 20 - 80 psi)	1.4 to 6.9 bar (0.14 to 0.69 MPa / 20-100 psi)
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Maximum size pumpable solids	3.2 mm (1/8 in)	6.3 mm (1/4 in)
Ambient air temperature range for operation and storage**	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Fluid displacement per cycle	0.38 L (0.10 gallons)	2.27 L (0.6 gallons)
Gearbox	one gearbox	3 gearbox options: 130, 215 & 330 lpm
Maximum free-flow delivery	158 lpm (42 gpm)	537 lpm (142 gpm)
Fluid inlet and outlet size		
Aluminium and stainless steel	1.5 in sanitary flange or 40 mm DIN 11851	2.5 in sanitary flange or 65 mm DIN 11851
AC motor power	2 HP	3, 5, 7.5 HP
BLDC motor power	2.2 HP	N/A
Operation manual	3A3167	3A5132

*Reduced, if balls do not seat well due to the balls or seats being damaged, or due to lightweight balls or to extreme cycling speed

**Exposure to extremely low temperatures may result in damage to plastic parts

***Only some models have ATEX certification

Popular Models

Husky 1050e - Industrial

Part Number	Centre Section	Fluid Section	Porting	Seat	Ball	Diaphragm	Motor*	Compressor**
648225	Aluminium	Aluminium	BSP	Hytrel	Acetal	Hytrel	Standard 2 HP AC	Yes (230V)
648228	Aluminium	Aluminium	BSP	Santoprene	Santoprene	Santoprene	Standard 2 HP AC	Yes (230V)
648265	Aluminium	Aluminium	BSP	Stainless Steel	Weighted Neoprene	Neoprene Overmolded	Brushless DC*	Yes (230V)
648227	Aluminium	Aluminium	BSP	Stainless Steel	PTFE	2-Piece PTFE w/ Santoprene Backer	Standard 2 HP AC	Yes (230V)
648262	Aluminium	Aluminium	NPT	Buna	Buna	Buna	Brushless DC	Yes (230V)
650123	Aluminium	Polypropylene	Centre Flange	Santoprene	Santoprene	Santoprene	Standard 2 HP AC	Yes (230V)
650121	Aluminium	Polypropylene	Centre Flange	Polypropylene	PTFE	2-Piece PTFE w/ Santoprene Backer	Standard 2 HP AC	Yes (230V)
650146	Aluminium	Polypropylene	Centre Flange	Polypropylene	PTFE	PTFE Overmolded	Brushless DC	Yes (230V)
650308	Stainless Steel	Polypropylene	Centre Flange	Polypropylene	PTFE	2-Piece PTFE w/ Santoprene Backer	Brushless DC	Yes (230V)
651935	Aluminium	Stainless Steel	BSP	Stainless Steel	PTFE	2-Piece PTFE w/ Santoprene Backer	Standard 2 HP AC	Yes (230V)
653090	Stainless Steel	Stainless Steel	NPT	Stainless Steel	PTFE	PTFE Overmolded	Standard 2 HP AC	Yes (230V)
651953	Aluminium	Stainless Steel	BSP	Stainless Steel	PTFE	2-Piece PTFE w/ Santoprene Backer	Brushless DC	Yes (230V)
648077	Aluminium	Aluminium	BSP	Stainless Steel	PTFE	2-Piece PTFE w/ Santoprene Backer	2 HP ATEX Motor	No
651845	Aluminium	Stainless Steel	BSP	Stainless Steel	PTFE	2-Piece PTFE w/ Santoprene Backer	2 HP ATEX Motor	No

*Brushless DC includes Graco Controller
**Options available without compressor

SaniForce 1040e - FDA Approved

Part Number Triclamp	Part Number DIN	Motor*	Centre Section	O-Rings	Seats	Balls	Diaphragm
24Y595	24Y600	Standard 2 HP AC	Stainless Steel	EPDM	SS	CW	SP
24Y596	24Y601	Standard 2 HP AC	Stainless Steel	PTFE	SS	PT	PO
24Y597	24Y602	Standard 2 HP AC	Stainless Steel	PTFE	SS	PT	PT
24Y598	24Y603	Standard 2 HP AC	Stainless Steel	PTFE	SS	SP	SP
24Y599	24Y604	Standard 2 HP AC	Stainless Steel	EPDM	SS	SP	SP
24Y606	24Y611	Brushless DC	Stainless Steel	PTFE	SS	PT	PO
24Y608	24Y614	Brushless DC	Stainless Steel	PTFE	SS	SP	SP

Husky 2150e - Industrial

Part Number	Centre Section	Fluid Section	Seat	Ball ID	Diaphragm ID	Connection	Motor	Compressor	Gearbox*
655013	Aluminium	Aluminium	SST	PTFE	PTFE	BSP	AC		High
655031	Aluminium	Aluminium	SST	PTFE	PTFE	BSP	AC ATEX		High
655070	Aluminium	Aluminium	Geolast	Geolast	Geolast	NPT	AC	Yes	High
655160	Aluminium	Aluminium	Geolast	Geolast	Geolast	BSP	AC	Yes	Medium
655256	Aluminium	Aluminium	SST	PTFE	PTFE	BSP	Pump only		-
655155	Aluminium	Aluminium	SP	SP	SP	BSP	AC		Medium
655236	Aluminium	Aluminium	SP	SP	SP	BSP	AC		Low
656014	Aluminium	PP	PP	PTFE	PTFE	End flange	AC	Yes	High
656003	Aluminium	PP	PP	SP	SP	End flange	AC		High
656063	Aluminium	PP	PP	PTFE	PTFE	End flange	Pump only		-
656096	SST	PP	SST	PTFE	PTFE	End flange	AC		Medium
656126	SST	PP	PP	PTFE	PTFE	End flange	AC		Low
656133	SST	PP	PP	PTFE	PTFE	End flange	Pump only		-
657107	Aluminium	SST	SST	PTFE	PTFE	NPT	AC	Yes	High
657009	Aluminium	SST	SST	PTFE	PTFE	BSP	AC		High
657401	Aluminium	SST	SST	PTFE	PTFE	NPT	Pump only		-
657800	SST	SST	SST	PTFE	PTFE	NPT	AC		Low
657429	SST	SST	SST	PTFE	PTFE	NPT	AC		High
657562	SST	SST	SST	PTFE	PTFE	NPT	AC		Medium
657436	SST	SST	SST	PTFE	PTFE	BSP	AC		High

SaniForce 2150e - FDA Approved

Part Number	Centre Section	Fluid Section	Seat	Ball ID	Diaphragm ID	Connection	Motor	Compressor	Gearbox*
658056	Aluminium	SST	SST	PTFE	PTFE	TriClamp	AC	Yes	High
658064	Aluminium	SST	SST	PTFE	PTFE	Din	AC	Yes	High
658016	Aluminium	SST	SST	PTFE	PTFE	TriClamp	AC ATEX		High
658466	Aluminium	SST	SST	SP	SP	Din	AC		High
658216	Aluminium	SST	SST	PTFE	PTFE	TriClamp	Pump only		-
658224	Aluminium	SST	SST	PTFE	PTFE	Din	Pump only		-
658312	SST	SST	SST	PTFE	PTFE	Din	AC		Medium
658432	SST	SST	SST	PTFE	PTFE	TriClamp	AC		Low
658448	SST	SST	SST	PTFE	PTFE	TriClamp	Pump only		-
658456	SST	SST	SST	PTFE	PTFE	Din	Pump only		-

* Low = 130 lpm Medium = 215 lpm High = 330 lpm



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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