FPL

FLOTRONIC®
ONE-NUT™ PUMPS

The simplest ideas are often the best

Flotronic ‘One - Nut’ pumps



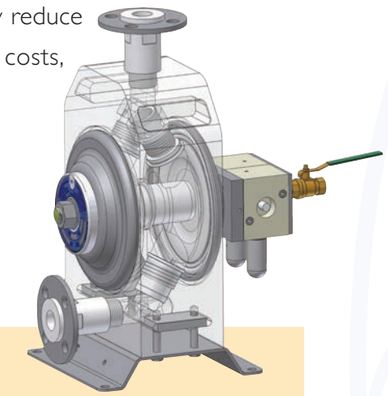
Introduction

Fast maintenance air-driven Double Diaphragm Pumps for both process and simple transfer applications.



Flotronic is a world leading manufacturer of air-operated Double Diaphragm Pumps and inventor of the revolutionary One-Nut design - a concept which has transformed the way Diaphragm pumps are being used throughout industry today.

The One-Nut Double Diaphragm Pump, unique to Flotronic, takes pump performance far beyond traditional style Double Diaphragm pumps. This fast maintenance concept literally turns the conventional pump inside out! Fluid passes between the diaphragms directly through the centre of the pump with air pressure operating on the outside. The pump is held together by one nut on the opposite side of the pump to the external air valve. This design allows in-line diaphragm replacement to be accomplished in less than 15 minutes, with a complete strip down and rebuild possible in less than 20 minutes. Using One-Nut pumps, engineers can significantly reduce process downtime and provide vast savings in maintenance costs, without compromising on pump performance.



Diaphragm lifespan is now so good, these pumps are often used instead of centrifugal or other process pumps. Versatility is a key characteristic of Flotronic Pumps Products.

How to use this guide.

This guide is designed to assist you in the straightforward specification and ordering of the award winning range of One-Nut pumps from Flotronic.

Use the charts on pages 8 and 9 to identify the pump option for your application by size and/or flow rate (Flow charts are explained on page 7). Then choose the style and material required from pages 10 to 13. Select diaphragms, air system and process connections from pages 14 and 15. Finally, select that all important upgrade from our range of products on page 16. For ease of ordering, create your required Pump Code using the Coding Chart on pages 18 and 19. The simple pump selection guide on the back page gives an over view of the entire range.

The Flotronic Pumps Range

A range of air operated Double Diaphragm pumps with:



Multi-million cycle 'short stroke' one-piece bonded diaphragms.

15 minute 'in-line' maintenance.

PTFE diaphragms as standard.

Any inlet/outlet connection you require.

Full range of low price spares ex-stock.

Worldwide after-sales service.

Use Flotronic Double Diaphragm Pumps for BOTH simple transfer AND continuous duty process applications using PTFE faced multi-million cycle diaphragms as standard.

A proven concept used over the last thirty years, you'll find our pumps in an incredibly diverse range of industries and applications where the ability to transfer materials is a requirement:

Aesica	Budelpack	Geest	Novartis
Air Products	Burtons Foods	Givaudan	Oscar Mayer
Akzo Nobel	Cadburys	GlaxoSmithKline	Pepsi Cola
Apetito	Coca-Cola	Greggs	Pfizer
Astra Zeneca	Colgate Palmolive	Heinz	Premier Foods
Avon Cosmetics	Cray Valley Resins	Jaguar	Procter & Gamble
BASF	Dairy Crest	Kerry Foods	Rhodia
Bayer	DOW	Kodak	Robinson Brothers
BMW	Eli Lilly	Lotus	Thorntons
BOC	English Provender	Mars Chocolate	Unilever
BNFL	Esso	Merck	Weetabix
Britvic	Exxon	Nestlé	Yeo Valley

CE The range of products shown in this literature complies with the relevant sections of the current Machinery Directive and carry the CE mark.



The One-Nut Concept

The ‘inside out’ concept allows fluid to pass ‘between the diaphragms’, directly through the centre of the pump. Air pressure operates ‘on the outside’. The benefits are:

Longer lasting diaphragms

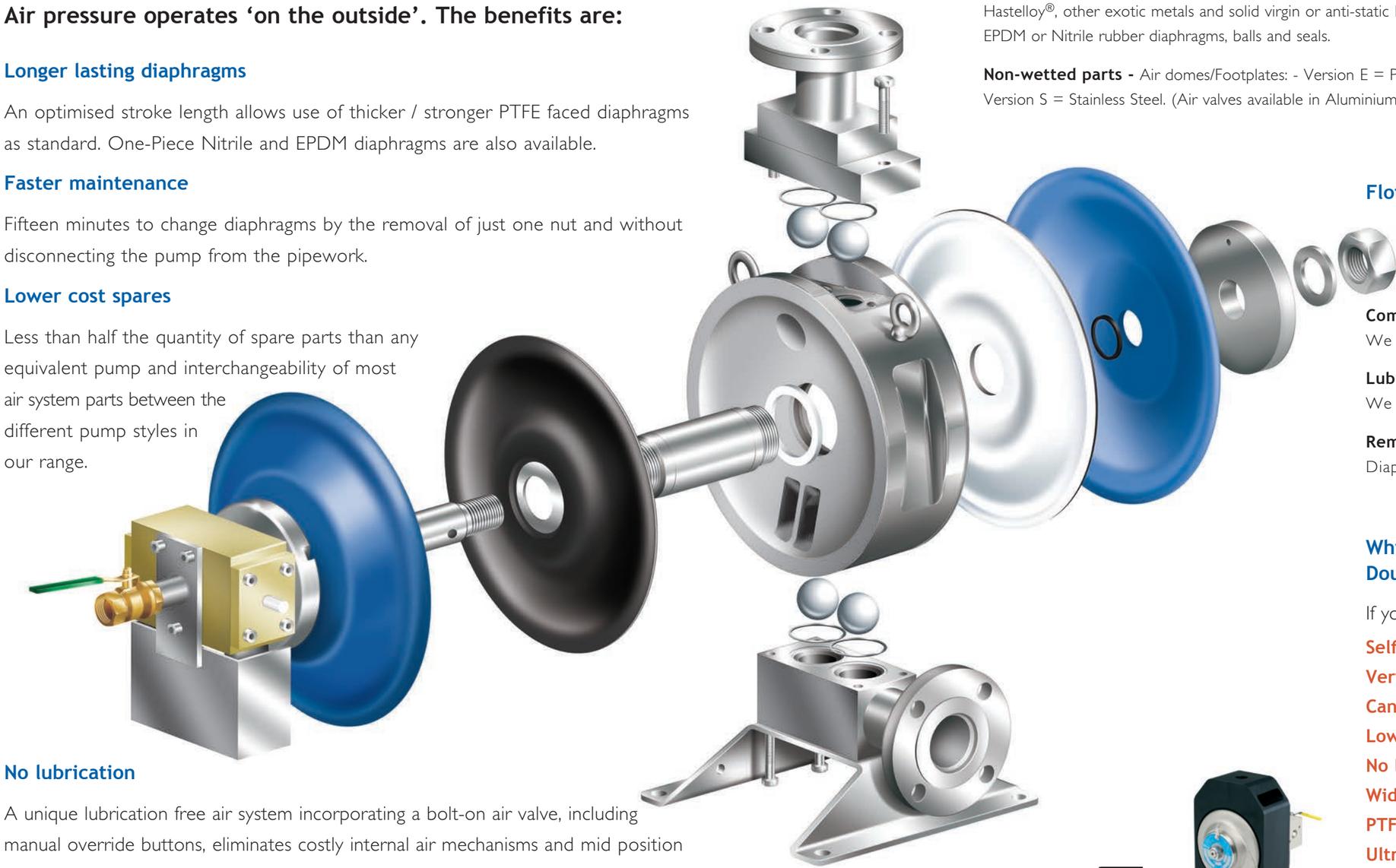
An optimised stroke length allows use of thicker / stronger PTFE faced diaphragms as standard. One-Piece Nitrile and EPDM diaphragms are also available.

Faster maintenance

Fifteen minutes to change diaphragms by the removal of just one nut and without disconnecting the pump from the pipework.

Lower cost spares

Less than half the quantity of spare parts than any equivalent pump and interchangeability of most air system parts between the different pump styles in our range.



No lubrication

A unique lubrication free air system incorporating a bolt-on air valve, including manual override buttons, eliminates costly internal air mechanisms and mid position stall normally associated with Double Diaphragm Pumps.

Greater inherent safety

The pump design ensures that potential leak paths are reduced to a minimum. Even under ATEX conditions pumps can be maintained in the hazardous area up to Zone 1 using anti-static materials.

We offer a choice of both wetted and non-wetted materials

Wetted parts - Pump Body and Manifolds in Aluminium, Polypropylene, PVC, PVDF, 316 Stainless Steel, Hastelloy®, other exotic metals and solid virgin or anti-static PTFE. Diaphragms, balls and seals in PTFE, EPDM or Nitrile rubber diaphragms, balls and seals.

Non-wetted parts - Air domes/Footplates: - Version E = Painted Carbon Steel.
Version S = Stainless Steel. (Air valves available in Aluminium, Polypropylene, PTFE or Stainless Steel).

Flotronic Pumps don’t need:

Clamp bands
We utilise self-aligning bead seals integral with the diaphragms.

Complicated air mechanisms
We simply bolt-on an air valve.

Lubrication
We use self-lubricating PTFE parts.

Removal from Process Line
Diaphragms can be replaced in-situ.

ATEX

Flotronic’s unique One-Nut range of air-driven Double Diaphragm Pumps are fully compliant with the current ATEX Directive.

Why not try a one-nut concept Double Diaphragm Pump

If you've got air on site consider this:

Self-priming - will lift up to 3.6m dry
Very high viscosity capability
Can run dry
Low shear
No lubrication
Wide choice of material
PTFE diaphragms as standard
Ultra clean
Variable speed or pressure
Fifteen minute maintenance ‘in line’
Customised pumps a speciality
Can stop/re-start against a closed/open valve without pressure relief or damage (no by-pass required).

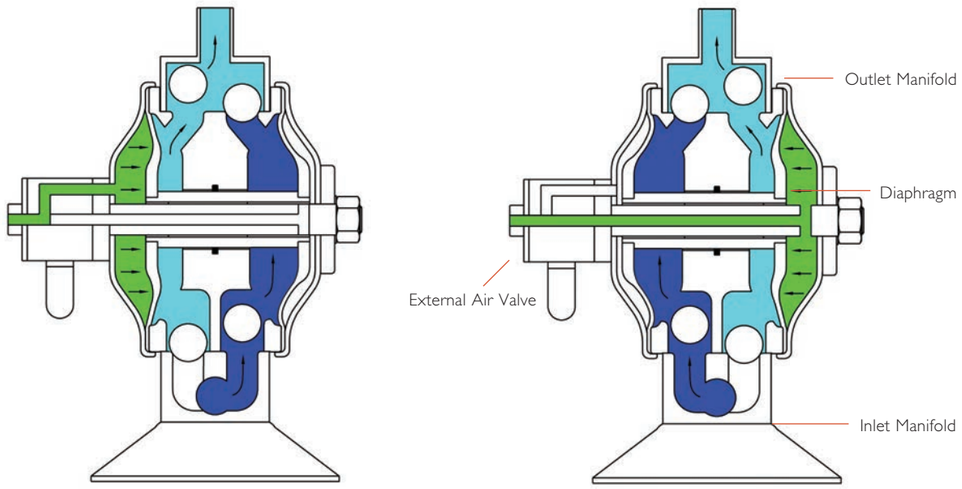
The Flotronic ‘Inside-Out’ Concept

Compressed air is alternately sent to the back of each diaphragm via our unique air distribution system.

Diaphragms are screwed onto a thrust tube which passes through the centre of the pump and thus the pressure placed on the back of one diaphragm causes both diaphragms to move at the same speed.

This causes a positive pressure in the chamber corresponding to the side to which compressed air is applied, closing the bottom ball valve, opening the top ball valve and forcing any liquid in the respective chamber out through the outlet manifold.

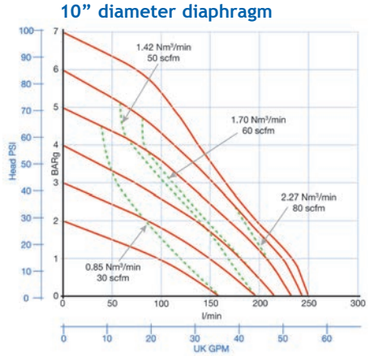
At the same time, a negative pressure is generated in the opposite chamber, closing the top ball valve and opening the bottom ball valve, allowing atmospheric pressure to force liquid into the chamber via the manifold. At the same time, air is being exhausted from the air chamber.



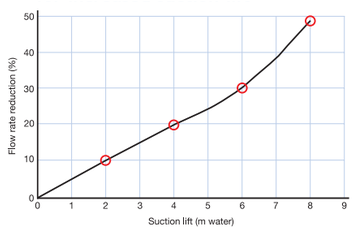
Driving air **Liquid under pressure** **Liquid under suction**

Reading our Flow Rate Curves

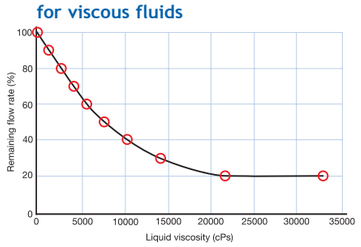
10” diameter diaphragm



Flow rate reduction for increased suction lift



Remaining flow rate for viscous fluids



Pumps with upgrades * A B may reduce pump performance. Suction lift and viscosity graphs for guidance only.

2”

Example: Using the sample Flow Curve shown here; 2” pump, option 1 with 10” PTFE faced diaphragms. Assuming the duty requirement is 100 ltr/min against a 2 bar back pressure.

Step 1 - Plot the duty point. Locate 100 1tr/min on the bottom line and rise vertically to where it crosses the 2 bar point. This is the duty point.

Step 2 - The air pressure required can be obtained from the solid red line which goes from the left and drops diagonally to the right. The air pressure required is 4 bar.

Step 3 - The air consumption figure can be read from the green dashed line which falls from top to bottom.
Air consumption is 1.42Nm³/min (50scfm).

Do not exceed 7.2 bar air supply pressure.

We recommend the use of an air filter/ regulator on the air supply.



Flow Rates

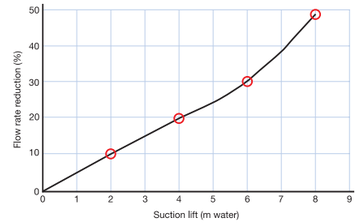
Flow rates up to 200 UKGPM (908 l/min) are available. We offer three sizes of pump for every size of pipe: Options 1, 2 and 3.

All materials of pumps are available in all sizes of pipe from 1/2" to 3" (see pump selection guide on back page). This allows a 'perfect' pump selection rather than a 'nearest equivalent' and gives you the best possible opportunity to keep pump size and price to a minimum. 3/4", 1 1/4" and 2 1/2" size pumps available upon request.

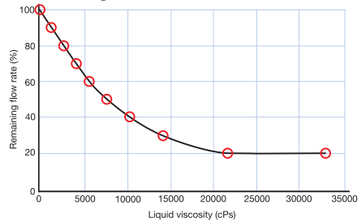
All pumps are self priming (up to 3.6m/12ft dry and 8m/26ft wet). Diaphragm pumps operate on a 1:1 ratio basis. The air pressure supplied will equal the maximum discharge pressure from the pump. Work out your total 'head' and available air (or nitrogen) supply pressure to see maximum pump performance from the graphs shown here.

Example:
With a suction lift of 2m the pumping capacity is reduced by approximately 10%. Remember to consider friction losses as part of the flow rate calculation.

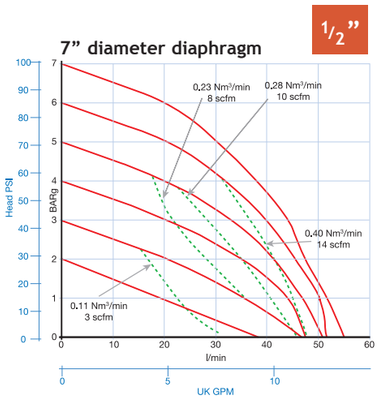
Flow rate reduction for increased suction lift

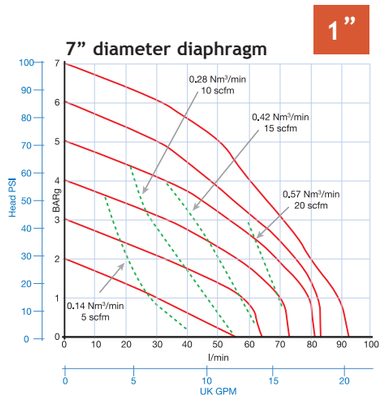


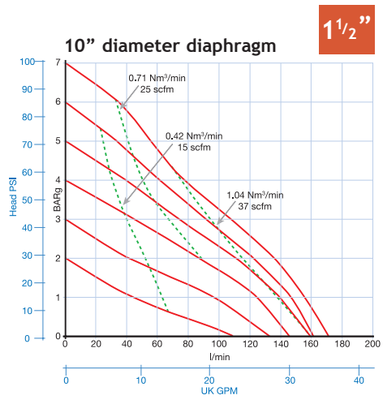
Remaining flow rate for viscous fluids

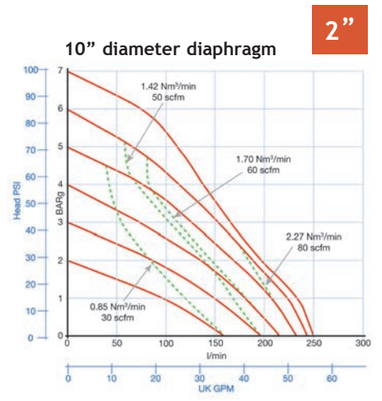


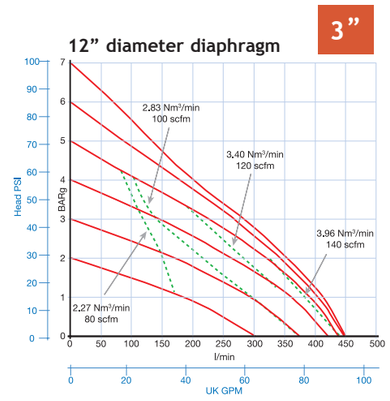
Pump option 1



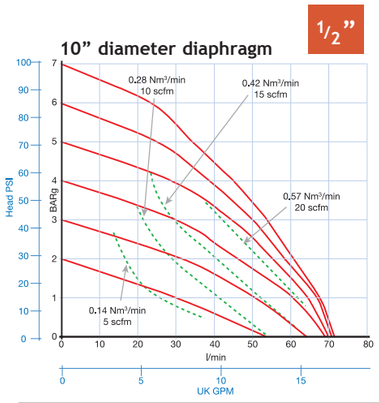


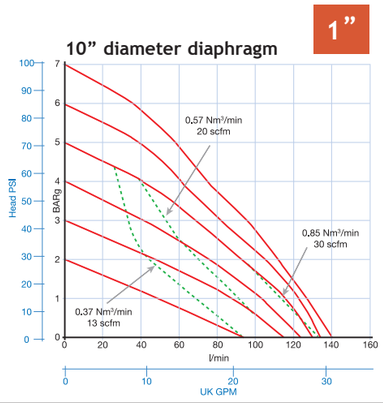


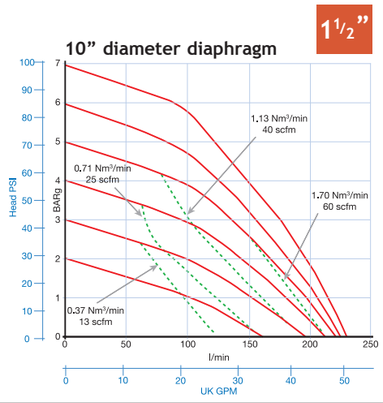


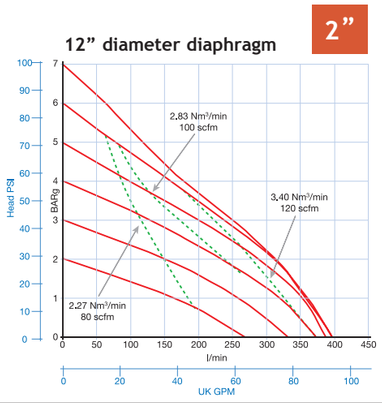


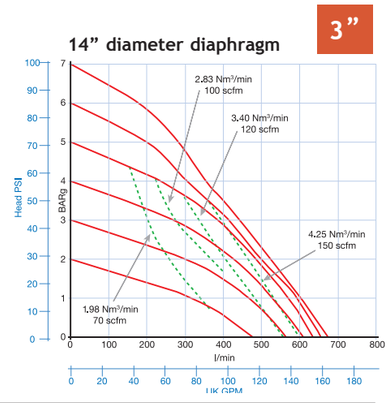
Pump option 2



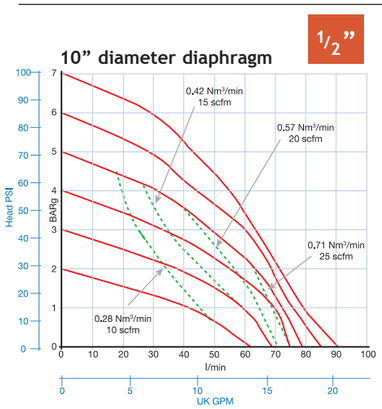


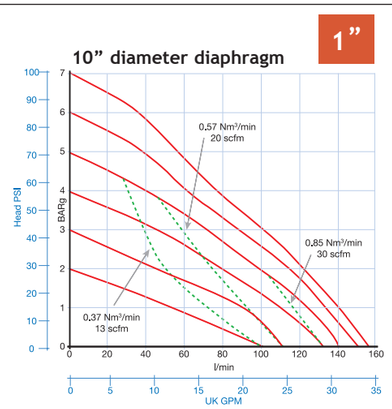


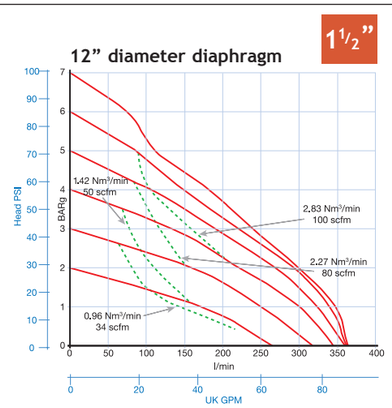


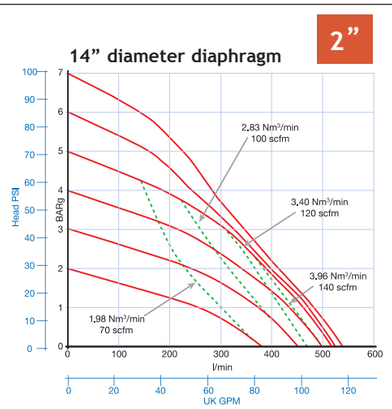


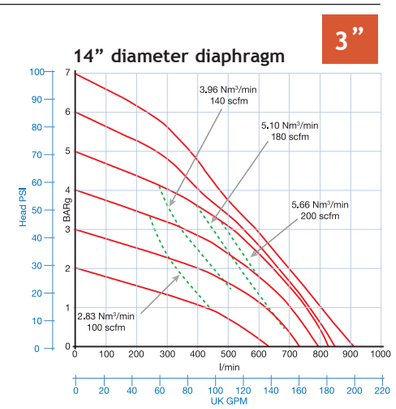
Pump option 3











All information relating to pump performance is the result of extensive testing. Flow performance will be reduced with pump upgrades* A and B. Please consult Flotronic for relevant performance figures.

If air consumption is critical please consult with Flotronic Pumps before ordering.

Choose your pump style and material overleaf.

The Pumps

Choose a style and material of pump to suit your application.

All dimensions quoted are for guidance only and will be dependent upon specification chosen.
General arrangement drawings are available on request.



Slim style: Award-winning metal pumps

CNC machined from solid billet, these compact and self-draining pumps are available in 316 Stainless Steel, Aluminium and also exotic metals, including Hastelloy®.

These pumps can be used in a wide range of industries including chemical, cosmetic, paints, pharmaceutical, adhesive and hygienic applications.

Winner of the prestigious Food Hygiene Award for Food Processing and Manufacture.

Only 'one nut' to access diaphragms with pump 'in-line'

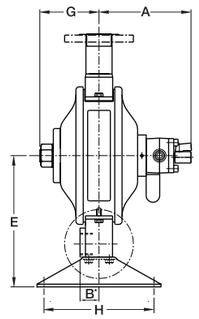
Only four nuts and bolts to access balls and seats (where fitted)

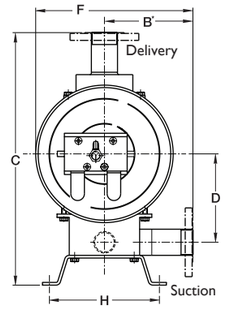
Only four bolts to maintain air valve with pump 'in-line'

This pump is self priming (3.6m/12ft dry and 8m/26ft wet)

Flow rates up to 454 ltr/min

Max operating temp 135°C (275°F) with high temp diaphragm (specify H as 6th digit in pump code)





Maximum operating pressure 7.2 bar (105 PSIG)

Stainless Steel range

Size	A	B	C	D	E	F	G	H	Wt/kg	Diaphragm Diameter
½"-1"	159	106	332	109	175	215	92	160	17	7"
½"-1"	172	129	425	145	217	255	109	203	27	10"
1½"- 2"	207	163	466	163	242	290	109	203	28	10"
1½"-2"-3"	305	180	600	175	280	350	180	250	75	12"
Aluminium range										
½"-1"	159	89	312	109	175	187	92	160	13	7"
½"-1"	172	69	461	171	256	254	109	203	22	10"
1½"- 2"	180	45	437	171	256	254	109	203	22	10"
1½"-2"-3"	305	125	520	180	275	295	180	250	50	12"

Dimensions in mm



500 style: Polypropylene, PVC, PVDF and Aluminium pumps

CNC machined from solid billet, supported by metal air domes, top and bottom plates and through studs offer safety without compromising fast maintenance.

Normally used for solvents/chemicals and dyes and often as a less expensive option to Stainless Steel.

Only 'one nut' to access diaphragms with pump 'in-line'

Only four nuts to access balls and seats

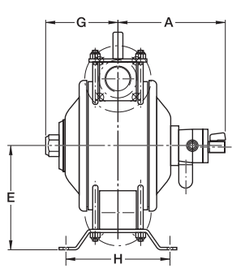
Only four bolts to maintain air valve with pump 'in-line'

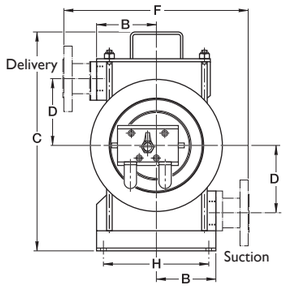
This pump is self priming (3.6m/12ft dry and 8m/26ft wet)

Flow rates up to 908 ltr/min

Max operating temp 80°C (176°F) for Polypropylene, PVC, PVDF pumps

Max operating temp 135°C (275°F) for Aluminium pumps fitted with high temp diaphragms (specify H as 6th digit in pump code)





Maximum operating pressure 7.2 bar (105 PSIG)

Polypropylene, PVC, PVDF & Aluminium

Size	A	B	C	D	E	F	G	H	Wt/kg	Diaphragm Diameter
½"-1"*	223	87	323	110	178	225	116	130	13†	7"
½"	190	114	360	115	170	355	140	203	19†	10"
1"	230	114	390	121	186	355	140	203	21†	10"
1½"	230	114	419	129	200	355	140	203	21†	10"
2"	230	163	450	132	215	450	140	203	22†	10"
1½"-2"-3"*	345	150	522	189	289	323	210	220	50†	12"
2"-3"	350	190	545	148	270	550	235	330	75†	14"

* Vertical delivery on these pumps
† For Aluminium weight please contact Flotronic

Dimensions in mm



710 Style: Stainless Steel and exotic metal pumps

Fabricated 316 or 304 Stainless Steel or Hastelloy® on all wetted metal parts offers unrivalled versatility.

These pumps are used extensively throughout industry from acids to adhesives, cosmetics to ceramics, petrochemicals to paper stock and solvents to solids in suspension. Even dairy and food stuffs.

Only 'one nut' to access diaphragms with pump 'in-line'

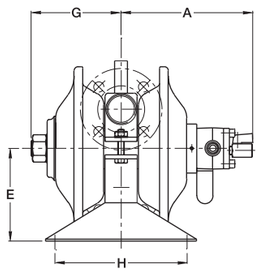
Only two nuts and bolts to access balls and seats

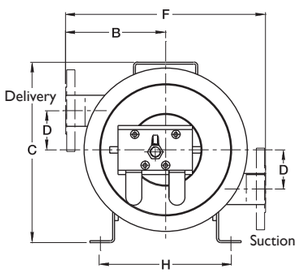
Only four bolts to maintain air valve with pump 'in-line'

This pump is self priming (3.6m/12ft dry and 8m/26ft wet)

Flow rates up to 908 ltr/min

Max operating temp 135°C (275°F) with high temp diaphragm (specify H as 6th digit in pump code)





Maximum operating pressure 7.2 bar (105 PSIG)

Stainless Steel & Exotic Metals

Size	A	B	C	D	E	F	G	H	Wt/kg	Diaphragm Diameter
½"	190	156	282	60	146	311	140	203	20	10"
1"	200	156	282	60	146	311	140	203	21	10"
1½"	230	156	282	60	146	311	140	203	24	10"
2"	230	156	282	60	146	311	140	203	24	10"
2"-3"	350	250	460	114	230	500	235	254	80	14"

Dimensions in mm



The Pumps (continued)

All dimensions quoted are for guidance only and will be dependent upon specification chosen.
General arrangement drawings are available on request.



K Style: Chemflo virgin and anti-static PTFE pumps

CNC machined from solid billet, virgin or anti-static PTFE housed completely inside an outer metal casing of Stainless Steel giving inherent safety whilst retaining 'one nut' maintenance.

Used for extremely hazardous acids and chemicals where only PTFE can be used and often in pilot plants or as emergency pumps where chemicals are unknown.

The ultimate solid PTFE Double Diaphragm Pump.

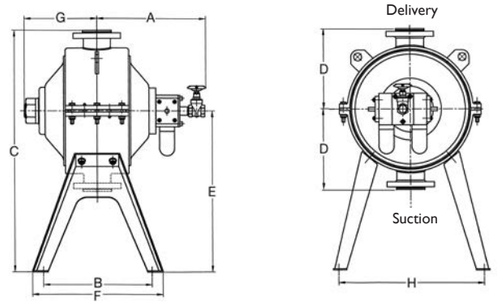
Only 'one nut' to access diaphragms with pump 'in-line'

This pump is self priming (3.6m/12ft dry and 8m/26ft wet)

Flow rates up to 680 ltr/min

Flanged connections as standard

Max operating temp 135°C (275°F) with high temp diaphragm (specify H as 6th digit in pump code)



Maximum operating pressure 7.2 bar (105 PSIG)

Chemflo Virgin & Anti-Static PTFE

Size	A	B	C	D	E	F	G	H	Wt/kg	Diaphragm Diameter
1"	240	235	550	180	370	300	140	325	38	10"
1½"	240	235	550	180	370	300	140	325	40	10"
2"	240	250	570	180	390	315	140	345	42	10"
2"-3"	350	350	780	260	520	420	235	470	100	14"

Dimensions in mm



Minichem: One block virgin and anti-static PTFE pump

CNC machined from a single integral billet of PTFE, removing the need for separate manifolds.

High pump integrity with no obvious leak paths and improved durability, designed for aggressive chemical and hazardous materials transfer.

Absence of separate manifolds makes this pump especially easy to maintain

Only 'one nut' to access diaphragms with pump 'in-line'

Only four bolts to maintain air valve with pump 'in-line'

Flanged as well as BSP version available, so fully compatible with existing PTFE-lined pipework

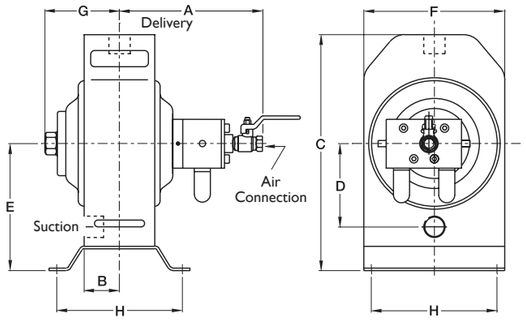
All non-wetted parts in Polypropylene and Stainless Steel

ATEX approved version available in FDA approved anti-static/virgin PTFE

This pump is self priming (2m/6.5ft dry and 8m/26ft wet)

Flow rates up to 100 ltr/min

Max operating temperature 80°C (176°F)



Maximum operating pressure 7.2 bar (105 PSIG)

Minichem Virgin & Anti Static PTFE

Size	A	B	C	D	E	F	G	H	Wt/kg	Diaphragm Diameter
½"-1"	282	55	368	130	198	220	116	196	23	7"

Dimensions in mm



Good Food Style: Stainless Steel 'Tool Free Maintenance' pump

Fabricated from either 316 or 304 Stainless Steel, this pump has been designed to maximise the quick strip and clean in place (CIP) benefits of the 'ONE-NUT' design.

Designed expressly for the food industry with your choice of hygienic connections as standard.

Enlarged manifolds allow large solid sizes up to 25mm (eg: fruit, vegetable pieces) to pass through easily.

Tool free access to diaphragms for easy cleaning, with pump 'in-line', integral 'T' bars mean that a ten minute strip-down and re-build can be achieved

Tool free removal of manifolds for easy cleaning and access to balls and seats

This pump is self priming (3.6m/12ft dry and 8m/26ft wet)

Flow Rates up to 680 ltr/min

Max operating temp 135°C (275°F) with high temp diaphragm (specify H as 6th digit in pump code)

Self-priming ability allows high viscosity materials to be pumped up to 300,000 CPs

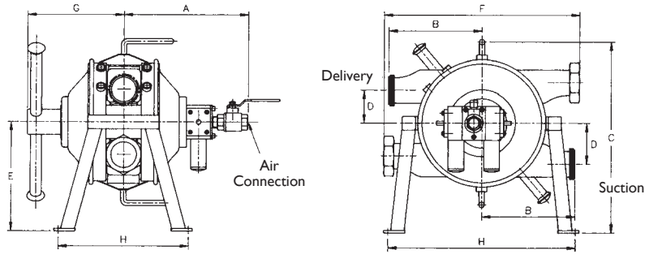
CIP connection as standard

Dry run ability makes it possible to leave the pump running to completely clean out a vessel

Good Food Pump

Size	A	B	C	D	E	F	G	H	Wt/kg	Diaphragm Diameter
2"	375	360/380	570	85/125	330	740	290	390/560	97	14"
3"	390	280	570	100/115	330	560	290	390/560	95	14"

Dimensions in mm



Maximum operating pressure 7.2 bar (105 PSIG)

Choose your diaphragms, air system Non-wetted parts and connections on page 14 & 15.

Diaphragms

Choose a Diaphragm for your pump.

Flotronic leads the way in diaphragm technology through continued and extensive research, development and testing. Flotronic introduced a PTFE faced rubber backed bonded diaphragm to the market in 1982, and have continued with this concept to the present day. The key to a successful PTFE diaphragm is a very short stroking action. Flotronic are able to use a shorter stroke enabling us to achieve a multi-million cycle 'norm'. Our standard diaphragm has a Virgin PTFE face, bonded to Nitrile Rubber, which covers the majority of applications.



Virgin PTFE - Nitrile backed
Option code T (6th digit in pump code). The perfect diaphragm, flexible yet corrosion resistant and as a one piece Virgin PTFE faced diaphragm, achieves multi-million cycles as standard. Temperature range: -15°C to 100°C (5°F to 212°F)

Virgin PTFE - EPDM backed
Option H in pump code (6th digit in pump code). Virgin PTFE faced with EPDM backing . Suitable for high temperature applications, and applications where EPDM backing is preferred. Temperature range: -15°C to 135°C (5°F to 275°F)

Ultimate PTFE - Nitrile backed
Option code U (6th digit in pump code). A diaphragm for particularly difficult applications where PTFE is required but virgin lifetime is limited, e.g permeation. The ULTIMATE diaphragm range is available for all styles of Flotronic pump. Temperature range: -15°C to 100°C (5°F to 212°F)

Anti-static PTFE - Nitrile backed
Option code A (6th digit in pump code). A diaphragm for ATEX applications ensuring 'in the zone' maintenance is still allowed. Temperature range: -15°C to 100°C (5°F to 212°F)

Anti-static PTFE - EPDM backed
Option code A (6th digit in pump code). A diaphragm for ATEX applications ensuring 'in the zone' maintenance is still allowed. Suitable for high temperature applications, and applications where EPDM backing is preferred.Temperature range: -15°C to 135°C (5°F to 275°F)

Nitrile
Option code N (6th digit in pump code). For very high abrasive media applications, with limited chemical resistance. Temperature range: -10°C to 100°C (14°F to 212°F)

EPDM
Option code E (6th digit in pump code). Not commonly used today as superseded by virgin PTFE, but available upon request. Temperature range: -40°C to 135°C (-40°F to 275°F)

Material Certification
FDA, USP VI and 3A grades are available on most of our diaphragm range. Please contact Flotronic for details.

Diaphragms - legislation and safety issues.

Flotronic has made huge advances in PTFE diaphragm technology and has over 50 diaphragms to suit every application.

Flotronic takes its CE obligations very seriously indeed and ask that you in turn follow the Certificate of Incorporation requirements of CE equipment into your own factories and workshops. Use of non-genuine spares automatically invalidates the OEM Warranty and any certification given by Flotronic Pumps Ltd on our products.

CE

Flotronic has the diaphragm solution for you. You only have to ask.

Air Systems

Our unique design incorporates a lubrication free bolt-on air valve including manual override buttons. Latest designs eliminate costly internal air mechanisms and mid-position stall normally associated with Double Diaphragm Pumps. No lubrication required.

Amongst the quietest Double Diaphragm Pumps on the market, our aluminium or polypropylene air systems are supplied as standard. You can upgrade the air system as shown below.



Aluminium and Stainless Steel style



Polypropylene



PTFE

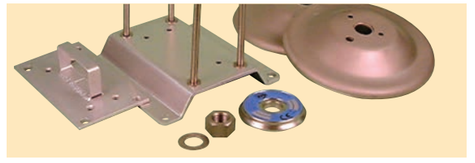


Flo 6 Polypropylene

Non-Wetted Parts

We offer a choice of non-wetted parts on every pump. You can specify our E version with air domes, handle and footplates in painted Carbon Steel or alternatively, our S version with the same parts in Stainless Steel. (Over 40% of the pumps we supply are upgraded to Stainless Steel non-wetted parts).

If you would like these parts in Stainless Steel on your pump, specify S as the 9th digit in the pump code.





Connections

Any standard inlet/outlet connection can be supplied. BSPT, NPT, RJT, IDF, ANSI 150, DIN, BS flanges. Don't hesitate to ask for your preferred connection style.







Consider our unique upgrades and special features overleaf.



Important Upgrades

Now you have selected your standard pump, don't forget we also supply vital additional equipment to cover all your pumping requirements.

Flotronic has a great deal of experience in providing total pumping solutions world-wide. Whether you require air filter regulators, rupture protection systems, alarms, integral pulsation dampers - even pump trolleys, we manufacture and supply a wide range of crucial additional elements, which meet or exceed all relevant performance and safety regulations globally. Our customers' most popular upgrades are pictured here. For the full list refer to the last column of the coding chart on page 19.



Upgrade A

Sentinel alarm system

Incorporating the Guardian rupture protection system (upgrade B), our alarm systems are entirely pneumatic (no electrics whatsoever). A choice of alarm and/or pump shutdown system is available alerting diaphragm failure and stopping the pump if required. Standard alarm is a pneumatic hom/whistle.

Upgrade J

Integral hot water jackets



Jacketed versions of our Stainless Steel Pumps and dampers are available. Steam/ hot or cold water can then be passed through pump and/ or damper to help maintain product temperature.

Upgrade O

ATEX

All pumps in the Flotronic range can be ATEX certified for use in hazardous areas

Upgrade ∗ or B

Low-cost rupture protection system

The Guardian rupture protection system can be fitted to all Flotronic Pumps. With this system a secondary chamber is created by an additional PTFE diaphragm behind each of the primary pump diaphragms to capture liquid upon primary diaphragm rupture. This chamber can be in low-cost Polypropylene (upgrade ∗) or a material to match the pump wetted body (upgrade B) both with PTFE diaphragms



Upgrade C

Pump counter system



All pumps can easily be modified to count and stop within an accuracy of +/-2%. This pneumatic counter simply attaches to the pump air system in a Stainless Steel enclosure.

Upgrade P

Pulsation dampers

Dampers can be supplied integrally mounted on an FPL pump, or individually (see photo below) to remove up to 95% of a given pulse. Dampers work on normal air supply pressure with no charging necessary. Dampers are provided in Stainless Steel, virgin or anti-static PTFE, PVDF, Polypropylene, Aluminium or exotic materials with virgin or anti-static PTFE diaphragms as standard.



Upgrade W

Pump trolleys

Two or four wheel trolleys are available for easy pump transportation. A wide range of customised trolleys are also available.



For more information go to: www.flotronicpumps.co.uk

Customised Products



If our products don't exactly meet your requirements we can modify them for you.

We have an excellent facility for customising products whether it be simply a different connection, material, painting specification, or more complicated locking arrangements, pipework, valves etc.

The pump shown was designed and manufactured for an international oil and gas company. It has an integral pulsation damper, diaphragm rupture protection, alarm system (including the damper), acoustic box on the air system and filter regulator with gauge; whilst remaining self-contained and portable.

For a pump built to your specification, just ask, we can usually help you.

Sanitary Standards Pump

E Series EHEDG Pump



Engineered for the food, beverage, dairy and pharmaceutical industries and tested to exacting performance standards by EHEDG* (the European Hygienic Engineering & Design Group), Flotronic's 'E' series pump is the ideal choice for any environment or process where avoidance of product contamination is paramount.

Flotronic Pumps' 'E' Series pump has been designed with ease of cleaning for all product-contact and non-product contact parts firmly in mind. Featuring Flotronic's established and unique 'ONE-NUT' pump design, meaning fast inspection / maintenance of pump in line.

The unique reinforced diaphragm design used in the 'E' Series means that the pumps can withstand CIP pressures of up to 5 Bar when used with external CIP rigs. Cleaning is also made easier by a support stand which allows rotation of the pump for easy and effective media draining. Inversion of the pump can be carried out in line if required and with the suction and delivery pipes still attached.

The 'E' Series pump features polished wetted surfaces to 0,8µm Ra or better and an electro polished overall finish.

* The European Hygienic Engineering & Design Group (EHEDG) is a consortium of equipment manufacturers, food industries, research institutes and public health authorities. Founded in 1989, EHEDG's aim is to promote hygiene during the processing and packing of food products.

Flotronic's **'H' Series 3-A** Pump** has also been designed for conditions demanding rigorous hygiene standards. The 'H' Series has been accredited by 3-A Sanitary Standards Inc.

** 3-A Sanitary Standards, Inc (3-A SSI) is the US-based independent not-for-profit corporation dedicated to advancing hygienic equipment design for the food, beverage and pharmaceutical industries. 3-A SSI specify the criteria for the design and fabrication of equipment that comes into contact with food including pumps. The 3-A symbol signifies that equipment is compatible with regulatory equipment and guidelines.

Coding Chart

A pump specification for every occasion.
Create your pump code using this list.

The code must be a minimum of 12 digits with upgrades added at the end. Enter the code at the bottom of each column. (See example).

Series	Pump option	Connection and size	Body and manifolds	Thrust tube (The wetted part connecting the diaphragms)	Diaphragms/ divider seals	Balls	Seats	Version (Non-wetted parts)	Connections	Upgrades and special features
F - All pumps	**1** **2** **3**	**1** - 1/2" **2** - 3/4" **3** - 1" **4** - 1 1/4" **5** - 1 1/2" **7** - 2" **8** - 2 1/2" **9** - 3"	**3** - Aluminium **5** - 304 Stainless Steel **6** - 316 Stainless Steel **P** - Polypropylene **L** - Polyethylene (HD) **T** - PTFE **D** - PVDF **U** - PVC **A** - Anti-static PTFE **N** - Natural Poly **H** - Hastelloy® C	**5** - 304 Stainless Steel **6** - 316 Stainless Steel **P** - Polypropylene **L** - Polyethylene (HD) **T** - PTFE **D** - PVDF **U** - PVC **A** - Anti-static PTFE **N** - Natural Poly **H** - Hastelloy® C **C** - Ceramic **Note:** Hastelloy® B is also available upon request.	**T** - PTFE **N** - Nitrile **E** - EPDM **H** - High temp PTFE **A** - Anti-static PTFE **U** - Ultimate PTFE **Note:** Divider seals not available as H or U, but can be upgraded to Glass-filled PTFE for abrasive applications upon request. **Note:** A PTFE one-piece bonded diaphragm is normally Nitrile. EPDM is available on request.	**T** - PTFE **N** - Nitrile **E** - EPDM **6** - 316 stainless steel **A** - Anti-static PTFE **G** - Glass-filled PTFE **W** - Weighted Nitrile **Note:** Stainless Steel balls should only be considered when pumping highly viscous products.	**T** - PTFE **P** - Polypropylene **L** - Polyethylene (HD) **D** - PVDF **U** - PVC **A** - Anti-static PTFE **H** - Hastelloy® C **N** - Natural poly **M** - UHMWP **6** - 316 Stainless Steel **3** - Aluminium **E** - EPDM **N** - Nitrile **Note:** The seat would normally be specified in the same material as the pump body.	**E** - Painted Carbon Steel **S** - Stainless Steel	**BSP** - BSPT screwed **NPT** - NPT screwed **150** - ANSI 150 flanged **300** - ANSI 300 flanged **D16** - DIN 16 flanged **BSE** - B S table 'E' flanged **BSF** - B S table 'F' flanged **BSH** - B S table 'H' flanged **RJT** - RJT dairy fitting **TRI** - Triclover dairy fitting **851** - Din 11851 dairy fitting **864** - Din 11864 dairy fitting **IDF** - IDF (ISS) dairy fitting **ISS** - ISS (IDF) dairy fitting **CAM** - Camlock **SMS** - SMS fitting **BWB** - Butt weld	* - Low cost Guardian barrier. Not available on Polypropylene pumps. Use code B for Polypropylene pumps **A** - Sentinel alarm pump **B** - Guardian barrier pump **C** - Flomix counter pump **D** - Manual pump drains **E** - Electro-polished pump **F** - Filter regulator **G** - Tool-free maintenance (pumps with 14" dia diaphragms only) **H** - Hand-polished pump - please specify your requirements **I** - Gauge on Barrier System **J** - Jacketed pump **K** - Stainless Steel air valve on pump **L** - Low pressure 0.5 BARg operation (4 valve amplifier system) **M** - Anti-vibration mounts **N** - Polypropylene air valve on pump **O** - ATEX Certified pump **P** - Pulsation damper on pump **Q** - Acoustic silencer cover **R** - Reinforced diaphragms (suction pressure above 0.5 BARg) **S** - Short thrust tube in pump (extra self-prime capability up to 15ft dry) **T** - PTFE air valve on pump **U** - One size smaller outlet connection **V** - Vertical connections instead of horizontal **W** - Two wheel trolley **X** - Special contract identity† **Y** - One size larger inlet connection **Z** - Alternative air valve size † Special pump or pump with more than four upgrades specified (Engineering will allocate a three digit code after the X) **Note**: Specify upgrades in alphabetical order.

Enter your codes in the boxes



Example code: To order this pump configuration (as pictured left) the code would be:

F	3	7	A	A	A	T	A	S	150	AOP

This 2" pump, in pump option 3 (flow rate of 544 ltr/min) has anti-static PTFE body and manifolds, thrust tube and diaphragms, PTFE balls and anti-static PTFE seats. Its non-wetted parts are in Stainless Steel and it has ANSI 150 flanged connections. The pump is fitted with a pneumatic alarm (horn) and visual indicator (upgrade A), is ATEX certified (upgrade O) and has an integral pulsation damper fitted (upgrade P). **Note:** Both the pump and the damper have the secondary anti-static PTFE diaphragm interchamber to capture liquid upon primary diaphragm rupture.
Don't forget upgrade A incorporates upgrade B automatically.

Spares, service and after-sales support

Our policy is to supply spare parts on immediate overnight delivery. Spares can be purchased individually (no minimum order charge) or as a **MINI-KIT** or a complete **REPAIR-KIT.**

Assistance is available through our technical sales or service personnel to help you to achieve maximum operating life from your Flotronic Pump.

For authentic Flotronic Pump Spares go to: www.flotronicspares.co.uk



Pump Selection Guide

Max flow rate ltr/min	Pump Option	Pump inlet/outlet size	Aluminium Pumps Pump Style	Poly/PVC/ PVDF Pumps Pump Style	Stainless/ Hastelloy® Pumps Pump Style	Virgin & A/S PTFE Pumps Pump Style	Diaphragm Diameter
55	1	1/2"	Slim	500	Slim	Minichem	7"
72	2	1/2"	Slim	Use option 3	Slim	Use option 3	10"
90	3	1/2"	Use 1"	500	710	K	10"
100	1	1"	Slim	500	Slim	Minichem	7"
140	2	1"	Slim	Use option 3	Slim	Use option 3	10"
155	3	1"	Use 1 1/2"	500	710	K	10"
175	1	1 1/2"	Slim	Use option 2	Slim	Use option 2	10"
233	2	1 1/2"	Use option 3	500	710	K	10"
363	3	1 1/2"	Slim	500	Slim	Use 2"	12"
250	1	2"	500**	500	710**	K	10"
390	2	2"	Slim	500	Slim	Use option 3	12"
544	3	2"	500	500	710	K	14"
454	1	3"	Slim	500	Slim	Use option 2	12"
680	2	3"	500	500	710	K	14"
908	3	3"	Duplex 500	Duplex 500	Duplex 710	Duplex K	14"

Pumps marked with ** can be supplied in Slim pump style upon request (15% reduction in flow rate).

The company policy of continued product improvement through research and development means that the information contained in this brochure may change. Please ask for confirmation of technical data when ordering.

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For authentic Flotronic pump spares go to: www.flotronicspares.co.uk

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'Flotronic' is a UK registered trade mark.
Specifications subject to change without notice.

ATEX APPROVED PUMPS

ATEX Gas Group IIC compliant pumps now available

FLOTRONIC® ONE-NUT™ PUMPS

Literature BRO. UK - Revision K - 2016

Flotronic 'One - Nut' pumps - The simplest ideas are often the best