

*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.**

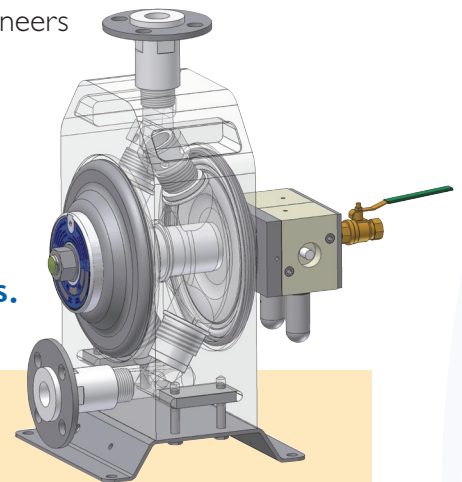


**Unibloc is a world leading manufacturer of air-operated Double Diaphragm Pumps and inventor of the revolutionary 'One-Nut' design - a concept which has transformed the way Diaphragm pumps are being used throughout industry today.**

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:

### Air Products

Akzo Nobel

Astra Zeneca

Avon Cosmetics

BASF

Bayer

BMW

BOC

BNFL

Britvic

Budelpack

### Burtens Foods

Cadburys

Coca-Cola Colgate

Dairy Crest

DOW

Dunkin Donuts

Estee Lauder

Eli Lilly

English Provender

Esso

Exxon

### Geest Givaudan

GlaxoSmithKline

Greggs

Heinz

Jaguar

Kerry Foods

Kodak

Lotus

Mars Chocolate

Merck

Nestlé

### Novartis

Oscar Mayer

Palmolive Cray

Pepsi Cola

Pfizer

Premier Foods

Procter & Gamble

Rhodia

Robinson Brothers

Thorntons

Unilever

Valley Resins



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

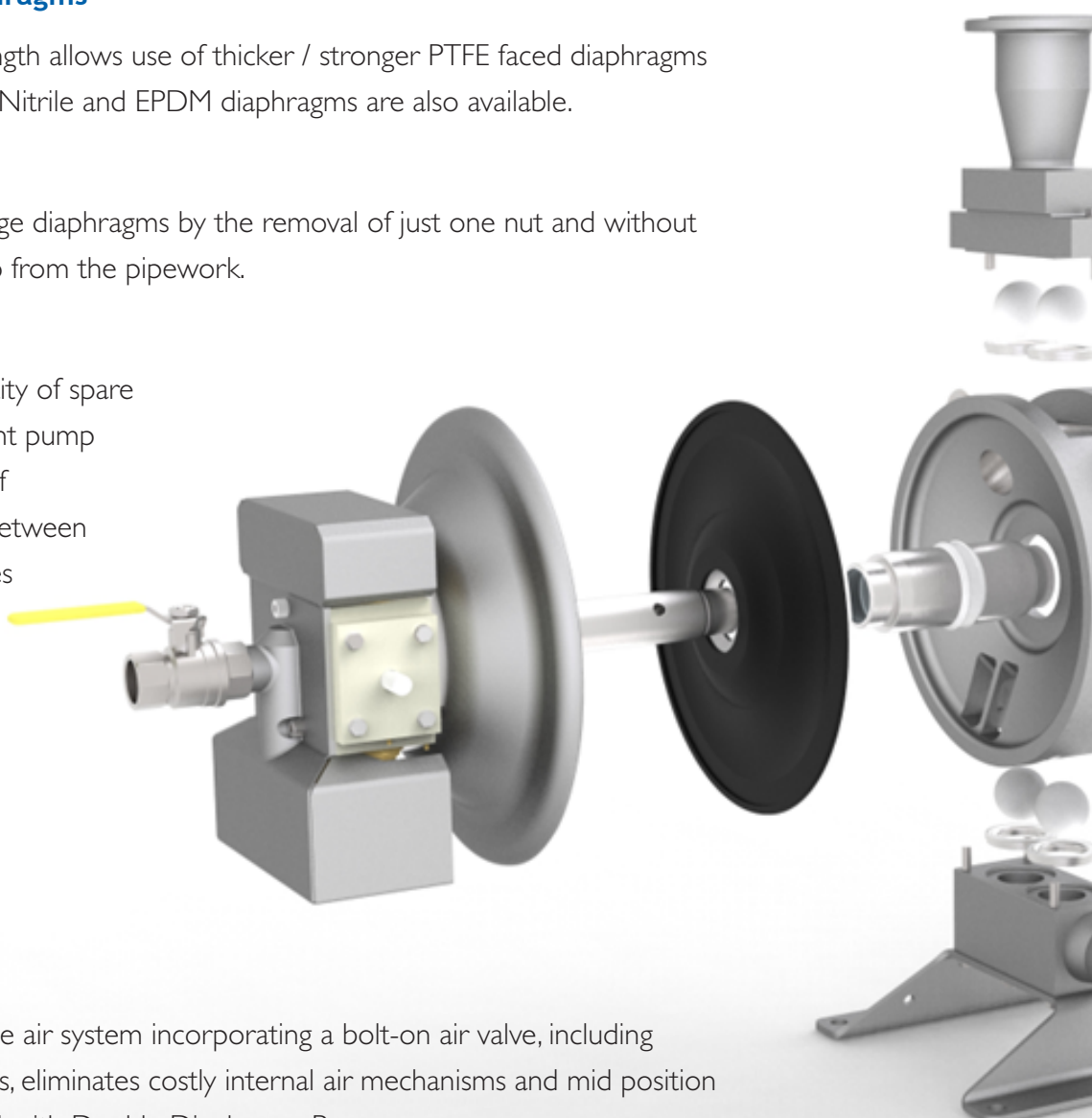
Less than half the quantity of spare parts than any equivalent pump and interchangeability of most air system parts between the different pump styles in our range.

### 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 I 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, 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: - Version E = Painted Carbon Steel.

Version S = Stainless Steel. (Air valves available in Aluminium, Polypropylene, PTFE or Stainless Steel).

## Flotronic Brand 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.

## 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/12ft 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'**

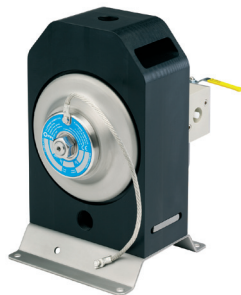
**Customised pumps a speciality**

**Can stop/re-start against a closed/open valve without pressure relief or damage (no by-pass required).**

**ATEX**



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



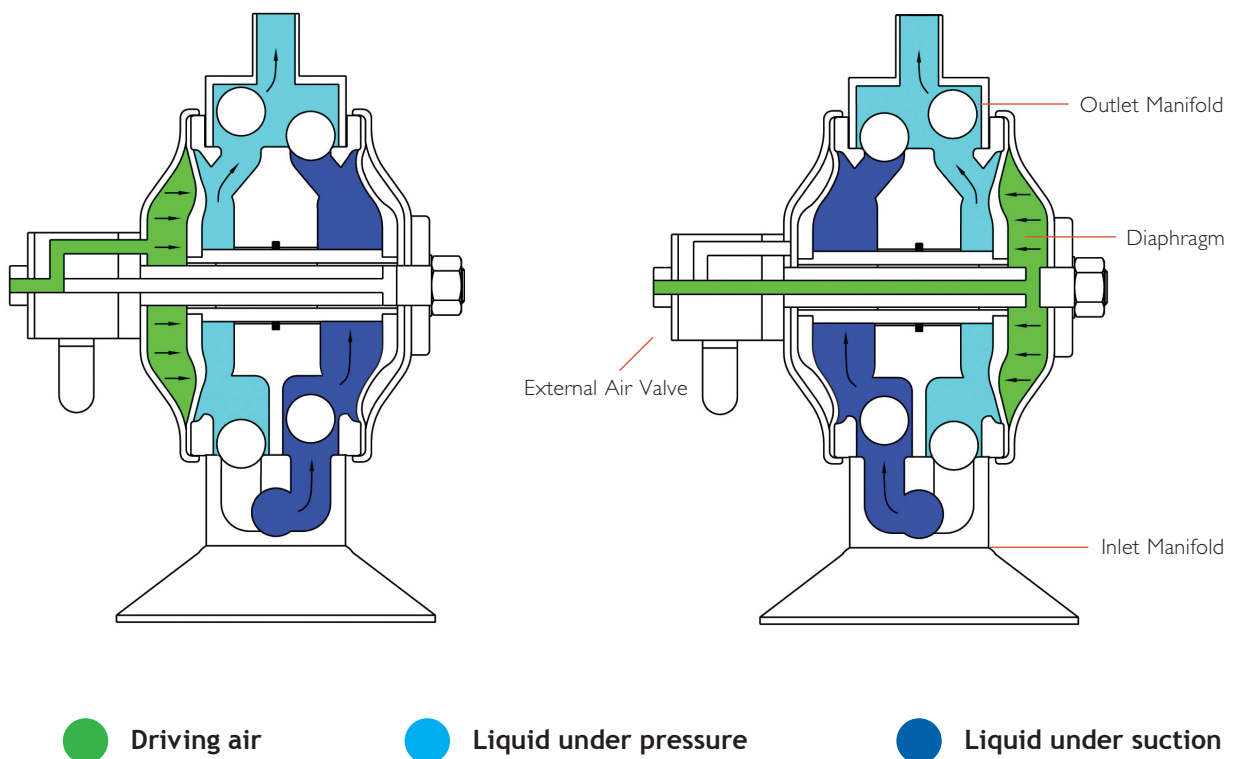
## The Flotronic 'Inside-Out' Concept

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

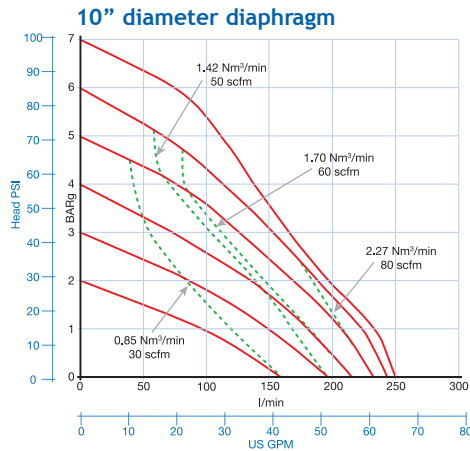
Diaphragms are screwed onto a thrust tube which passes through the centre of the pump and thus the pressure placed on the back of one diaphragm causes both diaphragms to move at the same speed.

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.

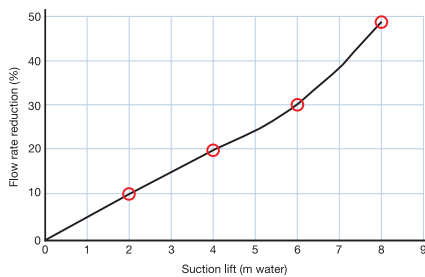
At the same time, a negative pressure is generated in the opposite chamber, closing the top ball valve and opening the bottom ball valve, allowing atmospheric pressure to force liquid into the chamber via the manifold. At the same time, air is being exhausted from the air chamber.



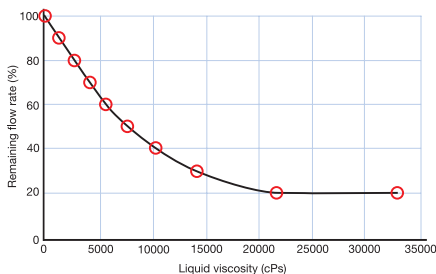
# Reading our Flow Rate Curves



**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 27 USGPM (100 ltr/min) against a 2 bar back pressure.

**Step 1** - Plot the duty point. Locate 100 ltr/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 1.42 Nm<sup>3</sup>/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 240 USGPM (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 ½" 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. ¾", 1¼" and 2½" size pumps available upon request.

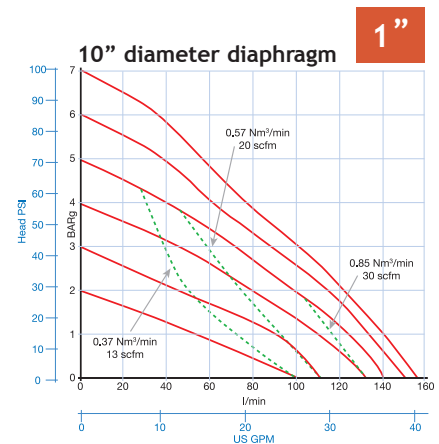
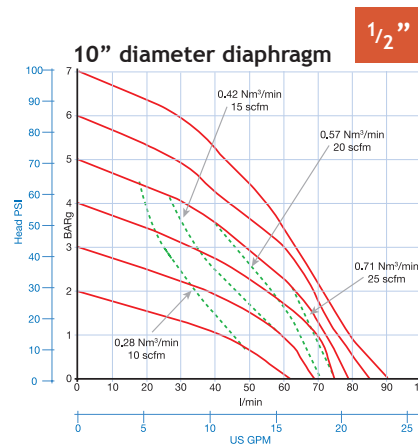
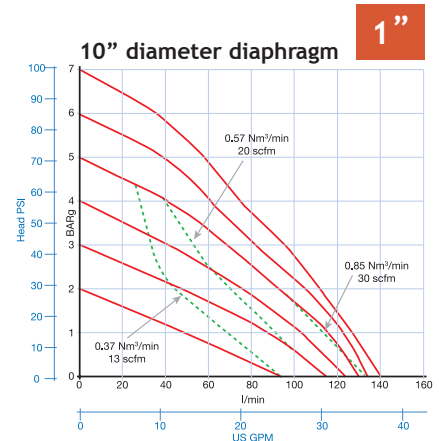
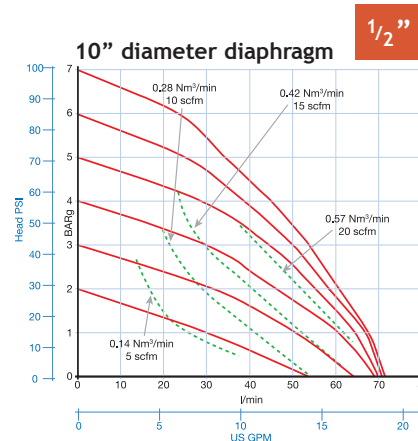
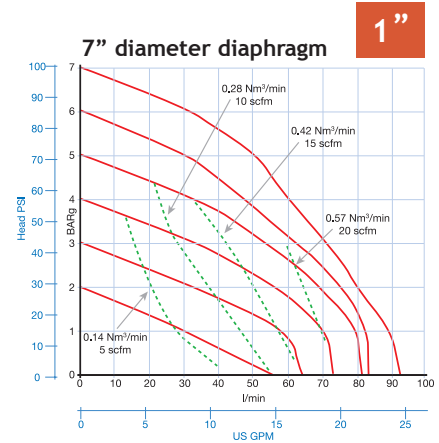
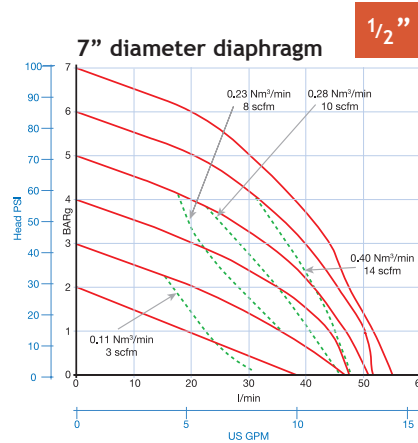
All pumps are self priming (up to 3.6m/12ft dry and 8m/26ft wet). Diaphragm pumps operate on a 1:1 ratio basis. The air pressure supplied will equal the maximum discharge pressure from the pump. Work out your total 'head' and available air (or nitrogen) supply pressure to see maximum pump performance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

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.

Pump option 1

Pump option 2

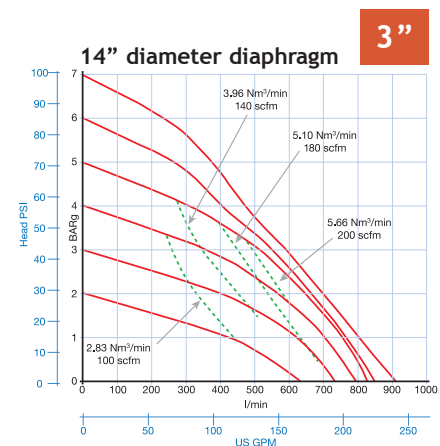
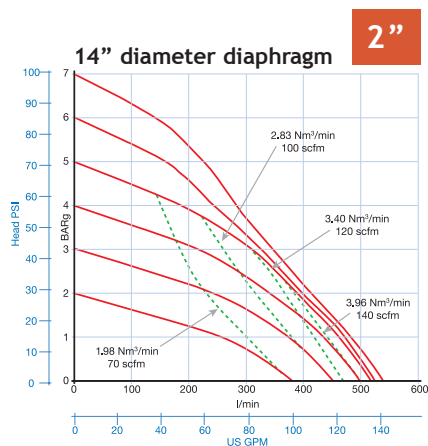
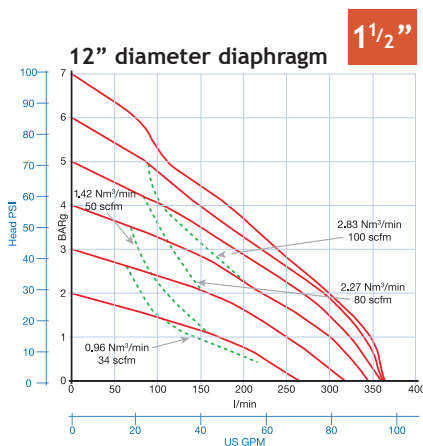
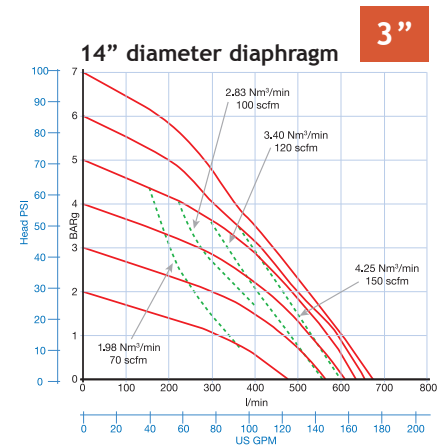
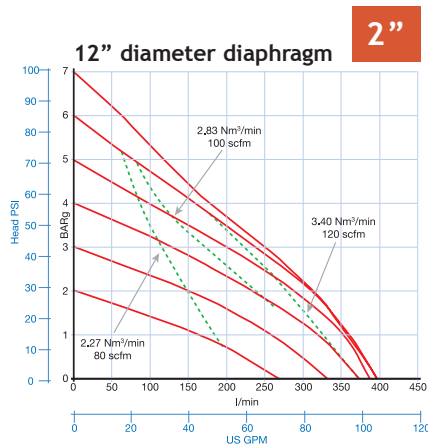
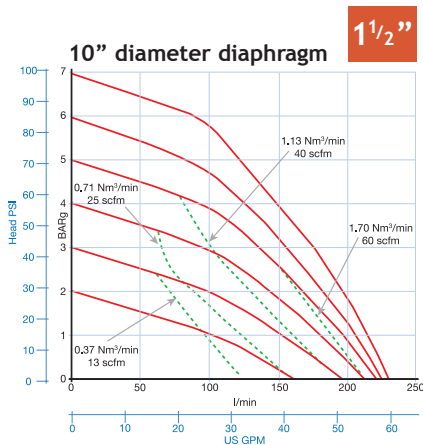
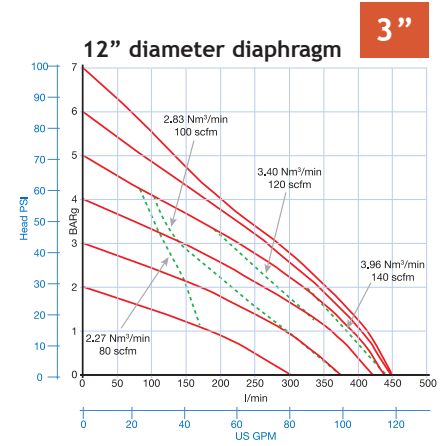
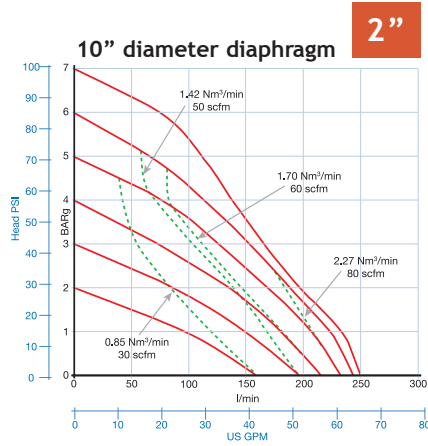
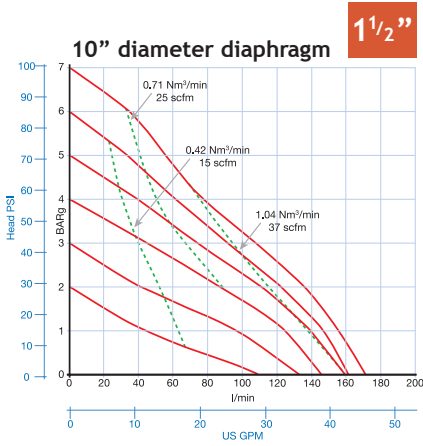
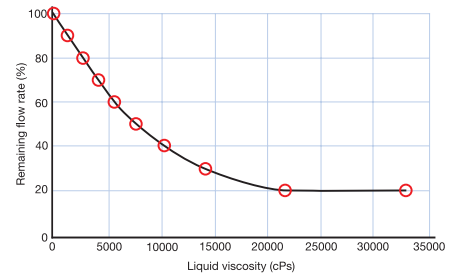
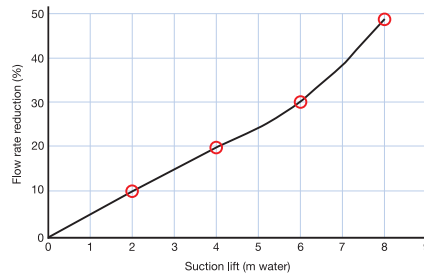
Pump option 3



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

### Example:

With a suction lift of 2m/6½ft the pumping capacity is reduced by approximately 10%. Remember to consider friction losses as part of the flow rate calculation.



Choose your pump style and material overleaf.





## The Pumps

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



### **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 120 USGPM (454 ltr/min)

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



### **500 style: Polypropylene, PVC 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 240 USGPM (908 ltr/min)

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

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



### **710 Style: Stainless Steel and high alloy 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**

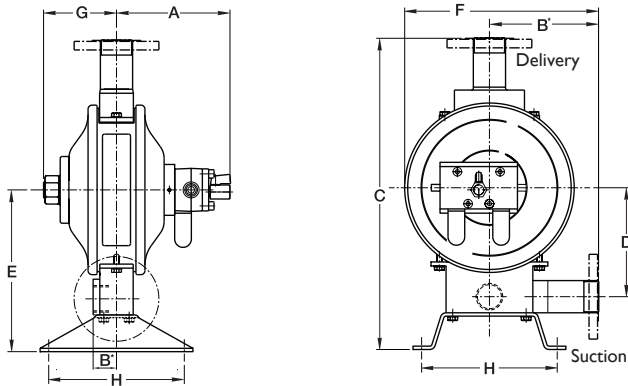
**Only four bolts to maintain air valve with pump 'in-line'**

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

Flow rates up to 240 USGPM (908 ltr/min)

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

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



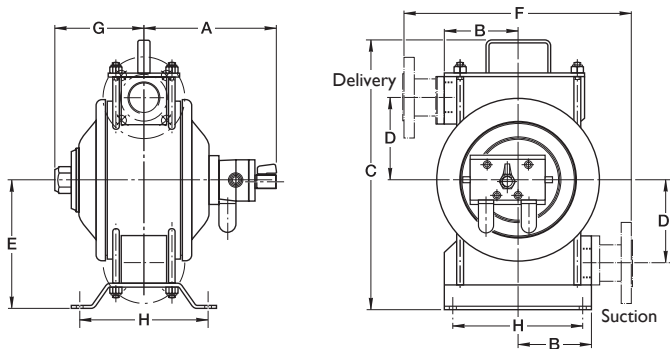
Maximum operating pressure 7.2 bar (105 PSIG)

Stainless Steel range										Diaphragm Diameter
Size	A	B	C	D	E	F	G	H	Wt/lb	
1/2" - 1"	6 1/4	4 1/4	13	4 1/4	6 3/4	8 1/2	3 1/2	6 1/4	37	7"
1 1/2" - 1"	6 3/4	5	16 3/4	5 3/4	8 1/2	10	4 1/4	8	59	10"
1 1/2" - 2"	8 1/4	6 1/2	18 1/2	6 1/2	9 1/2	11 1/2	4 1/4	8	62	10"
1 1/2" - 2" - 3"	12	7	23 1/2	6 3/4	11	13 3/4	7	9 3/4	165	12"

Aluminium range										Diaphragm Diameter
Size	A	B	C	D	E	F	G	H	Wt/lb	
1/2" - 1"	6 1/4	3 1/2	12 1/4	4 1/4	7	7 1/2	3 1/2	6 1/4	29	7"
1 1/2" - 1"	6 3/4	2 3/4	18 1/2	6 3/4	10	10	4 1/4	8	48	10"
1 1/2" - 2"	7	1 3/4	17 1/4	6 3/4	10	10	4 1/4	8	48	10"
1 1/2" - 2" - 3"	12	5	20 1/2	7	10 3/4	11 1/2	7	9 3/4	110	12"

Dimensions in inches



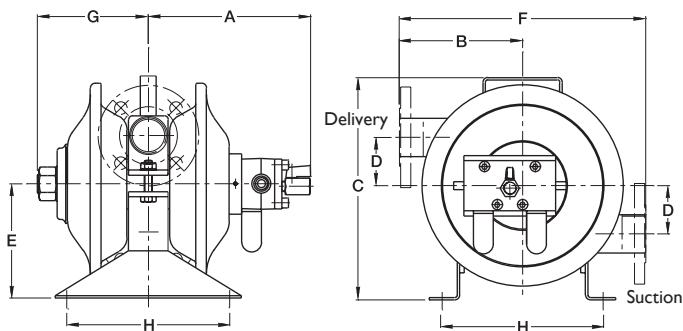
Maximum operating pressure 7.2 bar (105 PSIG)

Polypropylene, PVC & Aluminium										Diaphragm Diameter
Size	A	B	C	D	E	F	G	H	Wt/lb	
1/2" - 1"*	8 3/4	3 1/2	12 3/4	4 1/4	7	8 3/4	4 1/2	5 1/2	29 <sup>†</sup>	7"
1/2"	7 1/2	4 1/2	14 1/4	4 1/2	6 1/2	14	5 1/2	8	42 <sup>†</sup>	10"
1"	9	4 1/2	15 1/4	4 3/4	7 1/4	14	5 1/2	8	46 <sup>†</sup>	10"
1 1/2"	9	4 1/2	16 1/2	5	7 3/4	14	5 1/2	8	46 <sup>†</sup>	10"
2"	9	6 1/2	17 3/4	5 1/4	8 1/2	17 3/4	5 1/2	8	48 <sup>†</sup>	10"
1 1/2" - 2" - 3"*	13 1/2	6	20 1/2	7 1/2	11 1/2	12 3/4	8 1/4	8 1/2	110 <sup>†</sup>	12"
2" - 3"	13 3/4	7 1/2	21 1/2	5 3/4	10 1/2	21 1/2	9 1/4	13	165 <sup>†</sup>	14"

\* Vertical delivery on these pumps

† For Aluminium weight please contact Flotronic

Dimensions in inches



Maximum operating pressure 7.2 bar (105 PSIG)

Stainless Steel & Exotic Metals										Diaphragm Diameter
Size	A	B	C	D	E	F	G	H	Wt/lb	
1/2"	7 1/2	6	11	2 1/2	5 3/4	12 1/4	5 1/2	8	44	10"
1"	7 3/4	6	11	2 1/2	5 3/4	12 1/4	5 1/2	8	46	10"
1 1/2"	9	6	11	2 1/2	5 3/4	12 1/4	5 1/2	8	53	10"
2"	9	6	11	2 1/2	5 3/4	12 1/4	5 1/2	8	53	10"
2" - 3"	13 3/4	9 3/4	18	4 1/2	9	19 3/4	9 1/4	10	176	14"

Dimensions in inches



## The Pumps (continued)



### 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 180 USGPM (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)



### 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 threaded 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 26 USGPM (100 ltr/min)

Max operating temperature 80°C (176°F)



### 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)

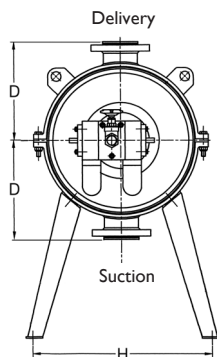
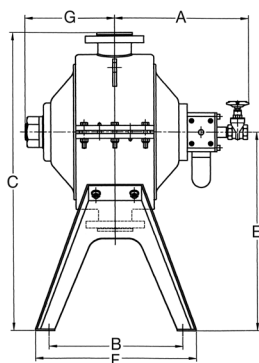
Flow Rates up to 180 USGPM (680 ltr/min)

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

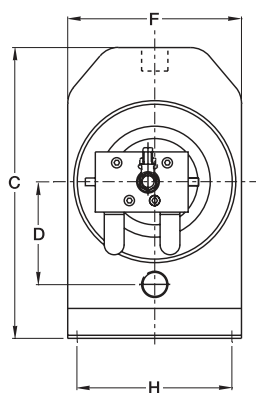
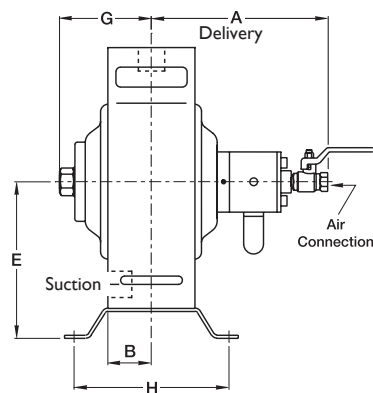
Dry run ability makes it possible to leave the pump running to completely clean out a vessel



Chemflo Virgin & Anti-Static PTFE										
Size	A	B	C	D	E	F	G	H	Wt/lb	Diaphragm Diameter
1"	9 $\frac{1}{2}$	9 $\frac{1}{4}$	21 $\frac{1}{2}$	7	14 $\frac{1}{2}$	11 $\frac{3}{4}$	5 $\frac{1}{2}$	12 $\frac{3}{4}$	84	10"
1 $\frac{1}{2}$ "	9 $\frac{1}{2}$	9 $\frac{1}{4}$	21 $\frac{1}{2}$	7	14 $\frac{1}{2}$	11 $\frac{3}{4}$	5 $\frac{1}{2}$	12 $\frac{3}{4}$	88	10"
2"	9 $\frac{1}{2}$	9 $\frac{3}{4}$	22 $\frac{1}{2}$	7	15 $\frac{1}{2}$	12 $\frac{1}{2}$	5 $\frac{1}{2}$	13 $\frac{1}{2}$	92	10"
2"-3"	13 $\frac{3}{4}$	13 $\frac{3}{4}$	30 $\frac{3}{4}$	10 $\frac{1}{4}$	20 $\frac{1}{2}$	16 $\frac{1}{2}$	9 $\frac{1}{4}$	18 $\frac{1}{2}$	220	14"

Dimensions in inches

Maximum operating pressure 7.2 bar (105 PSIG)



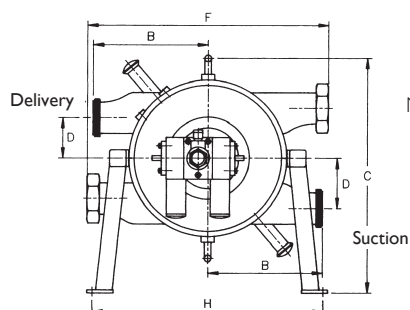
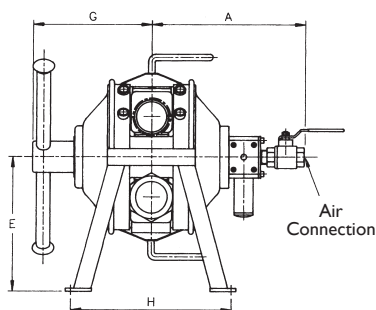
Minichem Virgin & Anti-Static PTFE										
Size	A	B	C	D	E	F	G	H	Wt/lb	Diaphragm Diameter
$\frac{1}{2}$ "-1"	11	2	14 $\frac{1}{2}$	5	7 $\frac{3}{4}$	8 $\frac{1}{2}$	4 $\frac{1}{2}$	7 $\frac{3}{4}$	50	7"

Dimensions in inches

Maximum operating pressure 7.2 bar (105 PSIG)

Good Food Pump										
Size	A	B	C	D	E	F	G	H	Wt/lb	Diaphragm Diameter
2"	14 $\frac{3}{4}$	14/15	22 $\frac{1}{2}$	3 $\frac{1}{4}$ /5	13	29	50 $\frac{3}{4}$	15 $\frac{1}{4}$ /22	213	14"
3"	15 $\frac{1}{4}$	11	22 $\frac{1}{2}$	4 $\frac{1}{4}$ /4 $\frac{1}{2}$	13	22	50 $\frac{3}{4}$	15 $\frac{1}{4}$ /22	209	14"

Dimensions in inches



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 Class 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 **Unibloc Hygienic Technologies, LLC** on our products.



**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.



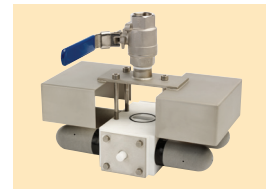
Aluminium and  
Stainless Steel style



Polypropylene



PTFE

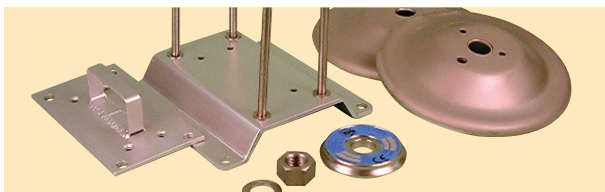


Flo 6 Polypropylene

## Non-Wetted Parts

We offer a choice of non-wetted parts on every pump. You can specify our E version with air domes 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 horn/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, 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: [unibloctech.com](http://unibloctech.com)

## 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

### 'H' Series 3A Pump

Engineered for the Sanitary industries, this latest addition to the range has been designed to meet the high standards demanded by 3-A Sanitary Standards Inc<sup>\*</sup>, ensuring that 'H' pumps can be cleaned in place (CIP). The innovative, easy maintenance, 'One-Nut' design for which Flotronic is renowned remains, meaning the pump can be inspected/maintained in minutes.

Cleaning is also made easier by a specially designed support stand which allows full rotation for draining. Wetted surfaces at a maximum of 32µin Ra and an electro-polished overall finish ensure effective cleanability. We have also developed a new diaphragm rupture detection system which incorporates an instant pump shut-down facility in the event of a diaphragm failure.



<sup>\*</sup> 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.

Series	Pump option	Connection and size	Body and manifolds	Thrust tube (The wetted part connecting the diaphragms)	Diaphragms/divider seals	Balls
<b>A</b> - All pumps (American Standard) <b>F</b> - All pumps (European Standard)	<b>1</b> <b>2</b> <b>3</b> <b>4</b>	<b>1</b> - 1/2" <b>2</b> - 3/4" <b>3</b> - 1" <b>4</b> - 1 1/4" <b>5</b> - 1 1/2" <b>7</b> - 2" <b>8</b> - 2 1/2" <b>9</b> - 3"	<b>3</b> - Aluminium <b>6</b> - 316 Stainless Steel <b>P</b> - Polypropylene <b>L</b> - Polyethylene (HD) <b>T</b> - PTFE <b>U</b> - PVC <b>A</b> - Anti-static PTFE <b>N</b> - Natural Poly <b>H</b> - Hastelloy® C	<b>6</b> - 316 Stainless Steel <b>P</b> - Polypropylene <b>L</b> - Polyethylene (HD) <b>T</b> - PTFE <b>U</b> - PVC <b>A</b> - Anti-static PTFE <b>N</b> - Natural Poly <b>H</b> - Hastelloy® C <b>C</b> - Kolsterised	<b>T</b> - PTFE <b>N</b> - Nitrile <b>E</b> - EPDM <b>H</b> - High temp PTFE <b>A</b> - Anti-static PTFE <b>U</b> - Ultimate PTFE	<b>T</b> - PTFE <b>N</b> - Nitrile <b>E</b> - EPDM <b>6</b> - 316 stainless steel <b>A</b> - Anti-static PTFE <b>G</b> - Glass-filled PTFE <b>K</b> - Peak
					<p><b>Note:</b> Divider seals not available as H or U, but can be upgraded to Glass-filled PTFE for abrasive applications upon request.</p> <p><b>Note:</b> A PTFE one-piece bonded diaphragm is normally Nitrile rubber.</p>	<p><b>Note:</b> Stainless Steel balls should only be considered when pumping highly viscous products.</p>

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 144 US GPM) 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.

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).

Seats	Version (Non-wetted parts)	Connections	Upgrades and special features
<b>T</b> - PTFE <b>P</b> - Polypropylene <b>L</b> - Polyethylene (HD) <b>U</b> - PVC <b>A</b> - Anti-static PTFE <b>H</b> - Hastelloy® C <b>N</b> - Natural poly <b>M</b> - UHMWP <b>6</b> - 316 Stainless Steel <b>3</b> - Aluminium <b>E</b> - EPDM <b>N</b> - Nitrile  <p><b>Note:</b> The seat would normally be specified in the same material as the pump body. Only when the balls change to stainless steel should the seat be specified in an alternative material.</p> <p><b>Note:</b> E &amp; N seats are only used where 710 pump style is specified. This is the 'O' ring material used to seal the stainless steel seat where diaphragms are also specified in this material.</p>	<b>E</b> - Painted Carbon Steel <b>S</b> - Stainless Steel	<b>BSP</b> - BSPT screwed <b>NPT</b> - NPT screwed <b>150</b> - ANSI 150 flanged <b>300</b> - ANSI 300 flanged <b>D16</b> - DIN 16 flanged <b>BSE</b> - B S table 'E' flanged <b>BSF</b> - B S table 'F' flanged <b>BSH</b> - B S table 'H' flanged <b>RJT</b> - RJT dairy fitting <b>TRI</b> - Triclamp BS4825 <b>TR2</b> - Triclamp DIN32676 <b>TR3</b> - Triclamp ISO2037 <b>TR4</b> - Triclamp ASME-BPE <b>851</b> - Din 11851 dairy fitting <b>864</b> - Din 11864 dairy fitting <b>IDF</b> - IDF (ISS) dairy fitting <b>ISS</b> - ISS (IDF) dairy fitting <b>CAM</b> - Camlock <b>SMS</b> - SMS fitting <b>BWB</b> - Butt weld <b>J10</b> - JIS 10K flanged	* - Low cost Guardian barrier: Not available on Polypropylene pumps. Use code B for Polypropylene pumps <b>A</b> - Sentinel alarm pump <b>B</b> - Guardian barrier pump <b>C</b> - Flomix counter pump <b>D</b> - Manual pump drains <b>E</b> - Electro-polished pump <b>F</b> - Filter regulator <b>G</b> - Tool-free maintenance (pumps with 14" dia diaphragms only) <b>H</b> - Hand-polished pump - please specify your requirements <b>I</b> - Gauge on Barrier System <b>J</b> - Jacketed pump <b>K</b> - Stainless Steel air valve on pump <b>L</b> - Low pressure 0.5 BARg operation (4 valve amplifier system) <b>M</b> - Anti-vibration mounts <b>N</b> - Polypropylene air valve on pump <b>O</b> - ATEX Certified pump <b>P</b> - Pulsation damper on pump <b>Q</b> - Acoustic silencer cover <b>R</b> - Reinforced diaphragms (suction pressure above 0.5 BARg) <b>T</b> - PTFE air valve on pump (7" & 10" pumps only) <b>U</b> - One size smaller outlet connection <b>V</b> - Vertical connections instead of horizontal <b>W</b> - Two wheel trolley <b>X</b> - Special contract identity† <b>Y</b> - One size larger inlet connection <b>Z</b> - Alternative air valve size † Special pump or pump with more than four upgrades specified (Engineering will allocate a three digit code after the X) <b>Note:</b> Specify upgrades in alphabetical order.

## 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 brand pump.





# Pump Selection Guide

			Aluminium Pumps	Poly/PVC Pumps	Stainless/ Hastelloy® Pumps	Virgin & A/S PTFE Pumps	
Max flow rate USGPM	Pump Option	Pump inlet/outlet size	Pump Style	Pump Style	Pump Style	Pump Style	Diaphragm Diameter
14	1	1/2"	Slim	500	Slim	Minichem	7"
19	2	1/2"	Slim	Use option 3	Slim	Use option 3	10"
24	3	1/2"	Use 1"	500	710	K	10"
26	1	1"	Slim	500	Slim	Minichem	7"
36	2	1"	Slim	Use option 3	Slim	Use option 3	10"
41	3	1"	Use 1 1/2"	500	710	K	10"
45	1	1 1/2"	Slim	Use option 2	Slim	Use option 2	10"
61	2	1 1/2"	Use option 3	500	710	K	10"
96	3	1 1/2"	Slim	500	Slim	Use 2"	12"
66	1	2"	500**	500	710**	K	10"
102	2	2"	Slim	500	Slim	Use option 3	12"
144	3	2"	500	500	710	K	14"
147	4	2"			Slim		14"
120	1	3"	Slim	500	Slim	Use option 2	12"
180	2	3"	500	500	710	K	14"
240	3	3"	Duplex 500	Duplex 500	Duplex 710	Duplex K	14"
226	4	3"			Slim		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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Certificate No: 21804



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Hygienic Technologies

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