

**Graymills** INNOVATIVE INK SYSTEMS

CIRCULATING, CONDITIONING & CONTROL  
SYSTEMS for **FLEXO & GRAVURE**



## Why Graymills?

### Challenges

The Flexo and Gravure printing markets have never been more competitive. Pressrooms are continually faced with the challenge of obtaining greater efficiency and less downtime while improving quality and consistency and reducing defects and waste.

### Solutions

Because of Graymills' close working relationships with Flexo and Gravure pressrooms for more than fifty years, we see and understand the issues and your needs. From developing the first true centrifugal ink pump to designing the first Flexo- and Gravure-specific peristaltic pump, Graymills has continued to develop innovative ink control, conditioning, and delivery solutions to meet these challenges of efficiency, quality, and waste.

### Number One Since 1955

We stay close to new industry developments and changing needs through our worldwide representative organization, who are in daily contact with customers. Internally, we work with industry groups and have more than fifty years of experience with Flexo and Gravure customers to ensure that the equipment they buy from Graymills, whether standard or special, will meet their needs. Because of this long relationship with the Flexo and Gravure industries, we understand how you operate and what your needs are.

### Graymills has the capability to produce specialty and modified products for OEMs and Converters

Over the years, Graymills has worked closely with OEM and converter customers in the Flexo and Gravure industries to create equipment that meets their special needs when standard products just won't do. Since Graymills is **family-owned**, we are flexible in what we can do. Our machinery and manufacturing processes were designed to meet our customers' needs quickly and efficiently.

With 90,000 square feet of Chicago-based manufacturing capacity – from CNC machining centers to laser sheet metal cutters to epoxy powder coating—we'll be glad to discuss your specific needs. And if you are going to be in Chicago, let us know, and we will arrange a tour of our facility so you can see first-hand the quality and experience that goes into every Graymills product.

When you are considering a project or need that revolves around ink handling, delivery, conditioning, or control, consider Graymills your ready resource. **Contact Customer Service at 1-877-INKPUMP (1-877-465-7867).** They will be happy to discuss your requirements and start things moving.

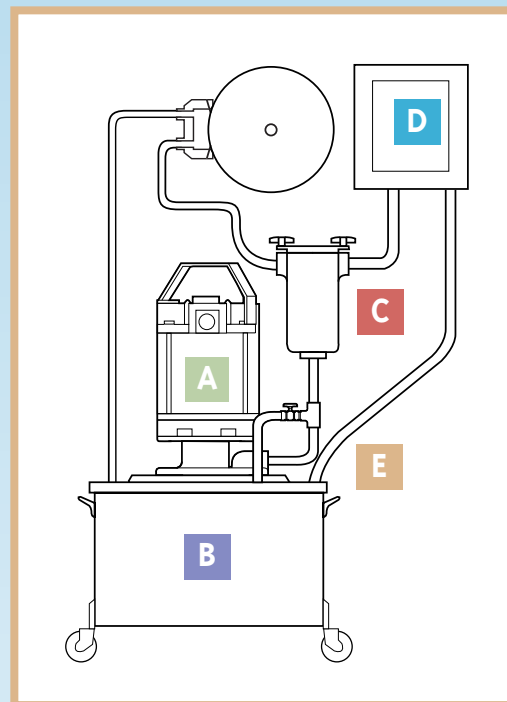


Craig Shields  
*President*  
Graymills Corporation

For over 50 years, Graymills has worked with press builders, converters and ink makers developing ink circulating and conditioning systems to meet their unique requirements. Because presses vary from narrow web flexo to huge gravure publication presses, Graymills has developed a variety of systems to match press requirements. We're eager to help you with your ink pumping, circulating or conditioning needs. Graymills' factory-trained representatives are located throughout the United States and in principal cities worldwide.

## Need help choosing the correct pump?

See pages 4-5 "For Selecting and Getting the Most Out of Your Ink Delivery System."



### A Pump and Motor

The pump and motor are the heart of the system. The correct combination is defined by the press, plumbing and operating demands. Graymills has a pump and motor for virtually every press requirement.

- Pages 6-7**      **Quality Features** – Centrifugal and peristaltic pumps
- Page 9**        **Motor Options** – Standard and explosion-proof electric, air, CE, ATEX
- Pages 10-14**   **H/M Series Pumps-2000/2000H/3000/M3/4000** – Agitor® centrifugal pumps for specialty, narrow and wide web applications
- Page 15**       **G4 Series Pumps** – The newest addition to the Agitor® centrifugal pump line for wide web applications
- Page 16**       **HV/HR Series Pumps**– Narrow web, low flow applications
- Pages 17/21**   **Drum Length Pumps/Transfer Pumps** – Drum pumps adjustable for 30 and 55 gallon drums
- Pages 18-19**   **Peristaltic Pumps and Accessories** – Tube pumps for narrow and wide web applications
- Pages 20-21**   **Diaphragm Pumps** – Corrugated presses and high viscosity applications

### B Tanks

Round tanks are essential for ink conditioning and proper blending. Graymills offers round tanks in seven sizes as well as pump and tank combinations for every system.

- Page 8**        **Tanks** – Capacities from 1 to 30 gallons

### C Filters/megaMAG

Proper filtration is key to protecting anilox rolls, cylinders, and doctor blades from damage while maintaining print quality. Graymills Superflo® filters feature reusable stainless steel mesh cartridges and a standard permanent magnet to trap ferrous metal particles. Optional megaMag for greater removal of ferrous particles.

- Page 22**       **Surge Suppressors/Filters** – For diaphragm and peristaltic pumps
- Page 22**       **Superflo® Ink Filters** – For specialty, narrow and wide web presses
- Page 23**       **megaMAG** – 10x power rare earth magnet for extra protection

### D Automatic Viscosity Controls

Changes in viscosity affect not only color match and density, but ink consumption as well. Viscosity control units are available for every application in flexo and gravure printing. Contact the factory or your Graymills Representative for more information.

- Pages 24-25**   **Viscosity Controls**



### E Accessories

Graymills pressroom accessories include all of the essential components you need for the typical ink circulating and conditioning system.

- Pages 26-27**   **Accessories**

## Graymills

### CORPORATE :

*Toll-Free*

**877-Ink-Pump**  
(877-465-7867)

*Main*

**773-477-4100**

### FAX:

*Domestic*

**800-478-8673**

*International*

**+1-773-477-4133**

### E-MAIL:

**info@graymills.com**

### INTERNET:

**http://inkpumps.graymills.com**

**www.graymills.com**



# Selecting and Getting the Most Out of Your Ink Delivery System



## Optimizing Your System

Before considering buying new ink pumps or high-speed motors because of inadequate flow, take a look at your system. With increased deck heights, heavier ink viscosities, and chamber systems, there is a greater need to examine the entire plumbing system that gets the ink from the container to the print deck.

**Fittings:** Many fittings cause restrictions, and 90° elbows are among the worst. Are all your valves and fittings “full port”, or is the internal diameter smaller than the connection size? Do your quick connect fittings have valves that reduce flow during operation? Can you reduce the number of fittings?

**Hoses:** Better flow can usually be obtained by using the next largest practical diameter hose. If your centrifugal pumps have reducer fittings in the discharge, remove them and use a larger diameter hose. Excessive hose lengths can reduce flow, and unnecessary hose is expensive, increases cleaning, and affects ink flow. Avoid a lot of hose lying on the floor.

**Chambers:** Many older chambers had 1/2” openings for the supply. This could be a major restriction, especially with higher decks and heavier viscosities. If you are not getting adequate flow on a deck wider than 24” or higher than 8”, and the chamber has a 1/2” inlet port, ask your chamber supplier if it is possible to increase the opening.

**Motor Speed:** Graymills centrifugal pumps typically have motors that run at 1725 RPM (@ 60Hz). This is usually sufficient for most ink pump applications. However, with today’s higher, wider presses and heavier viscosity liquids, a 3450 RPM motor may be needed. The increased motor speed, coupled with a properly sized impeller, greatly enhances pump performance.

**Viscosity and Deck Height:** There are two important points to remember when working with any given centrifugal pump. 1 – An increase in viscosity will decrease flow. 2 – An increase in deck height will decrease flow. In both cases, the opposite is usually true.

## About Ink Pump Types

**Centrifugal:** This industry workhorse is low maintenance, takes a lot of abuse, and delivers ink in a non-pulsating flow. Graymills centrifugal models provide in-tank circulation to keep the material in the tank blended. Available with electric or air motors, with a Quick Demountable motor option. Flow is easily controlled by the use of valves, or in the case of air motor models, by the flow of air to the motor. See pages 9-17 for complete specifications.

**Peristaltic:** Also known as a “tube” pump, the peristaltic pump utilizes a flexible tube which passes through a head and is squeezed by two rollers that push the ink to the print deck. These pumps are excellent for low to high viscosities, UV and EB. A variable speed motor controls the flow (no valves or by-passes required). Graymills peristaltic ink pumps are reversible so that ink can be drawn back from the print deck at the end of a run, reducing turn-around time. Additionally, they are easy to clean: pump cleaning fluid through the whole ink system, wipe the outside of the hose that was in the bucket, and the system is clean – or use the “Quick Change” Removable Head option and change over the entire system in seconds. See pages 18-19 for complete specifications.

**Double Diaphragm:** These air driven pumps operate by the movement of two flexible diaphragms that move back-and-forth, alternately filling and emptying two chambers. As each chamber is emptied, the ink is pushed toward the print deck. A variety of applications are possible, because the inlets and outlets can be configured in different ways. Good for corrugated bottom printers. Pump function produces a pulsating flow, so Graymills surge suppressor filters are strongly recommended. See pages 20-21 for complete specifications.

## About Other System Components

**Ink Containers:** Round containers are preferred because they help promote circulation and blending of the ink or coating when used with Agitor® ink pumps or separate air motor mixers. Sloped bottoms and sumps in Graymills 10, 20, 30 gallon tanks allow low-pump down, minimizing waste ink. See page 8 for more information.

**Filters:** It is amazing how much contamination finds its way into the ink supply. This can lead to quality issues and if the material is metallic or hard (dried water-based ink, blade material, ceramic chips), roll scoring can result. Graymills filters, designed specifically for ink applications, mount inline to prevent contamination from reaching the print deck. A magnet at the inlet of the filter pulls metallic material out of the ink. A 10x-power rare earth magnet is optional for filters and is also available on an adjustable bracket that hangs in the ink container or pan. Surge suppressor models are available for diaphragm and peristaltic pumps. See pages 22-23 for complete specifications.

**Viscosity and Temperature Controls:** Customer demands for quality printing have never been higher and will only get stricter. The cost of a rejection due to incorrect color during the run can mean the difference between a profit and a loss on the job. Automatic viscosity controls not only improve quality, but also free the operators from the time consuming task of manual cup checks. Graymills/Fasnacht controls keep your viscosity in check and can control temperature, too. See pages 24-25 for greater detail.

**Mixers:** Unlike centrifugal pumps, diaphragm and peristaltic ink pumps do not promote circulation and ink blending in the container. Inks and coatings are prone to separation and stagnation if not circulated in their container. Providing circulation maintains the ink the way it was blended to achieve the required color. Graymills air motor mixers are the answer, with sizes to fit containers from 2 to 55 gallons. See page 17 for more information.

## Quick Press Turnaround








**Looking for quicker turn-around at the end of a press run? Graymills understands.**

**Quick Demountable Motor Option:** QD and QC Quick Demountable motor options on the H, M, and G Series centrifugal ink pumps speed up press turnaround. When you use the demountable motor system, you have one motor and multiple pump bodies for each deck. The motor mounts quickly to a Graymills pump body without tools. At the end of a run, pop the motor off the dirty pump body and put it on one that is ready to go in the new ink. Send the dirty pump to the clean-up area to take care of off-press. Besides reducing initial motor cost, it is less likely to be damaged during moving, handling and cleaning, and cleaning will be easier without the motor attached.

**Quick Change Peristaltic Pump Heads:** PQS and PQL series peristaltic pump heads offer the minimum downtime for pump changeover. Used heads disconnect from the pump body - without tools - in seconds, allowing the printer to pop on a new, pre-loaded head.

**Quick Fittings:** Try using cam-lock quick couplers instead of barbed fittings wherever you need to disconnect hoses.

## Typical Pump Recommendations by Press Type

Press Type or Application	Pump Model/Type Recommendations*		Catalog Page No.	Notes
Narrow Web Flexo Tag and Label (up to 24")				
	HV	Centrifugal	16	For low flow applications. 1, 2 gallon containers are typical. Envelope presses, although narrow web, run faster and usually require more ink. See envelope below.
	HR	Centrifugal	16	
	H2000	Centrifugal	10	
	PPS	Peristaltic	18	
	DDP-1/4", 3/8"	Diaphragm	20	
Mid-Web Flexo (24" to 44")				
	H2000	Centrifugal	10	The H2000 Series/PPL are typical. Consider H3000 Series/PPL for higher decks or viscosities.
	H2000H	Centrifugal	11	
	H3000	Centrifugal	12	
	PPL	Peristaltic	18	
	DDP-1/2", 3/8"	Diaphragm	20	
Wide-Web Flexo (larger than 44")				
	H2000H	Centrifugal	11	High decks and/or heavy ink consumption will likely require the use of M3 or H4000 Series centrifugal pumps.
	H3000	Centrifugal	12	
	M3	Centrifugal	13	
	H4000	Centrifugal	14	
	G4	Centrifugal	15	
	PPL	Peristaltic	18	
	DDP-1/2", 3/4", 1"	Diaphragm	20	
Envelope				
	HR	Centrifugal	16	Higher speed envelope presses use more ink, requiring more pump than typical narrow web, tag and label presses.
	H2000	Centrifugal	10	
	PPS, PPL	Peristaltic	18	
	DDP-3/8", 1/2"	Diaphragm	20	
Corrugated				
	H2000	Centrifugal	10	The Dual Head Peristaltic and 2-inlet / 2-outlet diaphragm pump configurations are well suited for bottom printing presses. One pump side delivers ink, the other side draws it back to the container. See pages 18-21 for more information.
	H3000	Centrifugal	12	
	M3	Centrifugal	13	
	G4	Centrifugal	15	
	PPL	Peristaltic	18	
	Dual Head	Peristaltic	19	
	DDP-1/2", 1"	Diaphragm	20	
Gravure				
	H3000	Centrifugal	12	High capacity, high performance delivery.
	M3	Centrifugal	13	
	H4000	Centrifugal	14	
	G4	Centrifugal	15	
	PPL	Peristaltic	18	
Rotary Screen				
	PPL	Peristaltic	18	Easily handles the heavy viscosities for this process.
	PPS	Peristaltic	18	

## Things to Know When Selecting a Pump Or Discussing Your Ink System with a Graymills Representative:

### Fluid Pumped

- Ink, coating or adhesive: (Solvent, Water-based, UV, EB)
- Viscosity

### Application

- Type of press: CI, In-line, Stack, Corrugated, Envelope, Rotary Screen
- Process: Flexo, Gravure
- Required flow rate
- Substrate: Film, Paper
- Height of top print deck
- Type of Ink Application: Open Pan, Applicator or Chamber

### Ratings

- UL
- CSA
- CE
- ATEX

## Need Help?

Contact information is frequently repeated throughout the catalog so you may quickly reach factory Customer Service to locate the nearest Graymills representative for help with ink handling needs or specifying a pump. See page 4 for "Selecting and Getting the Most Out of Your Ink Delivery System."

# Graymills

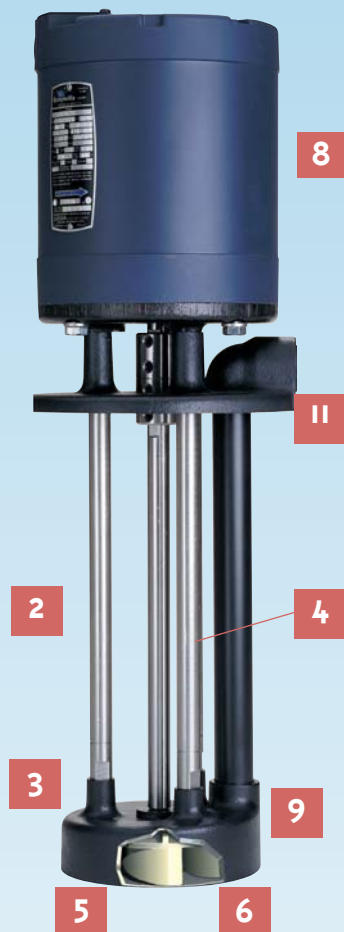
Toll-Free

**877-Ink-Pump**  
(877-465-7867)

INTERNET:

[www.graymills.com](http://www.graymills.com)

\* See charts on pump pages for specific flow rate data that meet your requirements.



### H Series

Multiple Lengths, US and Metric threads are available

## H/M/G SERIES CENTRIFUGAL PUMPS

Graymills advanced centrifugal pumps are engineered to meet the delivery requirements of both solvent and water-based inks and coatings (for UV and other higher viscosity inks, see Peristaltic Pumps). Graymills combination of quality features is evident inside and out and is unmatched by any other ink pump manufacturer in the world. Built in America for reliability, quick delivery, low maintenance and long life, Graymills centrifugal pumps are fully warranted for two years. For complete flow and dimensional information, see pages 10-17.

### H/M/G Series Pump Standard Features

#### 1. AGITOR® – Solids Don't Settle

Many inks, adhesives, and coatings need to be kept blended in order to ensure peak performance. The Agitor® feature keeps solids in suspension and helps to maintain proper viscosity. Graymills centrifugal pumps come with Agitor® capability (not shown) that keeps you printing your best.

#### 2. TRI-ROD CONSTRUCTION – Less is More

Graymills Tri-Rod constructed pumps weigh less than comparable solid column designs making them much easier to handle. The open column design, developed by Graymills, eliminates hard-to-clean ink build-up prevalent in solid column pumps. This design ensures quick, easy and thorough cleaning for quick turnaround and less contamination of new colors.

#### 3. Teflon® NON-STICK COATING – Slippery When Wet

Less labor, quick clean-up and longer operating life result from the DuPont Teflon®-coated volute, discharge pipe and mounting flange. Will not peel like other coatings, such as nylon.

#### 4. STAINLESS STEEL – For Corrosion Resistance

Corrosion resistant stainless steel is standard for the shaft, coupling and Tri-Rods.

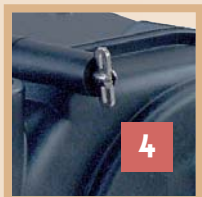
#### 5. CELCON® IMPELLER – A Lightweight Performer

Graymills impellers are molded, lightweight, glass-filled Celcon® thermoplastic. They are exceptionally durable, abrasion resistant and chemically inert to printing solvents. Because they are molded to set specifications, replacements are quick and easy – no balancing required. Light weight means less pump wear and longer service life.

#### 6. LOW PUMP DOWN – Good to the Last Drop

Graymills pumps leave minimal ink in a standard Graymills tank to reduce waste and speed cleanup; designed to fit Graymills 10, 20, 30 gallon tanks with built-in sumps and other sizes without sumps. See page 8 for pump/tank combinations. Custom/OEM tanks available.

### Peristaltic Series



Swivel-lock fasteners

## PERISTALTIC PUMPS

Unlike conventional peristaltic pumps adapted from other industries, Graymills peristaltic or "tube" pumps are engineered specifically for flexo and gravure printing applications and have received U.S. Patent number 5,630,711. As a result, Graymills peristaltic pumps easily accommodate a wide variety of fluids from inks and coatings to adhesives - water, solvent, and UV/EB. The innovative design features are especially valuable in the pressroom when short runs require frequent changeover and quick turnaround. Built in the U.S. for reliability, low maintenance and long life, Graymills peristaltic pumps are fully warranted for one year. For complete flow and dimensional information, see pages 18-19.

#### 1. HIGH OUTPUT GEAR MOTOR – Combines variable speed and reversibility with essential torque

Gear driven, the motor delivers the torque needed for uniform flow at all speeds, regardless of viscosity. Surface-mounted advanced electronic motor controls assure reliable operation and long motor life. Variable speed control allows accurate flow management without valves and by-passes. Air motor models provide the same accurate flow management and speed control. Motor and flow are reversible on both electric and air models for easy draining or flushing of the system. Toggle-type forward/reverse switch stops electric motor before reversing direction to prevent damage to electronics.



## 7. PIPE CONNECTIONS — Reduce To Fit

Many Graymills pumps are shipped with reducer fittings (not shown) to allow them to connect to multiple pipe and tubing sizes. Fittings can be added if smaller hose diameter is needed, but flow will be reduced. Use the fittings to customize your connection or leave them off to maximize performance. We leave it up to you.

## 8. MOTORS — The Choice is Yours

A wide variety of standard and explosion-proof motor options let you configure your pumping system to your specific press requirements. All electric motors are from recognized manufacturers, have sealed bearings and are UL and CSA approved with NEMA faces. CE or ATEX motors are available for European use. Variable speed air and electric motors are also available for some models. See page 9 for motor options. Pumps may be purchased with a Quick Demountable motor (QD, QC Models).

## H Series Additional Features

### 9. ROUND VOLUTE — Fits into most ink tank sumps.

Graymills H-series centrifugal were designed to fit most common ink tank sump sizes. The round design minimizes sump size, allowing the maximum pump down of ink.

### 10. HANDLE — Makes Moving Easy

All Graymills H-Series pumps have a handle (not shown) for ease of movement around the pressroom.

### 11. INTEGRAL MOUNTING FLANGE/DISCHARGE AND VAPOR DIFFUSER — Innovative Design

The flange is an integral part of the pump, not only providing motor mounting support but also isolating the motor from vapors. Flange design permits the airflow from the shaft rotation to diffuse the vapors that shorten motor bearing life. Discharge is above the lid and an integral part of this flange. This simplifies plumbing and provides for a smaller single tank opening.

## M Series Additional Features

### 12. HIGH PERFORMANCE VOLUTE

Designed by an aerospace engineer, the M-Series volute delivers the powerful lift performance and flow rates ideal for higher print decks and wider webs.

### 13. ERGONOMIC DESIGN — Easy does it

Twin handle design, integral to the molded mounting flange, provides safer, balanced, and easy lifting of unit. Mounting flange isolates the motor from vapors. Airflow from the shaft rotation diffuses these vapors. Note: Not standard on European ATEX models.

### 14. LIGHTER WEIGHT — Save 15%

Weighing in at 15% less than conventional ink pumps, Graymills M3 is still a heavyweight performer.



## M Series

Multiple Lengths, US and Metric threads are available

See our diaphragm pumps on pages 20-21.

## 2. QUICK CHANGE AND DUAL HEAD MODELS — See Pages 18-19

Downtime is money, and short runs are common. Graymills understands. That is why Graymills' Peristaltic Pumps come in many configurations. Designs include "Quick Change" heads, which allow the pump to be up and running with a new color in seconds, and "Dual Head" models with two heads connected to one motor — great for feeding two decks with one pump or for situations where gravity return is not possible.

## 3. SPLASH RESISTANT, EPOXY POWDER COATED STEEL HOUSING — Protects Components

Graymills' housing design protects the pump against splashing and damage. Baked-on epoxy powder coating provides a long lasting durable finish.

## 4. SWIVEL LOCK FASTENERS — Permit Quick Tubing Change

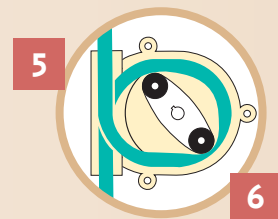
Exclusive to Graymills, three swivel lock fasteners quickly release the pump head cover, without tools or loose parts, facilitating a quick change of tubing.

## 5. STRAIGHT-THRU™ HEAD DESIGN — Eliminates Flow Stoppage

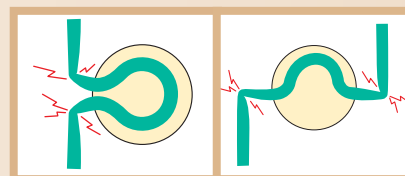
So unique it's patented. Graymills head design allows the tube to run "straight-thru" from the bucket to the print deck, eliminating "pinch points" where kinks form that slow the flow and weaken the tube. The head design also locks the tube in place, eliminating the snaking or creeping movement common in other peristaltics.

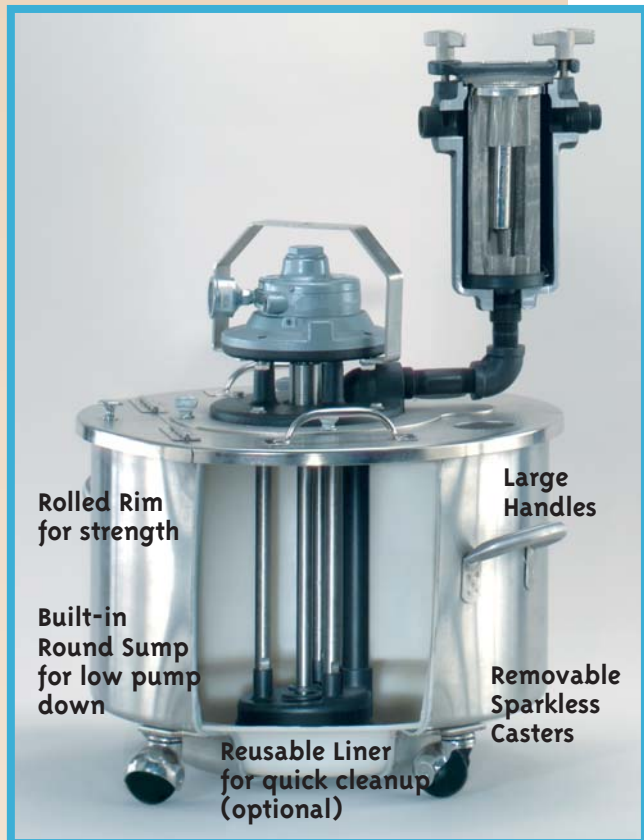
## 6. DUAL ROLLER TECHNOLOGY — Maximizes Performance and Tube Life

Graymills peristaltic pump design combines just two rollers with longer compression cycles to provide greater flow with fewer rotations. Rollers are made from nylon impregnated with a high-tech lubricant. This results in lower friction, reduced tube fatigue and less flow pulsation.



Graymills Straight-Thru™ Design eliminates pinch points, as seen in the alternate threading patterns below.





## Tanks/Lids

Standard Graymills ink tanks are round to promote circulation and eliminate “dead spots” in corners where heavier materials can drop out and stagnate, causing viscosity and color issues. Round tanks of 10, 20 or 30 gallon capacity feature a built-in sump for low pump-down to reduce ink waste. A rolled rim at the top of each tank provides reinforcement while eliminating sharp edges. Removable sparkless casters are also featured for added safety. Tanks are available in either 14 gauge epoxy coated mild steel or stainless steel. Lids are available in nickel plated or stainless steel.

Lids have overlapping rims to reduce evaporation and add strength. A hinged portion allows easy refilling or taking of manual viscosity readings. Holes are provided for return hose and/or bypass. Large handles make lifting easy.

Optional reusable or throw-away tank liners are another way to speed up changeovers. See page 26.

In specifying a tank size, select a capacity which will eliminate the need to pay constant attention to your ink level. Consider the amount of ink consumed on the press, the length of press run, the chamber or pan capacity, and the amount of ink which will drain back into the tank from the print deck, hoses, and filter when pump is stopped.

Customized and OEM tanks and lids will be quoted on request.

## Press Room Ready Pump and Tank Combinations

Graymills ships pump and tank combinations, with your choice of motor options (see page 9) and materials (see below), ready to roll up to the press and plumb. Tank lids are nickel plated steel (stainless optional) and hinged for easy access (except for 1 and 2-gallon sizes). Additional system accessories are available on pages 26-27.



TANK SIZE Gallons (Liters)	1 (3.8)	2 (7.6)	5 (18.9)	10 (37.9)	20 (75.7)	30 (123.6)
<b>PUMP SERIES</b>						
HR		◆				
HV	◆	◆				
H2000		◆	◆			
H2000H			◆			
H3000			◆	◆	◆	◆
H4000				◆	◆	◆
M3			◆	◆	◆	◆
G4				◆	◆	◆
PPS	●	●	●	◆	◆	◆
PPL		●	●	◆	◆	◆
DDP			◆	◆	◆	◆
<b>MATERIAL OPTIONS</b>						
Gallons (Liters)	1 (3.8)	2 (7.6)	5 (18.9)	10 (37.9)	20 (75.7)	30 (123.6)
Mild Steel			■	■	■	■
Stainless Steel	■	■		■	■	■
Plastic	■	■	■			

- ◆ = Mounts on lid
- = Uses pump stand
- = Standard tank material



These motor options are available with Graymills pumps and ink circulating systems. This variety of choices lets you configure your system to meet specific printing and press requirements, whether water, solvent-based or UV.

# MOTOR OPTIONS

## Air

Properly installed and maintained air motors are inherently explosion-proof, making them ideal for use with solvent-based inks. Ink flow is easily controlled by varying pump speed. With water-based materials, this eliminates the need for valves and bypasses that can contribute to foaming. Standard features include needle valve to permit infinitely variable motor speed, muffler and quick coupler for air line connection. Recommended air supply 80-100 PSI.

- CE- and ATEX-compliant air motors available
- Use of Filter-Regulator-Lubricator (FRL) recommended (See Accessories, page 27)



## Electric Totally Enclosed

For use with water-based liquids only.

- Motors are UL and CSA listed, NEMA C face with lifetime lubricated sealed bearings.
- Single or three phase for 50 and 60Hz operation.
- CE-compliant motors available.
- Motors up to 3/4 HP available in either non-vent or fan cooled versions. 3/4 HP and up are fan cooled.

## UL/CSA Electric Explosion-Proof

For use with solvent-based liquids or other applications where explosion-proof equipment is required.

- Includes explosion-proof junction box.
- Class 1, Division 1, Group D NEMA C face with lifetime lubricated sealed ball bearings. (UL/CSA)
- Single or three phase for 50 and 60Hz operation.
- Motors up to 3/4 HP available in either non-vent or fan cooled versions. 3/4 HP and up are fan cooled.

## ATEX Explosion-Proof

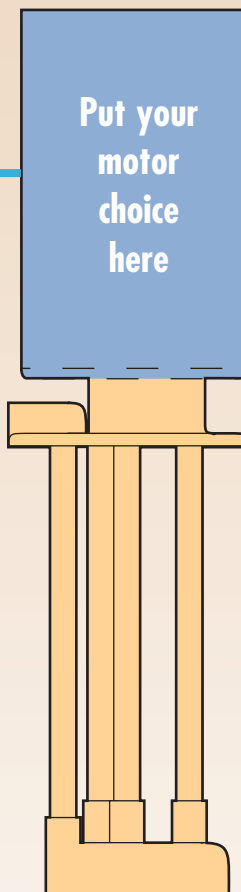
For use with solvent based liquids or other applications where ATEX-compliant explosion-proof equipment is required. Fan cooled and ribbed.

- 0,25 kW (1/3 HP), 2850 RPM, 230/380-415 V, 50Hz, 3 Ph.
- 0,37 kW (1/2 HP), 2850 RPM, 230/380-415 V, 50Hz, 3 Ph.



## Electric Variable Speed

Flow rate is varied by motor speed instead of valves or by-passes. Helps eliminate foaming and shear problems. Consult factory.



## Motor Voltage Chart

Suffix	A, KA, VA	B, KB, VB	E, KE	F, KF	FE, KFF	FX, KFX	Z, KZ	GAM
Voltage	115	230	115/230	230/460	380	415	575	Air Motor
Hertz	50/60	50/60	50/60	50/60	50	50	60	
Phase	1	1	1	3	3	3	3	

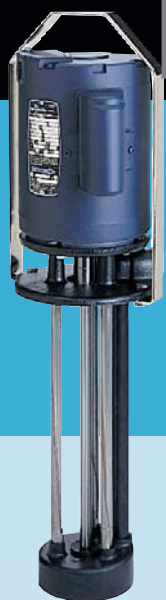
K prefix motors are explosion-proof V prefix motors are variable speed Air motors are inherently explosion-proof



## Quick Demountable Motor Option (QD/QC)

Graymills pumps may be purchased with a QD/QC motor option to create a Quick Demountable Motor System. No tools required. No loose parts. For quick turn-around, buy one pump with a motor, one without. Keep the motor at the press (electric connections remain intact), and swap the dirty pump for a clean one. Reduces the chance of motor damage during cleaning. For use with any electric or air motor shown above.

- QD (Fixed Bearing Cartridge) available on H2000 Series Pumps
- QC (Removable Bearing Cartridge) available on H3000, M3, H4000 & G4 Series Pumps



# AGITOR®

## H2000 SERIES



Optional

## TYPICAL APPLICATIONS

**Narrow web, tape, tag, label, envelope and smaller specialty presses.**

### Standard Features

- Includes all standard and H-Series benefits listed on pages 4-5.
- 3/4" NPT discharge. Shipped with a reducer to provide 1/2" NPT discharge if needed (flow will be reduced if using reducer).
- Round volute fits most ink tank sumps.
- Mounting plate on round-hole tank lids.
- Adjustable Agitor® plate for in-tank circulation.

### Optional Features & Accessories

- All immersed metal parts stainless steel.
- CE or ATEX compliance.
- Mounting plate to permit pump to be used with keyhole-style tank lids.
- Quick Demountable motor. (Not available in ATEX-compliant models.)
- Metric lengths and threads available.

### Motor Options

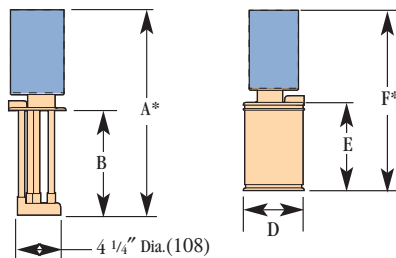
- 1/8 HP, 1725 RPM (1450@50Hz) electric totally enclosed.
- 1/8 HP 1725 RPM (1450@50Hz) explosion-proof electric.
- Variable speed air motor.
- Quick Demountable motor. (Not available in ATEX-compliant models.)
- CE/ATEX motors.

### Motor Voltage/Air Options

- E, F, KE, KF, GAM (#2).
- See page 9 for voltage chart.

### Tank Options

- 2 gallon stainless steel (H2002 only).
- 5 gallon mild steel or plastic (H2005 only).
- 10, 20, 30 gallon mild or stainless steel (H2005 only).



3/4" NPT discharge, 6" Dia. (152mm) mounting flange, with four 9/32" (7mm) motor mounting holes on 5 1/4" (133mm) B.C.

## Pumps

	ELECTRIC		AIR	
MODEL	2002	2005	2002	2005
<b>A*</b>	20 1/4" (527mm)	25 1/8" (638)	14 5/16" (364)	18 15/32" (468)
<b>B</b>	8 1/8" (206)	12 1/2" (318)	8 1/8" (206)	12 1/2" (318)

## Pump and Tank Combinations

	ELECTRIC					AIR				
TANK SIZE (Gals/Liters)	2 (7.75)	5 (19.4)	10 (37.8)	20 (77.5)	30 (113.5)	2 (7.75)	5 (19.4)	10 (37.8)	20 (77.5)	30 (113.5)
<b>D</b>	9 3/32" (231mm)	12 1/4" (311)	19 1/32" (483)	27 3/32" (688)	30 5/16" (770)	9 3/32" (231)	12 1/4" (311)	19 1/32" (483)	27 3/32" (688)	30 5/16" (770)
<b>E</b>	8 9/16" (217)	13 13/16" (351)	14 1/4" (362)	15 7/8" (403)		8 9/16" (217)	13 13/16" (351)	14 1/4" (362)	15 7/8" (403)	
<b>F*</b>	21 3/16" (538)	26 7/16" (672)	26 7/8" (683)	28 1/2" (724)		14 3/4" (375)	20" (508)	20 7/16" (519)	22 1/16" (560)	

*Note: — Dimensions may vary because of variations between motor manufacturers.  
If dimensions are critical, consult factory.  
— Dimensions do not include pump handle.*

*\* For Quick Demountable (QD) motor option, add 7 5/32" (182mm) to overall height.*

## WHY USE FILTERS?

**One common question is why Flexo and Gravure printers need to use filters. After all, they are viewed as "just something else to clean."**

Filters do two major jobs. First they improve print quality. Circulating along with the ink are contaminants from three major sources: the air (dust, fiber), doctor blades (metallic particles), and ink (dried ink and pigments). Good filters eliminate all three through a series of mechanical and magnetic means. Eliminating these contaminants helps ensure good anilox roll or gravure cylinder filling and metering. And better inking means higher print quality.

Second, filters protect the system from damage. Metallic particles and dry ink, especially water-based ink, can be highly abrasive to anilox rolls and gravure cylinders. Caught under a doctor blade, contaminants can score these expensive cylinders, requiring repair or replacement.

Filters are not hard to clean. Simply remove the cartridge and let the filter body get flushed out with the rest of the inking system. Place a clean cartridge in the filter, and you're off and running again.



## FLOW RATES

### H2000 SERIES 1725 RPM @ 60Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
2.0 (0.6)	12.0 (45.4)
4.0 (1.2)	9.0 (34.1)
6.0 (1.8)	4.0 (15.1)*

1/8 HP MOTOR • 3" IMPELLER  
3/4" DISCHARGE • 1" RETURN

### H2000H SERIES 2850 RPM @ 50Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
4 (1.2)	17 (64.4)
6 (1.8)	15 (56.8)
8 (2.4)	12 (45.4)
10 (3.1)	9 (34.1)
12 (3.7)	6 (22.7)*

0,25 kW MOTOR • 2-1/2" IMPELLER  
3/4" DISCHARGE • 3/4" RETURN

**\* Need more flow?**  
**Contact factory for assistance.**

*Flow test performed using water with horsepower, impeller, discharge, return as shown. Flow rates measured in gallons (and liters) per minute.*

### HA2000H SERIES 3450 RPM @ 60Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
4 (1.2)	17 (64.4)
6 (1.8)	16 (60.6)
8 (2.4)	14 (53.0)
10 (3.1)	11 (41.6)
12 (3.7)	8 (30.3)
14 (4.3)	4 (15.1)*

1/4 HP MOTOR • 2-1/4" IMPELLER  
3/4" DISCHARGE • 3/4" RETURN

### HB2000H SERIES 3450 RPM @ 60Hz

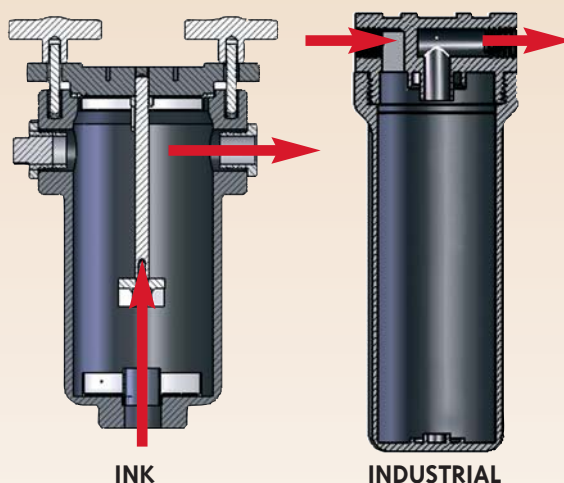
LIFT FEET (METERS)	FLOW GPM (LPM)
4 (1.2)	20 (75.7)
6 (1.8)	19 (71.9)
8 (2.4)	18 (68.1)
10 (3.1)	16 (60.6)
12 (3.7)	13 (49.2)
14 (4.3)	11 (41.6)
16 (4.9)	8 (30.3)*

1/3 HP MOTOR • 2-1/2" IMPELLER  
3/4" DISCHARGE • 3/4" RETURN

## INDUSTRIAL FILTERS V. INK FILTERS

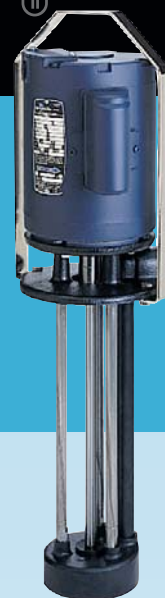
Many printers who use filters buy them from major industrial "MRO" (Maintenance, Repair, and Operations) supply houses. While these filters may do an adequate job of filtration, they lack key features that differentiate filters made for the Flexo and Gravure markets.

The most important difference is that ink filters have the flow enter from the bottom and exit from the top (see pictures). Industrial filters have both the inlet and the outlet at the top. During operation, these might be effectively the same, but cleanup is a different story.



Ink filters allow easy draining of the filter and hoses. In the case of centrifugal pumps, when the pump is switched off, the ink in the filter and hoses will drain back into the pan. In the case of peristaltic pumps, the pump can be reversed to suck the ink back.

Because of the configuration of their inlets and outlets, industrial filters trap ink in the housing. Beyond the wasted ink, this means more cleaning time between jobs and slower turnarounds. Wasted ink and slower turnarounds add up to real money.



## HIGH SPEED H2000H SERIES



## TYPICAL APPLICATIONS

Lifting heavier viscosity liquids to higher print decks and into chambered doctor blade systems requires more pressure. The H2000H Series delivers the higher flow for top performance. Use for mid webs. See also H3000 series for higher flow, page 12.

### Standard Features

- Includes all standard and H-Series benefits listed on pages 6-7.
- 3/4" NPT discharge. Shipped with a reducer to provide 1/2" NPT discharge if needed (flow will be reduced if using reducer).
- Round volute fits most ink tank sumps.
- Mounting plate on round hole tank lids.
- Adjustable Agitor® plate for in-tank circulation.

### Optional Features & Accessories

- All immersed metal parts stainless steel.
- CE or ATEX compliance.
- Mounting plate to permit pump to be used with keyhole-style tank lids.
- Quick Demountable motor. (Not available in ATEX-compliant models.)
- Metric lengths and threads available.

### Motor Options

- 1/4 HP (HA) and 1/3 HP (HB), 3450 RPM (2850 @ 50Hz) electric non-explosion proof or explosion-proof electric.
- 0,25 kW ATEX European explosion-proof electric, 2850 RPM.
- Quick Demountable motor. (Not available in ATEX-compliant models.)
- CE/ATEX motors.

### Motor Voltage/Air Options

- E, F, KE, KF, KFX, KFE
- See page 9 for voltage chart.

### Tank Options

- 5, 10, 20, 30 gallon mild steel standard. Stainless steel optional on 10, 20, 30 gallon.



# AGITOR®



## H3000 SERIES



## TYPICAL APPLICATIONS

For mid- and wide-web flexo and gravure applications, especially those requiring more flow and/or higher print decks.

### Standard Features

- Includes all standard and H-Series benefits listed on pages 6-7.
- 1" NPT discharge. Shipped with a reducer to provide 3/4" NPT discharge if needed (flow will be reduced if using reducer).
- Round volute fits most ink tank sumps.
- Mounting plate on round hole tank lids.
- Adjustable Agitor® plate for in-tank circulation.

### Optional Features & Accessories

- All immersed metal parts stainless steel.
- CE or ATEX compliance.
- Mounting plate to permit pump to be used with keyhole-style tank lids.
- Quick Demountable motor (consult factory).
- Metric lengths and threads available.

### Motor Options

- 1/2 HP, 1725 RPM (1450 @ 50Hz) totally enclosed electric or explosion-proof electric.
- 0,37 kW ATEX explosion-proof electric, 2850 RPM.
- High speed (2850/3450 RPM), 50/60Hz motor. Consult factory.
- Variable speed air motor.
- Variable speed electric motor. Consult factory.
- Quick Demountable motor.
- CE/ATEX Motors.

### Motor Voltage/Air Options

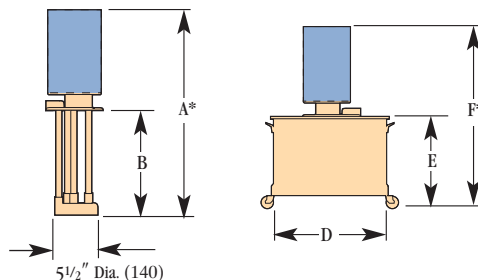
- E, F, KE, KF, KFF, KFX, VA, VB, GAMC (#2 or #4).
- See page 9 for voltage chart.

### Tank Options

- 5, 10, 20, 30 gallon mild steel standard.
- Stainless steel optional on 10, 20, 30 gallon.

For drum length ink pumps, see page 17.

# OVERALL



1" NPT discharge, 7" Dia. (178mm) mounting flange, with four 13/32" (10mm) motor mounting holes on 6 1/2" (165mm) B.C.

## Pumps

	ELECTRIC	AIR
A*	25 1/8" (635mm)	19 5/16" (491)
B	12 1/2" (318)	

## Pump and Tank Combinations

	ELECTRIC				AIR			
TANK SIZE Gals (Liters)	5(19.4)	10(37.8)	20(77.5)	30(113.5)	5(19.4)	10(37.8)	20(77.5)	30(113.5)
D	12 1/4" (311mm)	19 1/32" (483)	27 3/32" (688)	30 3/16" (770)	12 1/4" (311)	19 1/32" (483)	27 3/32" (688)	30 3/16" (770)
E	13 13/16" (351)	14 1/4" (362)	15 7/8" (403)		13 13/16" (351)	14 1/4" (362)	15 7/8" (403)	
F*	26 7/16" (672)	26 7/8" (683)	28 1/2" (724)		20 (508)	20 7/16" (519)	22 1/16" (560)	

Note: — Dimensions may vary because of variations between motor manufacturers.  
If dimensions are critical, consult factory.

— Dimensions do not include pump handle.

\* For Quick Demountable (QC) motor option, add 7 15/32" (190mm) to overall height.

## FLOW RATES

### H3000 SERIES 1725 RPM @ 60Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
4.0 (1.2)	22.0 (83.3)
6.0 (1.8)	17.0 (64.3)
8.0 (2.4)	13.0 (49.2)
10.0 (3.0)	8.0 (30.3)
12.0 (3.7)	3.0 (11.4)*

1/2 HP MOTOR • 4" IMPELLER  
1" DISCHARGE • 1" RETURN

### H3000H SERIES 2850 RPM @ 50Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
4 (1.2)	32 (121.1)
6 (1.8)	30 (113.6)
8 (2.4)	28 (106.0)
10 (3.1)	26 (98.4)
12 (3.7)	23 (87.0)
14 (4.3)	20 (75.7)
16 (4.9)	17 (64.4)
18 (5.5)	3 (11.4)*

0,37 kW MOTOR • 3" IMPELLER  
1" DISCHARGE • 1" RETURN

\* Need more flow? Contact factory for assistance.

Flow test performed using water with horsepower, impeller, discharge, return as shown. Flow rates measured in gallons (and liters) per minute.

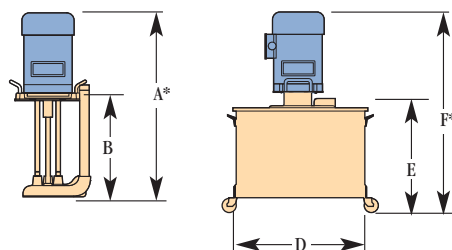


# DIMENSIONS

# AGITOR®

## Pumps

	ELECTRIC	AIR
A*	24 <sup>19</sup> / <sub>32</sub> " (625mm)	17 <sup>11</sup> / <sub>32</sub> " (441)
B	12 <sup>1</sup> / <sub>2</sub> " (318)	



1" NPT discharge, 7" Dia. (178mm) mounting flange, with four 1<sup>3</sup>/<sub>32</sub>" (10mm) motor mounting holes on 6<sup>1</sup>/<sub>2</sub>" (165mm) B.C.

## Pump and Tank Combinations

	ELECTRIC				AIR			
TANK SIZE (Gals/Liters)	5(19.4)	10(37.8)	20(77.5)	30(113.5)	5(19.4)	10(37.8)	20(77.5)	30(113.5)
D	12 <sup>1</sup> / <sub>4</sub> " (311mm)	19 <sup>1</sup> / <sub>32</sub> " (483)	27 <sup>3</sup> / <sub>32</sub> " (688)	30 <sup>5</sup> / <sub>16</sub> " (770)	12 <sup>1</sup> / <sub>4</sub> " (311)	19 <sup>1</sup> / <sub>32</sub> " (483)	27 <sup>3</sup> / <sub>32</sub> " (688)	30 <sup>5</sup> / <sub>16</sub> " (770)
E	13 <sup>13</sup> / <sub>32</sub> " (351)	14 <sup>1</sup> / <sub>4</sub> " (362)	15 <sup>7</sup> / <sub>8</sub> " (403)		13 <sup>13</sup> / <sub>16</sub> " (351)	14 <sup>1</sup> / <sub>4</sub> " (362)	15 <sup>7</sup> / <sub>8</sub> " (403)	
F*	26 <sup>7</sup> / <sub>16</sub> " (672)	26 <sup>7</sup> / <sub>8</sub> " (683)	27 <sup>1</sup> / <sub>2</sub> " (724)		20 (508)	20 <sup>7</sup> / <sub>16</sub> " (519)	22 <sup>1</sup> / <sub>16</sub> " (560)	

Note: — Dimensions may vary because of variations between motor manufacturers.  
If dimensions are critical, consult factory.

— Dimensions do not include pump handle.

\* For Quick Demountable (QC) motor option, add 7<sup>15</sup>/<sub>32</sub>" (190mm) to overall height.

## FLOW RATES

M3 SERIES 1725 RPM @ 60HZ	
LIFT FEET (METERS)	FLOW GPM (LPM)
4 (1.2)	30 (113.6)
6 (1.8)	26 (98.4)
8 (2.4)	22 (83.3)
10 (3.1)	18 (68.1)
12 (3.7)	14 (53.0)
14 (4.3)	5 (18.9)*

1/2 HP MOTOR • 4" IMPELLER  
1" DISCHARGE • 1" RETURN

M3H SERIES 2850 RPM @ 50HZ	
LIFT FEET (METERS)	FLOW GPM (LPM)
4 (1.2)	38 (143.8)
6 (1.8)	36 (136.3)
8 (2.4)	34 (128.7)
10 (3.1)	32 (121.1)
12 (3.7)	30 (113.6)
14 (4.3)	27 (102.2)
16 (4.9)	23 (87.1)
18 (5.5)	19 (71.9)*

0,37 kW MOTOR • 3" IMPELLER  
1" DISCHARGE • 1" RETURN

\* Need more flow? Contact factory for assistance.

Flow test performed using water with horsepower, impeller, discharge, return as shown. Flow rates measured in gallons (and liters) per minute.



# M3 SERIES



## TYPICAL APPLICATIONS

For mid- and wide-web flexo and gravure applications, especially those requiring more flow and/or higher print decks.

### Standard Features

- Includes all standard features listed on pages 6-7.
- 1" NPT discharge. Shipped with a reducer to provide 3/4" NPT discharge if needed (flow will be reduced if using reducer).
- Mounting plate for use with keyhole-style lids.
- Adjustable Agitor® plate for in-tank circulation.

### Optional Features & Accessories

- CE or ATEX compliance.
- Quick Demountable motor.
- Metric lengths and threads available.

### Motor Options

- 1/2 HP, 1725 RPM (1450 RPM @ 50Hz) totally enclosed electric or explosion-proof electric
- 0,37 kW ATEX explosion-proof electric, 2850 RPM.
- High speed (2850/3450 RPM), 50/60Hz motor. Consult factory.
- Variable speed air motor.
- Variable speed electric motor. Consult factory.
- Quick Demountable motor.
- CE/ATEX Motors.

### Motor voltage/air options

- E, F, KE, KF, KFF, KFX, VA, VB, GAMC (#2 or #4).
- See page 9 for voltage chart.

### Tank Options

- 5, 10, 20, 30 gallon mild steel standard.
- Stainless steel optional on 10, 20, 30 gallon.



## H4000 SERIES



Optional

### TYPICAL APPLICATIONS

For high flow, high decks, on flexo and gravure webs over 60 inches wide. For viscosities exceeding 40 sec. use either the 3/4 HP electric or #4 air motor.

#### Standard Features

- Includes all standard and H Series benefits listed on pages 6-7.
- 1-1/4" NPT discharge. Shipped with a reducer to provide 1" NPT discharge if needed (flow will be reduced if using reducer).
- Round volute fits most ink tank sumps.
- Adjustable Agitor® plate for in-tank circulation.
- Mounting plate on round hole tank lids.

#### Optional Features & Accessories

- CE or ATEX compliance.
- Mounting plate to permit pump to be used with keyhole-style tank lids.
- Quick Demountable motor.
- Metric lengths and threads available.

#### Motor Options

- 1/2 or 3/4 HP, 1725 RPM (1450 RPM @ 50Hz) totally enclosed electric or explosion-proof electric
- 0.37 kW ATEX explosion-proof electric, 2850 RPM.
- High speed (2850/3450 RPM), 50/60Hz motor. Consult factory.
- Variable speed air motor.
- Variable speed electric motor. Consult factory.
- Quick Demountable motor.
- CE/ATEX Motors.

#### Motor voltage/air options

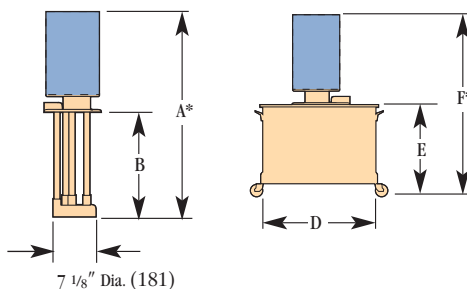
- E, F, KE, KF, KFF, KFX, GAMC (#2 or #4).

See page 9 for voltage chart.

#### Tank Options

- 10, 20, 30 gallon, mild steel standard. Stainless steel optional.

For drum length ink pumps, see page 17.



1" NPT discharge 7" Dia. (178mm) mounting flange, with four 13/32" (10mm) motor mounting holes on 6 1/2" (165mm) B.C.

### Pumps

	ELECTRIC	AIR
A*	25 1/8" (638mm)	19 5/16 (491)
B	12 1/2 (318)	

### Pump and Tank Combinations

TANK SIZE (Gals/Liters)	ELECTRIC				AIR			
	5(19.4)	10(37.8)	20(77.5)	30(113.5)	5(19.4)	10(37.8)	20(77.5)	30(113.5)
D	12 1/4" (311mm)	19 1/32 (483)	27 3/32 (688)	30 5/16 (770)	12 1/4 (311)	19 1/32 (483)	27 3/32 (688)	30 5/16 (770)
E	13 13/16 (351)	14 1/4 (362)	15 7/8 (403)		13 13/16 (351)	14 1/4 (362)	15 7/8 (403)	
F*	26 7/16 (678)	26 7/8 (683)	28 3/2 (724)		20 (508)	20 7/16 (519)	22 1/16 (560)	

Note: — Dimensions may vary because of variations between motor manufacturers.  
If dimensions are critical, consult factory.

— Dimensions do not include pump handle.

\* For Quick Demountable (QC) motor option, add 7 11/16" (195mm) to overall height.

## FLOW RATES

H4000 SERIES 1725 RPM @ 60Hz	
LIFT FEET (METERS)	FLOW GPM (LPM)
6.0 (1.8)	45.0 (170.3)
8.0 (2.4)	40.0 (151.4)
10.0 (3.0)	35.0 (132.5)
12.0 (3.7)	28.0 (106.0)
14.0 (4.3)	20.0 (75.7)
16.0 (4.9)	12.0 (45.4)*

1/2 HP MOTOR • 4-5/8" IMPELLER  
1-1/4" DISCHARGE • 1-1/4" RETURN

H4000H SERIES 2850 RPM @ 50Hz	
LIFT FEET (METERS)	FLOW GPM (LPM)
10.0 (3.0)	62.0 (234.7)
12.0 (3.7)	58.0 (219.5)
14.0 (4.3)	54.0 (204.4)
16.0 (4.9)	51.0 (193.0)
18.0 (5.5)	46.0 (174.1)
20.0 (6.1)	41.0 (155.2)
22.0 (6.7)	37.0 (140.0)*

1/2 HP MOTOR • 4" IMPELLER  
1-1/4" DISCHARGE • 1-1/4" RETURN

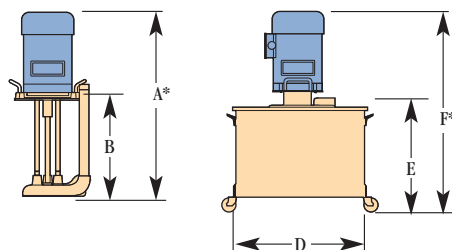
\* Need more flow? Contact factory for assistance.

Flow test performed using water with horsepower, impeller, discharge, return as shown. Flow rates measured in gallons (and liters) per minute.



## Pumps

	ELECTRIC	AIR
A*	24 <sup>19</sup> / <sub>32</sub> " (625mm)	17 <sup>11</sup> / <sub>32</sub> " (441)
B	12 <sup>1</sup> / <sub>2</sub> (318)	



1" NPT discharge, 7" Dia. (178mm) mounting flange, with four <sup>13</sup>/<sub>32</sub>" (10mm) motor mounting holes on 6<sup>1</sup>/<sub>2</sub>" (165mm) B.C.

## Pump and Tank Combinations

	ELECTRIC			AIR		
TANK SIZE (Gals/Liters)	10(37.8)	20(77.5)	30(113.5)	10(37.8)	20(77.5)	30(113.5)
D	19 <sup>1</sup> / <sub>32</sub> (483)	27 <sup>3</sup> / <sub>32</sub> (688)	30 <sup>5</sup> / <sub>16</sub> (770)	19 <sup>1</sup> / <sub>32</sub> (483)	27 <sup>3</sup> / <sub>32</sub> (688)	30 <sup>5</sup> / <sub>16</sub> (770)
E	14 <sup>1</sup> / <sub>4</sub> (362)	15 <sup>7</sup> / <sub>8</sub> (403)		14 <sup>1</sup> / <sub>4</sub> (362)	15 <sup>7</sup> / <sub>8</sub> (403)	
F*	26 <sup>7</sup> / <sub>8</sub> (683)	27 <sup>1</sup> / <sub>2</sub> (724)		20 <sup>7</sup> / <sub>16</sub> (519)	22 <sup>1</sup> / <sub>16</sub> (560)	

Note: — There is no 5 gal / 19.4 liter version because the flow rate of the G4 requires minimum 10 gal / 37.8 liter tank.

— Dimensions may vary because of variations between motor manufacturers. If dimensions are critical, consult factory.

— Dimensions do not include pump handle.

\* For Quick Demountable (QC) motor option, add 7<sup>15</sup>/<sub>32</sub>" (190mm) to overall height.

## FLOW RATES

G4 SERIES 1725 RPM @ 60Hz	
LIFT FEET (METERS)	FLOW GPM (LPM)
8 (2.4)	53 (200.6)
10 (3.0)	48 (181.7)
12 (3.7)	41 (155.2)
14 (4.3)	35 (132.5)
16 (4.9)	29 (109.8)
18 (5.5)	21 (79.5)
20 (6.1)	6 (22.7)*
1/2 HP MOTOR • 4-5/8" IMPELLER 1-1/4" DISCHARGE • 1-1/4" RETURN	

G4H SERIES 2850 RPM @ 50Hz	
LIFT FEET (METERS)	FLOW GPM (LPM)
12 (3.7)	68 (257.4)
14 (4.3)	65 (246.0)
16 (4.9)	62 (234.7)
18 (5.5)	58 (219.5)
20 (6.1)	54 (204.4)
22 (6.7)	50 (189.3)
24 (7.3)	45 (170.3)
26 (7.9)	39 (147.6)*
1/2 HP MOTOR • 4" IMPELLER 1-1/4" DISCHARGE • 1-1/4" RETURN	

\* Need more flow? Contact factory for assistance.

Flow test performed using water with horsepower, impeller, discharge, return as shown. Flow rates measured in gallons (and liters) per minute.



# G4 SERIES



## TYPICAL APPLICATIONS

For wide-web flexo and gravure applications requiring more flow or the ability to pump to higher decks. Ideal for applications with thicker or difficult-to-lay-down inks and coatings.

Larger sizes available – consult factory.

### Standard Features

- Includes all standard features listed on pages 6-7.
- 1-1/4" NPT discharge. Shipped with a reducer to provide 1" NPT discharge if needed (flow will be reduced if using reducer).
- Mounting plate for use with keyhole-style lids.
- Adjustable Agitor® plate for in-tank circulation.

### Optional Features & Accessories

- CE or ATEX compliance.
- Quick Demountable motor.
- Metric lengths and threads available.

### Motor Options

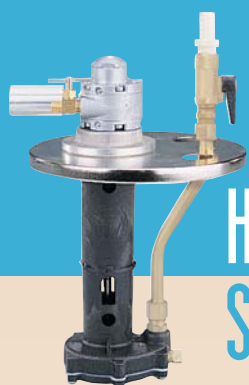
- 1/2 or 3/4 HP, 1725 RPM (1450 RPM @ 50Hz) totally enclosed electric or explosion-proof electric
- 0.37 kW ATEX explosion-proof electric, 2850 RPM.
- High speed (2850/3450 RPM), 50/60Hz motor. Consult factory.
- Variable speed air motor.
- Variable speed electric motor. Consult factory.
- Quick Demountable motor.
- CE/ATEX Motors.

### Motor voltage/air options

- E, F, KE, KF, KFX, VA, VB, GAMC (#2 or #4).
- See page 9 for voltage chart.

### Tank Options

- 10, 20, 30 gallon mild steel standard. Stainless steel optional.



## HV SERIES

### TYPICAL APPLICATIONS

For small presses requiring flow rates 1 GPM or less. Viscosities up to 30 sec., No. 2 Zahn.

#### Standard Features

- High strength thermoplastic pump body.
- Stainless steel shaft.
- Ball valve and 1/2" NPT slip-on barb on discharge tube.
- Agitor jet for in-tank circulation. (Agitor port may be plugged if circulation is not desired).
- 1 or 2 gallon container with flanged lid with 3/4" (19mm) hole for return hose.

#### Motor Options

- 1/8 HP 3450 RPM (2875 RPM @ 50Hz) single phase explosion-proof electric.
- 1/15 HP, 3000 RPM (2500 RPM @ 50Hz) electric.
- Variable speed air motor, 0-3000 RPM.

See page 9 for voltage chart.

#### Motor voltage/air options

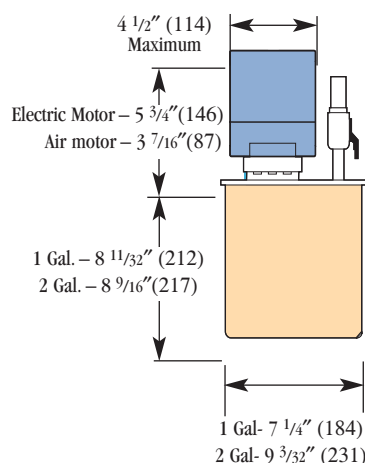
- A, B, KA, KB, GAM (#1).

#### Tank Options

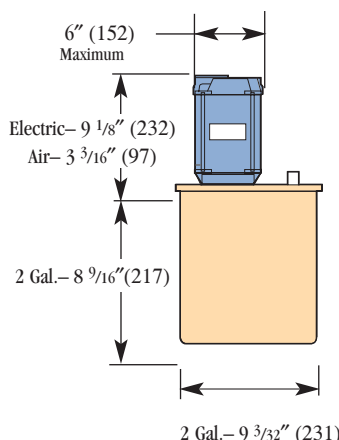
- 1 gallon (HV1), 2 gallon (HV2)
- Plastic tank with nickel-plated lid or stainless steel tank with stainless steel lid.

## OVERALL DIMENSIONS

### HV Series



### HR Series



## FLOW RATES

### HV SERIES ELECTRIC 3000 RPM @ 60Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
2 (0.6)	8 (30.3)
4 (1.2)	6 (22.7)
6 (1.8)	5 (18.9)*

1/15 HP MOTOR • 1-13/16" IMPELLER  
3/8" DISCHARGE • 1/2" RETURN

### HV SERIES AIR 3000 RPM

LIFT FEET (METERS)	FLOW GPM (LPM)
2 (0.6)	10 (37.9)
4 (1.2)	8 (30.3)
6 (1.8)	7 (26.5)*

AIR MOTOR • 2-1/16" IMPELLER  
3/8" DISCHARGE • 1/2" RETURN

### HR SERIES 1725 RPM @ 60Hz

LIFT FEET (METERS)	FLOW GPM (LPM)
2 (0.6)	14 (53.0)
4 (1.2)	11 (41.6)
6 (1.8)	8 (30.3)*

1/8 HP MOTOR • 3-5/16" IMPELLER  
1/2" DISCHARGE • 3/4" RETURN

*\* Need more flow? Contact factory for assistance.*

*Flow test performed using water with horsepower, impeller, discharge, return as shown. Flow rates measured in gallons (and liters) per minute.*



## HR SERIES

### TYPICAL APPLICATIONS

For larger narrow web and envelope presses. requiring flow rates up to 2 GPM. Viscosities up to 30 sec., No. 2 Zahn.

#### Standard Features

- Teflon® coated cast iron body.
- Stainless steel shaft.
- Agitor tube for in-tank circulation.
- 1/2" NPT discharge.
- 2 gallon stainless steel tank with nickel lid.

#### Motor Options

- 1/8 HP, 1725 RPM (1450 RPM @ 50Hz) electric.
- 1/8 HP, 1725 RPM (1450 RPM @ 50Hz) explosion-proof electric.
- Variable speed air motor, 0-3000 RPM.

#### Motor voltage/air options

- A, B, E, KA, KB, KE, GAM (#1).

See page 9 for voltage chart.

*Note: — Dimensions may vary because of variations between motor manufacturers. If dimensions are critical, consult factory.  
— Dimensions do not include pump handle.*

## DRUM PUMPS

### DRUM LENGTH CENTRIFUGAL PUMPS

Ideal for high ink consumption applications where it is more convenient or economical to pump from a drum. Mounting flange (not shown) permits easy adjustment of immersion depth. For use on open head 30 and 55 gallon drums. Includes all H Series features listed on pages 6-7.

#### H3155 Series Centrifugal Pump

Available with a variety of motor options. See H3000 Series, page 12 for further technical data. NPT discharge connects to either 1" or 3/4" plumbing.

#### H4155 Series Centrifugal Pump

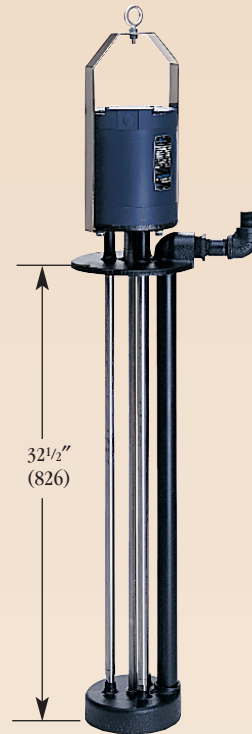
Similar to Pump Model H3155, but offers a higher flow rate. Also available in 3/4 HP for higher viscosities. See H4000 Series, page 14 for further technical data. NPT discharge connects to either 1" or 1-1/4" plumbing.

#### Nickel Plated Flanged Lids

For use with H3155 and H4155 drum length pumps

C-34005 30 gallon drum lid

C-33917 55 gallon drum lid



Air-operated double diaphragm drum transfer pumps also available. See page 21.

## AIR-POWERED MIXERS KEEP INKS BLENDED

For use with peristaltic and diaphragm pumps to provide in-tank mixing to keep pigments, solvents and additives evenly blended and your viscosity more even. Mixer depth is the distance from the mounting surface of the mixer to the bottom of the propeller.

#### MX1-GAM-2G (Without Lid)

For 2 gallon tanks. Features #1 rotary vane variable speed air motor (rated 1/8 HP). Mixer depth = 7.75" (197mm)

#### MX12-GAM (Includes Lid)

Mounted on 2 gallon nickel plated mild steel lid. Uses #1 rotary vane variable speed air motor (rated 1/8 HP). Mixer depth = 7.75" (197mm)

#### MX1-GAM-5G (Without Lid)

For 5 gallon tanks. Features #1 rotary vane variable speed air motor (rated 1/8 HP). Mixer depth = 12" (305mm)

#### MX15-GAM (Includes Lid)

Mounted on flanged 5 gallon lid for general use with #1 rotary vane variable speed air motor (rated 1/8 HP). Mixer depth = 12" (305mm)

#### MX2-GAM (Without Lid)

For Graymills 10, 20 or 30 gallon tanks. Features #2 rotary vane variable speed air motor (rated 1/2 HP). Mixer depth = 9.5" (241mm)

#### MX55-GAMP

For use on 30 and 55 gallon drums. Adjustable mounting clamp included. High torque piston air motor. Mixer depth = 34.5" (876mm)



MX55-GAMP



MX2-GAM



# PERISTALTIC PUMPS



PPS

## TYPICAL APPLICATIONS

For narrow web flexo and rotary screen applications and light to heavy viscosity inks, coatings and adhesives (including UV/EB) requiring flow rates of 1.5 GPM or less. If flow requirements are above 1 GPM, consider model PPL for slower running speed and longer tube life.

### Motor Options

- Electric gearmotor with electronic variable speed control (115 or 230 VAC) 50/60Hz.
- Variable speed air gearmotor (28 CFM @ 80 psig/ 792.9 LPM @ 5.4 bar).



PPL

## TYPICAL APPLICATIONS

For mid to wide web flexo, gravure and rotary screen applications and light to heavy viscosity inks, coatings and adhesives (including UV/EB), requiring flow rates of 4.5 GPM or less. (See model PPS for low-flow rates)

### Motor Options

- Electric gearmotor with electronic variable speed control (115 or 230 VAC) 50/60Hz.
- Explosion-proof electric gearmotor with variable speed control (230/460 VAC, 3 Ph) 50/60Hz. (consult factory)
- ATEX compliant models available (consult factory).

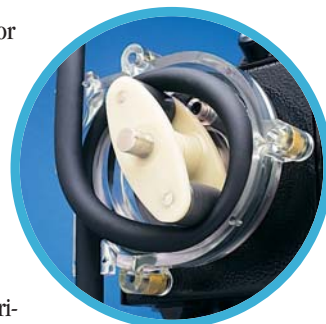
# Unique Graymills Peristaltic Pump Features

## Quick Tube Change

- Swivel lock fasteners permit quick cover removal with no tools or loose parts – for fast turn arounds.

## Straight-Thru™ Design

- Graymills' Patented Head Design allows the tube to run direct from the ink container to the print deck – eliminates tube-destroying kinks, flow stoppages, the snaking or tube creep common in other peristaltic pump designs.



## Dual Roller Technology

- Twin rollers made from nylon impregnated with a high-tech lubricant deliver full flow with fewer compressions and less tube wear.

## Standard Features

- Includes all peristaltic quality features listed on pages 6-7.
- Variable speed for flow control.
- Reversible for easy draining and flushing.
- Straight-Thru patented head design eliminates flow stoppage from tube kinks.
- Recommended maximum viscosity 500 cps.

## Optional Features & Accessories

- Quick Change Removable Heads (see below and page 19).
- Dual heads (see page 19.)
- Stand to mount pump over ink tank.
- Mounting bracket for direct attachment to press.
- Mixer to keep contents blended.
- CE/ATEX compliant.
- Remote mounting of controls.

## So Unique it is Patented

- Graymills holds U.S. patent 5,630,711.

## Tank Options

- 1, 2, 5, gallon pails (accessory pump stand or mounting bracket recommended).
- 10, 20, 30 gallon mild steel tanks. Stainless steel optional.

# "Quick Change" Removable Head Models PQS and PQL

Sometimes fast is not fast enough. Time is money, and you'll get quick returns from fast color changes and press turnaround using Graymills "Quick Change" peristaltic ink pumps. Pump head/tube changes are accomplished in seconds – without tools. Simply pull the lock-pin, remove the used head and replace with another head already loaded with clean tube. Done! Change the tube and perform maintenance while the pump and press are back running with the new head.

## Standard Features

- Includes all standard features listed above.
- Pump head/tube changes accomplished in seconds without tools.
- Eight-position adjustable head orientation.
- "Quick Change" head can be retrofit to Graymills peristaltic pumps made since January 2005.

## Optional Features & Accessories

- Extra "Quick Change" Heads
- Bracket to hold extra pre-loaded heads until needed.
- Stand to mount pump over ink container.
- Mounting bracket for direct attachment to press.
- Mixer to keep contents blended.
- CE/ATEX compliant.
- Remote mounting of controls.

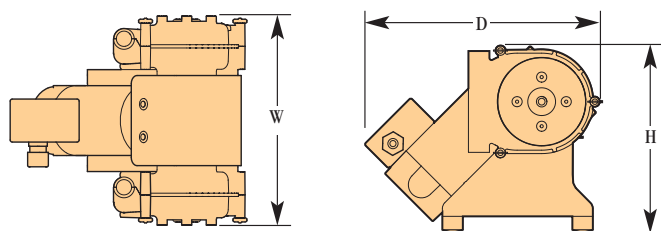


For Quick Change Heads and Accessories, see page 27.

# PUMP DIMENSIONS

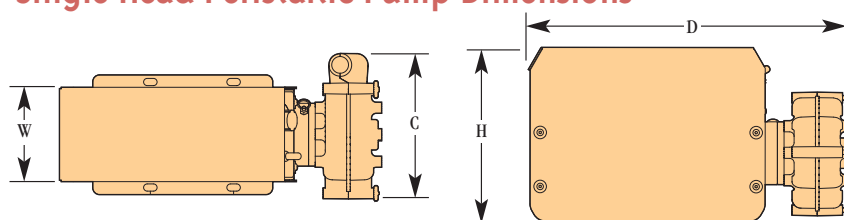
## "QUICK CHANGE" REMOVABLE HEAD

### Dual Head Peristaltic Pump Dimensions



Series	W	H	D
PQS-DH	11.1" (283mm)	11.4 (289)	14.1 (357)
PQL-DH	12.8" (324)	11.4 (289)	14.0 (364)

### Single Head Peristaltic Pump Dimensions



Series	C	W	H	D
PPS	5.9" (149mm)	5.3 (133)	9.9 (249)	14.1 (358)
PQS	5.9 (149)	5.3 (133)	9.9 (249)	15.3 (390)
PPL	8.0 (204)	5.3 (133)	9.9 (249)	16.6 (421)
PQL	8.0 (204)	5.3 (133)	9.9 (249)	17.8 (452)
PPS-GAM*	5.9 (149)	3.7 (93)	6.5 (165)	11.8 (298)

PPS-GAM\* Model not shown.

## DUAL HEAD PQS-PQL



### TYPICAL APPLICATIONS

Two peristaltic pump heads powered by a single motor allow the pump's heads to be individually set to supply or return. This ability, coupled with the pump's variable speed capability and ability to reverse direction for several pumping configurations.

- Supply one ink to two separate decks.
- Supply two separate inks to two separate decks.
- Supply and return one ink to one deck.

### Standard Features

- Includes all peristaltic features listed on pages 6-7, and 18.
- Variable speed for flow control.
- Reversible flow for easy draining and flushing.
- Straight-Thru patented design eliminates flow stoppage from tube kinks.
- "Quick Change" Removable Heads.
- Eight-position adjustable head orientation.
- Remote mounting of controls with 16' 4" (5m) foot cord (other cords available) consult factory.

### Optional Features & Accessories

- Stand to mount pump over ink container.
- Dual stand to mount pump over two ink containers.
- Filter mounting bracket.
- Mixer to keep contents blended.
- CE compliant.

### Motor Options

- Electric gearmotor with electronic variable speed control (115 or 230 VAC) 50/60Hz.

### Tank Options

- 1, 2, 5 gallon pails (accessory pump stand recommended).
- 10, 20, 30 gallon mild steel tanks. Stainless optional.

## WHY USE PERISTALTIC PUMPS?

In the last decade, peristaltic pumps have evolved from a novelty to an integral part of many pressrooms. They have been especially popular for two segments: heavy viscosities and short runs.

Peristaltic pumps are a natural choice for heavy viscosities. Their low-shear rolling action can pump inks, coatings, and adhesives that are too thick for centrifugal pumps without the sharp pulsations associated with double diaphragm pumps. And with the ability to control the pump's speed, you can deliver only as much as you need.

Peristaltic pumps are great for short runs and quick turnarounds. Since the ink is contained within a tube, cleaning the pump consists solely of replacing the tube. That's it; there are no internal crevices and hiding places that the ink can contaminate the next job. This is especially crucial for hard-to-clean UV inks. Add the "Quick Change" head feature for even faster turnarounds.

## WHY GRAYMILLS?

Unlike competitive models from the chemical and food industries, Graymills' peristaltic pumps were designed specifically for the pressroom. Our "Straight-Thru" head design, as noted elsewhere, keeps tube-destroying kinks from forming. And by using two rollers in an oversized head with thick-walled tube, the tubing life – and the chance of tube failure – is minimized.

Our peristaltic pumps are also designed with press turnaround in mind. This shows in features like reversing. Conventional pumps run one direction and can't pull the ink back into the bucket. Graymills is leading the way with its Quick-Change heads that allow almost instant changeovers to reduce ink waste and system clean-up time.

Why use a design optimized for a different industry when there is a pressroom-proven peristaltic available from Graymills?



**Polypropylene pumps**  
1/4", 1/2" 1 inlet / 1 outlet,  
1/2" 2 inlets / 2 outlets  
(See chart for additional  
configurations)



**3/4" Aluminum pump**  
1 inlet / 1 outlet  
(See chart for additional configurations).

## TYPICAL APPLICATIONS

**For applications requiring controlled flow rates from a trickle to 40 gallons per minute. Specially suited to the requirements of bottom printing corrugated lines, where a single pump provides both supply and suction return.**

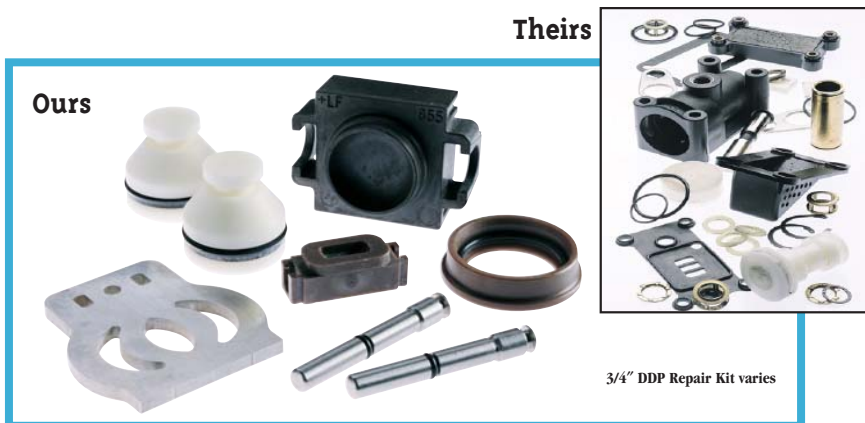
These pumps operate by the movement of two flexible diaphragms which move back and forth, alternately filling and emptying two chambers. Flow is controlled with the air inlet valve, which then determines pump speed. A variety of applications are possible because the pump's inlets and outlets can be configured in different ways, such as – "one-in, one-out" or "1-to-1" – or "two-in, two-out" or "2-to-2". In the 1-to-1, one color is sent to the deck. In the 2-to-2 configuration, you can deliver one material and also draw it back (ideal for corrugated bottom printing), or deliver two inks to two different decks. **Diaphragm pumps do have a pulsating flow and are best used with a Graymills surge suppressor/filter.**

Pump Models	1/4"	3/8"	1/2"	3/4"	1"
<b>Body Construction</b>					
Polypropylene	◆	◆	◆	◆	◆
Aluminum					◆
<b>Diaphragm Construction</b>					
Hytrel®		◆	◆		◆
Teflon®	◆	◆	◆		◆
Gylon®				◆	
<b>Check Construction/Type</b>					
Delrin® Ball				◆	
Stainless Ball				◆	
Hytrel® Ball		◆	◆		◆
Teflon® Ball		◆	◆		◆
Polypropylene Ball	◆				
Buna Duckbill			◆		
<b>Inlet/Outlet Options</b>					
1 in / 1 out	◆	◆	◆	◆	◆
1 in / 2 out				◆	
2 in / 2 out		◆	◆	◆	
<b>Maximum Viscosity (Centipoise)</b>	500	1,000	5,000	2,250	10,000
<b>Maximum Flow Rate</b>	5 GPM	7 GPM	15 GPM	12 GPM	40 GPM
<b>Total Developed Head</b>	150 ft.	231 ft.	150 ft.	231 ft.	150 ft.
<b>Dry Lift Capacity</b>	10 ft.	12 ft.	15 ft.	18 ft.	18 ft.
<b>Air Inlet</b>	1/4" NPT	1/4" NPT	1/4" NPT	1/8" NPT	1/2" NPT
<b>Maximum Inlet Pressure</b>	100 PSI	100 PSI	100 PSI	100 PSI	100 PSI
<b>Air Consumption @ 70 PSI</b>	7 CFM	6 CFM	18 CFM	10 CFM	30 CFM
<b>CE Certification</b>	◆	◆	◆		◆
<b>ATEX Option Available</b>			◆		◆

## SPECIFICALLY DEVELOPED TO HANDLE FLEXO AND GRAVURE INKS, COATINGS, VARNISHES, AND ADHESIVES.

1. Diaphragm pump inlets and outlets can be configured to meet the pumping requirements from bottom-printing corrugated lines to flexo and gravure presses. A variety of corrosion resistant materials permits use with water, alcohol, and solvent-based (compatible with polypropylene or aluminum) inks and coatings.
2. The unique "slide valve" design prevents stalling even when running at low speeds (1/4", 3/8", 1/2", and 1"). Unique "shuttle valve" on 3/4" pump allows robust operation across a wide variety of speeds.
3. Pump is designed for easy maintenance with a minimal amount of parts. The air valve assembly is externally serviceable, no need to remove pump from press (1/4", 3/8", 1/2", 1" only).
4. For applications requiring controlled flow rates up to 40 gallons per minute.
5. Properly installed and maintained air-powered diaphragm pumps are inherently explosion proof.
6. No air line lubrication is necessary (1/4", 3/8", 1/2", 1" only).
7. Self-priming with the ability to pump liquids containing small solids. Optional duckbill valves on 1/2" pumps allow fibrous materials to pass.
8. Optional air-powered mixer is recommended for in-tank agitation. See page 17.





## Quick-Change Air Valve Service Kits Have Over 50% Fewer Parts than Competitors . . . And the Pump is Externally Serviceable.

Graymills diaphragm pumps feature air valve service kits that are 100% externally serviceable and contain a maximum of 10 parts. Competitor service kits have 20 to 30 parts that need to be replaced and their pumps must be completely disassembled to service the air valve. Look at these remarkable differences:

- Extremely reliable – resists stalling.
- Fewer parts – repair kits have up to 50% fewer parts than traditional valve kits.
- Ease of repair – the air valve can be repaired externally. The pump itself never has to be disassembled. Repairs are so easy they can take place press-side, which saves time, money and frustration.
- Unique U-cup seals – last longer and are more reliable than o-ring seals.
- Less prone to icing – no small passages where ice can build.
- No lubrication required – pump performance will not be adversely affected by “dirty” or unconditioned air.

Series	Pump Model Number	Diaphragm Material	Check Material and Type	Inlet/Outlet Configuration
1/4"	DDPLTG-25	Teflon®	Teflon® Ball	1 in – 1 out
	DDPLTG-25-2	Teflon®	Teflon® Ball	2 in – 2 out
3/8"	DDPLHG-38	Hytrel®	Hytrel® Ball	1 in – 1 out
	DDPLHG-38-2	Hytrel®	Hytrel® Ball	2 in – 2 out
	DDPLTG-38	Teflon®	Teflon® Ball	1 in – 1 out
	DDPLTG-38-2	Teflon®	Teflon® Ball	2 in – 2 out
1/2"	DDPLHG-50	Hytrel®	Hytrel® Ball	1 in – 1 out
	DDPLHG-50-2	Hytrel®	Hytrel® Ball	2 in – 2 out
	DDPLTG-50	Teflon®	Teflon® Ball	1 in – 1 out
	DDPLTG-50-2	Teflon®	Teflon® Ball	2 in – 2 out
	DDPLQH-50	Hytrel®	Buna Duckbill	1 in – 1 out
	DDPLQH-50-2	Hytrel®	Buna Duckbill	2 in – 2 out
	DDPLQT-50	Teflon®	Buna Duckbill	1 in – 1 out
	DDPLQT-50-2	Teflon®	Buna Duckbill	2 in – 2 out
3/4"	DACT-50*	Teflon®	Teflon® Ball	1 in – 1 out
	DDPB-11TC**	Gylon®	Delrin® Ball	1 in – 1 out
	DDPB-12TC**	Gylon®	Delrin® Ball	1 in – 2 out
	DDPB-22TC**	Gylon®	Delrin® Ball	2 in – 2 out
	DDPB-12TSS**	Gylon®	Stainless Steel Ball	1 in – 2 out
1"	DDPB-22TSS**	Gylon®	Stainless Steel Ball	2 in – 2 out
	DDPLHG-100	Hytrel®	Hytrel® Ball	1 in – 1 out
	DDPLTG-100	Teflon®	Teflon® Ball	1 in – 1 out
	DDALHG-100**	Hytrel®	Hytrel® Ball	1 in – 1 out
	DDALTG-100**	Teflon®	Teflon® Ball	1 in – 1 out

\* ATEX compliant explosion-proof model

\*\* Aluminum body construction

## AIR OPERATED DOUBLE DIAPHRAGM TRANSFER DRUM PUMP



- Features 1-in/1-out pump with Teflon® or Hytrel® diaphragms and bottom suction manifold.
- Quick priming and immediate flow.
- Handles fluid viscosities up to 5,000 cps and solids up to 0.09 inches.
- Runs dry without damage.
- Pump slides in and out of drums through bung adapter without the need to disconnect hoses.
- Pump is never immersed inside the drum – only the polyethylene tube is immersed. Quick cleanup.

## SURGE SUPPRESSOR/FILTER



### Smooth Out Diaphragm Pulsations, Eliminate Contaminants and Filter Out Damaging Metallic Particles

Graymills surge suppressor/filters smooth out diaphragm pump pulsation. Provides the same filtration action of standard Superflo® filters. Mounts directly onto most diaphragm pumps. Available with 30, 60, 100 or 150 mesh filter screen cartridge. Teflon® coated aluminum and stainless steel construction. Pinch valve included. Available in two sizes.

See page 22 for more information.

- Available with **megaMag 10x** power rare earth magnet for grabbing and holding those damaging metal particles. See page 23.



**DDPSFNT**



**HFST**



**Double Length HFLT**



**Narrow Web Inline "Y" Filter**

### SUPERFLO® INK FILTERS

Graymills Superflo® filters are specially designed for flexographic and gravure ink systems, providing effective filtration to eliminate quality problems from contaminants that can also damage costly anilox rolls. Convenient sizes for all printing applications. Filters are available standard (Models HFLT/HFST/HFNT) or as surge suppressors (Models DDPSFST/DDPSFNT).

Graymills Superflo® ink filters are designed to overcome the typical pressure drop and reduced ink flow due to clogging that occurs with ordinary filters. A permanent magnet (optional megaMAG available, see page 23) suspended over the intake port traps ferrous particles which find their way into the ink, and diffuses the flow outward into the filter screen flutes. Filtered material is trapped on the inside of the removable/reusable stainless steel filter cartridge. To clean, just remove the cartridge. All the contaminants come out with it. Graymills Superflo® filters are self-draining—no wasted ink or messy leftovers to deal with.

#### Model HFNT/DDPSFNT\*

For use with narrow web centrifugal pumps, diaphragm pumps 3/4" or smaller, or peristaltic pumps.

- 7-3/4" (197mm) high x 3-3/4" (95mm) wide. High performance non-stick Teflon® coating.
- 3/4" NPT inlet port with 1/2" NPT reducer bushing provided in case smaller diameter hose is required.
- 1/2" NPT outlet ports.
- Vellumoid gaskets standard.

#### Model HFST/DDPSFST\*

For use with mid to wide web centrifugal pumps or 1/2" or larger diaphragm pumps.

- 11-3/4" (298mm) high x 5-3/4" (146mm) wide. High performance non-stick Teflon® coating.
- 1" NPT inlet/outlet ports with 3/4" NPT reducer bushing provided in case smaller diameter hose is required.
- Vellumoid gaskets standard (Teflon® and EPDM available).

#### Model HFLT Double Length Filter

For use in mid to wide web applications where heavy contamination of ink is an issue.

- 19 3/4" (502mm) high x 5 3/4" (146mm) wide.
- 1" NPT inlet/outlet ports with 3/4" NPT reducer bushing provided in case smaller diameter hose is required.
- Vellumoid gaskets standard (Teflon® and EPDM available)
- Available in dual filter configuration to allow for filter change during pump operation. Consult factory for more details.

#### Narrow Web Inline "Y" Filter

For use in narrow web and envelope applications.

- 3 3/4" (95mm) in-line length.
- Molded poly body.
- 1/2" NPT female inlet and outlet.
- 40 mesh (420 micron) stainless steel filter element standard, 80 mesh available.

### FILTER CARTRIDGES

Stainless steel filter cartridges are available in four different mesh screens recommended for the following applications.

- Corrugated printing: 30 mesh (590 micron)
- Line printing: 60 mesh (250 micron) or 100 mesh (149 micron)
- Process printing: 60 mesh (250 micron) or 100 mesh (149 micron)
- Varnishes, coatings, adhesives: 150 mesh (99 micron)



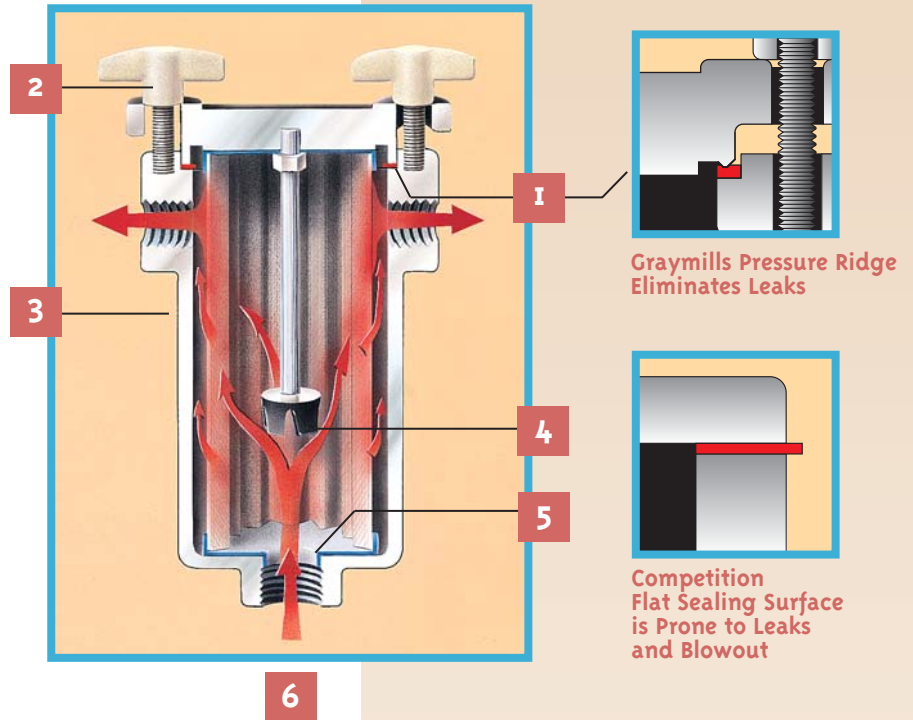
#### Cleaning is simple

*Just loosen two large cast wing nuts to remove the cover and filter screen cartridge. Filter self-drains when the pump is not operating.*

\* For diaphragm and peristaltic pumps, use surge suppressing filters (Models DDPSFST/DDPSFNT)

## SUPERIOR CONSTRUCTION

1. Lid designed with recessed seat and pressure ridge for positive gasket seal. Other companies cut corners and use flat sealing surfaces that are prone to leaks and blowouts.
2. Large, easy-to-grasp metal wing nuts threaded on stainless studs hold up to the rigors of daily pressroom use, unlike plastic components on competitive units. Blind threads eliminate dried ink build-up which can interfere with easy operation.
3. Teflon® coated inside and out. Repels ink for easy cleaning. Will not peel, unlike nylon coatings on competitors' filters.
4. Magnet suspended over inlet port disperses ink through filter cartridge while removing ferrous particles. megaMAG also available, see below.
5. Stainless steel filter cartridge fits into inlet to assure all ink passes through filter screen without any blow-by. Fluted filter screen increases filtration capacity.
6. Can mount directly or in-line with ink pump discharge. Self draining.



## megaMAG™

### For superior protection against anilox scoring/damage.

A rare earth magnet in a smooth stainless steel casing, with 10x the pulling power of a standard magnet, megaMAG is able to attract metal particles from within the filter body or ink tank. megaMAG provides a level of protection never before available. megaMAG can save the time required to pull a damaged anilox roll out of service and replace it, as well as the high cost of repair. Unlike other rare earth magnets, megaMAG's domed end is designed to easily release particles when cleaning.

megaMAG is available for use in Graymills Superflo® filters HFST or HFNT (shown mounted on filter lid at right) or on an adjustable bracket for placing inside a tank or pail, as shown at far right. Also available for use in DDPSFST and DDPSNT surge suppressors. Retrofits to all existing Superflo® filters and surge suppressors.



Filter Lid Mount



Adjustable in-tank bracket for megaMAG



## Flatline Your Viscosity for Better Quality and a Stronger Bottom Line

Improved print quality, ink and solvent saving, and reproducibility on re-runs all result from Graymills/Fasnacht "Flatline" Automatic Viscosity Controls. Increased profits flow right to the bottom line when your ink is properly controlled for viscosity, temperature and pH.

### Better Print Quality

Viscosity control is essential for maintaining print quality. Variation in viscosity causes a significant change in both solvent and water-based ink properties affecting reproducibility, color, printability, fade resistance, and drying. And measuring the ink that is going to the print deck, rather than the ink that is in some corner of your tank, ensures that the viscosity you set is the viscosity you are printing with.

### Better Bottom Line

Printing with ink that is at the wrong viscosity harms more than just quality. Poor viscosity management drives up usage of expensive ink and solvents, reducing the profit on a printing job. Waste on start-up, in set-up time and production runs is minimized. Material rejected due to poor quality is reduced.

### Better Environment

Lowering the use of ink and solvents and minimizing waste is not only good for your bottom line, it's good for the environment.

### Frees Operator's Time

Press rooms are busy. Eliminating manual viscosity control leaves more time for operators to focus on other tasks.

### More Than Just Viscosity

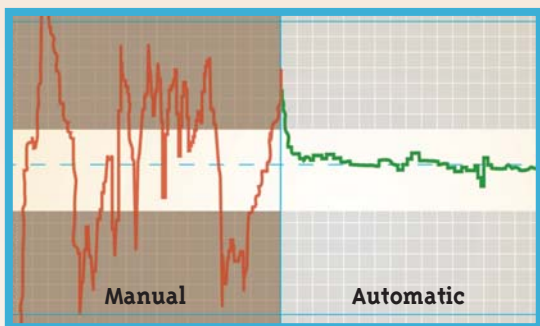
The Graymills/Fasnacht "Flatline" Viscosity Control System does more than just control viscosity. It can, with optional components, measure and control ink level and heat or chill your ink to its proper temperature.



MS4  
Sensor

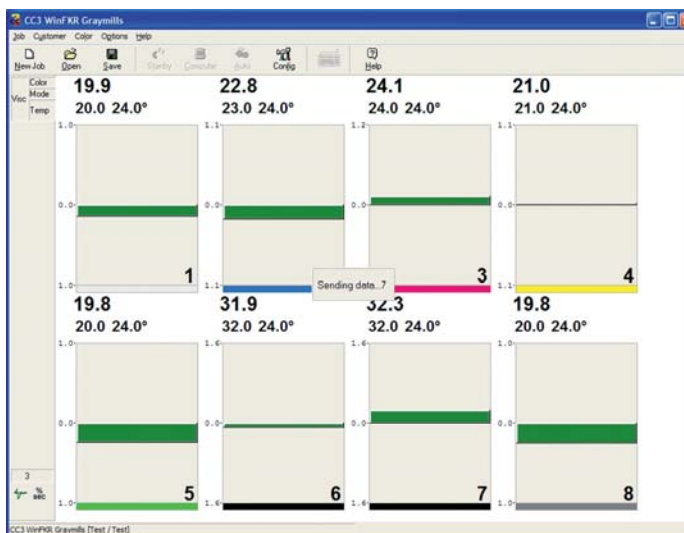


MP4 Processor



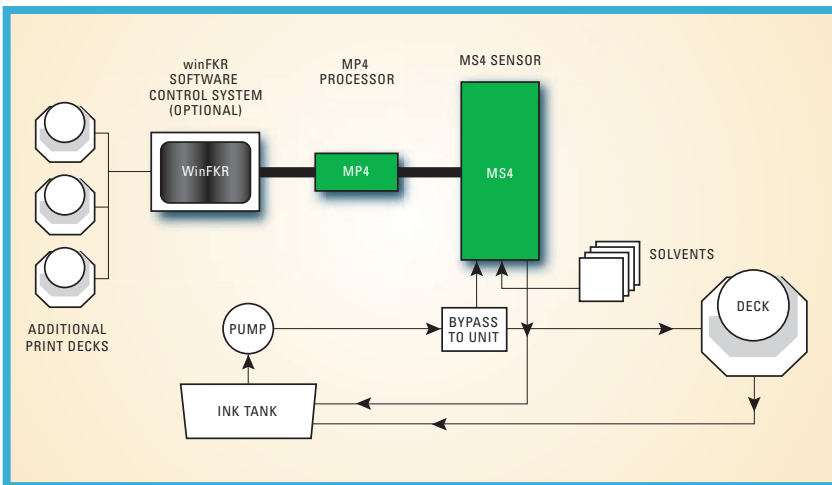
Viscosity vs. Time

Actual printout comparing  
Manual vs. Automatic Viscosity Control



Software Screen

## Automatic Viscosity Control System



### Accurate

The Graymills/Fasnacht “Flatline” Automatic Viscosity Control System is more accurate and consistent than manual cup readings. Unlike in-tank viscosity units, where you're never sure what ink is being measured or its condition, the “Flatline” system **measures the ink on its way to the print deck**—the same ink that you will soon be printing with.

### Versatile

The Graymills/Fasnacht “Flatline” Automatic Viscosity Control System goes beyond viscosity and pH control. You can easily add temperature control, ink level and solvent mixing.

### Self-Cleaning

The “Flatline” system cleans itself during normal running. Additionally, an end-of-run self-cleaning cycle readies the sensor for shutdown or changeover. Compare this to the downtime necessary to clean in-tank viscometers.

### Simple but Flexible

The unit is simple to use as a basic viscometer but comes with the ability to retain color settings for repeat projects, and customize colors, jobs and the sensor itself to operator preferences. Adjustable parameters include:

- Set values for viscosity, pH, temperature and ink level.
- Calibration with respect to type of measurement cup (Zahn, Shell, DIN, etc.).
- Temperature compensation of viscosity measurement.
- Adjustment of cycle times for measurement and regulation.
- Quantities of solvent added during viscosity regulation.
- Automatic cleaning cycle parameters.
- Definition of alarm functions.

### winFKR PC Control

Run the unit from a local control panel or from a central PC. Or both. Get job-run history printouts to provide to your customers.

### Standard Features

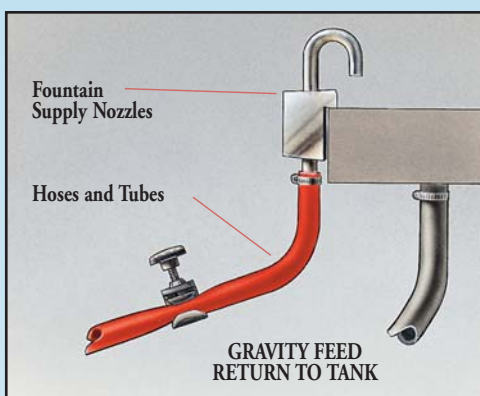
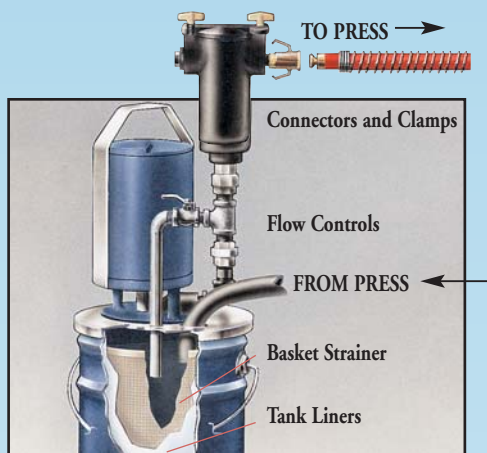
- Anodized aluminum or stainless steel intrinsically safe MS4 sensor unit (note: MP4 processor unit is not explosion-proof and should be mounted outside the explosive envelope)
- Multi-function MP4 processor unit
- Temperature measurement
- MP4 to MS4 connection cable
- Output signals for alarms
- 1/2” barbed connections
- Self-cleaning operation and automatic washup cycle

### Optional Features & Accessories

- Multi-unit winFKR software control system
- Temperature control – in-tank or inline
- Level control
- pH control
- Falling bodies for unusual applications

### Voltage Options

- 115/230 VAC 50/60Hz
- 24 VDC



## Metric Conversion

Inches x 2.54 = Centimeters

Feet x .3048 = Meters

Gallons x 3.785 = Liters

## Peristaltic Tubing

Graymills has spent considerable time researching peristaltic tubing. The tubing we offer represents the best combination of material, correct diameter, and optimum durometer for use with peristaltic pumps. Using tubing with different dimensions or durometer can affect performance and potentially damage the pump.

(See page 27)

## Basket Strainer – Removes Heavy Contamination

Developed for use in corrugated and tissue plants, 10 mesh (2000 micron) stainless steel basket fits inside standard U.S. 5 gallon pails. Return hose from fountain drains into strainer where heavy contaminants are trapped.

749-27341

Basket Strainer

## Tank Liners – To Speed Clean-up

High density polyethylene reusable tank liners feature built-in sumps to conform to Graymills standard 10, 20 and 30 gallon round tanks. Disposable liners are available for 2 and 5 gallon tanks.

C-29128

2 gal. disposable, case of 250

607-07344

5 gal. disposable, case of 100

607-04850

10 gal. reusable

607-04851

20 gal. reusable

607-04852

30 gal. reusable



## Flow Controls – For Proper Ink Delivery

Bypass flow controls, valves and nozzles permit easily adjusted control of the amount of ink delivered to the printing deck. Bypasses are not recommended with water-based inks as they can contribute to foaming.

### Valves

738-02535-41

1/2" Gate valve

738-05045-41

1/2" Ball valve

738-02536-41

3/4" Gate valve

738-04280-41

3/4" Ball valve

PV14001

Pinch valve

### Bypasses

B2GV

For H3000, H4000, and M3 Series Pumps (includes gate valve)

B2

For H2000 Series Pumps with 5 gal tanks (includes pinch valve)

BP2002

For H2000 Series Pumps with 2 gal tanks (includes pinch valve)

BPVP

For HV Series Pumps

## Hose Support Spring – Prevents Hose Kinking

765-14070-13

For 1/2" and 3/4" ID hose (8" long)

## Fountain Supply Nozzles

The convenient way to secure ink supply line to the fountain. Block mount permits easy adjustment of nozzle height.

C-21689

1/2" nozzle and mounting block

C-25988

3/4" nozzle and mounting block

## Hoses

### Clear Flexible Vincon Hose

Suitable for use with either normal alcohol or water based liquids. Can be used for discharge as well as return lines.

729-04379

1/2"

729-04369

3/4"

### Neoprene Hose

Excellent for use as a return hose from fountain to ink container, or other applications without line pressure.

729-03636

1"

729-03415

1-1/4"

### Hoses for Solvent Applications

Flexible Buna-N Neoprene Hose

729-04339

1/2"

Braided Neoprene Nylon-Lined Hose

729-06051

1/2"

729-06052

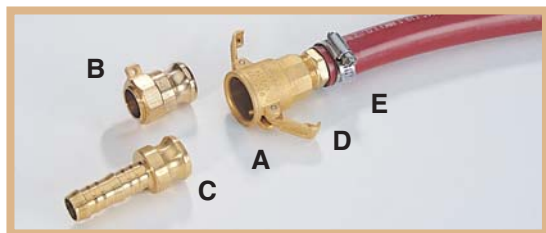
3/4"

729-06238

1"



## Quick Connectors and Fittings



These solid brass couplers provide a positive seal, straight flow and rapid connect/disconnect without tools. Used in sets. From the Hose, order A, D & E, then either (B) Pipe Thread Adapter for connection to rigid pipe/threaded fittings, or (C) Hose Barb for connection to hose. Buna-N "O" Ring is standard. TEFLON® is optional.

### A. Quick Connect Coupler

Female Quick Coupler x Female NPT

BRASS

741-03577-41	1/2" NPT
741-03406-41	3/4" NPT
741-03592-41	1" NPT
741-03439-41	1-1/4" NPT

POLYPROPYLENE

730-09893	1/2" NPT
730-09894	3/4" NPT
730-09895	1" NPT
730-91923	1-1/4" NPT

### B. Quick Connect Pipe Thread Adapter

Male Quick Coupler x Female NPT

BRASS

741-91927-41	1/2" NPT
741-91928-41	3/4" NPT
741-91929-41	1" NPT
741-91930-41	1-1/4" NPT

POLYPROPYLENE

730-09890	1/2" NPT
730-09891	3/4" NPT
730-09892	1" NPT
730-91924	1-1/4" NPT

### C. Quick Connect Hose Barb

Male Quick Coupler x Hose Barb

BRASS

741-03411-41	For 1/2" ID Hose
741-91926-41	For 3/4" ID Hose
741-03590-41	For 1" ID Hose
741-03446-41	For 1-1/4" ID Hose

POLYPROPYLENE

730-91931	For 1/2" ID Hose
730-91932	For 3/4" ID Hose
730-91933	For 1" ID Hose
730-91934	For 1-1/4" ID

### D. Slip-on Hose Barb

Male Quick Coupler x Hose Barb

BRASS

730-04843-41	1/2" NPT x 1/2" ID
730-03841-41	3/4" NPT x 3/4" ID
730-04895-41	1" NPT x 1" ID
730-03842-41	1-1/4" NPT x 1-1/4" ID

POLYPROPYLENE

730-09896	1/2" NPT x 3/8" ID
730-09897	1/2" NPT x 1/2" ID
730-09898	3/4" NPT x 5/8" ID
730-09899	3/4" NPT x 3/4" ID
730-09900	1" NPT x 1" ID
730-91925	1-1/4" NPT x 1-1/4" ID

### E. Hose Clamps

733-04912-81	For 1/2" ID Hose
733-04696-81	For 3/4" ID Hose
733-03410-81	For 1" ID Hose
733-04698-81	For 1-1/4" ID Hose

## PERISTALTIC ACCESSORIES

See pages 18 and 19 for more information.

### General Accessories

2GS	1 or 2 gallon stand. Pump bolts to top.
5GS	3 or 5 gallon stand. Pump bolts to top.
5GS-DH	1, 2, 3 or 5 gallon dual-pail stand for DH. Pump bolts to top.
LBK	"L"-shaped mounting bracket for direct mounting to press.
682-36240	Bracket for mounting DDPSFNT surge suppressor/filter to 5GS. See page 22 for surge suppressors.
729-90598-50	3/8" replacement tubing for PPS/PQS models, 50' per box.
729-90597-50	5/8" replacement tubing for PPL/PQL models, 50' per box.
729-90588-50	5/8" extended life tubing for PPL/PQL models, milky white color, use for solvent inks, 50' per box.
MX12-GAM	Mixer. Keeps material blended and at uniform viscosity.

### Replacement Rotors

PPS-ROTOR	For PPS/PQS Series
PPL-ROTOR	For PPL/PQL Series

### Replacement/Spare Heads (Complete Assembly)

PPS	For PPS Series, Standard Head
PPL	For PPL Series, Standard Head
C-39597	For PQS Series, Removable Head
C-39600	For PQL Series, Removable Head
PPS-DHA	For PQS Dual Head Series, Removable Head
PPL-DHA	For PQL Dual Head Series, Removable Head

### "Quick Change" Retrofit Kits (for units shipped since Jan 2005)

C-39598	Convert PPS to PQS
C-39601	Convert PPL to PQL

### Air Filter/Regulator/Lubricator (FRL)

#### – Keep Air Motors Running

Filters and removes moisture from compressed air while adding oil mist lubrication. 0-160 PSI gauge, 1/4" and 1/8" outlet. Mounting brackets included.

FRL-1	1/4" ports
FRL-2	1/8" ports

### Zahn Cups – For Accurate Viscosity Control

The standard of viscosity measurement in Flexographic and Rotogravure printing operations worldwide. Individually tested and calibrated. Polished stainless steel.

746-04568	#2 Zahn signature
746-08785	#2 E Z (equivalent Zahn, meets ASTM D4212)
746-07725	#3 Zahn signature

### Ink Funnel – Makes Filling Ink Containers Easy

Large mouth prevents spills, keeps work area clean. Ten inch spout has "speed bumps" which keep ink from free-falling into tank to reduce splashing and foaming. High density polyethylene.

IF-5	Ink Funnel
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# Graymills

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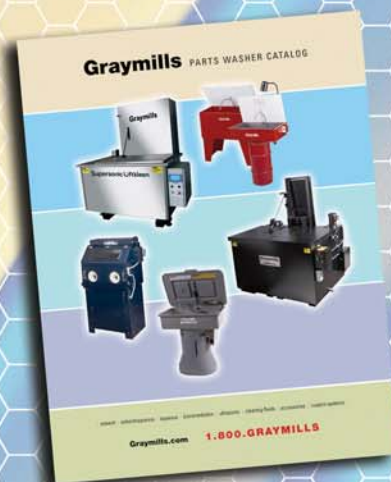
[info@graymills.com](mailto:info@graymills.com)

**INTERNET:**

<http://inkpumps.graymills.com>  
[www.graymills.com](http://www.graymills.com)

GM300-1208

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Graymills manufactures parts washers and cleaner systems for most cleaning applications including the press room. Choose from a comprehensive line of solvent, aqueous, ultrasonic, and bioremediation units, cleaning fluids and accessories. Contact your representative or the website for more information or to request the catalog.