



# SERFILCO<sup>®</sup>, LTD.

Pumps | Filters | Systems | Purification Media | Accessories

[www.serfilco.com](http://www.serfilco.com) 800-323-5431

**VOL**  
**28**

*Your Guide to Liquid Processing and Purification for ...*

# 50 years



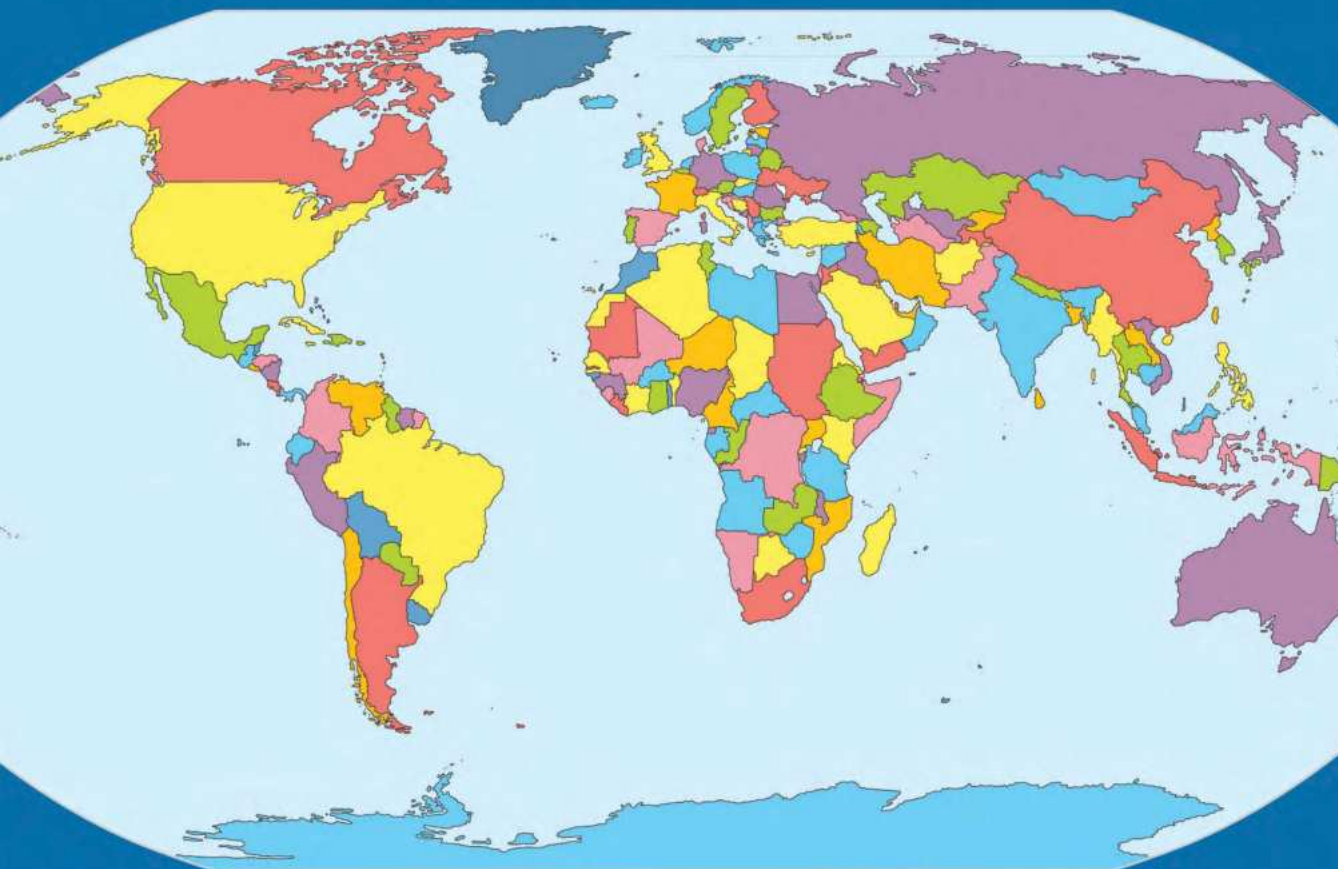


# SERFILCO®

SERVING INDUSTRY WORLDWIDE

"SIR FILCO"  
Protector of Industry &  
Environment

*for over 50 years*



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<p>Self-priming for safe transfer of acids, alkalies, solvents and various chemicals from drums, carboys, tanks, etc. Available in polypropylene, CPVC, PVDF or 316SS with choice of motors.</p> <p><b>BATCH CONTROL SYSTEMS</b> – For dispensing preset volumes.</p> <p><b>HIGH VISCOSITY DRUM PUMPS</b> – Worm screw design for industrial and sanitary applications.</p> <p><b>HAND OPERATED</b> – Barrel and container pumps for chemicals and solvents.</p>		
<b>VERTICAL PUMPS</b>	<b>33-67</b>	
<p>Seal-less, bearing-free pumps constructed of CPVC, PVDF, ECTFE and polypropylene. Used for high temperature chemical service, fume scrubbers, plating, printed circuit board mfg. and waste solution transfer. Flow rates to 650 GPM (2050 l/min).</p> <p><b>SUMP PUMPS</b> – Pumps constructed of CPVC, cast iron or 316SS in lengths to 12 ft. and flows to 370 GPM (1165 l/min) for pollution containment, waste treatment and chemical handling.</p> <p><b>PUMP STATIONS</b> – Choice of tank size, flow rate, single or duplex operation, level controls and options.</p>		
<b>HORIZONTAL PUMPS</b>	<b>68-96</b>	
<p>Constructed of CPVC, PVDF, ECTFE, Noryl and polypropylene for non-metallic solution contact and outstanding chemical resistance. Also available in cast iron or 316SS construction. Pumps are long or close coupled with single or double mechanical seals. Flow rates to 1,200 GPM (3785 l/min).</p>		
<b>MAGNETIC COUPLED PUMPS</b>	<b>97-121</b>	
<p>Constructed of CPVC, PVDF, ECTFE, Noryl and polypropylene for non-metallic solution contact and outstanding chemical resistance. Also available in cast iron or 316SS construction. Pumps are long or close coupled with single or double mechanical seals. Flow rates to 1,200 GPM (3785 l/min).</p>		



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## SELF PRIMING PUMPS

122-133

Corrosion resistant plastic or stainless steel construction for transferring chemicals, solvents, sludge, slurries and industrial waste water. Electric, air, hydraulic or gas engine drive. Flow rates to 380 GPM (1440 l/min). Direct drive, long or close coupled. Magnetic coupled also available.



## AIR DIAPHRAGM PUMPS

134-141

Air operated double diaphragm pumps with a choice of metallic or all plastic solution contact to handle any product that pours.



## METERING PUMPS

142-145

Metering pumps provide precise chemical additions for water treatment, plating, cooling towers and other applications.



## FILTER CHAMBERS

146-192

In-line housings constructed of plastic, rubber lined steel, stainless steel or carbon steel. Operating pressures to 300 PSI. ASME code design and custom models available. Designed for depth wound, high solids loading cartridges with capacities from 1 to 2600 cartridges or for use with discs, sleeves or bags. Chambers can be arranged in parallel to achieve higher capacities or in series for

**STEP DOWN FILTRATION.** An application may require coarse screening followed by multi-media (sand) filtration, followed by a cartridge filter and finally ultra filtration or reverse osmosis. Using this approach flow rates from laboratory pilot requirements to thousands of gallons per minute can be achieved.







# SERIES 'DP' DRUM PUMPS

8

P-402\_AG

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## FAST, SAFE AND CONVENIENT DISPENSING OF LIQUIDS.



- Superior quality materials and state-of-the-art manufacturing techniques with proven reliable design features.
- **PUMP TUBES**
  - Pump available in polypropylene, PPP high temperature polypro, CPVC, pure PVDF or 316 stainless steel.
  - Lengths of 27", 39", 47", 60" and 72".
  - Seal-less, one-piece outer tube with screw-on "foot".  
No weak spin welds or glued components.
  - Easy on-site service. No special tools required.
- **MOTORS**
  - Heavy duty 1.1 HP electric motors (open or TEFC) with variable speed control for precise delivery without splashback.
  - Explosion-proof and air driven motors

**SERIES 'DP'** Drum Pumps combine modern manufacturing techniques with proven and reliable design features. They are a convenient and efficient means of transferring and dispensing most liquid chemicals from drums, carboys and tanks.

These pumps are available in a selection of engineered plastics or polished 316 stainless steel thus providing a great range of chemical compatibility.

The pumps are available in lengths to meet your requirements and all pumps can be used interchangeably with any of our electric or air motors. They can

be quickly changed to meet particular pumping or motor requirements.

Simply insert the pump into the liquid for immediate pumping. No priming is necessary since the rotor is located at the bottom end of the pump. Flow may be controlled with the unique speed control knob on the ODP-S and ENC-S motors to prevent splashing and control the volume. Keep these handy pumps on location throughout your plant for convenient solution transfer.



**DRUMS & BARRELS**



**LABORATORY**

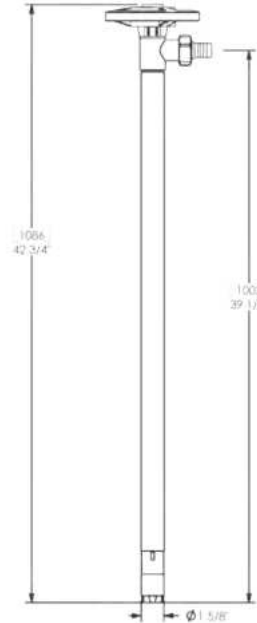
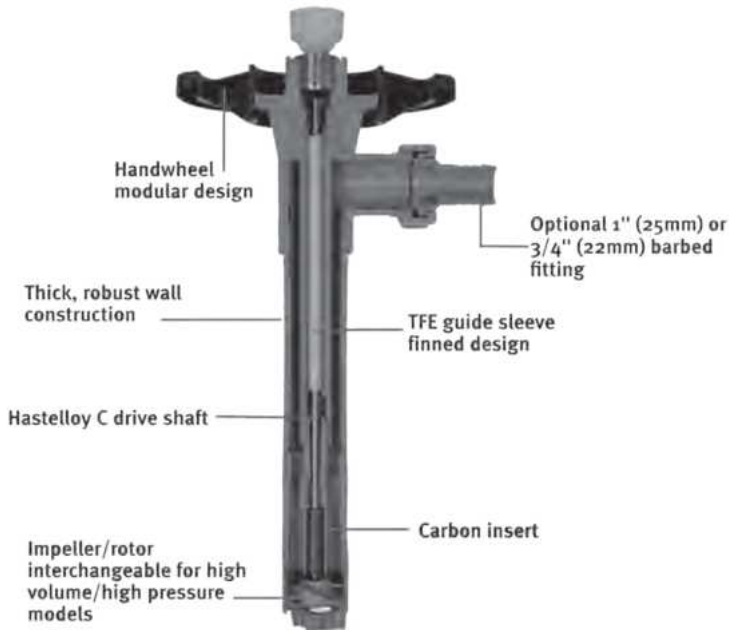


**LARGE STORAGE VESSELS**



Pump tubes are designed with threaded joints for easy maintenance and individual component replacement without special tools. Our guide sleeves are PTFE, with a specially extruded fin which secures it inside the inner tube.

We utilize a seal grade carbon for our lower bushing (pure carbon 6038C), the most chemically resistant carbon available. Our shafts are Hastelloy® C-276 (PP, PPP, CK and KY models), or 316 stainless steel (SS models).



**Empties a 55 U.S. gallon (200L) drum in less than 2 minutes.**

Design: Seal-less / Centrifugal  
Viscosity: 1500 Cps/mPas (ODP-S, ENC-S)  
750 Cps/mPas (ODP450,  
EXP-UL, AIR (F))  
450 Cps/mPas (AIR (B))

Discharge Options: 1" (25mm) barb  
3/4" (19mm) barb  
Maximum  
Specific Gravity: 1.8

## **! SAFETY PRECAUTIONS**

Verify the chemical compatibility of the material of your pump with the liquid you are pumping. Never use a pump that is not chemically compatible with the fluids you are pumping or serious bodily harm, fire or explosion could result.

The high velocity flow of liquid through a pump could create static electricity. All pumps and containers must be properly grounded and bonded to prevent static discharge and sparking, which could cause electric shock, fire or explosion.

A ground wire should be used on any explosion-proof motor as well as the container when transferring explosive material. This warning pertains to electric and pneumatic motors.

**Only metallic pumps should be used for transferring flammable or explosive liquids. Do not pump an explosive or flammable liquid with ODP, ENC, Air (B) or Air (F) motors.**

Follow all safety recommendations regarding clothing and goggles, which should be worn when using these pumps.





## TO ORDER, use Price Code Number

### PP POLYPROPYLENE

#### APPLICATIONS:

Most chemically aggressive liquids such as acids, salt solutions and solutions which corrode or oxidize metals, such as hydrofluoric or sulfuric acid.

Maximum liquid temperature 130°F (54°C).

**⚠ Not for use with flammable liquids.**

PUMP MODEL NUMBER*	PRICE CODE NUMBER*	MATERIALS OF CONSTRUCTION	LENGTH	DIA.	FOR HOSE SIZE**
PP8327-1	52-1008	Polypropylene w/Hastelloy® C276, PTFE, carbon	27" (690 mm)	1-5/8" (41mm)	1" (25mm)
PP8339-1	52-1000		39" (1000 mm)		
PP8347-1	52-1001		47" (1200 mm)		
PP8360-1	52-1003		60" (1525 mm)		
PP8372-1	52-1005		72" (1825 mm)		

### PPP HIGH TEMPERATURE POLYPROPYLENE APPLICATIONS:

Engineered for transferring high temperature corrosive liquids. Robust PPP polypropylene ensures chemical resistance and excellent heat deflection against light and mildly aggressive liquids.

Maximum liquid temperature 175°F (80°C).

**⚠ Not for use with flammable liquids.**

PUMP MODEL NUMBER*	PRICE CODE NUMBER*	MATERIALS OF CONSTRUCTION	LENGTH	DIA.	FOR HOSE SIZE**
PPP8327-1	52-6000	High temperature Polypropylene w/Hastelloy® C276, PTFE, carbon	27" (690 mm)	1-5/8" (41mm)	1" (25mm)
PPP8339-1	52-6001		39" (1000 mm)		
PPP8347-1	52-6002		47" (1200 mm)		
PPP8360-1	52-6003		60" (1525 mm)		
PPP8372-1	52-6004		72" (1825 mm)		

### CK CPVC / PVDF

#### APPLICATIONS:

Used for pumping aggressive solutions such as sodium hypochlorite or for higher temperature applications where polypropylene is not suitable.

Maximum liquid temperature 190°F (90°C).

**⚠ Not for use with flammable liquids.**

PUMP MODEL NUMBER*	PRICE CODE NUMBER*	MATERIALS OF CONSTRUCTION	LENGTH	DIA.	FOR HOSE SIZE**
CK8327-1	52-5200	CPVC and PVDF w/Hastelloy® C276, PTFE, carbon	27" (690 mm)	1-5/8" (41mm)	1" (25mm)
CK8339-1	52-5201		39" (1000 mm)		
CK8347-1	52-5202		47" (1200 mm)		
CK8360-1	52-5203		60" (1525 mm)		
CK8372-1	52-5204		72" (1825 mm)		

### KY PVDF

#### APPLICATIONS:

Capable of pumping highly aggressive solutions which are not compatible with other thermoplastics.

Maximum liquid temperature 180°F (82°C).

**⚠ Not for use with flammable liquids.**

PUMP MODEL NUMBER*	PRICE CODE NUMBER*	MATERIALS OF CONSTRUCTION	LENGTH	DIA.	FOR HOSE SIZE**
KY8327-1	52-4004	Natural PVDF w/Hastelloy® C276, PTFE, carbon	27" (690 mm)	1-5/8" (41mm)	1" (25mm)
KY8339-1	52-4000		39" (1000 mm)		
KY8347-1	52-4001		47" (1200 mm)		

### SS 316 STAINLESS STEEL

#### APPLICATIONS:

Most solvents and organic acids, as well as salt solutions, nitrous acids, dyes, all alkalies, potable liquids to 200°F (93°C). All components are polished for a quality finish.

Maximum liquid temperature 180°F (82°C).

**⚠ For use with flammable or explosive liquids.**

PUMP MODEL NUMBER*	PRICE CODE NUMBER*	MATERIALS OF CONSTRUCTION	LENGTH	DIA.	FOR HOSE SIZE**
SS8339-1	52-2000	316 stainless steel, PTFE, carbon	39" (1000 mm)	1.65" (42mm)	1" (25mm)
SS8347-1	52-2001		47" (1200 mm)		
SS8360-1	52-2002		60" (1525 mm)		
SS8372-1	52-2003		72" (1825 mm)		

\* For high head pump – Add H to Model Number and Price Code No.

\*\* for 3/4" hose connections, see Accessories on page 8.

All pumps are provided with a 1" stainless steel hose clamp.  
Stainless steel models also include bonding and grounding cables.

#### Registered trademarks

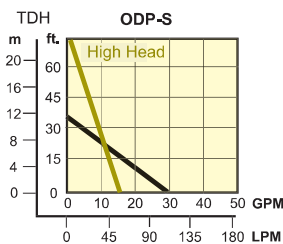
Viton - DuPont Dow Elastomers Teflon - DuPont  
Hastelloy - Haynes, International

**TO ORDER, use Price Code Number****ODP-S****ODP-S OPEN DRIP-PROOF MOTOR w/speed control**

1.1 HP (825 watts). Drip-proof motor in rugged glass reinforced plastic housing. Speed control knob allows for efficient, controlled liquid dispensing. ON/OFF switch conveniently located for single hand, thumb control. Resettable thermal overload protected, double insulated motor. Cartridge brush design extends life and greatly reduces replacement service time. Includes 16 ft. cord w/molded plug. Not suitable for hazardous duty. For viscosities up to 1500 cps or specific gravity up to 1.8. Weight: 8.8 lbs. (4 kg.)

MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
ODP-S-115	52-8000	115V/1/50-60
ODP-S-240	52-8001	230-240V/1/50-60

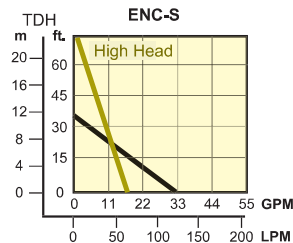
Not for use with flammable liquids.

**ENC-S****ENC-S SEVERE DUTY TOTALLY ENCLOSED MOTOR w/speed control**

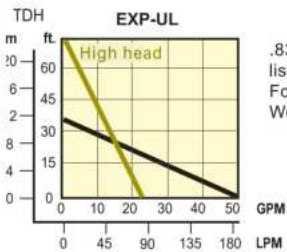
1.1 HP (825 watts). Totally enclosed motor in anodized aluminum housing for extra protection. Speed control knob allows for efficient, controlled liquid dispensing. ON/OFF switch conveniently located for single hand, thumb control. Resettable thermal overload protected, double insulated motor. Cartridge brush design extends life and greatly reduces replacement service time. Includes 16 ft. cord w/molded plug. For viscosities to 1500 cps or specific gravity up to 1.8. Not suitable for hazardous duty. Weight: 12 lbs. (6 kg.)

MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
ENC-S-115	52-3000	115V/1/50-60
ENC-S-240	52-3001	220-240V/1/50-60

Not for use with flammable liquids.





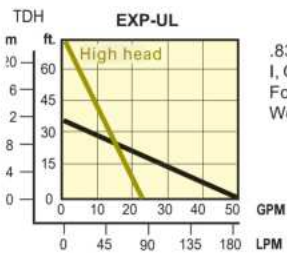
2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**EXP-UL EXPLOSION-PROOF MOTOR**

.83 HP (620 watts input/450 watt output). Explosion-proof motor in aluminum housing. C.S.A. and U.L. listed Class I, Groups C and D. Thermal overload protected, automatic reset. Includes 16 ft. cord, no plug. For viscosities up to 750 cps or specific gravity up to 1.8. Includes grounding cable. Weight: 20 lbs. (9.5 kg.)

**EXP-UL**

MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
EXP-UL-115	55-0744	115V/1/50-60

For flammable or explosive liquids.

**EXP-UL EXPLOSION-PROOF MOTOR**

.83 HP (620 watts)\*\*. Explosion-proof motor in aluminum housing. C.S.A. and U.L. listed Class I, Groups C and D. Thermal overload protected, automatic reset. Includes 16 ft. cord, no plug. For viscosities up to 750 cps or specific gravity up to 1.8. Includes grounding cable. Weight: 20 lbs. (9.5 kg.)

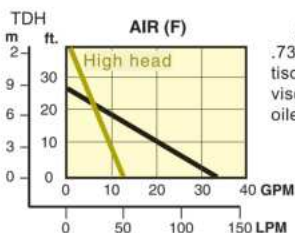
**EX5-240**

MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
EXP-UL-115	55-0744	115V/1/50-60
EX5-240*	55-7167	220-240V/1/50

For flammable or explosive liquids.

\* Protection class (PTB) EE, de 11C T6

\*\* 620 watt input / 430 watt output

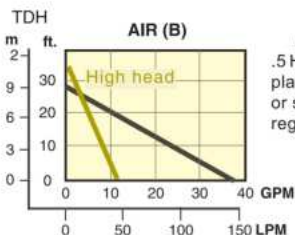
**AIR (F) AIR DRIVEN MOTOR**

.73 HP (550 watts), 28 cu. ft./min. @ 90 PSI, 10,000 RPM. Aluminum motor housing is plastisol coated to prevent sparking. Includes muffler, filter, and trigger valve for flow control. For viscosities to 750 cps or specific gravity to 1.75. Air line filter, PSI regulator and automatic oiler recommended. Weight: 3.5 lbs. (1.6 kg.)

**AIR (F)**

MODEL NO.	PRICE CODE NO.
AIR (F)	52-0100

Not for use with flammable liquids.\*\*\*

**AIR (B) AIR DRIVEN MOTOR**


.5 HP (370), 22 cu. ft./min. @ 90 PSI, 10,000 RPM. Aluminum motor housing, glass reinforced plastic pump mounting bracket. Not suitable for hazardous duty. For viscosities to 450 cps or specific gravity up to 1.6. Muffler included. When air supply line is fitted with an optional regulator, the pump output can be precisely controlled. Weight: 3 lbs. (1.4 kg.)

**AIR (B)**

MODEL NO.	PRICE CODE NO.
AIR (B)	55-0701

Not for use with flammable liquids.\*\*\*



\*\*\*  Caution: Air motors are not recognized under any current Underwriters' Laboratory listing program. Consult a qualified safety engineer for suitability for use in hazardous area or with flammables



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## EVERYTHING YOU NEED FOR SAFE AND EFFICIENT LIQUID TRANSFER



### PACKAGE 1 Water Treatment Chemicals

Engineered to transfer corrosive chemicals associated with the water treatment industry. Common applications include: Sodium Hypochlorite, Potassium Hydroxide and Sodium Bromide.

Motor type: ODP-S  
Pump assembly: CPVC  
Pump length: 39"(1000 mm)  
PVC hose: 6 ft. (1.8 m), I.D. 1" (25 mm)  
Dispensing nozzle: 1" (25 mm), polypropylene  
Barrel adapter: Polypropylene  
Storage bracket: 16 gauge coated steel  
Max. viscosity: 1500 CPS / mPas  
Max. temperature: 190°F(90°C)

PRICE CODE NO.	VOLTAGE
52-9430	115V
52-9431	240V

### PACKAGE 2 Acids & Alkalies

Engineered to transfer mildly corrosive liquids. Common applications include: Hydrochloric Acid, Nitric Acid - 20%, Acetic Acid and Sulfuric Acid

Motor type: ODP-S  
Pump assembly: Polypropylene  
Pump length: 39"(1000 mm)  
PVC hose: 6 ft. (1.8 m), I.D. 1" (25 mm)  
Dispensing nozzle: 1" (25 mm), polypropylene  
Barrel adapter: Polypropylene  
Storage bracket: 16 gauge coated steel  
Max. viscosity: 1500 CPS / mPas  
Max. temperature: 130°F(55°C)

PRICE CODE NO.	VOLTAGE
52-9400	115V
52-9401	240V

### PACKAGE 3 Concentrated Acid & Alkalies

Engineered for transferring very concentrated and extremely aggressive liquids. Common applications include: Sulfuric Acid 66 Baume, Propionic Acid, Concentrated Nitric - 98% and Hydrofluoric Acid.

Motor type: ENC-S  
Pump assembly: PVDF  
Pump length: 39"(1000 mm)  
PVC hose: 6 ft. (1.8 m), I.D. 1" (25 mm)  
Dispensing nozzle: 1" (25 mm), PVDF  
Barrel adapter: Polypropylene  
Storage bracket: 16 gauge coated steel  
Max. viscosity: 1500 CPS / mPas  
Max. temperature: 175°F(80°C)

PRICE CODE NO.	VOLTAGE
52-9420	115V
52-9421	240V

Unique design allows users to safely measure and transfer mildly corrosive liquids. Common applications include: Hydrochloric Acid, Nitric Acid - 20%, Acetic Acid and Sulfuric Acid

Motor type: ODP-S  
Pump assembly: Polypropylene  
Pump length: 39"(1000 mm)  
PVC hose: 6 ft. (1.8 m), I.D. 1" (25 mm)  
Dispensing nozzle: 1" (25 mm), polypropylene  
Flow meter: Digital / polypropylene totalizer  
Barrel adapter: Polypropylene  
Storage bracket: 16 gauge coated steel  
Max. viscosity: 300 CPS / mPas  
Max. temperature: 130°F(55°C)

PRICE CODE NO.	VOLTAGE
52-9500	115V
52-9501	240V

### PACKAGE 4 MEASUREMENT Acid & Alkalies

Unique design allows operators to safely measure and transfer concentrated and very aggressive liquids. Common applications include: Sulfuric Acid 66 Baume, Propionic Acid, Concentrated Nitric - 98 and Hydrofluoric Acid.

Motor type: ENC-S  
Pump assembly: PVDF (Kynar®)  
Pump length: 39"(1000 mm)  
PVC hose: 6 ft. (1.8 m), I.D. 1" (25 mm)  
Dispensing nozzle: 1" (25 mm), PVDF  
Flow meter: Digital / PVDF totalizer  
Barrel adapter: Polypropylene  
Storage bracket: 16 gauge coated steel  
Max. viscosity: 300 CPS / mPas  
Max. temperature: 175°F(80°C)

PRICE CODE NO.	VOLTAGE
52-9510	115V
52-9511	240V

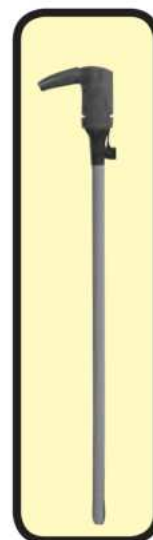
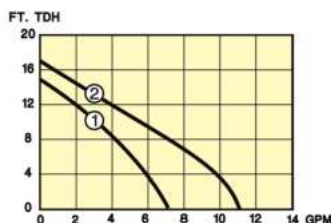
### PACKAGE 5 MEASUREMENT Concentrated Acid & Alkalies



2900 MacArthur Blvd Northbrook, IL USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**LABORATORY DRUM PUMP**

- Ideal for low volume transfer
- Polypropylene
- 27" or 39" length

Versatile, lightweight pump for the transfer of acids or alkalis from glass carboys and similar containers. Pump will handle liquids to 250 cps. Motor is 160 watt with built-in overload and manual reset for safety. Includes 16' cord with molded plug, 6' of 1/2" vinyl hose and polypropylene flow nozzle.

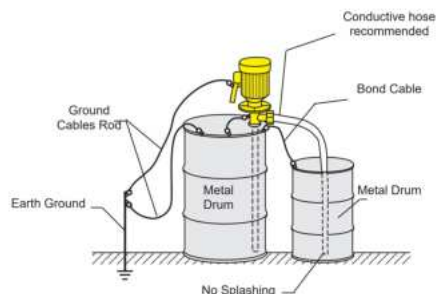
**TO ORDER, use Price Code No.**

MODEL NO.	PRICE CODE NO.	CURVE	MATERIALS OF CONSTRUCTION	LENGTH	DIA.	HOSE SIZE	MAX. TEMP.	WATT MOTOR	WEIGHT
				inches	inches				Lbs.
PP8327-1-110	55-9000	1	Carbon Viton® Ceramic ETFE Hastelloy®C	27	1	1/2 - 3/4	115	115V/1/60	9.5
PP8327-2-110	55-9001	2			1-1/4			110V/1/50-60	
PP8327-2-220	55-9002	2			1-1/4			220V/1/50-60	
PP8339-1-110	55-9003	1		39	1	1/2 - 3/4	115	110V/1/50-60	10
PP8339-1-220	55-9004	1			1			220V/1/50-60	
PP8339-2-110	55-9005	2			1-1/4			110V/1/50-60	
PP8339-2-220	55-9006	2			1-1/4			220V/1/50-60	

**ACCESSORIES****GROUND-BOND CABLE KIT**

When pumping flammable or combustible liquids from one container to another, both containers must be effectively bonded and grounded to prevent discharge of sparks of static electricity which could cause an explosion. Not for use with plastic pumps or ODP/ENC motors.

DESCRIPTION	PRICE CODE NO.
2 ground cables, 6' long with clamps 1 bond cable, 10' long with clamps 1 ground cable, 1' long with clamp for drum	55-0247

**316 SS SQUEEZE CLAMP WITH HOSE CLAMP**

To securely hold discharge hose or nozzle to tank flange or container while operating. Holds hose to wall bracket for storage. Prevents spillage and siphoning. Entire assembly is 316 stainless steel and hose clamp is welded onto hand clamp. Ends of clamp have a lip to grip drum flange.



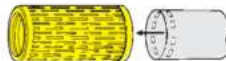
FOR HOSE SIZE I.D.	FORCE TO OPEN	SIZE	PRICE CODE NO
1/2" to 1"	12 lbs. 5.5 kg.	Small - 4.5" handle	99-0190 A
1" to 1 1/2"	22 lbs. 10 kg.	Large - 7.0" handle	99-0191 A

**Increase the functional use of any drum pump**

HOSE, CLAMPS & HOSEBARBS	PRICE CODE NO.
PVC HOSE - CLEAR -	
3/4" I.D. - per foot	55-0266
1" I.D. - per foot	55-0274
NYLON REINFORCED HOSE - CLEAR	
3/4" I.D. - per foot	22-0481
1" I.D. - per foot	22-0432
STAINLESS STEEL FLEXIBLE HOSE -	
3/4" NPT x 8' long (male x female)	22-0539A
PTFE RIBBED HOSE - 1" I.D. x 8' long	22-0463
HOSE CLAMP -	
3/4" stainless steel	22-0520
1" stainless steel	22-0505
DISCHARGE HOSE BARB -	
3/4" polypropylene	52-1051
3/4" PVDF	52-4051
DISCHARGE ADAPTER -	
3/4" MNPT, CPVC	55-6096
3/4" MNPT, 316 SS	55-6095
1" MNPT, 316 SS	55-6100
CHECK VALVE -	
3/4" FNPT, PVC	33-6051

**STRAINER**

Recommended when pumping dirty liquids or where abrasive particles are present.



	PRICE CODE NO.
PP for PP or PVDF	55-0282A
SS for SS Pumps	55-0283A

**WALL BRACKET -**

**black vinyl coated 16 ga. steel**

A wall bracket is recommended for every pump. Proper storage will increase the life of the unit.



PRICE CODE NO.
52-1101

**BARREL ADAPTERS / FUME BARRIER**

For all pump models. To hold pump in vertical position and avoid exposure of motor to escaping vapors. Snug slip fit over pump tube allows for depth adjustment in drum. Fume barrier utilizes a Viton seal to hold corrosive fumes within the container.



	PRICE CODE NO.
SS, 2" NPT, for metal drum pumps	99-0157
PP, 2" NPT, for polypropylene, PVDF and metal drum pumps	99-0107A
PP, 2" buttress thread, for polypropylene and PVDF drum pumps	99-0108A
Fume barrier, stainless steel, 2" NPT	52-9019
Fume barrier, polypropylene, 2" NPT	52-9018

**NOZZLE**

Provides controlled dispensing of liquid without splashing for safe chemical transfer. Ideal for dispensing into small containers, the nozzle features full one inch flow-through for maximum flow and allows hand held squeeze control for corrosive applications. 1" hose barb connection.



	PRICE CODE NO.
Polypropylene, Viton® and Hastelloy (shaft and spring)	52-0017
Stainless steel and Teflon®	52-0017S
PVDF	52-0017K
Aluminum	52-0017A



# SMART DRUM PUMP BATCH CONTROL SYSTEM

16

P-412\_B

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431



**CHEMICAL PACKAGING / PLATING  
WASTE WATER TREATMENT  
CHEMICAL MANUFACTURING  
SEMI-CONDUCTOR  
PHARMACEUTICAL / AGRICULTURE**

## Dispenses liquids:

- safely
- accurately – preset volume
- easily
  - push to start
  - shuts off automatically

SERFILCO Smart Pumps are engineered to control, measure and dispense any volume of liquid from drums, IBCs, tanks and any large storage vessel. They can be used in any industry where batching, chemical packaging or dilution is required to be accurate and efficient.

## OPERATIONS

Simply enter the desired volume of liquid with directional arrows. Press ENTER and the SERFILCO Smart Pump Batch Control System engages the motor, dispenses the required volume, then stops the motor to complete the process. Motor speed control is also included to dispense at the desired flow rate.

## FEATURES

- Measure flow rate and volume
- Turbine Paddle Wheel design
- Multiple languages
- Measures: gallon, liters, cubic meters, milliliters, imperial gallons
- Resettable, Totalizer
- +/- .05% accuracy of reading

## TECHNICAL SPECIFICATIONS

<b>Available Wetted Parts</b>	Polypropylene & PVDF
<b>Motor Drive</b>	Open Drip (IP44) or TEFC (IP55)(110v or 230v)
<b>Discharge Fitting</b>	1" (25mm) Hose Barb
<b>Pumping Principle</b>	Centrifugal
<b>Flow Capacity</b>	25 GPM (95 LPM)
<b>Maximum Capacity</b>	300 cps / mPAS
<b>Paddle Wheel Materials</b>	PVDF & Ceramic
<b>Immersion Length</b>	27" (700mm), 39" (1000mm), 47" (1200mm), 60" (1500mm), 72" (1800mm)



## SMART DRUM PUMP BATCH CONTROL SYSTEM

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P-412\_B

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\*SYSTEM INCLUDES 1 EACH: SERFILCO drum pump Smart Motor, pump tube and batch controller with all necessary connections.

### 110-120V/1/50-60

#### Variable Speed Batch Control Systems

SYSTEM MODEL NUMBER	MOTOR	PUMP TUBE MATERIAL - LENGTH	METER, WETTED COMPONENTS	PRICE CODE NO.
BC-ODP-PP-27 BC-ODP-PP-39 BC-ODP-PP-47 BC-ODP-PP-60 BC-ODP-PP-72	ODP	PP-27" PP-39" PP-47" PP-60" PP-72"	PP, ceramic	52-0400 52-0401 52-0402 52-0403 52-0404
BC-ENC-PP-27 BC-ENC-PP-39 BC-ENC-PP-47 BC-ENC-PP-60 BC-ENC-PP-72	TEFC	PP-27" PP-39" PP-47" PP-60" PP-72"	PP, ceramic	52-0405 52-0406 52-0407 52-0408 52-0409
BC-ODP-KY-27 BC-ODP-KY-39 BC-ODP-KY-47	ODP	PVDF-27" PVDF-39" PVDF-47"	PVDF, ceramic	52-0410 52-0411 52-0412
BC-ENC-KY-27 BC-ENC-KY-39 BC-ENC-KY-47	TEFC	PVDF-27" PVDF-39" PVDF-47"	PVDF, ceramic	52-0413 52-0414 52-0415

### 220-240V/1/50-60

#### Variable Speed Batch Control Systems

SYSTEM MODEL NUMBER	MOTOR	PUMP TUBE MATERIAL - LENGTH	METER, WETTED COMPONENTS	PRICE CODE NO.
BC2-ODP-PP-27 BC2-ODP-PP-39 BC2-ODP-PP-47 BC2-ODP-PP-60 BC2-ODP-PP-72	ODP	PP-27" PP-39" PP-47" PP-60" PP-72"	PP, ceramic	52-0416 52-0417 52-0418 52-0419 52-0420
BC2-ENC-PP-27 BC2-ENC-PP-39 BC2-ENC-PP-47 BC2-ENC-PP-60 BC2-ENC-PP-72	TEFC	PP-27" PP-39" PP-47" PP-60" PP-72"	PP, ceramic	52-0421 52-0422 52-0423 52-0424 52-0425
BC2-ODP-KY-27 BC2-ODP-KY-39 BC2-ODP-KY-47	ODP	PVDF-27" PVDF-39" PVDF-47"	PVDF ceramic	52-0426 52-0427 52-0428
BC-ENC-KY-27 BC-ENC-KY-39 BC-ENC-KY-47	TEFC	PVDF-27" PVDF-39" PVDF-47"	PVDF, ceramic	52-0429 52-0430 52-0431



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**MODEL SE35 BATTERY POWERED DIGITAL FLOW METER / TOTALIZER**

- Separate flow chamber and electric module with unique "1/4 Turn & Lock" connect system.
- Measure flow rate and volume with resettable totalizer.
- Menu – guided user friendly operating system allows for customized setting. Equipped with E Eprom electronics.
- Accuracy 0.5%, 0.4% repeatability.
- 9V – Lithium Battery.

**FLOW METERS KITS**

MODEL NO.	WETTED MATERIALS	PRICE CODE NO.
SE35PP-KIT	PP, PVDF, ceramic	52-0160
SE35KY-KIT	PVDF, ceramic	52-0161
SE35SS-KIT	316 SS, PVDF, ceramic	52-0162

SERFILCO Model SE35 Digital Flow Meters utilize proven paddle wheel design for greater accuracy when measuring low to medium viscosity liquids. The separate flow chamber and removable electronic module provide maximum chemical resistance to meet the toughest applications. Nema 4 (IP65) enclosure. Measuring range 2-200 GPM (7.5 - 757 LPM). Temperature range 32°F - 217°F (0°C - 100°C).

**FLOW METER KITS**

Flow meter and flow chamber with discharge nozzle and 1" hose barb inlet.

**FLOW METERS**

Flow meter and flow chamber with 1" hose barb inlet & outlet.

**FLOW METERS**

MODEL NO.	WETTED MATERIALS	PRICE CODE NO.
SE35PP-B	PP, PVDF, ceramic	52-0170
SE35KY-B	PVDF, ceramic	52-0171
SE35SS-B	316 SS, PVDF, ceramic	52-0172

**BATTERY POWERED ELECTRONIC FLOW METER**

- Self-contained microprocessor with LCD readout
- + 1.5% accuracy, + 0.3% repeatability
- Measures flow rate and total flow separately  
Consult Sales Dept. for other registers.
- 316 stainless steel, nylon or PVDF
- Factory calibrated: 3 - 50 U.S. GPM or 10 - 190 LPM

SERFILCO Electronic Digital Flow Meters combine microprocessor technology with rugged and accurate turbine flow sensor design. Power is supplied by 2 lithium batteries (included) that provide an average 2,000 hours of intermittent use. LCD display automatically turns on when flow starts and off four minutes after flow ceases. Standard connection is 1" NPT. All electronics are enclosed under splash-tight gasketed acrylic cover. Pressure drop 2 psig @ 30 GPM (1.4 BAR @ 114 LPM) and 5 psig @ 50 GPM (3.5 BAR @ 190 LPM). Dimensions: 4" x 2.5" x 2" (10.2 x 6.4 x 5.1 cm)

MODEL NO.	WETTED MATERIALS	PRICE CODE NO.
DMSS-1	Stainless steel, PVDF, ferrite, ceramic	52-0998 G
DMN-1	Nylon, ferrite, ceramic, stainless steel	52-0999 G
DMKY-1	PVDF, ceramic	52-0994 G

For LPM calibration change **G** to **L** in Price Code Number

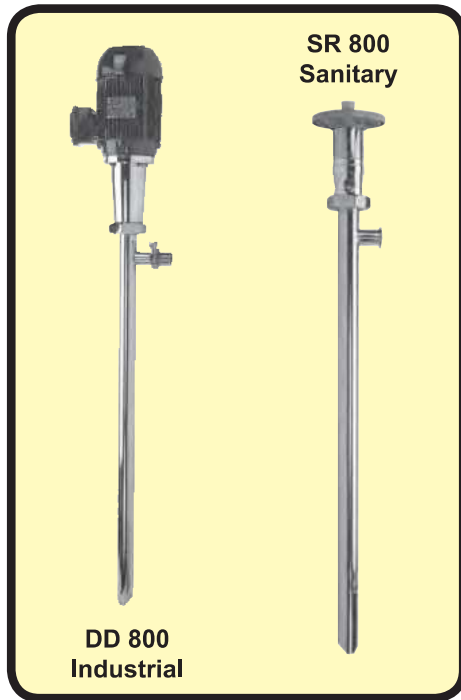


# HIGH VISCOSITY DRUM PUMPS

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P-411\_B

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431



## INDUSTRIAL & SANITARY PUMP SERIES

- Flows to 17 GPM / 64 LPM
- Max Pressure 174 psi / 12 bar
- Rugged construction  
All 316 stainless steel  
Choice of stator elastomers
- Industrial Series 700 or  
Sanitary Series 800
  - Speed Reduced pump (SR)  
Max viscosity 25,000 cps/mPas
  - Direct Drive pump (DD)  
Max viscosity 100,000 cps/mPas



## Progressive Cavity Design


**SERFILCO Progressive Cavity Pumps** are engineered to transfer high viscosity materials from drums, tanks and IBC's. Utilizing the principle of positive displacement, these pumps deliver a continuous flow with little product degradation. The series 700 (Industrial) and series 800 (Sanitary) pumps can transfer materials ranging in viscosity up to 100,000 cps/ mPas. All pumps are constructed from robust 316SS with a choice of stator elastomers.

### Series 700 Industrial Pump

SERFILCO series 700 Industrial Pumps are commonly used throughout the industrial marketplace for transferring viscous materials such as polymers,

paints, resins, adhesives and petroleum based products.

### Series 800 Sanitary Pump

SERFILCO series 800 Sanitary Pumps are commonly used throughout the sanitary food processing, pharmaceutical, biotechnology, and cosmetic industries. Applications include the transfer of tomato paste, mayonnaise, pie fillings, salad dressing, shampoos, and cosmetic lotions. The series 800 pumps are manufactured according to  standards with FDA approved materials of construction. The pumps utilize a threaded design and tri-clamp fittings for quick cleaning, inspection and maintenance.



PAINTS



PHARMACEUTICAL



COSMETICS



PETROLEUM



## SR - SPEED REDUCED PUMPS

### Technical Data

<b>Max. Viscosity:</b>	25,000cps (mPAS)
<b>Discharge Port:</b>	1.5" / 38mm hose barb, optional 1.25" / 32mm
<b>Wetted Material:</b>	Tube & Rotor Assembly: 316 Stainless Steel Stator Material: See below
<b>Mechanical Seal:</b>	SiC/Viton/SiC
<b>Motor Drives:</b>	ODP450, ODP-S, ENC-S, EXP-UL, AIR(F)
<b>Fittings:</b>	Large Type Acme Thread design enables quick disassembly for cleaning and maintenance.

### SR 700 Industrial Pump Series

- Easy Maintenance
- Threaded Components
- Interchangeable Motors Drives
- Continuous Flow
- Low Shearing Properties

MODEL NUMBER	PRICE CODE NO.	FLOW RATE**	MAX PRESSURE	PUMP LENGTH
DD700-71-27-* DD700-71-39-* DD700-71-47-*	52-7710* 52-7713* 52-7716*	7 GPM	87 PSI	27" 39" 47"
DD700-72-27-* DD700-72-39-* DD700-72-47-*	52-7711* 52-7714* 52-7717*	7 GPM	174 PSI	33" 45" 53"
DD700-181-27-* DD700-181-39-* DD700-181-47-*	52-7712* 52-7715* 52-7718*	17 GPM	87 PSI	27" 39" 47"

\* Add to Model No. and Price Code No.

\*\* Based on water

B for Buna-N  
T for PTFE  
V for Viton

### SR 800 Sanitary Series



- Hygienic Design
- Easy to Clean & Maintain
- Gentle Product Treatment
- Continuous Flow

MODEL NUMBER	PRICE CODE NO.	FLOW RATE**	MAX PRESSURE	PUMP LENGTH
SR800-71-27-* SR800-71-39-* SR800-71-47-*	52-7800* 52-7803* 52-7806*	7 GPM	87 PSI	27" 39" 47"
SR800-72-27-* SR800-72-39-* SR800-72-47-*	52-7801* 52-7804* 52-7807*	7 GPM	174 PSI	33" 45" 53"
SR800-181-27-* SR800-181-39-* SR800-181-47-*	52-7802* 52-7805* 52-7808*	17 GPM	87 PSI	27" 39" 47"

\* Add to Model No. and Price Code No.

\*\* Based on water

FG for food grade Buna  
T for PTFE



Warning: When pumping flammable or combustible liquids pump tube must be used in conjunction with an explosion proof motor



## ODP-S



Warning: Not suitable for pumping flammable or combustible liquids

**ODP-S OPEN DRIP-PROOF MOTOR w/speed control**

1.1 HP (825 watts). Drip-proof motor in rugged glass reinforced plastic housing. Speed control knob allows for efficient, controlled liquid dispensing. ON/OFF switch conveniently located for single hand, thumb control. Resettable thermal overload protected, double insulated motor. Cartridge brush design extends life and greatly reduces replacement service time. Includes 16 ft. cord w/molded plug.  
Weight: 8.8 lbs. (4 kg.)

MOTOR MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
ODP-S-115	52-8000	115V/1/50-60
ODP-S-240	52-8001	230-240V/1/50-60



Warning: Not suitable for pumping flammable or combustible liquids

## ENC-S

**ENC-S SEVERE DUTY TOTALLY ENCLOSED MOTOR w/speed control**

1.1 HP (825 watts). Totally enclosed motor in anodized aluminum housing for extra protection. Speed control knob allows for efficient, controlled liquid dispensing. ON/OFF switch conveniently located for single hand, thumb control. Resettable thermal overload protected, double insulated motor. Cartridge brush design extends life and greatly reduces replacement service time. Includes 16 ft. cord w/molded plug.  
Weight: 12 lbs. (6 kg.)

MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
ENC-S-115	52-3000	115V/1/50-60
ENC-S-240	52-3001	220-240V/1/50-60



Warning: Not suitable for pumping flammable or combustible liquids

## EXP-UL

**EXP-UL EXPLOSION-PROOF MOTOR**

.83 HP (620 watts)\*\*. Explosion-proof motor in aluminum housing. C.S.A. and U.L. listed Class I, Groups C and D. Thermal overload protected, automatic reset. Includes 16 ft. cord, no plug.  
Weight: 20 lbs. (9.5 kg.)

MODEL NO.	PRICE CODE NO.	MOTOR VOLTAGE
EXP-UL-115	55-0744	115V/1/50-60
EX5-240*	55-7167	220-240V/1/50

\*Protection class (PTB): EE<sub>x</sub> de 11C T6

\*\* 620 watt input / 430 watt output



May be used for pumping flammable or combustible liquids

**AIR (F) AIR DRIVEN MOTOR**

.73 HP (550 watts), 28 cu. ft./min. @ 90 PSI, 10,000 RPM. Aluminum motor housing is plastisol coated to prevent sparking. Includes muffler, filter, and trigger valve for flow control. Air line filter, PSI regulator and automatic oiler recommended.  
Weight: 3.5 lbs. (1.6 kg.)

MODEL NO.	PRICE CODE NO.
AIR (F)	52-0100



Warning: Not suitable for pumping flammable or combustible liquids

## AIR (F)



**WARNING:** Pumping of flammables or combustible liquids can generate a static electric discharge, causing fire or explosion resulting in injury or death. Read and understand operating instructions before starting this unit. Follow all federal, state and local safety codes including NFPA 30 - NFPA77. Prior to connecting to air supply, install bond and ground wires and check continuity of each wire. A meter reading of one ohm or less is required for safe liquid transfer. Use only metallic drum, receiving vessel and metallic pump when pumping flammables. Air motors are not recognized under any current Underwriter's Laboratory listing program. Consult a qualified engineer for suitability for use in a hazardous area or on flammables.





## DD - DIRECT DRIVE PUMPS

### Technical Data

<b>Design:</b>	Progressive Cavity / Positive Displacement
<b>Max. Viscosity:</b>	100,000cps (mPAS)
<b>Discharge Port:</b>	1.5" / 38mm hose barb, optional 1.25" / 32mm
<b>Wetted Material:</b>	Tube & Rotor Assembly: 316 Stainless Steel Stator Material: See below
<b>Mechanical Seal:</b>	SiC/Viton/SiC
<b>Motor Drives:</b>	Pneumatic or electric; B phase / 50-60 Hz See page 4 for motor selection.
<b>Fittings:</b>	Large Type Acme Thread design enables quick disassembly for cleaning and maintenance.

### DD 700 Industrial Pump Series

- Easy Maintenance
- Threaded Components
- Interchangeable Motors Drives
- Continuous Flow
- Low Shearing Properties

MODEL NUMBER	PRICE CODE NO.	FLOW RATE**	MAX PRESSURE	PUMP LENGTH
DD700-71-27-* DD700-71-39-* DD700-71-47-*	52-7710* 52-7713* 52-7716*	7 GPM	87 PSI	27" 39" 47"
DD700-72-27-* DD700-72-39-* DD700-72-47-*	52-7711* 52-7714* 52-7717*	7 GPM	174 PSI	33" 45" 53"
DD700-181-27-* DD700-181-39-* DD700-181-47-*	52-7712* 52-7715* 52-7718*	17 GPM	87 PSI	27" 39" 47"

\* Add to Model No. and Price Code No.

\*\* Based on water

B for Buna-N  
T for PTFE  
V for Viton



### DD 800 Sanitary Series

- Hygienic Design
- Easy to Clean & Maintain
- Gentle Product Treatment
- Continuous Flow

MODEL NUMBER	PRICE CODE NO.	FLOW RATE**	MAX PRESSURE	PUMP LENGTH
DD800-71-27-* DD800-71-39-* DD800-71-47-*	52-7810* 52-7813* 52-7816*	7 GPM	87 PSI	27" 39" 47"
DD800-72-27-* DD800-72-39-* DD800-72-47-*	52-7811* 52-7814* 52-7817*	7 GPM	174 PSI	33" 45" 53"
DD800-181-27-* DD800-181-39-* DD800-181-47-*	52-7812* 52-7815* 52-7818*	17 GPM	87 PSI	27" 39" 47"

\* Add to Model No. and Price Code No.

\*\* Based on water

FG for good grade Buna  
T for PTFE



Warning: When pumping flammable or combustible liquids pump tube must be used in conjunction with an explosion proof motor



## DD700 & DD800 PUMP MOTORS

**Industrial  
Electric Motor**



**Industrial Electric Motors** 230-380-415-460v/3/50-60Hz

MODEL	PRICE CODE NO.	HP	KW	RPM	ENCLOSURE	SHIPPING WT. LBS (Kg)
DD-500	52-8010	0,75	,55	750-900	TEFC (IP55)	40 (18)
DD-510	52-8011	1	,75	750-900	TEFC (IP55)	52 (24)

**Sanitary  
Electric Motor**



**Sanitary Electric Motors** 230-380-415-460v/3/50-60Hz

MODEL	PRICE CODE NO.	HP	KW	RPM	ENCLOSURE (WASHDOWN)	SHIPPING WT. LBS (Kg)
DD-502	52-8020	0,75	,55	750-900	TEFC (IP55)	40 (18)
DD-512	52-8021	1	,75	750-900	TEFC (IP55)	52 (24)

**Industrial Pneumatic Motors**

**Industrial  
Pneumatic Motor**



MODEL	PRICE CODE NO.	HP	KW	RPM	AIR CONSUMPTION	SHIPPING WT. LBS (Kg)
DD-A4	52-8030	2	1,5	300-900	80 CFM @ 100 psi 37 L/Sec @ 7 Bar	12 (5)
DD-A6	52-8031	4	3,0	300-900	130 CFM @ 100 psi 65 L/Sec @ 7 Bar	24 (11)
DD-A8	52-8032	5	3,7	300-900	170 CFM @ 100 psi 80 L/Sec @ 7 Bar	26 (12)

**Sanitary Pneumatic Motors**

**Sanitary  
Pneumatic Motor**



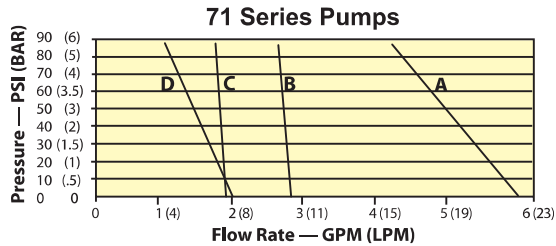
MODEL	PRICE CODE NO.	HP	KW	RPM	AIR CONSUMPTION	SHIPPING WT. LBS (Kg)
DD-A4FP	52-8040	2	1,5	300-900	80 CFM @ 100 psi 37 L/Sec @ 7 Bar	12 (5)
DD-A6FP	52-8041	4	3,0	300-900	130 CFM @ 100 psi 65 L/Sec @ 7 Bar	24 (11)
DD-A8FP	52-8042	5	3,7	300-900	170 CFM @ 100 psi 80 L/Sec @ 7 Bar	26 (12)

NOTE: Optimal pneumatic motor speed is 300-900 RPM



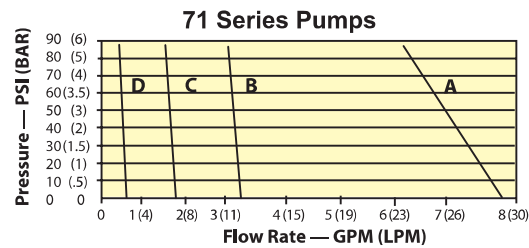
## PERFORMANCE CURVES

## 750 RPM 50 Hz Operation

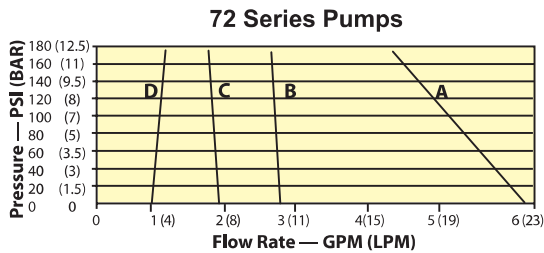


CURVE	VISCOSITY (cps)	HP	KW
A	1+	.5	.37
B	10,000+	1	.75
C	20,000+	1	1.2
D	30,000+	1.5	1.2

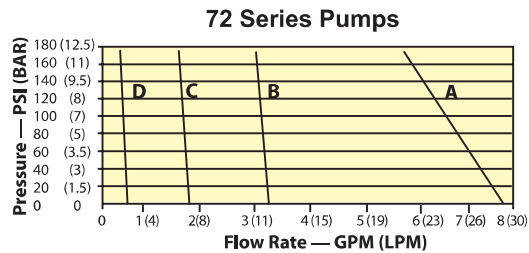
## 900 RPM 60 Hz Operation &amp; Pneumatic Motors



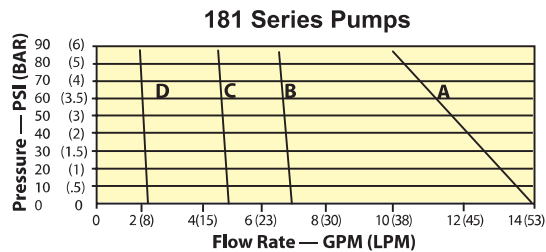
CURVE	VISCOSITY (cps)	HP	KW
A	1+	.5	.37
B	10,000+	1	.75
C	20,000+	1	1.2
D	30,000+	1.5	1.2



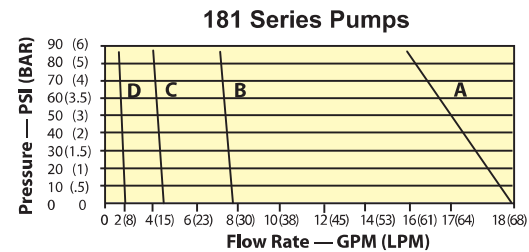
CURVE	VISCOSITY (cps)	HP	KW
A	1+	.5	.37
B	10,000+	1	.75
C	20,000+	1	1.2
D	30,000+	1.5	1.2



CURVE	VISCOSITY (cps)	HP	KW
A	1+	.5	.37
B	10,000+	1	.75
C	20,000+	1	1.2
D	30,000+	1.5	1.2



CURVE	VISCOSITY (cps)	HP	KW
A	1+	.5	.37
B	10,000+	1	.75
C	20,000+	1	1.2
D	30,000+	1.5	1.2



CURVE	VISCOSITY (cps)	HP	KW
A	1+	.5	.37
B	10,000+	1	.75
C	20,000+	1	1.2
D	30,000+	1.5	1.2



DRUM PUMP ACCESSORIES

HOSE & CLAMPS

	Price Code
<b>NYLON REINFORCED HOSE CLEAR</b>	
1 1/2" I.D. - per foot.....	22-0434
<b>WIRE REINFORCED HOSE</b>	
1 1/2" I.D. - per foot.....	22-0528
<b>HIGH PRESSURE TRANSFER HOSE</b>	
Tube: Black, oil resistant synthetic rubber (Nitrile). Reinforcement: One braid of high tensile steel wire. Cover: Black, oil and abrasion resistant synthetic rubber. Maximum working pressure: 725 psi. Max. temp: 180°F	
1 1/2" I.D. - per foot ... ..	52-9039
<b>PLICORD® GRAY FOOD TRANSFER HOSE</b>	
Construction: White Chemivulc synthetic rubber (FDA/USDA 3A Sanitary Standard 18-03 compliant). Cover: Spiral-plaited synthetic fabric with Galvanized Wire helix. Max. working pressure: 150 psi. Max. temp: 180°F	
1 1/2" I.D. - per foot.....	52-9037
<b>VINTNER™ FOOD TRANSFER HOSE (High Pressure)</b>	
For handling plant and/or tank truck transfer of wine, beer, potable water and other nonoily, liquid food stuffs. Construction: White Chlorobutyl (FDA/USDA 3A Sanitary Standard 18-03 compliant). Cover: Grey Versigard synthetic rubber. Maximum working pressure: 200 psi. Max. temp: 220°F	
1 1/2" I.D. - per foot. ....	52-9036
<b>DISCHARGE HOSE CLAMP</b>	
Maleable iron two bolt clamp. Gripping ridges reinforced lugs. Hose size from 1-48/4 to 2-3/4 (44.50 mm to 27 mm) ... ..	52-9038

PUMP HANGER

For DD direct drive pumps constructed of 304S tubing.



Price Code No.
52 0743

AIR FILTER REGULATOR/LUBRICATOR

To protect all air driven motors, with polycarbonate bowl & pressure gauge (200 psi), 3/8" NPT



Price Code No.
55 1142





# SERIES 'HP' HAND DISPENSING PUMP

26

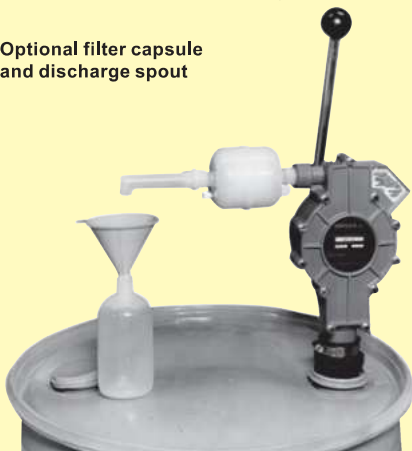
P-404\_AB

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [www.serfilco.com](http://www.serfilco.com) (800) 323 - 5431

***For point-of-use dispensing / filtering of water and chemicals used for:  
PLATING / PHARMACEUTICAL / INDUSTRIAL / PETROLEUM PRODUCTS  
and other stringent applications***

**PREVENT PRODUCT CONTAMINATION.  
IMPROVE PRODUCT QUALITY.**

Optional filter capsule  
and discharge spout



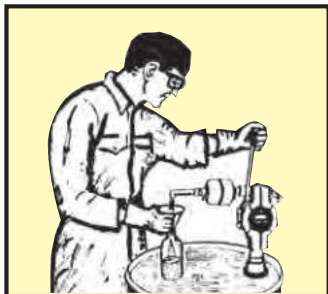
## ***A tough, quality engineered pump***

- **QUALITY ENGINEERED THERMOPLASTIC CONSTRUCTION**
- **CONTROLLED DISCHARGE RATE**  
The pump discharges approximately one (1) quart on every complete forward and backward cycle.
- **SUCTION LIFT:** Tested for 15 ft. minimum
- **DISCHARGE HEAD:** Up to 25 ft.
- **VISCOSITIES UP TO 2000 SSU**
- **TWO POSITION PUMP HANDLE**  
Handle can be mounted above the pump or below.
- **TAMPER PROOF HANDLE**  
Can be padlocked to protect against unauthorized use.
- **SELF-LUBRICATING PTFE PISTON RING**  
Operates wet or dry for long life

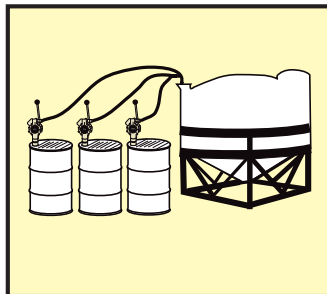
Designed for the transfer or dispensing of concentrates, additives or other liquids which are purchased in bulk but are used in small quantities. This low cost pump delivers one pint per stroke or one quart with the forward and back push/pull of the handle. The variety of materials of construction enables the user to select those which are specifically required for his individual needs according

to chemical resistance charts. The use of this pump eliminates having to pour from one container to another and avoids costly and hazardous spilling and splashing.

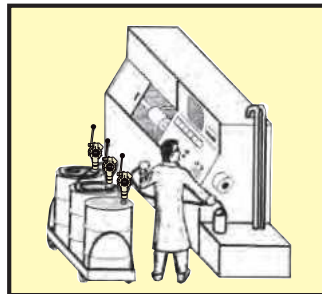
***See following page for specifications  
and ordering information.***



**Optional point of use filter  
for filtering/transfer of  
pharmaceutical liquids.**



**Liquid transfer  
for batch mixing.**



**Low cost permits use of  
multiple pumps to avoid  
cross-contamination.**



## SERIES 'HP' HAND DISPENSING PUMP

P-404\_AB

2900 MacArthur Blvd Northbrook IL USA 60062 [www.serfilco.com](http://www.serfilco.com) (800) 323 - 5431

## ELIMINATES "DUMPING" &amp; SPILLING OF SOLUTIONS

The HAND DISPENSING PUMP is a double acting piston type which will handle a wide range of solutions. The pump body, valves, valve seats and piston are all made of chemically resistant, performance engineered plastics, especially compounded to give the pump strength and rigidity. All internal metal parts in contact with the liquid are made of 316 stainless steel. The "O"-ring and gasket materials are cork-nitrile, Viton or EPDM (ethylene propylene). 1" NPT suction, 3/4" NPT discharge.

**TO ORDER, use Price Code Number**  
**Select pump from chart below and add discharge hose**  
**and suction tube to complete assembly**

## PUMP

MODEL	MATERIALS OF CONSTRUCTION	"O"-RING	GASKET	PRICE CODE NO.
HPV HPN HPE	POLYESTER (glass reinforced) - housing, cover plate, piston, valves and bung adapter	VITON® VITON EPDM	VITON CORK-NITRILE EPDM	59-0001 59-0002 59-0003
HRV HRN HRE	RYTON® (glass reinforced) - housing, cover plate, ECTFE piston, valves and bung adapter	VITON VITON EPDM	VITON CORK-NITRILE EPDM	59-0004 59-0005 59-0006
HHV HHE	ECTFE (Halar®) - housing, cover plate, piston, valves and bung adapter	VITON EPDM	VITON EPDM	59-0007 59-0008

All models have 316 stainless steel piston rod, fasteners and suction screen in contact with liquid. All pumps include a 2" NPT bung adapter.

## HOSES &amp; SUCTION TUBE

MODEL	DESCRIPTION	PRICE CODE NO.
-------	-------------	----------------

## DISCHARGE HOSES (Add to Model No. and Price Code No.)

-1	8' EPDM, w/polyester elbow & nozzle	-1
-2	8' Nitrile (Buna-N), w/polyester elbow & nozzle	-2
-3	8' PVC black vinyl, w/polyester elbow & nozzle	-3
-4	8' Cross linked polyethylene, w/polyester elbow & nozzle	-4
-5	8' Cross linked polyethylene, w/ECTFE elbow & nozzle	-5
-6	8' EPDM, w/ECTFE elbow & nozzle	-6
-7	8' Nitrile (Buna-N), w/ECTFE elbow & nozzle	-7
-8	8' PVC, w/ECTFE elbow & nozzle	-8

## SUCTION TUBE (Add to Model No. and Price Code No.)

-A	2 pc. 1" polyester, 34" long w/polyester coupling & PTFE tape	-A
-B	2 pc. 1" PTFE, 34" long w/ECTFE coupling & PTFE tape	-B
-C	2 pc. 1" UHMW polyethylene <sup>#</sup> , 34" long w/ECTFE coupling	-C
-E	1 pc. 3/4" PVC flexible, 35" long (prevents tearing of drum liners)	-E

<sup>#</sup>Ultra High Molecular Weight polyethylene

## OPTIONAL EQUIPMENT

MODEL	DESCRIPTION	PRICE CODE NO.
-------	-------------	----------------

## DISCHARGE SPOUT (Add to Model No. and Price Code No.)

-M	Polyester	-M
-N	ECTFE	-N

## BUTTRESS-BUNG ADAPTER (2" buttress x 2" NPT)

(Add to Model No. & Price Code No.)

-R	Polypropylene/polyester assembly for HP pump	-R
-S	Polypropylene/ECTFE assembly for HR pump	-S
-T	Polypropylene/ECTFE assembly for HH pump	-T

## FILTER CAPSULE-PAC

FPC-1.0 FPC-0.2	Polypropylene filter capsule with pleated 1.3 ft. <sup>2</sup> polypropylene media, ECTFE pump adapter, ECTFE discharge spout.	1.0 Nominal 0.2 Nominal	59-0011 59-0013
FC-1.0 FC-0.2	Replacement filter capsule	1.0 Nominal 0.2 Nominal	59-0012 59-0014

55-7149

## WALL BRACKET

**TYPICAL MODEL:** HPN-2AM & PRICE CODE NO.: 59-0002-2AM

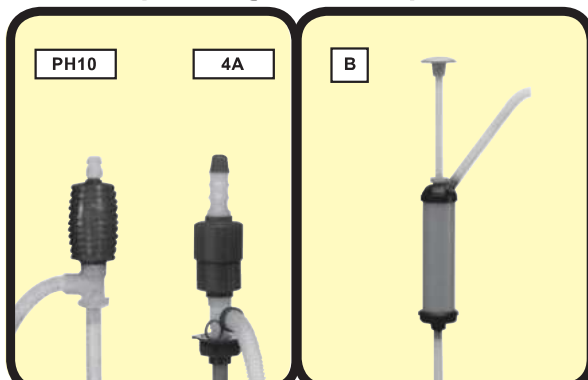
Registered trademarks: Teflon, Viton- DuPont Dow Elastomers;

Ryton- Phillips Chemical; Halar - Ausimont



## SAFETY PRECAUTIONS

Plastic pumps are not designed nor intended to be used for transferring flammable or explosive liquids. Only metallic pumps which can be grounded and bonded should be used for this purpose. Refer to a chemical resistance data chart for compatibility of materials with liquids to be pumped. Always wear protective safety clothing such as gloves, apron and goggles.

**For dispensing of small quantities.**

MODEL	PRICE CODE NO.
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PH10	56-0000A
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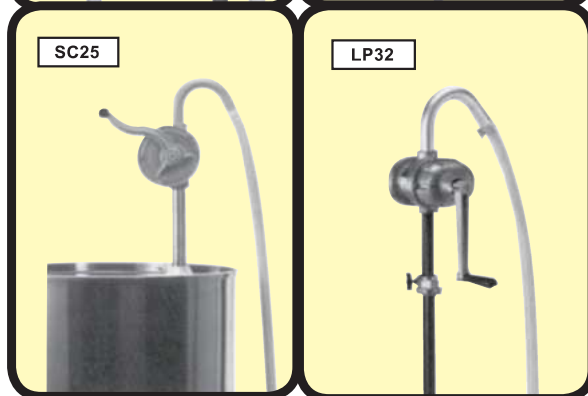
**PLASTIC SYPHON PUMP**

All polyethylene construction. Hand operated bellows. Fits 5-gal. cans, bottles or drums. Ideal for mildly corrosive fluids at ambient temperatures. Top vent cap is syphon breaker. 16" long tube, 21" long hose.

**PLASTIC SYPHON PUMP**

4A	56-0011C
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All polyethylene. Hand operated bellows and flexible discharge tube will syphon to a lower or pump to a higher level. For dispensing mild acids, caustics, light oils, waxes and disinfectants at ambient temperatures. Top vent cap is syphon breaker, 2" IPS threaded male adapter. 33" long tube, 46" long hose. For 15, 30 and 55 gal. drums. 5 GPM. Wt. 1 lb.

**PLASTIC PISTON PUMP**

B	56-0003
---	---------

Constructed of polyethylene and polypropylene. Threads onto 2" and 3/4" NPT drum opening. With adjustable suction tube. For 15, 30 and 55 gal. drums.

**ROTARY METAL PUMPS**

Effortless syphon flow after priming with several turns. For 15, 30 or 55 gal. drums. Ideal for detergents and light oils. Pumps 6 GPM at 60 turns per min. 2" IPS threaded male adapter. Features Buna N gaskets.

Syphons 4 GPM after priming;  
Pumps 6 GPM @ 60 RPM.  
Cast iron. Wt. 14 lbs., 52"  
Pumps 15 GPM @ 60 RPM.  
Aluminum. Wt. 14-1/2 lbs., 53"

SC25	56-0005A
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LP32	56-0022
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**PROTECTIVE APPAREL  
MUST BE WORN.**

**METAL PISTON PUMPS**

Fits 15, 30 and 55 gal. containers. Includes 2" IPS threaded male adapter. Pumps 8 oz. on each upstroke.

316 stainless steel and PTFE  
for alkalis, mild acids.

316SS	56-0175
-------	---------

Chrome plated steel with poly-  
ethylene for non-corrosives,  
soaps, disinfectants.

146C	56-0010
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**OPTIONAL****GROUND-BOND CABLE KIT**

For use with metal pumps and containers to prevent static discharge. When pumping flammable or combustible liquids from one container to another, both containers must be effectively bonded and grounded to prevent discharge of sparks of static electricity which could cause explosion and bodily harm.

DESCRIPTION	PRICE CODE NO.
2 ground cables, 6' long with clamps	55-0247
1 bond cable, 10' long with clamps	
1 ground cable, 1' long with clamp for drum	



# DRUM PUMP CHEMICAL RESISTANCE GUIDE

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T-P107\_D

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

The information contained in this Drum Pump Chemical Resistance Guide is to be used only as a general guide for proper drum pump tube selection. No warranty is implied nor is any guarantee provided. When compatibility data are inconclusive, field testing is recommended. An asterisk indicates the material is flammable and may only be handled with a stainless steel pump tube and appropriate drive motor which are properly grounded and bonded according to Operating Instructions. Always consult with a safety engineer for proper drive motor selection when pumping flammables. All test data listed is at room temperature (72°F, 22°C) unless otherwise stated.

- R** = Recommended  
**M** = Minor to moderate, should be field tested  
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	CPVC / PVDF - MAX 175°F (80°C) STAINLESS STEEL 316 - MAX 175°F (80°C) PVDF (KYNAR®) - MAX 175°F (80°C) POLYPROPYLENE - MAX 130°F (54°C)					CPVC / PVDF - MAX 175°F (80°C) STAINLESS STEEL 316 - MAX 175°F (80°C) PVDF (KYNAR®) - MAX 175°F (80°C) POLYPROPYLENE - MAX 130°F (54°C)			
* Acetaldehyde	X	X	R	X	Ammonium persulfate	R	R	R	R
Acetamide (PVDF, R to 75°F/24°C)	—	R	R	—	Ammonium phosphate, dibasic	R	R	R	R
* Acetate solvents	X	X	R	X	Ammonium phosphate, monobasic	R	R	R	R
Acetic acid (10% -80%)	R	R	M	R	Ammonium phosphate, tribasic	R	R	R	R
Acetic acid (80%)	—	R	M	X	Ammonium sulfate	R	R	R	R
Acetic acid, glacial (PVDF, R to 120°F/49°C) (PP, R to 100°F/38°C)	R	R	M	X	Ammonium sulfide (PVDF & CPVC / PVDF, R to 125°F/52°C)	—	R	—	R
Acetic anhydride	X	X	R	X	Ammonium thiocyanate	—	R	—	R
* Acetone	X	X	R	X	Ammonium thiosulfate	—	R	R	R
* Acetyl chloride	X	X	M	X	* Amyl acetate	X	X	R	X
* Acetylene	X	X	R	X	* Amyl chloride	X	X	R	X
* Alcohols	X	X	R	X	Aniline (PVDF, R to 75°F/24°C)	M	R	R	X
Aluminum chloride	R	R	X	R	Aniline dyes	—	—	M	—
Aluminum fluoride	R	R	X	R	Aniline hydrochloride (PVDF, R to 75°F/24°C)	—	R	X	X
Aluminum hydroxide	R	R	R	R	Anisole	—	—	R	—
Aluminum nitrate	R	R	R	R	Aqua regia (80%) (PVDF, R to 75°F/24°C)	X	R	X	X
Aluminum potassium sulfate	R	R	R	R	Arsenic acid	R	R	R	R
Aluminum sulfate	R	R	R	R	Barium carbonate	R	R	R	R
Amines	—	—	R	X	Barium chloride	R	R	M	R
* Ammonia, aqua (10%)	X	X	R	X	Barium hydroxide	R	R	R	R
* Ammonia, aqueous	X	X	R	X	* Barium nitrate	X	X	R	X
* Ammonia, (concentrated)	X	X	R	X	Barium sulfate	R	R	R	R
Ammonium bifluoride (PP, R to 70°F/21°C)	R	R	R	R	Barium sulfide	R	R	R	R
Ammonium carbonate	R	R	R	R	Benzaldehyde (PVDF, R to 75°F/24°C)	X	R	R	X
Ammonium chloride	R	R	M	R	Benzene, benzol	X	X	R	X
Ammonium fluoride (10%)	—	R	—	R	Benzene sulfonic acid (PVDF, R to 75°F/24°C)	—	R	M	X
Ammonium fluoride (25%)	R	R	—	R	Benzoic acid	M	R	R	R
Ammonium hydroxide	R	R	R	X	Bismuth carbonate	R	R	—	R
Ammonium nitrate	R	R	R	R	Black liquors	R	R	—	—
Ammonium nitrite (PP, R to 70°F/21°C)	R	—	—	—	Boric acid	R	R	R	R
Ammonium oxalate	R	—	R	—	Brine acid	—	—	—	—





## DRUM PUMP Chemical Resistance Guide (cont'd)

T-P107\_D

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	CPVC/PVDF - MAX 175°F (80°C) PVDF (KYNAR®) - MAX 175°F (80°C) POLYPROPYLENE - MAX 130°F (54°C) STAINLESS STEEL 316 - MAX 175°F (80°C)					CPVC/PVDF - MAX 175°F (80°C) PVDF (KYNAR®) - MAX 175°F (80°C) POLYPROPYLENE - MAX 130°F (54°C) STAINLESS STEEL 316 - MAX 175°F (80°C)			
* Acetaldehyde	X	X	R	X	Ammonium persulfate	R	R	R	R
Acetamide (PVDF, R to 75°F/24°C)	—	R	R	—	Ammonium phosphate, dibasic	R	R	R	R
* Acetate solvents	X	X	R	X	Ammonium phosphate, monobasic	R	R	R	R
Acetic acid (10% -80%)	R	R	M	R	Ammonium phosphate, tribasic	R	R	R	R
Acetic acid (80%)	—	R	M	X	Ammonium sulfate	R	R	R	R
Acetic acid, glacial (PVDF, R to 120°F/49°C) (PP, R to 100°F/38°C)	R	R	M	X	Ammonium sulfide	—	R	—	R
Acetic anhydride	X	X	R	X	(PVDF & CPVC / PVDF, R to 125°F/52°C)	—	R	—	R
* Acetone	X	X	R	X	Ammonium thiocyanate	—	R	—	R
* Acetyl chloride	X	X	M	X	Ammonium thiosulfate	—	R	R	R
* Acetylene	X	X	R	X	* Amyl acetate	X	X	R	X
* Alcohols	X	X	R	X	* Amyl chloride	X	X	R	X
Aluminum chloride	R	R	X	R	Aniline (PVDF, R to 75°F/24°C)	M	R	R	X
Aluminum fluoride	R	R	X	R	Aniline dyes	—	—	M	—
Aluminum hydroxide	R	R	R	R	Aniline hydrochloride (PVDF, R to 75°F/24°C)	—	R	X	X
Aluminum nitrate	R	R	R	R	Anisole	—	—	R	—
Aluminum potassium sulfate	R	R	R	R	Aqua regia (80%) (PVDF, R to 75°F/24°C)	X	R	X	X
Aluminum sulfate	R	R	R	R	Arsenic acid	R	R	R	R
Amines	—	—	R	X	Barium carbonate	R	R	R	R
* Ammonia, aqua (10%)	X	X	R	X	Barium chloride	R	R	M	R
* Ammonia, aqueous	X	X	R	X	Barium hydroxide	R	R	R	R
* Ammonia, (concentrated)	X	X	R	X	* Barium nitrate	X	X	R	X
Ammonium bifluoride (PP, R to 70°F/21°C)	R	R	R	R	Barium sulfate	R	R	R	R
Ammonium carbonate	R	R	R	R	Barium sulfide	R	R	R	R
Ammonium chloride	R	R	M	R	Benzaldehyde (PVDF, R to 75°F/24°C)	X	R	R	X
Ammonium fluoride (10%)	—	R	—	R	Benzene, benzol	X	X	R	X
Ammonium fluoride (25%)	R	R	—	R	Benzene sulfonic acid (PVDF, R to 75°F/24°C)	—	R	M	X
Ammonium hydroxide	R	R	R	X	Benzoic acid	M	R	R	R
Ammonium nitrate	R	R	R	R	Bismuth carbonate	R	R	—	R
Ammonium nitrite (PP, R to 70°F/21°C)	R	—	—	—	Black liquors	R	R	—	—
Ammonium oxalate	R	—	R	—	Boric acid	R	R	R	R
					Brine acid	—	R	—	—



## DRUM PUMP Chemical Resistance Guide (cont'd)

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* Heptane	X	X	R	X	Muriatic acid (37%) (hot)	—	R	X	R
* Hexane	X	X	R	X	* Naptha	X	X	R	X
Hydrobromic acid	M	R	X	R	* Napthalene	X	X	M	X
Hydrochloric acid (20%)	R	R	X	R	Nickel chloride	R	R	R	R
Hydrochloric acid (37%) (cold)	R	R	X	R	Nickel sulfate	R	R	R	R
Hydrochloric acid (37%) (hot)	—	R	X	R	Nitric acid (5-10%)	R	R	R	R
Hydrofluoric acid (20%)	R	R	X	X	Nitric acid (20%)	R	R	R	R
Hydrofluoric acid (50%)	X	R	X	X	Nitric acid, (conc.) (PVDF, R to 120°F/49°C)	X	R	R	X
Hydrofluoric acid (75%)	X	R	X	X	Nitric acid, red fuming	—	X	R	X
Hydrofluoric acid (conc.) (cold)	—	R	—	X	Nitrobenzene (PVDF, R to 75°F/24°C)	M	R	M	X
Hydrofluosilicic acid (20%)	R	R	X	R	Oleic acid	R	R	R	X
Hydrogen fluoride	R	—	R	—	Oleum	X	X	R	X
* Hydrogen peroxide	X	X	R	X	Oxalic acid (cold) (PVDF, R to 125°F/52°C)	R	R	R	R
* Hydrogen sulfide (cold)	X	X	R	X	Palmitic acid	M	R	R	R
* Hydrogen sulfide (hot)	X	X	R	X	Perchloric acid (PVDF, R to 125°F/52°C)	—	R	X	M
Hypochlorous acid	—	R	X	R	Perchloroethylene	X	R	R	X
Iodine (PVDF, R to 150°F/66°C)	M	R	X	M	Petrolatum	—	R	R	R
* Isopropyl ether	X	X	R	X	Phenol (carbolic acid)	R	R	R	R
* Jet fuel (JP3, JP4, JP5)	X	X	R	X	Phosphoric acid (20%)	R	R	M	R
* Lacquer solvents	X	X	R	X	Phosphoric acid (20%-40%)	R	R	R	R
Lactic acid (PVDF & CPVC / PVDF, R to 120°F/49°C)	R	R	R	R	Phosphoric acid (45%)	R	R	M	R
Lead acetate	R	R	M	R	Phosphorus, red	—	—	R	—
Lead sulfamate	R	—	—	—	Phosphorus, yellow	—	—	R	—
* Ligroin	X	X	R	X	Photographic solutions	R	—	R	—
Magnesium carbonate	R	R	R	R	Plating solutions, chrome 40	R	R	R	R
Magnesium chloride	R	R	R	R	Plating solutions, copper	R	R	R	R
Magnesium hydroxide	R	R	R	R	Plating solutions, gold	R	—	R	—
Magnesium sulfate	R	R	R	R	Plating solutions, iron	R	R	R	R
Maleic acid	M	R	R	R	Plating solutions, lead	R	R	—	R
Mercuric chloride (dilute solution)	R	R	X	R	Plating solutions, nickel	R	R	—	R
Mercuric cyanide	R	R	R	R	Plating solutions, silver	R	R	R	R
* Methyl acetone	X	X	R	X	Plating solutions, tin	R	R	R	R
Methyl chloride	X	R	R	X	Plating solutions, zinc	R	R	R	R
* Methyl ethyl ketone	X	X	R	X	Potassium bicarbonate	R	R	M	R
* Methyl isobutyl ketone	X	X	R	X	Potassium bromide	R	R	R	R
Methylene chloride	X	X	R	X	Potassium carbonate	R	R	R	R
Milk	R	R	R	R	Potassium chlorate	R	R	R	R
* Monoethanolamine	X	X	R	X	Potassium chloride	R	R	R	R
Muriatic acid (20%)	R	R	X	R	Potassium chromate	R	R	M	R
Muriatic acid (37%) (cold)	R	R	X	R	Potassium dichromate	R	R	R	R



## DRUM PUMP Chemical Resistance Guide (cont'd)

T-P107\_D

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Potassium hydroxide (PVDF & CPVC / PVDF, R to 150°F/66°C)	R	R	R	R	Sodium thiosulfate	R	R	R	R
Potassium nitrate	R	R	R	R	Stannic chloride	R	R	X	R
Potassium permanganate	M	R	M	R	Stearic acid	X	R	R	R
Potassium sulfate	R	R	M	R	Sulfate liquors	R	—	X	—
Propionic acid (CPVC / PVDF, R to 140°F/60°C)	—	R	M	R	Sulfur	R	R	R	R
Silicone oil	R	R	R	R	Sulfur chloride (PVDF, R to 75°F/24°C)	X	R	X	R
Silver nitrate	R	R	R	R	Sulfur dioxide	X	R	R	X
Soap solutions	R	R	R	R	Sulfuric acid (10%)	R	R	M	R
Sodium acetate	X	X	R	X	Sulfuric acid (10%-75%)	R	R	M	R
Sodium bicarbonate	R	R	R	R	Sulfuric acid (66° Baumé)	X	R	M	R
Sodium bisulfate	R	R	R	R	(PVDF & CPVC / PVDF, R to 120°F/49°C)				
Sodium bisulfite	R	R	R	R	Sulfurous acid	R	R	M	R
Sodium borate	—	R	M	R	Tannic acid	R	R	R	R
Sodium bromide	R	R	R	R	Tartaric acid	R	R	R	R
Sodium carbonate	R	R	R	R	* Tetrahydrofuran	X	X	R	X
Sodium chlorate (50%)	R	R	R	R	Tetralin	—	—	R	—
Sodium chloride	R	R	R	R	Titanium tetrachloride (PVDF, R to 150°F/66°C)	—	R	M	X
Sodium cyanide	R	R	R	R	* Toluene (toluol)	X	X	R	X
Sodium hydroxide (20%)	R	R	R	R	Transformer oil	R	—	R	—
Sodium hydroxide (50%)	R	X	M	X	Trichloroacetic acid	—	R	X	R
Sodium hydroxide (80%)	R	X	X	R	(PVDF & CPVC/PVDF, R to 75°F/24°C)				
Sodium hypochlorite to 20%	X	R	X	R	1, 1, 1, Trichloroethane	—	—	X	—
Sodium metaphosphate	X	—	R	—	Trichloroethylene	X	R	R	X
Sodium nitrate	R	R	R	R	Tricresylphosphate	—	X	R	X
Sodium perborate	R	—	X	—	Triethylamine (PVDF, R to 125°F/52°C)	—	R	—	X
Sodium phosphate	R	R	M	R	* Vinyl chloride	X	X	—	X
Sodium silicate	R	R	R	R	* Wood oil	X	X	R	X
Sodium sulfate	R	R	R	R	* Xylene (xylol)	X	X	R	X
Sodium sulfide	R	R	R	R	Zinc hydrosulfite	—	R	R	R



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## PROBLEMS CAN ABOUND, SUCH AS:

1. Chemicals may range in pH from 1 - 14.
2. Hot chemicals can cause suction cavitation that can reduce efficiency and cause noise, impeller wear and seal damage.
3. Cooling chemicals may produce crystalline formations which can abrade moving parts.
4. Liquids having an elevated specific gravity (above 1.0) will require a corresponding increase in pump motor horsepower.
5. Motors often operate in hot, unvented areas, requiring proper enclosure selection.

## MATERIAL COMPATIBILITY

Materials must be compatible with the chemicals to be pumped. Most plating solutions and many chemicals are corrosive, so pump materials must resist chemical attack.

Corrosion-resistant chlorinated polyvinyl chloride (CPVC) pumps are made in many sizes to handle a variety of pressure ranges and flow rates. CPVC withstands temperatures to 200°F and somewhat higher at low pressures.

Polypropylene is suitable, but not as versatile as CPVC. Polyethylene, PVDF, Ryton®, Noryl® and Teflon® are also available for specific solutions. Corrosion-resistant alloys are also available. Material used for seals and gaskets must be considered.

## WHAT SPEED AND HP?

Centrifugal pumps are available with various motor speeds, such as 1725 or 3450 RPM. The lower speed pump has half the flow, one-fourth the pressure and requires one-eighth the horsepower of the higher RPM model.

Pump ratings are based on moving liquid with a specific gravity of 1.0. For fluids with a specific gravity greater than 1.0, the required pump/motor horsepower of a direct drive pump can be determined by identifying the desired flow/pressure point on a performance curve and multiplying the indicated horsepower by the specific gravity of the fluid.

Many magnetic-coupled pumps are built with magnets capable of handling fluids with a specific gravity greater than 1.0. Care must be taken not to select a pump whose rating isn't adequate to handle the specific gravity of the fluid or the pump will lose synchronization and fail to pump. On some magnetic coupled pumps, the impeller can be trimmed to pump higher specific gravity liquids. In any match-up of the pump and motor, make sure the piping is adequate. Piping too narrow can starve the pump and ruin efficiency.

# 2

## The Ten Commandments of Pumping

1. Always read operating instructions.
2. Strain foreign objects from the pump.
3. Use siphon breakers on suction and discharge piping.
4. Provide proper electrical power with proper overload protection.
5. Never starve the pump; use oversize suction piping for distance, elevated temperatures, vaporization or high atmospheric elevations.
6. Carefully choose materials that contact the liquid.
7. Determine flow, pressure and size of pump required. Match the HP of drive motor to the specific gravity of the liquid being pumped.
8. Install a valve on a centrifugal pump discharge to prevent overloading the motor, or use a non-overloading motor for the entire performance range.
9. Keep adequate spare parts on hand.
10. Install standby pumps when uninterrupted pumping is mandatory.

## PUMP SELECTION

Pump sizing is largely determining the desired pressure and flow rate. Most pumps are of horizontal design. They are available as direct driven or as magnetic coupled seal-less, in many flow rate/pressure combinations. Which to choose? It depends on use conditions.

A direct drive pump requires careful seal selection to minimize wear and failure. Mechanical seals provide precision fit, are self-adjusting and are available water or product flushed. A closed-loop, double water flushed seal system also can be used when an external source of water is not available, or if the seal is to be self-contained.

Vertical pumps must have their drive motors mounted at the tank, which may cause a space problem. Fumes and mist from the plating bath can be a problem, too, so protect the motor if necessary. Vertical pumps are often used to pump waste solution from sumps.

Drum pumps are narrow enough to self-prime liquids through the bung opening. To add chemical for pH control or to add brightener, use a diaphragm or piston type metering pump. Such pumps could be operated on timers or amp-hour meters.



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# 2

In order to achieve a desired flow and pressure, the pump selected must provide a TDH at the given flow which must exceed the desired discharge pressure plus friction losses resulting from the length of the pipe line, fittings and valves in the line and any other impediments to flow in the line.

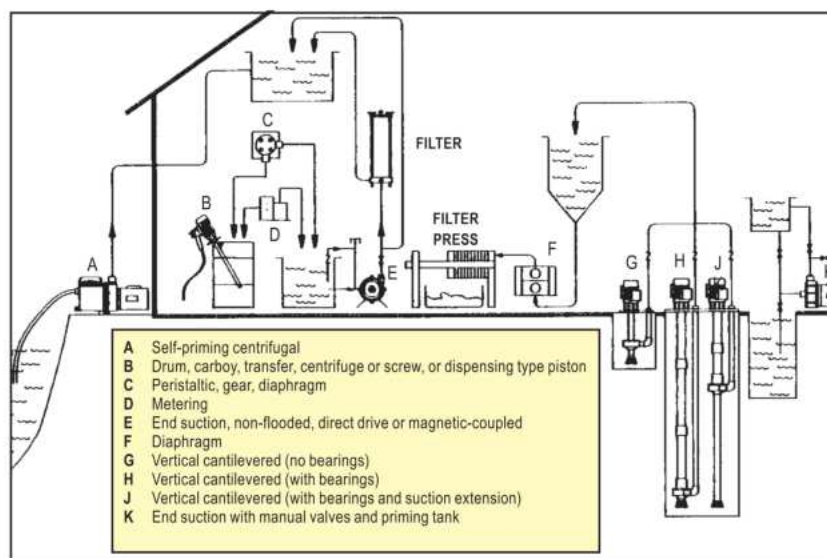
The inlet and outlet port sizes of the pump selected do not necessarily indicate the actual size of either the suction or discharge piping. When specific gravities higher than 1.0 are encountered, oversized motors are required.

In any pumping system, valves should be selected to maintain

the pump prime and control flow and pressure at the desired levels. In order to prevent backsiphoning, loss of solution or loss of prime, check valves should be utilized. Consideration must be given to ensure that the pump will develop adequate pressure to open the check valve at time of start-up. A globe valve, ball valve or plug valve should be installed on the discharge line directly after the pump discharge nozzle. Gate valves are not recommended to throttle or regulate flow.

## TYPICAL PUMP APPLICATIONS

Many different types of pumps with a wide range of flow rates and discharge pressures are available to meet the requirements of various applications. The drawing below illustrates a number of possible applications and the different types of pumps which can be used to meet these requirements.



Please sketch system (note elevations)

Reference E in the above illustration indicates that the horizontal pump would have to be manually primed at least the first time used, and a foot valve (check valve) should be used on the suction side of the pump to maintain the primed condition when the pump is not operating

The illustration also indicates the employment of three different length vertical pumps, the shortest of which will generally be considered to be the most dependable. The slightly longer pump with a suction extension could continue to lift the liquid, provided the level is slightly above the suction strainer (flooded suction). If the pump was shut off and the liquid level falls below the pump and suction strainer, it would lose its suction or prime and the

pump would then require priming or a flooded suction. Therefore, use of the very longest pump may be required under certain conditions, particularly when it would be necessary to pump at any given time from any level within the reservoir.

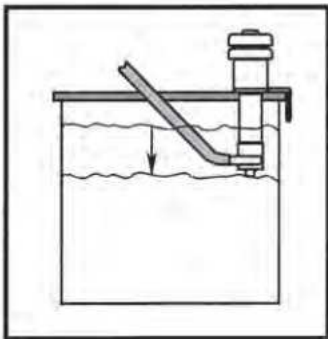
If the installation requires constant pumping or pumping upon demand, it is recommended that standby pumps are included in the installation. If the desired flow rate reaches its peak only occasionally, then it might be possible to use a smaller pump with the second being energized only when required. In such an instance, a third pump might be suggested to make absolutely certain that two of the three pumps are available at any one time.





<b>PUMP SIZE</b>	Should be considered since it determines the frequency of pump operation. Oversize your sump when possible to keep the pump operating for longer periods, rather than constantly stopping and starting, to avoid torque vibration and possible misalignment.
<b>LENGTH x SPEED</b>	Pumps should be specified as short as possible and driven as slowly as possible, since the longer the pump, or the faster the RPM, the greater the radial load on the bearing surfaces.
<b>ABRASIVE CONDITIONS</b>	Cantilever shaft, bearing-free pumps are recommended for pumping solutions containing abrasives. However, on bearing containing pumps, abrasive conditions may be met if a separate, clean, compatible liquid can be used for flushing to lubricate and cool the bearings. This is especially required when more than one bearing is used.
<b>FLOAT SETTINGS</b>	Make certain adequate liquid is above the pump's impeller to begin pumping, but low enough to prevent damage to the motor. If it is necessary to pump to a greater depth than the length of the pump, continue to pump to a level below the intake with a suction extension. However, on bearing containing pumps using a product flush to cool and lubricate the bearing(s), the pump shut-off must be set above the impeller level to prevent the pump from continuing to run after the reservoir level has dropped too low to provide the necessary product flush for the bearing(s).
<b>ALIGNMENT</b>	Although factory aligned and inspected, positioning of the pump and motor should be checked initially and after periodic operating intervals to assure that misalignment has not occurred, which would place undue wear on the bearing or seal ring surfaces.
<b>AUXILIARY PUMP</b>	For standby operation, design for the possibility of pump operating interruptions. Employ two or more pumps for continuous or partial operation. For example, for a 100 GPM requirement, employ two pumps at 100 GPM each or three at 50 GPM each, keeping one ready for service.

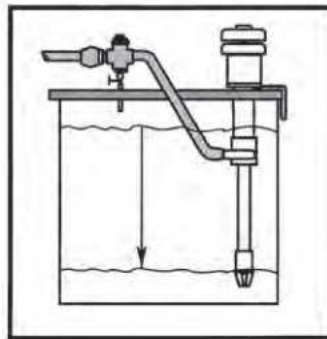
## SUGGESTED INSTALLATIONS



1.

### 1. BASIC IN-TANK INSTALLATION

The Vertical Series may be immersed in the liquid being pumped. No priming is required when the pump discharge port is submerged in the liquid. (See drawing #1)



2.

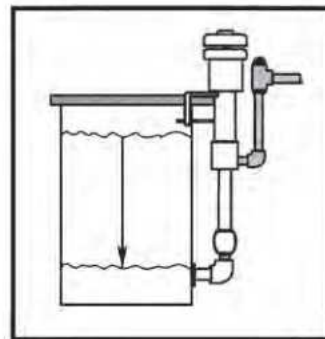
### 2. IN-TANK INSTALLATION WITH INLET EXTENSION FOR DEEPER TANKS OR SUMPS

Pumps can be used for sump pumping and emptying deeper tanks by adding an extension to the inlet port. With the suction casing immersed (as shown in Drawing #2), the pump will begin pumping immediately and will pump down to the bottom of the inlet extension.

\* In order to continue pumping when the fluid level drops below the discharge port, it may be necessary to maintain a slight back pressure on the discharge line.

#### USE OF FOOT VALVE

The installation of a foot valve on the inlet extension enables pump restarting and priming when the tank level is below the pump discharge port (see Drawing #2). The pump must be immersed to the discharge port or primed with a priming tee on initial start-up.



3.

### 3. OUT-OF-TANK (OR CONTAINER) INSTALLATION

Care must be taken to mount the pump so that the motor is never below the maximum liquid level in the tank. This insures against accidental motor flooding. It is recommended that a drain return line be attached to the vent hole in the pump column and routed back to the tank or container (see Drawing #3). The return line will allow any inadvertent leakage to drain back into the tank. This mounting is often used where tank space is limited, on fume scrubbers or to isolate the motor from heavy corrosive fumes.



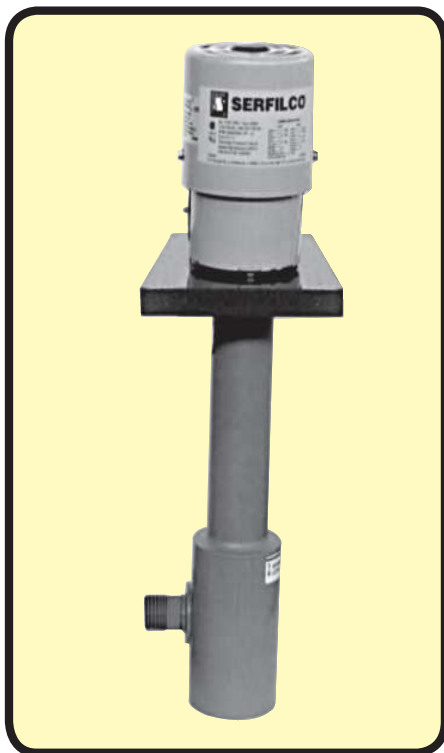
## SERIES 'E' VERTICAL PUMPS

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P-300\_S

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2



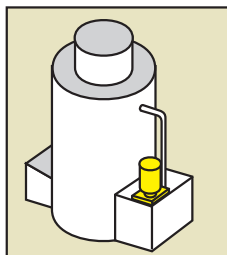
### ACIDS / CAUSTICS / CLEANERS CHEMICALS / PCB / PLATING WATER / WASTE WATER

- **Flows to 20 U.S. GPM or 15 ft. TDH @ 60 Hz**  
(63 LPM or 3.2m @ 50 Hz)
- **Non-metallic solution contact**  
CPVC w/sleeved shaft & Viton® "O"-ring  
Natural polypropylene w/sleeved shaft & Viton "O"-ring  
PVDF w/sleeved shaft & Viton "O"-ring  
(See a chemical resistance chart)
- **Runs dry — no bearings**
- **Chemical duty motor - 1/8 HP, TEFC,  
2-part epoxy finish, stainless steel shaft**
- **Centrifugal — quiet, vibration-free**
- **In- or out-of-tank installation**
- **Shaft vapor seal protects motor bearings  
and atmosphere**

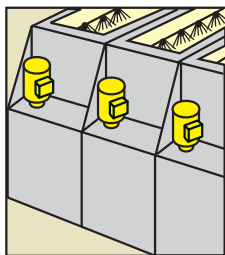
The rugged **Series 'E'** sump pump is a tough, all machined pump designed for years of trouble-free operation. This pump features a cantilevered, sleeved stainless steel shaft which eliminates bearings and seals, resulting in a pump that can run dry without damage. A vapor seal between the rotating shaft and the support column protects the motor. The compound impeller prevents liquid from rising in the column, even at maximum TDH, while the semi-enclosed bottom impeller provides efficient flow performance at low horsepower.

A unique characteristic of the Series 'E' pump is its ability to perform on continuous duty as a level control when an optional suction extension pipe is installed. With the motor energized, the pump will self-prime when liquid is above impeller level. The solution level will then be pumped down to the end of the suction extension, the pump will lose prime, then reprime when liquid again reaches the impeller.

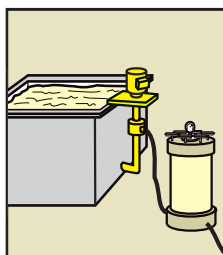
Discharge pipe assembly, suction extension and suction strainer are available options.



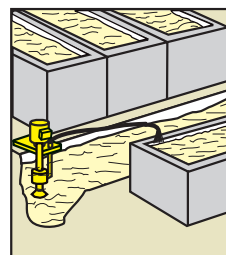
FUME  
SCRUBBING



PCB WET  
PROCESSING



OUT-OF-TANK PUMPING  
and FILTRATION



SUMP DRAINING and  
WASTE TREATMENT



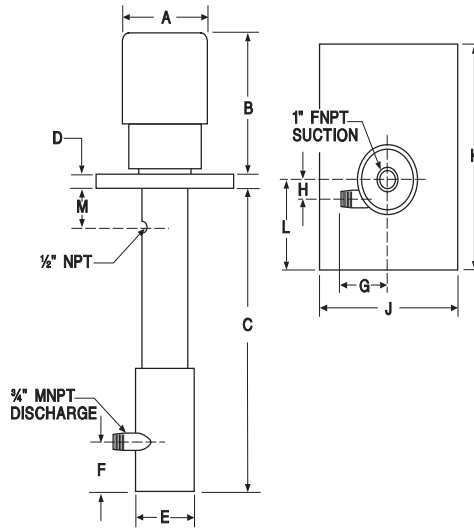
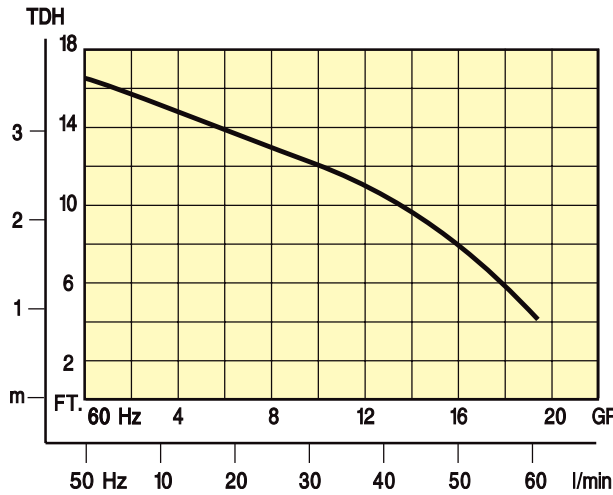
## SERIES 'E' PUMP Specifications

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2



DIMENSIONS												
	A	B	C	D	E	F	G	H	J	K	L	M
in	4	5-7/8	11-7/8	1/2	2-3/4	2-1/4	2-3/8	3/4	6-1/4	8-3/4	3-1/8	1-7/8
mm	102	149	302	13	70	57	60	19	159	222	79	48

**TO ORDER, use Price Code No.**

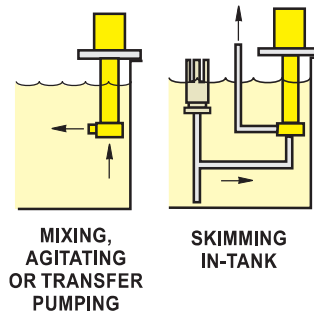
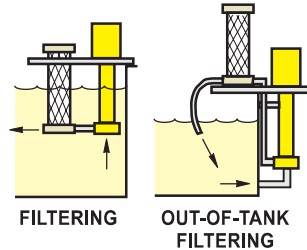
MATERIAL	MODEL	1/8 HP MOTOR VOLTAGE	CONNECTIONS (NPT)		PRICE CODE NO.
			SUCTION	DISCHARGE	
PP, Viton*	E3/4SPPV C1/8	115-230/1/50-60	1" F	3/4" M	45-0030 A
CPVC, Viton*	E3/4SCV C1/8	TEFC motor with 8 ft. cord and 3-prong plug.			45-0027 1A
PVDF, Viton*	E3/4SKV C1/8				45-0028 1A

\* For EPDM, change V to L in Model and drop A suffix from Price Code No.  
Shipping weight 10 Lbs. (4.54 kg.)

**OPTIONAL**

DESCRIPTION	ADD SUFFIX TO MODEL	ADD TO PRICE CODE NO.
Through hole in standard mounting plate	-MPH	H

DESCRIPTION	ADD SUFFIX TO MODEL	MATERIAL	PRICE CODE NO.
Suction strainer assembly	-ST	Polyethylene	33-6058
		PVDF & ECTFE	45-0251
Suction extension, 18" (457mm)	-SX	PP	45-0274
		CPVC	45-0208
		PVDF	45-0230
Discharge pipe assembly	-DPA	PP	45-0270
		CPVC	45-0225
		PVDF	45-0228

**TYPICAL APPLICATIONS**

Read: "Tips for the successful operation of sump pumps".  
See bulletin TP-113



# SERIES 'EO' MOLDED VERTICAL PUMPS

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P-312\_K

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2



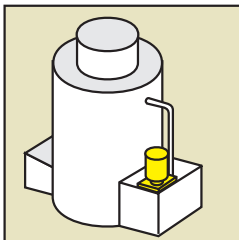
**Efficient and dependable performance for:**

**ACIDS / CAUSTICS / CLEANERS  
CHEMICALS / PCB / PLATING  
WATER / WASTE WATER**

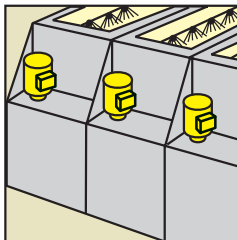
- **Flows to 92 U.S. GPM or 68 FT. TDH @ 60 Hz**  
(110 LPM or 10m @ 50 Hz)
- **Non-metallic solution contact**  
PPP Polypropylene, CPVC or 100% PVDF  
Viton® or EPDM elastomers  
(See a chemical resistance chart)
- **Runs Dry** — no bearings, bushings, spindles or liners to replace
- **Centrifugal** — quiet, vibration-free
- **In- or out-of-tank installation**
- **Will replace most OEM pumps**
- **Shaft vapor seals protect motor bearings and atmosphere**
- **Chemical duty motor (1/8 - 2HP)**

The Series 'EO' Pump benefits from proven design features gained through over 30 years of experience in developing chemically resistant vertical pumps. All models feature a cantilevered, sleeved stainless steel shaft which eliminates bearing or bushing resulting in a chemical duty pump which can run dry indefinitely, providing years of trouble free service.

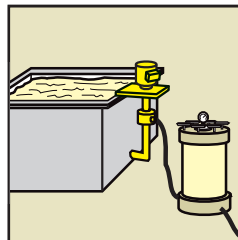
A vapor seal between the rotating shaft and the support column protects the motor. The compound impeller prevents liquid from rising in the column, even at maximum TDH, while the semi-enclosed bottom impeller provides efficient flow performance at low horsepower.



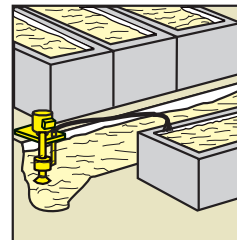
FUME SCRUBBING



PCB WET PROCESSING



OUT-OF-TANK PUMPING  
and FILTRATION

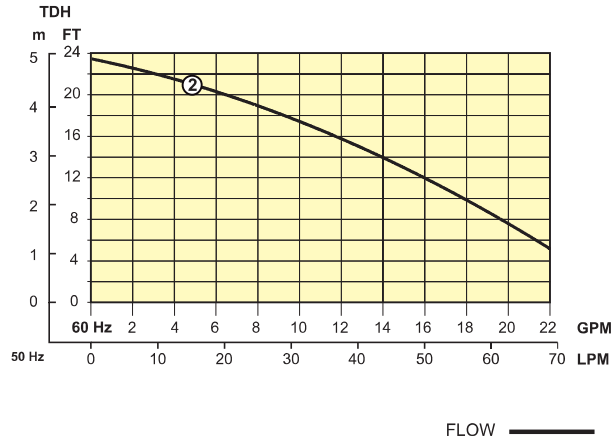
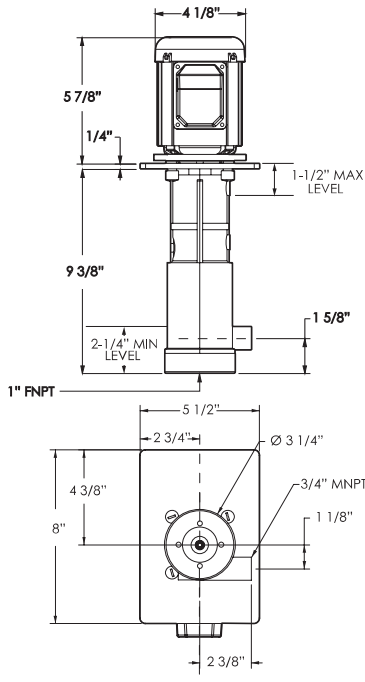


SUMP DRAINING and  
WASTE TREATMENT

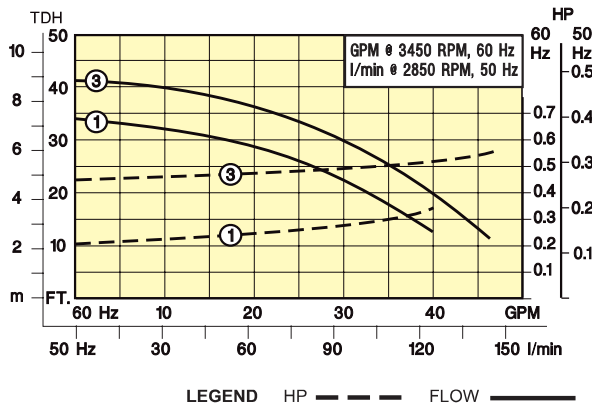
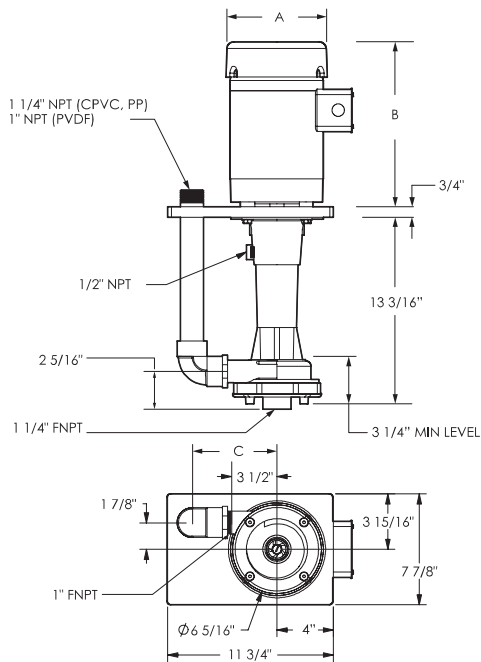


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MODEL EO<sup>3/4</sup>

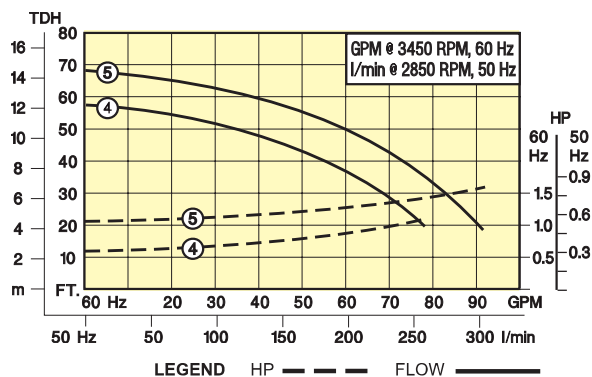
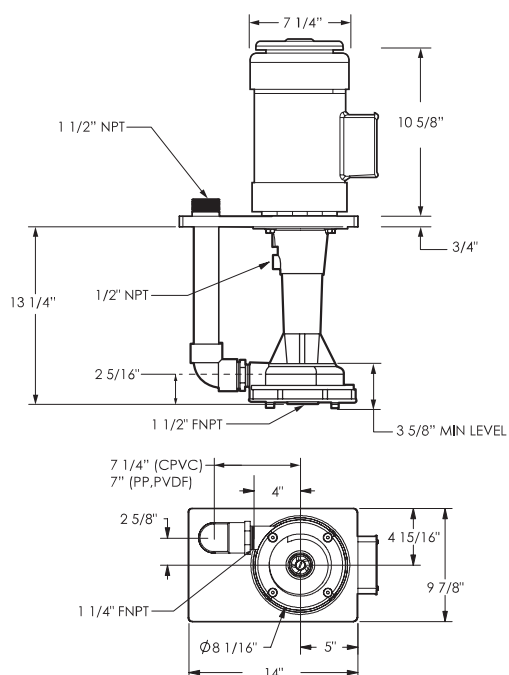


MODEL EO1



PUMP MODEL	HP	A	B	MATERIAL	C
EO1	.33	5-7/8	8-1/2	CPVC	6
	.75	7-1/8	9-5/8	PP	6-3/8
				PVDF	5-3/8



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**MODEL EO1¼****TO ORDER, use Price Code Number****TABLE I**

For standard CPVC, PP and PVDF pump-motor combination, select model from Table I.  
For other pump-motor combinations, select from components in TABLE II.

Select flow curve and material. Use Price Code No. to order.

FLOW CURVE NO.	MAX. FLOW <sup>1</sup>	POLYPROPYLENE / EPDM		CPVC / EPDM		PVDF / VITON	
		MODEL	PRICE CODE NO	MODEL	PRICE CODE NO	MODEL	PRICE CODE NO
2	17	EO¼PPL2-C1/8	39-0112B	EO¼CL2-C1/8	39-0212B	EO¼KV2-C1/8	39-0322B
1	40	EO1PPL1-C.3	39-1111 A	EO1CL1-C.3	39-1211 A	EO1KV1-C.3	39-1321 A
3	47	EO1PPL3-C.75	39-1113 C	EO1CL3-C.75	39-1213 C	EO1KV3-C.75	39-1323 C
4	78	EO1¼PPL4-D1.0	39-2114 J	EO1¼CL4-D1.0	39-2214 J	EO1¼KV4-D1.0	39-2324 J
5	92	EO1¼PPL5-D1.5	39-2115 K	EO1¼CL5-D1.5	39-2215 K	EO1¼KV5-D1.5	39-2325 K

<sup>1</sup> Maximum flow (U.S. GPM) @ 60 Hz with 1.0 specific gravity liquid at ambient temperature.



## SERIES 'EO' PUMP Ordering Information

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**TABLE II**

To select pump with EPDM elastomer or for use with elevated specific gravity at required GPM, TDH and material: Select performance point on curve, determine required HP by moving vertically from GPM to corresponding number dotted line. Read the required HP at right ordinate and multiply by S.G. This is the HP required. Construct Model and Price Code No. by adding series, size, material, elastomer, impeller and motor from charts below. Use Price Code No. to order.

2

SERIES		SIZE			MATERIAL			ELASTOMER		
MODEL	PRICE CODE NO	MODEL	PRICE CODE NO	DESCRIPTION	MODEL	PRICE CODE NO	DESCRIPTION	MODEL	PRICE CODE NO	DESCRIPTION
EO	39-	¾"	0	1 x ¾"	PP	1	Polypropylene	L	1	EPDM
		1"	1	1¼" x 1"	C	2	CPVC	V	2	Viton
		1½"	2	1½" x 1½"	K	3	PVDF			

IMPELLER / FLOW CURVE			TEFC MOTOR - 1φ <sup>2</sup>			TEFC MOTOR - 3φ <sup>3</sup>		
MODEL	PRICE CODE NO.	DESCRIPTION	MODEL	PRICE CODE NO.	HORSEPOWER	MODEL	PRICE CODE NO.	HORSEPOWER
2	2	EO¾"	C1/8	B	.12			
1	1	2¾" for EO1	C.3	A	.33	D.3	F	.33
3	3	3" for EO1	C.75	C	.75	D.75	H	.75
4	4	3¾" for EO1¼"	C1.0	D	1.0	D1.0	J	1.0
5	5	4" for EO1¼"	C1.5	E	1.5	D1.5	K	1.5
						D2.0	L	2.0

<sup>2</sup> 1φ motors are:  
115-208/230 @ 60 Hz, 3450 RPM  
115-220/240 @ 50 Hz, 2850 RPM

<sup>3</sup> 3φ motors are:  
208-230/460 @ 60 Hz, 3450 RPM  
190-380/415 @ 50 Hz, 2850 RPM

### OPTIONAL EQUIPMENT

DESCRIPTION	ADD SUFFIX TO MODEL	ADD TO PRICE CODE NO.
Through hole in standard mounting plate (N/A EO¾")	MPH	X
Titanium option - shaft and fasteners (N/A EO¾")	T	T
Drip cover - installed (N/A .12 & .33 HP)	DC	Z
PVDF impeller on CPVC pump	-K	KY

DESCRIPTION	EO¾"		EO1		EO1¼"	
	SIZE	PRICE CODE NO.	SIZE	PRICE CODE NO.	SIZE	PRICE CODE NO.
DISCHARGE PIPE ASSEMBLY	¾"	39-1006 PP	1¼"	39-1000 PP	1½"	39-2000 PP
	¾"	39-1006 C	1¼"	39-1000 C	1½"	39-2000 C
	¾"	39-1006 K	1"	39-1000 K	1½"	39-2000 K
18" SUCTION EXTENSION	1"	45-0274	1¼"	39-1004 PP	1½"	39-2004 PP
	1"	45-0208	1¼"	39-1004 C	1½"	39-2004 C
	1"	45-0230	1½"	39-1004 K	1½"	39-2004 K
SUCTION STRAINER	—	39-1007 PP	—	39-1002 PP	—	39-2002 PP
	—	39-1007 C	—	39-1002 C	—	39-2002 C
	—	39-1007 K	—	39-1003 K	—	39-2003 K



# SERIES 'EH' VERTICAL PUMPS

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SHOWN WITH OPTIONAL THROUGH HOLE  
IN MOUNTING PLATE AND DISCHARGE  
PIPE ASSEMBLY

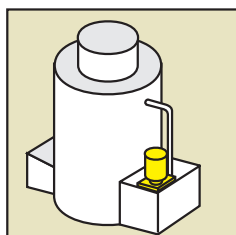
## HIGH EFFICIENCY AND LOW ENERGY USAGE FOR:

**PLATING / WET PROCESSING / ACIDS  
CHEMICALS / FUME SCRUBBERS and  
CLEANING SOLUTIONS**

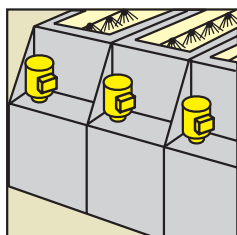
- **Flows to 185 U.S. GPM or 145 FT. TDH @ 60 Hz**  
(580 LPM or 31m @ 50 Hz)
- **Non-metallic solution contact**  
- PPP high temperature polypropylene construction, CPVC,  
PVDF or ECTFE-T  
(Refer to a chemical resistance chart)
- **Shaft vapor seal protects motor bearing and atmo-  
sphere**
- **Runs dry — no bearings**  
**Chemical duty motor (1.0 - 7.5 HP)**  
Sealed oversized bearings, cast iron end bells with  
vapor seal, corrosion resistant epoxy enamel finish,  
stainless steel nameplate. Dual 50/60 Hz. Service factor  
1.15 at 60 Hz., 1.0 at 50 Hz
- **Centrifugal — quiet, vibration-free**
- **In- or out-of-tank installation**
- **Choice of 12" or 18" column**
- **NPT or BSP connections**

The Series 'EH' Sump Pump features a cantilevered, sleeved, stainless steel shaft with vapor seal between the rotating shaft and the support column to further protect the motor. The cantilevered shaft eliminates bearings and conventional pump seals, resulting in a pump that can run dry without damage. A compound impeller prevents liquid from rising in the column, even at maximum TDH, while the fully-enclosed bottom impeller provides high hydraulic

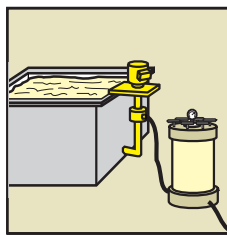
efficiency at low horsepower. A unique characteristic of all Series 'EH' pumps is their ability to lift solution with an optional suction extension pipe installed. With the motor energized, the pump will self-prime when liquid is at impeller level. The solution level will then be pumped down to the end of the suction extension to a maximum depth of 9 ft. (2.7m). The pump will lose prime, then automatically re-prime when liquid again reaches the impeller.\*



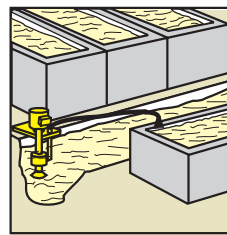
FUME SCRUBBING



PCB WET  
PROCESSING

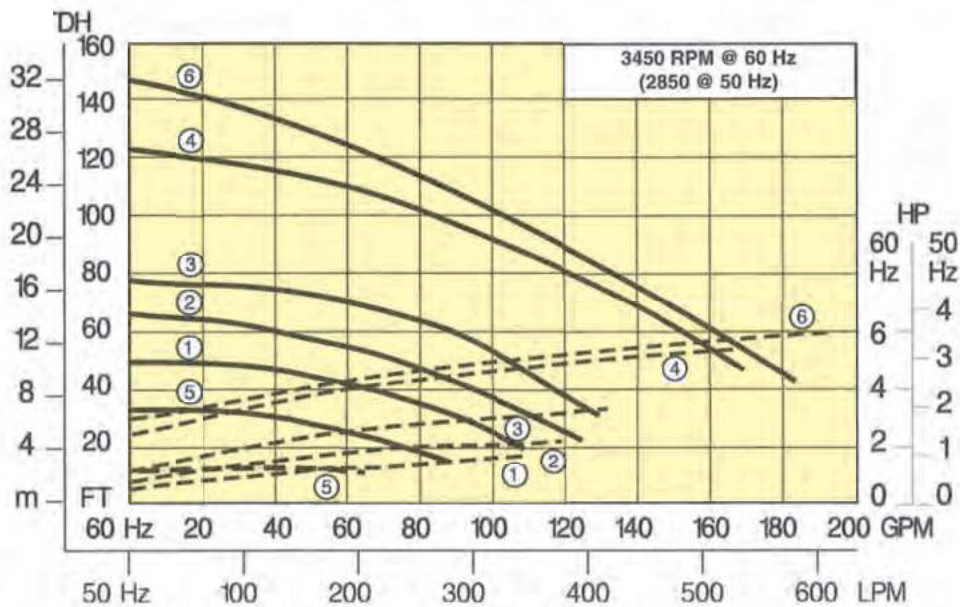


OUT-OF-TANK PUMPING  
AND FILTRATION

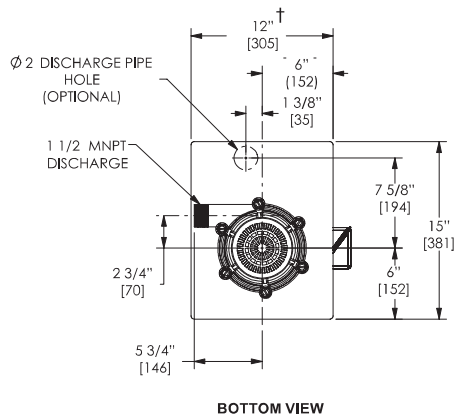
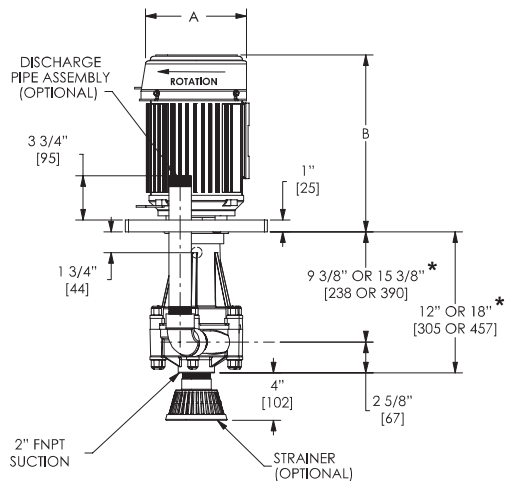


SUMP DRAINING AND  
WASTE TREATMENT

\* Read: "Tips for the successful operation of sump pumps", Technical Bulletin TP-113



DIMENSIONS - Inches (mm)



† The standard 12" x 15" (305 x 381 mm) mounting plate for CPVC, polypropylene and ECTFE-T pumps is shown. PVDF pumps have an 11-3/4" x 11-3/4" (298 x 298 mm) mounting plate.

\* 15-3/8" and 18" dimensions are for the LX models

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Pump models are constructed of CPVC, PPP polypropylene, PVDF, or ECTFE-T with sleeved stainless steel shaft. Mounting plate is 1" (25mm) thick and includes PTFE vapor seal. Standard "O"-rings are EPDM (ethylenepropylene) on CPVC and Halar® pumps and Viton® on polypropylene and PVDF pumps. Impeller is fully enclosed for maximum efficiency, compound design with pressure plate.

Assembly offers non-metallic solution contact. Chemical duty motors are 1 or 3 phase, TEFC, 50 or 60 Hz, 3450 or 2850 or 1725 or 1450 RPM, NEMA "C" face, painted with two-part epoxy enamel. May be used with up to a 9 ft. (2.7m) suction extension under certain conditions. The pump discharge orientation can be relocated in increments of 60°.

**TO ORDER, use Price Code Number**

*For standard CPVC, PP, PVDF and Halar® (ECTFE) pump-motor combination, select model from TABLE I.*

*For other pump-motor combinations, select from components in TABLE II.*

60 Hz MODELS						
FLOW CURVE NO.	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBERS	Price Code No.	MODEL NUMBER	Price Code No.
	CPVC		Polypropylene		PVDF	
1	EH 1-1/2-1SC-D1.5	45-0112	EHP 1-1/2-1SC-D1.5	45-0612	EHK 1-1/2-1SC-D1.5	45-0712
2	EH 1-1/2-2SC-D2.0	45-0123	EHP 1-1/2-2SC-D2.0	45-0623	EHK 1-1/2-2SC-D2.0	45-0723
3	EH 1-1/2-3SC-D3.0	45-0134	EHP 1-1/2-3SC-D3.0	45-0634	EHK 1-1/2-3SC-D3.0	45-0734
4	EH 1-1/2-4SC-D5.0	45-0145	EHP 1-1/2-4SC-D5.0	45-0645	EHK 1-1/2-4SC-D5.0	45-0745
5	EH 1-1/2-5SC-H1.5	45-0159	EHP 1-1/2-5SC-H1.5	45-0659	EHK 1-1/2-5SC-H1.5	45-0759
6	EH 1-1/2-5SC-D7.5	45-0156	EHP 1-1/2-5SC-D7.5	45-0656	EHK 1-1/2-5SC-D7.5	45-0756

60 Hz			50 Hz MODELS			
FLOW CURVE NO.	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBERS	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.
	ECTFE-T		CPVC		POLYPROPYLENE	
1	EHH 1-1/2-1SC-D1.5	45-1912	EH 1-1/2-1SC-D1.0 (.75kW)	45-0111	EHP 1-1/2-1SC-D1.0 (.75 kW)	45-0611
2	EHH 1-1/2-2SC-D2.0	45-1923	EH 1-1/2-2SC-D1.5 (1.1kW)	45-0122	EHP 1-1/2-2SC-D1.5 (1.1 kW)	45-0622
3	EHH 1-1/2-3SC-D3.0	45-1934	EH 1-1/2-3SC-D2.0 (1.5kW)	45-0133	EHP 1-1/2-3SC-D2.0 (1.5 kW)	45-0633
4	EHH 1-1/2-4SC-D5.0	45-1945	EH 1-1/2-4SC-D3.0 (2.2kW)	45-0144	EHP 1-1/2-4SC-D3.0 (2.2 kW)	45-0644
5	EHH 1-1/2-5SC-H1.5	45-1959	EH 1-1/2-5SC-D1.5 (1.1kW)	45-0159	EHP 1-1/2-5SC-H1.5 (1.1 kW)	45-0659
6	EHH 1-1/2-5SC-D7.5	45-1956	EH 1-1/2-5SC-D5.0 (3.7kW)	45-0155	EHP 1-1/2-5SC-D5.0 (3.7 kW)	45-0655

50 Hz MODELS				
FLOW CURVE NO.	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBERS	PRICE CODE NO.
	PVDF		ECTFE-T	
1	EHK 1-1/2-1SC-D1.0 (.75kW)	45-0711	EHH 1-1/2-1SC-D1.0 (.75kW)	45-1911
2	EHK 1-1/2-2SC-D1.5 (1.1kW)	45-0722	EHH 1-1/2-2SC-D1.5 (1.1kW)	45-1922
3	EHK 1-1/2-3SC-D2.0 (1.5kW)	45-0733	EHH 1-1/2-3SC-D2.0 (1.5kW)	45-1933
4	EHK 1-1/2-4SC-D3.0 (2.2kW)	45-0744	EHH 1-1/2-4SC-D3.0 (2.2kW)	45-1944
5	EHK 1-1/2-5SC-H1.5 (1.1kW)	45-0759	EHH 1-1/2-5SC-D1.5 (1.1kW)	45-1959
6	EHK 1-1/2-5SC-D5.0 (3.7kW)	45-0755	EHP 1-1/2-5SC-D5.0 (3.7kW)	45-1955

*See Page 4  
for additional specifications.*





## SERIES 'EH' Ordering Information

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PUMP			IMPELLER		
MATERIAL	MODEL	PRICE CODE NO.	FLOW CURVE NO.	ADD TO...	
				MODEL	PRICE CODE NO.
CPVC	EH 1½	45-01	1	-1 SC	1
CPVC-18"	EHLX 1½	45-09	2	-2 SC	2
POLYPROPYLENE*	EHP 1½	45-06	3	-3 SC	3
POLYPRO-18"	EHPLX 1½	45-13	4	-4 SC	4
PVDF	EHK 1½	45-07	5	-5 SC	5
PVDF-18"	EHKLX 1½	45-14	6	-5 SC	5
ECTFE-T	EHH 1½	45-19			

MOTOR (NEMA) <sup>1</sup>								PUMP + MOTOR SHIPPING WEIGHTS	
VOLTAGE	STD. HP (kW)	ADD TO...		DIMENSIONS <sup>2</sup>					
		MODEL NO.	PRICE CODE NO.	A		B			
				in	mm	in	mm		
208-230/460/3/60, 3450 RPM or 190/380-415/3/50, 2850 RPM	1.0 (.75)	-D 1.0	1	7-1/4	184	12-1/2	317	66	30
	1.5 (1.1)	-D 1.5	2	7-1/4	184	12-1/2	317	70	32
	2.0 (1.5)	-D 2.0	3	7-1/4	184	12-3/16	310	75	34
	3.0 (2.2)	-D 3.0	4	9-9/16	243	14-7/8	378	95	43
	5.0 (3.7)	-D 5.0	5	9-9/16	243	14-7/8	378	97	44
	7.5 (5.5)	-D 7.5	6	9-9/16	243	14-7/8	378	105	48
115/208-230/1/60, 3450 RPM or 190-230/1/50, 2850 RPM	1.5 (1.1)	-C 1.5	7	7-1/4	184	13-1/2	343	73	33
115/208-230/1/60, 1725 RPM or 190-230/1/150, 1450 RPM	1.5 (1.1)	-G 1.5	8	7-1/4	184	11-1/2	292	73	33
208-230/460/3/60, 1725 RPM or 190/380-415/3/50, 1450 RPM	1.5 (1.1)	-H 1.5	9	7-1/4	184	12-3/16	310	73	33

<sup>1</sup> To order pump without motor, use 0 for motor Price Code No.

\* Polypropylene is glass filled.

<sup>2</sup> Motor dimensions for references only.

OPTIONAL	ADD SUFFIX TO MODEL	ADD TO PRICE CODE NO.
Viton "O"-ring installed in CPVC, Halar® pumps EPDM "O"-rings in PP or PVDF pumps	V L	V L
PVDF impeller & shaft sleeve for CPVC pump (installed). For continuous operation over 180°F	K	K
Titanium option - shaft and fasteners	T	T
Through hole in standard mounting plate 2" diameter	MPH	H
Discharge pipe assembly, 1-1/2" NPT, for 12" or 18" pump; For 18" Discharge pipe assembly - add X to PCN	- CPVC - PVDF - Polypropylene - SS (For ECTFE-T)	DPA DPAK DPAP DPAS
Suction strainer w/ close nipple, 2" NPT	- Polyethylene / CPVC - Polyethylene / PP - Halar / PVDF - Halar/SS	ST
Suction extension, 24" x 2" NPT	- CPVC - PVDF - Polypropylene	SX SXX SXP



# SERIES 'EF' VERTICAL PUMPS

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P-316\_C

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*Shown with optional  
discharge pipe assembly*

## HIGH FLOW, HIGH TDH HIGH EFFICIENCY LOW ENERGY USAGE

- **Flows to 400 U.S. gpm or 170 ft. TDH @ 60 Hz**  
(1250 l/m or 42m @ 50 Hz)
- **Non-metallic solution contact high temperature polypropylene or CPVC**  
(See a chemical resistance chart)
- **Pump has no bearings, and can run dry indefinitely**
- **Heavy duty PTFE vapor seal**  
Protects motor bearing and end bell.
- **Centrifugal - quiet, vibration free**
- **In-tank or Out-of-tank**
- **Chemical duty motor (7.5 - 15.0 HP)**  
Sealed oversized bearings. Cast iron end bells with vapor seal. Corrosion resistant two-part epoxy coating. Stainless steel nameplate.

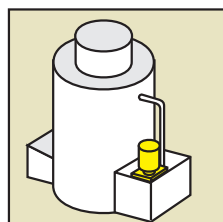
The Series 'EF' Vertical Pump represents the next generation of molded pumps from SERFILCO with flows to 400 U.S. GPM at 60 Hz. It is a robust design to meet the most demanding applications while providing the economy of operation found in all of SERFILCO's molded pumps.

The 'EF' features a cantilevered, sleeved, stainless steel shaft with vapor seal to provide protection for the motor. The cantilevered shaft eliminates bearings and conventional pump seals, resulting in a pump that can run dry indefinitely without damage. This pump is offered in a choice of SERFILCO exclusive high temperature polypropylene or CPVC construction and, as with all of

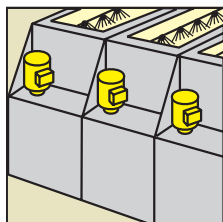
SERFILCO's vertical cantilever pumps, provides non-metallic solution contact. A compound impeller prevents liquid from rising in the column even at maximum TDH, while the fully enclosed bottom impeller provides high hydraulic efficiency at low horsepower.

A unique characteristic of these vertical cantilever pumps is their ability to lift liquid with an optional suction extension installed. The pump self primes as long as liquid is at or above the level of the impeller. Once primed the liquid level can be lowered to the end of the suction extension to a maximum depth of 9 ft. (2.7m).

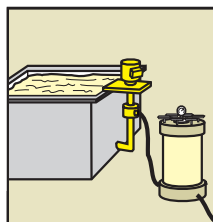
## TYPICAL APPLICATIONS



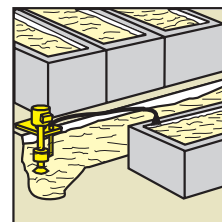
FUME SCRUBBING



PCB WET  
PROCESSING



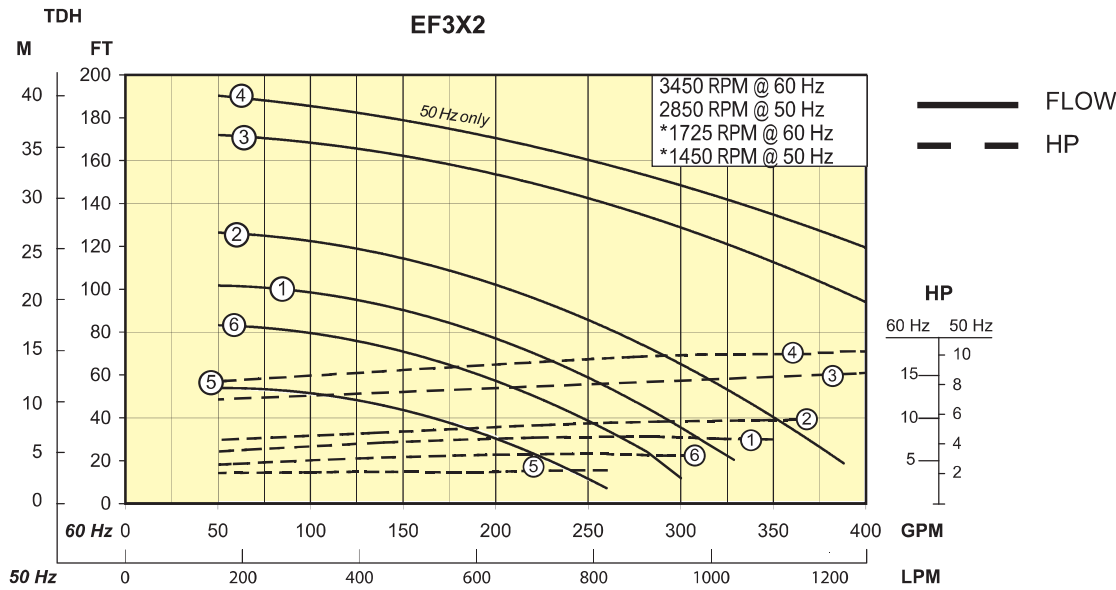
IN-TANK OR OUT-OF-TANK  
PUMPING AGITATION and  
FILTRATION



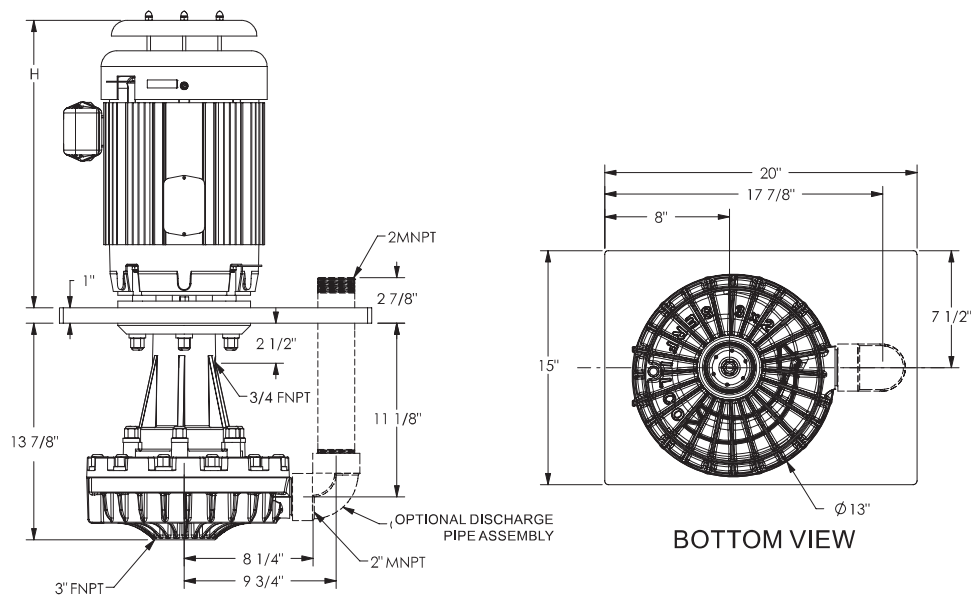
- SUMP DRAINING  
- WASTE TREATMENT



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**DIMENSIONS - Inches (mm)**



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Pump models are molded of SERFILCO exclusive high temperature polypropylene or CPVC with a sleeved stainless steel shaft for non-metallic solution contact. The 1" thick mounting plate is polypropylene or PVC and includes a PTFE vapor seal. The compound impeller is fully enclosed for maximum efficiency.

The Chemical Duty, NEMA "C" face motors are 208-230-460V/3/60 @ 3450 or 1725 RPM and 190-208-380-415 V/3/50 @ 2850 or 1450 RPM. Motors are coated with two-part epoxy. These pumps can be used with up to a 9 ft (2.7 m) suction extension under certain conditions.

**TO ORDER use Price Code Number**

*For standard pump-motor combination, select model from TABLE I.*

*For custom pump-motor combination, select from TABLE II on page 4.*

**TABLE I STANDARD MODELS**

From performance curves graph, select flow curve number providing the desired performance. Then match to Model Number listed below. Motor HP is non-overloading at full capacity. Standard models include EPDM (ethylene propylene) elastomers.

60 Hz MODELS				
FLOW CURVE	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.
	CPVC		POLYPROPYLENE	
1	EF 3X2 -1SC-D 7.5	45-2011	EFP 3X2 -1SC-D 7.5	45-2211
2	EF 3X2 -2SC-D 10.0	45-2022	EFP 3X2 -2SC-D 10.0	45-2222
3	EF 3X2 -3SC-D 15.0	45-2033	EFP 3X2 -3SC-D 15.0	45-2233
5	EF 3X2 -5SC-H7.5	45-2054	EFP 3X2 -5SC-H7.5	45-2254
6	EF 3X2 -6SC-D 7.5	45-2061	EFP 3X2 -6SC-D 7.5	45-2261

50 Hz MODELS				
FLOW CURVE	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.
	CPVC		POLYPROPYLENE	
1	EF 3X2 -1SC-D 7.5-50	45-2015	EFP 3X2 -1SC-D 7.5-50	45-2215
2	EF 3X2 -2SC-D 7.5-50	45-2025	EFP 3X2 -2SC-D 7.5-50	45-2225
3	EF 3X2 -3SC-D 10.0-50	45-2036	EFP 3X2 -3SC-D 10.0-50	45-2236
4	EF 3X2 -4SC-D 10.0-50	45-2046	EFP 3X2 -4SC-D 10.0-50	45-2246
5	EF 3X2 -5SC-H 7.5-50	45-2057	EFP 3X2 -5SC-H 7.5-50	45-2257
6	EF 3X2 -6SC-H 7.5-50	45-2065	EFP 3X2 -6SC-D 7.5-50	45-2265



**TABLE II CUSTOM MODELS**

To determine pump model for a specified GPM, TDH, and specific gravity (SG), select performance point on curve. Determine required HP by moving vertically to corresponding number dotted line. Read required HP at right ordinate and multiply by SG Select pump, impeller and motor to construct Model and Price Code No.

**EXAMPLE:** PUMP + IMPELLER + MOTOR = PRICE CODE NO.  
EF 3x2 + -1SC + -D7.5 = 45-2011

PUMP		
MODEL	MATERIAL & COLUMN LENGTH	PRICE CODE NO.
EF 3x2	CPVC - 14"	45-20
EF 3x2	PP - 14"	45-22

IMPELLER		
FLOW CURVE NO.	ADD TO . . .	
	MODEL	PRICE CODE NO.
1	-1SC	1
2	-2SC	2
3	-3SC	3
4	-4SC	4
5	-5SC	5
6	-6SC	6

MOTOR <sup>1</sup>			
VOLTAGE	STD. HP (kW)	ADD TO . . .	
		MODEL NO.	PRICE CODE NO. <sup>1</sup>
208-230/460/3/60 3450 RPM	7.5	-D 7.5	1
	10	-D 10.0	2
	15	-D 15.0	3
208-230/460/3/60 1725 RPM	7.5	-H 7.5	4
220/380/440/3/50 190/380/3/50 2850 RPM	7.5 (5.5)	-D 7.5 -50	5
	10.0 (7.5)	-D 10.0 -50	6
220/380/440/3/50 1450 RPM	7.5 (5.5)	-H 7.5 -50	7

MOTOR (NEMA) DIMENSIONS			
DIAMETER		HEIGHT (H)	
INCHES	mm	INCHES	mm
10-1/4	260	15-5/16	389
10-3/8	264	18-3/8	467
10-3/8	264	18-3/8	467
10-1/4	260	15-9/16	395
10-1/4	260	15-9/16	395
10-3/8	264	18-3/8	467
10-1/4	260	15-9/16	395

PUMP + MOTOR	
SHIPPING WEIGHTS <sup>2</sup>	
LBS.	kg.
160	73
215	98
215	98
190	86
190	86
215	98
190	86

<sup>1</sup> To order pump without motor, use 0 for motor Price Code No.

<sup>2</sup> Pump end only: 60 lbs (27 kg.)

## OPTIONAL

DESCRIPTION	ADD SUFFIX TO MODEL	ADD TO OR SEPARATE PRICE CODE NO.
Viton "O"-rings (installed)	-V	V
Titanium shaft — (installed)	-T	T
Through hole to mounting plate	-MPH	H

DESCRIPTION	CPVC		POLYPROPYLENE	
	ADD SUFFIX TO MODEL	USE SEPARATE PRICE CODE NO.	ADD SUFFIX TO MODEL	USE SEPARATE PRICE CODE NO.
Discharge pipe assembly	-DPA	45-1202	-DPAP	45-1202 PP
Suction strainer	-ST	45-1203	-STP	45-1203 PP
Suction extension w/ strainer				
12"	-K12	46-0081	-K12P	46-0081 PP
24"	-K24	46-0082	-K24P	46-0082 PP
36"	-K36	46-0083	-K36P	46-0083 PP





# SERIES 'EHM' VERTICAL PUMPS

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P-309\_G

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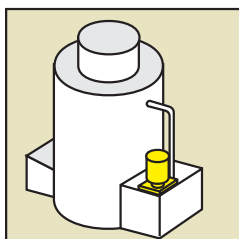
## HIGH EFFICIENCY LOW ENERGY USAGE

- **Flows to 650 U.S. GPM or 115 FT. TDH @ 60 Hz**  
(2050 l/m or 24m @ 50 Hz)
- **Non-metallic solution contact CPVC construction**  
(See a chemical resistance chart)
- **Can run dry indefinitely, no bearings**
- **Heavy duty PTFE vapor seal**  
Protects motor bearing and end bell.
- **In-tank or out-of-tank**
- **Chemical duty motor (7.5 - 20.0 HP)**  
Sealed oversized bearings. Cast iron end bells with vapor seal. Corrosion resistant epoxy enamel finish. Stainless steel nameplate. Service factor 1.15.
- **Includes PVC pump mounting plate**

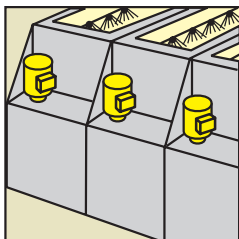
The **Series 'EHM' Vertical Pump** features a cantilevered CPVC sleeved stainless steel shaft which eliminates bearings and conventional pump seals, resulting in a pump that can run dry without damage. A compound impeller prevents liquid from rising in the column while the fully-enclosed bottom impeller provides high hydraulic efficiency at low horsepower.

The pump drive shaft is stainless steel and is protected by a heavy duty CPVC impeller sleeve assembly. A vapor seal between the rotating shaft and pump column protects the motor and motor bearings. The complete pump assembly features non-metallic solution contact.

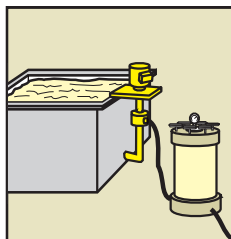
The high efficiency impeller provides "pump-down" capabilities to 9 ft. below the inlet when using a suction extension. Viton® "O"-rings, discharge pipe assembly and suction strainer are available as options.



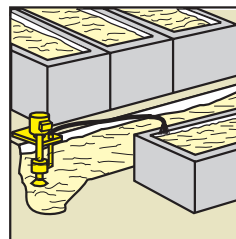
FUME SCRUBBING



PCB WET  
PROCESSING



OUT-OF-TANK  
PUMPING and FILTRATION



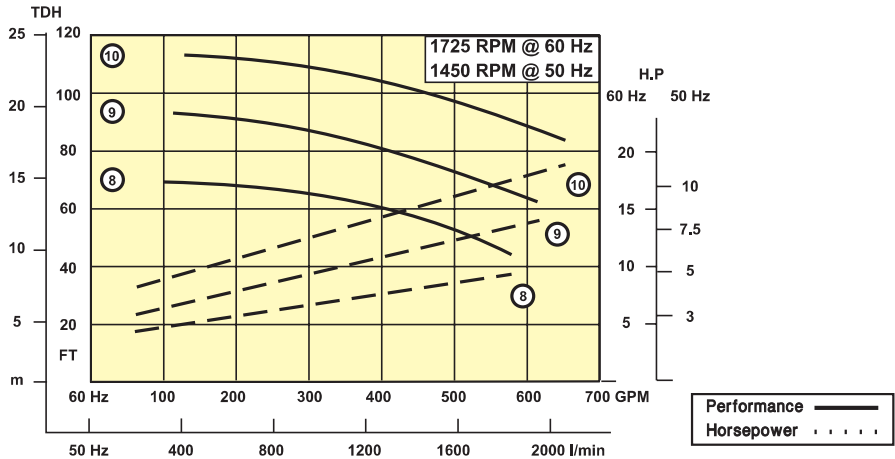
SUMP DRAINING  
and WASTE TREATMENT



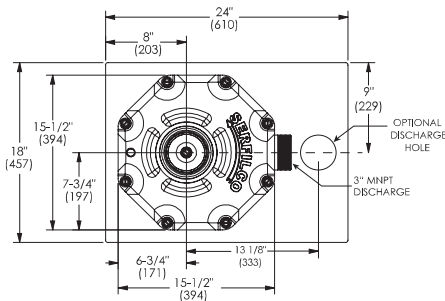
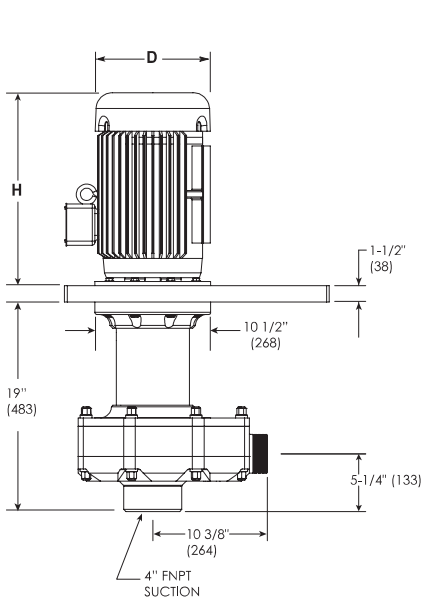
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Pump models are constructed of CPVC with CPVC sleeved stainless steel shaft. The mounting plate is PVC and includes a PTFE vapor seal. Standard "O"- rings are EPDM (ethylene propylene). The compound design impeller is fully enclosed for maximum efficiency.

Series 'EHM' pumps offer non-metallic solution contact. The chemical duty motors are 208-230/460V/3/60 @ 3450 or 1725 RPM and 190-208/380-415V/3/50 @ 2850 or 1450 RPM, TEFC, NEMA "C" face, painted with two-part epoxy enamel. These pumps can be used with up to a 9 ft. (2.7 m) suction extension under certain conditions.



DIMENSIONS Inches (mm)



MOTOR (NEMA)					PUMP + MOTOR	
DIMENSIONS					SHIPPING WEIGHTS	
HP (KW)	DIAMETER (D)		HEIGHT (H)		LBS.	kg.
	INCHES	mm	INCHES	mm		
10	10-3/8	264	18-3/8	467	230	105
15	10-3/8	264	18-3/8	467	290	132
20	13	330	19-15/16	506	360	163
7.5 (5.5)	10-1/4	260	14-9/16	370	210	95
10 (7.5)			14-9/16	370	250	113
15 (11.0)			14-9/16	370	330	150



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**TO ORDER, use Price Code Number****TABLE I**

For standard CPVC pump-motor combination, select model from TABLE I.  
For custom pump-motor combination, select from TABLE II

Select flow curve number providing the desired performance. Then match to Model Number listed below.  
Motor HP is non-overloading at full capacity.

TYPICAL 60 Hz MODELS		
FLOW CURVE NO.	MODEL	PRICE CODE NO.
8	EHM 3-8SC-H10.0	45-1886
9	EHM 3-9SC-H15.0	45-1897
10	EHM 3-10SC-H20.0	45-1808

TYPICAL 50 Hz MODELS		
FLOW CURVE NO.	MODEL	PRICE CODE NO.
9	EHM 3-9SC-H10.0 (7.5kW)	45-1895 A
10	EHM 3-10SC-H15.0 (11.0kW)	45-1809

**TABLE II**

To determine pump model for a specified GPM, TDH, and specific gravity, select performance point on curve. Determine required HP by moving vertically to corresponding number dotted line. Read required HP at right ordinate and multiply by S.G. Select pump, impeller and motor and construct Model and Price Code No.

**EXAMPLE:** PUMP + IMPELLER + MOTOR = PRICE CODE NO.  
EHM 3 + -9SC + H15.0 = 45-1897

PUMP		
MODEL	MATERIAL	PRICE CODE NO.
EHM 3	CPVC-19"	45-18

IMPELLER		
FLOW CURVE NO.	ADD TO ...	
	MODEL	PRICE CODE NO.
8	-8SC	8
9	-9SC	9
10	-10SC	0

MOTOR <sup>1</sup>			
FREQ RPM	STD. HP (kW)	ADD TO ...	
		MODEL NO.	PRICE CODE NO. <sup>1</sup>
60 Hz	10	-H 10.0	6
1725	15	-H 15.0	7
	20	-H 20.0	8
50 Hz	7.5	-H 7.5	4A
1450	10	-H 10.0	5A
	15	-H 15.0	9

<sup>1</sup> 60 Hz = 208-230/460/3/60  
50 Hz = 190-208/380/415/3/50  
To order pump without motor, use 0 for motor Price Code No.

**OPTIONAL**

DESCRIPTION	ADD SUFFIX TO MODEL	ADD TO OR SEPARATE PRICE CODE NO.
Viton "O"-rings (installed)	-V	V
Titanium shaft for extremely corrosive atmosphere. (installed)	-T	T
Discharge pipe assembly	-DPA	45-1241
Suction strainer	-ST	45-1242
Suction extension, CPVC		
12"	K12	46-0089
24"	K24	46-0090
36"	K36	46-0091



# SERIES 'HB' VERTICAL PUMPS

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P-302\_U

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## HIGH EFFICIENCY AND LOW ENERGY USAGE FOR:

**WASTES / ACIDS / PLATING / CHEMICALS**

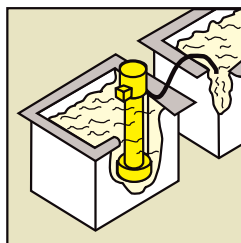
- **Flows to 140 U.S. GPM or 130 ft. TDH @ 60 Hz**  
(450 LPM or 28m @ 50 Hz)
- **Corrosion resistant, CPVC construction**  
(See a chemical resistance chart)
- **Pump lengths: 2 ft. to 10 ft. (.6m to 3.0m)**
- **Chemical duty motor**  
Sealed oversized bearings, cast iron end bells, liquid/vapor seal and slinger, corrosion resistant two-part epoxy finish, stainless steel nameplate, 1.15 service factor at 50 and 60 Hz.
- **Centrifugal — quiet, vibration-free**
- **Shaft vapor seal protects motor bearings and atmosphere**

The **Series 'HB' Sump Pump** features corrosion resistant construction for deep sumps and chemical transfer. A stainless steel shaft sleeved in CPVC offers unmatched strength and chemical resistance. A vapor seal between the rotating shaft and the pump column protects the motor and motor bearings.

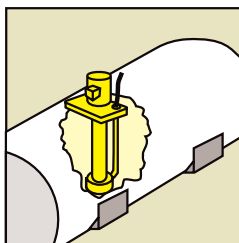
The shaft bearing and liner are positively lubricated with the product being pumped or clean water from a

separate source by means of the bleed line. A spiral flush groove in the rotating bearing ensures a uniform flow of liquid across the bearing surface. The bearing liner is made of a special fluoride-resistant ceramic.

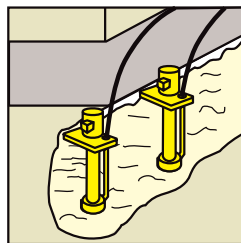
Asuction extension can be utilized to pump to depths below impeller level. Thus, a shorter pump can be used, reducing shaft length and the number of bearings required.



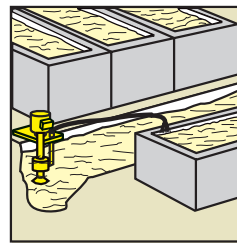
**CHEMICAL  
TRANSFERRING**



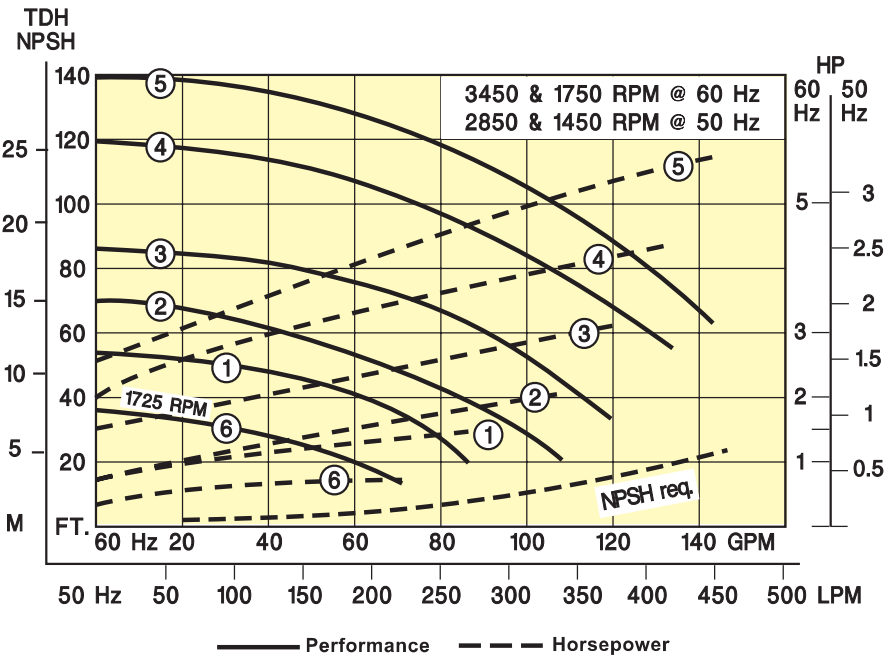
**STORAGE TANK**



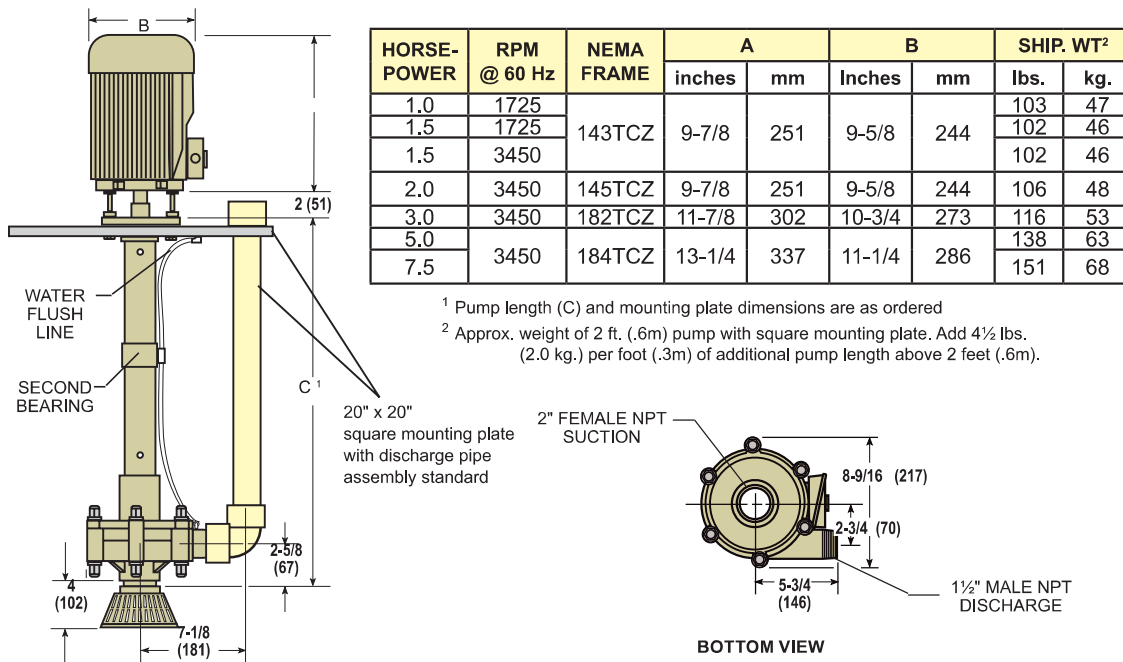
**DEEP STANDBY PUMPING**  
when priming not possible



**SUMP DRAINING and  
WASTE TREATMENT**



## DIMENSIONS - Inches (mm)



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Standard models are constructed of CPVC with high purity chemical resistant graphite or Rulon® (glass filled PTFE) bearing and silica-free ceramic liner for fluoride resistance. Includes polyethylene suction strainer. Elastomer "O"-rings are EPDM (ethylene propylene) with Viton® optional. Impeller is fully enclosed for maximum efficiency. Pump shaft is 303 stainless steel sleeved in CPVC, so complete pump assembly offers non-metallic solution contact except for titanium fasteners at each bearing. Hastelloy® C276 fasteners are optional. Standard pumps are suitable for 140°F (60°C) maximum. High temperature

models to 160°F (71°C) are available as single graphite bearing pumps only. Pump lengths are available as listed in one foot (.3m) increments only. The bleed line provides pressurized water or pumped solution to the bearings. (Each bearing requires 10 PSI.) Standard is external water flush. Product flush may be specified. All models are wet tested before shipment. Series 'HB' pumps can provide up to 9 ft.(2.7m) suction lift under certain conditions. Pump includes 20" x 20" square mounting plate and discharge pipe assembly.

**TO ORDER, use Price Code Number**

*For standard 24" - 60" pump / motor combinations, select model from TABLE I.  
For other combinations, select components from TABLE II.*

**TABLE I**

FLOW CURVE NO.	24" PUMP		36" PUMP	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
1	HB1½CE1-24"C-CG- * °F-D1.5-SD	41-1024 AS	HB1½CE1-36"C-CG- * °F-D1.5-SD	41-1034 AS
2	HB1½CE2-24"C-CG- * °F-D2.0-SD	41-2024 BS	HB1½CE2-36"C-CG- * °F-D2.0-SD	41-2034 BS
3	HB1½CE3-24"C-CG- * °F-D3.0-SD	41-3024 CS	HB1½CE3-36"C-CG- * °F-D3.0-SD	41-3034 CS
4	HB1½CE4-24"C-CG- * °F-D5.0-SD	41-4024 DS	HB1½CE4-36"C-CG- * °F-D5.0-SD	41-4034 DS
5	HB1½CE5-24"C-CG- * °F-D7.5-SD	41-5024 ES	HB1½CE5-36"C-CG- * °F-D7.5-SD	41-5034 ES
6	HB1½CE5-24"C-CG- * °F-H1.0-SD	41-5024 GS	HB1½CE5-36"C-CG- * °F-H1.0-SD	41-5034 GS

FLOW CURVE NO.	48" PUMP		60" PUMP	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
1	HB1½CE1-48"C-CGx2- * °F-D1.5-SD	41-1045 AS	HB1½CE1-60"C-CGx2- * °F-D1.5-SD	41-1055 AS
2	HB1½CE2-48"C-CGx2- * °F-D2.0-SD	41-2045 BS	HB1½CE2-60"C-CGx2- * °F-D2.0-SD	41-2055 BS
3	HB1½CE3-48"C-CGx2- * °F-D3.0-SD	41-3045 CS	HB1½CE3-60"C-CGx2- * °F-D3.0-SD	41-3055 CS
4	HB1½CE4-48"C-CGx2- * °F-D5.0-SD	41-4045 DS	HB1½CE4-60"C-CGx2- * °F-D5.0-SD	41-4055 DS
5	HB1½CE5-48"C-CGx2- * °F-D7.5-SD	41-5045 ES	HB1½CE5-60"C-CGx2- * °F-D7.5-SD	41-5055 ES
6	HB1½CE5-48"C-CG- * °F-H1.0-SD	41-5044 GS	HB1½CE5-60"C-CGx2- * °F-H1.0-SD	41-5055 GS

\*Include operating temperature in model number.

Registered Trademarks Rulon - Dixon; Viton - DuPont Dow Elastomers; Hastelloy - Hayness International.



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**TABLE II**

Determine pump-motor model for a specified GPM, TDH, length, bearing and specific gravity. Select performance point on curve and size HP from corresponding number dotted line vertically above or below performance point.

Read required HP at right ordinate and multiply by specific gravity. Select pump model components and Price Code Numbers from Table II.

**EXAMPLE:**

**PUMP + IMPELLER + LENGTH + BRG & LINER + MOTOR/MTG PLATE = PRICE CODE NO.**  
HB 1½CE + 2 + 48°C + CRX2-90°F + D1.5 = 41-2042A

PUMP		IMPELLER			LENGTH						BRG & LINER				MOTOR/ MTG PLATE						
MODEL	PRICE CODE NO.	FLOW CURVE NO.	ADD TO ...		FT.	m	RPM	BRGS	ADD TO ...		MATERIAL	NO. OF ADD	TO ...		RPM	ADD TO ...		TEFC - 230-460V/3/50-60			
			MODEL PRICE	CODE NO.					MODEL	PRICE CODE NO.			MODEL	PRICE CODE NO.		MODEL (HP)	PCN				
HB1½CE	41-	1	1	1	2	.6	1725/1450	1	24°C	02	CERAMIC & RULON¹	1	CR-°F CRx2-°F CRx3-°F	1	3450/ 2850	D1.5_SD	AS				
		2	2	2			3450/2850					2		2		D2.0_SD	BS				
		3	3	3	3	.9	1725/1450	1	36°C	03		3		3		D3.0_SD	CS				
		4	4	4			3450/2850			CERAMIC & GRAPHITE	1	CG-°F CGx2-°F CGx3-°F	4	D5.0_SD		DS					
		5 & 6	5	5			3450/2850				2		5	D7.5_SD		ES					
					4	1.2	1725/1450	1	48°C		04		3	6	1725/ 1450	H1.0_SD	GS				
					5	1.5	1725/1450	2	60°C		05		3	6		H1.5_SD	HS				
					6	1.8	1725/1450	2	72°C	06	* Include operating temperature in model number. ¹ Rulon for 140°F maximum temperature ² 230-380/415V/3/50										
					7	2.1	1725/1450 2850	2	84°C	07											
					8	2.4	1725/1450 2850	3	96°C	08											
					9	2.7	1725/1450	3	108°C	09											
					10	3.0	1725/1450	3	120°C	10											

For BSP fittings or adapters, explosion-proof motors, motor starters, level controls, and Dri-Stop Pressure Switch for external bearing flush, contact Sales Department for appropriate bulletin.

For BSP fittings or adapters, explosion-proof motors, motor starters, level controls, and Dri-Stop Pressure Switch for external bearing flush, contact Sales Department for appropriate bulletin.

**OPTIONAL**

DESCRIPTION	ADD SUFFIX TO MODEL	ADD TO PRICE CODE NO.
Viton "O"-rings (installed)	V	V
Hastelloy C276 fasteners	HC	X
High temperature for single bearing pumps to 160°F (71°C). Use graphite bearing.	HT	T
Round -24" diameter x 1" thick	change -SD to -CD in model	replace S with C in PCN

DESCRIPTION	ADD SUFFIX TO MODEL	USE SEPARATE PRICE CODE NO.
Suction extension - 2" NPT CPVC pipe, threaded both ends	-K12" -K24" -K36	41-0633 41-0634 41-0635



## SERIES 'B' VERTICAL PUMPS

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P-303\_X

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2



MODEL B2

### HIGH EFFICIENCY AND LOW ENERGY USAGE FOR:

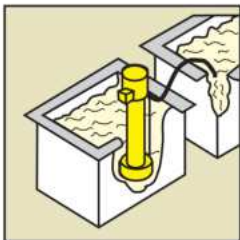
#### WASTES / ACIDS / PLATING / CHEMICALS

- **Flows to 370 U.S. GPM or 84 Ft. TDH @ 60 Hz**  
(1150 LPM or 18.5M @ 50 Hz)
- **Pump lengths: 2 ft. to 10 ft. (.6M to 3.0M)**
- **Corrosion resistant, CPVC construction**  
(See a chemical resistance chart)
- **Water or product lubricated bearings**
- **Chemical duty, 1725 RPM motor (1.0 - 10.0 HP)**  
Sealed oversized bearings; cast iron end bells;  
liquid/vapor seal and slinger; corrosion resistant  
two-part epoxy finish; 1.15 service factor.
- **Centrifugal — quiet, vibration-free**
- **Shaft vapor seal protects motor bearings  
and atmosphere**

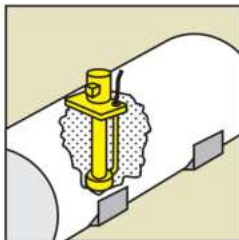
The Series 'B' Pump features corrosion resistant construction for deep sumps and demanding conditions. An oversized machined pump housing is utilized allowing for high flow rates using low RPM motors, thus extending pump life. A stainless steel shaft sleeved in CPVC offers unmatched strength and chemical resistance. A vapor seal between the rotating shaft and the pump column protects the motor and motor bearings.

The shaft bearing and liner are positively lubricated with the product being pumped or clean water from a separate source by means of the bleed line. A spiral flush groove in the rotating bearing ensures a uniform flow of liquid across the bearing surface. The bearing liner is made of a special fluoride-resistant ceramic.

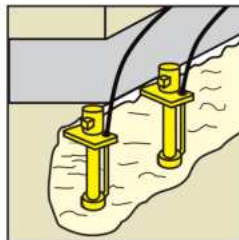
A suction extension can be utilized to pump to depths below impeller level. Thus, a shorter pump can be used, reducing shaft length and number of bearings required.



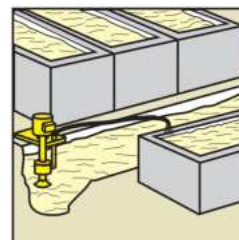
CHEMICAL  
TRANSFERRING



STORAGE TANK



DEEP STANDBY PUMPING  
when priming not possible



SUMP DRAINING and  
WASTE TREATMENT



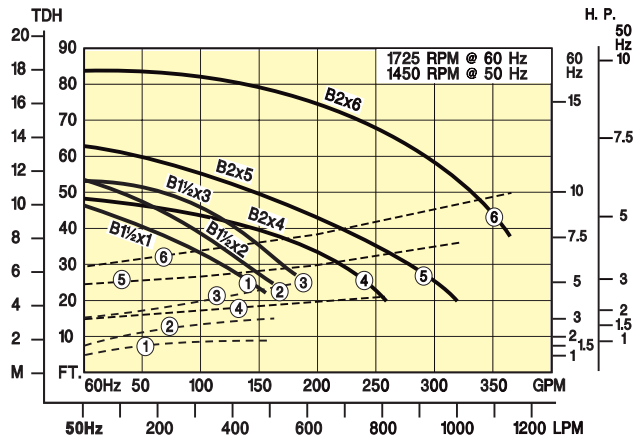
## SERIES 'B' Specifications

58

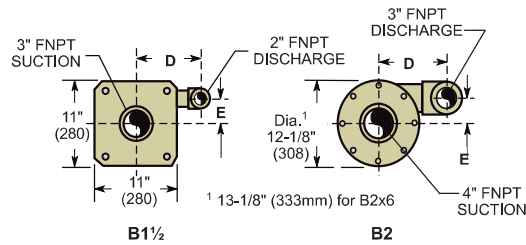
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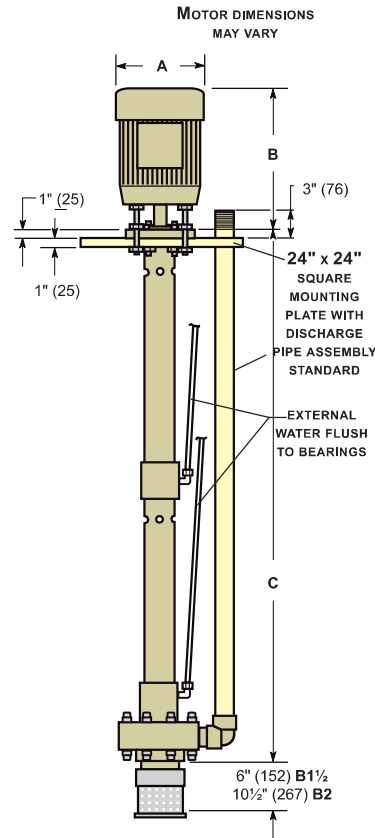
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Performance ———  
Motor horsepower - - - - -



**BOTTOM VIEWS**



PUMP		DIMENSIONS Inches (mm)					HP	MOTOR FRAME	APPROX. SHIPPING WEIGHT <sup>2</sup>	
MODEL	NPT CONNS.	A	B	C	D	E			Lbs.	(Kg.)
B1½ x 1	3" x 2"	7¼ (184)	13¼ (236)	SELECT LENGTH	9 (229)	2-3/4 (70)	1.5	143TC	130	59
B1½ x 2	3" x 2"	7¼ (184)	14¼ (362)			2-7/8 (73)	2.0	145TC	135	61
			15½ (394)			(73)	2.0	145TC	140	64
			15½ (394)			(73)	3.0	182TC	145	66
B1½ x 3	3" x 2"	8½ (216)	17¼ (438)		8-1/2 (216)	2-5/8 (67)	3.0	182TC	150	68
B2 x 4	4" x 3"	8½ (216)	17¼ (438)		11-1/8 (283)	3-3/16 (81)	5.0	184TC	170	77
B2 x 5	4" x 3"	10¼ (260)	18 (457)			(81)	7.5	213TC	190	86
B2 x 6	4" x 3"	10¼ (260)	19 (483)			3-3/4 (95)	10	213TC	200	91

<sup>2</sup> Add 4½ lb. (2.0 kg.) per foot (.3M) of additional pump length above 2 feet (.6M).



Standard models are constructed of CPVC with high purity chemical resistant graphite or Rulon® (glass filled PTFE) bearing and silica-free ceramic liner for fluoride resistance. Includes threaded suction and discharge. Models B1½ have polyethylene suction strainer, Models B2 have CPVC suction strainer. The "O"-rings are EPDM (Viton optional). Models B1½ have semi-enclosed impellers, Models B2 fully-enclosed impellers. Motors are "C" face, 1725 RPM, 230-460V/3/50-60, TEFC, chemical duty, painted with two-part epoxy enamel. Pump shaft is 303 stainless

steel sleeved in CPVC. Complete pump assembly offers non-metallic solution contact except titanium fasteners at each bearing (Hastelloy® C 257 optional). Pump lengths are available in one foot (.3M) increments. Bleed line provides water or pumped solution to bearings. (Each bearing requires 10 PSI.) All models wet-tested before shipment. Standard is external water flush. Product flush may be specified, or field converted. All models include 24" x 24" square mounting plate and discharge pipe assembly.

**TO ORDER, use Price Code Number**

For standard 24" - 60" pump-motor combinations, select model from TABLE I.  
For custom pump-motor combination, select components from TABLE II on page 4.

**TABLE I**

Select flow curve number providing the desired performance.  
Then match to Model Numbers listed below.  
Motor HP is non-overloading at full capacity.

CURVE NO.	24" PUMP		36" PUMP	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
1	B1½ x 1SCEY-24"C-CGL- * °F-H2.0-SD	46-1024 BS	B1½ x 1SCEY-36"C-CGL- * °F-H2.0-SD	46-1034 BS
2	B1½ x 2SCEY-24"C-CGL- * °F-H3.0-SD	46-2024 CS	B1½ x 2SCEY-36"C-CGL- * °F-H3.0-SD	46-2034 CS
3	B1½ x 3SCEY-24"C-CGL- * °F-H5.0-SD	46-3024 DS	B1½ x 3SCEY-36"C-CGL- * °F-H5.0-SD	46-3034 DS
4	B2 x 4SCEY-24"C-CGL- * °F-H5.0-SD	46-4024 DS	B2 x 4SCEY-36"C-CGL- * °F-H5.0-SD	46-4034 DS
5	B2 x 5SCEY-24"C-CGL- * °F-H7.5-SD	46-5024 ES	B2 x 5SCEY-36"C-CGL- * °F-H7.5-SD	46-5034 ES
5	B2 x 6SCEY-24"C-CGL- * °F-H10.0-SD	46-6024 FS	B2 x 6SCEY-36"C-CGL- * °F-H10.0-SD	46-6034 FS

CURVE NO.	48" PUMP		60" PUMP	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
1	B1½ x 1SCEY-48"C-CGL- * °F-H2.0-SD	46-1044 BS	B1½ x 1SCEY-60"C-CGLX2- * °F-H2.0-SD	46-1055 BS
2	B1½ x 2SCEY-48"C-CGL- * °F-H3.0-SD	46-2044 CS	B1½ x 2SCEY-60"C-CGLX2- * °F-H3.0-SD	46-2055 CS
3	B1½ x 3SCEY-48"C-CGL- * °F-H5.0-SD	46-3044 DS	B1½ x 3SCEY-60"C-CGLX2- * °F-H5.0-SD	46-3055 DS
4	B2 x 4SCEY-48"C-CGLx2- * °F-H5.0-SD	46-4045 DS	B2 x 4SCEY-60"C-CGLX2- * °F-H5.0-SD	46-4055 DS
5	B2 x 5SCEY-48"C-CGLx2- * °F-H7.5-SD	46-5045 ES	B2 x 5SCEY-60"C-CGLX2- * °F-H7.5-SD	46-5055 ES
5	B2 x 6SCEY-48"C-CGLx2- * °F-H10.0-SD	46-6045 FS	B2 x 6SCEY-60"C-CGLX2- * °F-H10.0-SD	46-6055 FS

\* Include operating temperature in Model Number.



## SERIES 'B' VERTICAL PUMPS

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P-303\_X

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**TABLE II**

Determine pump model for a specific GPM, TDH, pump length and bearing. Select performance point on curve and size horsepower from corresponding number dotted line vertically above

or below performance point. Read required HP at right ordinate and multiply by specific gravity. Select pump model components and Price Code Number from Table II.

PUMP		
PUMP CURVE	MODEL NUMBER	PRICE CODE NO.
1	B1½ x 1SCEY	46-1
2	B1½ x 2SCEY	46-2
3	B1½ x 3SCEY	46-3
4	B2 x 4SCEY	46-4
5	B2 x 5SCEY	46-5
6	B2 x 6SCEY	46-6

- LENGTH (Dimension C)					
		NO. of BEARINGS		ADD TO ...	
FT.	(M)	B1½	B2	MODEL NUMBER	PRICE CODE NO.
2	.6	1	1	- 24°C	02
3	.9	1	1	- 36°C	03
4	1.2	1	2	- 48°C	04
5	1.5	2	2	- 60°C	05
6	1.8	2	2	- 72°C	06
7	2.1	2	3	- 84°C	07
8	2.4	2	3	- 96°C	08
9	2.7	3	3	- 108°C	09
10	3.1	3	3	- 120°C	10

Read: "Tips for the successful operation of sump pumps". See Technical Bulletin TP-113.

-BEARING & LINER			
MATERIAL NO.	OF BRGS. ADD TO	MODEL NO.	PRICE CODE NO.
Ceramic & Graphite Max. 160°F	1	- CGL- * °F	4
	2	- CGLx2- * °F	5
	3	- CGLx3- * °F	6
Ceramic & Rulon Max. 140°F	1	- CRL- * °F	1
	2	- CRLx2- * °F	2
	3	- CRLx3- * °F	3

\* Include operating temperature in Model Number.

- MOTOR & MOUNTING PLATE			
TEFC , 230-460V/3/50-60 **			
RPM	HP (kw)	MODEL NO.	PRICE CODE NO.
1725@ 60 Hz	1.0 (.75)	- H1.0-SD	GS
	1.5 (1.1)	- H1.5-SD	AS
	2.0 (1.5)	- H2.0-SD	BS
	3.0 (2.2)	- H3.0-SD	CS
1450@ 50 Hz **	5.0 (3.7)	- H5.0-SD	DS
	7.5 (5.6)	- H7.5-SD	ES
	10.0 (7.5)	- H10.0-SD	FS

\*\* B2 Models are 230-460V/3/60 as standard  
230-380-415V/3/50 FOR 50 Hz models

### OPTIONAL

DESCRIPTION	ADD SUFFIX to MODEL NO.	ADD TO PRICE CODE NUMBER
Viton "O"-rings	-V	V
Hastelloy C 257 bearing fasteners	-HC	X
50 Hz - B2 Models	-5	5
Round -24" diameter x 1" thick	change -SD to -CD in model	replace S with C in PCN

DESCRIPTION	ADD SUFFIX to MODEL NO.	USE SEPERATE PRICE CODE	
		B1 1/2	B2
Suction extension, CPVC pipe, threaded both ends	-K12"	46-0081	46-0089
	-K24"	46-0082	46-0090
	-K36"	46-0083	46-0091

Consult Sales Dept. for explosion-proof motors, custom pump stations, motor starters, level controls and Dri-Stop flow switch for bearing protection.



# SERIES 'ECI' & 'ESS' METAL VERTICAL PUMPS

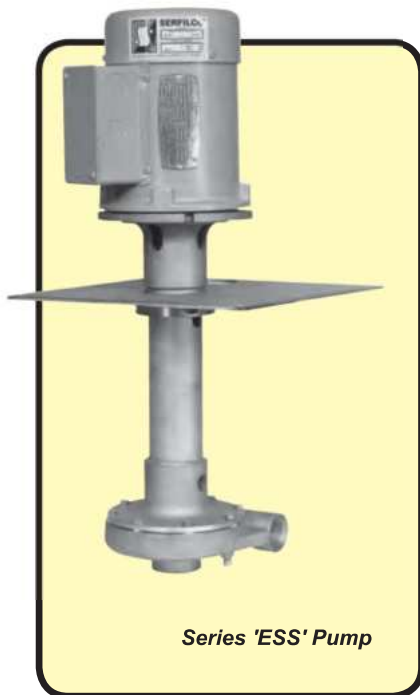
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P-307\_E

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**High efficiency and low energy usage for:**

2



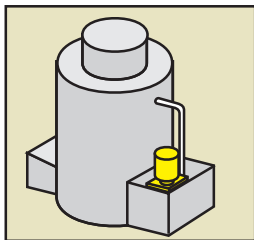
*Series 'ESS' Pump*

## ACIDS WET PROCESSING SOLUTIONS FUME SCRUBBERS CLEANING SOLUTIONS

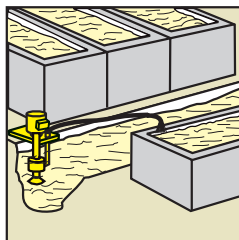
- **Flows to 180 U. S. GPM or 90 ft. TDH @ 60 Hz**  
(565 LPM or 19.5m @ 50 Hz)
- **Standard column length is 13"**  
Available in 20", 32" and 44" lengths
- **Available in cast iron or all 316 stainless steel solution contact**
- **Available in two sizes -**  
1 1/4" x 1" and 2" x 1 1/2" NPT
- **Motors are standard NEMA 'C' face**  
(.75 - 5.0 HP)
- **Centrifugal — quiet, vibration-free**
- **Shaft vapor seal protects motor bearings and atmosphere**

**The Series 'ECI' and 'ESS' Vertical Pumps** feature a high efficiency semi-open impeller, cast construction for superior strength and corrosion resistance, and a cantilevered 316 stainless steel shaft guided by a graphite or Rulon® bushing. This same bushing design and unique column assembly allows for reliable operation with columns up to 44".

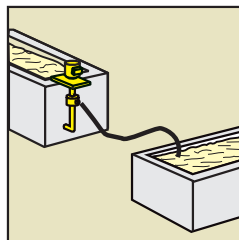
The bushing is lubricated by the product being pumped, thus no external flushing liquid is required. However, since the bushing is being product flushed, these pumps must be used inside the tank. The optional heavy duty mounting plate uses a clamp arrangement which allows it to be positioned anywhere along the length of the pump column. The optional discharge pipe then fits through the mounting plate for easy drop-in installation.



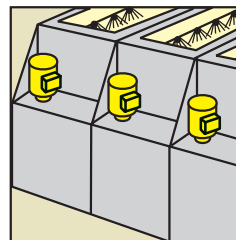
**FUME SCRUBBING  
SUMP DRAINING**



**CHEMICAL**



**TRANSFERRING  
PCB WET PROCESSING**



**or CLEANING SOLUTIONS**

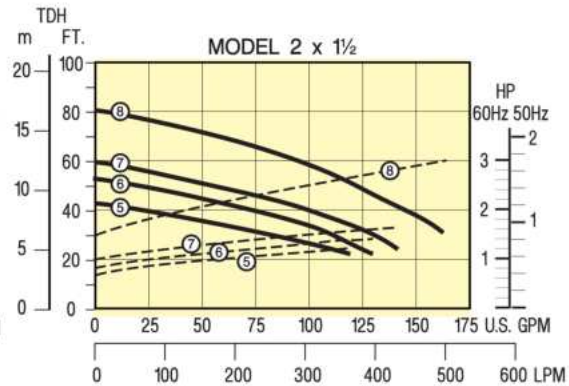
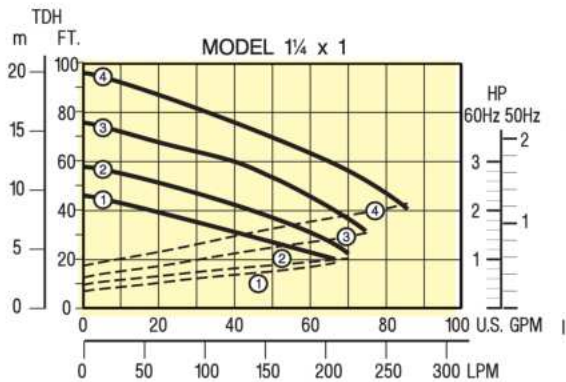




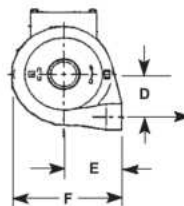
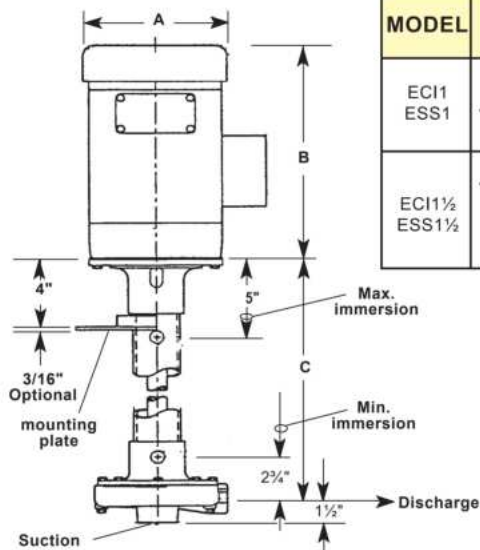
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Pumps are constructed of 316 stainless steel throughout for maximum corrosion resistance. Gasket is a synthetic fiber with cast iron, Teflon® with 316 SS, shaft vapor seal is Viton®. Shaft is available in four lengths to 44". Graphite or Rulon® shaft bushing provides vibration-free service and is located directly above the semi-enclosed high efficiency impeller, therefore, it is product flushed. Optional mounting plate can be clamped and tightened

at any given point on the pump column, which allows the pump to be set at the desired depth. Motors are 3450 RPM @ 60 Hz or 2850 @ 50 Hz, TEFC or EXP, painted with two-part epoxy paint. Single phase TEFC motors include 8 ft. (2.4m) line cord.



## DIMENSIONS



BOTTOM VIEW

MODEL	HP B	SUC. NPT (In.)	DISCH NPT (In.)	DIMENSIONS Inches					WEIGHT Lbs.(kg.)
				F	A	C	D	E	
ECI1 ESS1	3/4	1-1/4	1	6-1/8	9-1/4	13	2-3/4	3-1/2	59 (27)
	1			6-1/8	9-3/4	20			63 (28)
	1-1/2			7-1/4	10-1/2	32			69 (31)
	2			7-1/4	11-1/8	44			85 (39)
ECI1 1/2 ESS1 1/2	1	2	1-1/2	6-1/8	9-3/4	13	3-1/8	3-3/4	63 (28)
	1-1/2			7-1/4	10-1/2	20			80 (36)
	2			7-1/4	11-1/8	32			85 (38)
	3			7-1/4	12-3/8	44			88 (40)
	5			8-1/2	13-5/8				



# SERIES 'ECI' and 'ESS' Ordering Information

P-307\_E

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## TO ORDER

TABLE I

Select 13" long pump-motor model from flow curve number providing the desired performance. Motor HP is non-overloading at full flow, for 1.0 specific gravity and 60 Hz operation. Graphite bushing.

ESS1 PUMP - MOTOR (230/460/3/50-60) 13" 'C' length		
FLOW CURVE NO.	MODEL NUMBER	PRICE CODE NO.
1	ESS1-1-13"C-G-D1.0	61-1011E
2	ESS1-2-13"C-G-D1.5	61-2011F
3	ESS1-3-13"C-G-D2.0	61-3011G
4	ESS1-4-13"C-G-D3.0	61-4011H
ESS1½ PUMP - MOTOR (230/460/3/50-60) 13" 'C' length		
5	ESS1½-5-13"C-G-D1.5	62-5011F
6	ESS1½-6-13"C-G-D2.0	62-6011G
7	ESS1½-7-13"C-G-D3.0	62-7011H
8	ESS1½-8-13"C-G-D5.0	62-8011J

TABLE II

Determine pump-motor model for a specified GPM, TDH, length, bushing and specific gravity. Select performance point on curve and size HP from corresponding number dotted line vertically above or below performance point. Read required HP at right ordinate and multiply by specific gravity. Select pump model components and Price Code Numbers from Table II.

PUMP		IMPELLER		LENGTH	
MODEL	PRICE CODE NO.	FLOW CURVE NO.	ADD TO ...	C DIM.	ADD TO ...
			MODEL PRICE CODE NO.		MODEL PRICE CODE NO.
ECI1	61-	1	1	13"	13"C 01
ESS1		2	2	20"	20"C 02
ECI1½		3	3	32"	32"C 03
ESS1½		4	4	44"	44"C 04
	62-	5	5		
		6	6		
		7	7		
		8	8		

## MATERIAL

PUMP	BUSHING	ADD TO ...	
		MODEL	PRICE CODE NO.
ESS 316SS	Graphite	G	1
	Rulon	R	2
ECI CI	Graphite	G	3
	Rulon	R	4
	None <sup>1</sup>	—	5

## TEFC MOTOR<sup>2</sup> (3450 or 2850)

HP	SINGLE PHASE <sup>3</sup>		THREE PHASE <sup>3</sup>	
	ADD TO ...		ADD TO ...	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
.75	C.75	A	D.75	D
1	C1.0	B	D1.0	E
1.5	C1.5	C	D1.5	F
2.0	—	—	D2.0	G
3.0	—	—	D3.0	H
5.0	—	—	D5.0	J

<sup>1</sup> Standard 13" CI pump does not have a bushing

<sup>2</sup> For explosion-proof motors (UL and CSA listed for Class I, Group D or Class II, Groups F & G.), add **X** to Model No. and Price Code No. EXP motors are 60 Hz only.

<sup>3</sup> Single phase - 115-208-230V/1/60 or 220-440V/1/50  
Three phase - 208-230-460V/3/60 or 380-415V/3/50

## OPTIONAL EQUIPMENT

DESCRIPTION	ADD SUFFIX to MODEL NO.	USE SEPARATE PRICE CODE NO.
Mtg. plate (12"x12" w/hole for disch. pipe assy.) Steel 304 stn. steel	-MP	61-1000 61-2000
Discharge pipe assy. 1" NPT for ESS1 1½" NPT for ESS1½	-DPA1 -DPA1½	61-1001 61-1002
1" NPT for ECI1 1½" NPT for ECI1½	-DPA1 -DPA1½	61-1003 61-1004



# COLLECTION AND PUMPING STATIONS

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P-624\_F

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## OPTIONAL

DESCRIPTION	PRICE CODE NO.
Suction strainer	
EO ¾ pump	39-1007C
EO1 & EO3 pumps	39-1002C
EO4 & EO5 pumps	39-2002C
EH2 pump	45-0162
High level alarm relay (For customer supplied sonic or visual device)	O-1378
Audible alarm (80 decibels) installed	O-1486

DESCRIPTION	PRICE CODE NO.
230 volt, single phase (in place of 115V standard)	O-HV230
Magnetic starter with H-O-A selector switch in watertight (IP54) PVC enclosure	
- single phase (specify voltage)	O-MS1P-S
- 3 phase (specify voltage, will change CPS to 3 phase motor)	O-MS3P-S
(1 starter req'd for each pump)	

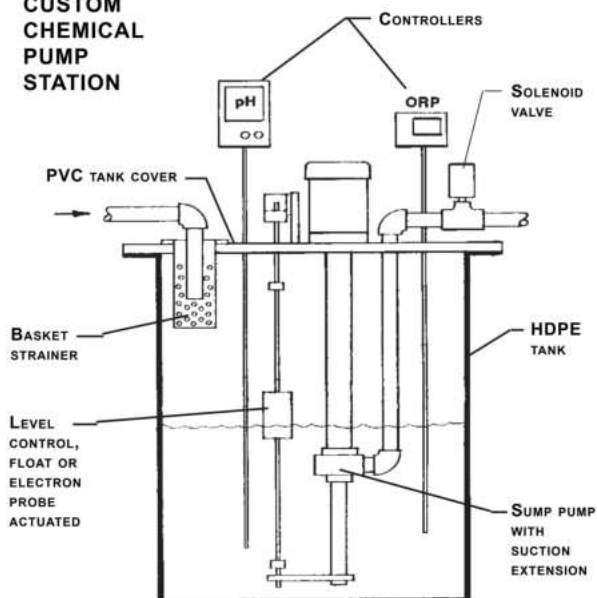
Select accessories individually to complete your chemical collection, treatment or transfer system.

### CUSTOMIZED COLLECTION & PUMPING STATION

with filter chamber on pump discharge



### CUSTOM CHEMICAL PUMP STATION

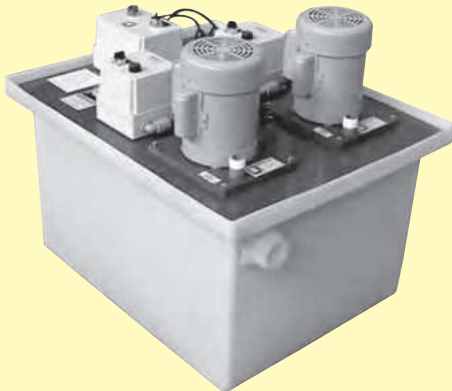


**FOR COLLECTION AND TRANSFER OF:****2**

**WASTE TREATMENT  
ACID NEUTRALIZATION / PLATING RINSE  
PHOTOGRAPHIC & LABORATORY SOLUTIONS  
CHEMICAL STORAGE**



**MODEL CPS 115**  
with optional suction strainer

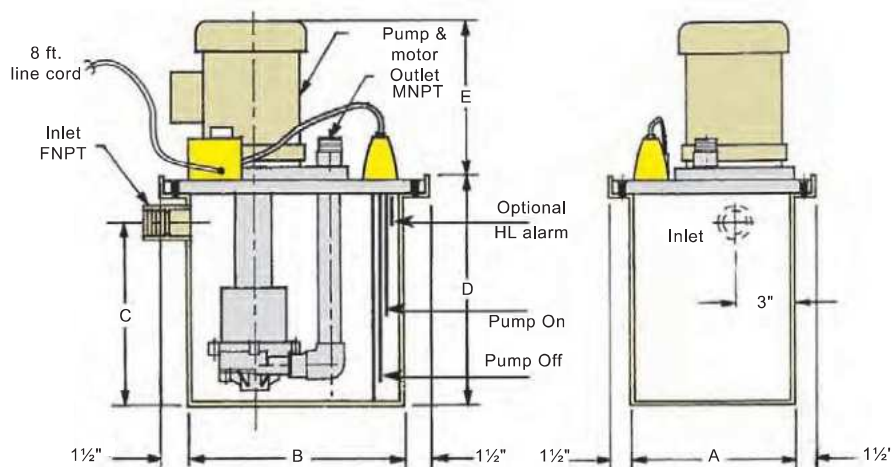


**MODEL CPS 56**  
Alternating duplex pumps with starters

- **Flows to 120 U. S. GPM or 71 ft. TDH @ 60 Hz**  
(380 l/m or 15m @ 50 Hz)
- **Corrosion resistant CPVC pump and HDPE tank**  
for most acid/waste solutions to 140°F (60°C).  
Consult Sales Dept. for selection of systems for use  
up to 210°F (99°C)  
(See a chemical resistance chart)
- **Automatic, self-contained units**  
offer unattended operation
- **Compact and ready-to-use**  
simply make connections and plug in;  
models available to fit under counter tops
- **Maintenance-free vertical pump can run dry**  
seal-less, no bearings, cantilever shaft
- **Duplex systems with high level alarm and  
electronic alternator**
- **Custom systems** (Consult Sales Dept.)
  - **Self-priming horizontal centrifugal pumps**
  - **Larger sizes available**
  - **Filter chamber on pump discharge**
  - **pH and ORP controllers for pH and redox  
adjustment**

Collection and Pumping Stations utilize industrial duty corrosion resistant Series, 'EO' and 'EH' vertical pumps. Units are offered in a variety of capacities and all feature bearing-free pumps as standard. They offer the most economical and reliable means of collecting and transferring corrosive or hazardous wastes that need to be held for batch transfer and are not allowed to go down municipal drains. The systems are conveniently packaged to fit under most lab sinks, into photoprocessing systems or alongside production machines. Pump suction extension empties tank to within ½" of the tank bottom. When optional suction strainer is used, the minimum level is 4" above the tank bottom.

Collection and Pumping Station can also serve as a replacement sump to existing leaking or otherwise inadequate sump pit. If installed in an existing pit/tank, it would provide double containment.

**DIMENSIONS & SPECIFICATIONS**

MODEL	TANK SIZE			TANK INLET	A		B		C		D	
	U.S. gallons	Liters	L x W x H Inches		in.	mm	in.	mm	in.	mm	in.	mm
CPS7	7	27	12x12x12	1 1/2"	12.5	317	12.5	317	10	254	13.5	343
CPS11	11	42	12x12x18	1 1/2"	12.5	317	12.5	317	16	406	19.5	495
CPS14	14	53	12x18x15	1 1/2"	12.5	317	18.5	470	13	330	16.5	419
CPS18	18	68	12x18x18	1 1/2"	12.5	317	18.5	470	16	406	19.5	495
CPS25	25	95	18x18x18	1 1/2"	18.5	470	18.5	470	16	406	19.5	495
CPS30	30	114	12x24x24	2"	12.5	317	24.5	622	21.2	538	25.5	648
CPS37	37	140	18x24x18	2"	18.5	470	24.5	622	15.2	386	19.5	495
CPS44	44	166	18x24x24	2"	18.5	470	24.5	622	21.2	538	25.5	648
CPS56	56	212	24x30x18	2"	24.5	622	30.5	775	15.2	386	19.5	495
CPS75	75	284	24x24x30	2"	24.5	622	24.5	622	27.2	691	31.5	800
CPS90	90	341	24x36x24	2"	24.5	622	36.5	927	21.2	538	25.5	648
CPS115	115	435	30x30x30	2"	30.5	775	30.5	775	27.2	691	31.5	800
CPS150	150	568	24x48x30	2"	24.5	622	48.5	1232	27.2	691	31.5	800
CPS270	270	1021	36x48x36	2"	36.5	927	48.5	1232	33.2	843	37.5	952

PUMP MODEL & FLOW CURVE	MAX. FLOW		MAX. TDH		MOTOR	PUMP OUTLET	E	
	U.S. GPM @ 60 Hz	l/m @ 50 Hz	Ft. @ 60 Hz	m @ 50 Hz			in.	mm
EO 3/4	20	63	18	3.9	1/8	3/4"	5.9	162
EO1	37	120	34	7.2	.3	1 1/4"	9.3	236
EO3	50	150	42	8.9	CPS25	1 1/4"	10.4	264
EO4	74	240	52	10.9		1 1/2"	11.4	290
EO5	92	300	71	15.0	1.5	1 1/2"	11.4	290
EH2	120	380	65	14.0	2.0	1 1/2"	12.2	310





Pumps are constructed of CPVC, mounted on a thick PVC tank cover ( $\frac{1}{2}$ ",  $\frac{3}{4}$ " or 1", depending on model). PVC cover plate is bolted down to the tank with 304SS bolts. Pumps are independently mounted to the CPS cover via their own mounting plate. This allows for "drop in" service or replacement. Tanks are molded rigid HDPE, eliminating leakage. Tank is provided with  $1\frac{1}{2}$ " or 2" NPT inlet fitting installed near top of side. Motors are chemical duty, TEFC and are rated continuous duty at either 50 Hz or 60 Hz.

Motors for EO4 pumps and smaller (1.0 HP) are single phase and are supplied with 8 ft. line cord with molded plug. Motors for EO5 pumps and larger are three phase.

Level controls are state-of-the-art electronic conductivity type with 316SS probes or float sensors for non-conductive solutions. The level control relay is mounted in a watertight (IP54) PVC enclosure which includes on/off switch with indicating light.

**TO ORDER, use Price Code Number**

Select tank size, pump, configuration and level control from the tables below. Combine selections to form the Model and Price Code Numbers. See optional equipment below.

**EXAMPLE:** TANK + PUMP + CONFIGURATION + LEVEL CONTROL = MODEL & PRICE CODE NO.  
CPS25- + EO1 + -D + C = CPS25-EO1-DC

**TANK**

MODEL & PRICE CODE NO.
CPS7-
CPS11-
CPS14-
CPS18-
CPS25-
CPS30-
CPS37-
CPS44-
CPS56-
CPS75-
CPS90-
CPS115-
CPS150-
CPS270-

**PUMP**

MODEL & PRICE CODE NO.	HP
EO $\frac{3}{4}$	1/8
EO1	.3
EO3	.75
EO4	1.0

MODEL & PRICE CODE NO.	HP
EO5	1.5
EH2	2.0

**CONFIGURATION**

DESCRIPTION	MODEL & PRICE CODE NO.
Simplex	-S
Duplex - Non Alternating	-D
Duplex Alternating	-A

**LEVEL CONTROL**

DESCRIPTION	MODEL & PRICE CODE NO.
Conductivity	C
Float sensors	F

Consult Sales Dept. for custom systems:  
Special tank materials and sizes, special connections, pump selections and additional add-on equipment not listed as optional.

**GENERAL PRODUCT NOTES:**

1. 'EO  $\frac{3}{4}$ ' pump available on sizes CPS7 through CPS37.
2. 'EO1', 'EO3' and 'EO4' pumps available on all sizes except CPS7.
3. 'EO5' and 'EH2' pumps available on sizes CPS56 and larger.
4. Duplex configurations available on sizes CPS18 and larger.
5. All 3-phase pumps and single phase pumps greater than 1.0 HP require motor starters. (See optional equipment.)





# TIPS FOR THE PROPER SELECTION OF SEALS USED IN HORIZONTAL PUMPS

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TP-112

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**Select the seal which offers materials of construction most compatible with the liquid to be pumped, and order as part of pump.**

*See a chemical resistance chart.*

3

## **SINGLE MECHANICAL SEAL**

Located outside the pump housing in the back of the support plate, the seal consists of a stationary ceramic face and cup in contact with the liquid which also lubricates the face of the carbon and bellows which is rotated with the shaft. The seal in this position does not have any metal in contact with the liquid since the spring used to maintain contact of the seal surfaces is external.

## **DOUBLE MECHANICAL SEAL**

Consists of two independent seals mounted within a seal chamber which is flushed with an independent water supply at a flow rate of approximately 2 to 4 gallons per hour minimum and a pressure slightly higher than the maximum expected operating pressure of the pump. Metal components of a double seal assembly do not contact pumped solution. Also, double seal design permits the use of a less exotic inboard seal material, so when replacement is necessary, the replacement seal is less expensive.

The following applications would require a double mechanical seal to minimize the risk of pump failure resulting from the use of a single seal pump. In some instances, it is the only method to pump the solution.

### **ELECTROLESS PLATING SOLUTIONS**

The double seal contains the liquid in the pump and prevents "plating out" onto the inboard seal faces. It is applicable to room temperature or hot solutions.

### **CONCENTRATED CHEMICALS**

Recommended because the water flush on the inboard seal faces reduces the corrosive effect of the solution.

### **HIGH TEMPERATURES**

Water flush cools inboard seal faces and reduces the effect of high temperatures on the seal components and adjacent pump elements.

### **ABRASIVE and CRYSTAL FORMING SOLUTIONS**

The pressurized water flush with double seal pumps prevents the abrasive from adhering to the inboard seal faces. If solutions are left in the pump, crystals do not form on seal faces because they are water flushed. Eliminates seal replacement due to scored faces from both solutions.

### **CONTAINING CRITICAL SOLUTIONS**

For the above reasons, the possibility of seal failure is minimized. However, if seal failure should occur, it will be less frequent and can be immediately determined by analyzing the seal discharge fluid.

## **PUMP PROTECTORS**

*Prevent pump damage due to dry operation of system.*

### **DRI-STOP 2R and 2RE (flow activated)**

Cooling water service for double mechanical seal pumps and vertical pump bearings. Monitors flow and de-energizes motor if flow drops below minimum 4 GPH.

### **DRI-STOP 3 (pressure activated)**

Suitable for chemical solution contact in single mechanical seal and magnetic drive pumps. Senses low pressure on pump discharge to de-energize motor at loss of prime.

### **MODEL P-10**

#### **(digital motor monitor)**

Shuts down pump in the event of dry run, cavitation, damaged impeller, closed inlet or outlet valve or line blockage.





# 'NPSH' NET POSTIVE SUCTION HEAD

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TP-103\_C

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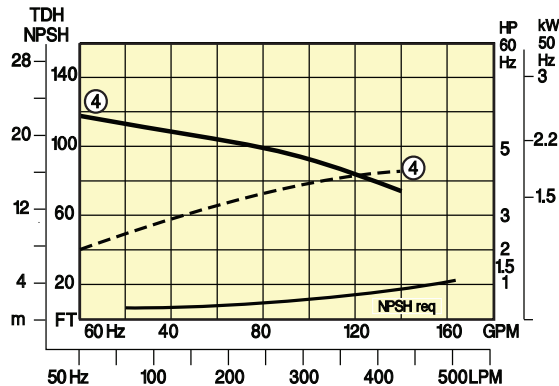
An understanding of net positive suction head (NPSH) is necessary to avoid poor application of centrifugal pumps. NPSH combines all factors limiting the suction side of the pump. It is wise to be concerned with NPSH if one of the following conditions is present:

- High flow and low head relationship
- High temperature
- High elevation above sea level
- Restricted suction (high friction loss)
- Low static suction head (liquid level above pump)
- High suction lift (liquid level below pump)
- High vapor pressure of solution

**REQUIRED NPSH** — Refers to internal pump losses. It is determined by the pump manufacturer's laboratory tests. The greater the pump's capacity, the greater the required NPSH.

For a specific TDH and GPM requirement on a pump curve, the corresponding required NPSH is directly below and read off the left ordinate of flow curves.

**AVAILABLE NPSH** — The net positive suction head above the vapor pressure which is available at the suction flange of a pump to maintain a liquid state.



**Available NPSH must always exceed required NPSH.**

To determine the **available NPSH** in a system, deduct the negative factors from the positive factors. All values are to be in feet, with consideration for specific gravity.

## POSITIVE FACTORS

Static suction head  
Atmospheric pressure  
(if open tank)  
Positive pressure  
(if pressurized tank)

## NEGATIVE FACTORS

Vapor pressure (PSIA)  
at operating  
temperature  
Friction losses  
Static suction lift  
(including specific  
gravity)

minus

## EXAMPLES

Model HE2x1½ with No. 4 impeller will flow 140 GPM @ 62 ft. TDH. The required NPSH is 17 ft.

**EXAMPLE A** If a pump is connected by a 2" suction pipe one foot long, to the bottom of a 6 ft. deep tank in Chicago, Illinois (500 ft. elevation), and the tank contains water at 70°F, what is the **available NPSH**?

	POSITIVE		NEGATIVE	
	Static suction head	6'	Vapor pressure	.8'
	Atmospheric pressure	33'	Friction losses	.6'
	Total	39'	Total	1.4'
39' - 1.4' = 37.6' available NPSH				

Since the required NPSH is 17 ft., the pump will perform satisfactorily. (Note, if the pump were "hosed" over the side of the tank, static suction head would be the same, but friction losses would increase).

**EXAMPLE B** If a pump is connected by a 2" suction pipe 10 ft. long, with 3 elbows, near the top of a 6 ft. deep tank in Denver, Colorado (5,000 ft. elevation), and the tank contains water at 170°F, what is the **available NPSH**?

	POSITIVE		NEGATIVE	
	Static suction head	1'	Vapor pressure	13.8'
	Atmospheric pressure	28'	Friction losses	16.0'
	Total	29'	Total	29.8'
29' minus 29.8' = none available				

Since the required NPSH is 17 ft. and none is available, the pump will experience a reduction in capacity, loss of efficiency, noise, vibration and cavitation. Net answer: This is a poor application.



# SERIES 'HH' HORIZONTAL PUMPS

70

P-206\_B

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## HIGH DISCHARGE HEAD PERFORMANCE

*For transfer pumping and recirculation of:*

3



Optional Pedestal Mounted

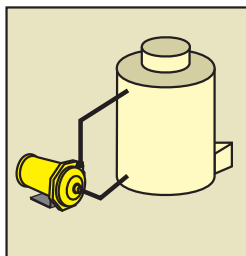
### D.I. WATER / PHOTO PROCESSING PLATING / ETCHING / ELECTRONICS WATER TREATMENT / ACID TRANSFER

- **Flows to 68 U.S. GPM or 167 ft. TDH @ 60 Hz**  
(215 LPM or 35m @ 50 Hz)
- **Non-metallic solution contact**  
CPVC - 140° max  
PVDF - 200° max  
(See a chemical resistance chart)
- **Single mechanical seal**  
Carbon/ceramic with EPDM or Viton elastomers
- **Connections:**  
1" MNPT inlet x 3/4" MNPT outlet
- **Maximum solid size -15" outlet**

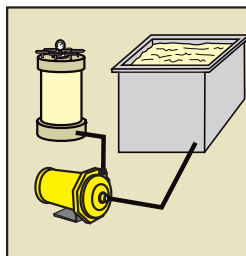
**Series 'HH' Pumps** are molded of natural CPVC or natural PVDF. They feature a volute designed for high TDH at high efficiency and all around optimum performance. The unique sleeved impeller design and non-metallic internally mounted mechanical seal combine to provide a compact assembly offering non-metallic solution contact.

Five impeller diameters provide a full range of flow and head performance with efficient use of motor horsepower. Motors are standard NEMA 56C, TEFC. For explosion-proof motors, consult Sales Department.

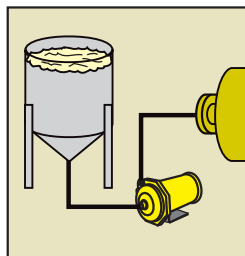
Pedestal mounted pump assemblies are available for ½ to 5 HP standard end bell motors. An optional long-coupled kit includes cast iron bearing, pedestal frame, flexible coupling, guard and FRP mounting channel.



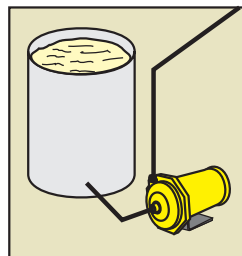
FUME  
SCRUBBER



FILTRATION  
SYSTEM  
CHEMICAL



PROCESS  
SOLUTION



TRANSFER



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**TO ORDER, use Price Code No.**

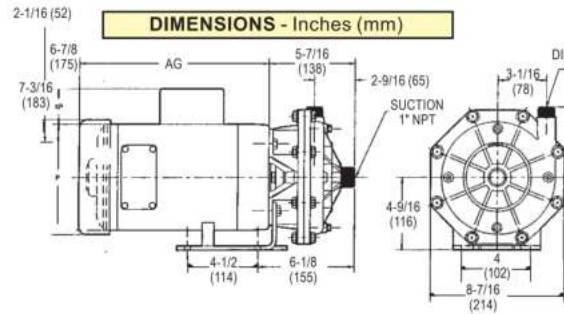
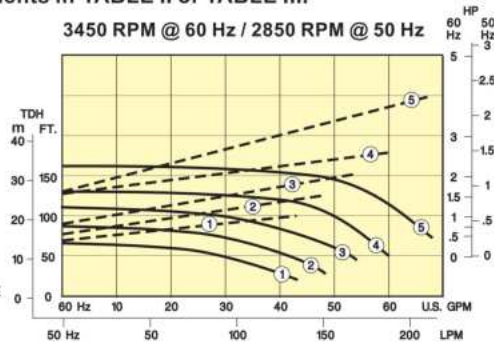
For standard pump-motor combination, select model from TABLE I.

For custom pump-motor combination, select from components in TABLE II or TABLE III.

**TABLE I** Select pump-motor model or flow curve number providing the desired performance.

FLOW CURVE	CPVC PUMP w/EPDM MODEL NUMBER	PRICE CODE NO.
1	HH1x3/4C1L(M1)-D1.0	61-5111G
2	HH1x3/4C2L(M1)-D1.5	61-5121H
3	HH1x3/4C3L(M1)-D2.0	61-5131J
4	HH1x3/4C4L(M1)-D3.0	61-5141K
5	Long-coupled only. See TABLE III.	

3450 RPM @ 60 Hz / 2850 RPM @ 50 Hz



NOTE: Motor dimensions may vary

HORSE-POWER	MOTOR DIMENSIONS (AG)	
	Inches	mm
1/2	8-3/4	222
3/4	9-1/4	235
1	9-3/4	248
1-1/2	10-1/2	267
2	11-1/8	282
3	12-3/8	314

**TABLE II** To determine pump model for a specified GPM, TDH, material and specific gravity, select performance point on curve. Determine required HP by moving vertically to corresponding number dotted line. Read the required HP at right ordinate and multiply by S.G. Select pump, impeller and motor and construct Model and Price Code No.

Typical Model: HH1x3/4C1L(M1)-C.5 = Price Code No. 61-5111A

PUMP <sup>1</sup>		
MODEL	MATERIAL	PRICE CODE NO.
HH1x3/4C	CPVC	61-51
HH1x3/4K	PVDF	61-52

IMPELLER	
CURVE NUMBER	ADD TO MODEL & PCN
1	1
2	2
3	3
4	4
5	5

"O"-RING & MECHANICAL SEAL		
CARBON / CERAMIC & EPDM VITON	ADD TO MODEL PCN	
	MODEL	PCN
	L(M1)	1
	V(M2)	2

MOTOR - TEFC <sup>2</sup> , 3450 RPM @ 60 Hz						
HP	SINGLE PHASE <sup>4</sup>		THREE PHASE <sup>4</sup>		MOTOR <sup>3</sup>	
	MODEL NO.	PRICE CODE NO.	MODEL NO.	PRICE CODE NO.	Lbs.	kg.
.5	C.5	A	D.75	G	27	12
.75	C.75	B	D1.0	H	32	14
1.0	C1.0	C	D1.5	J	37	17
1.5	C1.5	D	D2.0	K	45	20
2.0	C2.0	L	D3.0	18	65	30
3.0	C3.0	—	E	22	8	8
5.0	See TABLE III.				10	

<sup>1</sup> To order pump only (without motor), delete motor suffix from Model Number and Price Code Number.<sup>2</sup> For explosion-proof motors, consult Sales Department.<sup>3</sup> For shipping weight of pump-motor assembly, add 5 lbs. (3 kg.) to motor ship. wt.<sup>4</sup> Single phase - 115-208-230V/1/60 or 220-440V/1/50

Three phase - 208-230-460V/3/60 or 380-415V/3/50

For 50 Hz, add -50 to Model No. and add 5 to Price Code No.

A DRI-STOP<sup>®</sup> 3 Pump Protector switch is available to prevent damage to pump due to dry operation. Consult Bulletin A-105.**TABLE III** 1. Select pump only from TABLE II above, e. g. HH1x3/4C5V(M2)  
2. Select appropriate long-coupled kit from chart below.  
3. Select motor from chart at right.  
4. For factory assembly, add motor mounting and alignment, PCN 42-0204.  
5. To order above example: 61-5152 + 42-0201F + 44-7362 + 42-0204.

LONG-COUPLED KIT		
MODEL NUMBER	FOR MOTOR FRAME	PRICE CODE NO.
LCK-1	182/4 T	42-0201F
LCK-2	143/5 T	42-0202F
LCK-3	56	42-0203F

MOTOR <sup>3</sup> TEFC, 3450 RPM @ 60 Hz			
HP	PRICE CODE NUMBER		MOTOR FRAME
	115-230V/1/60	230-460V/3/60	
.5	64-0761	64-0735	56
.75	64-0762	64-0736	56
1.0	64-0796	64-0737	56
1.5	64-0799	64-0738	56
2.0	64-0763	64-0739	56
3.0	—	44-7133	145T
5.0	—	44-7362	184T

For elbows, pipe, gaskets, clamps, motor starters, BSP fittings or adapters, consult Sales Department.





## SERIES 'HC' HORIZONTAL PUMPS

72

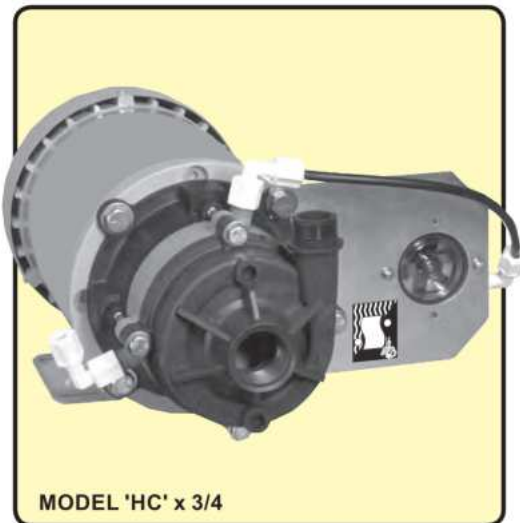
P-204

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**High Efficiency and Low Energy usage for:**

Wastes | Acids | Plating | Chemicals | Photographic | Etching | Scrubbing

3



MODEL 'HC' x 3/4

*Shown with double mechanical water-flush seal and available DRI-STOP 2R*

- **Flows to 35 U.S. GPM or 48 FT. TDH @ 60 Hz**  
(110 LPM or 10m @ 50 Hz)
- **Non-metallic solution contact**  
- CPVC or 100% PVDF  
(See a chemical resistance chart)
- **Single or double mechanical seal**  
Carbon/ceramic or silicon carbide  
EPDM or Viton® elastomers
- **Centrifugal — quiet, vibration-free**
- **Standard models provide non-overloading full flow with liquids to 1.2 S.G.**
- **Chemical duty motor (1/3 - 3/4 HP)**  
Sealed oversized bearings, cast iron end bells  
Corrosion resistant two-part epoxy enamel finish, stainless steel name plate  
1.15 service factor at 50 and 60 Hz

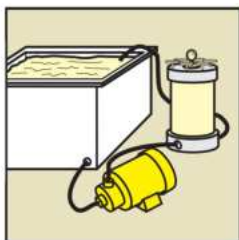
**Series 'HC' Horizontal Pumps** feature "total" chemical resistance with non-metallic construction of all wetted components. The molded, semi-enclosed impellers are designed to provide maximum pumping efficiency. These pumps feature external single seal or double water-flushed mechanical seal with choice of EPDM or Viton elastomer materials.

Available close-coupled to minimize size or long-coupled with bearing pedestal base plate and motor. All close-coupled pumps are driven by chemical duty motors suitable for continuous duty in corrosive environments.

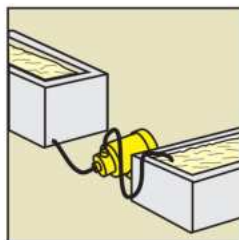
Pumps are ideal for transferring and recirculating industrial solutions, plating solutions, process chemicals and other fluid handling applications.



FUME SCRUBBING



CLEANING & DESCALING



WASTE TREATMENT



SOLUTION TRANSFER  
w/PRIMING CHAMBER

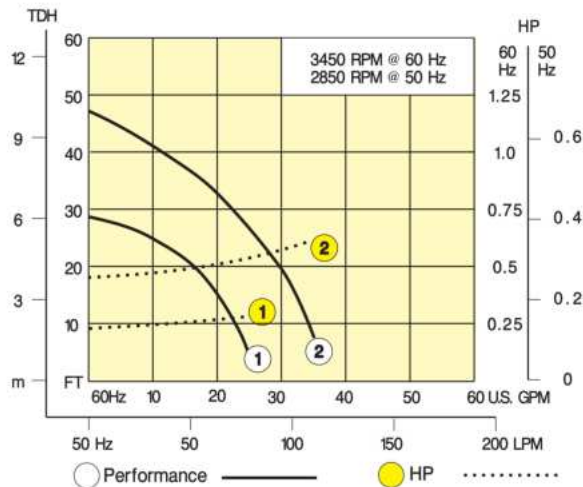
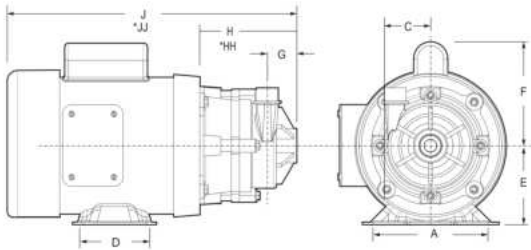
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**Series 'HC' pumps** have 1" FNPT suction x 3/4" MNPT discharge and are available in CPVC or 100% PVDF. Elastomers are Viton or EPDM.

All models utilize a molded, semi-enclosed impeller. Mechanical seal is externally mounted and not in solution contact. Double water flushed mechanical seal is recommended for applications where abrasives or salts are present, or for conditions where metal deposition will occur. In addition, double water flush sealed pumps will permit dry run operation.

Mechanical seals are available with carbon/ceramic or all silicon carbide seal faces.

Motors are chemical duty with sealed oversize bearings, cast iron end bells, two-part epoxy finish, and stainless steel tag. Motors are rated with 1.15 service factor at 50 or 60 Hz.

**DIMENSIONS****MODEL HC1 x 3/4**

DIMENSIONS						
	A	B	C	D	E	F
Inches (mm)	4-7/8 (124)	9 (229)	1-11/16 (43)	3 (76)	3-1/2 (89)	2-3/4 (70)

G	H	* HH	J	* JJ
1-13/32 (36)	4-5/16 (110)	5-7/32 (133)	13-1/16 (332)	14 (356)

\* HH and JJ are double seal dimensions.

**ORDERING INFORMATION****TABLE I**

Select flow curve with desired performance. Select CPVC or PVDF. All models have carbon/SF<sup>1</sup> ceramic seal, Viton elastomers, and single phase motor. Motor HP is non-overloading for full flow at 1.2 S.G.

CPVC SINGLE SEAL			CPVC DOUBLE SEAL	
CURVE	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
1	HC1 x 3/4C1V(M2) C.3	47-0612 A	HC1 x 3/4C1V(M2 x M1) C.3	47-0615 A
2	HC1 x 3/4C2V(M2) C.75	47-0622 C	HC1 x 3/4C2V(M2 x M1) C.75	47-0625 C
PVDF SINGLE SEAL			PVDF DOUBLE SEAL	
1	HC1 x 3/4K1V(M2) C.3	47-0712 A	HC1 x 3/4K1V(M2 x M1) C.3	47-0715 A
2	HC1 x 3/4K2V(M2) C.75	47-0722 C	HC1 x 3/4K2V(M2 x M1) C.75	47-0725 C

<sup>1</sup> SF= Silica-free ceramic.





**ORDERING INFORMATION** *Con't*

**TABLE II**

*To construct model/price code number for pump with EPDM elastomers, SiC seal, three phase motor or increased horsepower, see chart below. Use price code number to order.*

**EXAMPLE:**

PUMP + IMPELLER + ELASTOMER & MECHANICAL SEAL + MOTOR = PRICE CODE NO.  
 HC1x3/4C + 2 + V(M8 x M1) + C.75 = 47-0628 C

PUMP				
MATERIAL	MODEL	PRICE CODE NO.		
CPVC	HC1 x 3/4C	47-06		
100% PVDF	HC1 x 3/4K	47-07		

IMPELLER	
FLOW CURVE	ADD TO MODEL & PCN
1	1
2	2

MOTOR - TEFC					PUMP & MOTOR SHIP. WT. (Lbs.)
HP	I-PHASE <sup>2</sup>		3-PHASE <sup>3</sup>		
	MODEL	PCN	MODEL	PCN	
1/3	-C.3	A	-D.3	B	
3/4	-C.75	C	-D.75	D	

"O"-RING MECHANICAL SEAL		
MATERIAL (SOLUTION CONTACT)	ADD TO. . .	
	MODEL	PCN
<u>SINGLE SEAL</u>		
EPDM, carbon SF <sup>1</sup> ceramic	L(M1)	1
EPDM, silicon, carbide	L(M8)	0
Viton, carbon SF <sup>1</sup> ceramic	V(M2)	2
Viton, silicon carbide	V(M8)	7
<u>DOUBLE SEAL</u>		
EPDM, carbon SF <sup>1</sup> ceramic	L(M1xM1)	4
EPDM, silicon, carbide	L(M8xM1)	9
Viton, carbon SF <sup>1</sup> ceramic	V(M2xM1)	5
Viton, silicon carbide	V(M8xM1)	8

<sup>1</sup> SF= Silica-free ceramic.

<sup>2</sup> Single Phase  
115-190-230V/1/50-60

<sup>3</sup> Three Phase  
230-460V/3/50-60 or 380-415V/3/50

<sup>1</sup> SF= Silica-free ceramic.

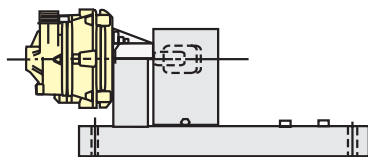
<sup>2</sup> Single Phase  
115-190-230V/1/50-60

<sup>3</sup> Three Phase  
230-460V/3/50-60 or 380-415V/3/50

**OPTIONAL**

**LONG-COUPLED KIT**

Long-Coupled Kit includes plastic bearing pedestal frame, fiberglass reinforced channel (23.5" x 10" x 2.75"), flexible coupling and guard, and stainless steel fasteners. To order unit assembled with motor, add 42-0204.



TO ORDER LONG COUPLED KIT	ADD TO MODEL NO.	PRICE CODE NO.
For 56 frame (HC1 x 3/4 pump)	- LCK-1	42-0210
Assembled with motor		42-0204

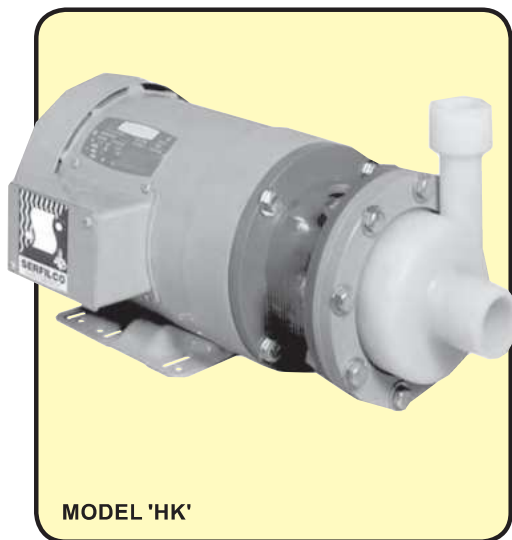


## SERIES 'HK' HORIZONTAL PUMPS

75

P-205

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MODEL 'HK'

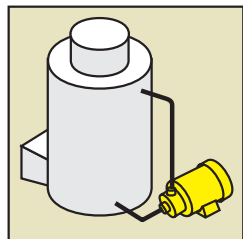
- **Flows to 78 U.S. GPM or 53 FT. TDH @ 60 Hz**  
(246 LPM or 11m @ 50 Hz)
- **Non-metallic solution contact**  
- CPVC or 100% PVDF  
(See a chemical resistance chart)
- **Single or double mechanical seal**  
Carbon/ceramic or silicon carbide  
EPDM or Viton® elastomers
- **Centrifugal — quiet, vibration-free**
- **Standard models provide non-overloading full flow with liquids to 1.2 S.G.**
- **Chemical duty motor (1 - 1 1/2 HP)**  
Sealed oversized bearings, cast iron end bells  
Corrosion resistant two-part epoxy enamel finish,  
stainless steel name plate  
1.15 service factor at 50 and 60 Hz



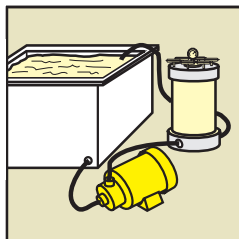
**Series 'HK' Horizontal Pumps** feature "total" chemical resistance with non-metallic construction of all wetted components. The molded, semi-enclosed impellers are designed to provide maximum pumping efficiency. These pumps feature external single seal or double water-flushed mechanical seal with choice of EPDM or Viton elastomer materials.

Available close-coupled to minimize size or long-coupled with bearing pedestal base plate and motor. All close-coupled pumps are driven by chemical duty motors suitable for continuous duty in corrosive environments.

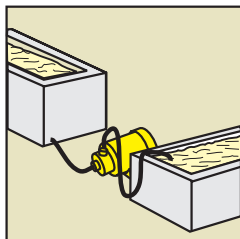
Pumps are ideal for transferring and recirculating industrial solutions, plating solutions, process chemicals and other fluid handling applications.



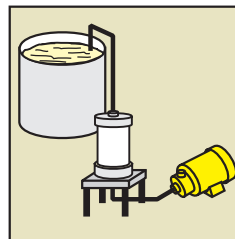
FUME SCRUBBING



CLEANING & DESCALING



WASTE TREATMENT



SOLUTION TRANSFER  
w/PRIMING CHAMBER

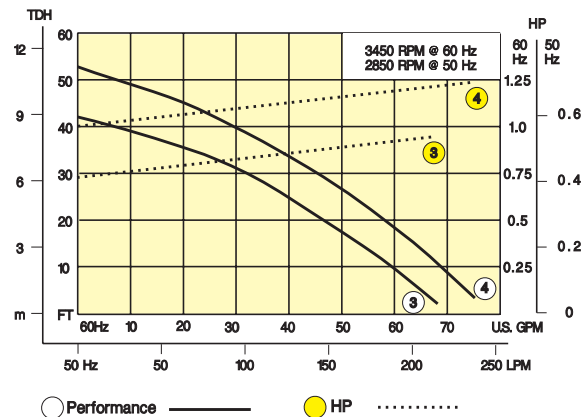
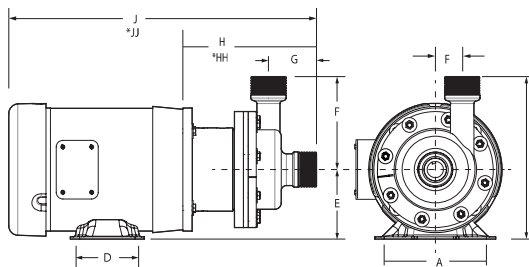
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Series 'HK' Pumps have 1½" MNPT suction x 1½" MNPT discharge and are available in CPVC with PVDF suction casing or 100% PVDF. Elastomers are Viton, or EPDM.

All models utilize a molded, semi-enclosed impeller. Mechanical seal is Type 21, externally mounted and not in solution contact. Double water flushed mechanical seal is recommended for applications where abrasives or salts are present, or for conditions where metal deposition will occur. In addition, double water flush sealed pumps will permit dry run operation.

Mechanical seals are available with carbon/ceramic or all silicon carbide seal faces.

Motors are chemical duty with sealed oversize bearings, cast iron end bells, two-part epoxy finish, and stainless steel tag. Motors are rated with 1.15 service factor at 50 or 60 Hz.

**DIMENSIONS****MODEL HK1-1/2x1-1/2**

DIMENSIONS						
	A	B	C	D	E	F
Inches	5-1/2	9	1-1/2	4	3-1/2	5
(mm)	(140)	(229)	(38)	(102)	(89)	(127)

G	H	* HH	J	* JJ
2-9/16	7-1/4	7-1/4	18-1/4	18-1/4
(65)	(184)	(184)	(464)	(464)

\* HH and JJ are double seal dimensions.

**ORDERING INFORMATION****TABLE I**

Select flow curve with desired performance. Select CPVC or PVDF. All models have carbon/SF<sup>1</sup> ceramic seal, Viton elastomers, and three phase motor. Motor HP is non-overloading for full flow at 1.2 S.G.

CURVE	CPVC SINGLE SEAL		CPVC DOUBLE SEAL	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
3	HK1½ x 1½CK3V(M2) D1.0	47-0832 F	HK1½ x 1½CK3V(M2 X M1) D1.0	47-0835 F
4	HK1½ x 1½CK4V(M2) D1.5	47-0842 H	HK1½ x 1½CK4V(M2 x M1) D1.5	47-0845 H
	PVDF SINGLE SEAL		PVDF DOUBLE SEAL	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
3	HK1½ x 1½K3V(M2) D1.0	47-0932 F	HK1½ x 1½K3V(M2 x M1) D1.0	47-0935 F
4	HK1½ x 1½K4V(M2) D1.5	47-0942 H	HK1½ x 1½K4V(M2 x M1) D1.5	47-0945 H

<sup>1</sup> SF= Silica-free ceramic.





# SERIES 'HN' HORIZONTAL PUMPS

78

P-111\_A

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## RELIABLE CORROSION-RESISTANT PUMPS FOR

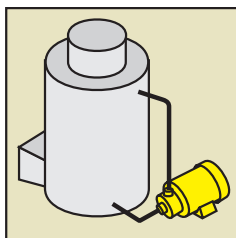
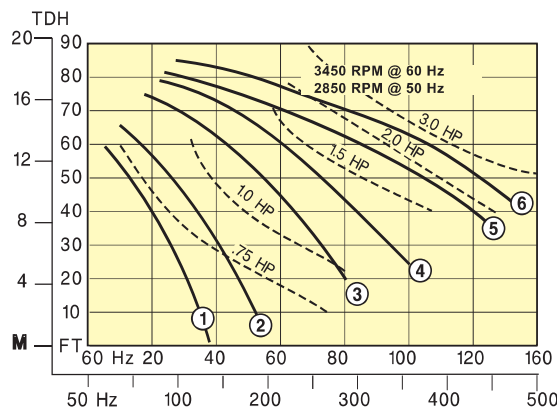
### ACID / PHOTO PROCESSING PLATING / SCRUBBING WASTES AND WASTE WATER

- **Flows to 135 U.S. GPM or 88 ft. TDH @ 60 Hz**  
(425 LPM or 19 M @ 50 Hz)
- **Non-metallic solution contact**  
30% glass-filled Noryl®  
(See a chemical resistance chart)
- **Single mechanical seal**  
carbon / silica-free ceramic  
EPDM or Viton® elastomers
- **Centrifugal — quiet, vibration-free**
- **1½" x 1½" FNPT connections**
- **Back pull-out design, easy assembly and maintenance**

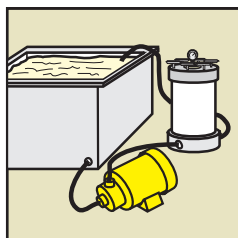
The Series 'HN' Pump is capable of "total" chemical resistance, both internally and externally with its non-metallic construction of all wetted components. Engineering grade thermoplastics provide application compatibility with a variety of chemicals that would be corrosive to other materials of construction.

The totally enclosed impeller is molded to close tolerances which allow this pump to operate at peak horsepower efficiency across a broad range of operational flow/head requirements.

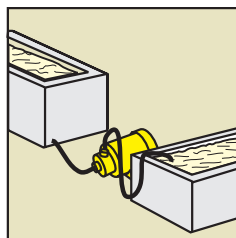
The unique mechanical seal eliminates any metal in contact with the solution pumped. All of these features allow this pump to properly handle many applications at a fraction of the cost of exotic alloys.



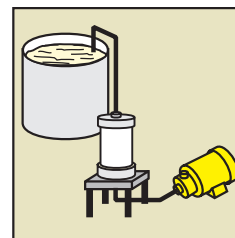
PRESSURE



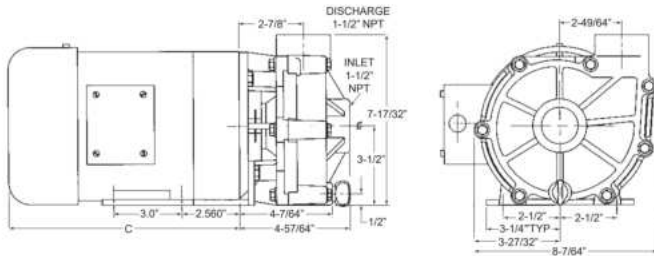
FILTER



WASTE



SOLUTION TRANSFER

**DIMENSIONS**

HP	Typical "C" dimensions of TEFC motor and wt. of pump / motor unit.	
	1 Phase	3 Phase
3/4	10.25" 35 lbs.	9.38" 30 lbs.
1	11.25" 44 lbs.	9.38" 33 lbs.
1.5	11.50" 49 lbs.	10.25" 35 lbs.
2	12.25" 55 lbs.	11.38" 44 lbs.
3	— —	12.13" 54 lbs.

Motor dimensions may vary.

**TO ORDER, use Price Code No.****TABLE I - Complete Noryl pump & motor**

FLOW CURVE NO.	MAX. FLOW		MAX. TDH		EPDM - carbon / ceramic SEAL		VITON - carbon / ceramic SEAL	
	GPM @ 60 Hz	l/m @ 50 Hz	FT.	M	MODEL NO.	PRICE CODE NO.	MODEL NO.	PRICE CODE NO.
1	36	113	65	14	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE1L(M1)-D.75	42-1011 F	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE1V(M2)-D.75	42-1012 F
2	54	170	72	15	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE2L(M1)-D1.0	42-1021 G	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE2V(M2)-D1.0	42-1022 G
3	80	236	78	15	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE3L(M1)-D1.5	42-1031 H	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE3V(M2)-D1.5	42-1032 H
4	100	308	84	18	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE4L(M1)-D1.5	42-1041 H	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE4V(M2)-D1.5	42-1042 H
5	124	390	85	18	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE5L(M1)-D2.0	42-1051 J	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE5V(M2)-D2.0	42-1052 J
6	135	425	88	19	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE6L(M1)-D3.0	42-1061 K	H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ NE6V(M2)-D3.0	42-1062 K

**NOTE:** Motors are 230-460V / 3 $\phi$  / 60 Hz. See Table II for 1 $\phi$  and / or other HP**TABLE II - Select pump components**

**EXAMPLE:** Model H1 $\frac{1}{2}$  x 1 $\frac{1}{2}$  Material N Impeller E Curve 3 Seal V(M2) Motor -C1.5 = Price Code No. 42-1032 C

PUMP		MAT'L of CONSTRUCTION		IMPELLER TYPE		FLOW CURVE	SEAL		HP	MOTOR 115-230V / 1 / 60		MOTOR 230-460V / 3 / 60	
MODEL	PCN	MODEL	PCN	MODEL	PCN		MODEL			MODEL TEFC	PRICE CODE	MODEL TEFC	PRICE CODE
H1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ Horizontal 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ FTPT connections	42-	N	1	E	0	1	L (M1)	1	.75	-C.75	A	-D.75	F
						2	EPDM		1.0	-C1.0	B	-D1.0	G
						3	Carb./ ceramic		1.5	-C1.5	C	-D1.5	H
						4	V (M2)	2	2.0	-C2.0	D	-D2.0	J
						5	Viton		3.0	-C3.0	E	-D3.0	K
						6	Carb. / ceramic						

Consult Sales Dept. for 50 Hz or other motors.





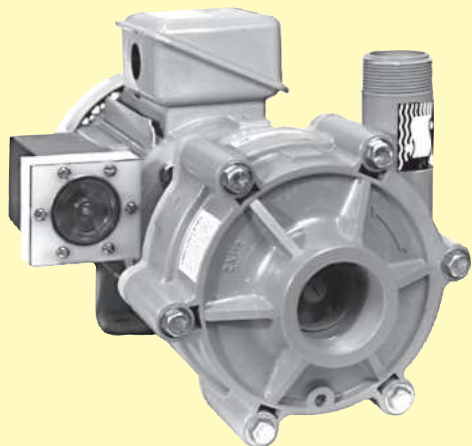
# SERIES 'HE' HORIZONTAL PUMP

80

P-201\_T

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3



SERIES 'HE' SHOWN WITH 'DRI-STOP' PROTECTION,  
TO PREVENT DAMAGE FROM DRY OPERATION

## ENERGY SAVING CENTRIFUGAL PUMPS FOR:

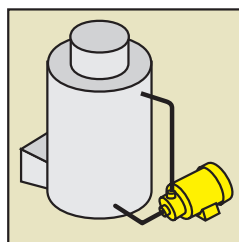
**ACID / AQUEOUS / CAUSTIC  
CHEMICAL / ETCHING / PHOTOGRAPHIC  
PLATING / SCRUBBING / WASTES**

- **Flows to 175 U.S. GPM or 130 ft. TDH @ 60 Hz**  
(552 LPM or 28 M @ 50 Hz)
- **Non-metallic solution contact**  
High temperature polypropylene, CPVC, PVDF or ECTFE (*Refer to a chemical resistance chart*)
- **Single or double mechanical seal,**  
carbon/ceramic, or silicon carbide with EPDM or Viton® elastomers
- **Centrifugal - quiet, vibration-free**
- **NPT or metric connections available**
- **Pump casing indexes to six directions of discharge**
- **Chemical duty motor (1.0 - 7.5 HP)**  
Sealed oversized bearings, liquid/vapor seal and slinger, cast iron end bells, corrosion resistant two-part epoxy finish, stainless steel nameplate, 1.15 service factor at 50 or 60 Hz.

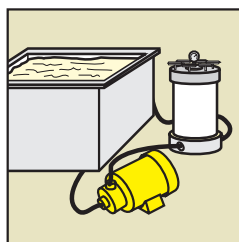
Here is a pump capable of "total" chemical resistance, both internally and externally with its non-metallic construction of all wetted components, choice of seal assembly and elastomer materials. The use of engineered plastics in a choice of materials provide excellent chemical compatibility for the most demanding applications.

The totally enclosed impeller is molded to close tolerances which allow this pump to operate at peak horsepower efficiency across a broad range of operational flow/head requirements

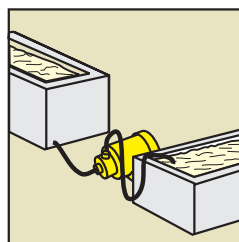
The external mechanical seal and impeller sleeve design isolates metal components to provide non-metallic solution contact with the pumped solution. The standard (M8) seal assembly has silicon carbide seal faces and is the most durable and longest lasting mechanical seal available. The double mechanical seal models require water lubrication of the seal faces and allows the pump to be used for solutions containing abrasives, high salt concentrations and for electroless plating solutions. Either Viton or EPDM elastomers are available on the 'HE' pump.



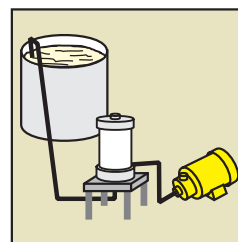
PRESSURE  
SPRAYING



FILTER  
SYSTEM



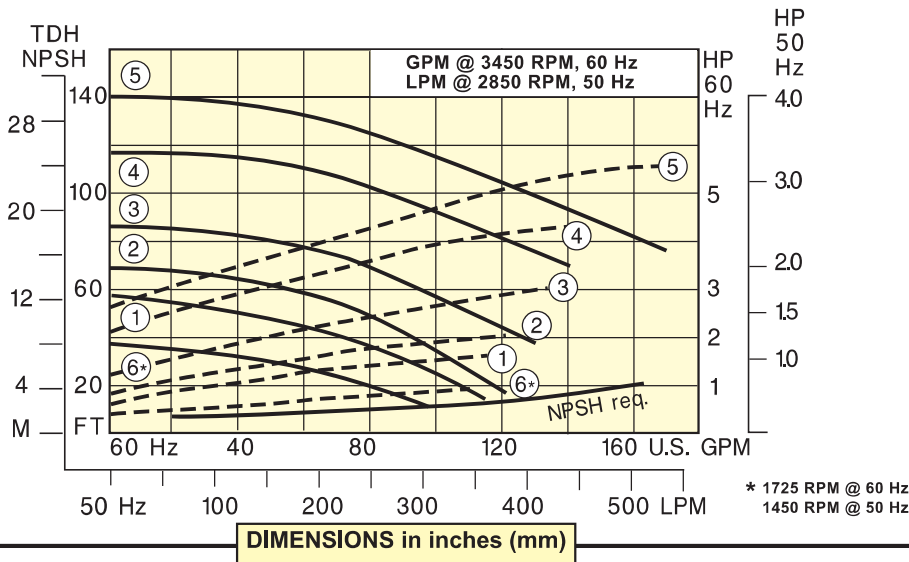
WASTE  
TREATMENT



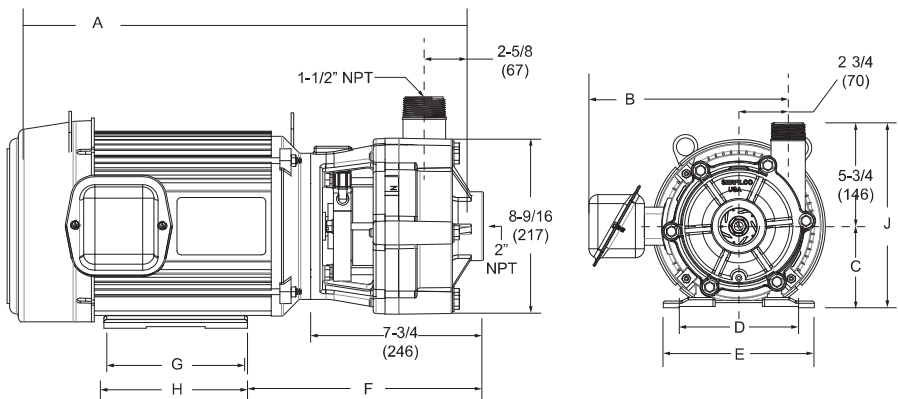
SOLUTION TRANSFER  
w/PRIMING CHAMBER



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DIMENSIONS in inches (mm)



DIMENSIONS for NEMA motors are in inches and those for metric motors are in mm.

											MOTOR WT.*
											Lbs.
NEMA	MOTOR HP	A	B	C	D	E	F	G	H	J	
	1.5 (& 1 @ 1725 RPM)	16.94	8.63	3.5	5.5	6.75	10.5	4	4.75	9.25	43
	2 (& 1.5 @ 1725 RPM)	18	8.63	3.5	5.5	6.75	10.5	5	5.75	9.25	44
	3	19.63	9.63	4.5	7.5	9	11.25	4.5	5.5	10.25	50
	5	21	9.63	4.5	7.5	9	11.25	5.5	6.5	10.25	65
	7.5	21	9.63	4.5	7.5	9	11.25	5.5	6.5	10.25	110
METRIC	MOTOR KW	A	B	C	D	E	F	G	H	J	Kg.
	1.5 (90S frame)	496	212	90	140	170	307	100	125	236	23
	2.2 (90L frame)	521	212	90	140	170	307	125	150	236	25
	3.0 (100 frame)	549	236	100	160	197	314	140	172	246	30

\*For shipping weight, add 15 lbs (6.8 Kg.) to motor weight.



Standard models are constructed of CPVC, polypropylene, PVDF, or ECTFE with threaded connections. The motor shaft is protected by the impeller sleeve assembly. Elastomers are EPDM or Viton. Impellers are enclosed. The mechanical seal is type 21, externally mounted with stainless steel components not in solution contact. A double mechanical seal is recommended for solutions

containing abrasives and for high temperature or other critical service. Close coupled motors are NEMA 'JM' or metric (IEC) standard. The motors designated NEMA can operate on 50 or 60 Hz at full rated horsepower. Consult Application Engineering Department for BSP fittings or adapters.

**ORDERING INFORMATION**

*For standard CPVC, PP, PVDF, and ECTFE pump-motor combination, select model from TABLE 1.*

*For other pump-motor combinations, select from TABLE II.*

**TABLE I STANDARD MODELS**

Select flow curve number providing the desired performance. Then match to Model Number listed below. Standard models include silicon carbide single mechanical seal with EPDM or Viton elastomers. Motor HP is non-overloading at full capacity with 1.1 specific gravity fluids.

FLOW CURVE NO.	CPVC/EPDM	PRICE CODE NUMBER	POLYPROPYLENE**/EPDM	PRICE CODE NUMBER
	MODEL NO.		MODEL NO.	
1	H2 x 1½ CE1L(M8) -D1.5	42-0110A	H2 x 1½ PE1L(M8) -D1.5	42-0410A
2	H2 x 1½ CE2L(M8) -D2.0	42-0120B	H2 x 1½ PE2L(M8) -D2.0	42-0420B
3	H2 x 1½ CE3L(M8) -D3.0	42-0130C	H2 x 1½ PE3L(M8) -D3.0	42-0430C
4	H2 x 1½ CE4L(M8) -D5.0	42-0140D	H2 x 1½ PE4L(M8) -D5.0	42-0440D
5	H2 x 1½ CE5L(M8) -D7.5	42-0150E	H2 x 1½ PE5L(M8) -D7.5	42-0450E
6	H2 x 1½ CE6L(M8) -H1.0	42-0160F	H2 x 1½ PE6L(M8) -H1.0	42-0460F

FLOW CURVE NO.	PVDF/Viton	PRICE CODE NUMBER	ECTFE/EPDM	PRICE CODE NUMBER
	MODEL NO.		MODEL NO.	
1	H2 x 1½ KE1V(M8) -D1.5	42-0318A	H2 x 1½ HE1L(M8) -D1.5	42-0610A
2	H2 x 1½ KE2V(M8) -D2.0	42-0328B	H2 x 1½ HE2L(M8) -D2.0	42-0620B
3	H2 x 1½ KE3V(M8) -D3.0	42-0338C	H2 x 1½ HE3L(M8) -D3.0	42-0630C
4	H2 x 1½ KE4V(M8) -D5.0	42-0348D	H2 x 1½ HE4L(M8) -D5.0	42-0640D
5	H2 x 1½ KE5V(M8) -D7.5	42-0358E	H2 x 1½ HE5L(M8) -D7.5	42-0650E
6	H2 x 1½ KE6V(M8) -H1.0	42-0368F	H2 x 1½ HE6L(M8) -H1.0	42-0660F

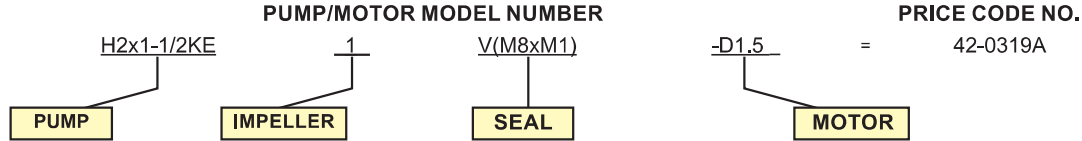
\*\* Polypropylene models are glass reinforced

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**TO ORDER FROM TABLE II**

To determine pump-motor for a selected GPM, TDH and/or specific gravity, select flow/pressure point on curve. Required HP is determined by moving vertically to corresponding dotted line and then horizontally to HP scale. Multiply indicated HP by specific gravity. Select pump materials and mechanical seal(s) and construct Model and Price Code No.

**TABLE II**

EXAMPLE



PUMP	PRICE CODE NO.	FLOW CURVE NO.	ADD TO . . .		'O'-RING & MECHANICAL SEAL MATERIAL (SOLUTION CONTACT)	ADD TO . . .		RPM	TEFC 208-230/460/3/60 or 190/380-415/3/50	
			MODEL NO.	PRICE		MODEL NUMBER	PRICE CODE NO.		NEMA MOTORS	
CPVC H2 x 1-1/2CE	42-01	1	1	1	SINGLE MECHANICAL SEAL			3450 or 2850	ADD TO . . .	
PVDF H2 x 1-1/2KE	42-03	2	2	2	EPDM CARBON/CERAMIC*	L(M1)	1		HP MODEL NUMBER	PRICE CODE NUMBER
POLYPROP. H2 x 1-1/2PE	42-04	3	3	3	EPDM SILICON CARBIDE	L(M8)	0			
ECTFE H2X1-1/2HE	42-06	4	4	4	VITON CARBON/CERAMIC*	V(M2)	2			
		5	5	5	VITON SILICON CARBIDE	V(M8)	8			
		6	6	6	DOUBLE MECHANICAL SEAL**			1725 or 1450	D1.5 D2.0 D3.0 D5.0 D7.5	A B C D E
					EPDM CARBON/CERAMIC*	L(M1xM1)	5			
					EPDM SILICON CARBIDE	L(M8xM1)	4			
					VITON CARBON/CERAMIC*	V(M2xM1)	6		H1.0 H1.5	F G
					VITON SILICON CARBIDE	V(M8xM1)	9			

\*Ceramic is silica free

\*\* ADRI-STOP pressure switch is available to prevent damage to pump due to dry operation; consult Bulletin A-105.

**OPTIONAL**

DESCRIPTION		PRICE CODE NUMBER
FLANGE CONNECTIONS	CPVC	42-0200
ANSI 150 Lbs. (ASA 150) 2"x1-1/2"	PVDF	42-0211
(not installed)	Polypropylene	42-0218
STAINLESS STEEL SHAFT		42-0230
METRIC PIPE ADAPTER SETS	Consult Application Sales Dept.	

LONG COUPLED KIT		
MODEL	FOR MOTOR FRAME	PRICE CODE NUMBER
LCK-1	182T & 184T	42-0201A
LCK-2	143T & 145T	42-0202A
LCK-3	56	42-0203A
LCK-4	182 & 184	42-0205A
MOTOR MOUNTING & ALIGNMENT		42-0204

Long-coupled kit includes cast iron bearing pedestal frame, fiberglass reinforced channel (23-1/2" x 10" x 2-3/4"), flexible coupling and guard, and stainless steel shaft and fasteners. (Order pump separately)



# SERIES 'HF' HORIZONTAL PUMP

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P-208\_B

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3



*Available with optional flange connections and long-coupled.*

## HIGH FLOW, HIGH TDH ANSI DIMENSIONAL HIGH EFFICIENCY /LOW ENERGY USAGE

- **Flows to 400 U.S. GPM or 160 ft. TDH @ 60 Hz**  
(1250 L/min or 37 m @ 50 Hz)
- **Non-metallic solution contact**  
**High-temperature polypropylene or CPVC**  
(Refer to a chemical resistance chart)
- **Centrifugal – quiet, vibration free**
- **Choice of single or double mechanical seal**  
with EPDM or Viton® elastomers
- **Choice of long or close-coupled**
- **Chemical Duty motor – standard**  
Sealed oversized bearings, cast iron end bells,  
corrosion resistant two-part epoxy coating, stainless  
steel nameplate
- **ANSI dimensional — with optional flanges**

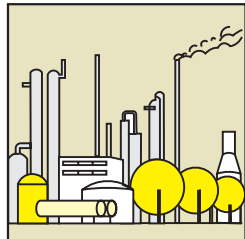
The Series 'HF' Horizontal Pump represents the next generation of molded pumps from SERFILCO. The 'HF' retains a robust design and non-metallic solution contact to meet the most demanding applications while providing the choice of materials of construction and economy found in all of our molded pumps.

The 'HF' is offered in a choice of SERFILCO exclusive high-temperature polypropylene or CPVC construction and is ANSI dimensional with the optional flanged connections.

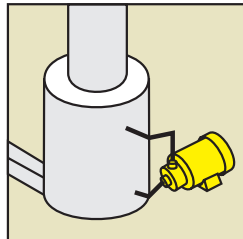
The totally enclosed impeller is molded to close tolerances which allows peak horsepower efficiency across a broad range of operational flow and head requirements.

The external mechanical seal and impeller sleeve design isolates metal components to provide non-metallic solution contact with the pumped liquid. The standard (M8) seal assembly has silicon carbide seal faces and is the most durable and longest lasting mechanical seal available. Double mechanical seal models require water lubrication of the seal faces and allow the pump to be used for solutions containing abrasives, high salt concentrations and for electroless plating solutions.

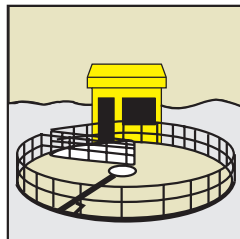
## TYPICAL APPLICATIONS



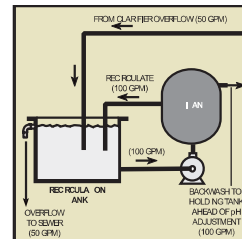
PETROCHEMICAL



– FUME SCRUBBING  
– COOLING TOWER



– WASTE TREATMENT  
– PROCESS WATER

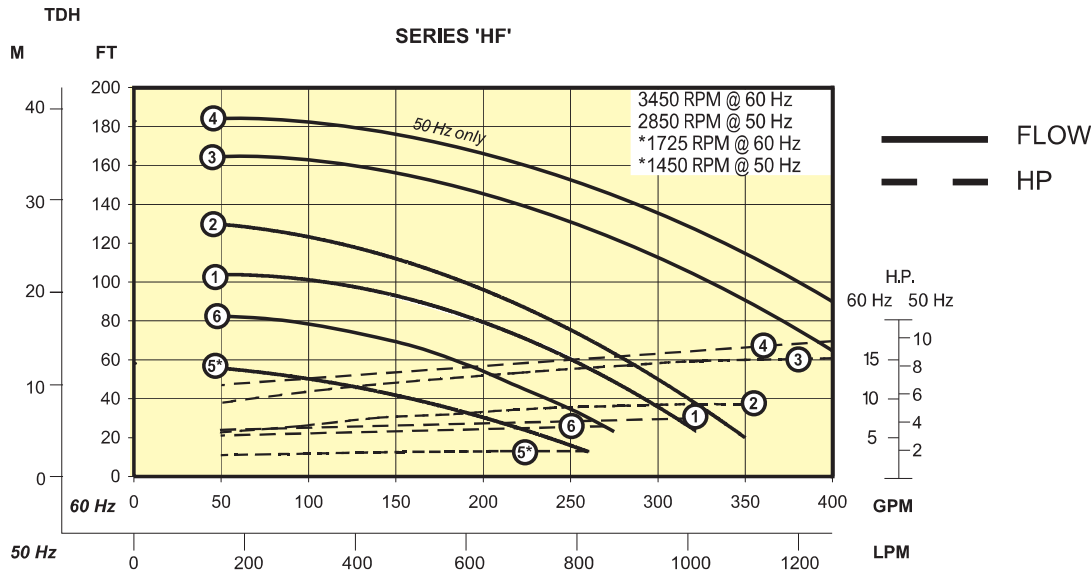


FILTER SYSTEM

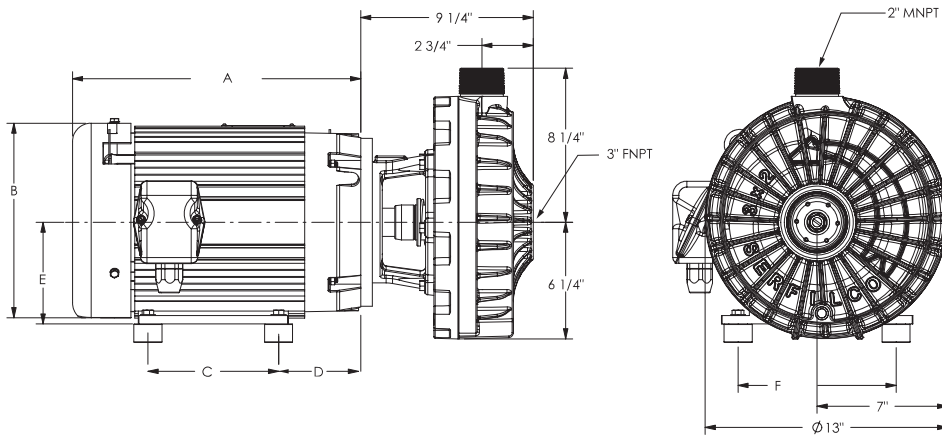


## SERIES 'HF' Specifications And Performance Curves

P-208\_B

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## DIMENSIONS



MOTOR FRAME	HP	DIMENSIONS in. (mm)					
		A*	B*	C	D	E*	F
184TC	5.0	14.0(356)	8.7(221)	5.5(140)	2.8(71)	4.5(114)	7.5(191)
213TC	7.5	15.5(394)	10.4(263)	5.5(140)	3.5(89)	5.3(135)	8.5(216)
215TC	10.0	15.4(390)	10.4(263)	7.0(178)	4.4(111)	5.5(140)	8.5(216)
215TC	15.0	15.4(390)	10.4(263)	7.0(178)	4.4(111)	5.5(140)	8.5(216)

\* Motor dimensions will vary with motor manufacturer



**SERIES 'HF' Specifications and Ordering Information**

P-208\_B

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Pumps are molded of SERFILCO exclusive high-temperature polypropylene or CPVC and have sleeved stainless steel shafts for non-metallic solution contact. All models have an enclosed impeller and externally mounted Type 21 mechanical seal with silicon carbide seal faces. ANSI 150 lb. flange connections are optional. Standard O-rings are EPDM (ethylene propylene).

External hardware not in liquid contact is stainless steel. Motor is coated with two-part epoxy.

A double mechanical seal is recommended for solutions containing abrasives, high temperature and other critical service.

**TO ORDER use Price Code Number**

**FOR STANDARD PUMP-MOTOR COMBINATION, SELECT MODEL FROM TABLE I.  
FOR CUSTOM PUMP-MOTOR COMBINATION, SELECT FROM TABLE II ON NEXT PAGE**

**TABLE I STANDARD MODELS**

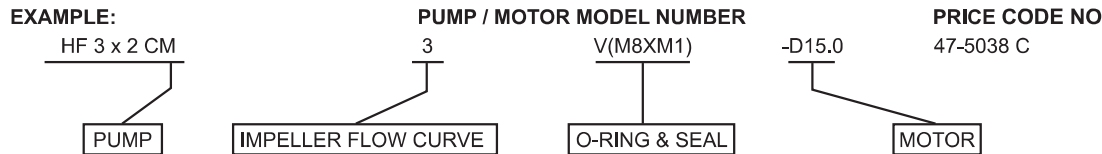
From performance curves graph, select flow curve number providing the desired performance. Then match to Model Number listed below. Standard models include silicon carbide single mechanical seal and EPDM (ethylene propylene) elastomers. Motor HP is non-overloading at full capacity.

60 Hz MODELS				
FLOW CURVE	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.
	CPVC		POLYPROPYLENE	
1	HF3x2CM1L(M8)-D7.5	47-5011A	HF3x2PM1L(M8)-D7.5	47-5111A
2	HF3x2CM2L(M8)-D10.0	47-5021B	HF3x2PM2L(M8)-D10.0	47-5121B
3	HF3x2CM3L(M8)-D15.0	47-5031C	HF3x2PM3L(M8)-D15.0	47-5131C
5	HF3x2CM5L(M8)-H5.0	47-5051D	HF3x2PM5L(M8)-D7.5	47-5151D
6	HF3x2CM6L(M8)-D7.5	47-5061A	HF3x2PM6L(M8)-D7.5	47-5161A

50 Hz MODELS				
FLOW CURVE	MODEL NUMBER	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.
	CPVC		POLYPROPYLENE	
1	HF3X2CM1L(M8)-D7.5-50	47-5011E	HF3X2PM1L(M8)-D7.5-50	47-5111E
2	HF3X2CM2L(M8)-D7.5-50	47-5021E	HF3X2PM2L(M8)-D7.5-50	47-5121E
3	HF3X2CM3L(M8)-D10.0-50	47-5031F	HF3X2PM3L(M8)-D10.0-50	47-5131F
4	HF3X2CM4L(M8)-D10.0-50	47-5041F	HF3X2PM4L(M8)-D10.0-50	47-5141F
5	HF3X2CM5L(M8)-H5.0-50	47-5051G	HF3X2PM5L(M8)-H5.0-50	47-5151G
6	HF3X2CM6L(M8)-D7.5-50	47-5061E	HF3X2PM6L(M8)-H7.5-50	47-5161E

**TABLE II** CUSTOM MODELS

To determine pump model for a specified gpm, TDH, material and specific gravity (SG), select performance point on curve. Determine required HP by moving vertically to corresponding number dotted line. Read the required HP at right ordinate and multiply by SG Select pump, O-ring, mechanical seal, and motor to construct Model and Price Code No.



PUMP	PRICE CODE NO.
CPVC HF 3x2CM	47-50
POLYPROPYLENE HF 3x2PM	47-51

FLOW CURVE NO.	ADD TO ...	
	MODEL NO.	PRICE CODE NO.
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6

'O'-RING & MECHANICAL SEAL MATERIAL (SOLUTION CONTACT)	ADD TO ...	
	MODEL NUMBER	PRICE CODE NO.
<b>SINGLE MECHANICAL SEAL</b>		
EPDM SILICON CARBIDE	L(M8)	1
VITON SILICON CARBIDE	V(M8)	7
<b>DOUBLE MECHANICAL SEAL<sup>1</sup></b>		
EPDM SILICON CARBIDE	L(M8xM1)	4
VITON SILICON CARBIDE	V(M8xM1)	8

<sup>1</sup> DRI-STOP 2R is recommended when a double mechanical seal is used. DRI-STOP switch prevents damage to pump due to dry operation. Consult Bulletin A-105

<sup>2</sup> 60 Hz= 208-230/460/3/60  
50 Hz=190-208/380-415/3/50

Hz RPM	NEMA MOTORS <sup>2</sup>	
	ADD TO ...	
	HP MODEL NUMBER	PRICE CODE NUMBER
60 Hz 3450	-D.7.5 -D10.0 -D15.0	A B C
60 Hz 1725	-H5.0	D
50 Hz 2850	-D7.5-50 -D10.0-50	E F
50 Hz 1450	-H5.0-50	G

**OPTIONS**

DESCRIPTION	ADD TO MODEL	PRICE CODE NO.
Trimmed impeller to meet specified flow	—	47-0084
Flange connections ANSI dimensional	-F	X

LONG COUPLING KIT		
FOR MODEL	FOR MOTOR FRAME	PRICE CODE NO.
HF 3 X 2	182/184T	42-0506
	213/215T	42-0507
Motor mounting		42-0504

LONG COUPLING KIT INCLUDES CAST IRON BEARING PEDESTAL FRAME, BASEPLATE, FLEXIBLE COUPLING, GUARD



# SERIES 'HA' HORIZONTAL PUMP

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P-207\_C

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## ANSI DIMENSIONAL HEAVY DUTY CONSTRUCTION

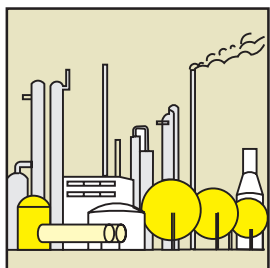
- **Flows to 1200 U.S. GPM or 115 ft. TDH @ 60 Hz**  
(3800 l/min or 24 m @ 50 Hz)
- **Excellent chemical resistance**  
Machined from solid CPVC (Corzan®)  
(Refer to a chemical resistance chart)
- **Centrifugal – quiet, vibration free**
- **Single or double mechanical seal**  
with EPDM or Viton® elastomers
- **Long or close-coupled**
- **Chemical duty motor – standard**  
Sealed oversized bearings, cast iron end bells,  
corrosion resistant two-part epoxy finish, stainless  
steel nameplate

The Series 'HA' is a heavy-duty, ANSI dimensional horizontal pump engineered for utmost reliability in severe chemical applications. The pump is machined from solid CPVC and utilizes an externally mounted mechanical seal. The 4x3x8 pumps have sleeved shafts for non-metallic solution contact while the 4x3x10 and 6x4x10 pumps utilize titanium or Hastelloy C shafts. This proven design provides excellent resistance to aggressive chemicals as well as economical and reliable operation for many years of service.

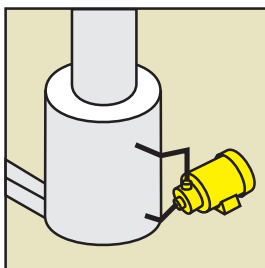
The Series 'HA' horizontal pump is available in three sizes with flow rates to 1200 U.S. GPM (3800 LPM),

and is available with single or double mechanical seals and EPDM or Viton elastomers. Larger sized pumps designed to achieve 2400 U.S. GPM are in development. The standard configuration for these pumps is close coupled, however certain models are available long-coupled.

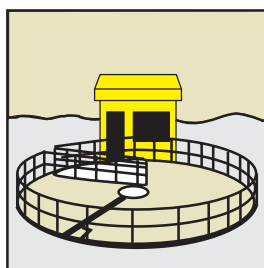
The Series 'HA' pump with its high flow rates, chemical resistance and durability makes it the perfect "workhorse" for chemical processing, transfer and filter pumping, fume scrubbers and cooling towers or for waste treatment applications.



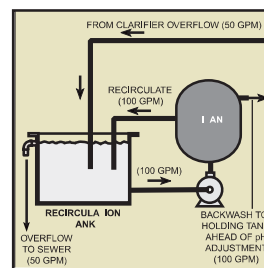
PETROCHEMICAL



FUME SCRUBBING  
COOLING TOWER



WASTE TREATMENT



FILTER SYSTEM



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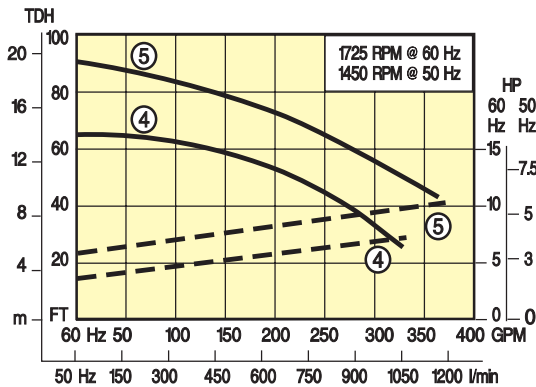
Pumps are machined from solid CPVC. 4x3x8 pumps have CPVC sleeved shafts while 4x3x10 and 6x4x10 pumps have titanium shafts standard with Hastelloy C shafts optional. Elastomers are Viton or EPDM. All models have an enclosed impeller, externally mounted Type 21 mechanical seal with silicon carbide seal faces and ANSI 150 lb. flange connections. External hardware not in solution contact is stainless steel. Motor is painted with two-part epoxy paint.

Single or double mechanical seals are available depending on the application. A double, water flushed mechanical seal is recommended for solutions containing abrasives, high temperatures or other critical service applications.

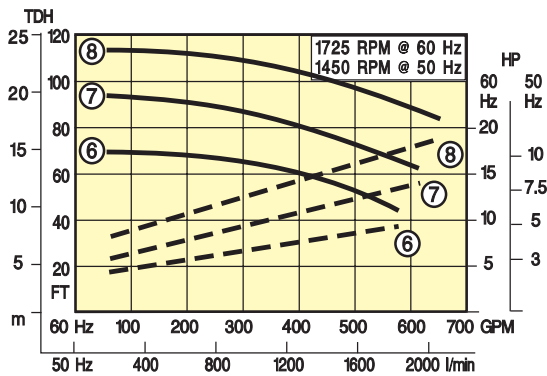
The standard configuration for Series 'HA' pumps is close coupled, however 4x3x8 AND 4x3x10 pumps are also available long coupled. Models 4x3x10 and larger are mounted on a 18" x 30" steel baseplate.



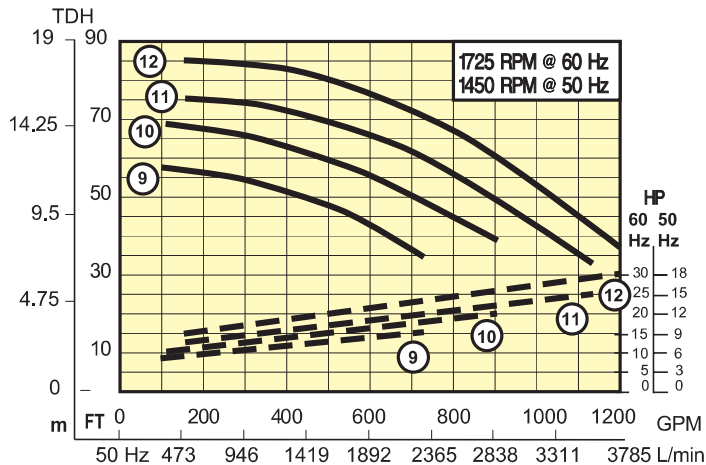
### MODEL 4 x 3 x 8



### MODEL 4 x 3 x 10



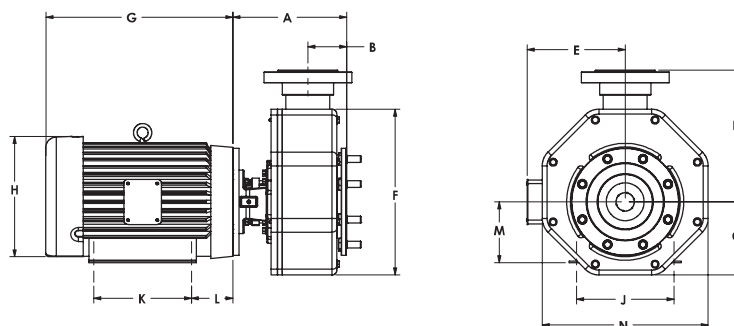
### MODEL 6 x 4 x 10



Performance ———  
Horsepower - - - - -



## DIMENSIONS



MODEL	MOTOR FRAME	HP	DIMENSIONS in. (mm)											
			A	B	C	D	E*	F&N	G*	H*	J	K	L	M
4 x 3 x 8	213TC	7.5	11 <sup>9</sup> / <sub>16</sub> (294)	4(102)	8 <sup>1</sup> / <sub>4</sub> (210)	11(279)	7.3(185)	15.5(394)	15.5(394) 16.6(422)	10.3(262)	8.5(216)	5.5(140) 7.0(178)	3.5(89)	5.3(135)
	254TC	10.0	11 <sup>9</sup> / <sub>16</sub> (294)	4(102)	8 <sup>1</sup> / <sub>4</sub> (210)	11(279)	9.6(244)	15.5(394)	17.8(452)	12.0(305)	10.0(254)	8.3(211)	4.3(109)	6.3(160)
4 x 3 x 10	215TC	10.0	11 <sup>9</sup> / <sub>16</sub> (254)	4(102)	8 <sup>1</sup> / <sub>4</sub> (210)	11(279)	7.3(185)	15.5(394)	16.6(422)	10.3(262)	8.5(216)	7.0(178)	3.5(89)	5.3(135)
	254TC	15.0					9.6(244)		17.8(452)	12.0(305)	10.0(254)	8.3(211)	4.3(109)	6.3(160)
	256TC	20.0					9.6(244)		20.0(508)	12.0(305)	10.0(254)	10.0(254)	4.3(109)	6.3(160)
6 x 4 x 10	254TC	15.0	11 <sup>9</sup> / <sub>16</sub> (297)	4(102)	10(254)	13 <sup>1</sup> / <sub>2</sub> (343)	9.6(244)	17.0(432)	17.8(452)	12.0(305)	10.0(254)	8.3(211)	4.3(109)	6.3(160)
	256TC	20.0					9.6(244)		20.0(508)	12.0(305)	10.0(254)	10.0(254)	4.3(109)	6.3(160)
	284TC	25.0					13.1(333)		21.6(549)	14.0(356)	11.0(279)	9.5(241)	4.8(121)	7.0(178)
	286TC	30.0					13.1(333)		21.6(549)	14.0(356)	11.0(279)	11.0(279)	4.8(121)	7.0(178)

\* Motor dimensions will vary with motor manufacturer

## TO ORDER, use Price Code Number

TABLE I STANDARD MODEL

To order standard pump-motor combination select model from Table I. Standard models include CPVC sleeved or titanium shaft, single mechanical silicon carbide seal and EPDM elastomers.

MODEL	FLOW CURVE	MODEL NUMBER	MAXIMUM FLOW (GPM)	MAXIMUM TDH (Ft.)	PRICE CODE NO. 60 Hz
4 x 3 x 8	4	HA 4 x 3F x 8 C4L(M8)-H7.5	325	65	47-4241 G
	5	HA 4 x 3F x 8 C5L(M8)-H10.0	370	90	47-4251 H
4 x 3 x 10	6	HA 4 x 3F x 10 CT6L(M8)-H10.0	600	70	47-4361 H
	7	HA 4 x 3F x 10 CT7L(M8)-H15.0	630	95	47-4371 S
	8	HA 4 x 3F x 10 CT8L(M8)-H20.0	650	110	47-4381 V
6 x 4 x 10	9	HA 6 x 4F x 10 CT9L(M8)-H15.0	820	60	47-4491 S
	10	HA 6 x 4F x 10 CT10L(M8)-H20.0	1000	75	47-4401 V
	11	HA 6 x 4F x 10 CT11L(M8)-H25.0	1120	85	47-4411 W
	12	HA 6 x 4F x 10 CT12L(M8)-H30.0	1300	95	47-4421 X

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TABLE II OTHER MODELS

To determine pump model for a specified GPM, TDH, material and specific gravity, select performance point on curve. Determine required HP by moving vertically to corresponding number dotted line. Read the required HP at right ordinate and multiply by S.G. Select pump, "O"-ring and seal, and motor to complete Model Number. Add corresponding number designations together to create Price Code Number.

## EXAMPLE:

HA 4 x 3F x 8C

## PUMP/MOTOR MODEL NUMBER

4

V(M8xM1)

H7.5

## PRICE CODE NO.

= 47-4248 G

PUMP

IMPELLER

SEAL

MOTOR

PUMP	PRICE CODE NO.
HA 4 x 3F x 8C	47-42
HA 4 x 3F x 10CT	47-43
HA 6 x 4F x 10CT	47-44

FLOW CURVE NO.	ADD TO . . .	
	MODEL NO.	PRICE CODE NO.
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	0
11	11	1
12	12	2

'O'-RING & MECHANICAL SEAL MATERIAL (SOLUTION CONTACT)		ADD TO . . .	
		MODEL NUMBER	PRICE CODE NO.
SINGLE MECHANICAL SEAL			
EPDM SILICON CARBIDE		L(M8)	1
VITON SILICON CARBIDE		V(M8)	7
DOUBLE MECHANICAL SEAL <sup>1</sup>			
EPDM SILICON CARBIDE		L(M8xM1)	4
VITON SILICON CARBIDE		V(M8xM1)	8

<sup>1</sup> DRI-STOP 2R is recommended when a double mechanical seal is used. DRI-STOP switch prevents damage to pump due to dry operation. Consult Bulletin A-105

TEFC 208-230/460/3/60 or 190/380-415/3/50		
RPM	NEMA MOTORS <sup>2</sup>	
	ADD TO . . .	
	MODEL NUMBER	PRICE CODE NUMBER
1725 or 1450	-H7.5	G
	-H10.0	H
	-H15.0	S
	-H20.0	V
	-H25.0	W
	-H30.0	X

<sup>2</sup> For 50 Hz add  
-50 to Model Number and  
5 to Price Code Number

## OPTIONS

DESCRIPTION	PRICE CODE NO.
Trimmed impeller to meet specified flow	47-0084
Hastelloy C shaft -HC	-HC

LONG COUPLING KIT		
FOR MODELS	FOR MOTOR FRAME	PRICE CODE NO.
4 x 3 x 8 4 x 3 x 10 (10 HP and smaller)	213/215T	42-0502
Motor mounting and alignment		42-0504





## SERIES 'HCI' & 'HSS' METAL HORIZONTAL PUMPS

92

P-108\_F

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### HEAVY DUTY CAST IRON or 316SS CONSTRUCTION FOR:

3



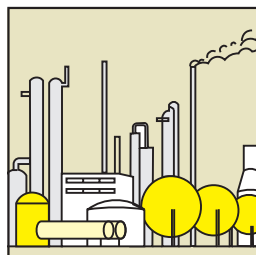
#### ACIDS / ALKALIES / SOLVENTS WET PROCESSING SOLUTIONS D. I. WATER / FERTILIZERS

- Flows to 160 U. S. GPM or 90 ft. TDH @ 60 Hz (510 LPM or 19.5m @ 50 Hz)
- Available in cast iron or all 316 stainless steel solution contact
- Single or double mechanical seal
  - Carbon/ceramic
  - Viton® or EPDM elastomers
- 316 stainless steel shaft adapter
- Centrifugal, quiet, vibration-free
- Includes steel mounting base
- Motors are standard NEMA 'C' face TEFC or explosion-proof

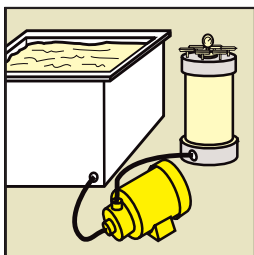
**The Series 'HCI' and 'HSS' Horizontal Pumps** feature compact close-coupled design. A high efficiency semi-open impeller allows for less clogging and quick cleaning.

Since the components are cast, there are no welds to break. Also, cast construction provides a superior corrosion resistance over similar welded styles.

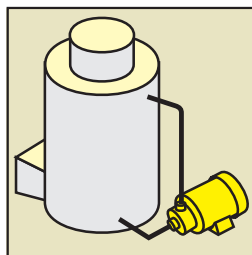
The Series 'HCI' and 'HSS' pumps feature the most widely accepted industrial mechanical seal designated as Type 21. This seal is mounted "in-board" and, thus tends to be self-cleaning. The seal is available as a single seal solution flush or as a double seal which uses external liquid as a flush. By adding the double seal, these pumps can better handle abrasives / salts and be protected from running dry.



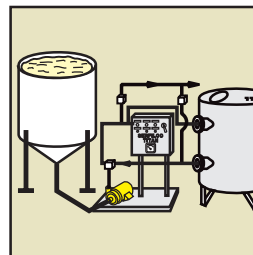
PETROCHEMICAL



CLEANING & DESCALING



FUME SCRUBBING  
& SPRAYING

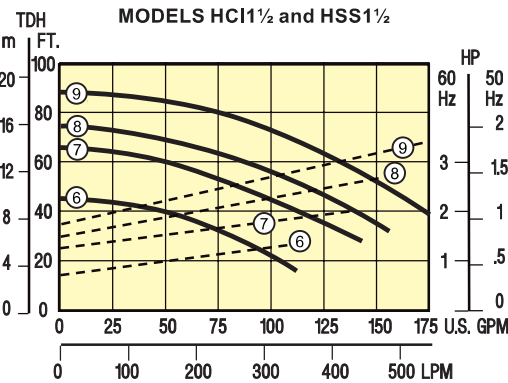
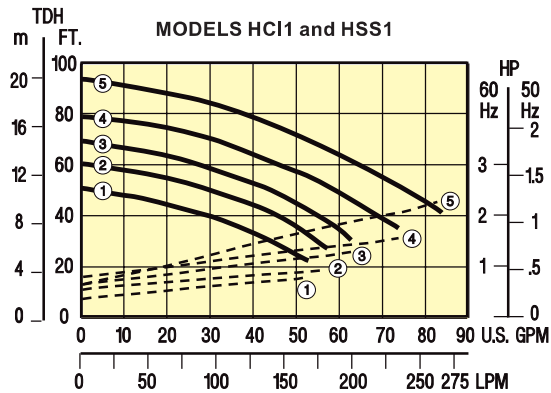


WASTE TREATMENT

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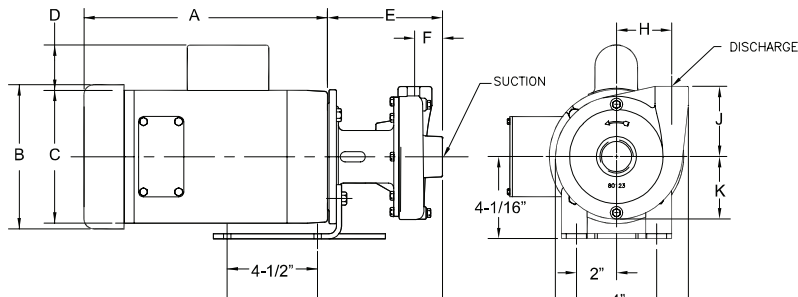
Pumps are constructed of cast iron or 316 stainless steel for maximum corrosion resistance. Gasket is a synthetic fiber with cast iron; Teflon® with 316SS. Both the single and double inboard seal assemblies are available in either EPDM or Viton®. Double seal is recommended for flushing the seal chamber with

water when abrasives are present or for certain other critical conditions. The stainless steel shaft adapter protects the motor shaft and allows the use of standard NEMA motor. Motors are 3450 RPM @ 60Hz or 2850 RPM @ 50 Hz, TEFC or EXP. Single phase TEFC motors include 8 ft. (2.4m) line cord.



## DIMENSIONS

MODEL	HP A	SUCT. NPT (in)	DISCH. NPT (in)	DIMENSIONS (inches)											WEIGHT Lbs. (kg.)
				B	C	D	F	E	G	H	J	K	L		
HCI1 & HSS1	3/4	1-1/4	1	9-1/4	6-1/8	5-3/8	2-1/16	5-3/4	1-3/8	6-1/4	2-3/4	3-1/2	3-1/8	7	39 (18)
	1			9-3/4	6-1/8	5-3/8	2-1/16								43 (20)
	1-1/2			10-1/2	7-3/16	6-7/8	2-1/16								49 (22)
	2			11-1/8	7-3/16	6-7/8	2-1/4								65 (30)
HCI1½ & HSS1½	1	2	1-1/2	9-3/4	6-1/8	5-3/8	2-1/16	6-1/4	1-11/16	6-3/4	3-1/8	3-13/16	3-7/8	8-1/4	63 (29)
	1-1/2			10-1/2	7-3/16	6-7/8	2-1/16								57 (26)
	2			11-1/8	7-3/16	6-7/8	2-1/4								62 (28)
	3			12-3/8	7-3/16	6-7/8	2-1/4								65 (29)





# SERIES 'HCI' and 'HSS' PUMPS Ordering Information

P-108\_F

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## TO ORDER

### TABLE I

Select pump-motor model from flow curve number providing the desired performance. Motor horsepower is non-overloading for 1.0 specific gravity and 60 Hz operation.

HSS1 PUMP - MOTOR single seal (230-460V/3/50-60) TEFC		
FLOW CURVE NO.	MODEL NUMBER	PRICE CODE NO.
1	HSS1-1V(M2)-D1.0	61-0112G
2	HSS1-2V(M2)-D1.5	61-0122H
3	HSS1-3V(M2)-D1.5	61-0132H
4	HSS1-4V(M2)-D2.0	61-0142J
5	HSS1-5V(M2)-D3.0	61-0152K
HSS1½ PUMP - MOTOR single seal (230-460V/3/50-60) TEFC		
6	HSS1½-6V(M2)-D1.5	62-0162H
7	HSS1½-7V(M2)-D2.0	62-0172J
8	HSS1½-8V(M2)-D3.0	62-0182K
9	HSS1½-9V(M2)-D5.0	62-0192L

### TABLE II

Determine pump-motor model for a specified GPM, TDH, mechanical seal and specific gravity. Select performance point on curve and size horsepower from corresponding numbered dotted line vertically above or below performance point. Read required horsepower at right ordinate and multiply by specific gravity. Select pump model components and Price Code Numbers from Table II.

#### PUMP

MODEL	PRICE CODE NO.
HCI1	61-03
HCI1½	62-03
HSS1	61-01
HSS1½	62-01

#### IMPELLER

FLOW CURVE NO.	ADD TO . . .	
	MODEL	PRICE CODE NO.
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

#### MECHANICAL SEAL

MATERIAL (SOLUTION CONTACT)	ADD TO . . .	
	MODEL NUMBER	PRICE CODE NO.
SINGLE MECHANICAL SEAL		
EPDM, carbon, ceramic	L(M1)	1
Viton, carbon, ceramic	V(M2)	2
DOUBLE MECHANICAL SEAL		
EPDM, carbon, ceramic	L(M1xM1)	3
Viton, carbon, ceramic	V(M2xM1)	4

#### TEFC MOTOR <sup>1</sup> (3450 RPM / 2850 RPM)

HP	SINGLE PHASE <sup>2</sup>		THREE PHASE <sup>2</sup>	
	ADD TO . . .		ADD TO . . .	
	MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
.75	-C.75	B	-D.75	F
1	-C1.0	C	-D1.0	G
1.5	-C1.5	D	-D1.5	H
2.0	—	—	-D2.0	J
3.0	—	—	-D3.0	K
5.0	—	—	-D5.0	L

<sup>1</sup> For explosion-proof motors (UL and CSA listed for Class I, Group D or Class II, Group F & G), add **X** to Model No. and Price Code No. EXP motors are 60 Hz only.

<sup>2</sup> Single phase - 115-208-230V/1/60 or 220-440V/1/50  
Three phase - 208-230-460V/3/60 or 380-415V/3/50.  
All motors are 3450 or 2850 RPM.



# SERIES 'RC' HORIZONTAL PUMPS

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P-109\_D

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## **WET PROCESSING SOLUTIONS / MACHINE TOOL COOLANTS / CHEMICAL TRANSFER COOLING TOWERS / CIRCULATION FOR WASHING OR RINSING**

- **Flows to 420 U.S. GPM or 82 ft. TDH @ 60 Hz**  
(1325 LPM or 17.4m @ 50 Hz)
- **316 stainless steel shaft, cast iron mounting bracket**
- **Single or double mechanical seal**  
Carbon/ceramic  
EPDM or Viton® elastomers
- **Centrifugal, quiet, vibration-free**
- **Motors are standard NEMA C face, TEFC**



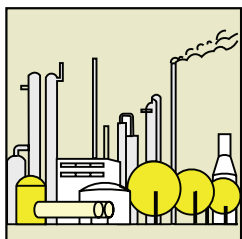
The Series 'RC' horizontal pump is a compact close-coupled design. A high efficiency, semi-open cast iron impeller allows for less clogging and quick cleaning. The components are cast so there are no welds to break. In addition, the cast iron construction provides improved corrosion resistance over similar welded styles.

The Series 'RC' pump is available with a choice of mechanical seals, Type 21 single or double. The seal is mounted "in-board" and, thus tends to be self-cleaning. It is available as a single seal solution

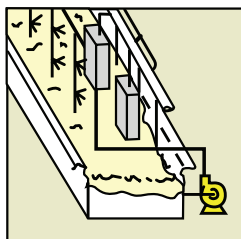
flush or as a double seal which requires external liquid to flush. When ordered with a double seal, the pump will better handle abrasives, solutions which tend to crystallize, and dry run operation.

Series 'RC' pumps are constructed of cast iron with a synthetic fiber gasket. Standard pumps feature EPDM or Viton elastomers with ceramic and carbon seal faces. These pumps use a standard NEMA C face motor. Motors are TEFC, 3450 RPM @ 60 Hz or 2850 RPM @ 50 Hz.

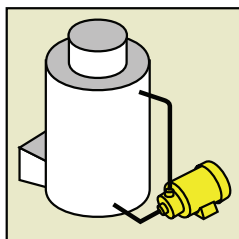
Viton is registered trademark of DuPont Dow Elastomers.



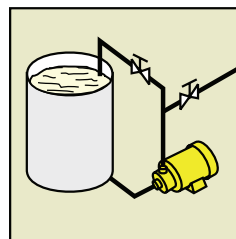
**PETROCHEMICAL**



**SPRAY WASHERS**



**RECIRCULATION OF  
COOLING TOWERS**



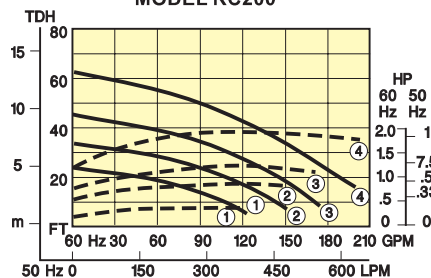
**CHEMICAL  
TRANSFER PUMPING**



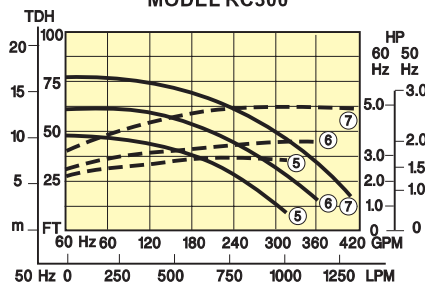
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## SERIES 'RC' PUMPS specifications and ordering information

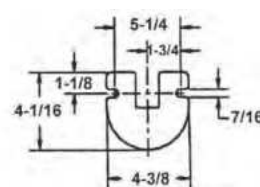
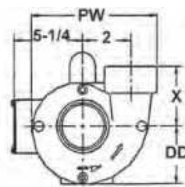
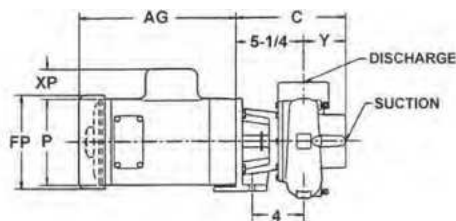
MODEL RC200



MODEL RC300



## DIMENSIONS



BOTTOM VIEW OF MOUNTING BRACKET

MODEL	MOTOR HP 3600 RPM 56CFRM	DIMENSIONS (Inches)												WT, Lbs.
		AG	FP	P	XP	C	Y	PW	Z	X	DD	SUCTION	DISCHARGE	
RC200	1/3	8-1/2	7-3/16	6-7/8	2-1/16									63
	1/2	8-3/4	7-3/16	6-7/8	2-1/16									63
	3/4	9-1/4	7-3/16	6-7/8	2-1/16									63
	1	9-3/4	7-3/16	6-7/8	2-1/16									64
	1-1/2	10-1/2	7-3/16	6-7/8	2-1/4									70
	2	11-1/8	7-3/16	6-7/8	2-1/4									72
RC300	2	11-1/8	7-3/16	6-7/8	2-1/4	8-9/16	3-5/16	9-5/8	3-11/16	4-1/2	4-3/8	3" NPT	3" NPT	75
	3	12-3/8	7-3/16	6-7/8	2-1/4									88
	5*	13-5/8	8-1/2	7-7/8	2-1/4									115

NOTE: 1. Motor dimensions will vary by model and make. Dimensions are to be used for reference only.  
2. For engineering purposes, Model RC300 has been used to create drawing.  
3. All dimensions have been rounded to the nearest sixteenth of an inch.

\* 184C frame motor

## TO ORDER, use Price Code Number

TABLE I

RC200 PUMP - MOTOR single seal (230/460V/3/60) TEFC		
FLOW CURVE NO.	MODEL NUMBER	PRICE CODE NO.
1	RC200 - 1L(M1)-D.5	61-0511 G
2	RC200 - 2L(M1)-D.75	61-0521 H
3	RC200 - 3L(M1)-D1.5	61-0531 K
4	RC200 - 4L(M1)-D2.0	61-0541 L
RC300 PUMP - MOTOR single seal (230/460V/3/60) TEFC		
5	RC300 - 5L(M1)-D3.0	62-0551 M
6	RC300 - 6L(M1)-D5.0	62-0561 N
7	RC300 - 7L(M1)-D5.0	62-0571 N

## TO ORDER FROM TABLE I (60 Hz)

Select pump-motor model from flow curve number providing the desired performance. Motor horsepower is non-overloading for 1.0 specific gravity and 60 Hz operation.

## TO ORDER FROM TABLE II

Determine pump-motor model for a specified GPM, TDH, mechanical seal and specific gravity. Select performance point on curve and size horsepower from corresponding numbered dotted line vertically above or below performance point. Read required horsepower at right ordinate and multiply by specific gravity. Select pump model components and Price Code Numbers for Table II.

TABLE II

PUMP		IMPELLER		MECHANICAL SEAL		TEFC MOTOR (3450/2850)			
MODEL	PRICE CODE NO.	FLOW CURVE NO.	ADD TO ...		MATERIAL (SOLUTION CONTACT)	ADD TO ...		HP	
			MODEL NUMBER	PRICE CODE NO.		MODEL NUMBER	PRICE CODE NO.		
RC200	61-05	1	1	1	SINGLE MECHANICAL SEAL				
RC300	62-05	2	2	2	EPDM, carbon, ceramic	L(M1)	1	.3	- C.3 A - D.3 F
		3	3	3		V(M2)	2	.5	- C.5 B - D.5 G
		4	4	4	DOUBLE MECHANICAL SEAL			.75	- C.75 C - D.75 H
		5	5	5	EPDM, carbon, ceramic	L(M1XM1)	3	1	- C1.0 D - D1.0 J
		6	6	6		V(M2XM1)	4	1.5	- C1.5 E - D1.5 K
		7	7	7				2.0	-- -- - D2.0 L
								3.0	-- -- - D3.0 M
								5.0	-- -- - D5.0 N

<sup>1</sup> Single phase - 115-208-230V/1/60 or 220-440V/1/50  
Three phase - 208-230-460V/3/60 or 380-415V/3/50



# SERIES 'A' & 'B' MAGNETIC COUPLED PUMPS

97

P-503\_R

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## LEAK-PROOF / NON-METALLIC DESIGN



**AQUEOUS / CAUSTICS / ACID  
RINSE / CLEANING / PLATING  
PHOTOGRAPHIC / ETCH  
PHARMACEUTICAL**

- **Flows to 12 U.S. GPM or 24 FT. TDH @ 60 Hz**  
(45 LPM or 10m @ 50 Hz)
- **Non-metallic solution contact**  
Polypropylene, CPVC, PVDF or ECTFE  
(See a *chemical resistance chart*)
- **Continuous duty design**
- **Quiet, economical, centrifugal**
- **Low maintenance**  
No spindles, bearings or thrust washers

4

The **Series 'A' and 'B' Magnetic Coupled Pumps** are seal-less and leakproof, providing total solution and vapor containment. These pumps feature a shaft and bearing free design that allows them to be used for electroless solutions. The impeller magnet assembly floats in the radial magnetic field set up by the external drive magnet, eliminating the need for a shaft or spindle.

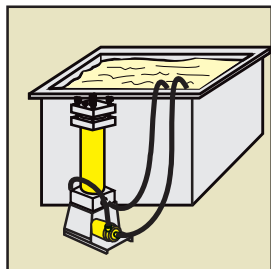
The pump body can be rotated to selected direction of discharge. Neutralizing fluid will normally flush the interior adequately without need for disassembly.

Impellers supplied on all standard seal-less pumps are suitable for water-like liquids up to 1.2 specific gravity.

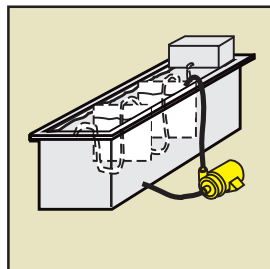
Liquids with a higher specific gravity can be pumped if:

1. The outlet flow is restricted so the impeller magnet stays synchronized with the drive magnet.
2. The restrictions from a filter or other source of discharge head loss are sufficient to keep the impeller and drive magnets synchronized.
3. The overall diameter of the impeller is reduced.

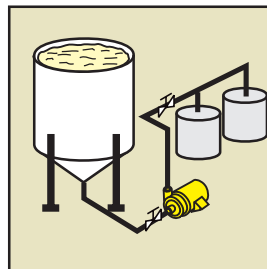
***Use for filtering, circulation, processing and transfer.***



FILTRATION



RECIRCULATION



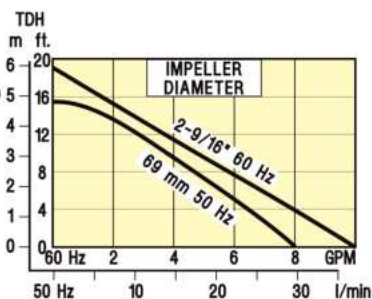
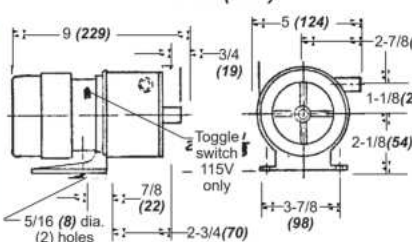
TRANSFER





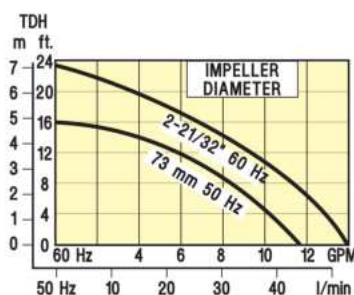
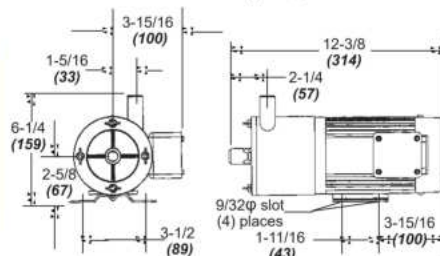
2900 MacArthur Blvd. Northbrook, IL. USA 60062 WWW.SERFILCO.COM (800) 323 - 5431

## SERIES 'A'

DIMENSIONS  
Inches (mm)

CPVC <sup>1</sup>		POLYPROPYLENE <sup>1</sup>		ECTFE		PVDF		MOTOR, TEFC 3000 RPM @ 60 Hz 2500 RPM @ 50 Hz	SHIPPING WEIGHT	
MODEL CPP3000A	PRICE CODE NO.	MODEL APS3000A	PRICE CODE NO.	MODEL H3000A	PRICE CODE NO.	MODEL KH3000A	PRICE CODE NO.		Lbs.	Kg.
w/ECTFE encapsulated impeller magnet, EPDM "O"-ring, 5/8" hose conn. <sup>2</sup>	44-1372	w/polypropylene encapsulated impeller magnet, EPDM "O"-ring, 5/8" hose conn. <sup>2</sup>	44-0852	w/ECTFE encapsulated impeller magnet, Viton® "O"-ring, 5/8" hose connection. <sup>2</sup>	44-1495	w/ECTFE encapsulated impeller magnet, Viton "O"-ring, 5/8" hose connection. <sup>2</sup>	44-1367	1/12 HP, 115V/1/50-60Hz	10	4.5
	44-1373		44-0858		44-1496		44-1368	1/15 HP, 208-240V/1/50-60Hz		

## SERIES 'B'

DIMENSIONS  
Inches (mm)

CPVC <sup>1</sup>		POLYPROPYLENE <sup>1</sup>		ECTFE		PVDF		MOTOR 3450 RPM @ 60 Hz 2850 RPM @ 50 Hz NEMA 42 Frame	WEIGHT	
MODEL CPP3450BL	PRICE CODE NO.	MODEL APS3450BL	PRICE CODE NO.	MODEL H3450BL	PRICE CODE NO.	MODEL KH3450BL	PRICE CODE NO.		Lbs.	Kg.
w/ECTFE encapsulated impeller magnet, EPDM "O"-ring, 3/4" hose conn. <sup>2</sup>	48-0120	w/polypropylene encapsulated impeller magnet, EPDM "O"-ring, 3/4" hose conn. <sup>2</sup>	48-0140	w/ECTFE encapsulated impeller magnet, Viton "O"-ring, 3/4" hose connection. <sup>2</sup>	48-0221	w/ECTFE encapsulated impeller magnet, Viton "O"-ring, 3/4" hose connection. <sup>2</sup>	48-0220	1/6 HP, TEFC	21	9.5
	48-0120B		48-0140B		48-0221B		48-0220B	115-230V/1/60		
	48-0120C		48-0140C		48-0221C		48-0220C	230V/1/50 208-230/460V/3/60 230/380V/3/50		

Single phase TEFC motors include 8 ft. (2.4M) of 3-wire cord and plug. (Toggle switch &amp; plug omitted on 50Hz 'A' pump; plug omitted on 50 Hz 'B' pump.)

<sup>1</sup> To change "O"-ring from ethylene propylene to Viton, add V to Model Number and Price Code Number.<sup>2</sup> For 'A' pump, to change hose connections to pipe thread — 5/8" dia. to 3/8" MNPT — add Price Code Number 44-0886.

For 'B' pump, to change hose connections to pipe thread — 3/4" dia. to 1/2" MNPT — add Price Code Number 44-0887.

For Trimmed Impeller — add Price Code Number 44-1244.



# SERIES 'X' MAGNETIC COUPLED PUMPS

99

P-511\_E

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## NON-METALLIC AND SEAL-LESS PROVIDING TOTAL VAPOR AND SOLUTION CONTAINMENT FOR:

**ACID / AQUEOUS / CAUSTIC  
CHEMICAL / PLATING  
PHOTOGRAPHIC**

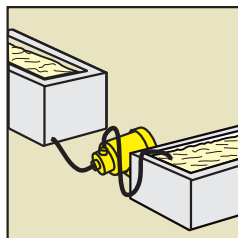
- **Flows from 1 to 25 U.S. GPM @ 60 Hz**  
(3 - 78 LPM @ 50 Hz)
- **Non-metallic solution contact**  
Polypropylene, PVDF, ETFE, Viton®  
(See a chemical resistance chart)
- **NPT or hose barb connections**
- **Strong magnets will handle liquids to  
1.3 specific gravity**
- **Continuous duty design**
- **Compact, quiet and efficient**
- **UL approved, CEC conforming**
- **Motors are available**  
115V/1/60 Hz or  
230V/1/50-60 Hz

4

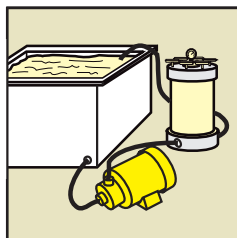
**SERIES 'X' Magnetic Coupled Pumps** are the latest in magnetic coupled pump technology. Tested and proven design features provide a pump that is seal-less and leakproof. Available materials of construction and flow capacities from 1 to 25 U.S. GPM make these pumps an excellent choice for a wide variety of applications from water at ambient temperatures to harsh chemicals at elevated temperatures.

Standard 'X' models have strong magnets and powerful, highly efficient continuous duty motors which allow them to operate non-overloading and provide continuous flow with liquids up to 1.3 specific gravity. Compact and quiet Series 'X' pumps are designed to provide years of trouble-free operation.

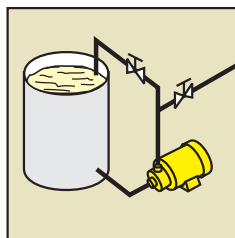
The following information covers standard Series 'X' models. For other models and magnetic coupled pumps to 250 GPM, consult our Sales Dept.



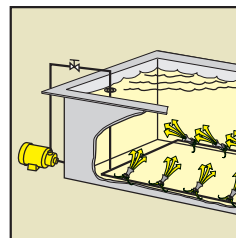
WASTE TREATMENT



FILTER SYSTEM



MIXING and TRANSFER  
PUMPING

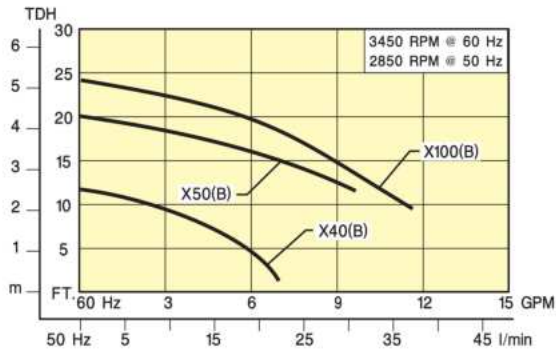


EDUCTOR AGITATION  
and MIXING

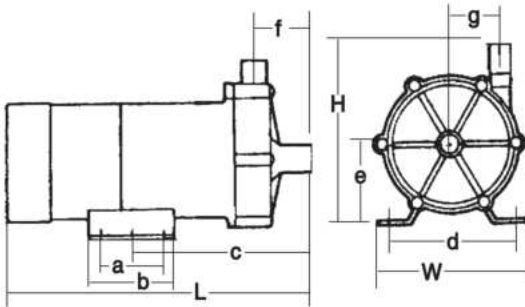
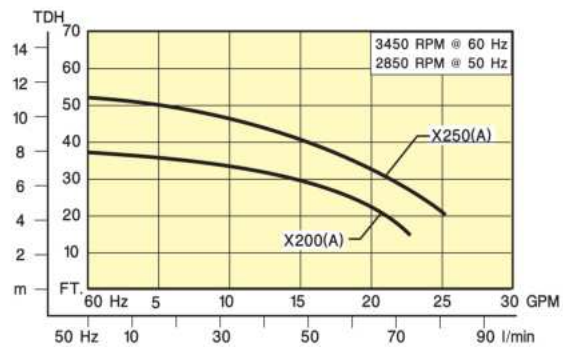


## SERIES 'X' Performance and Dimensions

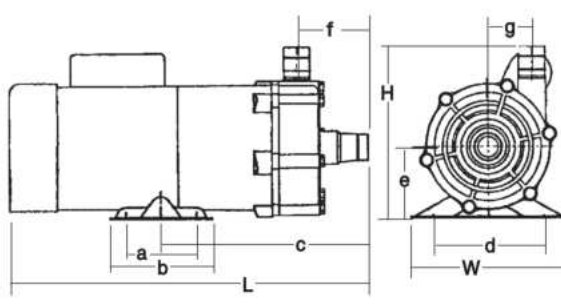
## Models X40, X50 &amp; X100



## Models X200 &amp; X250



Models X40, X50 &amp; X100



Models X200 &amp; X250

MODEL	DIMENSIONS (Inches)									
	W	H	L	a	b	c	d	e	f	g
X40	3.73	4.53	8.08	1.19	1.97	5.18	2.68	2.17	1.30	1.12
X50	4.72	5.12	9.12	1.58	2.52	6.65	3.94	2.36	1.89	1.22
X100	4.36	5.12	10.31	1.58	2.52	6.65	3.94	2.36	1.89	1.22
X200	6.14	6.50	13.97	2.76	3.94	8.07	4.33	2.59	2.75	1.72
X250	6.14	6.50	14.30	2.76	3.94	8.07	4.33	2.59	2.75	1.72



## SERIES 'X' Ordering information

101

P-511\_E

2900 MacArthur Blvd. Northbrook, IL. USA 60062 **WWW.SERFILCO.COM** (800) 323 - 5431

Select flow curve providing desired performance. Select materials of construction and connections required. Use Price Code Number to order.

### POLYPROPYLENE / VITON w/HOSE CONNECTIONS

FLOW CURVE	MAX. FLOW GPM	MAX. TDH Ft.	HP	CONNS. In.	S. G. *	MODEL NUMBER	PRICE CODE NO.
X40 (B)	7.3	11.6	1/40	5/8	1.3	X40PV 5/8H CRYR B C.02	81-4114 2D
X50 (B)	10	20	1/15	3/4	1.3	X50PV 3/4H CRYR B C.06	81-5134 2E
X100 (B)	12	24	1/10	3/4	1.3	X100PV 3/4H CRYR B C.1	81-6134 2F
X200 (A)	24	36	1/5	1	1.1	X200PV 1H CR A C.2	81-7156 1G
X250 (A)	29	50	1/3	1	1.1	X250PV 1H CR A C.3	81-8156 1H

### POLYPROPYLENE / VITON w/MNPT CONNECTIONS

X40 (B)	7.3	11.6	1/40	3/4	1.3	X40PV 3/4T CRYR B C.02	81-4144 2D
X50 (B)	10	20	1/15	3/4	1.3	X50PV 3/4T CRYR B C.06	81-5144 2E
X100 (B)	12	24	1/10	3/4	1.3	X100PV 3/4T CRYR B C.1	81-6144 2F
X200 (A)	24	36	1/5	1	1.1	X200PV 1T CR A C.2	81-7166 1G
X250 (A)	29	50	1/3	1	1.1	X250PV 1T CR A C.3	81-8166 1H

### PVDF / VITON w/HOSE CONNECTIONS

X40 (B)	7.3	11.6	1/40	5/8	1.3	X40KV 5/8H CRT B C.02	81-4213 2D
X50 (B)	10	20	1/15	3/4	1.3	X50KV 3/4H CRT B C.06	81-5233 2E

### PVDF / VITON w/MNPT CONNECTIONS

X100 (B)	12	24	1/10	3/4	1.3	X100KV 3/4T CRT B C.1	81-6243 2F
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### ETFE / VITON w/MNPT CONNS.

X200 (A)	24	36	1/5	1	1.1	X200EV 1T CR A C.2	81-7366 1G
X250 (A)	29	50	1/3	1	1.1	X250EV 1T CR A C.3	81-8366 1H

\* Consult Sales Dept. for operation with solutions having higher specific gravity.

### OPTIONAL

DESCRIPTION	ADD TO MODEL NO.	ADD TO PRICE CODE NO.
OPTIONAL Motor - 230V / 1Ø/ 50-60	-50	5
EDPM elastomers	Consult Sales Department	

### MODEL KEY

Series	Materials	Connections	Friction Surfaces	Spindle	R. Thrust	F. Thrust	Bearing	Mouth Ring	Impeller		Motor	HP
X40	PV	3/8"H = 1/2" hose barb	CRT CRYR CR	Ceramic	Rulon®/TFE	Rulon/TFE	Ceramic	—	A B C	to 1.1 S.G. to 1.3 S.G. to 1.5 S.G.	C.02 C.06 C.1 C.2 C.3	1/40 1/15 1/10 1/5 1/3
X50	PP / Viton	1/2" T = 1/2" MNPT										
X100	KV	3/4"H = 3/4" hose barb										
X200	100% PVDF/Viton	3/4" T = 3/4" MNPT										
X250	EV	1H = 1" hose barb										
	ETFE / Viton	1T = 1" MNPT										

### GENERAL PRODUCT NOTES:

- !** Caution: Consult chemical resistance guide to assure material / solution compatibility.
- Do not use with liquids having ferrous (magnetic) metal particles.
- Standard 115V/1Ø/60 Hz motors include 6 ft. cord with molded 60 Hz plug.
- PV** and **EV** models are glass reinforced.



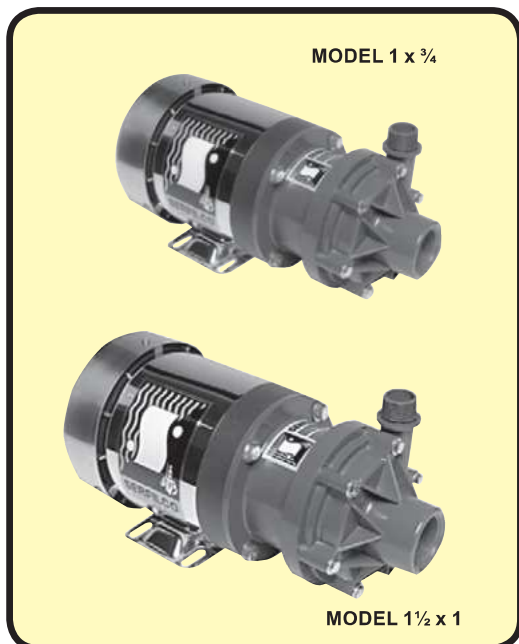
# SERIES 'M' MAGNETIC COUPLED PUMPS

102

P-509\_F

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## EFFICIENT & DEPENDABLE, TROUBLE-FREE PERFORMANCE FOR:



### ACID / CAUSTIC / CHEMICAL PHOTOGRAPHIC / PLATING WATER / WASTE WATER

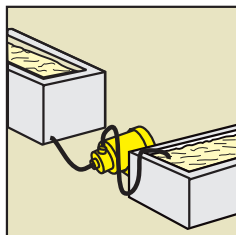
- **Flows to 70 GPM or 56 ft. TDH @ 60 Hz**  
(220 LPM or 12m @ 50 Hz)
- **Non-metallic solution contact**  
Glass reinforced polypropylene or  
carbon reinforced PVDF  
(See a chemical resistance chart)
- **Extended dry run**  
Unique design helps prevent pump damage
- **Powerful rare-earth magnets**  
Provide sure coupling to 1.6 S.G. @ 30 CPS
- **Connections -NPT or BSP**  
Optional: 1/4" NPT drain
- **Accepts standard motors**  
NEMA or IEC metric

**Series 'M' Magnetic-Coupled Pumps** are seal-less and "leak-proof", providing total solution and vapor containment. They are available in two different materials of construction for a wide range of chemical and temperature compatibility.

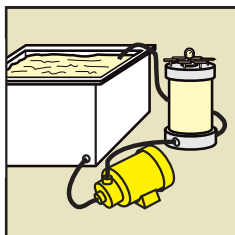
The relationship of the impeller magnet to the liner reflects an advanced design which allows extended operation at dry run or during loss of prime without causing damage to the pump. The impeller head is separate from the impeller magnet hub for field interchangeability. The mouth ring design eliminates the need for a front thrust washer.

By using rare-earth magnets, this pump provides flow and pressure equal to that of a physically much larger pump. This powerful coupling allows the pump to operate at full flow with the full size impeller while handling liquids up to 1.6 S.G. @ 30 CPS.

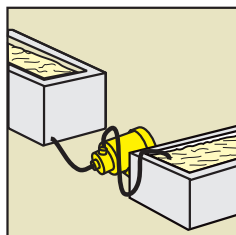
The balanced magnetic field eliminates loading on bearing surfaces, thus providing an extended life span of the bushing compared to that of other magnetic coupled pumps. The fluted bushing provides positive internal liquid circulation/flush along the shaft spindle. These pumps utilize a high-purity silica-free ceramic stub-shaft which eliminates breakage and is compatible with fluoride solutions.



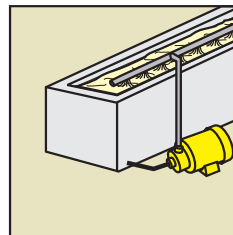
WASTE TREATMENT



FILTER SYSTEM



MIXING and TRANSFER  
PUMPING



RECIRCULATION



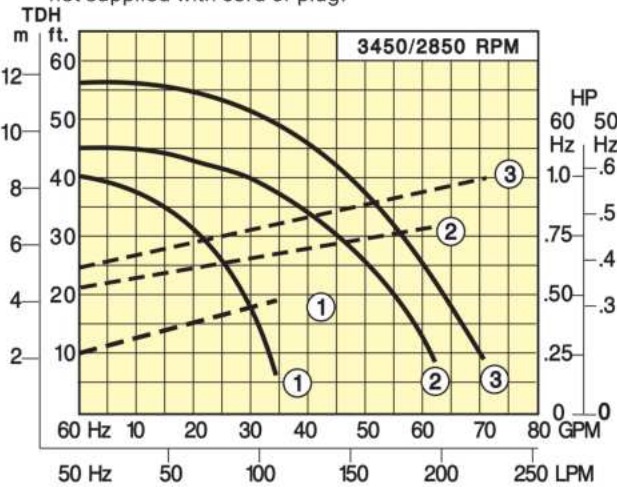
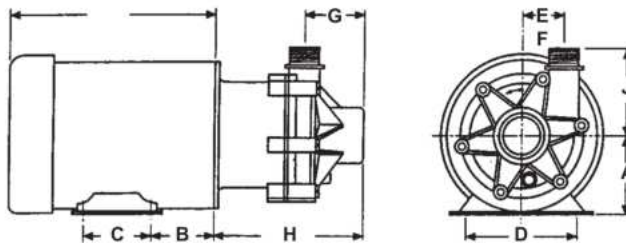
2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

Standard models are constructed of chemically coupled, glass-reinforced polypropylene or carbon-reinforced PVDF for suction casing, impeller-magnet assembly and liner. The casing "O"-ring is Viton. The spindle bushing is carbon with a flush groove for positive lubrication. The spindle, thrust button and mouth ring are high purity, fluoride resistant ceramic. The "thrust ring" is carbon filled Teflon®.

External fasteners are 304SS. The inlet and outlet are designed to accommodate an "O"-ring to provide a leak tight seal at these connections. The pump casing includes a blind boss for the 1/4" NPT drain (optional). The inlet O.D. on the 1 1/2 x 1 model will accommodate a 150mm I.D. socket flange. Maximum pump pressure is 65 PSI (4.4 BAR).

Pumps operating at all flow curves are capable of handling solutions of 1.6 S.G. at 75°F (24°C) with maximum 30 CPS. U.S. motors are NEMA56C face, 1/2, 3/4, and 1 HP continuous duty. They are painted with two part epoxy gray enamel and have a 1.15

service factor. Single phase motors are supplied with an 8 ft. (2.4m) 3-wire cord and plug. Three phase motors are not supplied with cord or plug.

**DIMENSIONS<sup>1</sup>**

MODEL	SUCTION & DISCHARGE	MOTOR	DIMENSIONS								
			A	B	C	D	E	F	G	H	J <sup>2</sup>
1 x ¾	1" FNPT ¾" MNPT	NEMA 56C	3.5 (89)	2.75 (70)	3.0 (76)	4.87 (124)	1.81 (46)	2.06 <sup>1</sup> (52)	6.0 <sup>1</sup> (152)	3.5 (89)	80 (203)
	1" FBSP ¾" MBSP	METRIC 71 B3/B14	2.8 (71)	1.8 (45)	3.5 (89)	4.4 (112)					
1½ x 1	1½" FNPT 1" MNPT	NEMA 56C	3.5 (89)	2.75 (70)	3.0 (76)	4.87 (124)	1.87 (47)	2.75 (70)	6.69 (170)	3.87 (98)	90 (228)
	1½" FBSP 1" MBSP	METRIC 80 B3/B14	3.15 (80)	2.0 (50)	3.9 (100)	4.9 (125)					

<sup>1</sup> BSP dimension for F: 2.47 (63), for G: 6.41 (163)

<sup>2</sup> Varies with motor size and manufacturer.  
Dimensions are for reference only.





## ORDERING INFORMATION

**TABLE I** Select flow curve number providing the desired performance. Then select either polypropylene or PVDF construction. Use Price Code Number to order.

Materials in solution contact include Viton, carbon, silica-free ceramic. See TABLE II for other models.

SPECIFIC GRAVITY <sup>1</sup>	MODEL (POLYPROPYLENE PUMP / MOTOR)	PRICE CODE NUMBER	MODEL (PVDF PUMP / MOTOR)	PRICE CODE NUMBER
1.5	1 x ¾ MPVCR 1A C.75	51-4111 B	1 x ¾ MKVCR 1A C.75	51-5111 B
1.3	1½ x 1 MPVCR 2B D1.0	51-6221 F	1½ x 1 MKVCR 2B D1.0	51-7221 F
1.5	1½ x 1 MPVCR 3C D1.5	51-6331 P	1½ x 1 MKVCR 3C D1.5	51-7331 P

<sup>1</sup> Motor HP shown will handle full flow to the listed S.G.

**TABLE II** To determine pump model for use with elevated specific gravity at specified GPM, TDH, or material, select performance point on curve. Move vertically to the corresponding dotted line, then horizontally to HP ordinate. Multi-

ply by specific gravity to determine the required horsepower. Select the pump impeller, magnet coupling and motor to construct the model. Use Price Code No. to order.

PUMP <sup>2</sup>			IMPELLER		MAGNETIC COUPLING			
MODEL NUMBER	MATERIAL	PRICE CODE NO.	FLOW CURVE	ADD TO . . .		MAX. HP		ADD TO . . .
				MODEL NO.	PRICE CODE NO.	60 Hz	50 Hz	MODEL PRICE CODE NO.
1 x ¾ MPVCR	POLYPROPYLENE	51-4	1	1	1	.8	.6	A 1
1 x ¾ MKVCR	PVDF	51-5				1.2	.9	B 2
1½ x 1 MPVCR	POLYPROPYLENE	51-6	2	2	2	1.6	1.2	C 3
1½ x 1 MKVCR	PVDF	51-7	3	3	3			

MOTOR <sup>4</sup>								SHIP WT lbs.
FRAME SIZE		TEFC				IP54		
		SINGLE PHASE ADD TO . . .		THREE PHASE ADD TO . . .		THREE PHASE ADD TO . . .		
		MODEL NO.	PRICE CODE NO.	MODEL NO.	PRICE CODE NO.	MODEL NO.	PRICE CODE NO.	
T E F C	56C	C.5	1A	D.5	1D	—	—	35
		C.75	1B	D.75	1E			40
		C1.0	1C	D1.0	1F			50
		C1.5	1N	D1.5	1P			55
E <sup>3</sup> X P	56C	E.5	1G	F.5	1K	—	—	34
		E.75	1H	F.75	1L			45
		E1.0	1J	F1.0	1M			45
M E T R I C	71B3/B14	—	—	—	—	DM.37 DM.55	2G 2H	19 19
	80B3/B14	—	—	—	—	DM.75	3J	28

<sup>2</sup> For pump only, eliminate letter suffix from Price Code No. and motor suffix from Model.

<sup>3</sup> EXP motors are 60 Hz only; Class 1 Group D and Class 2 Groups F & G.

<sup>4</sup> Single phase - 115/208-230V/1/60 or 190/200-220V/1/50  
Three phase - 208-230/460V/3/60 or 190/380-415V/3/50

For 50 Hz, add **-50** to Model No. and add **5** to Price Code No.



**SERIES M' PUMP (contiuned)**

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**OPTIONAL, use Price Code Number**

DESCRIPTION		ALTER MODEL NO.	ADD TO PRICE CODE NO.
Teflon® bushing		Change <b>C</b> to <b>T</b>	<b>T</b>
EPDM elastomers		Change <b>V</b> to <b>L</b>	<b>1</b>
BSP ports (1 x ¾)	PP	—	51-4000
	PVDF	—	51-5000
BSP ports (1½ x 1)	PP	—	51-6000
	PVDF	—	51-7000
¼" NPT drain and plug	PP	—	51-4001
	PVDF	—	51-5001



**PUMP PRIMING CHAMBER**  
with removable polypropylene basket.  
Use Price Code No. to order

MATERIAL	LIFT *	SUCTION CONNECTION	DIMENSIONS	PRICE CODE NO.
CPVC, Ryton®, Viton	8 ft.	1½" FNPT / 2" MNPT	9" L x 9" W x 12" H	99-1159 R
PVC, Noryl®, Viton	(2.4 m)	(5" dia. removable cover)		99-1159 V

\* Based on water (1.0 S.G.) at 68°F (20°C). Suction lift is approximate and determined by air volume in suction piping.



## SERIES 'D' MAGNETIC COUPLED PUMPS

106

P-504\_S

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4



MODEL 1 x 3/4



MODEL 1 1/2 x 1

### SEAL-LESS AND "LEAK-PROOF" FOR TOTAL SOLUTION CONTAINMENT

*Reliable, trouble-free pumping for:*

### WASTE TREATMENT / FUME SCRUBBING CHEMICALS / PHOTOGRAPHIC ACIDS / PLATING

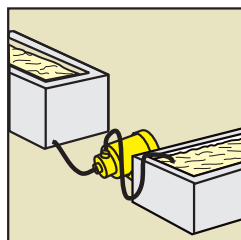
- **Flows to 53 U.S. GPM or 58 FT. TDH @ 60 Hz**  
(167 LPM or 12m @ 50 Hz)
- **Non-metallic solution contact**  
Polypropylene and Ryton  
PVDF  
316 stainless steel  
(See chemical Resistance Chart)
- **Centrifugal** – quiet, vibration-free
- **Rugged construction**  
Designed for continuous duty  
Horizontal or vertical discharge
- **Severe duty motor**  
All motors carry 1.15 service factor at 50 and 60 Hz  
Single phase motors have automatic thermal  
overload protection

**SERIES 'D' Magnetic Coupled Pumps** are seal-less, providing for maintenance-free and "leak-proof" operation. The magnetic coupling acts as a clutch to provide overload protection. The broad range of construction materials allows for a variety of applications and service with most corrosive solutions.

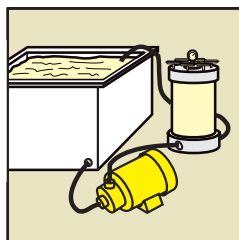
The impeller magnet assembly floats in the radial magnetic field set up by the motor driven external drive magnet. The impeller is designed to deliver the maximum flow

and pressure utilizing the available strength of the synchronized magnets.

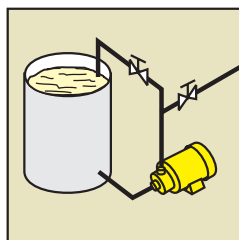
The standard diameter impeller is suitable for water-like liquids to 1.1 specific gravity. Liquids having a higher specific gravity can be pumped if the overall diameter of the impeller is reduced, the outlet flow is restricted, or the restrictions from a filter or other head loss is sufficient to keep the impeller magnet in synchronization.



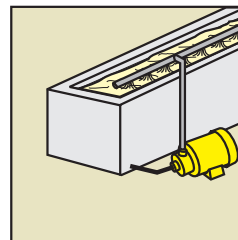
WASTE TREATMENT



FILTRATION



MIXING and  
TRANSFER PUMPING



RECIRCULATION

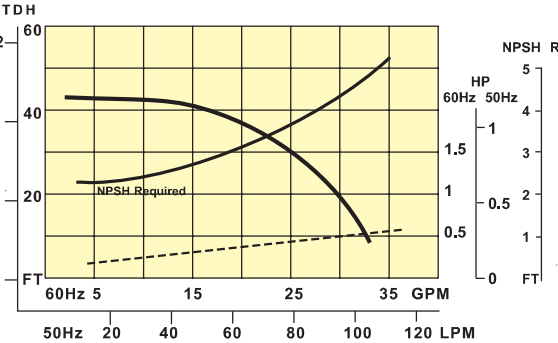


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Pump materials of construction are as specified, all of which include a fluoride resistant ceramic spindle and thrust washer. Casing 'O' ring is Viton® and external fasteners are stainless steel. Standard impeller is designed to pump solutions having a specific gravity up to 1.1. (See flow curves.) For solutions having a higher specific gravity, up to 1.8 maximum, a trimmed impeller is required. Flow rate and TDH will be proportionately reduced. Refer to impeller trim chart, specify impeller diameter and add Price Code No. 48-0200.

Motors are chemical service rated continuous duty, TEFC or explosion proof, painted two-part epoxy gray paint. An eight foot (2.4m) three-wire cord and plug are supplied on all TEFC single phase motors. Three phase and explosion-proof motors are supplied without cord or plug.

SERIES 'D' 1 X 3/4 - CAPACITIES TO 33 U. S. GPM OR 43 FT. TDH @ 60 HZ  
(104 LPM OR 9.1M @ 50 HZ)



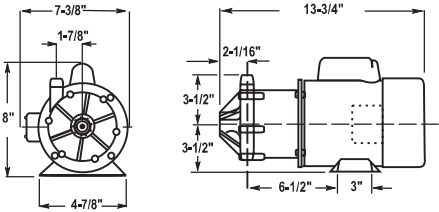
MODEL	SUCTION CASING	IMPELLER BUSHING <sup>3</sup>	LINER	MAX.	TEMP °F (°C)	INLET PRESSURE
MRGR <sup>1</sup>	Ryton	Polypro	Ryton	Ryton	150 (65)	PSI (BAR)
MKGC <sup>2</sup>	PVDF	PVDF	Carbon	PVDF	220 (104)	50 (3.5)

<sup>1</sup> Glass filled casing, liner, and impeller  
<sup>2</sup> Carbon fiber filled PVDF  
<sup>3</sup> Ryton bushings are a blend of Ryton, PTFE, and carbon

PORT SIZES - 1" F x 3/4" M (NPT)

IMPELLER TRIM CHART

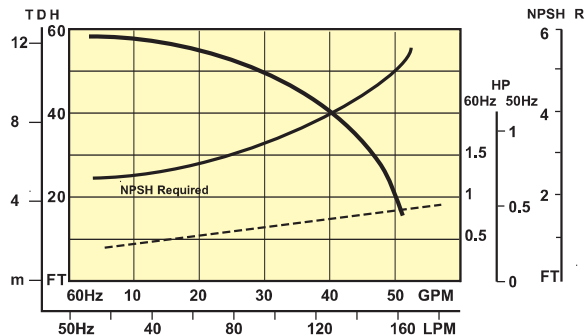
SPECIFIC GRAVITY	1.0 to 1.1	1.1 to 1.3	1.3 to 1.5	1.5 to 1.7	1.7 to 1.9	1.9 to 2.0
IMPELLER DIAMETER 60 Hz	3-1/2 std.	3-1/4	3-1/8	3.0	2-7/8	2-3/4
50 Hz	88.9 mm (3-1/2 in) std.			82.5mm (3-1/4 in.)		



TO ORDER, use Price Code Number

MODEL NUMBER	w/TEFC MOTOR			w/EXP. MOTOR CLASS I GROUP D CLASS II GROUP F & G			MOTOR VOLTAGE
	ADD TO MOD. NO.	PRICE CODE NO.	SHIPPING WEIGHT	ADD TO MOD. NO.	PRICE CODE NO.	SHIPPING WEIGHT	
	(HP)		Lbs (kg)	(HP)		Lbs (kg)	
1 x 3/4 MRGR	-C.5	44-4101	30 (14)	-E.75	44-4301A <sup>4</sup>	37 (17)	115/190-230/1/50-60
1 x 3/4 MKGC		44-4105			44-4302A <sup>4</sup>		
1 x 3/4 MRGR	-D.5	44-4101C	27 (12)	-F.75	44-4301C	34 (15)	190-230/380-415-460/3/50-60
1 x 3/4 MKGC		44-4105C			44-4302C		

<sup>4</sup> 60 Hz only

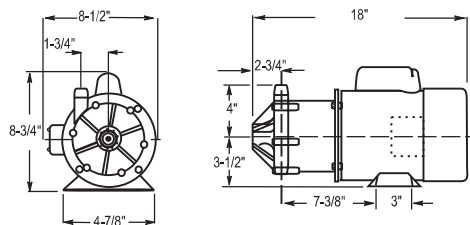
2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**SERIES 'D' 1-1/2 X 1 - CAPACITIES TO 53 U. S. GPM OR 58 FT.TDH @ 60 HZ  
(167 LPM OR 12M @ 50 HZ)****CONSTRUCTION MATERIALS**

MODEL	SUCTION CASING	IMPELLER	BUSHING <sup>3</sup>	LINER	MAX. TEMP °F (°C)	MAX. INLET PRESSURE PSI (BAR)
MPGR <sup>1</sup>	Polypro	Polypro	Ryton	Ryton	150 (65)	50 (3.5)
MSGR	316 SS	316 SS	Ryton	316 SS	250 (121)	200 (13.8)
MKGC <sup>2</sup>	PVDF	PVDF	CARBON	PVDF	220 (104)	75 (5.2)

<sup>1</sup> Glass filled casing, impeller and liner<sup>3</sup> Ryton bushings are a blend of Ryton, PTFE, and carbon<sup>2</sup> Carbon fiber filled PVDF**IMPELLER TRIM CHART**

SPECIFIC GRAVITY	1.0 to 1.1	1.1 to 1.3	1.3 to 1.5	1.5 to 1.7	1.7 to 1.9 °F (°C)	1.9 to 2.0 PSI (BAR)
IMPELLER DIAMETER 60 Hz	3-3/4 std	3-5/8	3-1/2	3-3/8	3-1/4	3-1/8
50 Hz	95.2mm (3-3/4 in) std.				88.9 mm (3-1/2 in.)	

PORT SIZES - 1-1/2" F x 1" M (NPT)

**TO ORDER, use Price Code Number**

MODEL NUMBER	w/TEFC MOTOR			w/EXP. MOTOR			MOTOR VOLTAGE
	ADD TO MOD. NO.	PRICE CODE NO.	SHIPPING WEIGHT	ADD TO MOD. NO.	PRICE CODE NO.	SHIPPING WEIGHT	
	(HP)		Lbs (kg)	(HP)		Lbs (kg)	
1-1/2 x 1 MPGR		44-0581	42 (19)		44-0571A <sup>4</sup>	49 (22)	115/190-230/1/50-60
1-1/2 x 1 MSGR	-C.75	44-0441	49 (22)	-E.75	44-0691A <sup>4</sup>	56 (25)	
1-1/2 x 1 MKGC		44-0585	42 (19)		44-4304A <sup>4</sup>	49 (22)	
1-1/2 x 1 MPGR		44-0581C	32 (15)		44-0571C	39 (18)	190-230/380-415-460/3/50-60
1-1/2 x 1 MSGR	-D.75	44-0441C	39 (18)	-F.75	44-0691C	46 (21)	
1-1/2 x 1 MKGC		44-0585C	32 (15)		44-4304C	39 (18)	

<sup>4</sup> 60 Hz only**OPTIONAL**

		EXAMPLE	ADD TO PRICE CODE NO.
Chemic (PTFE & mica) bushing <sup>5</sup>	change <b>R</b> to <b>K</b> in Model No.	MPG <b>K</b>	- K
Carbon bushing	change <b>R</b> to <b>C</b> in Model No.	MPG <b>C</b>	- L
Stainless steel liner	add <b>S</b> to Model No.	MP <b>S</b> GR	- M
Stainless steel spindle & thrust washer	change <b>G</b> to <b>S</b> in Model No.	M <b>S</b> SR	- N

<sup>5</sup> This is a replacement for bushings formerly referred to as Chem-



# SERIES 'FE' MAGNETIC-COUPLED PUMPS

109

P-518

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## EFFICIENCY, RELIABILITY AND PERFORMANCE

**WASTES / ACIDS**  
**CHEMICALS / PLATING**  
**PHOTOGRAPHIC ETCHING**

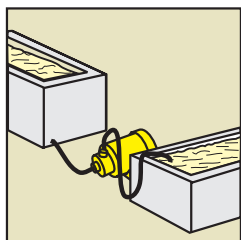
- **Flows to 130 GPM or 97 ft. TDH @ 60 Hz**  
(483 LPM or 27.3 m @ 50 Hz)
- **Non-metallic solution contact**  
Glass reinforced polypropylene or  
carbon reinforced PVDF  
(See a chemical resistance chart)
- **High operating efficiency – up to 70%**
- **Capable of running dry without damage**
- **Powerful rare earth magnets**  
Provide sure coupling to 1.8 S.G.
- **Choice of connections – NPT or BSP threads,  
flanges or unions**
- **Accepts standard motors NEMA or IEC metric**

4

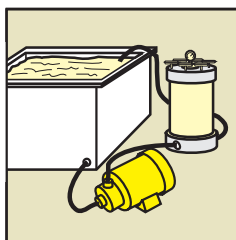
Series 'FE' magnetic coupled pumps are seal-less and "leak-proof", providing total solution containment. They are available in a choice of two different corrosion resistant materials for a wide range of chemical and temperature compatibility and are ideal for handling even the most difficult applications.

The Series 'FE' magnetic coupled pumps offer extremely high operating efficiencies for their size; up to 70%. This technological advancement results in smaller motor horsepower and means lower energy consumption and operating costs over the long life cycle of the pump.

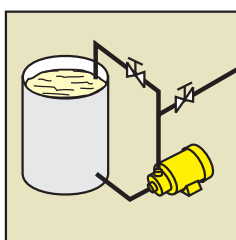
These pumps utilize powerful rare earth, neodymium, magnets which allow them to operate at full flow with a full size impeller while handling liquids over 1.8 specific gravity. Additionally the Series 'FE' is capable of running dry without damage when equipped with the standard carbon bushing and under optimum operating conditions. This helps protect the pump from operator errors and system upsets. Their innovative and highly efficient design, and low energy consumption make these pumps one of the most versatile and economical centrifugal pumps on the market.



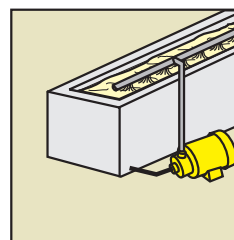
WASTE TREATMENT



FILTRATION



MIXING and  
TRANSFER PUMPING



RECIRCULATION





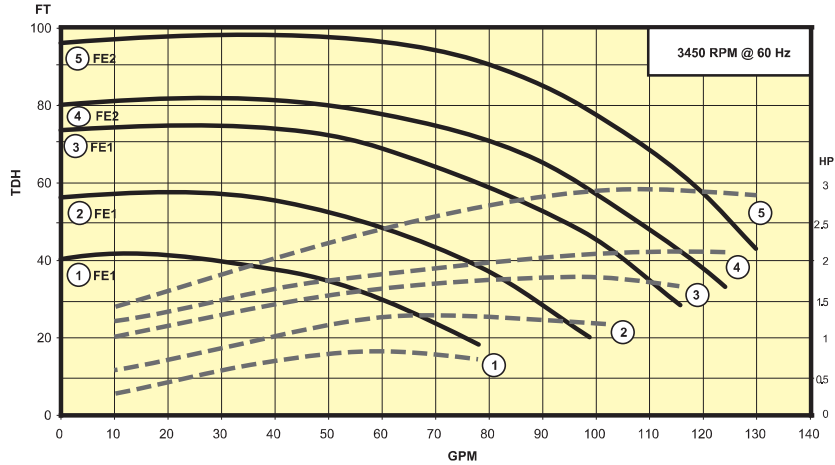
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Standard models are constructed of glass-fiber reinforced polypropylene or carbon-fiber reinforced PVDF for suction casing, magnet liner and impeller. Impeller magnets are encapsulated in unfilled polypropylene or unfilled PVDF. The front and rear thrust rings and shaft are high purity, fluoride resistant alumina ceramic. The impeller thrust ring

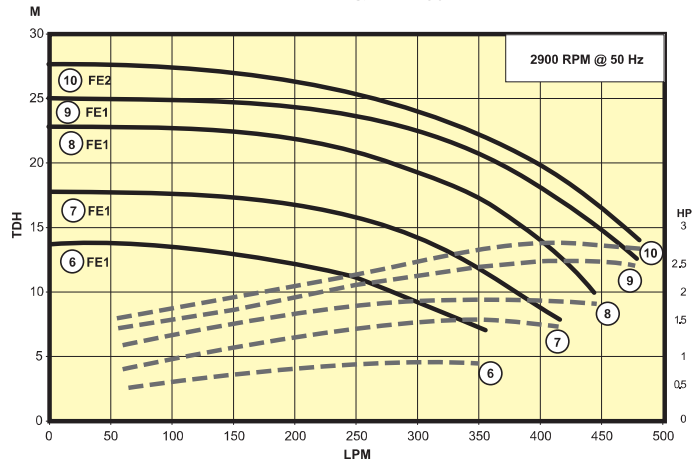
is molybdenum disulfide filled PTFE. The casing 'O' ring is viton. Maximum pump pressure; 90 PSI (6.2 bar).

Motors are continuous-duty, painted with two-part gray epoxy enamel and have a 1.5 service factor. Single phase motors are supplied with 8 ft. (2.4m) of 3-wire cord and plug. Three phase motors are not supplied with cord.

FE1 & FE2 - 60 Hz



FE1 & FE2 - 50 Hz





# SERIES 'FE' Pump Ordering Information

111

P-518

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

**For standard 60HZ pump-motor combination, select model from TABLE I**  
**For custom pump-motor combination, select from components in TABLE II**

**TABLE I**

Select pump-motor model or flow curve number providing the desired performance

## MODEL FE1

FLOW CURVE	POLYPROPYLENE PUMP / MOTOR		PVDF PUMP / MOTOR		* Motor HP shown will handle full flow to a S.G. of:
	MODEL NUMBER	PRICE CODE NUMBER	MODEL NUMBER	PRICE CODE NUMBER	
1	FE1MPVGC 1A-D1.0	51-0211G	FE1MKVGC 1A-D1.0	51-0311G	1.35
2	FE1MPVGC 2A-D1.5	51-0221J	FE1MKVGC 2A-D1.5	51-0321J	1.23
3	FE1MPVGC 3B-D2.0	51-0232K	FE1MKVGC 3B-D2.0	51-0332K	1.14

## MODEL FE2

4	FE2MPVGC 4C-D3.0	51-0443L	FE2MKVGC 4C-D3.0	51-0543L	1.45
5	FE2MPVGC 5C-D5.0	51-0454P	FE2MKVGC 5C-D5.0	51-0554P	1.75

\* For higher specific gravity or reduced flow, refer to HP required. Then refer to Table II and construct Model and Price Code Number accordingly

**TABLE II**

To determine pump-motor for a specific flow, TDH, and/or specific gravity, select flow/pressure point on performance curve (solid line). Required HP is determined by moving vertically to corresponding HP

curve (dotted line) and then horizontally to HP scale. Multiply indicated HP by specific gravity of fluid to be pumped. Select pump materials and construct Model and Price Code.

**EXAMPLE: PUMP + IMPELLER + MAGNET/FRAME + MOTOR = PRICE CODE NO.**  
 FE1MPVGC + 3 + B + D2.0 = 51-0232K

### PUMP<sup>1</sup>

MODEL NUMBER	PCN
FE1 MPVGC Polypropylene	51-02
FE1 MKVGC PVDF	51-03
FE2 MPVGC Polypropylene	51-04
FE2 MKVGC PVDF	51-05

### IMPELLER

	MODEL	FLOW CURVE	ADD TO	
			MODEL	PCN
60 HZ	FE1	1	1	1
		2	2	2
		3	3	3
	FE2	4	4	4
		5	5	5
50 HZ	FE1	6	6	6
		7	7	7
		8	8	8
	FE2	9	9	9
		10	10	0

<sup>1</sup> For pump only eliminate motor suffix from price code number.

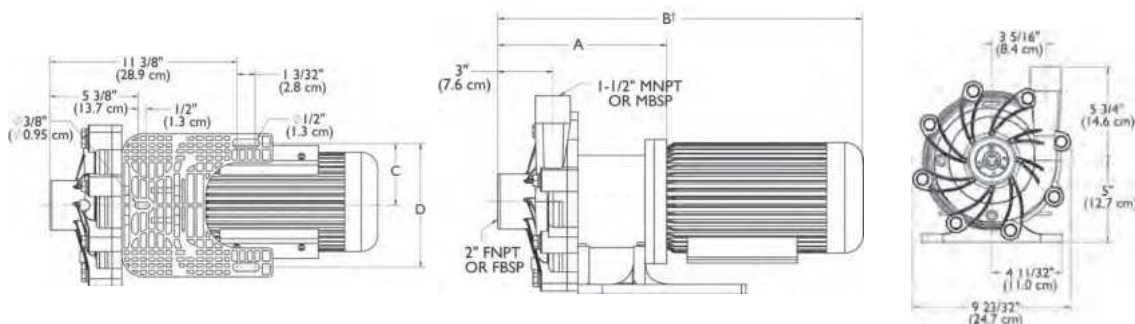
<sup>2</sup> single phase —  
 115-208-230V/1/60 or  
 110-220V/1/50  
 Three phase —  
 208-230-460V/3/60 or  
 220-380V/3/50

MAGNET SET / FRAME SIZE						MOTOR <sup>2</sup>			
	HP/KW	MAGNET SET	FRAME SIZE	ADD TO		SINGLE PHASE		THREE PHASE	
				MODEL	PCN	MODEL	PCN	MODEL	PCN
60 HZ	.75	6 POLE	56C	A	1	-C.75	A	-D.75	E
	1.0	6 POLE	56C	A	1	-C1.0	C	-D1.0	G
	1.5	6 POLE	56C	A	1	-C1.5	D	-D1.5	J
	2.0	6 POLE	143/5 TC	B	2	—	—	-D2.0	K
	3.0	8 POLE	143/5 TC	C	3	—	—	-D3.0	L
	5.0	10 POLE	182/4 TC	D	4	—	—	-D5.0	P
50 HZ	1.0	6 POLE	56C	A	1	C1.0-50	A	-D1.0-50	D
	1.5	6 POLE	56C	A	1	C1.5-50	C	—	—
	1.5	6 POLE	143/5 TC	B	2	—	—	-D1.5-50	E
	2.0	6 POLE	143/5 TC	B	2	—	—	-D2.0-50	G
	3.0	8 POLE	182/4 TC	E	5	—	—	-D3.0-50	J
	5.0	10 POLE	182/4 TC	H	7	—	—	-D5.0-50	K
	1.0/1.75	6 POLE	80 FR	C	3	—	—	-DM.75	L
	1.5/1.1	6 POLE	80 FR	C	3	—	—	-DM1.1	P
	2.0/1.5	6 POLE	90 FR	D	4	—	—	-DM1.5	Q
	3.0/2.2	8 POLE	90 FR	F	6	—	—	-DM2.2	U
	4.0/3.0	10 POLE	100 FR	J	8	—	—	-DM3.2	V
	5.5/4.0	10 POLE	112 FR	M	9	—	—	-DM4.2	W

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**OPTIONAL, use Price Code Number**

DESCRIPTION	ADD OR CHANGE MODEL	ADD TO PCN
O-RING: (Change V in Model)		
EPDM	-L	1
Gylon gasket	-G	2
Simriz	-Z	3
Kalrez	-K	4
Bushing: (Change C in Model)		
Teflon	-T	T
Alumina Ceramic	-R	R

DESCRIPTION	ADD OR CHANGE MODEL	ADD TO PCN
CONNECTIONS:		
BSP threads	-B	B
Union	-U	U
Flange	-F	F
SPECIALS:		
SiC (bushing, thrust ring, shaft)	-S	S
Hastelloy shaft	-H	H
Titanium hardware	-M	M
Non-Sparking ring	-N	N

**DIMENSIONS**

MOTOR FRAME	A	B	C	D	Weight - lbs (kg)	
					PP	PVDF
NEMA 56C	8-17/32" (21.7cm)	20-17/32" (52.1cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	21.6 (9.8)	22.8 (10.3)
NEMA 145	8-17/32" (21.7cm)	18-29/32" (48.0cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	21.6 (9.8)	22.8 (10.3)
NEMA 184	9-13/32" (23.9cm)	22-6/32 (56.4 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25.7 (11.7)	26.9 (12.2)
IEC 80/90 w/B14 or B5*	9-5/32" (23.3 cm)	19-11/16" (50.0 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	22.1 (10)	23.3 (10.6)
IEC 80/90 w/B14 ATEX*	9-5/32" (23.3 cm)	19-7/8" (50.5 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	N/A	23.5 (10.7)
IEC 100 w/B14 or B5*	9-7/32" (23.4 cm)	21-3/8" (54.3 cm)	3-5/32" (8.0 cm)	6-10/32" (16.0 cm)	25.2 (11.4)	26.4 (12)
IEC 100 w/B14 ATEX*	9-7/32" (23.4 cm)	21-3/8" (54.3 cm)	3-5/32" (8.0 cm)	6-10/32" (16.0 cm)	N/A	26.6 (12.1)
IEC 112 w/B14 or B5*	9-7/32" (23.4 cm)	21-7/8" (55.6 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25.2 (11.4)	26.4 (12)
IEC 112 w/B14 ATEX*	9-7/32" (23.4 cm)	21-7/8" (55.6 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	N/A	26.6 (12.1)



# SERIES 'Z' CENTRIFUGAL MAGNETIC COUPLED PUMPS

113

P-512\_A

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## NON-METALLIC AND SEAL-LESS PUMP PROVIDING TOTAL VAPOR AND SOLUTION CONTAINMENT FOR:



### ACID / AQUEOUS / CAUSTIC CHEMICAL / PLATING PHOTOGRAPHIC

- **Flows to 145 U.S. GPM @ 60 Hz**  
(548 LPM @ 50 Hz)
- **Non-metallic solution contact**  
Polypropylene / Viton® or ETFE / Viton  
(See a chemical resistance chart)
- **Powerful magnets**
- **Seal-less pump provides zero leakage and low friction for energy efficiency**
- **High efficiency closed impellers**

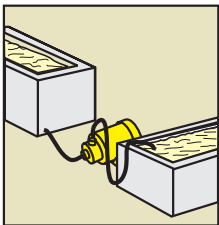
4

**Series 'Z' Magnetic Coupled Pumps** are the latest in magnetic coupled pump technology. Tested and proven design features provide a pump that is seal-less and leakproof. Available materials of construction and flow capacity to 145 U.S. GPM make this pump an excellent choice for a wide variety of applications.

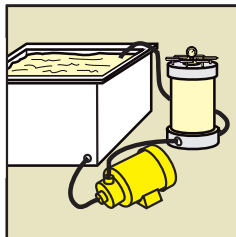
Standard 'Z' models have strong magnets, allowing them to provide continuous flow with liquids up to 1.1 specific gravity. Trimmed impellers allow continuous flow with liquids to 1.9 specific gravity. Durable and

corrosion resistant construction of polypropylene or ETFE ensures efficient and reliable performance for even the most critical applications. Standard TEFC motors, strong magnets and highly efficient impellers provide a quiet and efficient pump designed for years of trouble-free operation.

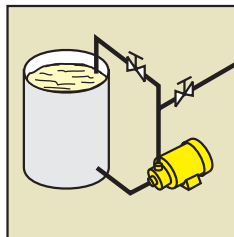
The following information covers standard Series 'Z' models for use with solutions to 1.1 specific gravity. For other models consult Sales Department.



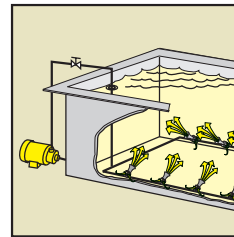
WASTE TREATMENT



FILTRATION



TRANSFER PUMPING  
EDUCTOR AGITATION



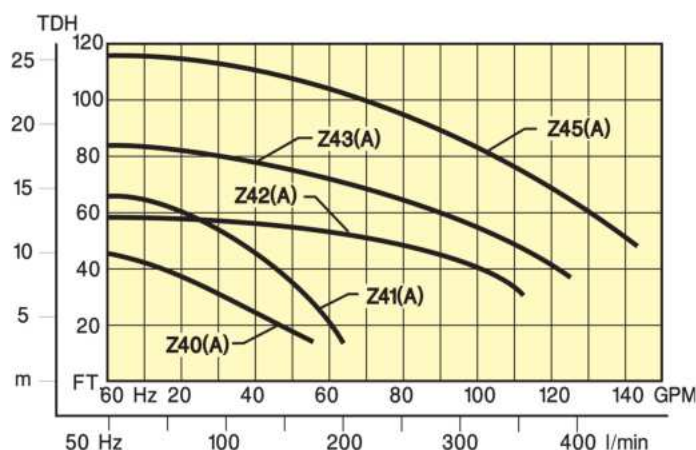
and MIXING



## SERIES 'Z' PUMPS Performance and Dimensions

P-512\_A

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NOTE:

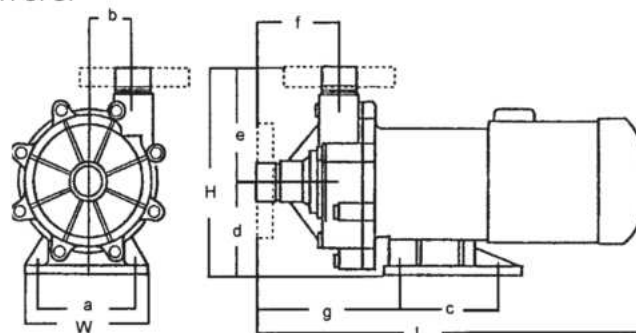
3450 RPM @ 60Hz

2850 RPM @ 50Hz

Flows with 1.1 specific gravity.

FLOW CURVE	PORT SIZE IN x OUT (FNPT x MNPT)	PORT SIZE IN x OUT (mm)	BEST EFFICIENCY POINT (GPM @ ft.)	MAXIMUM FLOW (GPM)	MAXIMUM HEAD (ft.)	HP
Z40(A*)	1½" x 1½"	40 x 40	30 @ 30	52	44	.5
Z41(A*)	1½" x 1½"	40 x 40	40 @ 44	64	58	1.0
Z42(A*)	2" x 1½"	50 x 40	80 @ 44	110	58	2.0
Z43(A*)	2" x 1½"	50 x 40	85 @ 60	125	83	3.0
Z45(A*)	2" x 1½"	50 x 40	100 @ 86	145	115	5.0

\*A series impeller for 1.1 S. G.



MODEL	PORT NPT		DIMENSIONS (inches)									
	IN	OUT	W	H	L**	a	b	c	d	e	f	g
Z40	1 1/2	1½	5.52	8.33	9.12	4.33	2.01	3.86	3.78	9.87	3.28	5.77
Z41	1 1/2	1½	6.30	9.75	19.56	5.12	2.27	5.12	4.53	10.31	3.78	6.98
Z42	2	1½	10.23	9.84	23.34	8.19	2.56	7.87	4.53	12.22	3.31	6.03
Z43	2	1½	10.23	9.84	24.22	8.19	2.56	7.87	4.53	12.22	3.31	6.03
Z45	2	1½	10.94	10.44	26.66	8.19	2.56	7.87	5.12	13.16	3.31	6.03

\*\*Varies with motor manufacturer.



**POLYPROPYLENE PUMP and MOTOR**

**POLYPROPYLENE / VITON (CHCR\*)**

FLOW CURVE	MAX FLOW GPM	MAX TDH Ft.	HP/ø	CONNS. NPT	MODEL NUMBER	PRICE CODE NO.
Z40(A)	52	44	0.5/1 0.5/3	1½" x 1½"	Z40PV 1½T CHCR A C.5 Z40PV 1½T CHCR A D.5	82-3178 1J 82-3178 1K
Z41(A)	64	58	1.0/1 1.0/3	1½" x 1½"	Z41PV 1½T CHCR A C1.0 Z41PV 1½T CHCR A D1.0	82-4178 1N 82-4178 1P
Z42(A)	110	58	2.0/1 2.0/3	2" x 1½"	Z42PV 2T CHCR A C2.0 Z42PV 2T CHCR A D2.0	82-5188 1Q 82-5188 1R
Z43(A)	125	83	3.0/3	2" x 1½"	Z43PV 2T CHCR A D3.0	82-6188 1S
Z45(A)	145	115	5.0/3	2" x 1½"	Z45PV 2T CHCR A D5.0	82-7188 1T

**POLYPROPYLENE / VITON (SCR\*)**

Z40(A)	52	44	0.5/1 0.5/3	1½" x 1½"	Z40PV 1½T SCR A C.5 Z40PV 1½T SCR A D.5	82-3179 1J 82-3179 1K
Z41(A)	64	58	1.0/1 1.0/3	1½" x 1½"	Z41PV 1½T SCR A C1.0 Z41PV 1½T SCR A D1.0	82-4179 1N 82-4179 1P
Z42(A)	110	58	2.0/1 2.0/3	2" x 1½"	Z42PV 2T SCR A C2.0 Z42PV 2T SCR A D2.0	82-5189 1Q 82-5189 1R
Z43(A)	125	83	3.0/3	2" x 1½"	Z43PV 2T SCR A D3.0	82-6189 1S
Z45(A)	145	115	5.0/3	2" x 1½"	Z45PV 2T SCR A D5.0	82-7189 1T

**ETFE PUMP and MOTOR**

**ETFE / VITON (CHCR\*)**

FLOW CURVE	MAX FLOW GPM	MAX TDH Ft.	HP/ø	CONNS. NPT	MODEL NUMBER	PRICE CODE NO.
Z40(A)	52	44	0.5/1 0.5/3	1½" x 1½"	Z40EV 1½T CHCR A C.5 Z40EV 1½T CHCR A D.5	82-3378 1J 82-3378 1K
Z41(A)	64	58	1.0/1 1.0/3	1½" x 1½"	Z41EV 1½T CHCR A C1.0 Z41EV 1½T CHCR A D1.0	82-4378 1N 82-4378 1P
Z42(A)	110	58	2.0/1 2.0/3	2" x 1½"	Z42EV 2T CHCR A C2.0 Z42EV 2T CHCR A D2.0	82-5388 1Q 82-5388 1R
Z43(A)	125	83	3.0/3	2" x 1½"	Z43EV 2T CHCR A D3.0	82-6388 1S
Z45(A)	145	115	5.0/3	2" x 1½"	Z45EV 2T CHCR A D5.0	82-7388 1T

**ETFE / VITON (SCR\*)**

Z40(A)	52	44	0.5/1 0.5/3	1½" x 1½"	Z40EV 1½T SCR A C.5 Z40EV 1½T SCR A D.5	82-3379 1J 82-3379 1K
Z41(A)	64	58	1.0/1 1.0/3	1½" x 1½"	Z41EV 1½T SCR A C1.0 Z41EV 1½T SCR A D1.0	82-4379 1N 82-4379 1P
Z42(A)	110	58	2.0/1 2.0/3	2" x 1½"	Z42EV 2T SCR A C2.0 Z42EV 2T SCR A D2.0	82-5389 1Q 82-5389 1R
Z43(A)	125	83	3.0/3	2" x 1½"	Z43EV 2T SCR A D3.0	82-6389 1S
Z45(A)	145	115	5.0/3	2" x 1½"	Z45EV 2T SCR A D5.0	82-7389 1T

- Pumps good to 1.1 specific gravity.
- For heavier solutions, consult Sales Dept. for performance and operating voltage.
- TEFC, 3450 RPM, 'C' motors are 110-220V/1/60 Hz; 'D' motors are 208-230-460V/60 Hz.
- For 50 Hz motors, add -5 to Model and Price Code Nos
- For EPDM elastomers, consult Sales Department.

**\* FRICTION SURFACES**

MODEL	SPINDLE	REAR THRUST	FRONT THRUST	BEARING	MOUTH RING
CHCR SCR	Ceramic SiC	Ceramic SiC	Ceramic SiC	H.D. Carb. SiC	Rulon Rulon





# SERIES 'TM-SS' CENTRIFUGAL MAGNETIC COUPLED PUMPS

116

P 516\_B

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**CAST 316 STAINLESS STEEL CONSTRUCTION**  
**RUGGEDLY ENGINEERED FOR LONG TERM RELIABILITY IN DEMANDING**

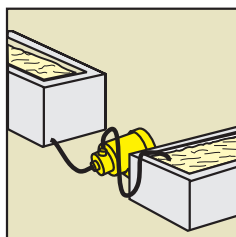
**CLEANERS / SEMI-CONDUCTORS / INKS**  
**FUME SCRUBBERS / PHOTO PROCESSING**  
**WASTE WATER TREATMENT**

- **Flows to 160 GPM or 79 ft. TDH @ 60 Hz**  
(505 LPM or 16.7m @ 50 Hz)
- **316 stainless steel construction**  
PTFE gaskets standard  
(See a chemical resistance chart)
- **High torque magnets**
- **Massive thrust bearings**
- **Seal-less, leak-free magnetic coupled**
- **Centrifugal, quiet, vibration-free**
- **Heavy walled voluted casings**
- **For use with standard NEMA or IEC 'C'-face motors**

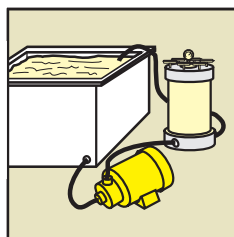


**The Series 'TM-SS' Magnetic Coupled Pump** directly addresses the weaknesses of other magnetic drive pumps. From high torque compact magnets to a large diameter, reduced length shaft to massive precision finished thrust bearings, the 'TM-SS' pump is designed to excel where other pumps fail. Heavy

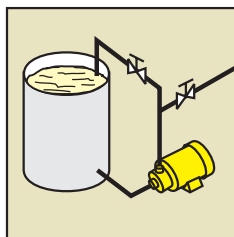
walled voluted casings improve pump strength, internal shaft support, chemical resistance, pressure and temperature capabilities as well as hydraulic efficiencies. Standard models are non-overloading with stated elevated specific gravity liquids.



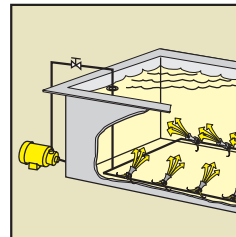
WASTE TREATMENT



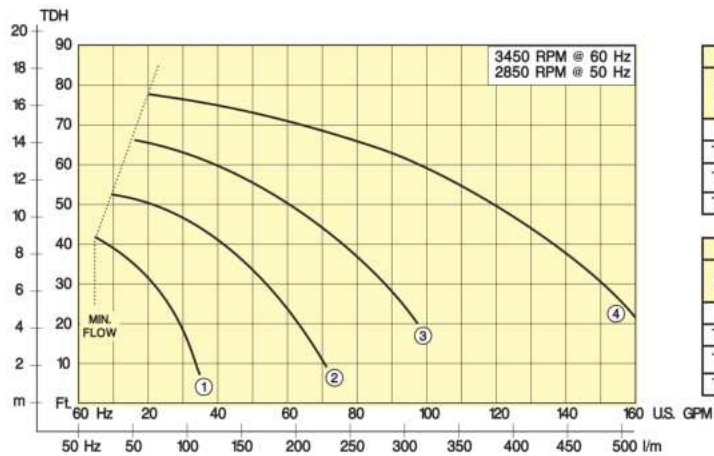
FILTRATION



TRANSFER PUMPING



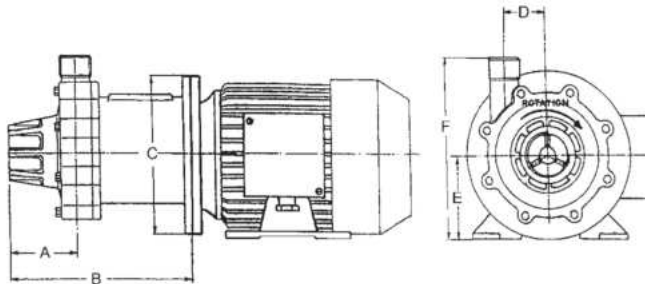
EDUCTOR AGITATION  
and MIXING

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DIMENSIONS Inches				
MODEL	NEMA FRAME	A	B	C
TMSS6	56C	2-1/4	8-1/4	6-5/8
TMSS10		2-3/4	9	6-5/8
TMSS15	145TC	3-1/8	10-1/8	7-7/8
TMSS30	184TC	3-1/4	10-3/4	10-1/8

DIMENSIONS Inches				
MODEL	NEMA FRAME	D	E	F
TMSS6	56C	1-3/4	3-1/2	7
TMSS10		1-3/4	3-1/2	7-3/8
TMSS15	145TC	2-1/2	3-1/2	8-3/8
TMSS30	184TC	2-5/8	4-1/2	10

NOTE: Motor dimensions may vary.

**Series 'TM-SS' 316 stainless steel / PTFE:**

316 SS casing, impeller, impeller magnet and shaft. Special carbon stationary and front thrust bearing. SIC shaft sleeve bearing. PTFE casing gaskets standard. To order, use Price Code No. (Maximum operating temperature 300°F Maximum psi 250)

FLOW CURVE	MAX. FLOW <sup>1</sup>		MAX. TDH <sup>2</sup>		MAX. S. G. <sup>3</sup>	HP	IMPELLER DIA.	CONNECTIONS SUCT. x DISCH.	MODEL NO.	PRICE CODE NO.	SHIPPING WT. (lbs.)
	GPM	LPM	ft.	m							
1	32	100	41	8.7	1.3	.75	3.13"	1" FNPT x 3/4" MNPT	TMSS6.2H-3.13-D.75	51-0114	40
2	69	218	58	12.3	1.4	2.0	3.78"	1 1/2" FNPT x 1" MNPT	TMSS10.2H-3.78-D2.0	51-0115	59
3	100	315	67	14.2	1.4	3.0	4.13"	2" FNPT x 1 1/2" MNPT	TMSS15.2H-4.13-D3.0	51-0116	80
4	160	505	79	16.7	1.4	5.0	4.50"	2" FNPT x 1 1/2" MNPT	TMSS30.2H-4.50-D5.0	51-0117	159

<sup>1</sup> GPM @ 60 Hz, LPM @ 50 Hz<sup>2</sup> ft. TDH @ 60 Hz, m TDH @ 50 Hz<sup>3</sup> Motors are non-overloading at stated specific gravity.

Motors are TEFC, 230 - 460V / 3Ø / 60Hz

.75 HP motor may be ordered as single phase

To order 115 - 230V / 1Ø / 60, change **D** to **C** in Model No. and add **-1** to Price Code No.

Consult sales department for 50 Hz motors.



## SERIES 'UC' MAGNETIC COUPLED PUMPS

118

P-514\_B

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### EXTREME RELIABILITY FOR:

**PLATING / CHEMICAL PROCESSES**  
**STRONG ACIDS & ALKALIES**  
**PULP - PAPER / PHARMACEUTICAL**  
**PETROCHEMICAL / WATER TREATMENT**



- **Flows to 330 U.S. GPM or 320 ft. TDH @ 60 Hz**  
(983 LPM or 67m TDH @ 50 Hz)
- **Non-metallic solution contact**  
ETFE (fluoropolymer) lined high strength ductile iron casing  
Silicon carbide shaft and bushings for applications to 250° F (121° C)  
(See a chemical resistance chart)
- **ANSI dimensional**
- **Powerful rare earth magnets**  
Neodymium boron iron for maximum power and reliability
- **Magnetic coupled** for leak-free pumping
- **Accepts standard motors**  
NEMA or IEC metric

**Series 'UC' Magnetic Coupled Pumps** are seal-less, ANSI dimensional, ETFE lined pumps that are specifically designed for corrosive chemical applications in a wide range of industrial services.

The Series 'UC' pump is engineered to provide the utmost in reliability and longer pump life in even the most extreme applications. All wetted surfaces are non-metallic to provide superior chemical resistance. The Series 'UC' pump has a tough ductile iron casing bonded with a pure Tefzel® (ETFE) lining. The enclosed impeller and pump liner are precision molded from carbon fiber reinforced ETFE while the pump liner also has an external containment shell of glass reinforced vinyl ester for optimum pressure resistance.

The dual impeller bushings, shaft and front and rear thrust rings are sintered silicon carbide. The impeller thrust ring is manufactured from Fluorosint®.

These components provide exceptional chemical resistance and wear characteristics at all flows.

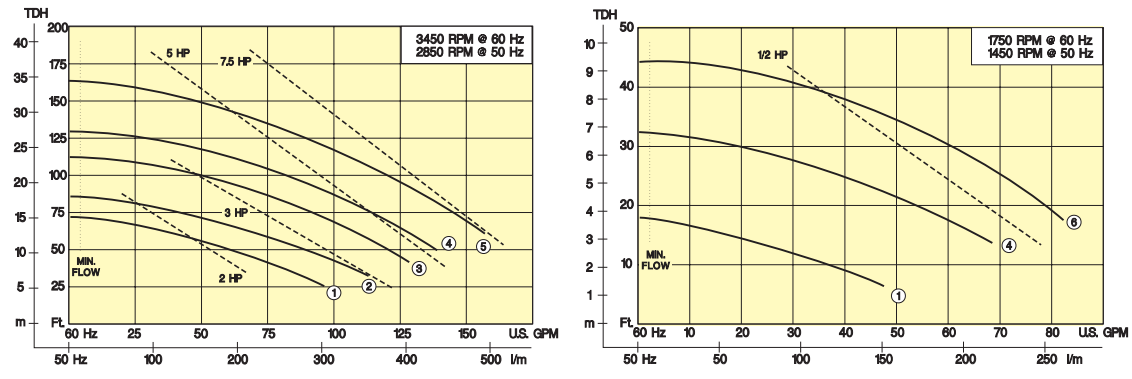
The modified concentric volute and generous impeller balance holes equalize pressure across the entire flow range, allowing minimal hydraulic thrust loads and decreased stress on the impeller. These design innovations provide reduced wear on critical pump components.

Series 'UC' pumps also utilize straightening vanes in the suction to prevent "pre-rotation" and reduced turbulence on the impeller for enhanced low flow operation.

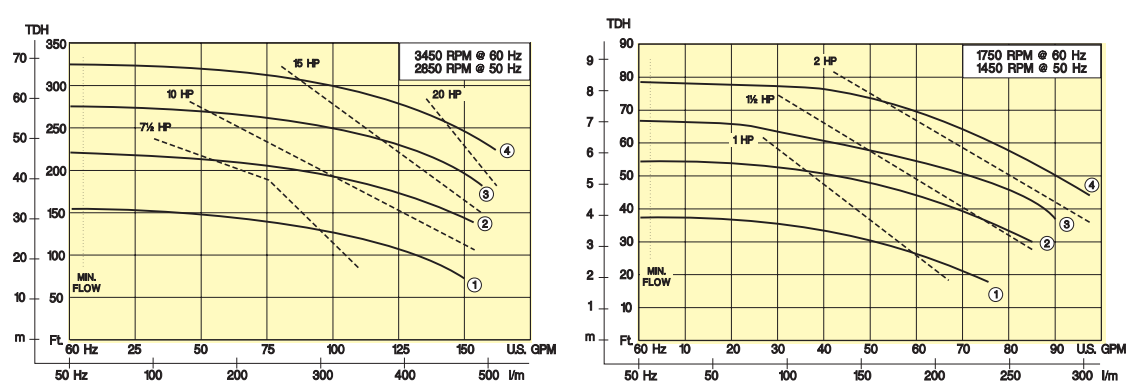
Series 'UC' magnetic coupled pumps are designed to perform efficiently with great reliability and low maintenance requirements and to provide increased productivity and minimal operating costs. In short, they provide great value in critical pumping applications.



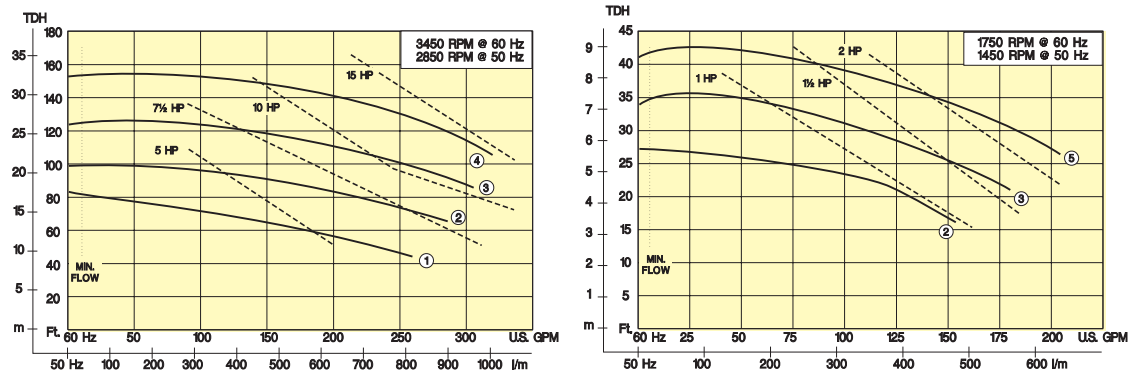
MODEL UC1516 (1½ x 1 x 6)



MODEL UC1518 (1½ x 1 x 8)



MODEL UC326 (3 x 2 x 6)



Consult Sales Dept for 50 Hz HP requirements.



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## SPECIFICATIONS

- **Materials of construction**  
Casing — ductile iron ETFE lined  
Impeller & liner — carbon filled ETFE  
Shaft & bushings — silicon carbide  
'O'-ring — Viton (EPDM optional)
- **Working pressure** — 175 PSI max.
- **Maximum temperature** — 250°F (121° C)
- **Maximum viscosity** — 200 cps
- **Casing dimensions** — ANSI / ASME B73.1 m
- **Flange mounting** — ANSI or ISO
- **Motors** — NEMA or IEC to 20 HP (15 kW)

## TO ORDER, use Price Code No.

**For pump - motor combination, select components from table below.**

To determine pump-motor for a specific flow, TDH and/or specific gravity, select flow/pressure point on performance curve (solid line). Required horsepower is determined by the section of the impeller curve falling below and/or to the left of the dotted HP curve.

Multiply the indicated HP by the specific gravity of the fluid to be pumped. Select pump, then impeller curve, magnet assembly and motor; then compile Model and Price Code Numbers.

## EXAMPLE:

For UC1516 pump @ 3450 RPM, impeller curve 4, magnet assembly A and 7.5 HP motor

**Model No.:** UC1516 + -4 + A + -D7.5 = UC1516-4A-D7.5  
**Price Code No.:** 63-1 + 4 + 1 + 2C = 63-1412 C

PUMP <sup>1</sup>	
MODEL	PRICE CODE NO.
UC1516	63-1
UC1518	63-2
UC326	63-3

IMPELLER		
IMPELLER CURVE	ADD TO	
	MODEL	PRICE CODE NO.
1	-1	1
2	-2	2
3	-3	3
4	-4	4
5	-5	5
6	-6	6

MAGNET ASSEMBLY		
MAXIMUM HP	ADD TO	
	MODEL	PRICE CODE NO.
7.5	A	1
20.0	B	2

MOTOR <sup>2</sup>				
RPM	TEFC		ADD TO	
	NEMA FRAME	HORSE-POWER	MODEL	PRICE CODE NO.
3450 @ 60 Hz	145TC	3.0	-D3.0	3A
	182/4TC	5.0	-D5.0	2B
		7.5	-D7.5	2C
	215TC	10.0	-D10.0	5D
		15.0	-D15.0	5E
1725 @ 60 Hz	256TC	20.0	-D20.0	6F
	143/5TC	1.5	-H1.5	3G
	182/4TC	3.0	-H3.0	2H

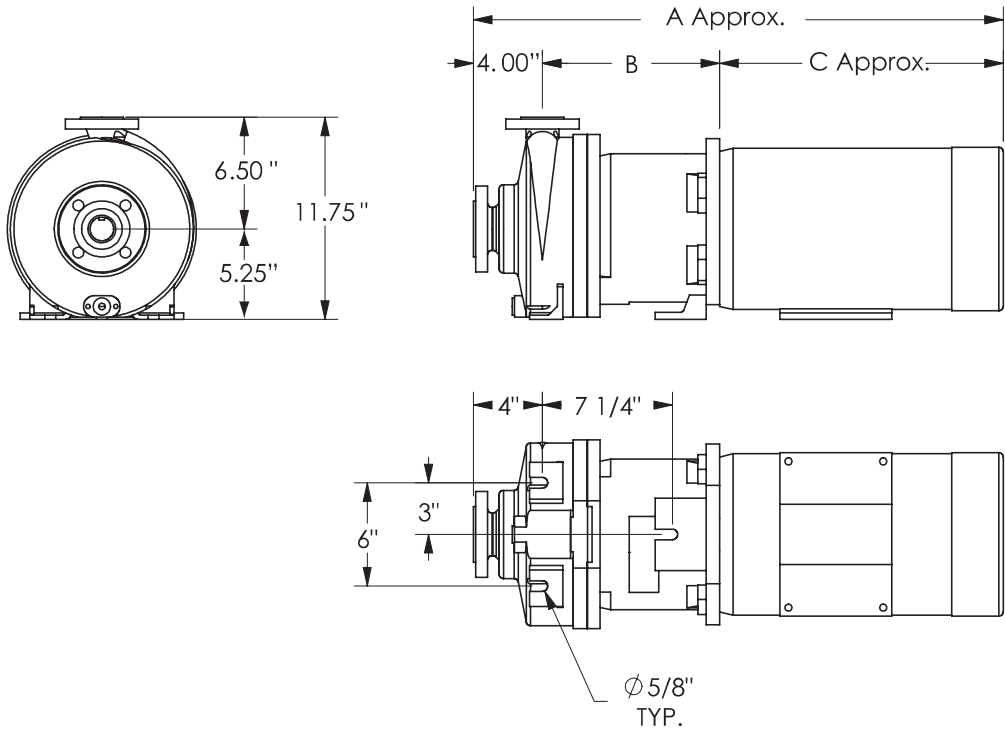
OPTIONAL		
DESCRIPTION	MODEL	ADD TO PRICE CODE NO.
EPDM elastomers	-L	L

<sup>1</sup> For pump only, eliminate motor suffix from Model No. and suffix letter from Price Code No.

<sup>2</sup> Motors are NEMA 208-230-460V/3/60 Hz, TEFC. For 50 Hz, IEC or EXP, consult Sales Dept.



DIMENSIONS



4

MODEL	SUCTION	DISCHARGE	MOTOR FRAME	A	B	C	SHIPPING WEIGHT *
UC1516	1 1/2" Flange	1" Flange	NEMA 143	22.56"	8.54"	10.00"	85 lbs.
			NEMA 184	25.06"	10.30"	10.75"	
			NEMA 215	26.81"	10.30"	12.38"	
			NEMA 256	29.19"	10.30"	14.88"	
UC1518	1 1/2" Flange	1" Flange	NEMA 143	22.56"	8.54"	10.00"	90 lbs.
			NEMA 184	25.06"	10.30"	10.75"	
			NEMA 215	26.81"	10.30"	12.38"	
			NEMA 256	29.19"	10.30"	14.88"	
UC326	3" Flange	2" Flange	NEMA 143	22.56"	8.54"	10.00"	100 lbs.
			NEMA 184	25.06"	10.30"	10.75"	
			NEMA 215	26.81"	10.30"	12.38"	
			NEMA 256	29.19"	10.30"	14.88"	





# SERIES 'FES' SELF-PRIMING MAGNETIC COUPLED PUMPS

122

P-519

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## VERSATILE-ECONOMICAL

### *WASTES / ACIDS CHEMICALS / PLATING PHOTOGRAPHIC ETCHING*

- **Flows to 120 GPM or 90 ft.TDH @ 60 Hz**  
(330 LPM or 23.5 m @ 50 Hz)
- **Non-metallic solution contact**  
Glass reinforced polypropylene or  
carbon reinforced PVDF  
(See a chemical resistance chart)
- **Deep-lift capability**  
up to 25 feet / 7.6 meters
- **Fast priming**  
18 feet / 4.6 meters in 90 sec.
- **Capable of running dry without damage**
- **Powerful rare earth magnets**  
Provide sure coupling to 1.8 S.G.
- **Accepts standard motors NEMA or IEC metric**



Series 'FES' self-priming magnetic coupled pumps are seal-less and "leak-proof" providing total solution containment. They are available in a choice of two different corrosion resistant materials for a wide range of chemical and temperature compatibility and are ideal for handling even the most difficult applications.

The outstanding self-priming feature of the Series 'FES' combines deep-lift capabilities (up to 25 feet / 7.6 meters) and lightning-fast priming (18 feet / 4.6 meters in 90 seconds). The priming chamber's gooseneck design eliminates the need for internal check valves while ensuring that enough liquid is retained for efficient re-priming.

These pumps utilize powerful rare earth, neodymium, magnets which allow them to operate at full flow with a full size impeller while handling liquids over 1.8 specific gravity.

Additionally the Series 'FES' is capable of running dry without damage when equipped with the standard carbon bushing and under optimum operating conditions. This helps protect the pump from operator errors and system upsets.

Their innovative and highly efficient design, and low energy consumption make these pumps one of the most versatile and economical centrifugal pumps on the market.

## APPLICATIONS

- Over-the-side pumping for filtration and agitation
- Pump from sumps or pits for waste treatment
- Transfer from rail cars, tanker trucks, or bulk storage
- Systems with entrained air or where dry run protection is required

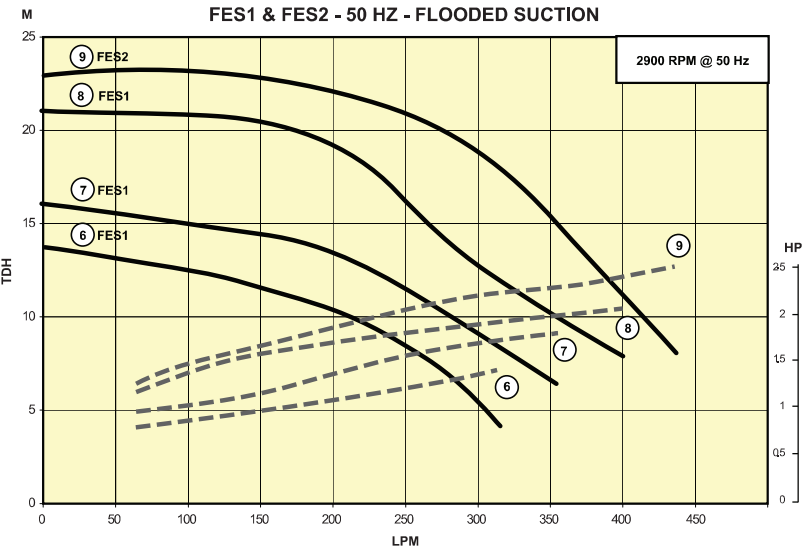
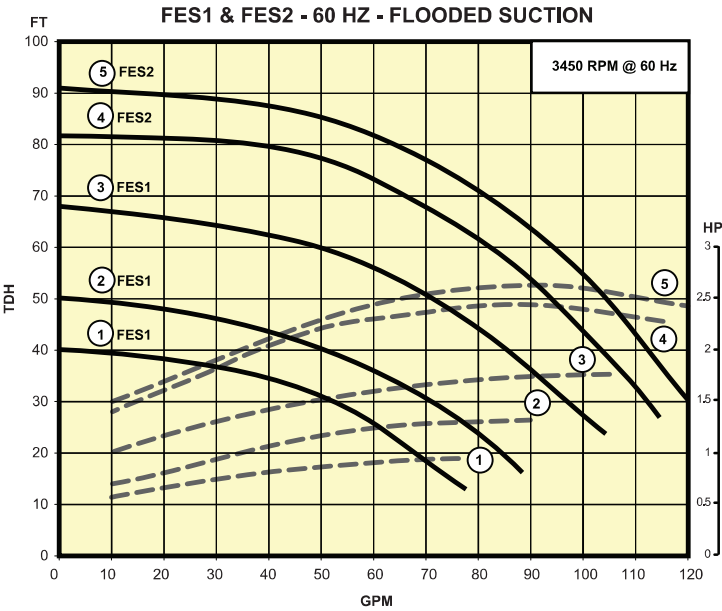


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Standard models are constructed of glass-fiber reinforced polypropylene or carbon-fiber reinforced PVDF for suction casing, separator plate, inner volute, magnet liner and impeller. Impeller magnets are encapsulated in unfilled polypropylene or unfilled PVDF. The front and rear thrust rings and shaft are high purity, fluoride resistant alumina ceramic. The impeller thrust ring is molybdenum disulfide

filled PTFE. The casing 'O' ring is Viton. Maximum pump pressure; 90 PSI (6.2 bar).

Motors are continuous-duty, painted with two-part gray epoxy enamel and have a 1.5 service factor. Single phase motors are supplied with 8 ft. (2.4 m) of 3-wire cord and plug. Three phase motors are not supplied with cord.





# SERIES 'FES' Pump Ordering Information

124

P-519

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**For standard 60 HZ pump-motor combination, select model from TABLE I**  
**For custom pump-motor combination, select from components in TABLE II**

**TABLE I**

Select pump-motor model or flow curve number providing the desired performance

## MODEL FES1

FLOW CURVE	POLYPROPYLENE PUMP / MOTOR		PVDF PUMP / MOTOR		* Motor HP shown will handle full flow to a S.G. of:
	MODEL NUMBER	PRICE CODE NUMBER	MODEL NUMBER	PRICE CODE NUMBER	
1	FES1MPVGC 1A-D1.0	51-0611G	FES1MKVGC 1A-D1.0	51-0711G	1.11
2	FES1MPVGC 2A-D1.5	51-0621J	FES1MKVGC 2A-D1.5	51-0721J	1.15
3	FES1MPVGC 3B-D2.0	51-0632K	FES1MKVGC 3B-D2.0	51-0732K	1.11

## MODEL FES2

4	FES2MPVGC 4C-D3.0	51-0843L	FES2MKVGC 4C-D3.0	51-0943L	1.28
5	FES2MPVGC 5C-D3.0	51-0853L	FES2MKVGC 5C-D3.0	51-0953L	1.13

\* For higher specific gravity or reduced flow, refer to HP required. Then refer to Table II and construct Model and Price Code Number accordingly

**TABLE II**

To determine pump-motor for a specific flow, TDH, and/or specific gravity, select flow / pressure point on performance curve (solid line). Required HP is determined by moving vertically to corresponding HP

curve (dotted line) and then horizontally to HP scale. Multiply indicated HP by specific gravity of fluid to be pumped. Select pump materials and construct Model and Price Code.

**EXAMPLE: PUMP + IMPELLER + MAGNET/FRAME + MOTOR = PRICE CODE NO.**  
FES1MPVGC + 3 + B + D2.0 = 51-0632K

### PUMP<sup>1</sup>

MODEL NUMBER	PCN
FES1 MPVGC Polypropylene	51-06
FES1 MKVGC PVDF	51-07
FES2 MPVGC Polypropylene	51-08
FES2 MKVGC PVDF	51-09

### IMPELLER

	MODEL	FLOW CURVE	ADD TO	
			MODEL	PCN
60 HZ	FES1	1	1	1
		2	2	2
		3	3	3
	FES2	4	4	4
		5	5	5
50 HZ	FES1	6	6	6
		7	7	7
	FES2	8	8	8
		9	9	9

<sup>1</sup> For pump only, eliminate motor suffix from price code number.

<sup>2</sup> single phase —  
115-208-230V/1/60 or  
110-220V/1/50  
Three phase —  
208-230-460V/3/60 or  
220-380V/3/50

MAGNET SET / FRAME SIZE						MOTOR <sup>2</sup>			
	HP/KW	MAGNET SET	FRAME SIZE	ADD TO		SINGLE PHASE		THREE PHASE	
				MODEL	PCN	MODEL	PCN	MODEL	PCN
60 HZ	1.0	6 POLE	56C	A	1	-C1.0	C	-D1.0	G
	1.5	6 POLE	56C	A	1	-C1.5	D	-D1.5	J
	2.0	6 POLE	143/5 TC	B	2	—	—	-D2.0	K
	3.0	8 POLE	143/5 TC	C	3	—	—	-D3.0	L
	5.0	10 POLE	182/4 TC	D	4	—	—	-D5.0	P
50 HZ	1.0	6 POLE	56C	A	1	C1.0-50	A	-D1.0-50	D
	1.5	6 POLE	56C	A	1	C1.5-50	C	—	—
	1.5	6 POLE	143/5 TC	B	2	—	—	-D1.5-50	E
	2.0	6 POLE	143/5 TC	B	2	—	—	-D2.0-50	G
	3.0	8 POLE	182/4 TC	E	5	—	—	-D3.0-50	J
	5.0	10 POLE	182/4 TC	H	7	—	—	-D5.0-50	K
	1.0/.75	6 POLE	80 FR	C	3	—	—	-DM.75	L
	1.5/1.1	6 POLE	80 FR	C	3	—	—	-DM1.1	P
	2.0/1.5	6 POLE	90 FR	D	4	—	—	-DM1.5	Q
	3.0/2.2	8 POLE	90 FR	F	6	—	—	-DM2.2	U
	4.0/3.0	10 POLE	100 FR	J	8	—	—	-DM3.2	V
	5.5/4.0	10 POLE	112 FR	M	9	—	—	-DM4.2	W



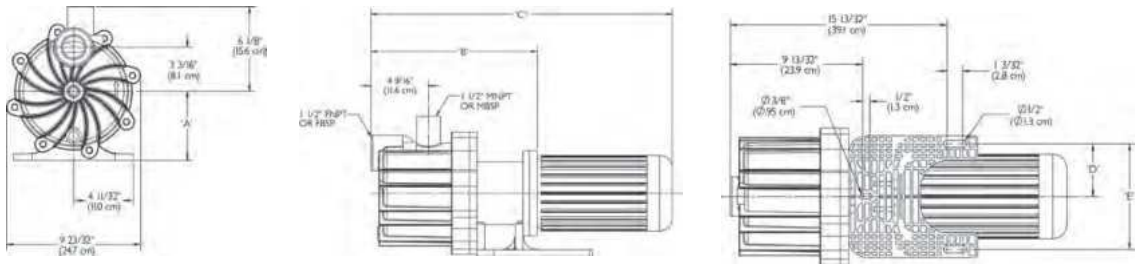
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OPTIONAL, use Price Code Number

DESCRIPTION	ADD OR CHANGE MODEL	ADD TO PCN
O-RING: (Change V in Model) EPDM	-L	1
Bushing: (Change C in Model) Teflon	-T	T
Alumina Ceramic	-R	R
CONNECTIONS: BSP Threads	-B	B
Union	-U	U
Flange	-F	F

DESCRIPTION	ADD OR CHANGE MODEL	ADD TO PCN
SPECIALS: SiC (bushing, thrust ring, shaft)	-S	S
Hastelloy shaft	-H	H
Titanium hardware	-M	M
Non-Sparking ring	-N	N

DIMENSIONS — IN (MM)



Also available 1-1/2" x 1-1/2" 150 lb. ANSI-ISO PN20/PN40 flange or 50 mm x 50 mm union connection

MOTOR FRAME	A	B	C†	D	E	Weight - lbs (kg)	
						PP	PVDF
NEMA 56C	5" (12.7 cm)	12-9/16" (31.9 cm)	24-9/16" (62.4 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25 (11.3)	30 (13.6)
NEMA 145	5" (12.7 cm)	12-9/16" (31.9 cm)	23-5/16" (59.2 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25 (11.3)	30 (13.6)
NEMA 184	5" (12.7 cm)	13-7/16" (31.4 cm)	25-11/16" (66.6 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	26 (11.8)	31 (14.1)
IEC 80 w/B14 or B5*	5" (12.7 cm)	13-3/16" (33.5 cm)	23-23/32" (60.2 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25.5 (11.6)	30.5 (13.8)
IEC 90 w/B14 or B5*	5" (12.7 cm)	13-3/16" (33.5 cm)	23-7/8" (60.6 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25.5 (11.6)	30.5 (13.8)
IEC 100 w/B14	5" (12.7 cm)	13-1/4" (33.7 cm)	25-13/32" (64.5 cm)	3-5/32" (8.0 cm)	6-10/32" (16.0 cm)	25.5 (11.6)	30.5 (13.8)
IEC 112 w/B14	5" (12.7 cm)	13-1/4" (33.7 cm)	25-29/32" (65.8 cm)	3-3/4" (9.5 cm)	7-1/2" (19.1 cm)	25.5 (11.6)	30.5 (13.8)

**NOTE** Contact factory for dimensions on flanged or union models. †Varies with motor manufacturer.

\* Doesn't include motor weight. \*\* For B5 weight, add 3 lbs. to 80/90 B14 frame weight and 6 lbs. to 100/112 B14 weight.



## SERIES 'G' HORIZONTAL PUMPS

126

P-613\_N

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431



CLOSE-COUPLED  
TO ELECTRIC MOTOR  
W/POLYPROPYLENE BASEPLATE

### SELF-PRIMING CENTRIFUGAL PUMPS FOR TRANSFER AND RECIRCULATION OF:

#### CHEMICAL SOLUTIONS / WASTE TREATMENT PHOTOGRAPHIC SOLUTIONS (inorganic)

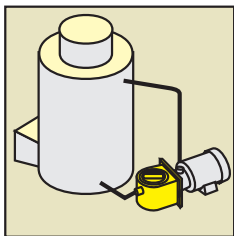
- **Flows to 100 U.S. GPM or 73 ft. TDH @ 60 Hz**  
(315 LPM or 15m @ 50 Hz)
- **Noryl® or Ryton® construction**  
with 316 SS internal hardware  
(See a chemical resistance chart)
- **Non-metallic solution contact available**
- **Will reprime to 15 feet (4.6m)\***
- **Close coupled - electric motor driven**
- **Shaft sleeve is same material as pump**  
Isolates pump shaft from solutions.
- **Combination 2" O.D. MNPT x 1½" I.D. FNPT connections**

The Self-Priming Series 'G' Pump is made in either Noryl or Ryton, providing a maximum range of chemical resistance. It is available with 316 stainless steel, internal hardware or completely non-metallic solution contact. The pump comes standard with 304 stainless external hardware. The pump is protected with a basket-type strainer in either polypropylene or ECTFE. The large cover makes initial priming and removal of the strainer quick and easy. The cover is the same material as the pump or it can be ordered in clear Lexan® (PCN 64-1818 90). A polypropylene baseplate is included with close-coupled electric

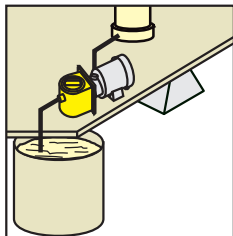
drive pumps. After initial prime, the Series 'G' Pump will lift up to 15 vertical feet (4.6m) and will remain primed even after shutdown. This pump also features an open, non-clogging impeller which is molded in conjunction with the shaft sleeve, thus isolating the shaft from solution contact.

The self-priming ability, chemical resistance, light weight and basket strainer make this an ideal pump for chemical transfer, waste treatment, emergency/backup or filtering.

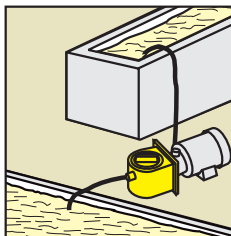
\* Based on water-like liquids @ 70°F and 60 Hz (3450 RPM) operation after initial priming of pump housing.



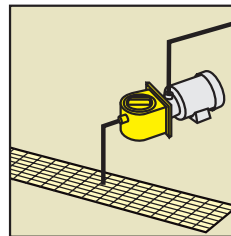
RECIRCULATION OF  
COOLING TOWERS, MIXING  
VATS



FILTRATION



LIFTING FROM PONDS,  
TANKS, SUMPS, PITS

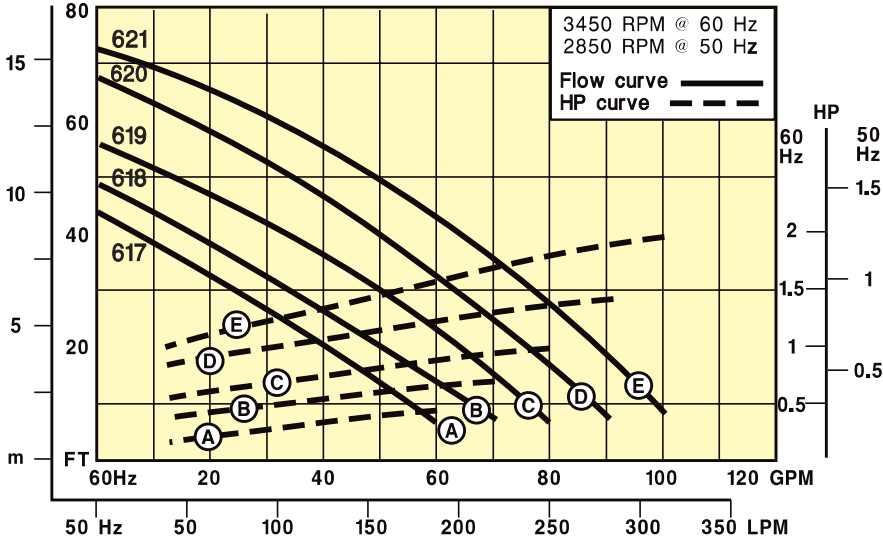


EMERGENCY STANDBY

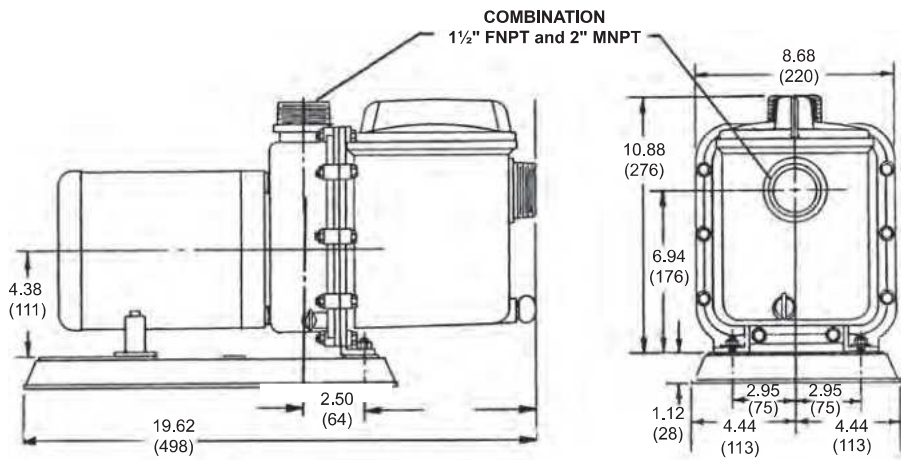


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All data based on water (specific gravity = 1.0).  
Impeller part numbers marked on curves.



**DIMENSIONS Inches (mm)**



Ports have dual thread —  
1½" FNPT and 2" MNPT on both suction and discharge.





# SERIES 'G' HORIZONTAL PUMPS Ordering Information

P-613\_N

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## TO ORDER, use Price Code No.

Identify flow curve on graph that corresponds to desired performance and choose from Noryl or Ryton pumps below. Order non-metallic pump for fluids that might attack metal internals. (See a chemical resistance chart.) Required horsepower is based on water @ 1.0 specific gravity. To determine required

HP for liquids of specific gravity greater than 1.1, select performance point on flow curve, move vertically to corresponding HP curve and then horizontally to HP scale. Multiply indicated HP by specific gravity and select motor accordingly.

### Choose from:

**A** Pumps molded of glass-reinforced Noryl with polypropylene basket strainer, ethylene propylene elastomers, 316 stainless steel internal hardware, 304 stainless steel external hardware, carbon ceramic and 316 stainless steel mechanical seal.

**B** Same as **A** but with non-metallic solution contact and ECTFE / EPDM / siliconized-graphite non-metallic mechanical seal.

**C** Pumps molded of glass-reinforced Ryton with ECTFE basket strainer, Viton elastomers, 316 stainless steel internal hardware, 304 stainless steel external hardware, carbon-ceramic and 316 stainless steel mechanical seal.

**D** Same as **C** but with non-metallic solution contact and ECTFE / Viton / siliconized-graphite non-metallic mechanical seal.

### SERIES 'G' PUMPS with electric drive, close coupled

FLOW CURVE	PORT SIZE	MAXIMUM FLOW RATE	MAX. TDH	REQUIRED HP	A NORYL		B NON-METALLIC		CLOSE-COUPLED ELEC. MOTOR			
					MODEL NUMBER	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.	ADD TO MODEL NUMBER & PRICE CODE NUMBER			
									115-230V/1/50-60 230-460V/3/50-60			
	NPT	GPM @ 60 Hz (LPM @ 50 Hz)	ft. @ 60 Hz (m @ 50 Hz)	60 Hz (50 Hz)					ODP	TEFC	ODP	TEFC
A	Comb. 1½" F and 2" M	60 (204)	44 (9)	.5 (.3)	GNOK1½/2AL-	60-61A4-	GNOK1½/2ALN-	60-61A9-	K.5C	C.5C	T.5C	D.5C
B		70 (223)	49 (10)	.75 (.4)	GNOK1½/2BL-	60-61B4-	GNOK1½/2BLN-	60-61B9-	K.75C	C.75C	T.75C	D.75C
C		80 (246)	57 (12)	1.0 (.6)	GNOK1½/2CL-	60-61C4-	GNOK1½/2CLN-	60-61C9-	K1.0C	C1.0C	T1.0C	D1.0C
D		90 (288)	68 (14)	1.5 (.9)	GNOK1½/2DL-	60-61D4-	GNOK1½/2DLN-	60-61D9-	K1.5C	C1.5C	T1.5C	D1.5C
E		100 (330)	73 (15)	2.0 (1.2)	GNOK1½/2EL-	60-61E4-	GNOK1½/2ELN-	60-61E9-	K2.0C	C2.0C	T2.0C	D2.0C
									K3.0C *	C3.0C *	T3.0C	D3.0C

(A) Noryl — For Viton elastomers, change 4 to 1 in Price Code Number and L to V in Model Number.

(B) Non-metallic — For Viton elastomers, change 9 to 8 in Price Code Number and LN to VN in Model Number.

\* 230V / 1 / 60 Hz

FLOW CURVE	PORT SIZE	MAXIMUM FLOW RATE	MAX. TDH	REQUIRED HP	C RYTON		D NON-METALLIC		CLOSE-COUPLED ELEC. MOTOR			
					MODEL NUMBER	PRICE CODE NO.	MODEL NUMBER	PRICE CODE NO.	ADD TO MODEL NUMBER & PRICE CODE NUMBER			
									115-230V/1/50-60 230-460V/3/50-60			
	NPT	GPM @ 60 Hz (LPM @ 50 Hz)	ft. @ 60 Hz (m @ 50 Hz)	60 Hz (50 Hz)					ODP	TEFC	ODP	TEFC
A	Comb. 1½" F and 2" M	60 (204)	44 (9)	.5 (.3)	GRYK1½/2AV-	60-81A1-	GRYK1½/2AVN-	60-81A8-	K.5C	C.5C	T.5C	D.5C
B		70 (223)	49 (10)	.75 (.4)	GRYK1½/2BV-	60-81B1-	GRYK1½/2BVN-	60-81B8-	K.75C	C.75C	T.75C	D.75C
C		80 (246)	57 (12)	1.0 (.6)	GRYK1½/2CV-	60-81C1-	GRYK1½/2CVN-	60-81C8-	K1.0C	C1.0C	T1.0C	D1.0C
D		90 (288)	68 (14)	1.5 (.9)	GRYK1½/2DV-	60-81D1-	GRYK1½/2DVN-	60-81D8-	K1.5C	C1.5C	T1.5C	D1.5C
E		100 (330)	73 (15)	2.0 (1.2)	GRYK1½/2EV-	60-81E1-	GRYK1½/2EVN-	60-81E8-	K2.0C	C2.0C	T2.0C	D2.0C
									K3.0C *	C3.0C *	T3.0C	D3.0C

(C) Ryton — For EPDM elastomers, change 1 to 4 in Price Code Number and V to L in Model Number.

(D) Non-metallic — For EPDM elastomers, change 8 to 9 in Price Code Number and VN to LN in Model Number.

\* 230V / 1 / 60 Hz

**Consult Sales Department for pedestal mounted, long coupled, pneumatic driven or engine driven models.**

Registered trademarks: Noryl - General Electric Co.; Viton - DuPont Dow El;astomers; Hastelloy - Haynes, International; Ryton - Phillips Chemical



# SERIES 'S' SELF-PRIMING CENTRIFUGAL PUMPS

129

P-630\_C

2900 MacArthur Blvd Northbrook, IL, USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## SELF-PRIMING CENTRIFUGAL PUMPS FOR TRANSFER AND RECIRCULATION OF:

### **CHEMICAL SOLUTIONS WASTE TREATMENT ACIDS / INDUSTRIAL LIQUIDS**



**CLOSE-COUPLED  
ELECTRIC**

*Also available as long coupled,  
pedestal mounted pump.  
(Consult Sales Department.)*

- **Flows to 270 U.S. GPM or 120 ft. TDH @ 60 Hz**  
(To 845 LPM or 25.0m TDH @ 50 Hz)
- **Choice of materials -**  
Glass reinforced polyester, polypropylene or  
Ryton® with 316 SS internal hardware  
(See a *Chemical Resistant chart*)
- **Non-metallic solution contact models  
available**
- **Will reprime to 25 ft. (7.6m) vertical\***
- **Close-coupled**  
- electric motor driven
- **Built-in check valve**
- **BSP threads available on polyester models**



The **Series 'S' Self-Priming Centrifugal Pump** is a chemically resistant pump for general service on water, salt water, mild acids and bases. It is offered in a choice of glass reinforced polyester, polypropylene or Ryton® construction to provide a maximum range of chemical resistance. It is available with a choice of elastomers and 316 stainless steel internal hardware or with completely non-metallic solution contact. The pump comes standard with 304 stainless external hardware.

All pumps include a built-in check valve and feature a self-cleaning double volute which allows the Series 'S' pump to self prime and lift to 25 ft.

The self priming capability and chemical resistance make this an ideal chemical transfer, waste treatment, and emergency / backup pump.

\* Based on water-like liquids at 70°F and at 3450 RPM after initial priming of pump housing.



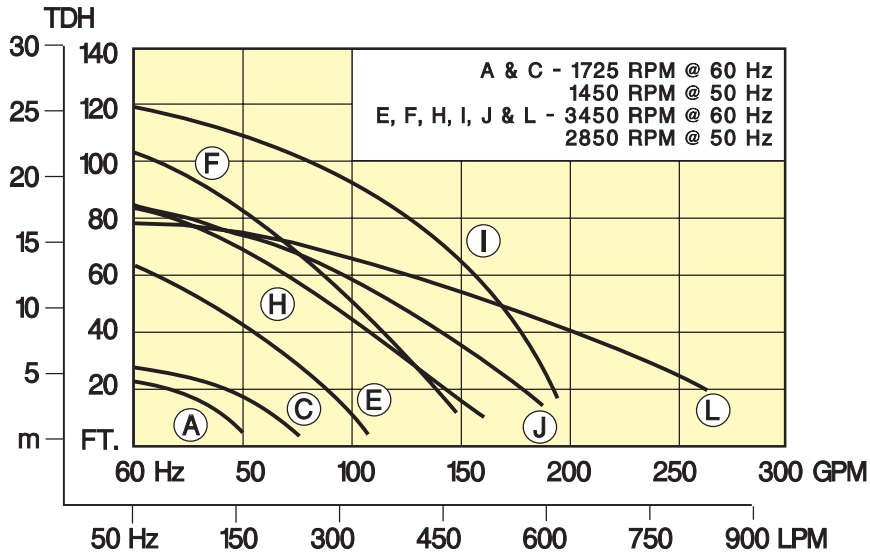
**WASTE TREATMENT**



**SOLUTION TRANSFER**

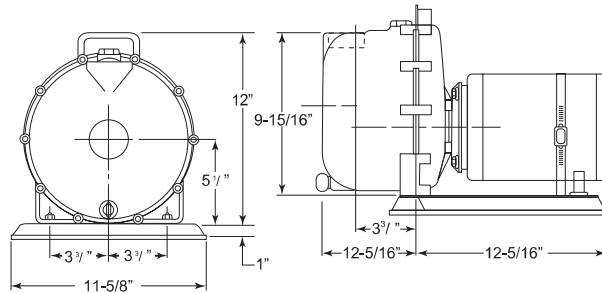


ELECTRIC MOTOR DRIVE

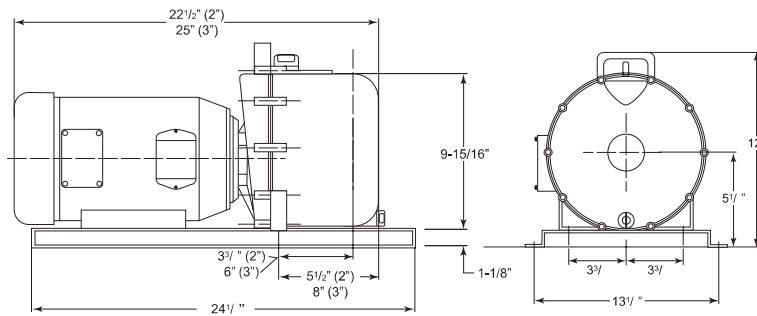


DIMENSIONS

1½" & 2" Pumps  
to 3.0 HP  
(3 phase)



2" & 3" Pumps  
5.0 HP  
(3 phase)





**TO ORDER, Use Price Code**

**TABLE I**

*Pump molded of glass reinforced polyester with 316 stainless steel internal fasteners, 304 SS external fasteners, EPDM "O"-rings and gasket, check valve, polypropylene baseplate, close coupled electric motor.*

FLOW	PORT SIZE	MAX. FLOW RATE		MAX. TDH		MAX. HP REQ'D		MODEL NUMBER	PRICE CODE NUMBER	ELECTRIC MOTOR 60 Hz	
										ADD TO MODEL &	
										PRICE CODE NO . . .	
										115/230V/1/60	230/460V/3/60
IN.	GPM @ 60 Hz	LPM @ 50 Hz	FT. @ 60 Hz	m @ 50 Hz	60 Hz /RPM	50 Hz /RPM			TEFC	TEFC	
A	1 1/2	50	157	22	4.4	0.5/1750	0.3/1450	SE1 1/2AL-	64-11A4-	G.5C	H.5C
C	1 1/2	70	219	27	5.6	1.0/1750	0.6/1450	SE1 1/2CL-	64-11C4-	G1.0C	H1.0C
E	2	110	344	62	13.0	1.4/3450	0.8/2850	SE2EL-	64-12E4-	C2.0C	D2.0C
F	2	150	471	105	21.9	3.0/3450	1.7/2850	SE2FL-	64-12F4-	--	D5.0C
H	2	155	485	82	17.1	2.6/3450	1.5/2850	SE2HL-	64-12H4-	--	D3.0C
I	2	195	610	120	25.0	5.0/3450	2.8/2850	SE2IL-	64-12I4-	--	D5.0C
J	2	185	579	83	17.3	4.0/3450	2.3/2850	SE2JL-	64-12J4-	--	D5.0C
L	3	270	845	79	16.5	5.0/3450	2.8/2850	SE3LL-	64-13L4-	--	D5.0C



**TABLE II**

*To determine pump-motor for a selected GPM and/or TDH, first select the appropriate impeller from curve on the previous page. Use Table I to identify the part size for a given flow curve. Multiply HP req'd shown in Table I by specific gravity to determine motor size. Select pump materials. Then construct Model and Price Code Numbers.*

EXAMPLE:	PUMP	+	PORT	+	IMPELLER	+	SEAL	+	MOTOR	
MODEL	SE	+	2	+	E	+	L	+	-D2.0C	=SE2EL-D2.0C
PRICE CODE NO.	64-1	+	2	+	E	+	4	+	-D2.0C	=64-12E4-D2.0C

PUMP	
PUMP	PRICE CODE NO.
SE (polyester)	64-1
SP (polypropylene) <sup>2</sup>	64-2
SY (Ryton)	64-3

PORT + IMPELLER		
PORT SIZE - NPT <sup>1</sup>	IMPELLER	
MODEL	PRICE CODE NO.	MODEL & PRICE CODE NO.
1 1/2	1	A,C
2	2	A,C,E,F,H,I,J
3	3	L

SEAL, ELASTOMERS & INTERNAL FASTENERS		
DESCRIPTION	MODEL	PRICE CODE NO.
Viton w/316 stn. steel fasteners	V	1
Buna-N w/316 stn. steel fasteners	B	2
EPDM w/316 stn. steel fasteners	L	4
Non-metallic solution contact, EPDM	LN	88
Non-metallic solution contact, VITON	VN	99

ELECTRIC MOTORS 60 Hz <sup>3</sup>			
HP	RPM	ADD TO MODEL & PRICE CODE NO . . .	
		115/230V/1/60	230/460V/3/60
		TEFC	TEFC
.5	1750	G.5C	H.5C
.75	1750	G.75C	H.75C
1.0	1750	G1.0C	H1.0C
1.5	1750	G1.5C	H1.5C
2.0	3450	C2.0	D2.0C
3.0	3450	--	D3.0C
5.0	3450	--	D5.0C

<sup>1</sup> For BSP threads, add **B** in 4th digit of Model No. and change Price Code No. from **1** to **4**, **2** to **5**, **3** to **6**. Note: Impeller designation now becomes the 5th digit of model number only for BSP pumps.

<sup>2</sup> Polypropylene pump includes Ryton volute.

<sup>3</sup> For 50 Hz operation consult Sales Department.



## SERIES 'SP' HORIZONTAL PUMPS

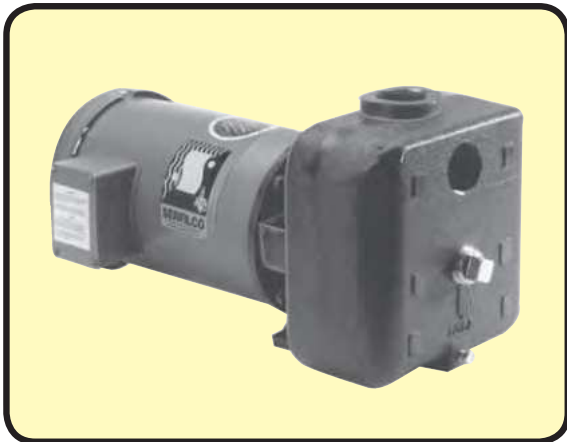
132

P-600\_C

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### Self-priming centrifugal pumps for transfer and recirculation of:

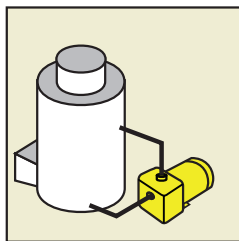
**CHEMICAL SOLUTIONS / WASTE TREATMENT**  
**AGRICULTURAL SOLUTIONS / GROUND WATER**



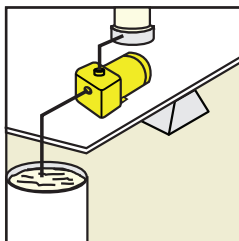
- Flows to 142 U.S. GPM or 90 ft. TDH @ 60 Hz  
(448 LPM or 19.1m @ 50 Hz)
- Cast iron – stainless fitted construction  
(See a chemical resistance chart)
- 316 SS impeller (semi-open design)
- Replaceable 316 stainless steel stub shaft
- Will reprime to 20 feet (6.1m)
- Back pull-out design

Self-priming Series 'SP' pumps are constructed of cast iron for dependable duty in a variety of applications. The pumps include a 316 stainless steel shaft, 316 stainless steel fasteners, synthetic fiber gaskets and cast iron mounting bracket. They feature a semi-open impeller which is also constructed of 316 stainless steel. Motors are standard NEMA 56C face, 3450 RPM @ 60 Hz or 2850 RPM @ 50 Hz, TEFC.

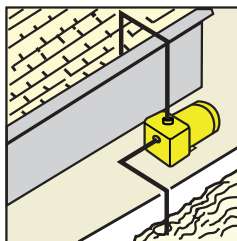
After initial prime, the Series 'SP' pump will lift up to 20 vertical feet (6.1m) and will remain primed even after shutdown. The self-priming ability, along with compact design, make Series 'SP' pumps ideal for chemical transfer, waste water treatment, emergency/backup or filter pumping.



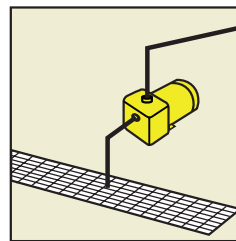
RECIRCULATION OF  
COOLING TOWERS,  
MIXING VATS



FILTRATION



LIFTING FROM PONDS,  
TANKS, SUMPS, PITS

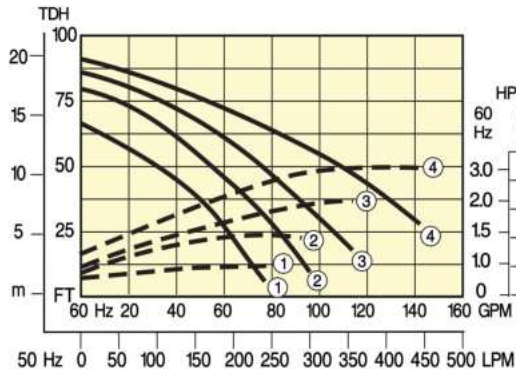


EMERGENCY STANDBY

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**TO ORDER, use Price Code Number****TABLE I**

Select pump-motor model from flow curve number providing the desired performance. Motor horsepower is non-overloading for 1.0 specific gravity and 60 Hz operation.

SP 150 PUMP-MOTOR (230-460V/3/60) TEFC		
FLOW CURVE NUMBER	MODEL NUMBER	PRICE CODE NUMBER
1	SP-150-1L(M1)-D1.0	61-0711C
2	SP-150-2L(M1)-D1.5	61-0721D
3	SP-150-3L(M1)-D2.0	61-0731E
4	SP-150-4L(M1)-D3.0	61-0741F

**TABLE II**

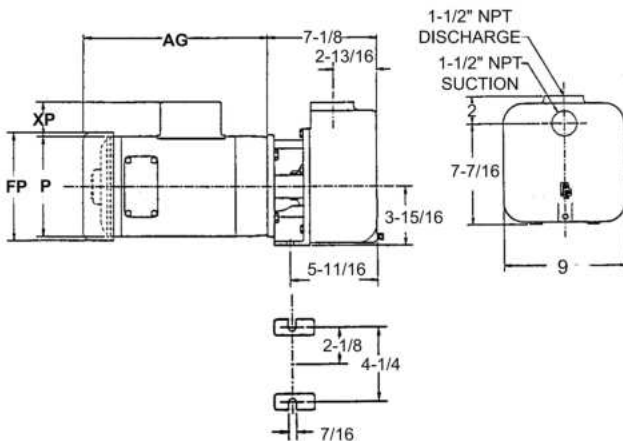
Determine pump-motor model for a specified GPM, TDH, mechanical seal and specific gravity. Select performance point on curve and size horsepower from corresponding numbered dotted line vertically above or below performance point.

Read required horsepower at right ordinate and multiply by specific gravity. Select pump model components and Price Code Numbers from Table II.

PUMP		IMPELLER		"O"-RING & MECHANICAL SEAL			TEFC MOTOR (3450/2850)					
MODEL	PRICE CODE NO.	FLOW CURVE NUMBER	ADD TO . . .		MATERIAL (SOLUTION CONTACT)	ADD TO . . .		HP	SINGLE PHASE <sup>1</sup>		THREE PHASE <sup>1</sup>	
			MODEL	PRICE CODE NO.		MODEL NUMBER	PRICE CODE NO.		MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
SP-150	61-07											
		1	1	1	EPDM, carbon, ceramic	L(M1)	1	1.0	-C1.0	A	-D1.0	C
		2	2	2	Viton®, carbon, ceramic	V(M2)	2	1.5	-C1.5	B	-D1.5	D
		3	3	3				2.0	—	—	-D2.0	E
		4	4	4				3.0	—	—	-D3.0	F

<sup>1</sup> Single phase - 115-208-230V/1/60 or 220-440V/1/50  
Three phase - 208-230-460V/3/60 or 380-415V/3/50

For 50 Hz, add **-50** to Model No. and add **5** to Price Code No.

**DIMENSIONS**

MOTOR HP 3450 RPM 56C FRM	MOTOR END DIMENSIONS (Inches)			
	AG	FP	P	XP
1	9-3/4	7-3/16	6-7/8	2-1/16
1-1/2	10-1/2	7-3/16	6-7/8	2-1/16
2	11-1/8	7-3/16	6-7/8	2-1/16
3	12-3/8	7-3/16	6-7/8	2-1/16

Note: Motor dimensions will vary by model and make.  
Dimensions are to be used for reference only.  
All dimensions are rounded to the nearest sixteenth of an inch.

Specifications subject to change without notice.





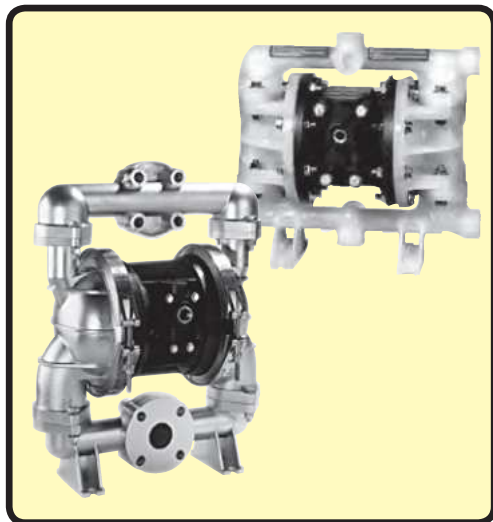
# AIR OPERATED DIAPHRAGM PUMPS

134

P-605\_U

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## PUMP ANYTHING THAT CAN POUR SAFELY AND RELIABLY



- **Wide selection of materials**  
SS - 316 stainless steel      PP - Polypropylene  
AL - Aluminum                      K - PVDF  
NSS - Conductive nylon      N - Nylon
- **Selection of diaphragms and elastomers**  
TF - Teflon (PTFE)  
N - Geolast/Nitrile  
L - Santoprene/EPDM  
V - Viton
- **Flows to 180 U.S. GPM (681 l/m)**  
1/4" - 2" sizes —
- **Patented lube-free air system**
- **Will not stall at slow speeds**
- **Self-priming**
- **Runs dry**

Here is a line of remarkably rugged and durable self-priming, double diaphragm pumps. Lube-free and non-stalling, all models will handle any product that pours, from clear water to highly viscous, abrasive and chemically aggressive materials. Proven to handle suspended solids and abrasives without damage to the product or the pump.

The unique pump design utilizes far fewer parts than other pumps on the market. This results in

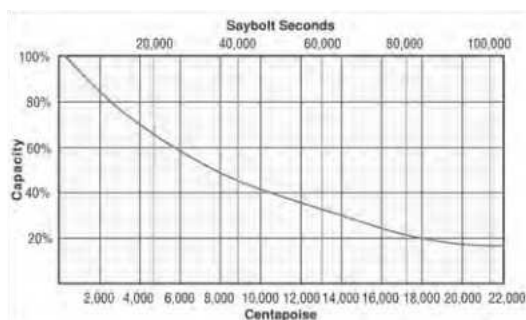
longer operating life and easier maintenance at a lower cost.

Since these pumps are driven by compressed air, there is no need for shielded electrical connections or explosion-proof motors. All models can run dry because there are no close fitting or sliding parts in the fluid section. Flow rates can be controlled to produce from zero to maximum flow simply by increasing or decreasing air flow or pressure.

### INSTALLATION

1. A lube-free, clean, dry compressed air source (or any non-flammable, compressed gas) is recommended. Use a filter that is capable of filtering out particles larger than 50 microns.
2. Pumps should be mounted in an upright position with the exception of 1/4" models which may be rotated 360° to suit the application.
3. Install a particle fluid filter on the fluid suction line when particles in the fluid exceed the maximum particle size specification of the pump or particles are sharp enough to cut the diaphragms.
4. Never restrict fluid suction lines by means of reduced pipe size (smaller than pump inlet size) or control the pump with valves on the fluid inlet side of the pump.
5. Limit fluid inlet pressure to 10 PSIG or (.68 BAR)

### HIGH VISCOSITY APPLICATIONS



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**1/4" BOLTED****SPECIFICATIONS**

**Capacity:**  
Adjustable .....0-4.3 GPM (16 liters/min.)

**Maximum temperature:**  
PVDF .....200°F  
(93°C)  
Other models .....150°F (66°C)

**Maximum air pressure:**  
All Models .....100 PSI (6.8 bars)

**Dry lift capacity @ 100 PSI (6.8 bars):** .....15 ft. (4.5 meters)

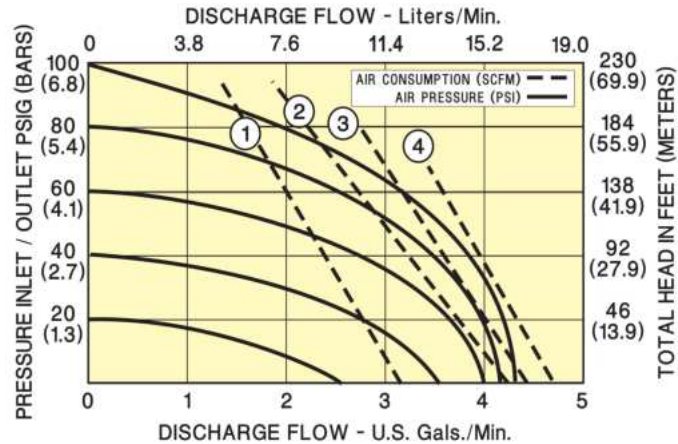
**Maximum solids:** .....1/16" (1.6 mm)

**Air supply:**  
Inlet .....1/4" FNPT  
Outlet .....1/4" FNPT

**Fluid inlet / discharge:** .....1/4" FNPT

**PLASTIC MODELS:**

PPBN-1/4 PPBTF-1/4 PPBL-1/4 NSSBTF-1/4  
NBTF-1/4 KBTF-1/4 KBL-1/4

**3/8" BAND CLAMP****PLASTIC MODELS:**

PPN-3/8 PPTF-3/8N SSTF-3/8  
KTF-3/8 KL-3/8

**6**

**Capacity:**  
Adjustable .....0 - 9 GPM (34.0 liters/min.)

**Maximum temperature:**  
PVDF model .....200°F (93°C)  
Other models .....150°F (66°C)

**Maximum air pressure:**  
All Models .....120 PSI (8.2 bars)

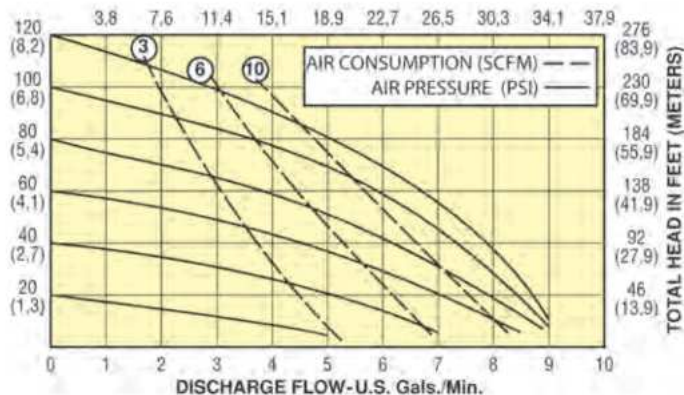
**Dry lift capacity**  
Models w. PTFE Balls .....10ft (3 meters)  
Models with Max-Pass™ valves .....17 ft (5.2 meters)

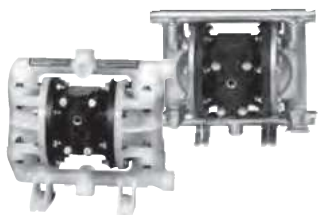
**Maximum solids:**  
Max-Pass™ .....1/4" (6.4mm)

**PPTF, NSSTF, KTF:** .....1/16" (3.2 mm)

**Air supply:**  
Inlet .....1/4" FNPT  
Outlet .....3/8" FNPT

**Fluid inlet / discharge:** .....3/8" FNPT



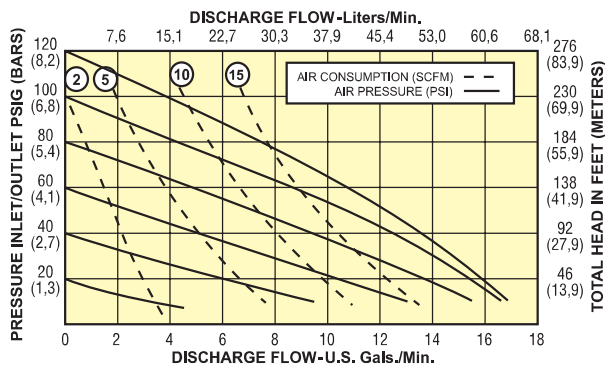
2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**1/2"****BOLTED****PLASTIC MODELS: PPBN-1/2, PPBTF-1/2, PPBL-1/2, PPBV-1/2, NBTf-1/2, KBTF-1/2, KBL-1/2, KBV-1/2, NSSBTF-1/2****METALLIC MODELS: ALBN-1/2, ALBTF-1/2, ALBL-1/2, SSBTF-1/2, SSBL-1/2, SSBN-1/2****SPECIFICATIONS****Capacity:**

Adjustable ..... 0-17 GPM (64.6 liters/min.)

**Maximum temperature:**

PVDF, AL and SS models ..... 200°F (93°C)

Other models ..... 150°F (66°C)

**Minimum air pressure:** ..... 20 PSI (1.4 bar)**Maximum air pressure:** ..... 120 PSI (8.0 bars)**Dry lift capacity @ 120 PSI (8.0 bars):** ..... 10 ft. (3 meters)**Maximum solids:** ..... 1/8" (3.2 mm)**Air supply:** ..... 1/4" FNPT**Fluid inlet / discharge:** ..... 1/2" FNPT  
(FBSP available. Specify when ordering.)

<sup>1</sup> Stock models have a side port. Optional center, top or dual ports must be specified when ordering. Fluid is not separated within the single piece manifold when dual ports are specified.

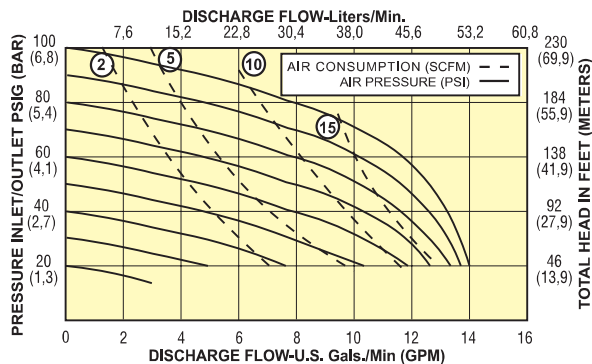
**1/2"****BAND CLAMP****PLASTIC MODELS: PPN-1/2, PPTF-1/2, PPL-1/2, KTF-1/2****SPECIFICATIONS****Capacity:**

Adjustable ..... 0 - 14 GPM (53.2 liters/min.)

**Maximum temperature:**

PVDF model ..... 200°F (93°C)

Other models ..... 150°F (66°C)

**Minimum air pressure:** ..... 20 PSI (1.4 bars)**Maximum air pressure:** ..... 100 PSI (6.8 bars)**Dry lift capacity @ 100 PSI (6.8 bars):** ..... 10 ft. (3 meters)**Maximum solids:** ..... 1/8" (3.2 mm)**Air supply:** ..... 1/4" FNPT**Fluid inlet / discharge:** ..... 1/2" FNPT

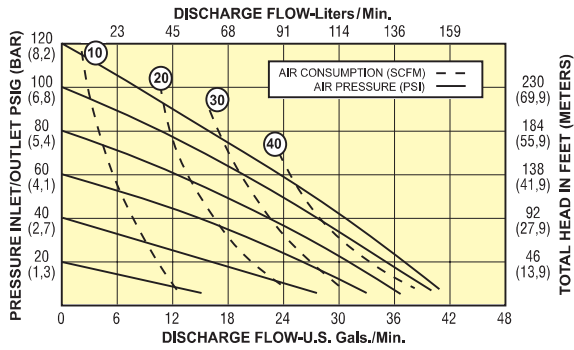
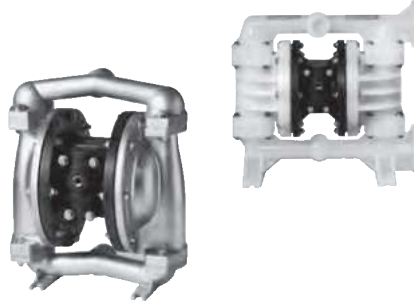
2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

1"

BOLTED

PLASTIC MODELS: PPBN-1, PPBTF-1, PPBL-1, PPBV-1  
KTBF-1, KBL-1, KBV-1

METALLIC MODELS: ALBN-1, ALBTF-1, ALBL-1,  
SSBTF-1, SSBL-1, SSBN-1



## SPECIFICATIONS

**Capacity:**  
Adjustable..... 0 to 41 GPM (156 liters/min.)

**Maximum temperature:**  
PVDF, AL and SS models .....200°F (93°C)  
Other models.....150°F (66°C)

**Minimum air pressure:**.....20 PSI (1.4 bar)

**Maximum air pressure:**.....120 PSI (8.0 bars)

**Dry lift capacity @ 120 PSI (8.0 bars):**  
Models w/TFE balls.....10 ft. (3 meters)  
Other models.....15 ft. (4.5 meters)

**Maximum solids:** .....1/4" (6.4 mm)

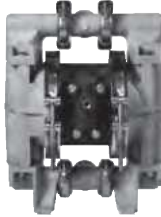
**Air supply:**  
Inlet.....1/4" FNPT  
Outlet.....3/8" FNPT

**Fluid inlet / discharge:**  
Plastic Models.....1" Flange ANSI/DIN compatible  
Metallic Models.....1" NPT

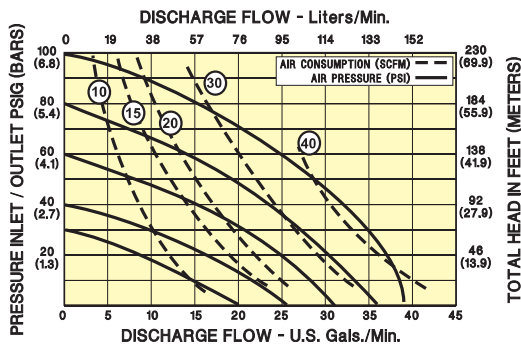
6

1"

BAND CLAMP



PLASTIC MODELS: PPN-1, PPTF-1, PPL-1,  
KTF-1,



## SPECIFICATIONS

**Capacity:**  
Adjustable.. 0 to 40 GPM (152 liters/min.)

**Maximum temperature:**  
PVDF model.....200°F (93°C)  
Other models.....150°F (66°C)

**Maximum air pressure:**  
PVDF model.....70 PSI (4.8 bars)  
Other models.....100 PSI (6.8 bars)

**Dry lift capacity @ 100 PSI (6.8 bars):**  
Models w/TFE balls.....10 ft. (3 meters)  
Other models.....15 ft. (4.5 meters)

**Maximum solids:** .....1/4" (6.4 mm)

**Air supply:**  
Inlet.....1/4" FNPT  
Outlet.....3/4" FNPT  
(Air flow control valve on plastic pumps,  
1/4" FNPT)

**Fluid inlet / discharge:**.....1" FNPT

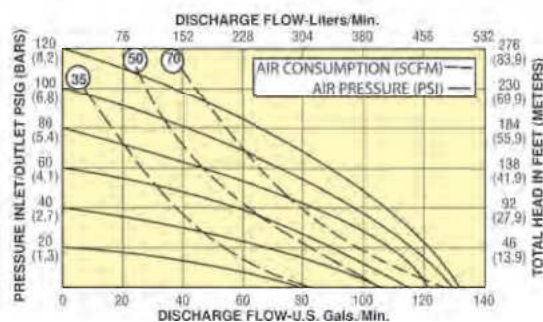
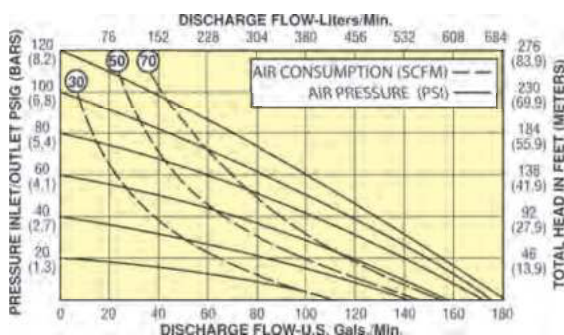
2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**1-1/2"****BOLTED****PLASTIC MODELS:** PPBN-1 1/2, PPBTF-1 1/2, PPBL-1 1/2, KBTF-1 1/2, KBL-1 1/2**METALLIC MODELS:** ALBN-1 1/2, ALBTF-1 1/2, ALBL-1 1/2, SSBTF-1 1/2, SSBL-1 1/2, SSBN- 1 1/2**SPECIFICATIONS****Capacity:**  
Adjustable 0 to 130 GPM (492 liters/min.)**Maximum temperature:**  
PVDF, AL & SS models.....200°F (93°C)  
Other models.....150°F (66°C)**Minimum air pressure:**.....20 PSI (1.2 bars)**Maximum air pressure:**  
All model.....120 PSI (8.2 bars)**Dry lift capacity @ 100 PSI (6.8 bars):**  
Model w/PTFE balls.....10 ft. (3 meters)

Other Models.....15 ft. (4.5 meters)

**Maximum solids:** .....1/4" (6.4 mm)**Air supply:**

Inlet.....3/4" FNPT

Outlet.....3/4" FNPT

(Air flow control valve on plastic pumps,  
3/4" FNPT)**Fluid inlet / discharge:**All Models.....1 1/2" flange (38 mm)  
(ANSI & DIN compatible)**2"****BOLTED****PLASTIC MODELS:** PPBN-2, PPBTF-2, PPBL-2, KBTF-2, KBL-2**METALLIC MODELS:** ALBN-2, ALBTF-2, ALBL-2, SSBTF-2, SSBL-2, SSBN-2**SPECIFICATIONS****Capacity:**

Adjustable..0 to 180 GPM (681 liters/min.)

**Maximum temperature:**

PVDF, AL &amp; SS models.....200°F

(93°C)

Other models.....150°F

(66°C)

**Minimum air pressure:** ..... 20 PSI (1.3 bars)**Maximum air pressure:**

All model.....120 PSI (8.2 bars)

**Dry lift capacity @ 100 PSI (6.8 bars):**

Models w/PTFE balls.....10 ft. (3 meters)

Other Models.....15 ft. (4.5 meters)

**Maximum solids:** .....1/4" (6.4 mm)**Air supply:**

Inlet ..... 3/4"

FNPT

Outlet .....3/4" FNPT

(Air flow control valve on plastic pumps,  
3/4" FNPT)**Fluid inlet / discharge:**

Plastic Models.....2" flange (51mm)

(ANSI &amp; DIN compatible)

Metal Models.....2" NPT Female



**TO ORDER, Use Price Code No.****BOLTED MODELS**

MODEL NUMBER *	MATERIAL OF CONSTRUCTION		PRICE CODE NUMBER				
	WETTED HOUSINGS**	DIAPHRAGM ELASTOMERS/ VALVE SEATS**	1/4"	1/2"	1"	1 1/2"	2"
			0-4 GPM (16 l/m)	0-14 GPM (65 l/m)	0-41 GPM (156 l/m)	0-130 GPM (492 l/m)	0-180 GPM (681 l/m)
PPBN-_*	Polypropylene	Geolast® / Nitrile	55-7244B	55-7287	55-7602	55-7615	55-7626
PPBTF-_*	Polypropylene	PTFE	55-7245	55-7288	55-7603	55-7616	55-7627
PPBL-_*	Polypropylene	Santoprene® / EPDM	55-7270	55-7289	55-7604	55-7617	55-7628
PPBV-_*	Polypropylene	Viton	—	55-7290	55-7605	—	—
NBTF-_*	Nylon	PTFE	55-7246	55-7291	—	—	—
NSSBTF-_*	Conductive Nylon	PTFE	55-7271	55-7292	—	—	—
KBTF-_*	PVDF	PTFE	55-7247	55-7293	55-7606	55-7618	55-7629
KBL-_*	PVDF	Santoprene® / EPDM	55-7286	55-7294	55-7607	55-7619	55-7630
KBV-_*	PVDF	Viton	—	55-7295	55-7608	—	—
ALBN-_*	Aluminum	Geolast® / Nitrile	—	55-7296	55-7609	55-7620	55-7631
ALBTF-_*	Aluminum	PTFE / nylon	—	55-7297	55-7610	55-7621	55-7632
ALBL-_*	Aluminum	Santoprene® / EPDM / PP	—	55-7298	55-7611	55-7622	55-7633
SSBTF-_*	Stainless steel	PTFE	—	55-7600	55-7612	55-7623	55-7634
SSBL-_*	Stainless steel	Santoprene® / EPDM	—	55-7601	55-7613	55-7624	55-7635
SSBN-_*	Stainless steel	Geolast® / Nitrile	—	55-7299	55-7614	55-7625	55-7636

\* Insert pump size to complete Model Number: i.e. PPBN - 1/4

\*\* See Material notes on page 7

**BAND CLAMP MODELS**

MODEL NUMBER *	MATERIAL OF CONSTRUCTION		PRICE CODE NUMBER		
	WETTED HOUSINGS**	DIAPHRAGM ELASTOMERS/ VALVE SEATS**	3/8"	1/2"	1"
			0-9 GPM (34 l/m)	0-14 GPM (53 l/m)	0-40 GPM (152 l/m)
PPN-_*	Polypropylene	Geolast® / Nitrile	55-7637	55-7120B	55-7144B
PPTF-_*	Polypropylene	PTFE	55-7638	55-7118A	55-7145A
PPL-_*	Polypropylene	Santoprene® / EPDM	55-7639	55-7248	55-7249
NSSTF-_*	Conductive Nylon	PTFE	55-7640	—	—
KTF-_*	PVDF	PTFE	55-7641	55-7110A	55-7147A
KL-_*	PVDF	Santoprene® / EPDM	55-7642	—	—

\* Insert pump size to complete Model Number: i.e. PPN-1/2

\*\* See Material notes on Page 7



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**AIR OPERATED DIAPHRAGM PUMP Specifications and ordering information****Material notes:**

1. Geolast is a nitrile blend and is a replacement for Buna-N or Neoprene®. Use chemical resistance information for Buna-N.
2. Santoprene is an EPDM blend and is highly resistant to some acids and bases. Use the chemical resistance information for EPDM.
3. Aluminum pumps have polypropylene valve seats, except aluminum w/ TFE models which have nylon valve seats.
4. All pumps built with TFE contain a backup diaphragm of Santoprene.
5. NSSTF pumps are constructed of 316SS filled nylon and include ground / bond lugs.
6. Air system constructed of polypropylene, except nylon and aluminum w/TFE models which have nylon air systems.

**General product notes:**

1. All pumps are lube-free and non-stalling. A clean, dry compressed air supply is all that is needed.
2. BSP thread models available. Consult Sales Department.
3. Flanges, available on 1½" and 2" sizes only, are slotted for DIN or ANSI compatibility.

**SHIPPING WEIGHTS**

HOUSING MATERIAL	SHIPPING WEIGHT LBS (kg)						
	1/4"	3/8"	1/2"	1" BOLTED	1" CLAMP	1-1/2"	2"
Polypropylene, Nylon	5 (2.3)	4 (1.7)	9 (4.1)	20 (9.1)	19 (8.6)	46 (21)	48 (22)
Conductive Nylon, PVDF	7 (3.2)	5 (2.3)	12 (5.4)	30 (13.7)	22 (9.9)	65 (29)	69 (31)
Aluminum	—	—	10 (4.5)	23 (10.5)	—	60 (27)	61 (28)
Stainless Steel	—	—	19 (8.6)	45 (20.4)	—	133 (60)	133 (60)

**OPTIONAL EQUIPMENT****ACCESSORY KIT for drum transfer applications**

Turns diaphragm pump into an ideal drum pump.

Includes: 39" polypropylene or PVDF suction tube with 2" NPT polypropylene barrel adapter.

PUMP SIZE	PRICE CODE NUMBER		
	PP	PVDF	AL
1/2"	44-7236	44-7239	44-7628
1"	44-7237	44-7240	—

**AIR PRESSURE REGULATOR**

Tamper-proof design with special removable key. Maximum inlet pressure is 250 PSIG. Outlet pressure range is 5 to 125 PSIG.

INLET FNPT	CFM @ 100 PSI	PRICE CODE NO.
1/4"	20	79-0305
1/2"	50	79-0306
3/4"	120	79-0307

**REPAIR KIT**

Typically includes ball and valve seats manifold O-rings and diaphragms (may vary depending on model)

**PRICE CODE NUMBER**

Add -k to pump price code number

**GROUND-BOND CABLE KIT**

Pumping of flammable or combustible liquids from one container to another requires proper grounding and bonding to prevent static discharge and explosion hazard. Only for use with metal or conductive pumps.

DESCRIPTION	PRICE CODE NO.
Ground cables, 2-6ft Bond cable, 10 ft Ground cable, 1 ft	55-0247





# SERIES 'A', 'AA', 'B' & 'C' METERING PUMPS

142

P-607\_R

2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431

## PRECISE CHEMICAL ADDITION FOR:

**COOLING TOWERS, BOILERS, PLATING,  
CONDENSERS, RUST INHIBITORS,  
WASTE TREATMENT, WATER TREATMENT,  
BIOCIDES AND PH / ORP ADJUSTMENTS**



**SERIES 'A' AND 'AA'**  
0 - 48 GPD



**SERIES 'B' & 'C'**  
0 - 600 GPD

- **Wide model selection**
  - Capacities to 25 GPH
  - Choice of control options
  - Standard and optional liquid ends to meet any application
- **Encapsulated electronics**

Pump electronics are enclosed in housing of corrosion-resistant polypropylene, protecting the pump from spilled chemical and corrosive atmosphere.
- **Pump status LED**

Provides visual indicator of pump operation
- **Capable of handling —**

Acids	Soaps	Wetting Agents
Caustics	Brighteners	Inhibitors
Flocculents	Detergents	Filter Aids
Chlorine	Dyes	...and many more
- **Inherent pressure relief**

Should the back pressure exceed the strength of the magnetic force developed by the power coil, the pump will stop stroking, preventing any damage and eliminating the need for a pressure relief valve.
- **Saves you money**

Power used only during discharge portion of each stroke. Minimum electrical consumption and low heat.
- **Low maintenance**

One moving unit, the armature-diaphragm assembly. No lubrication required. Modular construction provides easy replacement of components and major assemblies.
- **Free installation kit included**

Contains essential components for installation:  
Polyethylene suction & discharge tubing  
Foot valve & strainer  
Injection check valve
- **UL Listed      CE compliant**

**CONTROL OPTIONS****INTERNAL CONTROL, Series A1, B1, C1**

These pumps offer the versatility of independently adjustable stroke length and stroke frequency, allowing dual manual control of pump output.

**SERIES 'A' — .003 to 2.0 GPH (.17 to 126 ml/M)**

Series A\_4, A\_5 and A\_6 provide output ranges of 100:1.

Series A\_1 provides output ranges of 83:1.

**SERIES 'B' & 'C' — .008 to 25 GPH (.05 to 1578 ml/M)**

Series B and C provide output ranges of 100:1.

**INTERNAL / EXTERNAL CONTROL, Series A7, B7, C7**

These metering pumps offer the versatility of a selector switch for either internal (manual) or external (automatic) control. Perfect for proportional treatment installations, or for use with the A/D converter or ampere-time meters where pump stroke frequency must vary linearly in response to plating ampere-hours. These pumps respond to any external

switch closure, providing automatic stroke frequency control or proportional feeding. Series B7 & C7 also include adjustable electronic pressure control as a standard feature. This reduces the electrical load to the solenoid based on pump pressure required.

**MICROPROCESSOR CONTROL, Series AA9, B9, C9**

These are programmable electronic pumps featuring microprocessor-based control which employs an LCD display and a 4-key tactile keypad. They also come with continuous memory back-up which insures the integrity of your programmed values in the event of a power failure and keypad adjustable pressure control which reduces noise, shock and vibration during operation. The pump can be run in either manual / external mode select (0-100 sph or 1-100 spm) or external modes of 4-20 mA input control, both direct or inverse. It can also multiply or divide incoming pulses from a voltage free reed switch, transistor, opto-coupler or Hall Effect sensor.

**SERIES 'A' & 'AA'**

MODEL & PRICE CODE NO.			TUBING SIZE	OUTPUT GPH		OUTPUT ml/min.		MAXIMUM PRESSURE
INTERNAL CONTROL	INTERNAL/EXTERNAL CONTROL	MICROPROCESSOR CONTROL	Inches	MIN.	MAX.	MIN.	MAX.	PSI (Bar)
A111-915NI	A711-915NI		1/4	.003	.25	.17	17	250 (17.3)
A141-915NI	A741-915NI	AA941-455NI	1/4	.005	.5	.33	33	250 (17.3)
A151-925NI	A751-925NI	AA951-495NI	3/8	.01	1.0	.63	63	110 (7.6)
A161-935NI	A761-935NI	AA961-465NI	3/8	.02	2.0	1.26	126	50 (3.4)

<b>Voltage -- Standard</b>	120 V / 1 / 50-60
<b>Optional</b>	240 V / 1 / 50-60 (To order, change 3rd digit in Price Code No. from 1 to 2)
<b>Average input power</b>	22 watts
<b>Maximum Dimensions</b>	9.25"L x 4.05"W x 8"H (235 x 103 x 203mm)
<b>Suction Lift</b>	4 feet (1.2 m)

<b>Liquid end -- Head &amp; Fittings</b>	Polypropylene
<b>Balls</b>	Ceramic
<b>Diaphragm &amp; Seal Rings</b>	PTFE copolymers
<b>Stroke Length</b>	20% minimum
<b>Stroke frequency</b>	5 to 100 strokes per minute (adjustable)

**Consult Sales Department for optional liquid end selections.**

**SERIES 'B' & 'C'****SERIES 'B'**

MODEL & PRICE CODE NO.			TUBING SIZE	OUTPUT GPH		OUTPUT ml/min.		MAXIMUM PRESSURE
INTERNAL CONTROL	INTERNAL/EXTERNAL CONTROL	MICROPROCESSOR CONTROL		MIN.	MAX.	MIN.	MAX.	
B111-495NI	B711-495NI	B911-495NI	3/8	.008	1.6	.50	100	150 (10.3)
B121-495NI	B721-495NI	B921-495NI	3/8	.012	2.5	.79	158	100 (6.9)
B131-465NI	B731-465NI	B931-465NI	1/2	.022	4.5	1.42	284	50 (3.4)
B141-415NI	B741-415NI	B941-415NI	1/2	.035	7.0	2.21	442	30 (2.1)

**SERIES 'C'**

MODEL & PRICE CODE NO.			TUBING SIZE	OUTPUT GPH		OUTPUT ml/min.		MAXIMUM PRESSURE
INTERNAL CONTROL	INTERNAL/EXTERNAL CONTROL	MICROPROCESSOR CONTROL		MIN.	MAX.	MIN.	MAX.	
C111-465NI	C711-465NI	C911-465NI	1/2	.012	2.5	.79	158	150 (10.3)
C121-465NI	C721-465NI	C921-465NI	1/2	.02	4.0	1.26	252	100 (6.9)
C131-415NI	C731-415NI	C931-415NI	1/2	.045	9.0	2.84	568	60 (4.1)
C141-35T	C741-35T	C941-35T	1/2	.10	20.0	6.3	1262	25 (1.7)
—	C771-25T	—	1/2	.05	10.0	3.16	631	80 (5.5)
—	C781-35T	—	1/2	.125	25.0	7.9	1578	30 (2.1)

<b>Voltage -- Standard Optional</b>	120 V / 1 / 50-60 240 V / 1 / 50-60 (To order, change 3rd digit in Price Code No. from 1 to 2)
<b>Average input power</b>	29 watts -- 'B' Series 44 watts -- 'C' Series 87 watts -- 'C77' Series
<b>Maximum Dimensions</b>	11.63"L x 5.72"W x 9.25"H (295 x 145 x 235 mm)
<b>Suction Lift</b>	4 feet (1.2 m)

<b>Liquid end -- Head &amp; Fittings Balls Diaphragm &amp; Seal Rings</b>	Polypropylene Ceramic  PTFE copolymers
<b>Stroke Length</b>	10% minimum
<b>Stroke frequency</b>	5 to 100 strokes per minute (adjustable)

*Consult Sales Department for optional  
liquid end selections.*

**ACCESSORIES****WALL MOUNTING BRACKET ASSEMBLY**

A wall mounted pump is up and away from the chemical drum, minimizing the chance for mishap. Rugged, polyurethane coated steel bracket provides stable mounting surface. All hardware is included for mounting to stud, concrete or hollow block walls.

PRICE CODE NO.
34643

**SPLASH GUARDS**

Splash guards have a see through cover that protects against chemical sprays or splashes and accidental movement of the switch and adjustment knobs.



DESCRIPTION	PRICE CODE NO.
Series B & C	10583



2900 MacArthur Blvd. Northbrook, IL. USA 60062 [WWW.SERFILCO.COM](http://WWW.SERFILCO.COM) (800) 323 - 5431**FOUR-FUNCTION VALVES**

Provide positive anti-syphoning and pressure release. Assist priming, easy depressurization of discharge line and pump head without removal of tubing or loosening of fittings.

DESCRIPTION	FOR USE ON	PRICE CODE NO.
1/4" O.D. tubing, polypro./TFE	All 1/4" tubing pumps	28010
3/8" O.D. tubing, polypro./TFE	All 3/8" tubing pumps	28022
1/2" O.D. tubing, PVDF/TFE	C_3 only	34626
1/2" O.D. tubing, polypro./TFE	All other 1/2" tubing pumps	25900

NOTE: Models C\_4 are not compatible with four-function valves.

**POLYETHYLENE SOLUTION TANKS with RIGID STRUCTURAL POLYETHYLENE COVERS**

These tanks are suitable for most corrosive and non-corrosive chemical solutions; self-supporting, 5-gallon graduations. Tanks are resistant to ultraviolet light.



DESCRIPTION	PRICE CODE NO.
35 gal. (132 L) tank w/recess for mounting Series 'A' metering pump. Flooded suction design.	27400
50 gal. (189 L) tank with cover assembly	26350

**DRUM LIQUID LEVEL SWITCH**

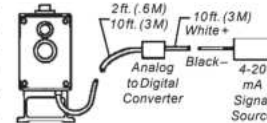
The liquid switch assembly will stop the chemical metering pump or any other pump as the level of liquid in the tank descends to just above the end of the float tube. At this point, it will also activate the customer supplied signal device. Corrosion resistant housing of glass fiber reinforced polypropylene. Chemical resistant polypropylene float. Duplex 115 plug receptacle for control of metering pump (normally closed) and low level signal device (normally open).



DESCRIPTION	PRICE CODE NO.
Electrical: 115V, 50/60Hz. Max load: 3 amps. For: 35 gal. (132L) tank assembly	27417
50 gal. (189L) tank assembly	26731
Electrical: 230V, 50Hz For: 50 gal. (189 L) tank assembly	26732

**ANALOG TO DIGITAL (A/D) CONVERTER for proportional feed**

Allows any A7, B7 or C7 metering pump to respond directly to a 4-20mA DC signal. Encapsulated electronics offer corrosion resistance to ensure trouble-free operation. Requires no external voltage supply and is ready to install - BNC connection requires no wiring for connection to pump. 100 ohm impedance allows several units to be operated from a single source for series loop control. Mounts into pump base.

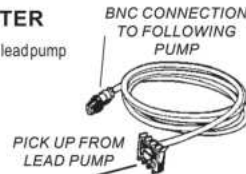


DESCRIPTION	PRICE CODE NO.
For Series AA7, B7, C7 metering pumps: 100 strokes per minute	MP-100

**PULSE TRANSMITTER**

To actuate two or more auxiliary pumps from lead pump for:

Extra pumping capacity  
Multiple chemical pumping  
Proportional treatment  
10 ft. (3M) long.



PRICE CODE NO.
26006

**LOW LEVEL SWITCH ASSEMBLY**

This is an integral low level shut off switch for use with Series A7, B7, C7, A9, B9 and C9 metering pump. When your solution reaches a low level, the switch protects your metering pump by shutting the pump off, reducing wear caused by dry pumping action. PVC / ceramic construction.

PRICE CODE NO.
29190

**DRUM SAFETY WAND - SUCTION TUBE STRAIGHTENER**

This assembly is useful in preventing curling of the suction tube, keeping the foot valve at the bottom of the tank and providing a safer transfer of the suction line from tank-to-tank.

DESCRIPTION	PRICE CODE NO.
45" long, 2" NPT connection	10783
45" long, 2" buttress connection	26783