Industrial Pump Catalog

Solutions beyond products...

CORKEN®

IDEX

Contents

Why Corken?

For decades Corken had specialized in the transfer of hazardous, non-lubricating liquefied gases and low viscosity liquids. We have thrived on specialty applications that have been troublesome for more common pump designs. If you are wondering whether Corken offers a pump for your needs, here is a list of "triggers" that describe where the Corken pump excels:

THIN LIQUIDS AND LIQUEFIED GASES

This includes anything from solvents to ammonia and carbon dioxide. Corken's pumps are designed to handle these non-lubricating hard-to-seal liquids.

HIGH HEAD, LOW FLOW

Corken pumps fit in these applications where a standard centrifugal pump is not as efficient.

LOW NPSH REQUIREMENTS

If you have an application which has caused nothing but headaches due to suction piping limitations, Corken could have the solution for you. New pump offerings in the Corken line can handle NPSH as low as 1 foot in many circumstances.

MAINTENANCE PROBLEMS

Corken's unique pump designs minimize maintenance. On the occasion when maintenance is necessary, our simple designs make repair hassle free.

ENTRAINED VAPORS OR VAPOR LOCK

Corken's SC series side channel pump is forgiving when handling boiling or other aerated liquids. Gas content is acceptable up to 50% while most centrifugal pumps lose efficiency beyond 3 to 5%.

SEALING DIFFICULTIES

Corken pumps come with a variety of seal options and flexibility. Sealless models are offered as well.

PULSATION PROBLEMS

Corken's entire pump offering provides smooth even flow, which is advantageous in applications where problems have arisen or could rise due to pulsation caused by a pump.

QUALITY CUSTOMER CARE

It is our goal at Corken to provide you with quality personal service. We believe that it is this primary objective that has made Corken a leader in the industries that it has served over its 75 year history. We will continually strive to identify ways in which we can improve ourselves and avoid complacency.

About This Catalog

It is most likely that you have referred to our Industrial Pump catalog for one of two basic reasons. Either you wish to determine whether one of our pumps can handle a specific application, or you are searching for information on a specific model. This catalog is designed to help you perform either of these tasks.

1. If you wish to select a pump for your application, move on to the section below and we will guide you through the selection process.
2. If you know the model or design of Corken equipment for which you desire information, turn to the table of contents on page i-3 or the tab corresponding to your particular model and we will lead you to the proper page.

Hydraulic / Material Selection

The Hydraulic Selection / Overview Graph is intended to give you an overview of our hydraulic range as well as aid you in determining which of our pump products will best fit your current needs. Each section in our catalog is color coded in relation to this graph to simplify your selection process.

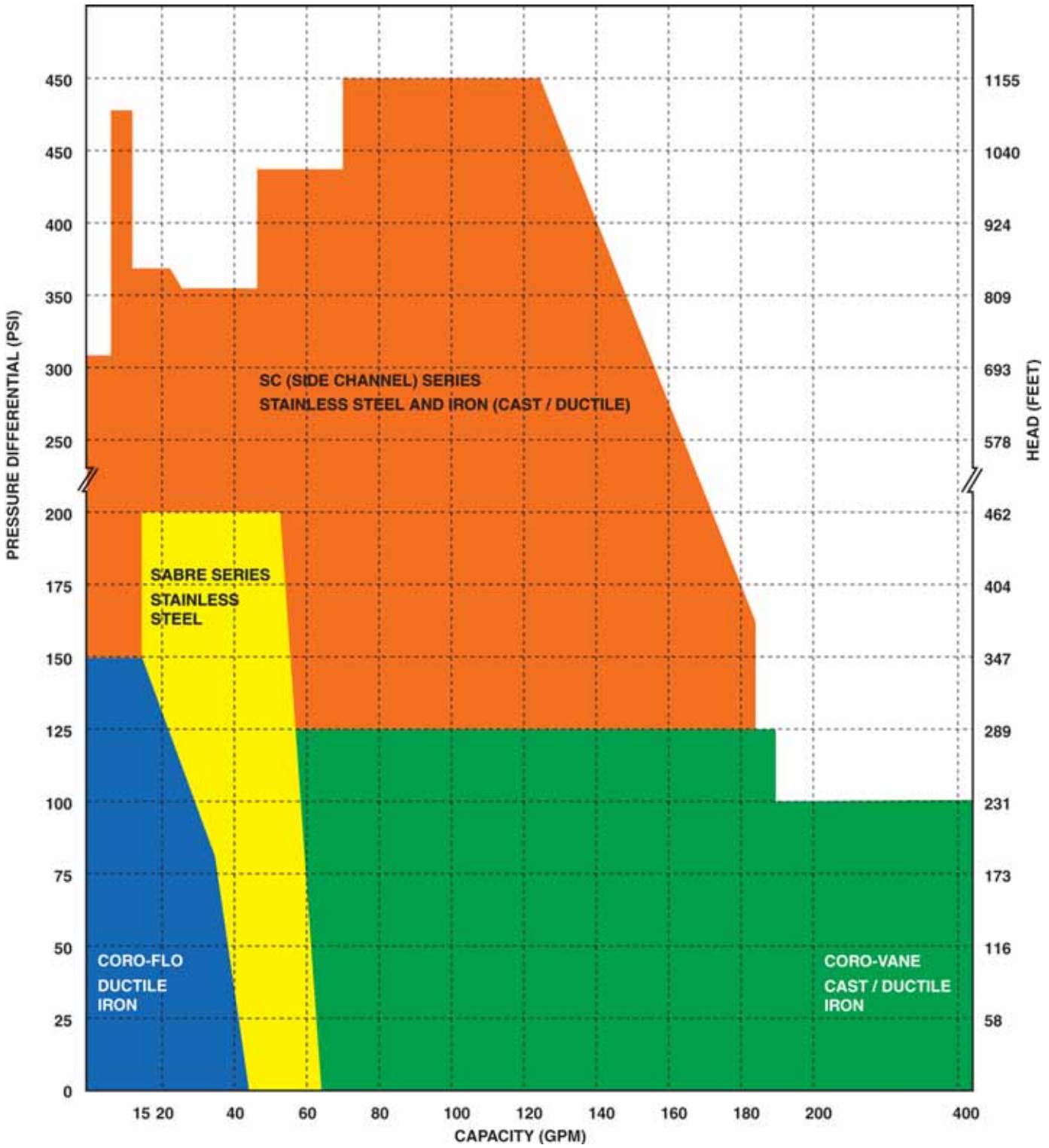
When reading this graph please keep in mind that the reference liquid is water. Liquids with viscosities and specific gravities that differ from water will not necessarily reflect the same flow rates and pressures. Nevertheless, since the purpose of this graph is to get you going in the right direction, it should prove more than adequate.

Please note that differential pressure (psi) is provided on the left of the graph while differential head (ft) is provided on the right. The calculation that ties the two values together is:

$$\textbf{Head In Feet} = \frac{\textbf{(2.31) x (PSI)}}{\textbf{Specific Gravity}}$$

Specific Gravity of Water = 1.0

HYDRAULIC SELECTION / OVERVIEW GRAPH



CONTENTS

Corken Innovation, Quality, and Service in a Vane Pump

CORKEN®

INDUSTRIAL VANE PUMP

Understanding the Corken Differences Will Make a Big Difference

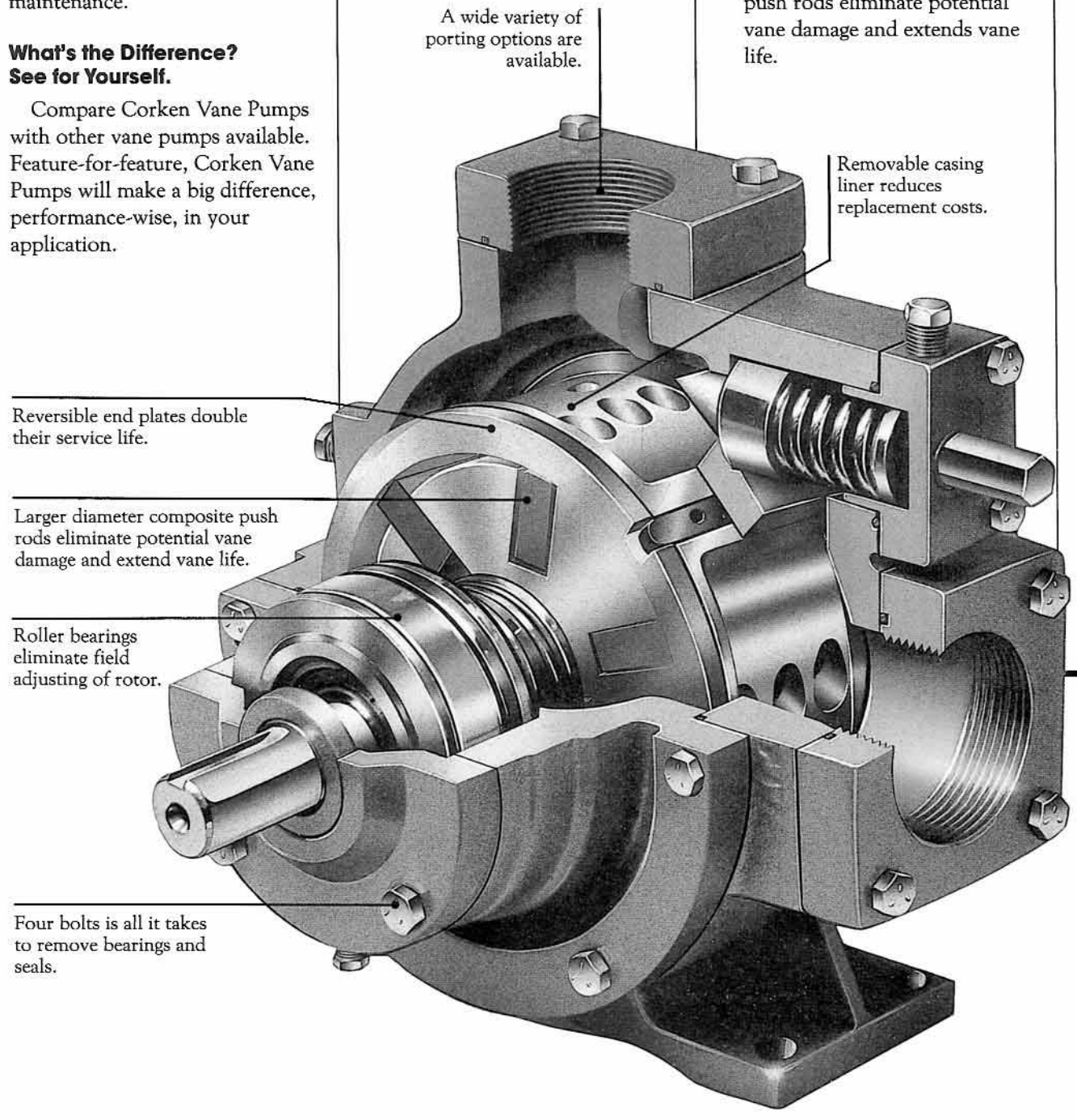
You know what to expect from Corken pumps, and that's what you get with the newest addition to Corken's line — the Industrial Vane Pump.

The vane pumping principle fills a definite need in industrial applications involving thin liquids. Corken's Vane Pump fills that need better — providing you with more features and less maintenance.

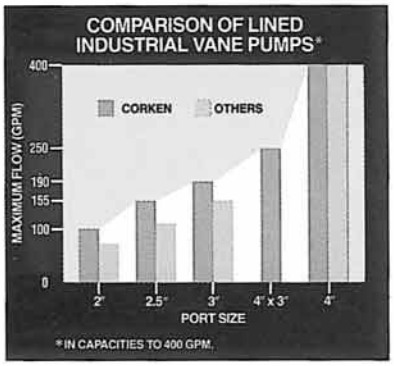
What's the Difference? See for Yourself.

Compare Corken Vane Pumps with other vane pumps available. Feature-for-feature, Corken Vane Pumps will make a big difference, performance-wise, in your application.

- Removable pump casing liners in all models dramatically reduce your pump replacement costs. Worn liners can be replaced quickly without rebuilding the pump.
- Corken Vane Pumps incorporate roller bearings rather than ball bearings which require locked rotors found on other vane pumps. This one feature alone eliminates field adjustments of the rotor.
- Reversible end plates double their service life.
- Seal maintenance is easy with Corken Vane Pumps. Simply remove four bolts to remove bearings and seals.
- Larger diameter composite push rods eliminate potential vane damage and extends vane life.



e in Your Vane Pump Applications.



Good News for Vane Pump Applications

Corken expands its product line to meet industry's needs with the introduction of a line of vane pumps designed for industrial applications.

Corken Vane Pumps are designed for applications involving alcohols, freons, fuel oils, acetone, light oils, and other thin liquids. They operate up to 950 RPM at pressures ranging to 125 PSI and temperatures from –25° F to +225° F. These specifications make Corken Vane Pumps ideal for chemical processing, food processing, petroleum, and other industries.

The Corken Vane Pump fills the needs of industrial applications involving thin liquids better than other vane pumps on the market. And that's good news if you have a thin liquid fluid handling application!

SPEEDS:
to 950 RPM

NOMINAL FLOWS:
to 400 GPM

PRESSURES:
to 125 PSI

TEMPERATURE:
to 225° F.

A Better Vane Pump for Industrial Applications

Corken Vane Pumps are designed specifically for thin liquid fluid handling situations in industrial applications. Additional design features that enhance the efficiency of the pump include the following:

- The Corken Vane Pump can operate at higher speeds reducing pumping cost per gallon.
- Corken Vane Pumps are available with integral gear reducers requiring less space and lower initial cost.
- A large variety of porting options, including flanged ports meeting ANSI standards on ductile iron models, give design flexibility.

Best of All, It's a Corken

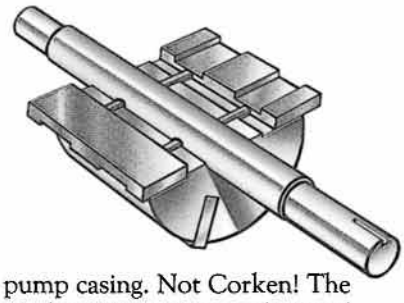
With the introduction of the Industrial Vane Pump, Corken continues to be an innovator in fluid handling—solving your fluid handling problems through the design and manufacture of top-quality, low-maintenance, built-to-last pumps.

Even better, Corken is an innovator in service with preventive maintenance seminars, off-the-shelf sales from a worldwide network of distributors and individualized engineering support.

If your fluid handling application calls for a vane pump, call your Corken distributor to see the difference the Corken Vane Pump will make in your fluid handling application.

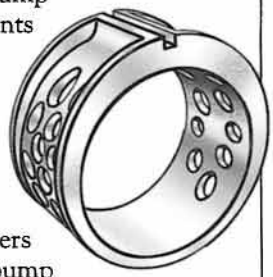
LARGER DIAMETER COMPOSITE PUSH RODS

Other vane pump manufacturers use small diameter steel push rods that tend to drive into the vane and can eventually damage the



pump casing. Not Corken! The Corken Vane Pump is designed around larger composite push rods and vanes protecting the vanes and pump casing from potential damage, extending pump life and reducing downtime!

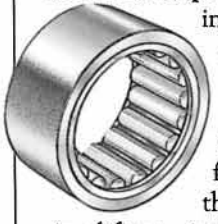
LINED PUMPS

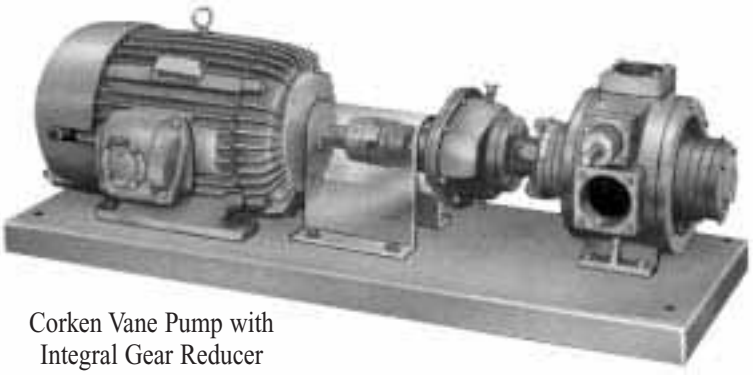


Because the pump casing represents 25 percent of the cost of the pump, all Corken Vane Pumps are designed with removable liners that line the pump casing. If this lining gets worn, it can be replaced quickly and easily without disconnecting the plumbing to the pump. With normal maintenance, you never have to discard the pump casing!

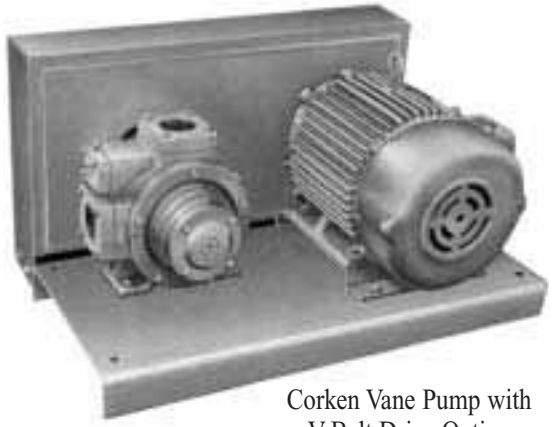
ROLLER BEARINGS

While competitive vane pump models continue to use ball-type bearings and a locked rotor, Corken incorporates roller bearings into the design of the Corken Vane Pump. This feature alone eliminates field adjusting of the rotor which simplifies maintenance and reduces service cost.





Corken Vane Pump with
Integral Gear Reducer



Corken Vane Pump with
V-Belt Drive Option

CONSTRUCTION — SERIES CDBN & CPBN (THREADED) AND SERIES CDBF & CPBF (FLANGED)

Pump Construction	Casing and Heads	Bearing Cap	Rotor	Shaft	Vane and Pushrods[1]	Liner and End Plates	Mechanical Seals (2 required)		Other O-rings[3]	Bearings (2 required)	Internal Relief Valve Spring
							Rotating and Stationary Parts[2]	O-rings[3]			
CDBN	Ductile Iron	Iron	Ductile Iron	Steel	Composite	Iron	Carbon vs. Ni Resist	Buna-N	Buna-N	Anti-Friction Roller	Cadmium Plated Steel
CDBF	Ductile Iron	Iron	Ductile Iron	Steel	Composite	Iron	Carbon vs. Ni Resist	Buna-N	Buna-N	Anti-Friction Roller	—[4]
CPBN	Iron	Iron	Ductile Iron	Steel	Composite	Iron	Carbon vs. Ni Resist	Buna-N	Buna-N	Anti-Friction Roller	Cadmium Plated Steel
CPBF	Ductile Iron	Iron	Ductile Iron	Steel	Composite	Iron	Carbon vs. Ni Resist	Buna-N	Buna-N	Anti-Friction Roller	—[4]

SPECIFICATIONS — SERIES CDBN & CPBN (THREADED) AND SERIES CDBF & CPBF (FLANGED)

Model Numbers		Standard Port Size (inches)		Nominal Pump Rating		Motor Horsepower Required at Rated Speed Pumping 100 SSU Liquid		Maximum Differential Pressure	Maximum Working Pressure	Maximum Recommended Temperature for Catalogued Pump	Approximate Shipping Weight Pounds
Series	Size	Inlet[5-6]	Outlet[5-6]	GPM	RPM	50 PSI	100 PSI	PSI	PISG	Degrees °F	Unmounted
CDBN	0521	2.0	2.0	100	950	7.5	15	125	400	225	120
CDBN	1021	3.0	3.0	190	780	10.0	20	125	400	225	160
CDBN	1321	4.0	3.0	255	780	15.0	25	100	400	225	185
CDBN	1521	4.0	4.0	400	780	25.0	40	100	400	225	195
CDBF	1021	3.0	2.5	190	780	10.0	20	125	400	225	200
CDBF	1321	4.0	3.0	255	780	15.0	25	100	400	225	235
CDBF	1521	4.0	3.0	400	780	25.0	40	100	400	225	235
CPBN	0521	2.0	2.0	100	950	7.5	15	125	200	225	120
CPBN	0721	2.5	2.5	155	950	7.5	15	125	200	225	135
CPBN	1021	3.0	3.0	190	780	10.0	20	125	200	225	160
CPBN	1321	4.0	3.0	255	780	15.0	25	100	200	225	185
CPBN	1521	4.0	4.0	400	780	25.0	40	100	200	225	195
CPBF	0721	3.0	2.0	155	950	7.5	15	125	200	225	165
CPBF	1021	3.0	2.5	190	780	10.0	20	125	200	225	200
CPBF	1321	4.0	3.0	255	780	15.0	25	100	200	225	
CPBF	1521	4.0	3.0	400	780	25.0	40	100	200	225	235

1 Vanes are Ryton®, pushrods are glass filled Teflon®.
2 All other seal parts are steel, optional stainless steel seat available.
3 Optional elastomers for seal and O-rings are Viton®, Teflon®, Neoprene®, Ethylene Propylene and Kalrez.
4 Internal relief valve not available in Series CDBF and CPBF ductile iron construction.
5 Series CDBN and CPBN has bolt-on flanges tapped for NPT pipe. Other sizes available.
6 Series CDBF and CPBF has port flanges suitable to use with 300# ANSI ductile iron or steel companion flanges or flanged fittings.

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Solutions beyond products...

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Corken, Inc. • A Unit of IDEX Corporation
P.O. Box 12338 Oklahoma City, OK 73157 U.S.A.
(405) 946-5576 FAX (405) 948-7343
Visit our website at http://www.corken.com
e-mail us at corken@corken.com

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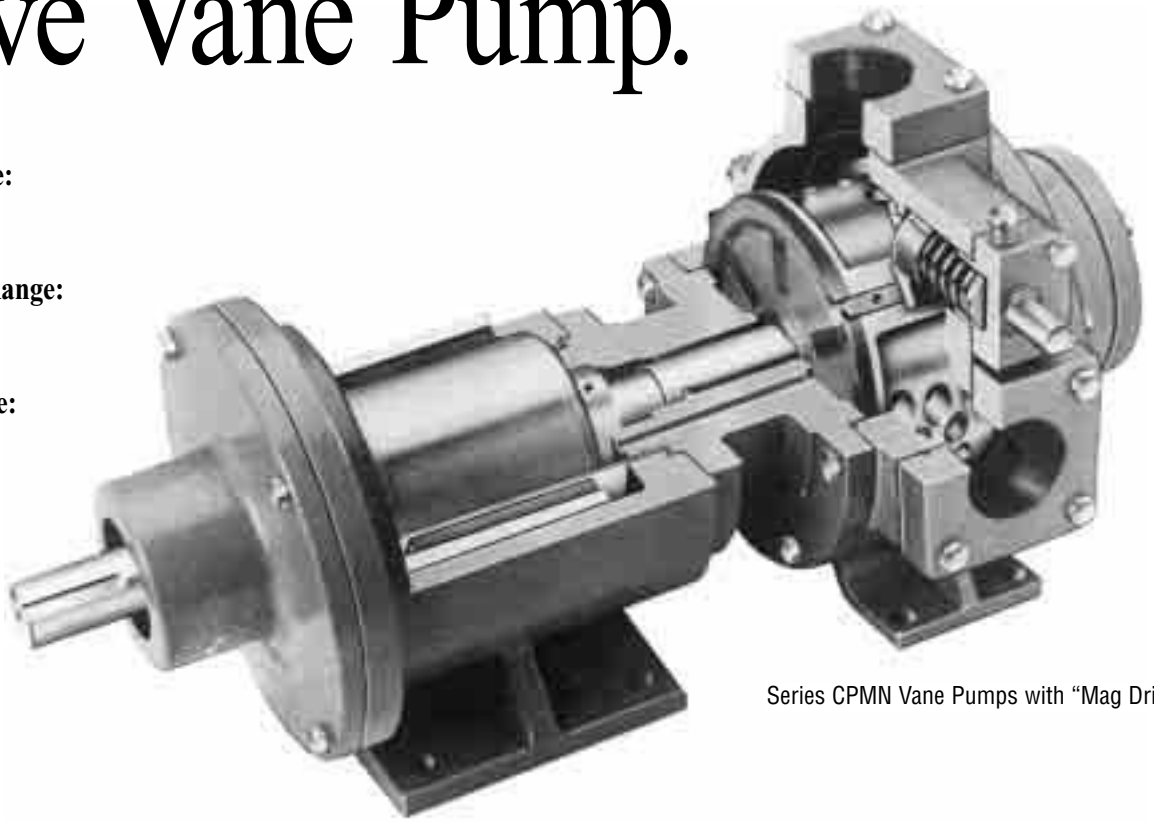
Corken's Industrial Magnetic Drive Vane Pump.

Pressure Range:
to 125 PSI*

Temperature Range:
-25° F to 225° F*

Viscosity Range:
Up to 750 SSU*



Series CPMN Vane Pumps with "Mag Drive"

GPM 75–125–190 (@ 780 RPM)**
MAGNETIC DRIVE VANE PUMP

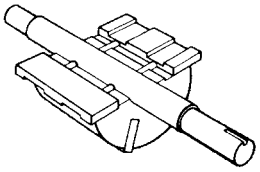
The magnetically driven vane pump eliminates mechanical seals to assure zero shaft leakage for your most critical pump sealing demands. It utilizes a magnetic coupling in which the magnetic force is transmitted from an outer motor-driven magnetic coupling through an isolation canister to an inner magnetic coupling mounted on the pump shaft. Magnetic Drive units provide synchronous rotation through the coupling.

By using a Magnetic Drive Vane Pump, you can pump thin liquids with less maintenance and more confidence. The vane pump's maintenance-saving features include removable pump liners on all models, wear-resistant sleeve bushings instead of roller bearings, and reversible end plates. Porting flexibility–including flanged ports with ANSI standards–gives design flexibility.

Without the need for mechanical shaft seals, the Magnetic Drive Vane pump is an excellent choice for pumping, hazardous, toxic, foul smelling, or other difficult to seal fluids.

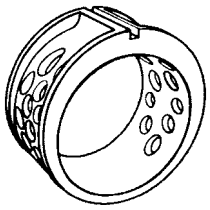
* Values shown represent minimums or maximums. Some special construction or consideration may be required before a catalogued pump can be applied to an application involving maximum pressure or minimum or maximum temperature and/or viscosity.

** Nominal capacities based on handling thin liquids at low pressures.



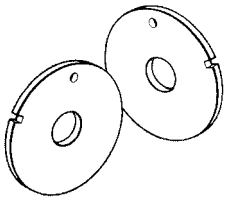
Pushrods

The Magnetic Drive Vane Pump utilizes larger diameter composite pushrods. Other vane pumps utilize steel pushrods which tend to drive in the vane and damage vanes and pump casings. Our pushrods protect from this problem, and that means less downtime and maintenance costs.



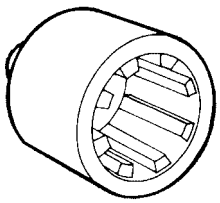
Casing Liner

Removable casing liners are standard on all Magnetic Drive Vane Pumps. This allows the pump to be rebuilt without purchasing a new casing. That saves up to 75 percent of the cost of a new pump. If the casing liner wears out, it is quickly and easily replaced without disconnecting the plumbing to the pump.



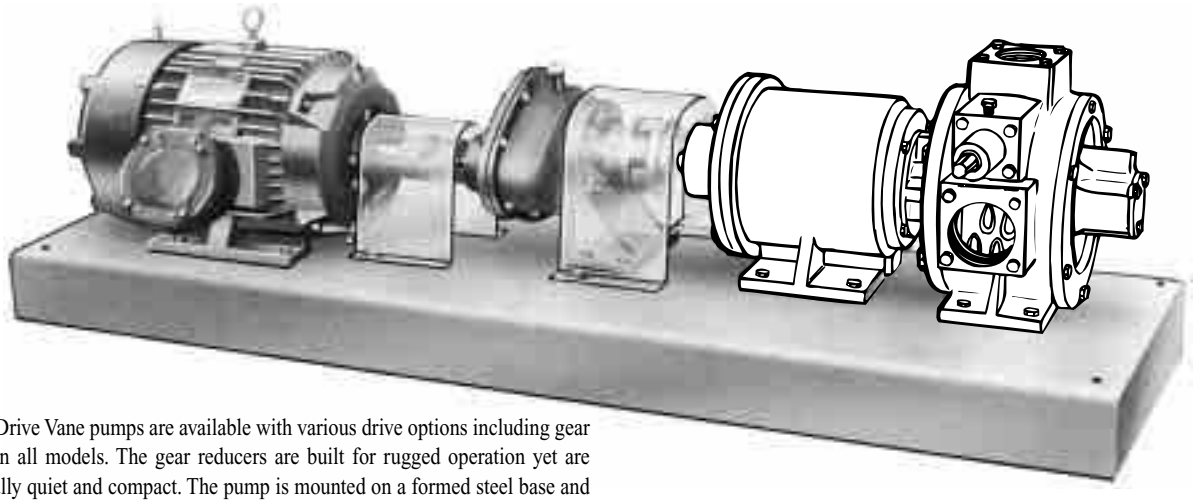
End Plates

The Magnetic Drive Vane Pump is designed with reversible end plates to double their service life.



Magnetic Coupling

The Magnetic Drive couples the pump to the driver. Magnetic force passing through a stainless steel canister is used to drive the inner coupling eliminating the need for shaft seals.



Magnetic Drive Vane pumps are available with various drive options including gear reducers on all models. The gear reducers are built for rugged operation yet are exceptionally quiet and compact. The pump is mounted on a formed steel base and includes guarded couplings between Magnetic Drive, reducer, and motor.

CONSTRUCTION— SERIES CPMN & CDMN (THREADED) AND SERIES CPMF (FLANGED)

Pump Construction	Casing and Heads	Rotor	Shaft	Vane and Pushrods[1]	Liner and End Plates	O-rings[2]	Bearings (2 Required)[3]	Internal Relief Valve Spring
CPMN	Iron	Ductile Iron	Steel	Composite	Iron	Buna-N	Carbon Graphite	Cadmium Plated Steel
CPMF	Ductile Iron	Ductile Iron	Steel	Composite	Iron	Buna-N	Carbon Graphite	—[4]
CDMN	Ductile Iron	Ductile Iron	Steel	Composite	Iron	Buna-N	Carbon Graphite	Cadmium Plated Steel

SPECIFICATIONS— SERIES CPMN (THREADED) AND SERIES CPMF (FLANGED)

Model Numbers		Standard Port Size (Inches)		Nominal Pump Rating		Maximum Differential Pressure	Maximum Working Pressure	Maximum Recommended Temperature for Catalogued Pump[5]	Approximate Shipping Weight Pounds
Series	Size	Inlet[6-7]	Outlet[6-7]	GPM	RPM	PSI	PISG	Degrees °F	Unmounted
CPMN	0521	2	2	75	780	125	200	225	215
CPMN	0721	2.5	2.5	125	780	100	200	225	230
CPMN	1021	3	3	190	780	50	200	225	255
CPMF	0721	3	2	125	780	100	200	225	260
CPMF	1021	3	2.5	190	780	50	200	225	295
CDMN	0521	2	2	75	780	125	400	225	215
CDMN	1021	3	3	190	780	50	400	225	255

1 Vanes are Ryton®, pushrods are glass filled Teflon®.

2 Buna-N O-rings are standard. Viton® or Teflon® available.

3 Carbon Graphite bearings are standard. Silicon Carbide bearings are available.

4 Internal relief valve not available in Series CPMF ductile iron construction.

5 Alternate magnet materials and/or special construction features are required at temperatures above 175°F. Consult factory for details.

6 Series CPMN has bolt-on flanges tapped for NPT pipe. Other sizes available; see dimensional drawings.

7 Series CPMF has port flanges suitable to use with 300# ANSI ductile iron or steel companion flanges or flanged fittings.

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Solutions beyond products...

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Corken, Inc. • A Unit of IDEX Corporation
P.O. Box 12338, Oklahoma City, OK 73157 U.S.A.
3805 N.W. 36th St., Oklahoma City, OK 73112
Phone (405) 946-5576 • Fax (405) 948-7343
Visit our website at http://www.corken.com
e-mail us at corken@corken.com

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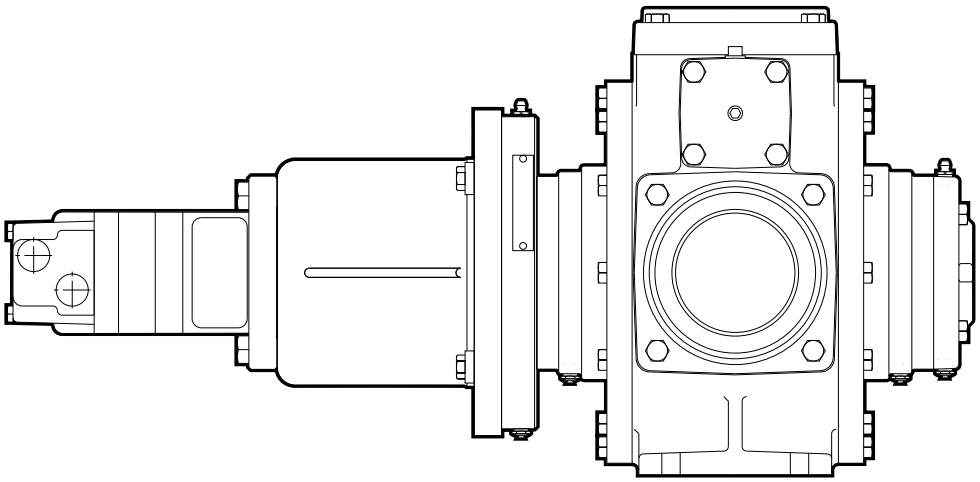
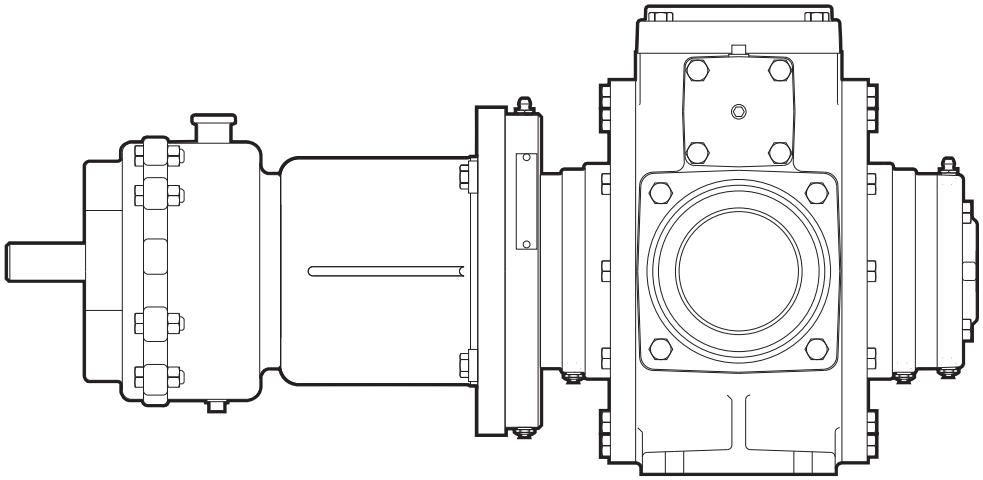
ALTERNATE DRIVE OPTIONS



Hydraulic Motor Drive



Integral Gear Reducer

For the occasions when electric motor drives are not a preferred option, when misalignment has been an issue, or when space is limited, Corken introduces the CPH/CDH industrial vane line. These pumps allow for direct mounting of a hydraulic motor or gear reducer, forming a compact self aligned unit.

On the CPH/CDH pump, we replace our standard drive side-bearing cap with an adapter that will mount to a 182/184 TC Nema bracket. As an option, we offer a Corken manufactured bracket that can be machined to accept an SAE A two bolt hydraulic motor or Viking B size gear reducer.

Keep these pump models in mind for truck applications, as well as opportunities in which maintenance and installation experience is at a minimum.

Feel free to contact your local Corken distributor for more information.

IS THE INDUSTRIAL VANE SERIES THE PUMP FOR YOUR APPLICATION?

The following questions will allow you to determine if your application fits within the capabilities of the Corken Industrial Vane product line. If you are able to answer yes to all of the following questions, then proceed to the sizing worksheet below. If you must answer no to one or more of the questions, return to the Hydraulic Selection / Overview Graph to see if any of our other pump lines meet your basic conditions. Please feel free to call Corken or your local distributor with your questions.

_____ Is the viscosity of the liquid being pumped less than 10,000 SSU (2200 CST)?

_____ Is the discharge pressure requirement less than 400 PSI (27.5 bar)?

_____ Will the temperature of the liquid being pumped remain between –25°F and 225°F?

_____ Is the liquid free of abrasives?

_____ Will iron pump casing be acceptable?

SIZING WORKSHEET

The next step in the sizing process is to ensure that you have all of the data that you need. We encourage you to make copies of this page and use it as a worksheet for selecting the proper Sliding Vane Model Pump.

A Liquid: _____

B Viscosity: _____ (in SSU)
See Page 5-3 to convert from Centipoise (cP) or Centistokes (cSt) to SSU.

C Differential Pressure: _____ psi
If pressure is in feet of head, convert to psi with the following calculation:
PSI = (ft. head x specific gravity of liquid) ÷ 2.31

D Total Discharge Pressure: _____ psi

E Desired Flow Rate: _____ GPM

SELECTION DATA

You may use the blanks below to record the information that you obtain from the following sizing pages.

Pump Series _____ Speed _____

Actual Flow Rate _____ BHP _____

Gear Reducer Part Number _____

1 Industrial Vane Pump Model Selection

OVERVIEW OF PERFORMANCE RANGE

MODEL NUMBER	PRESSURE DIFFERENTIAL RANGE (PSI)	CAPACITY RANGE (GPM)
521	0-125	25-90
721	0-125	50-135
1021	0-125	75-200
1321	0-100	100-275
1521	0-100	175-400

The table above provides a general overview of the performance range of each of our industrial vane models. Please note that only the models 521 through 1021 are available in a magnetic drive configuration. Proceed to page 1-13 for detailed selection instructions.

INSTRUCTIONS FOR SELECTION OF VANE PUMP (ALL MODELS)

1. Turn to the page that corresponds with the model that you selected in the previous table on page 1-12.

Mechanical Seal Models

Model	Page	
521	page 1-14	(Not available with ANSI flanged option)
721	page 1-15	(Not available in high pressure ductile iron design)
1021	page 1-16	
1321	page 1-17	
1521	page 1-18	

Magnetic Drive Models

Model	Page	
521	page 1-19	(Not available with ANSI flanged option)
721	page 1-20	(Not available in high pressure ductile iron design)
1021	page 1-21	

2. Once you have turned to the correct page, locate the graph with the viscosity value that most closely matches the viscosity of the liquid being pumped (**B** on the sizing worksheet). The viscosity corresponding to each graph is located in the lower right-hand corner of the graphs.
   Note: Corken industrial vane pumps can pump liquids with viscosities up to 10,000 SSU. Contact the factory for proper selection when your viscosity value exceeds 1,000 SSU.

3. Once you have located the proper graph, find the desired flow rate (**E** on sizing worksheet) on the lower portion of the vertical axis.

4. From that point, move horizontally to the right until you intersect the diagonal line that most closely corresponds to your differential pressure value (**C** on sizing worksheet).
   Note: The dashed portion of the performance curves relate to recommended intermittent duty operation as opposed to continuous duty. An example of intermittent duty is truck or tank car loading or unloading.

5. From this point, travel vertically down to the horizontal axis to determine the speed (in RPM) that the pump must turn to provide the desired capacity. If the viscosity of the liquid to be pumped exceeds 100 SSU, please read page 1-23 regarding pump speeds at higher viscosities. There are a few different methods that can be used to operate your vane pump at a specific speed. The most common methods are as follows:

   1. Gear Reducer Drive
   2. Variable Frequency Drive
   3. V-Belt Drive

   The set of numbers on the horizontal axis labeled drive speeds represent the speeds available if a gear reducer drive is purchased from Corken. For more detail on the particular reducers available, see page 1-25.

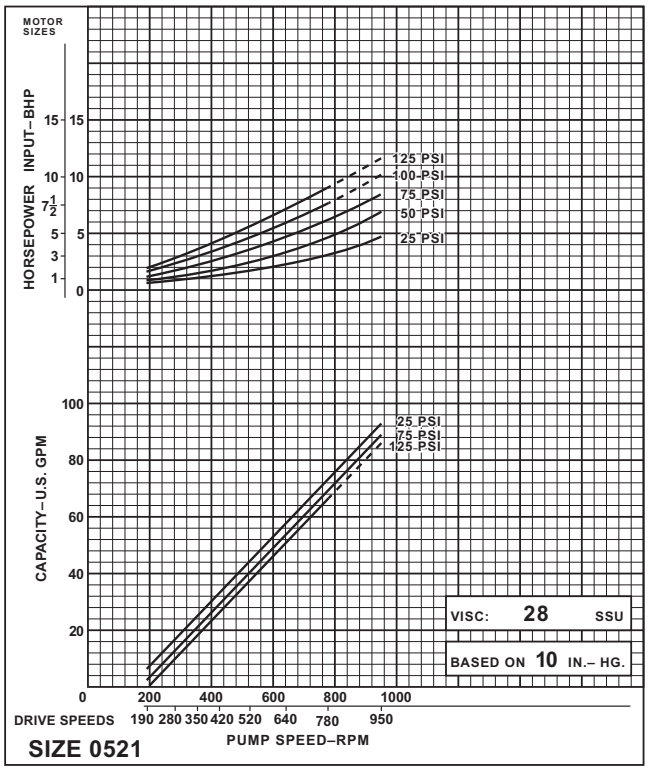
6. Now its time to determine horsepower required. Move vertically up from the point on the horizontal axis that corresponds to the speed that you have decided to operate the vane pump. Continue until you reach the second set of curves towards the top of the graph. Stop when you reach the curve that most closely corresponds to the differential pressure of your application (**C** on sizing worksheet).

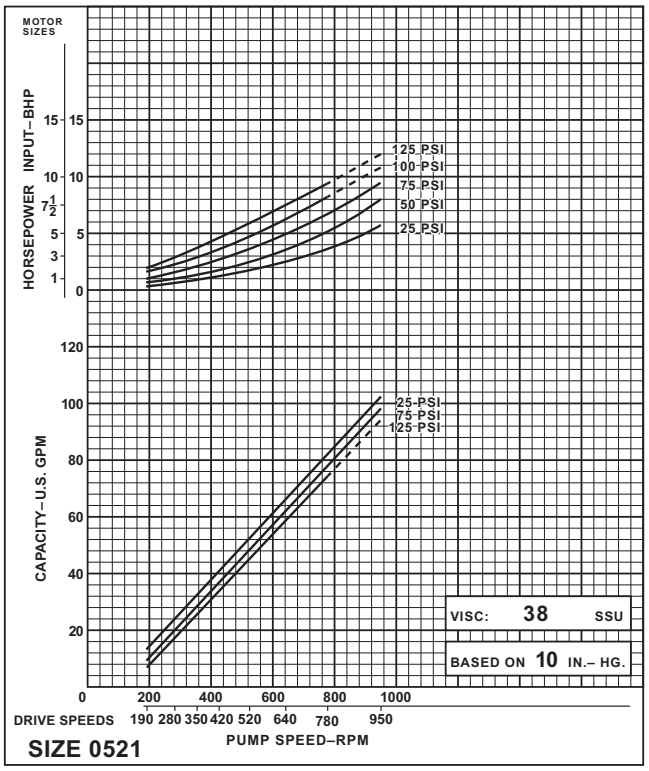
7. Move horizontally to the left until you reach the vertical axis. Record the horsepower value that corresponds to that point. This is the horsepower required by the pump. You must select a motor that is greater than this value.

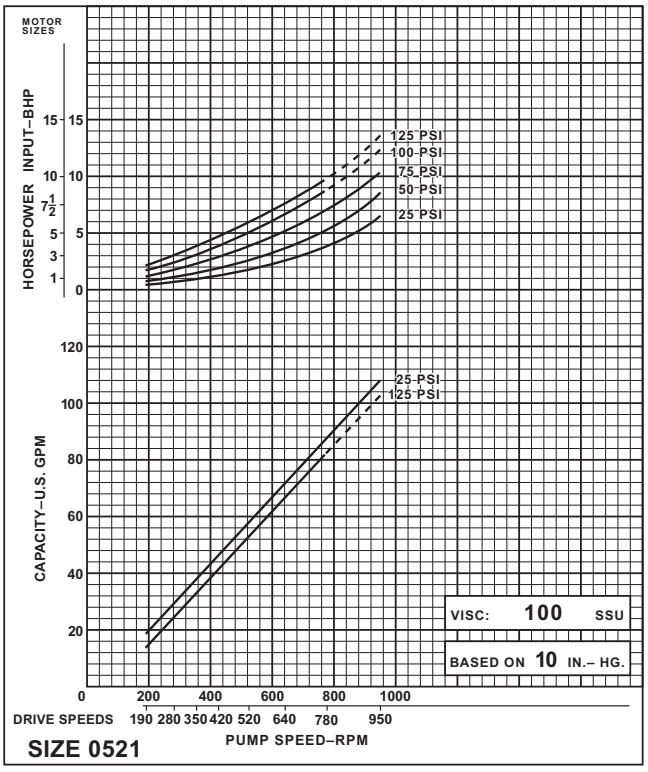
8. Once you have logged the information taken from the graph, proceed to page 1-27 or 1-29 for model number selection.

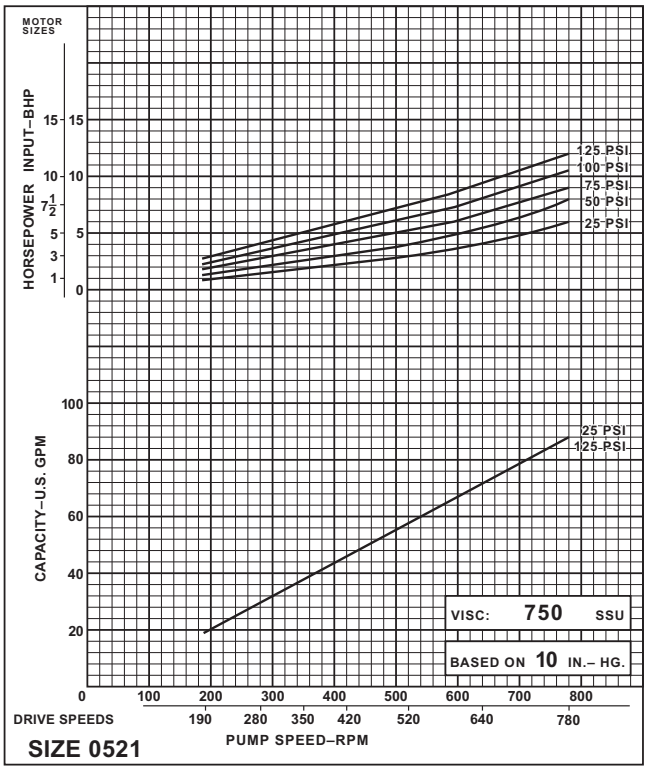
1 Industrial Vane Pump Model Selection

0521 SIZE PERFORMANCE DATA (MECHANICAL SEAL MODELS)

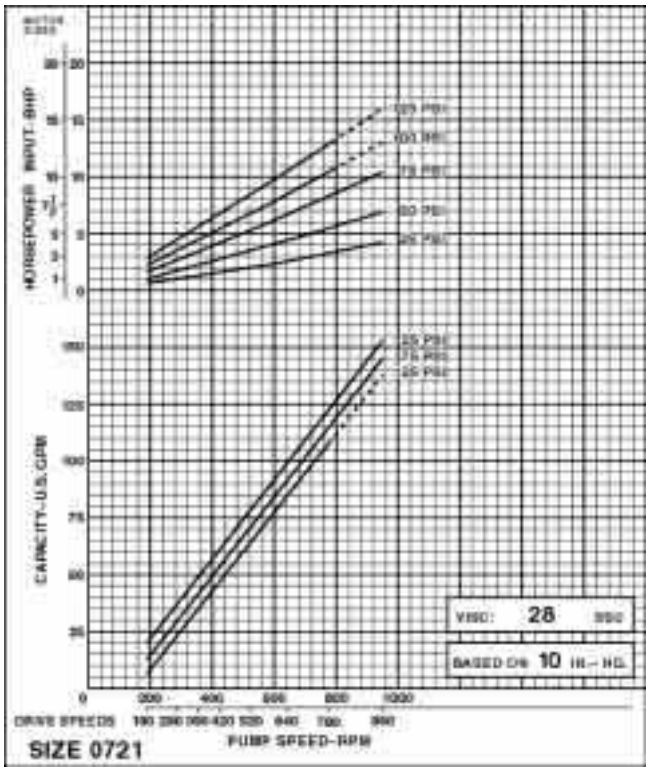


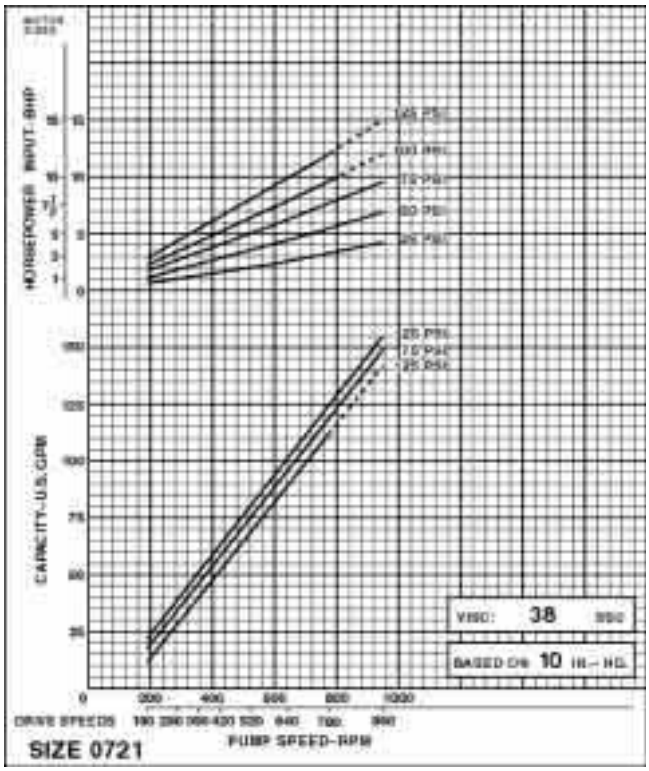


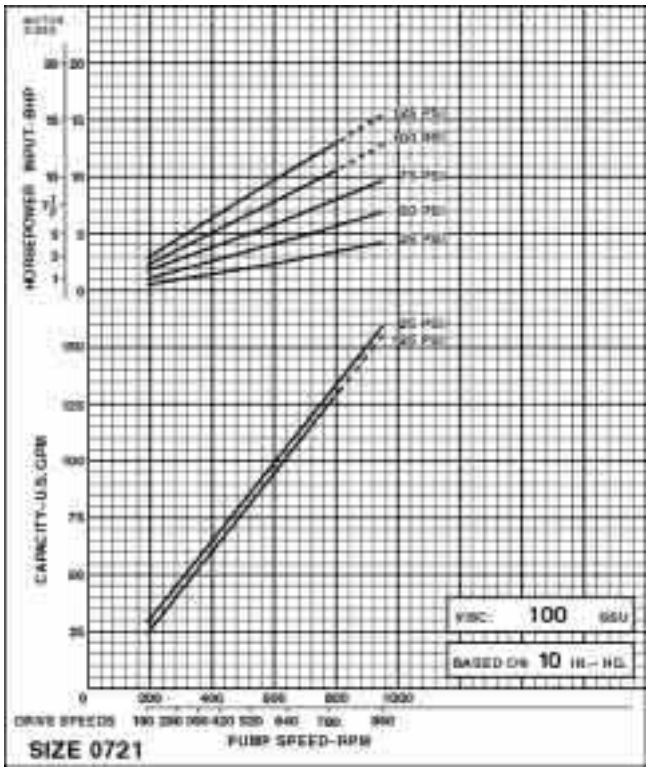


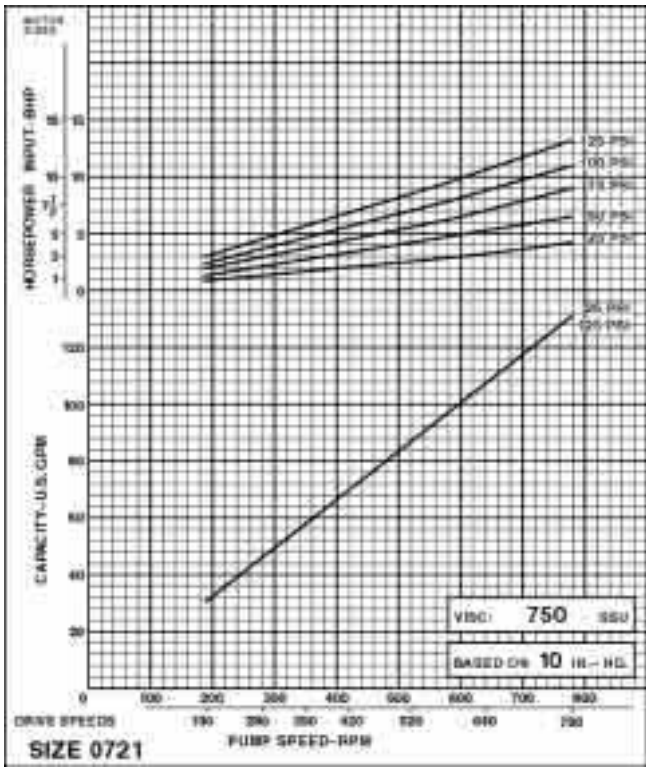


0721 SIZE PERFORMANCE DATA (MECHANICAL SEAL MODELS)



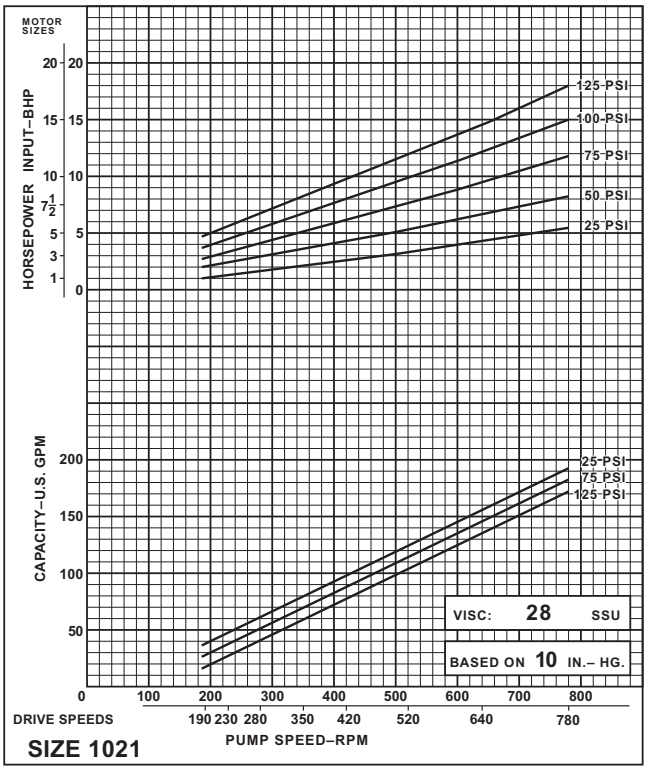


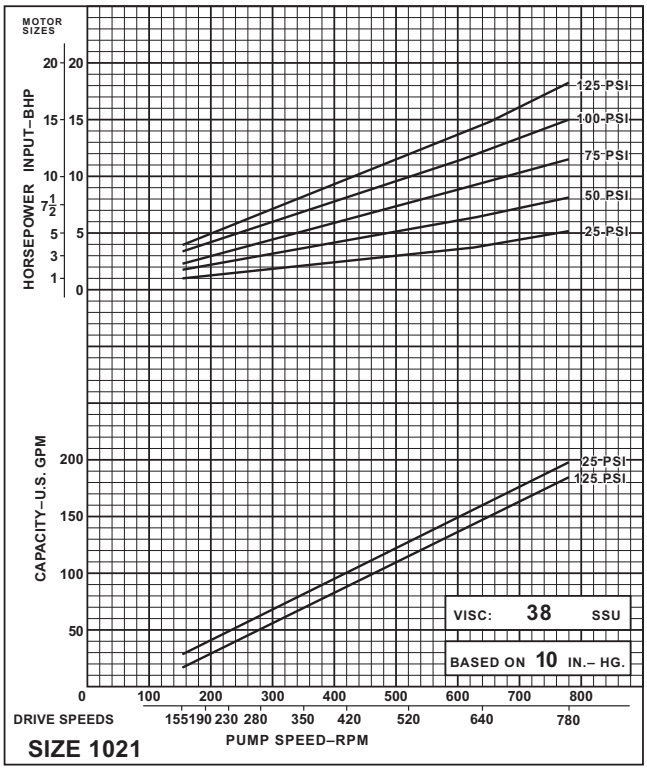


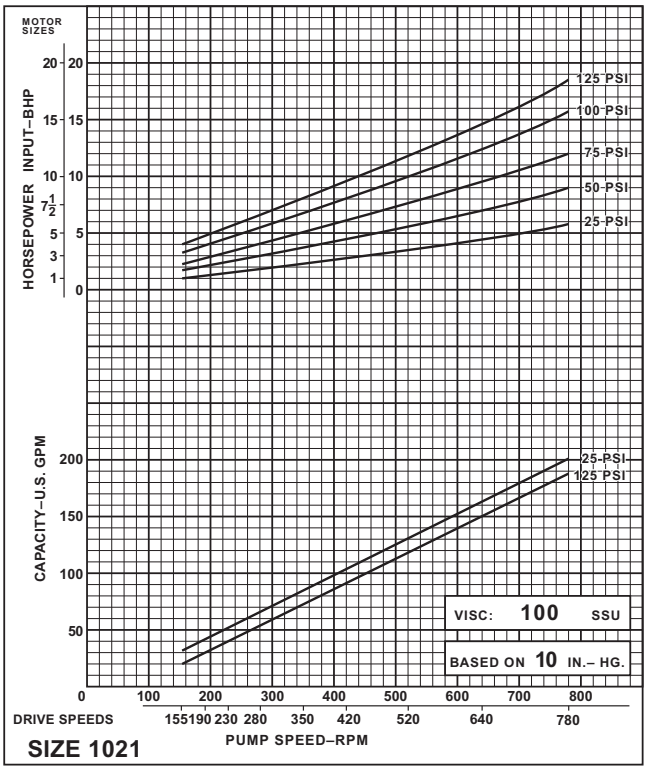


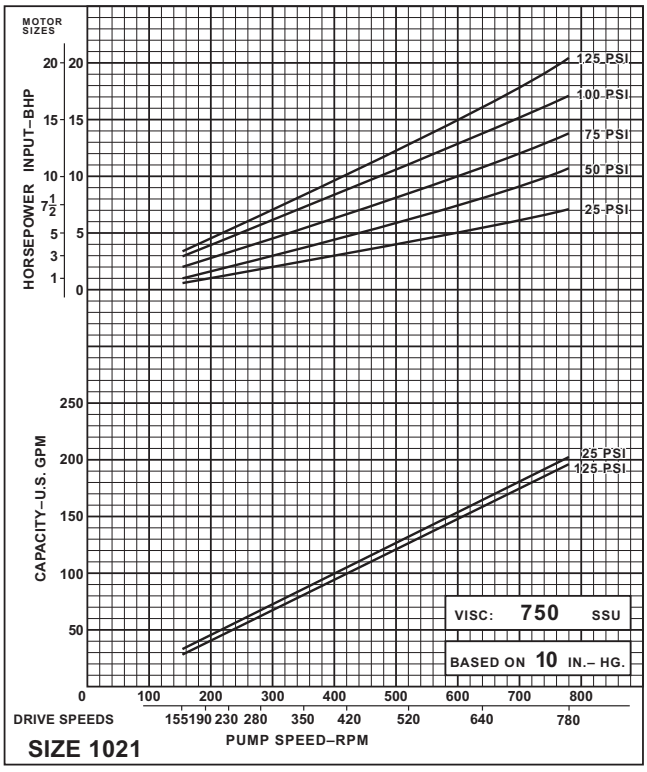
1 Industrial Vane Pump Model Selection

1021 SIZE PERFORMANCE DATA (MECHANICAL SEAL MODELS)

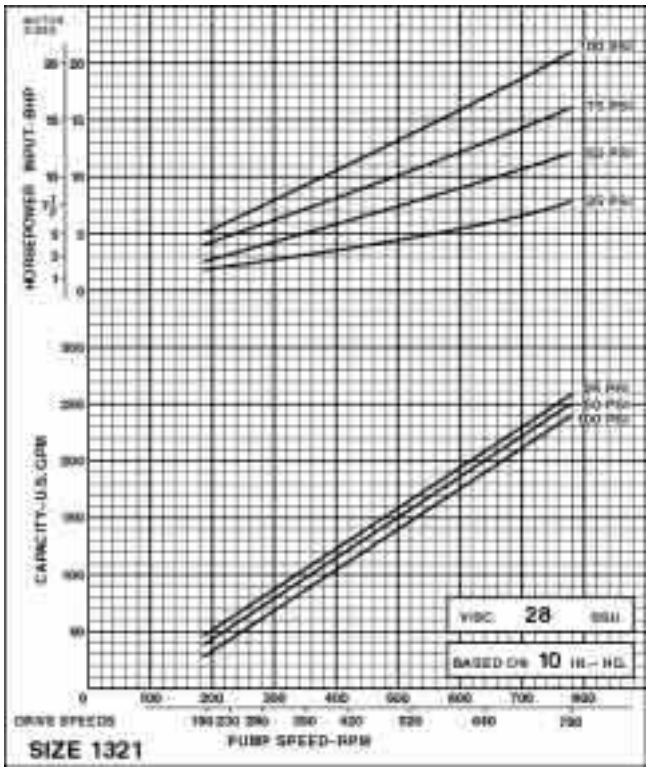


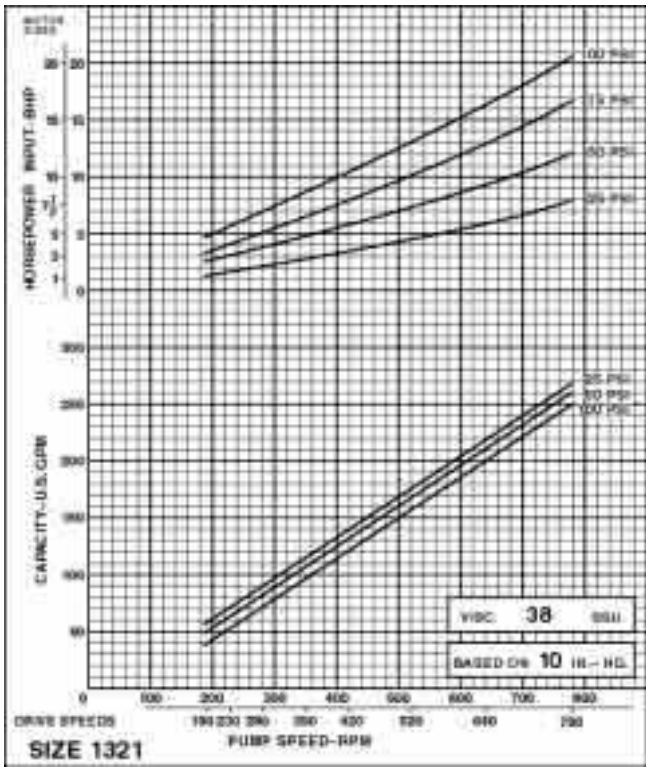


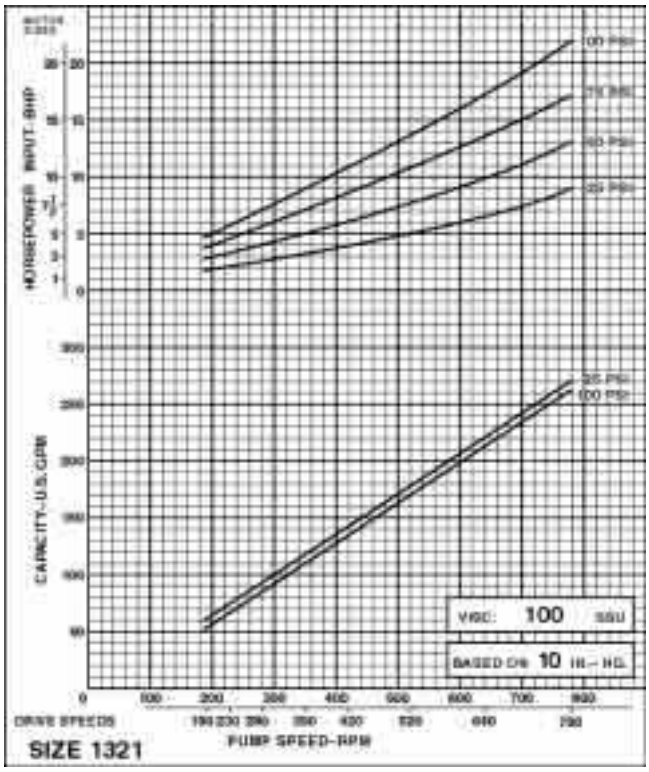


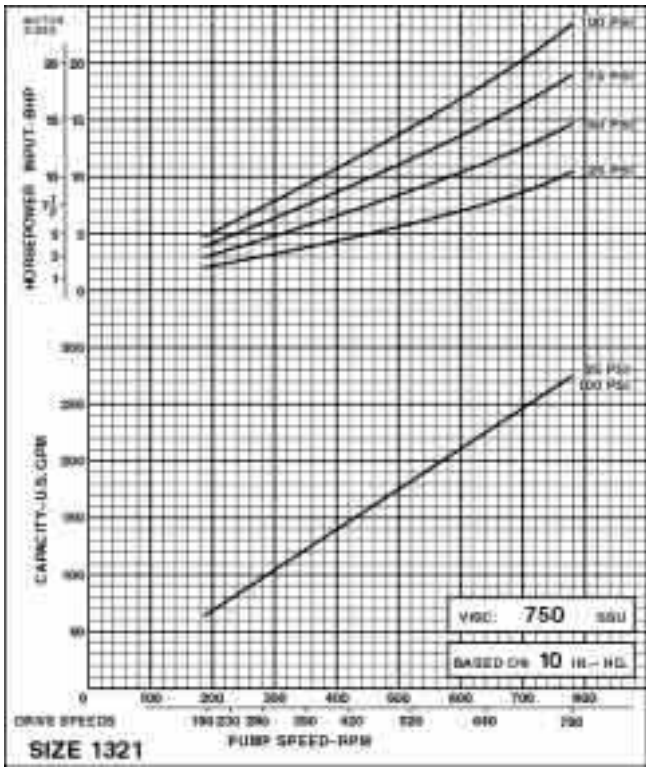


1321 SIZE PERFORMANCE DATA (MECHANICAL SEAL MODELS)



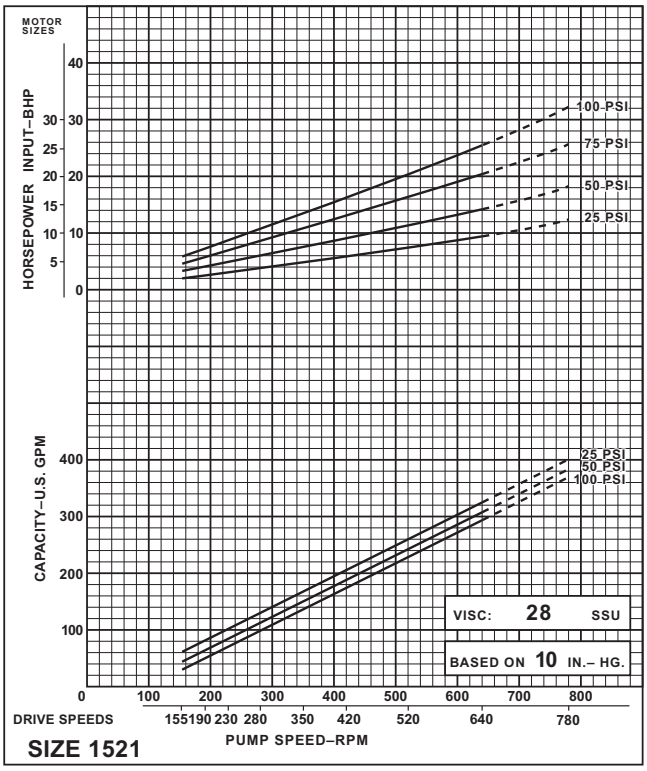


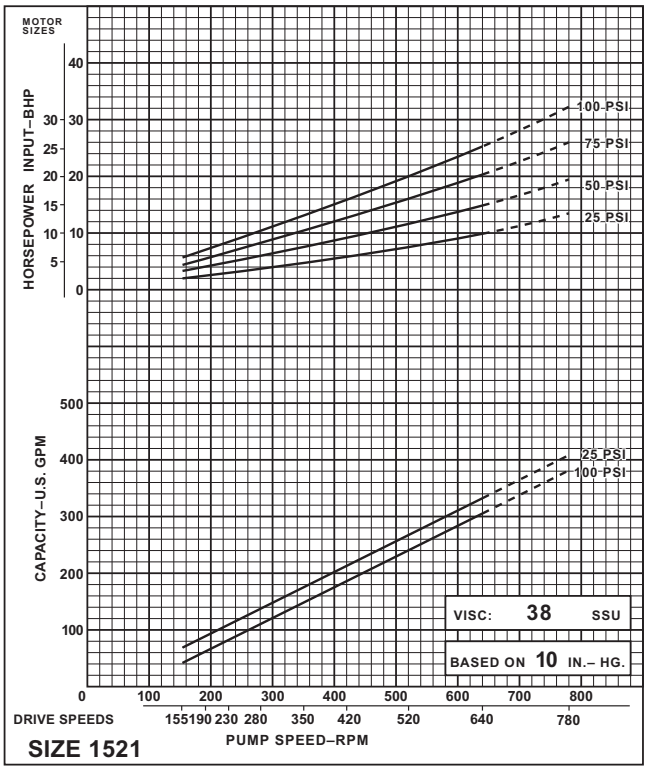


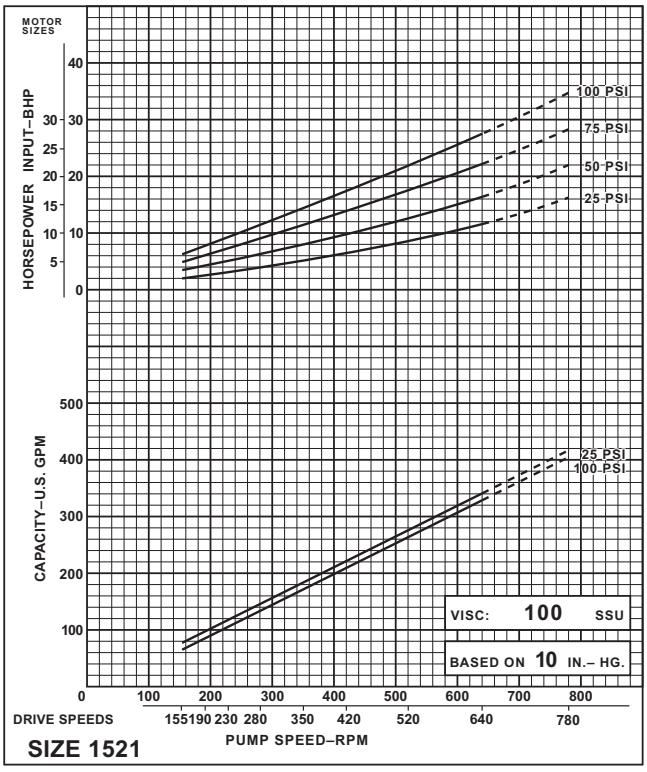


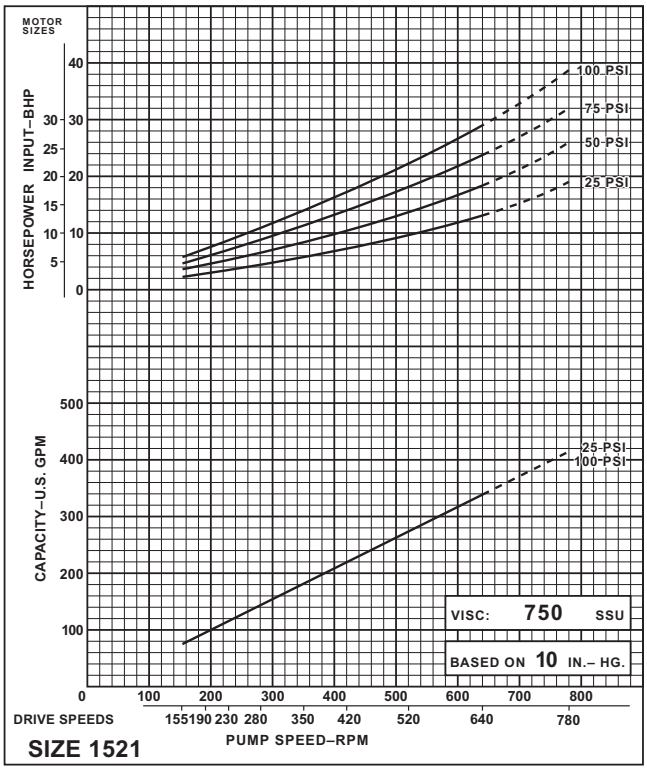
1 Industrial Vane Pump Model Selection

1521 SIZE PERFORMANCE DATA (MECHANICAL SEAL MODELS)

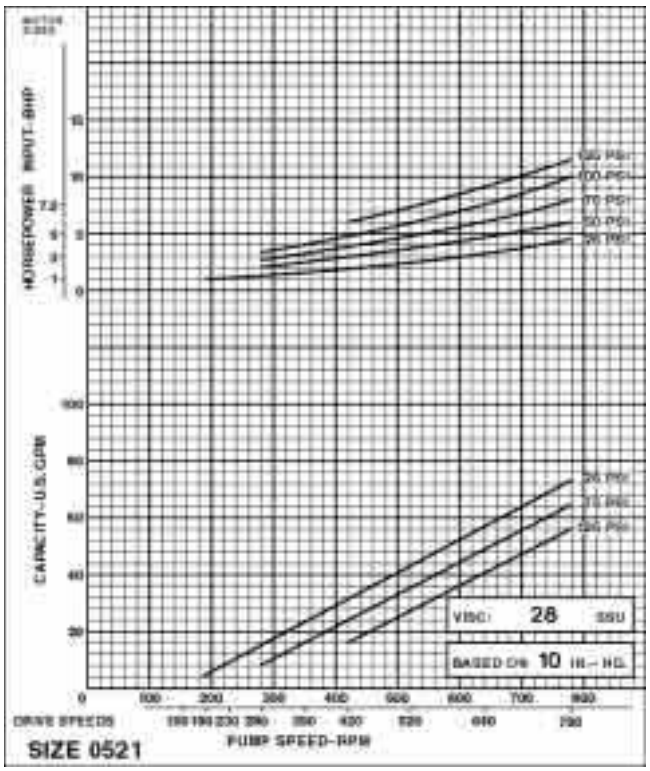


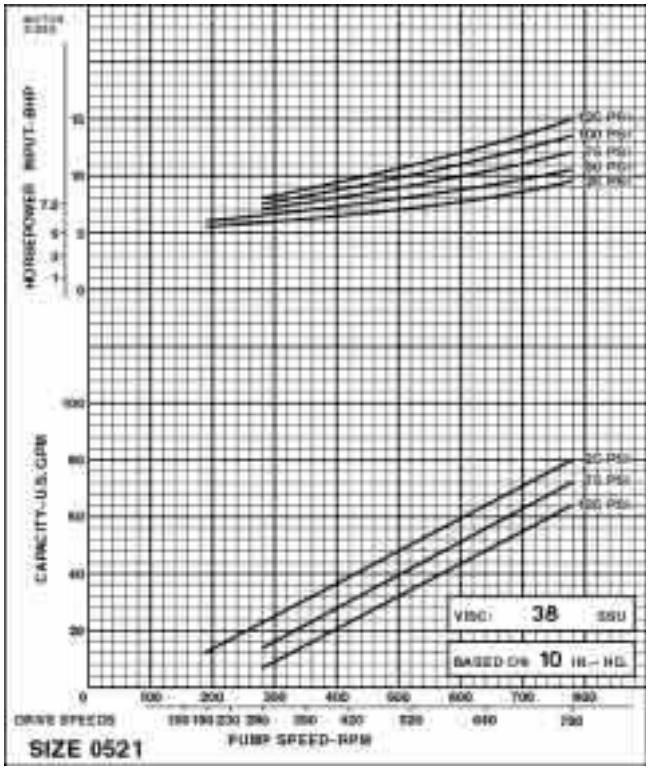


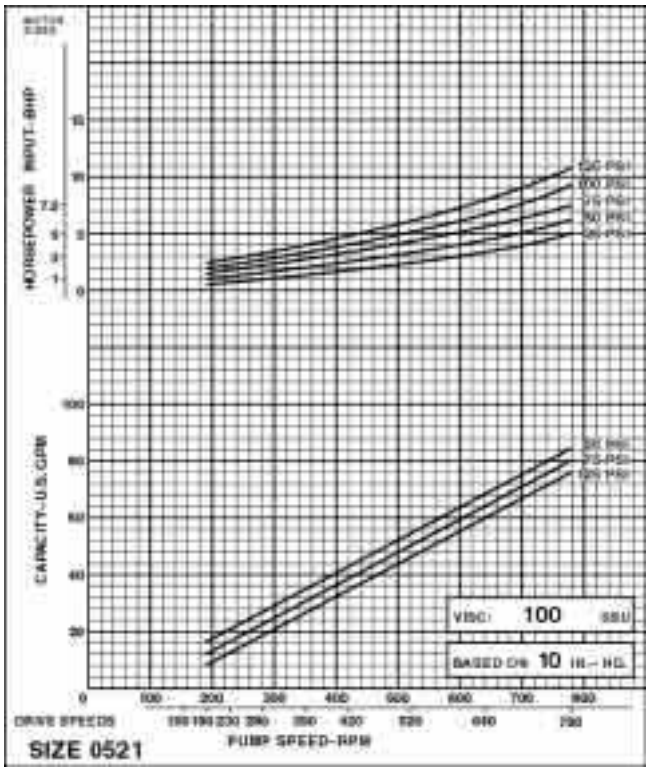


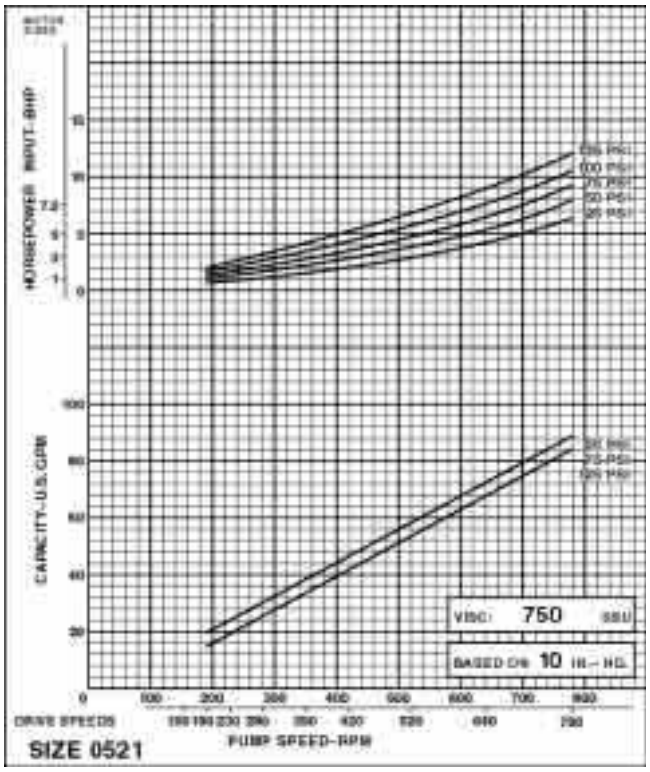


SERIES CPMN AND CDMN 0521 SIZE PERFORMANCE DATA (MAGNETIC DRIVE MODELS)



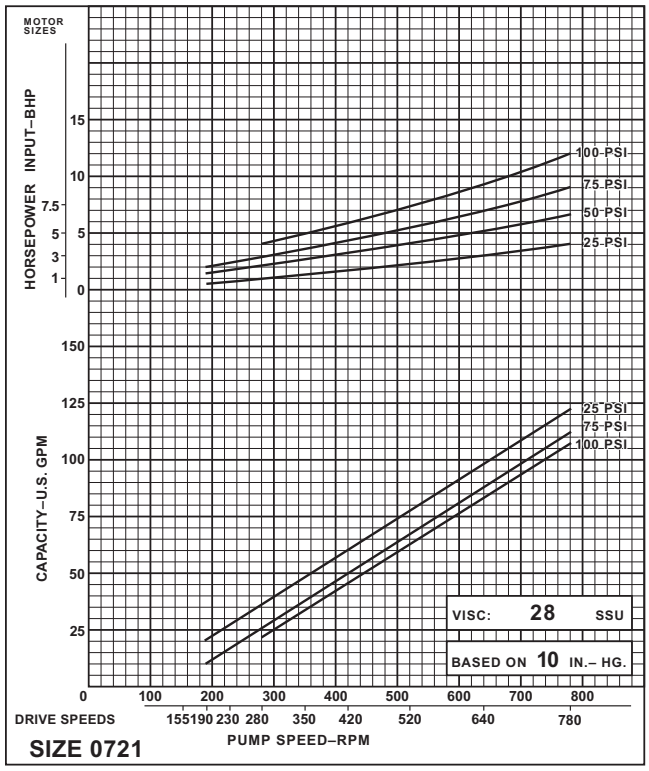


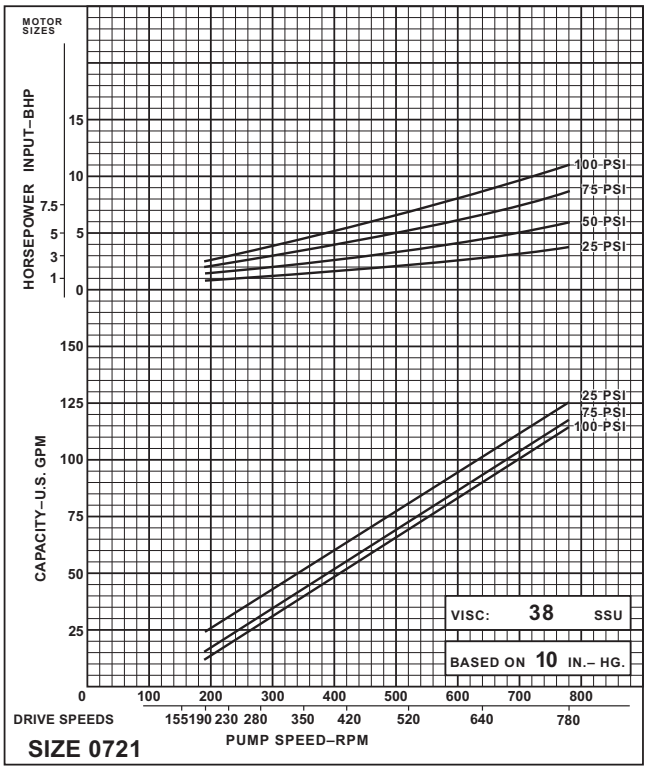


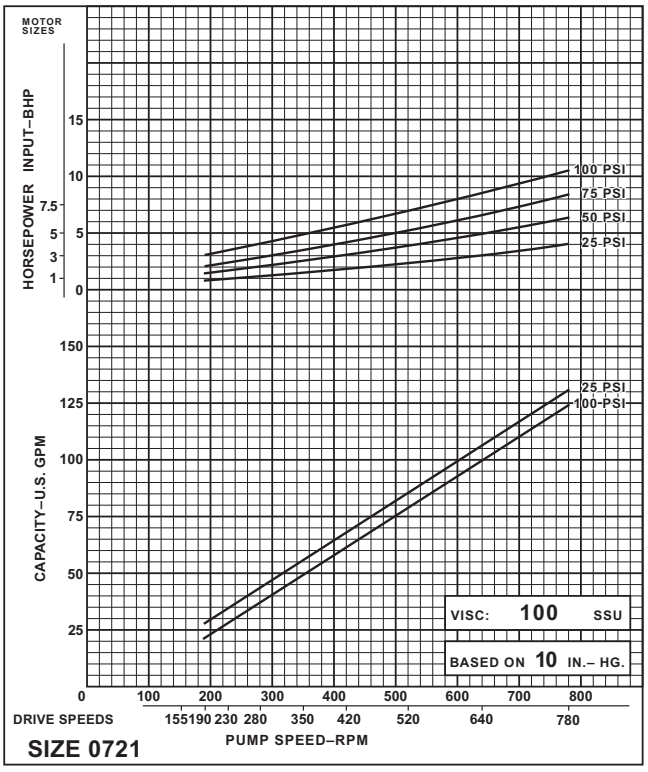


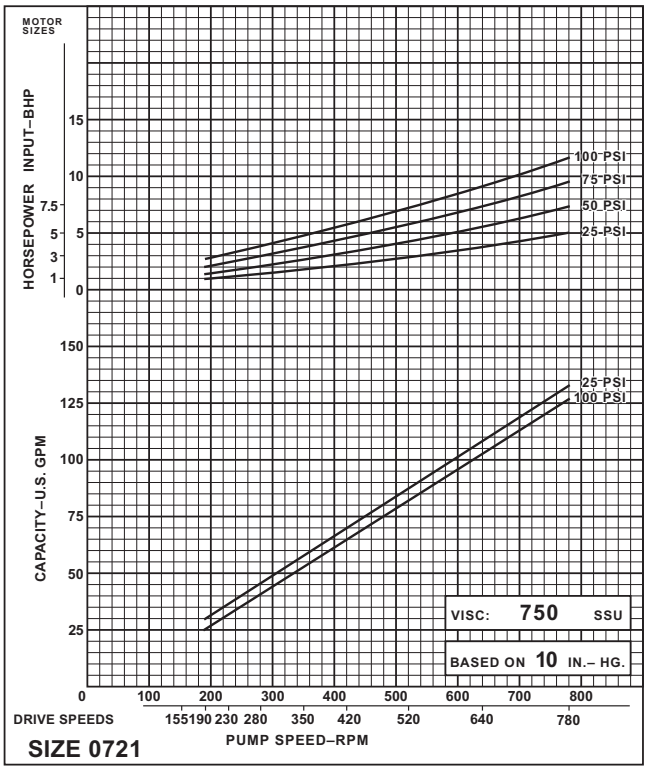
1 Industrial Vane Pump Model Selection

SERIES CPMN AND CPMF 0721 SIZE PERFORMANCE DATA (MAGNETIC DRIVE MODELS)

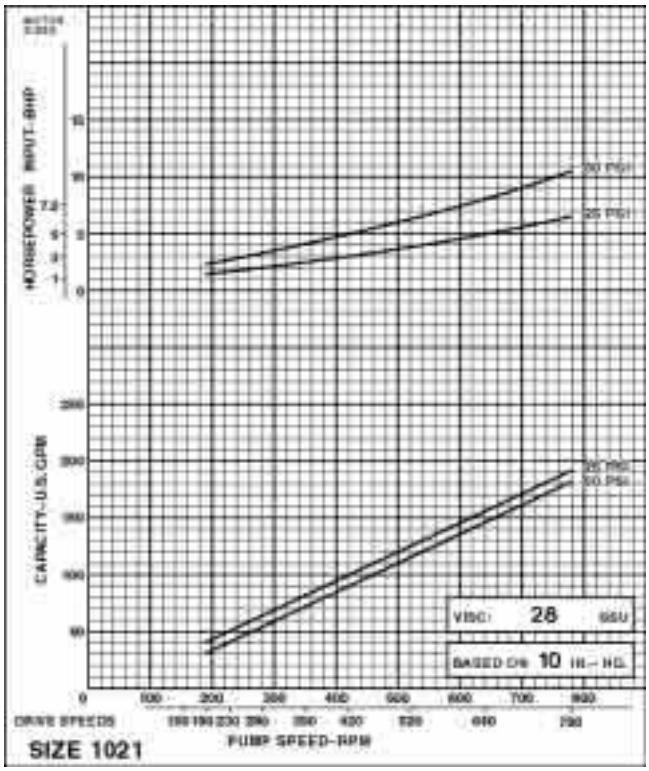


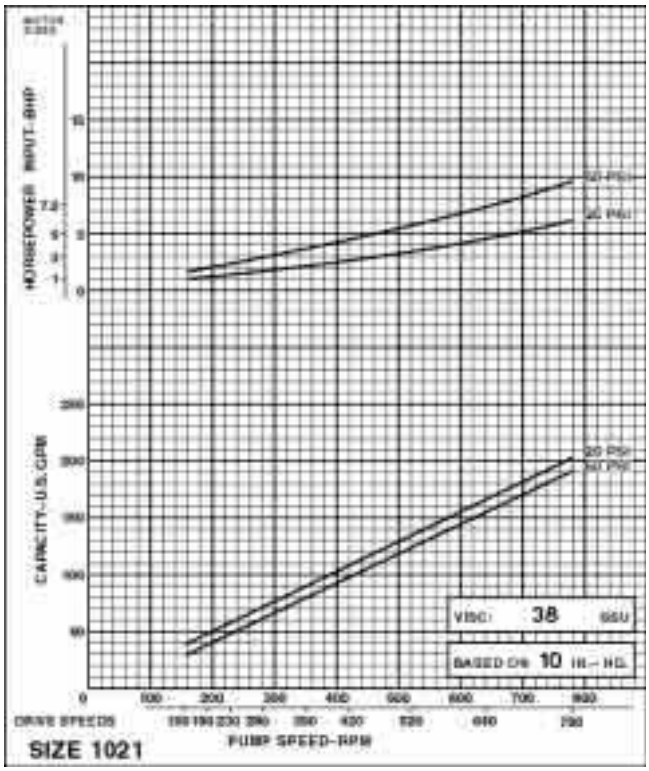


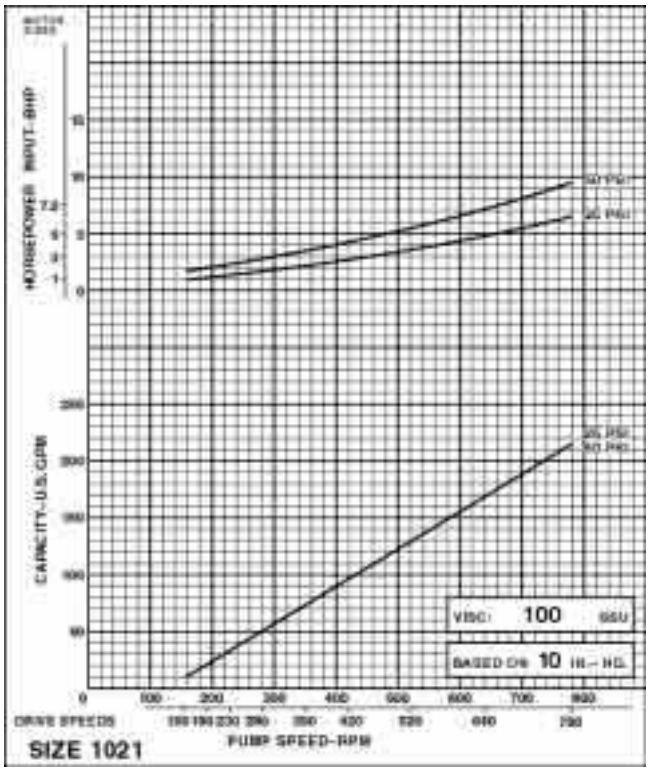


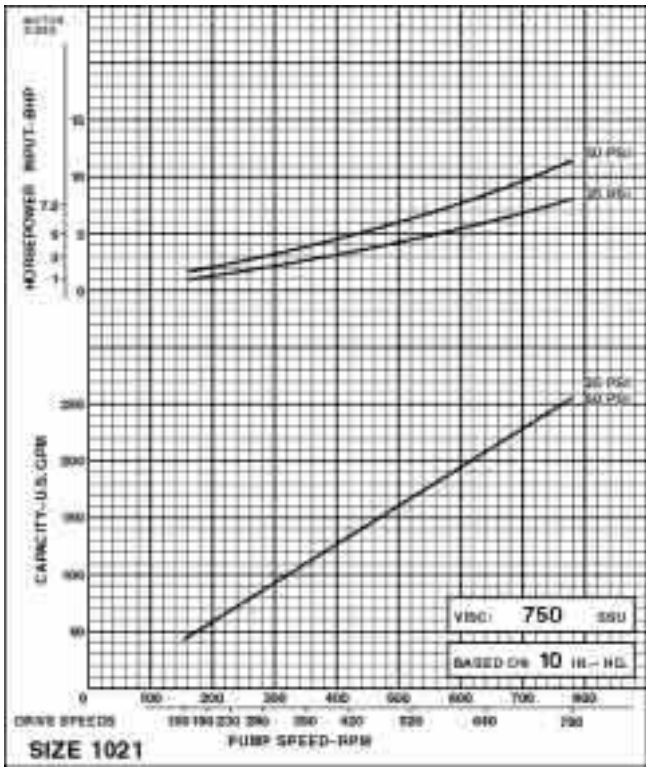


SERIES CPMN, CDMN AND CPMF 1021 SIZE PERFORMANCE DATA (MAGNETIC DRIVE MODELS)



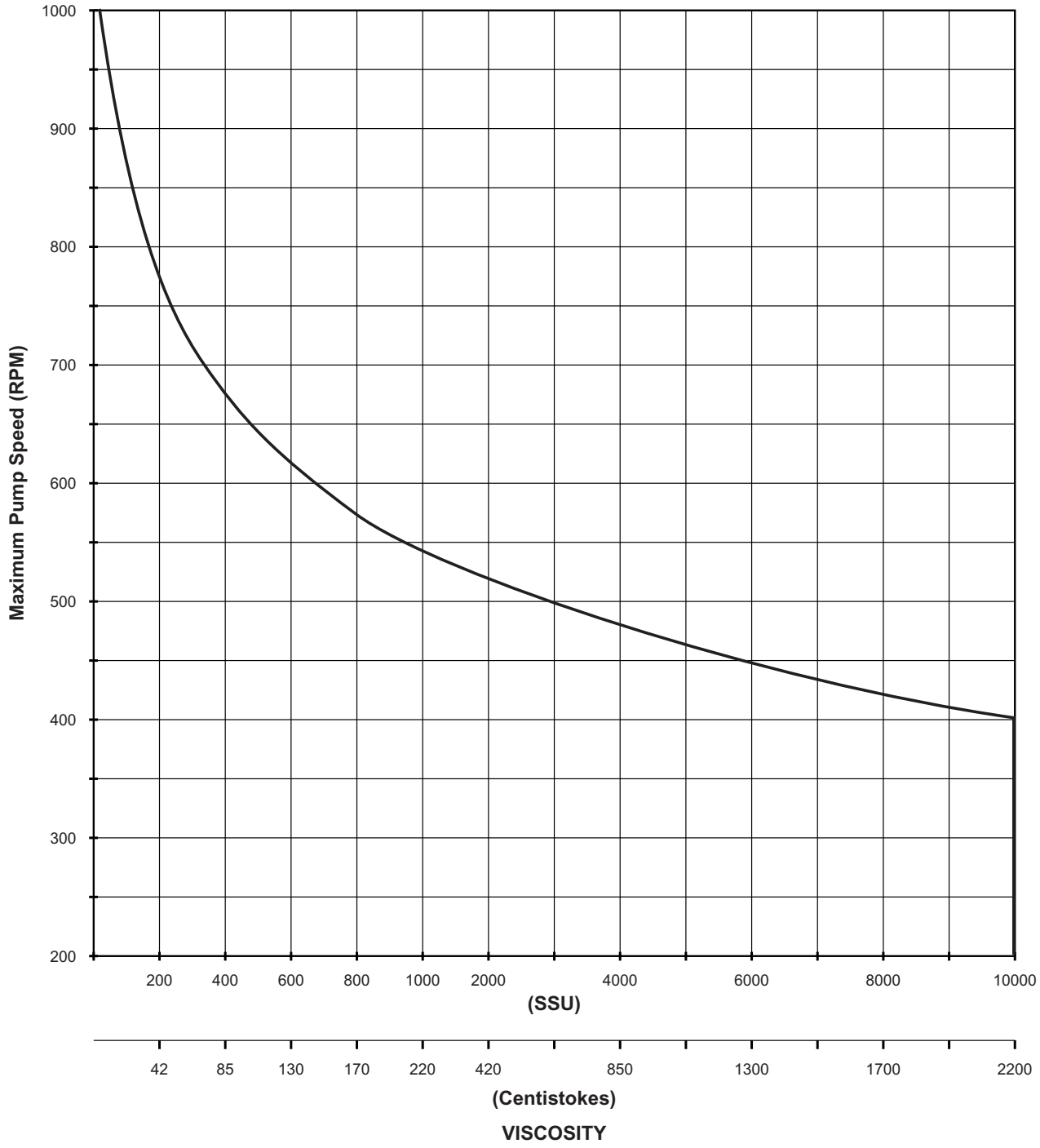






VISCOSITY GUIDELINES

The graph below provides recommendations for maximum pump speed when operating at elevated viscosities. Use this as a guideline when determining the pump speed for your application. Currently our published performance curves stop at just under 1000 SSU. For applications in which the liquid exceeds this viscosity, please contact your local distributor or call our factory.



GEAR REDUCER SELECTION

For Corken supplied direct drive mountings, Viking gear reducers are the standard. Below we have provided tables to aid in the selection of the proper gear reducer size and ratio.

Selection Procedure:

1. To select the correct reducer, start with the B size table.
2. Locate the row that corresponds with the motor speed that will be utilized.
3. Move to the right until you locate the pump speed that is needed to produce desired flow rate.
4. Look at the HP value directly below the speed that you selected. If this value is greater than the HP required by the pump you selected proceed to the next step. If it is less than the pump's required HP, move to the C size reducer table and repeat steps 2 through 4.
5. Move to the top of the column and note the reducer size, ratio and Corken part number on your sizing worksheet. You will use this information in the pricing and ordering process.

High Speed Shaft Input RPM	Gear Reducer Ratios "B" Size								
	1.87:1	2.24:1	2.76:1	3.40:1	4.19:1	5.06:1	6.27:1	7.65:1	
	Corken Part Number								
	4190-187	4190-224	4190-276	4190-340	4190-419	4190-506	4190-627	4190-765	
1750	950 19.0	780 17.0	640 15.0	520 13.0	420 11.0	350 9.5	280 7.6	230 6.4	Low Speed Shaft RPM Maximum Reducer HP
1450	780 17.3	640 15.5	520 13.4	420 11.6	350 9.9	280 8.5	230 6.4	190 5.4	Low Speed Shaft RPM Maximum Reducer HP
1150	640 16.5	520 14.0	420 11.6	350 10.1	280 8.5	230 7.3	190 5.3	155 4.4	Low Speed Shaft RPM Maximum Reducer HP

High Speed Shaft Input RPM	Gear Reducer Ratios "C" Size							
	2.21:1	2.80:1	3.31:1	4.21:1	5.08:1	6.24:1	7.95:1	
	Corken Part Number							
	4043-221	4043-280	4043-331	4043-421	4043-508	4043-624	4043-795	
1750	780 49.8	640 43.5	520 39.0	420 32.4	350 26.6	280 19.7	220 18.0	Low Speed Shaft RPM Maximum Reducer HP
1450	640 45.3	520 36.6	420 32.8	350 27.2	280 22.3	230 16.7	180 15.2	Low Speed Shaft RPM Maximum Reducer HP
1150	520 40.1	420 30.0	350 26.8	280 22.2	230 18.2	190 13.8	145 12.6	Low Speed Shaft RPM Maximum Reducer Hp

MODEL NUMBER SELECTION GUIDE (MECHANICAL SEALED MODELS)

CD	B	N	0521	H	G	E	3	E	E
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

① **Pressure Capabilities**

Options: CP- 200 psig working pressure capability
CD-400 psig working pressure capability

② **Design Type**

Options: B- Stationary Vane Pump
H- Hydraulic Drive / Integral Gear Vane Pump

③ **Flange Type**

Options: F- 300 lb. ANSI flanges / no internal relief valve
N- NPT threaded flanges / internal relief valve

④ **Pump Size**

Sliding Vane Pump with Single or Double Shaft

Options: 0521/0522- 25-90 GPM
0721/0722- 50-135 GPM
1021/1022- 75-200 GPM
1321/1322- 100-275 GPM
1521/1522- 175-400 GPM

Note: Those Models Ending in a "2" (i.e. 1022) Have Double Extended Shafts

⑤ **Blade Quantity**

6 Blades, with Blade Drivers

⑥ **Blade Material**

GCB-50 Blades with Composite Push Rods

⑦ **O-ring Material**

Options: A- Buna-N
B- Neoprene*
D- Viton*
E- PTFE
G- Ethylene-Propylene
L- Buna-N with Viton* Seal O-rings
M- Buna-N with PTFE Seal O-rings
N- Viton* with PTFE Seal O-ring

⑧ **Sealing Material**

Options: 1- Stainless Steel Seal Seat
3- Ni-Resist Seal Seat (Standard)

⑨ **Inlet Flange**

E- 2" NPT Flange
F- 2" Slip-on Weld Flange
J- 2-1/2" NPT Flange
K- 2-1/2" Slip-on Weld Flange
L- 2-1/2" 300 lb. ANSI Flange
M- 3" NPT Flange
N- 3" Slip-on Weld Flange
P- 3" 300 lb. ANSI Flange
Q- 4" NPT Flange
R- 4" Slip-on Weld Flange
S- 4" 300 lb. ANSI Flange

⑩ **Outlet Flange**

C- 1-1/2" NPT Flange
D- 1-1/2" Slip-on Weld Flange
E- 2" NPT Flange
F- 2" Slip-on Weld Flange
H- 2" 300 lb. ANSI Flange
J- 2-1/2" NPT Flange
K- 2-1/2" Slip-on Weld Flange
L- 2-1/2" 300 lb. ANSI Flange
M- 3" NPT Flange
N- 3" Slip-on Weld Flange
P- 3" 300 lb. ANSI Flange
Q- 4" NPT Flange
R- 4" Slip-on Weld Flange

Note: Not all flange options are available for all pump sizes. See back side of this page for acceptable options.

1 Industrial Vane Pump Model Selection

MODEL NUMBER SELECTION GUIDE

CP MODELS

Inlet Flange		0521	0721	0721	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•									E
	2½" NPT		•								J
	3" NPT				•						M
	3" ANSI			•		•					P
	4" NPT						•		•		Q
	4" ANSI							•		•	S
No Cost	2½" NPT	•			•						J
	3" NPT	•	•								M
Extra Cost	2" WF	•									F
	2½" WF	•	•		•						K
	3" WF	•	•		•						N
	4" WF						•		•		R

Outlet Flange		0521	0721	0721	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•									E
	2½" NPT		•								J
	2" ANSI			•							H
	2½" ANSI					•					G
	3" NPT				•		•				M
	3" ANSI							•		•	P
	4" NPT								•		Q
No Cost	1½" NPT	•									C
	2" NPT		•		•						E
	2½" NPT	•			•						J
	3" NPT		•						•		M
	4" NPT						•				Q
Extra Cost	1½" WF	•									D
	2" WF	•	•		•						F
	2½" WF	•	•		•						K
	3" WF		•		•		•		•		N
	4" WF						•		•		R

CD MODELS

Inlet Flange		0521	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•							E
	2½" NPT								J
	3" NPT		•						M
	3" ANSI			•					P
	4" NPT				•		•		Q
	4" ANSI					•		•	S
	2½ ANSI								L
No Cost	2½" NPT	•							J
	3" NPT								M
	4" NPT		•						Q
Extra Cost	2" WF	•							F
	2½" WF	•							K
	3" WF		•						N
	4" WF		•		•		•		R

Outlet Flange		0521	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•							E
	2½" NPT								J
	2" ANSI								H
	2½ ANSI			•					G
	3" NPT		•		•				M
	3" ANSI					•		•	P
	4" NPT						•		Q
No Cost	1½" NPT	•							C
	2" NPT								E
	2½" NPT	•							J
	3" NPT						•		M
	4" NPT		•		•				Q
Extra Cost	1½" WF	•							D
	2" WF	•							F
	2½" WF	•							K
	3" WF		•		•		•		N
	4" WF		•		•		•		R

MODEL NUMBER SELECTION GUIDE (MAGNETIC DRIVE MODELS)

CP	M	N	1021	H	G	D	A	M	M
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

① **Pressure Capabilities**

Options: CP- 200 psig working pressure capability
CD-400 psig working pressure capability

② **Design Type**

Magnetic Drive Vane Pump

③ **Flange Type**

Options: F- 300 lb. ANSI flanges / no internal relief valve
N- NPT threaded flanges / internal relief valve

④ **Pump Size**

Options: 0521- 25-80 GPM
0721- 50-125 GPM
1021- 75-200 GPM

⑤ **Blade Quantity**

6 Blade with Blade Drivers

⑥ **Blade Material**

GCB-50 Blades with Composite Push Rods

⑦ **O-ring Material**

A- Buna-N
B- Neoprene*
D- Viton*
E- PTFE
G- Ethylene-Propylene

⑧ **Magnet and Sleeve Bearing Material**

A- Neodymium Magnets and Carbon Graphite Sleeve Bearings
B- Neodymium Magnets and Silicon Carbide Sleeve Bearings
C- Samarium Magnets and Carbon Graphite Sleeve Bearings
D- Samarium Magnets and Silicon Carbide Sleeve Bearings

⑨ **Inlet Flange**

E- 2” NPT Flange
F- 2” Slip-on Weld Flange
J- 2-1/2” NPT Flange
K- 2-1/2” Slip-on Weld Flange
M- 3” NPT Flange
N- 3” Slip-on Weld Flange
P- 3” 300 lb. ANSI Flange
Q- 4” NPT Flange
R- 4” Slip-on Weld Flange
S- 4” 300 lb. ANSI Flange

⑩ **Outlet Flange**

C- 1-1/2” NPT Flange
D- 1-1/2” Slip-on Weld Flange
E- 2” NPT Flange
F- 2” Slip-on Weld Flange
H- 2” 300 lb. ANSI Flange
J- 2-1/2” NPT Flange
K- 2-1/2” Slip-on Weld Flange
L- 2-1/2” 300 lb. ANSI Flange
M- 3” NPT Flange
N- 3” Slip-on Weld Flange
P- 3” 300 lb. ANSI Flange
Q- 4” NPT Flange
R- 4” Slip-on Weld Flange

Note: Not all flange options are available for all pump sizes. See back side of this page for acceptable options.

1 Industrial Vane Pump Model Selection

MODEL NUMBER SELECTION GUIDE

CP MODELS

Inlet Flange		0521	0721	0721	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•									E
	2½" NPT		•								J
	3" NPT				•						M
	3" ANSI			•		•					P
	4" NPT						•		•		Q
	4" ANSI							•		•	S
No Cost	2½" NPT	•			•						J
	3" NPT	•	•								M
Extra Cost	2" WF	•									F
	2½" WF	•	•		•						K
	3" WF	•	•		•						N
	4" WF						•		•		R

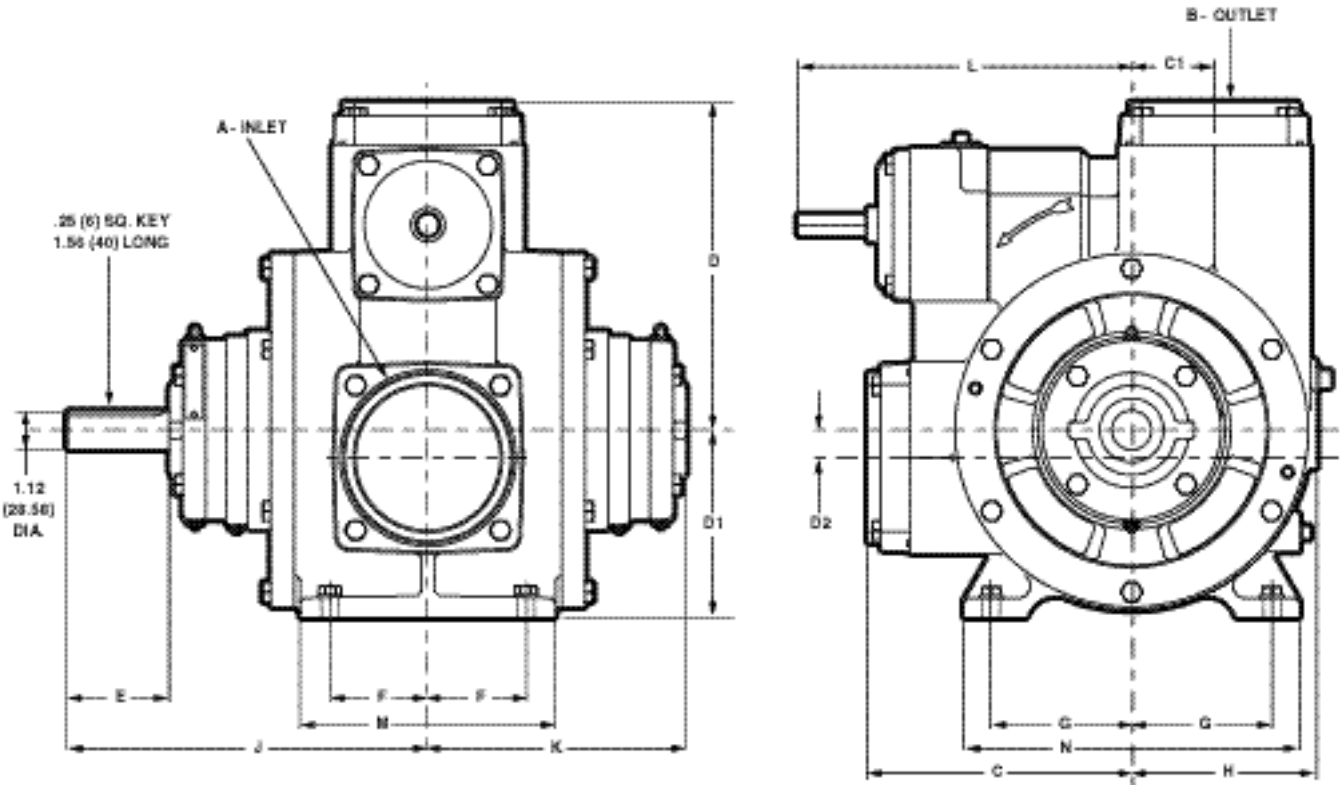
Outlet Flange		0521	0721	0721	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•									E
	2½" NPT		•								J
	2" ANSI			•							H
	2½" ANSI					•					G
	3" NPT				•		•				M
	3" ANSI							•		•	P
	4" NPT								•		Q
No Cost	1½" NPT	•									C
	2" NPT		•		•						E
	2½" NPT	•			•						J
	3" NPT		•						•		M
	4" NPT						•				Q
Extra Cost	1½" WF	•									D
	2" WF	•	•		•						F
	2½" WF	•	•		•						K
	3" WF		•		•		•		•		N
	4" WF						•		•		R

CD MODELS

Inlet Flange		0521	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•							E
	2½" NPT								J
	3" NPT		•						M
	3" ANSI			•					P
	4" NPT				•		•		Q
	4" ANSI					•		•	S
	2½ ANSI								L
No Cost	2½" NPT	•							J
	3" NPT								M
	4" NPT		•						Q
Extra Cost	2" WF	•							F
	2½" WF	•							K
	3" WF		•						N
	4" WF		•		•		•		R

Outlet Flange		0521	1021	1021	1321	1321	1521	1521	
Standard	2" NPT	•							E
	2½" NPT								J
	2" ANSI								H
	2½ ANSI			•					G
	3" NPT		•		•				M
	3" ANSI					•		•	P
	4" NPT						•		Q
No Cost	1½" NPT	•							C
	2" NPT								E
	2½" NPT	•							J
	3" NPT						•		M
	4" NPT		•		•				Q
Extra Cost	1½" WF	•							D
	2" WF	•							F
	2½" WF	•							K
	3" WF		•		•		•		N
	4" WF		•		•		•		R

CPBN/CDBN

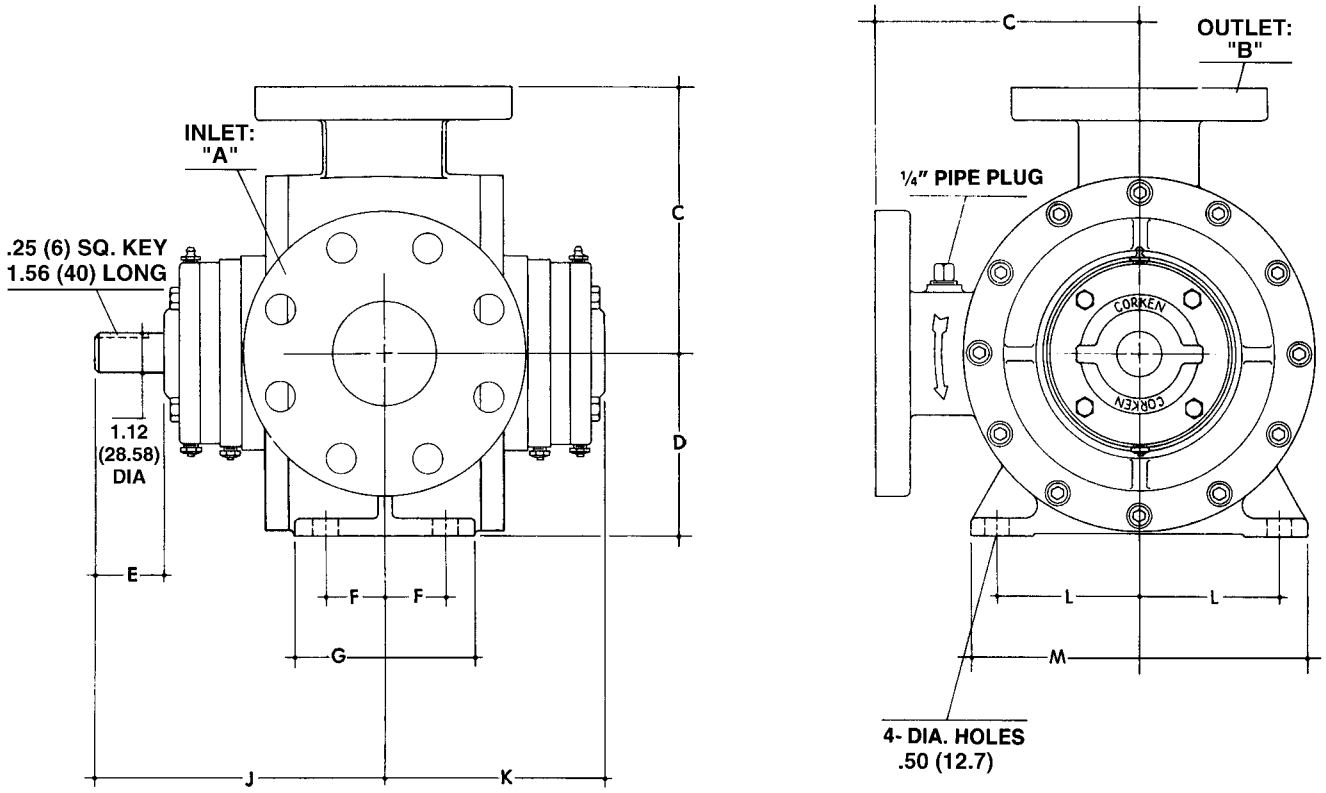


MODEL	A INLET	B OUTLET	C	C1*	D	D1	D2*	E	F	G	H	J	K	L	M	N
CPBN0521 (In/mm)	STD: 2" NPT OPT: 2-1/2" NPT 3" NPT	STD: 2" NPT OPT: 2-1/2" NPT 1-1/2" NPT	6.13 157	0 0	6.13 157	5.00 127	0 0	2.00 51	1.38 35	4.00 102	4.69 119	7.88 200	5.88 149	7.38 187	3.75 95	9.00 229
CPBN0721	STD: 2-1/2" NPT OPT: 3" NPT	STD: 2-1/2" NPT OPT: 2" NPT & 3" NPT	5.62 143	1.16 29	5.75 146	4.56 116	0.81 21	2.00 51	1.50 38	3.38 86	4.56 116	8.69 221	6.69 170	10.19 259	4.50 114	8.19 208
CPBN1021	STD: 3" NPT OPT: 2-1/2" NPT	STD: 3" NPT OPT: 2" NPT 2-1/2" NPT	6.88 175	3.13 79	7.63 194	5.50 140	0 0	2.00 51	1.75 44	4.12 105	5.50 140	8.44 214	6.44 164	8.88 225	5.25 133	9.88 251
CPBN 1321	STD: 4' NPT	STD: 3" NPT OPT: 4" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	3.00 76	2.88 73	4.12 105	5.38 137	10.62 270	7.62 194	9.38 238	7.50 191	9.88 251
CPBN1521	STD: 4" NPT	STD: 4" NPT OPT: 3" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	3.00 76	2.88 73	4.12 105	5.38 137	10.62 270	7.62 194	9.38 238	7.50 191	9.88 251
CDBN0521	STD: 2" NPT OPT: 2-1/2" NPT	STD: 2" NPT OPT: 2-1/2" NPT & 1-1/2" NPT	6.13 157	0 0	6.13 157	5.00 127	0 0	2.00 51	1.38 35	4.00 102	4.69 119	7.88 200	5.88 149	7.38 187	3.75 95	9.00 229
CDBN1021	STD: 3" NPT OPT: 4" NPT	STD: 3" NPT OPT: 4" NPT	7.06 179	0 0	7.19 183	5.50 140	0 0	2.00 51	1.75 44	4.12 105	5.38 137	8.50 216	6.50 165	11.25 286	5.25 133	9.88 251
CDBN1321	STD: 4" NPT	STD: 3" NPT OPT: 4" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	3.00 76	2.88 73	4.12 105	5.38 137	10.62 270	7.62 194	9.38 238	7.50 191	9.88 251
CDBN1521	STD: 4" NPT	STD: 4" NPT OPT: 3" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	3.00 76	2.88 73	4.12 105	5.38 137	10.62 270	7.62 194	9.81 249	7.50 191	9.88 251

***NOTE:** For some models C1 and D2 will be 0. This denotes that the suction and/or discharge flange will be centered with the shaft.

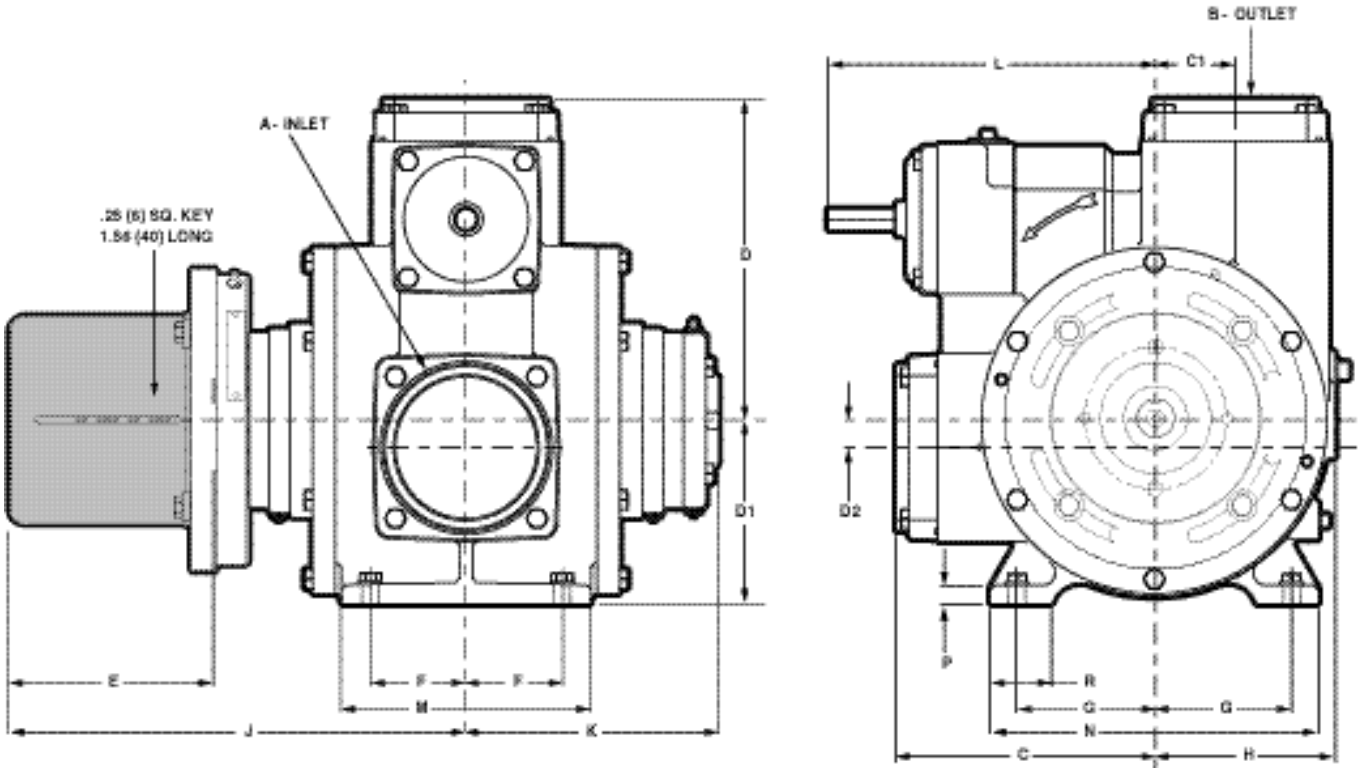
1 Industrial Vane Pump Data / Dimensions

CPBF/CDBF



MODEL	A INLET	B OUTLET	C	D	E	F	G	J	K	L	M
CPBF0721	3" 300# ANSI	2" 300# ANSI	7.00 178	5.00 127	2.00 51	1.38 35	4.00 102	8.69 221	6.69 170	4.00 102	9.25 235
CPBF1021	3" 300# ANSI	2-1/2" 300# ANSI	7.75 197	5.50 140	2.00 51	1.75 44	5.25 133	8.50 216	6.50 165	4.12 105	9.88 251
CPBF1321	4" 300# ANSI	3" 300# ANSI	7.84 199	5.50 140	3.00 76	2.88 73	7.50 191	10.62 270	7.62 194	4.12 105	9.88 251
CPBF1521	4" 300# ANSI	3" 300# ANSI	7.84 199	5.50 140	3.00 76	2.88 73	7.50 191	10.62 270	7.62 194	4.12 105	9.88 251
CDBF1021	3" 300# ANSI	2-1/2" 300# ANSI	7.75 197	5.50 140	2.00 51	1.75 44	5.25 133	8.50 216	6.50 165	4.12 105	9.88 251
CDBF1321	4" 300# ANSI	3" 300# ANSI	7.84 199	5.50 140	3.00 76	2.88 73	7.50 191	10.62 270	7.62 194	4.12 105	9.88 251
CDBF1521	4" 300# ANSI	3" 300# ANSI	7.84 199	5.50 140	3.00 76	2.88 73	7.50 191	10.62 270	7.62 194	4.12 105	9.88 251

CPHN/CDHN



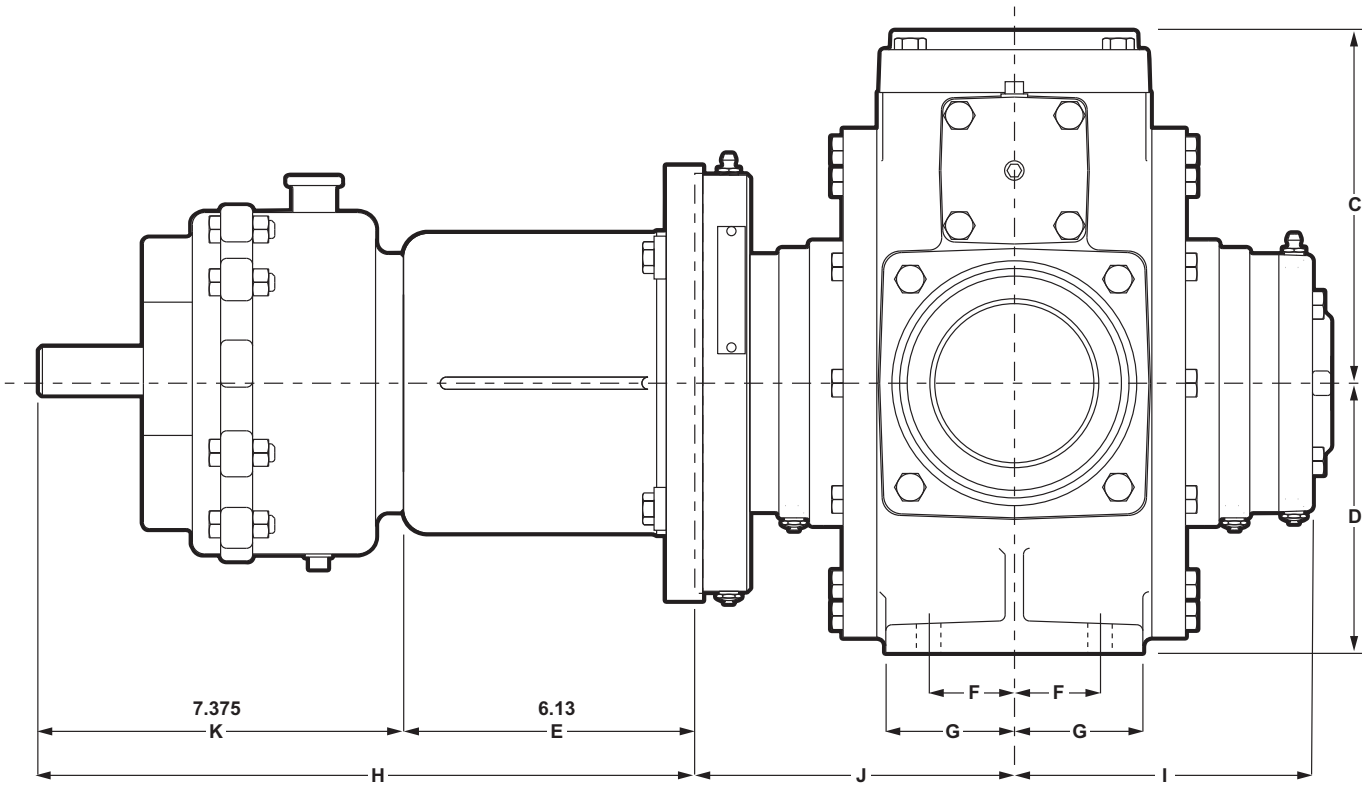
Note: Bare pump includes 182 / 184 TC Mounting Flange. Bracket shown above (shaded area) is sold separately.

MODEL	A INLET	B OUTLET	C	C1*	D	D1	D2*	E	F	G	H	J	K	L	M	N
CPHN0521	STD: 2" NPT OPT: 2-1/2" NPT 3" NPT	STD: 2" NPT OPT: 2-1/2" NPT 1-1/2" NPT	6.13 157	0 0	6.13 157	5.00 127	0 0	6.13 157	1.38 35	4.00 102	4.69 119	12.00 305	5.88 149	7.38 187	3.75 95	9.00 229
CPHN0721	STD: 2-1/2" NPT OPT: 3" NPT	STD: 2-1/2" NPT OPT: 2" NPT	5.62 143	1.16 29	5.75 146	4.56 116	0.81 21	6.13 157	1.50 38	3.38 86	4.56 116	12.81 325	6.69 170	10.19 259	4.50 114	8.19 208
CPHN1021	STD: 3" NPT OPT: 2-1/2" NPT	STD: 3" NPT OPT: 2-1/2" NPT 2" NPT	6.88 175	3.13 79	7.63 194	5.50 140	0 0	6.13 157	1.75 44	4.12 105	5.50 140	12.56 319	6.44 164	8.88 225	5.25 133	9.88 251
CPHN 1321	STD: 4' NPT	STD: 3" NPT OPT: 4" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	6.13 157	2.88 73	4.12 105	5.38 137	13.75 349	7.62 194	9.38 238	7.50 191	9.88 251
CPHN1521	STD: 4" NPT	STD: 4" NPT OPT: 3" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	6.13 157	2.88 73	4.12 105	5.38 137	13.75 349	7.62 194	9.38 238	7.50 191	9.88 251
CDHN0521	STD: 2" NPT OPT: 2-1/2" NPT	STD: 2" NPT OPT: 2-1/2" NPT 1-1/2" NPT	6.13 157	0 0	6.13 157	5.00 127	0 0	6.13 157	1.38 35	4.00 102	4.69 119	12.00 305	5.88 149	7.38 187	3.75 95	9.00 229
CDHN1021	STD: 3" NPT OPT: 4" NPT	STD: 3" NPT OPT: 4" NPT	7.06 179	0 0	7.19 183	5.50 140	0 0	6.13 157	1.75 44	4.12 105	5.38 137	12.63 321	6.50 165	11.25 286	5.25 133	9.88 251
CDHN1521	STD: 4" NPT	STD: 4" NPT OPT: 3" NPT	7.75 197	2.44 62	9.62 244	5.50 140	0.81 21	6.13 157	2.88 73	4.12 105	5.38 137	13.75 349	7.62 194	9.81 249	7.50 191	9.88 251

***NOTE:** For some models C1 and D2 will be 0. This denotes that the suction and/or discharge flange will be centered with the shaft.

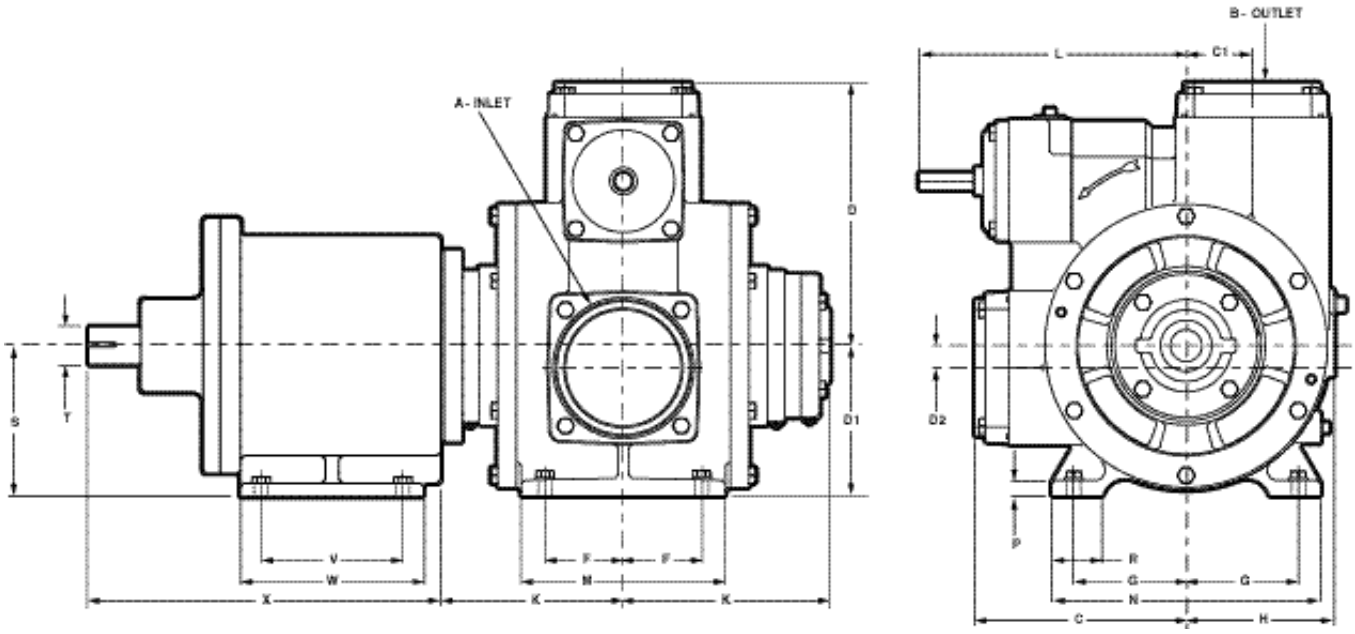
1 Industrial Vane Pump Data / Dimensions

INTEGRAL GEAR OPTION



MODEL	A INLET	B OUTLET	C	D	E	F	G	H	I	J	K
CPHN0521	STD: 2" NPT OPT: 2-1/2" NPT 3" NPT	STD: 2" NPT OPT: 2-1/2" NPT 1-1/2" NPT	6.13 157	5.00 127	6.13 157	1.38 35	1.88 48	13.50 343	5.88 149	5.88 149	7.38 187
CPHN0721	STD: 2-1/2" NPT OPT: 3" NPT	STD: 2-1/2" NPT OPT: 2" NPT	5.75 146	4.56 116	6.13 157	1.50 38	2.25 57	13.50 343	6.69 170	6.69 170	7.38 187
CPHN1021	STD: 3" NPT OPT: 2-1/2" NPT	STD: 3" NPT OPT: 2-1/2" NPT 2" NPT	7.63 194	5.50 140	6.13 157	1.75 44	2.63 67	13.50 343	6.50 165	6.44 164	7.38 187
CPHN1321	STD: 4" NPT	STD: 3" NPT OPT: 4" NPT	9.62 244	5.50 140	6.13 157	2.88 73	3.75 95	13.50 343	7.62 194	7.62 194	7.38 187
CPHN1521	STD: 4" NPT	STD: 3" NPT OPT: 3" NPT	9.62 244	5.50 140	6.13 157	2.88 73	3.75 95	13.50 343	7.62 194	7.62 194	7.38 187
CPHF0721	STD: 3" 300#	STD: 2" 300#	7.00 178	4.56 116	6.13 157	1.38 35	2.25 57	13.50 343	6.69 170	6.69 170	7.38 187
CPHF1021	STD: 3" 300#	STD: 2-1/2" 300#	7.75 197	5.50 140	6.13 157	1.75 44	2.63 67	13.50 343	6.50 165	6.44 164	7.38 187
CPHF1521	STD: 4" 300#	STD: 3" 300#	7.84 199	5.50 140	6.13 157	2.88 73	3.75 95	13.50 343	7.62 194	7.62 194	7.38 187
CPHF1321	STD: 4" 300#	STD: 3" 300#	9.62 244	5.50 140	6.13 157	2.88 73	3.75 95	13.50 343	7.62 194	7.62 194	7.38 187
CDHN0521	STD: 2" NPT OPT: 2-1/2" NPT	STD: 2" NPT OPT: 2-1/2" NPT 1-1/2" NPT	6.13 157	5.00 127	6.13 157	1.38 35	1.88 48	13.50 343	5.88 149	5.88 149	7.38 187
CDHN1021	STD: 3" NPT OPT: 4" NPT	STD: 3" NPT OPT: 4" NPT	7.19 183	5.50 140	6.13 157	1.75 44	2.63 67	13.50 343	6.50 165	6.50 165	7.38 187
CDHN1521	STD: 4" NPT	STD: 4" NPT OPT: 3" NPT	9.62 244	5.50 140	6.13 157	2.88 73	3.75 95	13.50 343	7.62 194	7.62 194	7.38 187

CPMN/CDMN

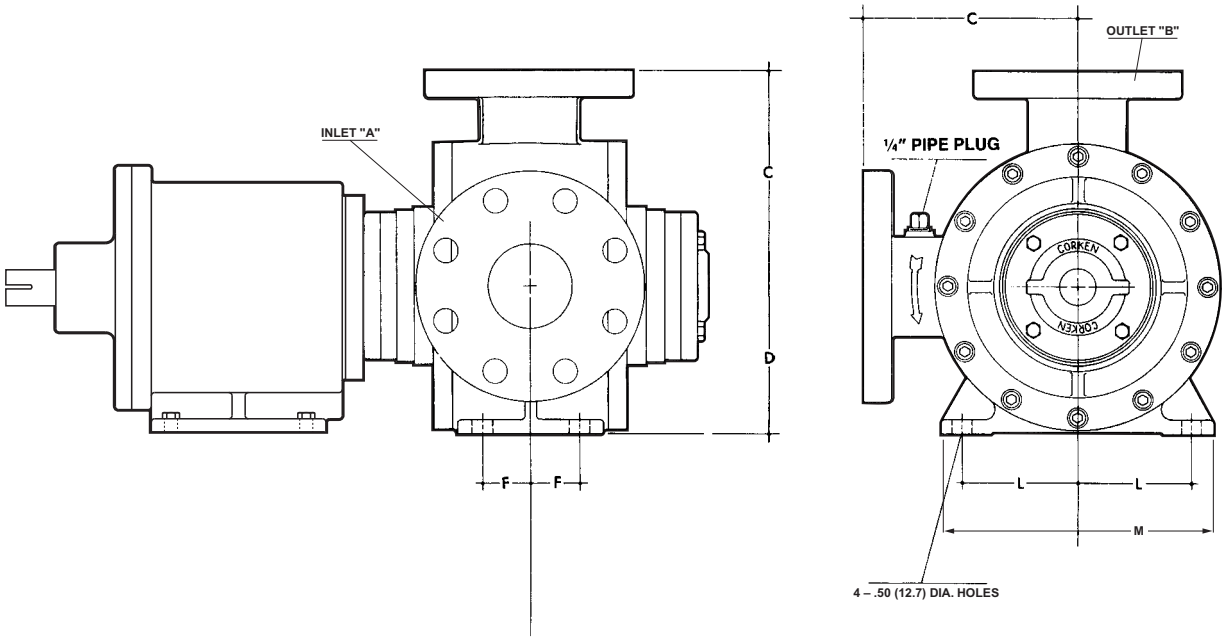


MODEL	A INLET	B OUTLET	C	C1	D	D1	D2	F	G	H	K	L	M	N	S	T	V	W	X
CPMN0521	STD: 2" NPT OPT: 2-1/2" NPT 3" NPT	STD: 2" NPT OPT: 2-1/2" NPT 1-1/2" NPT	6.13 157	0 0	6.13 157	5.00* 127	0 0	1.38 35	4.00 102	4.69 119	5.50 140	7.38 187	3.75 95	9.00 229	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338
CPMN0721	STD: 2-1/2" NPT OPT: 3" NPT	STD: 2-1/2" NPT OPT: 2" NPT 3" NPT	5.62 143	1.16 29	5.75 146	4.56* 116	0.81 21	1.50 38	3.38 86	4.56 116	6.25 159	10.19 259	4.50 114	8.19 208	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338
CPMN1021	STD: 3" NPT OPT: 2-1/2" NPT	STD: 3" NPT OPT: 2-1/2" NPT 2" NPT	6.88 175	3.13 79	7.63 194	5.50 140	0 0	1.75 44	4.12 105	5.50 140	6.06 154	8.88 226	5.25 133	9.88 251	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338
CDMN0521	STD: 2" NPT OPT: 2-1/2" NPT	STD: 2" NPT OPT: 1-1/2" NPT 2-1/2" NPT	6.13 157	0 0	6.13 157	5.00* 127	0 0	1.38 35	4.00 102	4.69 119	5.50 140	7.38 187	3.75 95	9.00 229	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338
CDMN1021	STD: 3" NPT OPT: 4" NPT	STD: 3" NPT OPT: 4" NPT	7.06 179	0 0	7.19 183	5.50 140	0 0	1.75 44	4.12 105	5.38 137	6.06 154	11.25 286	5.25 133	9.88 251	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338

* Pump must be blocked up to match 5.50" center height of bearing carrier.

1 Industrial Vane Pump Data / Dimensions

CPMF



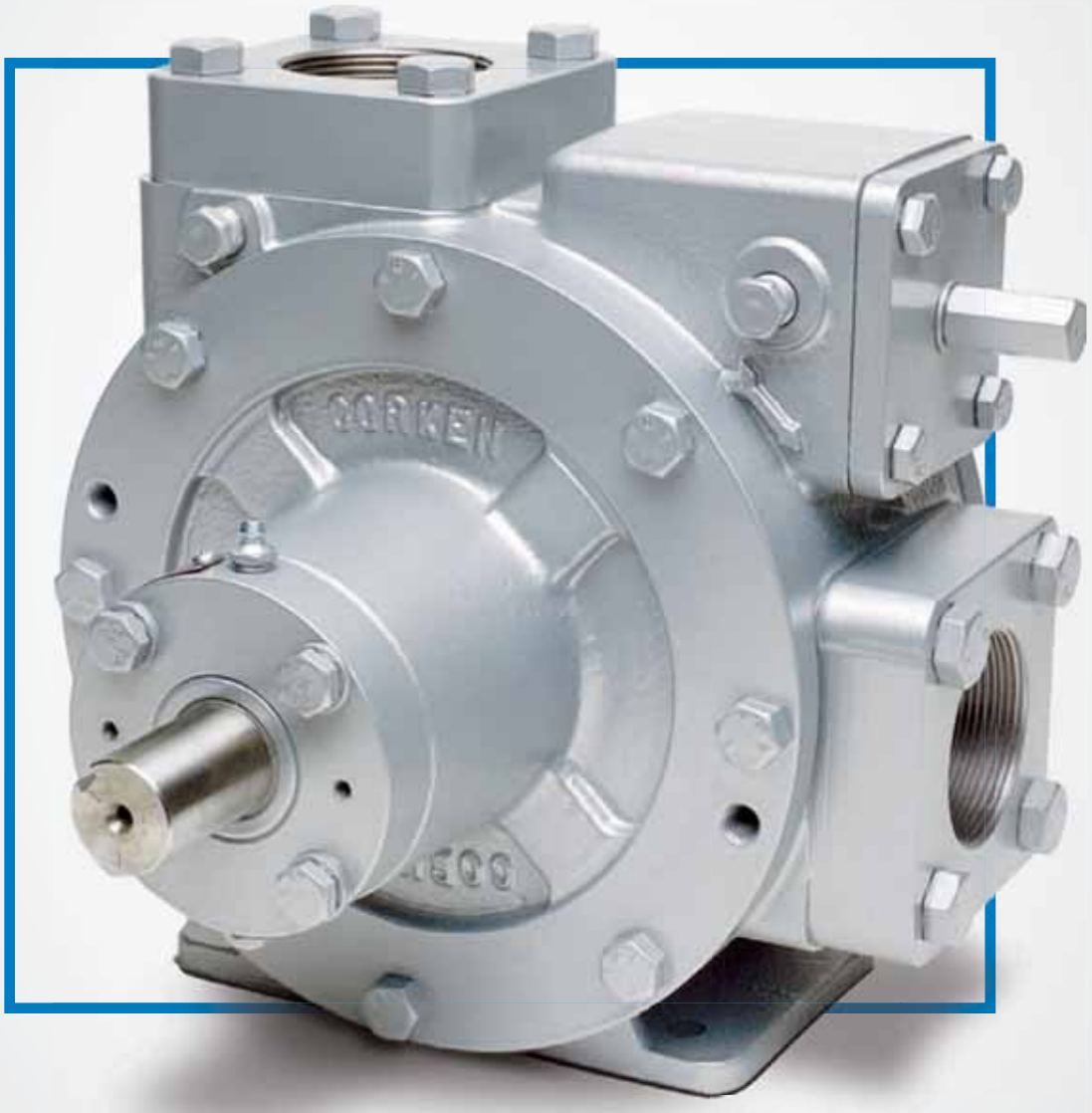
MODEL	A INLET	B OUTLET	C	D	F	G	K	L	M	S	T	V	W	X
CPMF0721	3" 300 LB ANSI	2" 300 LB ANSI	7.00 178	5.00* 127	1.38 35	4.00 102	6.25 159	4.00 102	9.25 235	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338
CPMF1021	3" 300 LB ANSI	2-1/2" 300 LB ANSI	7.75 197	5.50 140	1.75 44	5.25 133	6.06 154	4.12 105	9.88 251	5.50 140	1.375 35	5.00 127	6.50 165	13.32 338

* Pump must be blocked up to match 5.50" center height of bearing carrier.

PZ-Series

Coro-Vane® Petroleum Pumps

For refined petroleum products and
industrial solvents



Solutions beyond products...

CORKEN®

IDEX

PZ-Series Petroleum Pumps

A choice in petroleum pumps...

The Corken PZ-Series petroleum pumps offer the industry a choice in pump brand for greater flexibility and independence in the configuration and outfitting of fluid transfer systems and fuel delivery tankwagons. The pumps match common industry-standard flange-to-flange and mounting footprint dimensions for easy incorporation into existing or new vehicle layouts. And, they provide features that will be appreciated by system designers, truck outfitters, and end-user fuel marketers.

Multi-product package offering...

When it comes to ease of doing business, product functionality, and breadth of product offering, Corken and Liquid Controls are your single source solution for transporting, dispensing and controlling high value fluids and gases. Common corporate ownership and shared distribution enables them to greatly simplify the procurement process. Rather than placing multiple orders, a customer can combine a pump, meter, and register into a single order.

Viton®[1] O-rings standard on PZ-Series pumps...

Corken's mechanical seal, fitted with Viton® O-rings is compatible with refined petroleum products including gasoline, fuel oil, kerosene, diesel fuel, AvGas, and others so you can pump nearly any product you are carrying without changing seals.

Controlling thrust loads and cavitation are critical for extended pump life...

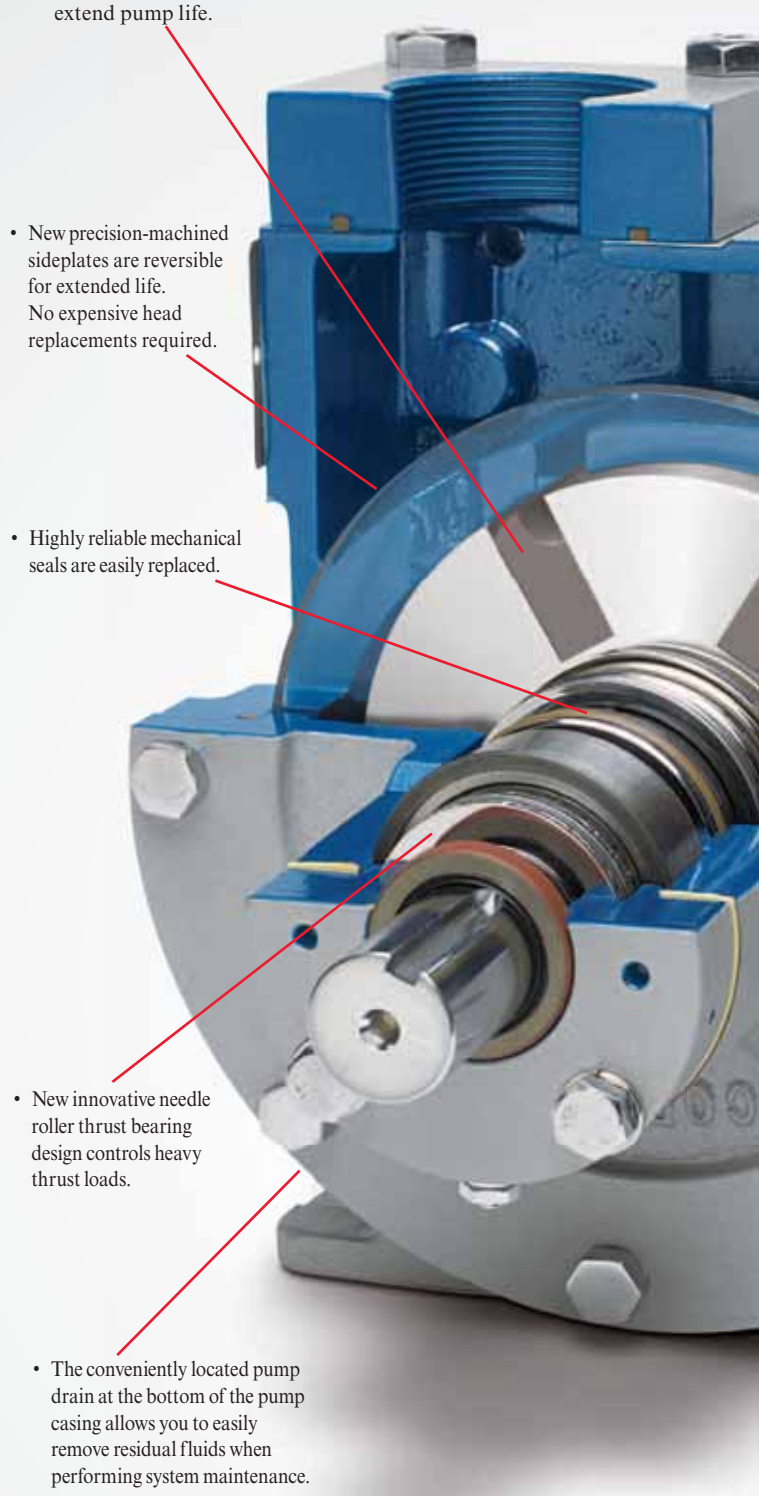
The PZ-Series Coro-Vane® pumps are a new generation of vane pump for fuel transfer that controls heavy thrust loads better than any other truck pump on the market.

The thrust absorbing system of the PZ-Series pump is comprised of two needle roller thrust bearings at each shaft extension rated for up to 4,000 lbs. of thrust. This patented design protects the pump from dynamic and impact loads often imposed on the pump by the drive system. Premature failures due to axial thrust loads are minimized with these thrust absorbing bearings.

A state-of-the-art cam design virtually eliminates cavitation—even while pumping at low tank levels. By eliminating cavitation, the vanes, cam and sideplates remain lubricated and experience less wear. The PZ-Series also has vanes and vane drivers made of advanced nonmetallic composite materials that last longer than ordinary vanes and vane drivers.

This combination of innovative cam and thrust bearing design makes the PZ-Series a smart choice for anyone wanting improved performance and longer service life with exceptional reliability.

[1]*Viton® is a registered trademark of the DuPont company.*



For Refined Petroleum Products & Industrial Solvents

Why this pump lasts longer, needs service less often...

Besides its unique cam design and longer-lasting advanced materials, the PZ-Series Coro-Vane® pump has other features to extend pump life and reduce maintenance. Unlike pumps with conventional steel vane drivers that eventually penetrate the vane, the PZ-Series pump has large diameter, nonmetallic, light weight vane drivers that are extremely durable. They will not damage the vanes, even at high RPM. And, precision-machined sideplates are reversible to provide twice the service life.

Maintenance made simple...

The PZ-Series pumps not only maintain Corken's tradition of excellence, but also its commitment to simplicity when the equipment requires service. By removing only eight bolts, the head assembly can be easily removed, giving you easy access to the reversible sideplate, mechanical seal and vanes.

Two bypass options are available...

The PZ-Series pumps are available with a choice of bypass valves: a standard manually adjustable bypass valve or an Air Operated Valve (AOV).

The standard bypass valve provides the normal functionality of a traditional bypass found on most positive displacement pumps. The valve provides recirculation of product within the pump for conditions when the pump is operating at full speed but with the hose-end nozzle either partially or fully closed. The standard valve is recommended for any application where entrained air in the system is not expected to be a significant issue, such as pumping out of a tank on a single-compartment vehicle.

The Air Operated Valve (AOV) is a diaphragm type actuator that allows the operator to set the discharge pressure at two different high and low settings. The flow can be increased and decreased by simply adding or taking away air pressure to the diaphragm. The actuator is designed to work with a flow sensing pilot valve. When the operator opens the nozzle, the flow sensing pilot valve puts pressure behind the diaphragm and allows high pressure operation of the pump. When the operator closes the nozzle and flow is stopped, the flow sensing pilot valve vents the actuating air or liquid that is behind the diaphragm. This loss of pressure behind the diaphragm permits the internal bypass valve to open so the pump can automatically go into low pressure bypass and minimize hose pressure.

Pump Accessories

Strainer

Air operated valve (AOV)

Specifications

Operating Specifications

PZ7 and PZ10	
Standard connections:	2” or 2-1/2” NPT
Optional connections:	2” or 2-1/2” BSPT, Slip-on Weld
Maximum differential pressure:	125 psid (8.6 bar)
Temperature range:	Up to 300°F (149°C)
Maximum working pressure:	200 psi (13.8 bar)
Maximum speed:	800 RPM
Fluids handled:	Refined petroleum products and industrial solvents

Material Specifications

Part	Model	Material
Case	All	Ductile iron ASTM A536
Head	All	Ductile iron ASTM A536
Flanges	All	Ductile iron ASTM A536
Rotor	All	Ductile iron ASTM A536
Bearing cap	All	Ductile iron ASTM A536
Sideplates	All	Cast iron Class 30
Vanes & vane drivers	All	Advanced polymer
Bypass valve	PZ7	Cast iron ASTM A48 electroless nickel plated
	PZ10	17- 4 PH Stainless steel
Bypass valve spring	All	Steel
Seal seat	All	Cast iron
Seal metal parts	All	Steel
Shaft	All	8620 steel
Thrust bearing	All	Steel
O-rings	All	Viton®[1] (standard), Buna-N (optional)

[1] *Viton® is a registered trademark of the DuPont company.*

PZ7 Performance Chart

Pump Speed	Differential Pressure		Nominal Flowrate[2]		Brake Hp Required		Torque Required	
RPM	psi	bar	gpm	L/min	bhp	kW	in•lbs	N•m
800	90	6.2	98	371	6.8	5.0	536	60.5
800	50	3.4	105	397	3.8	2.2	299	33.8
640	90	6.2	78	295	5.5	4.1	542	61.2
640	50	3.4	84	318	3.1	2.3	305	34.5
575	90	6.2	70	273	4.9	3.7	537	60.7
575	50	3.4	75	284	2.7	2.0	296	33.4
420	90	6.2	51	182	3.6	2.7	540	61.0
420	50	3.4	55	197	2.0	1.5	300	33.9

PZ10 Performance Chart

Pump Speed	Differential Pressure		Nominal Flowrate[2]		Brake Hp Required		Torque Required	
RPM	psi	bar	gpm	L/min	bhp	kW	in•lbs	N•m
800	90	6.2	152	575	10.3	7.7	811	91.7
800	50	3.4	161	609	5.7	4.3	449	50.7
640	90	6.2	121	458	8.2	6.1	808	91.2
640	50	3.4	128	485	4.6	3.4	453	51.2
575	90	6.2	109	413	7.3	5.4	800	90.4
575	50	3.4	115	435	4.1	3.1	449	50.8
420	90	6.2	80	303	5.4	4.0	810	91.6
420	50	3.4	85	321	3.0	2.2	450	50.9

[2] *Nominal flow rate at pump outlet. The actual flow rate from the hose nozzle will be less, depending on hose length, hose diameter, nozzle size, product viscosity, and other system flow restrictions. Approximate capacities and horsepowers are based on a 38 SSU (3 cP) fluid.*

Solutions beyond products...

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3805 N.W. 36th St., Oklahoma City, OK 73112 U.S.A.
(405) 946-5576 • FAX (405) 948-7343

Visit our website at http://www.corken.com
E-mail us at info.corken@idexcorp.com

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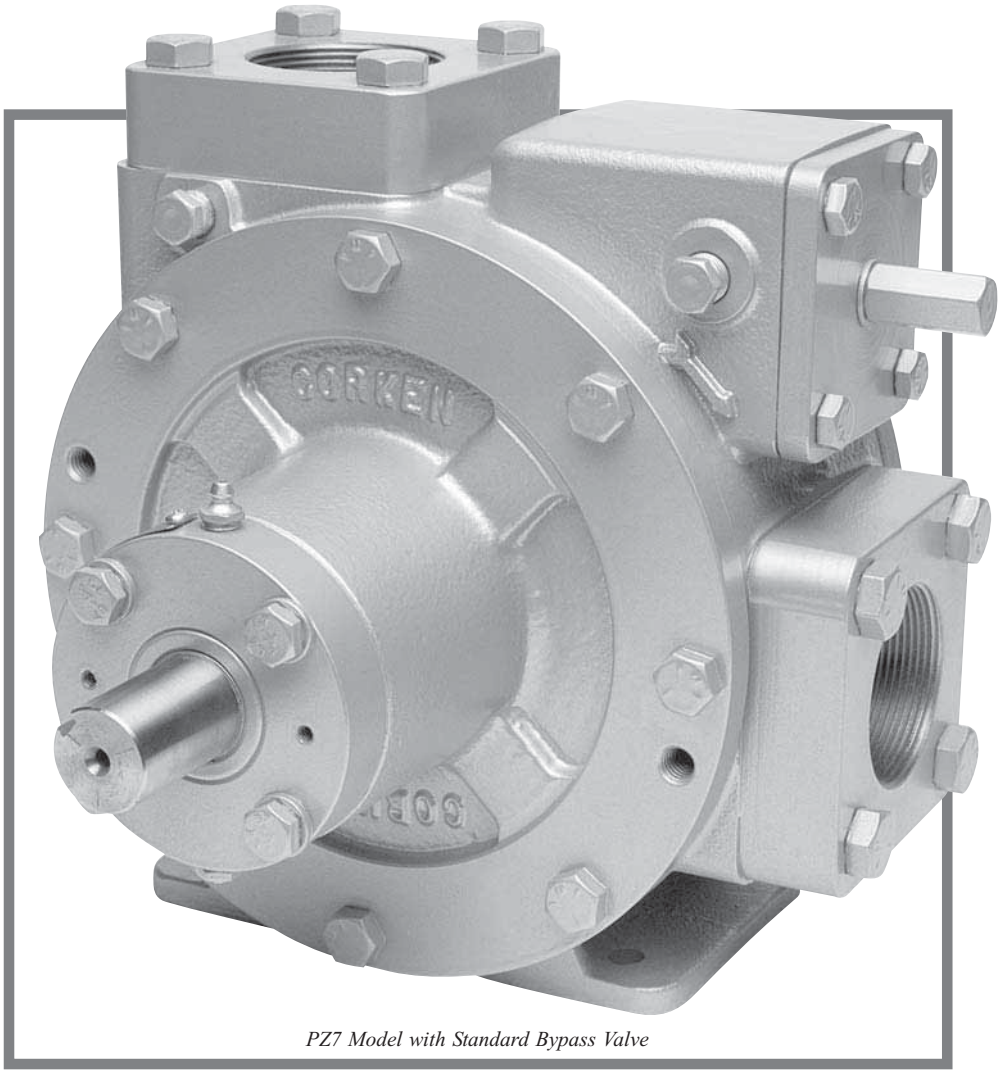
INDPZP100B

PZ-Series Petroleum Pumps

Sales Catalog



PZ7 Model with Standard Bypass Valve

Solutions beyond products...

CORKEN®

IDEX

Equipment Type & Options

Foot mounted, sliding vane, positive displacement petroleum pump.

Applications

Designed for applications that involve refined petroleum products and industrial solvents.

Features & Benefits

Nonmetallic vanes:	New design and advanced material provides longer life than most vanes. Vanes self adjust for wear and maintain internal pump clearances for sustained performance.
Nonmetallic vane drivers:	Corken vane drivers are made of a extremely durable, lightweight, advanced material which is less destructive to the vanes than other conventional steel push rods.
Thrust bearing:	Handles heavy thrust loads from PTO without difficult adjustments.
Sideplates:	Precision machined sideplates are reversible for extended life.
Easy maintenance:	Vanes can be easily replaced without removing the pump from the piping.
Dual ended shaft:	Pump can easily adapt to either right- or left-hand PTO rotation.
Two bypass options:	Manually adjustable internal bypass valve or optional Air Operated Valve (AOV) for high and low flow control.

Operating Specifications

Standard connections:	2" or 2-1/2" NPT
Optional connections:	2" or 2-1/2" Slip-on weld, BSPT
Maximum differential pressure:	125 psid (8.6 bar)
Operating temperature range:	Up to 300°F (149°C)
Maximum working pressure:	200 psi (13.8 bar)
Maximum speed:	800 RPM
Fluids:	For refined petroleum products and industrial solvents

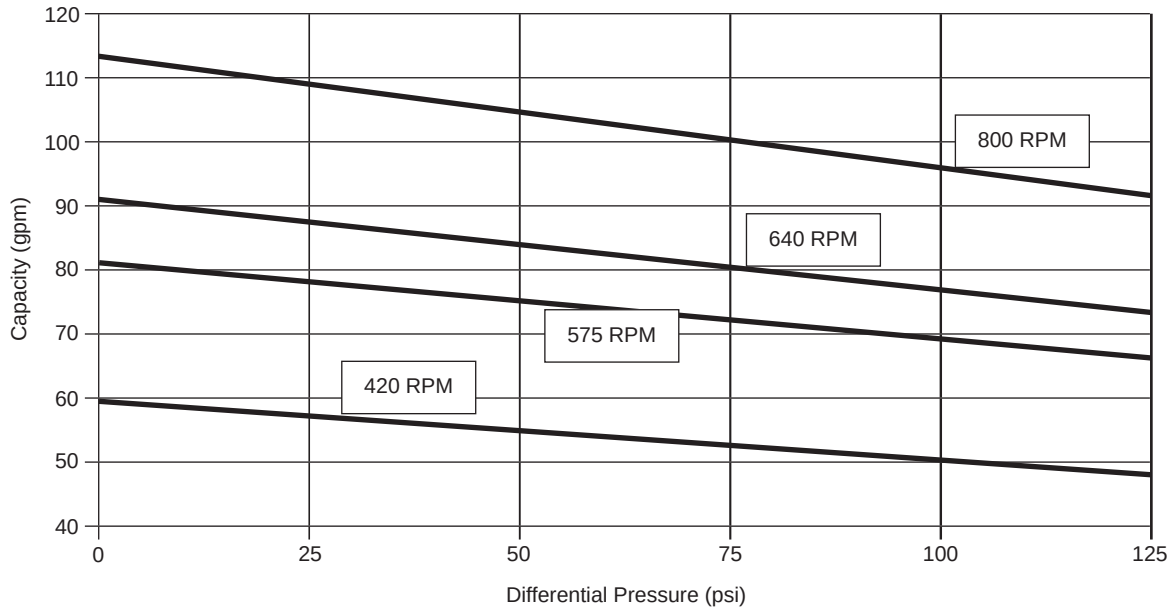
Material Specifications

Part	Model	Material
Case	All	Ductile iron ASTM A536
Head	All	Ductile iron ASTM A536
Flanges	All	Ductile iron ASTM A536
Rotor	All	Ductile iron ASTM A536
Bearing cap	All	Ductile iron ASTM A536
Sideplates	All	Cast iron Class 30
Vanes & vane drivers	All	Advanced polymer
Bypass valve	All	17-4 PH Stainless steel
Bypass spring	All	Steel
Seal seat	All	Cast iron (standard), Stainless steel and Ni-Resist (optional)
Seal metal parts	All	Steel
Shaft	All	8620 steel
Thrust bearing	All	Steel
O-rings	All	Viton®[1] (standard), Buna-N (optional)

[1] *Viton® is a registered trademark of the Dupont Company*

Performance Curves[1]

PZ7 Petroleum Pump

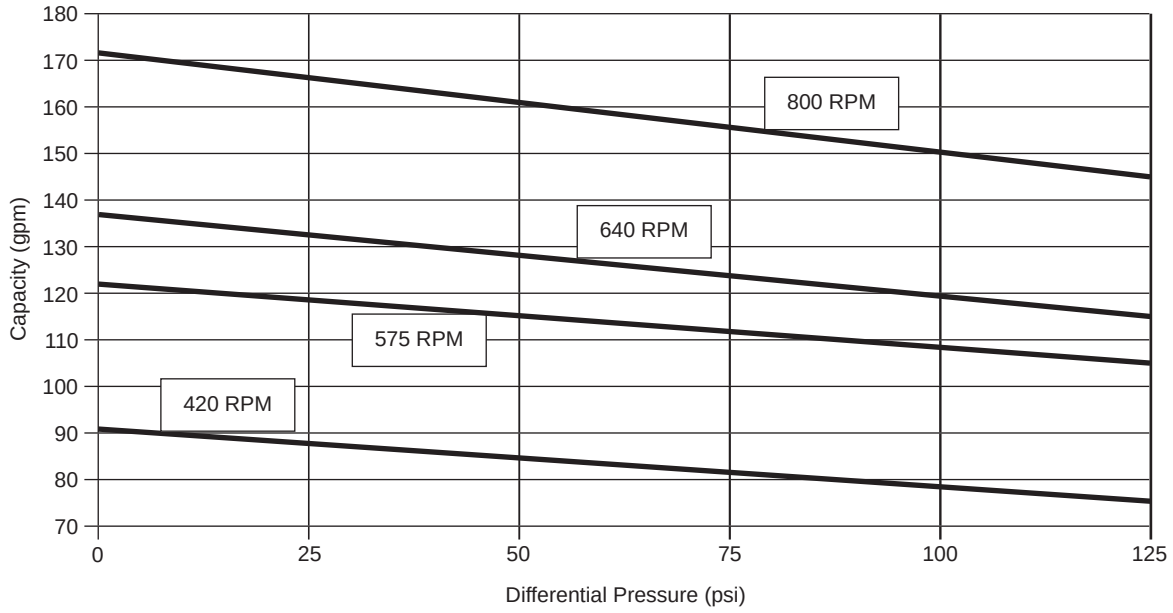


Pump Speed	Differential Pressure		Nominal Flowrate		Brake HP Required		Torque Required	
RPM	psi	bar	gpm	L/min	bhp	kW	in•lbs	N•m
800	90	6.2	98	371	6.8	5.0	536	60.5
800	50	3.4	105	397	3.8	2.2	299	33.8
640	90	6.2	78	295	5.5	4.1	542	61.2
640	50	3.4	84	318	3.1	2.3	305	34.5
575	90	6.2	70	273	4.9	3.7	537	60.7
575	50	3.4	75	284	2.7	2.0	296	33.4
420	90	6.2	51	182	3.6	2.7	540	61.0
420	50	3.4	55	197	2.0	1.5	300	33.9

[1]These curves depict performance of the PUMP ONLY. Performance will vary in applications due to system design and variables. Approximate capacities and horsepowers are based on 38 SSU (3 cP) fluid.

Performance Curves[1]

PZ10 Petroleum Pump



Pump Speed	Differential Pressure		Nominal Flowrate		Brake HP Required		Torque Required	
RPM	psi	bar	gpm	L/min	bhp	kW	in•lbs	N•m
800	90	6.2	152	575	10.3	7.7	811	91.7
800	50	3.4	161	609	5.7	4.3	449	50.7
640	90	6.2	121	458	8.2	6.1	808	91.2
640	50	3.4	128	485	4.6	3.4	453	51.2
575	90	6.2	109	413	7.3	5.4	800	90.4
575	50	3.4	115	435	4.1	3.1	449	50.8
420	90	6.2	80	303	5.4	4.0	810	91.6
420	50	3.4	85	321	3.0	2.2	450	50.9

[1]These curves depict performance of the PUMP ONLY. Performance will vary in applications due to system design and variables. Approximate capacities and horsepowers are based on 38 SSU (3 cP) fluid.

Model Number Identification Code for PZ-Series

Model Number

Base X X X X X X X

Base Model

Basic pump	Model PZ7 or PZ10	Standard	PZ7

Specification Fields

Strainer[1]	No strainer	Standard	N
	Strainer	Optional	S
Internal bypass valve	Standard valve	Standard	S
	Air Operated Valve	Optional	A
Bypass valve spring	Low (50–75 psi)	Optional	1
	Std. (75–100 psi)	Standard	2
	High (100–125 psi)	Optional	3
Seal O-ring material	Viton®[2]	Standard	D
	Buna-N	Optional	A
Seal seat material	Stainless steel	Optional	1
	Cast iron	Standard	2
	Ni-Resist	Optional	3

[1]Strainer is attached to the pump when specified by suffix "S" in the configurated string. When the strainer is required separate from the pump, order using the Part Number found in the Strainer Assembly table on page 7.

[2]Viton® is a registered trademark of the Dupont company.

Inlet Flange Options

Standard	2" NPT	E
	2-1/2" NPT	J
Optional	2" BSPT	M
	2-1/2" BSPT	N
	2" Weld	F
	2-1/2" Weld	K

Outlet Flange Options

Standard	2" NPT	E
	2-1/2" NPT	J
Optional	2" BSPT	M
	2-1/2" BSPT	N
	2" Weld	F
	2-1/2" Weld	K

Model Number Identification Code for Strainer and Air Operated Valve (AOV)

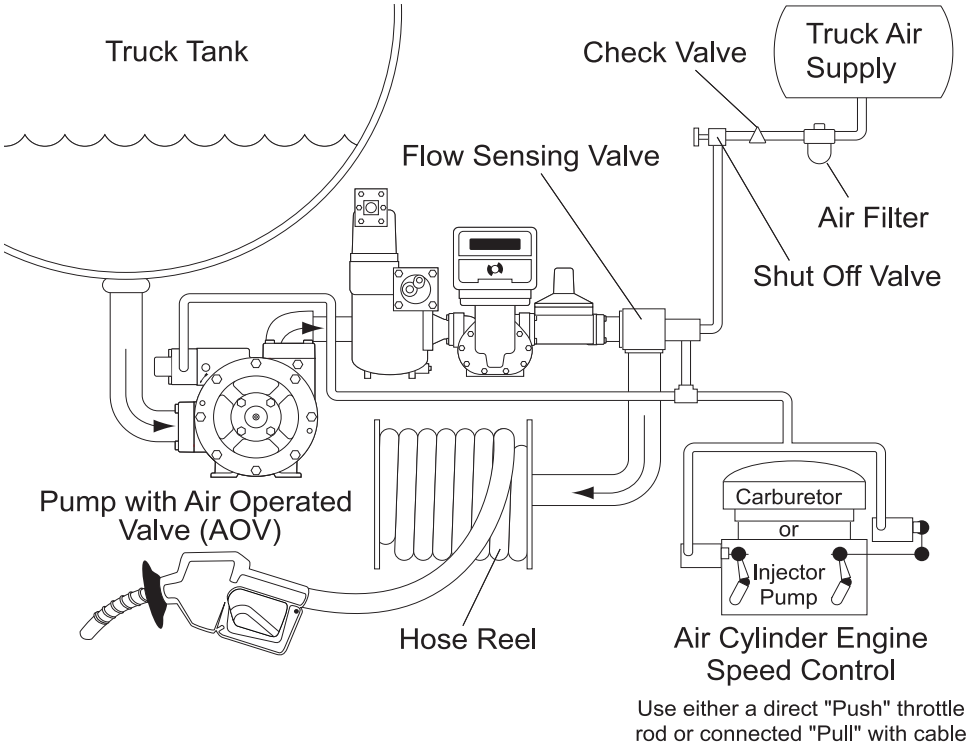
Strainer Assembly[1] for PZ7 and PZ10

	Seal Material	Strainer Assy. Part Number
Strainer Assembly	Viton®[2] (standard)	5422-XD
	Buna-N (optional)	5422-XA

[1]Strainer Assembly ordered by Part Number when not assembled to the pump.
[2]Viton® is a registered trademark of the Dupont company.

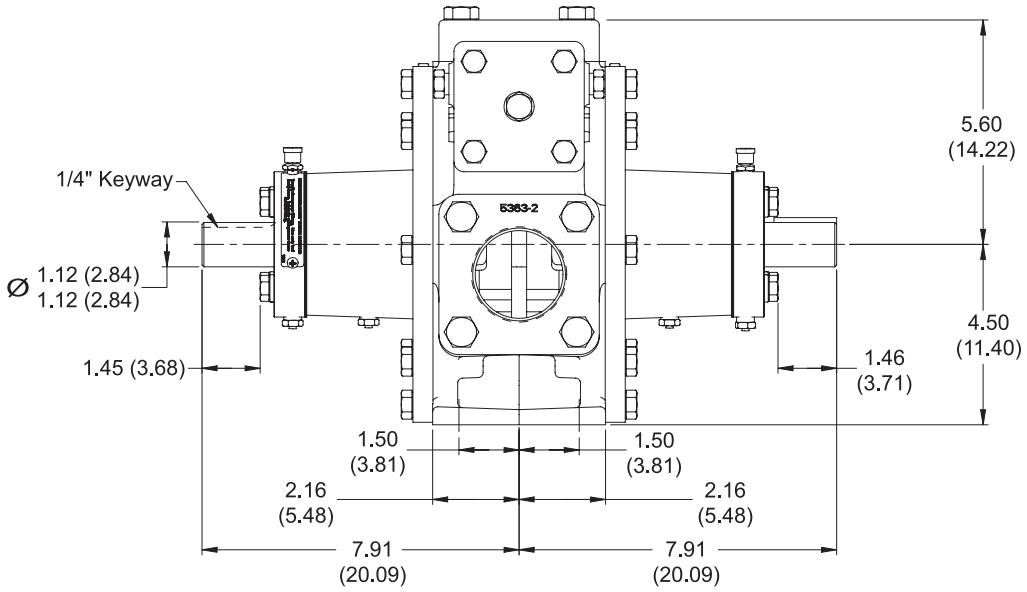
Air Operated Valve Assembly (AOV)

	For Pump Models	AOV Part Number
Air Operated Valve (AOV)	PZ7	5470-X
	PZ10	5462-X



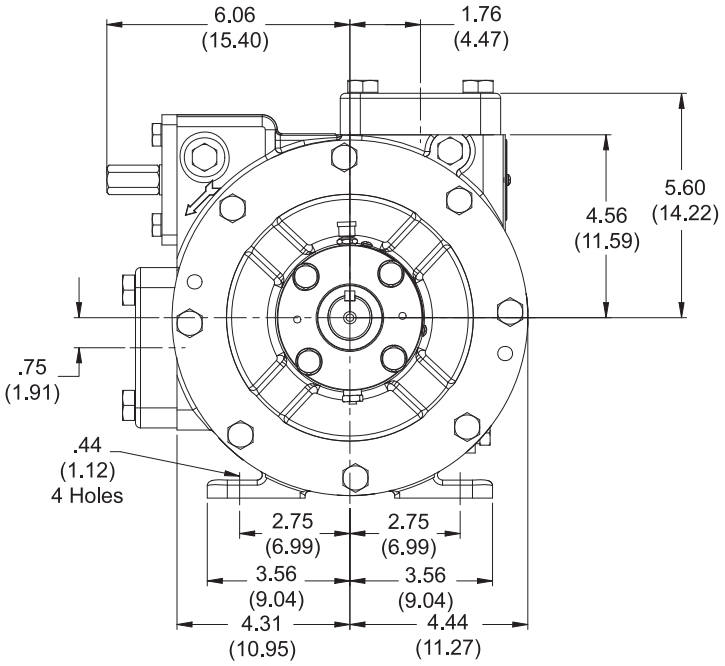
Outline Dimensions for the PZ7

PZ7 with Standard Bypass Valve

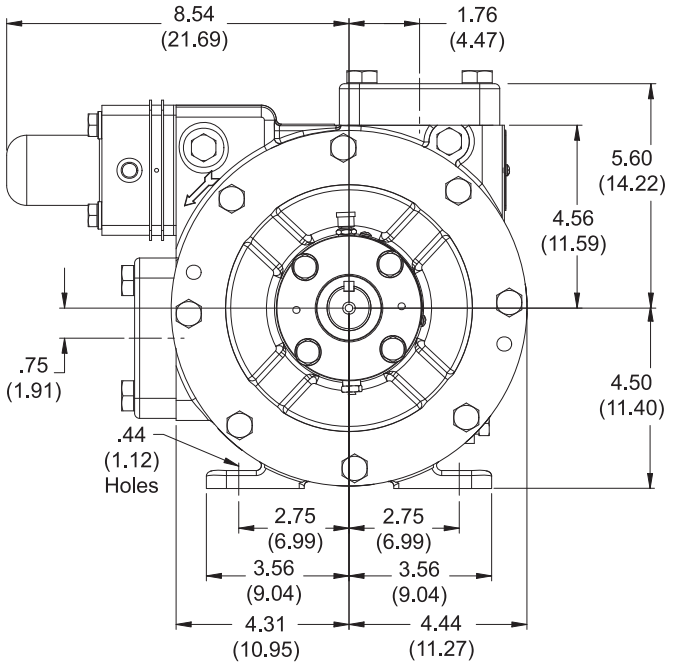


Inches (centimeters)

PZ7 with Standard Bypass Valve



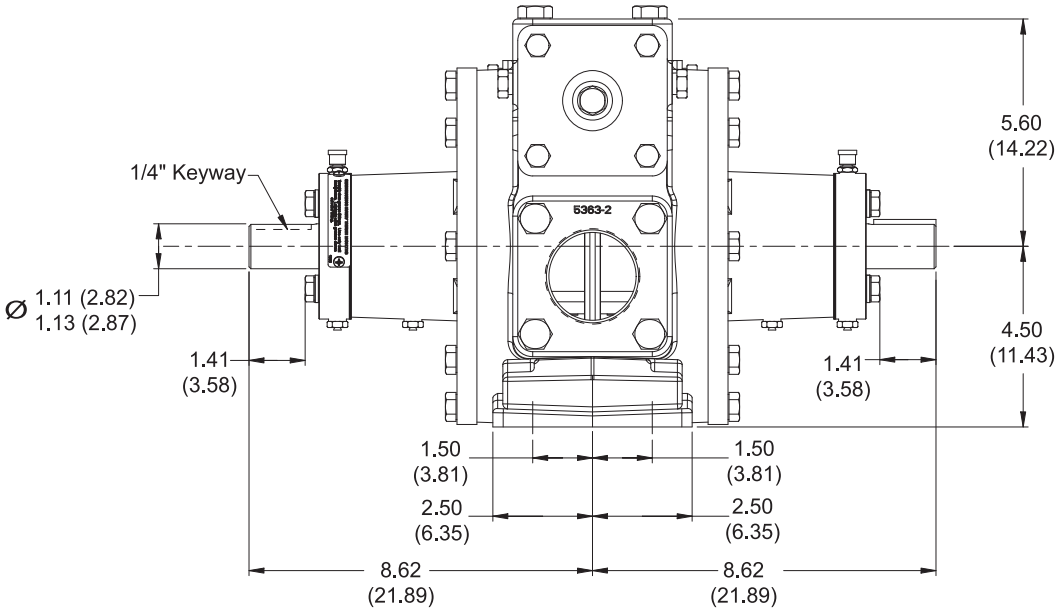
PZ7 with Air Operated Valve (AOV)



Inches (centimeters)

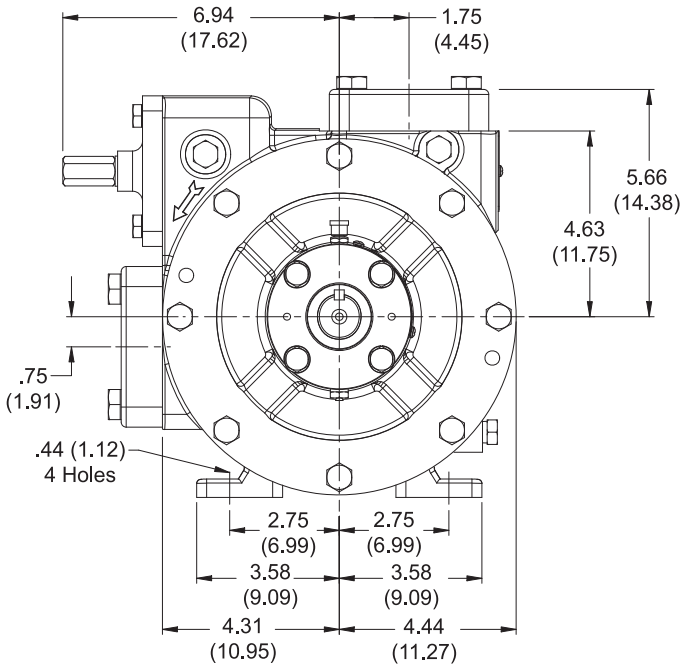
Outline Dimensions for the PZ10

PZ10 with Standard Bypass Valve

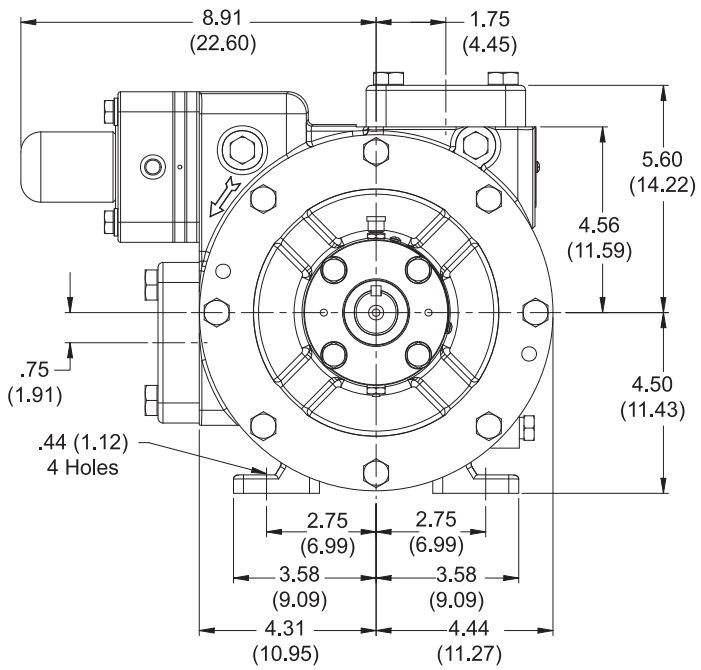


Inches (centimeters)

PZ10 with Standard Bypass Valve



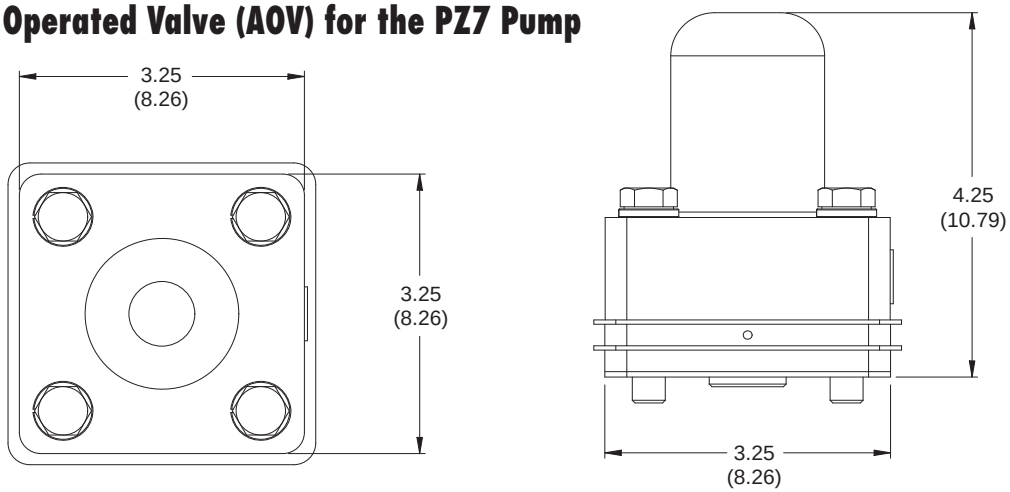
PZ10 with Air Operated Valve (AOV)



Inches (centimeters)

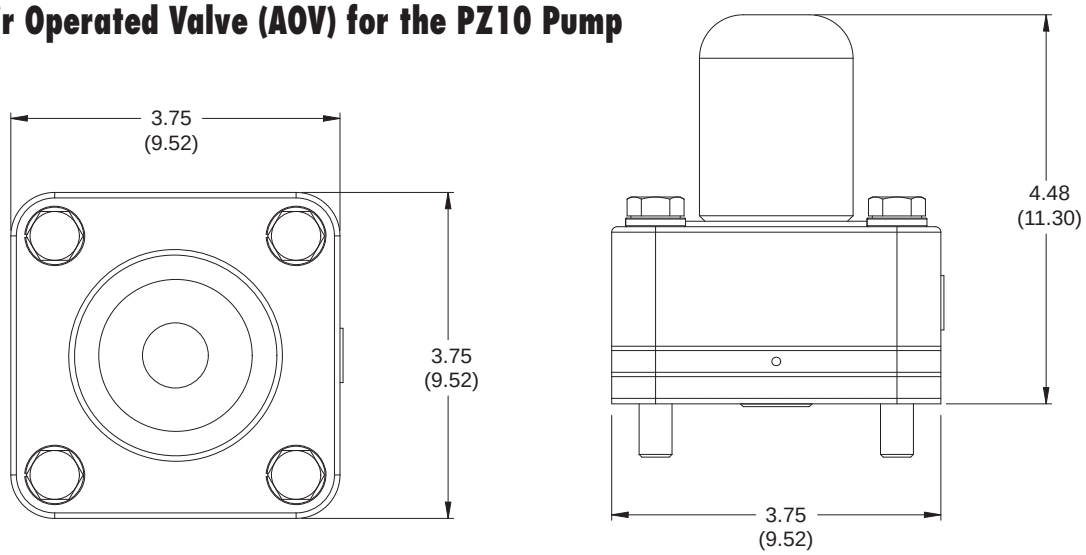
Outline Dimensions for Air Operated Valve and Strainer

5470-X Air Operated Valve (AOV) for the PZ7 Pump



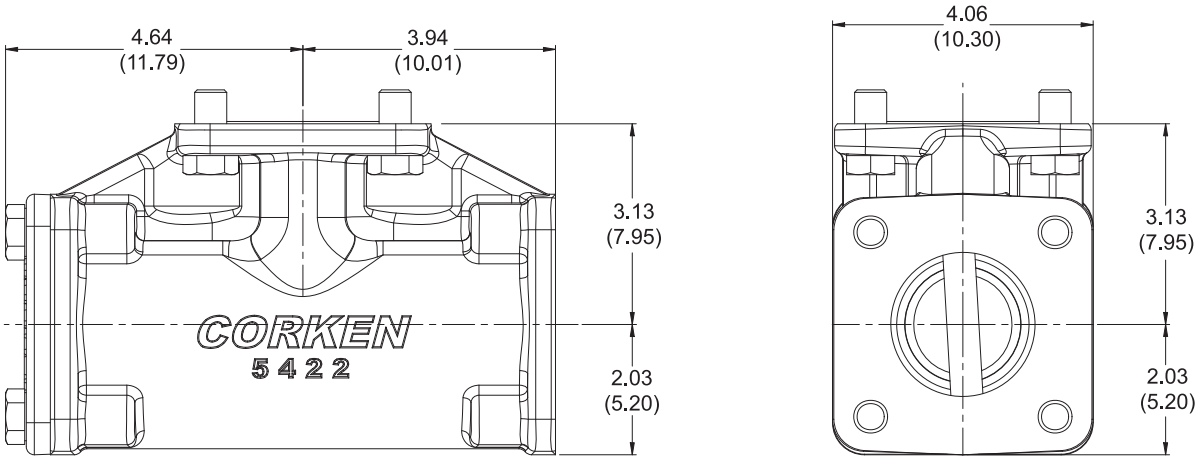
Inches (centimeters)

5462-X Air Operated Valve (AOV) for the PZ10 Pump



Inches (centimeters)

5422-X_ Strainer Assembly for the PZ7 and PZ10 Pump



Inches (centimeters)

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3805 N.W. 36th St., Oklahoma City, OK 73112

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Printed in the U.S.A.
April 2004

NEW!

Petroleum Pumps

PT-Series Pumps for Refined Petroleum Products and Industrial Solvents

LIQUID CONTROLS GROUP

IDEX

Your Single Source for Stationary & Transportation Solutions...

Another choice in petroleum pumps...

The Liquid Controls Group PT-Series petroleum pumps offer the industry another choice in pump brand when building bulk plant and delivery vehicle systems. The pumps match the industry-standard flange-to-flange and mounting foot print dimensions for easy incorporation into existing or new bulk plant and delivery vehicle systems. The features of the PT-Series will be appreciated by bulk plant designers, delivery truck fabricators and end-user fuel marketers.

Multi-product package offering...

When it comes to ease of doing business, product functionality, and breadth of product offering, Liquid Controls Group is your single source solution for transporting, dispensing and controlling high value fluids and gases. Common corporate ownership and shared distribution enables Liquid Controls Group to greatly simplify the procurement process. Rather than placing multiple orders, a customer can combine a pump, meter, and register into a single order.

Three pump sizes available...

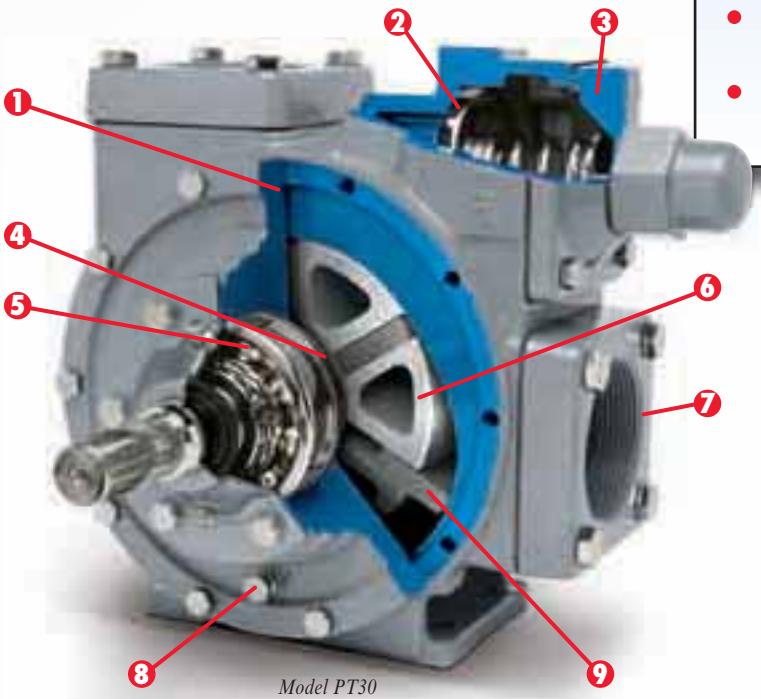
Available in 2, 2.5 and 3 inch flange sizes. Flow rates range from 31 to 271 gpm (117 to 1,026 L/min) and differential pressures up to 125 psi (8.6 bar).

Features of the PT-Series

1. O-ring design delivers maximum sealing capability and is available with optional seal materials.
2. Corrosion resistant bypass valve made of nickel plated cast iron.
3. Available with a standard bypass valve or an optional air operated valve (AOV) for high and low flow control. Additionally, the AOV relieves the pressure in the lines for easier handling of the hose nozzle.
4. Reliable mechanical seal design with optional seal materials.
5. Heavy duty ball bearings provide greater durability and strength.
6. Hollow rotor helps reduce weight.
7. Available with T-style strainers that help keep your pumping system free from damage caused by welding slag and foreign materials left in the piping and tank.
8. Conveniently located drain plug allows you to empty the pump quickly when necessary.
9. Positive displacement sliding vane design delivers higher pumping efficiency and a lower noise level. The self adjusting vanes compensate for wear and extend the life of the pump.

- Installation is simple since the PT-Series pumps are dimensionally interchangeable with the competition.
- Viton®[1] elastomers ensure compatibility with a wider range of fluids such as biodiesel and ethanol blends.

[1]Viton® is a registered trademark of the DuPont company.



Model PT30

Pump Accessories


Optional Air Operated Valve (AOV)


Optional T-style Strainer

For Refined Petroleum Products & Industrial Solvents

Liquid Controls Group offers a wide range of products for transporting, dispensing, and controlling high value fluids and gases. These products include the following:

- Pumps
- Meters
- Valves
- Registers
- Electronics
- In cab data management systems
- Inventory control systems

Applications Include

- Fuel oil deliveries
- Fleet refueling
- Lube oil deliveries
- Aviation refuelers
- Bulk transfer
- Bulk loading & blending
- Transporting the following:
  - Petro chemicals
  - Gasoline
  - Biofuels
  - Ethanol
  - Solvents

Model PT20

The model PT20 is a 2 inch petroleum pump and is ideal for "lube oil" deliveries that require low flow rates. Applications include deliveries to service centers such as auto dealerships and quick lube companies.

Model PT20

Model PT25

The model PT25 is a 2.5 inch petroleum pump and is suited for delivery trucks that transport gasoline, diesel, fuel oil and other petroleum products. The flow rates are perfect for home, farm and fleet fueling applications.

Model PT25

Model PT30

The model PT30 is a 3 inch petroleum pump and is ideal for bulk delivery applications such as large transport tanks. The PT30 is designed to quickly load and unload large volumes. Bulk deliveries include aviation fuels, gasoline, diesel, ethanol, biodiesel and many more.

Model PT30

Maximum Specifications Chart

Model	Flow	Pump Speed	Viscosity	Differential Pressure	Working Pressure	Temperature
	GPM (L/min)	RPM	SSU (cP)	psi (bar)	psi (bar)	°F (°C)
PT20	88 (333)	780	20,000 (4,250)	125 (8.6)	200 (13.8)	300 (149)
PT25	159 (602)	780	20,000 (4,250)	125 (8.6)	200 (13.8)	300 (149)
PT30	271 (1,026)	640	20,000 (4,250)	125 (8.6)	200 (13.8)	300 (149)

Performance Data[1]

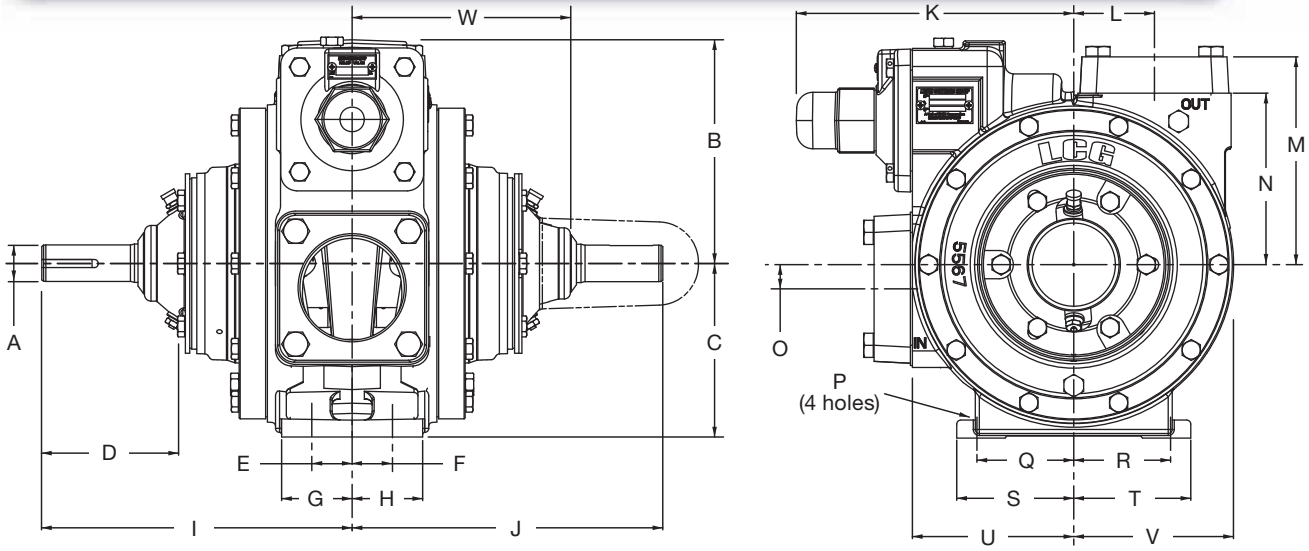
Model	PT20		PT25		PT30	
RPM	520	640	520	640	520	640
GPM (L/min)	58 (220)	72 (273)	98 (371)	120 (454)	211 (799)	263 (995)
HP (kW)	2.5 (1.9)	3.0 (2.2)	3.8 (2.8)	5.0 (3.7)	7.8 (5.8)	9.5 (7.1)

[1] *Capacities and horsepower are based on a 100 SSU (22 cP) fluid at 50 psi (3.4 bar) delivered pressure.*
Refer to performance curves in the PT-Series sales catalog or the installation, operation and maintenance (IOM) manual for flow rates at other pressures.

Outline Dimensions (all dimensions in inches and centimeters)

Model	A	B	C	D	E	F	G	H	I	J	K	L
PT20	1.125 Dia. (2.86)	5.18 (13.16)	4.00 (10.16)	3.63 (9.22)	0.81 (2.06)	0.81 (2.06)	1.75 (4.45)	1.75 (4.45)	8.00 (20.32)	8.00 (20.32)	6.08 (15.44)	1.50 (3.81)
PT25	1.125 Dia. (2.86)	6.64 (16.87)	4.00 (10.15)	3.63 (9.22)	1.50 (3.81)	1.50 (3.81)	2.45 (6.21)	2.45 (6.21)	9.45 (23.99)	8.75 (22.23)	6.80 (17.27)	1.75 (4.45)
PT30	1.125 Dia. (2.86)	6.93 (17.60)	5.38 (13.70)	4.25 (10.80)	1.25 (3.20)	1.25 (3.20)	2.19 (5.60)	2.19 (5.60)	9.63 (24.40)	9.63 (24.40)	8.60 (21.80)	2.50 (6.40)

Model	M	N	O	P	Q	R	S	T	U	V	W
PT20	4.98 (12.66)	4.13 (10.48)	0.50 (1.27)	0.44 Dia. (1.12)	2.50 (6.35)	2.50 (6.35)	3.31 (8.40)	3.31 (8.40)	3.90 (9.92)	3.90 (9.92)	5.30 (13.46)
PT25	6.35 (16.12)	5.06 (12.86)	0.25 (0.64)	0.44 Dia. (1.12)	2.75 (6.99)	2.75 (6.99)	3.50 (8.89)	3.50 (8.89)	4.31 (10.95)	3.87 (9.87)	6.05 (15.36)
PT30	6.44 (16.40)	5.31 (13.50)	0.75 (1.90)	0.63 Dia. (1.58)	3.00 (7.60)	3.00 (7.60)	3.63 (9.20)	3.63 (9.20)	5.00 (12.70)	4.95 (12.60)	6.43 (16.33)



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CORKEN, INC.
3805 N.W. 36th St., Oklahoma City, OK 73112
(405) 946-5576 • FAX (405) 948-7343
http://www.corken.com • info.corken@idexcorp.com

LIQUID CONTROLS
105 Albrecht Drive, Lake Bluff, IL 60044-2242
1-800-458-5262 • (847) 295-1050 • FAX (847) 295-1057
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P100B

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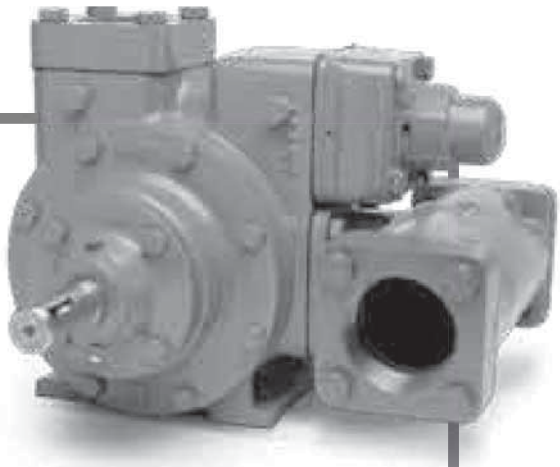
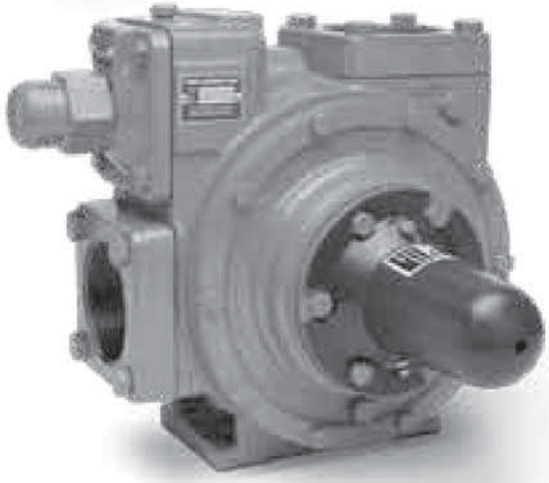
Petroleum Pumps

Sales Catalog for PT-Series

Model PT20



Model PT25 with optional air operated valve (AOV) and strainer



Model PT30

LIQUID CONTROLS GROUP

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Principles of the PT-Series Pumps

The PT-Series pumps are a special type of rotary positive displacement pump, known as a sliding vane pump.

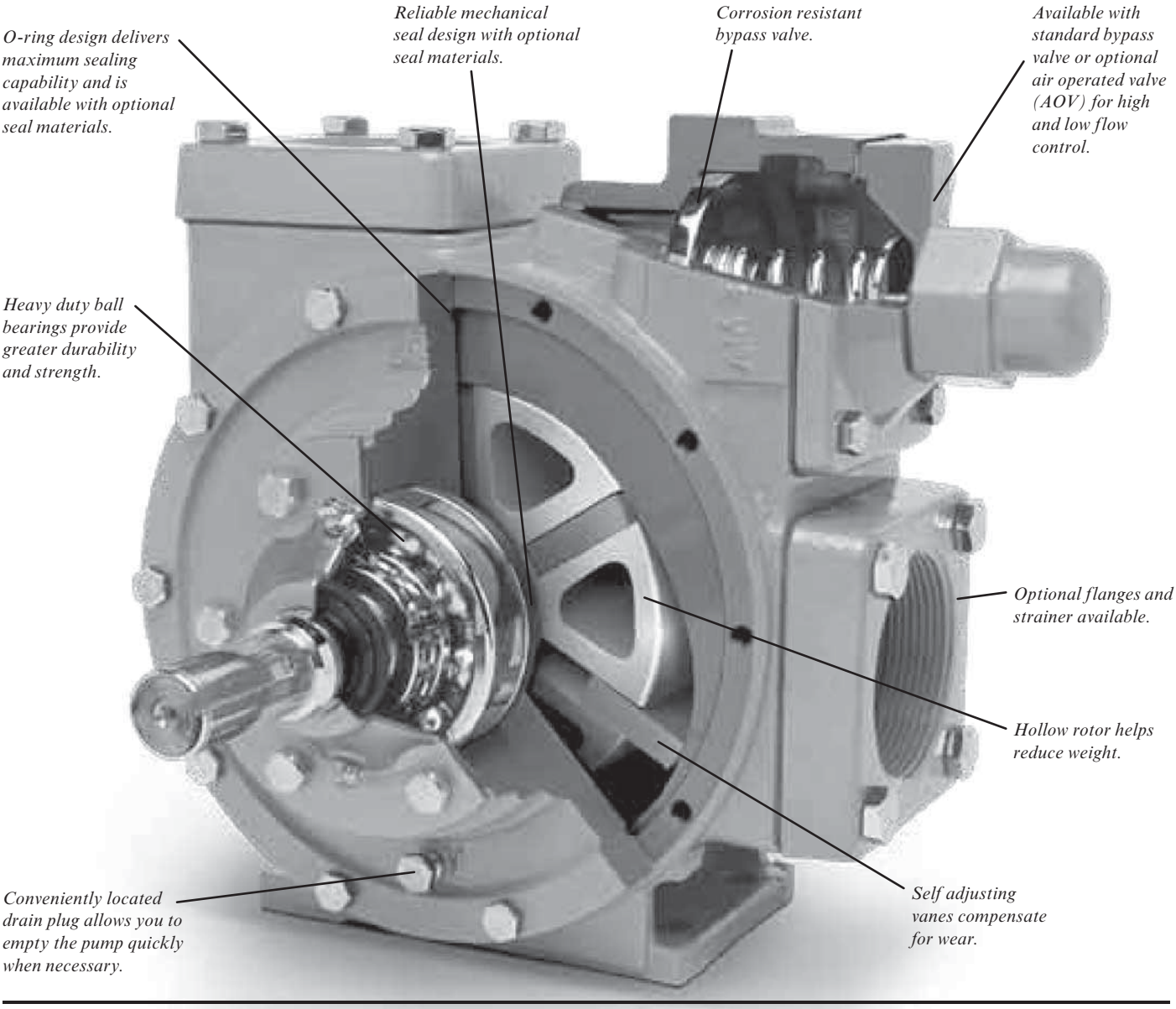
The sliding vane pump has many of the positive displacement advantages of the gear pump, plus the ability to compensate for wear, and operate at a lower noise level.

The sliding vane pump consists of a rotor turning inside a cam that is machined eccentrically in relation to the rotor. As the rotor turns, the liquid that is trapped between the rotor, cam and vanes is displaced. The PT-Series pumps are made with vanes produced from advanced polymers which exhibit extremely low coefficients of friction. The self adjusting vanes compensate for wear and help extend the life of the pump.

Exclusive Features of the PT-Series Pumps

The pumping of volatile liquids is one of the most difficult of all pumping jobs, and pumping from a delivery truck makes it even more difficult, so more attention must be given to the design and manufacturing of the pump and to its installation and operation.

In addition to being especially suited for handling volatile liquids, the PT-Series pumps have a number of other features to help make them more easily operated and maintained.



Operating Specifications for the PT-Series

Standard connections:	2 in., 2-1/2 in., and 3 in. NPT
Optional connections:	BSPT, Slip-on weld
Maximum differential pressure:	125 psid (8.6 bar)
Temperature range:	-25° to 300°F (-32° to 149°C)
Maximum working pressure:	200 psi (13.8 bar)
Maximum speed:	780 RPM—all models 20 and 25 640 RPM—all models 30
Maximum flow:	Up to 271 GPM (1,026 L/min)
Maximum viscosity:	20,000 SSU (4,250 cP)
Fluids:	Refined petroleum products, industrial solvents, and other fluids

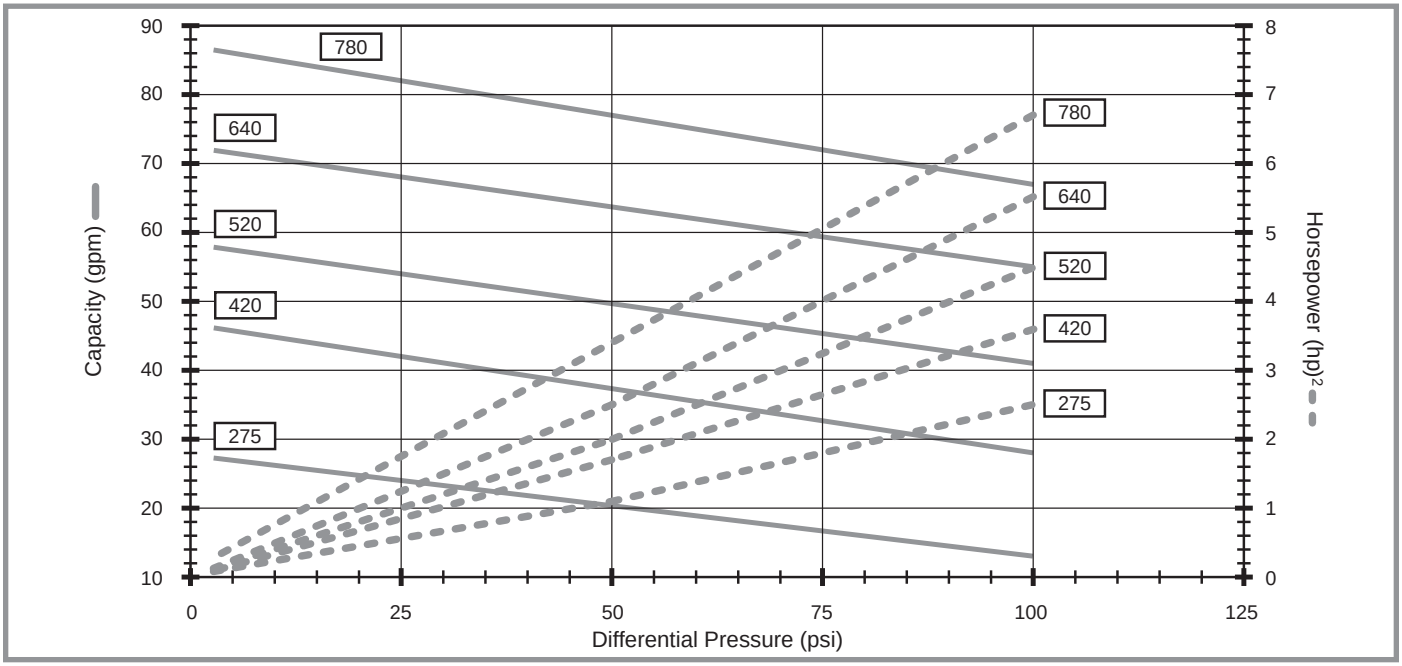
Material Specifications for the PT-Series

Part	Standard Material	Available Options
Case	Cast iron ASTM A48	
Head	Cast iron ASTM A48	
Flanges	Cast iron ASTM A48	
Rotor	Ductile iron ASTM A536	
Bearing cap	Steel	Bearing cover / spacer with hydraulic motor adapter (cast aluminum) and coupling (steel)
Bearings	Ball (single row), grease lubricated to 300°F (149°C) max.	
Vanes	Full size with 316 stainless steel wear plate to 240°F (115°C); 20,000 SSU (4,250 cP) max.	
Bypass valve	Cast iron ASTM A48 with nickel added	
Bypass/AOV cap	Cast iron ASTM A48	
Bypass valve cover	Cast iron ASTM A48	
Bypass valve spring	Plated steel	
Bypass valve spring ranges	35–125 psi (2.4–8.6 bar)	
Seal seat	Cast iron	
Seal metal parts	Steel	
Shaft	Double end keyed shaft, high strength steel	
O-rings	Viton®[1] to 300°F (149°C)	Buna-N to 240°F (115°C)
Gaskets	Composition to 500°F (260°C)	
Vane drivers	Case hardened steel	
Gauge ports	1/4 in. NPT	

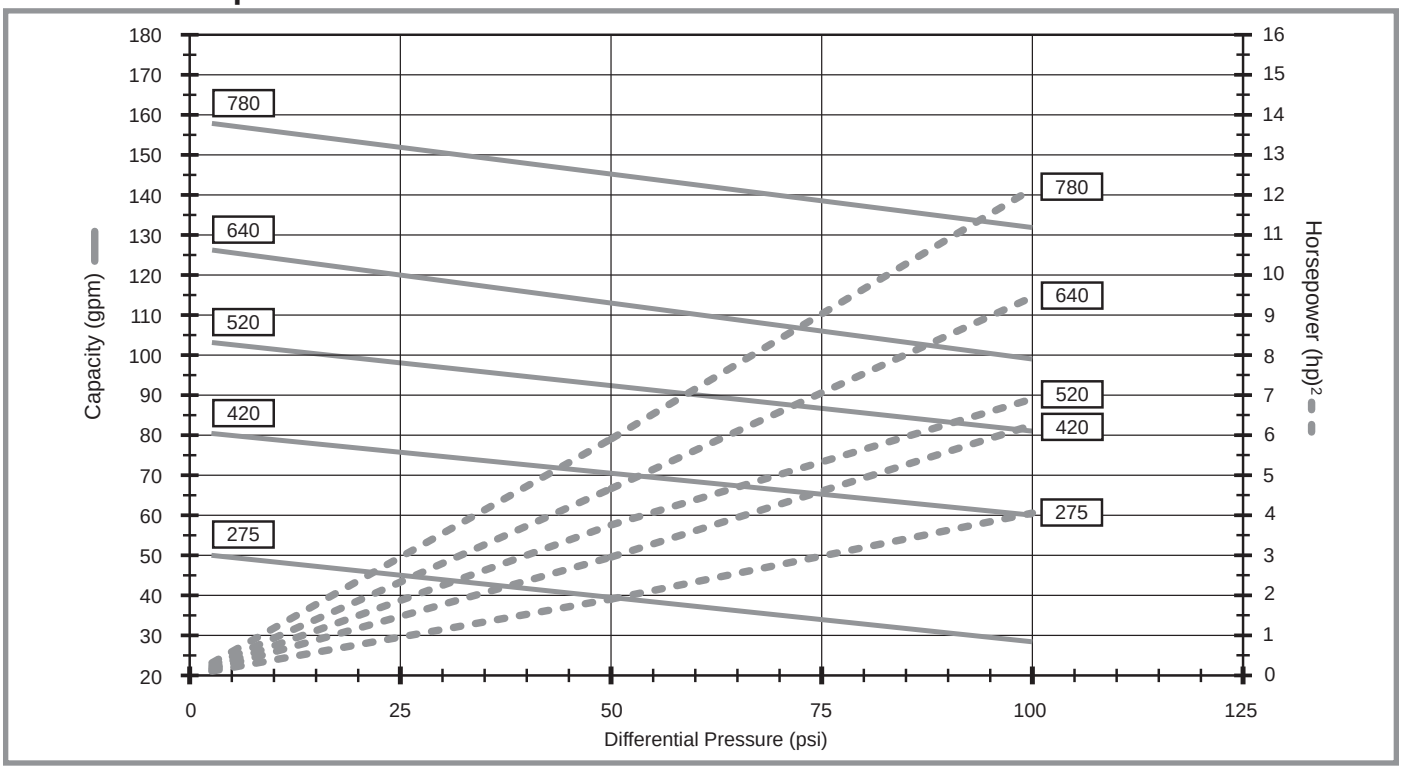
[1] *Viton® is a registered trademark of the DuPont company.*

Performance Curves[1]

PT/PTH20 Pumps



PT/PTH25 Pumps



*[1]These curves depict performance of the PUMP ONLY. Performance will vary in applications due to system design and variables. Approximate capacities and horsepowers are based on **30 SSU (3 cP)** fluid.*

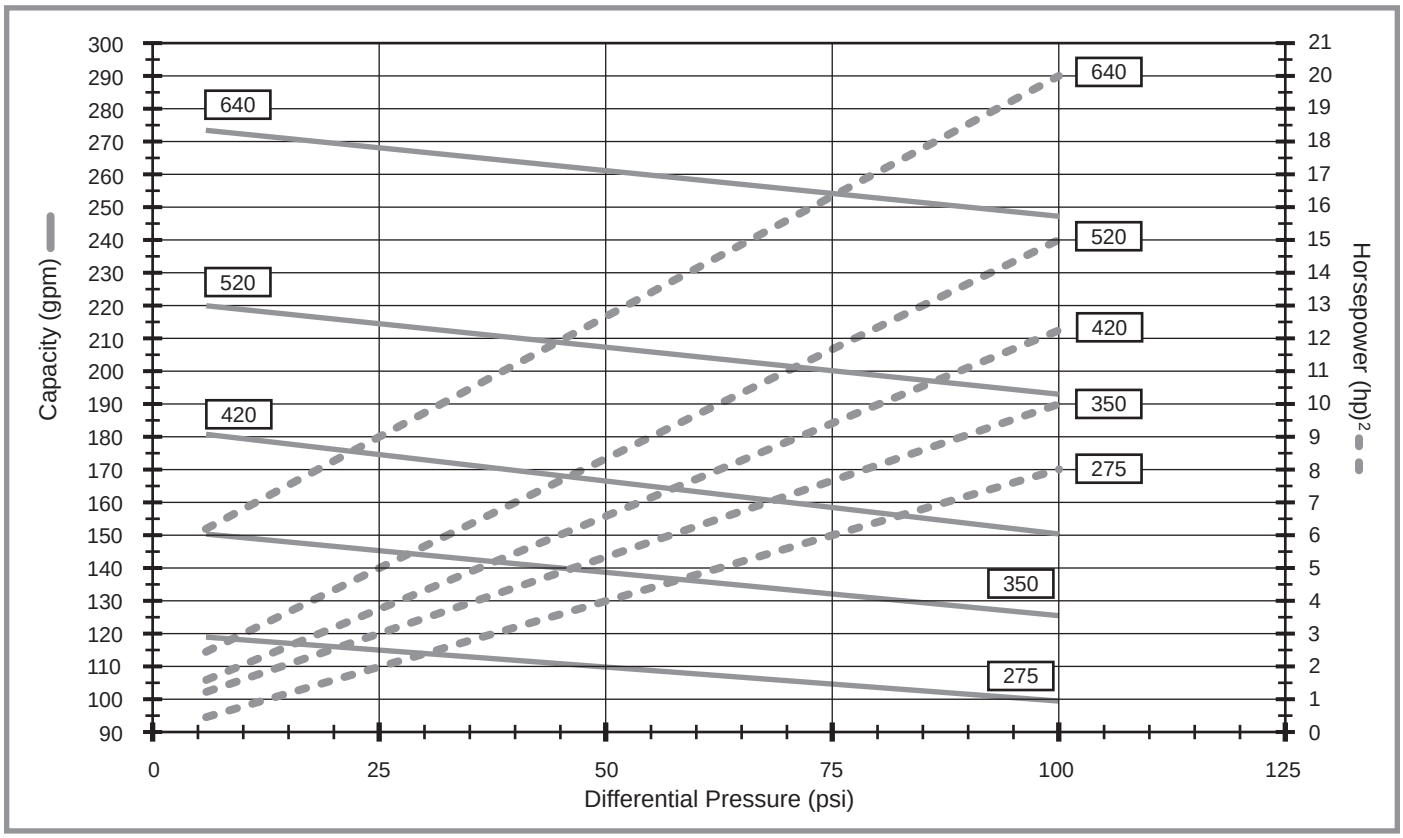
[2]Torque (in•lb) = $\frac{hp \times 63025}{RPM}$

PT/PTH20 and PT/PTH25 Viscosity Chart

Viscosity (SSU)	100	1,000	5,000	10,000	20,000
Maximum RPM	780	640	520	420	275

Performance Curves[1]

PT/PTH30 Pumps



[1]These curves depict performance of the PUMP ONLY. Performance will vary in applications due to system design and variables. Approximate capacities and horsepowers are based on ***30 SSU (3 cP)*** *fluid.*

[2]Torque (in•lb) = $\frac{hp \times 63025}{RPM}$

PT/PTH30 Viscosity Chart

Viscosity (SSU)	100	1,000	5,000	10,000	20,000
Maximum RPM	640	520	420	350	275

Model Number and Identification Code for the PT-Series

Model Number

Base X X X X X X X

Base model number	PT20	PT25	PT30
Base model number (with hydraulic drive option)	PTH20	PTH25	PTH30

Specifications

Strainer	No strainer	Standard	Standard	Standard	N
	Strainer	Optional	Optional	Optional	S
Internal bypass valve	Bypass valve	Standard	Standard	Standard	S
	Air operated valve	Optional	Optional	Optional	A
Bypass valve spring	35 – 50 psi	Optional	N/A	N/A	4
	50 – 75 psi	Optional	N/A	N/A	1
	75 – 110 psi	Standard	N/A	N/A	2
	110 – 125 psi	Optional	N/A	N/A	3
	50 – 110 psi	N/A	Standard	Standard	2
	110 – 125 psi	N/A	Optional	Optional	3
Seal O-ring material	Buna-N	Optional	Optional	Optional	A
	Viton®[1]	Standard	Standard	Standard	D
Seal seat material	Cast iron	Standard	Standard	Standard	2
Inlet flange	2 in NPT	Standard	Optional	N/A	E
	2.5 in. NPT	N/A	Standard	N/A	J
	3 in. NPT	N/A	N/A	Standard	P
	2 in BSPT	Optional	Optional	N/A	M
	2.5 in. BSPT	N/A	Optional	N/A	N
	3 in. BSPT	N/A	N/A	Optional	R
	2 in. Weld	Optional	N/A	N/A	F
	2.5 in. Weld	N/A	Optional	N/A	K
	3 in. Weld	N/A	N/A	Optional	Q
	Less flange	Optional	Optional	Optional	X
Outlet flange	2 in. NPT	Standard	Optional	N/A	E
	2.5 in. NPT	N/A	Standard	N/A	J
	3 in. NPT	N/A	N/A	Standard	P
	2 in BSPT	Optional	Optional	N/A	M
	2.5 in. BSPT	N/A	Optional	N/A	N
	3 in. BSPT	N/A	N/A	Optional	R
	2 in. Weld	Optional	N/A	N/A	F
	2.5 in. Weld	N/A	Optional	N/A	K
	3 in. Weld	N/A	N/A	Optional	Q
	Less flange	Optional	Optional	Optional	X

[1] *Viton® is a registered trademark of the DuPont company.*

N/A = Not Applicable

Model Number and Identification Code for Strainer and Air Operated Valve (AOV)

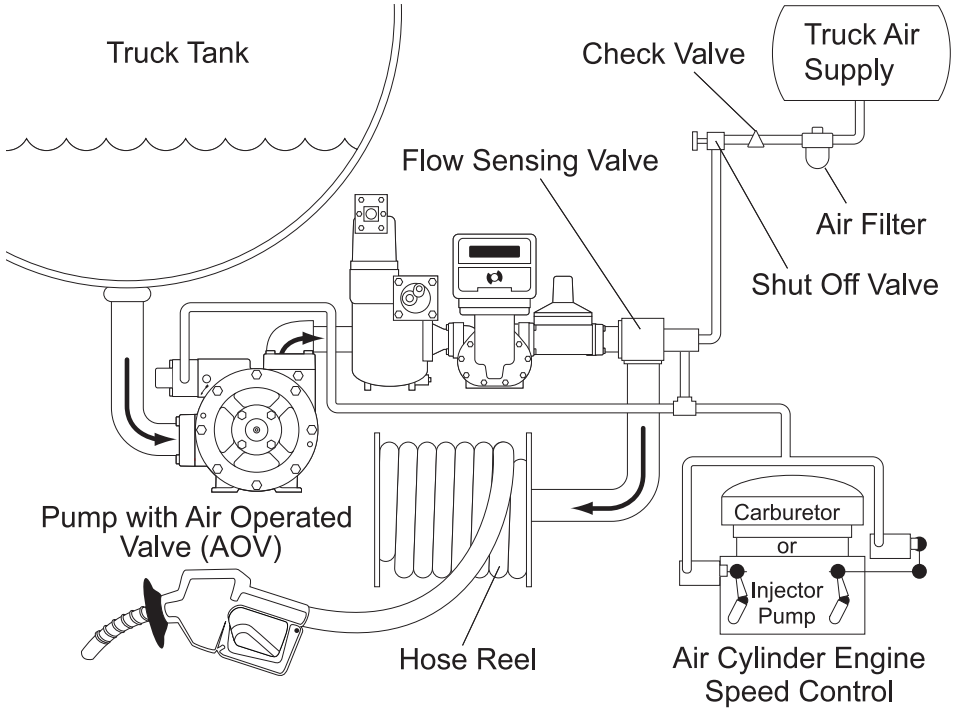
Strainer Assembly[1]

Pump Model	Strainer Assembly Part Number
PT/PTH20	4684-X
PT/PTH25	4689-X
PT/PTH30	4680-X

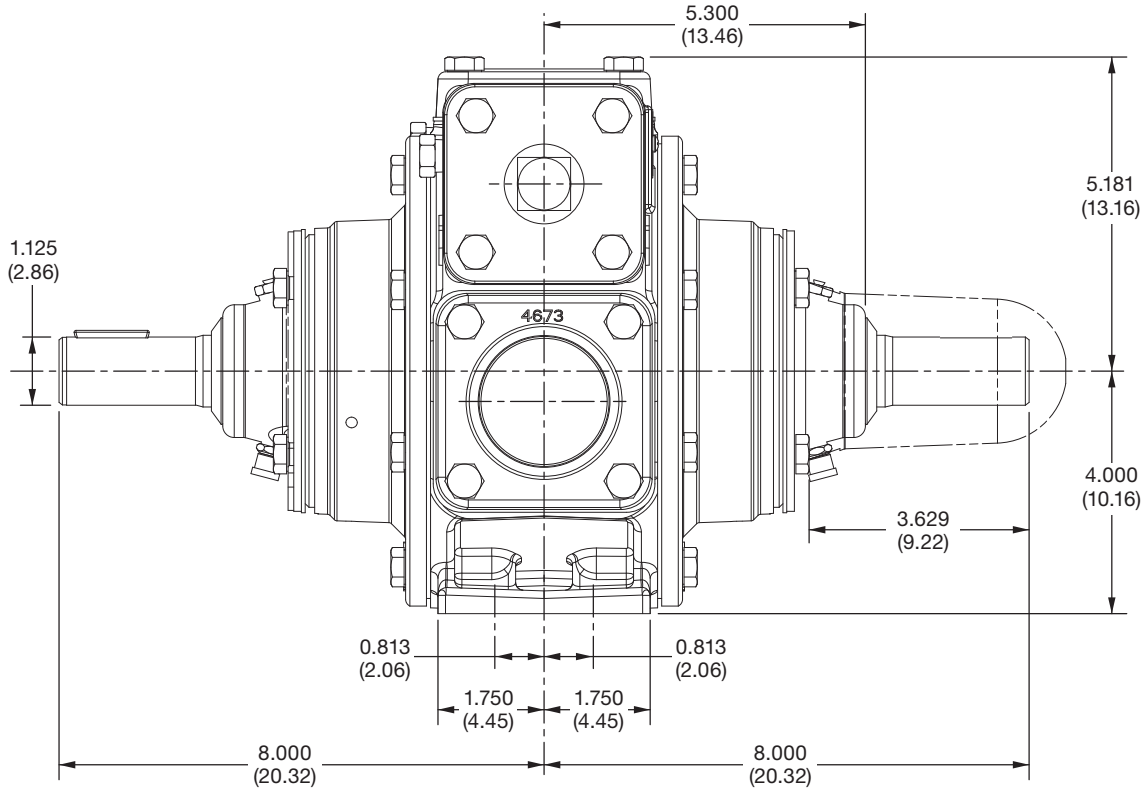
Air Operated Valve Assembly (AOV)

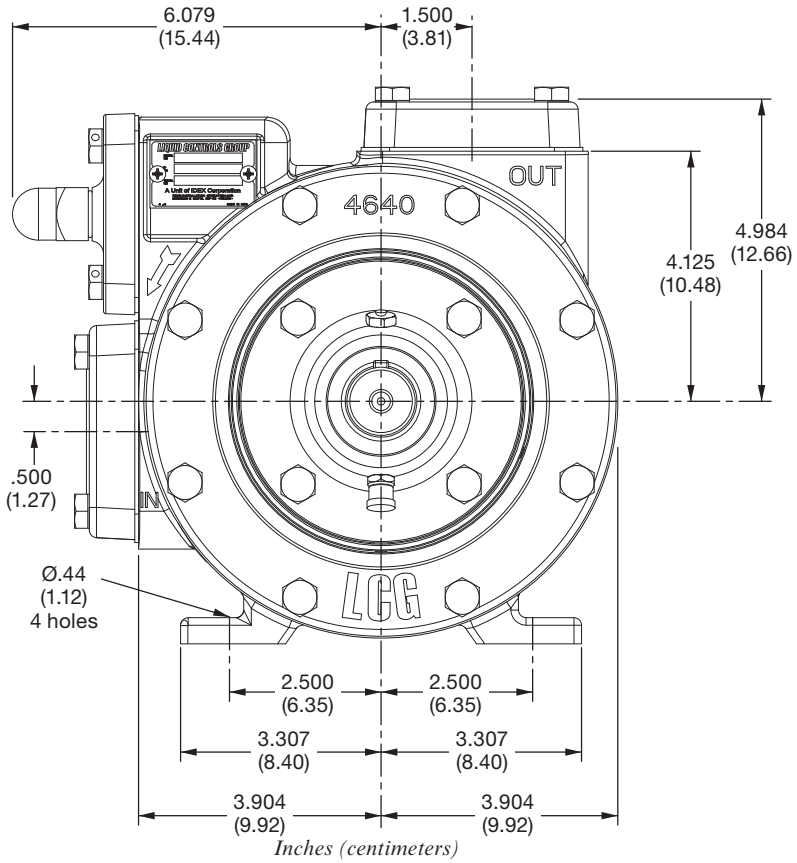
Pump Model	AOV Part Number
PT/PTH20	5470-1XA (Buna-N)
PT/PTH25	5462-1XA (Buna-N)
PT/PTH30	5566-XA (Buna-N)

Typical Truck Delivery System Using an Air Operated Valve (AOV) Assembly



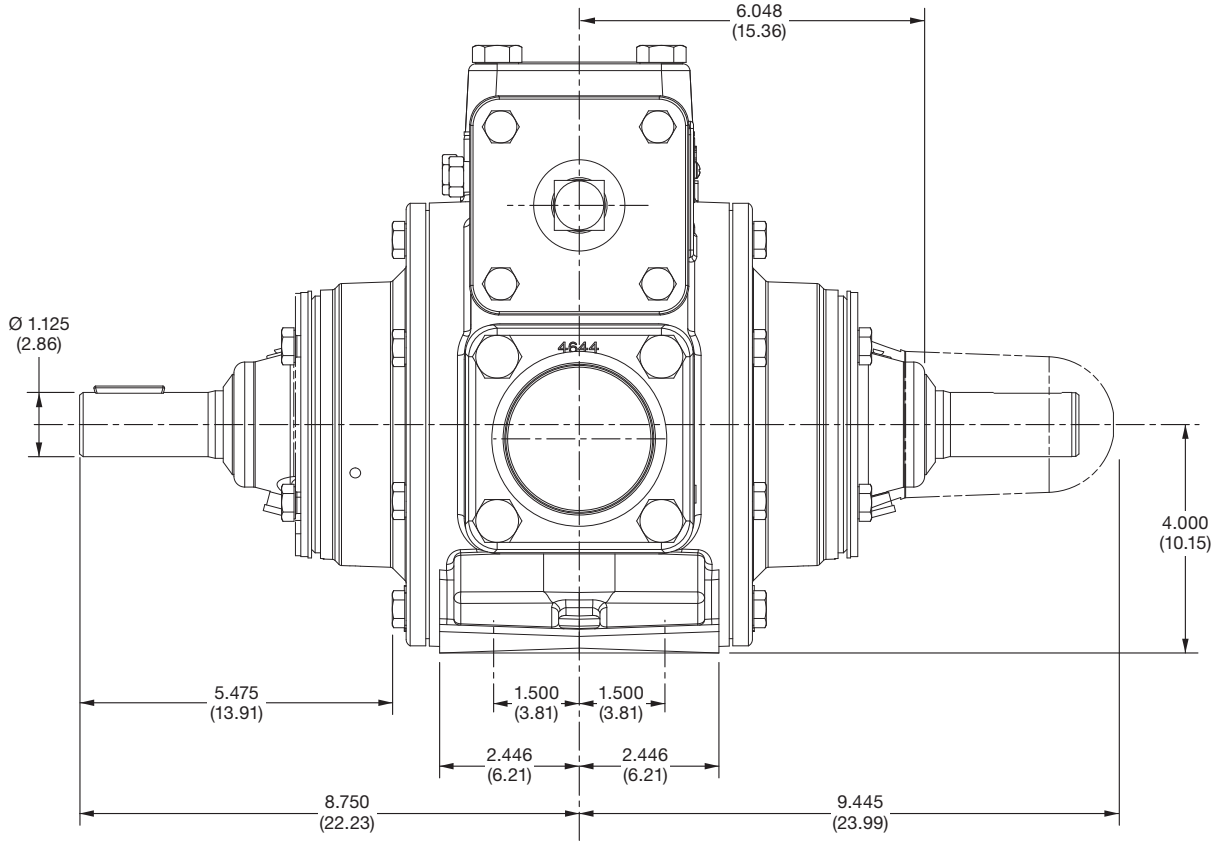
Outline Dimensions for the PT20

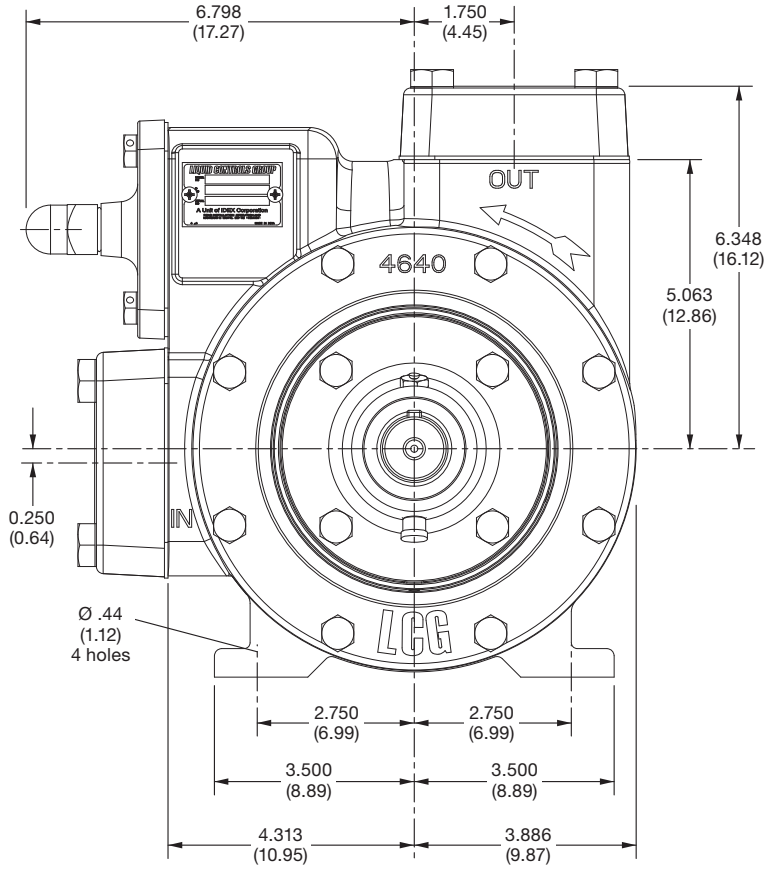




Inches (centimeters)

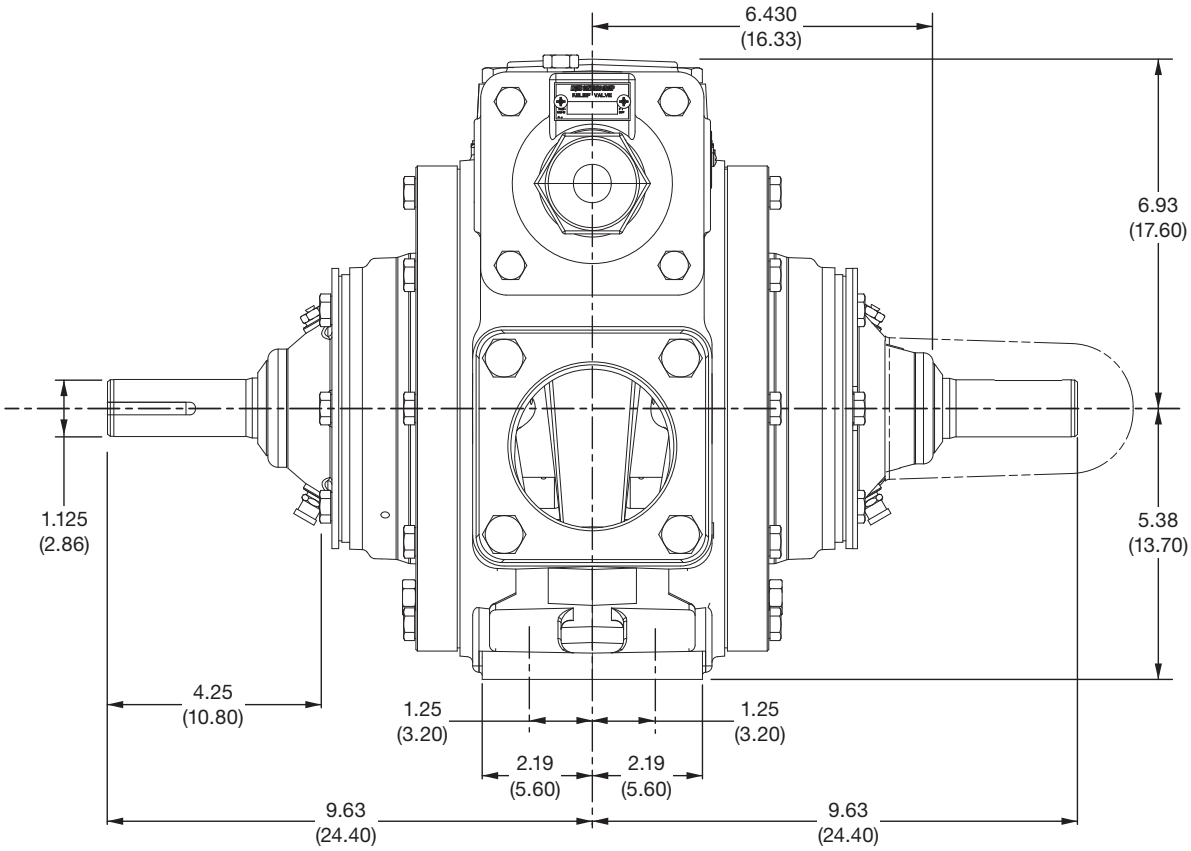
Outline Dimensions for the PT25

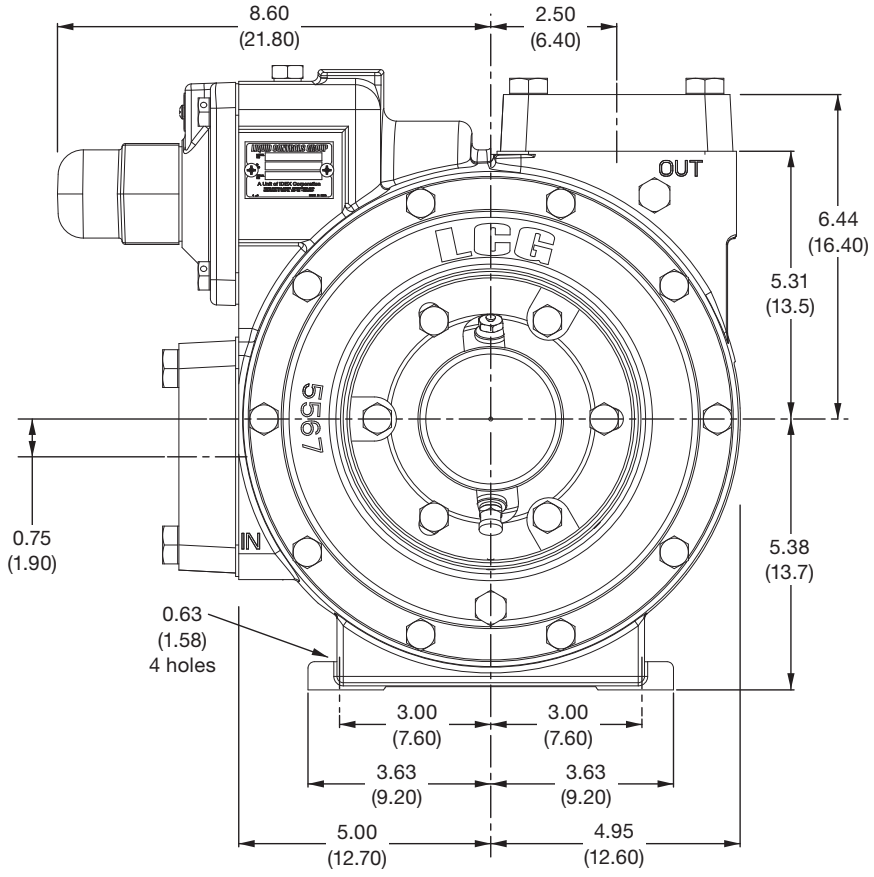




Inches (centimeters)

Outline Dimensions for the PT30

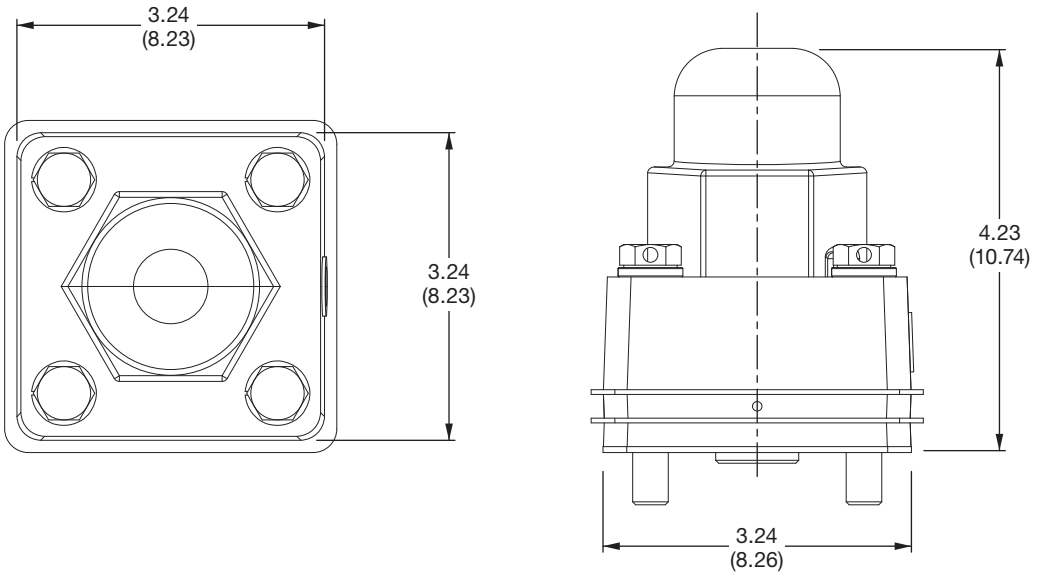




Inches (centimeters)

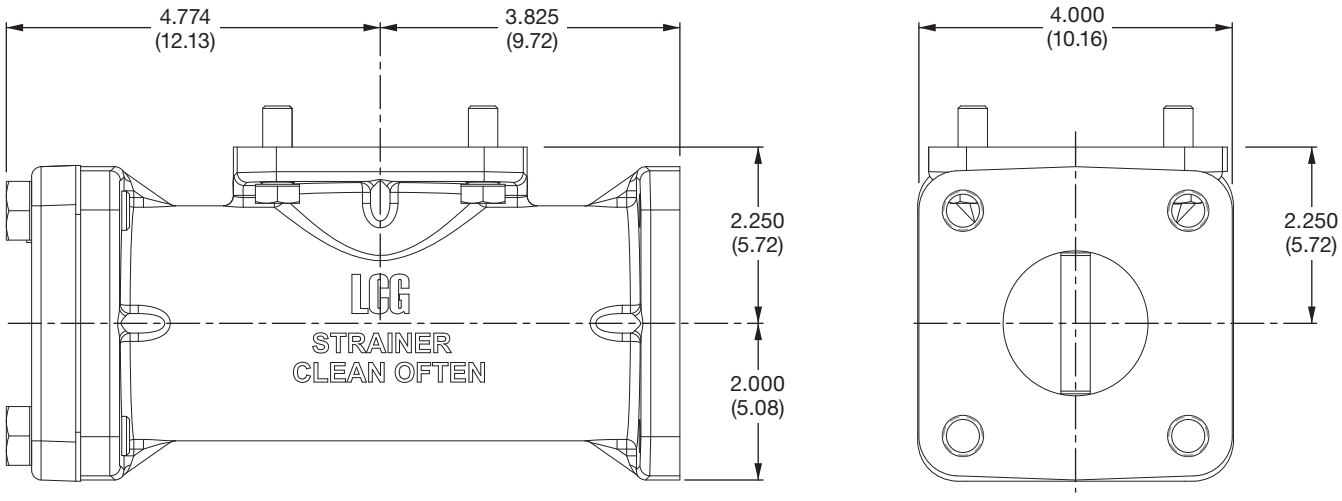
Outline Dimensions for Air Operated Valve and Strainer

5470-1XA Air Operated Valve (AOV) Assembly for the PT/PTH20 Pumps



Inches (centimeters)

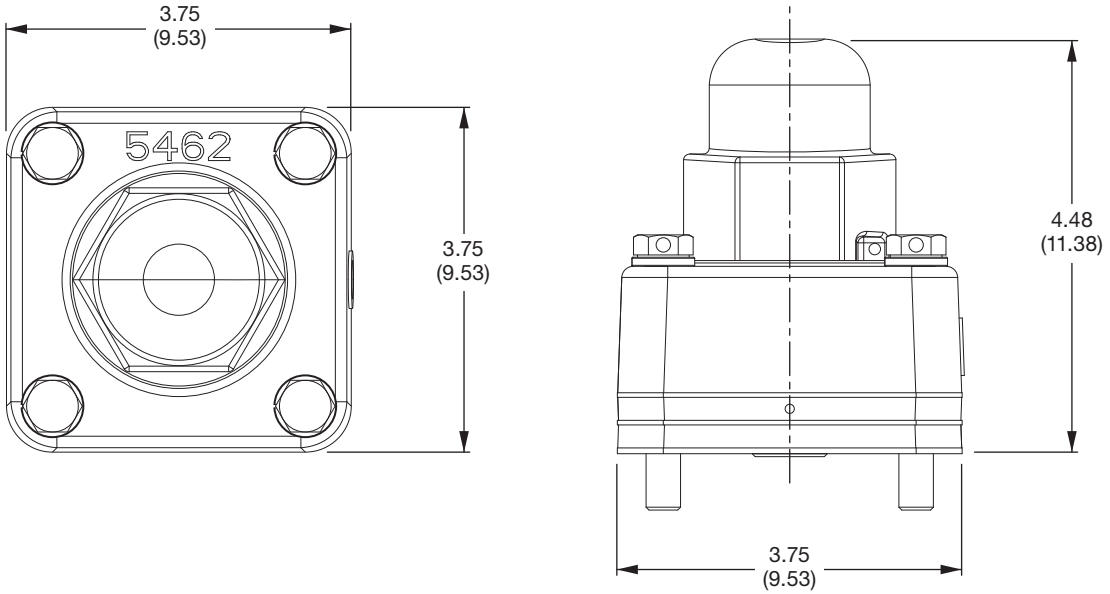
4684-X Strainer Assembly for the PT/PTH20 Pumps



Inches (centimeters)

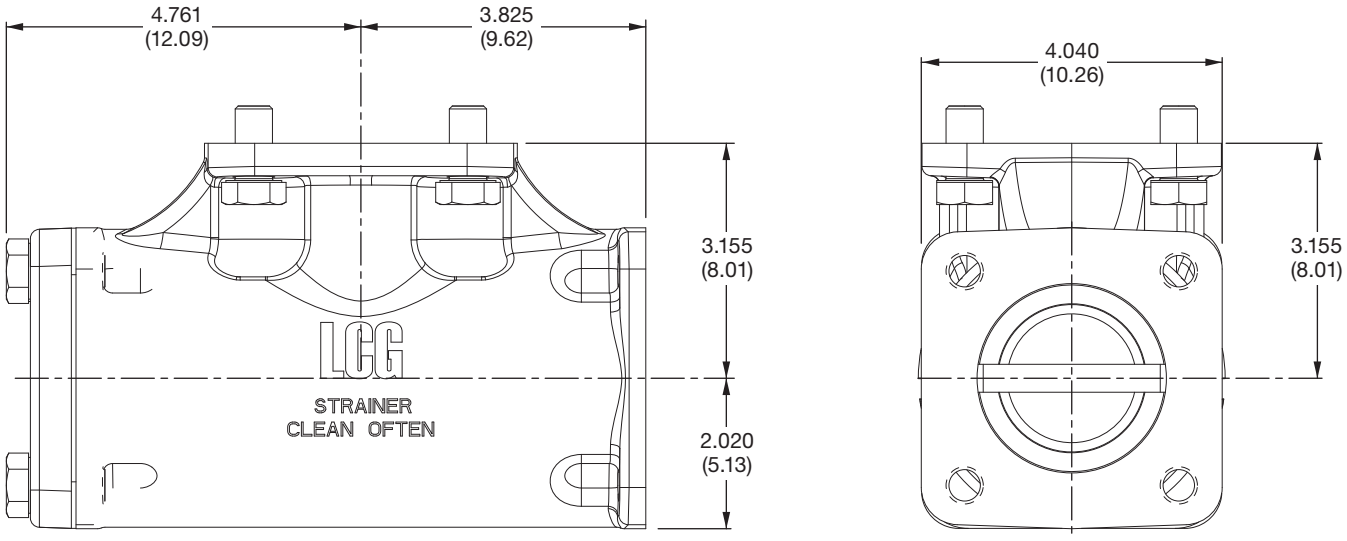
Outline Dimensions for Air Operated Valve and Strainer

5462-1XA Air Operated Valve (AOV) Assembly for the PT/PTH25 Pumps



Inches (centimeters)

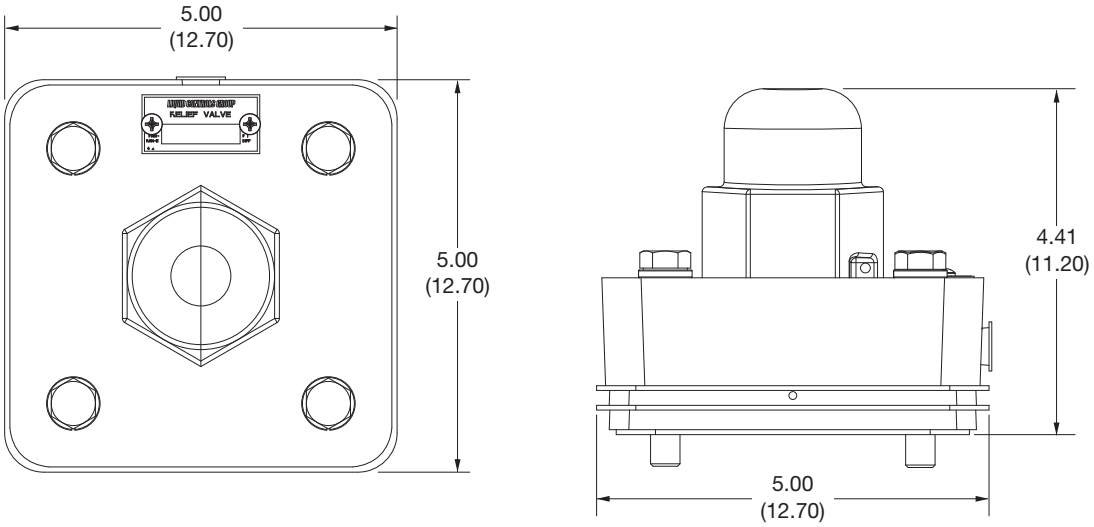
4689-X Strainer Assembly for the PT/PTH25 Pumps



Inches (centimeters)

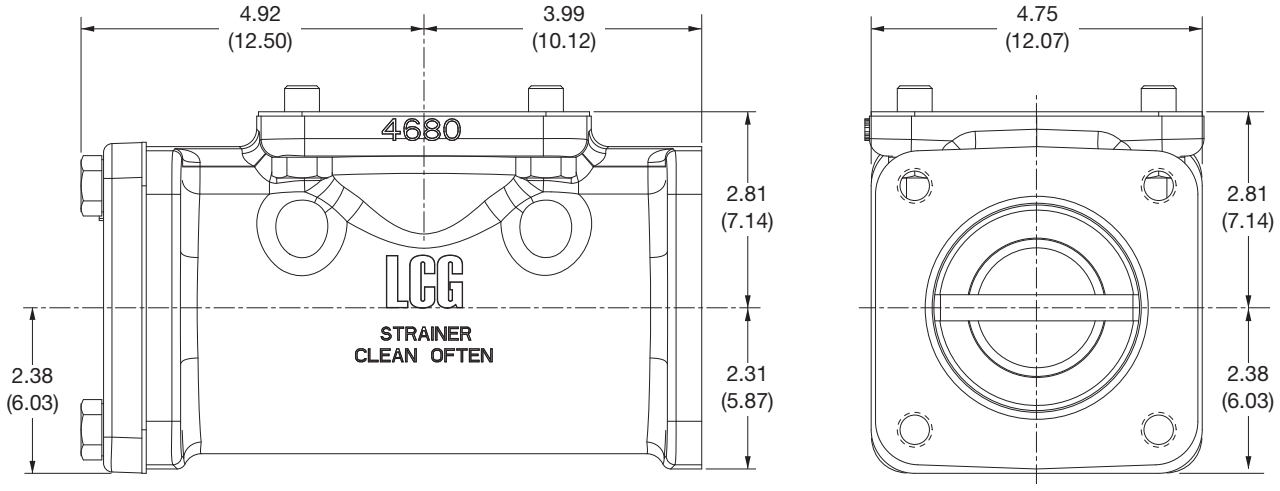
Outline Dimensions for Air Operated Valve and Strainer

5566-XA Air Operated Valve (AOV) Assembly for the PT/PTH30 Pumps



Inches (centimeters)

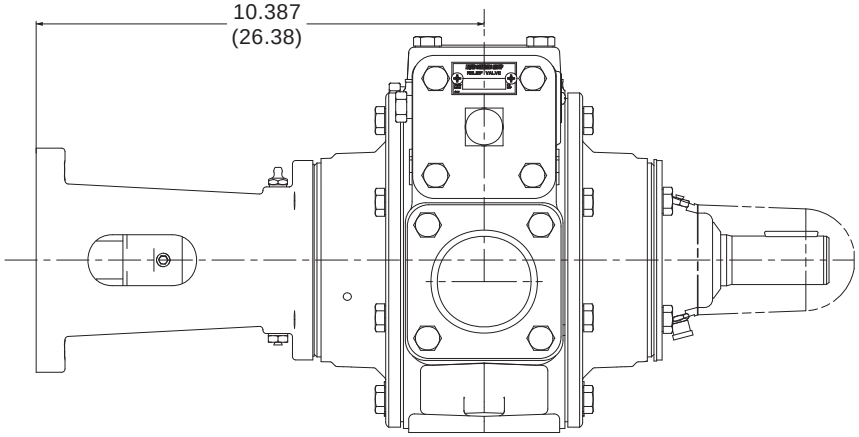
4680-X Strainer Assembly for the PT/PTH30 Pumps



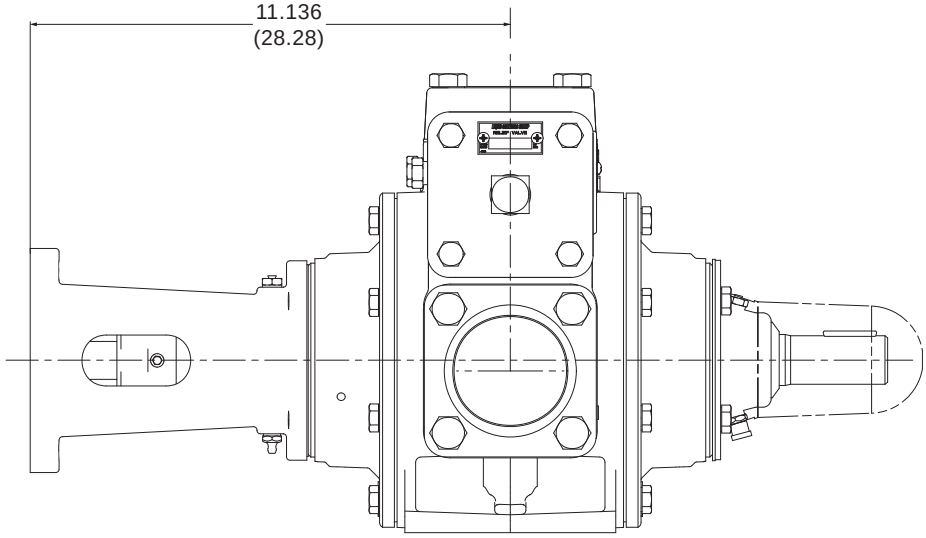
Inches (centimeters)

Outline Dimensions for Hydraulic Drive Option

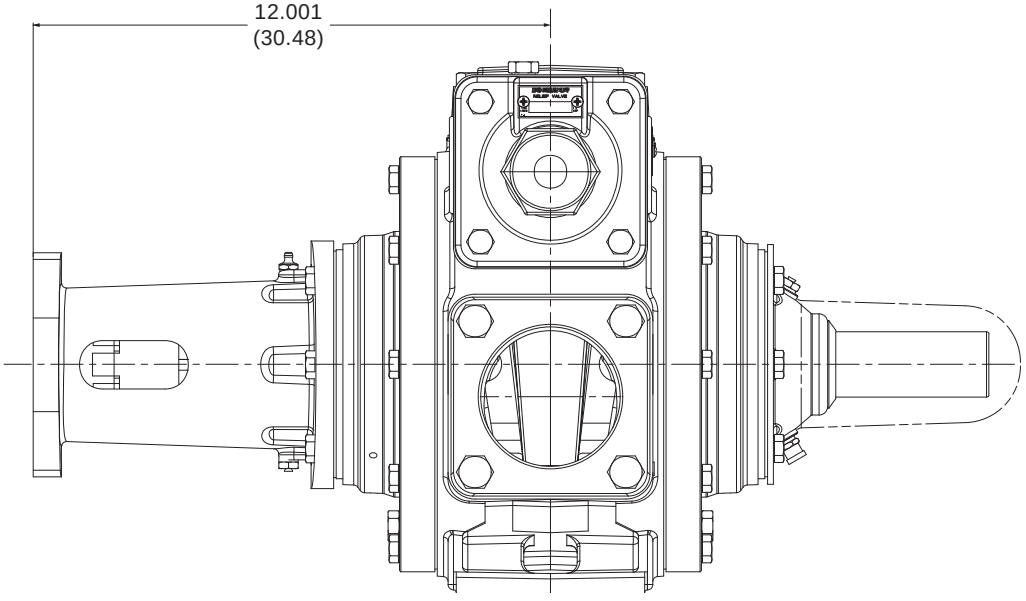
PTH20 Pump



PTH25 Pump



PTH30 Pump



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CORKEN, INC.
3805 N.W. 36th St., Oklahoma City, OK 73112
(405) 946-5576 • FAX (405) 948-7343
http://www.corken.com • info.corken@idexcorp.com

LIQUID CONTROLS
105 Albrecht Drive, Lake Bluff, IL 60044-2242
1-800-458-5262 • (847) 295-1050 • FAX (847) 295-1057
http://www.liquidcontrolsgroup.com • lc-info.lcmeter@idexcorp.com

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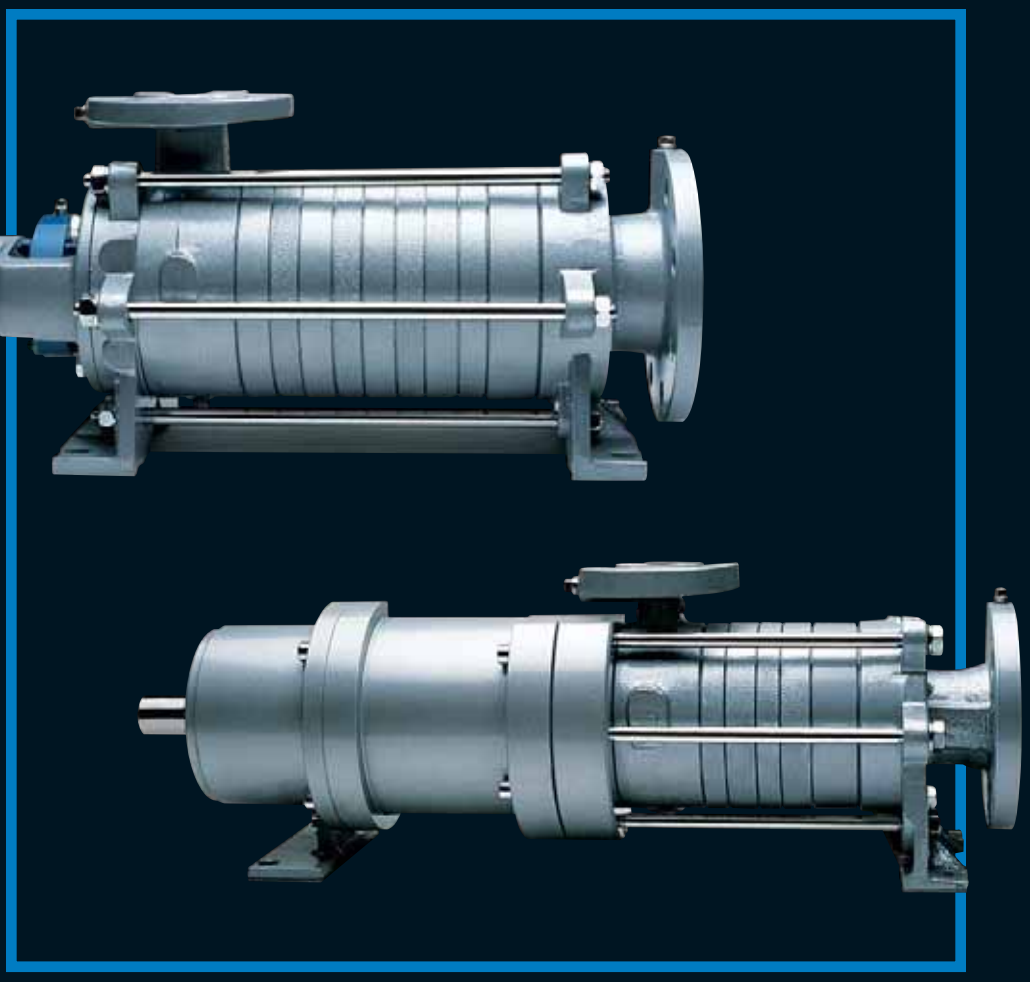
SC-Series Pump Data / Dimensions

SC-Series

Multistage Side Channel Pumps



Solutions beyond products...

CORKEN®

IDEX

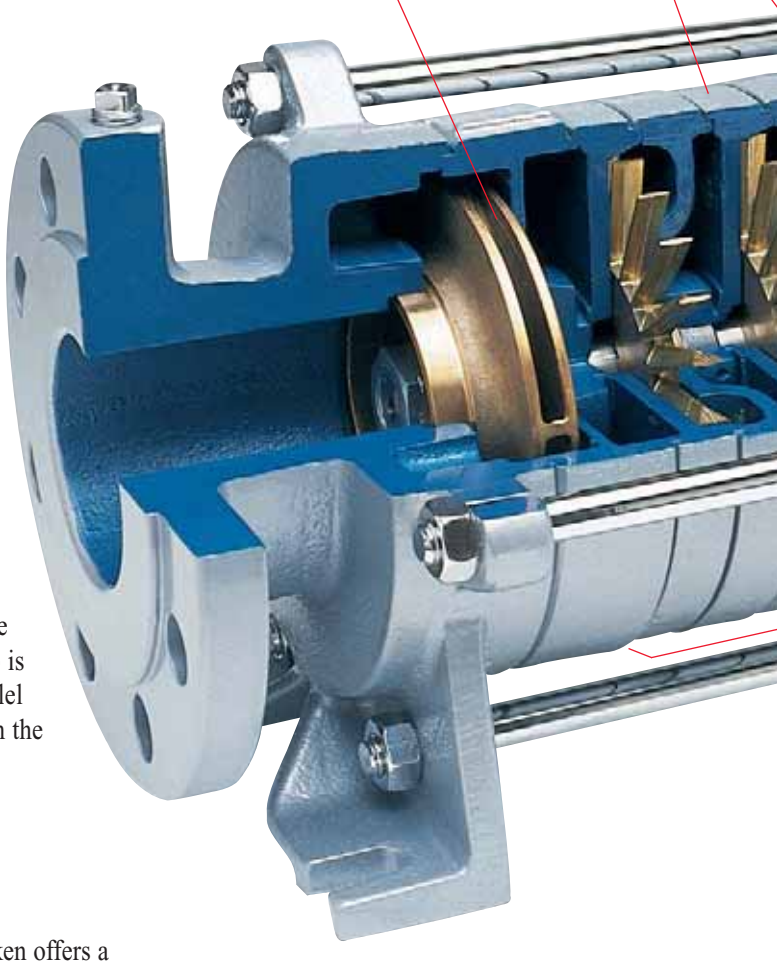
SC-Series Multistage Pump

Higher differential pr and aerated liquids

Corken presents the most recent addition to its liquid transfer offering, the new side channel (SC) pump line. The integral centrifugal and side channel design which characterizes this line provides you with a new dimension in liquid transfer applications. The SC-Series exceeds expectations in the handling of liquids involving high differential pressures, low NPSH conditions, and aerated liquids up to 50% gas. Corken is recognized as a world leader in the manufacture of vane and turbine type pumps and low horsepower oil free compressors for hazardous, volatile and toxic liquids and gases.

Six different sizes, each ranging from one to eight stages provide solutions for a wide range of pressures, capacities, and liquid transfer requirements. Multiple material and sealing options, enabling it to handle many different liquids, enhances the versatility of the SC-Series.

Whether it is utilized in common applications such as LPG cylinder filling or in specialized applications involving corrosive chemicals, the Corken SC pump is the right choice for long lasting, proven performance.



Multistage side channel design delivers higher differential pressures...

The Corken SC pump line utilizes an integral centrifugal and side channel design to create the flow characteristics that make this pump special. The high differential pressure and self priming capabilities are results of the multistage side channel design. This feature incorporates one to eight stages of open radial vane impellers and their special modular side channel casing.

Quiet, smooth transfer even at low NPSH...

The SC pump's ability to handle low NPSH applications is attributed to the proprietary centrifugal impeller design near the pump inlet. The SC pump is cylindrical in shape with liquid flow entering the pump horizontally (parallel with the pump shaft) and exiting vertically through the discharge flange on the top of the pump.

Many sealing options to choose from, including magnetic drive...

In a time when leakage control is becoming more and more prevalent, Corken offers a complete range of seal options. Whether your application calls for packing, mechanical seals (single or double), or even sealless designs, the SC pump will meet your needs.

Corken also offers the side channel magnetic drive (SCM) sealless multistage pump which meets the most stringent environmental regulations. The SCM line retains all of the advantages of the standard SC design along with two additional advantages; there are no seals to maintain and no potential leak paths.

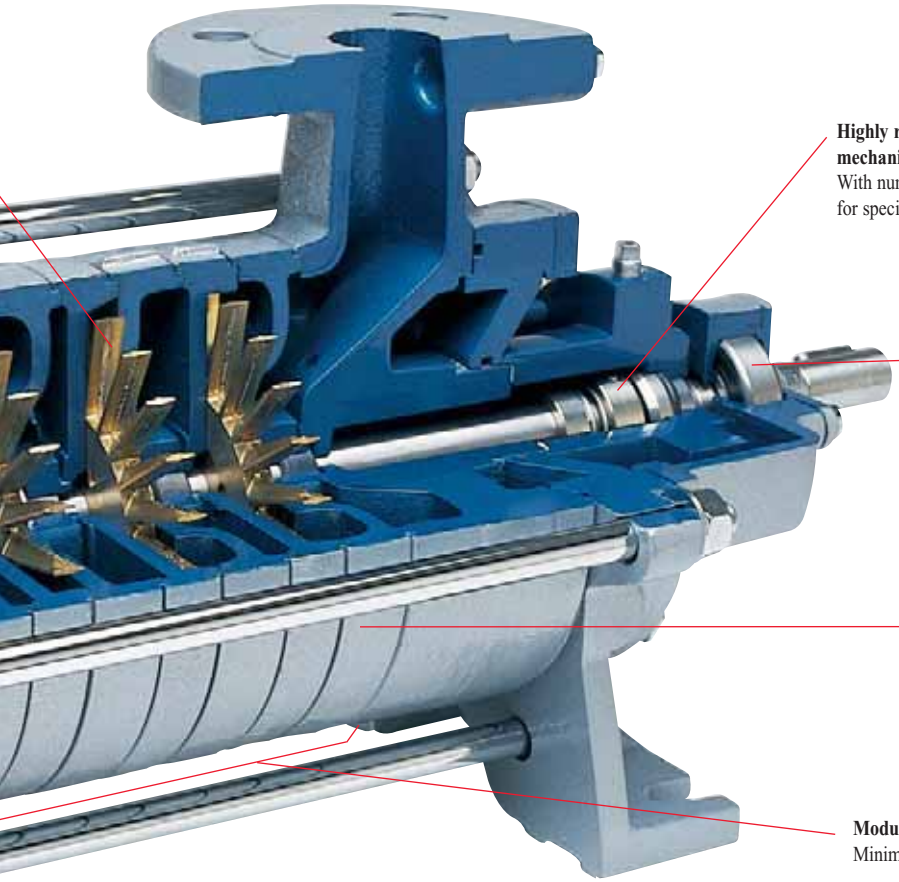
essures, lower NPSH values, —all with one pump...

Multiple material options available.

Both the SC and SCM lines come with multiple material options in order to handle a variety of liquids. Casing material options of cast iron, ductile iron, or stainless steel and impeller options of brass, steel, or stainless steel contribute to this pump's versatility in the handling of highly corrosive liquids and extreme pressure conditions.

Applications

- Cylinder filling
- Lift from underground tanks
- Truck filling
- Vaporizer feeding
- General transfer
- Refrigerant transfer
- Aerosol charging
- Chemical transfer
- Boiler feed



Highly reliable single mechanical seals standard: With numerous seal options for special applications.

Heavy duty bearings standard: With optional bearing configurations, extra clearance options, and special cooling connections for high temperature service.

Multiple side channel stages: Provide self-priming, high differential pressure, non-pulsating, trouble free operation.

Modular construction: Minimizes spare parts requirements.

Unique design minimizes maintenance.

The impellers within the SC-Series are free floating which means there is no metal to metal contact and as a result, fewer wear parts. This feature minimizes maintenance and provides years of reliable trouble free service.

SC-Series is backed by the strongest service commitment in the industry.

Corken has been built upon decades of maintaining the highest quality. With a total commitment to customer service, Corken provides complete factory technical support as well as field training. In addition, Corken products are backed by a world wide network of distributors.

QUALITY ISO 9001 SYSTEM

ENVIRONMENTAL ISO 14001 MANAGEMENT SYSTEM

Solutions beyond products...

CORKEN®

SERIES NUMBER	10	20	30	40	50	60
NUMBER OF STAGES	1 TO 8					
INLET FLANGE in (mm)	1 1/2 (40)	2 1/2 (65)	2 1/2 (65)	3 (80)	4 (100)	4 (100)
OUTLET FLANGE in (mm)	3/4 (20)	1 1/4 (32)	1 1/4 (32)	1 1/2 (40)	2 (50)	2 1/2 (65)
RPM (60Hz) RPM (50Hz)	1150, 1750 1450					
MAXIMUM WORKING PRESSURE psi (bar)	580 (40)					
DIFFERENTIAL RANGE HEAD ft (m)	50 (15)– 690 (210)	65 (20)– 1050 (320)	30 (10)– 820 (250)	30 (10)– 805 (245)	30 (10)– 950 (290)	30 (10)– 1150 (350)
MINIMUM TEMPERATURE °F (°C)	-40° (-40°)					
MAXIMUM TEMPERATURE °F (°C)	430° (220°)					
$NPSH_R$ RANGE ft (m)	1.6 (.5)– 13 (4)	2 (.6)– 3.3 (1)	1.6 (.5)– 6.6 (2)	1.3 (.4)– 8.2 (2.5)	1.3 (.4)– 12 (3.5)	4.6 (1.4)– 8.2 (2.5)
MAXIMUM VISCOSITY SSU (cSt)	1050 (230)					
MAXIMUM PROPORTION OF GAS ALLOWABLE	50%					

Options (For all series)

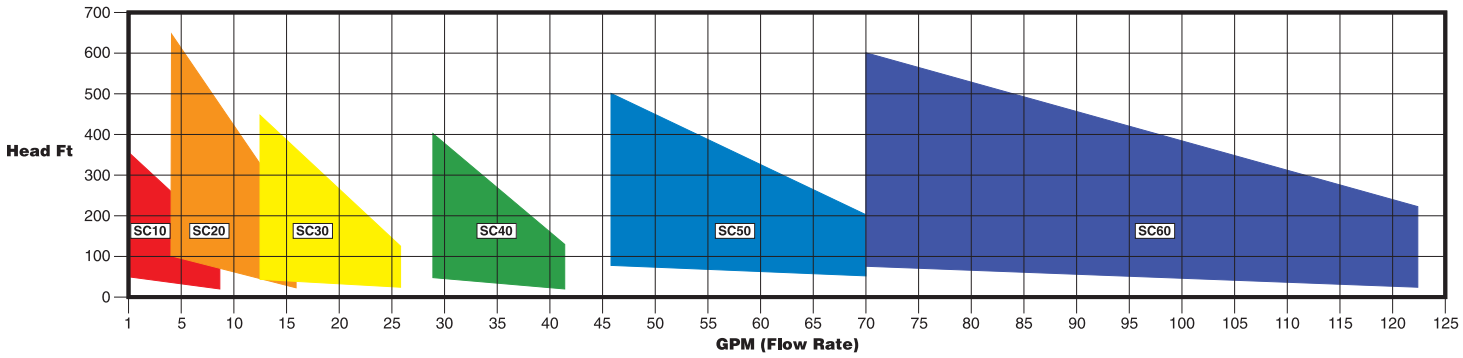
Casing Material:
- Cast iron
- Ductile iron
- Stainless steel

Impeller Material:
- Brass
- Steel
- Stainless steel

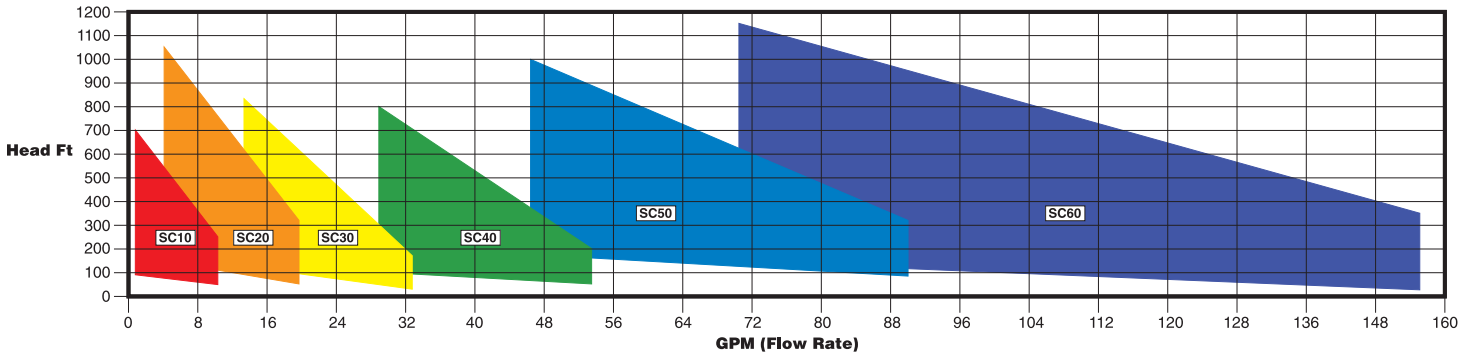
Sealing Options:
- Packing glands–balanced, unbalanced and external flush
- Single mechanical seal–balanced, unbalanced and quench option
- Double mechanical seal–balanced and unbalanced

High Temperature Options:
- Increased clearance
- High temperature bearings
- Cooling connections

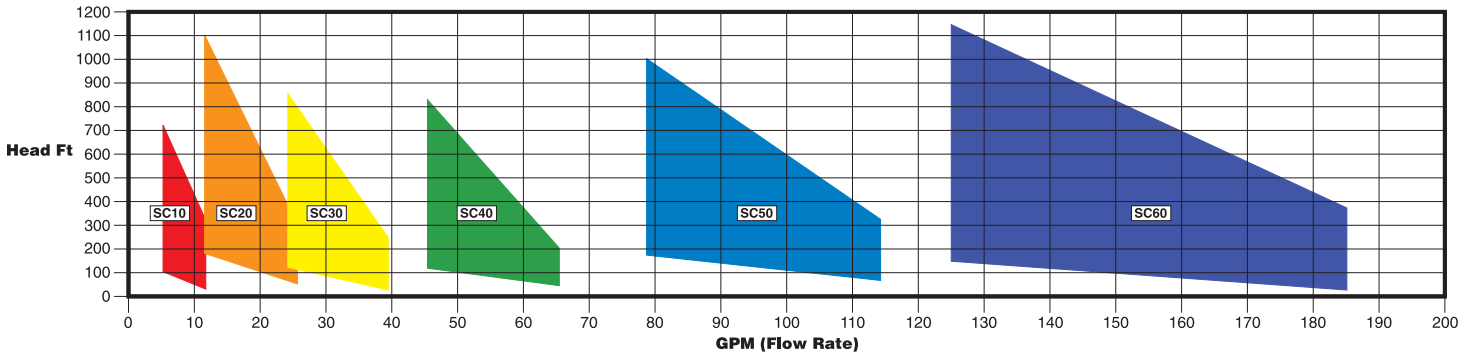
1150 RPM



1450 RPM



1750 RPM



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CORKEN, INC. • A Unit of IDEX Corporation
3805 N.W. 36th St., Oklahoma City, OK 73112 U.S.A.
Phone (405) 946-5576 • FAX (405) 948-7343
http://www.corken.com • info.corken@idexcorp.com

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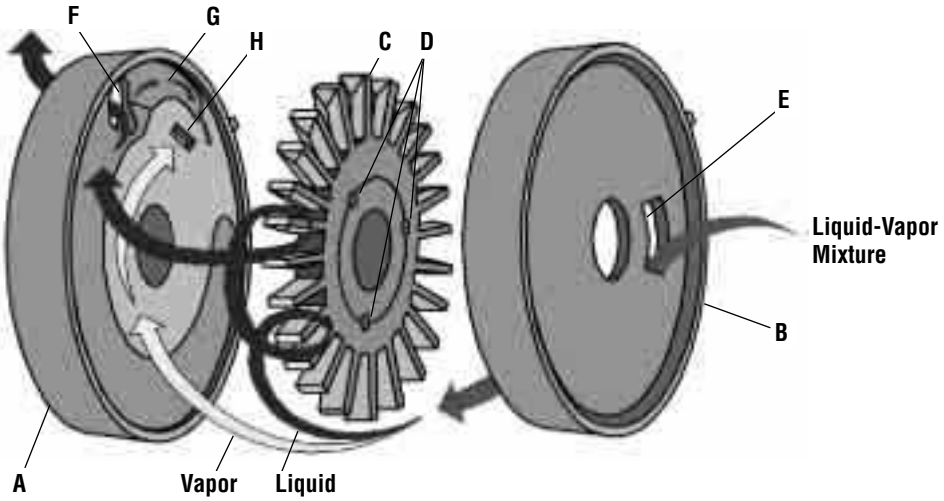
PRINCIPLE OF SIDE CHANNEL OPERATION



Item	Description
A	Discharge Stage Casing
B	Suction Stage Casing
C	Impeller
D	Equalization Holes
E	Inlet Port
F	Outlet Port
G	Mini-Channel
H	Secondary Discharge Port

The design of the side channel pump allows for the transfer of liquid-gas mixtures with up to 50% vapor; therefore eliminating possible air or vapor locking that can occur in other pump designs. A special suction impeller lowers the NPSH requirement for the pump.

The side-channel pump design is similar to a regenerative turbine in that the impeller makes regenerative passes through the liquid. However, the actual design of the impeller and casing as well as the principles of operation differ greatly. The side-channel pump has a channel only in the discharge stage casing (A) and a flat surface which is flush with the impeller on the suction stage casing (B). A star-shaped impeller (C) is keyed to the shaft and is axially balanced through equalization holes (D) in the hub of the impeller.

The liquid or liquid/vapor mixture enters each stage of the pump through the inlet port (E). Once the pump is initially filled with liquid, the pump will provide a siphoning effect at the inlet port. The effect is similar to what happens in water ring pumps. The water remaining in the pump casing forms a type of water ring with a free surface. A venturi effect is created by the rotation of the impeller and the free surface of the water, thus pulling the liquid into the casing.

After the liquid is pulled through the inlet port, it is forced to the outer periphery of the impeller blade by centrifugal action. It is through this centrifugal action that the liquid is accelerated and forced into the side channel. The liquid then flows along the semicircular contour of the side channel from the outermost point to the innermost point until once again it is accelerated by the impeller blade. The liquid moves several times between the impeller and the side channel. Thus the rotating impeller makes several regenerative passes until the liquid reaches the outlet port. The speed of the impeller along with the centrifugal action impart energy to the liquid through the exchange of momentum, thus allowing the pump to build pressure.

The side channel leads directly to the outlet port (F). At the outlet port, the main channel ends and a smaller minichannel (G) begins. At the point where the mini-channel ends, there is a small secondary discharge port (H) level with the base of the impeller blades.

As the liquid is forced to the periphery through centrifugal action due to its density, the vapor within the liquid stream tends to remain at the base of the impeller blades since it has a much lower density. The main portion of liquid and possibly some vapor, depending on the mix, is discharged through the outlet port. A small portion of the liquid flow follows the mini-channel and eventually is forced into the area between the impeller blades. The remaining vapor which was not drawn through the outlet port resides at the base of the impeller blades. At the end of the minichannel, as the liquid is forced into the area between the blades, the area between and around the impeller blade is reduced. The liquid between the blades displaces and thus compresses the remaining vapor at the base of the impeller blades. The compressed vapor is then forced through the secondary discharge port where it combines with the liquid discharged through the outlet port as it is pulled into the next stage or discharged from the pump. Thus entrained vapor is moved through each stage of the pump.

Each subsequent stage operates under the same principle. The number of stages can be varied to meet the required discharge head. When multiple stages are required, the relative positions of the stage outlet ports are radially staggered to balance shaft loads.

IS THE SC SERIES THE PUMP FOR YOUR APPLICATION?

The following questions will allow you to determine if your application fits within the capabilities of the SC Series Line without going through the entire sizing procedure. If you can answer yes to all of the following questions, then proceed to the sizing worksheet below. If you must answer no to one or more of the questions, return to the Initial Hydraulic Selection/Overview Graph to see if any of our other pump lines meet your basic conditions. Please feel free at any time to give us or your local distributor a call with your questions.

_____ Is the viscosity of the liquid being pumped less than 1000 SSU (230 CST)?

_____ Is the discharge pressure requirement less than 580 PSI (40 bar)?

_____ Will the temperature of the liquid being pumped remain between –40°F (-40°C) and 430°F (220°C)?
(Consult factory if temperature is less than -40°F.)

_____ Will iron or stainless steel pump casing be acceptable?

_____ Is the liquid free of abrasives?
(Consult factory if liquid contains minor amounts of abrasive)

SIZING WORKSHEET

The next step in the sizing process is to ensure that you have all of the data that you need. We encourage you to make copies of this page and use it as a worksheet for selecting the proper SC Model Pump.

A Liquid: _____

B Specific Gravity: _____ (Specific Gravity = Liquid Density ÷ Density of Water)

C Viscosity: _____ (in centistokes, cSt.)
See Page 5-3 to convert from SSU or Centipoise (cP) to Centistokes (cSt).

D 1 KH = _____ **D 2** KP = _____

If viscosity is greater than water (1.0 cSt.), turn to Correction Factors for Viscosity (page 3-9) to determine correction factors KH and KP. If Viscosity is less than or equal to water KH and KP are equal to 1.

E Differential head (pressure) = _____ feet
If pressure is in PSI convert to head (ft) with the following calculation: (Pressure (psi) x 2.31) ÷ Specific Gravity = Head (ft)

F Corrected Head (Head (ft) ÷ KH) = _____ feet

G Total Discharge Pressure = _____ psi
PSI = (Feet x Spec Gravity) ÷ 2.31

H Desired Flow Rate = _____ GPM

I 1 Liquid Temperature Nominal _____°F, = **I 2** Maximum _____°F, **I 3** Minimum _____°F

J NPSH (available) = _____ feet

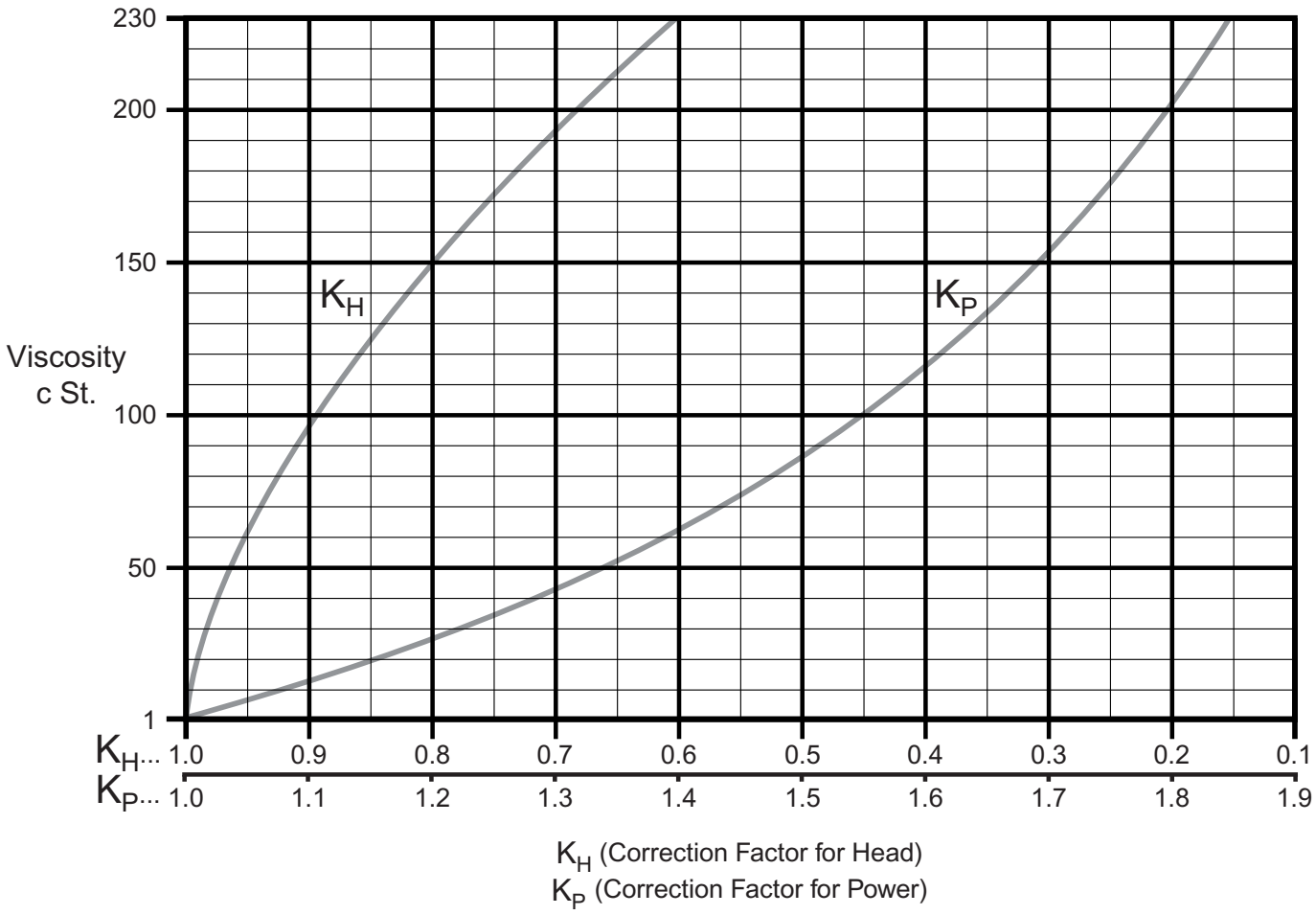
SELECTION DATA

You may use the blanks below to record the information that you obtain from the following sizing pages.

Pump Series _____ Speed _____

Model _____ Flow _____ BHP _____ $NPSH_R$ _____

VISCOSITY CORRECTION FACTORS



INSTRUCTIONS

Locate viscosity of your liquid (Value **C** from your worksheet) on the vertical axis of the graph. Move horizontally until you intersect the first curve. Find the corresponding value directly below on the horizontal axis (labeled K_H). Enter value in **D 1** on your sizing worksheet. Continue horizontally until you intersect the second curve. Locate the corresponding value on the horizontal axis directly below labeled K_P. Enter this value in **D 2** on your sizing worksheet.

3 SC-Series Model Selection

OVERVIEW OF PERFORMANCE RANGE

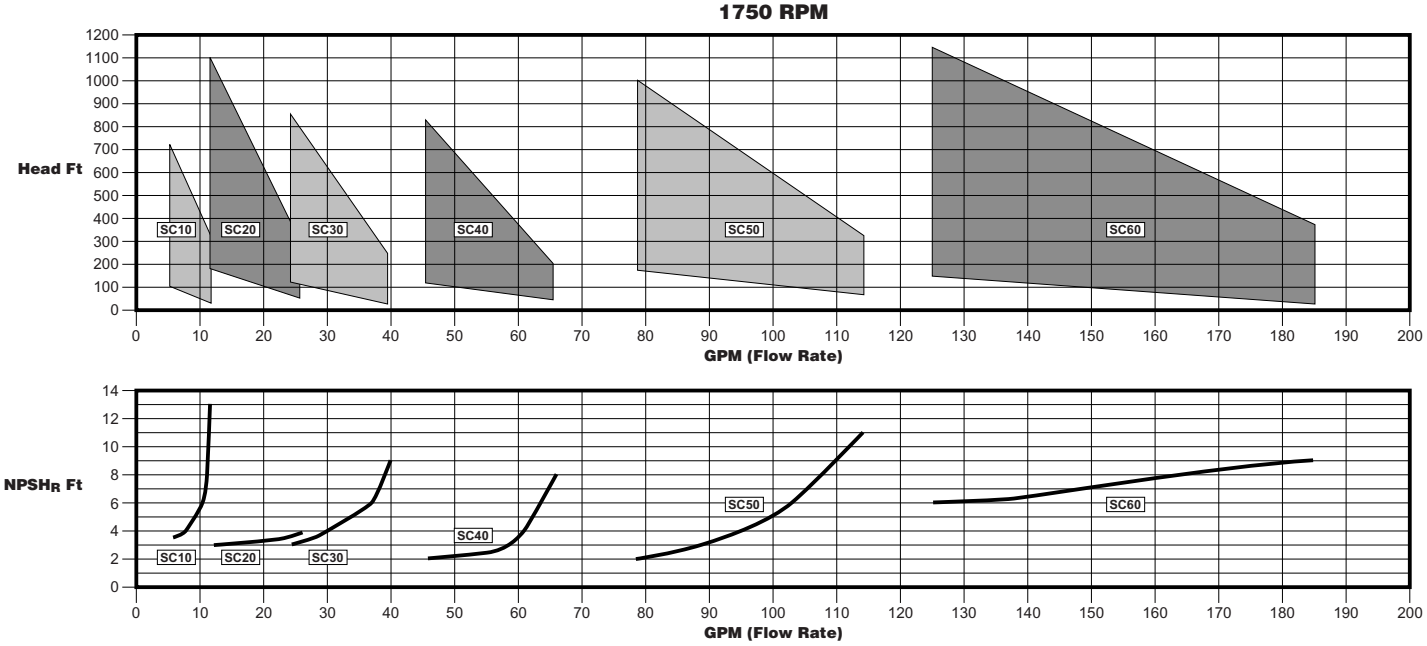
1. Use the corrected head value **F** from your worksheet and locate that value on the left side of the **1750 RPM** curve below (If 50 Hz frequency, use **1450 RPM** curve on opposite page).

2. Move directly right until you intersect the vertical line that corresponds to the desired flow rate **H** . If you are not in a shaded area, move horizontally right or left until you intersect a shaded area. Each shaded area corresponds to a specific series of side channel pumps (If you cannot find a shaded area that closely corresponds to your desired flow rate, move to the **1150 RPM** (60 Hz only) curve and repeat these steps).

3. Move straight down and intersect the corresponding $NPSH_R$ curve in the graph directly below. Move horizontally to the left and make note of the $NPSH_R$ value. This value must be less than or equal to your $NPSH_A$ value **J** from your worksheet. If it is greater than **J** , move to the **1150 RPM** curve and repeat steps 1-3 (For 50 Hz frequency, consult factory or distributor if $NPSH_R$ is greater than **J**).

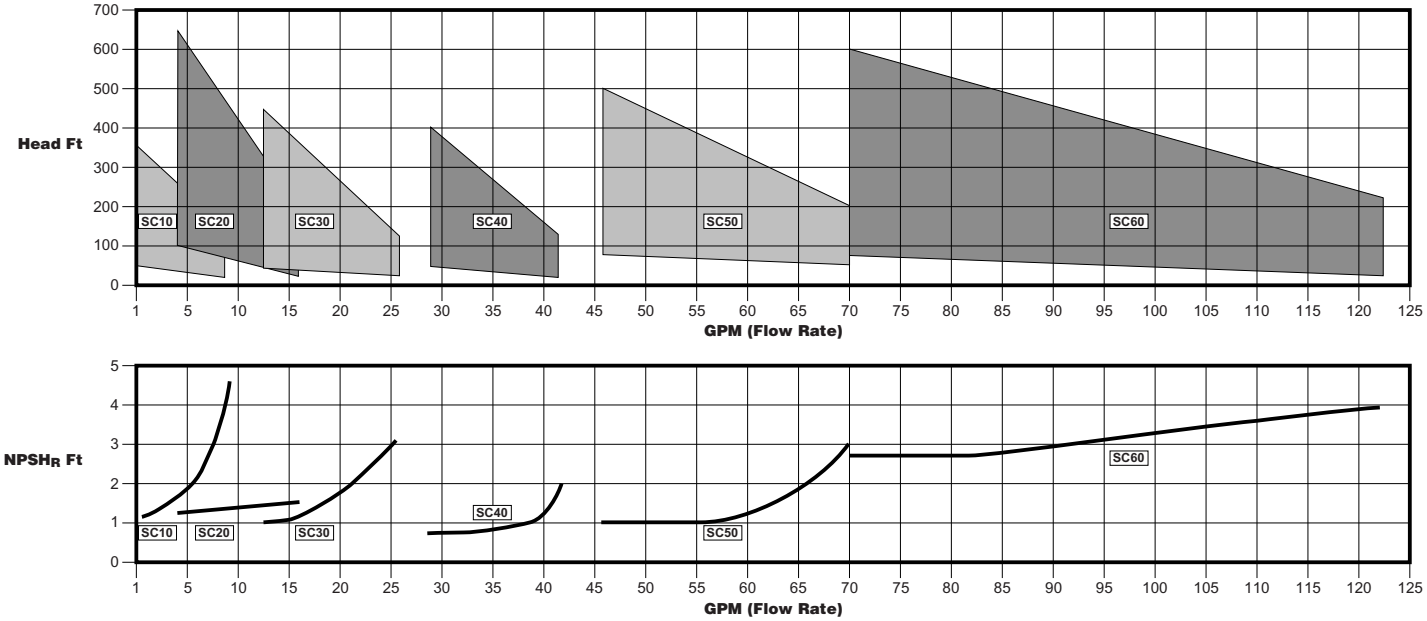
4. Make note of the series number inside the shaded area that you selected. This will be the pump series that most closely corresponds to you application.

5. If you wish to select a mechanically sealed pump, proceed to page 3-13.
   If you desire a sealless (mag. drive) pump, proceed to page 3-14.
   Note: 60 series not currently available with mag. drive.

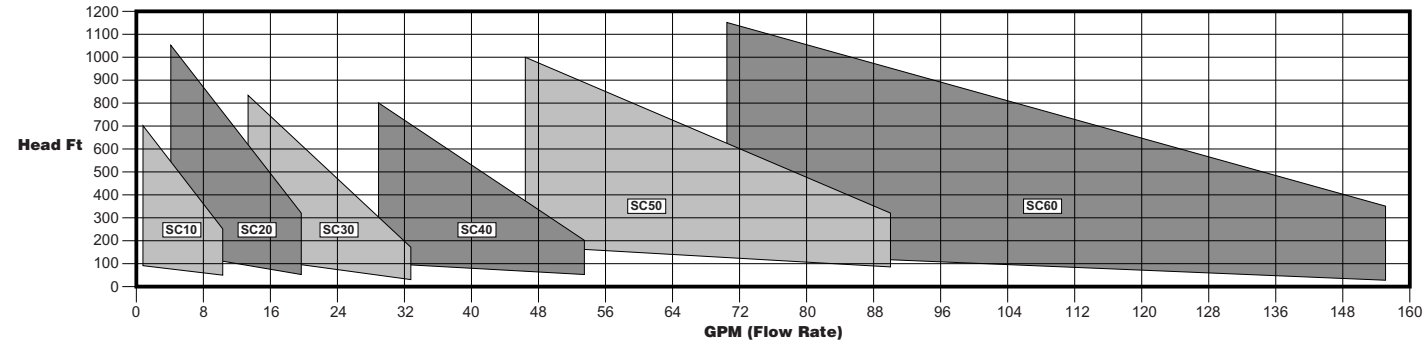


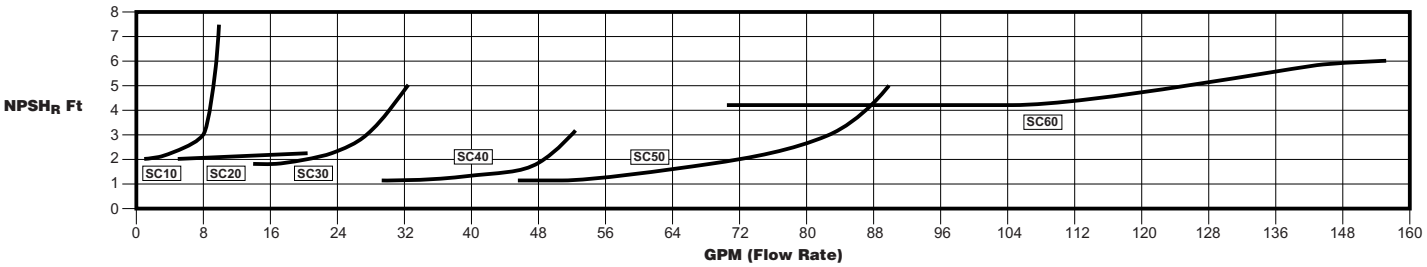
OVERVIEW OF PERFORMANCE RANGE

1150 RPM



1450 RPM





INSTRUCTIONS FOR SELECTION OF MECHANICAL SEAL MODEL

1. Turn to the performance curve page that corresponds with the pump series and speed that you noted from the overview pages.

Series	1750 RPM	1150 RPM	1450 RPM
10	page 3-16	page 3-17	page 3-28
20	page 3-18	page 3-19	page 3-29
30	page 3-20	page 3-21	page 3-30
40	page 3-22	page 3-23	page 3-31
50	page 3-24	page 3-25	page 3-32
60	page 3-26	page 3-27	page 3-33

2. Locate the head value that corresponds with your **F** value (from worksheet) on the left side of Graph 1.

3. From that point, move horizontally to the right until you intersect one of the eight diagonal lines. Move down vertically from the point of intersection to the bottom of the graph to determine if the flow rate at that point comes close to the desired flow rate **H** . If it does not, continue horizontally from the current point of intersection until you reach the next diagonal line. Repeat until you determine which line most closely matches the desired flow **H** at the required differential head **F** . Make note of the number that corresponds with that particular line. This is the specific model that most closely meets your application.

4. From the point of intersection on Graph 1, move vertically down to Graph 2. Continue to move down until you intersect the diagonal line that corresponds with the specific model that you selected above.

5. From this point of intersection, move horizontally to the left side of the graph and note the horsepower value. Take this value and multiply it by the specific gravity of the liquid to be pumped (Value **B** on your worksheet). The value that you calculate is the brake horsepower required to operate this pump in the given application. You must select a motor with a horsepower greater than (or at a minimum equal to) this value.

6. Now proceed straight vertically down to Graph 3, the point on the NPSH line that corresponds with the flow rate that you determined the specific model would provide. Move horizontally to the left and note the value of NPSH required. This value must be less than the NPSH available **J** . If it is not, repeat procedures to try to locate a different model, or contact your distributor or Corken for assistance.

7. Once you have selected a model, proceed to the model number selection guide. See page 3-34.

3 SC-Series Model Selection

INSTRUCTIONS FOR SELECTION OF MAGNETIC DRIVE MODEL

1. Turn to the performance curve page that corresponds with the pump series and speed that you noted from the overview pages.

Series	1750 RPM	1150 RPM	1450 RPM
10	page 3-16	page 3-17	page 3-28
20	page 3-18	page 3-19	page 3-29
30	page 3-20	page 3-21	page 3-30
40	page 3-22	page 3-23	page 3-31
50	page 3-24	page 3-25	page 3-32
60	page 3-26	page 3-27	page 3-33

2. Locate the head value that corresponds with your **F** value (from worksheet) on the left side of Graph 1.

3. From that point, move horizontally to the right until you intersect one of the eight diagonal lines. Move down vertically from the point of intersection to the bottom of the graph to determine if the flow rate at that point comes close to the desired flow rate **H** . If it does not, continue horizontally from the current point of intersection until you reach the next diagonal line. Repeat until you determine which line most closely matches the desired flow **H** at the required differential head **F** . Make note of the number that corresponds with that particular line. This is the specific model that most closely meets your application.

4. From the point of intersection on Graph 1, move vertically down to Graph 2. Continue to move down until you intersect the diagonal line that corresponds with the specific model that you selected above.

5. From this point of intersection, move horizontally to the left side of the graph and note the horsepower value.

6. Multiply this value by the specific gravity of the liquid to be pumped, (value **B** on your worksheet), to calculate the power demand of the pump.

7. Refer to the magnetic coupling selection table on the opposite page.

8. Find the row in table 1 listed as **MAXIMUM POWER DEMAND OF PUMP**. Proceed to the right until you locate a Hp value **greater than** the power demand that you calculated in step 6.

9. Look at table 2 in the same column to see if there is a dot in the same row as the pump series that you have selected. If so, proceed to step 10. If not, repeat step 8 (continue to the right). Note: There are occasions when there is not a magnetic coupling with enough torque to handle a specific application. For this case, consider whether a sealed unit is acceptable or consult your distributor or the factory for advice.

10. Look at table 3 in the same column. Locate the maximum working pressure of the separation canister for the magnetic coupling at the temperature value that exceeds your operating temperature (**I_1** on your worksheet). This pressure value must be greater than the discharge pressure of your application (value **G**). Note that the hastelloy canister at the bottom of table 3 offers higher pressure capabilities. When the discharge pressure of your application exceeds the maximum of the standard stainless canister.

11. Once you have located a magnetic coupling size that meets the above criteria, add the value in the **POWER LOSS** row (table 1) to your value calculated in step 6.

12. Select a motor size greater than the value just calculated, but no larger than the value in the row that is titled **MAXIMUM MOTOR SIZE**.

13. Return to performance curve page, proceed straight down to graph 3. Find the point on the line that corresponds with the flow rate that you determined the specific model will provide. Move horizontally to the left and note the value of NPSH required. This value must be less than the NPSH available **J** . If it is not, repeat procedures to try to locate a different model, or contact your distributor or Corken for assistance.

14. Once you have selected a model, proceed to the model number selection guide on page 3-35.

MAGNETIC COUPLING SELECTION TABLE

Table 1

Coupling Characteristics

Coupling Size	12	14	16	22	24	26	36	38
Maximum Power Demand of Pump (Hp)	1.1	2.6	3.8	2.6	7.6	11.3	16.8	28.5
Power Loss in Magnet (Hp)	0.2	0.3	0.3	0.3	0.6	0.9	1.2	1.5
Maximum Motor Size	1.5	3.0	5.0	5.0	10.0	15.0	25.0	30.0

Above Couplings can be used for pump models with check marks below in the same column.

Table 2

Pump Series

Coupling Size	12	14	16	22	24	26	36	38
SCM10	•	•	•					
SCM20/SCM30	•	•	•	•	•	•		
SCM40				•	•	•	•	•
SCM50				•	•	•	•	•

Table 3

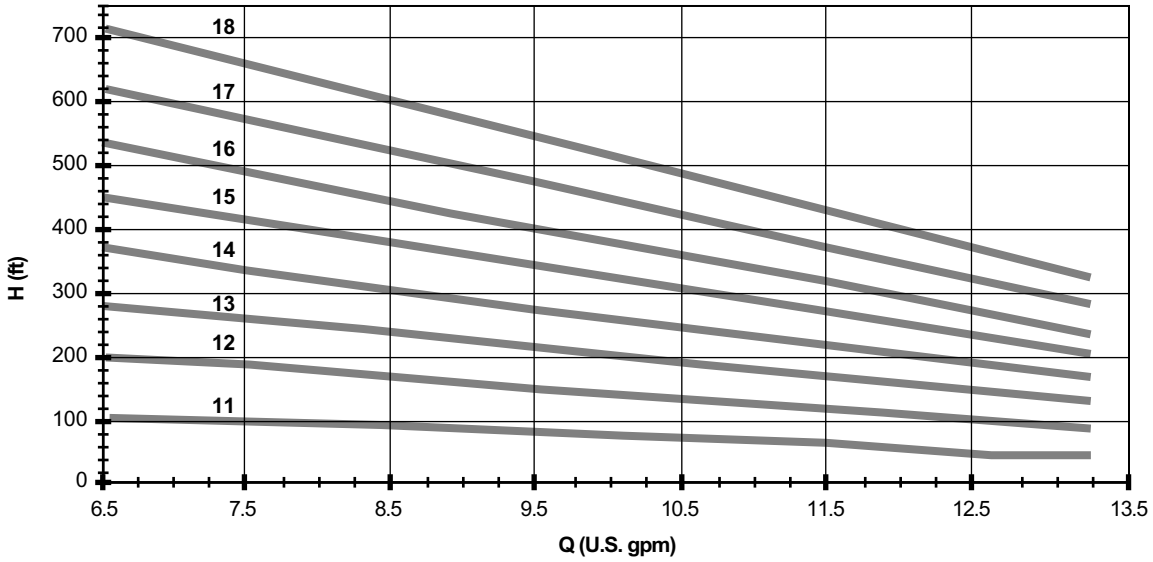
Separation Canisters

Coupling Size		12	14	16	22	24	26	36	38
Stainless Canister (Std)	70°F/20°C	470	470	470	305	305	305	N/A	N/A
	210°F/100°C	430	430	430	275	275	275	N/A	N/A
	300°F/150°C	400	400	400	260	260	260	N/A	N/A
	390°F/200°C	375	375	375	240	240	240	N/A	N/A
Hastelloy Canister	70°F/20°C	580	580	580	420	420	420	420	420
	210°F/100°C	580	580	580	390	390	390	395	395
	300°F/150°C	575	575	575	370	370	370	380	380
	390°F/200°C	545	545	545	350	350	350	370	370

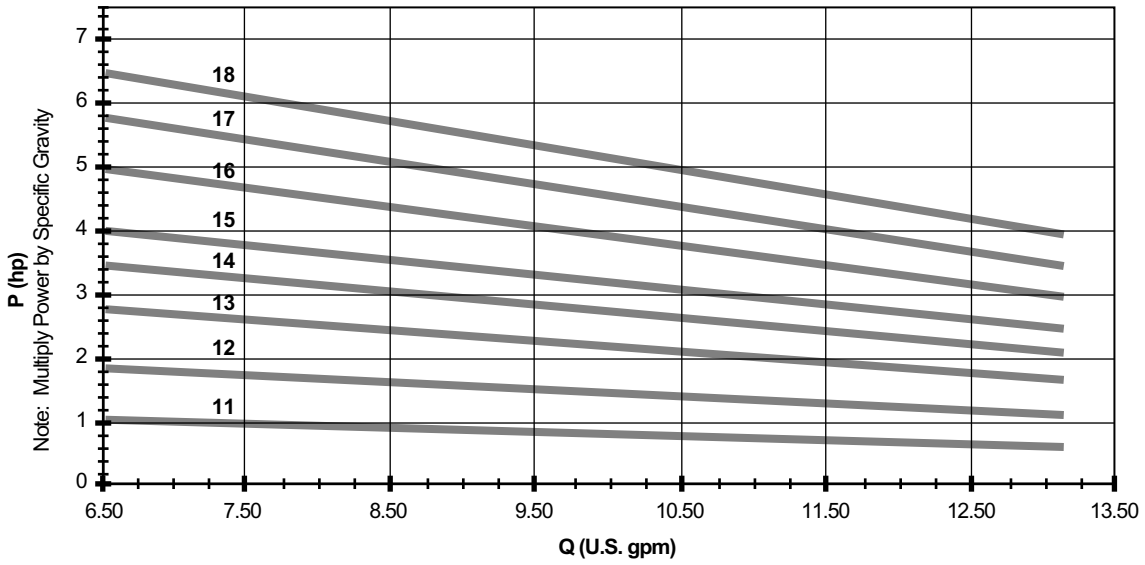
Maximum allowable working pressure (psig) for magnetic coupling at various temperatures.

SC10 SERIES - 1750 RPM

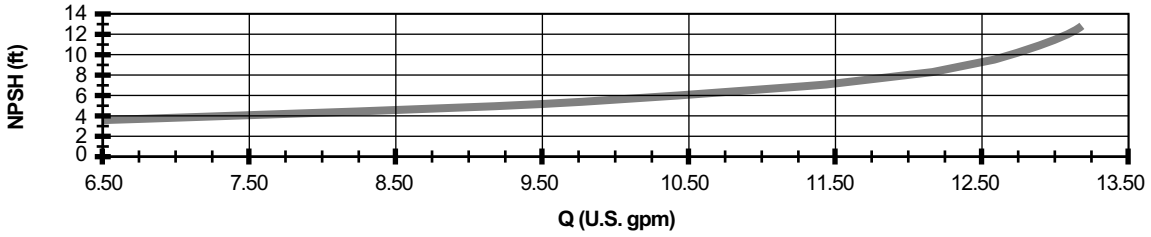
GRAPH 1



GRAPH 2

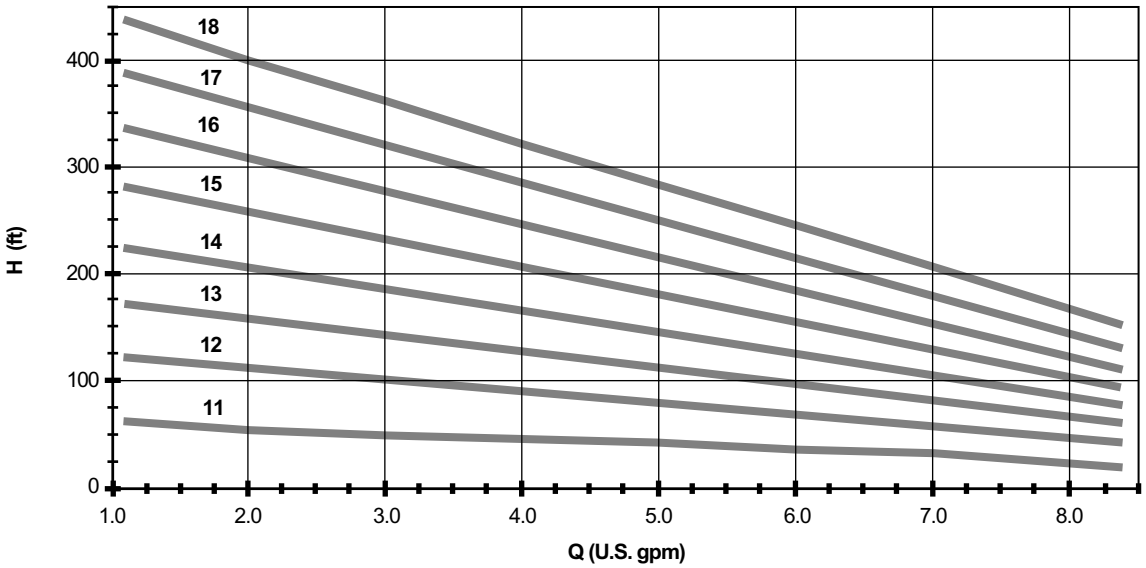


GRAPH 3

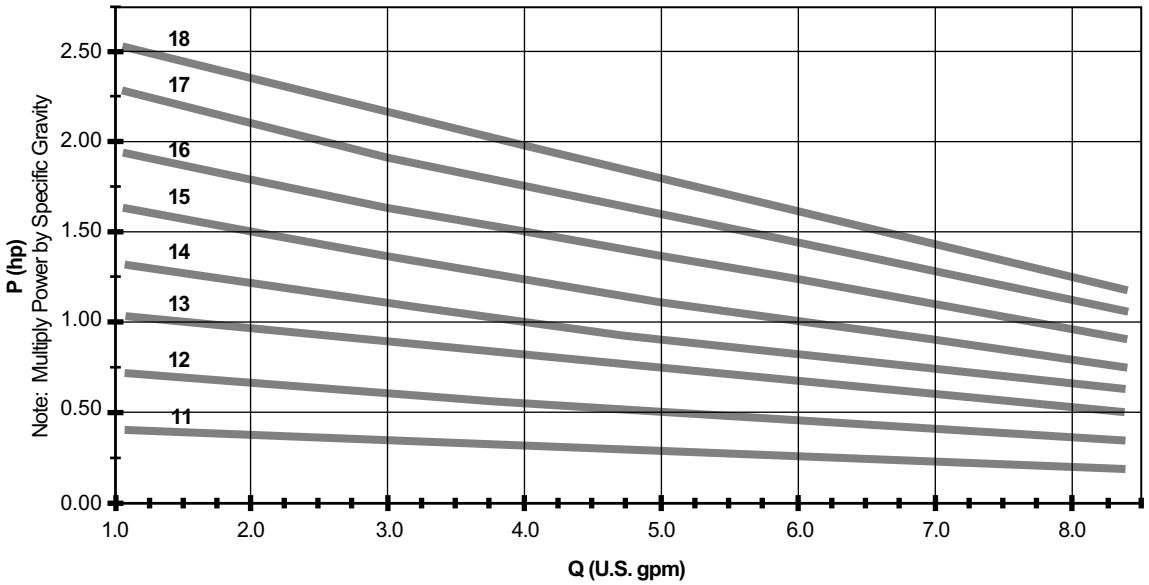


SC10 SERIES - 1150 RPM

GRAPH 1



GRAPH 2



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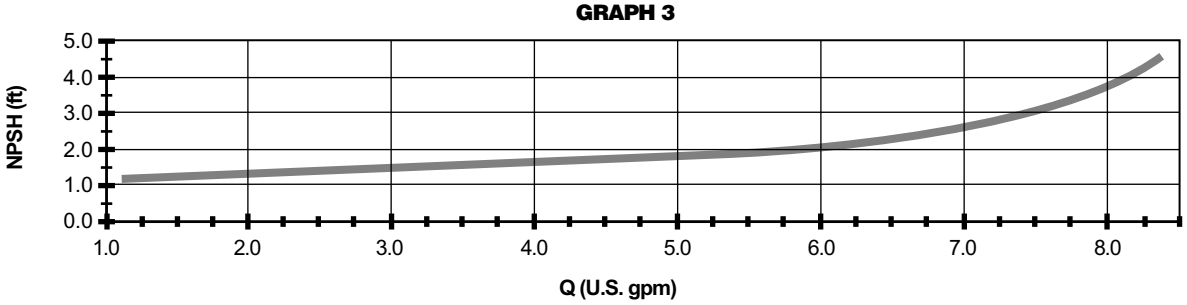
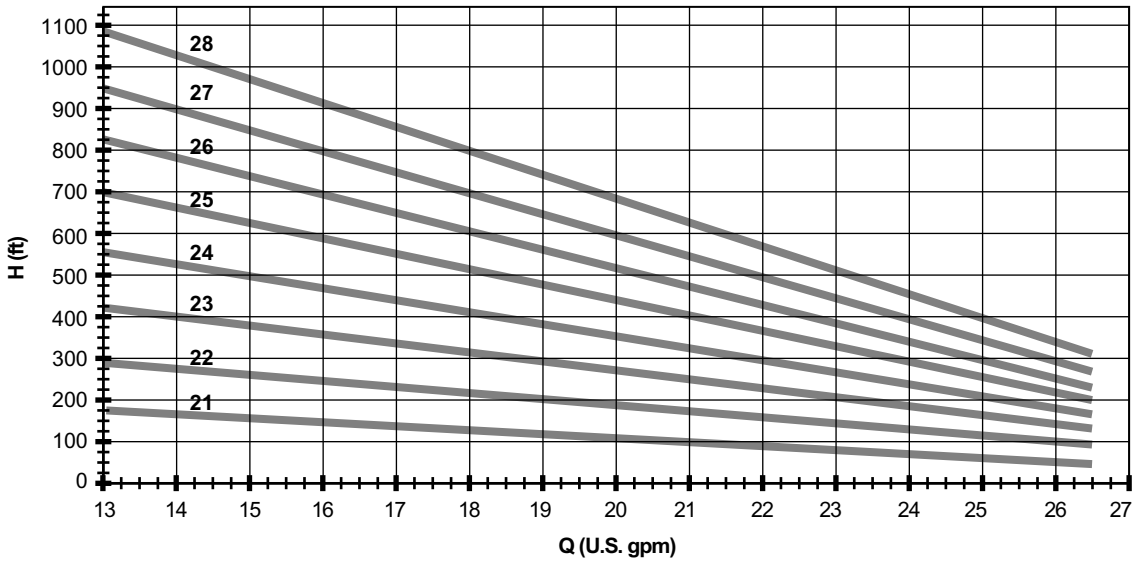
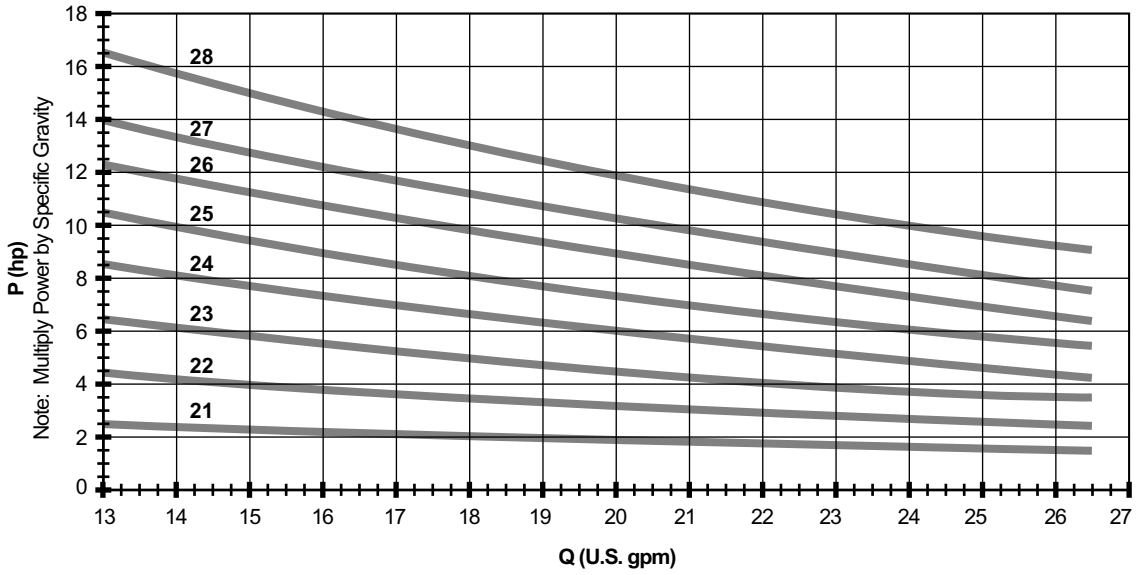


SC20 SERIES - 1750 RPM

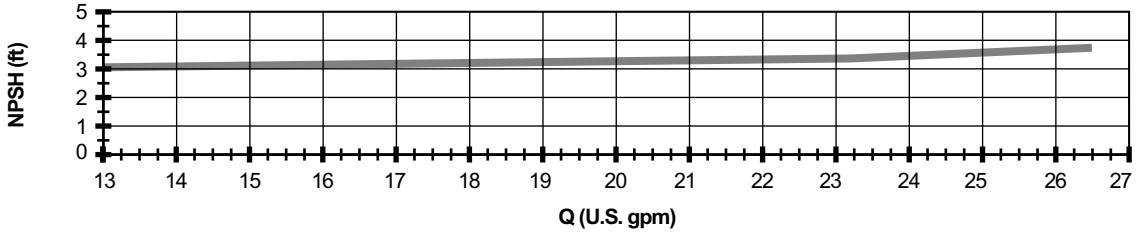
GRAPH 1



GRAPH 2

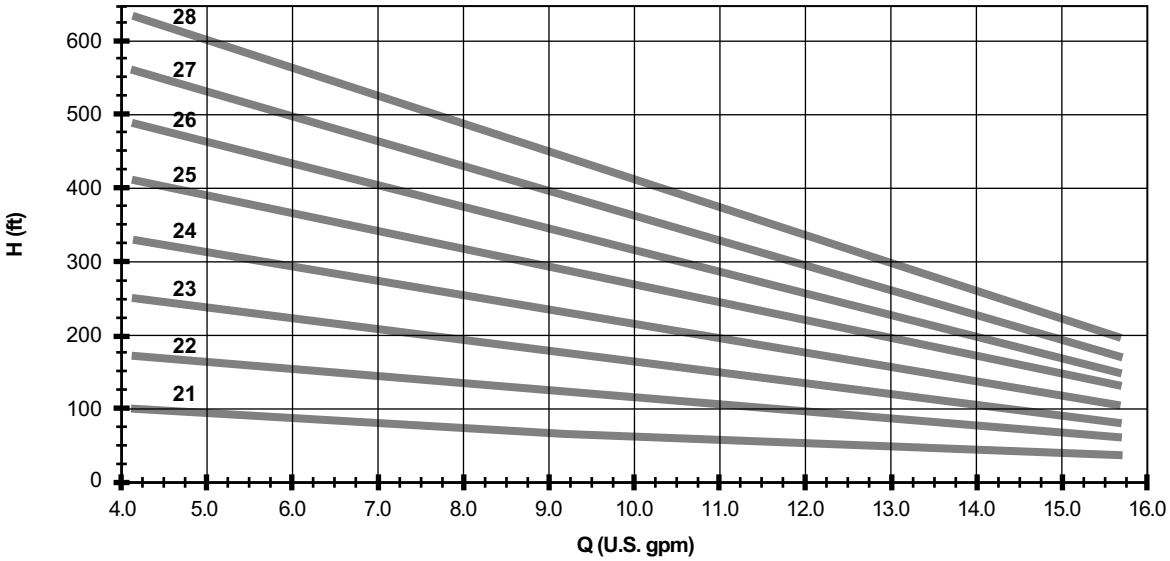


GRAPH 3



SC20 SERIES - 1150 RPM

GRAPH 1



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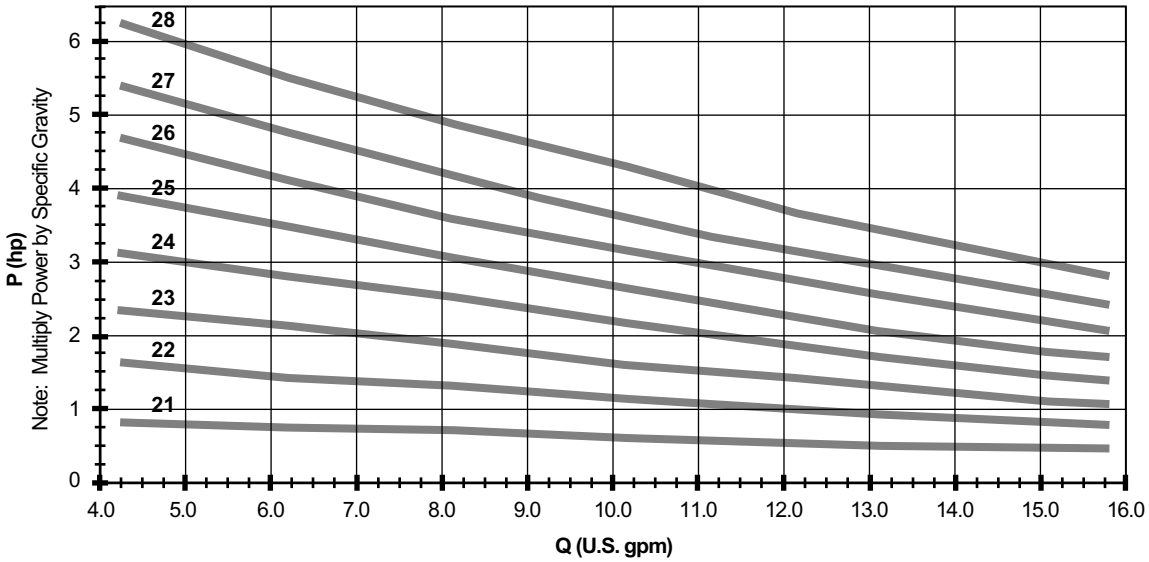

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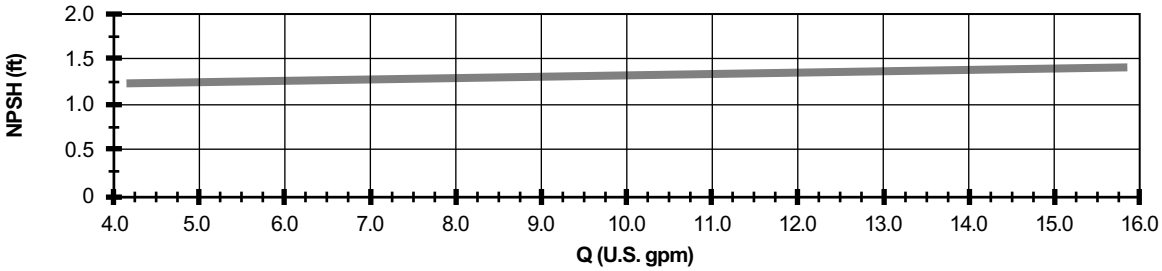
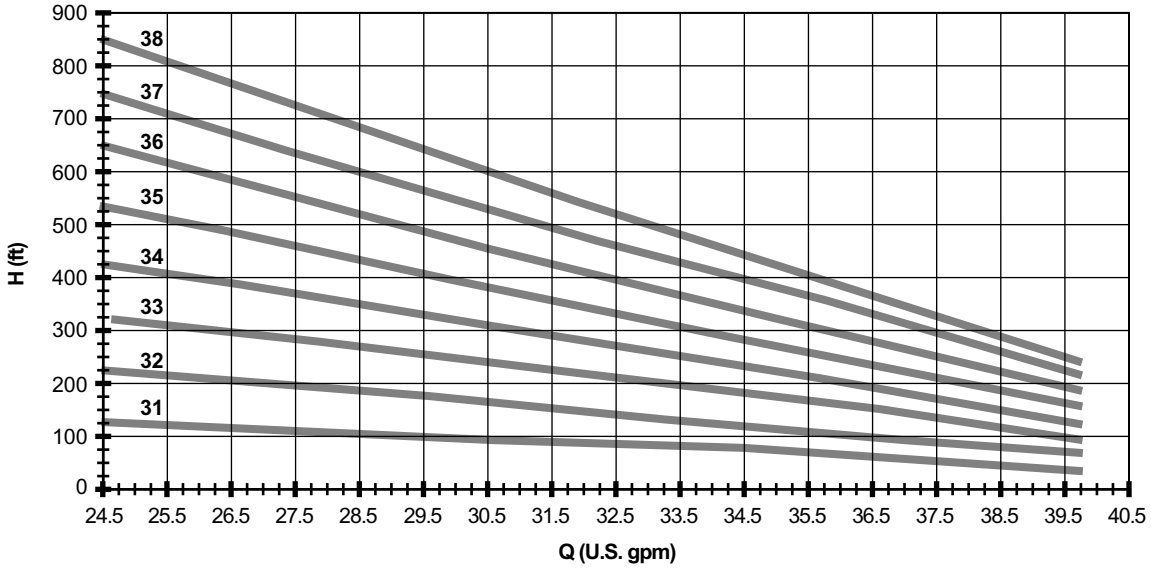
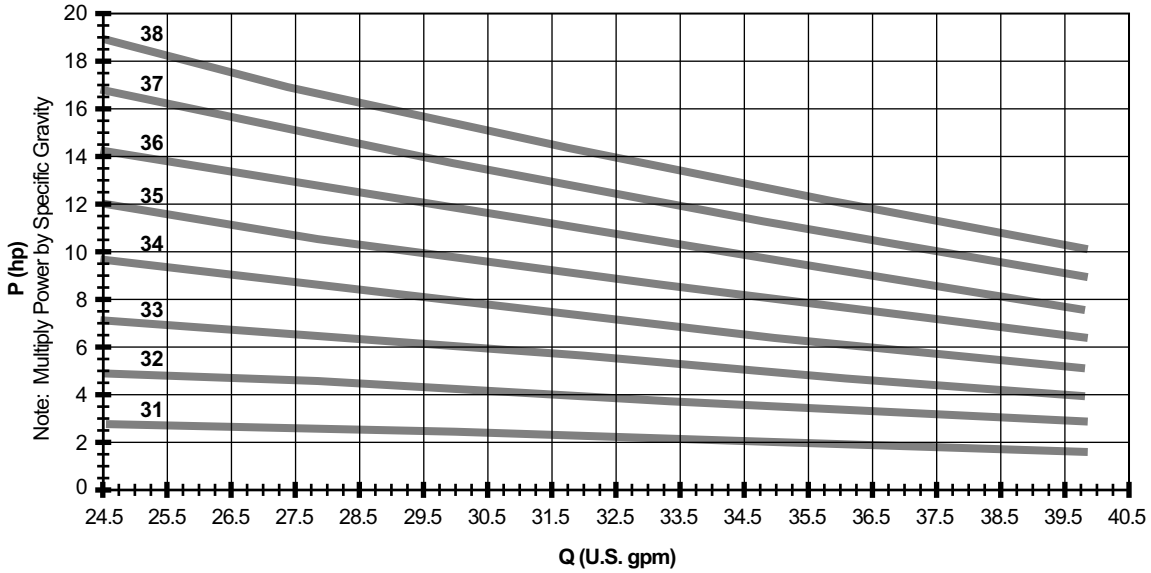


SC30 SERIES - 1750 RPM

GRAPH 1



GRAPH 2



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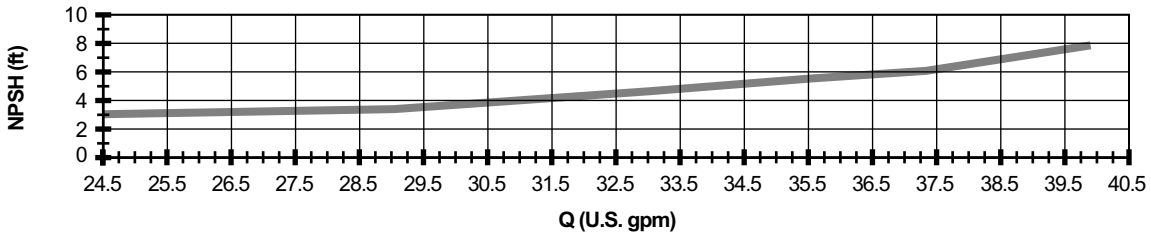
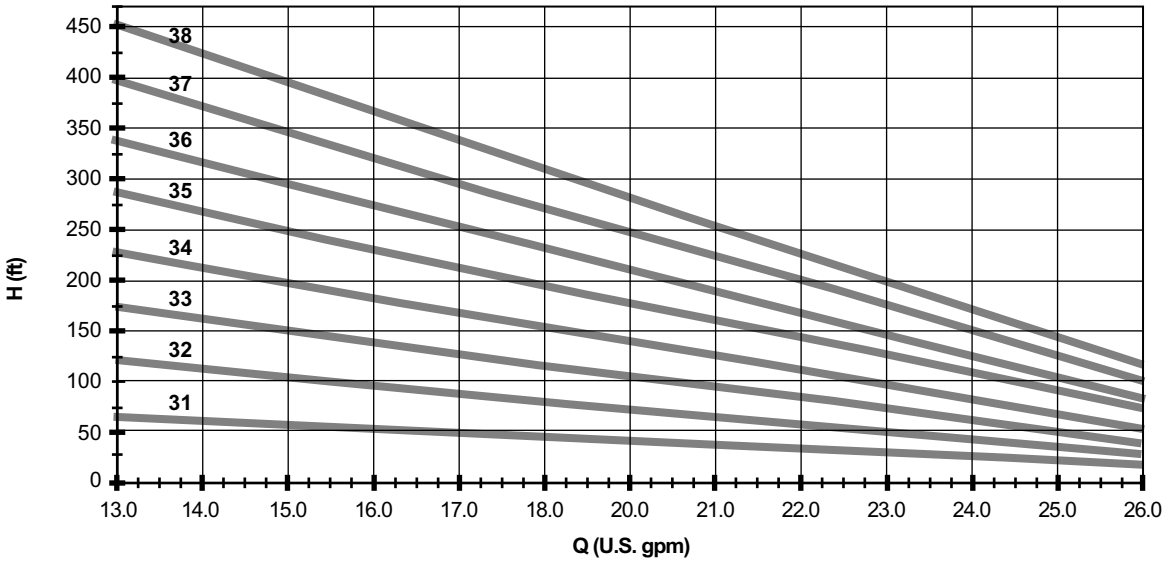


SC30 SERIES - 1150 RPM

GRAPH 1



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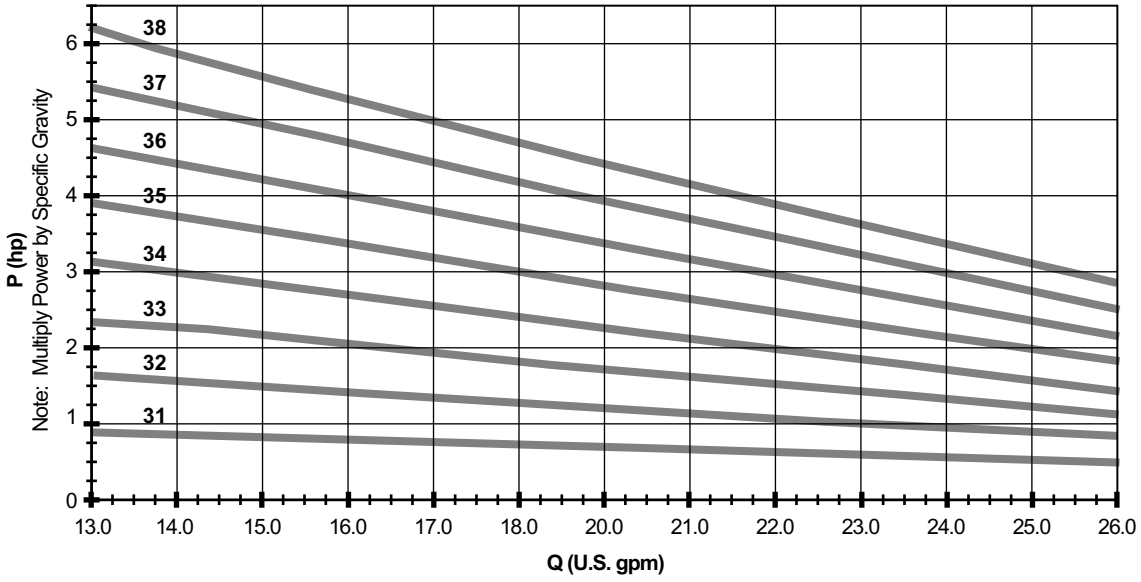

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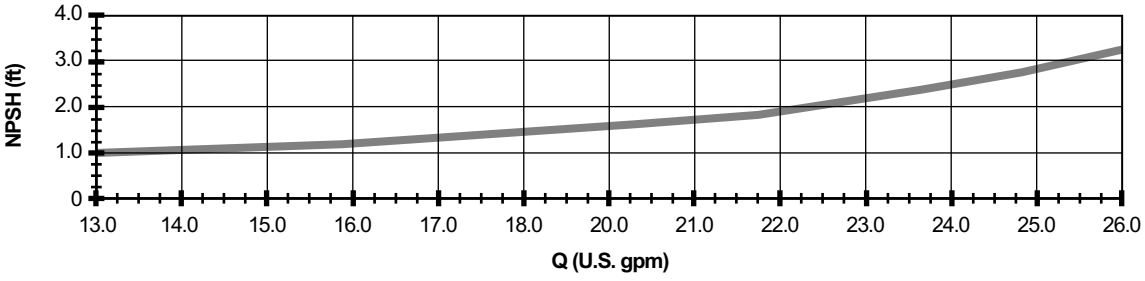
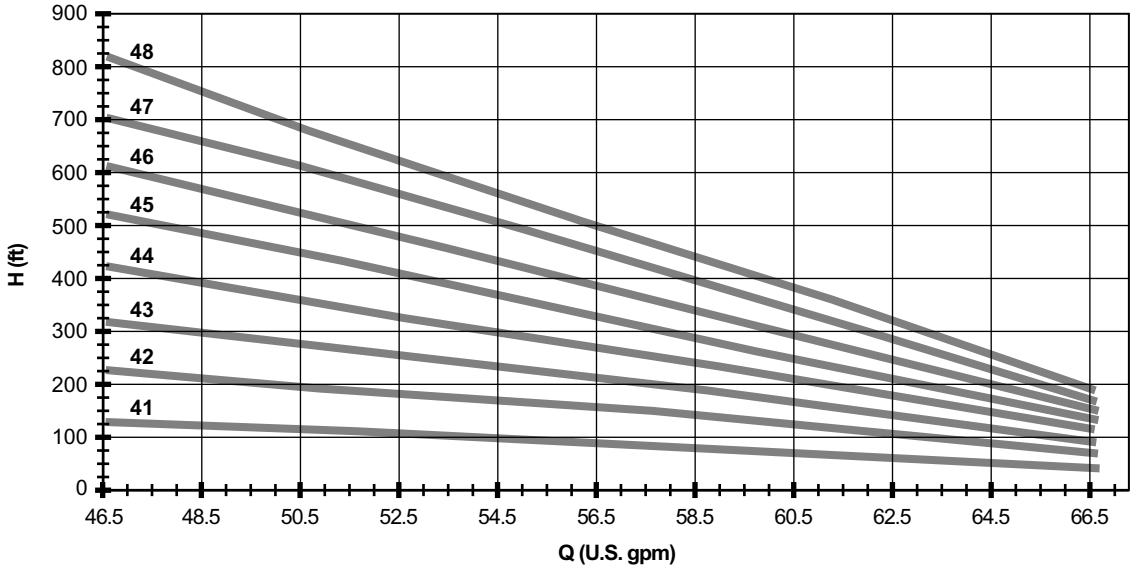
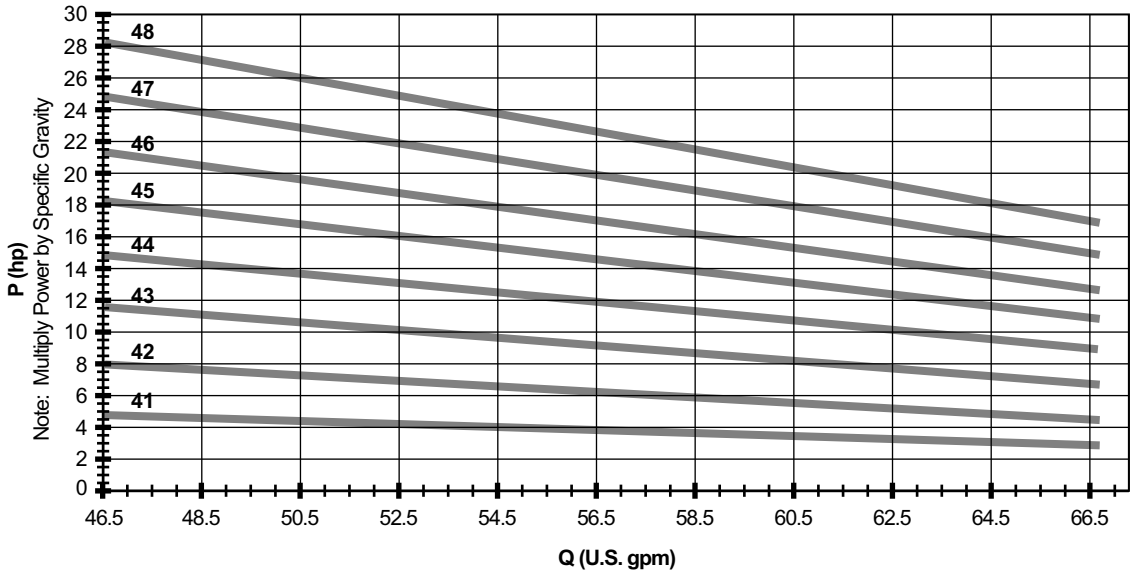


SC40 SERIES - 1750 RPM

GRAPH 1



GRAPH 2



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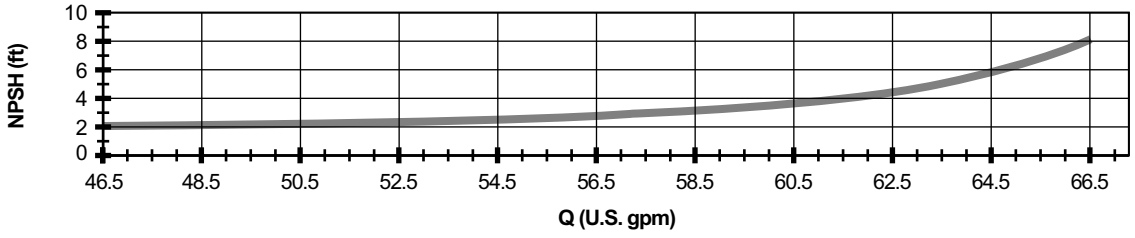
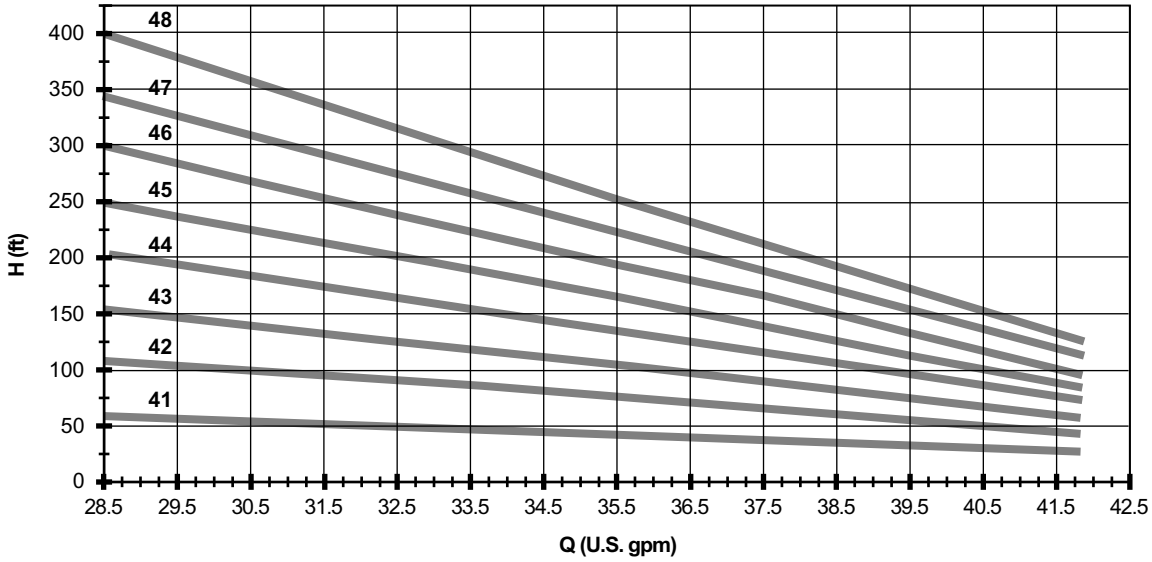
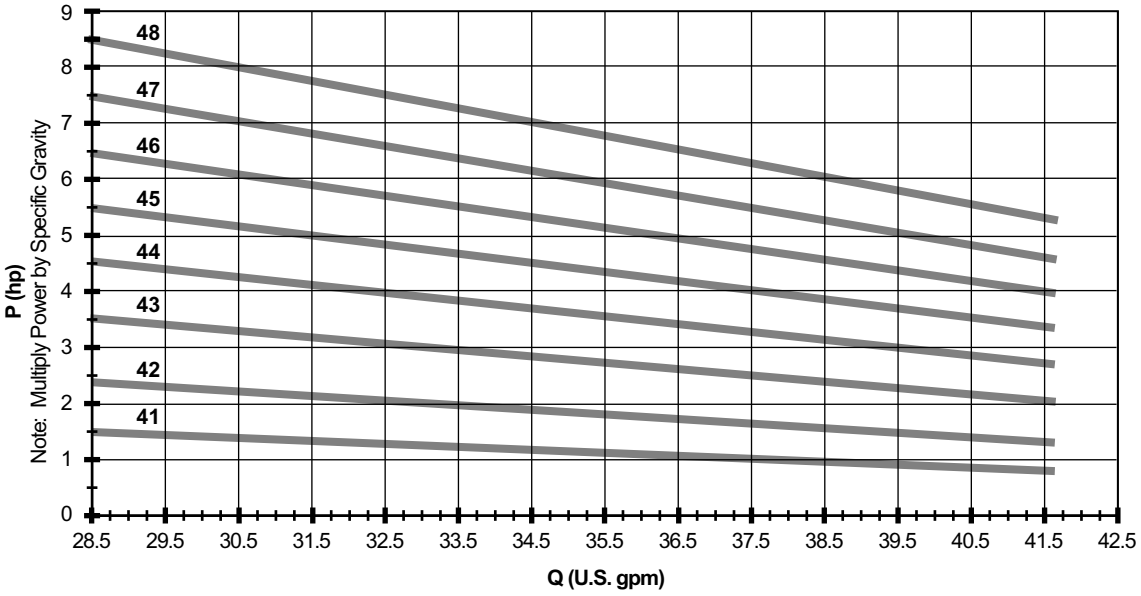


SC40 SERIES - 1150 RPM

GRAPH 1



GRAPH 2



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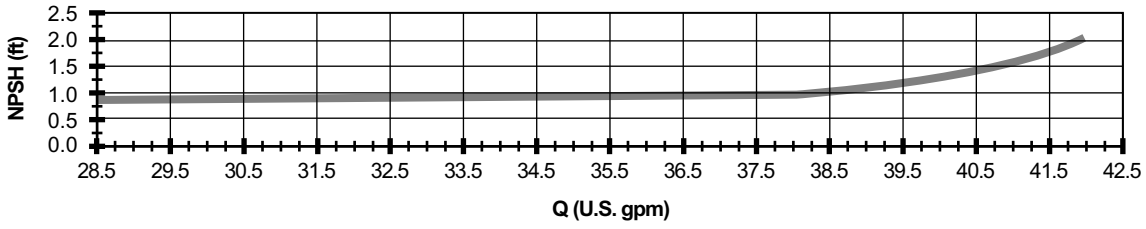
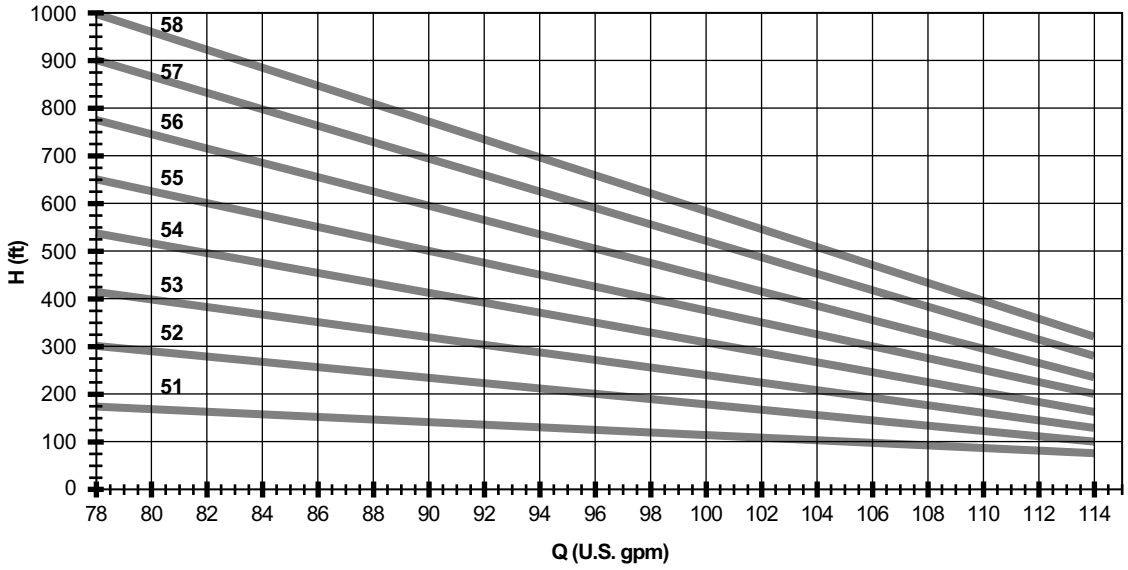
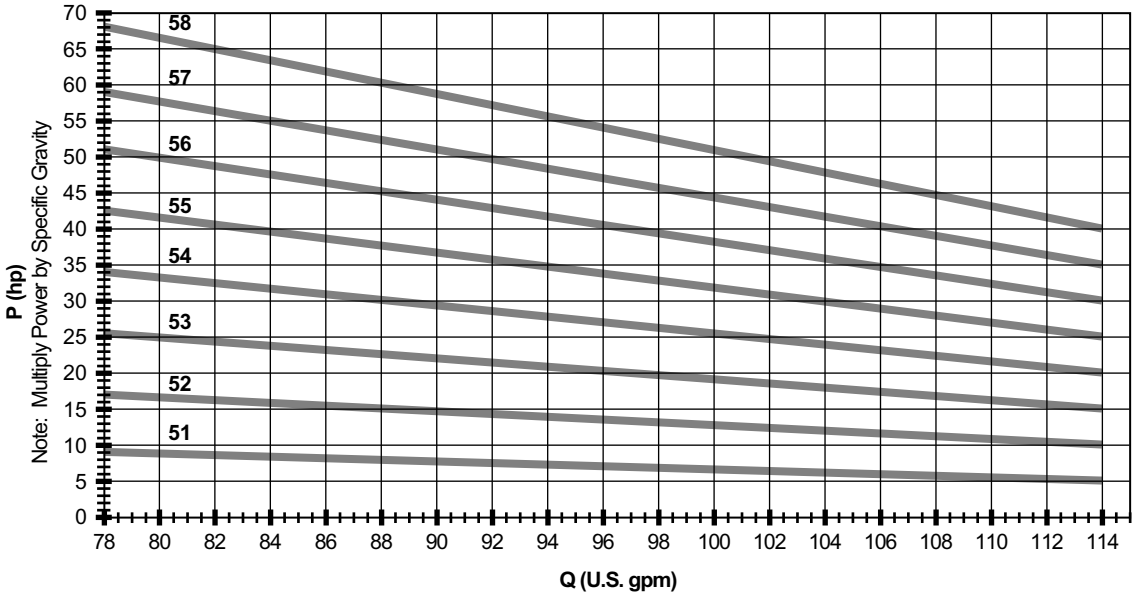


SC50 SERIES - 1750 RPM

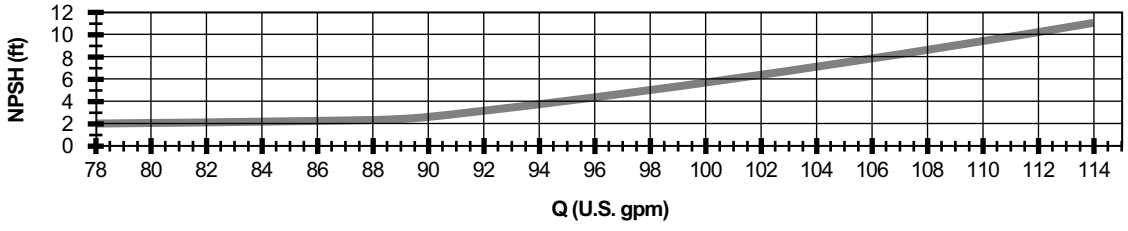
GRAPH 1



GRAPH 2

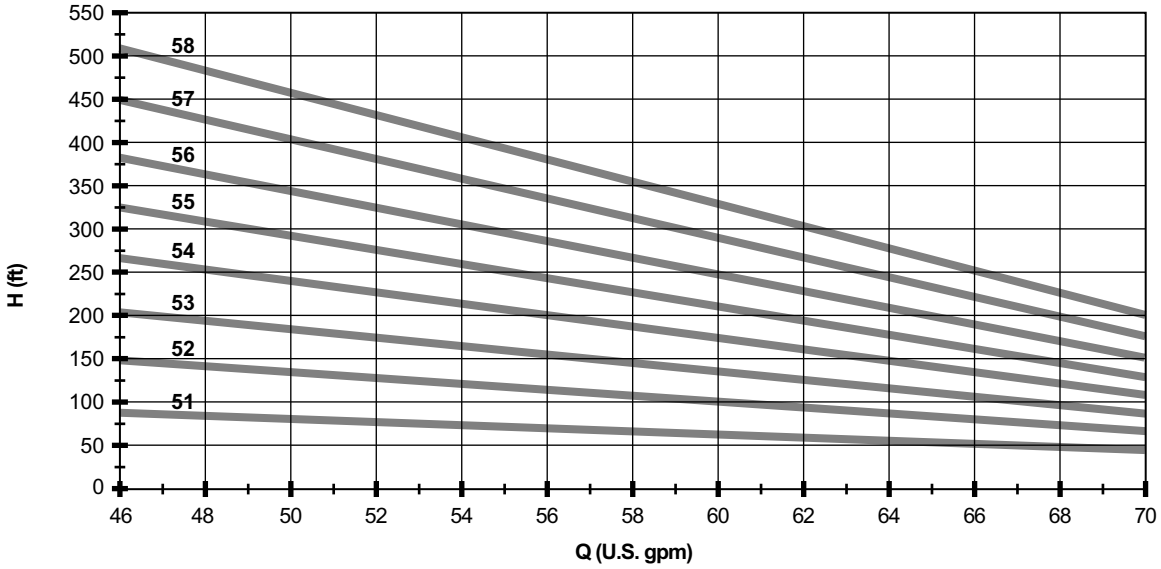


GRAPH 3

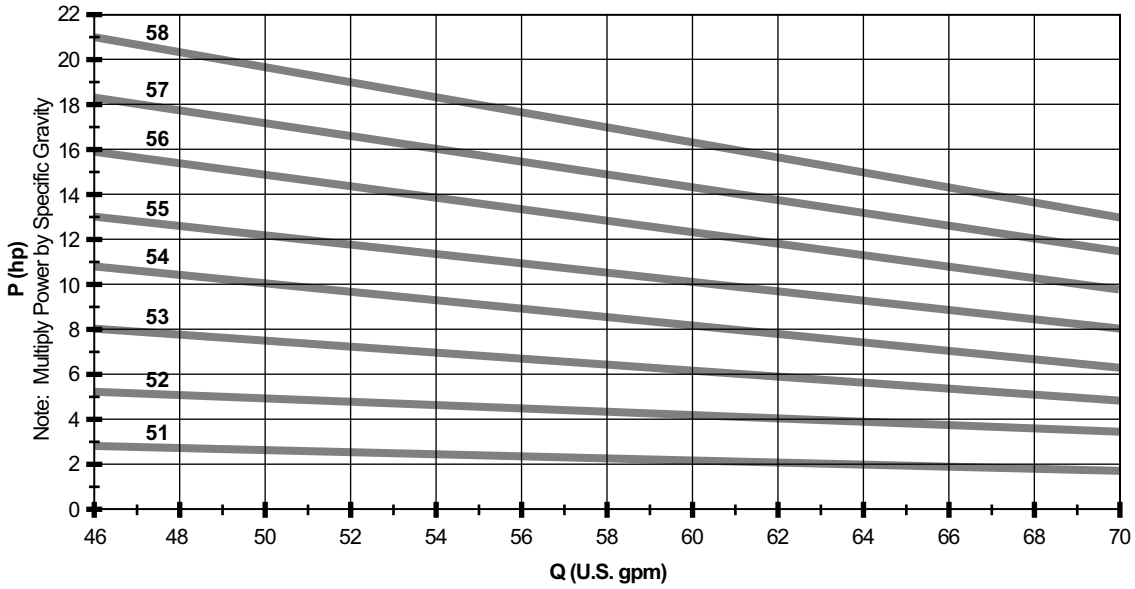


SC50 SERIES - 1150 RPM

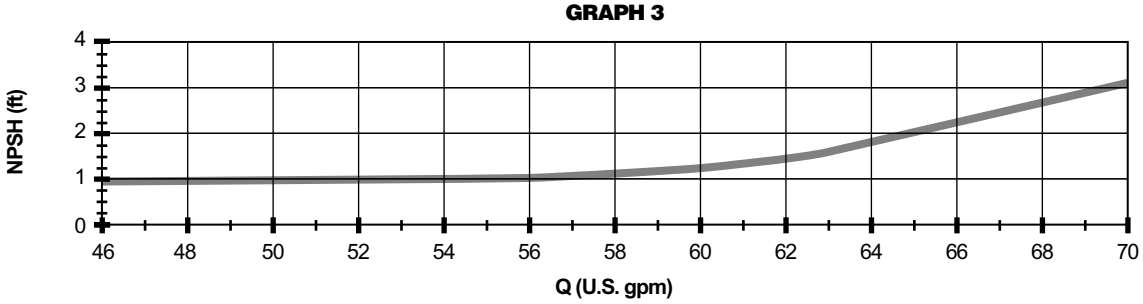
GRAPH 1



GRAPH 2

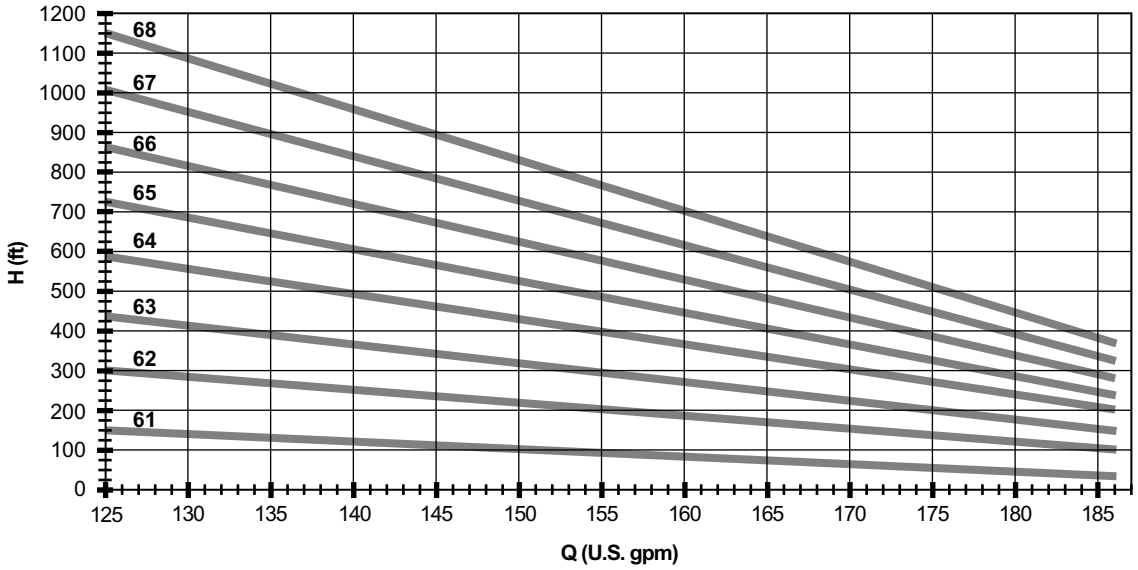


GRAPH 3

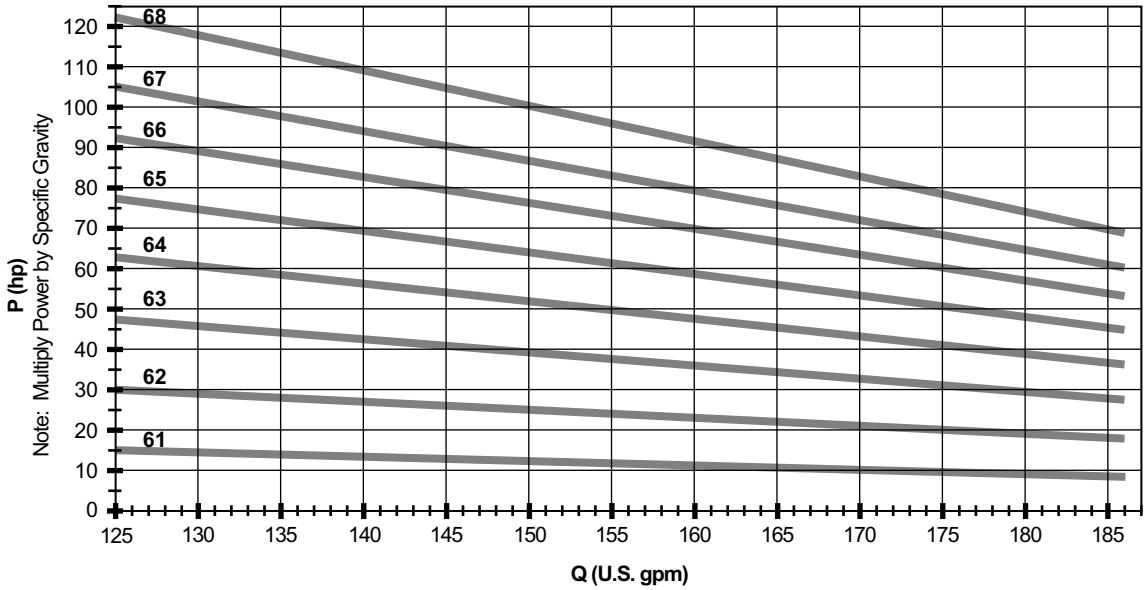


SC60 SERIES - 1750 RPM

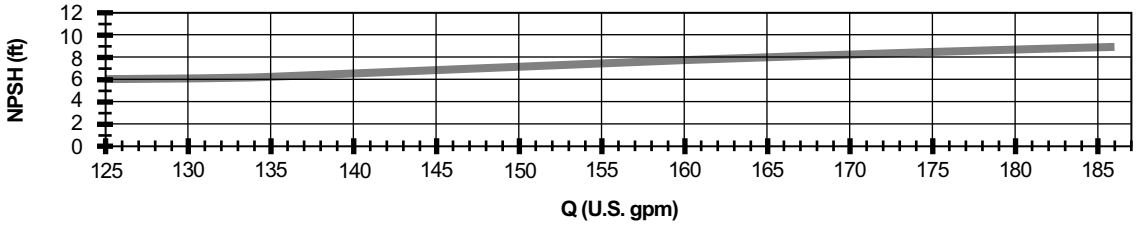
GRAPH 1



GRAPH 2

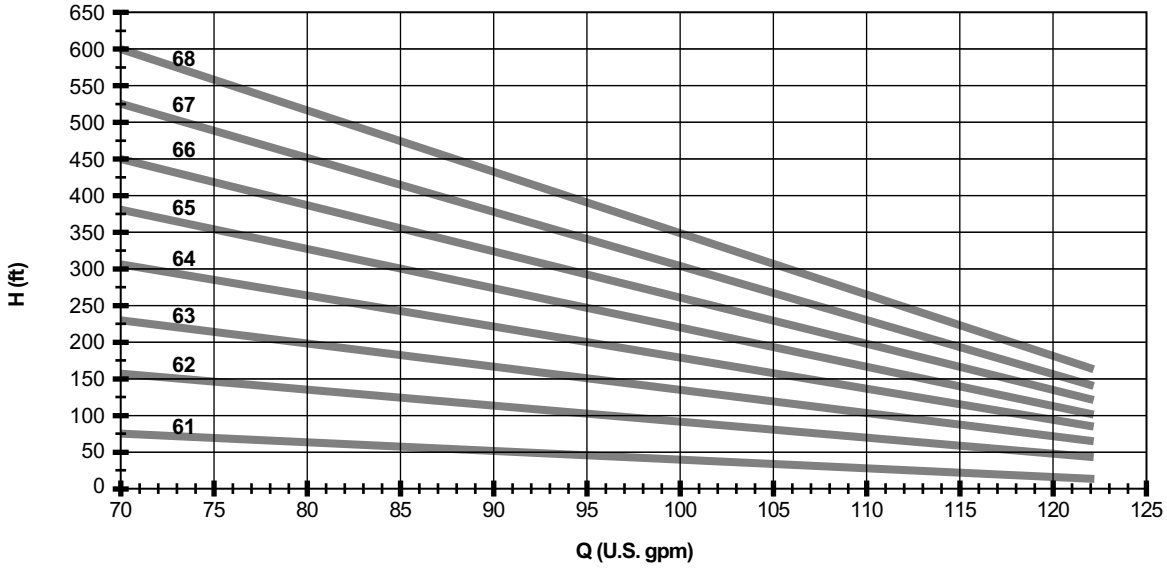


GRAPH 3

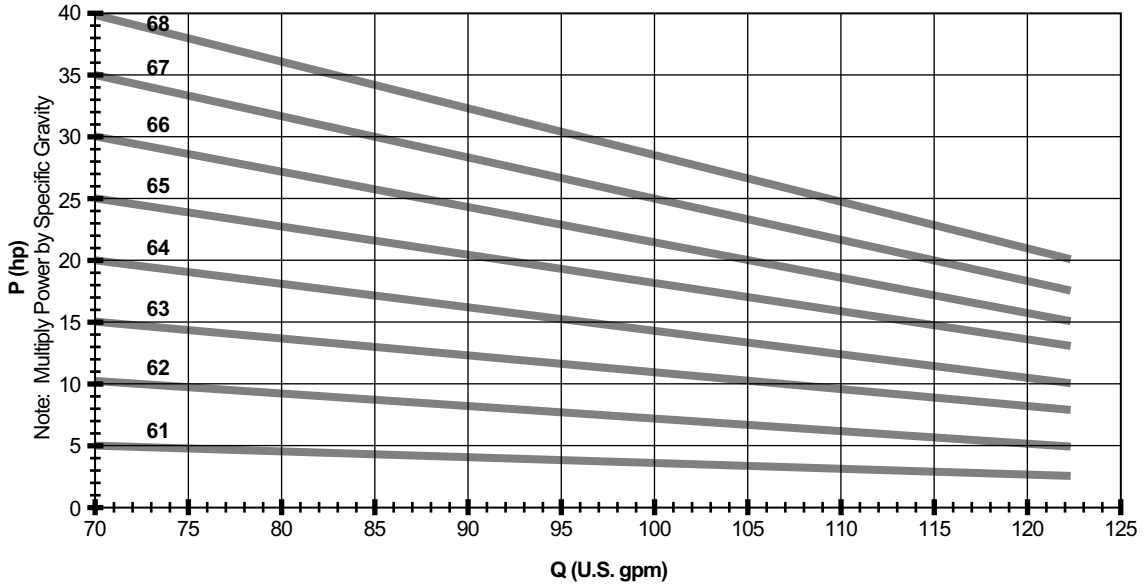


SC60 SERIES - 1150 RPM

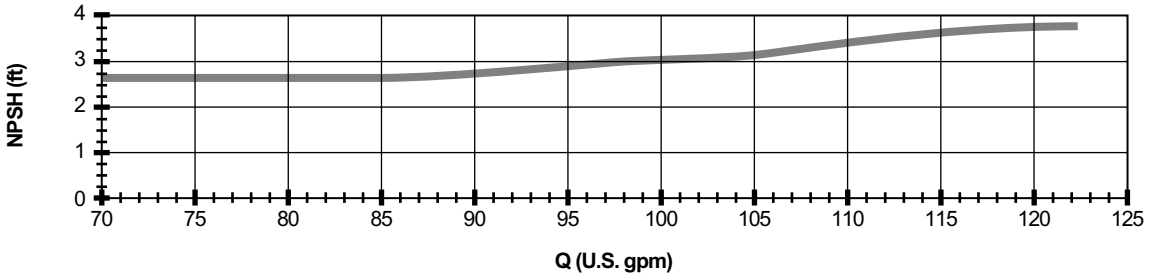
GRAPH 1



GRAPH 2

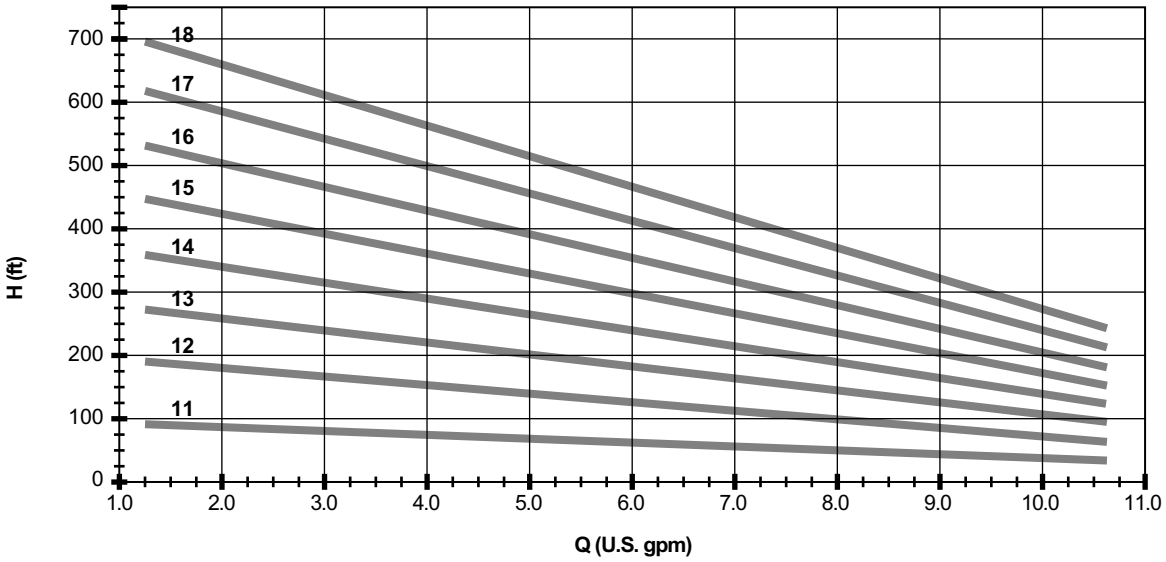


GRAPH 3

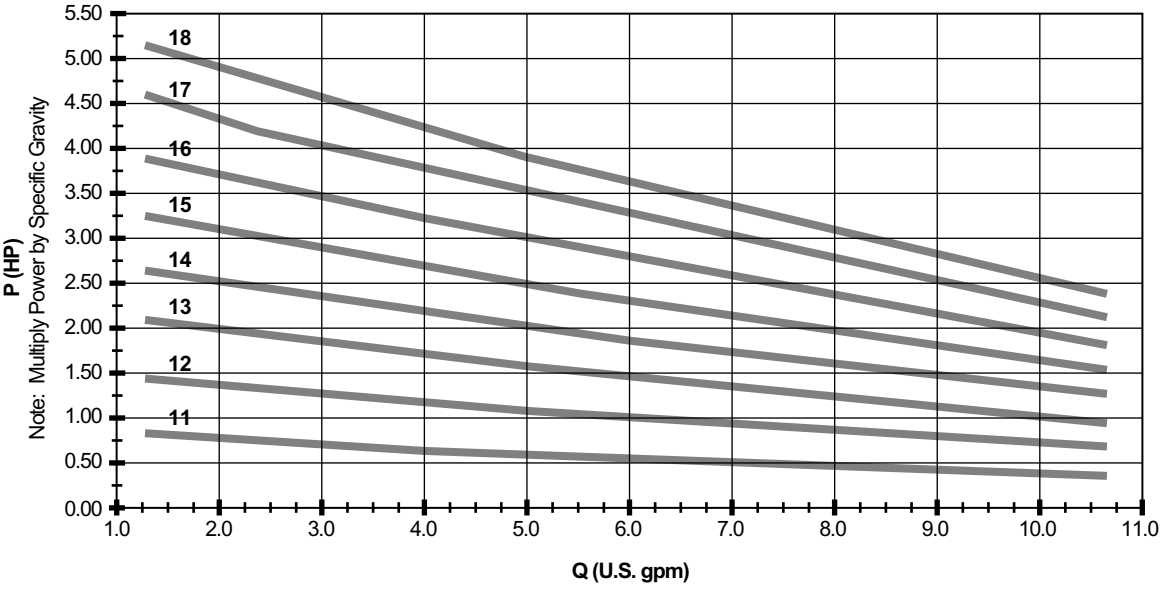


SC10 SERIES - 1450 RPM

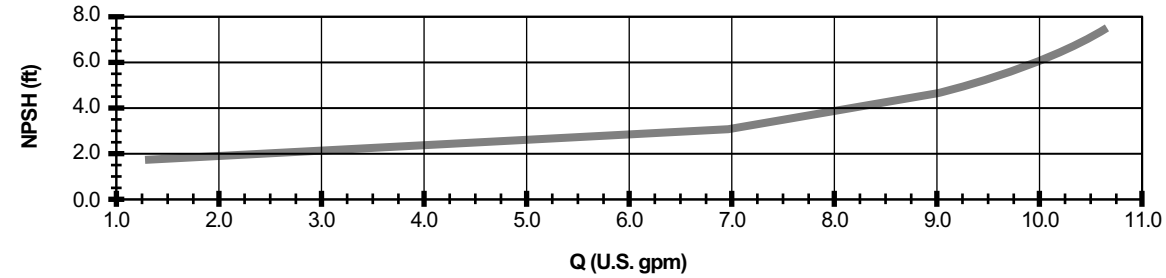
GRAPH 1



GRAPH 2

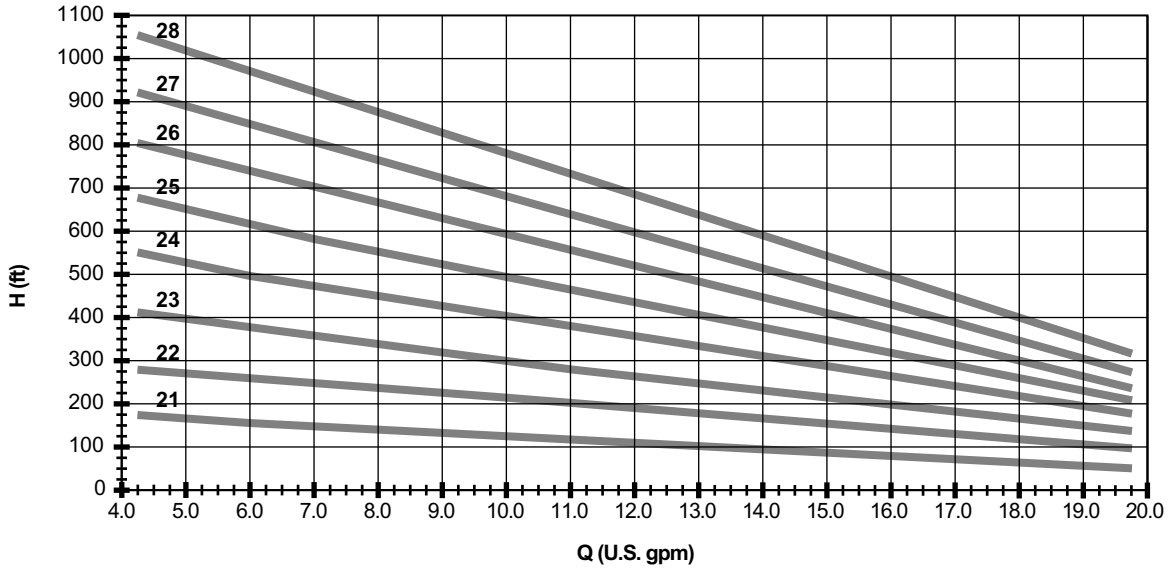


GRAPH 3

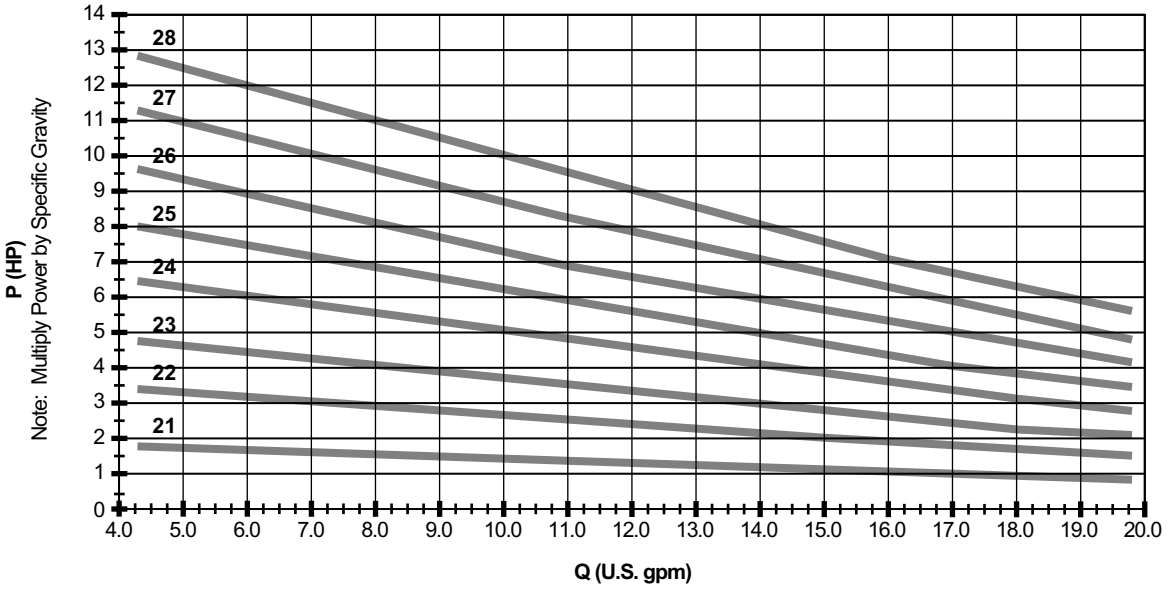


SC20 SERIES - 1450 RPM

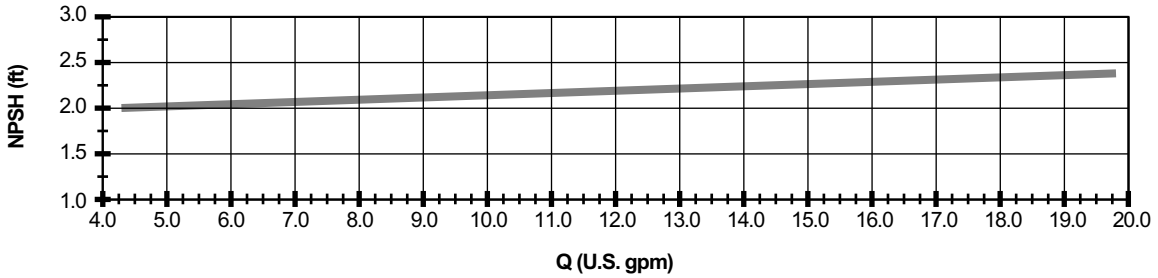
GRAPH 1



GRAPH 2

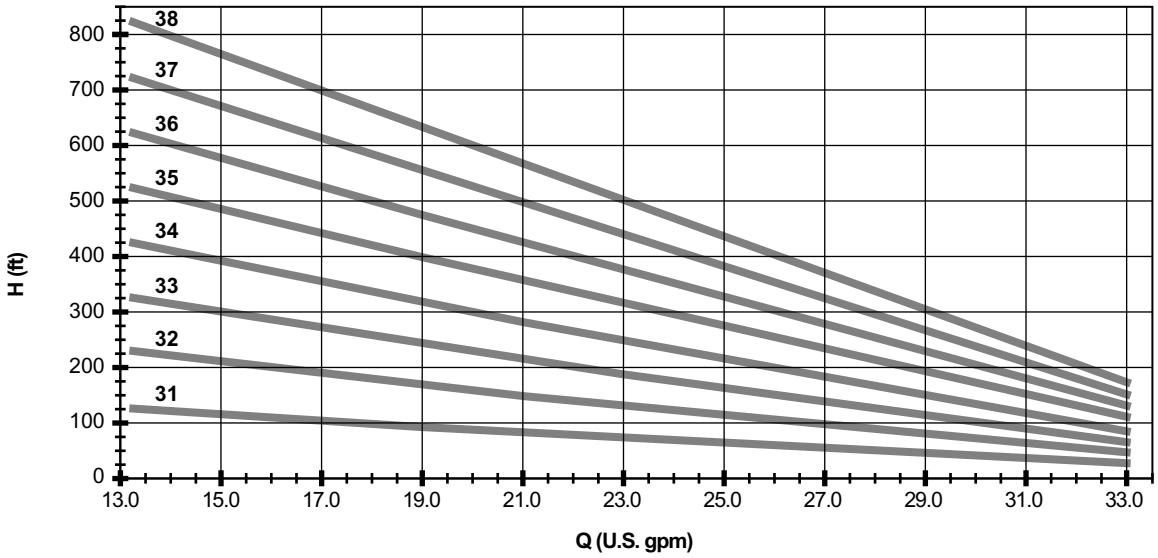


GRAPH 3

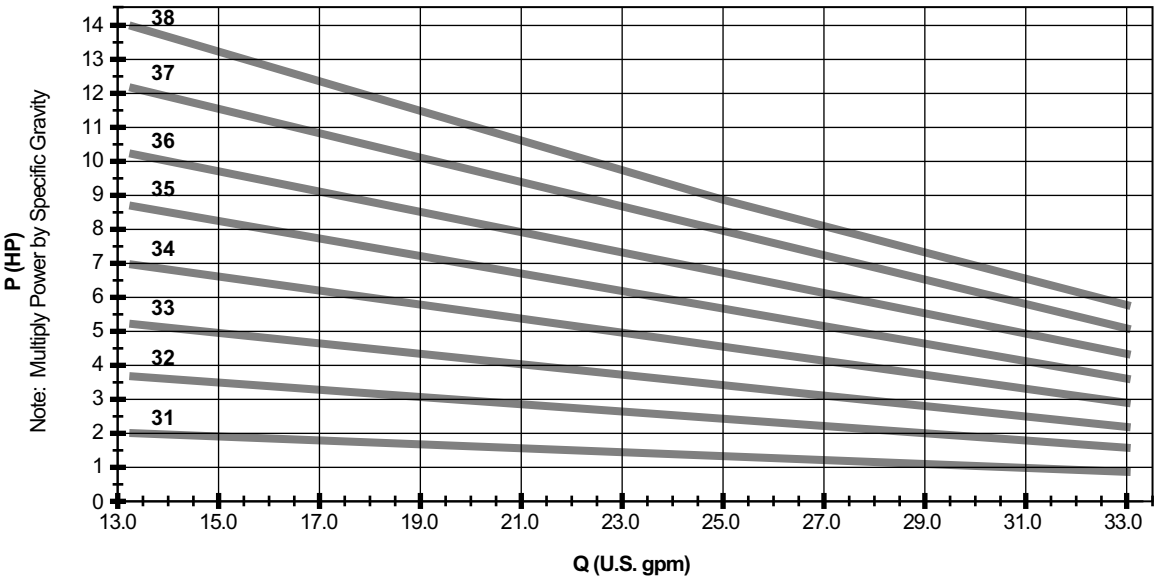


SC30 SERIES - 1450 RPM

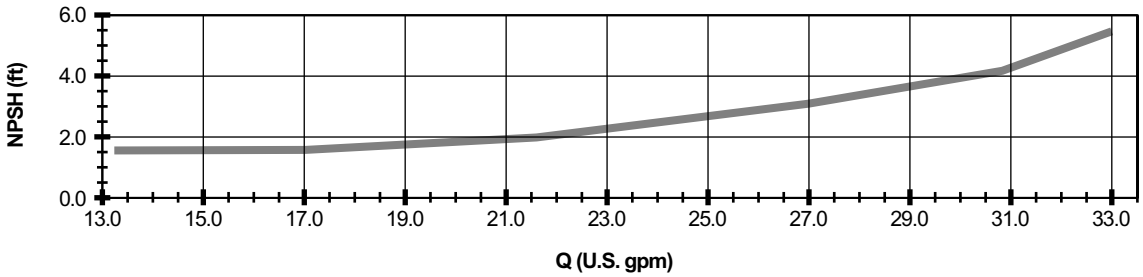
GRAPH 1



GRAPH 2

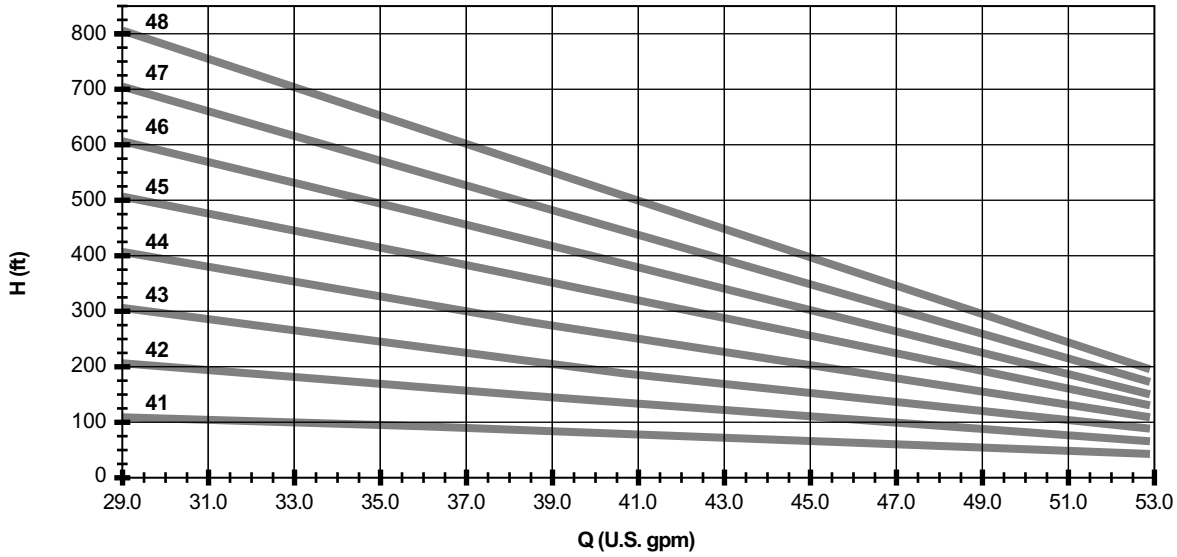


GRAPH 3

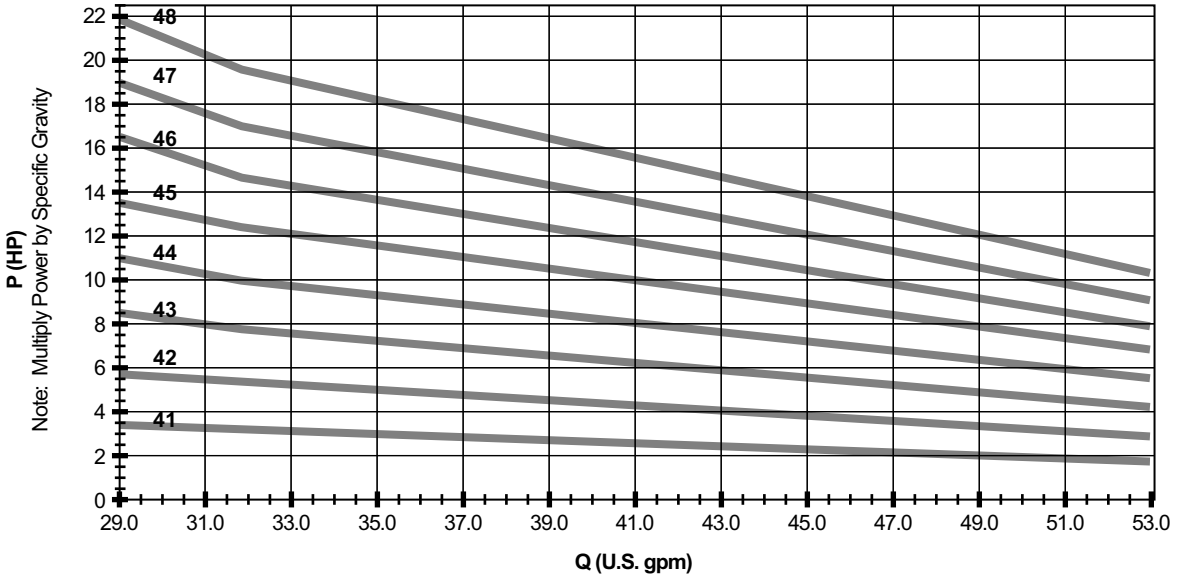


SC40 SERIES - 1450 RPM

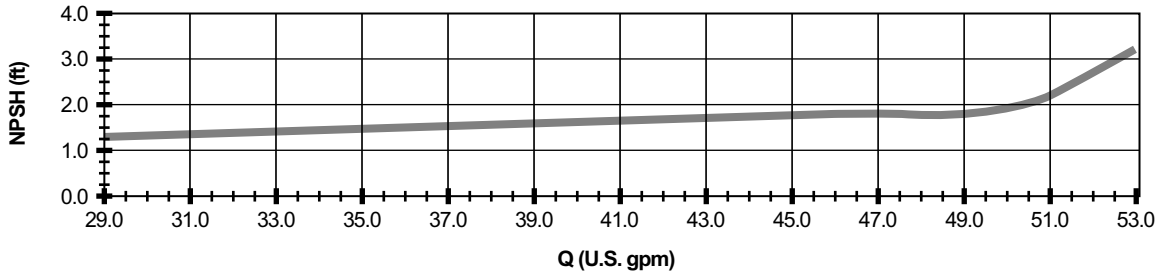
GRAPH 1



GRAPH 2

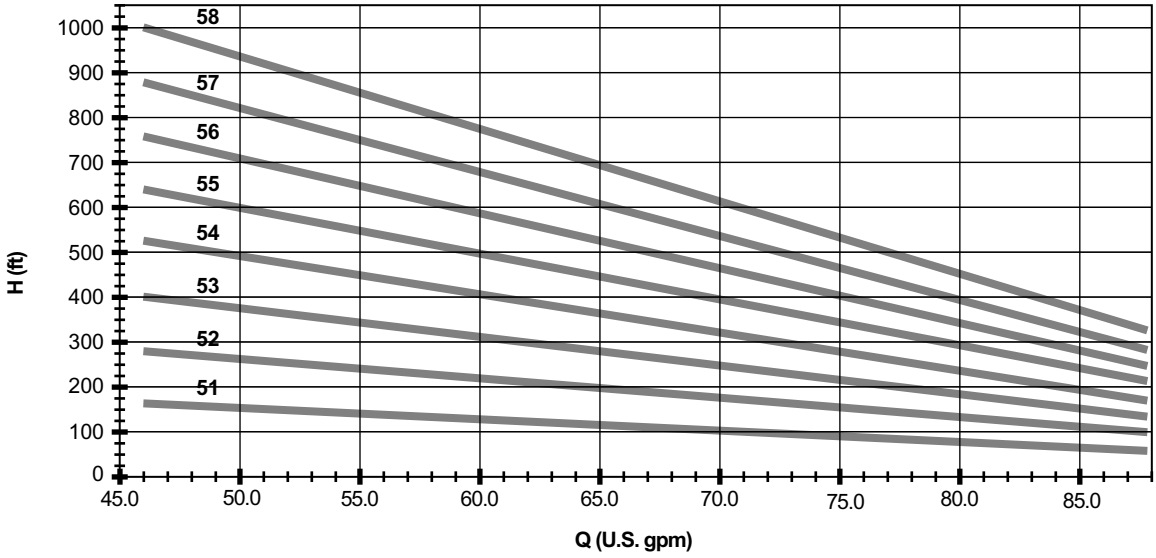


GRAPH 3

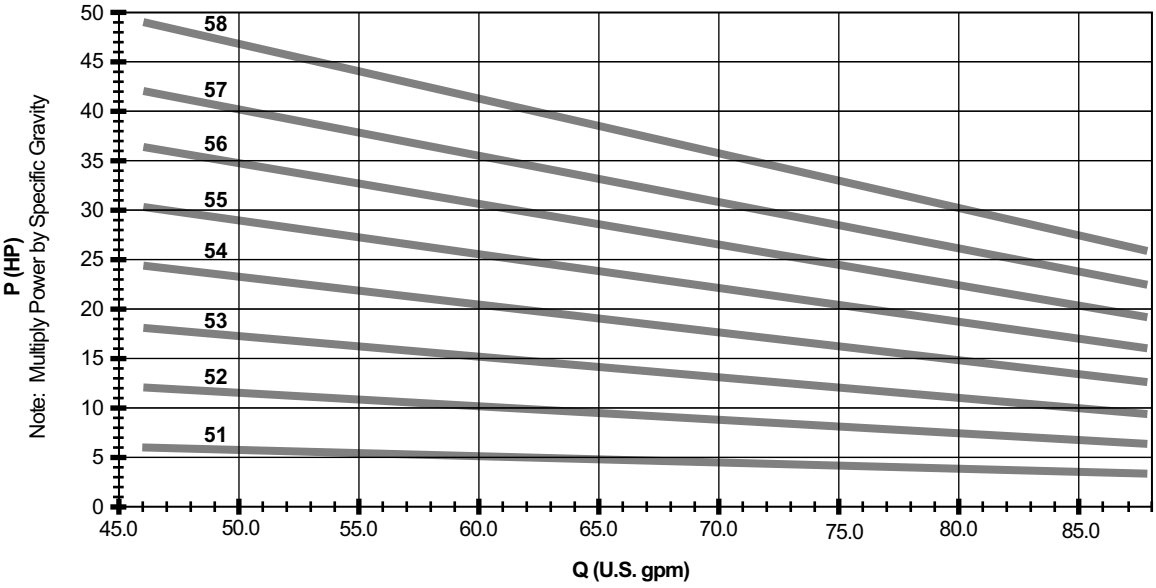


SC50 SERIES - 1450 RPM

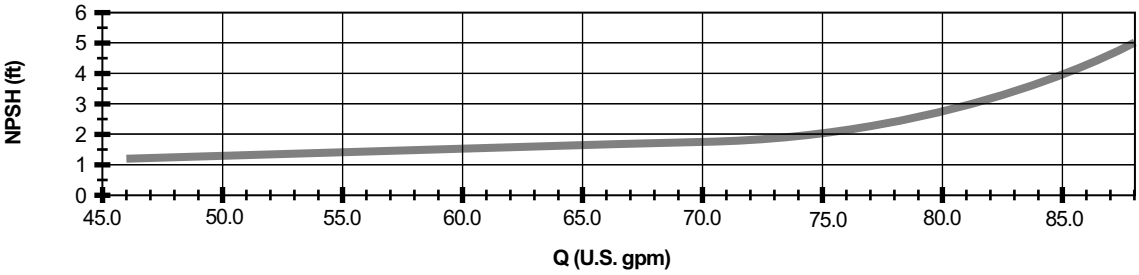
GRAPH 1



GRAPH 2

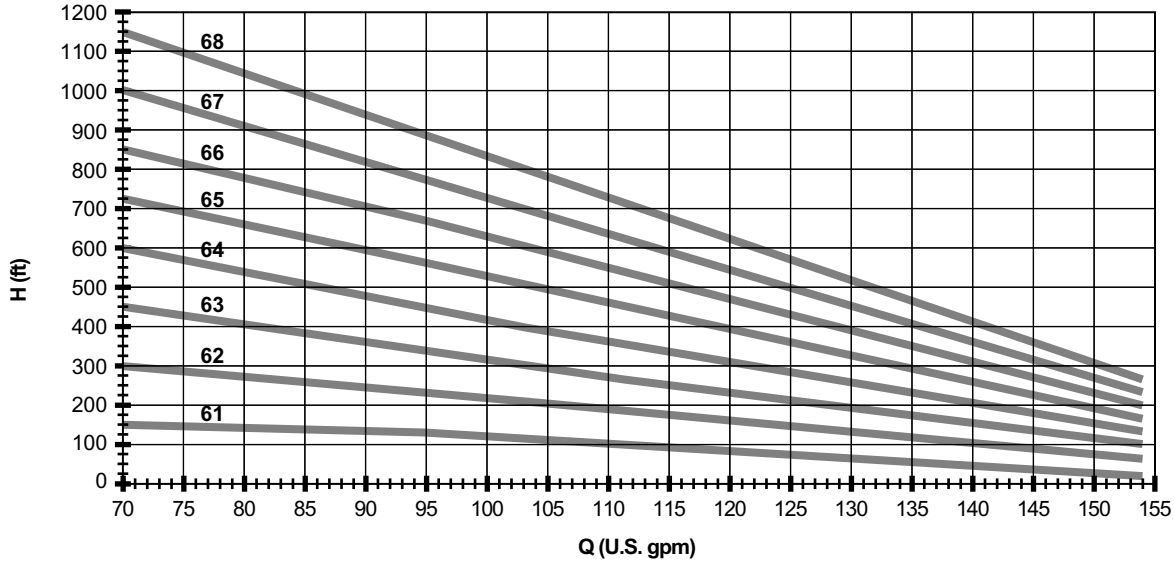


GRAPH 3

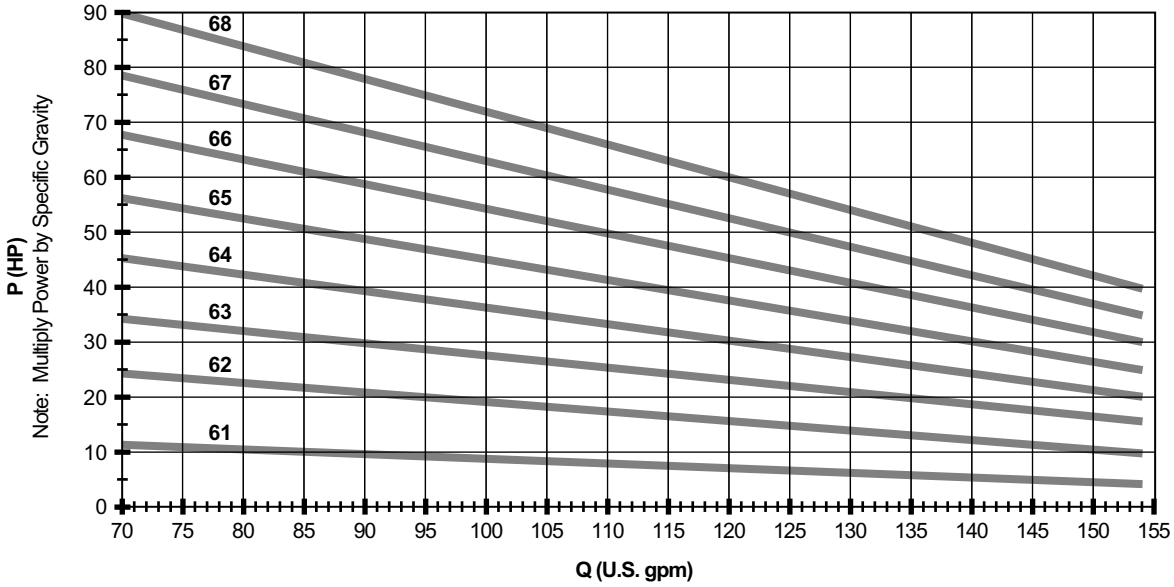


SC60 SERIES - 1450 RPM

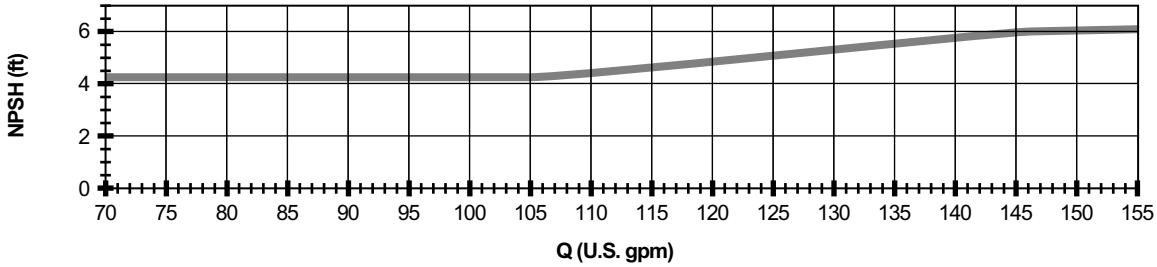
GRAPH 1



GRAPH 2



GRAPH 3



3 SC-Series Model Selection

MODEL NUMBER SELECTION GUIDE FOR MECHANICAL SEAL MODEL

SC	25	A	C	2	B	D	2	4
	①	②	③	④	⑤	⑥	⑦	⑧

① **Basic Model**

This is the number at which you should have arrived through the sizing exercise.

② **Flange and Ports**

Options: A - 300 Lb. ANSI compatible flanges / NPT tapped gauge and drain ports. (available for all models except 10 series)
D- DIN flanges / straight thread gauge ports
W- DIN flange with weld neck compatible flanges included with the pump / NPT tapped gauge and drain ports (available for 10 series only)

③ **Sleeve Bearing Material**

Options: B- Bronze (Available for all models except 60 series) (Only available in pumps with bronze impellers)
C- Carbon (All models)

④ **Temperature Option (see page 3-36 for guidance)**

Options 2- Standard for temperatures below 250°F (120°C).
3- Option for temperatures between 250°F (120°C) and 430°F (220°C). Also can be used as heating option for low temperature applications.
Note: This option requires cooling water be supplied to pump. See page 3-37 for further details.

⑤ **Seal Type (see page 3-36 for guidance)**

A- Single Unbalanced (Discharge pressure from pump must be less than 230 psig (16 bar))
B- Single Balanced (Good for pressures exceeding 230 psig (16 bar))
C- Double Unbalanced (Discharge pressure from pump must be less than 230 psig (16 bar))
D- Double Balanced (Good for pressures exceeding 230 psig (16 bar))
E- Quench Unbalanced (Discharge pressure from pump must be less than 230 psig (16 bar))
G- Quench Balanced (Good for pressures exceeding 230 psig (16 bar))

⑥ **O-ring Material**

B- Neoprene
D- Viton
E- Teflon
G- Ethylene Propylene

⑦ **Seal Face / Seal Seat**

1- Carbon Graphite / Aluminum Oxide (Standard for unbalanced single seals and all double seals)
2- Aluminum Oxide / Carbon Graphite (Standard for single balanced seals)
3- Silicon Carbide / Carbon Graphite (Standard for high temp option)
4- Silicon Carbide / Silicon Carbide
1L- Silicon Carbide / Carbon Graphite (Unbalanced single seal - LPG only) (Pressures below 230 psig (16 bar))
2L- Carbon Graphite / Silicon Carbide (Balanced single seal - LPG only) (Pressures below 580 psig)
3L- Carbon Graphite / Silicon Carbide (Balanced single seal - LPG only) (Pressures below 360 psig)

⑧ **Material- Case / Impeller (see page 3-36 for guidance)**

1- Ductile Iron / Bronze
2- Ductile Iron / Steel
3- Stainless Steel / Stainless Steel
4- Cast Iron / Bronze
5- Cast Iron / Steel

MODEL NUMBER SELECTION GUIDE FOR MAGNETIC DRIVE MODEL

SCM	26	A	C	2	S2	G	V	24	3
	①	②	③	④	⑤	⑥	⑦	⑧	⑨

① **Basic Model**

This is the number at which you should have arrived through the sizing exercise.

② **Flange and Ports**

Options: A - 300 Lb. ANSI compatible flanges / NPT tapped gauge and drain ports. (available for all models except 10 series)
D- DIN flanges / straight thread gauge ports
W- DIN flange with weld neck compatible flanges included with the pump / NPT tapped gauge and drain ports (available for 10 series only)

③ **Sleeve Bearing Material**

Options: B- Bronze (Only available in pumps with bronze impellers)
C- Carbon (All models)

④ **Temperature Option (see page 3-36 for guidance)**

Options 2- Standard for temperatures below 250°F (120°C).
3- Option for temperatures between 250°F (120°C) and 390°F (200°C). Also can be used as heating option for low temperature applications.

⑤ **Bearing Material (Magnetic Coupling)**

S2- Silicon Carbide (Pressureless Sintered)

⑥ **Ball Bearing Lubrication**

O- Oil
G- Grease (Std)

⑦ **Separation Canister Material**

V- Stainless Steel
H- Hastelloy

⑧ **Magnetic Coupling Size**

12- 1.1 Hp (10-30 Series)
14- 2.6 Hp (10-30 Series)
16- 3.8 Hp (10-30 Series)
22- 2.6 Hp (20-50 Series)
24- 7.6 Hp (20-50 Series)
26- 11.3 Hp (20-50 Series)
36- 16.8 Hp (40-50 Series)
38- 28.5 Hp (40-50 Series)

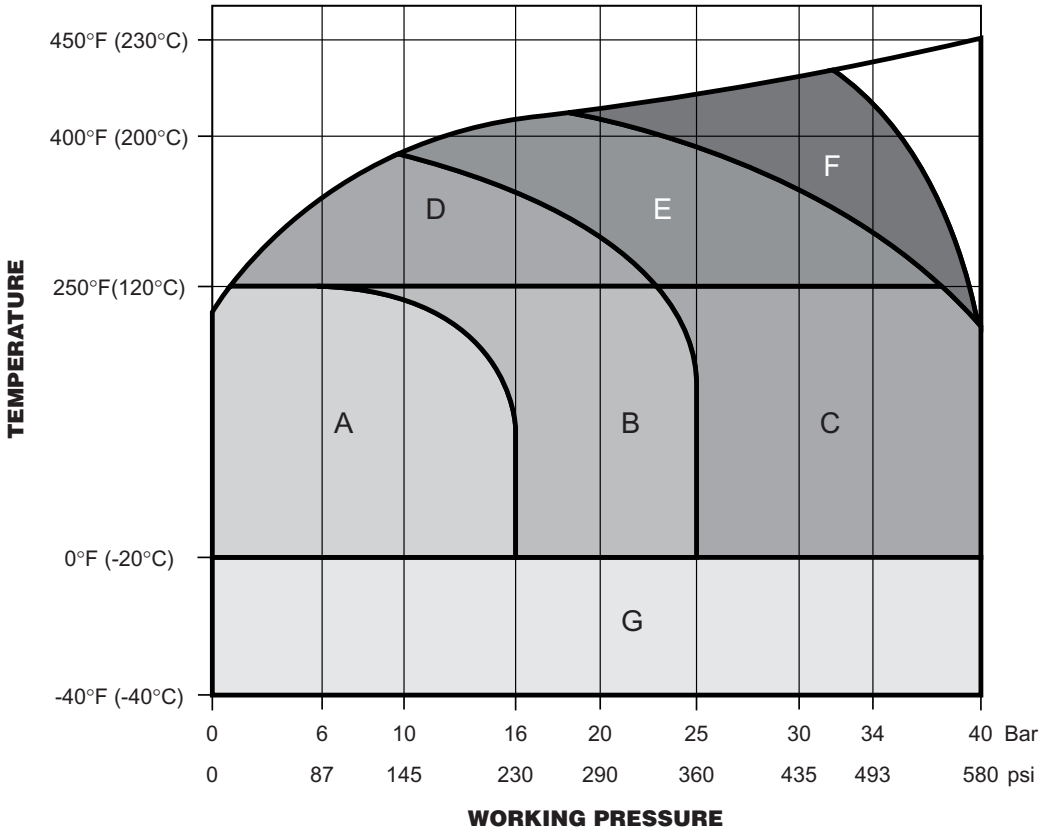
⑨ **Material- Case / Impeller (see page 3-36 for guidance)**

1- Ductile Iron / Bronze
2- Ductile Iron / Steel
3- Stainless Steel / Stainless Steel
4- Cast Iron / Bronze
5- Cast Iron / Steel

MATERIAL / COMPONENT SELECTION GRAPH (BASED ON TEMPERATURE AND PRESSURE)

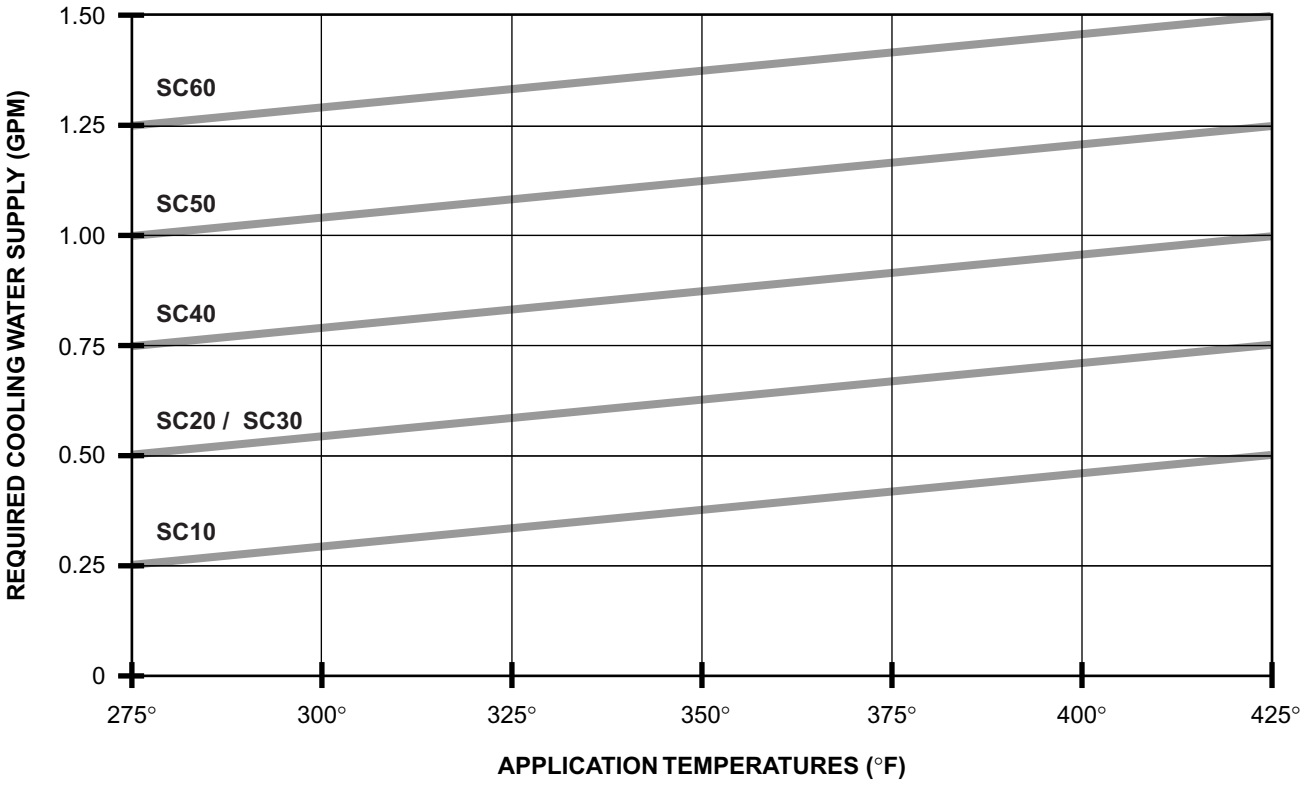
	Material* (Case / Impeller)	Seal Type	Cooling Option
A	Cast / Bronze	Unbalanced	No
B	Cast / Bronze	Balanced	No
C	Ductile / Bronze	Balanced	No
D	Cast / Bronze	Balanced	Yes
E	Ductile / Bronze	Balanced	Yes
F	Stainless Steel	Balanced	Yes
G	Ductile / Bronze	Balanced	No

* Minimum Requirement



COOLING WATER FOR COOLING COLLAR (HIGH TEMPERATURE OPTION)

REQUIRED COOLING WATER SUPPLY FOR COOLED SHAFT SEALS



Cooling Water - Inlet Temperature / 70° F
Maximum Allowable Pressure of Cooling Collar / 150 psig

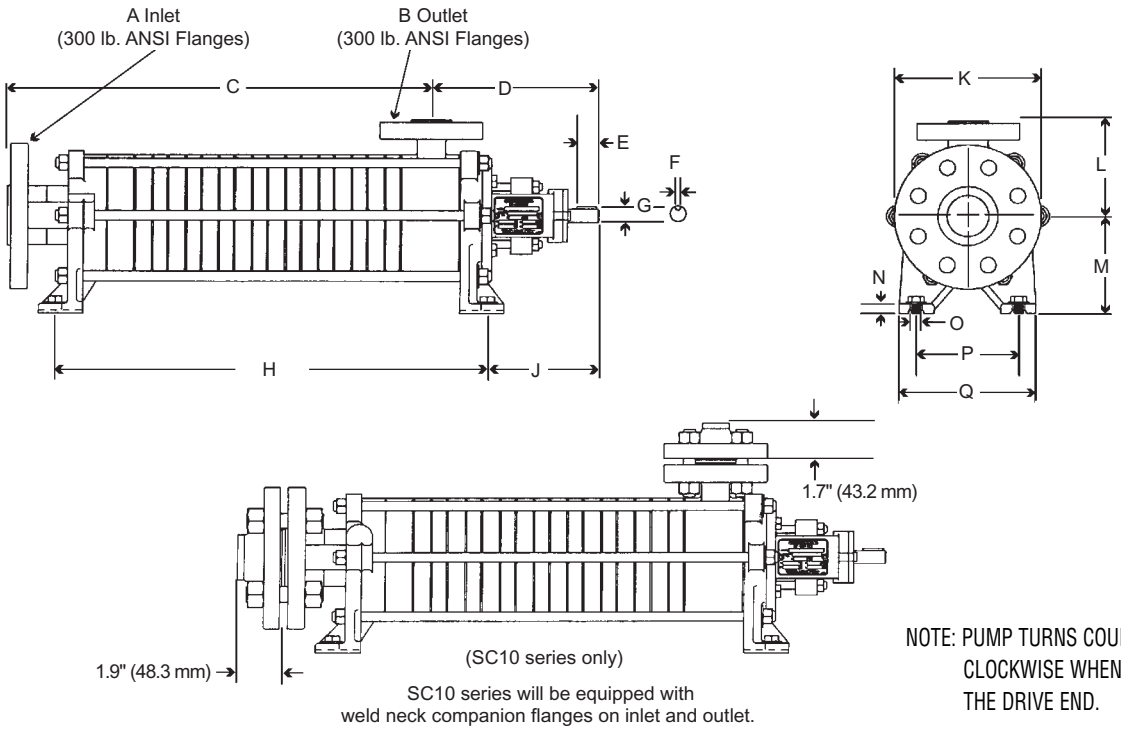
MATERIAL SPECIFICATIONS

The last number in your complete side channel model number is the material code. Please find material specification tables below according to these codes.

SC (Sealed) Model Part Description	**1**	**2**	**3**	**4**	**5**
Suction Casing	Ductile Iron	Ductile Iron	316 Stainless	Cast Iron	Cast Iron
Discharge Casing	Ductile Iron	Ductile Iron	316 Stainless	Cast Iron	Cast Iron
Stage Casing	Ductile Iron	Ductile Iron	316 Stainless	Cast Iron	Cast Iron
Side Channel Casing	Ductile Iron	Ductile Iron	316 Stainless	Cast Iron	Cast Iron
Foot	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Shaft	Steel	Steel	316 Stainless	Steel	Steel
Impeller	Bronze	Steel	316 Stainless	Bronze	Steel
Suction Impeller	Bronze	Steel	316 Stainless	Bronze	Steel
Bearing Housing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Gasket	Teflon	Teflon	Teflon	Teflon	Teflon
Sleeve Bearing	Bronze (Carbon Option)	Carbon	Carbon	Bronze (Carbon Option)	Carbon
Additional Parts for SCM (Mag Drive) Model					
Sleeve Bearing (Magnetic Coupling)	Stainless Reinforced SiC	Stainless Reinforced SiC	Stainless Reinforced SiC	Stainless Reinforced SiC	Stainless Reinforced SiC
Shaft Sleeve	SiC	SiC	SiC	SiC	SiC
Separation Canister	316 Stainless (Hastelloy Option)	316 Stainless (Hastelloy Option)	316 Stainless (Hastelloy Option)	316 Stainless (Hastelloy Option)	316 Stainless (Hastelloy Option)

SiC = Silicon Carbide

SC-PUMP OUTLINE DIMENSIONS



NOTE: PUMP TURNS COUNTER-CLOCKWISE WHEN VIEWED FROM THE DRIVE END.

Series	Inlet A*	Outlet B*	D	E	F	G	J	K	L	M	N	O	P	Q
SC10	1-1/2	3/4	6.73	**	**	**	4.45	5.91	3.94	3.94	0.39	0.51	4.13	5.51
	40	20	171	25	5	14	113	150	100	100	10	13	105	140
SC20 and 30	2-1/2	1-1/4	7.91	**	**	**	5.28	7.28	5.20	4.41	0.51	0.55	5.31	6.69
	65	32	210	40	6	19	134	185	132	112	13	14	135	170
SC40	3	1-1/2	7.68	**	**	**	5.59	7.87	5.51	5.20	0.59	0.59	6.10	7.68
	80	40	195	45	8	24	142	200	140	132	15	15	155	195
SC50	4	2	9.33	**	**	**	6.26	9.25	6.50	6.30	0.71	0.59	6.69	8.46
	100	50	237	50	10	28	159	235	165	160	18	15	170	215
SC60	4	2-1/2	10.31	**	**	**	6.77	9.25	7.09	7.09	0.79	0.59	7.68	9.65
	100	65	262	65	10	32	172	235	180	180	20	15	195	245

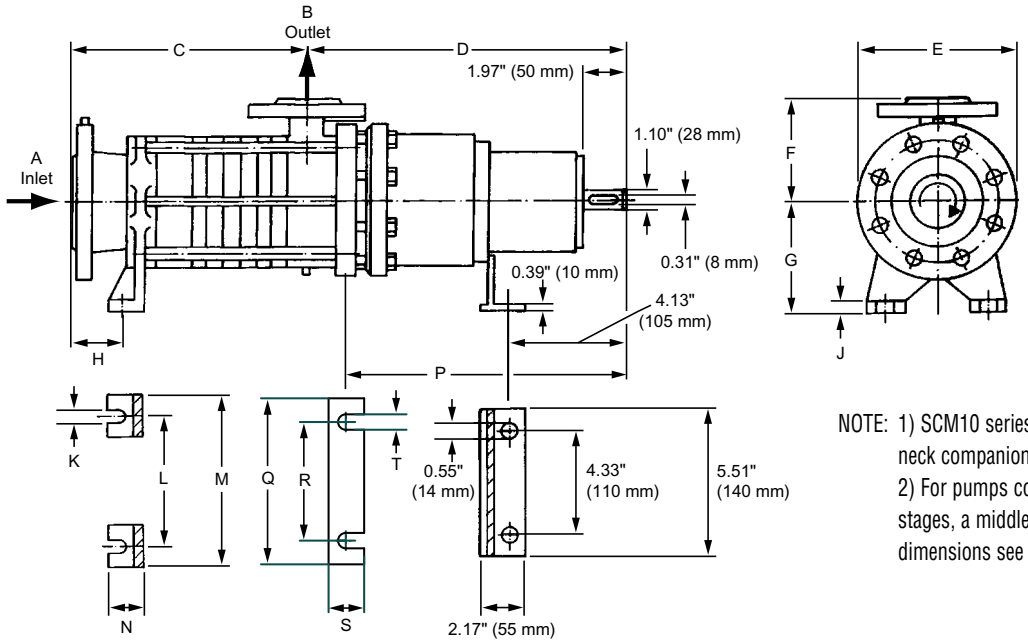
** Inlet and outlet flanges are per DIN spec (PN40 DIN 2501). Flanges can be drilled per ANSI for 300 lb. flanges, except for SC10 series.*
***These dimensions are available in metric only. U.S. couplings must be machined before use.*

	1 Stage		2 Stage		3 Stage		4 Stage		5 Stage		6 Stage		7 Stage		8 Stage	
Series	C	H	C	H	C	H	C	H	C	H	C	H	C	H	C	H
SC10	7.68	8.03	9.02	9.37	10.35	14.65	11.69	12.05	13.03	13.39	14.37	14.72	15.71	16.06	17.05	17.40
	195	204	229	238	263	372	297	306	331	340	365	374	399	408	433	442
SC20 and 30	8.39	8.94	9.96	10.51	11.54	12.09	13.11	13.66	14.69	15.24	16.26	16.81	17.83	18.39	19.41	19.96
	213	227	253	267	293	307	333	347	373	387	413	427	453	467	493	507
SC40	10.55	10.20	12.72	12.36	14.88	14.53	17.05	16.69	19.21	18.86	21.38	21.02	23.54	23.19	26.89	25.35
	268	259	323	314	378	369	433	424	488	479	543	534	598	589	653	644
SC50	12.01	12.32	14.96	15.28	17.91	18.23	20.87	21.18	23.82	24.13	26.77	27.09	29.72	30.04	32.68	32.99
	305	313	380	388	455	463	530	538	605	613	680	688	755	763	830	838
SC60	13.31	13.90	16.85	17.44	20.39	20.98	23.94	24.53	27.48	28.07	31.02	31.61	34.57	35.16	38.11	38.70
	338	353	428	443	518	533	608	623	698	713	788	803	878	893	968	983

Dimensions shown in grey area are millimeters while non-shaded areas are inches.

3 SC-Series Pump Data / Dimensions

SCM-PUMP OUTLINE DIMENSIONS



NOTE: 1) SCM10 series will be equipped with weld neck companion flanges on inlet and outlet.
2) For pumps containing four to eight stages, a middle foot is required. For dimensions see the chart on page 34.

Series	Inlet A[1]	Inlet B[1]	D[2]	E	F	G	H	J	K	L	M	N	P[2]
SCM10	1.5	0.75	14.33	5.91	3.94	3.94	1.93	0.39	0.51	4.13	5.51	1.73	11.54
	40	20	364	150	100	100	49	10	13	105	140	44	293
SCM20 and 30	2.5	1.25	13.97 / 14.76	7.28	5.20	4.41	2.09	0.51	0.55	5.31	6.69	1.89	11.85 / 12.64
	65	32	355 / 375	185	132	112	53	13	14	135	170	48	301 / 321
SCM40	3	15	14.09 / 15.16	7.87	5.51	5.20	2.48	0.59	0.59	6.10	7.68	2.17	11.10 / 12.17
	80	40	358 / 385	200	140	132	63	15	15	155	195	55	282 / 309
SCM50	4	2	14.56 / 15.35	9.25	6.50	6.30	2.83	0.63	0.59	6.89	8.66	2.13	11.54 / 12.44
	100	50	370 / 390	235	165	160	72	16	15	175	220	54	296 / 316

[1]Inlet and outlet flanges are per DIN spec (PN40 DIN 2501). Flanges can be drilled per ANSI for 300 lb flanges, except for SC10 series.
[2]Depends on the magnetic coupling selected.

Series	C Number of stages							
	1	2	3	4	5	6	7	8
SCM10	7.68	9.02	10.35	11.69	13.03	14.37	15.71	17.05
	195	229	263	297	331	365	399	433
SCM20 & 30	8.39	9.96	11.54	13.11	14.69	16.26	17.83	19.41
	213	253	293	333	373	413	453	493
SCM40	10.55	12.72	14.88	17.05	19.21	21.38	23.54	25.71
	268	323	378	433	488	543	598	653
SCM50	12.01	14.96	17.91	20.87	23.82	26.77	29.72	32.68
	305	380	455	530	605	680	755	830

Dimensions for Extra Foot on SCM Series Pumps (for stages 4-8 only)					
Pumps	SCM10	SCM20	SCM30	SCM40	SCM50
Coupling sizes / Dimension	12,14,16	12,14,16 22,24,26	12,14,16 22,24,26	22,24,26 36,38	22,24,26 36,38
Q	6.69	7.87	7.87	7.87	7.87
	170	200	200	200	200
R	5.51	6.69	6.69	6.69	6.69
	140	170	170	170	170
S	1.81	0.79	0.79	1.81	1.81
	30	20	20	30	30
T	0.51	0.51	0.51	0.59	0.59
	13	13	13	15	15

Dimensions shown in grey area are millimeters while non-shaded areas are inches.

CONTENTS

Coro-Flo Series Introductory Information

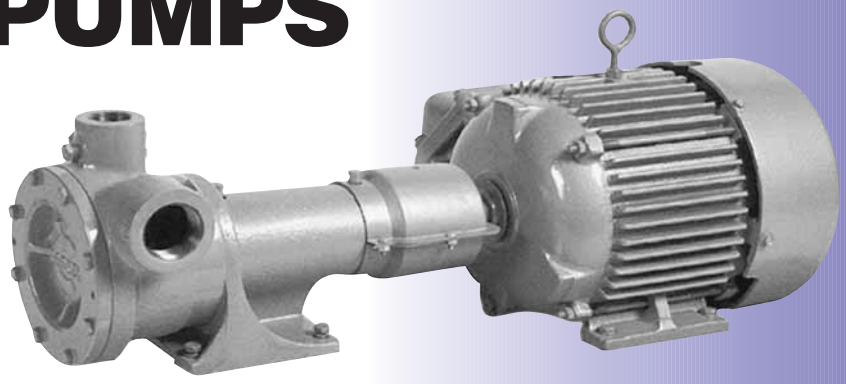
Coro-Flo Series Model Selection

Coro-Flo Series Pump Data / Dimensions

INDUSTRIAL CORO-FLO®

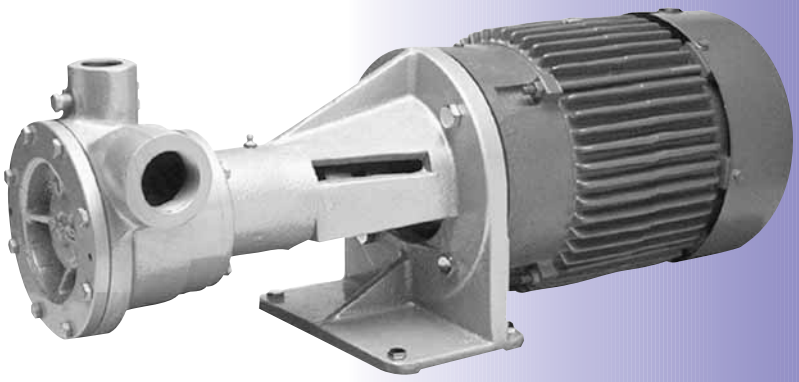
PUMPS

Sales Bulletin VF104G



MODEL F14-101

F-MODEL WITH ANSI FLANGES



DS/DL MODEL

TYPICAL APPLICATIONS

Reflux pump for gas liquids
LP-Gas vaporizer feed pump
Aerosol propellant pump
Anhydrous ammonia cylinder filling
Propane motor fuel pumping

Pumps 2 to 36 gpm (7.6 to 136 lit/min)
Heads to 700 ft (213 m)

FOR THIN LIQUIDS & LIQUEFIED GASES

Propane
Butane
Ammonia
Refrigerants
Sulfur Dioxide
Carbon Dioxide
Gasoline
Light Oils
Solvents
Propylene
Pentane
Foam Blowing Agents

Listed by Underwriters' Laboratories, Inc. for use in LP-Gas and Anhydrous Ammonia.

Solutions beyond products...

CORKEN®

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THE CORKEN CORO-FLO PUMP - 'F' SERIES

IDEAL FOR RESEARCH LABORATORY WORK AND FOR HANDLING MANY LIQUIDS OF THE PETROCHEMICAL, LPG, NH3 AND AEROSOL INDUSTRIES.

For low-capacity, high-head pumping, the Corken Coro-Flo pump is designed and built for the tough jobs. Without the noise, vibration and pulsations of the positive displacement gear and sliding vane pumps, the Coro-Flo pump handles volatile and other hard-to-handle thin liquids smoothly and quietly. The one moving part, the impeller, floats on the shaft with no rubbing, grinding or metal-to-metal contact.

The Corken Coro-Flo was originally developed to fill propane cylinders, but it has found its way into many other fields, especially where volatile liquid transfer is involved. It is commonly used to feed aerosol filling lines, and to transfer liquefied gases like NH_3 CO_2, SO_2 and the refrigerant gases.

The Coro-Flo pump has been designed for simplicity of inspection and service. The cover can be removed and the impeller and seal serviced without disturbing the piping. The balanced mechanical seal is furnished with its own sleeve for the longest and most reliable service.

Every Corken Coro-Flo pump is carefully inspected and run to assure its quality and performance. The Coro-Flo is listed by Underwriters' Laboratories, Inc. for use in LP-Gas and anhydrous ammonia service.

MATERIAL SPECIFICATIONS

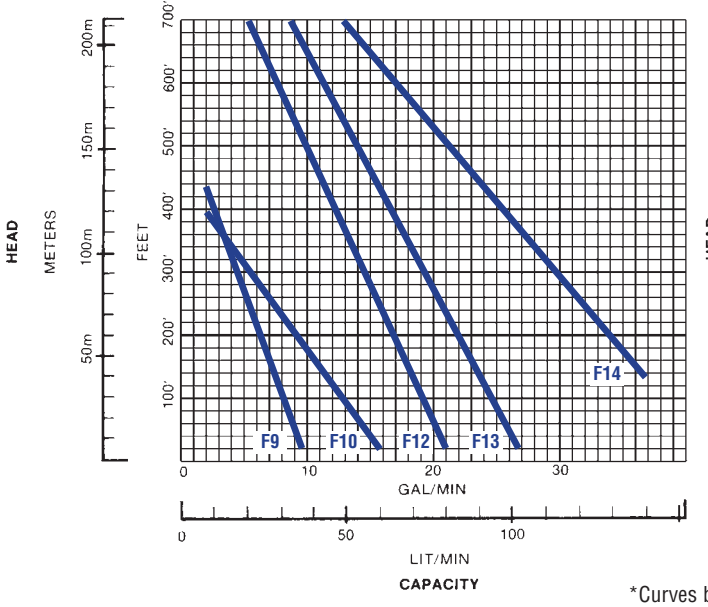
Part	Standard	Optional
CASE/COVER	Ductile Iron ASTM A-536	None
IMPELLER	Bronze	303 Stainless Steel Ductile Iron
SHAFT	Stressproof Steel	416 Stainless Steel
O-RINGS	Buna N	Teflon* Viton* Neoprene* Etylene-Propylene
SEAL SLEEVE	Aluminum	416 Stainless Steel
SEAL SEAT	Cast Iron	304 Stainless Steel Ni-Resist Ceramic Tungsten Carbide
SEAL HOUSING	Steel, Cadmium Plated	416 Stainless Steel

*Registered Trademarks of Du-Pont.

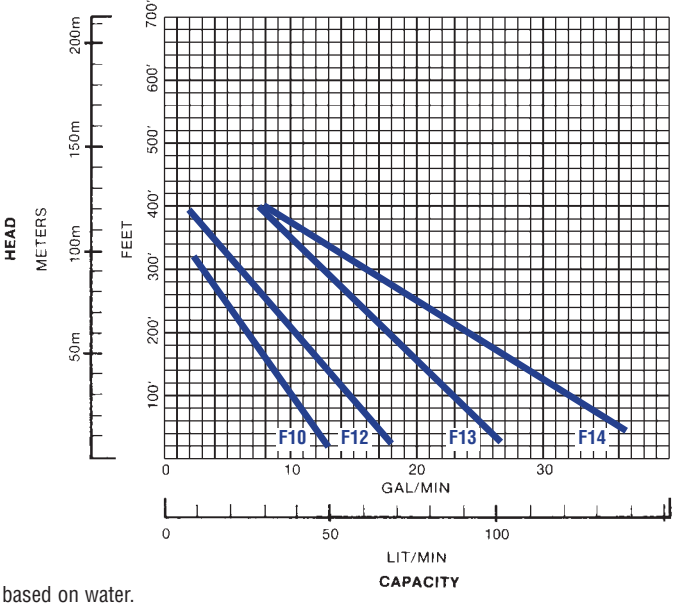
MECHANICAL SPECIFICATIONS

INLET	1-1/4" NPT (Models F9, F10) 1-1/2" NPT (Models F12, F13, F14, F15) 1-1/2" ANSI 300 LB. (Models FF9-FF15)
OUTLET	1" NPT 1" ANSI 300 LB. (FF9-FF15)
ROTATION	Clockwise only (From driven end)
MAX. RPM	3600
MAX. CASE TEST PRESSURE	2500 psig (172 Bar)
MAX WORKING PRESSURE	400 psig (27.6 Bar)
MAX DIFFERENTIAL PRESSURE	125 psig (10.3 Bar)
HORSEPOWER RANGE	1/2 to 10
TEMPERATURE RANGE	-25° to +225° F (-32° to +107°C)
MAX. VISCOSITY	400 SSU

PERFORMANCE CURVE - 3450 RPM*



PERFORMANCE CURVE - 2880 RPM*



*Curves based on water.

EXCLUSIVE FEATURES OF THE CORO-FLO PUMP

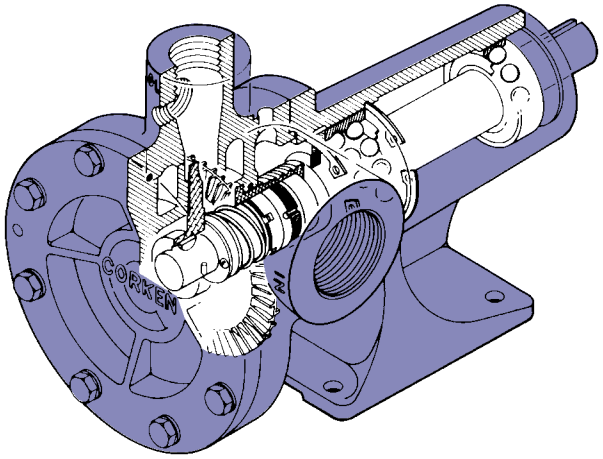
EXCLUSIVE DIVIDED SUCTION DESIGN provides smooth continuous flow through the pump.

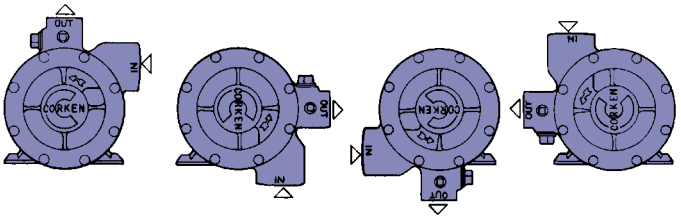
A BY-PASS CONNECTION, 3/4" pipe thread, has been located on the outlet nozzle to simplify piping of the pump.

A PRESSURE GAUGE CONNECTION, 1/4" pipe thread, has been located on the outlet nozzle.

UNDERWRITERS' LABORATORIES, INC has tested and inspected CORO-FLO PUMPS and has listed them for use in the handling of L.P. Gas and Anhydrous Ammonia Liquid.

THE BALANCED MECHANICAL SEAL ASSEMBLY with its own shaft sleeve may be replaced easily by removing the Cover and the Impeller without disturbing the piping or driver. No special tools are needed.





THE IMPELLER "floats" on the shaft and may be replaced easily when worn or damaged by simply removing the Cover without disturbing the piping.

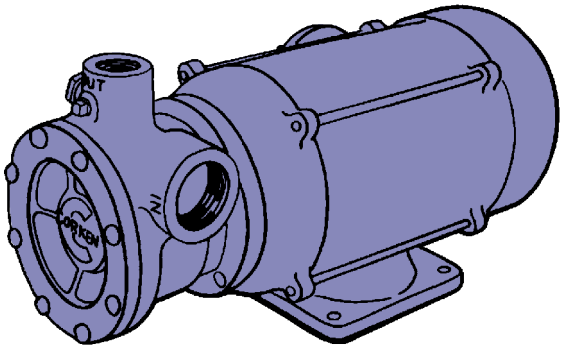
HEAVY-DUTY BALL BEARINGS are used for precision operation and long service life.

RUGGED DUCTILE IRON has been used in the manufacture of this pump for parts under pressure of the liquid.

THE PUMP NOZZLES MAY BE ROTATED into four different positions, 90 degrees apart, if desired.

300 LB. ANSI FLANGES are also available for those applications requiring stringent leakage control.

FOR LP-GAS APPLICATIONS ONLY



Close-Coupled Pump Motor units are available.
See Corken Bulletin LPG100.

AN IMPORTANT ACCESSORY TO THE CORO-FLO PUMP
CORKEN B166 BY-PASS VALVE

Automatic, Dual Purpose By-pass Valve

This is a combination by-pass and priming valve specifically designed for small bottle filling pumps, such as the Corken Coro-Flo pump series. The patented vapor elimination systems keep liquefied gas pumps primed to increase system reliability and decrease pump and seal wear. The B166 is a smooth operating by-pass with moderate pressure build up.

Corken B166 Bypass Valve Functions.

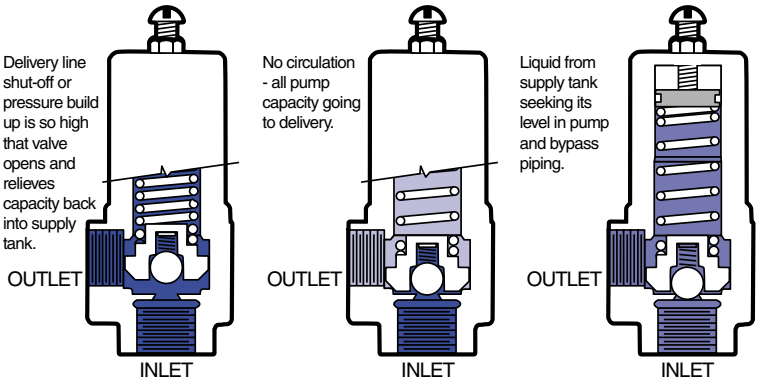
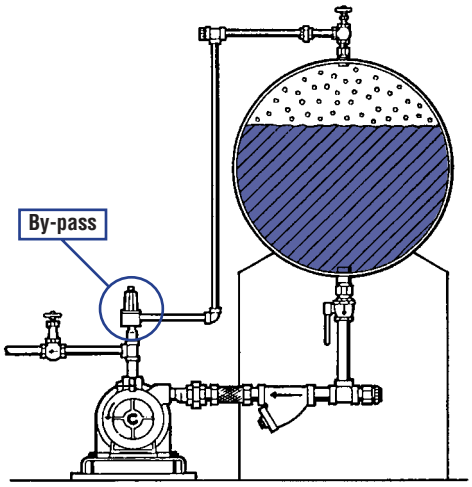


FIG. 1 Relieving Operation OPEN — LIQUID

FIG. 2 Pumping Operation CLOSED — VAPOR

FIG. 3 Priming Operation OPEN — VAPOR and/or LIQUID



Typical Application: On all Corken Coro-Flo pumps as well as bottle pumps of other manufacturers. On propellant feed pumps at aerosol filling plants.

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Corken, Inc. • A Unit of IDEX Corporation

3805 N.W. 36th St., Oklahoma City, OK 73112 U.S.A.
Phone (405) 946-5576 • 1-800-631-4929
Fax (405) 948-7343

Visit our website at http://www.corken.com
E-mail info.corken@idexcorp.com

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February 2007

Autogas Series

Regenerative Turbine Coro-Flo® Pumps

For High Differential Pressure Applications Using
LPG and Other Liquefied Gases

Solutions beyond products...

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A Tradition of Excellence

Corken, Inc. is recognized as a world leader in the manufacture of LPG pumps and compressors. Corken's exceptional reputation in the LPG industry is built upon decades of maintaining the highest quality and customer service standards. This, combined with an absolute dedication to product performance, makes Corken a company recognized worldwide for its manufacturing leadership.

Located in Oklahoma City, Oklahoma, USA, Corken was founded in 1924 and quickly gained a reputation for excellence in customer service. In 1951, Corken entered the Liquefied Petroleum Gas (LPG) industry, introducing its first regenerative turbine pump. In the years to follow, Corken quickly gained market recognition for its quality line of pumps and compressors for the propane, butane and anhydrous ammonia industries.

In 1991, Corken became part of the IDEX Corporation, a manufacturer of proprietary fluid handling and industrial products that are recognized as market leaders. Through the years, a total commitment to customer service, product integrity and a strong dedication to technological innovation have made Corken recognized as a leader in the compressor and pump markets.

Corken designs and manufactures products meeting industry standards, including Underwriters' Laboratories (UL), Canadian Standards Association (CSA), High Pressure Gas Safety Institute of Japan (KHK), Bureau Veritas of France, Main Inspectorate of Railway Technical Supervision of Poland and many others. Corken is proud to join the elite group of companies that have achieved registration with the International Quality Standard ISO 9001 and the Environmental Management Standard ISO 14001.

Today, Corken is a diversified company that serves a worldwide customer base. Corken truck pumps, stationary pumps, compressors and engineered packages are used by a wide range of companies throughout the world, including the Far East, Asia, Africa, Europe, the Middle East, South America and North America. Corken serves each of its customers through an extensive network of distributors—each sharing the same commitment to customer service that Corken has demonstrated for more than 80 years.

QUALITY
ISO 9001
SYSTEM

ENVIRONMENTAL
ISO 14001
MANAGEMENT
SYSTEM

A Cost Effective Alternative to Submersible Designs

Meeting Global Demands for Autogas Applications...

In our continuous effort to meet the global demands by underground and aboveground tank applications, the autogas series is now available in two sizes. The model 075 is designed for one dual hose dispenser while the model 150 is designed for two dual hose dispensers. Whether you require a low or high flow rate with a high differential pressure, Corken has the pump for your application.

Continuous Duty Design...

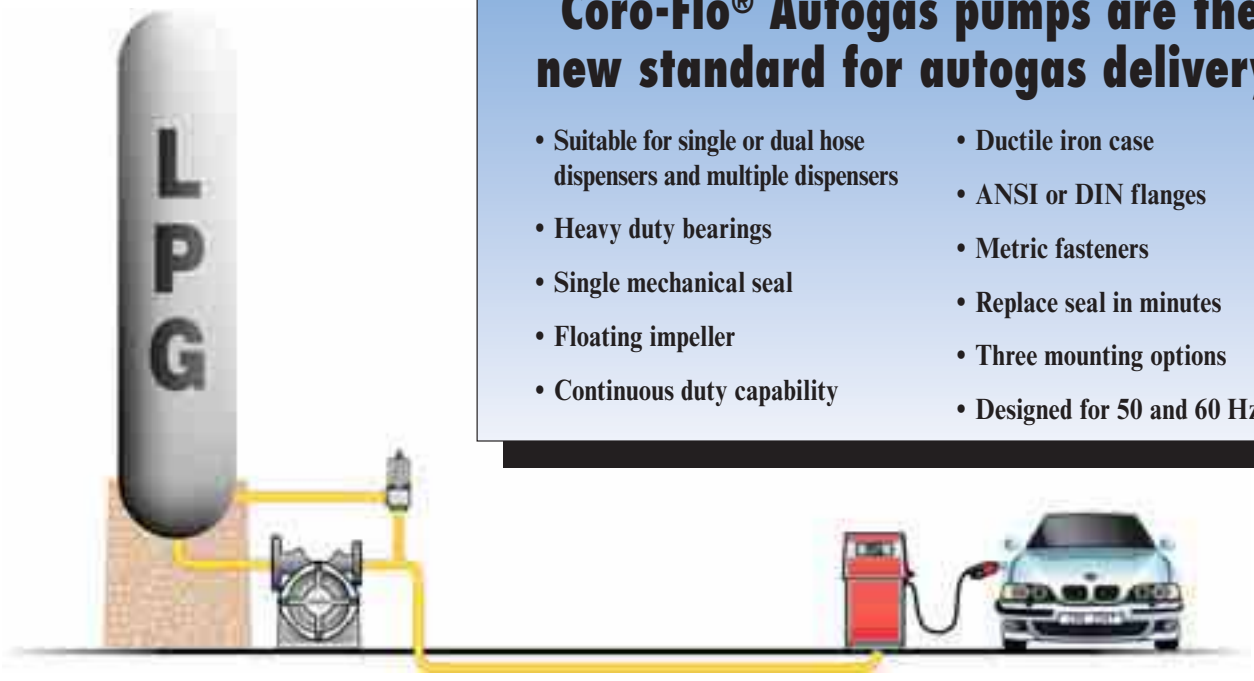
Built for continuous duty service, the autogas series incorporates heavy duty bearings, free floating impeller, a single mechanical seal, ANSI or DIN flange connections, metric fasteners, and a ductile iron case.

Multiple Mounting Options...

The autogas series is available with two mounting options. You may select a frame mount for direct or belt drive configurations or a direct mount that bolts to a standard C-Face 50 Hz (2880 RPM) or 60 Hz (3450 RPM) motor.

Serviceability is Simple and Cost Effective...

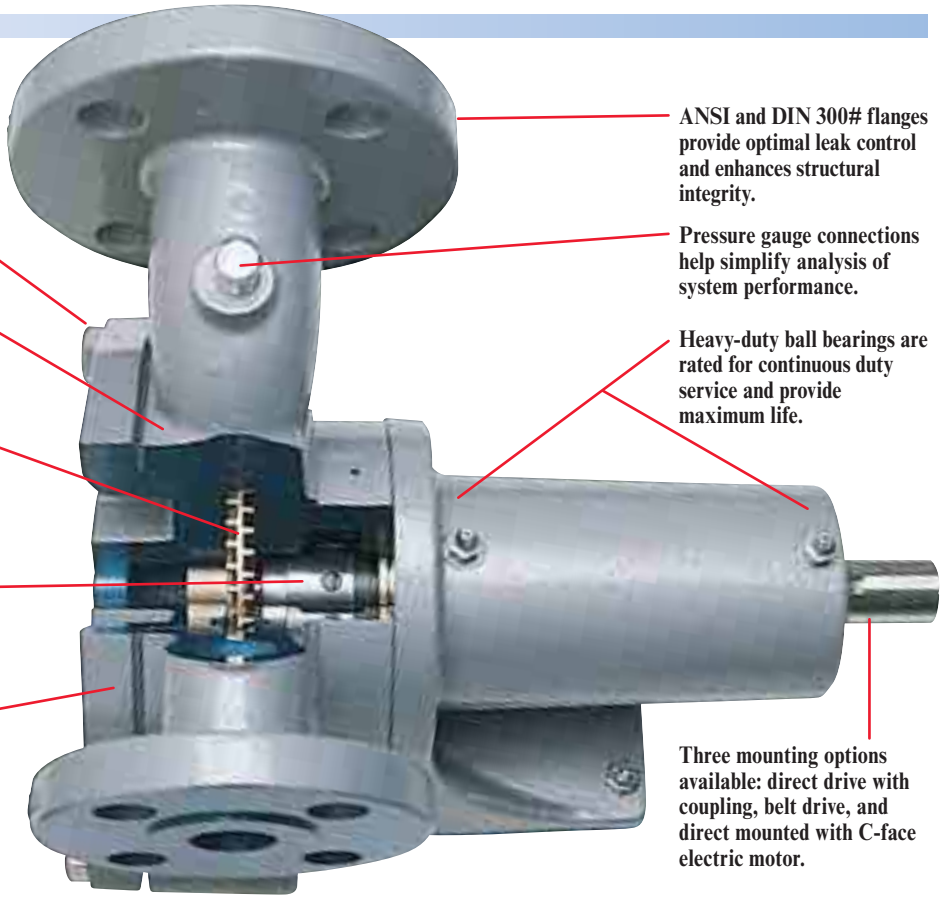
Unlike submersible designs, the autogas series is mounted aboveground so there is no need to disturb the piping. All parts are easily accessed by simply removing the pump head. This feature allows you to quickly service the pump on site and minimize costly downtime thereby making the autogas series a cost effective alternative to submersible designs.



Coro-Flo® Autogas pumps are the new standard for autogas delivery.

- Suitable for single or dual hose dispensers and multiple dispensers
- Heavy duty bearings
- Single mechanical seal
- Floating impeller
- Continuous duty capability
- Ductile iron case
- ANSI or DIN flanges
- Metric fasteners
- Replace seal in minutes
- Three mounting options
- Designed for 50 and 60 Hz

Features, Benefits, and Specifications



High strength metric fasteners.

Case and cover of ASTM A536 ductile iron, providing maximum thermal shock protection.

Self-aligning, free-floating, precision machined impeller, incorporating proprietary design, optimizes flow and provides quiet non-pulsating transfer of LPG.

Maximum sealing provided by a single balanced, precision lapped, mechanical seal.

Designed for ease of service. Seal can be replaced in minutes by simply removing the cover.

ANSI and DIN 300# flanges provide optimal leak control and enhances structural integrity.

Pressure gauge connections help simplify analysis of system performance.

Heavy-duty ball bearings are rated for continuous duty service and provide maximum life.

Three mounting options available: direct drive with coupling, belt drive, and direct mounted with C-face electric motor.

Specification	All Coro-Flo® 075 and 150 Models
Inlet	1-1/2" - ANSI 300# R.F. flange (DIN optional)
Outlet	1" - ANSI 300# R.F. flange (DIN optional)
RPM	3450 @ 60 Hz or 2880 @ 50 Hz
Max. working pressure	27.6 bar (400 psig)
Max. differential pressure	Model 075: 10.3 bar (150 psig) Model 150: 17.2 bar (250 psig)
Max./min. temperature	107°C (225°F) / -32°C (-25°F)
Impeller material	Bronze (standard)
O-ring material	Buna-N (standard)
Seal seat material	Silicon carbide (standard)
Maximum driver	15 kW (20 hp)
Type of electric motor*	Rigid-base (frame mount) and C-face (direct mount)

* Consult factory regarding other types of motors.

Applications:

- Autogas dispensing
- Cylinder filling
- Vaporizer feed
- Bulk transfer
- Direct burner feed
- Aerosol propellant

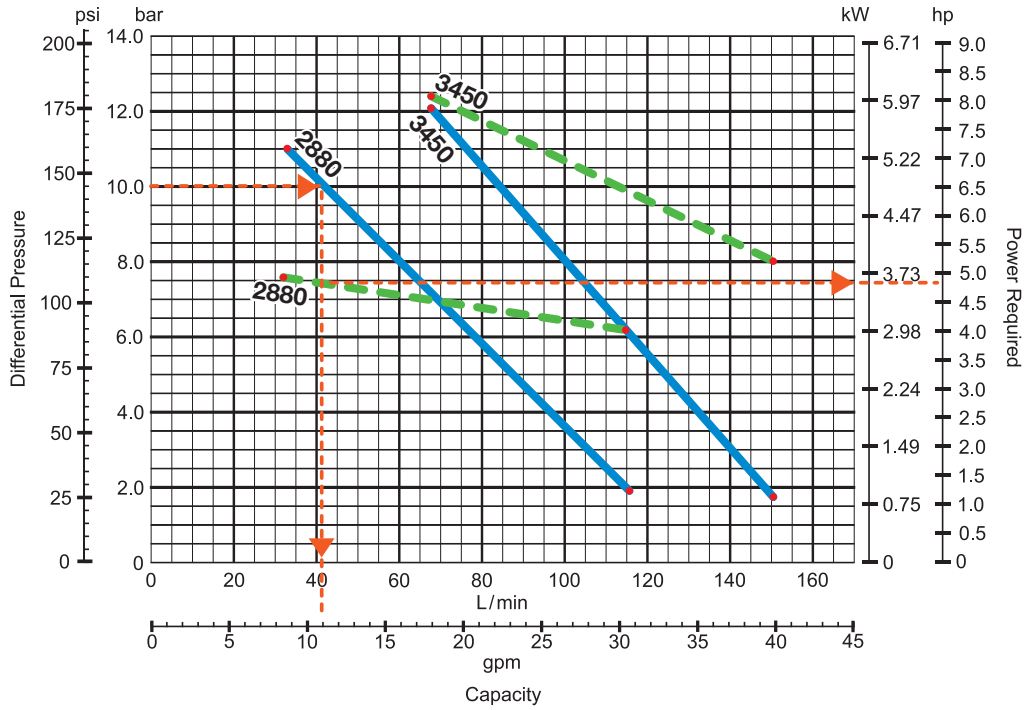
CORKEN®

Frame Mount

Direct Mount

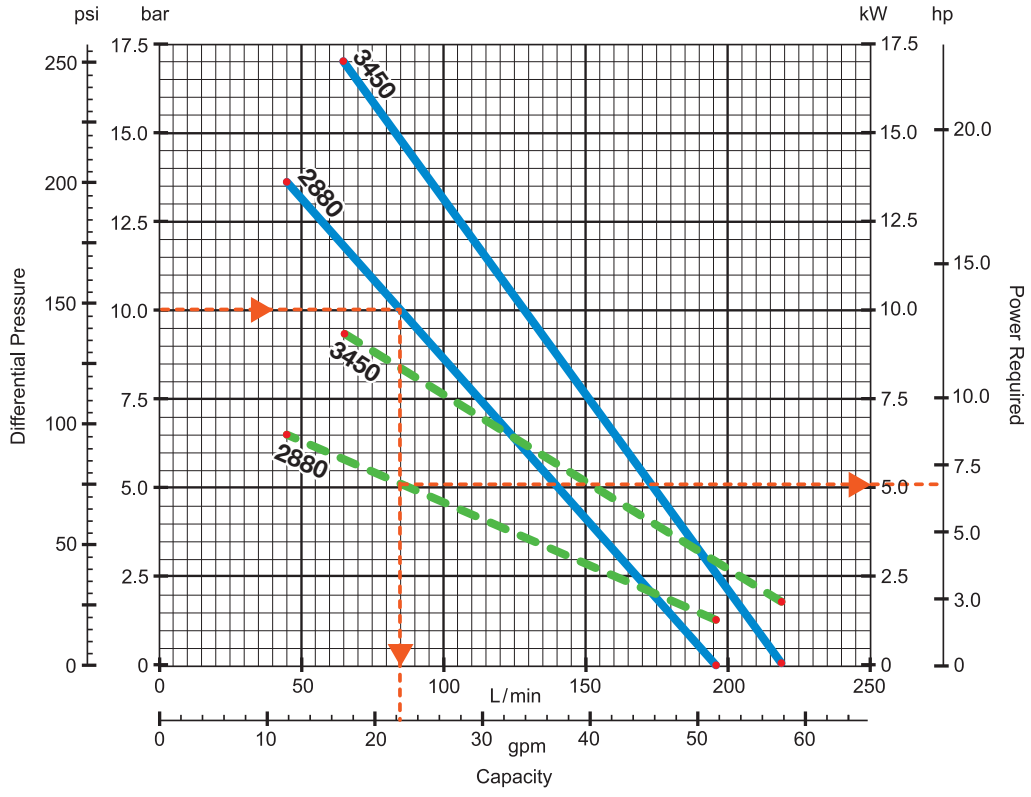
Autogas Series Performance

Performance Curves for 075-Model Coro-Flo® Pumps[1]



2880 RPM @ 50 Hz
Differential pressure:
10.0 bar
145.0 psi
Flow:
42 L/min
11 gpm
Power required:
3.65 kW
4.9 hp
Curves based on LPG[1]
Capacity
Power required

Performance Curves for 150-Model Coro-Flo® Pumps[1]



2880 RPM @ 60 Hz
Differential pressure:
10.0 bar
145.0 psi
Flow:
85 L/min
22.5 gpm
Power required:
5.59 kW
7.5 hp
Curves based on LPG[1]
Capacity
Power required

[1] *The performance curves are based on aboveground LPG installations. Performance curves for underground LPG tanks will vary based on the specific installation. Consult factory.*

Designed for Underground and Aboveground Tank Applications

Aboveground autogas installation using one autogas series pump with two tanks.

Aboveground autogas installation using one autogas series pump with three tanks.

Underground autogas installation with one tank. Corken's autogas series pump replaced a previously installed submersible design.

A Cost Effective Alternative to Submersible Designs

Underground autogas installation using one autogas series pump with one tank.

Underground autogas installation using one autogas series pump with two tanks.

Underground autogas installation using one autogas series pump with one tank.

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3805 N.W. 36th St., Oklahoma City, OK 73112
(405) 946-5576 • FAX (405) 948-7343

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e-mail us at info.corken@idexcorp.com

AG100F

PRINTED IN THE USA
OCTOBER 2008

'D' SERIES CORO-FLO PUMP ELIMINATES ALIGNMENT WORRIES

"D" series Coro-Flo pumps are mounted on a special bracket which will accept standard, 2-pole, C-face motors (Note: Motor is optional). The bracket supports both the pump and the motor so they can be directly coupled. The "D" series is designed to exact tolerances so coupling alignment is not required – simple assembly will result in proper alignment of the pump and motor shafts. The "D" series Coro-Flo pump eliminates the need for a baseplate, coupling guard, and coupling alignment which makes the "D" series pump compact and easy to install.

AVAILABLE WITH:

- **1-1/4" x 1" or 1-1/2" x 1" NPT Connections (standard)**
- **1-1/2" x 1", 300 lb. ANSI Connections (optional)**

The "D" series Coro-Flo pump is available in two bracket sizes. The "DS" bracket is designed for smaller C-face motors; the "DL" for larger. See the table below for motor information. As with all Coro-Flo pumps, a 2-pole motor is used to drive the pump at 3450 RPM in 60 Hz areas and at 2880 RPM in 50 Hz areas.

As with the F-Model Coro-Flo, the "D" series is available with 300 lb. ANSI flanges. Options are available for stainless steel internals, a variety of o-rings (Buna-N, Teflon®, Viton®, Neoprene®, ethylene-propylene) and seal face materials (cast iron, stainless steel, ceramic, ni-resist and tungsten carbide).

Pump Bracket*	DS 4.5" Rabett Diameter	DL 8.5" Rabett Diameter
C-face Motor Frame	56C 143TC 145TC	182TC 184TC 213TC 215TC

* All pump models (9, 10, 12, 13, 14, 15) will fit either DS or DL bracket. Choice of bracket is determined by motor size selection, not pump selection.

IS THE CORO-FLO THE PUMP FOR YOUR APPLICATION?

The following questions will allow you to determine if your application fits within the capabilities of the Coro-Flo Line without going through the entire sizing procedure. If you can answer yes to all of the following questions, then proceed to the sizing worksheet below. If you must answer no to one or more of the questions, return to the Initial Hydraulic Selection/Overview Graph to see if any of our other pump lines meet your basic conditions. Please feel free at any time to give us or your local distributor a call with your questions.

_____ Is the viscosity of the liquid being pumped less than 400 SSU (86 CST)?

_____ Is the discharge pressure requirement less than 400 PSI (27.5 bar)?

_____ Is the differential pressure requirement less than 150 psi (10.3 bar)?

_____ Will the temperature of the liquid being pumped remain between –25°F (-32°C) and 225°F (107°C)?
(Consult factory if temperature is less than -25°F.)

_____ Will iron pump casing be acceptable?

_____ Is the liquid free of abrasives?

SIZING WORKSHEET

The next step in the sizing process is to ensure that you have all of the data that you need. We encourage you to make copies of this page and use it as a worksheet for selecting the proper Coro-Flo Pump.

A Liquid: _____

B Specific Gravity: _____ (Specific Gravity = Liquid Density/Density of Water)

C Viscosity: _____ (in Centipoise, cP)
See Page 5-3 to convert from SSU or Centistokes (cSt) to Centipoise (cP).

D Differential Pressure = _____ psi (150 psi = Maximum Allowable)

E Differential head = _____ feet
Convert from psi to head (ft) with the following calculation: (PSI x 2.31) ÷ Specific Gravity = Feet Head

G Total Discharge Pressure = _____ psi
PSI = (Feet x Spec Gravity) ÷ 2.31

H Desired Flow Rate = _____ GPM

SELECTION DATA

You may use the blanks below to record the information that you obtain from the following sizing pages.

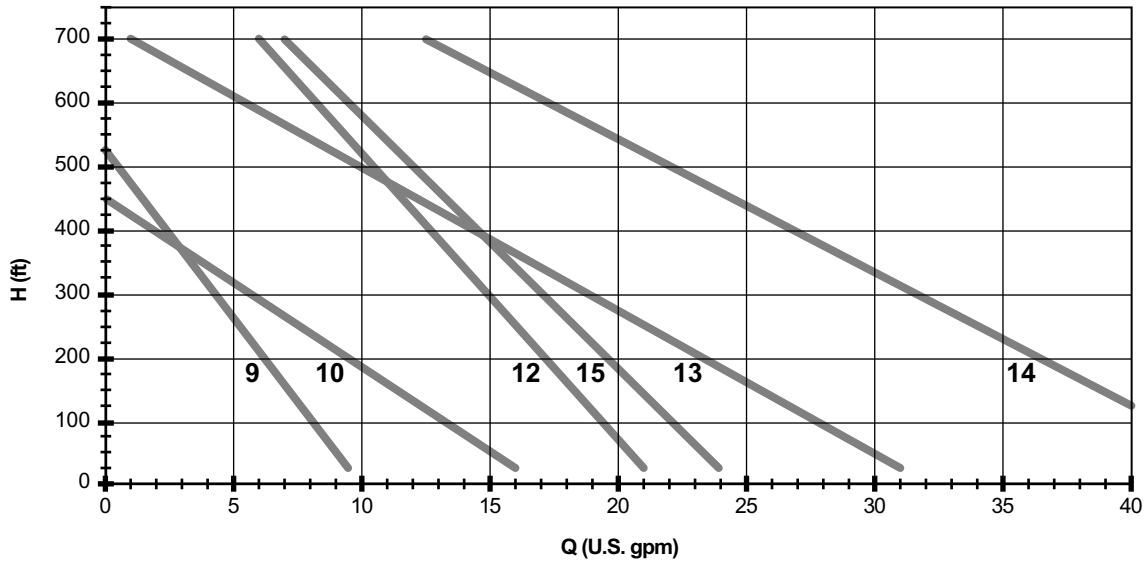
Pump Model _____ Speed _____

Flow _____ BHP _____

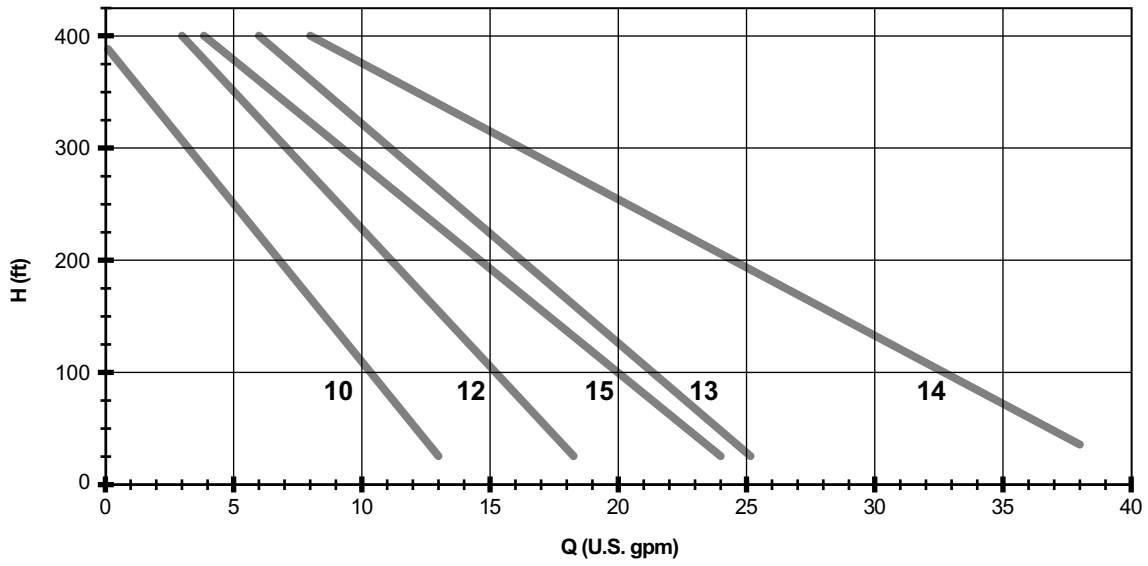
OVERVIEW OF PERFORMANCE RANGE

1. Use the differential head value **E** from your worksheet and locate that value on the left side of the 3450 RPM curve below (if 50 HZ frequency, use 2880 RPM curve).
2. Move horizontally right until you intersect the first of the diagonal lines. Move down vertically to the bottom of the graph to determine if the flow rate at that point comes close to your desired flow rate **H**.
3. If it does, make note of the model number that corresponds to that diagonal line and proceed to page 4-11. If it does not, continue horizontally until you reach the next diagonal line. Repeat the above process until you determine which model most closely matches the desired flow **H** at the required differential head **E**.

CHARACTERISTIC CURVES FOR MODELS 9, 10, 12, 13, 14, 15 (3450 RPM)



CHARACTERISTIC CURVES FOR MODELS 10, 12, 13, 14, 15 (2880 RPM)



INSTRUCTIONS FOR SELECTION OF CORO-FLO PUMP

1. Turn to the performance curve page that corresponds with the model that you noted from the overview pages.

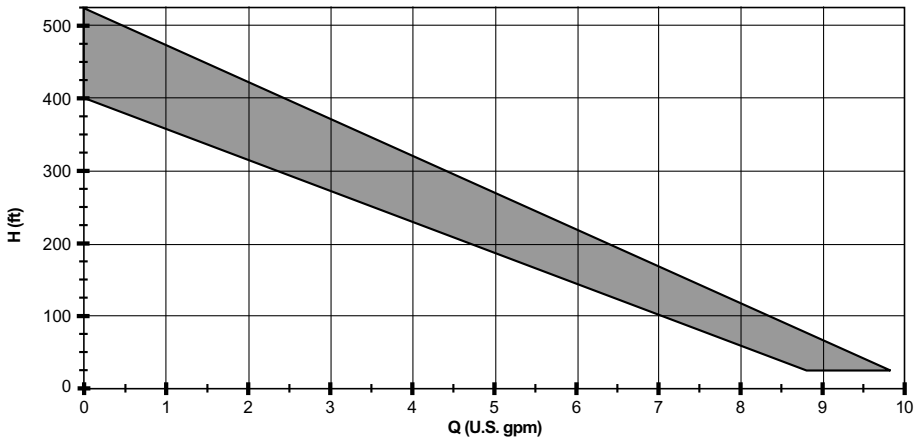
Model	Page #
9	4-12
10	4-13
12	4-14
13	4-15
14	4-16
15	4-17

2. Select the curve that corresponds to the speed at which the pump will turn.
3. Locate the head value that corresponds with your **E** value (from worksheet) on the left side of Graph 1.
4. From that point, move horizontally to the right until you intersect the shaded area. The left side of the shaded area reflects the performance curve of a liquid with 0.1 CP viscosity, while the right side reflects a viscosity of 1.0 CP. Refer to your **C** value and locate the point in the shaded area closest to this value. If your **C** value exceeds 1.0 CP (not to exceed 85 CP) use the line that corresponds with 1.0 CP.
5. Move down vertically from the point of intersection to the bottom of the graph. This is the flow rate that the model pump will obtain at the required differential pressure.
6. From the point of intersection on Graph 1, move vertically down to Graph 2. Continue to move down until you intersect the diagonal line.
7. From this point of intersection, move horizontally to the left side of the graph and note the horsepower value. Take this value and multiply it by the specific gravity of the liquid to be pumped (value **B** on your worksheet). The value that you calculate is the brake horsepower required to operate the pump in your application. You must select a motor with a horsepower greater than (or, at a minimum, equal to) this value.
8. Once you have recorded this value and made note of the pump model, proceed to the model number selection page that corresponds to the pump type that you desire.

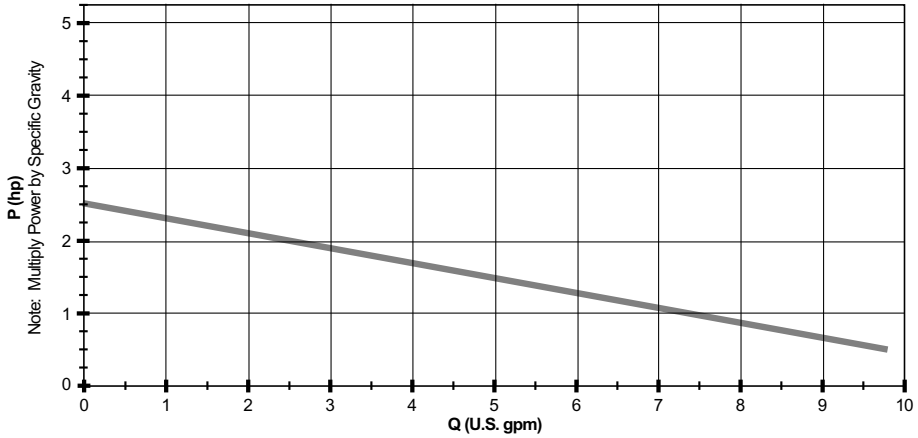
Page 4-18 for Frame Mounted Design (F Model)
Page 4-19 for C faced Design (D Model)

CHARACTERISTIC CURVES FOR MODEL 9 (3450 RPM)

GRAPH 1



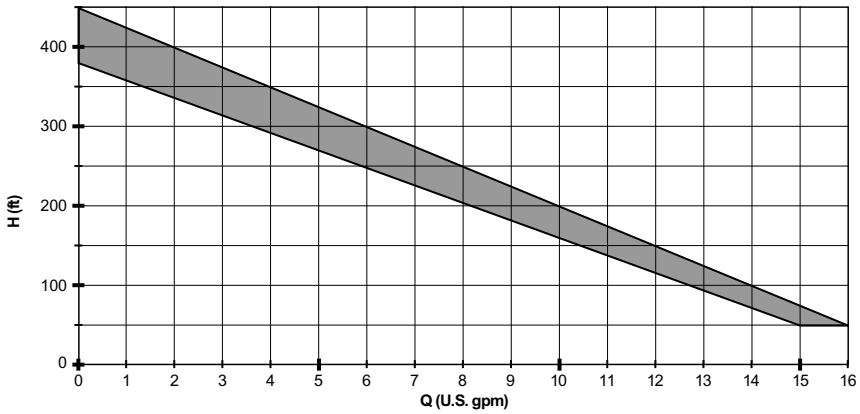
GRAPH 2



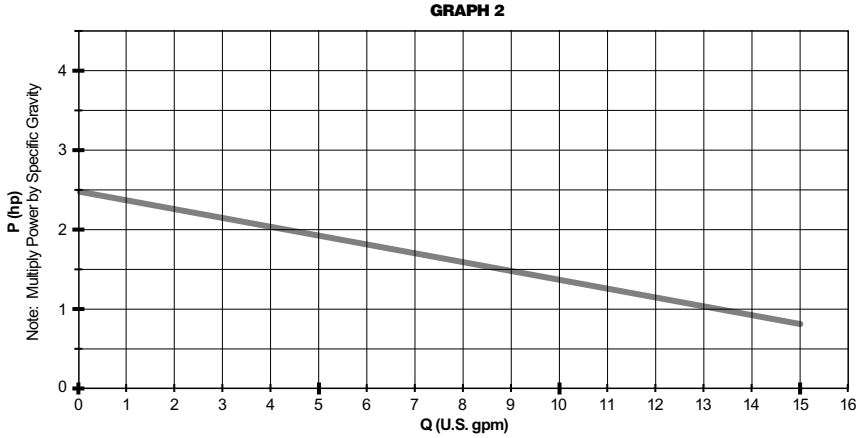
Note: Remember that 150 psi is the maximum allowable differential pressure for a Coro-Flo pump.

CHARACTERISTIC CURVES FOR MODEL 10 (3450 RPM)

GRAPH 1

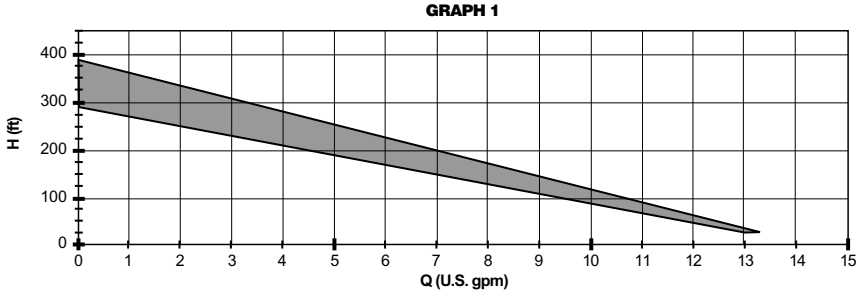


GRAPH 2

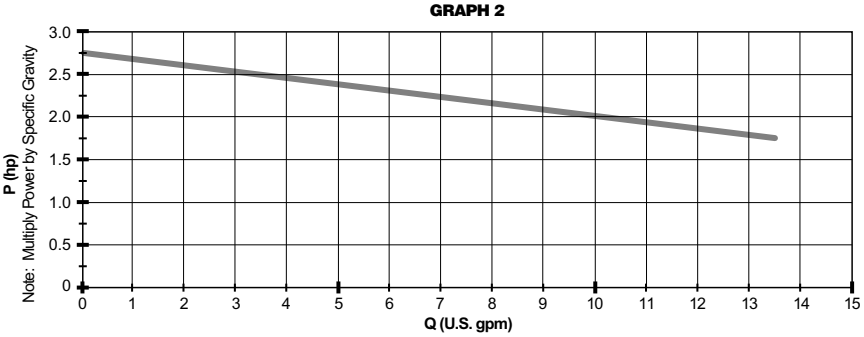


CHARACTERISTIC CURVES FOR MODEL 10 (2880 RPM)

GRAPH 1



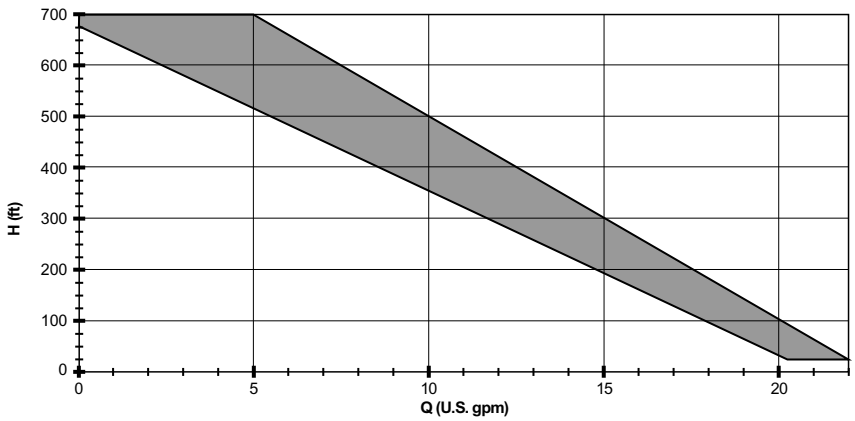
GRAPH 2



Note: Remember that 150 psi is the maximum allowable differential pressure for a Coro-Flo pump.

CHARACTERISTIC CURVES FOR MODEL 12 (3450 RPM)

GRAPH 1



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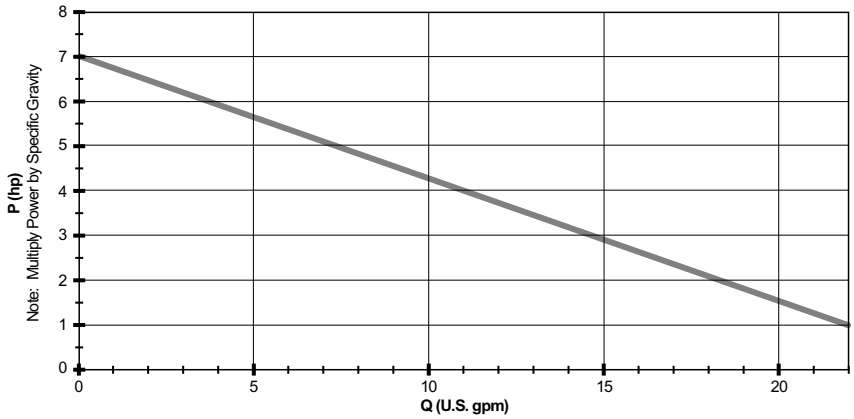
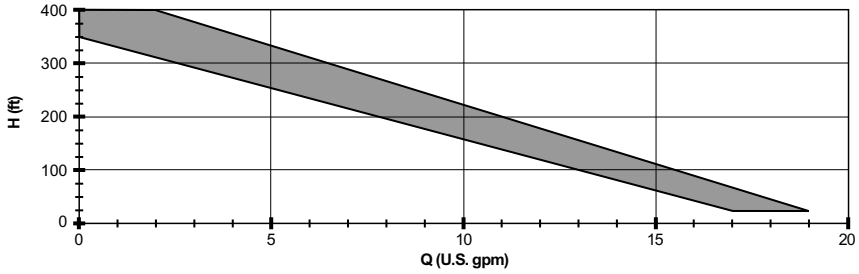
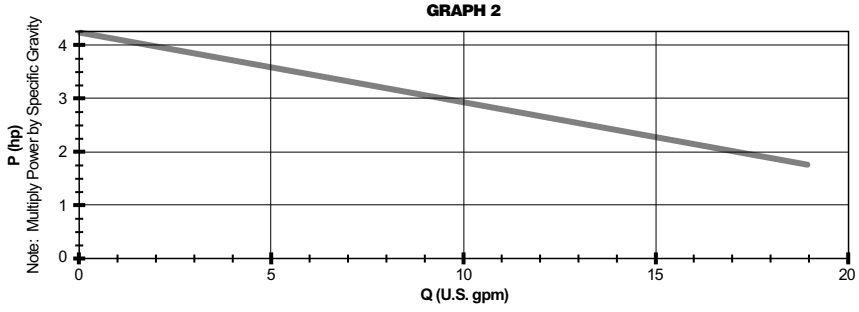


CHARACTERISTIC CURVES FOR MODEL 12 (2880 RPM)

GRAPH 1



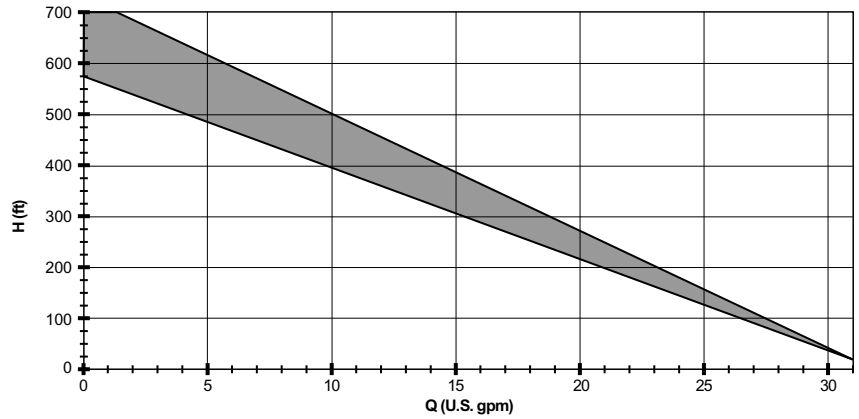
GRAPH 2



Note: Remember that 150 psi is the maximum allowable differential pressure for a Coro-Flo pump.

CHARACTERISTIC CURVES FOR MODEL 13 (3450 RPM)

GRAPH 1



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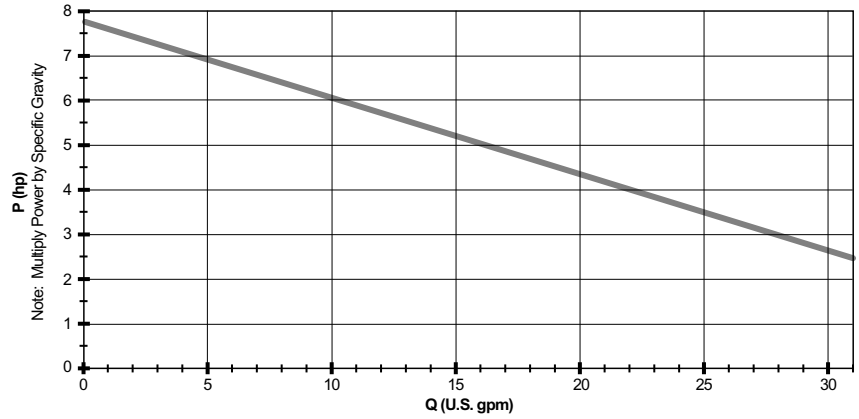
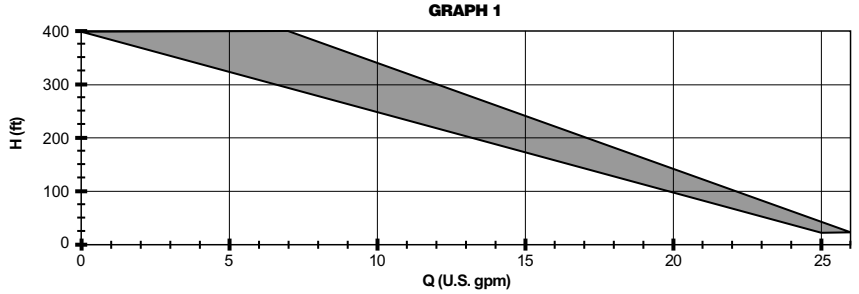
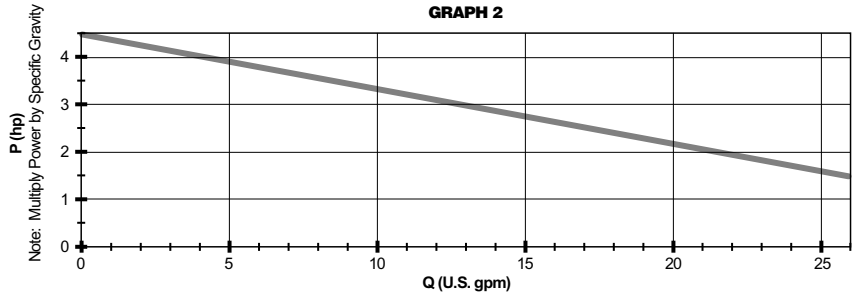


CHARACTERISTIC CURVES FOR MODEL 13 (2880 RPM)

GRAPH 1



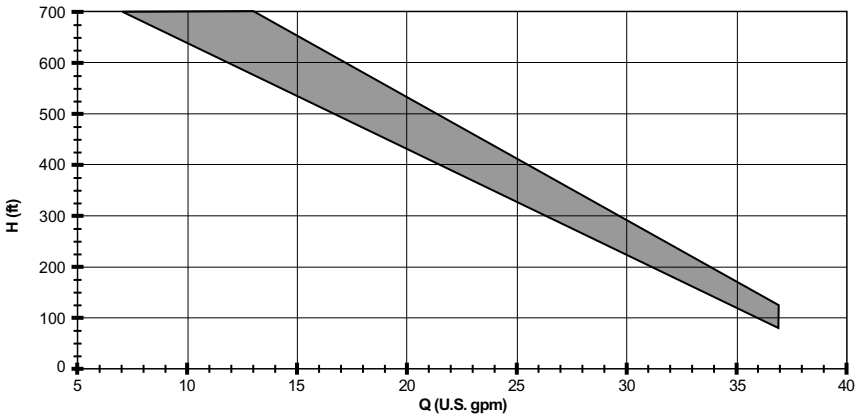
GRAPH 2



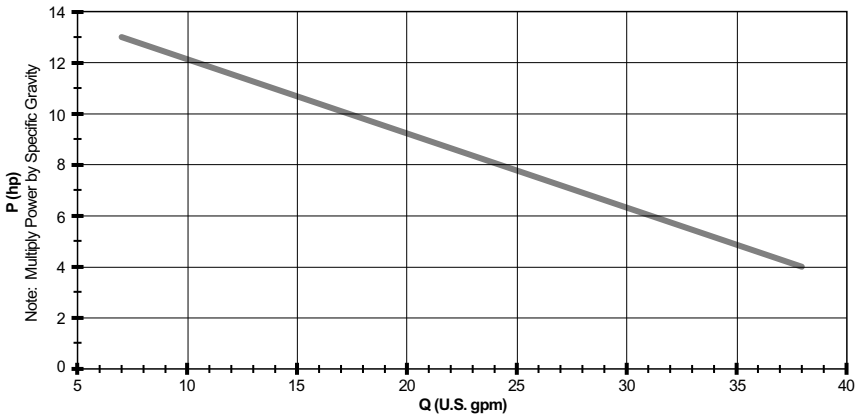
Note: Remember that 150 psi is the maximum allowable differential pressure for a Coro-Flo pump.

CHARACTERISTIC CURVES FOR MODEL 14 (3450 RPM)

GRAPH 1

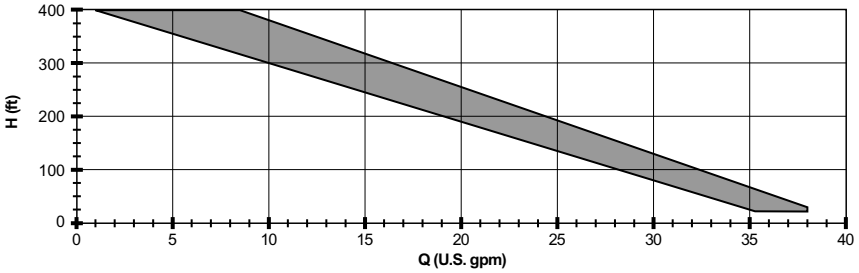


GRAPH 2

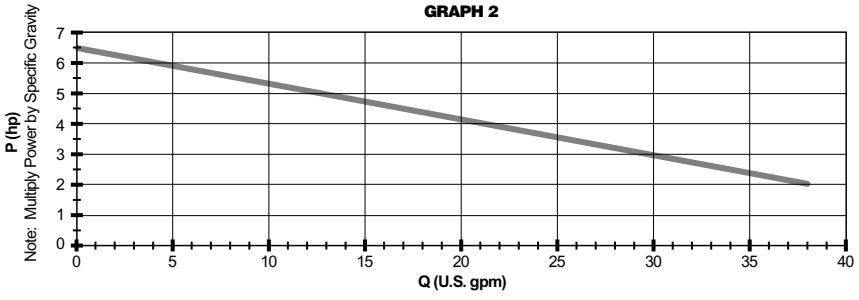


CHARACTERISTIC CURVES FOR MODEL 14 (2880 RPM)

GRAPH 1



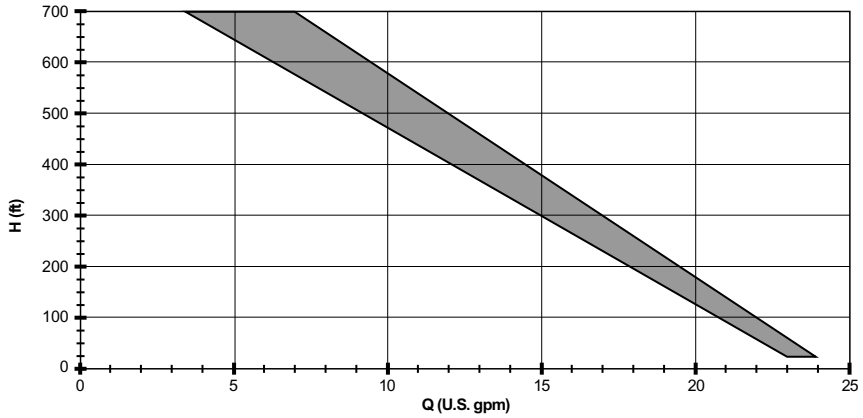
GRAPH 2



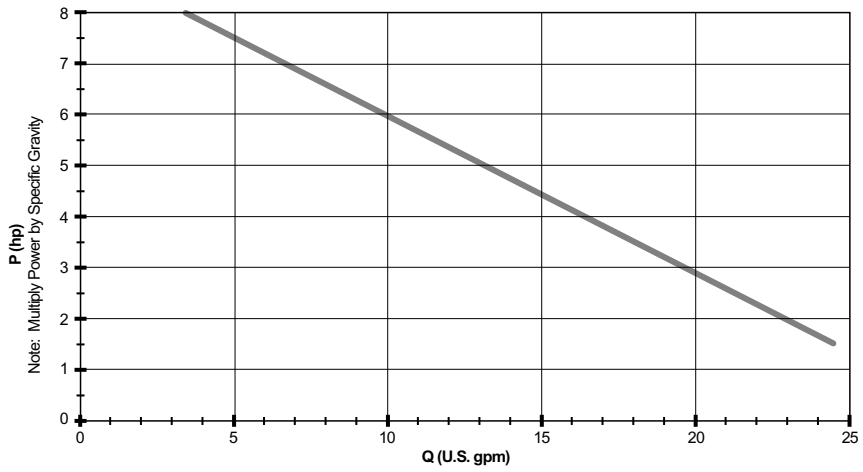
Note: Remember that 150 psi is the maximum allowable differential pressure for a Coro-Flo pump.

CHARACTERISTIC CURVES FOR MODEL 15 (3450 RPM)

GRAPH 1

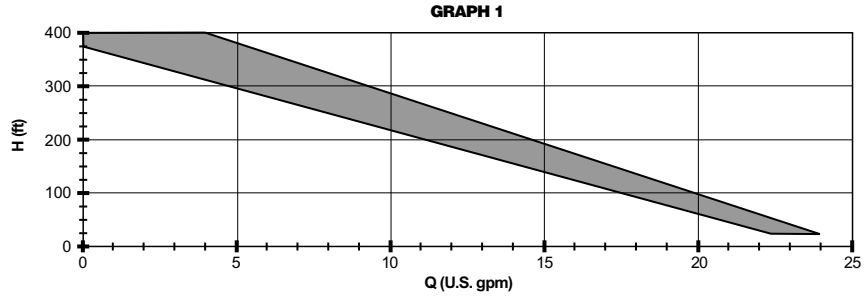


GRAPH 2

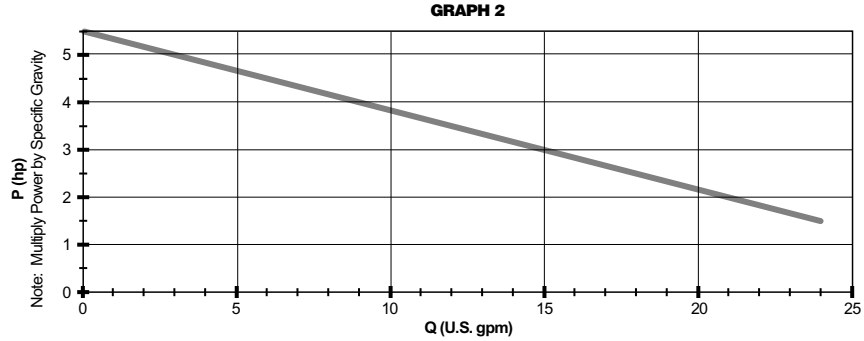


CHARACTERISTIC CURVES FOR MODEL 15 (2880 RPM)

GRAPH 1



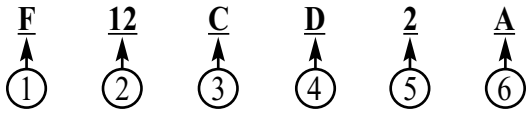
GRAPH 2



Note: Remember that 150 psi is the maximum allowable differential pressure for a Coro-Flo pump.

4 Coro-Flo Series Model Selection

MODEL NUMBER SELECTION GUIDE (F MODELS)



1 Pump Type

Options: F- Frame Mounted Unit
FF- Frame Mounted Unit with 300 lb. R.F. ANSI flange inlet/outlet

2 Pump Model

	Flow Range	
	2880 RPM	3450 RPM
9-	———	1-8
10-	1-13	1-15
12-	2-17	2-20
13-	4-25	4-32
14-	5-36	5-40
15-	4-23	4-24

3 Motor

Options: C- No integral motor included

4 Impeller, Seal Sleeve and Follower, Shaft Material

Options: D- Bronze Impeller, Aluminum Seal Sleeve and Follower, Steel Shaft
E- Stainless Steel Impeller, Stainless Steel Seal Sleeve and Follower, Stainless Steel Shaft
F- Ductile Iron Impeller, Aluminum Seal Sleeve and Follower, Steel Shaft
G- Ductile Iron Impeller, Stainless Steel Seal Sleeve and Follower
H- Stainless Steel Impeller, Aluminum Seal Sleeve and Follower, Steel Shaft

5 Seal Seat Material

Options: 2- Cast Iron (Standard)
1- Stainless Steel
3- Ni-resist Cast Iron
4- Ceramic
5- Tungsten Carbide

6 O-ring Material

Options: A- Buna N (Standard)
B- Neoprene*
D- Viton*
E- PTFE
G- Ethylene-Propylene

*Viton and Neoprene are registered trademarks of DuPont.

MODEL NUMBER SELECTION GUIDE (D MODELS)

DS	10	C	D	2	A
①	②	③	④	⑤	⑥

① Pump Type

Options:
- DS- 56C-145TC Frame mount for direct couple of C-face motor
- DL- 182TR - 215TC Frame mount for direct couple of C-face motor
- DSF- 56C - 145TC Same as above with addition of 300 lb. R.F. ANSI flange inlet and outlet
- DLF- 182TR - 215TC Same as above with addition of 300 lb. R.F. ANSI flange inlet and outlet

② Pump Model

	Flow Range	
	2880 RPM	3450 RPM
9-	———	1-8
10-	1-13	1-15
12-	2-17	2-20
13-	4-25	4-32
14-	5-36	5-40
15-	4-23	4-24

③ Motor

Options:
- C- No integral motor included

④ Impeller, Seal Sleeve and Follower, Shaft Material

Options:
- D- Bronze Impeller, Aluminum Seal Sleeve and Follower, Steel Shaft
- E- Stainless Steel Impeller, Stainless Steel Seal Sleeve and Follower, Stainless Steel Shaft
- F- Ductile Iron Impeller, Aluminum Seal Sleeve and Follower, Steel Shaft
- G- Ductile Iron Impeller, Stainless Steel Seal Sleeve and Follower
- H- Stainless Steel Impeller, Aluminum Seal Sleeve and Follower, Steel Shaft

⑤ Seal Seat Material

Options:
- 2- Cast Iron (Standard)
- 1- Stainless Steel
- 3- Ni-resist Cast Iron
- 4- Ceramic
- 5- Tungsten Carbide

⑥ O-ring Material

Options:
- A- Buna N (Standard)
- B- Neoprene*
- D- Viton*
- E- PTFE
- G- Ethylene-Propylene

*Viton and Neoprene are registered trademarks of DuPont.

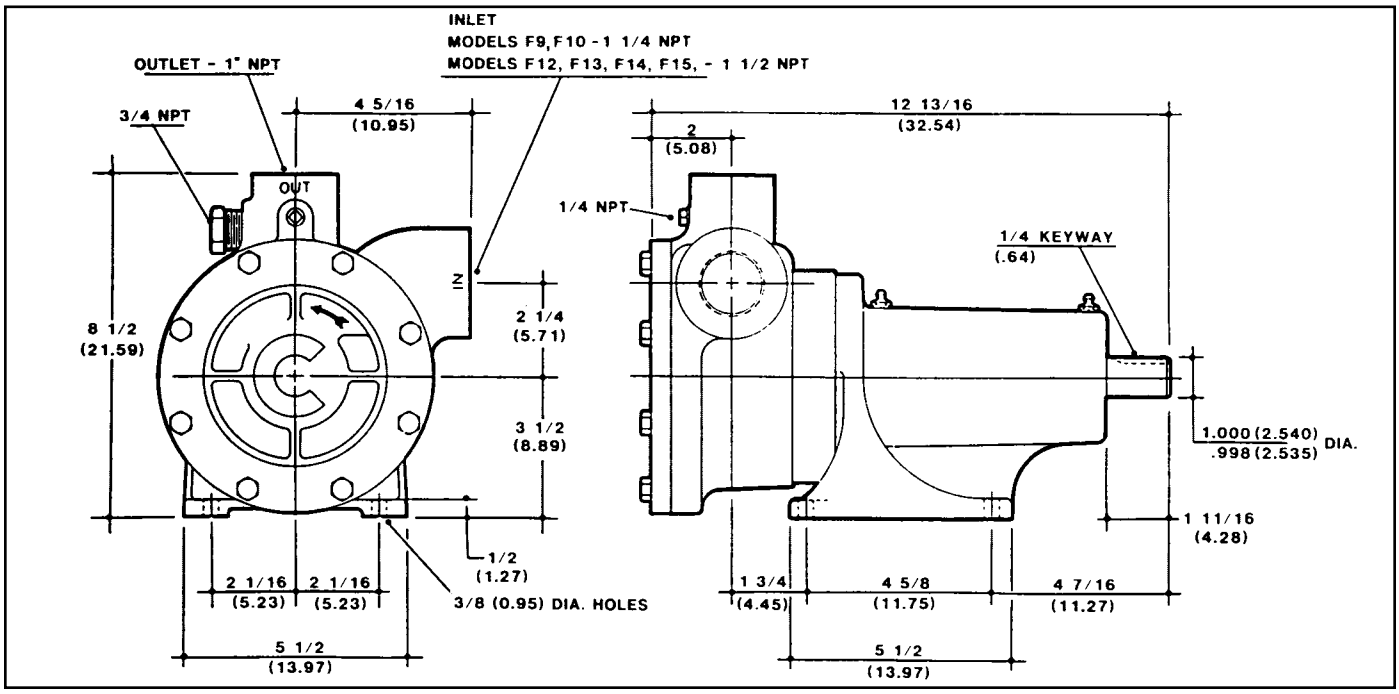
MATERIAL SPECIFICATIONS

PART	STANDARD		OPTIONAL	
	SIZE	MATERIAL	SIZE	MATERIAL
CASE, COVER	ALL	DUCTILE IRON ASTM A536		NONE
IMPELLER	ALL	BRONZE	ALL	DUCTILE IRON 416 STAINLESS STEEL
IMPELLER KEY	ALL	STEEL	ALL	STAINLESS STEEL
SEAL SEAT	ALL	CAST	ALL	304 STAINLESS STEEL NI-RESIST CAST IRON CERAMIC TUNGSTEN CARBIDE
SEAL ROTOR	ALL	CARBON		NONE
SEAL METAL PARTS	ALL	STEEL		NONE
SEAL SLEEVE	ALL	ALUMINUM	ALL	416 STAINLESS STEEL
SEAL FOLLOWER	ALL	ALUMINUM	ALL	416 STAINLESS STEEL
SEAL HOUSING	ALL	STEEL, CADMIUM PLATED	ALL	416 STAINLESS STEEL
SHAFT	F-MODELS	"STRESSPROOF" STEEL	ALL	416 STAINLESS STEEL
FRAME	F-MODELS	GRAY IRON ASTM A48, CLASS 30		NONE
BEARING CAP	F-MODELS	ALUMINUM		NONE
O-RINGS	ALL	BUNA-N	ALL	PTFE, VITON*, NEOPRENE*, ETHYLENE-PROPYLENE
RETAINER RINGS	F-MODELS	STEEL		NONE
BEARINGS	ALL	BALL		NONE

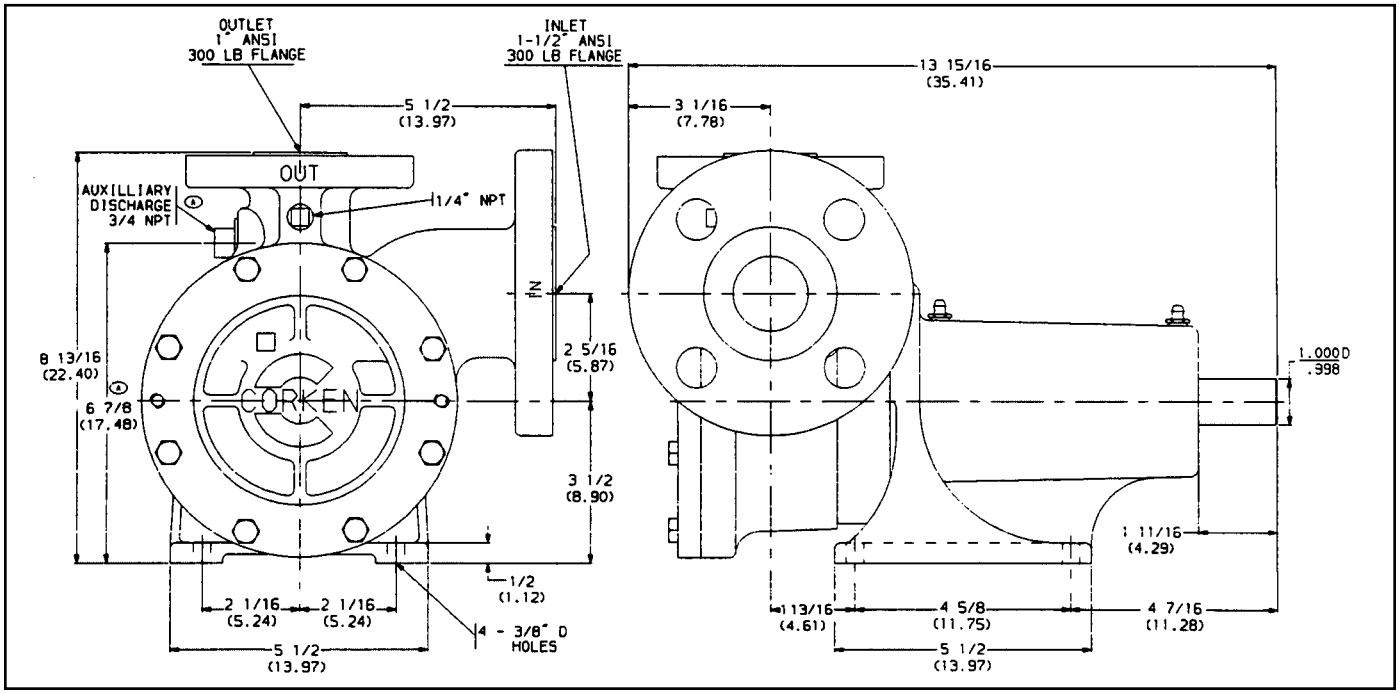
*Viton and Neoprene are registered trademarks of DuPont.

F / FF MODEL OUTLINE DIMENSIONS

MODELS F9 - F15

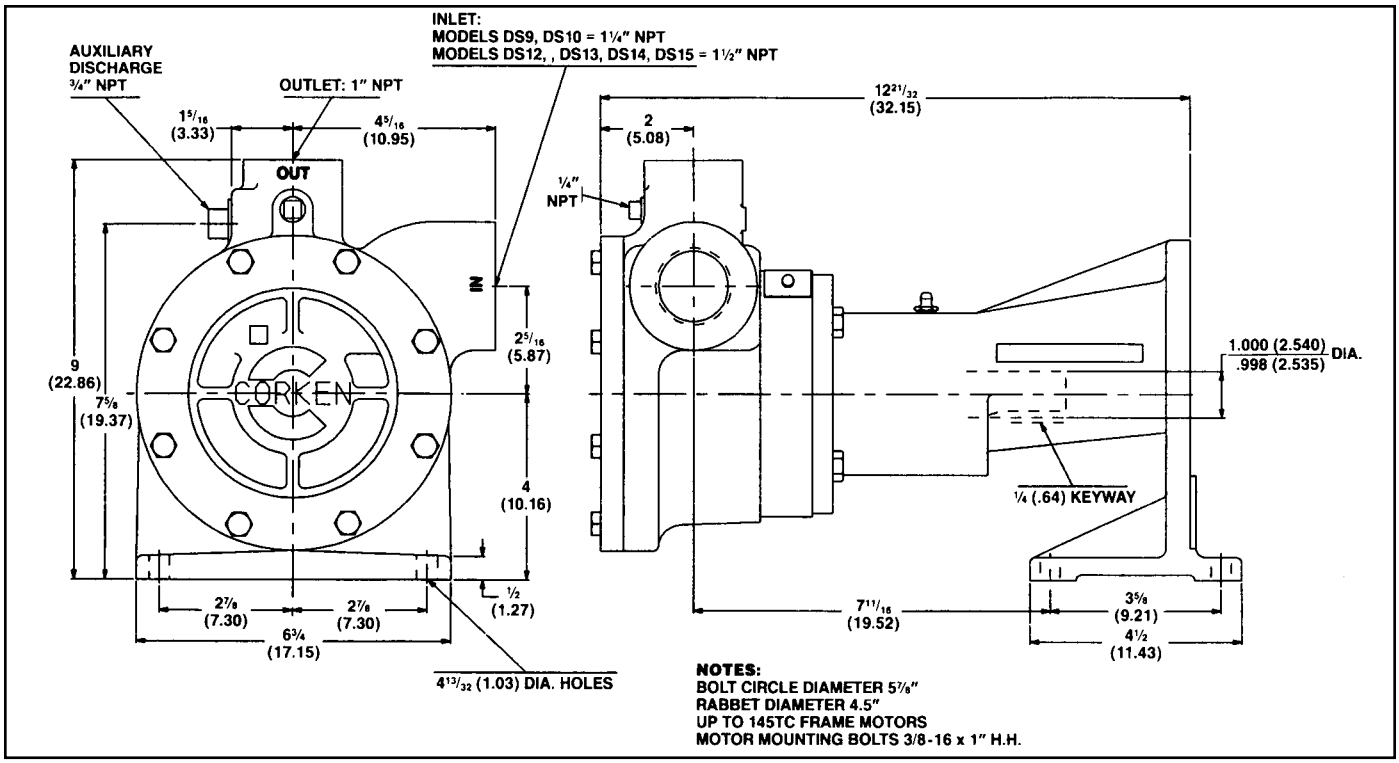


MODELS FF9 - FF15

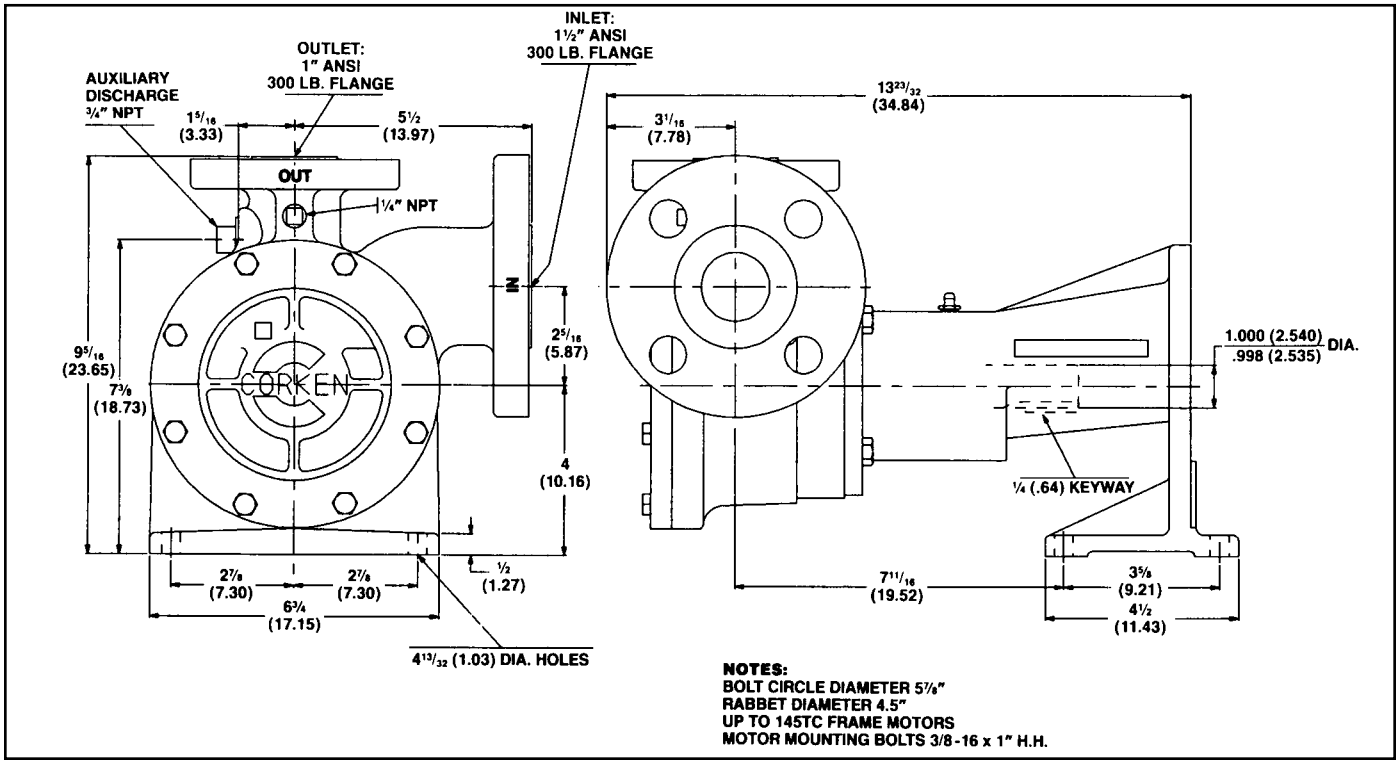


DS / DSF MODEL OUTLINE DIMENSIONS

MODELS DS9 - DS15

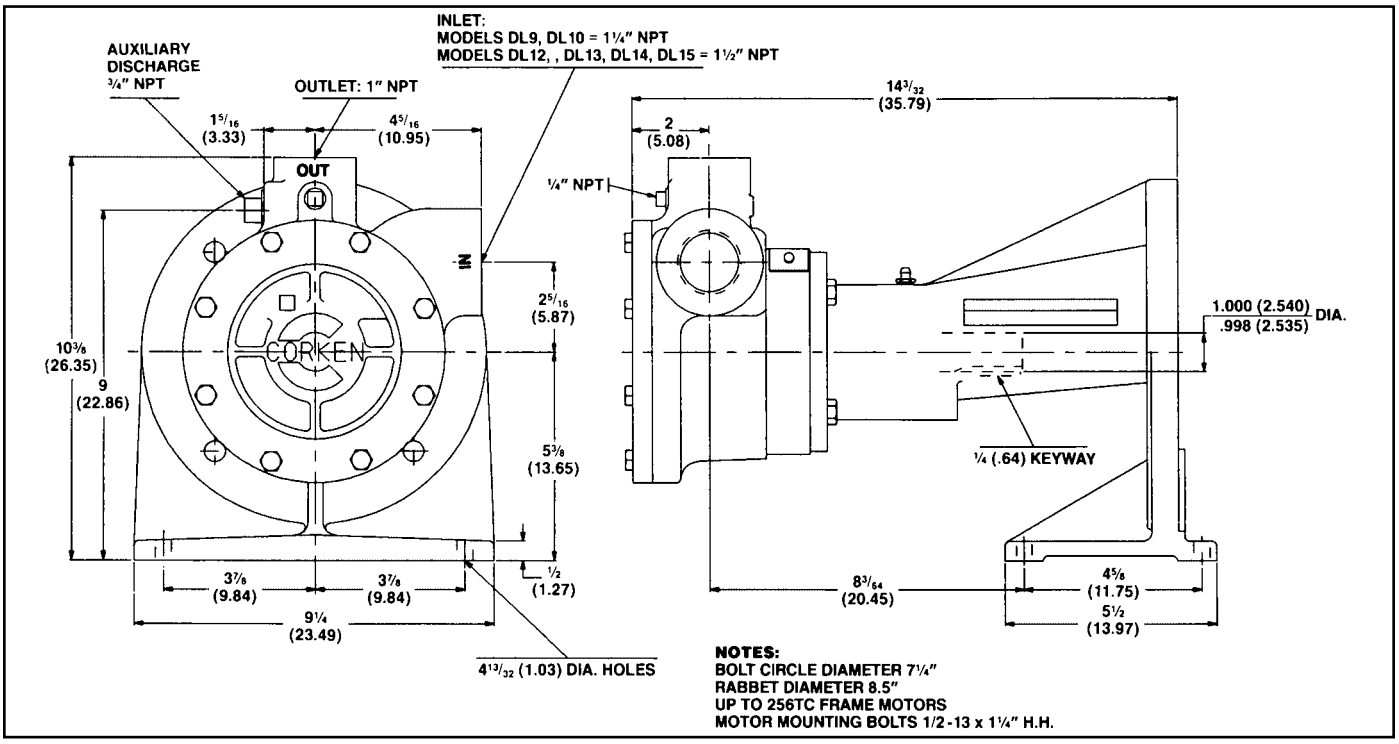


MODELS DSF9 - DSF15

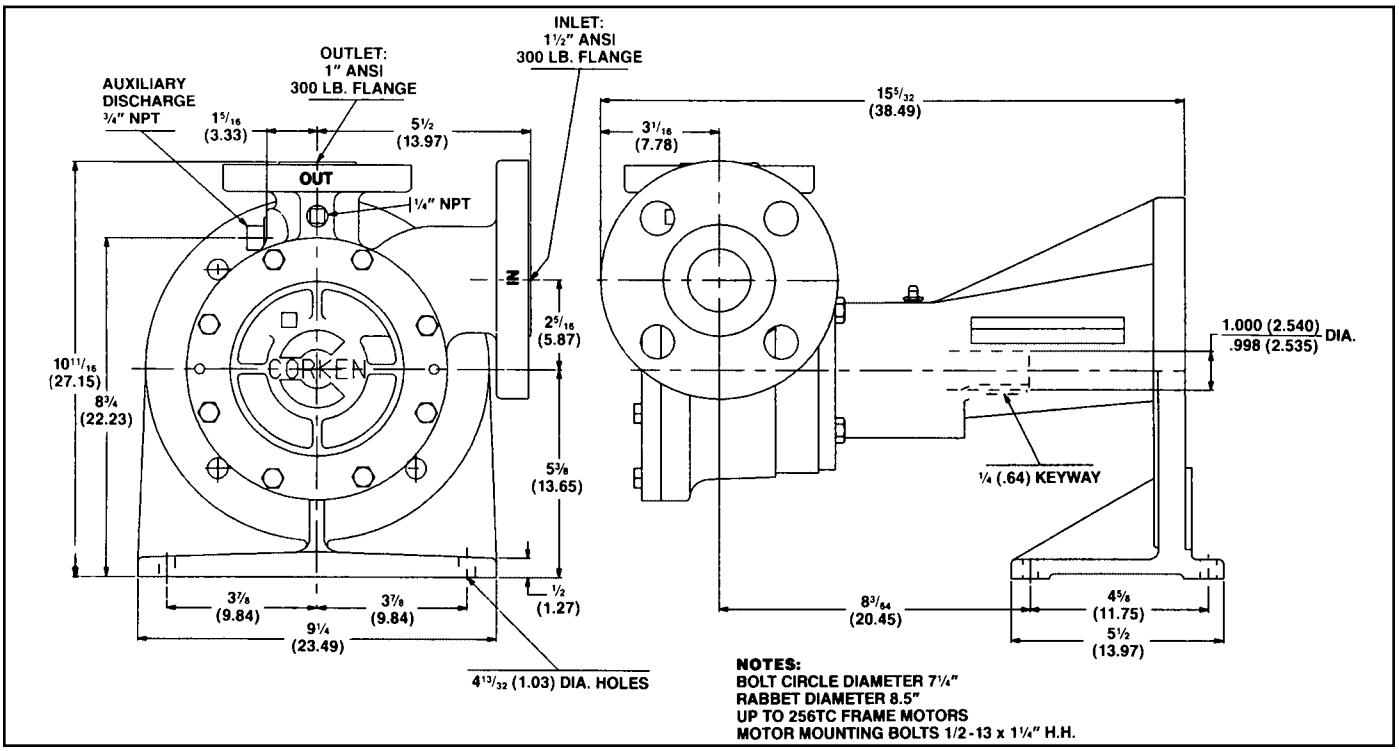


DL / DLF MODEL OUTLINE DIMENSIONS

MODELS DL9 - DL15



MODELS DLF9 - DLF15

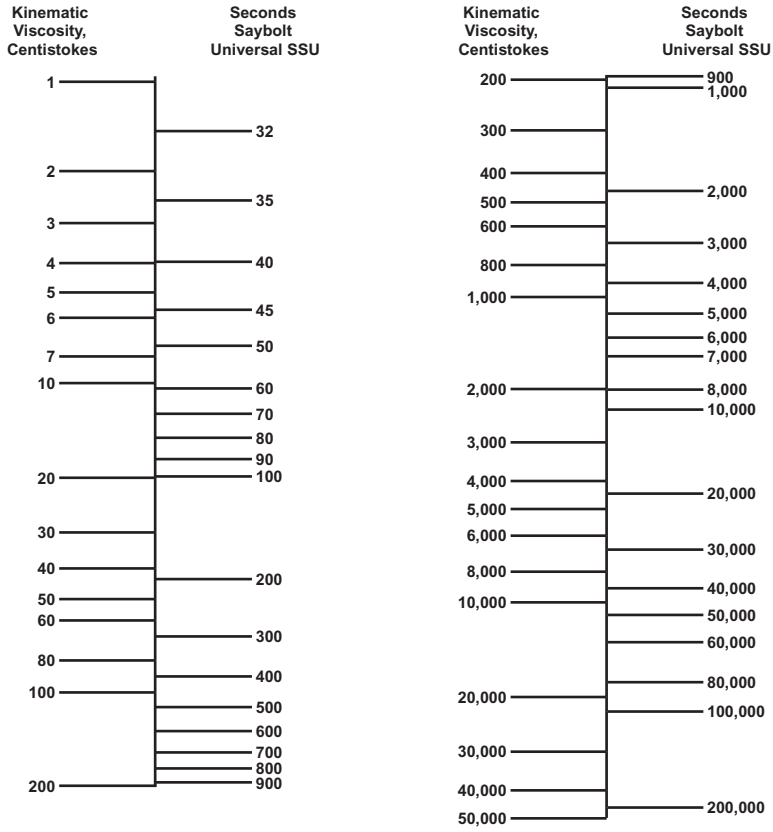


CONTENTS

Appendix 5

VISCOSITY CONVERSION CHART

The graph and formulas below provide the necessary information to allow for conversion between the most common viscosity measurements. (Consult the factory if your viscosity value is not measured in centipoise, centistokes, or SSU.



Conversion Factors

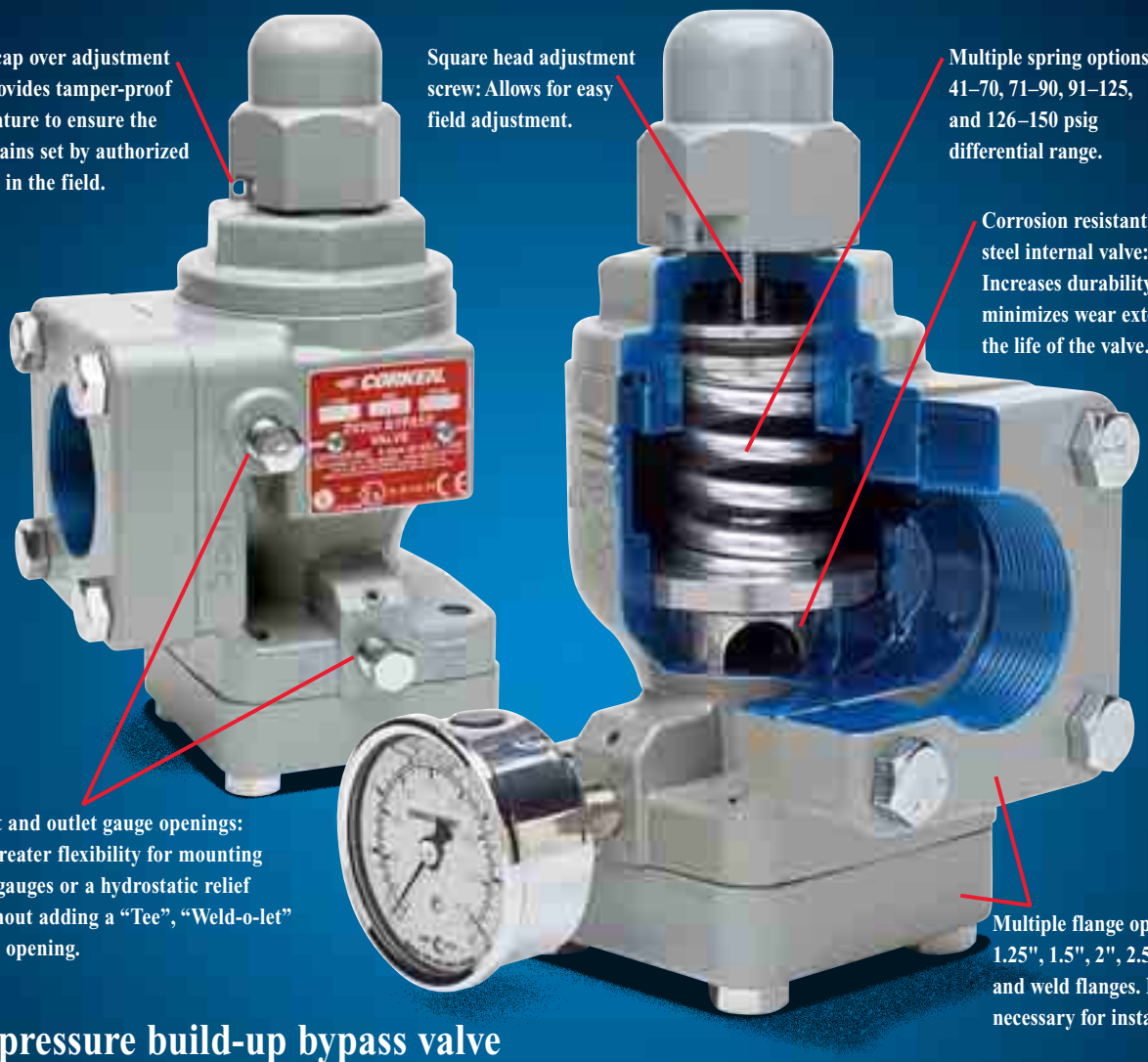
$$\text{Centistokes} = \frac{\text{Centipoise}}{\text{Specific Gravity}}$$

SSU* = Centistokes x 4.55

*Where centistokes are greater than 50

ZV200 Bypass Valve

A Two-inch Bypass Valve for Truck and Stationary Applications



Low pressure build-up bypass valve for truck and stationary applications.

The two-inch ZV200 is a low pressure build-up bypass valve designed for applications requiring protection for positive displacement pumps. Specifically designed for protecting pumps with capacities up to 250 gpm (946 L/min). The continuous internal bleed will assist in the operation of systems with "air" or "electric" operated internal valves. Typical applications include bobtail, transport and stationary loading and unloading of LPG, NH_3 and other light liquids.

- Dimensionally interchangeable with commonly used two-inch bypass valves; no need to change piping configuration.
- Ductile iron construction offers maximum strength for higher pressures.
- Flow rates up to 250 gpm (946 L/min) at 120 psi (8.3 bar) differential.
- Continuous bleed helps equalize pressure to assist remote operated internal valves.
- Multiple spring options enable you to select the pressure required for your truck or stationary application.

Solutions beyond products...

CORKEN®

IDEX

Operating Specifications

Maximum differential pressure:	150 psid (10.34 bar)
Operating temperature range:	Up to 225°F (107°C)[1]
Maximum working pressure:	400 psi (27.6 bar)
Spring ranges:	91–125 psi (6.3–8.6 bar) standard 41–70 psi (2.8–4.8 bar) optional 71–90 psi (4.9–6.2 bar) optional 126–150 psi (9.0–10.3 bar) optional

[1]Fitted with Buna-N O-rings.

Performance

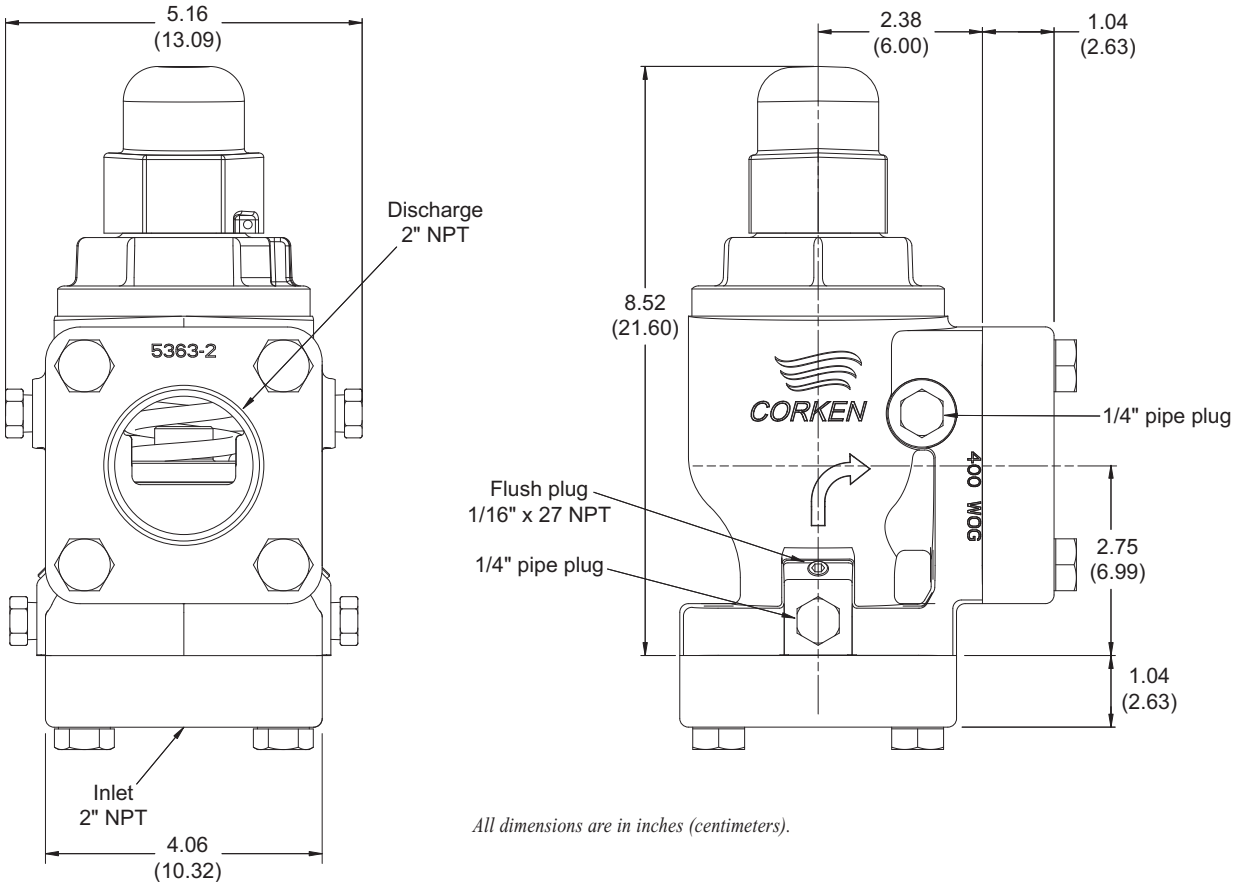
Differential Pressure psi (bar)	Maximum Rated Flow for Propane gpm (L/min)
70 (4.82)	180 (681)
120 (8.27)	250 (946)

Material Specifications

Part	Material
Adjustment nut cap	ASTM A536 65-45-12
Adjusting screw	Steel
Bypass valve body	Ductile iron: ASTM 536, 60-40-18
Bypass valve cap	Ductile iron: ASTM 536, 60-40-18
Gasket	1010 hot rolled steel
Flanges	Ductile iron: ASTM 536, 65-45-12 (standard) Plate steel: ASTM A516 (optional weld)
O-rings	Viton® (standard)[2] Buna-N, Neoprene®, EPDM, PTFE, Kalrez® (optional)[2]
Spring	Music wire/chrome silicon
Spring guide	8620 A322 ASTM steel
Relief valve	17-4 PH stainless steel

[2]Viton®, Neoprene®, and Kalrez® are a registered trademarks of the DuPont company.

ZV200 Outline Dimensions



All dimensions are in inches (centimeters).

QUALITY ISO 9001 SYSTEM

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3805 N.W. 36th St., Oklahoma City, OK 73112 U.S.A.
Phone (405) 946-5576 • (800) 631-4929 • FAX (405) 948-7343
Visit our website at http://www.corken.com • E-mail us at info.corken@idexcorp.com

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MARCH 2005

ZV200 BYPASS VALVE MODEL NUMBER SELECTION GUIDE

Model Number Identification

ZV200 ..... **Full opening high capacity bypass valve for full pump capacity.**

Base Model Number	ZV200
Inlet	2" NPT
Outlet	2" NPT
Maximum flow rate (gpm)	250
Ship weight (lb)	23

Model Number

Base X X X X

Specification Fields

Springs	41–70 psig differential range	No charge option	A
	71–90 psig differential range	No charge option	C
	91–125 psig differential range	Standard	B
	126–150 psig differential range	No charge option	D
O-ring material	Buna-N	Standard	A
	Neoprene®[1]	No charge option	B
	Viton®[1]	Charge option	D
	PTFE	Charge option	E
	EPDM	Charge option	G
	Kalrez®[1]	Charge option	K
Inlet Flanges	1.25" NPT	No charge option	A
	1.50" NPT	No charge option	C
	2.0" NPT	Standard	E
	2.5" NPT	No charge option	J
	1.25" Slip-on weld	Charge option	B
	1.50" Slip-on weld	Charge option	D
	2.0" Slip-on weld	Charge option	F
	2.5" Slip-on weld	Charge option	K
Outlet Flanges	1.25" NPT	No charge option	A
	1.50" NPT	No charge option	C
	2.0" NPT	Standard	E
	2.5" NPT	No charge option	J
	1.25" Slip-on weld	Charge option	B
	1.50" Slip-on weld	Charge option	D
	2.0" Slip-on weld	Charge option	F
	2.5" Slip-on weld	Charge option	K

[1]Neoprene®, Viton®, and Kalrez® are registered trademarks of the Dupont Company.

Accessory–Options

Description	Part Number
Optional hydrostatic relief valve, 450 psig	2141-450
Hydrostatic test	3000-X5

B166 (3/4", 1") AUTOMATIC DUAL-PURPOSE, BY-PASS VALVE

Typical Application: On all cylinder filling pumps as well as aerosol propellant feed pumps.

A combination by-pass and priming valve specifically designed for small cylinder-filling-type pumps, especially of the regenerative turbine type, such as the Corken Coro-Flo pump series. The patented vapor elimination system keeps liquefied gas pumps primed to increase system reliability and decrease pump and seal wear. The B166 is a smooth operating by-pass with moderate pressure build-up.

T166 (1-1/4", 1-1/2") PUMP FLOW CONTROL VALVE

Typical Application: Large-capacity pumps filling variable size tanks and bottles such as those used with delivery trucks or multi-spot cylinder-filling plants.

A high-pressure build-up valve for smooth-acting flow control. Specifically designed for by-pass protection for pumps in the 30-100 gpm (6.8-22.7 m^3/hr) range, such as those used on delivery trucks. In contrast to the B177, the T166 valve opens gradually as pressure builds up to modulate the flow, by-passing the excess capacity smoothly and silently back to the supply tank. A continuous internal bleed in this valve assists in eliminating vapors.

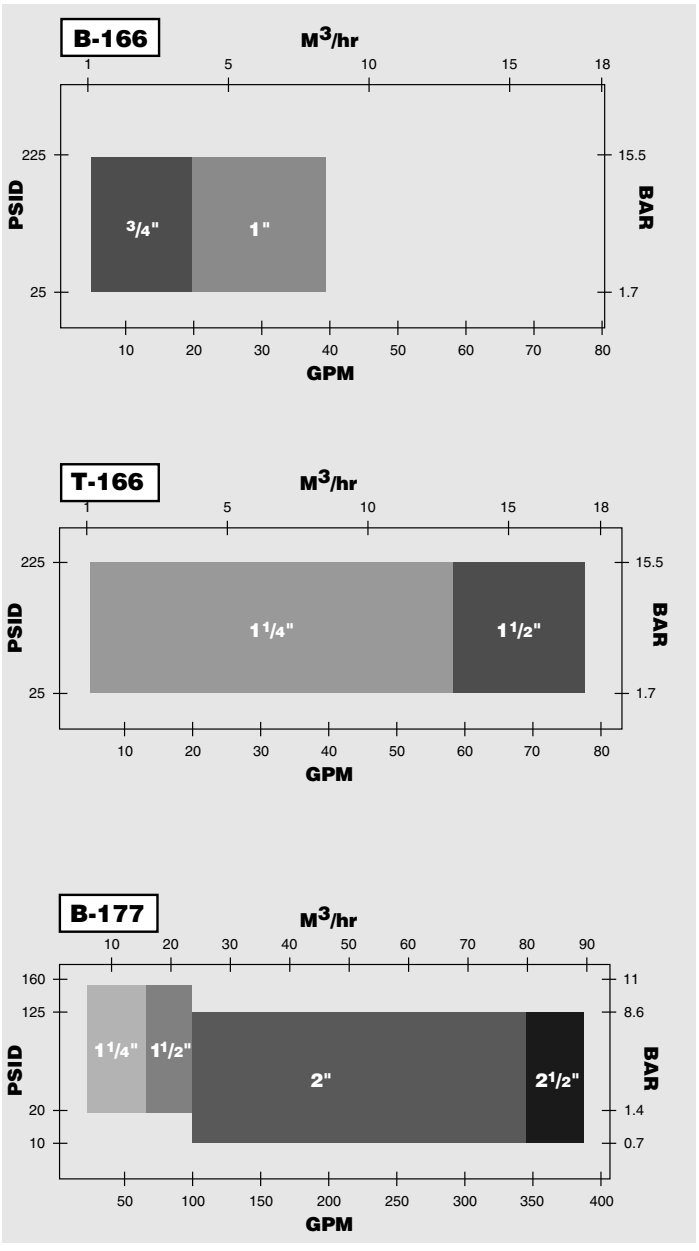
B177 (1-1/4", 1-1/2", 2", 2-1/2") DIFFERENTIAL BY-PASS VALVE

Typical Application: In liquefied-gas bulk-plant installations for the loading and unloading pumps.

A low-pressure build-up by-pass valve specifically designed for applications requiring protection for positive displacement pumps in the 40-350 gpm (9.1-79.5 m^3/hr) range. It can also be used as a differential back-pressure valve to assure adequate pressure on meters, etc. To properly function, this valve requires a pressure sensing line from the storage tank.

SPECIFICATION	B166	T166	B177
Inlet	3/4", 1"	1-1/4", 1-1/2"	1-1/4", 1-1/2", 2", 2-1/2"
Outlet	3/4", 1"	1-1/4", 1-1/2"	1-1/4", 1-1/2", 2", 2-1/2"
Slip-on Flange Option	No	No	2", 2-1/2"
Differential Pressure Range PSI (Bar)	25-225 (1.7-15.5)	25-225 (1.7-15.5)	20-160 (0.7-11)
O-ring Material Options	Buna N (standard), Neoprene®, Teflon®, Viton®, Ethylene-Propylene*		

* Ethylene-Propylene not available for B177



BYPASS VALVE MODEL NUMBER SELECTION GUIDE

B166B - .75 B A U

① ② ③ ④ ⑤

① **Valve Type**

B166B: Combination By-pass and Priming Valve
T166: Continuous Bleed By-Pass Valve (For Delivery Truck Application)
B177: Differential By-pass Valve

② **Valve Size**

B166B Options: .75 - 3/4" Valve (Range 1-20 GPM)
1 - 1" Valve (Range 20-40 GPM)

T166 Options: 1.25 - 1-1/4" Valve (Range 5-55 GPM)
1.5 - 1-1/2" Valve (Range 20-40 GPM)

B177 Options: 1.25 - 1-1/4" Valve (Range 30-60 GPM)
1.5 - 1-1/2" Valve (Range 100-330 GPM)
2 - 2" Valve (Range 110-330 GPM)
2.5 - 2-1/2" Valve (Range 330-380 GPM)

③ **By-pass Spring Pressure Range**

B166B/T166 Options: (All Sizes)
A- Spring Rated for 25 - 60 psig
B- Spring Rated for 60 - 100 psig
C- Spring Rated for 100 - 225 psig

B177 Options: (1.25" and 1.5")
A- Spring Rated for 20 - 70 psig
B- Spring Rated for 60 - 100 psig
C- Spring Rated for 80 - 160 psig

B177 Options: (2" and 2.5")
A- Spring Rated for 10 - 40 psig
B- Spring Rated for 30 - 80 psig
C- Spring Rated for 80 - 110 psig
D- Spring Rated for 100 - 125 psig

④ **O-rings**

791/891 Options:
A- Buna-N
B- Neoprene*
D- Viton*
E- PTFE
G- Special

⑤ **Flanges**

B177 Options: (2" and 2.5")
E- 2" NPT Flanges
F- 2" Slip-on Weld Flanges
J- 2.5" NPT Flanges
K- 2.5" Slip-on Weld Flanges

B166B/T166 Options: (All Sizes) and B177 (1.25" and 1.5")
U- Threaded Body - No Flanges

*Viton and Neoprene are registered trademarks of DuPont.

CORKEN
A Unit of IDEX Corporation
3805 NW 36th St., Oklahoma City, OK 73112
Phone: 405 946-5576 Fax: 405 948-7343
Website: www.corken.com
E-mail: info.corken@idexcorp.com

New sealing options for mechanically sealed side channel pumps...

One of the most successful ways to achieve long, uninterrupted mechanical seal life is to create a healthy environment around the seal faces. Corken's mechanically sealed side channel pumps are available with single and double seal options. A double, also know as a tandem, seal arrangement utilizes a protective buffer liquid between the product and the atmosphere. In the event of a primary seal failure, the buffer liquid prevents exposure to the environment and human contact.

Double (tandem) seal support system using API Piping Plan 52...

The piping plans from the American Petroleum Institute (API) aid in keeping mechanical seals running cool and clean, support safe handling of dangerous fluids, and minimize downtime due to seal failures.

In an unpressurized double (tandem) seal arrangement, two seals are used. The primary (inner) seal operates in the process liquid. The process liquid lubricates and cools this seal as well. The secondary (outer) seal operates in a buffer liquid. The buffer liquid lubricates and cools the secondary seal and is circulated through the use of the pumping ring and thermal siphoning. Leakage from the primary seal is contained by the secondary seal in the API Plan 52 reservoir system. Depending on the vapor pressure, the leakage can be vented to a flare or vapor recovery system while the condensed products can be routed to a sump tank or other approved drain. Several design arrangements are available. Figure 1 illustrates one example of this seal support system.

Typical applications:

High vapor pressure liquids

Light hydrocarbons

Hazardous and toxic fluids

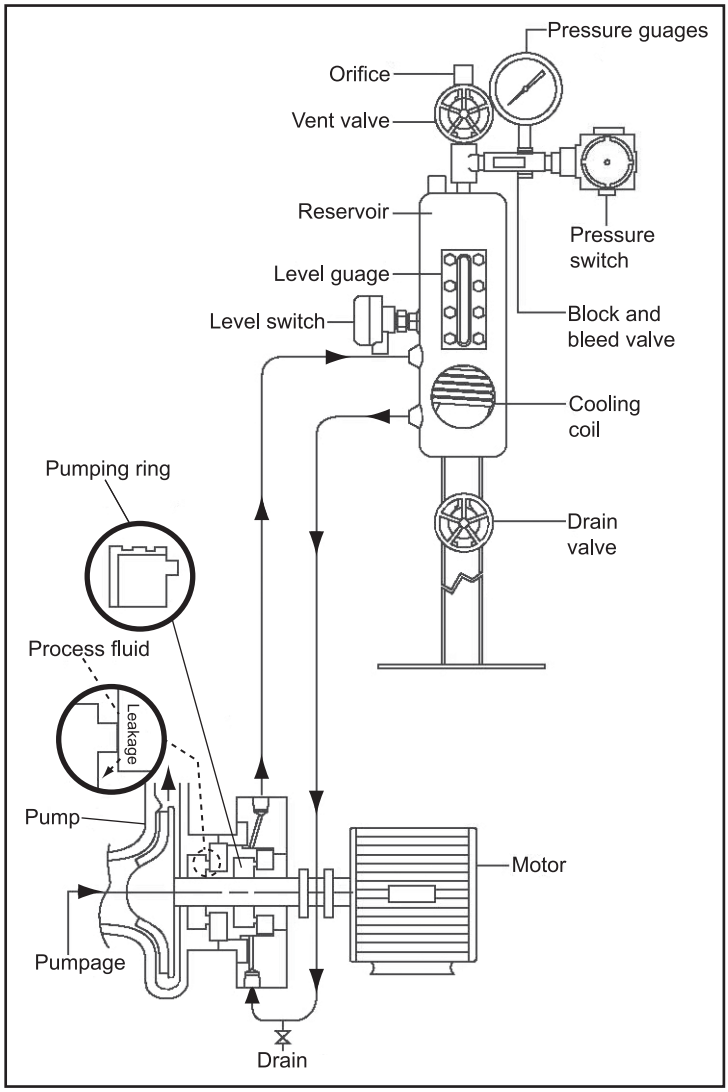


Figure 1: American Petroleum Institute (API) Piping Plan 52.

ONE YEAR WARRANTY
CORKEN, INC. warrants that its products will be free from defects in material and workmanship for a period of one year from date of installation, provided that the warranty shall not extend beyond twenty-four (24) months from the date of shipment from CORKEN. If a warranty dispute occurs, the DISTRIBUTOR may be required to provide CORKEN with proof of date of sale. The minimum requirement would be a copy of the DISTRIBUTOR'S invoice to the customer.

CORKEN products which fail within the warrant period due to defects in material or workmanship will be repaired or replaced at CORKEN's option, when returned, freight prepaid to CORKEN, INC., 3805 N.W. 36th St., Oklahoma City, Oklahoma 73112.

Parts subject to wear or abuse, such as mechanical seals, blades, piston rings, valves and packing, and other parts showing signs of abuse, neglect or failure to be properly maintained are not covered by this limited warranty. Also, equipment, parts and accessories not manufactured by CORKEN but furnished with CORKEN products are not covered by this limited warranty and the purchaser must look to the original manufacturer's warranty, if any. This limited warranty is void if the CORKEN product has been altered or repaired without the consent of CORKEN.

All implied warranties, including any implied warranty of merchantability or fitness for a particular purpose, are expressly negated to the extent permitted by law and shall in no event extend beyond the expressed warrantee period.

CORKEN DISCLAIMS ANY LIABILITY FOR CONSEQUENTIAL DAMAGES DUE TO BREACH OF ANY WRITTEN OR IMPLIED WARRANTY ON CORKEN PRODUCTS. Transfer of toxic, dangerous, flammable or explosive substances using CORKEN products is at the user's risk. Experienced, trained personnel in compliance with governmental and industrial safety standards should handle such substances.

PRICES
All prices are subject to change without notice. All prices are EXW (Ex Works) at Oklahoma City, Oklahoma (U.S.A.). Prices of equipment for future delivery will be those in effect at time of shipment.

MINIMUM ORDER AMOUNT
$200.00 US List

RUSH ORDERS
If a distributor requires a "Rush Emergency Breakdown Delivery of Parts", the discount will be reduced 10% if the order is shipped complete within 2 working days after receipt of order. Minimum order of $100.00 US List applies to "Rush Emergency Parts Orders".

TERMS
Standard terms for all sales are set by CORKEN, INC.

DESIGN
It is CORKEN's intention to continually improve the design and performance of its products as new ideas, new practices and new materials become available. Therefore, all published designs, specifications and prices are subject to minor modifications at the time of manufacture to coincide with this policy, without prior notice to the purchaser. If the equipment purchased is to be used in an existing installation to match previously purchased equipment, material will be furnished to be interchangeable as near as may be feasible, but CORKEN reserves the right to substitute materials and designs.

SHIPMENTS
The prices shown include standard crating or packaging for normal rail or commercial truck shipments within the borders of the continental United States, Canada and Mexico. Consult factory for export crating charges. All promises of shipment are estimates contingent upon strikes, fires, and elements beyond our control or manufacturing difficulties, including the scheduled shipping dates of materials from our suppliers.

CANCELLATION CHARGES
There will be a minimum cancellation charge of 15% of the net price for any order that is canceled after having been accepted and officially acknowledged by CORKEN. In the event there is material involved that is manufactured by others, and is being purchased by CORKEN for the sole purpose of becoming part of this canceled order, the cancellation charges assessed CORKEN by these other manufacturers shall be borne by the purchaser.

If shipment has already been made before notice of cancellation, the purchaser will be charged all the freight costs involved in the handling of the order, including the charges necessary to get the equipment back to the respective warehouses of CORKEN and its suppliers, in addition to the cancellation charge described above.

RETURNED MATERIAL
Material may be returned to the factory ONLY if there is prior written authorization from CORKEN and accompanied by a CORKEN customer service claim (CSC) number and the shipper pays the freight.

Material that is authorized for return will be inspected when received, and if it is of current design, unused, and in first-class resalable condition, credit will be allowed on the basis of the original invoice value less restocking charges. Returned material that is found to be worn, or in damaged condition, will not be accepted. The customer will be notified of this, and return shipping instructions, or permission to scrap such items will be requested. If no instructions are received within sixty (60) days after such notice, the material will be scrapped. Outside purchased materials and equipment may be returned for credit ONLY by CORKEN's prior written authorization and must be in new and undamaged resalable condition and of current design. Such returned materials are subject to a MINIMUM restocking charge of 25%.

LITERATURE
CORKEN will furnish, upon request and without charge to the purchaser, six copies of paper prints of standard drawings, performance curves, and other current literature covering the pump or compressor and/or such other descriptive material that good judgment would consider necessary. Any additional material and/or special drawings will be charged for at appropriate rates determined by CORKEN. See CORKEN's Optional Services located in price lists for details.

FACTORY INSPECTION AND TESTS
Each article of CORKEN's manufacture passes a standard factory inspection and operating test prior to shipment. Special factory inspections, tests and/or certified test reports are all subject to a factory charge available upon request.

LIABILITY FROM USE OF PRODUCT
CORKEN has no control over the ultimate use of its products and specifically disclaims any liability damage, loss or fines that may arise from the use thereof. The user and purchaser shall hold CORKEN harmless form such damage, loss or fines. The user and purchaser shall determine the suitability of CORKEN products for the use intended and issue adequate safety instructions therefor.

Compliance with the Occupational Safety and Health Act and similar laws and regulations shall be the responsibility of the user of the product and not the responsibility of CORKEN.

SERIAL NUMBER
PREFIX CODE CHART YEARS 1955–2002

JANUARY 2003
SUPERSEDES A400E

The serial number tells a story on all modern Corken pump and compressor units. The serial number prefix letters indicate the year and month of manufacture. The number following the letters is the serial number. The chart below furnishes a quick summary of the Year-Month code.

When a pump was repaired or rebuilt at the factory, the serial number was retained, but the Year-Month prefix code was changed to correspond to the year and month of the rebuilding. In addition, the letter "R" was added to follow the Year-Month code.

An example of a serial number would be: **GN**54321 — manufactured in January of 1985.

	MONTH													MONTH										
YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1955	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	**1979**	AN	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ
1956	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	**1980**	BN	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ
1957	CA	CB	CC	CD	CE	CF	CG	CH	CJ	CK	CL	CM	**1981**	CN	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ
1958	DA	DB	DC	DD	DE	DF	DG	DH	DJ	DK	DL	DM	**1982**	DN	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ
1959	EA	EB	EC	ED	EE	EF	EG	EH	EJ	EK	EL	EM	**1983**	EN	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ
1960	FA	FB	FC	FD	FE	FF	FG	FH	FJ	FK	FL	FM	**1984**	FN	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ
1961	GA	GB	GC	GD	GE	GF	GG	GH	GJ	GK	GL	GM	**1985**	GN	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ
1962	HA	HB	HC	HD	HE	HF	HG	HH	HJ	HK	HL	HM	**1986**	HN	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ
1963	JA	JB	JC	JD	JE	JF	JG	JH	JJ	JK	JL	JM	**1987**	JN	JP	JQ	JR	JS	JT	JU	JV	JW	JX	JY	JZ
1964	KA	KB	KC	KD	KE	KF	KG	KH	KJ	KK	KL	KM	**1988**	KN	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ
1965	LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LM	**1989**	LN	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ
1966	MA	MB	MC	MD	ME	MF	MG	MH	MJ	MK	ML	MM	**1990**	MN	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ
1967	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NL	NM	**1991**	NN	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ
1968	PA	PB	PC	PD	PE	PF	PG	PH	PJ	PK	PL	PM	**1992**	PN	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ
1969	QA	QB	QC	QD	QE	QF	QG	QH	QJ	QK	QL	QM	**1993**	QN	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ
1970	RA	RB	RC	RD	RE	RF	RG	RH	RJ	RK	RL	RM	**1994**	RN	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ
1971	SA	SB	SC	SD	SE	SF	SG	SH	SJ	SK	SL	SM	**1995**	SN	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ
1972	TA	TB	TC	TD	TE	TF	TG	TH	TJ	TK	TL	TM	**1996**	TN	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ
1973	UA	UB	UC	UD	UE	UF	UG	UH	UJ	UK	UL	UM	**1997**	UN	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ
1974	VA	VB	VC	VD	VE	VF	VG	VH	VJ	VK	VL	VM	**1998**	VN	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ
1975	WA	WB	WC	WD	WE	WF	WG	WH	WJ	WK	WL	WM	**1999**	WN	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ
1976	XA	XB	XC	XD	XE	XF	XG	XH	XJ	XK	XL	XM	**2000**	XN	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ
1977	YA	YB	YC	YD	YE	YF	YG	YH	YJ	YK	YL	YM	**2001**	YN	YP	YQ	YR	YS	YT	YU	YX	YW	YX	YY	YZ
1978	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZJ	ZK	ZL	ZM	**2002**	ZN	ZP	ZQ	ZR	ZS	ZT	ZU	ZX	ZW	ZX	ZY	ZZ

SERIAL NUMBER
SUFFIX CODE CHART YEARS 2003–2050

JANUARY 2003

The serial number tells a story on all modern Corken pump and compressor units. The serial number suffix letters indicate the year and month of manufacture. The number before the letters is the serial number. The chart below furnishes a quick summary of the Year-Month code.

For equipment manufactured in 2003 and beyond, we have relocated the prefix letters of the old system (years 1955–2002) to a suffix. These two letters still represent the month and year of manufacture. An example of a new serial number would be: 12345**EC** — manufactured in March of 2007, whereas **EC**12345 would have been made in March of 1959.

When a pump was repaired or rebuilt at the factory, the serial number was retained, but the Year-Month prefix code was changed to correspond to the year and month of the rebuilding. In addition, the letter "R" was added to follow the Year-Month code.

	MONTH													MONTH											
YEAR	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**YEAR**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
2003	AA	AB	AC	AD	AE	AF	AG	AH	AJ	AK	AL	AM	**2027**	AN	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ
2004	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	**2028**	BN	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ
2005	CA	CB	CC	CD	CE	CF	CG	CH	CJ	CK	CL	CM	**2029**	CN	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ
2006	DA	DB	DC	DD	DE	DF	DG	DH	DJ	DK	DL	DM	**2030**	DN	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ
2007	EA	EB	EC	ED	EE	EF	EG	EH	EJ	EK	EL	EM	**2031**	EN	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ
2008	FA	FB	FC	FD	FE	FF	FG	FH	FJ	FK	FL	FM	**2032**	FN	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ
2009	GA	GB	GC	GD	GE	GF	GG	GH	GJ	GK	GL	GM	**2033**	GN	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ
2010	HA	HB	HC	HD	HE	HF	HG	HH	HJ	HK	HL	HM	**2034**	HN	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ
2011	JA	JB	JC	JD	JE	JF	JG	JH	JJ	JK	JL	JM	**2035**	JN	JP	JQ	JR	JS	JT	JU	JV	JW	JX	JY	JZ
2012	KA	KB	KC	KD	KE	KF	KG	KH	KJ	KK	KL	KM	**2036**	KN	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ
2013	LA	LB	LC	LD	LE	LF	LG	LH	LJ	LK	LL	LM	**2037**	LN	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ
2014	MA	MB	MC	MD	ME	MF	MG	MH	MJ	MK	ML	MM	**2038**	MN	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ
2015	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NL	NM	**2039**	NN	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ
2016	PA	PB	PC	PD	PE	PF	PG	PH	PJ	PK	PL	PM	**2040**	PN	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ
2017	QA	QB	QC	QD	QE	QF	QG	QH	QJ	QK	QL	QM	**2041**	QN	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ
2018	RA	RB	RC	RD	RE	RF	RG	RH	RJ	RK	RL	RM	**2042**	RN	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ
2019	SA	SB	SC	SD	SE	SF	SG	SH	SJ	SK	SL	SM	**2043**	SN	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ
2020	TA	TB	TC	TD	TE	TF	TG	TH	TJ	TK	TL	TM	**2044**	TN	TP	TQ	TR	TS	TT	TU	TV	TW	TX	TY	TZ
2021	UA	UB	UC	UD	UE	UF	UG	UH	UJ	UK	UL	UM	**2045**	UN	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ
2022	VA	VB	VC	VD	VE	VF	VG	VH	VJ	VK	VL	VM	**2046**	VN	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ
2023	WA	WB	WC	WD	WE	WF	WG	WH	WJ	WK	WL	WM	**2047**	WN	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ
2024	XA	XB	XC	XD	XE	XF	XG	XH	XJ	XK	XL	XM	**2048**	XN	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ
2025	YA	YB	YC	YD	YE	YF	YG	YH	YJ	YK	YL	YM	**2049**	YN	YP	YQ	YR	YS	YT	YU	YX	YW	YX	YY	YZ
2026	ZA	ZB	ZC	ZD	ZE	ZF	ZG	ZH	ZJ	ZK	ZL	ZM	**2050**	ZN	ZP	ZQ	ZR	ZS	ZT	ZU	ZX	ZW	ZX	ZY	ZZ