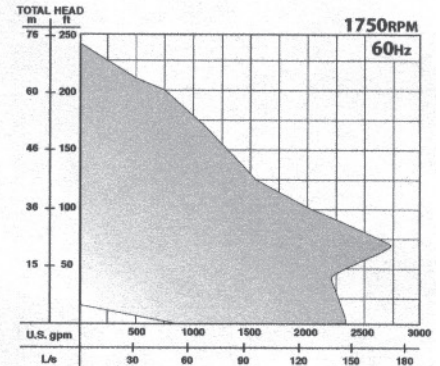


BARNES®

Solids Handling Submersibles

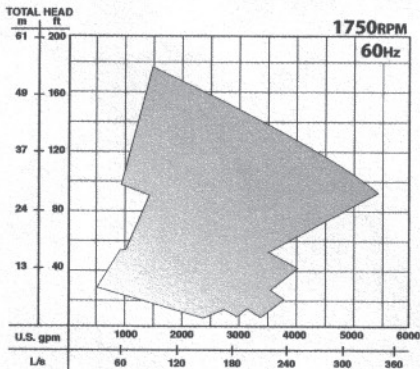
6SE, 6XSE

Size	6" horizontal
Motor	7.5hp - 75hp oil filled or air filled
Head	to 240'
Flow	to 2,650gpm
Volutes	concentric
Impeller	enclosed
Solids	3" • 4"

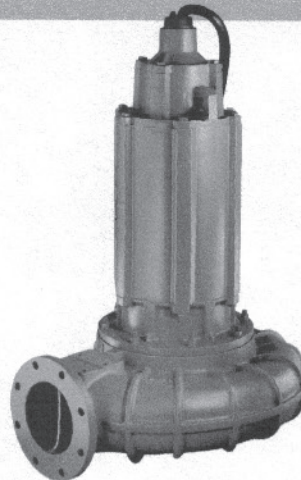


Models with air filled explosion proof motors available.

8SE, 8XSE

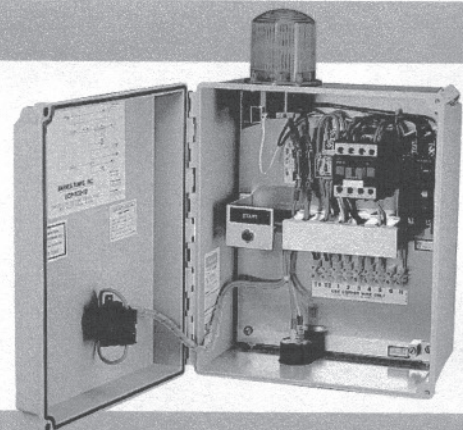


Models with air filled explosion proof motors available.



Size	8" horizontal
Motor	24hp - 200hp oil filled or air filled
Head	to 180'
Flow	to 5,400gpm
Volutes	concentric
Impeller	enclosed
Solids	3"

Control panels are available in NEMA 3R, 4X, and other enclosures for Simplex and Duplex pumping systems. Standard panels include: 120v control transformers, alternators (in Duplex panels), circuit breakers, motor overload protection, Hand-Off-Automatic selector switch, run lights, alarm circuit, magnetic starters, seal fail light, motor high temperature light. Custom panels available.

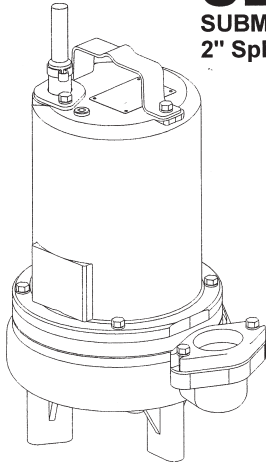


SE SERIES

BARNES®

SE

SUBMERSIBLE NON-CLOG PUMPS
2" Spherical Solids Handling



Series SE 0.5, 0.75 & 1HP
1750 RPM
(SE51 & SE52)

Manual & Automatic

CSA® CSA 108 - File No. LR16567
UL 778

NRTLIC

Description:

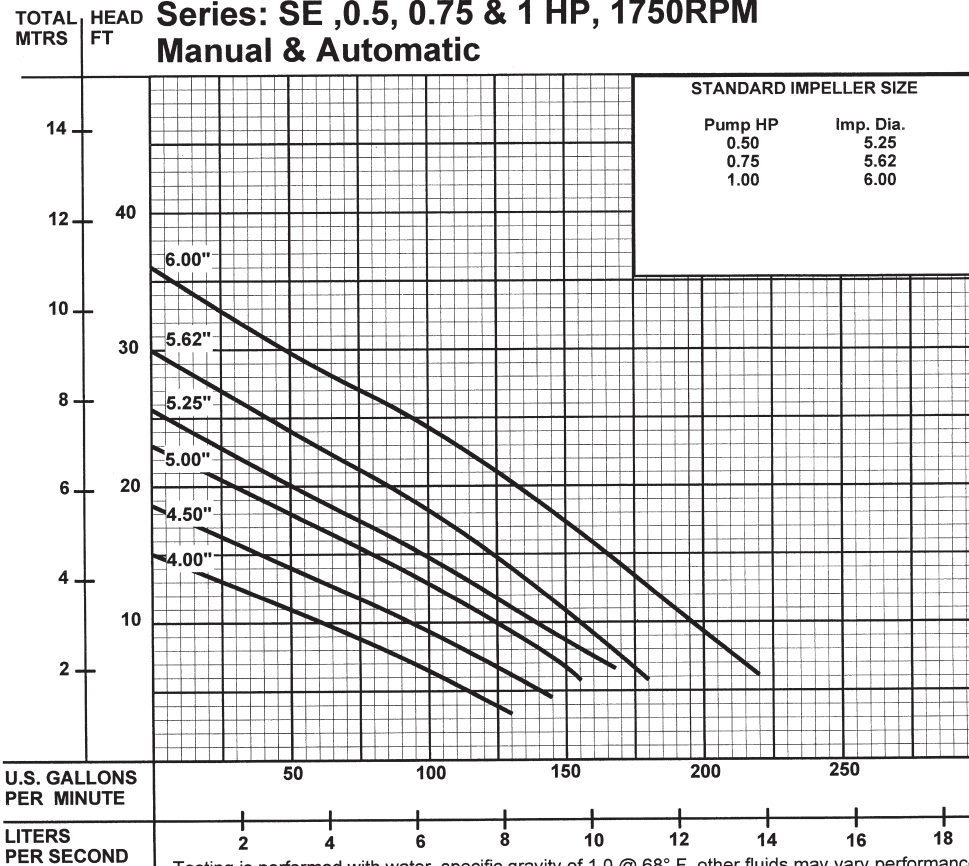
SUBMERSIBLE NON-CLOG SEWAGE PUMP DESIGNED FOR TYPICAL RAW SEWAGE APPLICATIONS.

Specifications:

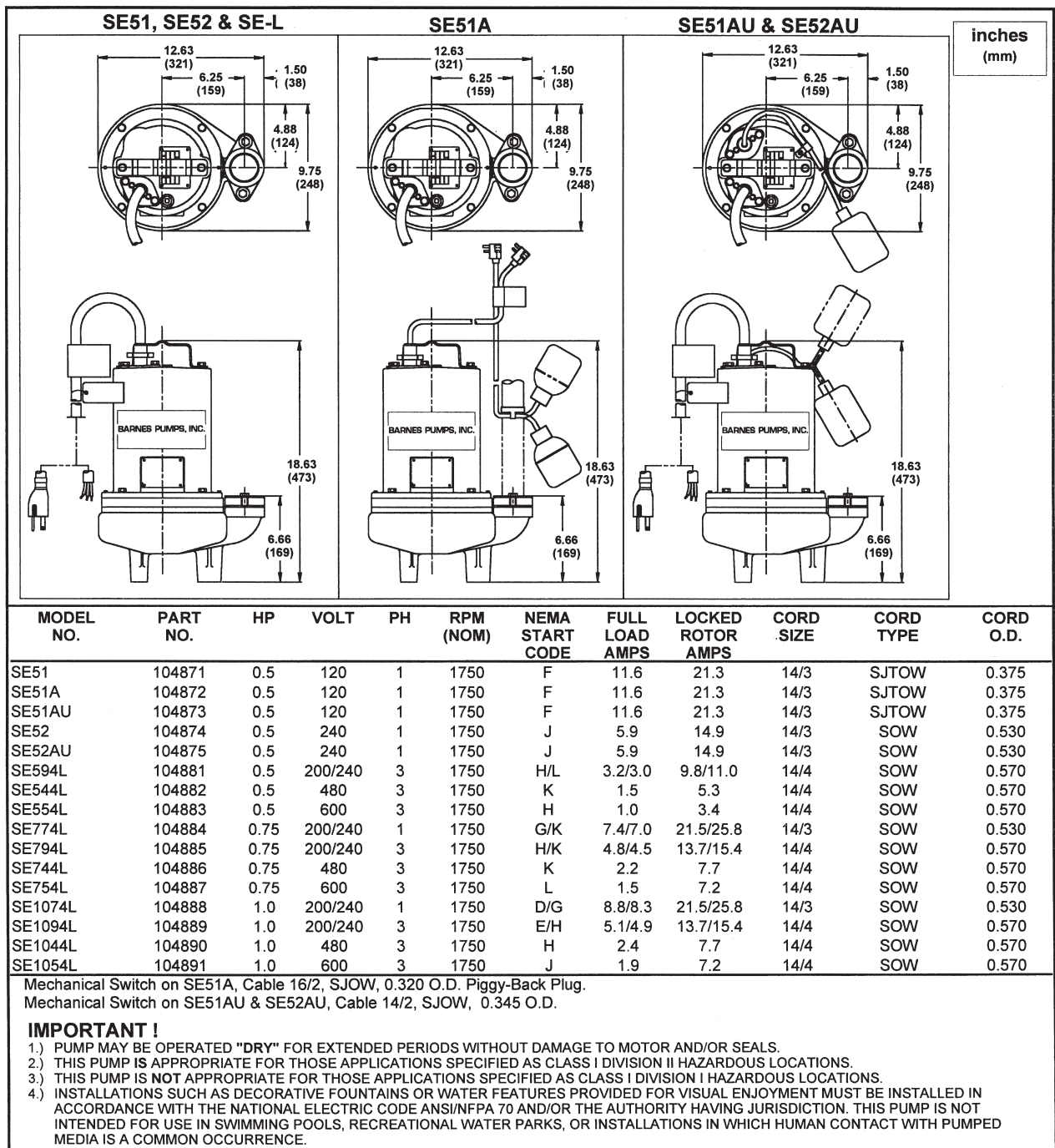
DISCHARGE: 2" NPT, Vertical.
LIQUID TEMPERATURE: 104°F (40°C) Continuous.
VOLUTE: Cast Iron ASTM A-48, Class 30.
MOTOR HOUSING: Cast Iron ASTM A-48, Class 30.
SEAL PLATE: Cast Iron ASTM A-48, Class 30.
IMPELLER: *Design:* 2 Vane, Open, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3.
Material: Cast Iron ASTM A-48 Class 30.
SHAFT: 416 Stainless Steel
SQUARE RINGS: Buna-N
HARDWARE: 300 Series Stainless Steel
PAINT: Air Dry Enamel.
SEAL: *Design:* Single Mechanical.
Material: Rotating Faces - Carbon
 Stationary Faces - Ceramic
 Elastomer - Buna-N
CABLE ENTRY: Hardware -300 Series Stainless
 15 ft. (4.5M) Cord. Plug on 120 Volt & 240 Volt 1 Phase. Quick Connect, Custom Molded for Sealing and Strain Relief.
SPEED: 1750 RPM (Nominal).
UPPER BEARING: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial
LOWER BEARING: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust
MOTOR: *Design:* NEMA L Torque Curve. Completely Oil-Filled, Squirrel Cage Induction. Class B
Insulation: Permanent Split Capacitor (PSC). Includes Overload Protection In Motor.
SINGLE PHASE: 200-240/480 Tri Voltage motor. 600V.
THREE PHASE: Requires Overload Protection to be Included in Control Panel.
FLOAT, AUTOMATIC MODELS:
 A - Wide Angle, PVC Mechanical, 15ft (5M) Cable on with Piggy-Back Plug.
 AU - Wide Angle, Polypropylene, Mechanical, N/O, Integral to Pump. ON and OFF Points are Adjustable. Seal Material, Impeller Trims,
OPTIONAL EQUIPMENT: Additional Cable, N/C Temperature Sensor with cable for 3 phase pumps (Requires Relay in Control Panel).

PERFORMANCE CURVE

Series: SE ,0.5, 0.75 & 1 HP, 1750RPM
Manual & Automatic



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.



TAX BITES

After a year of hard work, the average man or woman is entitled to a little vacation with the family. They may have scrimped and saved all year to be able to spend two weeks at their favorite vacation spot. Of course, their savings are heavily taxed all year. But when they finally go to buy airline tickets, what they probably don't realize is how much they are paying in taxes again.

All airline tickets are subject to a federal excise tax of 7.5 percent. In addition, there is a \$2.50 surcharge to pay for air traffic control services. If you are flying overseas, you are subject to a \$12.40 Arrival Tax, a \$12.40 Departure Tax, and a \$5.00 Customs User Fee. Many airports are also subject to a \$3 Passenger Facilities Charge, which is another tax. (Note: Pending legislation would raise the PFC tax to \$4.50.)

Air travelers are also subject to a \$6.00 Immigration User Fee and a \$2.00 Agricultural Inspection Fee. Consequently, over 10 percent of what you pay for flying is actually going to these taxes.

But that's only the start. Additional taxes paid by the airlines account for about 30 percent of the price of an airline ticket.

BARNES[®]

Specifications:

SUCTION/DISCHARGE: 1-1/2" (38mm) x 1-1/2" (38mm) NPT, Female.

LIQUID TEMPERATURE: 160°F (71°C) Continuous.

INTERMEDIATE: Cast Iron ASTM A-48, Class 30.

VOLUTE: Cast Iron ASTM A-48, Class 30.

BODY: Cast Iron ASTM A-48, Class 30.

PEDESTAL: Cast Iron ASTM A-48, Class 30.

IMPELLER: *Design:* Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3. Stainless Steel

SHAFT: Stainless Steel

SQUARE RINGS: Buna-N

HARDWARE: Stainless Steel

PAINT: Air Dry Enamel.

SEAL: *Design:* Mechanical
Lubrication: Self-Lubricating
Material: Rotating Face - Carbon
Stationary Face - Ceramic
Elastomer - Buna-N
Hardware - 300 Series Stainless

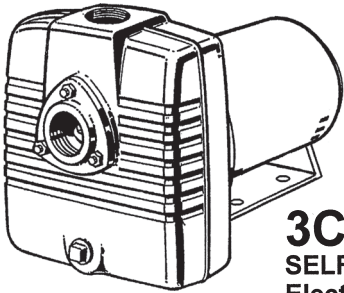
CHECK VALVE: *Material:* Valve Flap-Neoprene.
Weight-Cast Iron ASTM A-48, Class 30

MOTOR: *Design:* ODP, NEMA L-Single Phase, NEMA B-Three Phase Torque Curve
C-Face, Footed, Squirrel Cage Induction.
Class B.
Insulation: Dual Voltage 115/230, Capacitor Start.

SINGLE PHASE: Tri-Voltage, 200-230/460.

THREE PHASE: Seal Material, TEFC Motors.

OPTIONAL EQUIPMENT:



3CCE, 4CCE, 5CCE SELF-PRIMING PUMPS Electric Drive

Series: 3CCE 1-1/2HP

RPM: 3450

Series: 4CCE 2HP

RPM: 3450

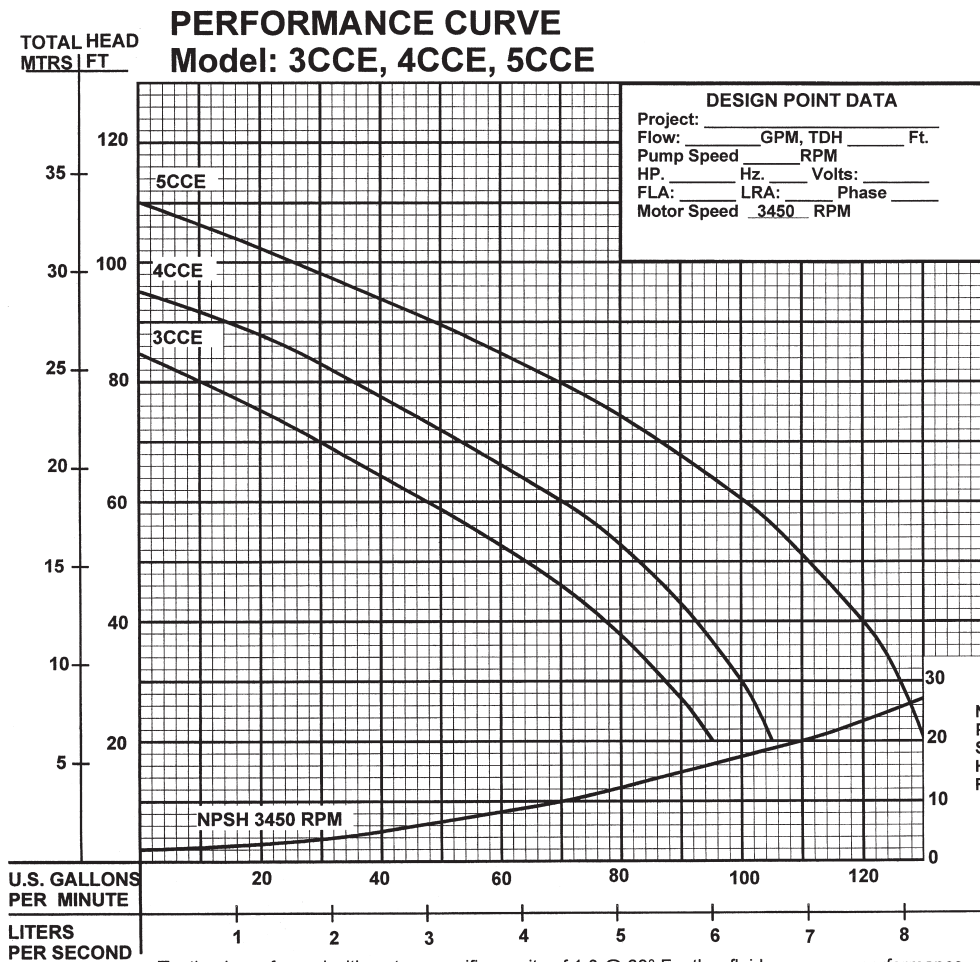
Series: 5CCE 3HP

 Canadian Standards Association
File No. LR16567

 American Bureau of Shipping
Certificate No.
01-HS238523C/1PDA

Description:

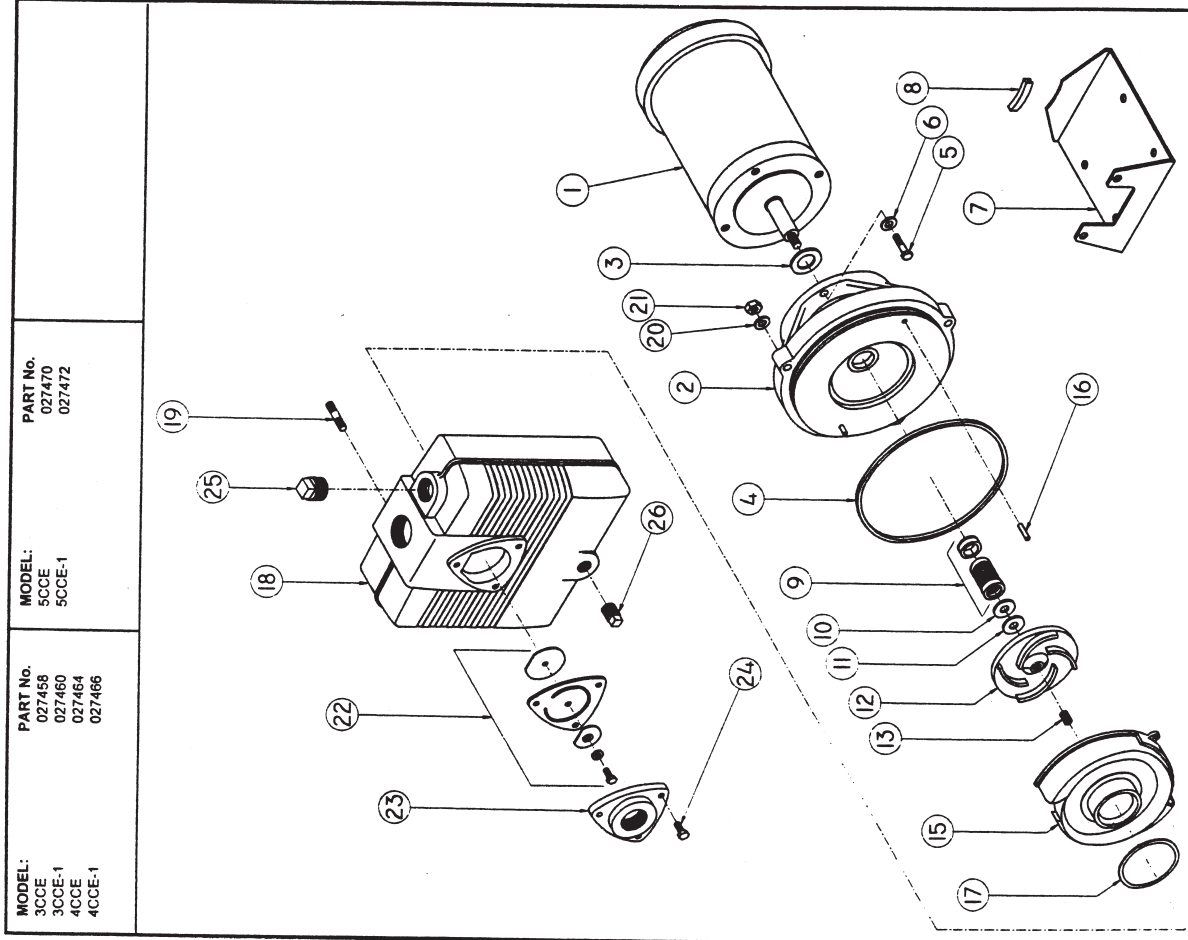
SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

BARNES®

3CCE, 4CCE, 5CCE SELF-PRIMING PUMPS Electric Drive



MODEL: 3CCE 3CCE-1 4CCE 4CCE-1	PART No. 027458 027460 027464 027466	PART No. 027470 027472
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PARTS KIT

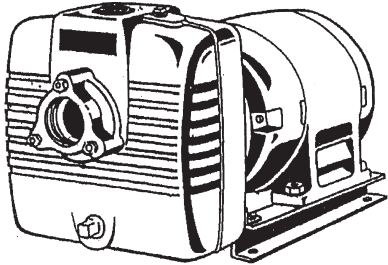
Seal Kit P/N: 021814 (†) 3,4,8,10,11,16,17,22c

PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Motor - 3CCE	200-230/460
		Motor - 3CCE-1	115/230
		Motor - 4CCE	200-230/460
		Motor - 4CCE-1	115/230
		Motor - 5CCE	200-230/460
		Motor - 5CCE-1	115/230
2	1	Intermediate Coupling	
3	1	† Slinger	
4	1	† O-Ring	
5	4	Cap Screw, 3CCE, 4CCE, 5CCE	3/8-16 x 1.25" Lg. Steel
6	4	Cap Screw, 4CCE-1	3/8-16 x 1.00" Lg. Stainless
7	1	Lock Washer	3/8" Steel
8	1	Base	
9	1	Pad	
10	1	† Shaft Seal	TP/CE/B
11	A/R	† Shim, .010	
12	A/R	† Shim, .005	
		Impeller	
13	1	Set Screw, 3CCE	3CCE
15	1	Hex Nut, 4CCE, 5CCE	4CCE
16	1	Volute	5CCE
17	2	Pin, Volute	7/16-20, Stainless
18	1	Gasket, Volute	
19	1	Body	
20	3	Stud	
21	3	Lock Washer	3/8-16 x 1.75" Lg. Steel
22	1	Check Valve Assy.	3/8" Steel
22a	1	Weight	2.25" O.D., CI
22b	1	Weight	1.56" O.D., CI
22c	1	Gasket	Neoprene
22d	1	Lock Washer	1/4", Stainless
22e	1	Round Hd Screw	1/4-20 x 625" Lg. Stainless
23	1	Suction Flange	
24	3	Cap Screw	5/16-18 x .875" Lg. Steel
25	1	Pipe Plug	1.25 NPT
26	1	Pipe Plug	.75 NPT

BARNES®

10CCE & 10CCE-1 SELF-PRIMING PUMPS Electric Drive



**Model: 10CCE & 10CCE-1, 5HP
RPM: 3450**



American Bureau of Shipping
Certificate No.
01-HS238523C/1PDA

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 2" (51mm) x 2" (51mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30.
BODY: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:

Design: Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30.
Dynamically Balanced, ISO G6.3.
Stainless Steel

SHAFT: Stainless Steel
SHAFT SLEEVE: Bronze
SQUARE RINGS: Buna-N
HARDWARE: Stainless Steel
PAINT: Air Dry Enamel.
SEAL: *Design:* Mechanical
Lubrication: Self-Lubricating
Material: Rotating Face - Carbon
Stationary Face - Ni-Resist
Elastomer - Buna-N
Hardware - 300 Series Stainless

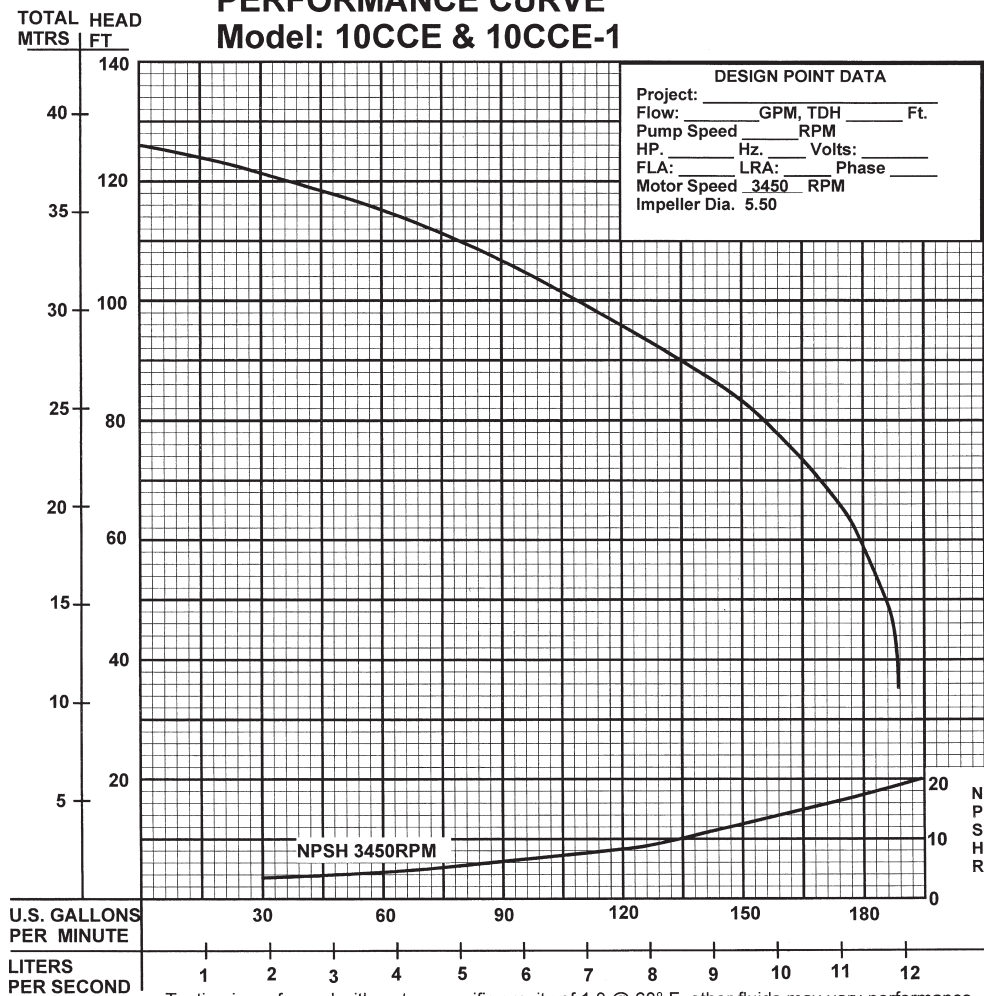
CHECK VALVE:
Material: Valve Flap-Neoprene.
Weight-Cast Iron ASTM A-48,
Class 30

MOTOR: *Design:* ODP, NEMA L-Single Phase
NEMA B - Three Phase Torque Curve,
C-Face, Footed, Squirrel Cage
Induction. Marine Duty Per USCG259
And AIEEE-45, 50°C Ambient
Class B.

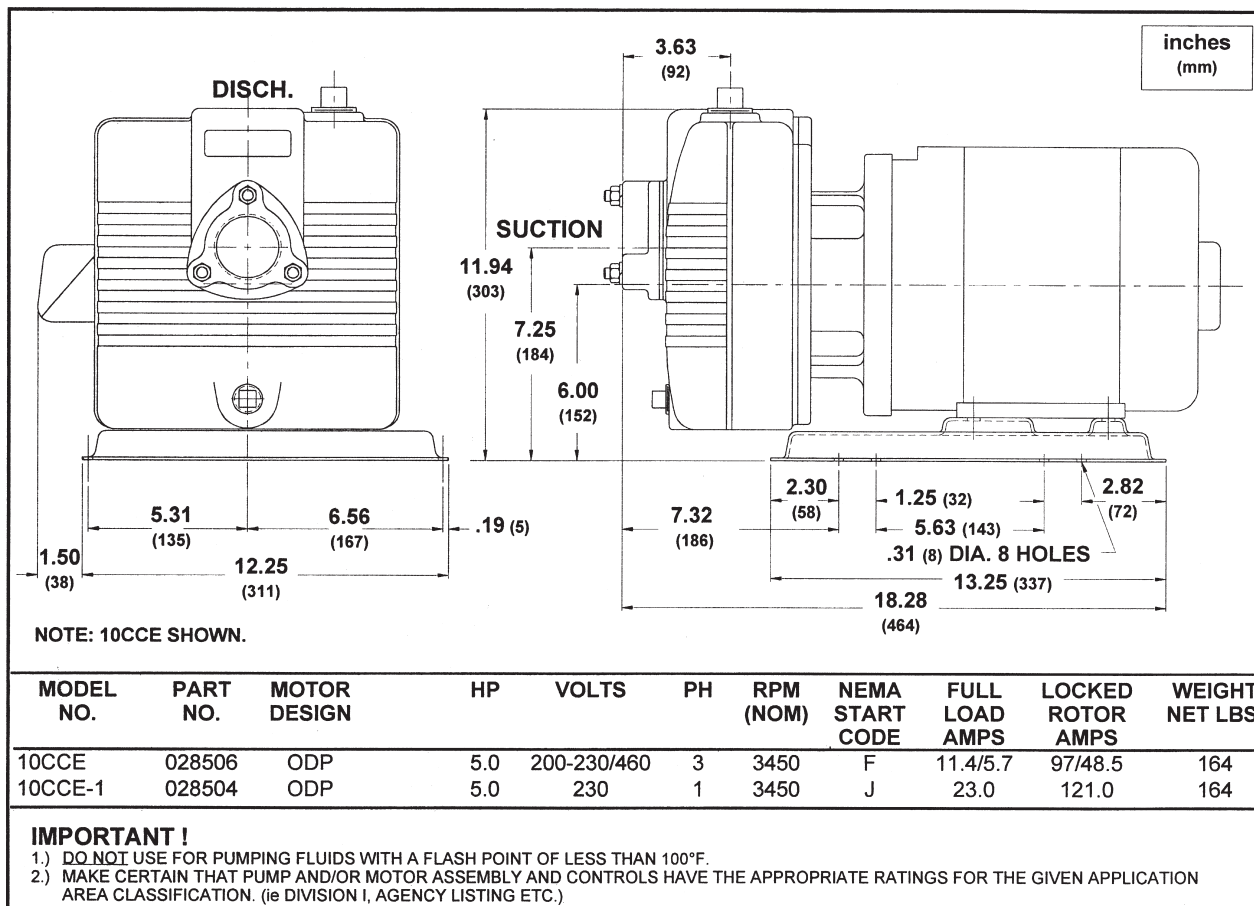
Insulation:

SINGLE PHASE: Single Voltage, 230.
THREE PHASE: Tri-Voltage, 200-230/460.
OPTIONAL EQUIPMENT: Seal Material., TEFC Motors.

PERFORMANCE CURVE Model: 10CCE & 10CCE-1



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.



TAX BITES

SODA

Although most states require soda consumers to pay sales taxes averaging 6 percent nationally, a number of states impose even higher taxes specifically targeted only at soda. One such state, Arkansas, imposes a 2 cents per 12 ounce soft drink can.

Several states also have “bottle bills” that impose an extra charge on beverage containers to punish people for littering. Sure, you might get your fee back if you turn in your soda cans, but the costs of maintaining the programs is still heaped onto your cost. California’s program, for example, costs taxpayers over \$30 million each year just for oversight.

Beyond the costs of the excise taxes and bottle bills, the true cost of taxation includes the producer’s federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen’s compensation taxes, local property taxes and any local income taxes.

Depending on where you buy your Diet Coke, the government’s share of the cost could run as high as 37.6 percent, or \$.28 for a 75 cent can of soda.

MEALS

Eating out isn’t cheap, but the government doesn’t make it any easier to enjoy a meal at your favorite restaurant by imposing extra taxes on it. Because states and municipalities like the idea of taxing tourists, imposing taxes on restaurant meals has most big spenders salivating. In major cities like Chicago, the state and local meals taxes can heap on up to 10.25 percent of your bill

That is just the first course of taxation. Out of what the consumer pays for the meal, the restaurant must pay federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen’s compensation taxes, state franchise taxes, local property taxes and any local income taxes. Altogether, these taxes can add another \$11.18 onto an average restaurant bill of \$32.32.

This means that in total, a restaurant diner can expect to pay as much as 44.8 percent of the cost of a meal, or \$14.48 to the government.

BARNES®

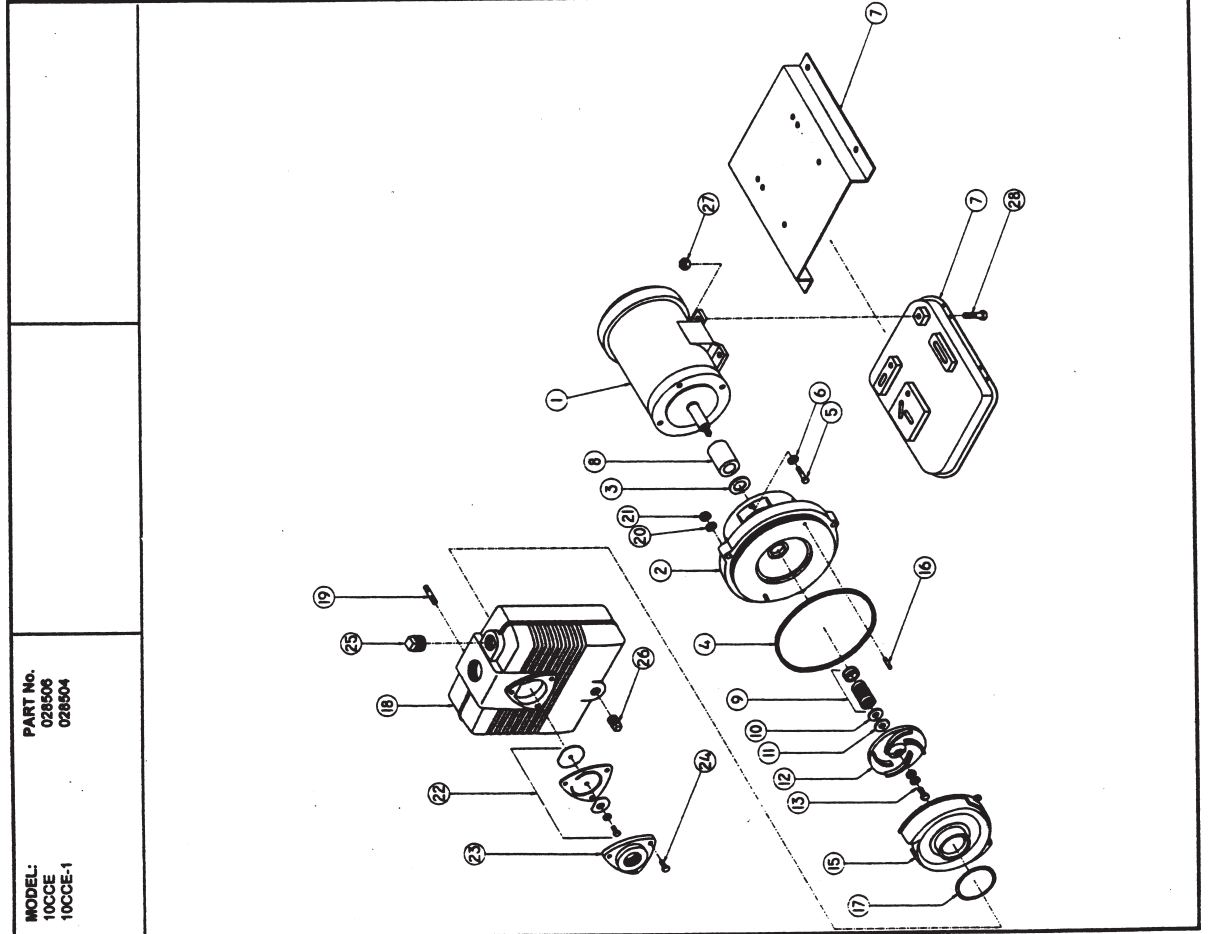
10CCE & 10CCE-1 SELF-PRIMING PUMPS Electric Drive

PARTS KIT

Seal KitP/N: 072920 (†) 3,4,8,9,10,11,16,17,22c

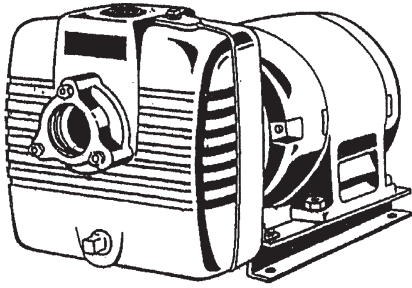
PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Motor - 10CCE	200-230/460
2	1	Motor - 10CCE-1	230
3	1	Intermediate Coupling	
4	1	† Slinger	1/2-13 x 1.50" Lg. Steel
5	4	† O-Ring	1/2" Steel
6	4	Cap Screw	
7	1	Lock Washer	
8	1	Base, 10CCE	
9	1	Base, 10CCE-1	
10	1	† Shaft Sleeve	
11	1	† Shim, .010	
12	1	† Shim, .031	
13	1	Impeller	C/NR/B
14	1	Hex Hd Screw	
15	2	Washer, Shakerproof	1/2-20 x 1.00" Lg. Stainless
16	1	Volute	1/2, Stainless
17	2	Pin, Volute	
18	1	Gasket, Volute	
19	1	Body	
20	3	Stud	3/8-16 x 1.75" Lg. Steel
21	3	Lock Washer	3/8", Steel
22	1	Hex Nut	3/8-16, Zp
22a	1	Check Valve Assy.	2.25" O.D., CI
22b	1	Weight	1.56" O.D., CI
22c	1	† Gasket	Neoprene
22d	1	Gasket	1/4", Stainless
23	1	Lock Washer	1/4-20 x 625" Lg. Stainless
24	3	Round Hd Screw	5/16-18 x 1.75" Lg. Steel
25	1	Suction Flange	1.25 NPT
26	1	Cap Screw	.75 NPT
27	4	Pipe Plug	3/8-16 Zp
28	4	Hex Nut	3/8-16 x 1.00" Lg. Stainless
		Hex Hd Screw	002234



BARNES[®]

15CCE SELF-PRIMING PUMPS Electric Drive



Model: 15CCE



American Bureau of Shipping
Certificate No.
01-HS238523C/1PDA

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 3" (76mm) x 3" (76mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30.
BODY: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:

Design: Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30.
Dynamically Balanced, ISO G6.3.
Stainless Steel
Bronze
Buna-N
Stainless Steel
Air Dry Enamel.
Design: Mechanical
Lubrication: Self-Lubricating
Material: Rotating Face - Carbon
Stationary Face - Ni-Resist
Elastomer - Buna-N
Hardware - 300 Series Stainless

CHECK VALVE:

Material: Valve Flap-Neoprene.
Weight-Cast Iron ASTM A-48,
Class 30

MOTOR:

Design: ODP, NEMA B-Three Phase
Torque Curve, C-Face, Footed,
Squirrel Cage Induction.
Marine Duty Per USCG259 And
AIEEE-45, 50°C Ambient
Class B.

THREE PHASE:

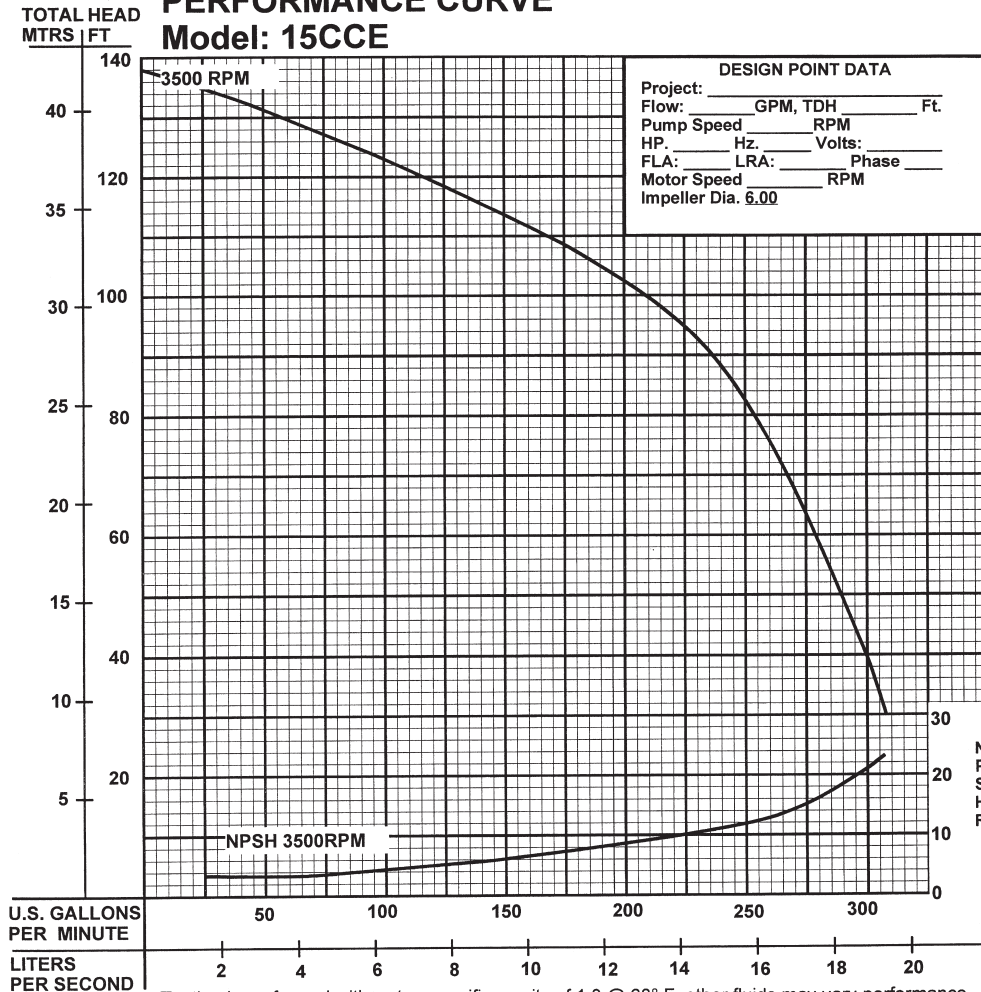
Insulation: Tri-Voltage, 200-230/460.

OPTIONAL EQUIPMENT:

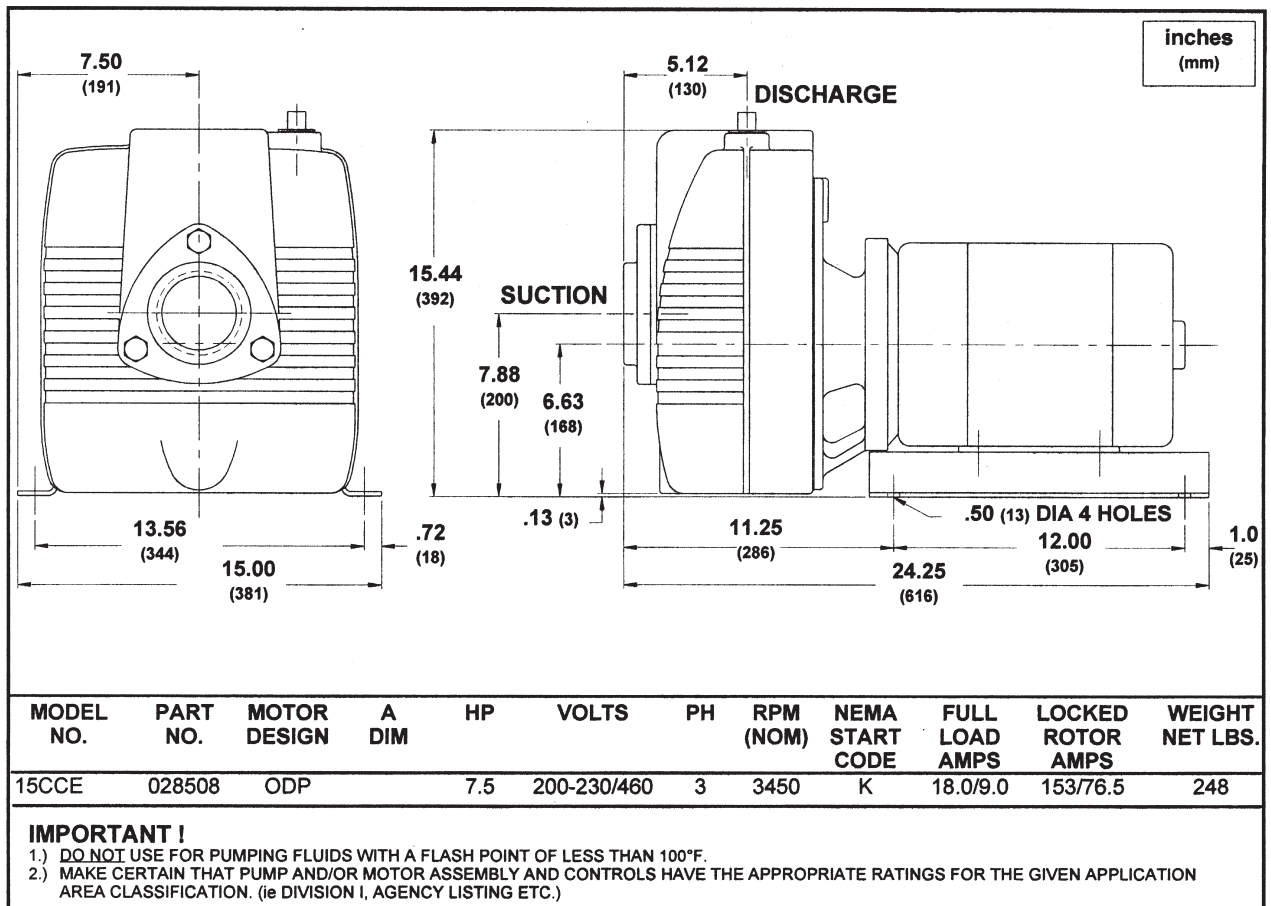
Seal Material, TEFC Motors.

PERFORMANCE CURVE

Model: 15CCE



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.



TAX BITES TIRES

To pay your taxes, you need to work. To get to work, you need to keep your clunker working. To keep it working, you have to buy some new tires every once in a while. What you don't realize is how much you are paying in taxes when you buy those tires.

Consumers, of course, must pay sales tax on the tires, averaging about 5 percent. They must also pay an additional tax averaging about 1 percent to pay for tire disposal.

Out of what the consumer pays for tires, the producer must pay federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen's compensation taxes, local property taxes and any local income taxes.

Altogether, these taxes consume about 30 percent of what the consumer pays for a tire. Counting the taxes paid directly by the consumer, this means about 36 percent of the final sales price of a tire goes to the government in taxes.

CARS

Incredibly, the average family pays more in taxes today than for food, clothing and shelter combined. Indeed, you probably don't realize how much you are paying in hidden taxes when you buy such necessities.

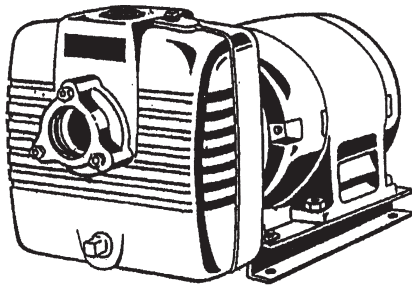
Take the average family car, for example. Cars, of course, are subject to state and local sales tax, averaging 5 percent. Moreover, consumers must also pay a so-called luxury tax of 9 percent on car sales prices over \$34,000.

In addition, after the purchase of a car, in most states the consumer must pay each year a personal property or excise tax, averaging about 3 percent of the annual value of the car. If you keep the car for 5 years, these taxes can amount to 10 percent of what you paid for the car.

Combined with taxes on income, payroll, unemployment insurance, inventory, dealer personal property and other items, total taxes on cars reach 45 percent of the sales price.

BARNES®

20CCE SELF-PRIMING PUMPS Electric Drive



Model: 20CCE



American Bureau of Shipping
Certificate No.
01-HS238523C/1PDA

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 3" (76mm) x 3" (76mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30.
BODY: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:

Design: Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30.
Dynamically Balanced, ISO G6.3.
Stainless Steel
Bronze
Buna-N
Stainless Steel
Air Dry Enamel.
Mechanical
Self-Lubricating
Rotating Face - Carbon
Stationary Face - Ni-Resist
Elastomer - Buna-N
Hardware - 300 Series Stainless

SHAFT:
SHAFT SLEEVE:
SQUARE RINGS:
HARDWARE:
PAINT:
SEAL:

Design:
Lubrication:
Material:

CHECK VALVE:

Material: Valve Flap-Neoprene.
Weights-Cast Iron ASTM A-48,
Class 30

MOTOR:

Design: ODP, NEMA B-Three Phase
Torque Curve, C-Face, Footed,
Squirrel Cage Induction.
Marine Duty Per USCG259 And
AIEEE-45, 50°C Ambient
Class B.

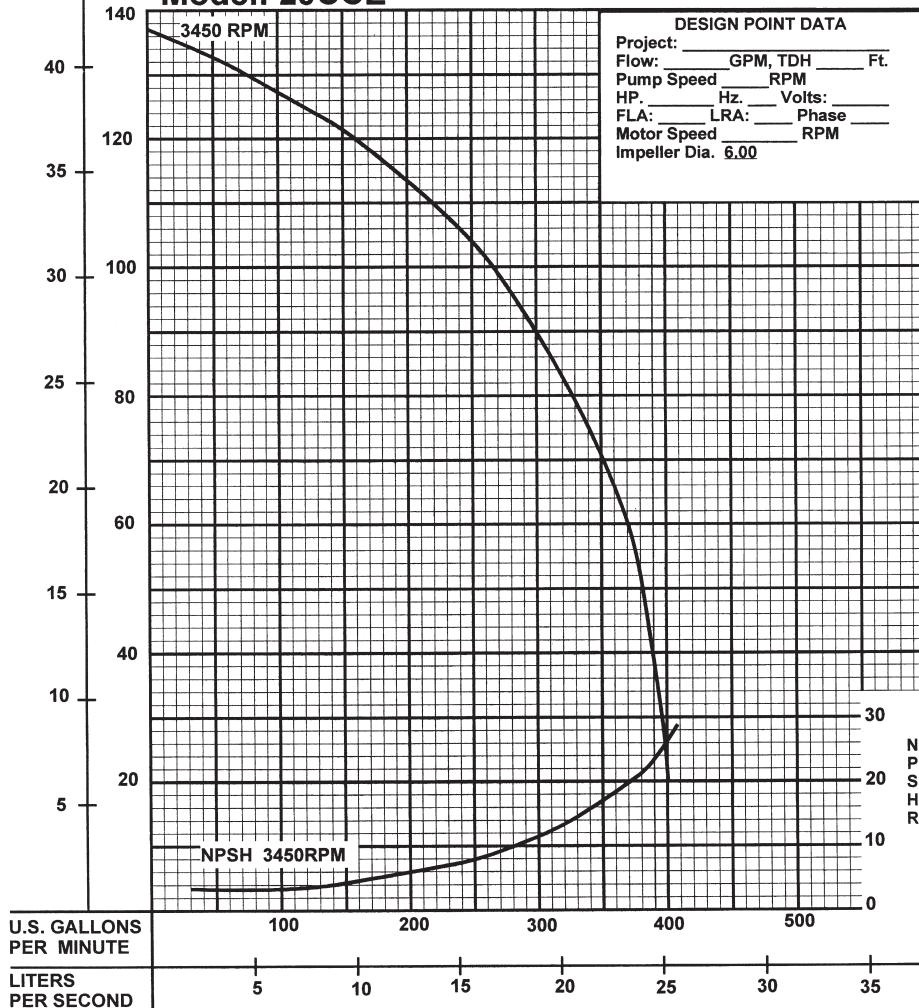
Insulation:

THREE PHASE:

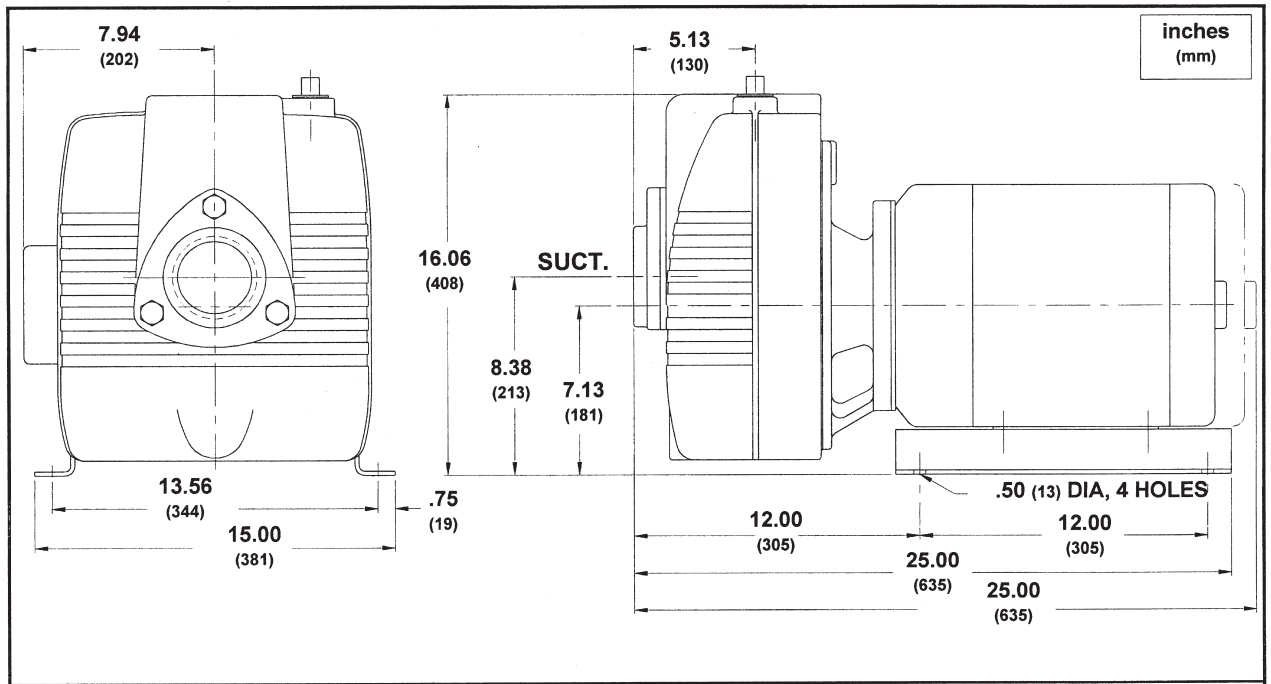
Tri-Voltage, 200-230/460.
OPTIONAL EQUIPMENT: Seal Material, TEFC Motors.

TOTAL HEAD
MTRS
FT

PERFORMANCE CURVE Model: 20CCE



Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.



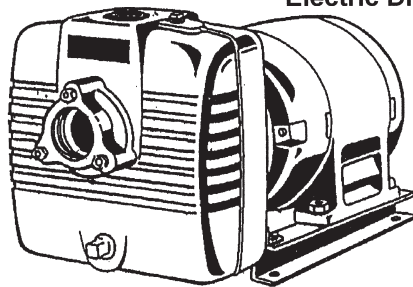
MODEL NO.	PART NO.	MOTOR DESIGN	A DIM	HP	VOLTS	PH	RPM (NOM)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	WEIGHT NET LBS.
20CCE	028510	ODP		10	200-230/460	3	3450	G	25.0/12.5	150/75	294

IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

BARNES®

25CCE SELF-PRIMING PUMPS Electric Drive



Model: 25CCE



American Bureau of Shipping
Certificate No.
01-HS238523C/1PDA

Description:

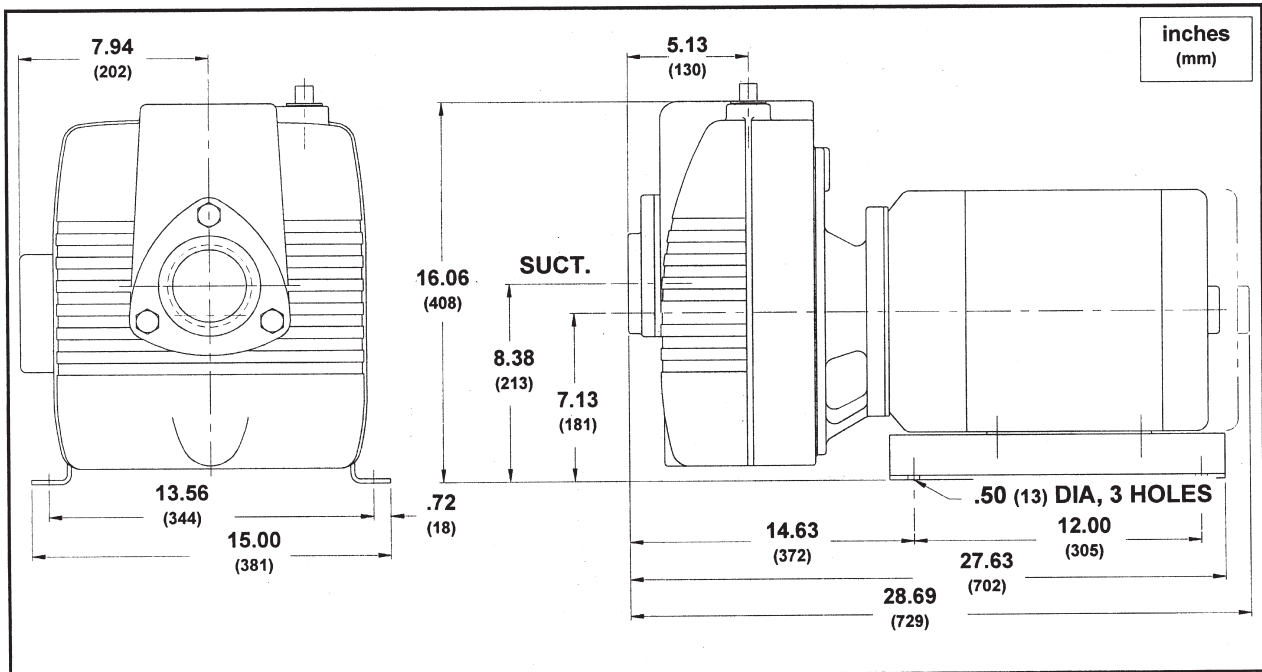
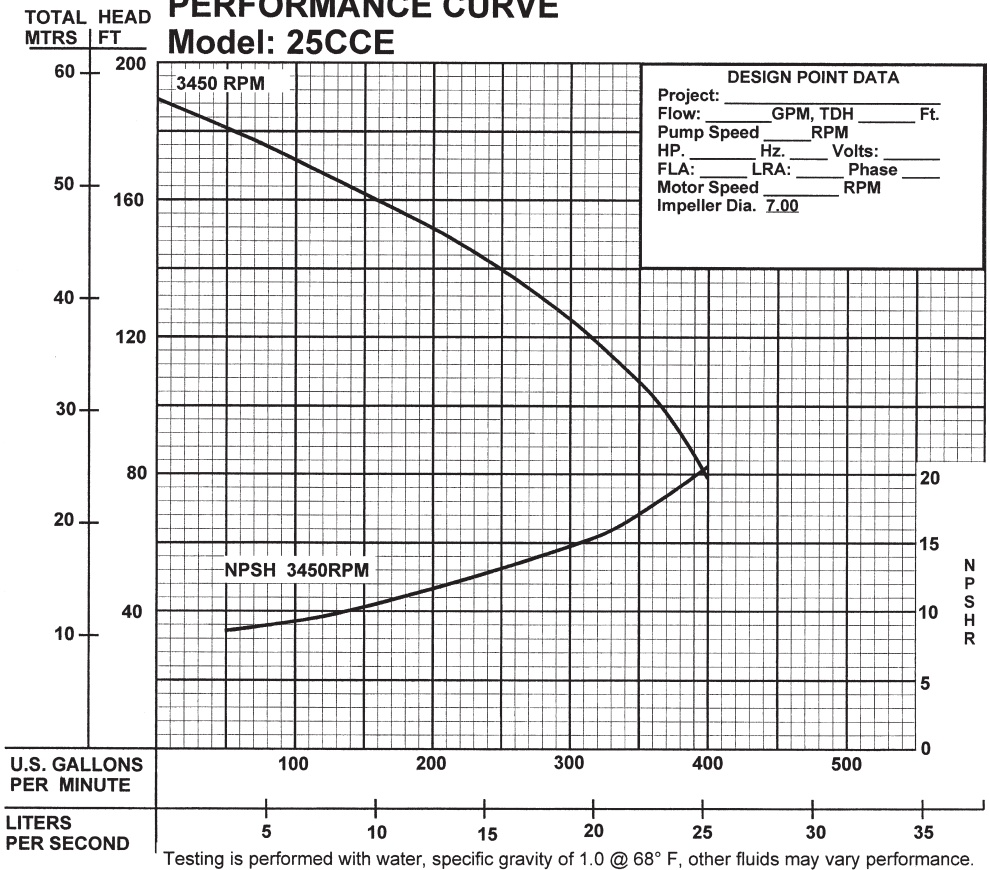
SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

- SUCTION/DISCHARGE:** 3" (76mm) x 3" (76mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30.
BODY: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER: Cast Iron ASTM A-48, Class 30.
- Design:* Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30.
 Dynamically Balanced, ISO G6.3.
 Stainless Steel
- SHAFT:** Bronze
SHAFT SLEEVE: Buna-N
SQUARE RINGS: Stainless Steel
HARDWARE: Air Dry Enamel.
PAINT: Mechanical
SEAL: Self-Lubricating
Design: Rotating Face - Carbon
Lubrication: Stationary Face - Ni-Resist
Material: Elastomer - Buna-N
 Hardware - 300 Series Stainless
- CHECK VALVE:** Valve Flap-Neoprene.
Material: Weights-Cast Iron ASTM A-48, Class 30
- MOTOR:** ODP, NEMA B-Three Phase
Design: Torque Curve, C-Face, Footed, Squirrel Cage Induction.
 Marine Duty Per USCG259 And AIEEE-45, 50°C Ambient
Insulation: Class B.
 Tri-Voltage, 200-230/460.
- THREE PHASE:** Seal Material, TEFC Motors.
OPTIONAL EQUIPMENT:

PERFORMANCE CURVE

Model: 25CCE



MODEL NO.	PART NO.	MOTOR DESIGN	A DIM	HP	VOLTS	PH	RPM (NOM)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	WEIGHT NET LBS.
25CCE	028512	ODP		15	200-230/460	3	3450	M	40/20	398/199	322

IMPORTANT !

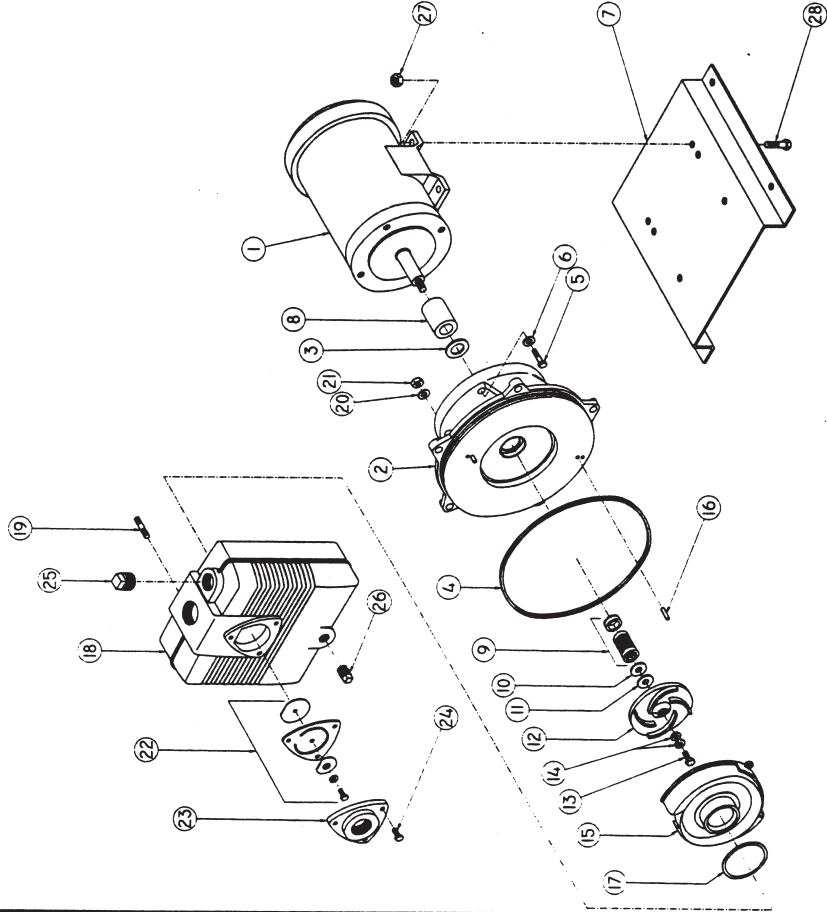
- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

BARNES®

SERIES; 15CCE, 20CCE, 25CCE

MODEL:
15CCE
20CCE
25CCE

PART No.
028508
028510
028512



PARTS KIT

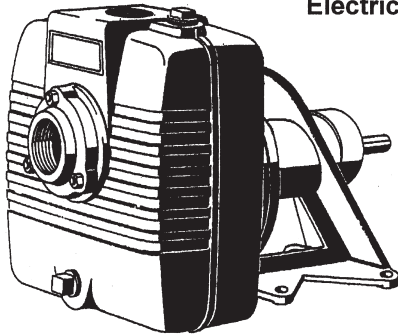
Seal Kit P/N: 072918 (†) 3,4,8,9,10,11,16,17,22b

PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Motor - 15CCE	028496
2	1	Motor - 20CCE	028497
3	1	Motor - 25CCE	028498
4	1	Intermediate Coupling	019553
5	1	Slinger	005163
6	4	O-Ring	018386
7	4	Cap Screw	002266
8	1	Lock Washer	002608
9	1	Lock Washer	027174
10	1	Base, 15CCE	027352
11	AVR	Base, 20CCE, 25CCE	018071
12	AVR	Shaft Sleeve	019146
13	1	Shaft Seal	001349
14	1	Shim, .010	001348
15	1	Shim, .031	090053TB
16	1	Impeller, 15CCE	090050TB
17	1	Impeller, 20CCE	051102
18	1	Hex Hd Screw	018802
19	1	Washer, Shakerproof	018803
20	2	Washer, 25CCE Only	070089
21	1	Volute, 15CCE, 20CCE	018883
22	1	Volute, 25CCE	019102
22a	2	Pin, Volute	017715
22b	1	Gasket, Volute	018388
22c	1	Body	019042
22d	1	Stud	018409
22e	3	Lock Washer	002608
22f	1	Hex Nut	028173
23	1	Check Valve Assy.	018387
24	1	Weight	2.75" O.D., Steel
25	1	Gasket	Neoprene
26	1	Lock Washer	018008
27	1	Hex Hd Screw	022333
28	1	Hex Nut	1/4", Stainless
29	1	Weight	1/4-20 x 1.00" Lg, Stainless
30	1	Suction Flange, 15CCE	15-5-1
31	1	Cap Screw	067500
32	3	Pipe Plug	018884
33	1	Pipe Plug	1/2-13 x 1.25" Lg, Steel
34	1	Pipe Plug	1.00 NPT
35	1	Hex Nut	1.00 NPT
36	4	Hex Hd Screw	3/8-16 Zp
37	4	Hex Hd Screw	3/8-16 x 1.00" Lg, Stainless

BARNES[®]

5CU-1 SELF-PRIMING PUMPS Electric Drive



Model: 5CU-1



American Bureau of Shipping
Certificate No. 01-HS238523E/1-PDA

Description:

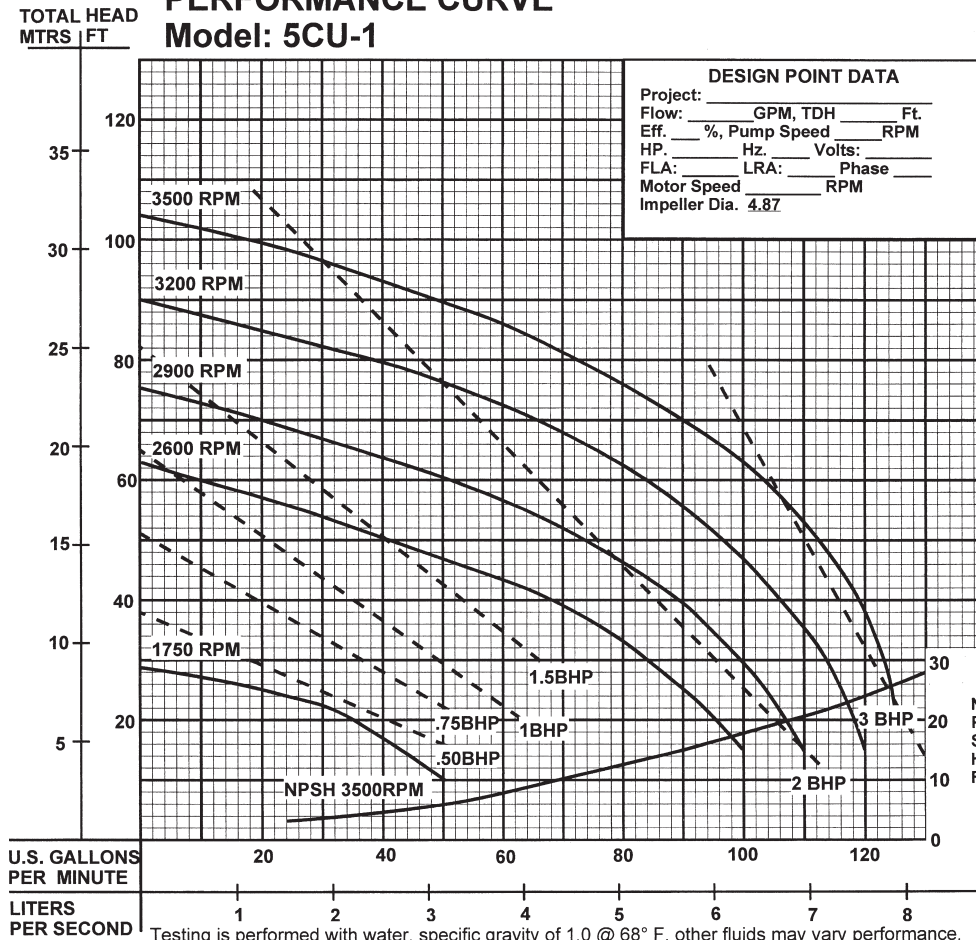
SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

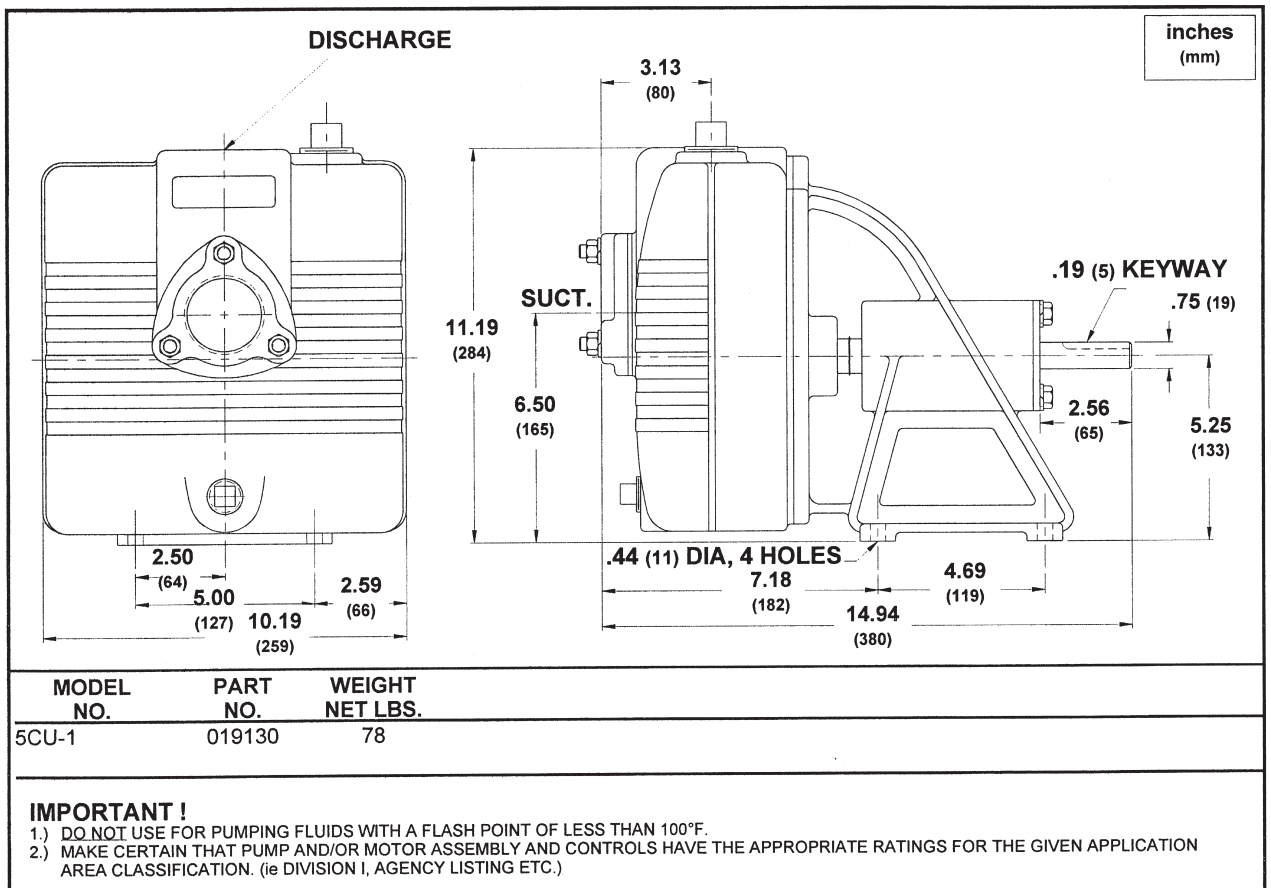
Specifications:

SUCTION/DISCHARGE:	1-1/2" (38mm) x 1-1/2" (38mm) NPT, Female.
LIQUID TEMPERATURE:	160°F (71°C) Continuous.
INTERMEDIATE:	Cast Iron ASTM A-48, Class 30.
VOLUTE:	Cast Iron ASTM A-48, Class 30. Removable.
BODY:	Cast Iron ASTM A-48, Class 30.
PEDESTAL:	Cast Iron ASTM A-48, Class 30.
IMPELLER:	<i>Design:</i> Open, Trash Type. <i>Material:</i> Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3. Stainless Steel
SHAFT:	Buna-N
SQUARE RINGS:	Stainless Steel
HARDWARE:	Stainless Steel
PAINT:	Air Dry Enamel.
SEAL:	<i>Design:</i> Mechanical <i>Lubrication:</i> Self-Lubricating <i>Material:</i> Rotating Face - Carbon Stationary Face - Ceramic Elastomer - Buna-N Hardware - 300 Series Stainless
BEARING-PUMP END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease <i>Load:</i> Radial
BEARING-DRIVE END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease <i>Load:</i> Radial
CHECK VALVE:	<i>Material:</i> Valve Flap-Neoprene. Weight-Cast Iron ASTM A-48, Class 30
OPTIONAL EQUIPMENT:	Seal Material; Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.

PERFORMANCE CURVE

Model: 5CU-1





TAX BITES

HOTEL STAYS

Because Uncle Sam seems to be able to follow you everywhere, it shouldn't surprise you that after paying taxes on the airline ticket that got you to your favorite vacation destination, you'll have to pay more taxes for a room at a hotel.

Your bill when you check out includes not only sales taxes, but also local occupancy taxes that could tack on up to 15.4 percent if you're staying in Chicago. That's about \$15 of an average hotel bill of \$97.06.

But don't forget—hotels pay taxes too. Out of what the consumer pays to the hotel, the hotel must cover costs for federal and state income taxes, federal payroll taxes, sales taxes, capital gains taxes, unemployment insurance taxes, workmen's compensation taxes, business license taxes and fees, utility taxes, local property taxes, and any local income taxes. The hotel must also pay federal and state excise taxes on its telephones. These taxes add another \$33.58 to the average cost of a hotel room.

Nearly half of the cost of a hotel room, or as much as 50 percent, pays for taxes. For an average one night stay costing \$97.06, this means that up to \$48.53 goes straight to the government.

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5CU-1 SELF-PRIMING PUMPS Electric Drive

PART No.
019130
018902

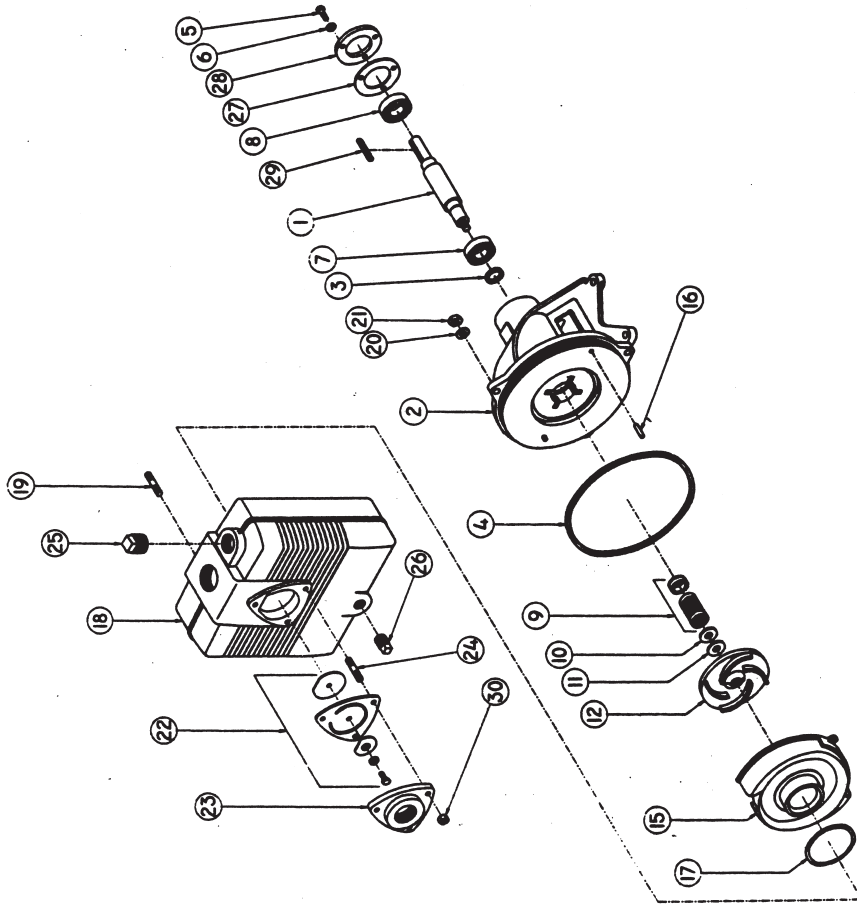
MODEL:
5CU-1
7CU-1

PARTS KIT

Seal Kit P/N: 021814 (†) 3,4,9,10,11,16,17,22B.

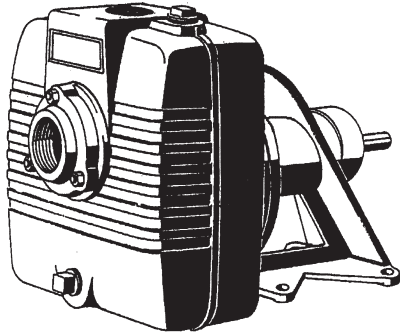
PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Shaft	Stainless
2	1	Pedestal	Buna-N
3	1	† Slinger	1/4-20 x .625" Lg. Steel
4	1	† O-Ring	1/4" Steel
5	3	Hex Hd Screw	C/C/N
6	3	Lockwasher	4.87" Dia
7	1	Bearing	
8	1	Bearing	
9	1	† Shaft Seal	
10	1	† Shim, .010	
11	1	† Shim, .005	
12	1	† Impeller	
15	1	Volute	
16	2	† Volute Pin	
17	1	† Volute Gasket	
18	1	Body	
19	3	Stud	5CU-1
20	3	Lock washer	7CU-1
21	3	Hex Nut	3/8-16 x 1.50" Lg. Stainless
22	1	Check Valve Assy	3/8", Stainless
22A	1	Weight	15-23-1
22B	1	Gasket	2.50" O.D.
22C	1	Lock Washer	Neoprene
22D	1	Round Hd Screw	1/4" Stainless
22E	1	Weight	1/4-20 x .625" Lg. Stainless
23	1	Suction Flange	1.58" O.D.
24	3	Stud, 5CU-1	5CU-1
24	3	Stud, 7CU-1	7CU-1
25	1	Pipe Plug	5/16-18 x 1.25" Lg. Stainless
26	1	Pipe Plug	5/16-18 x 2.25" Lg. Stainless
27	3	Shim	1.75" NPT
28	1	Bearing Cap	3" O.D., Bronze
29	1	Key	3/16 Sq. x 1.63" Lg
30	3	Hex Nut	5/16-18, Stainless



BARNES®

10ICU-1 SELF-PRIMING PUMPS Electric Drive



Model: 10ICU-1



American Bureau of Shipping
Certificate No.
01-HS238523E/1-PDA

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 2" (51mm) x 2" (51mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30.
REMOVABLE: Removable.

BODY: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:

Design: Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30.
Dynamically Balanced, ISO G6.3.

SHAFT: Stainless Steel
SHAFT SLEEVE: Stainless Steel

SQUARE RINGS: Buna-N

HARDWARE: Stainless Steel

PAINT: Air Dry Enamel.

SEAL: *Design:* Single Mechanical with Lip Seal

Lubrication: Grease

Material: Rotating Face - Carbon

Stationary Face - Ceramic

Elastomer - Buna-N

Hardware - 300 Series Stainless

BEARING-PUMP END:

Design: Single Row, Ball

Lubrication: Grease

Load: Radial

BEARING-DRIVE END:

Design: Single Row, Ball

Lubrication: Grease

Load: Radial

CHECK VALVE:

Material: Valve Flap-Neoprene.

Weight-Cast Iron ASTM A-48,

Class 30

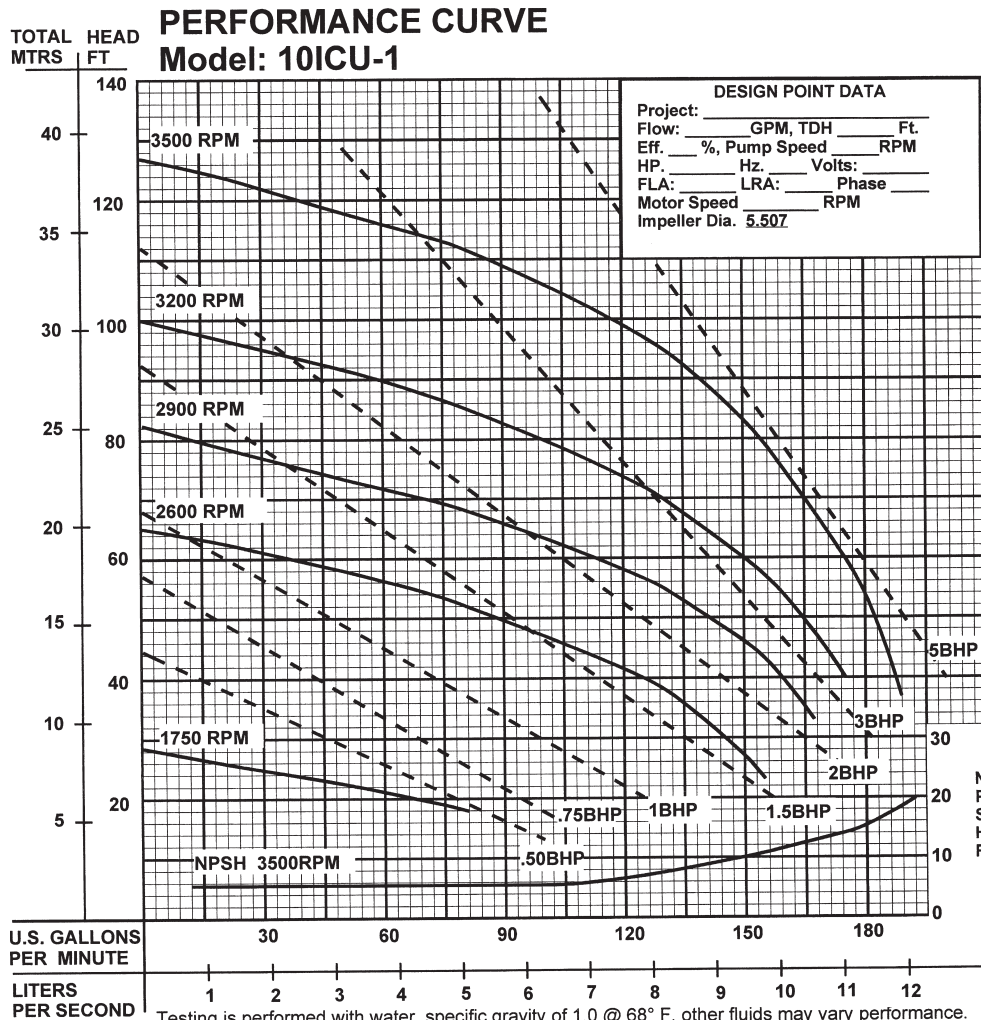
OPTIONAL EQUIPMENT:

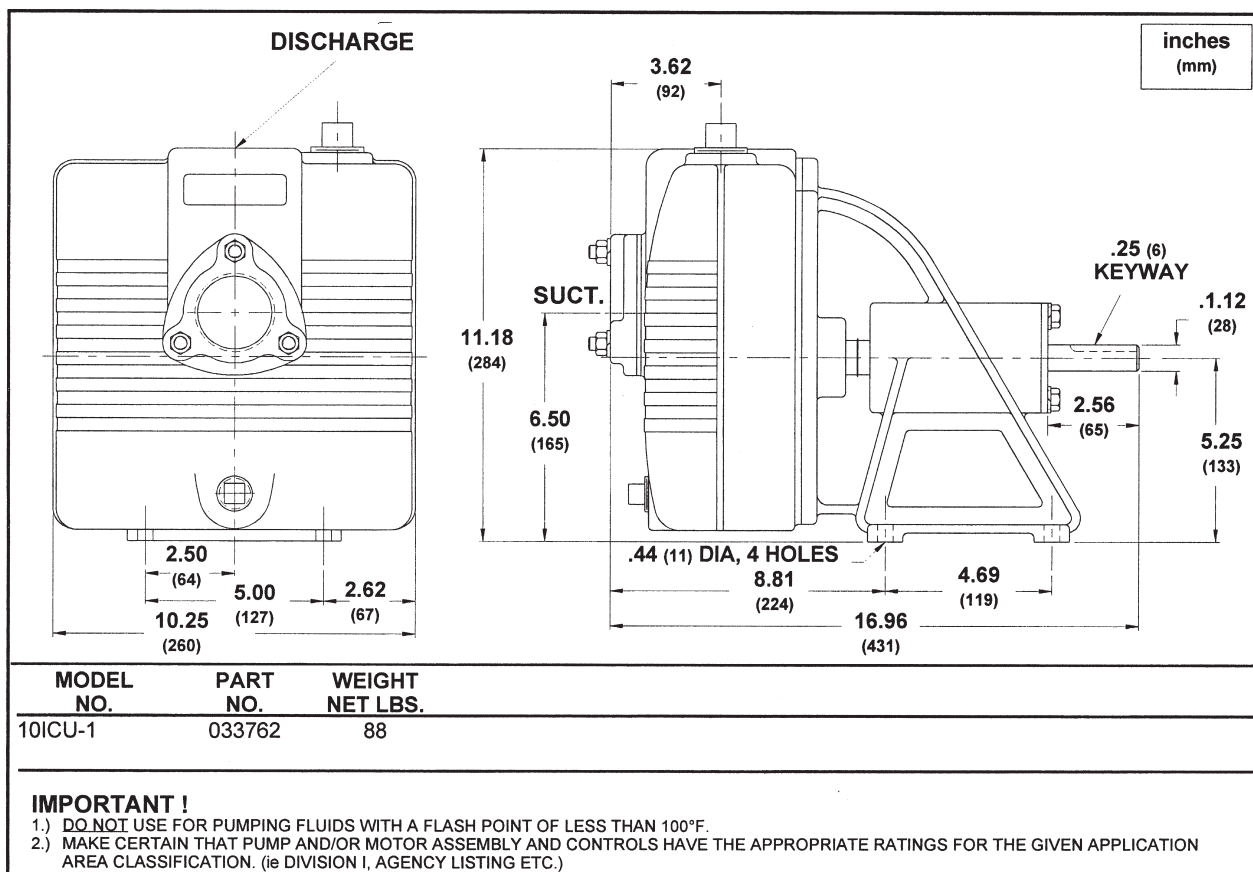
Seal Material, Flex Coupled Assy. with

Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt

Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor

Adjusting Base & OSHA Guard.





TAX BITES ELECTRICITY

Government sees your electric power bill as something you cannot avoid, and they're right, of course. They love to impose taxes on it. In addition to sales taxes, states impose gas import taxes or other surcharges on your bill. As a result, on average 11.2 percent of what you pay for your electric power bill goes to state governments for these taxes alone.

For the average customer, this adds up to about \$206 per year. But that's only the beginning. Of the remaining funds you pay for the utility, roughly another \$266 per year on average goes for taxes as well.

Consequently, about one-fourth of what you pay for your electric bill goes to the government in taxes rather than for the electricity.

For the average customer, this amounts to about \$472 per year. Overall, the government collects almost \$50 billion per year on taxes paid through your electric bill alone.

(Note: If the Senate were to ratify the proposed Global Warming Treaty advocated by former Vice President Al Gore, many experts believe that the above numbers would be more than doubled.)

LANDLINE PHONES

In today's high-tech world, consumers have a wide range of choices for their voice services. Where there used to only be a landline phone, there are now cell phones, Voice over Internet Protocol (VoIP) services, and cable digital voice services. Recently the Beacon Hill Institute of Massachusetts surveyed 59 US cities and came up with average taxes paid for a wide variety of telecommunications services.

According to their study, consumers pay 17.23 percent of their average monthly landline (traditional) phone bill in taxes and fees. With monthly bills estimated at \$49.33, you pay \$8.50 for a landline phone.

These numbers take into account phone-specific taxes like the federal Universal Service Fund, the 911 tax, the city telecom taxes, TDD (deaf tax), and state universal service.

However, what the Beacon Hill study does not take into account are costs for federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen's compensation taxes, local property taxes and any local income taxes. Altogether, these taxes dial up the actual "bite" to \$25.55 for a landline phone.

When added to the taxes and fees paid directly by the consumer, a total of 51.8 percent of a traditional phone bill actually pays for government taxes and fees.

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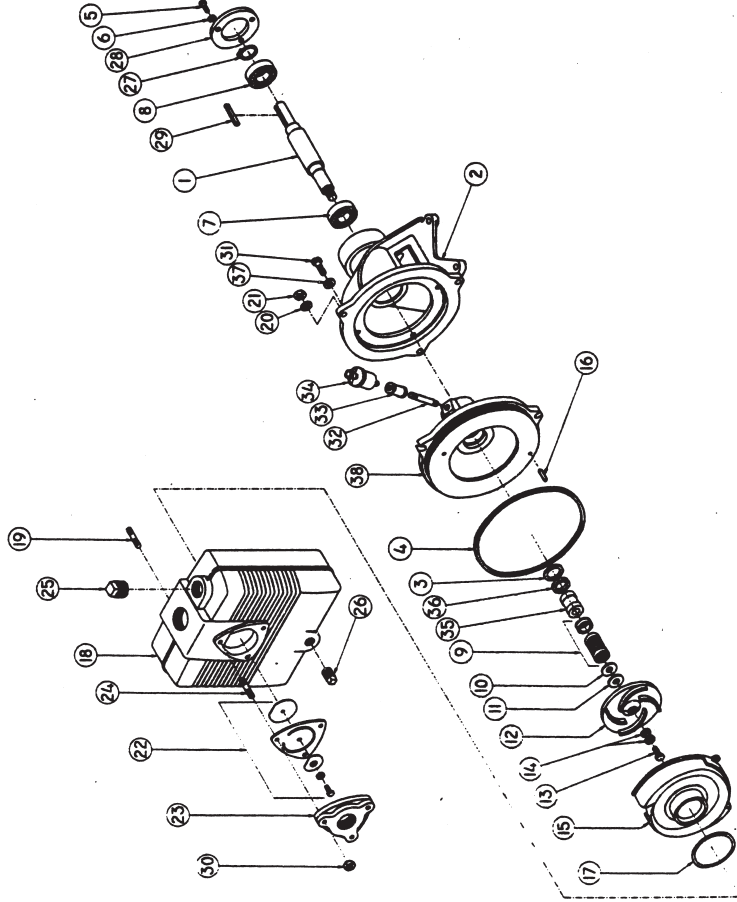
10ICU-1 SELF-PRIMING PUMPS Electric Drive

PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Shaft	033756
2	1	Pedestal	018643
3	1	Slinger	005163
4	1	O-Ring	017713
5	3	Hex Hd Screw	019842
6	3	Lockwasher	002616
7	1	Bearing	018846
8	1	Bearing	019847
9	1	Shaft Seal	022187
10	1	Shim, .010	001349
11	1	Shim, .031	001348
12	1	Impeller	033759
13	1	Hex Hd Screw	019802
14	2	Shakeproof Washer	019803
15	1	Volute	019059
16	2	Volute Pin	017715
17	1	Volute Gasket	019245
18	1	Body	019135
19	3	Stud	033824
20	3	Lock washer	019826
21	3	Hex Nut	15-23-1
22	1	Check Valve Assy	017718
22A	1	Weight	001338
22B	1	Gasket	017712
22C	1	Lock Washer	022333
22D	1	Round Hd Screw	023469
22E	1	Weight	1.56" O.D.
23	1	Suction Flange	001339
24	3	Stud	018100
25	1	Pipe Plug	018825
26	1	Pipe Plug	1.25" NPT
27	1	Snap Ring	1.75" NPT
28	1	Bearing Cap	018851
29	1	Key	018845
30	3	Hex Nut	021092
31	4	Hex Hd Screw	15-19-1
32	1	Pipe Nipple	1-156-1
33	1	Coupling	003263
34	1	Grease Cup	003226
35	1	Shaft Sleeve	001684
36	1	Lip Seal	033757
37	4	Lock Washer	026306
38	1	Seal Plate	026322
			033727

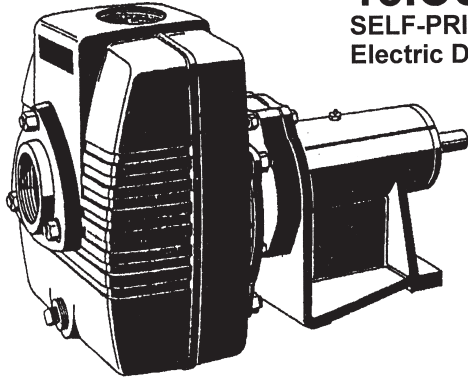
MODEL:
10ICU-1

PART No.
033762



BARNES®

15ICU-1 SELF-PRIMING PUMPS Electric Drive



Models: 15 ICU-1



American Bureau of Shipping
Certificate No.
01-HS238523E/1-PDA

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 3" (76mm) x 3" (76mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30.
Removable.

BODY: Cast Iron ASTM A-48, Class 30.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:

Design: Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30.
Dynamically Balanced, ISO G6.3.

SHAFT: Stainless Steel
SQUARE RINGS: Buna-N
HARDWARE: Stainless Steel
PAINT: Air Dry Enamel
SEAL:

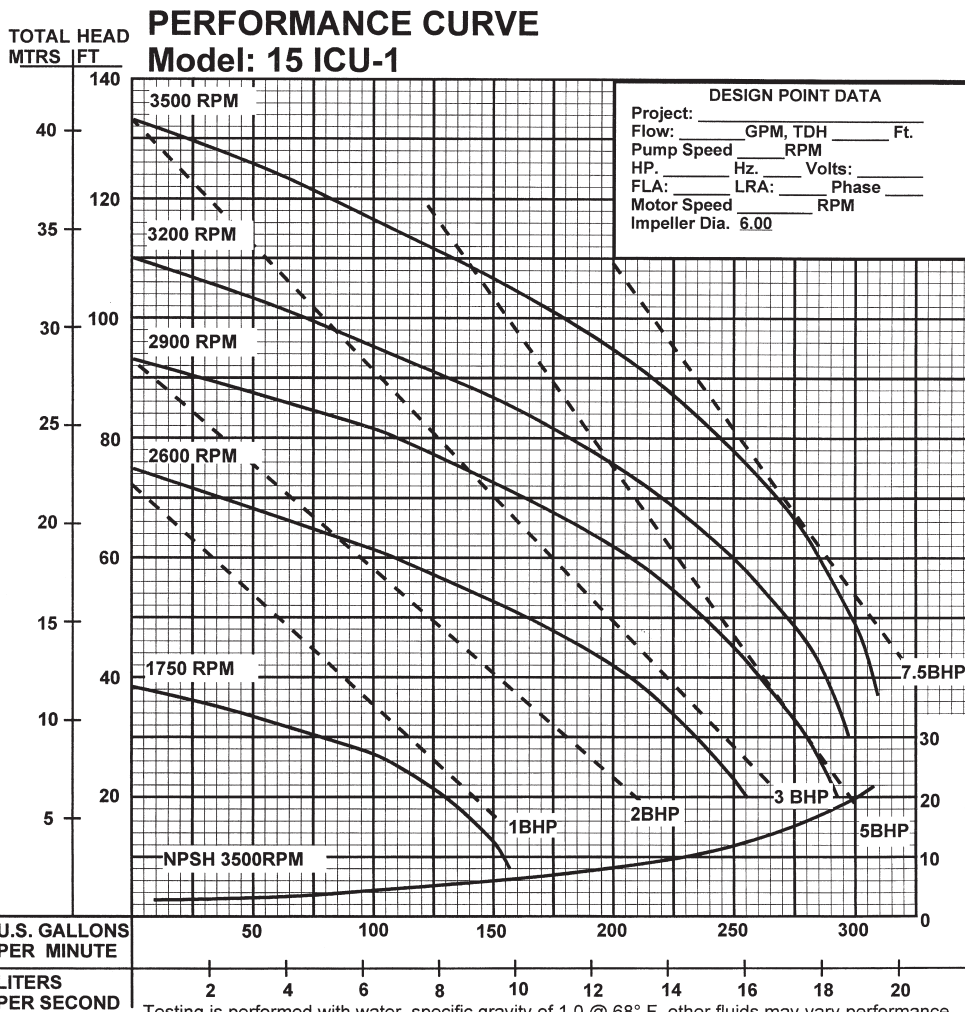
Design: Single Mechanical with Lip Seal
Lubrication: Oil
Material: Rotating Face - Carbon
Stationary Face - Ceramic
Elastomer - Buna-N
Hardware - 300 Series Stainless

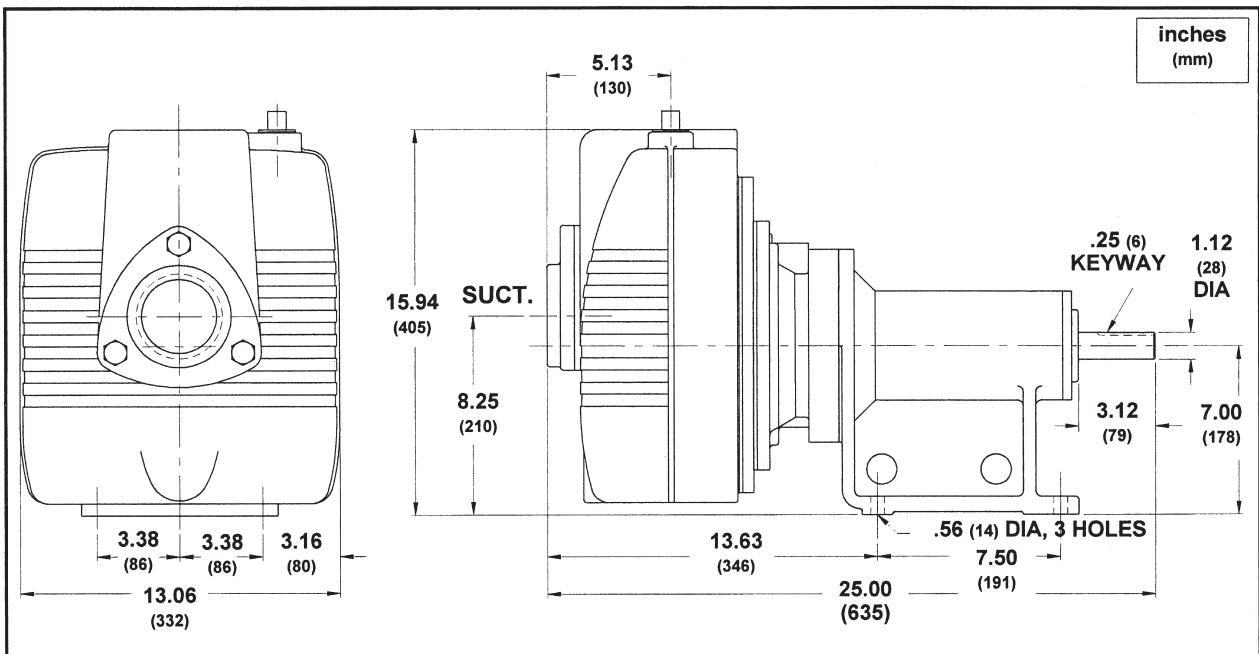
BEARING-PUMP END:
Design: Single Row, Ball
Lubrication: Grease
Load: Radial

BEARING-DRIVE END:
Design: Single Row, Ball
Lubrication: Grease
Load: Radial

CHECK VALVE:
Material: Valve Flap-Neoprene.
Weight-Cast Iron ASTM A-48,
Class 30

OPTIONAL EQUIPMENT: Seal Material, Flex Coupled Assy. with
Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt
Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor
Adjusting Base & OSHA Guard.



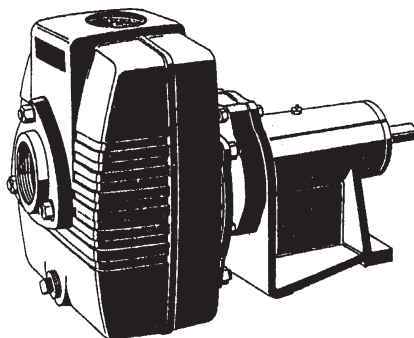


MODEL NO.	PART NO.	WEIGHT NET LBS.
151CU-1	052596	224

IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

**20 ICU-1
SELF-PRIMING PUMPS
Universal Drive**



Models: 20 ICU-1



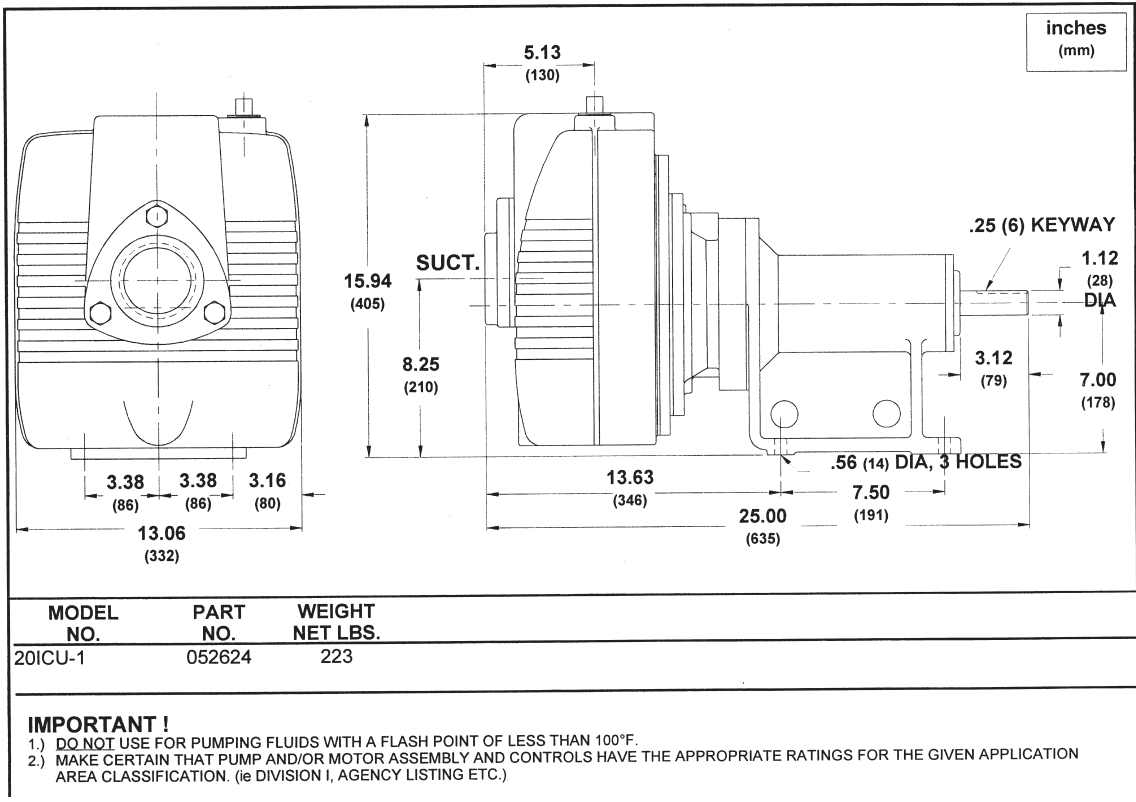
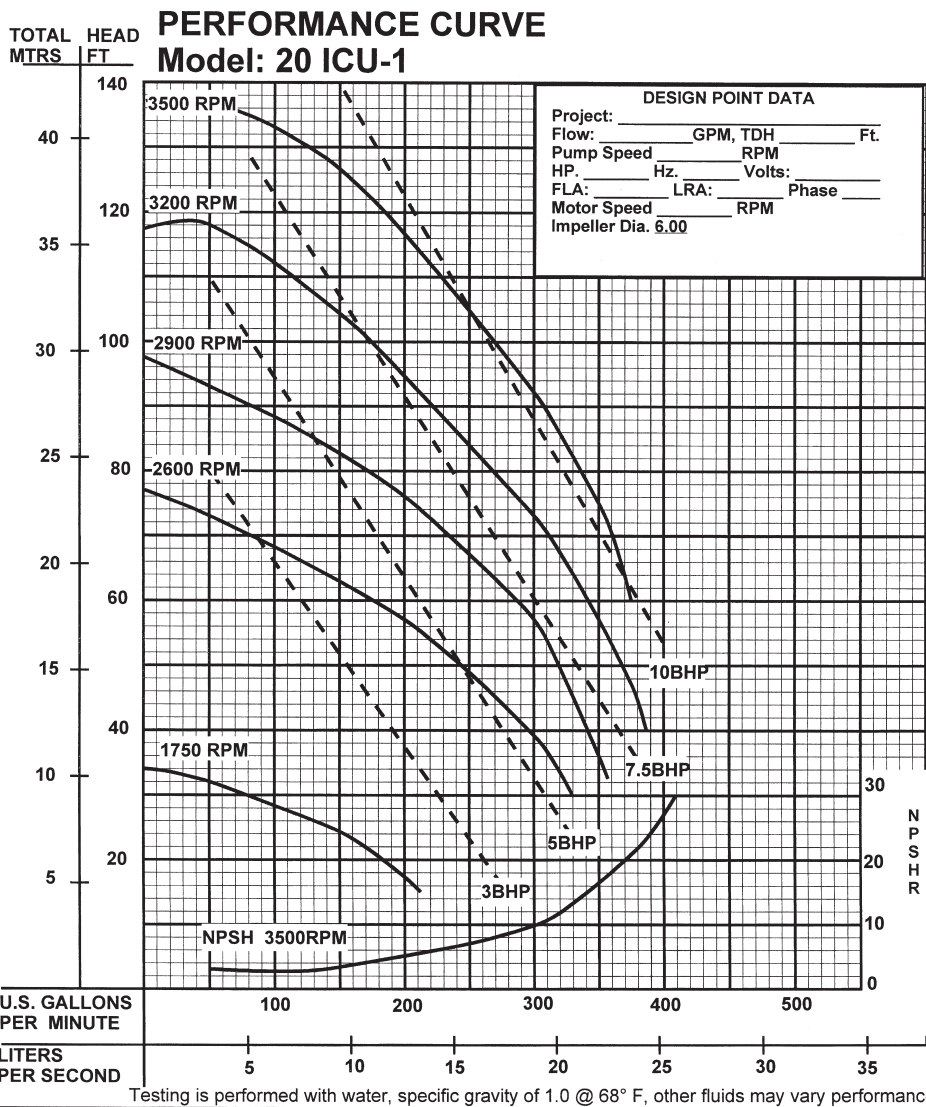
American Bureau of Shipping
Certificate No.
01-HS238523E/1-PDA

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

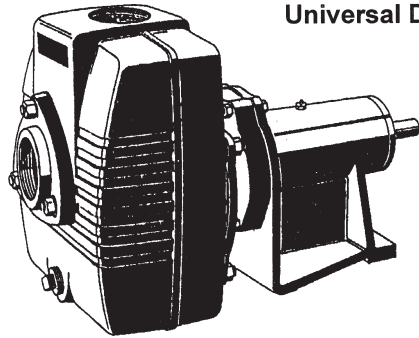
Specifications:

- SUCTION/DISCHARGE:** 3" (76mm) x 3" (76mm) NPT, Female.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
VOLUTE: Cast Iron ASTM A-48, Class 30. Removable.
- BODY:** Cast Iron ASTM A-48, Class 30.
INTERMEDIATE: Cast Iron ASTM A-48, Class 30.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER: Cast Iron ASTM A-48, Class 30.
- Design:* Open, Trash Type.
Material: Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3. Stainless Steel
- SHAFT:** Buna-N
SQUARE RINGS: Stainless Steel
HARDWARE: Air Dry Enamel.
PAINT: Single Mechanical with Lip Seal
SEAL: *Design:* Oil
Lubrication: Rotating Face - Carbon
Material: Stationary Face - Ceramic
Elastomer - Buna-N
Hardware - 300 Series Stainless
- BEARING-PUMP END:**
Design: Single Row, Ball
Lubrication: Grease
Load: Radial
- BEARING-DRIVE END:**
Design: Single Row, Ball
Lubrication: Grease
Load: Radial
- CHECK VALVE:**
Material: Valve Flap-Neoprene.
Weight-Cast Iron ASTM A-48, Class 30
- OPTIONAL EQUIPMENT:** Seal Material, Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.



BARNES®

25 ICU-1 SELF-PRIMING PUMPS Universal Drive



Model: 25 ICU-1



American Bureau of Shipping
Certificate No. 01-HS238523E/1-PDA

Description:

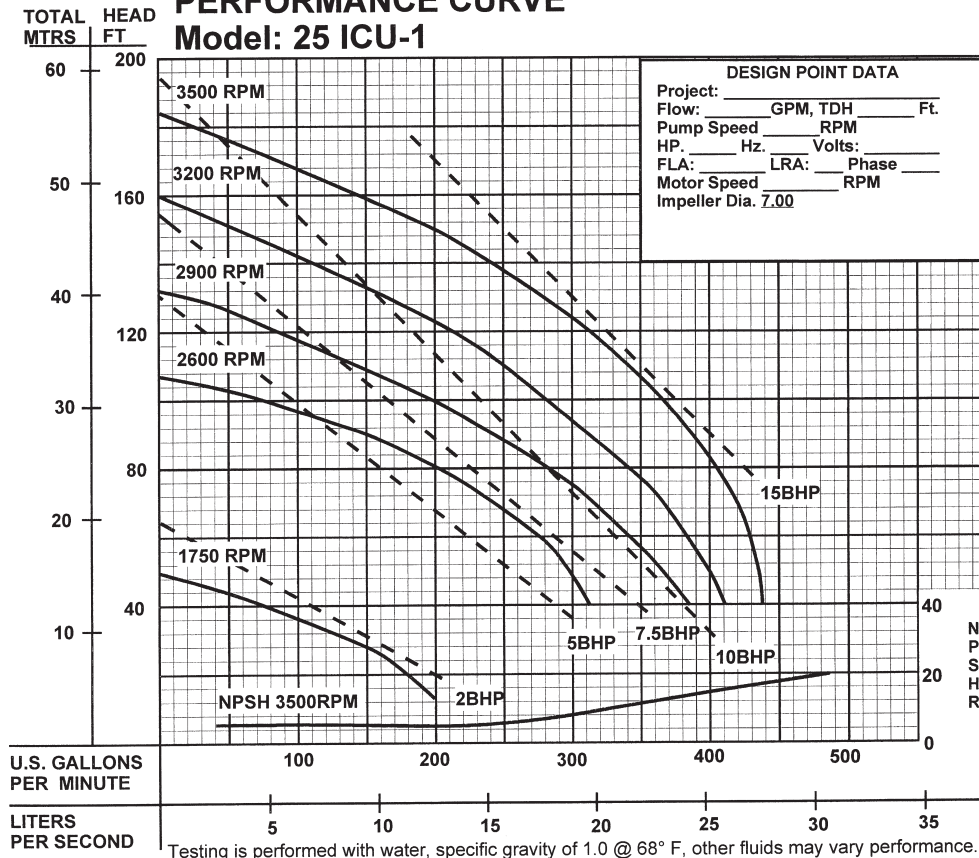
SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MARINE, MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

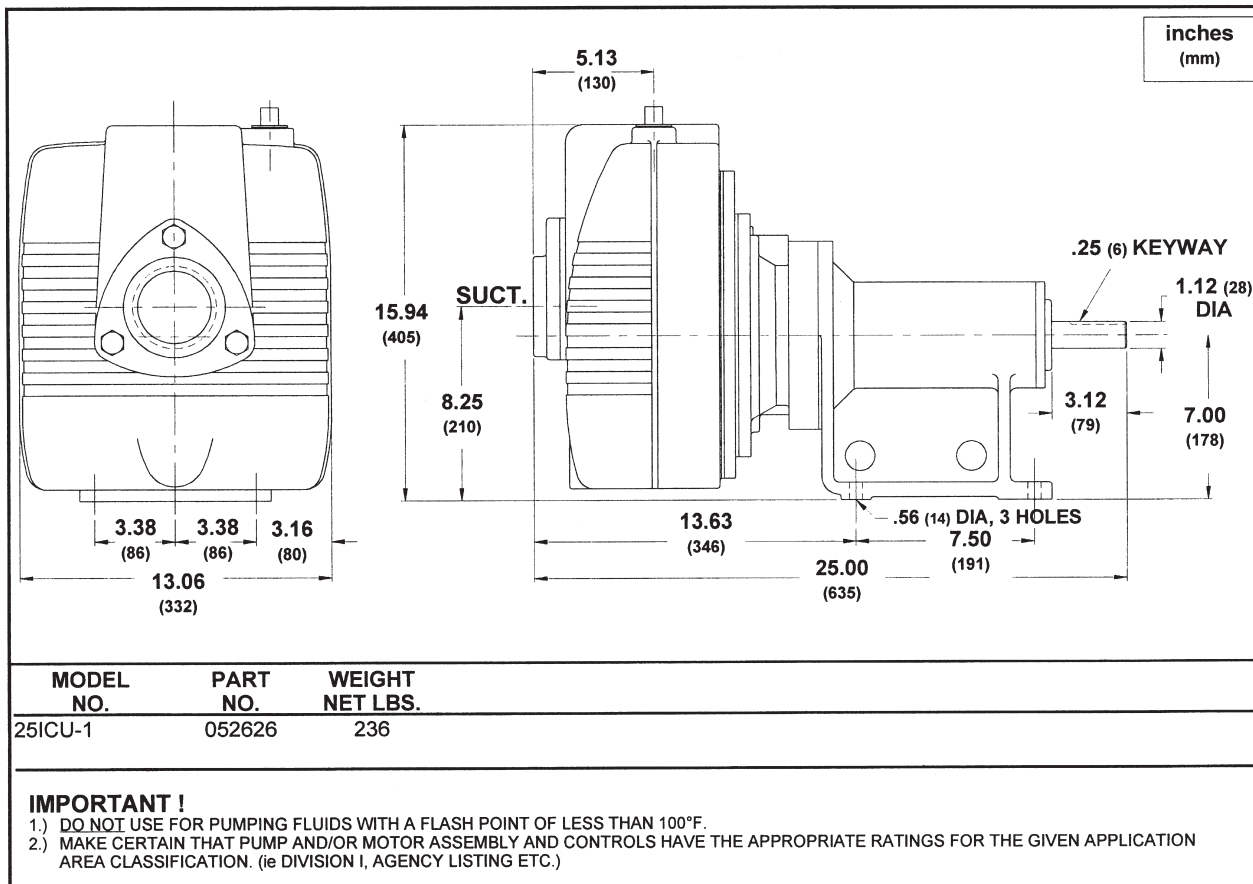
Specifications:

SUCTION/DISCHARGE:	3" (76mm) x 3" (76mm) NPT, Female.
LIQUID TEMPERATURE:	160°F (71°C) Continuous.
INTERMEDIATE:	Cast Iron ASTM A-48, Class 30.
VOLUTE:	Cast Iron ASTM A-48, Class 30. Removable.
BODY:	Cast Iron ASTM A-48, Class 30.
INTERMEDIATE:	Cast Iron ASTM A-48, Class 30.
PEDESTAL:	Cast Iron ASTM A-48, Class 30.
IMPELLER:	<i>Design:</i> Open, Trash Type. <i>Material:</i> Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3. Stainless Steel
SHAFT:	Buna-N
SQUARE RINGS:	Stainless Steel
HARDWARE:	Air Dry Enamel.
PAINT:	Single Mechanical with Lip Seal
SEAL:	<i>Design:</i> Rotating Face - Carbon <i>Lubrication:</i> Stationary Face - Ceramic <i>Material:</i> Elastomer - Buna-N Hardware - 300 Series Stainless
BEARING-PUMP END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease <i>Load:</i> Radial
BEARING-DRIVE END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease <i>Load:</i> Radial
CHECK VALVE:	<i>Material:</i> Valve Flap-Neoprene. Weight-Cast Iron ASTM A-48, Class 30
OPTIONAL EQUIPMENT:	Seal Material, Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.

PERFORMANCE CURVE

Model: 25 ICU-1





TAX BITES

Firearms

Whether for sport or self-protection, many citizens jump through bureaucratic hoops to legally purchase a firearm. Before they can pull the trigger, the government targets their purchases for taxes.

All gun sales are subject to a federal excise tax of up to 11 percent paid directly by the consumer in addition to the state and local sales tax rates. But because other taxes are imposed on the manufacturer, the true amount of the price of a gun that pays for taxes must account for federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen's compensation taxes, local property taxes and any local income taxes, which are paid by the producer. These taxes add another \$173 onto the final sale of a \$500 firearm.

For a \$500 firearm, the government loads on 45.6 percent of the cost in taxes – collecting \$228 per gun.

TAXES IMPOSED ON GAS PRODUCTION & SALES:

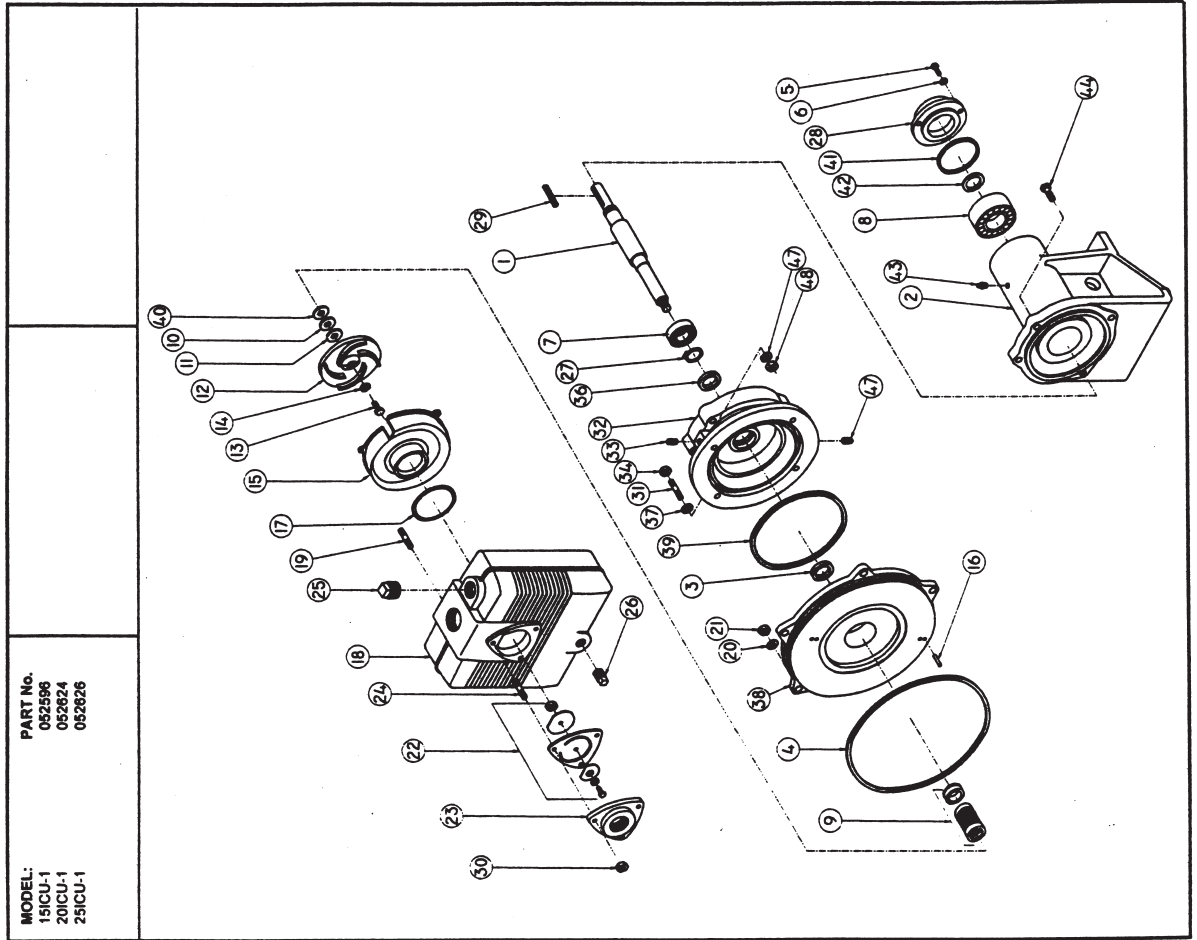
On the average cost of a gallon of gas, 51% is taxes

FEDERAL TAXES: Corporate Income Tax
 Individual Income Tax Capital Gains Tax Corporate Environmental Tax FICA Tax FUTA Tax Duties on Imported Crude and Product Customs Ad Valorem User Fee Airport and Airway Trust Fund Tax Harbor Maintenance Trust Fund Tax Superfund Crude Oil Tax Oil Spill Liability Trust Fund Tax Highway Trust Fund Tax Aquatic Resources Trust Fund Tax Deficit Reduction Excise Tax Inland Waterways Trust Fund Tax Heavy Truck and Trailer Tax Excise Tax on Tires Federal Telephone Excise Taxes

STATE TAXES: Corporate Income Taxes Individual Income Taxes Franchise Taxes Unemployment Taxes Sales and Use Taxes Motor Fuel Excise Taxes Sales Taxes on Motor Fuels Fuel Use Taxes Superfund Taxes Used Oil Disposal Taxes Waste Disposal Taxes Business Property Taxes Real Property Taxes Pipeline Throughput Taxes Severance Taxes Production Taxes Refinery Throughput Taxes Conservation Taxes Telephone Excise Taxes Environmental Impact Taxes Public Highway Use Taxes Heavy Truck Highway Use Taxes

BARNES®

SERIES: 15ICU-1, 20ICU-1, 25ICU-1



MODEL:
15ICU-1
20ICU-1
25ICU-1

PART No.
052596
052824
052826

PARTS KIT

Seal Kit P/N: 085241 (+) 4,9,10,11,13,14,17,20,21,22B,36,39.

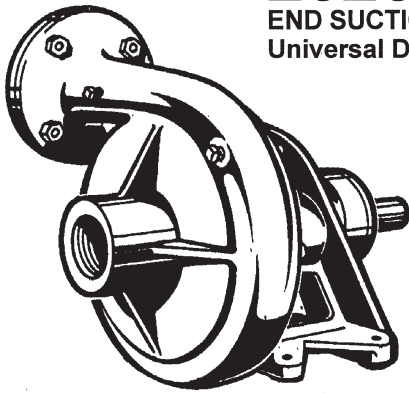
Overhaul Kit . P/N: 085240 (♦) 4,5,6,7,8,9,10,11,13,14,17,20,22B,27,29,30,34,36,37,39,41,42,45,46,49

PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Shaft	077904
2	1	Pedestal	039982
3	1	Slinger	005163
4	1	O-Ring	018398
5	4	Hex Hd Screw	027113
6	4	Lockwasher	026322
7	1	Bearing	033491
8	1	Bearing	039332
9	1	Shaft Seal	052601
10	1	Shim, .010	001349
11	1	Shim, .031	001348
12	1	Impeller, 15ICU-1	090037B
		Impeller, 20ICU-1	0900607B
		Impeller, 25ICU-1	051102
13	1	Hex Hd Screw	018902
14	2	Shakeproof Washer, 15 & 20ICU-1	018903
15	1	Washer, 25ICU-1	070099
16	2	Volute, 15 & 20ICU-1	018983
17	1	Volute Pin	019102
18	1	Volute Gasket	039982
19	5	Body	019398
20	5	Lock washer	021078
21	5	Hex Nut	021077
22	1	Check Valve Assy	15-6-1
22A	1	Weight	018387
22B	1	Gasket	001588
22C	1	Lock Washer	018008
22D	1	Hex Hd Screw	022333
22E	1	Hex Nut	1-7-1
22F	1	Weight	15-5-1
23	1	Suction Flange	087500
24	3	Stud	018884
25	1	Pipe Plug	021078
26	1	Pipe Plug	003205
27	1	Snap Ring	003205
28	1	Bearing Cap	019851
29	3	Key	039956
30	3	Hex Nut	033771
31	4	Stud	15-6-1
32	1	Coupling Head	019034
33	1	Pipe Plug	051188
34	4	Hex Nut	015000
36	1	Lip Seal	15-23-1
37	4	Lock Washer	039465
38	1	Seal Plate	018928
39	1	O-Ring	039984
40	1	Shim Seal	059865
41	1	O-Ring	026990
42	1	Lip Seal	026987
43	1	Relief Fitting	026309
44	4	Hex Hd Screw	028307
47	4	Lock Washer	027115
48	4	Hex Nut	027116

BARNES[®]

2020HCU END SUCTION PUMPS Universal Drive



Model: 2020HCU



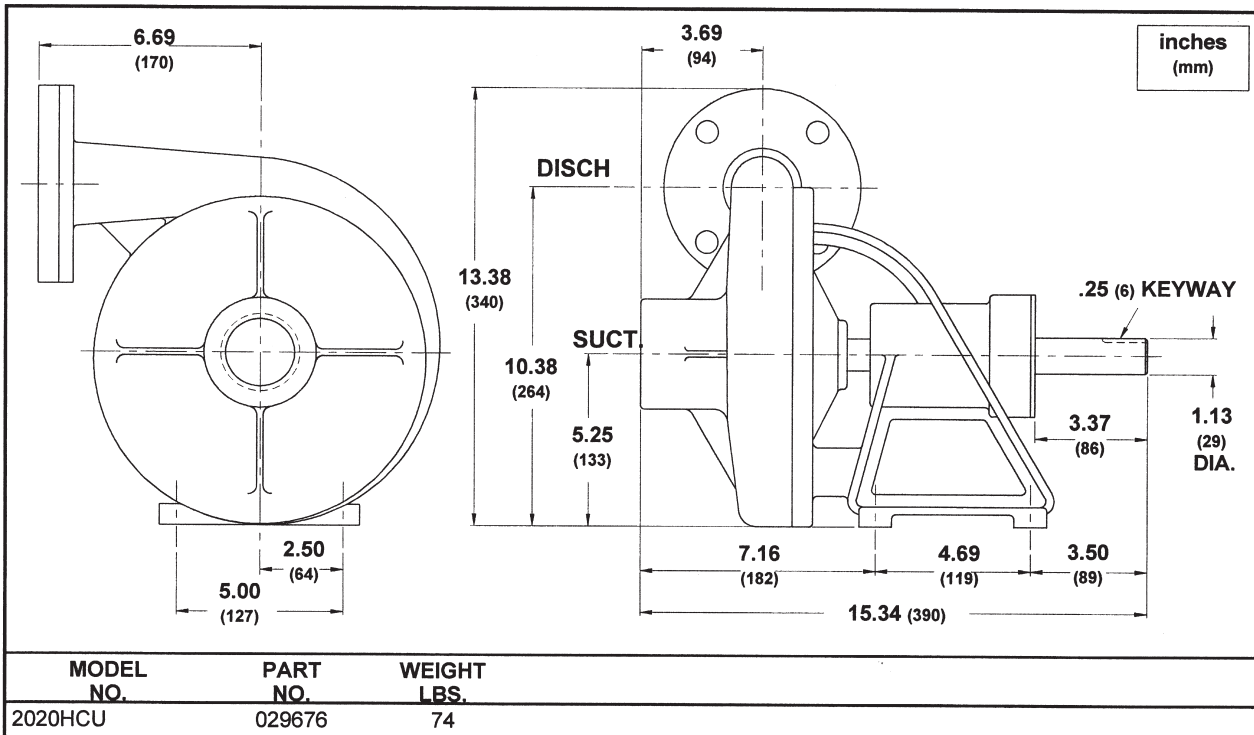
American Bureau of Shipping
Certificate No.
01-HS238523D/1-PDA

Description:

THESE PUMPS ARE SUITABLE FOR GENERAL INDUSTRIAL USE SUCH AS, LIQUID TRANSFER OR AS BOOSTER PUMPS.

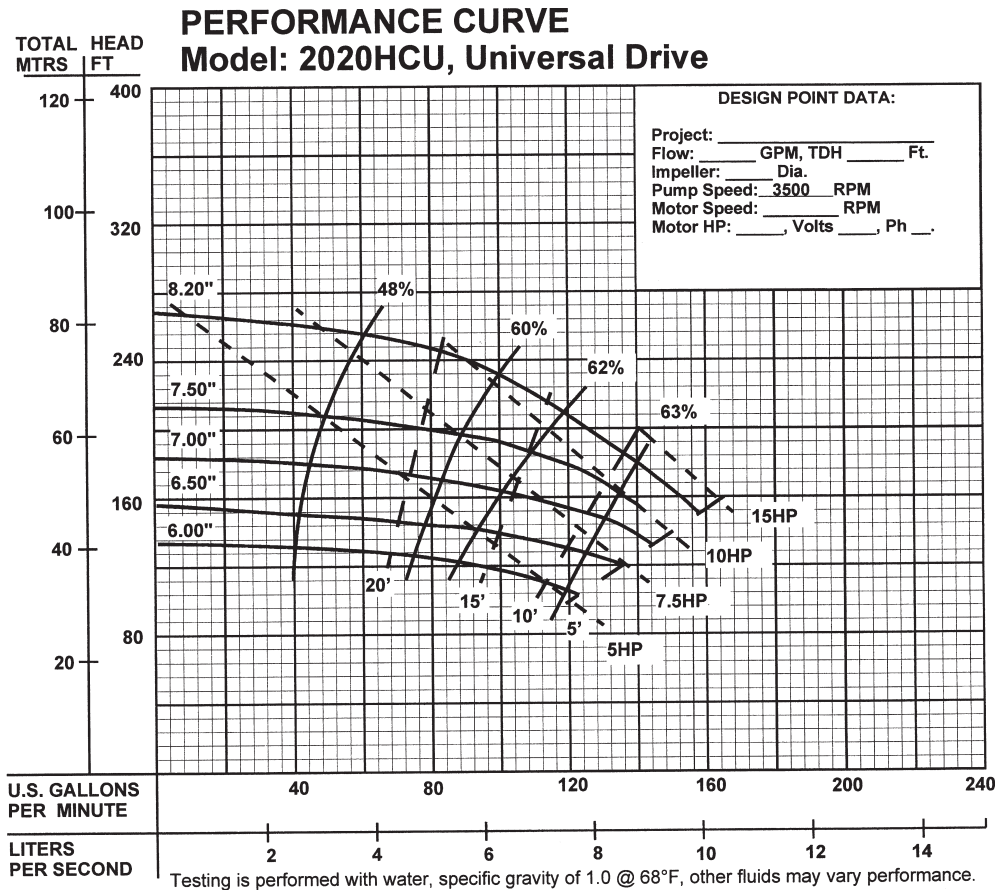
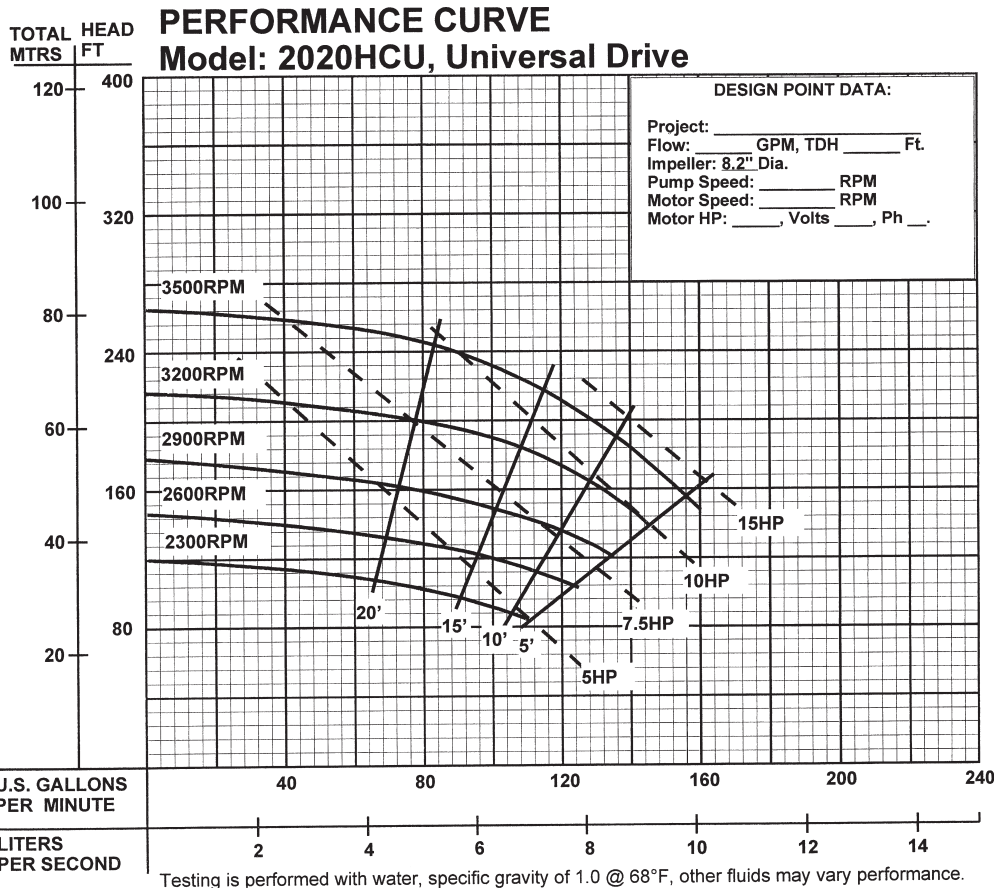
Specifications:

SUCTION/DISCHARGE:	2" (51mm) NPT Suction, 2" (51mm) 125lb Flange Discharge. Discharge can be placed in 8 different locations depending on piping requirements.
LIQUID TEMPERATURE:	180°F (82°C) Continuous.
BODY:	Cast Iron, ASTM Class 30, with Air Vent, Vacuum Pressure and Drain Plugs. Cast Iron, ASTM Class 30.
PEDESTAL:	
IMPELLER:	<i>Design:</i> Enclosed Type, <i>Material:</i> 81-3-7-9 Bronze. Dynamically Balanced, ISO G6.3. Teflon "U" Cup
WEAR RING:	Steel
SHAFT:	Bronze
SHAFT SLEEVE:	Steel
HARDWARE:	Steel
PAINT:	Air Dry Enamel.
SEAL:	<i>Design:</i> Single Mechanical <i>Lubrication:</i> Self Lubricating <i>Material:</i> Rotating Face - Carbon Stationary Face - Ni-Resist Elastomer - Buna-N Hardware - Stainless Steel
BEARING-PUMP END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease, Factory Lubrication. <i>Load:</i> Radial & Thrust
BEARING-DRIVE END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease, Factory Lubrication. <i>Load:</i> Radial & Thrust
OPTIONAL EQUIPMENT:	Discharge Check Valve, Hand Primer, Base & OSHA Coupling Guard, Flex Coupling, Strainer.



IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)



BARNES®

2020HCU END SUCTION PUMPS Universal Drive

PART No.
029676

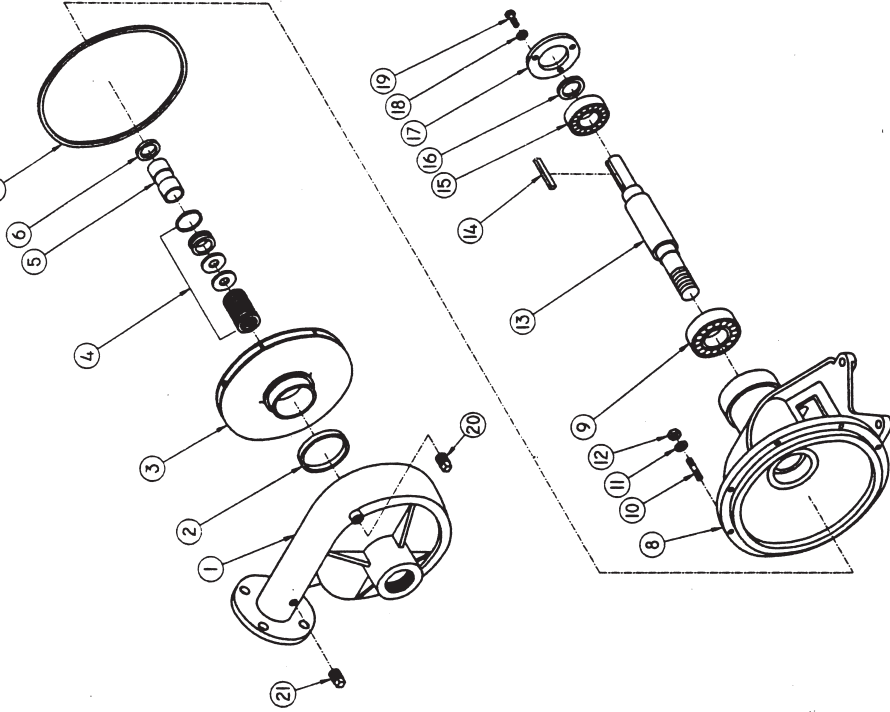
MODEL:
2020HCU

PARTS KIT

Seal Kit.....P/N: 083560 (†) 2,4,5,6,7.

PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Body	022026
2	1	U-Cup	021858
3	1	Impeller	021294
4	1	Shaft Seal	019146
5	1	Shaft Sleeve	018071
6	1	Slinger	005163
7	1	Square Ring	021297
8	1	Pedestal	028084
9	1	Bearing	019846
10	8	Stud	002410
11	8	Lock Washer	5/16
12	8	Hex Nut	5/16-18
13	1	Shaft	002501
14	1	Shaft Key	021038
15	1	Bearing	021092
16	1	Snap Ring	019847
17	1	Bearing Cap	019851
18	3	Lock Washer	019845
19	3	Machine Screw	002618
20	3	Pipe Plug	019842
21	2	Pipe Plug	015000
			003217



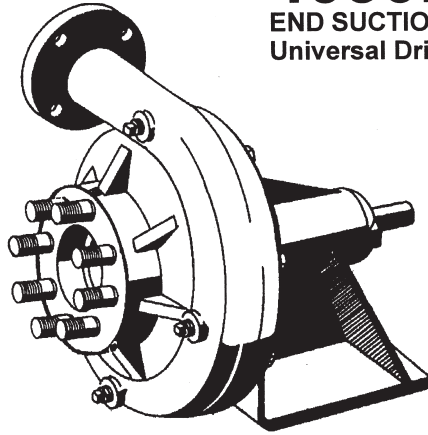
TAX BITES Distilled Spirits

Another target of the "sin tax"- loving legislators is distilled spirits. Taxes on distilled spirits are among the highest taxes imposed on any product. Nearly 80 percent of what you pay for a bottle goes to the government in taxes rather than for the liquor. At an average price of \$13.10 for a 750mL bottle of 80 proof spirits, this amounts to the government stirring in \$10.43 to your total at the register.

The federal excise tax pours \$2.14 into the average cost of a 750 ml bottle, or about 16 percent of the \$13.10. Then the median state excise taxes add another \$3.75 to the same bottle. And because distilled spirits producers must pay federal and state income taxes, federal payroll taxes, property taxes and other taxes, these costs are passed on to consumers. These taxes tack on another \$4.53 to the total price of a bottle of distilled spirits.

BARNES®

4030HCU END SUCTION PUMPS Universal Drive



Model: 4030HCU



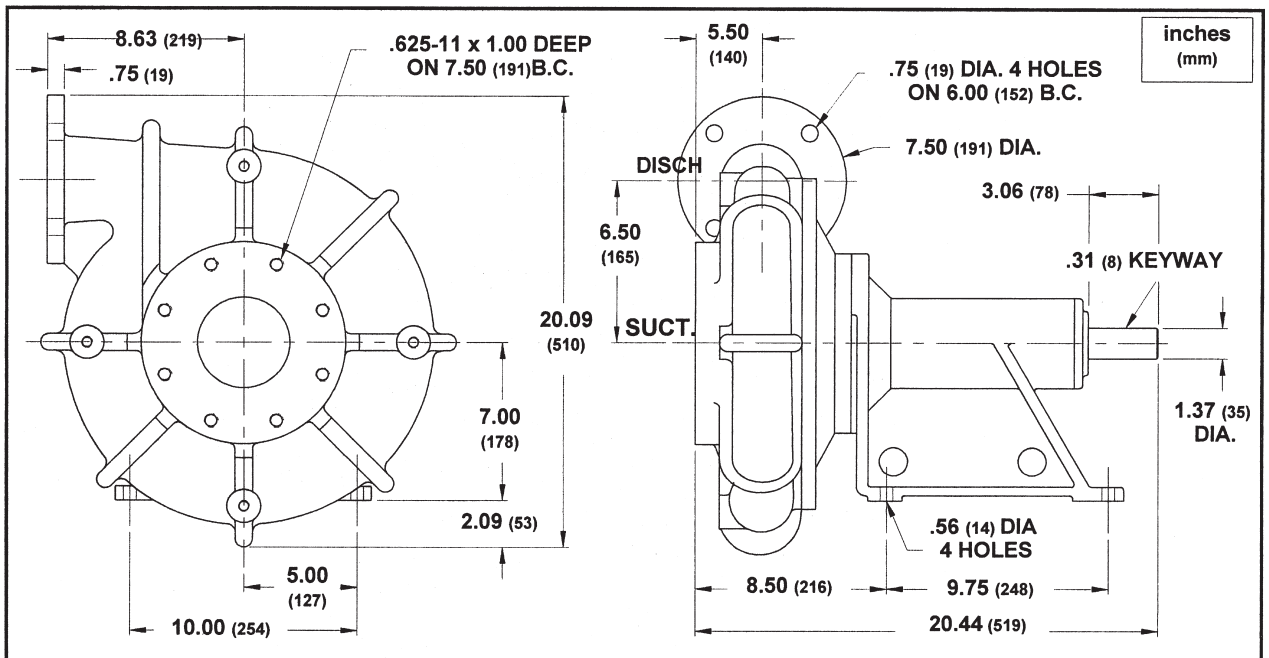
American Bureau of Shipping
Certificate No.
01-HS238523D/1-PDA

Description:

THESE PUMPS ARE SUITABLE FOR GENERAL INDUSTRIAL USE SUCH AS, LIQUID TRANSFER OR AS BOOSTER PUMPS.

Specifications:

SUCTION/DISCHARGE:	4" (102mm) Suction, 3" (76mm) Discharge, 125lb Flange. Discharge can be placed in 8 different locations depending on piping requirements.
LIQUID TEMPERATURE:	180°F (82°C) Continuous.
BODY:	Cast Iron, ASTM Class 30, with Air Vent, Vacuum Pressure and Drain Plugs.
PEDESTAL:	Cast Iron, ASTM Class 30.
IMPELLER:	<i>Design:</i> Enclosed Type, <i>Material:</i> Cast Iron, ASTM Class 30. Dynamically Balanced, ISO G6.3. Bronze
WEAR RING:	Bronze
SHAFT:	Steel
SHAFT SLEEVE:	Bronze
HARDWARE:	Steel
PAINT:	Air Dry Enamel.
SEAL:	<i>Design:</i> Single Mechanical <i>Lubrication:</i> Self Lubricating <i>Material:</i> Rotating Face - Carbon Stationary Face - Ni-Resist Elastomer - Buna-N Hardware - Stainless Steel
BEARING-PUMP END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease, Factory Lubrication. <i>Load:</i> Radial & Thrust
BEARING-DRIVE END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Grease, Factory Lubrication. <i>Load:</i> Radial & Thrust
OPTIONAL EQUIPMENT:	Discharge Check Valve, Hand Primer, Base & OSHA Coupling Guard, Flex Coupling, Strainer, Bronze Impeller, Companion Flange, Flange Gasket.



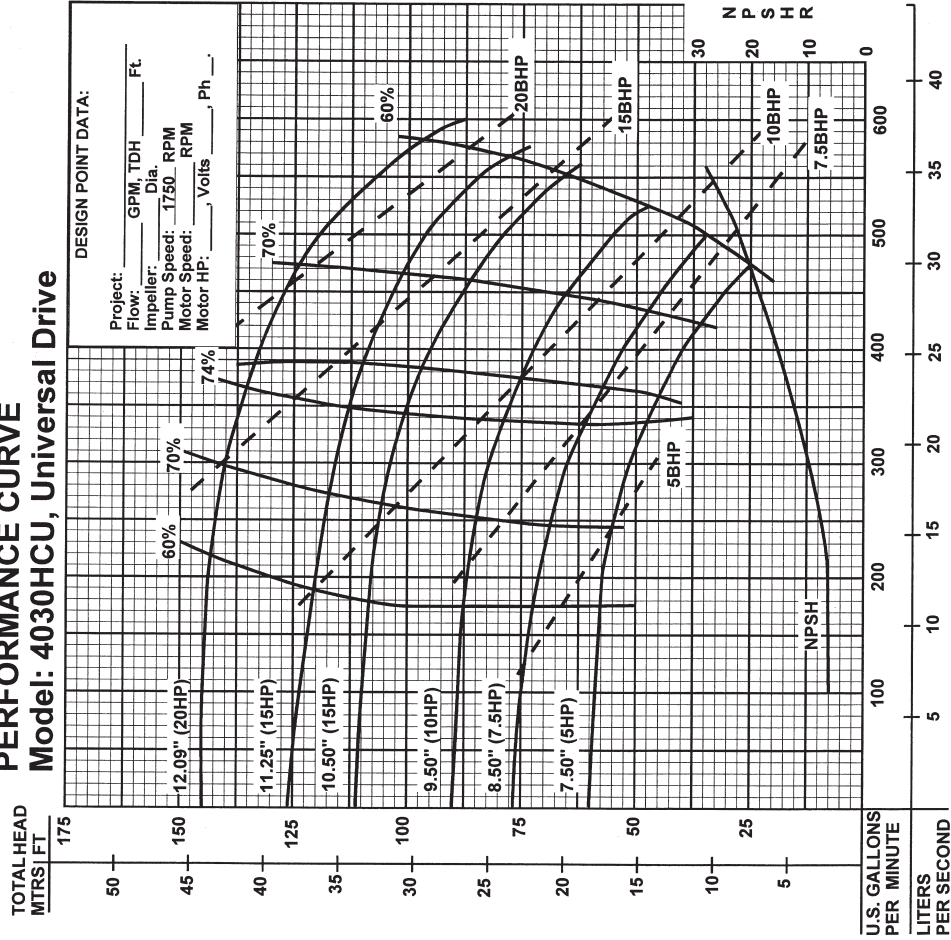
MODEL NO.	PART NO.	WEIGHT LBS.
4030HCU	059459	254

IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

PERFORMANCE CURVE

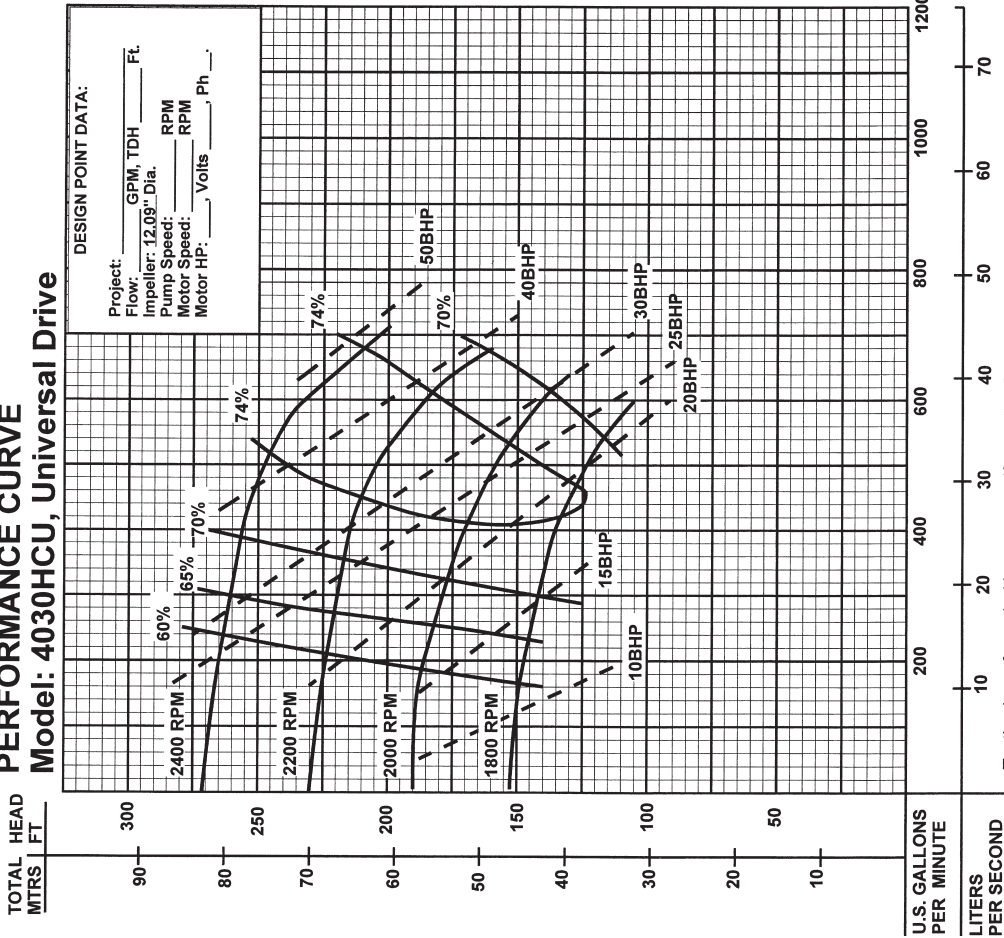
Model: 4030HCU, Universal Drive



Testing is performed with water, specific gravity of 1.0 @ 68°F, other fluids may vary performance.

PERFORMANCE CURVE

Model: 4030HCU, Universal Drive

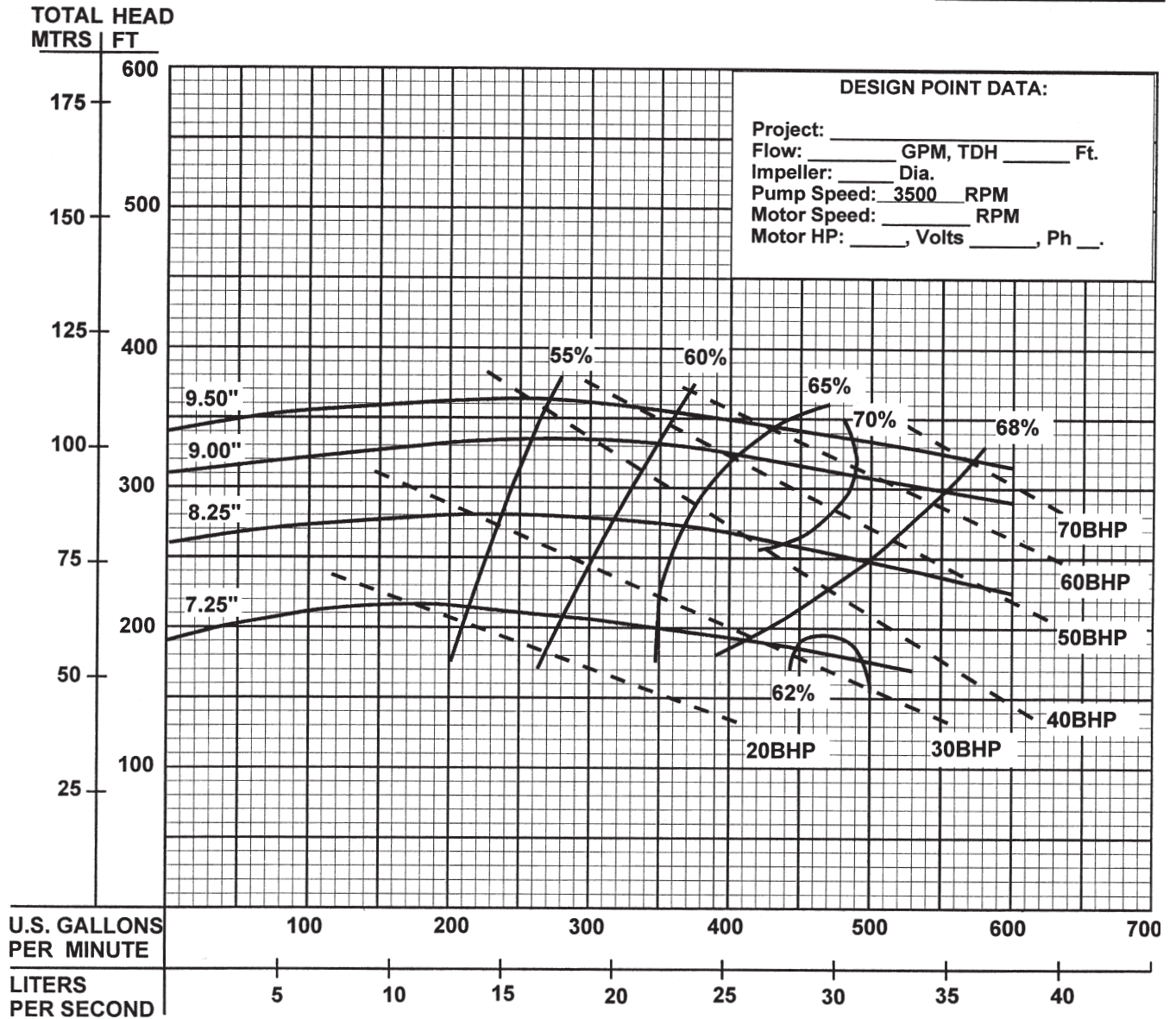


Testing is performed with water, specific gravity of 1.0 @ 68°F, other fluids may vary performance.

PERFORMANCE CURVE

Model: 4030HCU, Universal Drive

SECTION	5B
PAGE	11
DATE	2/97
REPLACES	1/96



TAX BITES CELLULAR PHONES

In today's high-tech world, consumers have a wide range of choices for their voice services. Where there used to only be a landline phone, there are now cell phones, Voice over Internet Protocol (VoIP) services, and cable digital voice services. Recently the Beacon Hill Institute of Massachusetts surveyed 59 US cities and came up with average taxes paid for a wide variety of telecommunications services.

According to their study, consumers pay 11.78 percent of their average monthly wireless bill to the government. With monthly bills estimated at \$49.98, you pay \$5.89 for a wireless.

These numbers take into account phone-specific taxes like the federal Universal Service Fund, the 911 tax, the city telecom taxes, TDD (deaf tax), and state universal service.

However, what the Beacon Hill study does not take into account are costs for federal income taxes, state income taxes, federal payroll taxes, unemployment insurance taxes, workmen's compensation taxes, local property taxes and any local income taxes. Altogether, these taxes dial up the actual "bite" to \$23.19 for a wireless phone. When added to the taxes and fees paid directly by the consumer, a total of 46.4 percent of a wireless bill actually pays for government taxes and fees.

BARNES®

4030HCU

END SUCTION PUMPS
Universal Drive

MODEL:
4030HCU

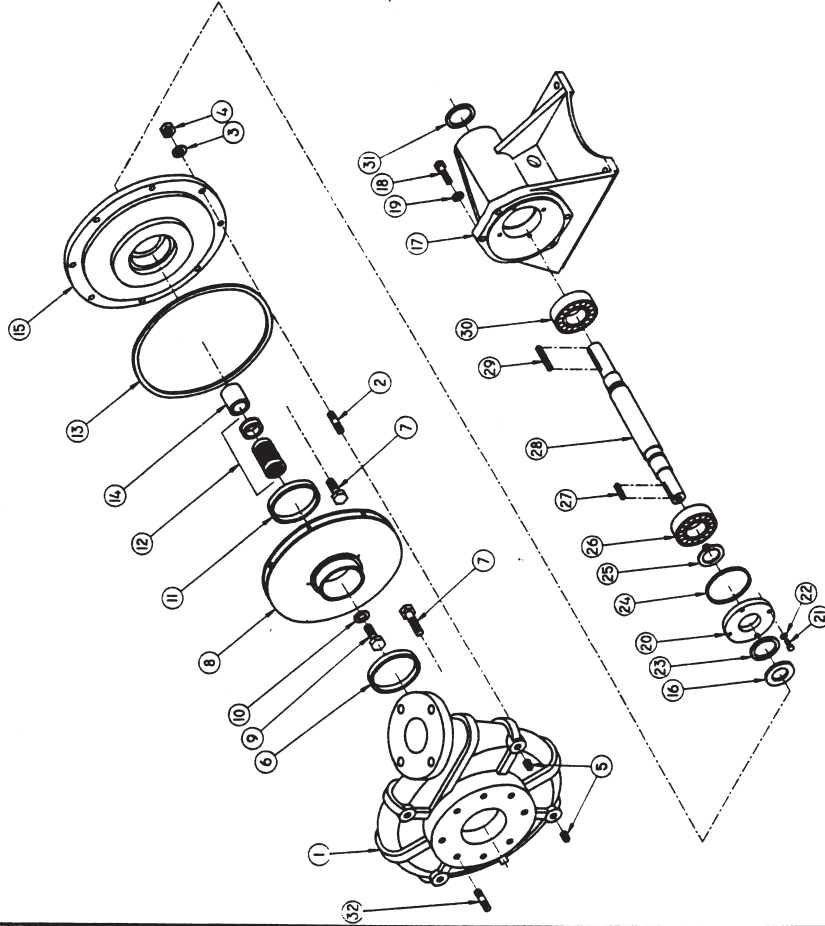
PART No.
059459

PARTS KIT

Seal Kit.....P/N: 083562 (†) 6,12,13,14,16.

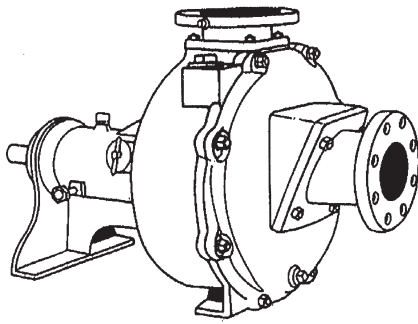
PARTS LIST

ITEM	QTY.	DESCRIPTION	PART No.
1	1	Volute	059452
2	8	Stud	016409
3	8	Lock Washer	002608
4	8	Hex Nut	028173
5	8	Pipe Plug	003217
6	1	Wear Ring	030645
7	2	Hex Hd Cap Screw	032129
8	1	Impeller	052096
9	1	Cap Screw	1-68-1
10	1	Washer	030657
11	1	Wear Ring	030645
12	1	Shaft Seal	031000
13	1	† O-Ring	059321
14	1	† Shaft Sleeve	030652
15	1	Seal Plate	052094
16	1	† Slinger	029915
17	1	Pedestal	052279
18	4	Hex Hd Cap Screw	002250
19	4	Lock Washer	002606
20	1	Bearing Cap	030651
21	4	Hex Hd Cap Screw	002218
22	4	Lock Washer	002602
23	1	Grease Seal	024997
24	1	O-Ring	030650
25	1	Snap Ring	052098
26	1	Bearing	031388
27	1	Key	052277
28	1	Shaft	052317
29	1	Bearing	028998
30	1	Grease Seal	052097
31	1	Key	002454
32	8	Stud	



BARNES®

B30 SELF-PRIMING PUMPS Universal Drive



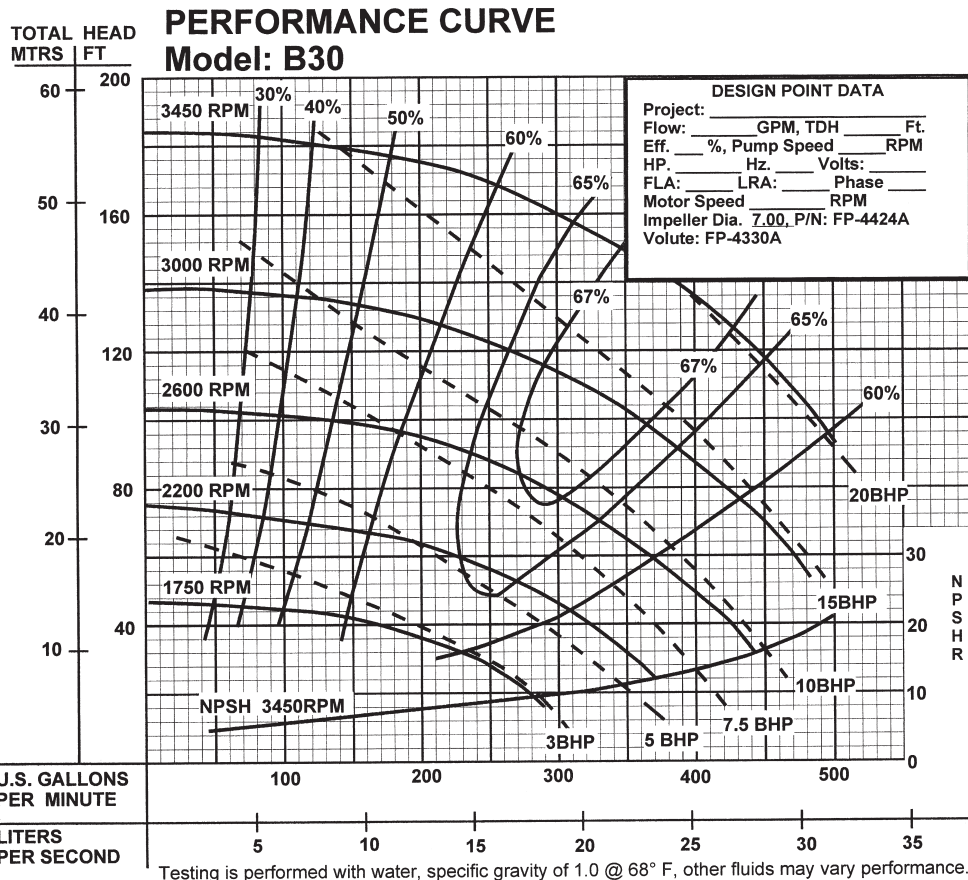
Model: B30

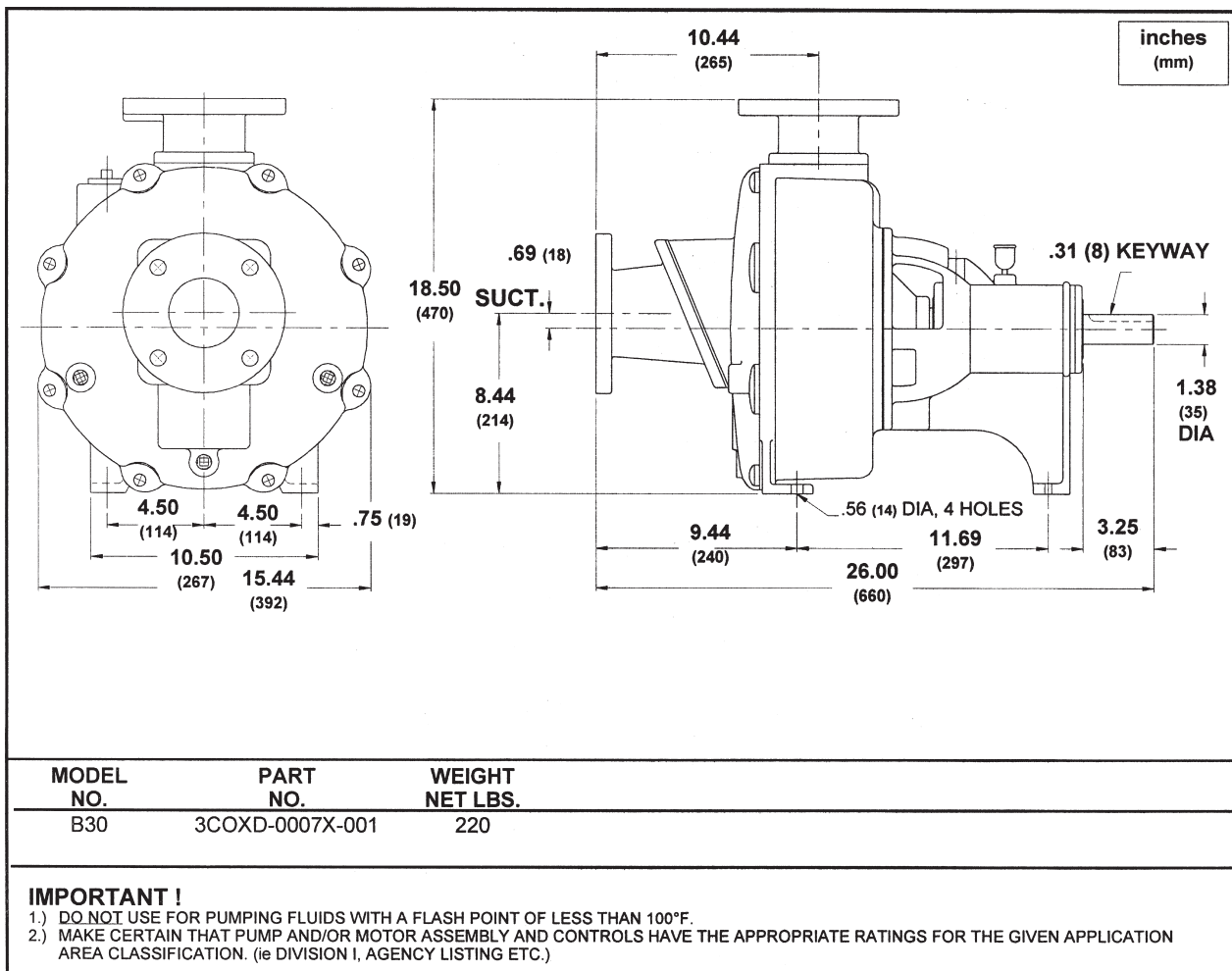
Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 3" (76mm) x 3" (76mm) 125lb. Flange.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
VOLUTE/WEARPLATE: Cast Iron ASTM A-48, Class 30, Replaceable, External Clearance Adjustment.
CASE: Cast Iron ASTM A-48, Class 30.
END COVER: Cast Iron ASTM A-48, Class 30.
SEAL PLATE: Alloy Steel, Replaceable.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER: *Design:* Semi-Open Type. Passes 3/4" Solids.
Material: Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3. Steel
IMPELLER SHAFT: Buna-N
SQUARE RINGS: Corrosion Resistant Steel.
HARDWARE: Air Dry Enamel.
PAINT: Single Mechanical
SEAL: *Design:* Grease, with Self-Feeding Lubricator.
Lubrication: Rotating Face - Carbon
Material: Stationary Face - Ceramic
 Elastomer - Buna-N
 Hardware - 300 Series Stainless
BEARING-PUMP END: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust
BEARING-DRIVE END: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust
CHECK VALVE: *Material:* Valve Flap-Neoprene.
 Weight-Cast Iron ASTM A-48, Class 30
OPTIONAL EQUIPMENT: Seal Materials, Case Heater; Stainless Hardware; High Temperature Control; Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.





POLI-TALKS

“The more we remove penalties for being a bum, the more bumism is going to blossom.”

-Sen. Jesse Helms (R-NC), on welfare

“We didn’t send you to Washington to make intelligent decisions. We sent you to represent us.”

-Kent York, a Texas pastor, to Rep. Bill Sarpalus (D-TX)

“President Clinton had a bill, e-i-e-i-o. And in that bill was lots of pork, e-i-e-i-o.”

-Sen. Alfonse D’Amato (R-NY)

“I have orders to be awakened at any time in the case of a national emergency, even if I’m in a cabinet meeting.”

-Ronald Reagan

“The present system may be flawed, but that’s not to say that we in Congress can’t make it worse.”

-Rep. E. Clay Shaw, Jr. (R-FL)

“Is the country still here?” **-Calvin Coolidge, waking from a nap**

“We’ve killed health care; now we’ve got to make sure our fingerprints aren’t on it.”

-Sen. Bob Packwood (R-OR), in 1994, on the GOP blocking Clinton’s health-care reforms

“Ambiguously definitive-or is it definitively ambiguous?”

-Sen. Bill Bradley, on being unclear about his presidential ambitions

“It’s no exaggeration to say that the undecideds could go one way or another.” **-George H. W. Bush**

“We didn’t get the pay raise-why work?”

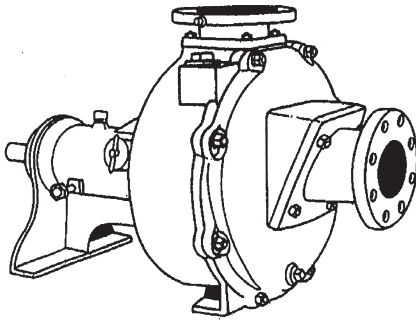
-Bob Dole, in 1989, on the slow pace of Senate activity

“Welcome to President Clinton, Mrs. Clinton, and my fellow astronauts.”

-Al Gore, 1998

BARNES®

B40 SELF-PRIMING PUMPS Universal Drive



Model: B40-10X
B40-9H
B40-9D
B40-8F

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 4" (102mm) x 4" (102mm) 125lb. Flange.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
VOLUTE/WEARPLATE: Cast Iron ASTM A-48, Class 30, Replaceable, External Clearance Adjustment.

CASE: Cast Iron ASTM A-48, Class 30.
END COVER: Cast Iron ASTM A-48, Class 30.
SEAL PLATE: Alloy Steel, Replaceable.
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:

Design: Semi-Open Type, Passes 1" Solids
Material: Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3.

IMPELLER SHAFT: Steel
SQUARE RINGS: Buna-N
HARDWARE: Corrosion Resistant Steel.

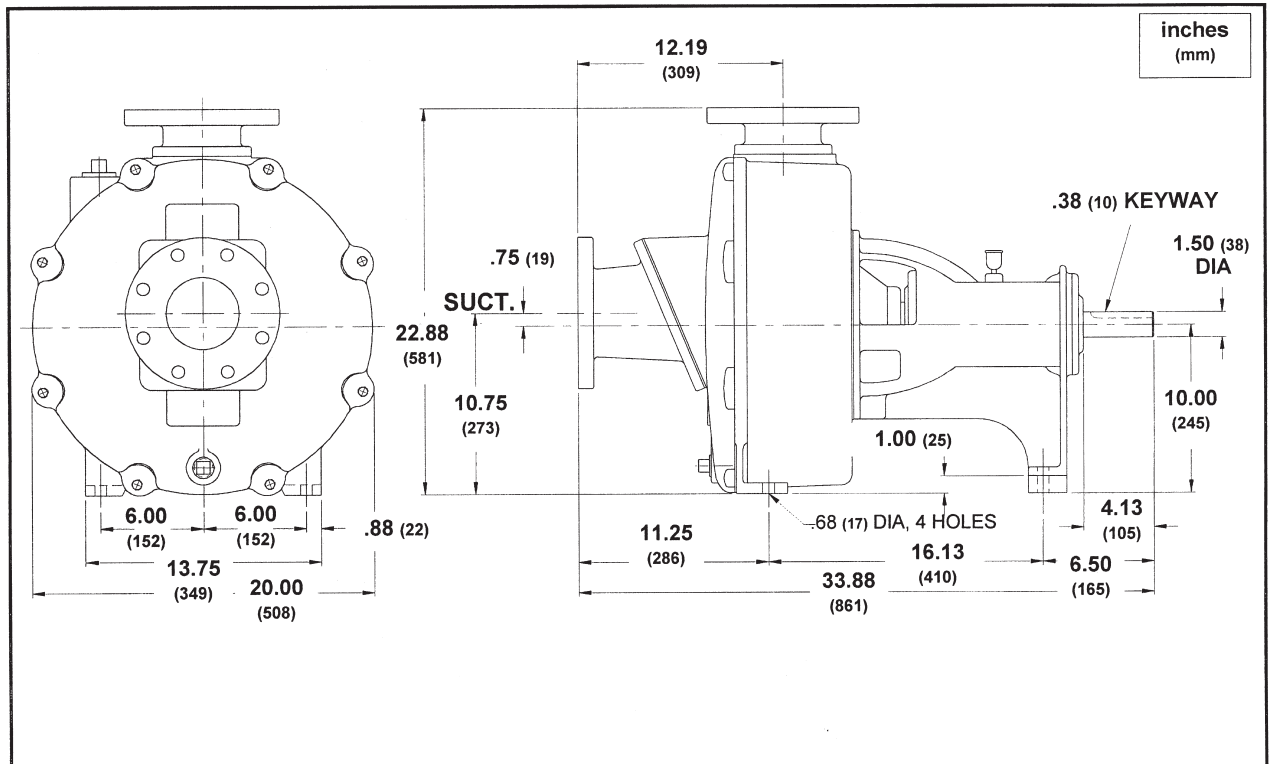
PAINT: Air Dry Enamel.
SEAL: *Design:* Single Mechanical
Lubrication: Grease, with Self-Feeding Lubricator.
Material: Rotating Face - Carbon
Stationary Face - Ceramic
Elastomer - Buna-N
Hardware - 300 Series Stainless

BEARING-PUMP END: *Design:* Double Row, Ball
Lubrication: Oil
Load: Radial & Thrust

BEARING-DRIVE END: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust

CHECK VALVE: *Material:* Elbow-Cast Iron ASTM A-48, Class 30
Valve Flap-Neoprene.
Weight-Cast Iron ASTM A-48, Class 30

OPTIONAL EQUIPMENT: Seal Materials, Case Heater, Stainless Hardware; High Temperature Control; Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.



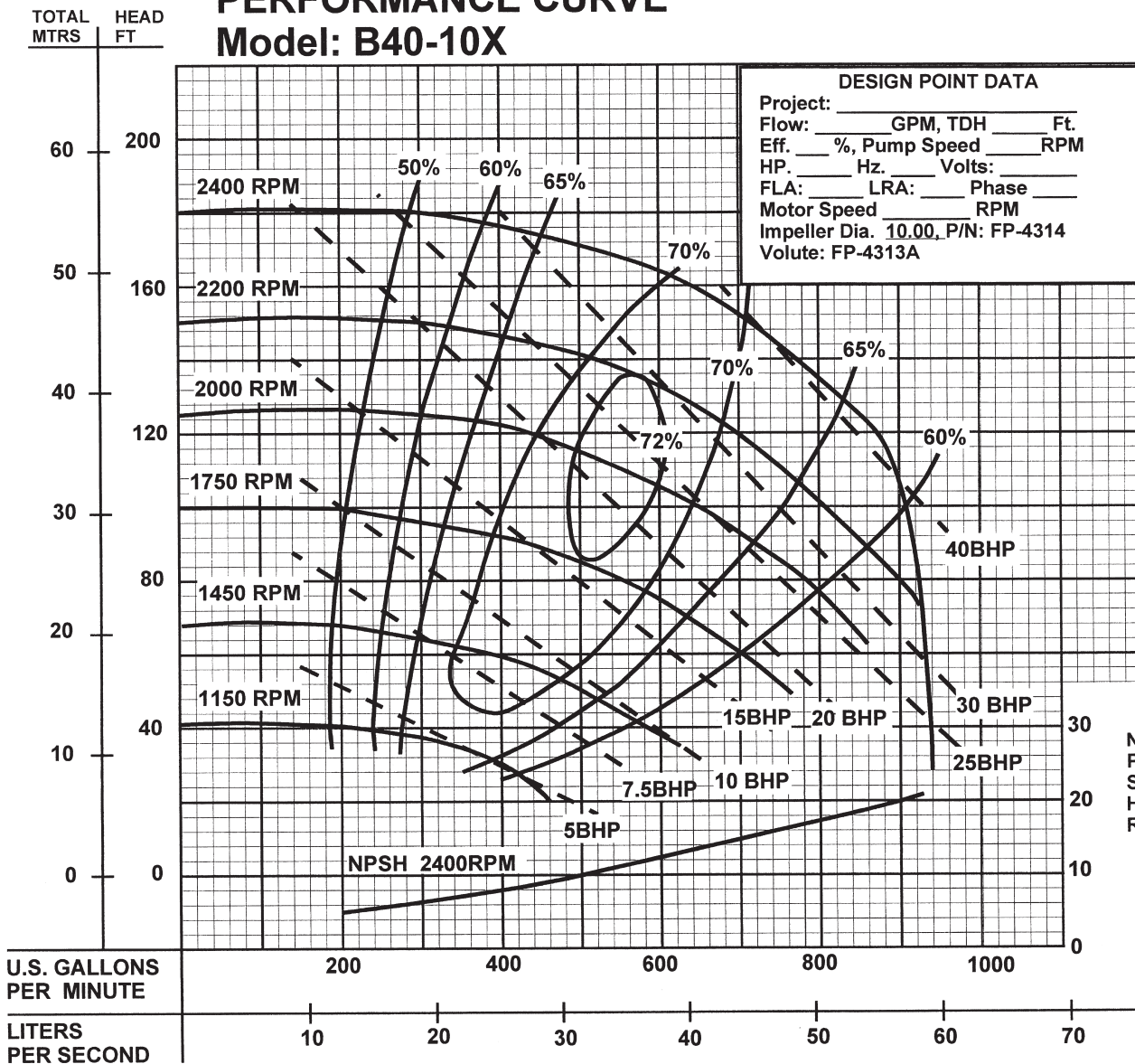
MODEL NO.	PART NO.	WEIGHT NET LBS.
B40-10X	4COYD-0010X-001	340
B40-9H	4COYD-0009H-001	340
B40-9D	4COYD-0009D-001	340
B40-8F	4COYD-0008F-001	340

IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

PERFORMANCE CURVE

Model: B40-10X



MAXIMUM DRY PRIMING LIFT	
PUMP SPEED	10 MIN.
1150RPM	10 Ft.
1450RPM	15 Ft.
1750RPM	25 Ft.
2000RPM	25 Ft.
2200RPM	25 Ft.
2400RPM	25 Ft.

When pump is operating, the SUCTION LIFT is limited by the available NPSH which is the corrected atmospheric pressure minus the dynamic suction lift, vapor pressure loss and 2 foot safety factor. This net available NPSH must exceed the required NPSH of the pump or a reduction of capacity, loss of efficiency, noise, vibration and cavitation will result. Calculate the dynamic suction lift from the low liquid level to the centerline of the impeller. When pump is priming, it is limited by the dry PRIMING LIFT which is the vertical distance from the high liquid level to the centerline of the impeller.

Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

It's a Weird, Weird World!

TERRORIST VOGUE

“Carlos the Jackal was one of the world’s most notorious and elusive terrorists, accused of 83 deaths worldwide and more than a dozen other charges stemming from a 20-year killing spree.

“After two decades of evading the law, he was arrested in a Sudanese hospital while undergoing liposuction and a tummy tuck.” — **San Francisco Chronicle**

NOSING AROUND

“Ruth Clarke, 23, of London, England, underwent surgery to correct a lifelong breathing problem in 1981. She was presented with a tiddlywink, which doctors had removed from her nose.

“Clarke vaguely recalled losing the disk as a tot, but she didn’t dream it was right under her nose all the time.”

— **Encyclopedia Brown’s Book of Strange Facts**

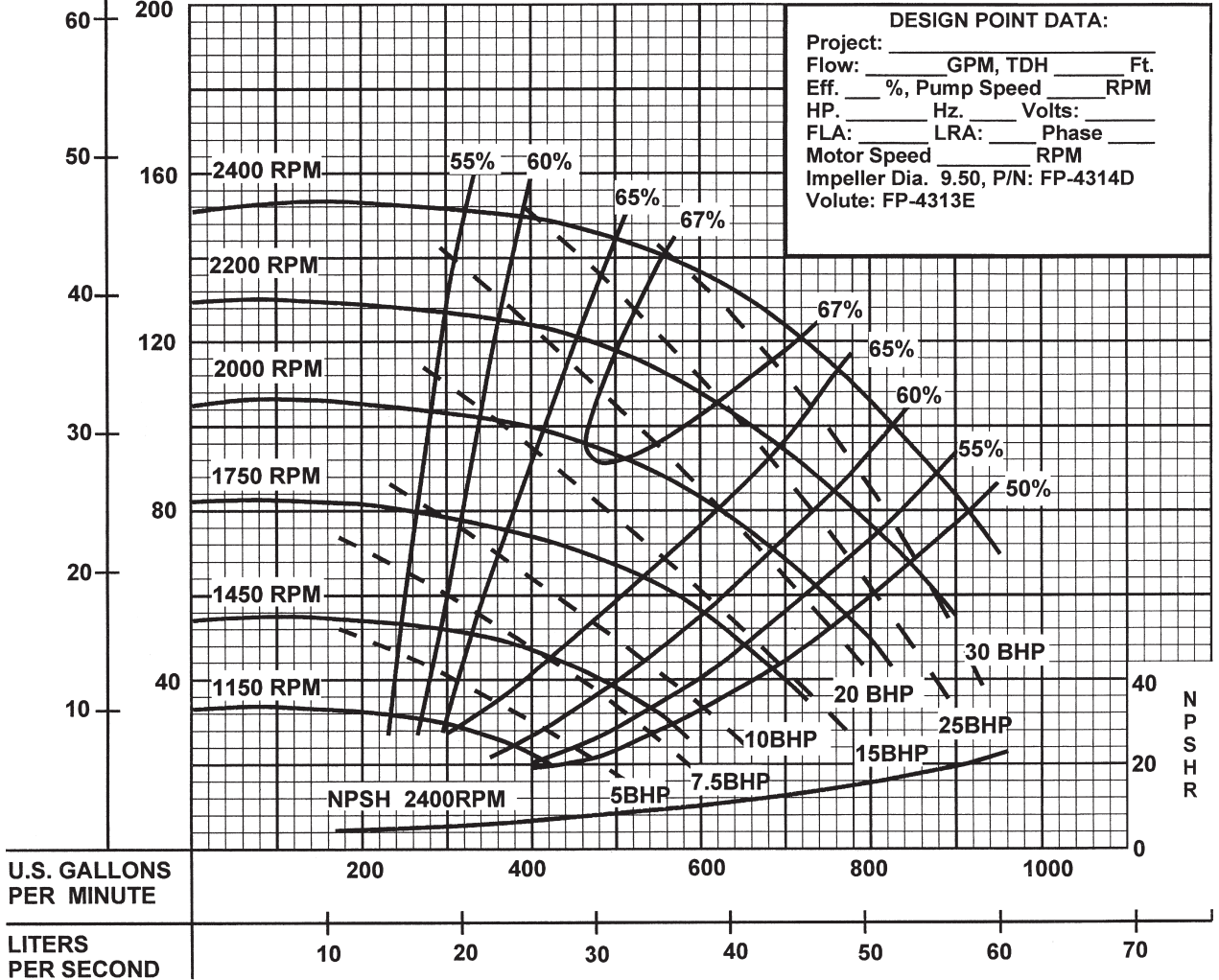
THE POSTMAN RINGS MORE THAN TWICE

“From 1974 to 1976, a young man in Taiwan wrote 700 love letters to his girlfriend, trying to talk her into marriage. He succeeded—she married the mailman who delivered the letters to her.” **Weird News and Strange Stories**

TOTAL HEAD
MTRS | FT

PERFORMANCE CURVE

Model: B40-9H



MAXIMUM DRY PRIMING LIFT	
PUMP SPEED	10 MIN.
1150RPM	10 Ft.
1450RPM	15 Ft.
1750RPM	20 Ft.
2000RPM	25 Ft.
2200RPM	25 Ft.
2400RPM	25 Ft.

When pump is operating, the **SUCTION LIFT** is limited by the available **NPSH** which is the corrected atmospheric pressure minus the dynamic suction lift, vapor pressure loss and 2 foot safety factor. This net available NPSH must exceed the required NPSH of the pump or a reduction of capacity, loss of efficiency, noise, vibration and cavitation will result. Calculate the dynamic suction lift from the low liquid level to the centerline of the impeller. When pump is priming, it is limited by the dry **PRIMING LIFT** which is the vertical distance from the high liquid level to the centerline of the impeller.

Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

WORD ORIGINS

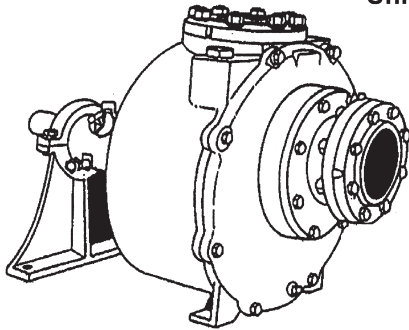
EAVESDROP

Meaning: Secretly listen to someone else's conversation

Origin: "In Anglo-Saxon England, a house had very wide overhanging eaves ... to allow rain to drip safely away from the house's foundation. So the eavesdrip, later the *eavesdrop*, provided a place where one could hide to listen clandestinely to conversation within the house." (From Morris Dictionary of Word and Phrase Origins, by William and Mary Morris)

BARNES®

B60 SELF-PRIMING PUMPS Universal Drive



Model: B60-12X
B60-11H
B60-11X
B60-10L

Description:

SELF-PRIMING CENTRIFUGAL PUMPS
DESIGNED FOR MUNICIPAL AND
INDUSTRIAL APPLICATIONS.

Specifications:

SUCTION/DISCHARGE: 6" (152mm) x 6" (152mm) 125lb. Flange.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
VOLUTE/WEARPLATE: Cast Iron ASTM A-48, Class 30, Replaceable, External Clearance Adjustment.

CASE: Cast Iron ASTM A-48, Class 30.
END COVER: Cast Iron ASTM A-48, Class 30.
SEAL PLATE: Alloy Steel, Replaceable.
PEDESTAL: Cast Iron ASTM A-48, Class 30.

IMPELLER: *Design:* Semi-Open Type, Passes 1-1/2" Solids.
Material: Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3.

IMPELLER SHAFT: Steel
SQUARE RINGS: Buna-N
HARDWARE: Corrosion Resistant Steel.
PAINT: Air Dry Enamel.

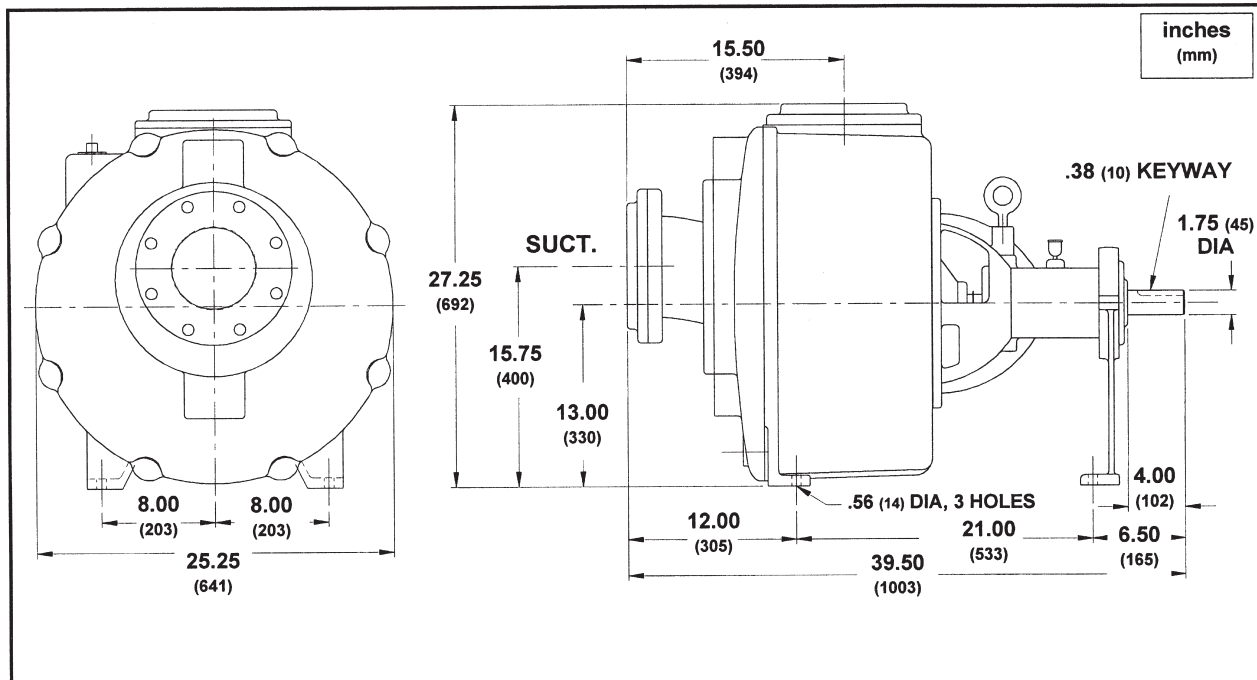
SEAL: *Design:* Single Mechanical
Lubrication: Grease, with Self-Feeding Lubricator.
Material: Rotating Face - Carbon
Stationary Face - Ceramic
Elastomer - Buna-N
Hardware - 300 Series Stainless

BEARING-PUMP END: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust

BEARING-DRIVE END: *Design:* Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust

CHECK VALVE: *Material:* Elbow-Cast Iron ASTM A-48, Class 30
Valve Flap-Neoprene.
Weights-Cast Iron ASTM A-48, Class 30

OPTIONAL EQUIPMENT: Seal Materials, Case Heater, Stainless Hardware; High Temperature Control; Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.



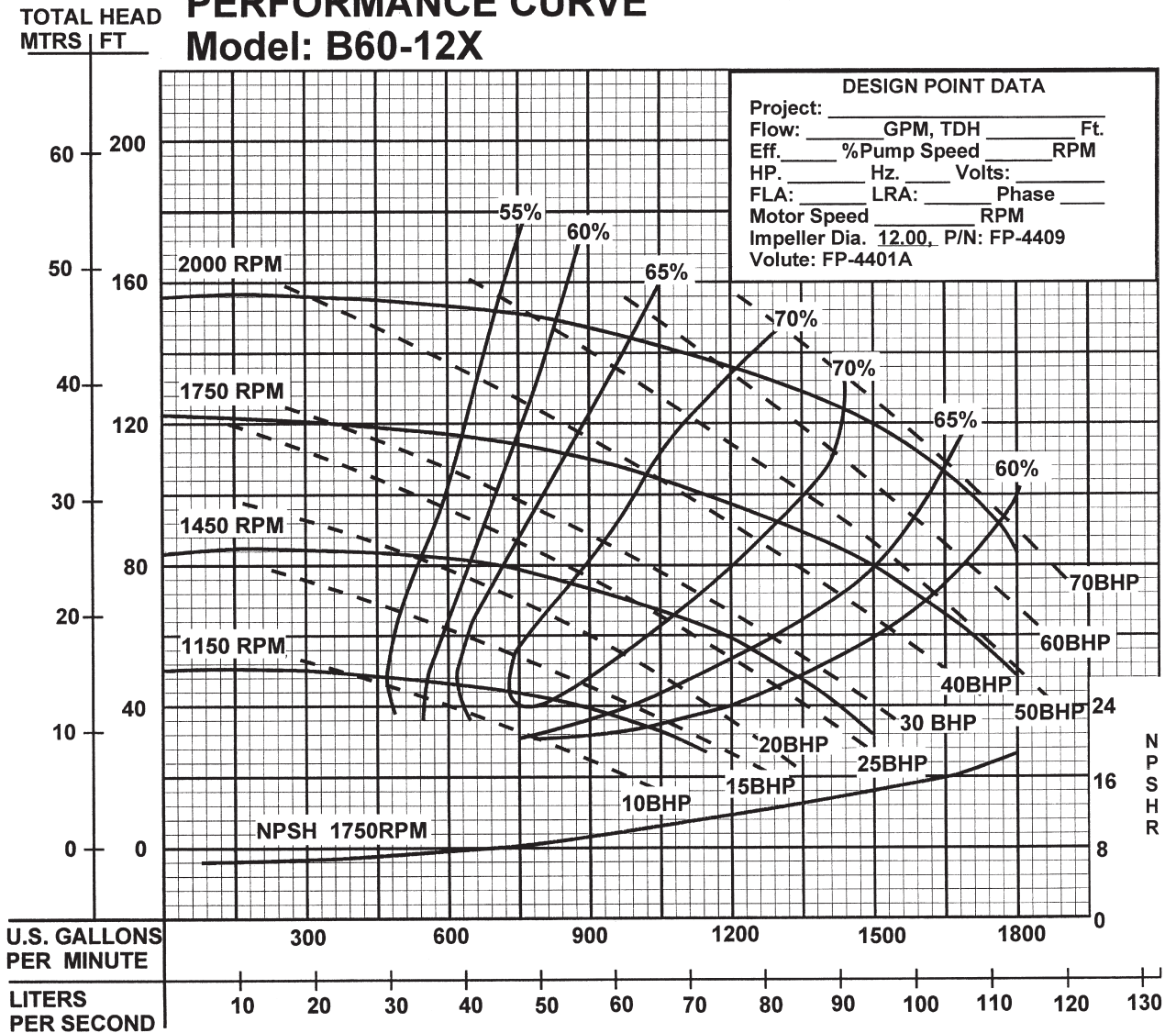
MODEL NO.	PART NO.	WEIGHT NET LBS.
B60-12X	6COZD-0012X-001	585
B60-11H	6COZD-0011H-001	585
B60-11X	6COZD-0011X-001	585
B60-10L	6COZD-0010L-001	585

IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

PERFORMANCE CURVE

Model: B60-12X



MAXIMUM DRY PRIMING LIFT	
PUMP SPEED	10 MIN.
1150RPM	20 Ft.
1450RPM	25 Ft.
1750RPM	25 Ft.
2000RPM	25 Ft.
2250RPM	25 Ft.

When pump is operating, the **SUCTION LIFT** is limited by the available **NPSH** which is the corrected atmospheric pressure minus the dynamic suction lift, vapor pressure loss and 2 foot safety factor. This **net available NPSH** must exceed the **required NPSH** of the pump or a reduction of capacity, loss of efficiency, noise, vibration and cavitation will result. Calculate the dynamic suction lift from the **low** liquid level to the centerline of the impeller. When pump is priming, it is limited by the dry **PRIMING LIFT** which is the vertical distance from the **high** liquid level to the centerline of the impeller.

Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

TAX BITES

Car Rentals

As part of the trend toward exporting a state or local tax burden, car rental taxes are increasingly popular with lawmakers concerned about taxing their voting constituents. Although studies have shown that more than half of cars are rented by local consumers, the notion that taxing rental cars is taxing tourists is pervasive on the state and local level. In fact, the number of car rental excise taxes has nearly doubled in the last decade with taxes in 110 localities in 43 states and Washington, D.C.

Local excise taxes and other charges imposed by states and municipalities have added 26 percent, or \$13.70 to the average \$52.71 rental car bill. However, this doesn't include the full tax burden included in the cost of renting a car. When taking into account taxes including federal and state income taxes, federal payroll taxes, sales taxes, unemployment insurance taxes, workmen's compensation taxes, business license taxes and fees, utility taxes, local property taxes, and any local income taxes, the total cost rises to 60.6 percent of the bill.

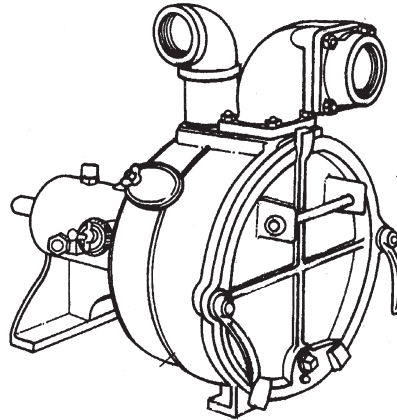
All told, whether you are a tourist or a resident, renting that car for \$52.71, will cost you \$31.94 in taxes and fees.

BARNES®

PO2LA SELF-PRIMING PUMPS Solids Handling Universal Drive 1-1/4" Spherical Solids Handling

Specifications:

SUCTION/DISCHARGE:	2" (51mm) x 2" (51mm) NPT, Female.
LIQUID TEMPERATURE:	160°F (71°C) Continuous.
VOLUTE/WEARPLATE:	Cast Iron ASTM A-48, Class 30, Replaceable, External Clearance Adjustment.
CASE:	Cast Iron ASTM A-48, Class 30.
END COVER:	Cast Iron ASTM A-48, Class 30. Full Diameter, Removable.
SEAL PLATE:	Alloy Steel; Replaceable
PEDESTAL:	Cast Iron ASTM A-48, Class 30.
IMPELLER:	<i>Design:</i> Two Vane, Open. <i>Material:</i> Cast Iron ASTM A-48, Class 30. Dynamically Balanced, ISO G6.3. High Carbon Steel
SHAFT:	Buna-N
SQUARE RINGS:	Corrosion Resistant Steel.
HARDWARE:	Air Dry Enamel.
PAINT:	Single Mechanical
SEAL:	<i>Design:</i> Grease, with Self-Feeding Lubricator. <i>Material:</i> Rotating Face - Carbon Stationary Face - Ceramic Elastomer - Buna-N Hardware - 300 Series Stainless
BEARING-PUMP END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Oil <i>Load:</i> Radial & Thrust
BEARING-DRIVE END:	<i>Design:</i> Single Row, Ball <i>Lubrication:</i> Oil <i>Load:</i> Radial & Thrust
CHECK VALVE:	<i>Material:</i> Elbow-Cast Iron ASTM A-48, Class 30 Valve Flap-Neoprene. Weight-Cast Iron ASTM A-48, Class 30 Seal Materials, Case Heater, Stainless
OPTIONAL EQUIPMENT:	Hardware; High Temperature Control; Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy. and Left Hand V-Belt Drive Assy. with Unit Base, Motor Adjusting Base & OSHA Guard.



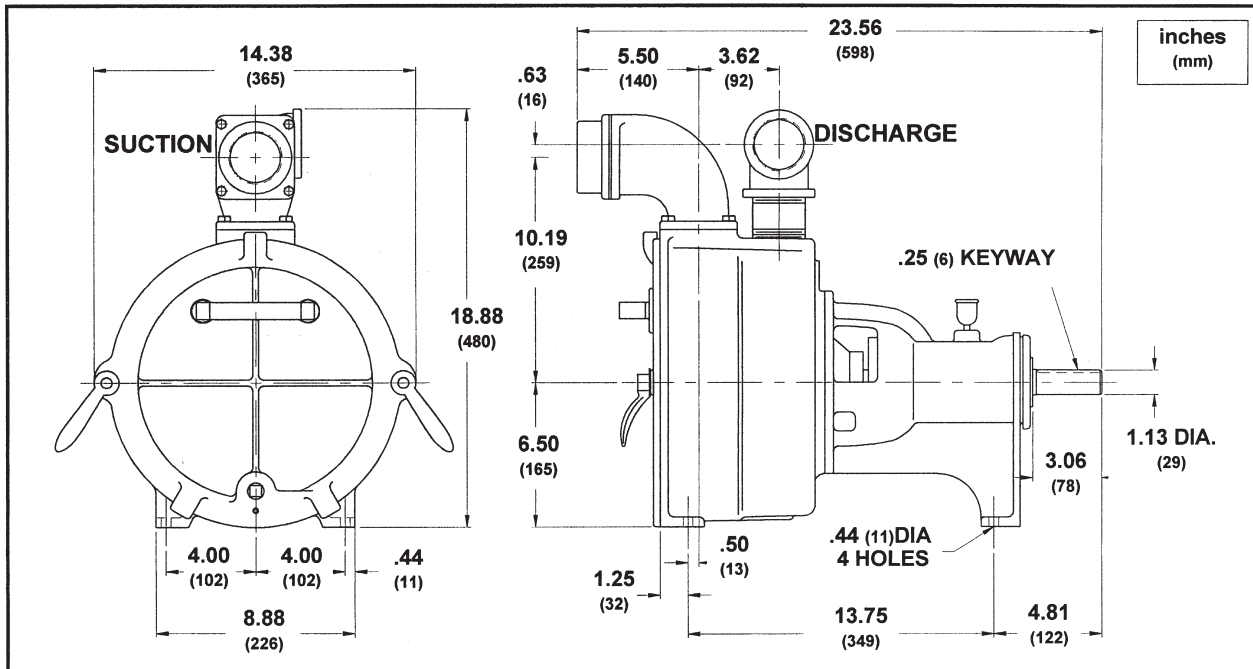
Model: PO2LA-6C



American Bureau of Shipping
Certificate No.
01-HS238523B/1-PDA

Description:

SELF-PRIMING CENTRIFUGAL SOLIDS HANDLING PUMPS DESIGNED FOR MUNICIPAL AND INDUSTRIAL APPLICATIONS.



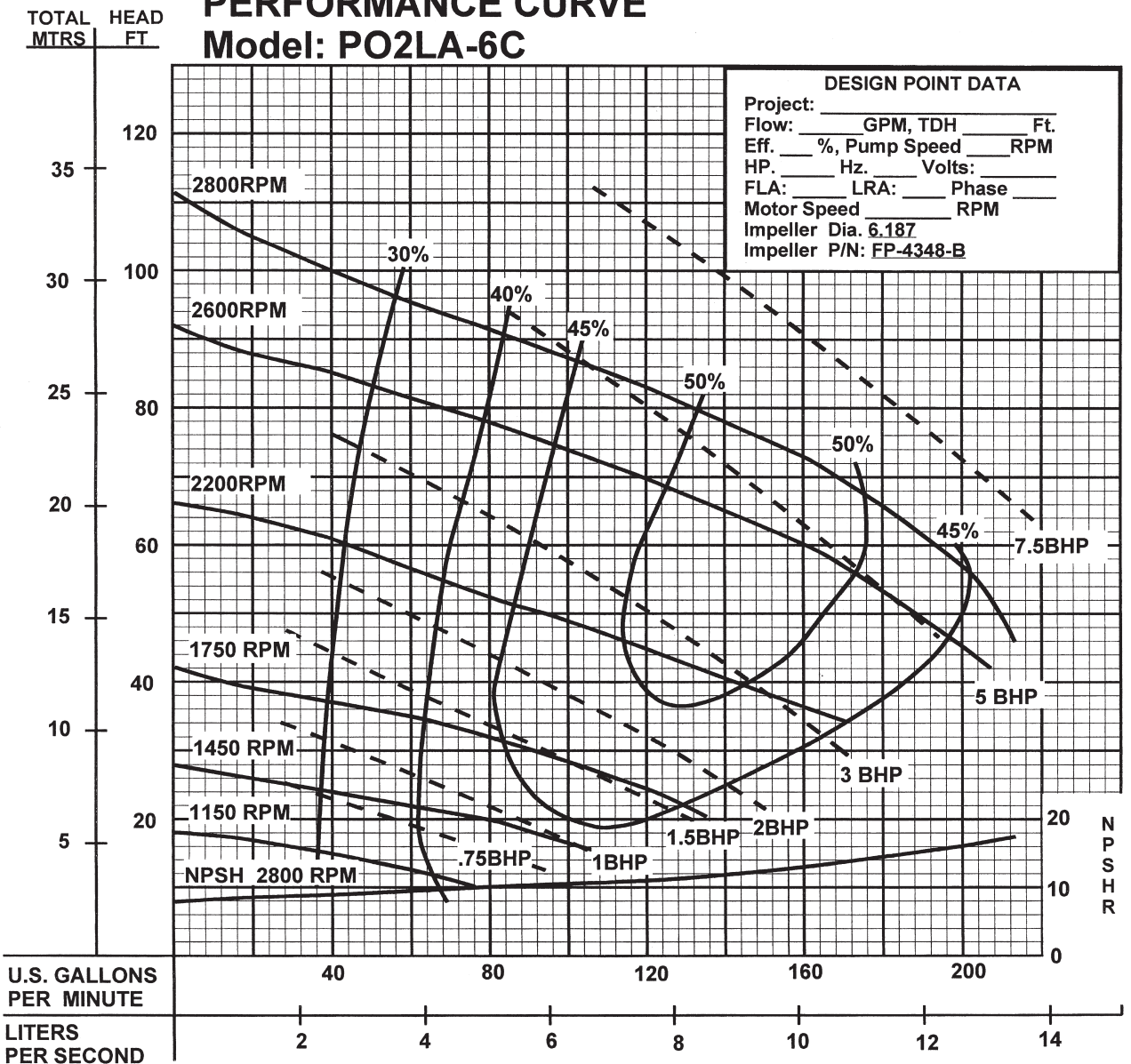
MODEL NO.	PART NO.	WEIGHT LBS.
PO2LA-6C	2COOD-0006C-001	160 (73kg)

IMPORTANT !

- DO NOT USE FOR PUMPING FLUIDS WITH A FLASH POINT OF LESS THAN 100°F.
- MAKE CERTAIN THAT PUMP AND/OR MOTOR ASSEMBLY AND CONTROLS HAVE THE APPROPRIATE RATINGS FOR THE GIVEN APPLICATION AREA CLASSIFICATION. (ie DIVISION I, AGENCY LISTING ETC.)

PERFORMANCE CURVE

Model: PO2LA-6C



DESIGN POINT DATA
 Project: _____
 Flow: _____ GPM, TDH _____ Ft.
 Eff. _____ %, Pump Speed _____ RPM
 HP: _____ Hz, _____ Volts: _____
 FLA: _____ LRA: _____ Phase _____
 Motor Speed _____ RPM
 Impeller Dia. 6.187
 Impeller P/N: FP-4348-B

U.S. GALLONS PER MINUTE
 LITERS PER SECOND

PUMP SPEED	MAXIMUM DRY PRIMING LIFT				
	2 Min.	4 Min.	6 Min.	8 Min.	10 Min.
1150RPM	3 Ft	6 Ft	8 Ft	9 Ft	10 Ft
1450RPM	5 Ft	8 Ft	12 Ft	14 Ft	16 Ft
1750RPM	9 Ft	17 Ft	22 Ft	23 Ft	25 Ft
2200RPM	17 Ft	25 Ft	25 Ft	25 Ft	25 Ft
2600RPM	25 Ft	25 Ft	25 Ft	25 Ft	25 Ft
2800RPM	25 Ft	25 Ft	25 Ft	25 Ft	25 Ft

When pump is operating, the **SUCTION LIFT** is limited by the available **NPSH** which is the corrected atmospheric pressure minus the dynamic suction lift, vapor pressure loss and 2 foot safety factor. This net available NPSH must exceed the required NPSH of the pump or a reduction of capacity, loss of efficiency, noise, vibration and cavitation will result. Calculate the dynamic suction lift from the low liquid level to the centerline of the impeller. When pump is priming, it is limited by the dry **PRIMING LIFT** which is the vertical distance from the high liquid level to the centerline of the impeller.

Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

WORD ORIGINS

SNOB
 Meaning: A snooty person; someone who puts on airs
 Origin: "It seems that Oxford freshmen were required to register 'according to rank.' Those not of noble birth added after their names the phrase sine *nobilitate* which was then abbreviated to `s. nob.,' thus creating ... a perfect definition for the commoner who wishes to mingle with the nobles." (From *Dictionary of Word and Phrase Origins, Vol. III* by William and Mary Morris)

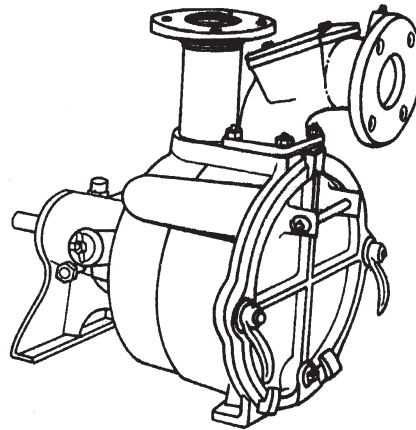
BARNES[®]

PO3LA, PO3LB SELF-PRIMING PUMPS Solids Handling Universal Drive 1.5" - 2.5" Spherical Solids Handling

Larger sizes available

Specifications:

SUCTION/DISCHARGE: 3" (76mm) x 3" (76mm) 125lb. Flange.
LIQUID TEMPERATURE: 160°F (71°C) Continuous.
SOLIDS HANDLING:
 PO3LA: 1.50" Spherical
 PO3LB: 2.50" Spherical
VOLUTE/WEARPLATE: Cast Iron ASTM A-48, Class 30, Replaceable, External Clearance Adjustment.
CASE: Cast Iron ASTM A-48, Class 30.
END COVER: Cast Iron ASTM A-48, Class 30. Full Diameter, Removable.
SEAL PLATE: Alloy Steel; Replaceable
PEDESTAL: Cast Iron ASTM A-48, Class 30.
IMPELLER:
Design: Two Vane, Open.
Material: Ductile Iron ASTM A-395. Dynamically Balanced, ISO G6.3.
SHAFT: High Carbon Steel
SHAFT SLEEVE: 316 Stainless Steel
SQUARE RINGS: Buna-N
HARDWARE: Corrosion Resistant Steel.
PAINT: Air Dry Enamel.
SEAL:
Design: Single Mechanical
Lubrication: Grease, with Self-Feeding Lubricator.
Material: Rotating Face - Carbon
 Stationary Face - Ceramic
 Elastomer - Buna-N
 Hardware - 300 Series Stainless
BEARING-PUMP END:
Design: Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust
BEARING-DRIVE END:
Design: Single Row, Ball
Lubrication: Oil
Load: Radial & Thrust
CHECK VALVE:
Material: Elbow-Cast Iron ASTM A-48, Class 30
 Valve Flap-Neoprene.
 Weight-Cast Iron ASTM A-48, Class 30
 Seal Materials, Case Heater, Stainless Hardware; High Temperature Control; Flex Coupled Assy. with Base & OSHA Guard; Right Hand V-Belt Drive Assy., Left Hand V-Belt Drive Assy. and In-Line Vertical V-Belt Drive Assy. with Base, Motor Adjusting Base & OSHA Guard.



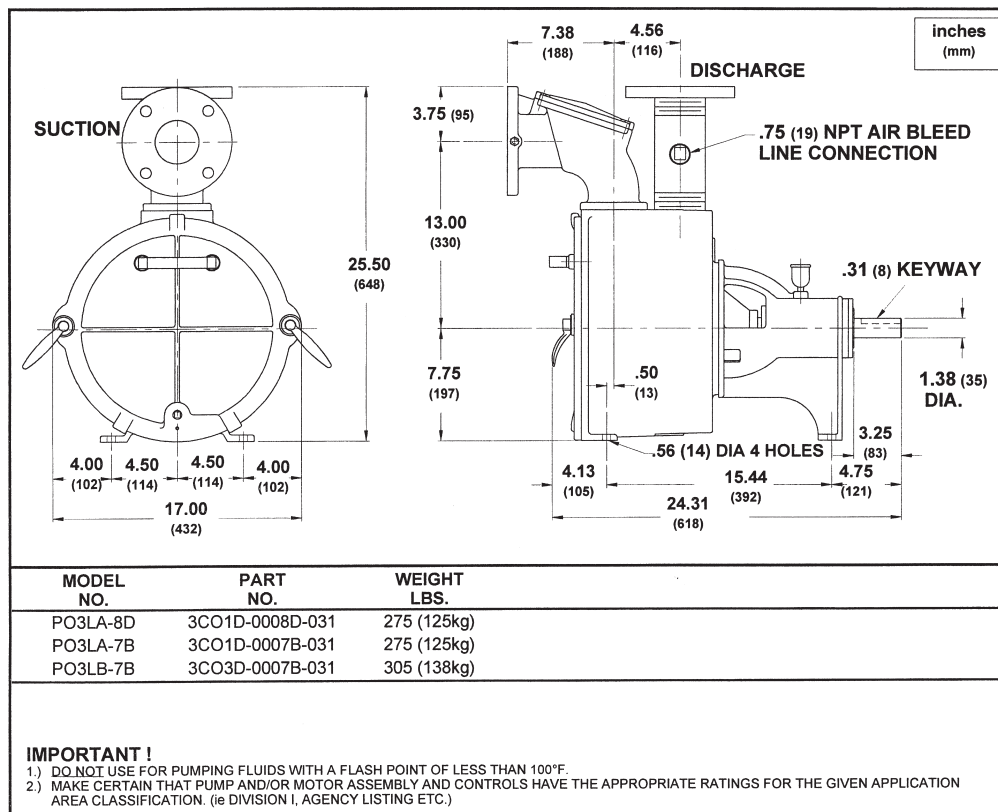
**Models: PO3LA-8D
PO3LA-7B
PO3LB-7B***



American Bureau of Shipping
Certificate No.
01-HS238523B/1-PDA

Description:

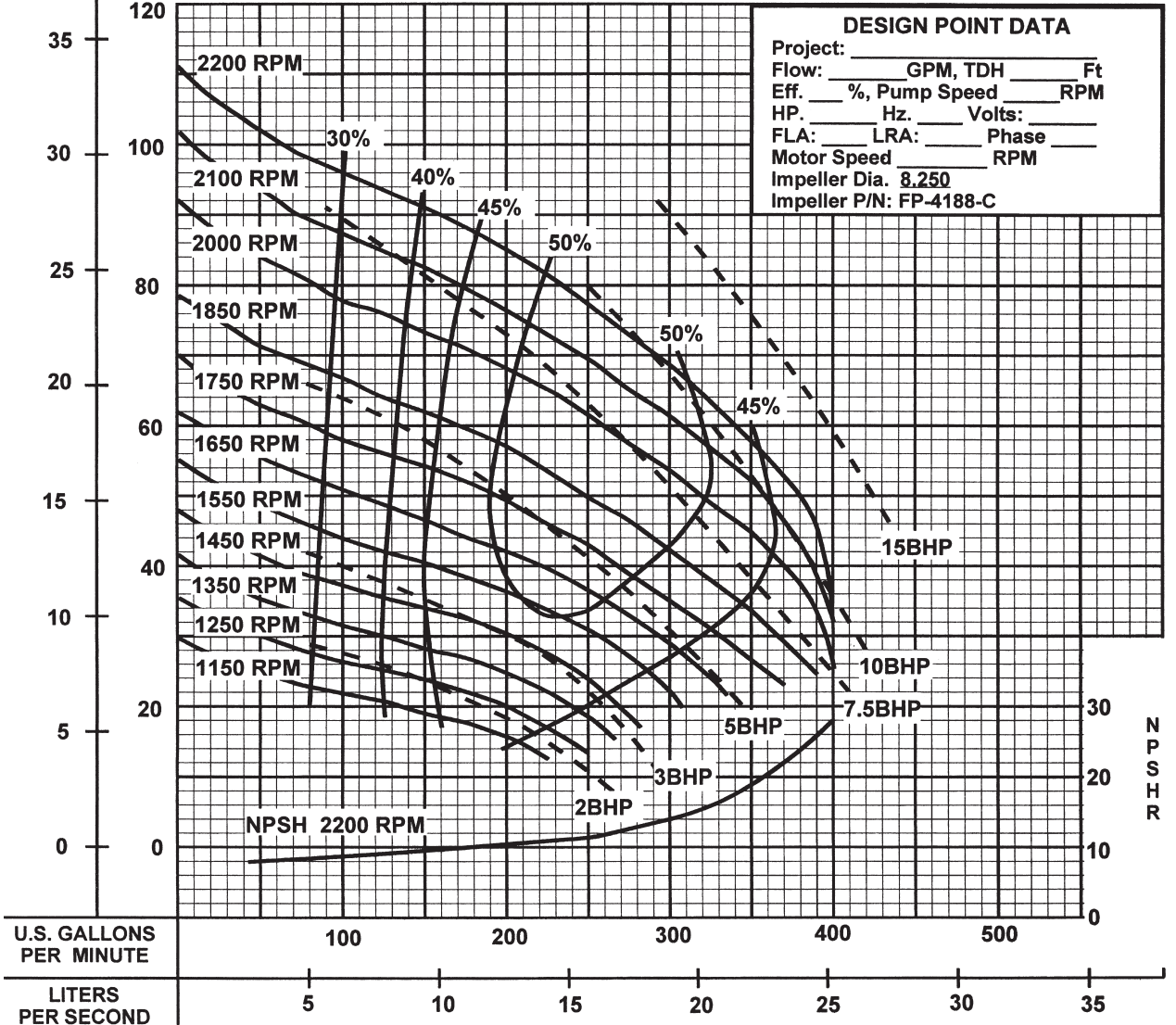
SELF-PRIMING CENTRIFUGAL SOLIDS HANDLING PUMPS DESIGNED FOR MUNICIPAL AND INDUSTRIAL APPLICATIONS.



TOTAL HEAD
MTRS | FT

PERFORMANCE CURVE

Model: PO3LA-8D



PUMP SPEED	MAXIMUM DRY PRIMING LIFT				
	2 Min.	4 Min.	6 Min.	8 Min.	10 Min.
1150RPM	8 Ft	14 Ft	17 Ft	18 Ft	19 Ft
1450RPM	14 Ft	20 Ft	22 Ft	23 Ft	25 Ft
1750RPM	22 Ft	25 Ft	25 Ft	25 Ft	25 Ft
2050RPM	24 Ft	25 Ft	25 Ft	25 Ft	25 Ft
2200RPM	25 Ft	25 Ft	25 Ft	25 Ft	25 Ft

When pump is operating, the **SUCTION LIFT** is limited by the available **NPSH** which is the corrected atmospheric pressure minus the dynamic suction lift, vapor pressure loss and 2 foot safety factor. This net available NPSH must exceed the required NPSH of the pump or a reduction of capacity, loss of efficiency, noise, vibration and cavitation will result. Calculate the dynamic suction lift from the low liquid level to the centerline of the impeller. When pump is priming, it is limited by the dry **PRIMING LIFT** which is the vertical distance from the high liquid level to the centerline of the impeller.

Testing is performed with water, specific gravity of 1.0 @ 68° F, other fluids may vary performance.

FAMILIAR PHRASES

WIN HANDS DOWN

Meaning: To win by an enormous margin.

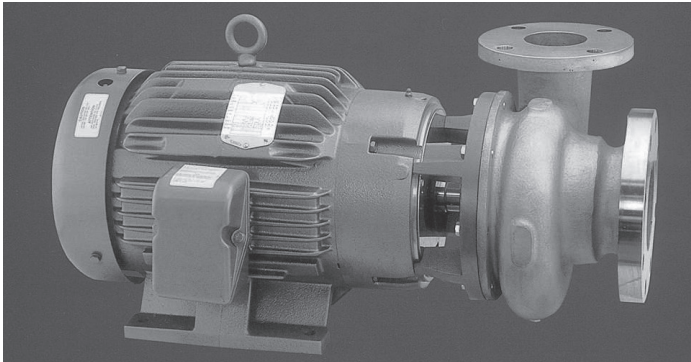
Origin: If a racehorse jockey is so far ahead of the competition that there is no danger he will be passed again, he can drop the reins—and his hands—and let the horse finish the race without spurring it on.

BAKER'S DOZEN

Meaning: Thirteen—one more than a dozen.

Origin: In the Middle Ages, bakers who sold loaves of bread that were lighter than the legal weight were subjected to harsh penalties. To prevent being accused of cheating on the weight, bakers would often give away an extra loaf with every dozen.

Ampco Pumps Company



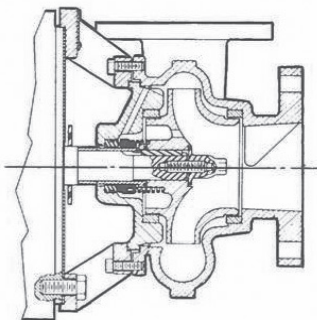
Nickel Aluminum Bronze Pumps For Saltwater Applications

The Ampco line of nickel aluminum bronze centrifugal pumps are ideally suited for saltwater, as well as brackish water, waste water and pollution control applications. The wetted end parts of Ampco pumps are constructed of ASTM-B-148 C958, commonly referred to as CDA958. The overall corrosion/erosion resistance of this alloy to saltwater is superior to stainless steel — and costs less. All of Ampco's nickel aluminum bronze pumps, E, K and Z Series, have ABS (American Bureau of Shipping) type approval.

In addition to exceptional corrosion resistance, nickel aluminum bronze offers these important features:

- Resists erosive wear due to the high velocities developed by the rotating impeller.
- Resists the immense stress incurred during a cavitating condition.
- Resists fouling which can reduce efficiency and promote a severe crevice corrosion attack.
- Even in a “down” state, CDA958 provides better protection against saltwater pitting that is so prevalent in stainless steel pumps.

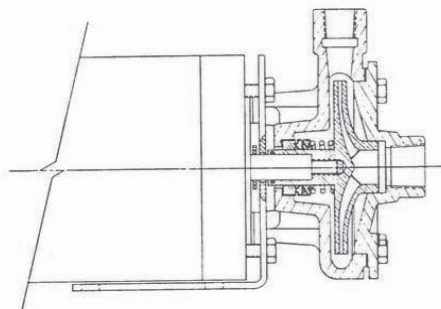
Z SERIES



The non-comprising design of Ampco pumps results in higher efficiencies, longer life and lower energy and maintenance costs. Each series of pumps is available in either close-coupled or frame mounted versions. The Z Series offers multiple sealing options to meet the most demanding applications.

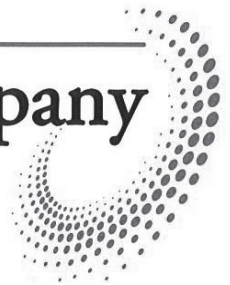
The United States Navy has been using CDA958 (MIL24480) for more than forty years. Commercial saltwater applications include booster pumps and supply pumps on water treatment systems (including reverse osmosis, distillation and desalination) and multiple uses on board vessels, such as bilge, ballast, engine cooling, condenser cooling, refrigeration, washdown, salt water supply, circulation and fire pumps.

K SERIES

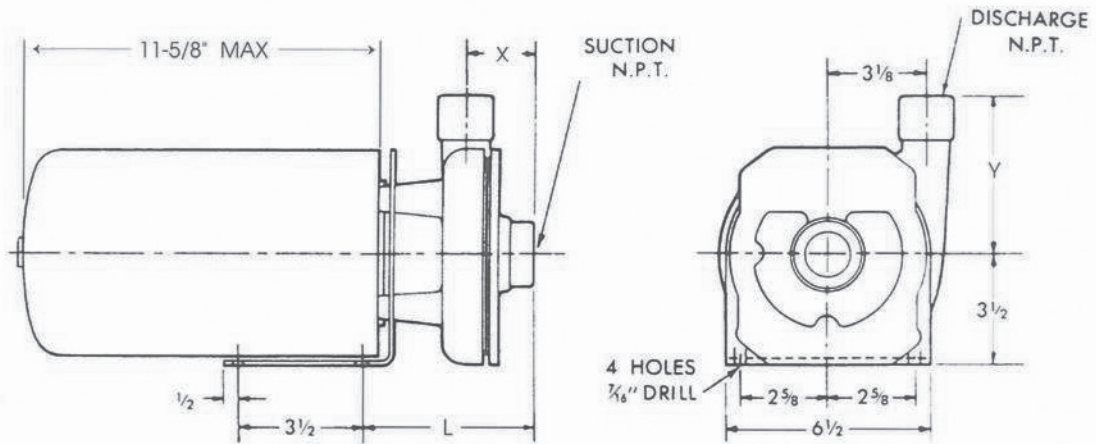


In addition to the K and Z Series, Ampco offers a wide range of centrifugal pumps in both nickel aluminum bronze and stainless steel. Lead time for standard close coupled pumps is one week or less.

Ampco Pumps Company



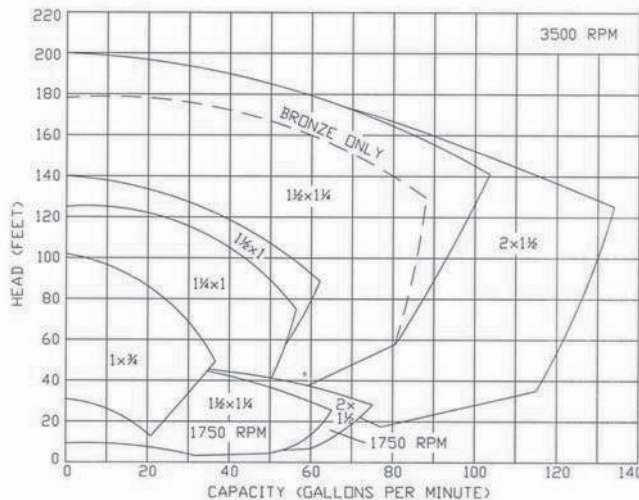
AMPCO K SERIES



Dimensions are approximate, for reference only.

PUMP		MOTOR-TEFC			DIMENSIONS IN INCHES				
TYPE	SIZE	FRAME	H.P.*	RPM	SUCTION	DISCHARGE	L	X	Y
KC2	1 X 3/4	56J	1	3500	1	3/4	6	2 3/8	4 7/16
KC2	1 1/4 X 1	56J	2	3500	1 1/4	1	5 5/8	2 7/32	5
KC2	1 1/2 X 1	56J	3	3500	1 1/2	1	6	2 13/32	5
KC2	1 1/2 X 1 1/4	213JM	7 1/2	3500	1 1/2	1 1/4	12 13/32	2 13/16	6 1/2
KC2	2 X 1 1/2	213JM	7 1/2	3500	2	1 1/2	12 11/32	3 3/4	6 3/4

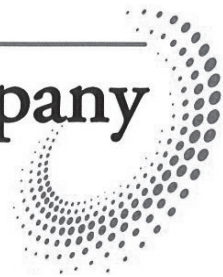
*The Horsepower listed is typically for a full diameter impeller. Other 56J Frame Motors include 1/2 and 3/4 HP.



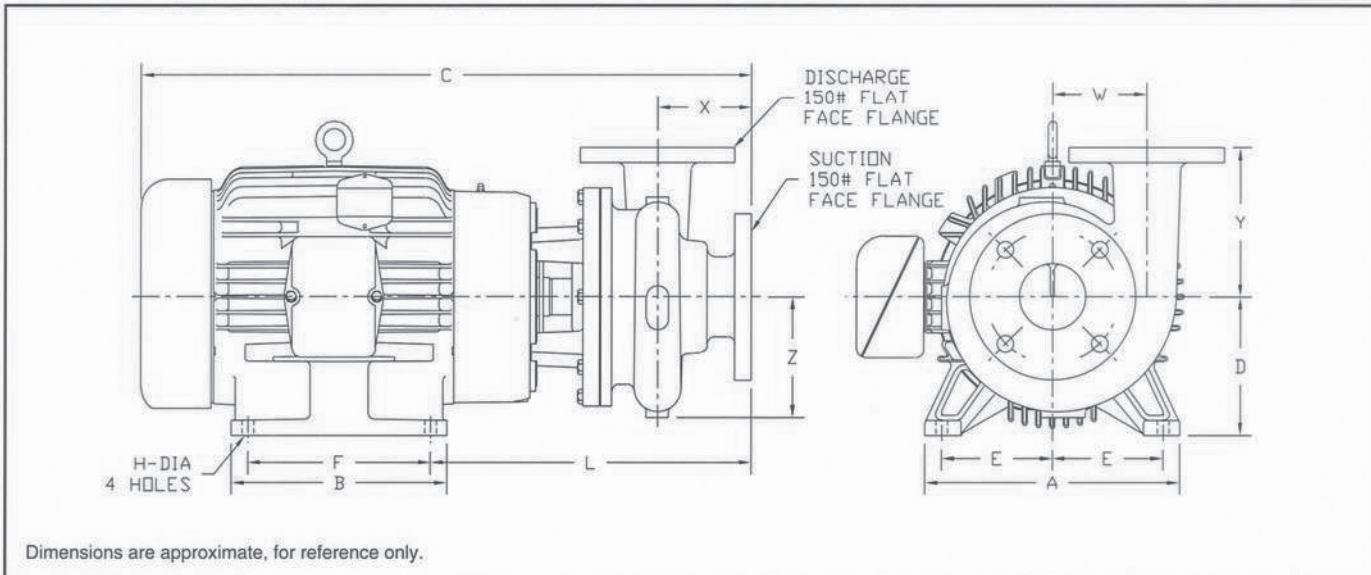
CHARACTERISTICS INCLUDE:

- Allowable Working Pressure — up to 150 psi
- Temperatures to 225°F
- Multiple Sealing Options
- Enclosed Impellers
- Close coupled to Nema Standard Jet Pump Motor, Std. MG1-18.340

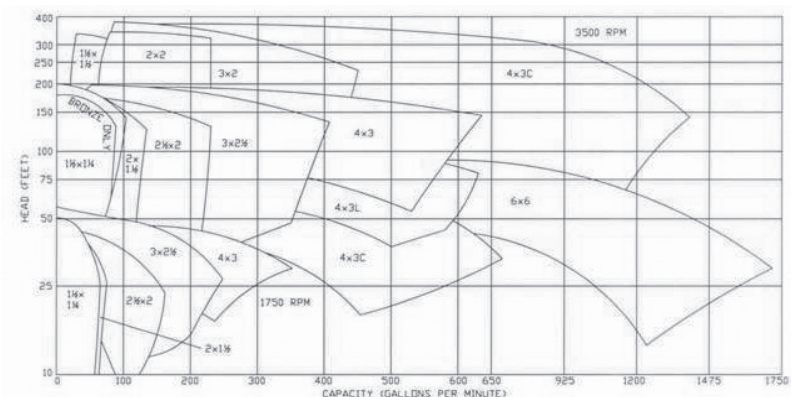
Ampco Pumps Company



AMPCO Z SERIES



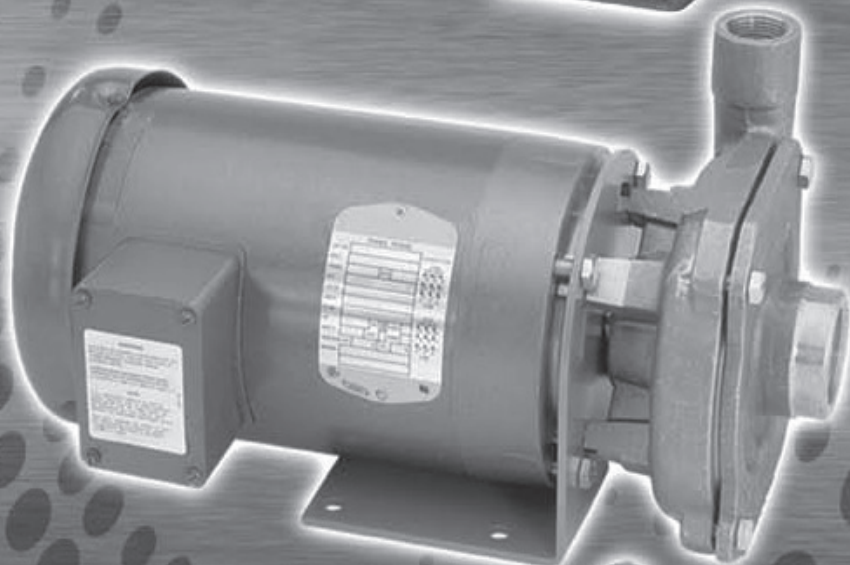
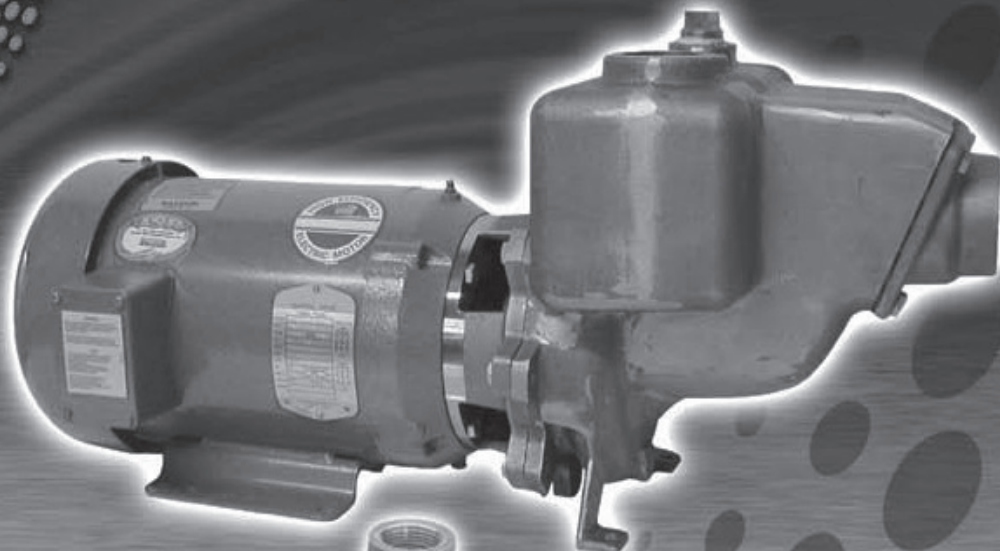
PUMP		MOTOR-TEFC			DIMENSIONS IN INCHES													
TYPE	SIZE	FRAME	H.P.	RPM	SUCT.	DISCH.	A	B	C	D	E	F	H	L	W	X	Y	Z
ZC2	1½ X 1¼	143JM	1	1750	1½	1¼	7	6	17¼	3½	2¼	4	1½	10¼	3½	3¼	6½	4¼
ZC2	1½ X 1¼	213JM	7½	3500	1½	1¼	10½	7½	21½	5¼	4¼	5½	1¾	12½	3½	3¼	6½	4¼
ZC2	1½ X 1½	182JM	3	1750	1½	1½	8½	6½	21½	4½	3¼	4½	1¾	12	5½	4¼	6½	6¼
ZCH2	1½ X 1½	256JM	20	3500	1½	1½	11½	11½	29½	6¼	5	10	1¾	14½	5½	4¼	6½	6¼
ZC2	2 X 1½	213JM	7½	3500	2	1½	10½	7½	21½	5¼	4¼	5½	1¾	12½	3½	3¼	6½	4¼
ZC2	2½ X 2	215JM	10	3500	2½	2	10½	9	23¼	5¼	4¼	7	1¾	13½	4	4¼	7½	4¼
ZC2	3 X 2½	183JM	3	1750	3	2½	9	6½	19¼	5½	3¼	4½	1¾	12½	4¼	4¼	6½	5¼
ZC2	3 X 2½	215JM	10	3500	3	2½	10½	9	24	5¼	4¼	7	1¾	13½	4¼	4¼	6½	5¼
ZCH2	3 X 2½	256JM	20	3500	3	2½	12½	12½	31½	6¼	5	10	1¾	14¼	4¼	4¼	6½	5¼
ZC2	4 X 3	213JM	5	1750	4	3	10½	7½	24½	5¼	4¼	5½	1¾	13½	4½	5¼	6½	6
ZC2	4 X 3	215JM	10	3500	4	3	10½	9	25½	5¼	4¼	7	1¾	13½	4½	5¼	6½	6
ZCH2	4 X 3	286JM	30	3500	4	3	14	14	32½	7	5½	11	1¾	15½	4½	5¼	6½	6
ZC2	4 X 3C	215JM	10	1750	4	3	9½	8	24½	5¼	4¼	7	1¾	12½	—	3¼	9¾	7
ZCH2	4 X 3C	326JM	50	3500	4	3	14½	14	34¼	8	6¼	12	2¼	14½	—	3¼	9¾	7
ZCH2	4 X 3L	256JM	20	1750	4	3	11½	11½	30½	6¼	5	10	1¾	15½	6	5½	8	7½
ZC2	6 X 6	256JP	20	1750	6	6	11½	11½	30¼	6¼	5	10	1¾	17½	8	2¼	9	10
ZCH2	2 X 2	286JM	30	3500	2	2	12¼	12¼	32¼	7	5½	11	1¾	14½	5½	3¼	7¼	6½
ZCH2	3 X 2	256JM	20	3500	3	2	11½	11½	29½	6¼	5	10	1¾	14½	5½	4½	7¼	6½



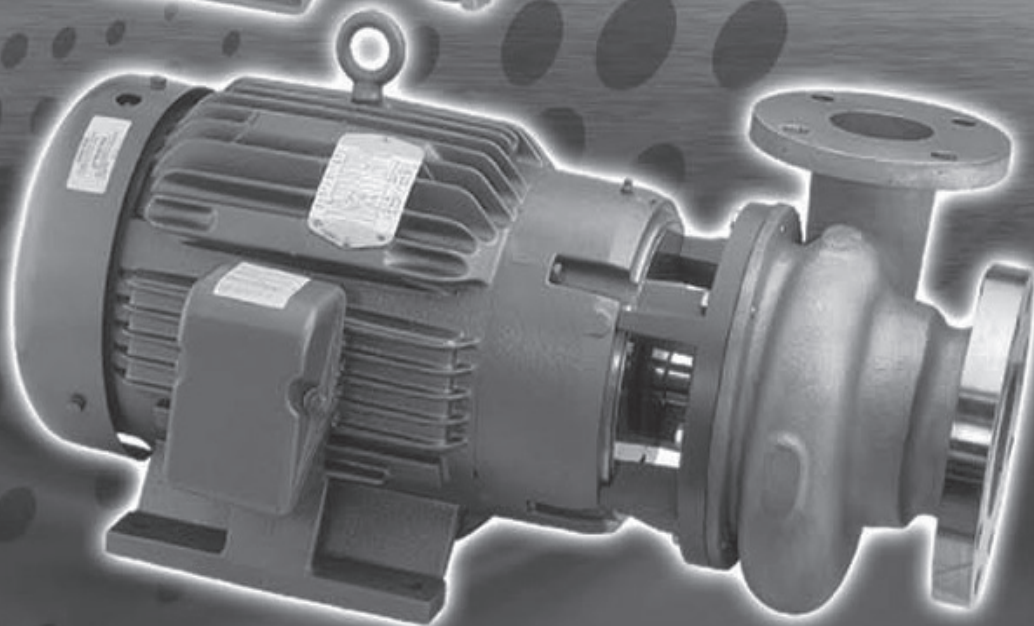
- CHARACTERISTICS INCLUDE:**
- Allowable Working Pressure — up to 175 psi
 - Temperatures to 250°F
 - Multiple Sealing Options
 - Internal Seal Flush
 - Replaceable Wear Rings
 - Close coupled to Nema Standard “JM” motors

Ampco Pumps Company

Marine and Industrial CENTRIFUGAL PUMPS



*K, R and Z Series pumps
are available from stock in
nickel aluminum bronze,
316 stainless steel and
duplex 2205 stainless steel*



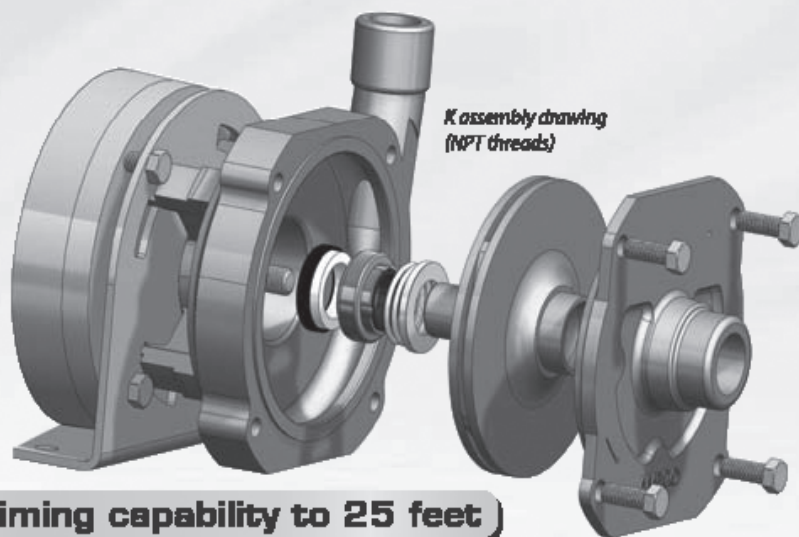
Ampco Pumps Company



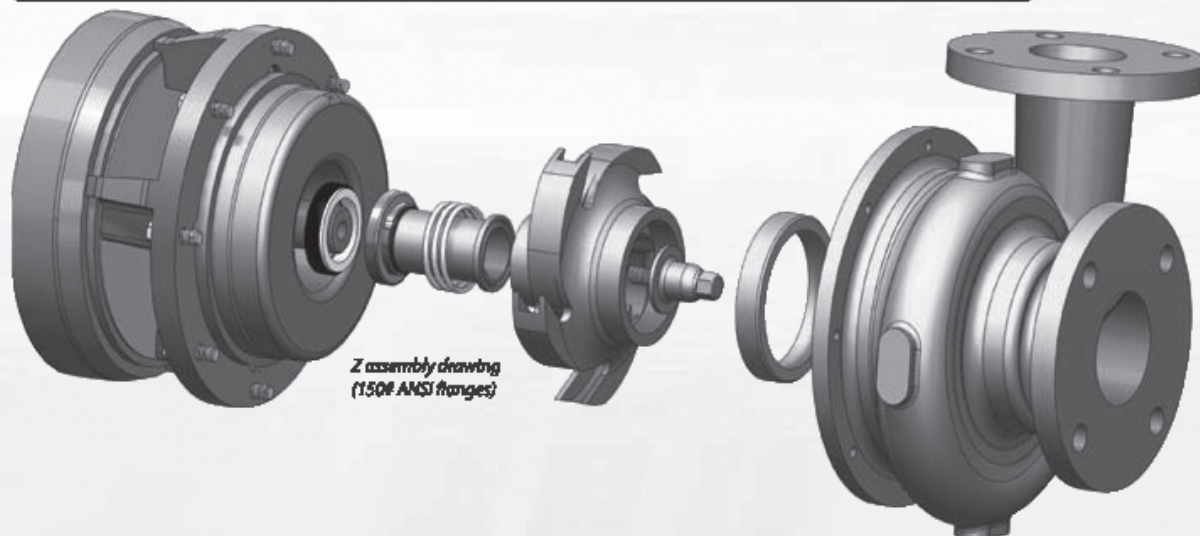
Marine & Industrial PUMPS

All K, R and Z Series pumps share the following characteristics:

- Heavy-wall cast construction with tight manufacturing tolerances
- High efficiency design with fully shrouded impellers
- Dynamically balanced impellers
- Close coupled on JM or 56J frame motors
- ABS (American Bureau of Shipping) type approval
- Every assembled unit is run on our test stand to verify hydraulic, mechanical and electrical performance



R Series pumps have self-priming capability to 25 feet

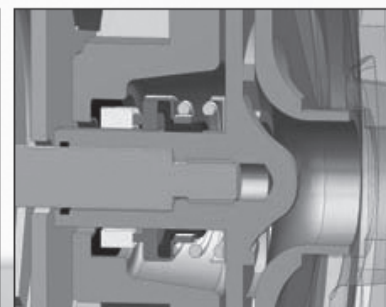
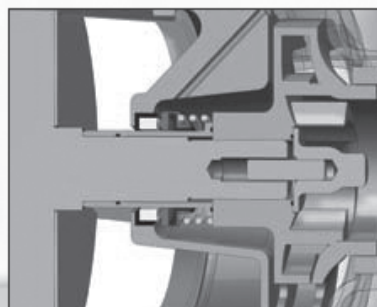


The standard mechanical seal for marine and industrial pumps is a Type 21 with ceramic versus carbon seal faces, buna elastomers and 316 SS metallics. Various material options are available, including silicon carbide, tungsten carbide, ni-resist, viton, EPDM, teflon, monel and others. Optional seal choices include Type 1, Type 9, double mechanical seals, packing and cartridge seals.

RC2/ZC2

Type 21 Seals

KC2





Alloy Selection

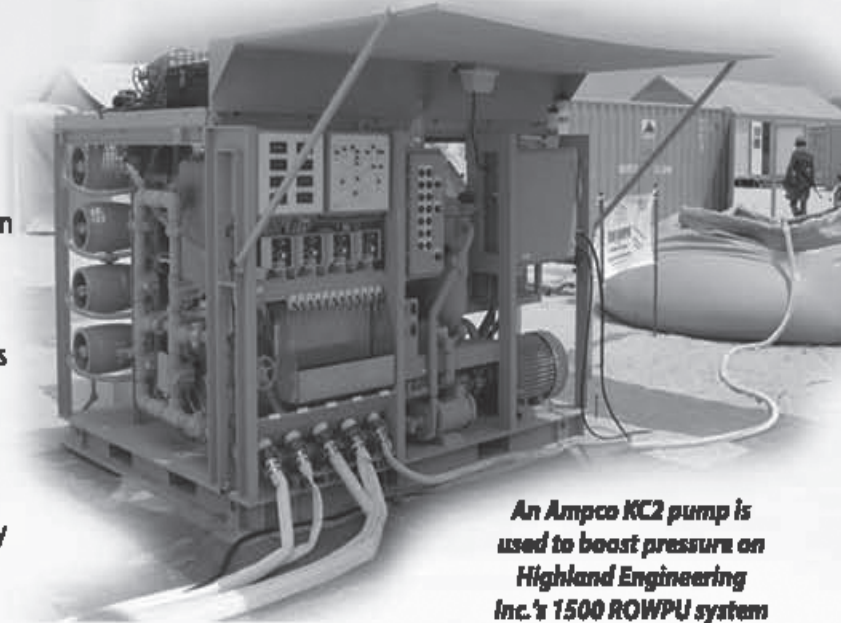
Ampco offers the K, R and Z Series pumps in nickel aluminum bronze (CDA958), 316 stainless steel and duplex 2205 stainless steel construction. All three alloys are in stock and normally available for delivery in one week or less. Our application engineers will help select the right alloy for your application.

Nickel aluminum bronze

- A very cost effective material for saltwater, as well as brackish water and waste water
- The overall corrosion / erosion resistance of this alloy to saltwater is far superior to stainless steel or standard bronzes
- The U.S. Navy has been using CDA958 in saltwater applications for over 40 years
- Ampco's K, R and Z Series pumps have been used on most of the U.S. Army's reverse osmosis systems since the 1980's

316 stainless steel:

- High resistance to corrosion from many chemical solutions
- The material of choice in food and beverage processing applications



An Ampco KC2 pump is used to boost pressure on Highland Engineering Inc.'s 1500 ROWPU system

Duplex 2205:

- Highly recommended for saltwater applications with higher salinity (over 30,000 ppm) and higher temperature
- Also recommended for saltwater applications with a high concentration of hydrogen sulfides (such as pumping from a deep seawater well) which will attack nickel aluminum bronze
- Superior resistance to the effects of cavitation
- Superior resistance to wear from abrasive media such as diatomaceous earth or ethanol

Ampco's RC2 2x2 self-priming pump serves as the raw water supply pump on Highland Engineering Inc.'s 1500 ROWPU system

• Please see our website at www.ampcopumps.com for a complete compatibility chart for these alloys. We also manufacture K, R and Z Series pumps in specialty alloys such as Hastalloy C, Alloy 20, 316L stainless steel and others.

Ampco Pumps Company



Ampco Introduces Duplex 2205 Alloy Pumps

Ampco's standard K,R, and Z Series pumps are now available from stock in Duplex 2205, in addition to 316 SS and nickel-aluminum bronze. Duplex 2205 is highly recommended for seawater reverse osmosis and desalination applications, in addition to other applications that require superior corrosion resistance, superior resistance to the effects of cavitation, or enhanced resistance to particle contamination. Pricing for Duplex 2205 pumps is now available on our website.



Background:

Duplex 2205 is a relatively newer grade of stainless steel alloy that offers a multitude of advantages over 316 & 316L alloys. The "duplex" term refers to the dual-grain structure nature of this alloy – it is 45% ferritic and 55% austenitic. The "2205" refers to the 22% chromium/5% nickel constituents present in the alloy. The wide array of advantages that the duplex alloy provides over 316 & 316L alloys have enabled it to rapidly gain acceptance in a number of industries including marine, oil & gas, petrochem, pulp & paper, wastewater, and desalination. These advantages include:

- Lower coefficient of thermal expansion
- Higher thermal conductivity
- Resistance to chloride stress-cracking
- Superior resistance to pitting & crevice corrosion
- Superior erosion fatigue properties
- High yield strength; \approx twice that of austenitic stainless steels

Additional key points:

- Duplex 2205 is 45% ferritic – as such, it will be far more magnetic than any 304 or 316 alloy that you will encounter
- The term "Super Duplex" refers to duplex alloys such as UR52N+ that incorporate copper into their chemistry. The addition of copper provides dramatically improved corrosion resistance to hot chlorides and strong reducing acids, such as H_2SO_4 . The duplex 2205 alloy used by Ampco may contain a small amount of copper, but can **not** be referred to as a "Super" Duplex.

Compatibilities Rating

A – Excellent B- Good C – Fair/Component life will be limited
NR – Not Recommended



Fluid Media	Metals			Elastomers				Seal Faces			
	Duplex 2205	Cast CF8M S.S.	Bronze CDA958	Buna-N	Viton	EPDM	Teflon	Carbon	Ceramic	Silicon Carbide	Tungsten Carbide
Acetic Acid, <30%	A	A	A	NR	B	A	A	A	A	A	A
Acetic Acid, > 30%, to 70 °F	NR	A	A	NR	B	B	A	A	A	A	NR
Acetone	A	A	A	NR	A	A	A	A	A	A	A
Aluminum Sulphate, <10%	A	B	A	A	A	A	A	A	A	A	NR
Aluminum Sulphate, >10%	B	NR	A	A	A	A	A	A	A	A	NR
Ammonia, Liquid	NR	NR	-	NR	NR	A	A	A	A	A	A
Ammonium Chloride, <10%	B	B	NR	A	A	A	A	A	A	A	NR
Ammonium Hydroxide, <30%	A	A	NR	A	C	A	A	A	A	B	NR
Amyl Acetate	A	A	-	A	NR	C	A	A	NR	A	A
Amyl Alcohol, to 200 °F	A	A	-	B	B	A	A	A	A	A	A
Amyl Chloride, to 150 °F	A	A	A	-	A	NR	A	A		A	A
Anti-Freeze, to 140 °F	A	A	A	C	C	A	A	A	A	A	A
Barium Chloride, <5%	AB	B	A	A	A	A	A	A	A	A	NR
Barium Hydroxide, to 160 °F	A	AB	AB	A	A	A	A	A	A	A	A
Beer	A	AB	A	A	A	A	A	A	A	A	A
Beet Sugar Liquors	A	A	A	A	A	A	A	A	A	A	A
Benzene	A	A	A	A	A	A	A	A	A	A	A
Bisphenol-A	A	A	-	B	A	NR	A	A	A	A	NR
Bleach-Sodium Hypochlorite, <20%	B	B	B	NR	A	A	A	NR	A	B	NR
Bromine	NR	NR	-	NR	A	NR	NR	NR	A	B	NR
Bunker C Fuel Oil	A	A	-	A	A	-	A	A	NR	A	A
Butane, Liquid	A	A	A	A	A	NR	A	A	A	A	A
Calcium Bisulfate	B	B	-	B	B	A	A	A	A	B	NR
Calcium Chlorate	B	B	-	C	C	A	A	A	A	A	NR
Chlorine Water	B	B	NR	NR	A	NR	A	A	A	A	A
Citric Acid	A	AB	NR	A	A	A	A	A	A	A	NR
Corn Oil	A	A	-	A	A	C	A	A	A	A	A
Cutting Oil	A	A	A	A	A	NR	A	A	A	A	A
De-ionized Water	A	A	-	B	B	A	A	A	A	A	NR
Diesel Fuel	A	A	A	A	A	NR	A	A	A	A	A
Dimethyl Ether, <50%	B	B	-	A	B	B	A	A	A	A	A
Dimethyl Formahyde	A	A	-	B	NR	A	A	A	A	A	A
Esters	A	A	A	NR	A	A	A	A	A	A	A
Ethers, to 70 °F	A	A	A	NR	A	C	A	A	-	A	A
Ethyl Alcohol	A	A	-	C	C	A	A	A	A	A	A
Ethyl Chloride, to 140 °F	A		-	A	A	C	A	A	A	A	NR
Ethyl Mercaptin, to 70 °F	A	B	-	NR	A	-	A	A	A	A	NR
Ethylene Chlorohydrin	AB	AB	-	NR	A	B	NR	-	-	-	-
Ethylene Dichloride	AB	-	-	NR	A	C	A	A	A	A	NR
Ethylene Glycol, to 140 °F	A	A	A	A	A	A	A	A	A	A	A
Ferric Chloride	NR	NR	NR	A	A	A	A	A	A	B	NR
Formic Acid	A	NR	AB-70°F	-	NR	A	A	A	A	B	A
Fruit Juice	A	A	-	A	A	A	A	A		A	A
Furfural	A	A*	A	NR	NR	A	A	A	C	A	NR
Gasoline	A	A	A	A	A	NR	A	A	A	A	NR

The above chart is a guide to the materials used to fabricate the internal "wetted" components in the centrifugal pumps manufactured by Ampco Pumps. The information in this chart is based upon careful examination of available published information and is believed to be accurate. However, since the resistance of metals, polymers, and elastomers can be affected by concentration, temperature, and other factors, this information should be considered as a general guide rather than an unqualified guarantee. The end user of the pump must ultimately decide the suitability of the pump materials with their own system.

Compatibilities Rating

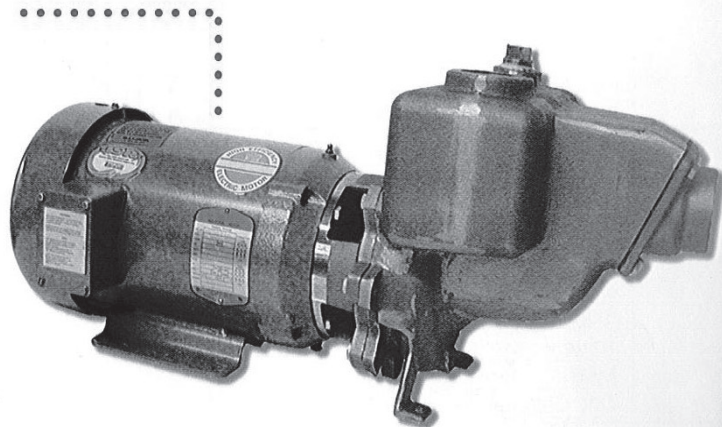
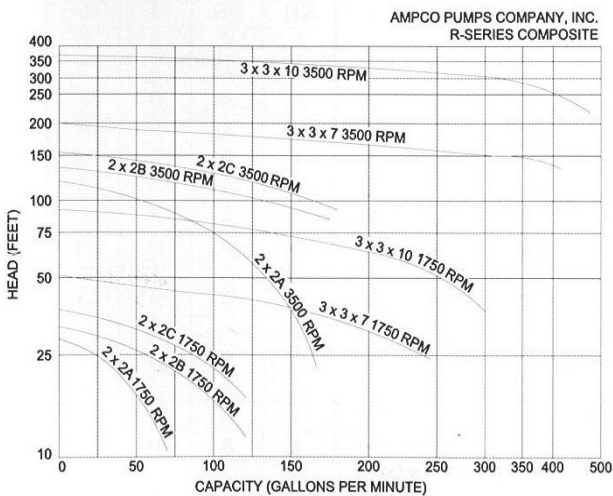
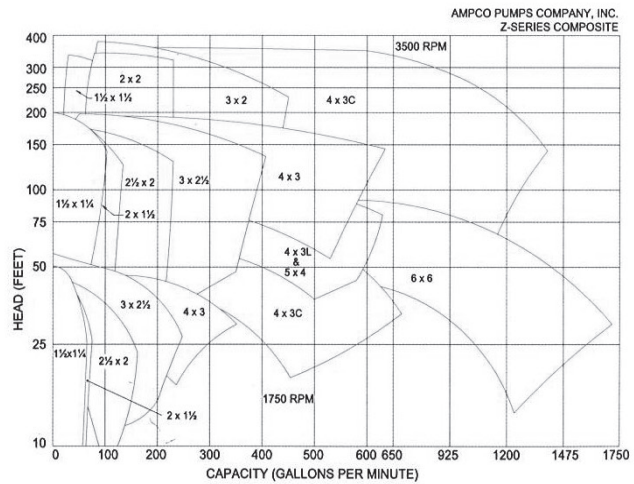
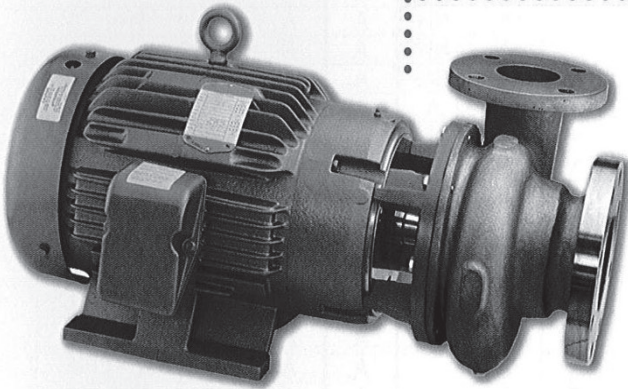
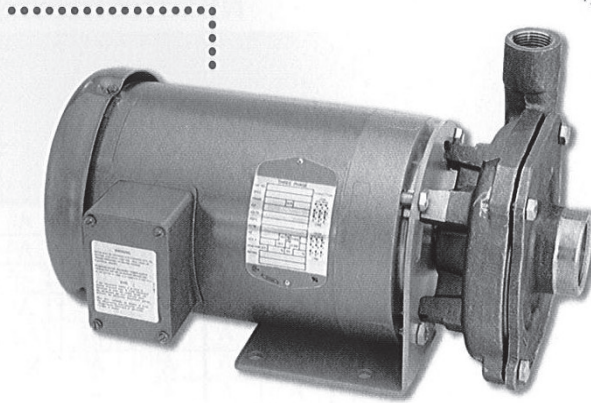
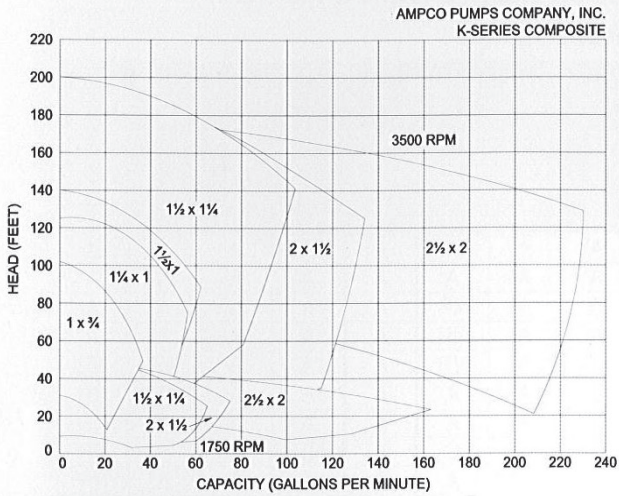
**A – Excellent B- Good C – Fair/Component life will be limited
NR – Not Recommended**



Fluid Media	Metals			Elastomers				Seal Faces			
	Duplex 2205	Cast CF8M S.S.	Bronze CDA958	Buna-N	Viton	EPDM	Teflon	Carbon	Ceramic	Silicon Carbide	Tungsten Carbide
Glucose	A	A	A	A	A	A	A	A	A	A	A
Glycerine	A	A	A	A	A	A	A	A	A	A	A
Hexane	A	A	-	A	A	NR	A	A	A	A	A
Hydraulic Oil	A	A	A	A	A	NR	A	A	A	A	A
Hydrochloric Acid, <15%	NR	NR	AB	NR	A	NR	A	A	A	NR	NR
Hydrocyanic Acid, <15%	A	A	NR	B	A	A	A	A	A	B	NR
Hydrogen Peroxide, <30%	A	A	NR	B	A	A	A	A	A	A	NR
Hydrogen Peroxide, <85%	A	AB	NR	NR	A	C	A	NR	A	A	NR
Iodine	B	B	NR	B	B	A	A	A	A	A	NR
Isobutane	A	A	A*	A	A	NR	A	A	A	A	A
Isobutyl Alcohol	A	A	-	B	A	A	A	A	A	A	A
Isopropyl Acetate	A	A	-	NR	NR	B	A	A	A	A	A
Isopropyl Ether	A	A	-	B	NR	NR	A	A	A	A	A
Jet Fuel	A	A	-	B	A	NR	A	A	A	A	A
Kerosene	A	A	-	A	A	NR	A	A	A	A	A
Ketones	A	A	B	NR	NR	A	A	A	A	A	A
Lacquer Thinner	A	A	A	NR	NR	NR	A	A	A	A	A
Linseed Oil	A	A	-	A	A	C	A	A	A	A	A
Liquid Petroleum Gas	A	A	A	A	A	NR	A	A	A	A	A
Magnesium Chloride, <33% to 70 °F	A	A	A	A	A	A	A	A	A	A	A
Magnesium Hydroxide, <10%	AB	AB	A	B	A	A	A	A	A	A	A
Magnesium Sulfate, <40%	A	B	A	A	A	A	A	A	A	A	A
Methanol	A	A	-	NR	NR	A	A	A	A	A	A
Methyl Ethyl Ketone (MEK)	A	A	-	NR	NR	A	A	A	A	A	A
Molasses	A	A	A	A	A	-	A	A	A	A	A
Naptha, Petroleum	A	A	A	B	A	NR	A	A	NR	A	A
Nitric Acid, <50%	A	A	NR	NR	A	B	A	A	A	NR	A
Nitric Acid, >50%	-	B	NR	NR	C	NR	A	NR	NR	A	NR
Oleic Acid	A	A	A*	C	B	NR	A	A	A	A	NR
Ozone, <12%	A	A	-	NR	A	A	A	NR	NR	A	NR
Palm Oil	A	A	-	A	A	NR	A	A	A	A	A
Palmitic Acid	A	B	B	A	A	B	A	A	A	A	A
Potassium Chloride	A	B	A	A	A	A	A	A	A	B	NR
Potassium Hydroxide	A	B	AB	C	C	A	A	NR	A	B	A
Potassium Nitrate	A	-	B	A	A	A	A	A	A	A	A
Propane	A	A	A	A	A	NR	A	A	A	A	A
Propylene Glycol	A	A	-	C	C	A	A	A	A	A	A
Rapeseed Oil	A	A	-	B	A	A	A	A	A	A	A
Sea Water	A	B	A	A	A	A	A	A	A	A	A
Sodium Chloride	A	AB	A	A	A	A	A	NR	A	A	NR
Sodium Hydroxide, <50%	A	AB	A	B	B	A	A	A	-	NR	NR
Sulphuric Acid, <2%	A	B	A	C	C	A	A	A	A	NR	NR
Toluene	A	A	A	NR	A	NR	A	A	A	A	A
Xylene	A	B	A	NR	A	NR	A	A	A	A	A
Zinc Chloride	A	B	NR	A	A	A	A	A	A	B	NR

The above chart is a guide to the materials used to fabricate the internal "wetted" components in the centrifugal pumps manufactured by Ampco Pumps. The information in this chart is based upon careful examination of available published information and is believed to be accurate. However, since the resistance of metals, polymers, and elastomers can be affected by concentration, temperature, and other factors, this information should be considered as a general guide rather than an unqualified guarantee. The end user of the pump must ultimately decide the suitability of the pump materials with their own system.

Universal Curves



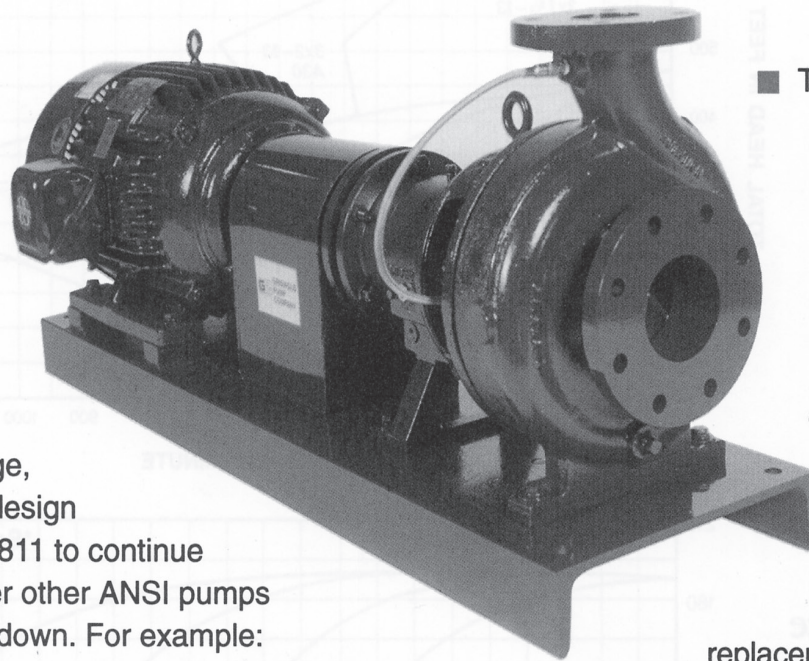
John Wooden

Success is peace of mind which is a direct result of self-satisfaction in knowing you made the effort to become the best of which you are capable.

GRISWOLD 811 ANSI Centrifugal Pumps ...

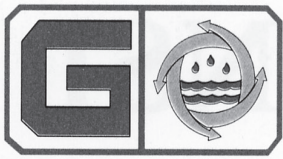
GRISWOLD's Model 811 meets or exceeds all ANSI standards for the chemical processing industry. The fully open impeller, centerline discharge, and other unique design features allow the 811 to continue operating long after other ANSI pumps wear out or break down. For example:

- A choice of extra-heavy-duty, **stocked, Ductile Iron, Stainless Steel, Alloy 20 and CD4M** pump materials coupled with multiple seal design options allows you to tailor the 811 to virtually any process flow application.
- The fully-open impeller design features large wear areas and back pump-out vanes, making the 811 far superior in handling corrosive and erosive fluids. Open impellers balance hydraulic axial thrust loads, lengthen bearing life, and reduce stuffing box pressure too.



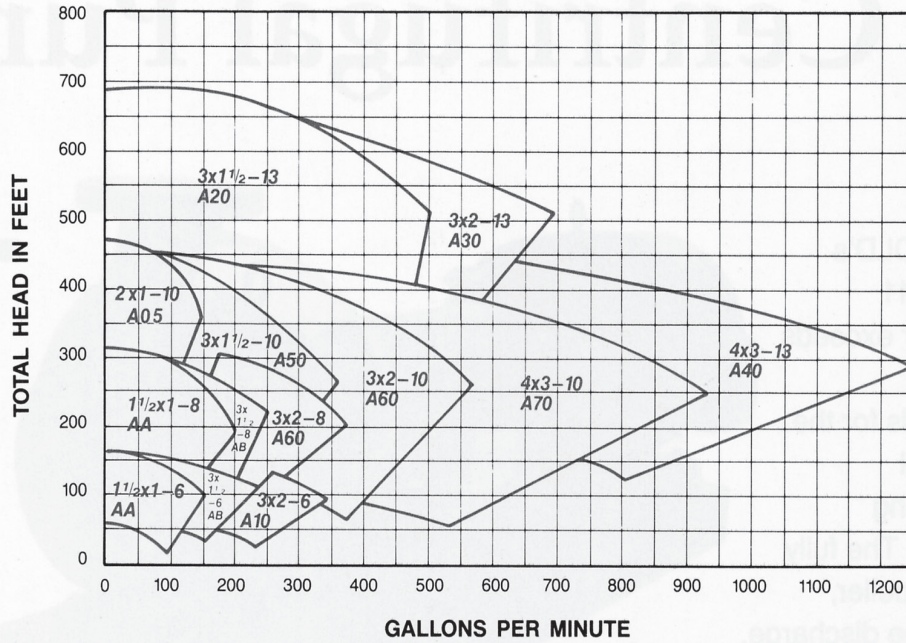
- The self-tightening impeller with O-ring seal eliminates part corrosion, gasket leakage, and all chance of loosening in high temperature environments.
- Replaceable shaft sleeve and adapters allow easy replacement of sealing surface without shaft and bearing disassembly, without bearing contamination.
- Any external clearance adjustments due to wear can easily be made on-site with an ordinary open-end wrench. No shimming is required.
- **Interchangeable components** simplify installation and on-site replacement, reduce the need for spare parts stocking.
- And best of all, the Model 811 is available in a wide range of sizes and capacities to fit virtually any process fluid application.

... Standard 811's can be **shipped within 36 hours** ... that's our "36-Hour Commitment" to you!

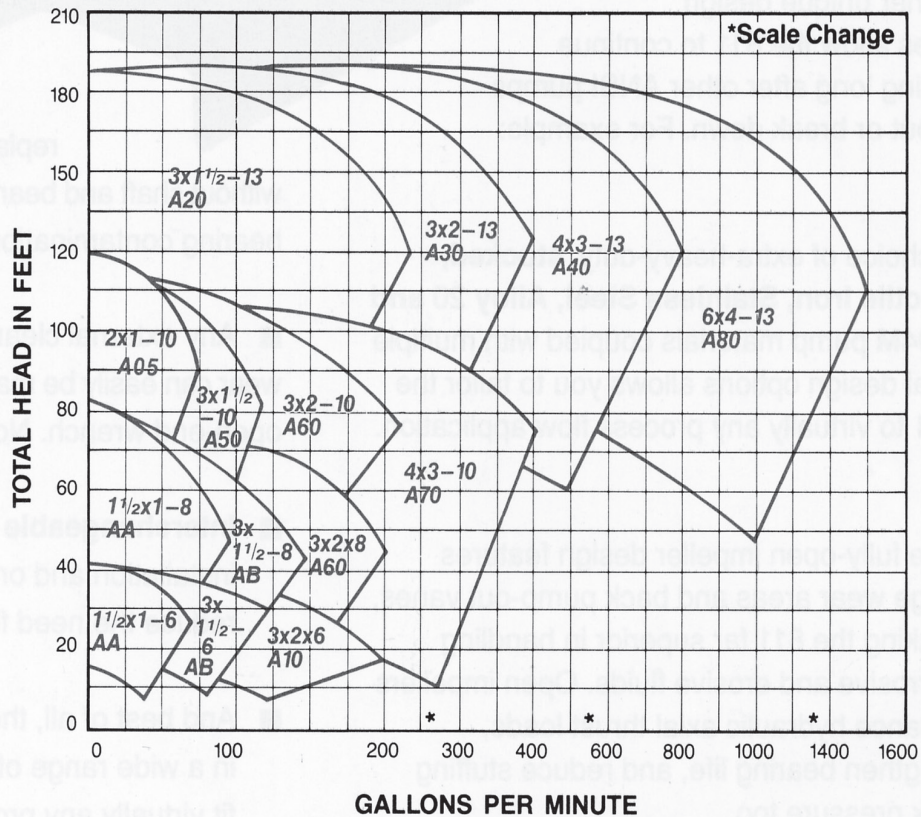


GRISWOLD PUMP COMPANY

3550 RPM Performance Curve



1750 RPM Performance Curve



FAMILIAR PHRASES

BET YOUR BOTTOM DOLLAR

Meaning: It's a sure thing; to bet everything you have.

Origin: just as they do today, 19th-century poker players would keep their betting chips-or "dollars"-in high stacks at the table, taking from the top when betting. When a hand was so good that a player wanted to wager the entire stack, they would pick up or push the stack by the bottom chip-literally betting with their bottom dollar.

Griswold H Series, High Head, Self-Priming Pump

Griswold's High Pressure H Series pumps offer performances previously unavailable.

Ideally suited for applications where relatively clean water is needed at higher pressures.

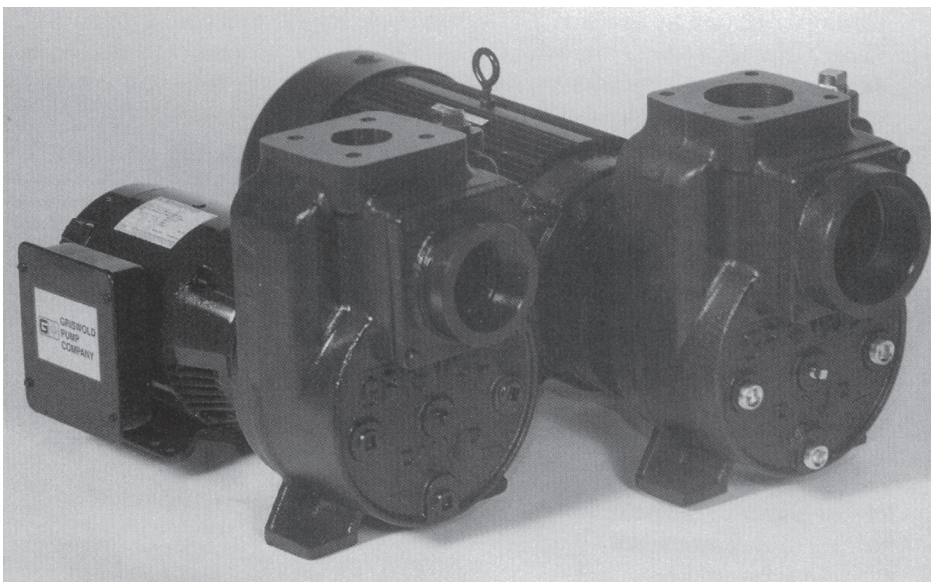
**Pressures up to 110 PSI
(260 Feet)
and flows to 325 GPM...
fire protection, marine,
forestry, irrigation, in-
dustrial and commercial
applications.**

The H Series pumps are designed specifically to lift water (up to a maximum of 25 feet). Unlike standard

end suction centrifugal pumps the Griswold H Series is a true self-priming pump. Able to maintain it's prime even when check valves or foot valves have failed. The suction line being located higher on the pump housing than conventional centrifugal pumps keeps the impeller and mechanical seal covered with water at all times eliminating the need to re-prime the pump and protects the seal from running dry and costly replacements.

The H Series pumps are available in two versions. The HL pumps are designed for higher pressures at lower flows with lower horsepowers. The HH pumps are designed for higher flows at higher pressures requiring higher horsepowers.

Both the HL and the HH pumps are available in your choice of drivers. Close-coupled electric motors, long-coupled frame mounted, or close-coupled engine driven with your choice of gas, diesel or LP fueled air cooled engines. Close-coupled, electric driven pumps are available with ODP or TEFC, JM frame motors.



Pressures up to 110 PSI (260 Feet) and flows to 325 GPM...

Griswold H Series, High Head, Self-Priming Pump

PUMP FEATURES

Casing - Heavy duty cast iron ASTM A48 class 30 case with built-in drain and priming plugs and bolt-on suction flange. The HL and HH also have (3) 3/4" NPT plugged connections on the case for accessories to be installed or auxiliary water outlets. Extra-large priming chamber for fast, trouble-free priming. The HL and HH series offers dual connections. Both pumps can be connected by either NPT threads or ANSI flanges on the discharge and NPT threads or Victaulic® groove connections on the suction.

Suction Flanges - Bolt-on suction flange available in a variety of sizes to accommodate your specific flow and horsepower requirements. The 3" flange is machined for both 3" NPTF threads and 3" Victaulic groove connection. The 4" flange is machined for 4" NPTF threads.

The suction line being located higher on the pump housing than conventional centrifugal pumps keeps the impeller and mechanical seal covered with water at all times eliminating the need to reprime the pump and protects the seal from running dry and costly replacements.

Built-In Check Valve - Prevents siphoning and need for repriming. No external check valve is required. Designed for easy replacement.

Discharge - dual connections. Both pumps can be connected by *either* NPT threads or ANSI flanges.

JM Frame Motors
All Brands, All Phases & Voltages
60 or 50 Cycle ODP,
TEFC Explosion
Proof Chew Duty
IEEE45 Marine Duty
Inverter Duty
OR
Frame Mounted
OR
Engine Driven
Gas, Diesel or LP

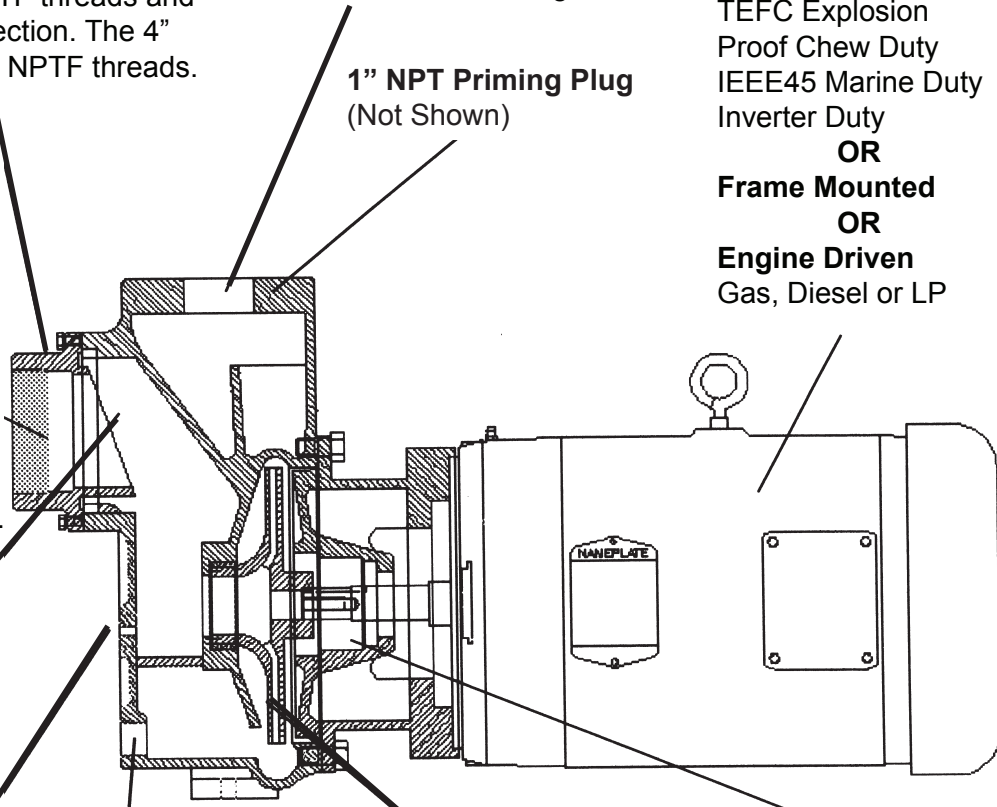
1" NPT Priming Plug
(Not Shown)

(3) 3/4" NPT
Accessory Tappings
(Pressure)

Enclosed Impeller - Bronze. single piece design, balanced and trimmed for a specific operating range.

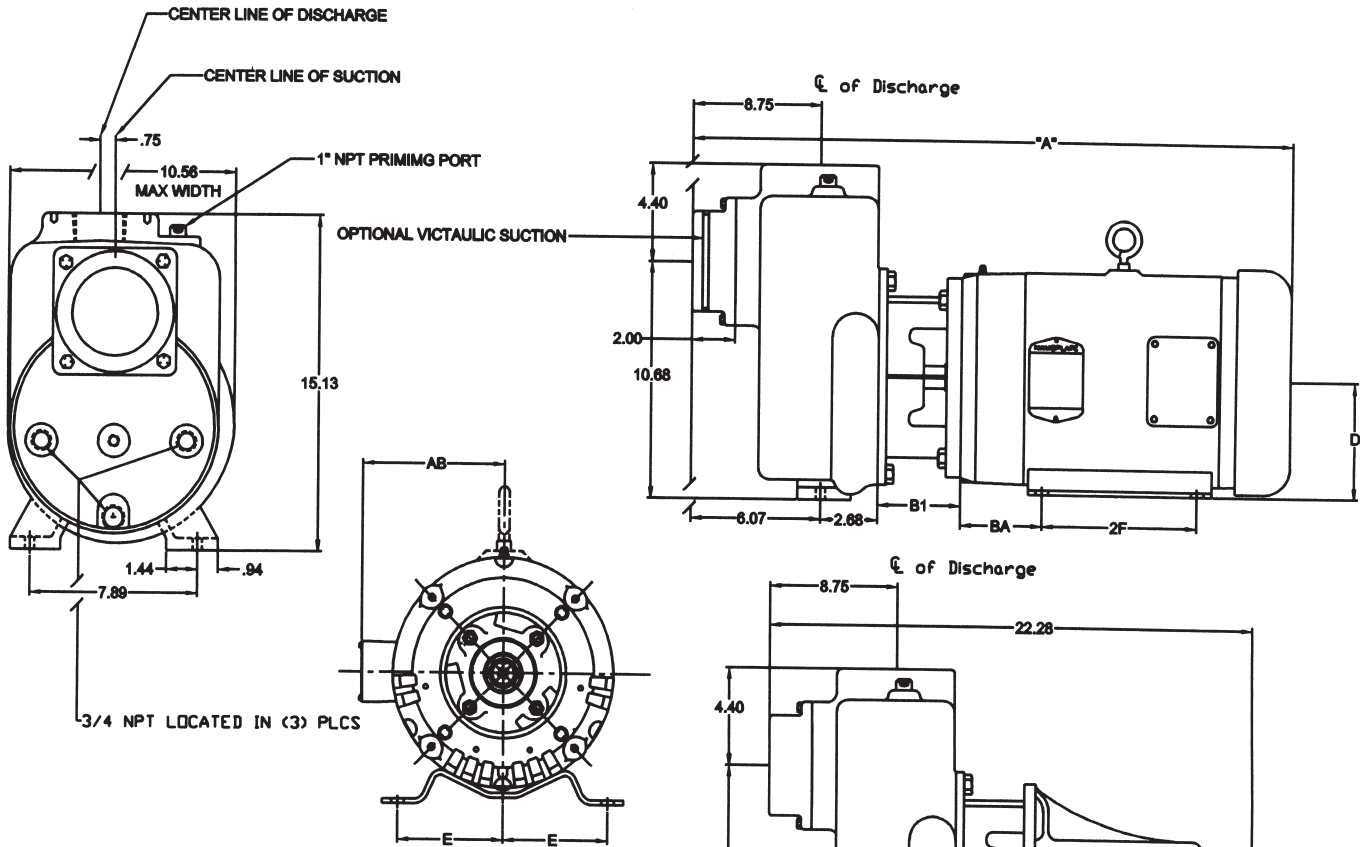
Choice of Seals - Carbon and ceramic faces, plus stainless steel components eliminate maintenance problems. Other seal options are available.

1/4" NPT
Tapping (Vacuum)



Griswold H Series, High Head, Self-Priming Pump

Dimensions



Note:
Discharge is flanged & threaded.

Pump Size	Suction	Disch.
HL	3" NPT	2" NPT / 2" 125# FLG
HH	4" NPT	3" NPT / 3" 125# FLG

Single Phase DripProof								
	Frame	A	AB	B1	BA	2F	D	E
3HP	182JM	21.025	8.08	2.875	2.75	4.5	4.5	3.75
5HP	184JM	23.535	8.08	2.875	2.75	4.5	4.5	3.75
7.5HP	213JM	25.655	9.31	2.875	3.5	5.5	5.25	4.25
10HP	215JM	27.155	9.31	2.875	3.5	7	5.25	4.25
Three Phase DripProof								
3HP	145JM	21.025	7.04	2.875	2.25	5	3.5	2.75
5HP	182JM	22.965	8.08	2.875	2.75	4.5	4.5	3.75
7.5HP	184JM	23.535	8.08	2.875	2.75	4.5	4.5	3.75
10HP	213JM	25.655	9.31	2.875	3.5	5.5	5.25	4.25
15HP	215JM	27.155	9.31	2.875	3.5	7	5.25	4.25
20HP	254JM	29.515	10.96	3.625	4.25	8.25	7	5
Three Phase TEFC								
5HP	184JM	30.80	8.08	2.875	2.75	5.5	4.5	3.75
7.5HP	184JM	30.80	8.08	2.875	2.75	4.5	4.5	3.75
10HP	215JM	35.21	9.31	2.875	3.5	7	5.25	4.25
15HP	215JM	35.21	9.31	2.875	3.5	7	5.25	4.25
20HP	256JM	41.93	10.96	3.625	4.25	10	7	5

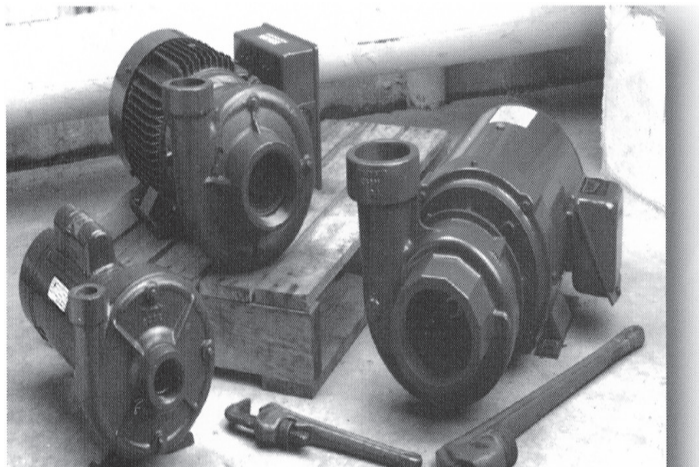
FAMILIAR PHRASES

TO FIGHT FIRE WITH FIRE

Meaning: To respond in like manner; a desperate measure. Origin: In order to extinguish huge prairie and forest fires in the early West, desperate American settlers would sometimes set fire to a strip of land in the path of the advancing fire and then extinguish it, leaving a barren strip with nothing for the approaching fire to feed on. Although effective, this tactic was-and still is extremely dangerous, as the backfire itself can get out of control.

D Series

End Suction Centrifugal Pumps



End Suction Centrifugal Pumps.
 For general industrial use, transfer, circulation or booster service. Available in ratings from 1/3HP to 50HP with capacities through 650GPM and heads to 300 feet.

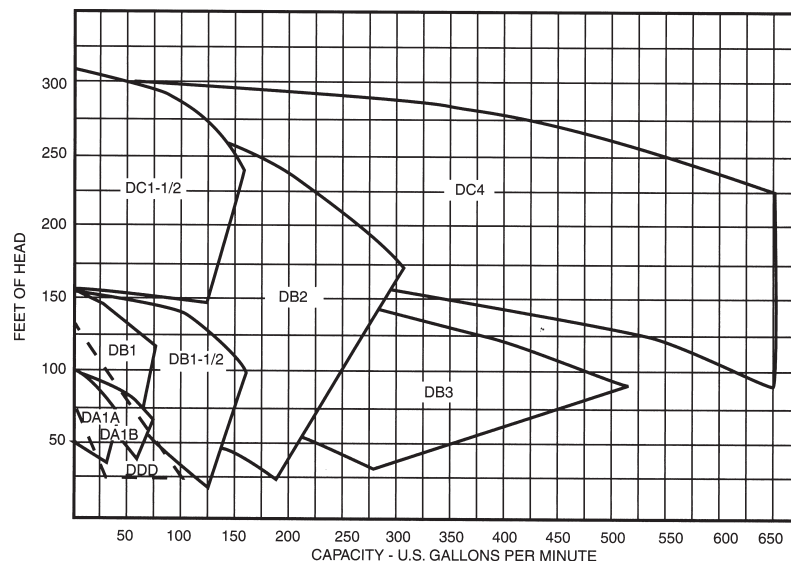
Features:

- Heavy-duty cast iron construction** for increased durability.
- DDD has glass-filled thermoplastic impeller** for increased efficiency & dependable high temperature operation.
- DA1A through DC2 bronze fitted, DB3 and DC4 cast iron fitted.**
- Shaft coupling** design on 56C frame units 1/3-3HP for easy removal of pump motor.
- Shaft sleeve** with O-ring design in JM frame units 3-50HP give added protection against shaft damage.
- Maximum operating temperature** of 212½F on all models except DDD series which handles up to 190½F.
- Sealed motor bearings** on all motors to carry radial and thrust loads of pump end.
- All units are equipped with open drip-proof motors.**
- Max operating pressures 150 PSI.**

D Series

End Suction Centrifugal Pumps Performance

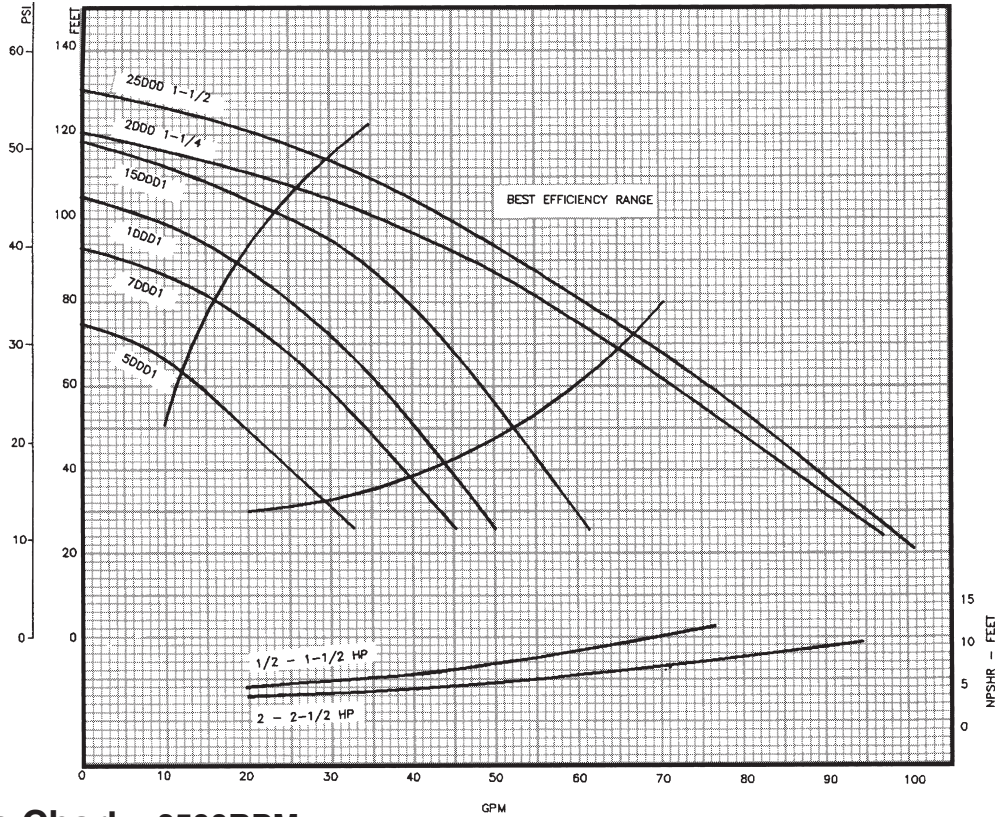
Consult individual curves for complete pump performance.



JACUZZI®

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DDD Series End Suction Centrifugal Pump Performance



Performance Chart - 3500RPM

DDD		Discharge x Suction	CAPACITIES GPM											Shut Off Head (Feet)
Model	HP		Total Head in Feet											
			30	35	40	45	50	60	70	80	90	100	110	
5DDD1	1/2	1" x 1-1/4"	30	27	25	22	19	14	-	-	-	-	-	74
7DDD1	3/4	1" x 1-1/4"		41	38	36	34	29	23	16	-	-	-	93
1DDD1	1	1" x 1-1/4"				42	40	36	31	25	18	-	-	105
15DDD1	1-1/2	1 x 1-1/4"					52	47	44	39	34	25	-	118
2DDD1-1/4	2	1-1/4" x							64	56	47	36	23	121
25DDD1-1/2	2-1/2	1-1/2"							68	61	53	45	35	131

1-1/2" x 2"

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION

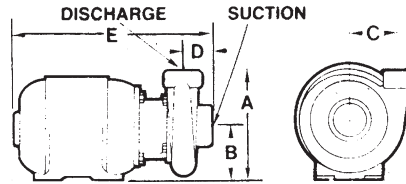
Order No.	Model No.	HP	Mtr. Phase	Voltage	Svc.	Amps	Weight
9312-6928	5DDD1-S	1/2	1	115/230	Fact. 1.6	12.0/6.0	27
9312-6936	7DDD1-S	3/4	1	115/230	1.27	14.2/7.1	31
9312-6944	1DDD1-S	1	1	115/230	1.25	14.8/7.4	33
9312-6951	15DDD1-S	1-1/2	1	115/230	1.10	16.4/8.2	38
9312-6969	2DDD1-1/4-S	2	1	115/230	1.10	23.0/11.5	48
9312-6977	25DDD1-1/2-S	2-1/2	1	115/230	1.0	26.0/13.0	46
9312-7991	5DDD1-T	1/2	3	208/230/460	1.9	3.1-3.0/1.5	27
9312-8007	7DDD1-T	3/4	3	208/230/460	1.65	3.7-3.6/1.8	31
9312-8015	1DDD1-T	1	3	208/230/460	1.65	5.0-4.6/2.3	33
9312-8023	15DDD1-T	1-1/2	3	208/230/460	1.50	6.5-6.0/3.0	38
9312-8031	2DDD1-1/4-T	2-1/2	3	208/230/460	1.30	7.3-7.8/3.9	48



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D Series

End Suction Centrifugal Pump Dimensions



56Z Frame Motors

Pump Model	HP	Disc. (NPT)	Suct. (NPT)	A	B	C	D	E	F	G	H	K
5DDD1-S	1/2	1	1-1/4	14-11/16"	2-3/8"	5-5/16"	4-7/16"	3-1/2"	4-5/8"	8-3/4"	5-1/2"	11-7/16"
7DDD1-S	3/4	1	1-1/4	14-11/16"	2-3/8"	5-5/16"	4-7/16"	3-1/2"	4-5/8"	8-3/4"	5-1/2"	12-7/16"
1DDD1-S	1	1	1-1/4	14-11/16"	2-3/8"	5-5/16"	4-7/16"	3-1/2"	4-5/8"	8-3/4"	5-1/2"	12-7/16"
15DDD1-S	1-1/2	1	1-1/4	15-13/16"	2-3/8"	5-5/16"	4-7/16"	3-1/2"	4-5/8"	8-3/4"	5-1/2"	12-3/16"
2DDD1-1/4-S	2	1-1/4	1-1/2	16-11/16"	2-13/16"	6-1/8"	5"	3-9/16"	5"	9-1/8"	6-5/16"	13-11/16"
25DDD1-1/2-S	2-1/2	1-1/2	2	16-11/16"	2-13/16"	6-1/8"	5"	3-9/16"	5"	9-1/8"	6-5/16"	13-11/16"

56C Frame Motors

Pump Model	Disch. (NPT)	Suction (NPT)	A	B	C	D	56 Frame Motor Horsepower						
							1/3	1/2	3/4	1	1 1/2	2	3
DA1A	1	1-1/4	7-1/4	3-3/4	3-1/2	1-3/4	13-1/2	14-1/2	14-1/2	15	--	--	--
DA1B	1	1-1/4	7-1/4	3-3/4	3-1/2	1-3/4	--	14-1/2	14-1/2	15	15	16	--
DB1	1	1-1/2	9	5	3-3/4	2-1/4	--	--	15-1/4	15-3/4	15-3/4	16-1/2	17
DB1-1/2	1-1/2	2	9-1/2	5	4	2-1/2	--	--	--	15-3/4	15-3/4	16-1/2	17
DB2	2	3	9-3/4	5	4-1/4	3-3/4	--	--	--	--	17-1/4	18	18-1/2

JM Frame Motors

Pump Model	Disch. (NPT)	Suction (NPT)	A	B	C	D	JM Frame Motor Horsepower					
							3	5	7 1/2	10	15	20
DB1	1	1-1/2	9	5	3-3/4	2-1/4	--	18	--	--	--	--
DB1-1/2	1-1/2	2	9-1/2	5	4	2-1/2	--	18-1/4	19-1/2	--	--	--
DB2	2	3	9-3/4	5	4-1/4	3-3/4	--	19-3/4	21	21	--	--
DB3	3	4	11-5/8-13-3/8	4-1/2-6-1/4	4-1/8	3-1/2	--	20-1/4	21-1/2	21-1/2	23	26-1/2
DC1-1/2	1-1/2	2	9-11	3-1/2-5-1/4	5-3/4	2-1/2	17-1/4	18-1/4	19-1/2	19-1/2	21	--
DC2	2	3	9-3/4-12-1/2	3-1/2-6-1/4	4-3/4	3-3/4	18-3/4	19-3/4	21	21	22-1/2	26

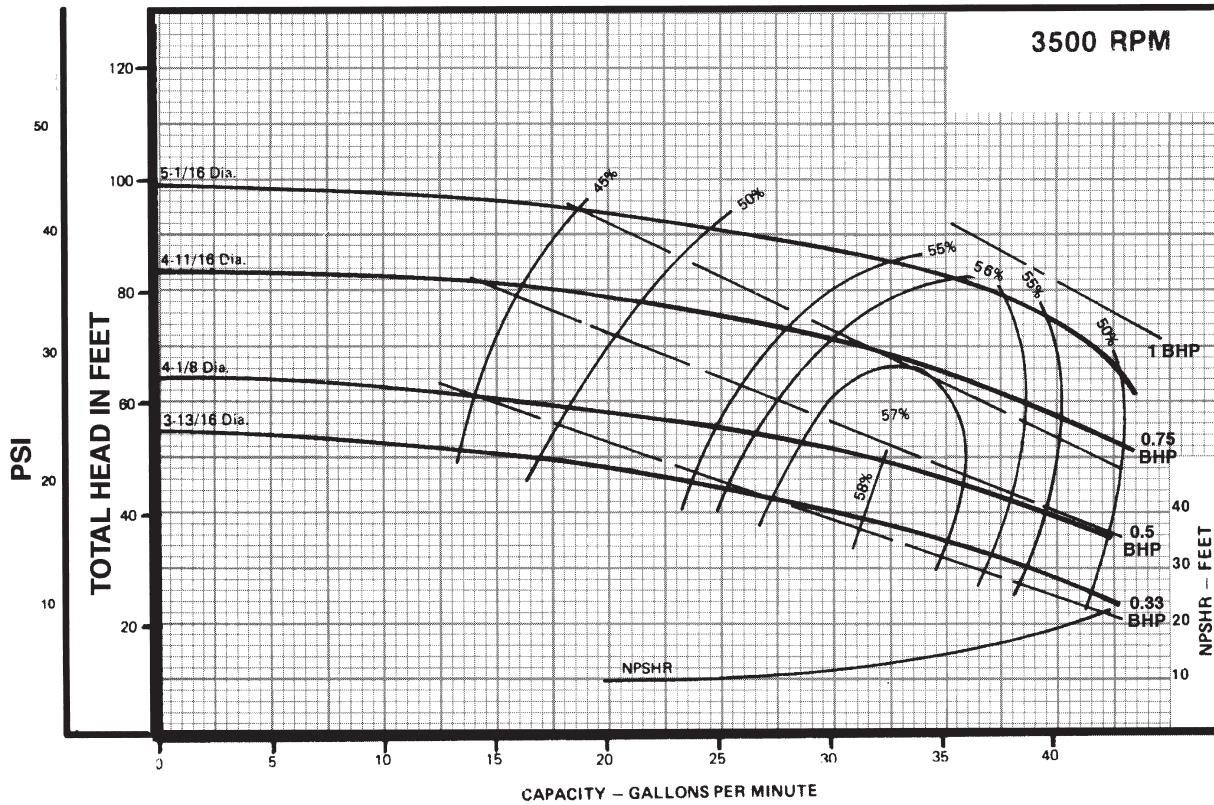
JM Frame Motors

Pump Model	Disch. (NPT)	Suction (NPT)	A	B	C	D	JM Frame Motor Horsepower				
							20	25	30	40	50
DC4 - FNPT	4	4	16-1/2	7-5/8	6-29/64	4-23/32	28-21/32	28-21/32	29-17/32	30	30
DC4 - flanged	4	5	16-1/2	7-5/8	6-29/64	3-13/16	28-21/32	28-21/32	29-17/32	30	30

Notes: 1) Total pump length will vary with motor manufacturer.

Model DA1A Performance

1" Discharge x 1-1/4" Suction



Performance Chart - 3500RPM

DA1A 1" Discharge x 1-1/4" Suction			CAPACITIES GPM									Shut Off Head (Feet)
			Total Head in Feet									
Model	HP	Imp. Dia.	30	35	40	45	50	60	70	80	90	
3DA1A	1/3	3-13/16	38	35	30	24	18					55
5DA1A	1/2	4-1/8			40	36	32	17				65
7DA1A	3/4	4-11/16					44	38	32	18		84
1DA1A	1	5-1/16							43	37	26	100

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION - DA1A

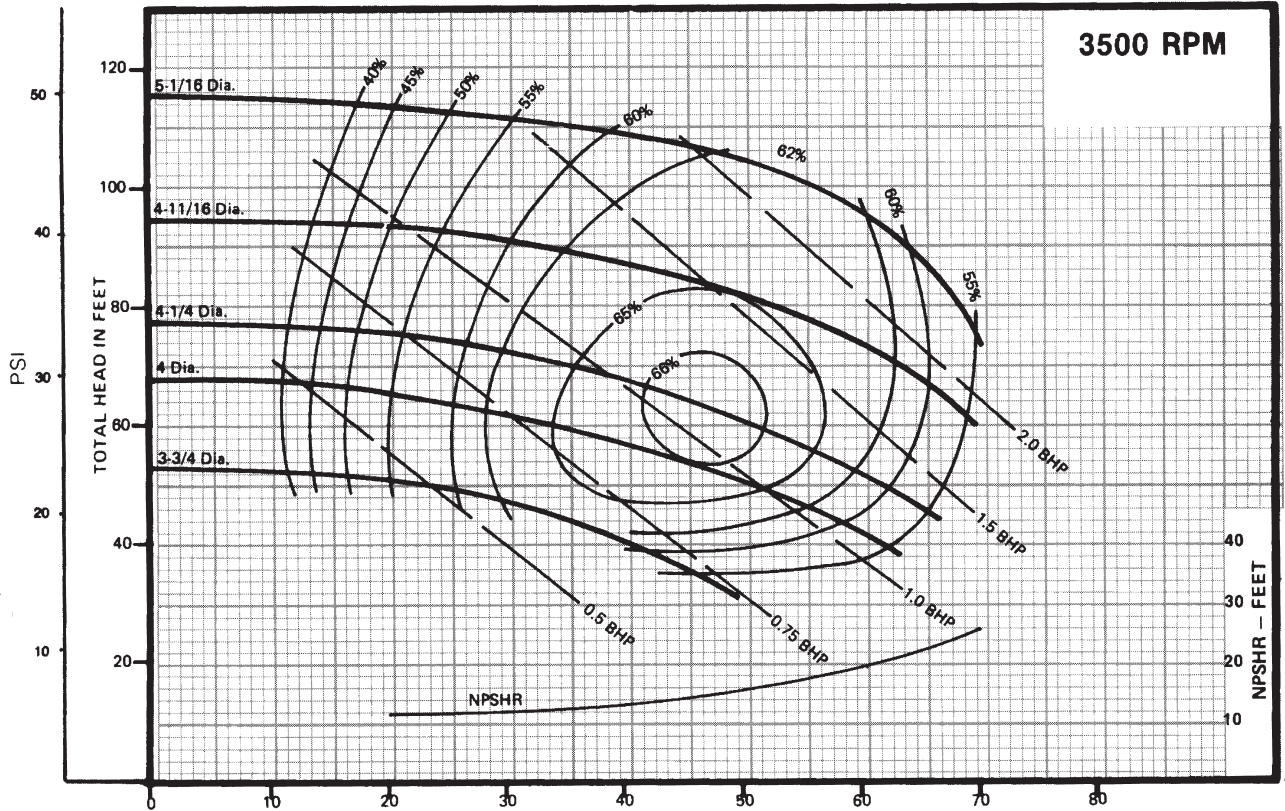
Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-0012	3DA1A-S	1/3	1	115/230	9.0/4.5	1.75	32
9312-0020	5DA1A-S	1/2	1	115/230	10.6/5.3	1.60	35
9312-0038	7DA1A-S	3/4	1	115/230	14.8/7.4	1.50	36
9312-0046	1DA1A-S	1	1	115/230	17.0/8.5	1.50	37
9312-0053	3DA1A-T	1/3	3	208-230/460	2.2-2.2/1.1	1.75	31
9312-0061	5DA1A-T	1/2	3	208-230/460	2.9-2.7/1.35	1.60	34
9312-0079	7DA1A-T	3/4	3	208-230/460	3.7-3.4/1.7	1.50	37
9312-0087	1DA1A-T	1	3	208-230/460	4.7-4.4/2.2	1.40	38



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Model DA1B

1" Discharge x 1-1/4" Suction



Performance Chart - 3500RPM

DA1B 1" Discharge x 1-1/4" Suction			CAPACITIES GPM										Shut Off Head (Feet)	
			Total Head in Feet											
Model	HP	Imp. Dia.	30	35	40	45	50	60	70	80	90	100	110	
5DA1B	1/2	3-3/4"	50	46	40	34	23							53
7DA1B	3/4	4"			62	57	51	35						68
1DA1B	1	4-1/4"					62	51	35					78
15DA1B	1-1/2	4-11/16"						70	63	53	33			95
2DA1B	2	5-1/16"								69	64	56	38	116

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION - DA1B

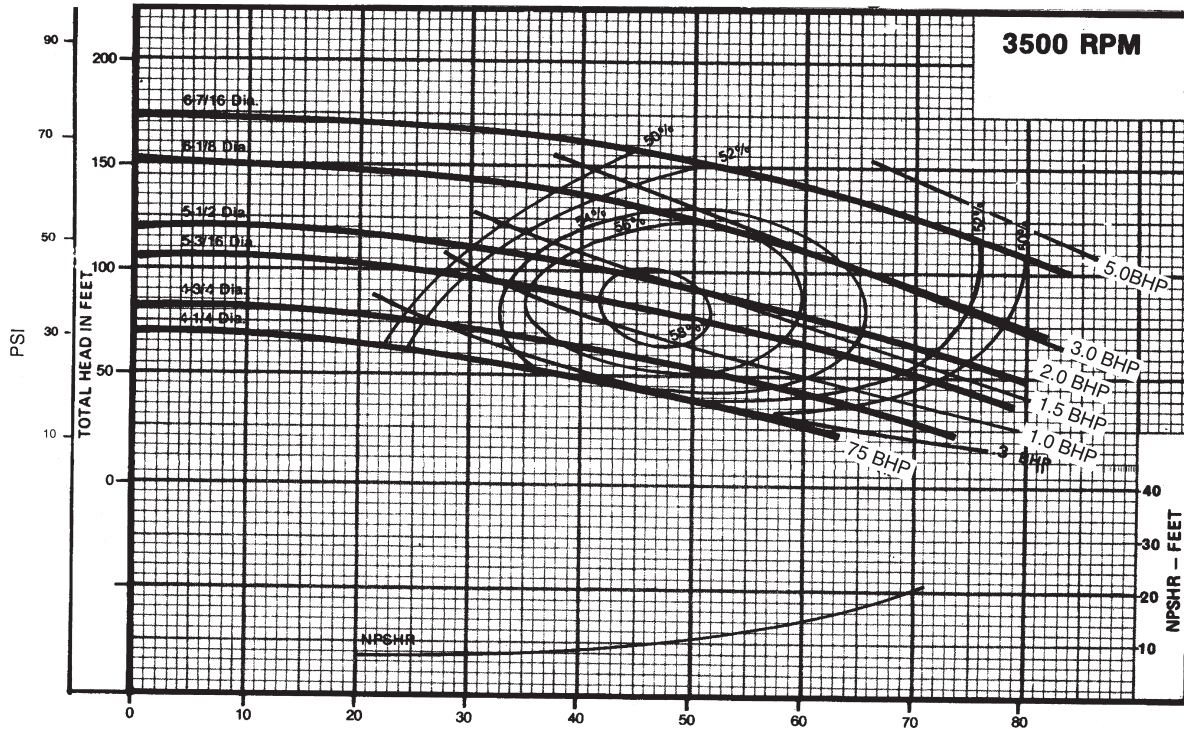
Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-0152	1DA1B-S	1	1	115/230	17.0/8.5	1.50	40
9312-0160	15DA1B-S	1-1/2	1	115/230	19.8/9.9	1.33	46
9312-0178	2DA1B-S	2	1	115/230	22.6/11.3	1.25	49
9312-0202	1DA1B-T	1	3	208/230/460	4.7/4.4/2.2	1.50	35
9312-0210	15DA1B-T	1-1/2	3	208/230/460	6.5/5.7/2.9	1.30	45
9312-0228	2DA1B-T	2	3	208/230/460	7.2/6.5/3.2	1.20	48



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Model DB1

1" Discharge x 1-1/2" Suction



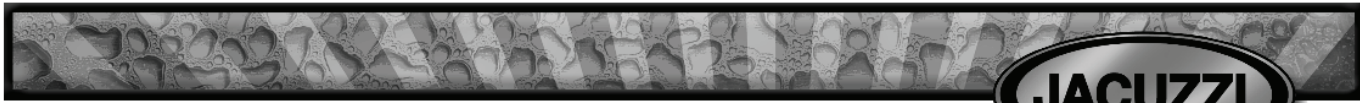
Performance Chart - 3500RPM

DB1 1" Discharge x 1-1/2" Suction			CAPACITIES GPM														Shut Off Head (Feet)			
			Total Head in Feet																	
Model	HP	Imp. Dia.	25	30	35	40	45	50	60	70	80	90	100	110	120	130	140	150	160	
7DB1	3/4	4-1/4"	61	58	54	49	46	41	29											72
1DB1	1	4-3/4"			67	63	59	56	46	36	20									84
15DB1	1-1/2	5-3/16"						72	65	58	50	39	28							109
2DB1	2	5-1/2"							74	68	61	53	45	33						122
3DB1	3	6-1/8"									78	73	67	61	54	46	37			151
5DB1	5	6-7/16"												80	74	68	62	53	42	174

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION - DB1

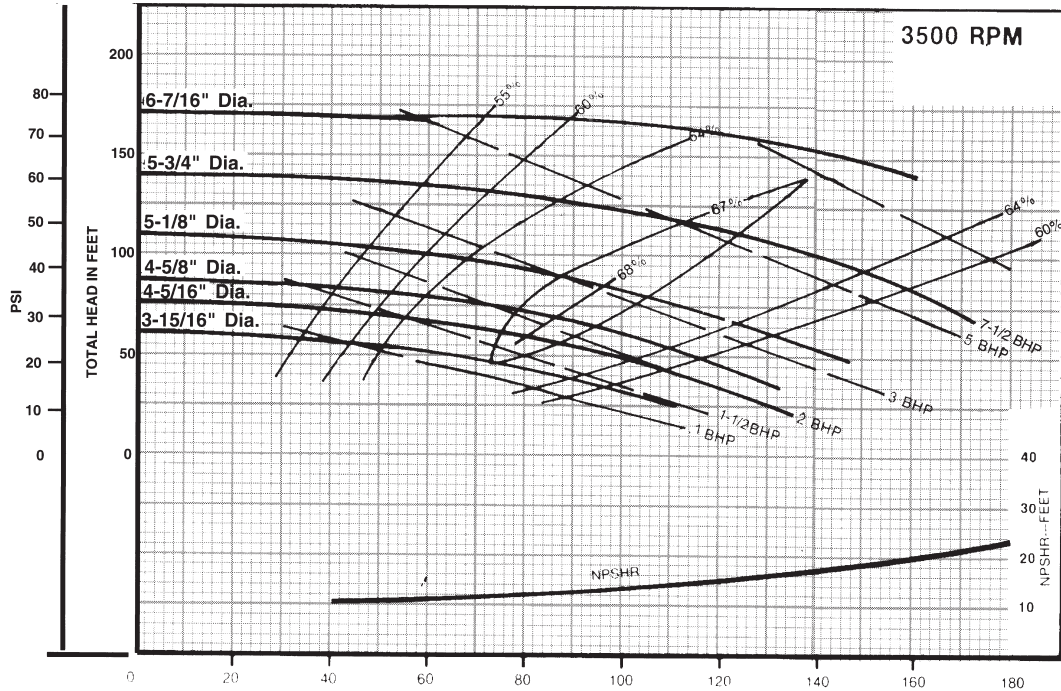
Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-0285	7DB1-S	3/4	1	115/230	14.8/7.4	1.50	42
9312-0293	1DB1-S	1	1	115/230	17.0/8.5	1.50	45
9312-0301	15DB1-S	1-1/2	1	115/230	19.8/9.9	1.33	55
9312-0319	2DB1-S	2	1	115/230	22.6/11.3	1.25	53
9312-0327	3DB1-S	3	1	230	14.4	1.15	74
9312-0335	5DB1-S	5	1	230	26	1.15	122
9312-0376	2DB1-T	2	3	208/230/460	7.2/6.5/3.2	1.25	54
9312-0384	3DB1-T	3	3	230/460	5.0/2.5	1.15	64
9312-0392	5DB1-T	5	3	230/460	13.4/5.7	1.15	82



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Model DB1-1/2

1-1/2" Discharge x 2" Suction



Performance Chart - 3500RPM

DB1-1/2 1-1/2" Discharge x 2" Suction			CAPACITIES GPM														Shut Off Head (Feet)			
			Total Head in Feet																	
Model	HP	Imp. Dia.	25	30	35	40	45	50	60	70	80	90	100	110	120	130	140	150	160	
1DB1-1/2	1	3-15/16"	125	105	95	86	75	63												60
15DB1-1/2	1-1/2	4-5/16"		123	118	112	106	95	78	50										75
2DB1-1/2	2	4-5/8"			130	126	120	115	100	82	52									87
3DB1-1/2	3	5-1/8"						144	132	118	103	88	62							110
5DB1-1/2	5	5-3/4"									163	153	141	126	107	78				140
75DB1-1/2	7-1/2	6-7/16"														170	165	135	130	170

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION - DB1-1/2

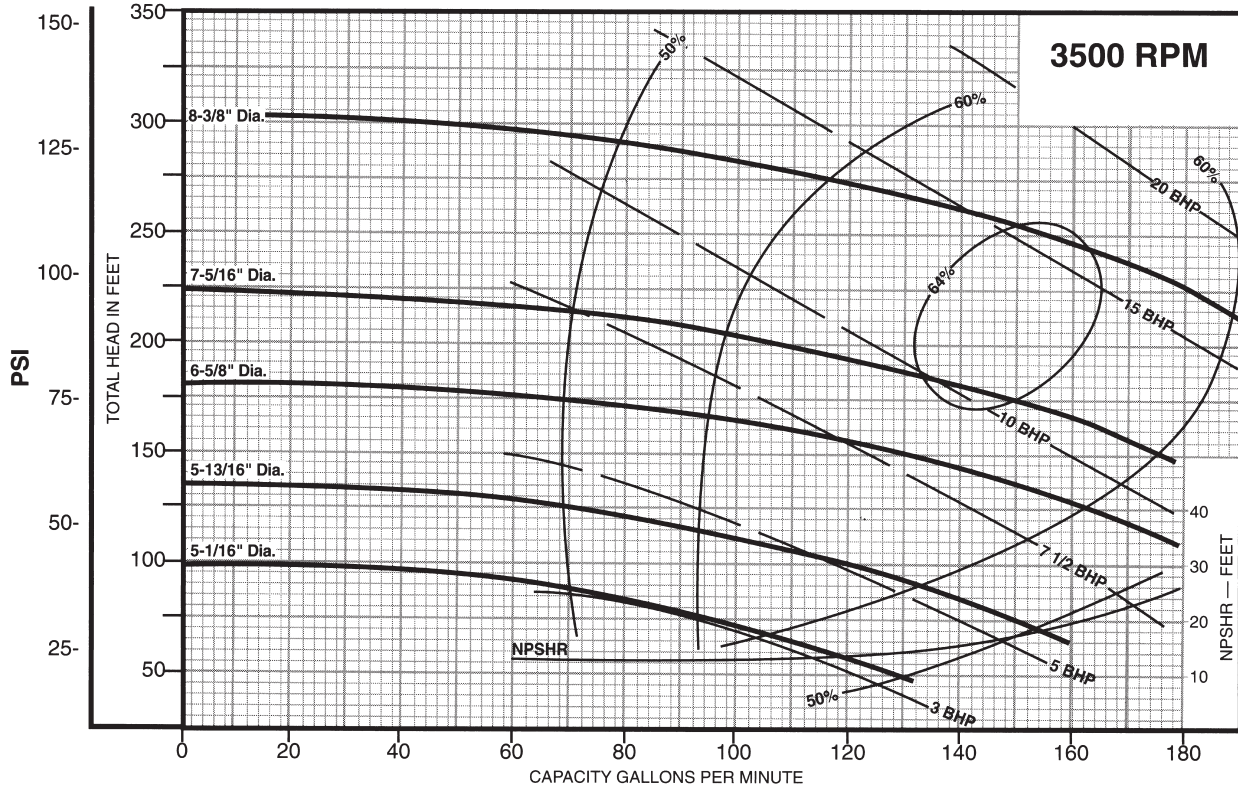
Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-0467	1DB1-1/2-S	1	1	115/230	17.0/8.5	1.50	50
9312-0475	15DB1-1/2-S	1-1/2	1	115/230	19.8/9.9	1.33	54
9312-0483	2DB1-1/2-S	2	1	115/230	22.6/11.3	1.25	58
9312-0491	3DB1-1/2-S	3	1	230	14.4	1.15	74
9312-0509	5DB1-1/2-S	5	1	230	26	1.15	122
9312-0517	75DB1-1/2-S	7-1/2	1	230	39	1.15	184
9312-0525	1DB1-1/2-T	1	3	208/230/460	4.7/4.4/2.2	1.50	47
9312-0533	15DB1-1/2-T	1-1/2	3	208/230/460	6.2/5.7/2.9	1.33	52
9312-0541	2DB1-1/2-T	2	3	208/230/460	7.2/6.5/3.2	1.25	55
9312-0558	3DB1-1/2-T	3	3	230/460	5.0/2.5	1.15	63
9312-0566	5DB1-1/2-T	5	3	230/460	13.4/5.7	1.15	102
9312-0574	75DB1-1/2-T	7-1/2	3	230/460	19.6/9.8	1.15	110



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Model DC1-1/2

1-1/2" Discharge x 2" Suction



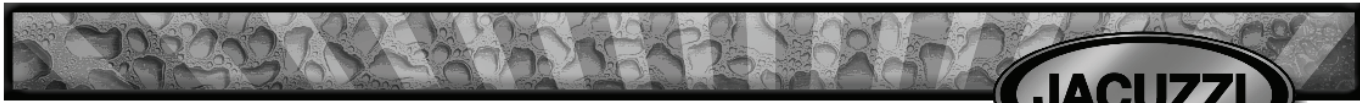
Performance Chart - 3500RPM

Model	HP	Imp. Dia.	CAPACITIES GPM																Shut Off Head (FEET)				
			Total Head in Feet																				
			50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	220	240	260	280	
3DC1-1/2	3	5-1/16"	130	120	108	92	70																100
5DC1-1/2	5	5-13/16"			155	144	132	118	100	84	56												135
75DC1-1/2	7-1/2	6-5/8"							180	170	160	150	130	110	80								180
10DC1-1/2	10	7-5/16"										176	167	156	143	126	106						220
15DC1-1/2	15	8-3/8"																	184	167	140	100	300

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION - DC1-1/2

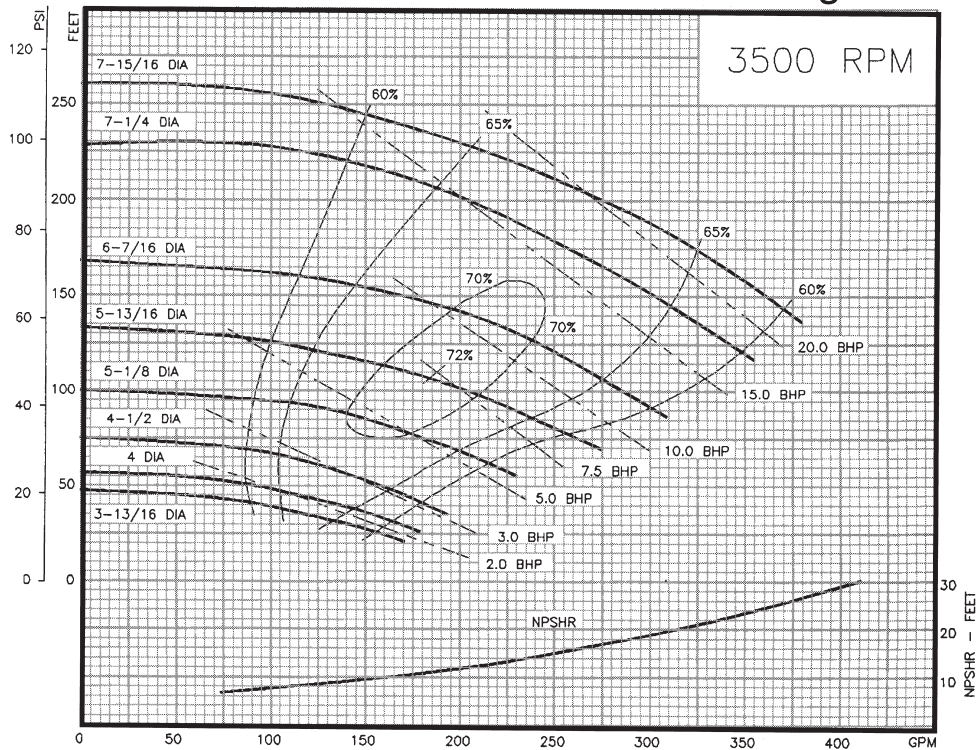
Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-0848	5DC1-1/2-S	5	1	230	26	1.15	142
9312-0855	75DC1-1/2-S	7-1/2	1	230	39	1.15	162
9312-1168	10DC1-1/2-S	10	1	230	42.8	1.15	190
9312-0871	5DC1-1/2-T	5	3	230/460	13.4/5.7	1.15	98
9312-0889	75DC1-1/2-T	7-1/2	3	230/460	19.6/9.8	1.15	132
9312-0897	10DC1-1/2-T	10	3	230/460	25/12.5	1.15	171
9312-0905	15DC1-1/2-T	15	3	230/460	40/20	1.15	175



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Model DB2

2" Discharge x 3" Suction



Performance Chart - 3500RPM

DB2 2" Discharge x 3" Suction			CAPACITIES GPM														Shut Off Head (FEET)			
			Total Head in Feet																	
Model	HP	Imp. Dia.	20	25	30	35	40	45	50	60	70	80	90	100	110	120	150	200	250	
15DB2	1-1/2	3-3/16"	175	160	145	125	100	65												50
2DB2	2	4"		185	170	160	145	125	100											58
3DB2	3	4-1/2"						175	165	140	90									75
5DB2	5	5-1/8"								235	210	190	160							100
75DB2	7-1/2	5-13/16"										260	240	225	200	160				135
10DB2	10	6-7/16"											310	290	275	260	185			170
15DB2	15	7-1/4"														350	305	205		230
20DB2	20	7-15/16"															365	275	130	260

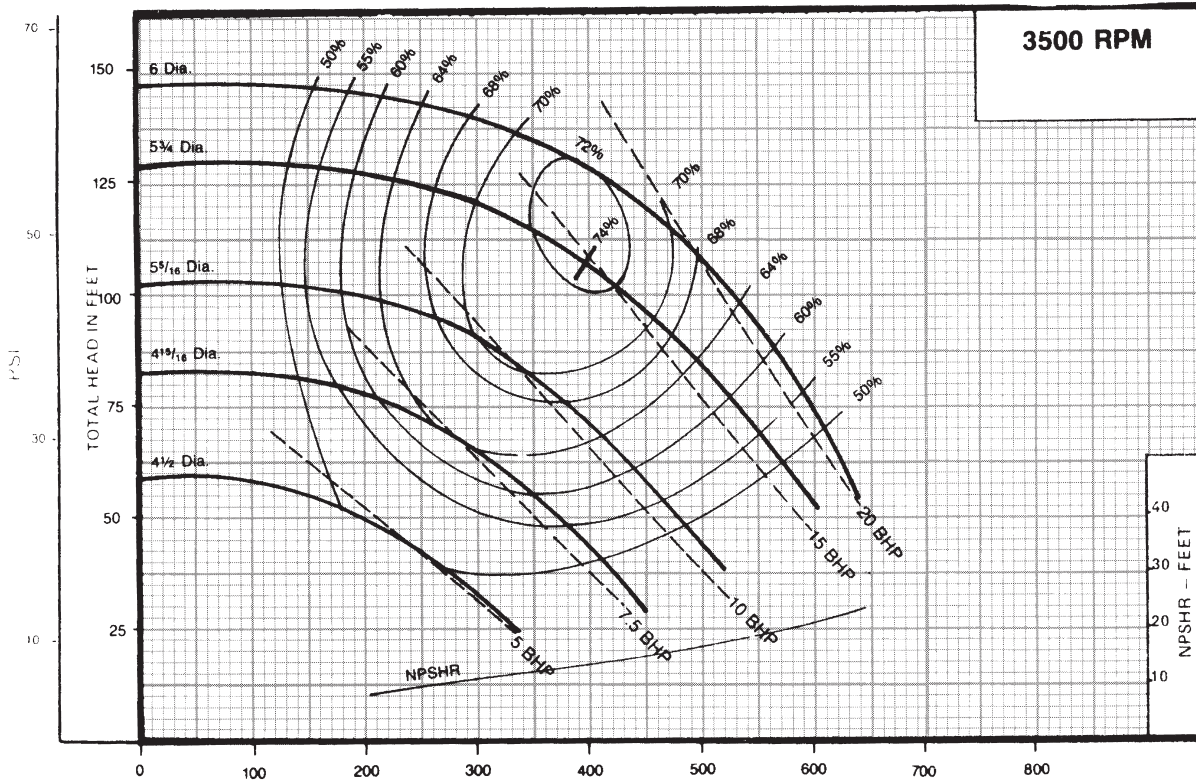
Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION - DB2

Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-0665	2DB2-S	2	1	115/230	22.6/11.3	1.25	60
9312-0673	3DB2-S	3	1	230	14.4	1.15	80
9312-0681	5DB2-S	5	1	230	26	1.15	119
9312-0699	75DB2-S	7-1/2	1	230	39	1.15	150
9312-1150	10DB2-S	10	1	230	42.8	1.15	171
9312-0715	2DB2-T	2	3	208/230/460	7.2/6.5/3.2	1.25	60
9312-0723	3DB2-T	3	3	230/460	5.0/2.5	1.15	72
9312-0731	5DB2-T	5	3	230/460	13.4/5.7	1.15	110
9312-0749	75DB2-T	7-1/2	3	230/460	19.6/9.8	1.15	116
9312-0756	10DB2-T	10	3	230/460	25/12.5	1.15	146
9312-1051	15DB2-T	15	3	230/460	40/20	1.15	210
9312-1069	20DB2-T	20	3	230/460	50/25	1.15	243

Model DB3

3" Discharge x 4" Suction



Performance Chart - 3500RPM

DB3 3" Discharge x 4" Suction			CAPACITIES GPM														Shut Off Head (FEET)		
Model	HP	Imp. Dia.	Total Head in Feet																
			25	30	35	40	45	50	60	70	80	90	100	110	120	130	140	150	
5DB3	5	4-1/2"	335	305	280	250	220	200											60
75DB3	7-1/2	4-15/16"		440	425	405	385	365	320	260									81
10DB3	10	5-5/16"				505	490	470	440	400	360	250							101
15DB3	15	5-3/4"						600	580	550	510	460	430	380	300				128
20DB3	20	6"							630	610	590	550	530	510	450	380			146

Note: All performance data based on rated nameplate voltage.

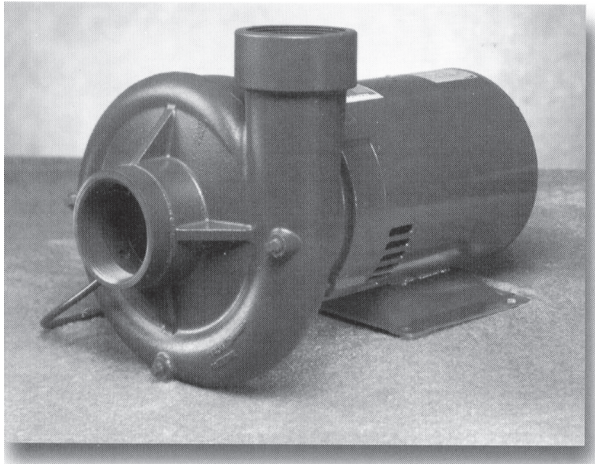
ORDERING INFORMATION - DB3

Order No.	Model No.	HP	Mtr. Phase	Volt.	Amps	Svc. Fact.	Weight
9312-7330	5DB3-S	5	1	230	26	1.15	132
9312-7348	75DB3-S	7-1/2	1	230	39	1.15	160
9312-7355	10DB3-S	10	1	230	42.8	1.15	174
9312-7363	5DB3-T	5	3	230/460	13.4/5.7	1.15	95
9312-7371	75DB3-T	7-1/2	3	230/460	19.6/9.8	1.15	120
9312-7389	10DB3-T	10	3	230/460	25/12.5	1.15	180
9312-7397	15DB3-T	15	3	230/460	40/20	1.15	183
9312-7405	20DB3-T	20	3	230/460	50/25	1.15	232



"The Most Trusted Name In Water"SM

Model DC4



Features:

- Epoxy-coated cast iron impeller** for maximum efficiency.
- Mechanical shaft seal for water temperatures up to 212°F.
- 4" NPT suction/discharge on 20-30HP units. **Flanged 5" suction/4" discharge** on 40-50HP units.
- 20-50HP **pump end kits** are available with either NPT suction/discharge or flanged suction/discharge connections. Maximum operating pressure of 150 PSI.

Performance Chart - 3500 RPM

DC4			CAPACITIES GPM															Shut Off Head (FEET)	
			Total Head in Feet																
Model	HP	Imp. Dia.	90	100	120	140	150	160	170	180	190	200	210	220	240	260	280	290	
20DC4	20	7-1/32"	650	620	545	430	350	200											165
25DC4	25	7-15/32"			650	595	550	500	450	350									190
30DC4	30	7-7/8"					650	620	590	545	500	430	320						215
40DC4	40	8-7/16"									640	605	560	515	375				260
50DC4	50	9-1/32"												660	600	515	400	280	300

Note: All performance data based on rated nameplate voltage.

ORDERING INFORMATION + DC4

Order No.	Model No.	HP	Connection	Mtr. Phase	Voltage	Amps	Svc. Fact.	Weight
9312-7710	20DC4-T	20	Threaded	3	230/460	57.5/28.8	1.15	312
9312-7728	25DC4-T	25	Threaded	3	200-230/460	81-72/36	1.25	325
9312-7736	30DC4-T	30	Threaded	3	200-230/460	88.5-86/43	1.25	389
9312-7744	40DC4-T	40	Flanged	3	200-230/460	122-112/56	1.25	433
9312-7785	50DC4-T	50	Flanged	3	230/460	133.4/66.7	1.15	593

Note: Service factor at 200V on 25, 30, & 40 HP units is 1.15.

FAMILIAR PHRASES

TO GET ONE'S GOAT

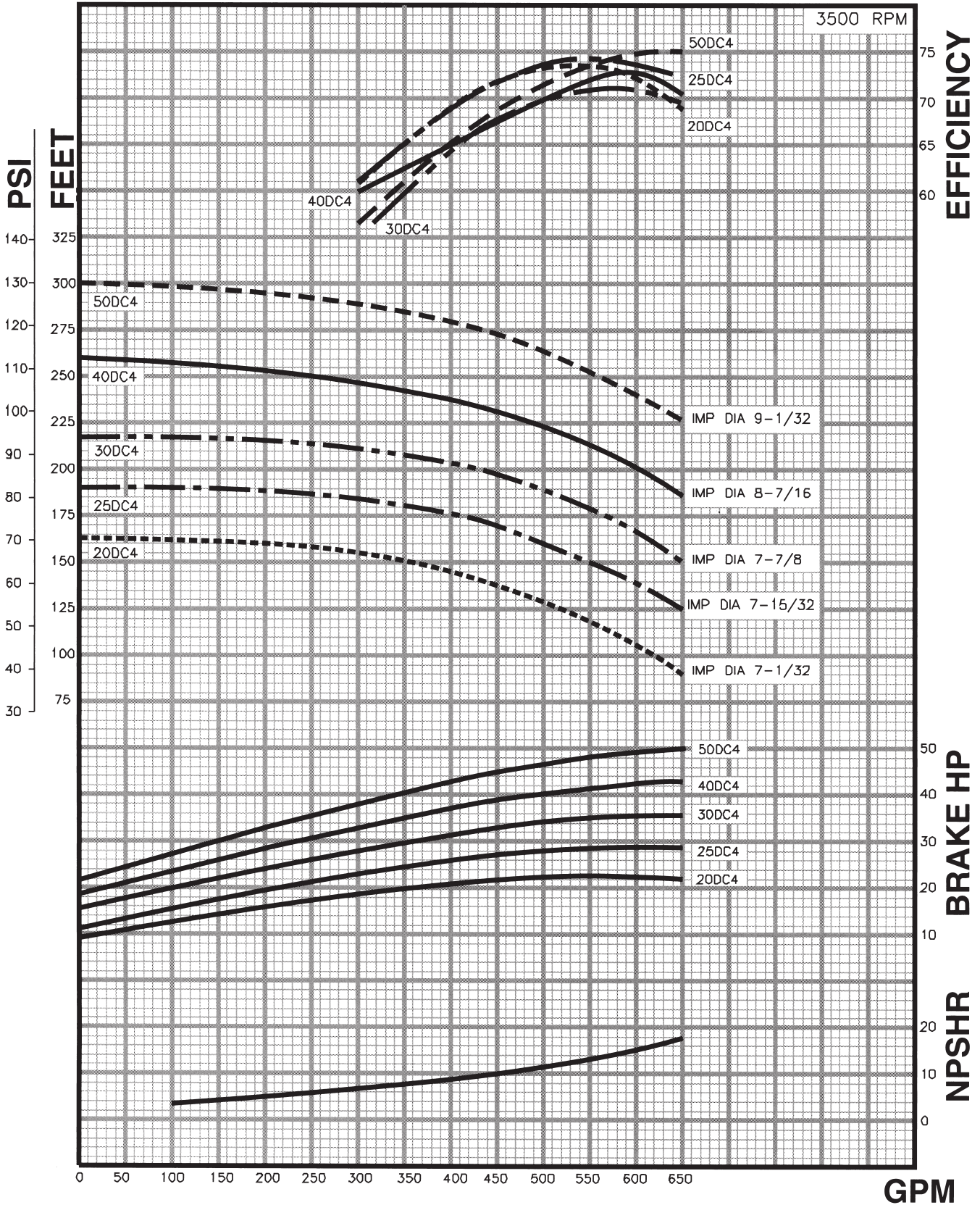
Meaning: To aggravate.

Origin: Hyperactive racehorses were often given goats as stablemates because their presence tended to have a calming effect on the horses. After the horse became attached to the goat, it got very upset when its companion disappeared-making it run poorly on the track. In the 19th century, when a devious gambler wanted a horse to lose, he would get the horse's goat and take it away the night before the race, thus agitating the horse.



"The Most Trusted Name In Water"SM

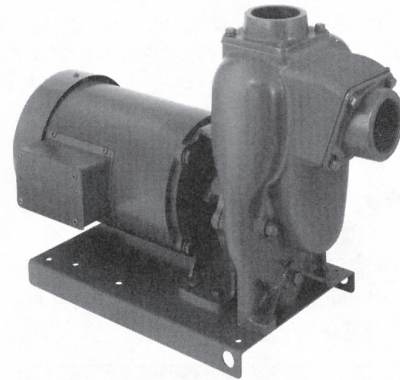
Model DC4



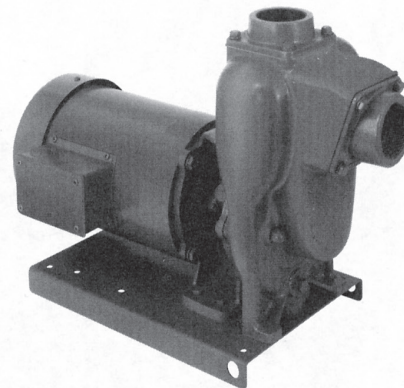
FLOMAX 5 8 10

SELF PRIMING CENTRIFUGAL PUMP FEATURES

- CLOSED COUPLED TO ELECTRIC MOTOR
- PUMPAK ONLY TO MOUNT TO STANDARD NEMA "C" FACE MOTOR
FLOMAX 40 BELT OR DIRECT DRIVE
- FLOWS - 100-750 GPM
- PRESSURES - 100-230 FEET HEAD
- AVAILABLE IN: CAST IRON, BRONZE AND ALUMINUM
FLOMAX 8 STAINLESS STEEL 316 SS
FLOMAX 40 CAST IRON
- WITH OR WITHOUT ELECTRIC MOTOR
- IMPELLER - CAST IRON, BRONZE, ALUMINUM & STAINLESS STEEL
FLOMAX 40 CAST IRON & STAINLESS STEEL
- SHAFT SLEEVE - STAINLESS STEEL
- FASTENERS - STAINLESS STEEL
- SEALS - STANDARD VITON, OPTIONAL SEALS AVAILABLE
- OPTIONS:
 - ENGINE DRIVES
 - PEDESTAL MODELS
 - HYDRAULIC DRIVES AND CLUTCHPAKS



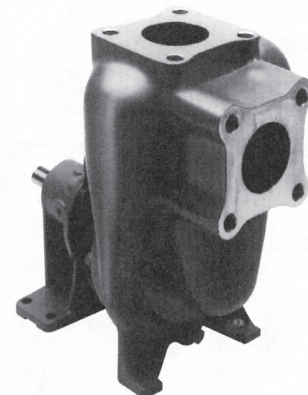
FLOMAX 5



FLOMAX 8

FLOMAX 8: NOW ABS APPROVED

MODEL	Suction	Discharge
FLOMAX 5	1 1/2" NPT	1 1/2" NPT
FLOMAX 8	2" NPT	2" NPT
FLOMAX 10	2" NPT	2" NPT
FLOMAX 15	3" NPT	3" NPT
FLOMAX 30	3" NPT	3" NPT
FLOMAX 40	4" NPT	4" NPT



316 SS FLOMAX 8

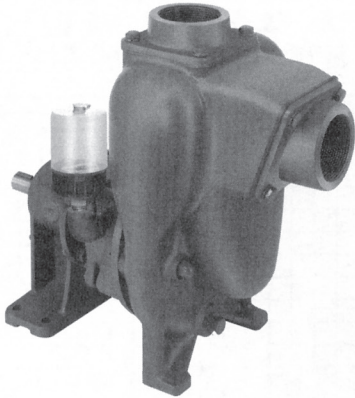
PROVEN WRONG BY HISTORY:

A collection of ill-conceived comments on the march of technology by people who watched from the sidelines and should have known better

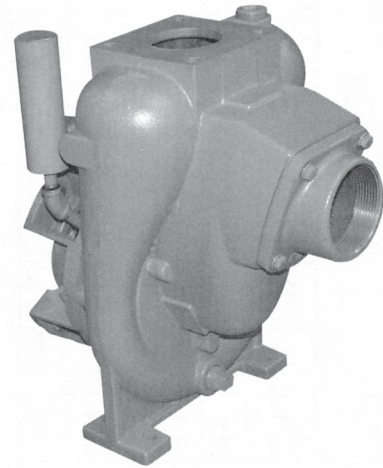
"I think there is a world market for maybe five computers." -Thomas Watson, chairman of IBM, 1943

15 30 40

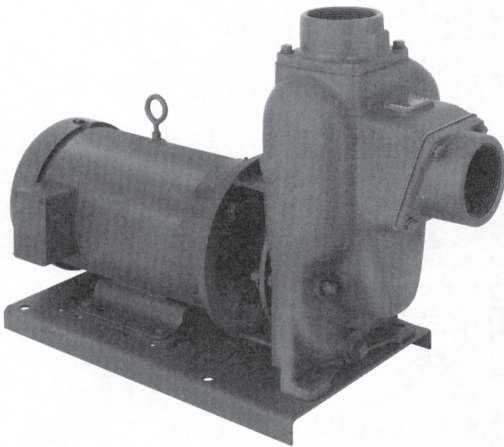
FLOMAX 15 & 40: NOW ABS APPROVED



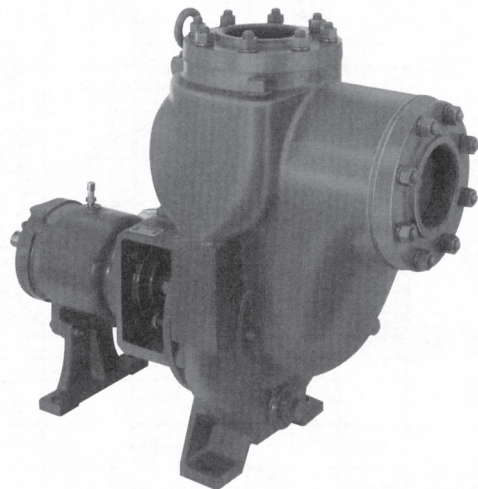
FLOMAX 5 & 8
DOUBLE SEAL



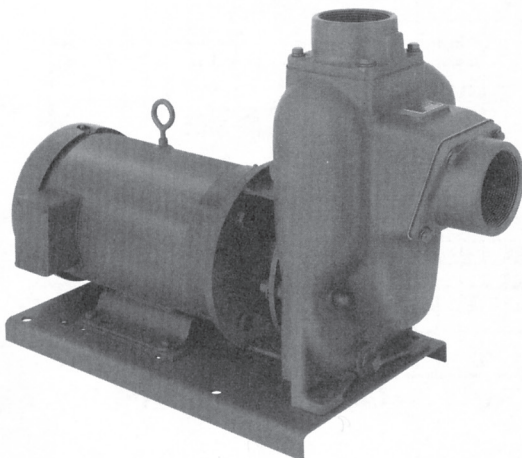
FLOMAX 30
SHORT COUPLED



FLOMAX 10



FLOMAX 40

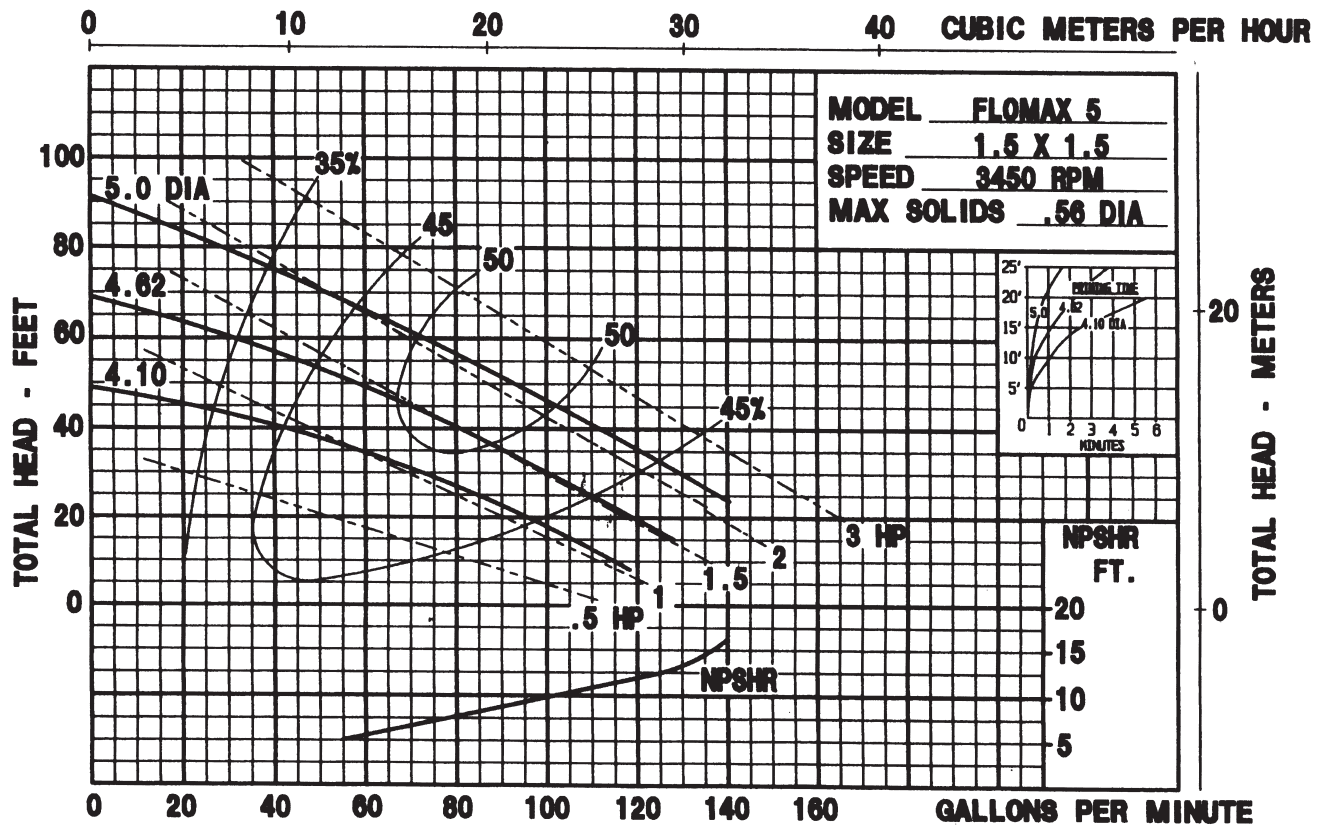
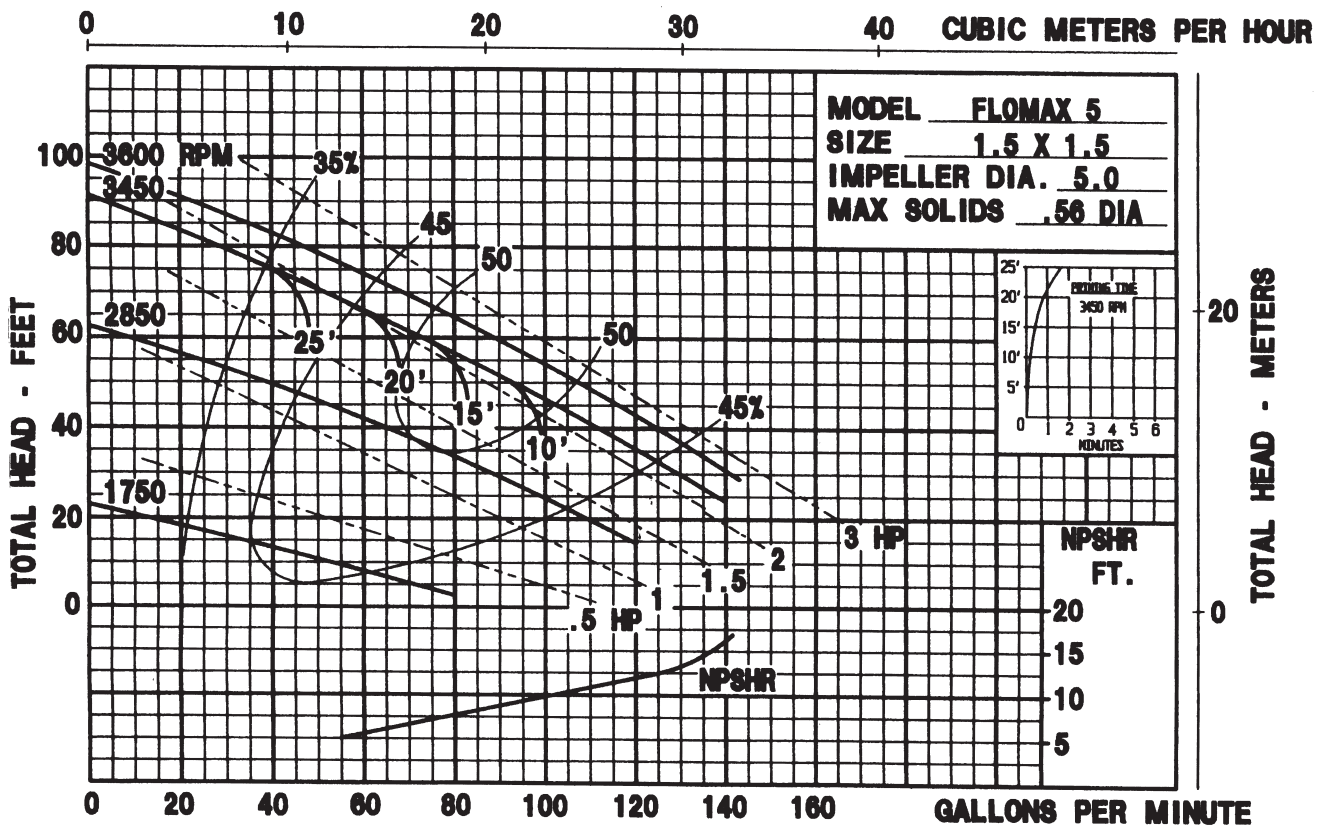


FLOMAX 15

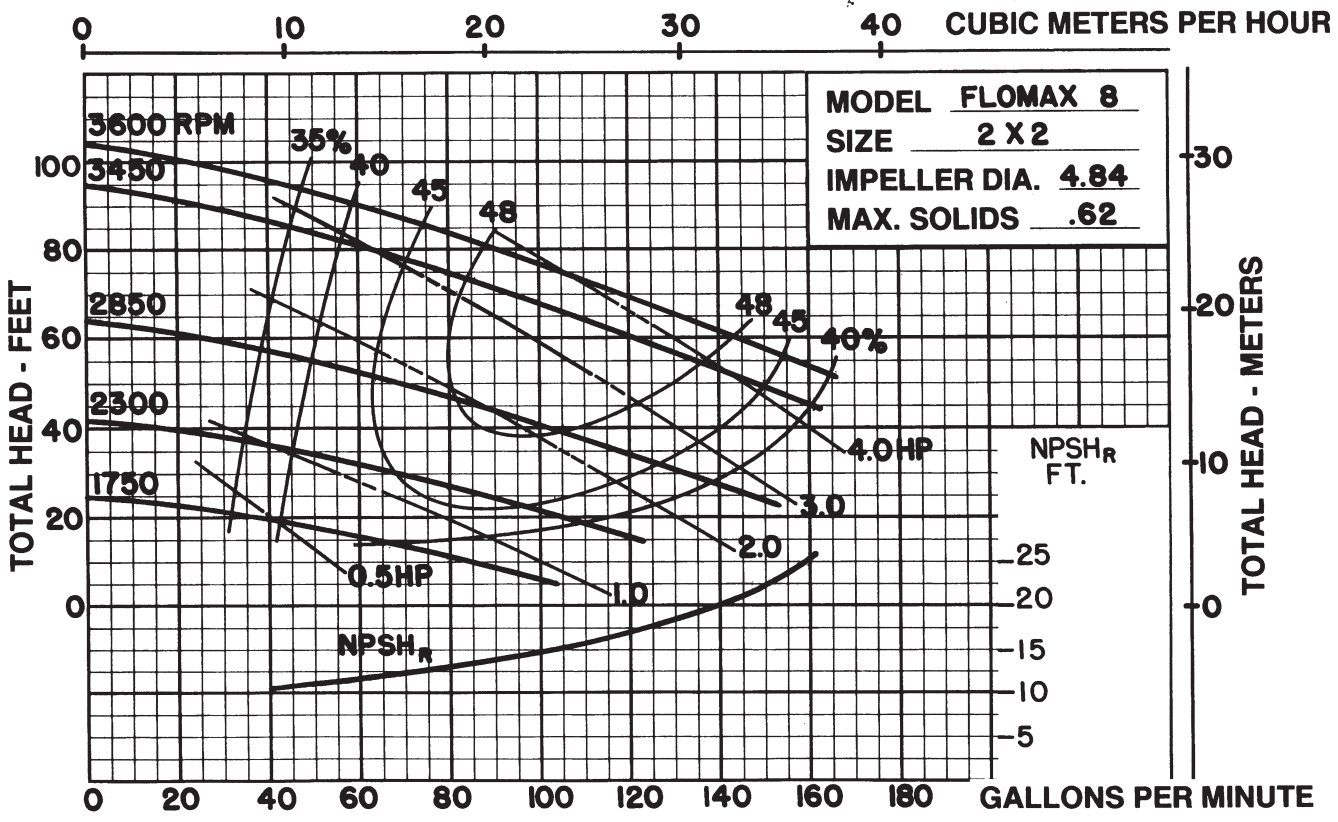
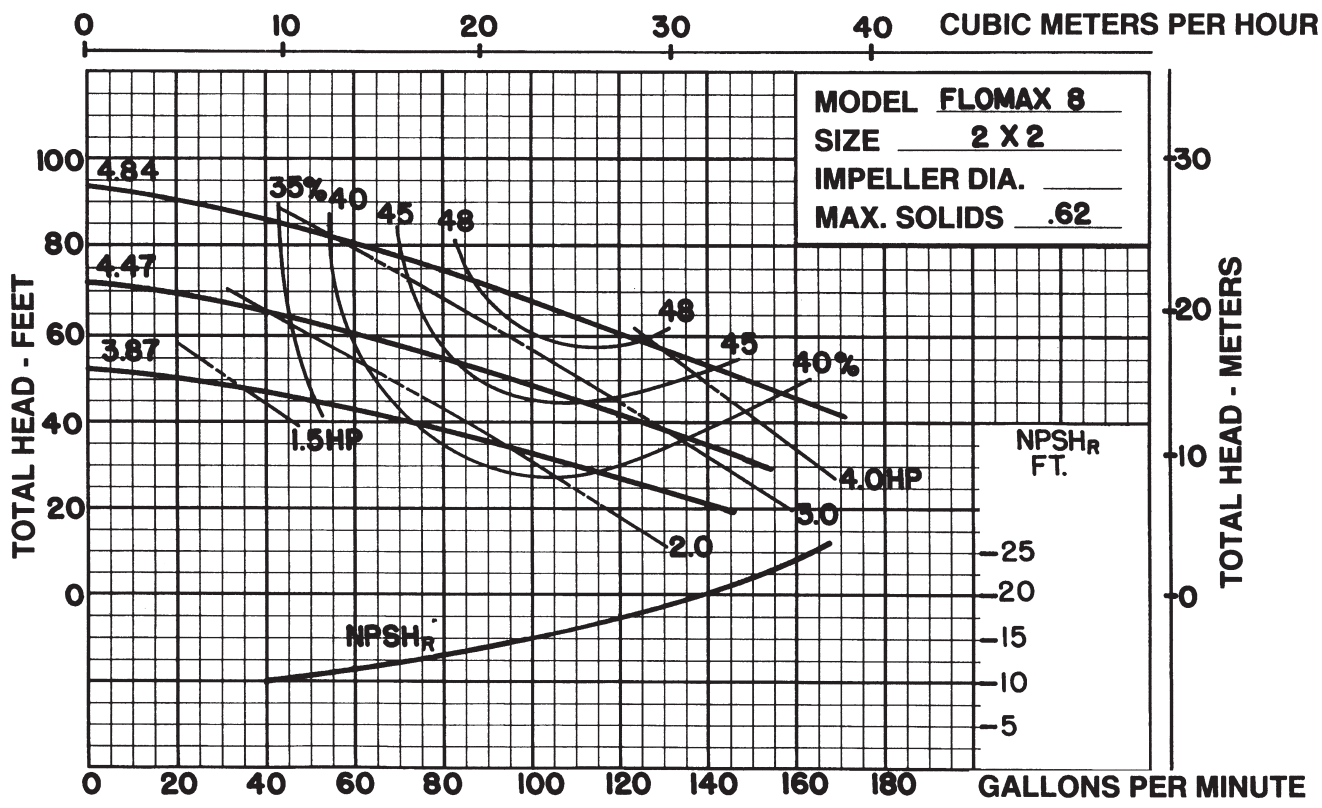
PROVEN WRONG BY HISTORY: (continued)

"Computers in the future may weigh no more than 1.5 tons." -*Popular Mechanics*, 1949

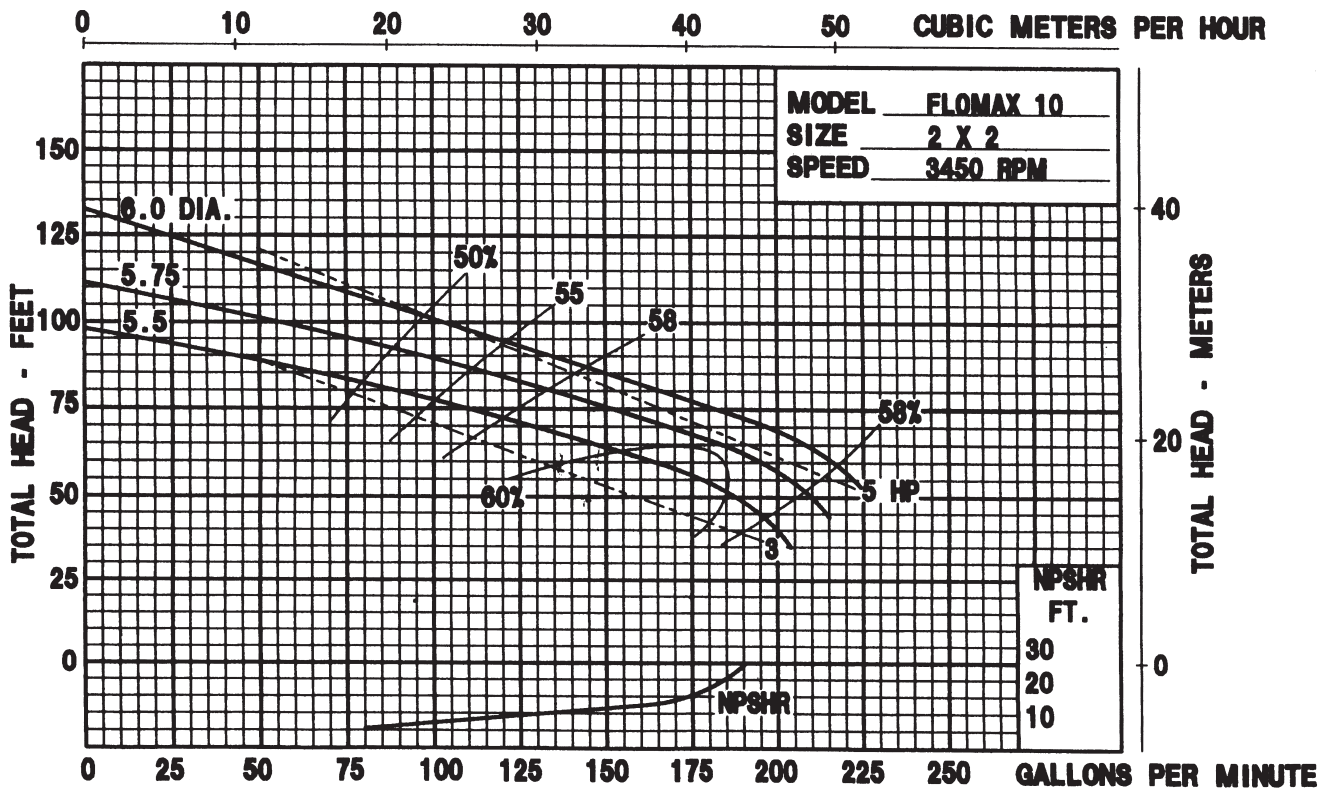
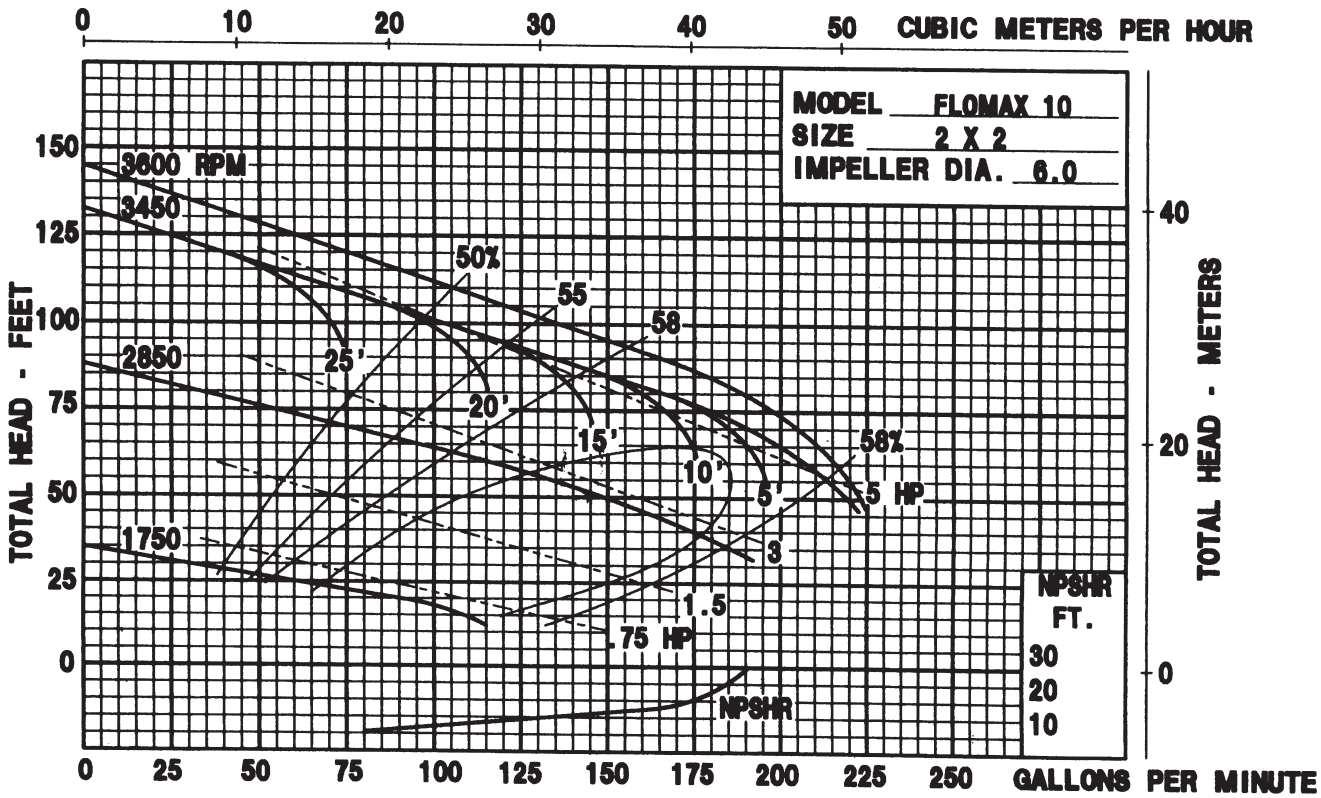
Flomax 5 Pump Performance Curves



FLOMAX 5 & 8 Pump Double Seal Performance Curves



Flomax 10 Pump Performance Curves

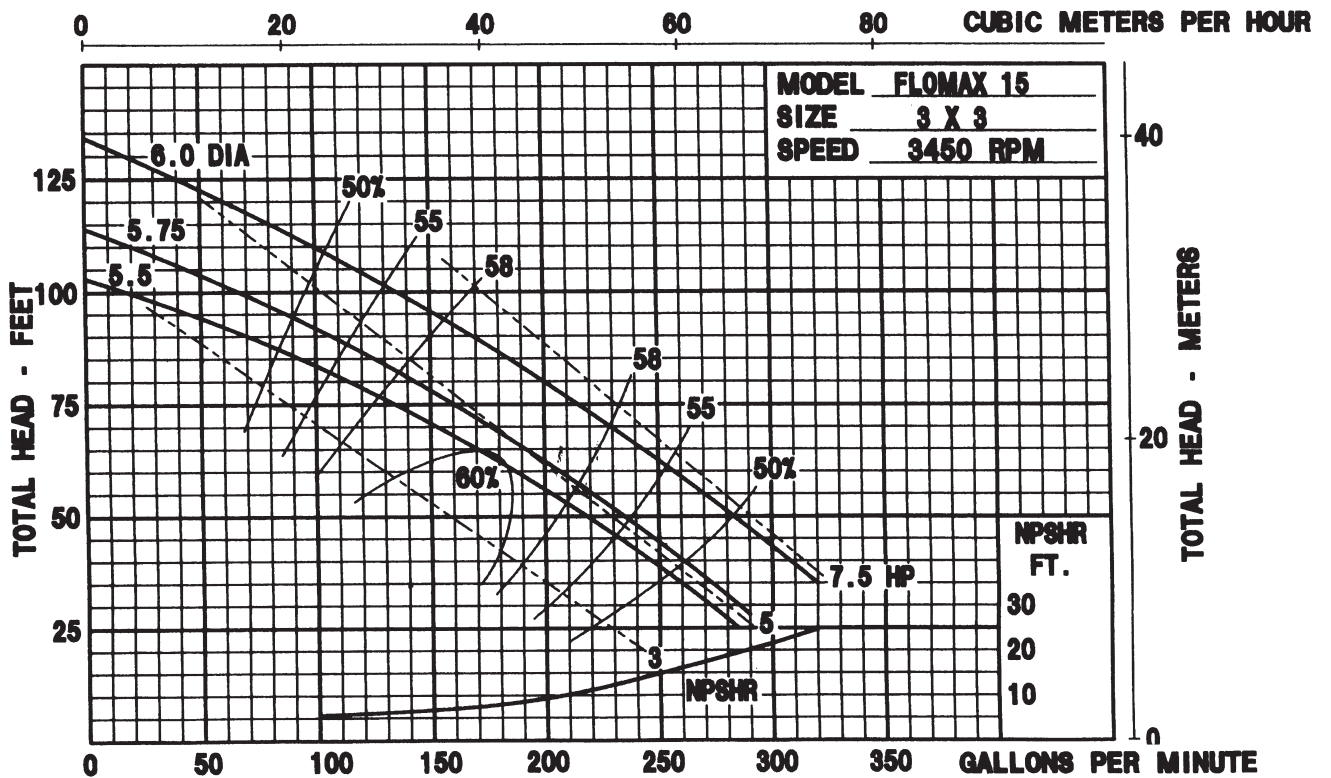
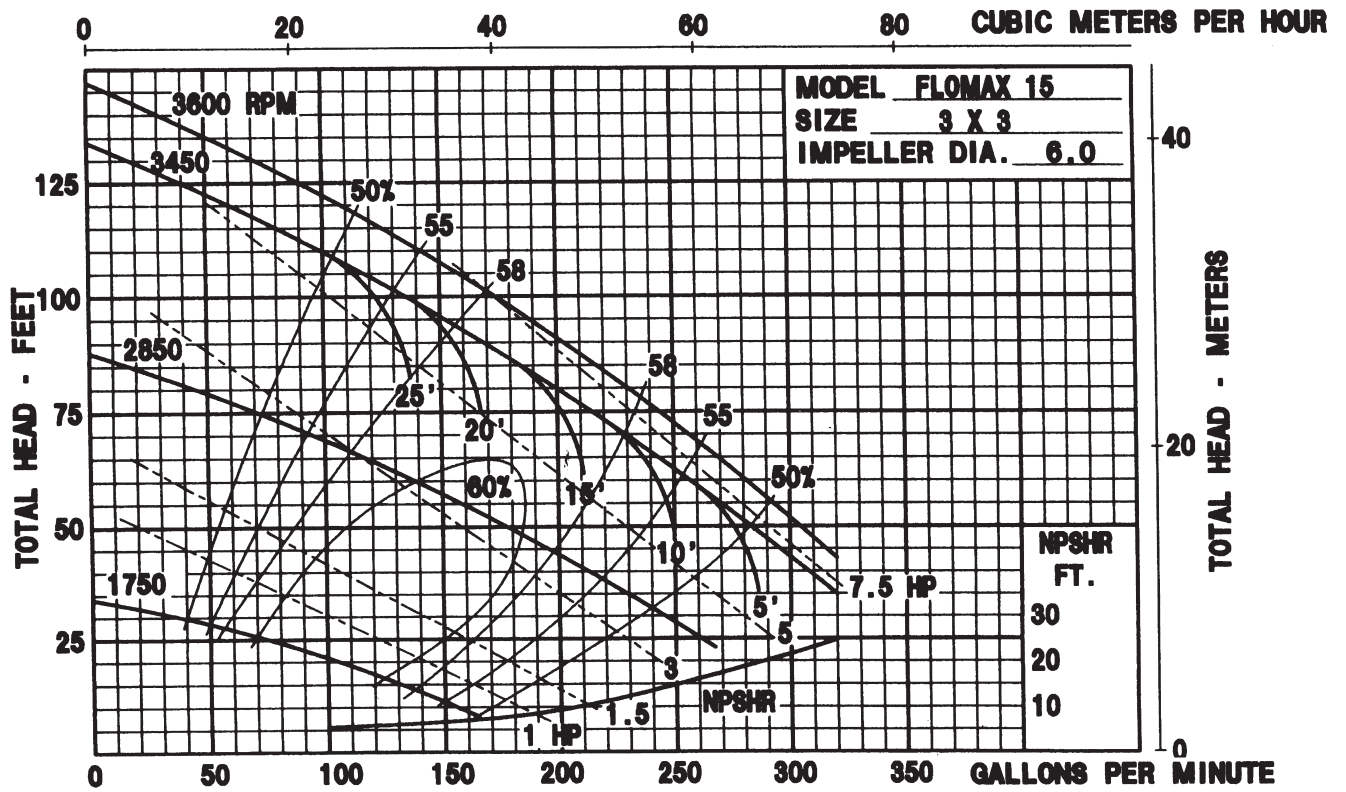


PROVEN WRONG BY HISTORY: (continued)

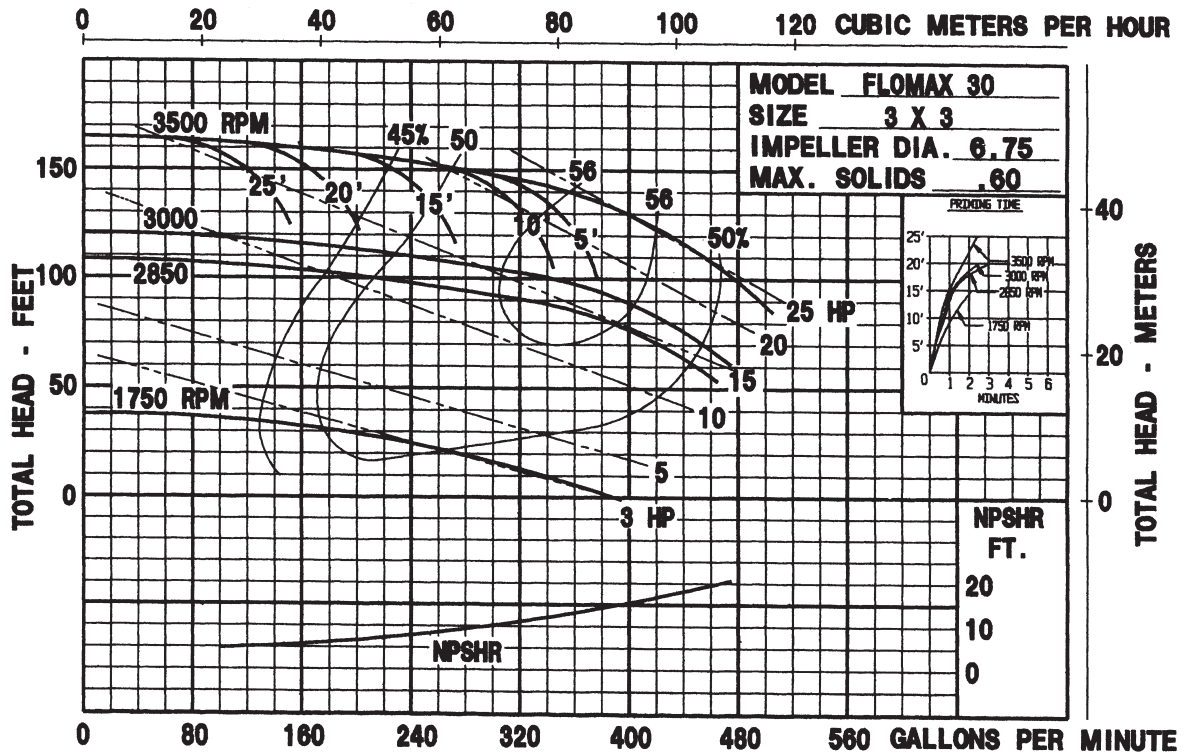
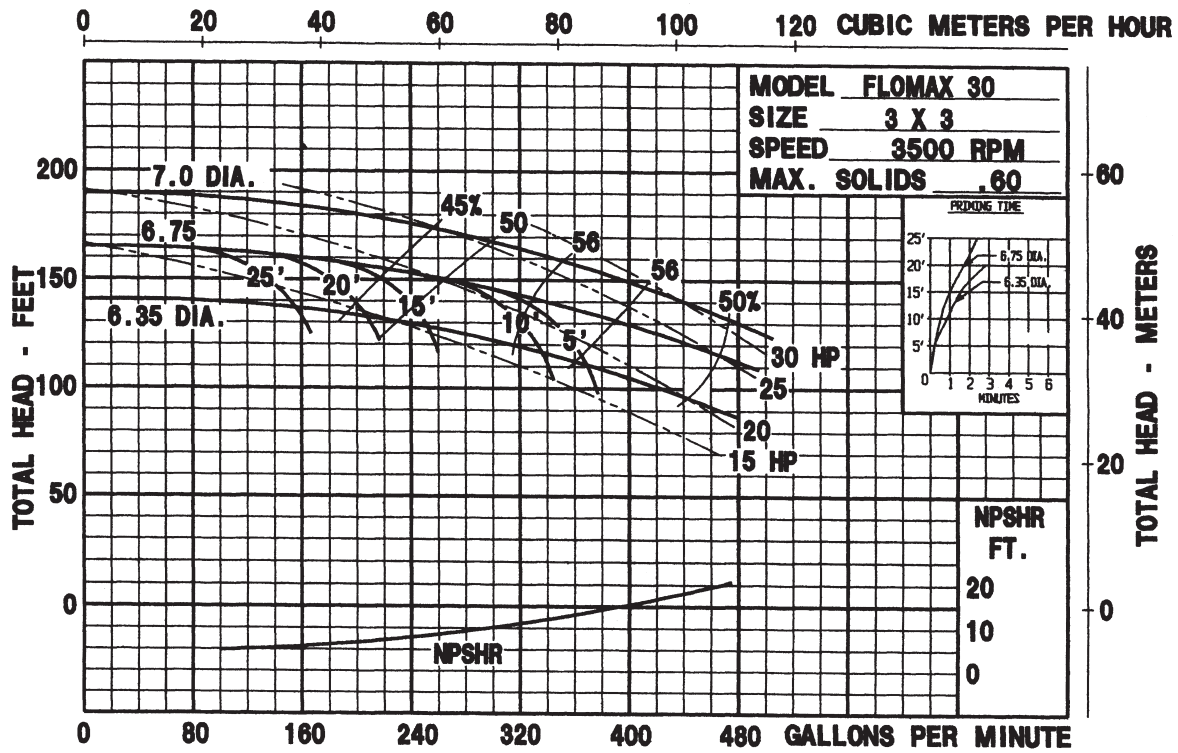
"There is no reason anyone would want a computer in their home."

-Ken Olson, president, chairman, and founder of Digital Equipment Corporation, 1977

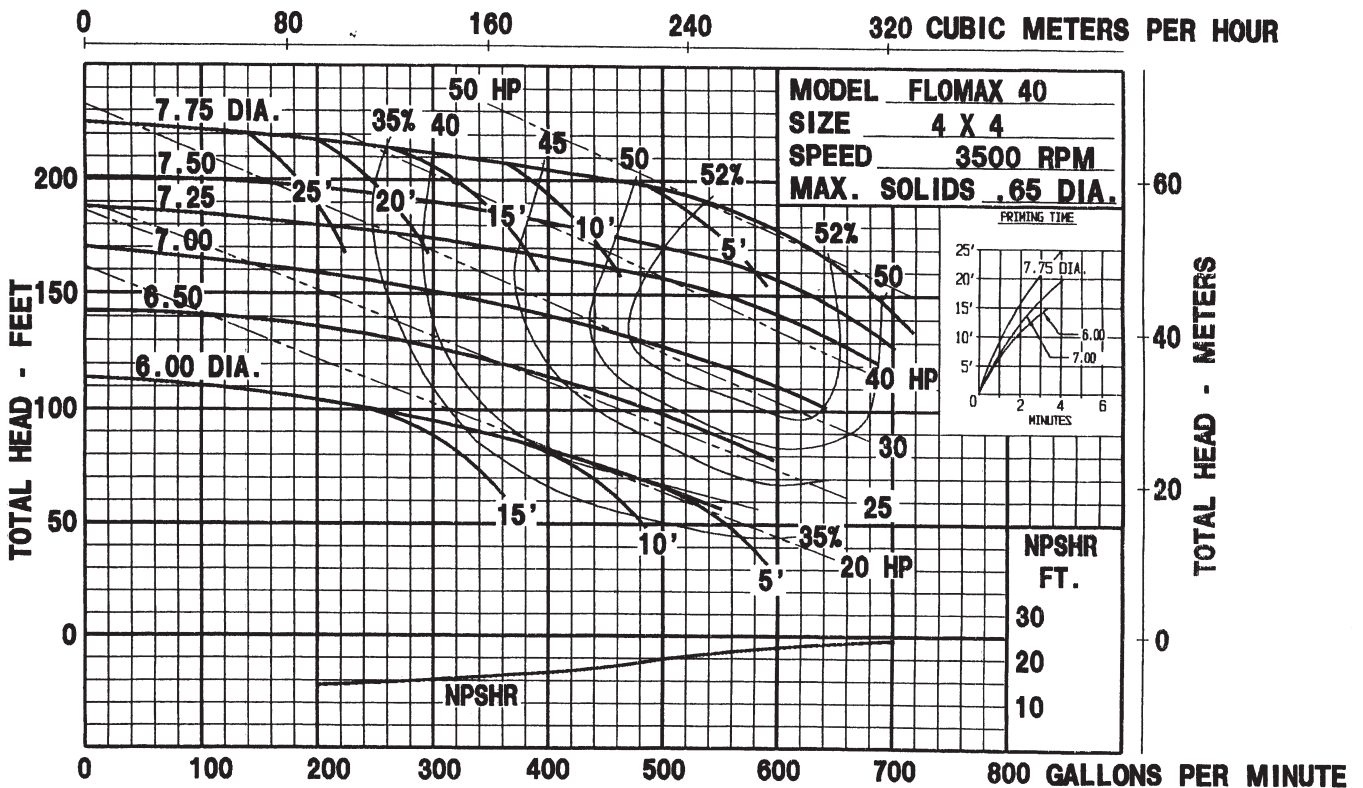
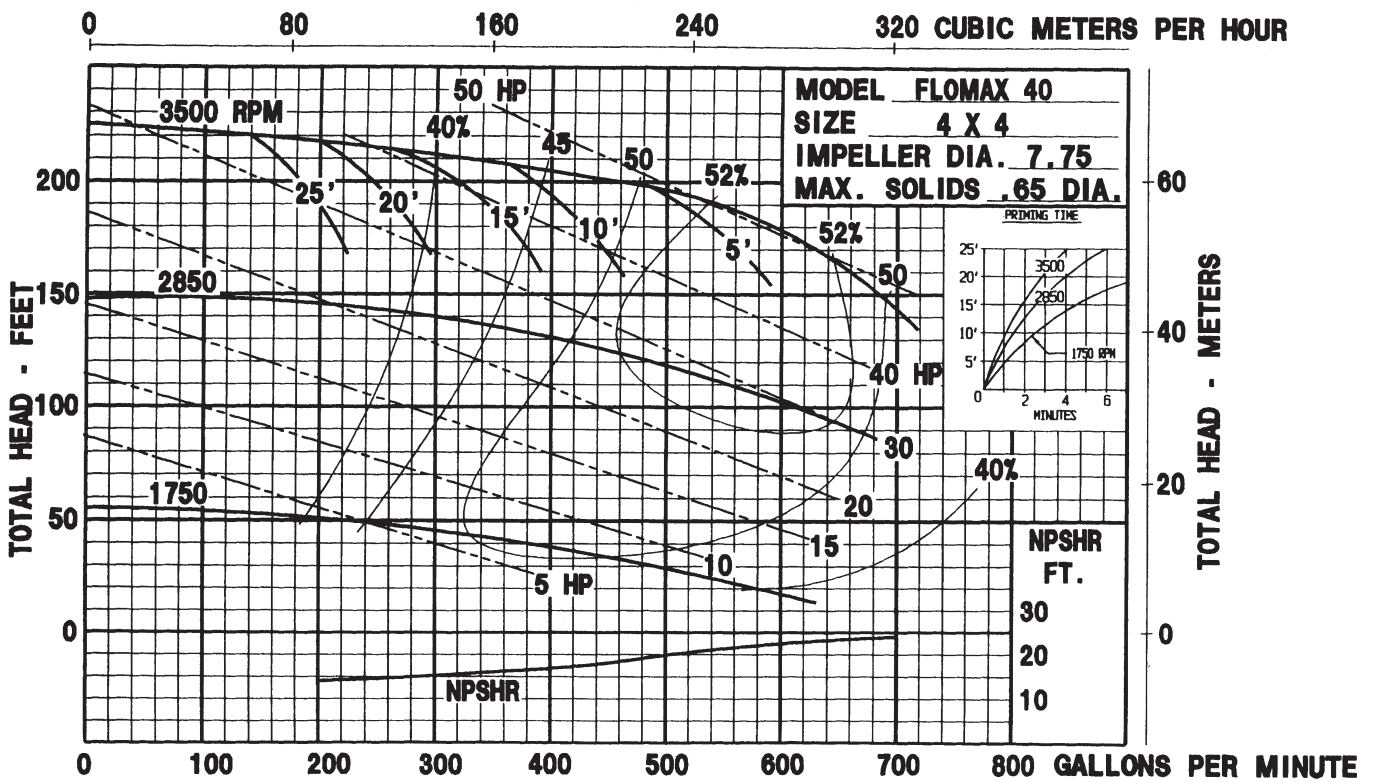
Flomax 15 Pump Performance Curves



Flomax 30 Pump Performance Curves



Flomax 40 Pump Performance Curves

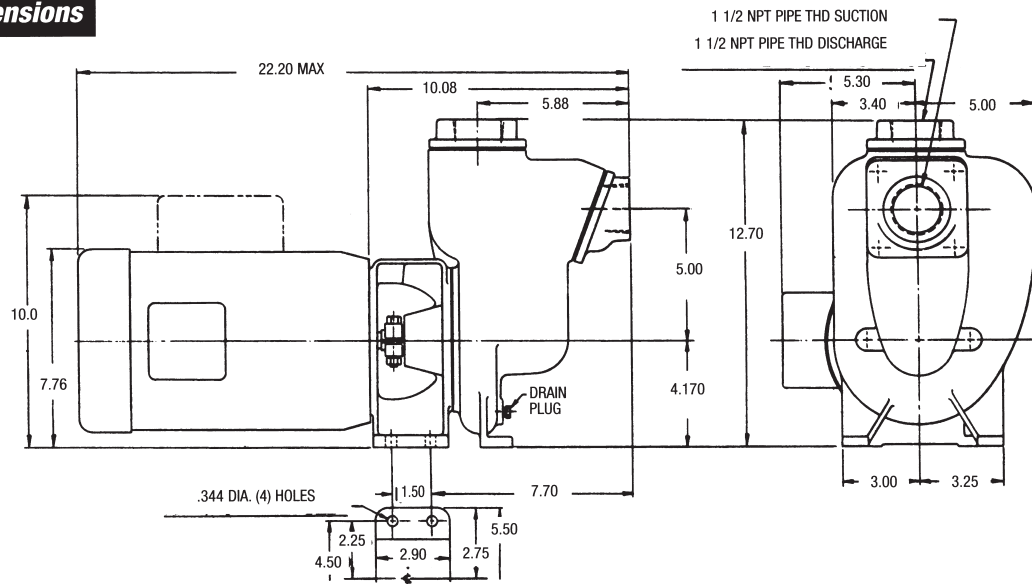


PROVEN WRONG BY HISTORY: (continued)

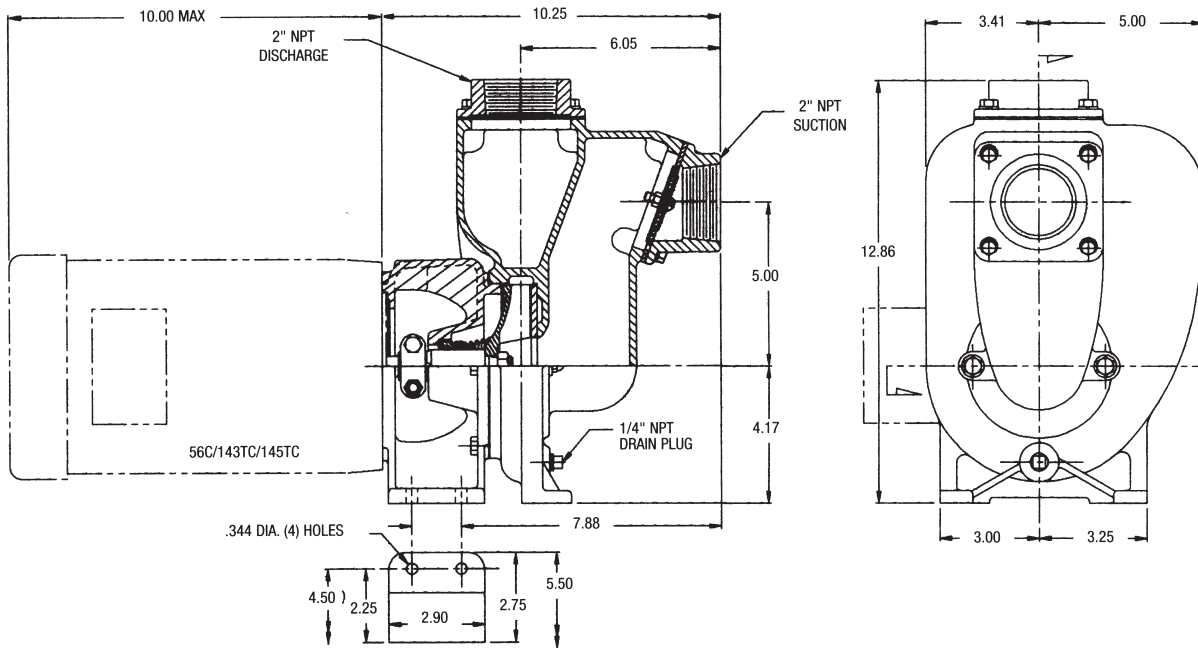
"640K ought to be enough for anybody."

-Bill Gates, 1981

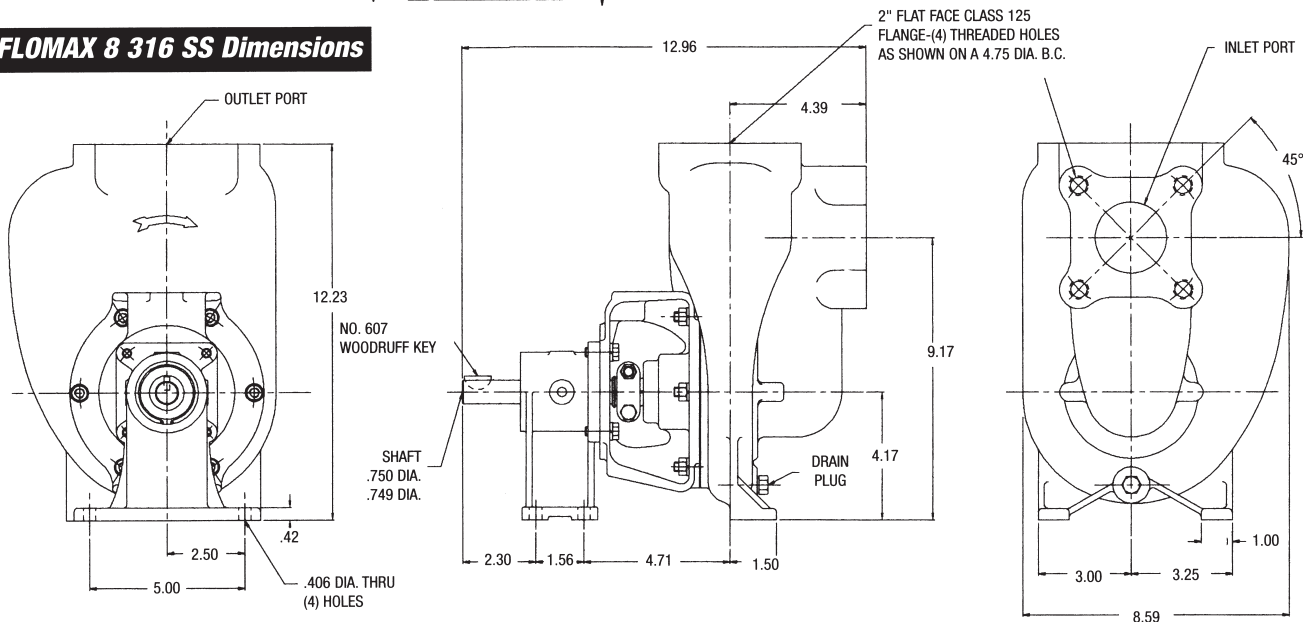
Flomax 5 Dimensions



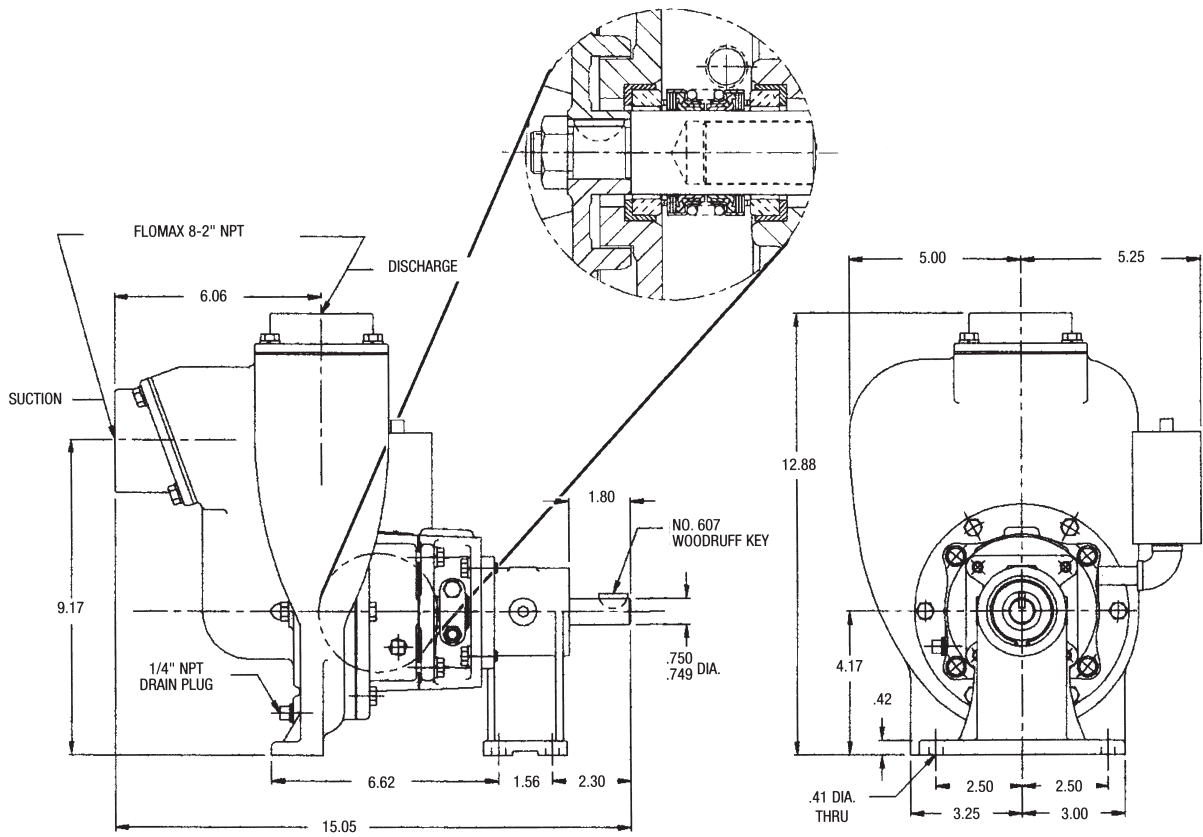
Flomax 8 Dimensions



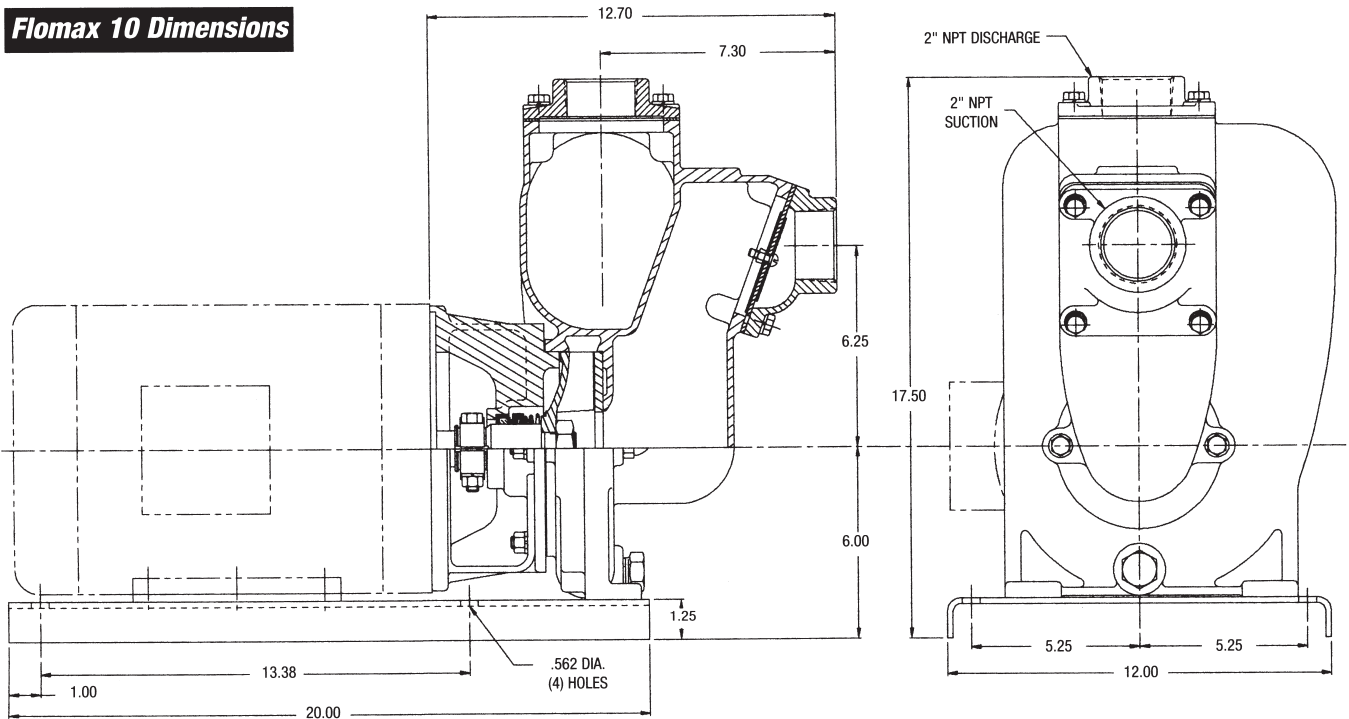
FLOMAX 8 316 SS Dimensions



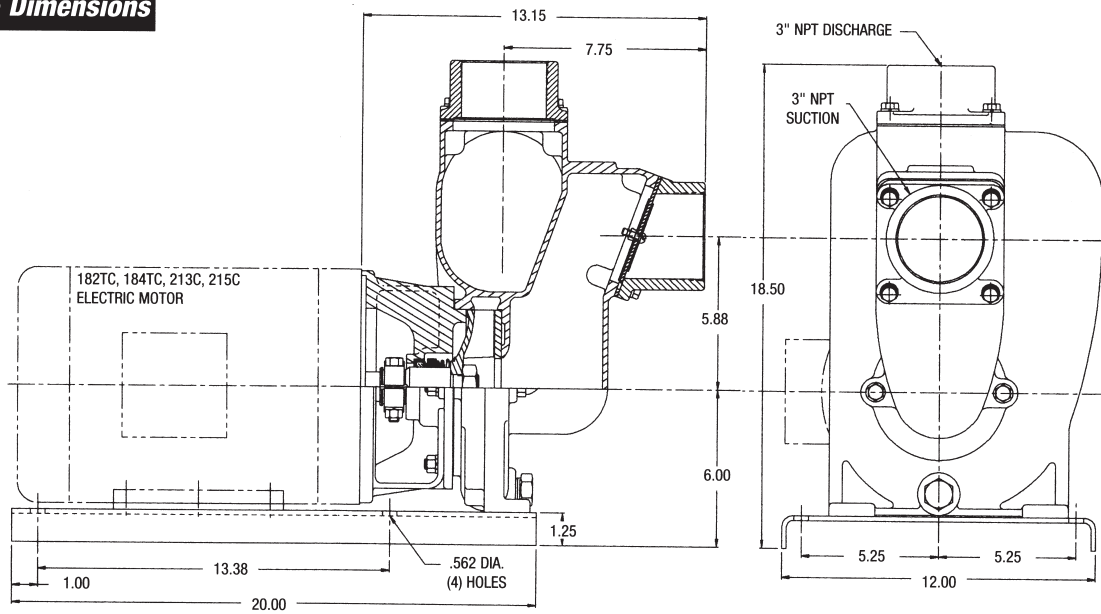
FLOMAX 5 & 8 Dimensions



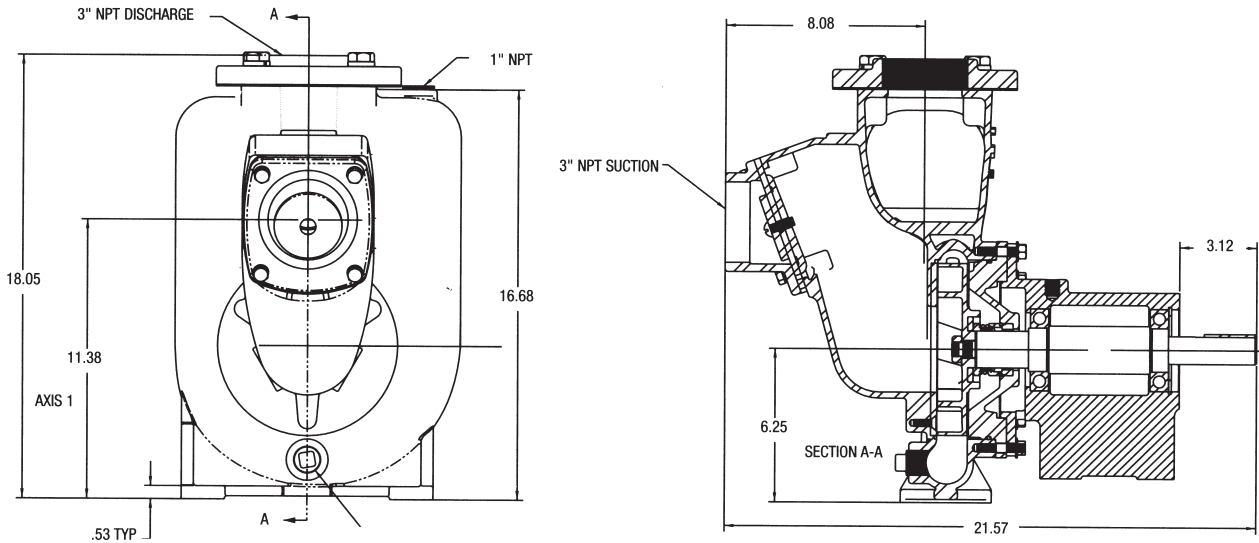
Flomax 10 Dimensions



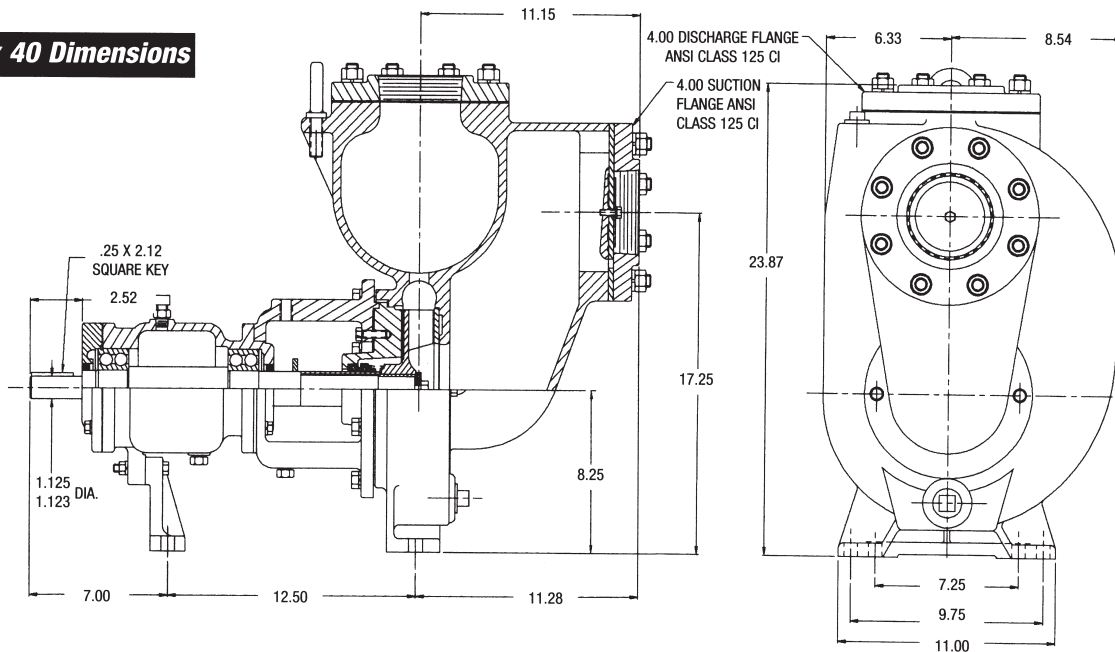
Flomax 15 Dimensions



Flomax 30 Pedestal Mount Dimensions



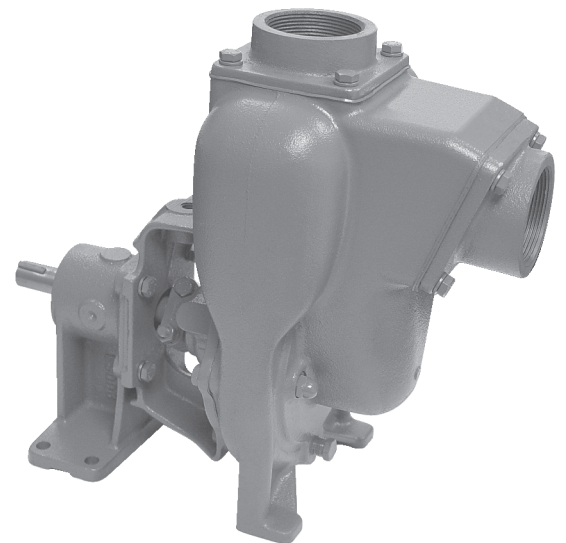
Flomax 40 Dimensions



Model PG Pumps Compatible For Gasoline, Kerosene, Avgas & Jet Fuel



The "PG" model is available in Pedestal mount for flexible coupling or Close Coupled mount to C Face Class I Group D Explosion Proof electric motors. Ductile Iron is the standard construction for the volute and adapter. The open impeller is standard in cast iron construction with aluminum as an optional material. Standard material for the wear plate is aluminum. The standard self-lubricated Type 2 mechanical seal is equipped with a carbon rotating face, viton elastomer and stainless steel spring. The stationary face is silicon carbide.

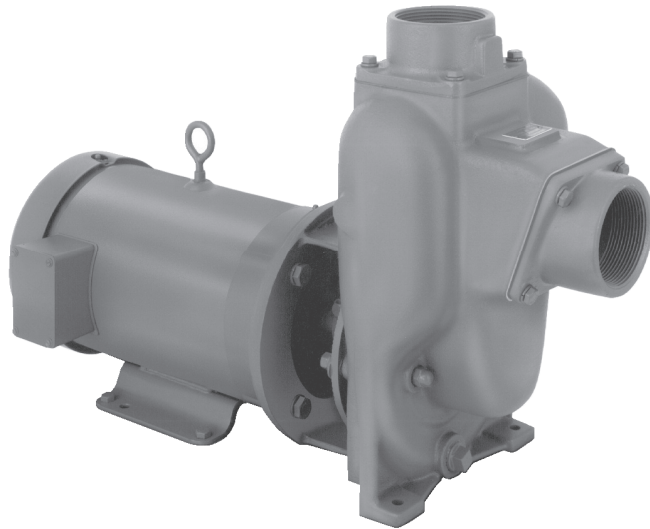


MODEL	SIZE	MOUNTING	STANDARD MATERIALS OF CONSTRUCTION					OPTIONAL MATERIALS		
			VOLUTE	IMPELLER	WEAR PLATE	GASKET	SEAL	VOLUTE	IMPELLER	WEAR PLATE
PG 8	2" X 2"	Explosion Proof	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS	S E E B R T S A L E S R E P	Aluminum	S E E B R T S A L E S R E P
PG 8	2" X 2"	Pedestal	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS		Aluminum	
PG 10	2" X 2"	Explosion Proof	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS		Aluminum	
PG 15	3" X 3"	Explosion Proof	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS		Aluminum	
PG 15	3" X 3"	Pedestal	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS		Aluminum	
PG 30	3" X 3"	Pedestal	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS		Aluminum	
PG 40	4" X 4"	Pedestal	Ductile Iron	Cast Iron	Aluminum	Cork/Nitrile	Type 2 Viton/Carbon/ Sil.Car./SS		Aluminum	

Model PO Pumps Compatible For BioDiesel, Fuel Oil & Diesel



The "PO" model mounting offerings for fuel oil and diesel fuel applications include both Pedestal mount for flexible coupling and Close Coupled mount to C Face, TEFC electric motors. Cast Iron is the standard construction for the volute, adapter and open impeller. Standard material for the wear plate is steel. The volute is also available in ductile iron. The standard self-lubricated Type 21 mechanical seal is equipped with a carbon rotating face, viton elastomer and stainless steel spring. The stationary face is Ni-Resist.

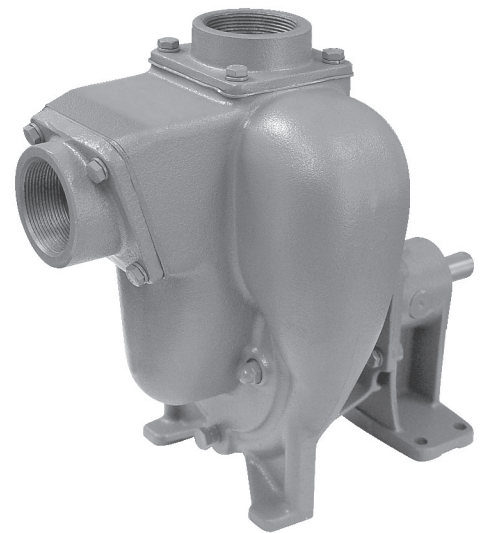


MODEL	SIZE	MOUNTING	STANDARD MATERIALS OF CONSTRUCTION					OPTIONAL MATERIALS		
			VOLUTE	IMPELLER	WEAR PLATE	GASKET	SEAL	VOLUTE	IMPELLER	WEAR PLATE
PO 8	2" X 2"	TEFC	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron	S E E B R T S A L E S R E P	S E E B R T S A L E S R E P
PO 8	2" X 2"	Pedestal	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron		
PO 10	2" X 2"	TEFC	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron		
PO 15	3" X 3"	TEFC	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron		
PO 15	3" X 3"	Pedestal	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron		
PO 30	3" X 3"	Pedestal	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron		
PO 40	4" X 4"	Pedestal	Cast Iron	Cast Iron	Steel	Cork/Nitrile	Type 21 Viton/Carbon/ NiResist/SS	Ductile Iron		

Model PE Pumps Compatible For Ethanol & E 85



The "PE" model is available in Pedestal mount for flexible coupling or Close Coupled mount to C Face Class I Group D Explosion Proof electric motors. Ductile Iron is the standard construction for the volute and adapter. The open impeller is standard in cast iron construction with 316 SS as an optional material. Standard material for the wear plate is steel. The standard self-lubricated Type 2 mechanical seal is equipped with a carbon rotating face, viton elastomer and stainless steel spring. The stationary face is silicon carbide.



MODEL	SIZE	MOUNTING	STANDARD MATERIALS OF CONSTRUCTION					OPTIONAL MATERIALS		
			VOLUTE	IMPELLER	WEAR PLATE	GASKET	SEAL	VOLUTE	IMPELLER	WEAR PLATE
PE 8	2" X 2"	Explosion Proof	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS	SEE BRT SALES REP	316 SS	SEE BRT SALES REP
PE 8	2" X 2"	Pedestal	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS		316 SS	
PE 10	2" X 2"	Explosion Proof	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS		316 SS	
PE 15	3" X 3"	Explosion Proof	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS		316 SS	
PE 15	3" X 3"	Pedestal	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS		316 SS	
PE 30	3" X 3"	Pedestal	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS		316 SS	
PE 40	4" X 4"	Pedesta	Ductile Iron	Cast Iron	Steel	Cork/Nitrile	Type 2 Viton/Carbon/Sil.Car./SS		316 SS	

MP Pumps

Self Priming Petroleum Pumps

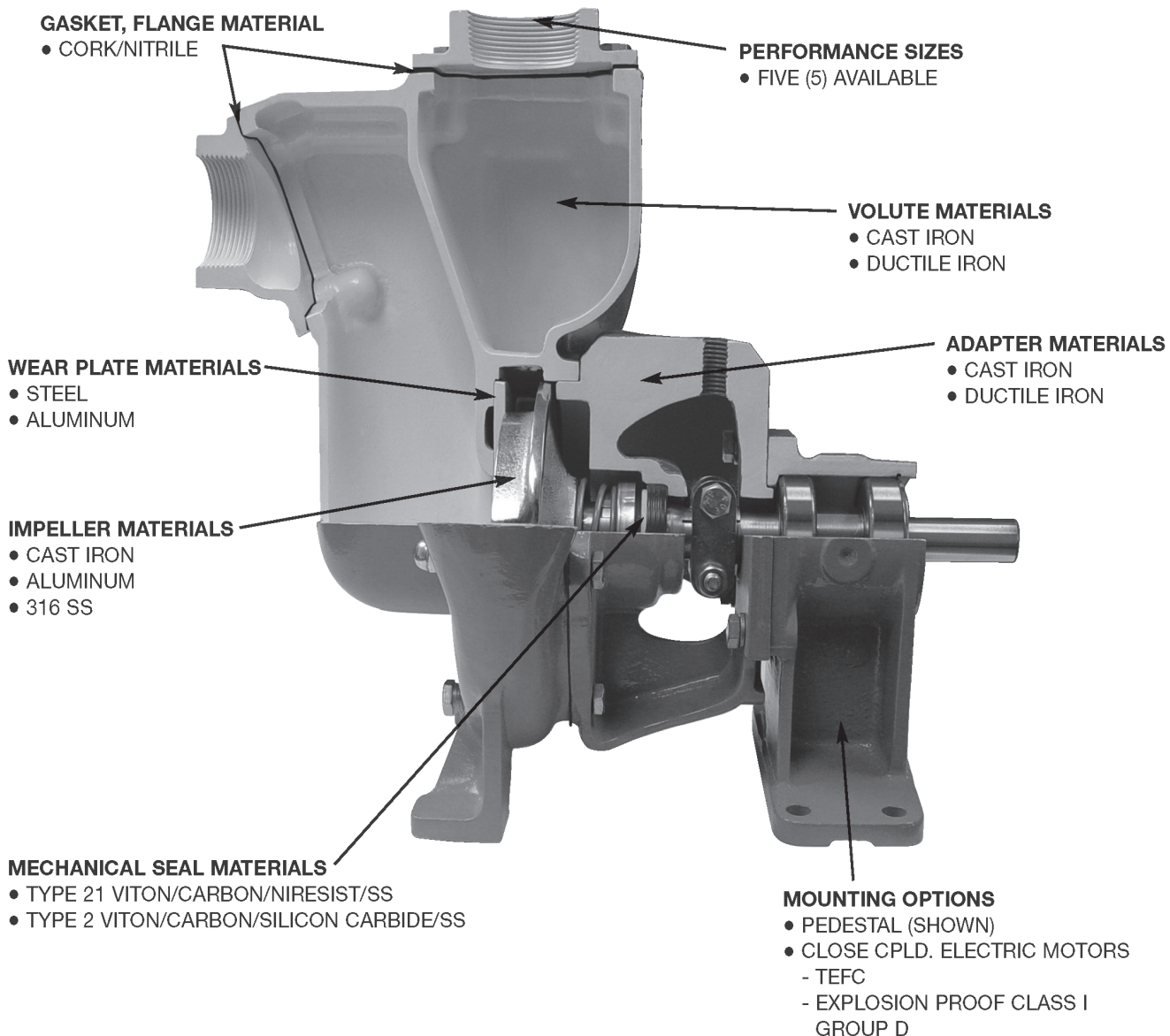
MP Pumps has specifically reengineered its popular Flomax® Self-Priming Series for compatibility with clean, non-abrasive petroleum products.

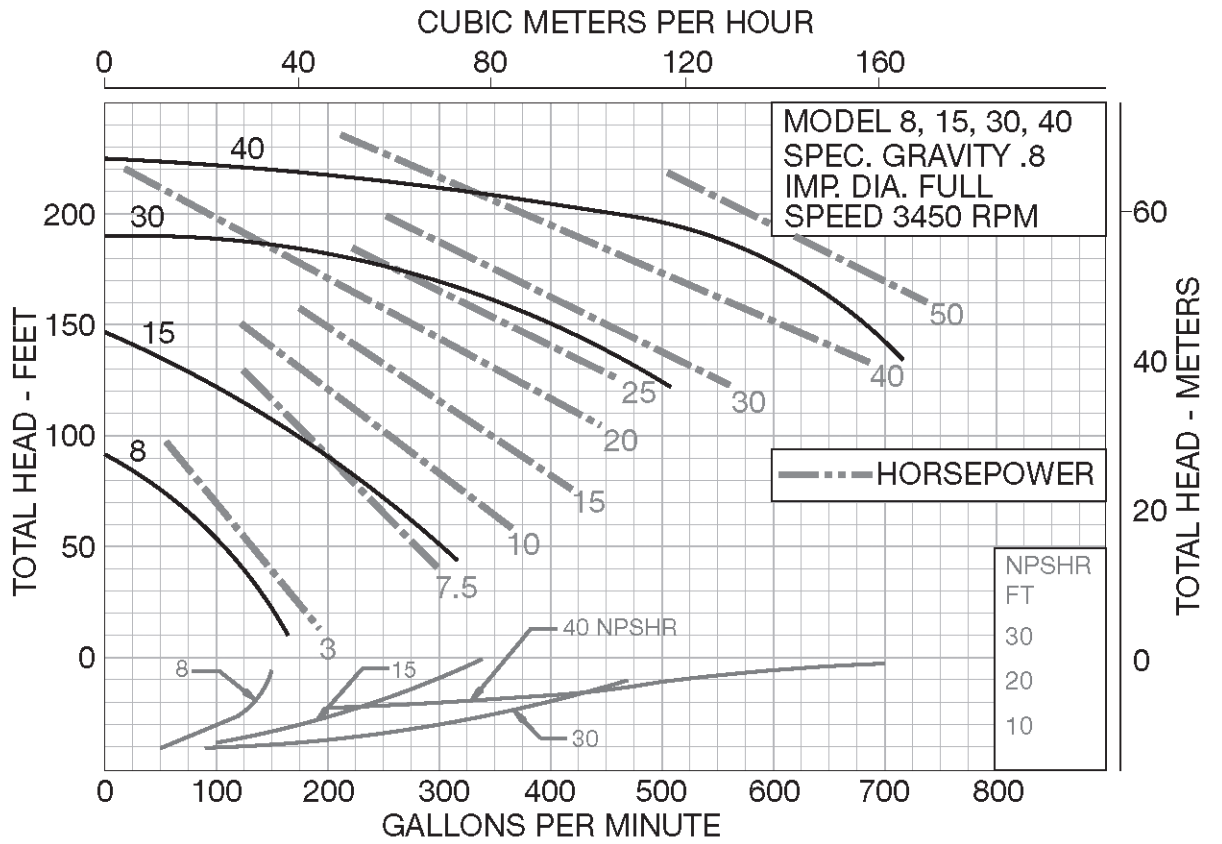
Transfer and delivery of various fuels such as gasoline, ethanol, biodiesel, and fuel oils are just a few of the petroleum based products the Flomax® Series is suitable for handling.

Long recognized as the leader in self-priming applications, the Flomax® Series addresses today's fuel market by offering:

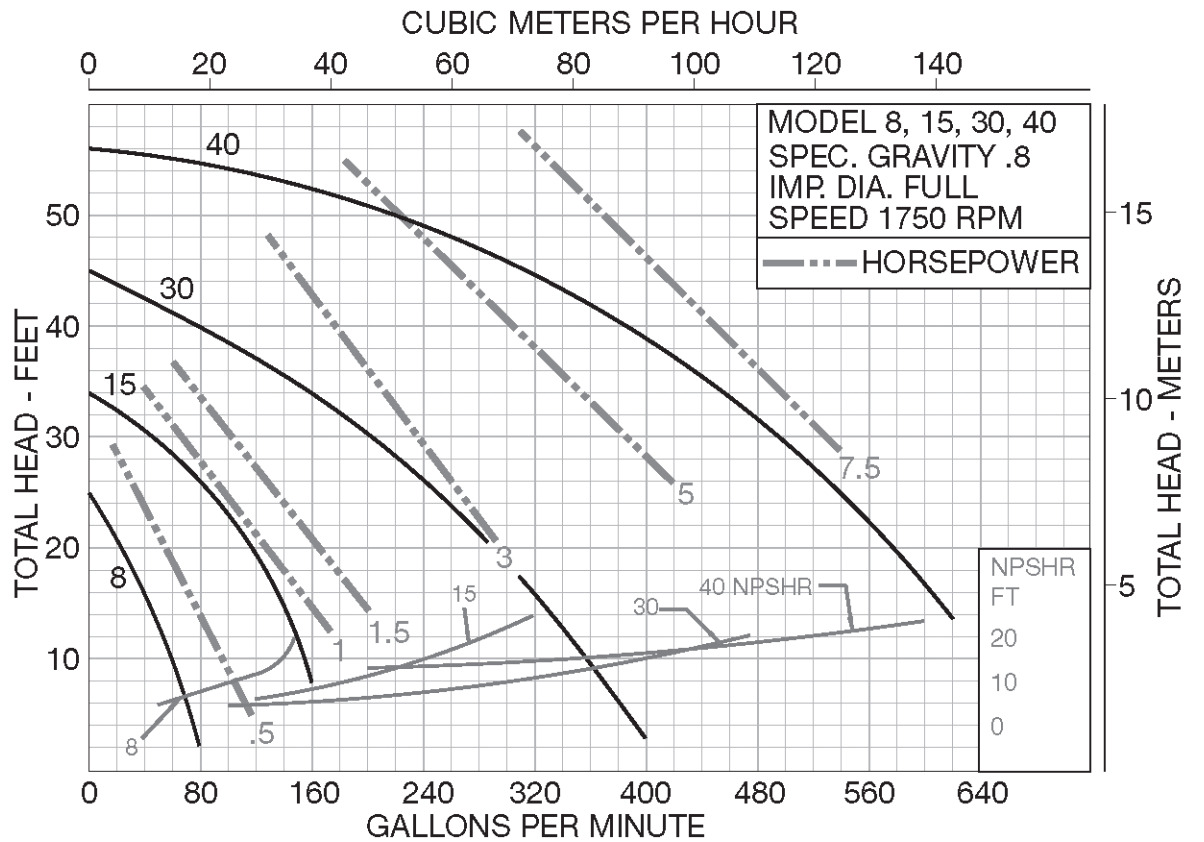
- **Five (5) performance models.**
- **Various drive options.**
- **Specific mechanical seal offerings.**
- **Materials of construction compatible for three (3) distinct fuel classifications.**

By classifying various fuels into three (3) distinct segments, MP Pumps can recommend that its design is capable of handling the specific fuel groups without incurring the additional cost associated with “one pump for all fuels”.





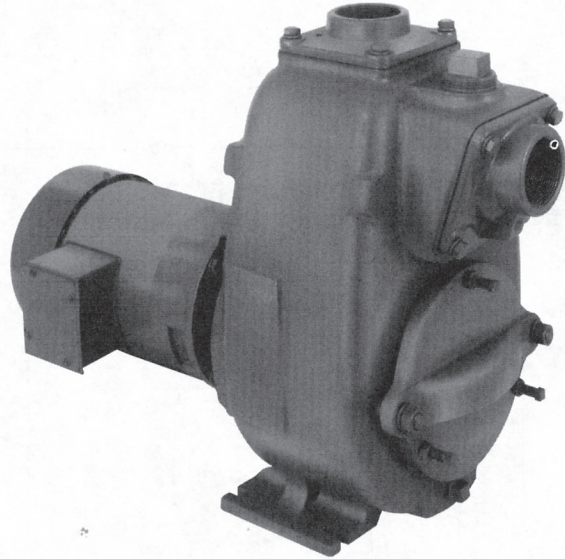
CONSULT FACTORY FOR PERFORMANCE VARIATIONS.



CONSULT FACTORY FOR PERFORMANCE VARIATIONS.

SELF PRIMING TRASH PUMP FEATURES

- CLOSED COUPLED TO ELECTRIC MOTOR OR PEDESTAL FOR STANDARD MOTOR
- FLOW - TO 210 GPM
- PRESSURES - TO 125 FEET HEAD
- CAST IRON CONSTRUCTION
- ELECTRIC MOTOR DRIVE
- IMPELLER - DUCTILE IRON
- SHAFT SLEEVE - 304 STAINLESS STEEL
- SEALS - CARBON/CERAMIC VITON MECHANICAL SEAL
- OPTIONS:
 - ENGINE DRIVES
 - HYDRAULIC DRIVES



2CT

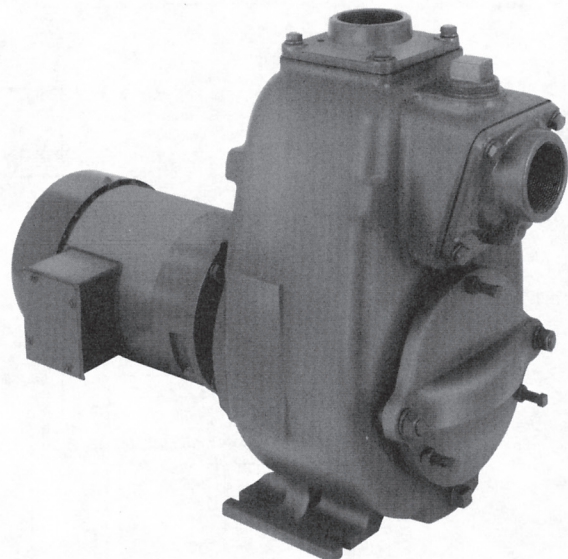
MODEL	Suction	Discharge
2CT	2" NPT	2" NPT

PROVEN WRONG BY HISTORY: (continued)

“So we went to Atari and said, ‘Hey, we’ve got this amazing thing, even built with some of your parts, and what do you think about funding us? Or we’ll give it to you. We just want to do it. Pay our salary, we’ll come work for you.’ And they said, ‘No.’ So then we went to Hewlett-Packard, and they said, ‘Hey, we don’t need you. You haven’t got through college yet.’”

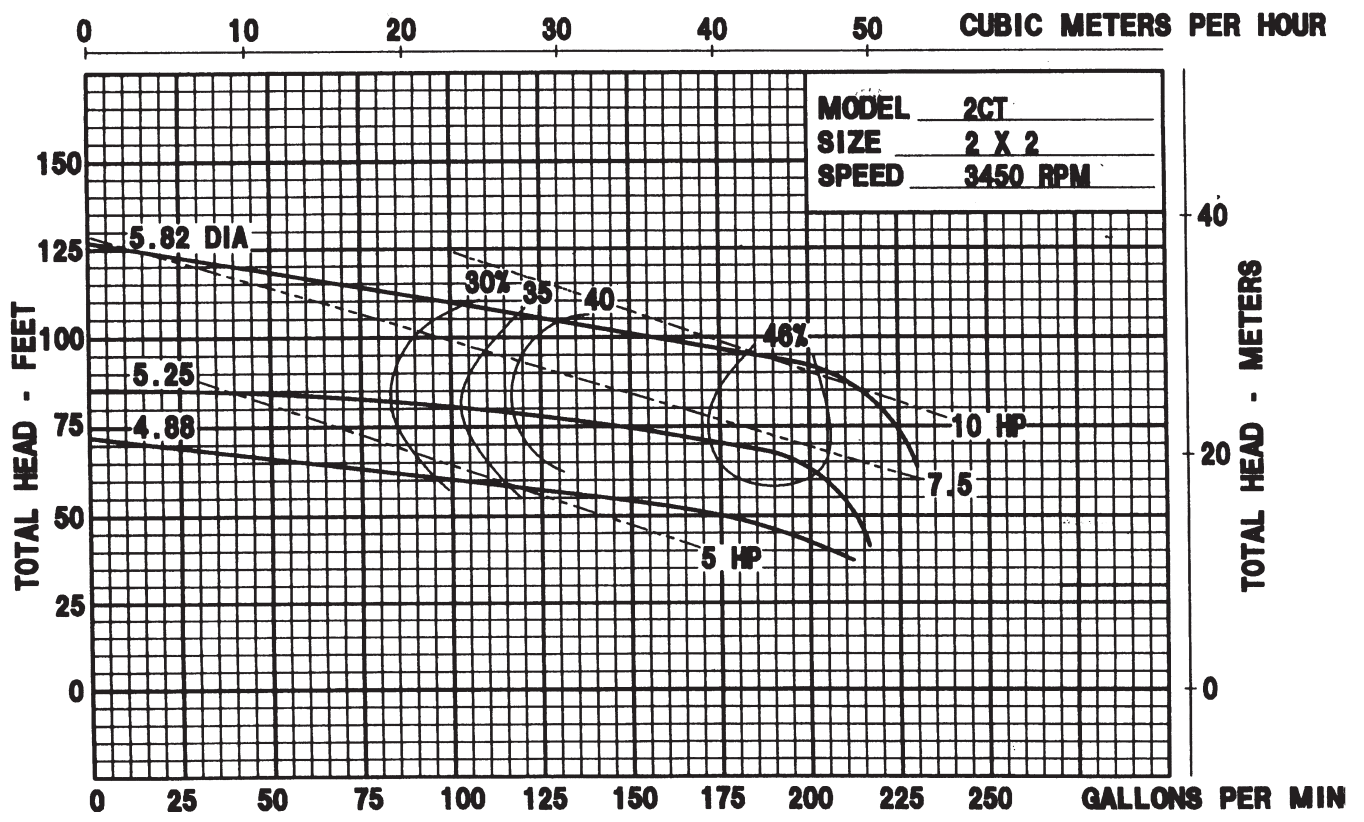
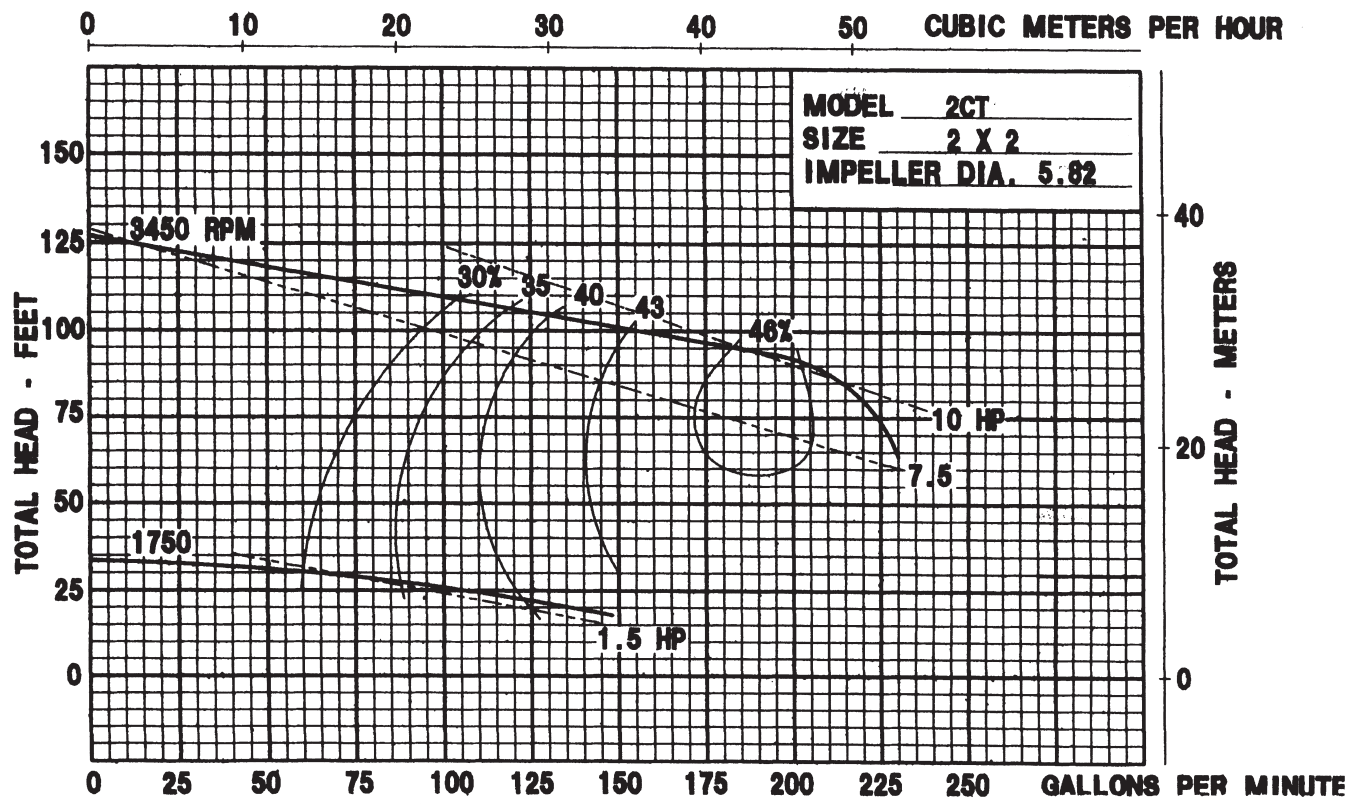
-Apple Computer, Inc., founder Steve Jobs on attempts to get Atari and Hewlett-Packard

interested in the personal computer that he and Steve Wozniak created

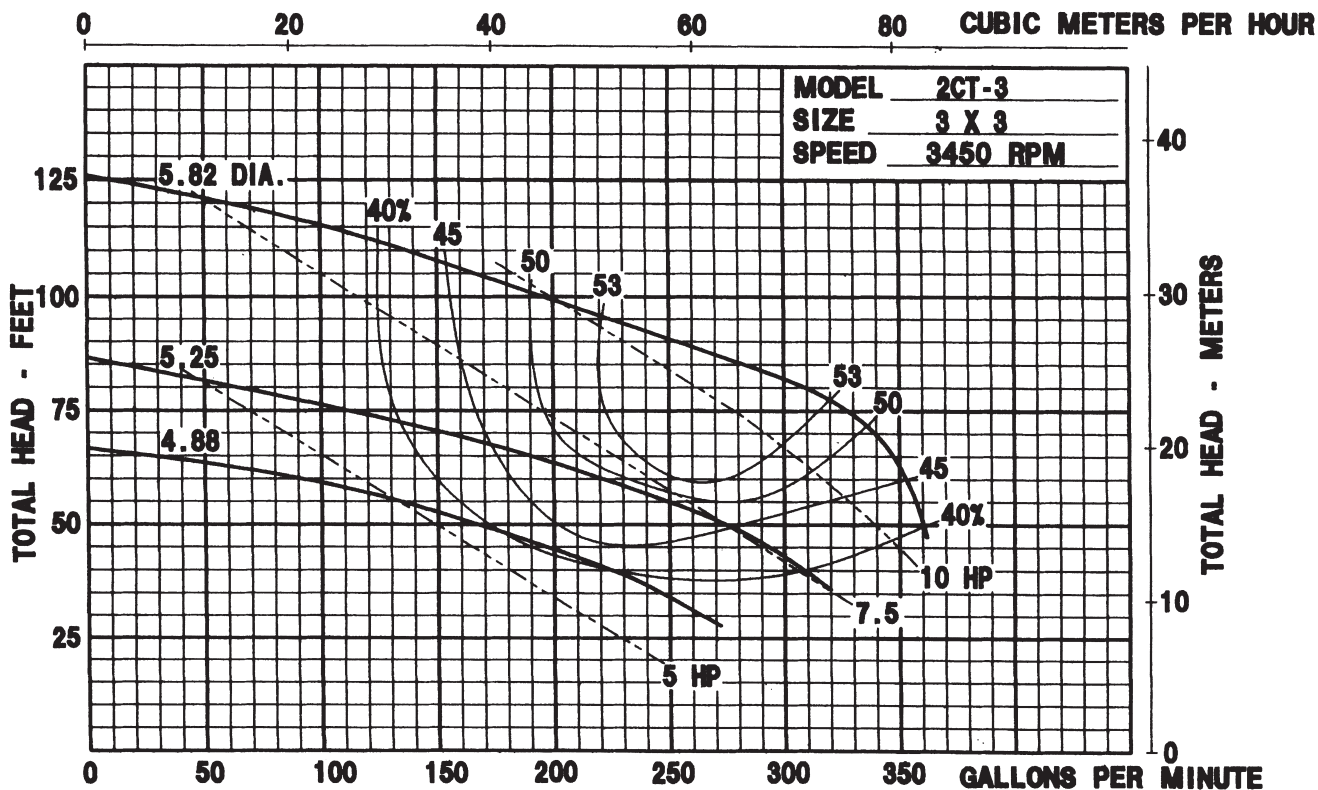
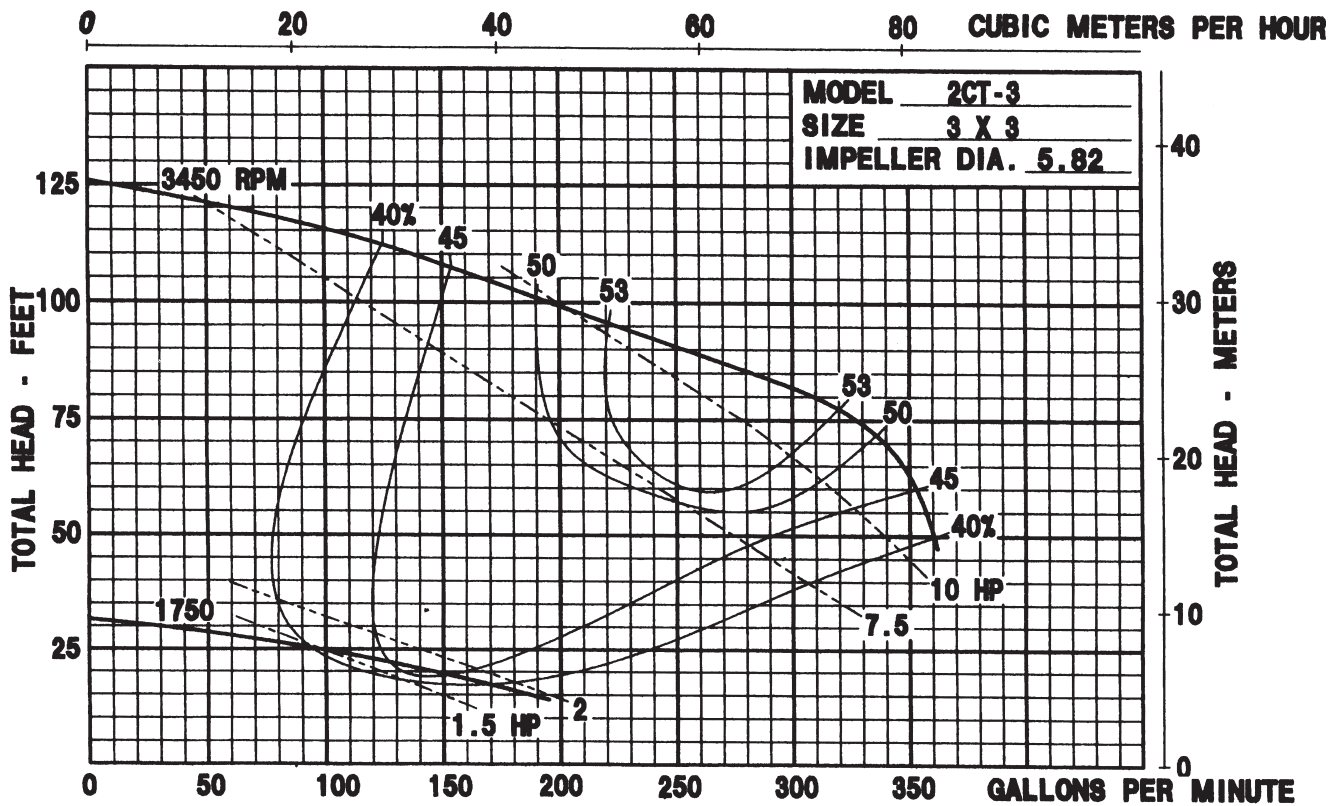


2CT-3

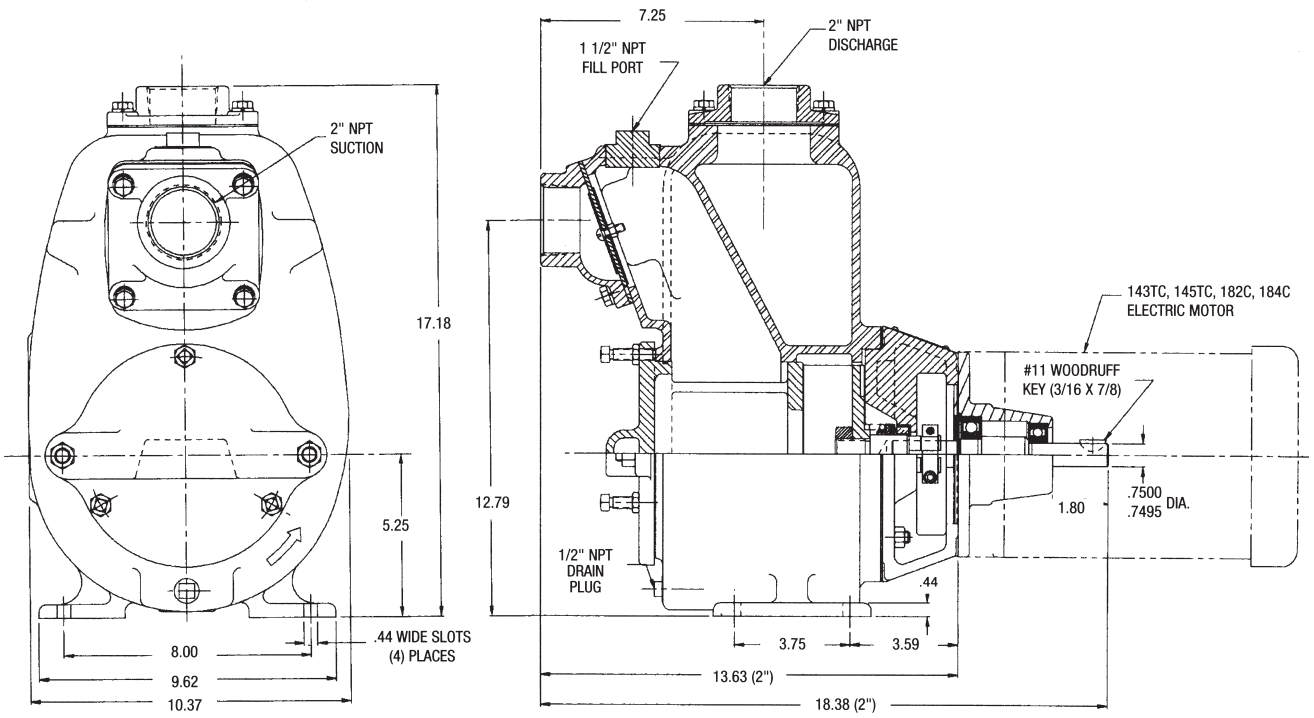
2CT Pump Performance Curves



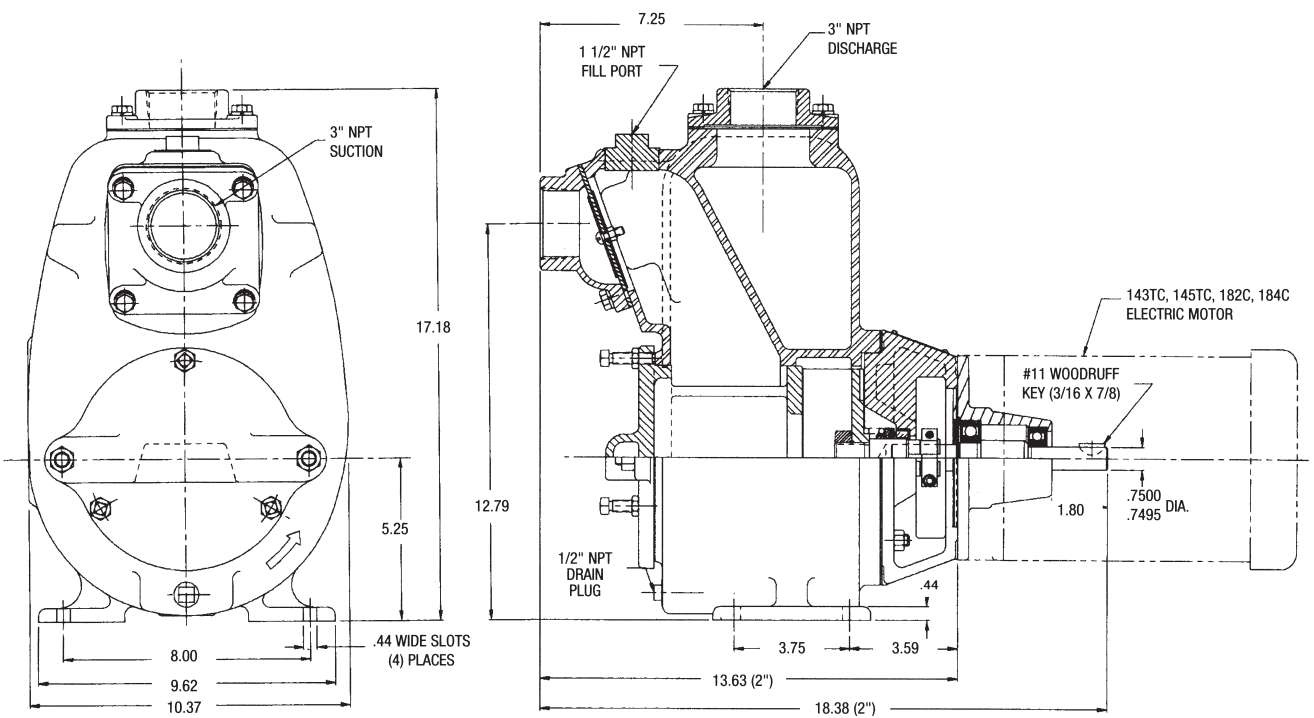
2CT-3 Pump Performance Curves



2CT Dimensions



2CT-3 Dimensions



SERIES 30 60 80 110

END SUCTION CENTRIFUGAL PUMP FEATURES

- SERIES 30, 60, 80, 110, 120, 130, 200, 300 & 700 CLOSED COUPLED TO ELECTRIC MOTOR
SERIES 300 PEDESTAL PUMP, OR FOOT MOUNTED FOR BELT OR DIRECT DRIVE
SERIES 700 PEDESTAL ANSI A-40 PUMP FOR BELT OR DIRECT DRIVE

- PUMPAK ONLY TO MOUNT TO STANDARD NEMA "C" FACE MOTOR .3-40 HP

- NEMA JP PUMP MOTOR UP TO 25HP

- FLOWS - 40-800 GPM

- PRESSURES - 40-190 FEET HEAD

AVAILABLE IN:

- SERIES 30 CAST IRON, BRONZE & ALUMINUM CONSTRUCTION
- SERIES 60 CAST IRON
- SERIES 80, 110, 120, 130 & 200 CAST IRON & BRONZE
- SERIES 300 CAST IRON AND CAST IRON STAINLESS STEEL FITTED
- SERIES 700 DUCTILE IRON CONSTRUCTION

- VERTICAL OR HORIZONTAL DISCHARGE

IMPELLER:

- SERIES 30 AVAILABLE IN CAST IRON, BRONZE, ALUMINUM
- SERIES 60, 110, 130 AND 200 AVAILABLE IN CAST IRON & BRONZE
- SERIES 80 & 120 AVAILABLE IN BRONZE (CAST IRON OPTIONAL)
- SERIES 300 & 700 AVAILABLE IN DUCTILE IRON-ENCLOSED

SHAFT SLEEVE:

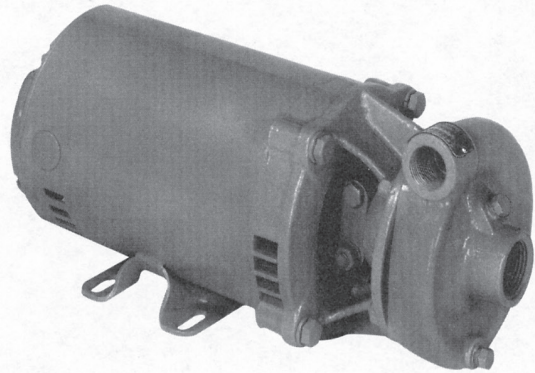
- SERIES 30, 60, 80, 110, 130 & 200 STAINLESS STEEL
- SERIES 300 STEEL
- SERIES 700 STEEL OR STAINLESS STEEL

- FASTENERS - STAINLESS STEEL

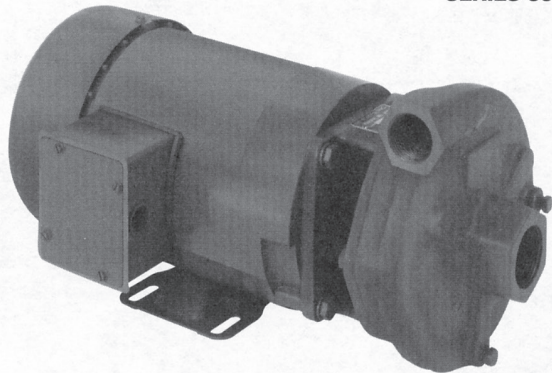
- SEALS - STANDARD VITON, OPTIONAL SEALS AVAILABLE (CONSULT FACTORY)

OPTIONS:

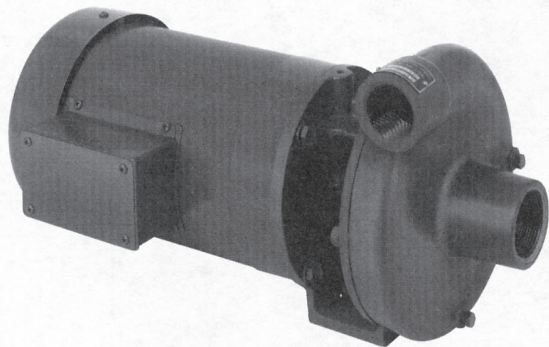
- ENGINE DRIVES
- PEDESTAL MODELS
- HYDRAULIC DRIVES
- CLUTCHPAKS
- MOTOR DRIVES



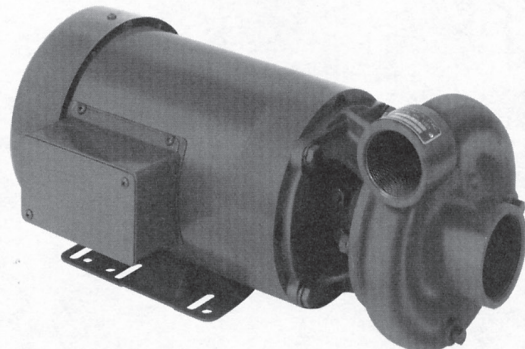
SERIES 30



SERIES 60

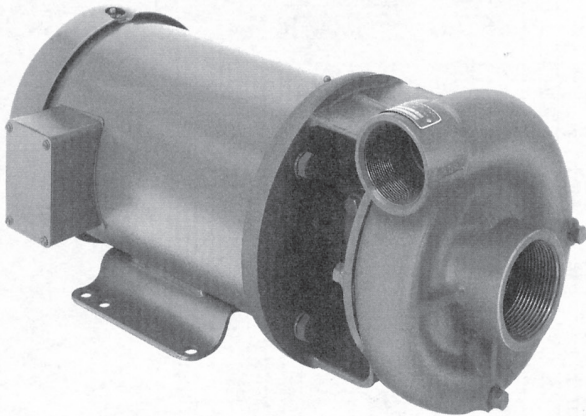


SERIES 80

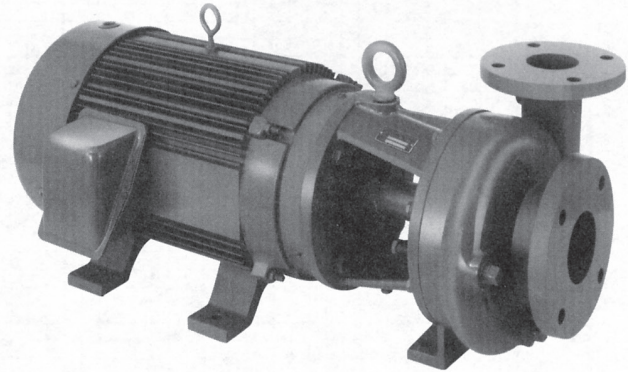


SERIES 110

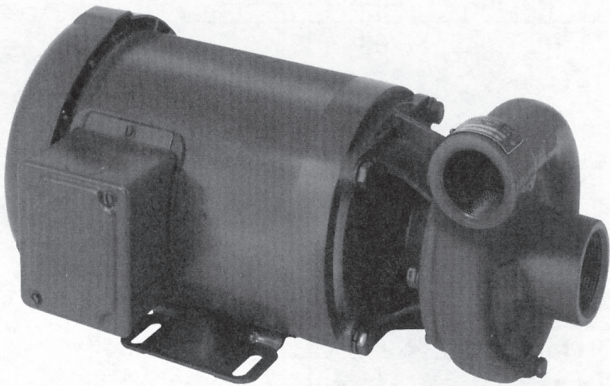
120 130 200 300 700



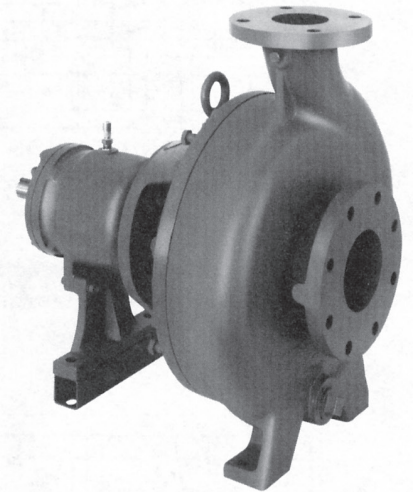
SERIES 120



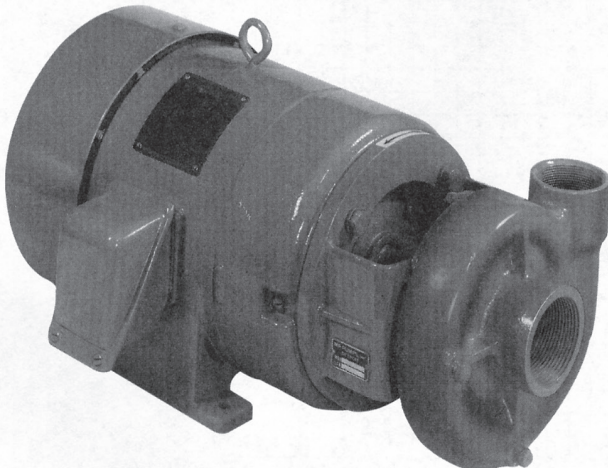
SERIES 300



SERIES 130



SERIES 700

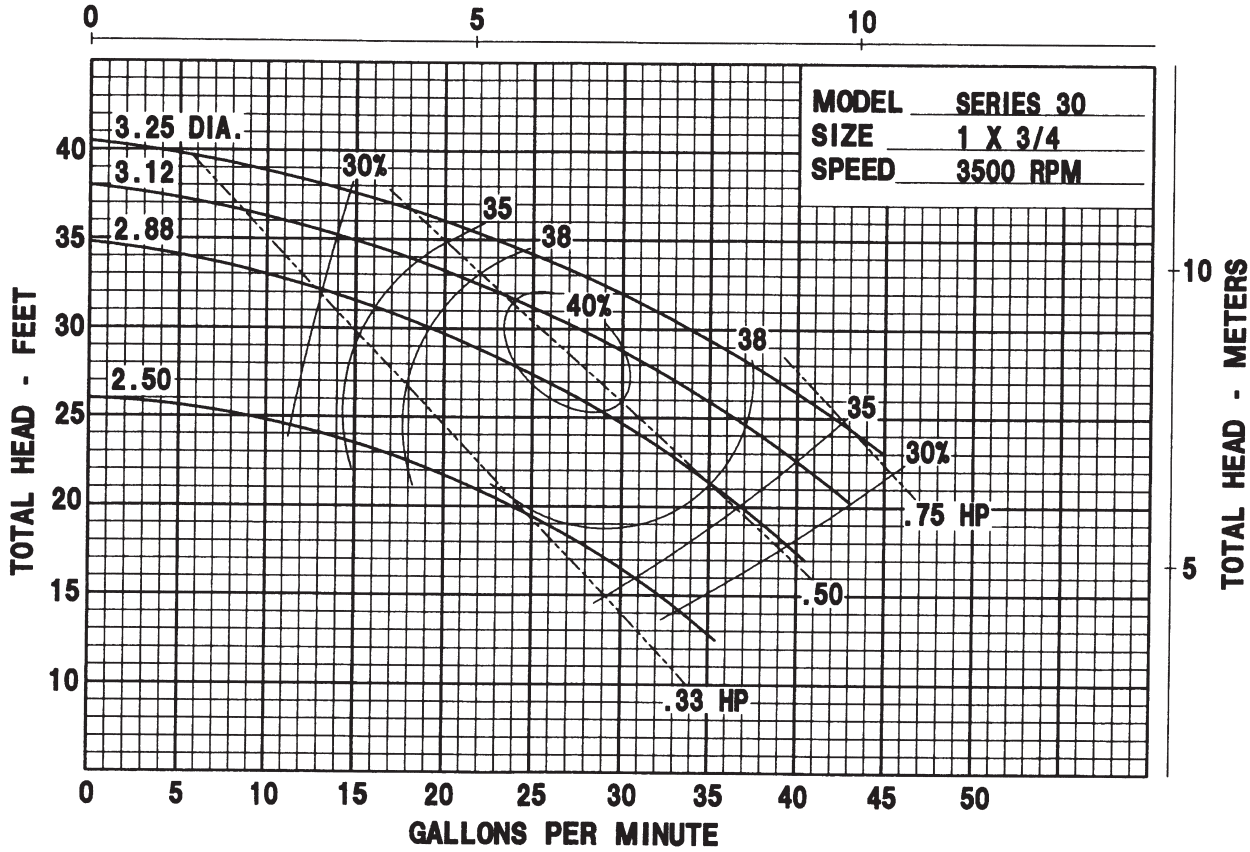


SERIES 200

MODEL	Suction	Discharge
SERIES 30	1" NPT	3/4" NPT
SERIES 60	1 1/4" NPT	1" NPT
SERIES 80	1 1/2" NPT	1 1/4" NPT
SERIES 110	1 1/2" NPT	1 1/4" NPT
SERIES 120	2" NPT	1 1/2" NPT
SERIES 130	2" NPT	1 1/2" NPT
SERIES 200	2 1/2" NPT	2" NPT
SERIES 300	3" NPT	2 1/2" NPT
SERIES 700	4" NPT	3" NPT

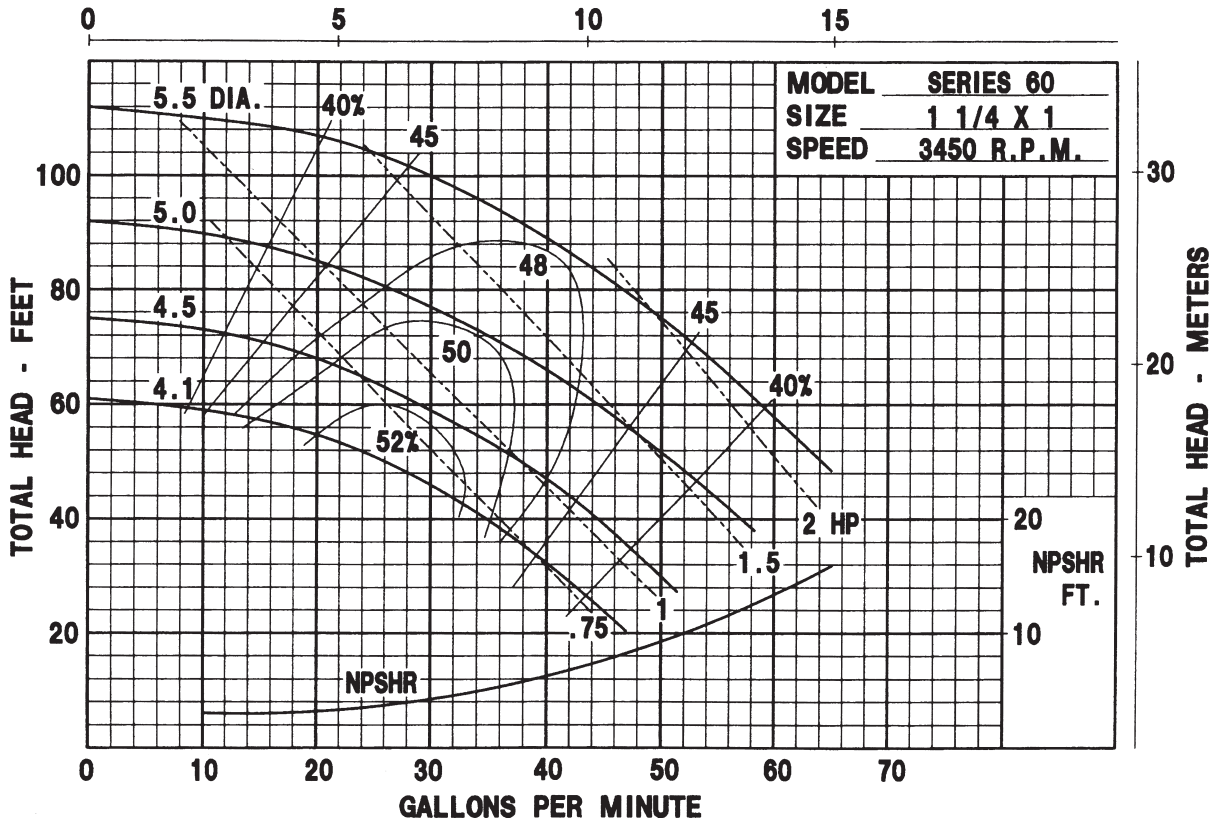
Series 30 Pump Performance Curves

CUBIC METERS PER HOUR

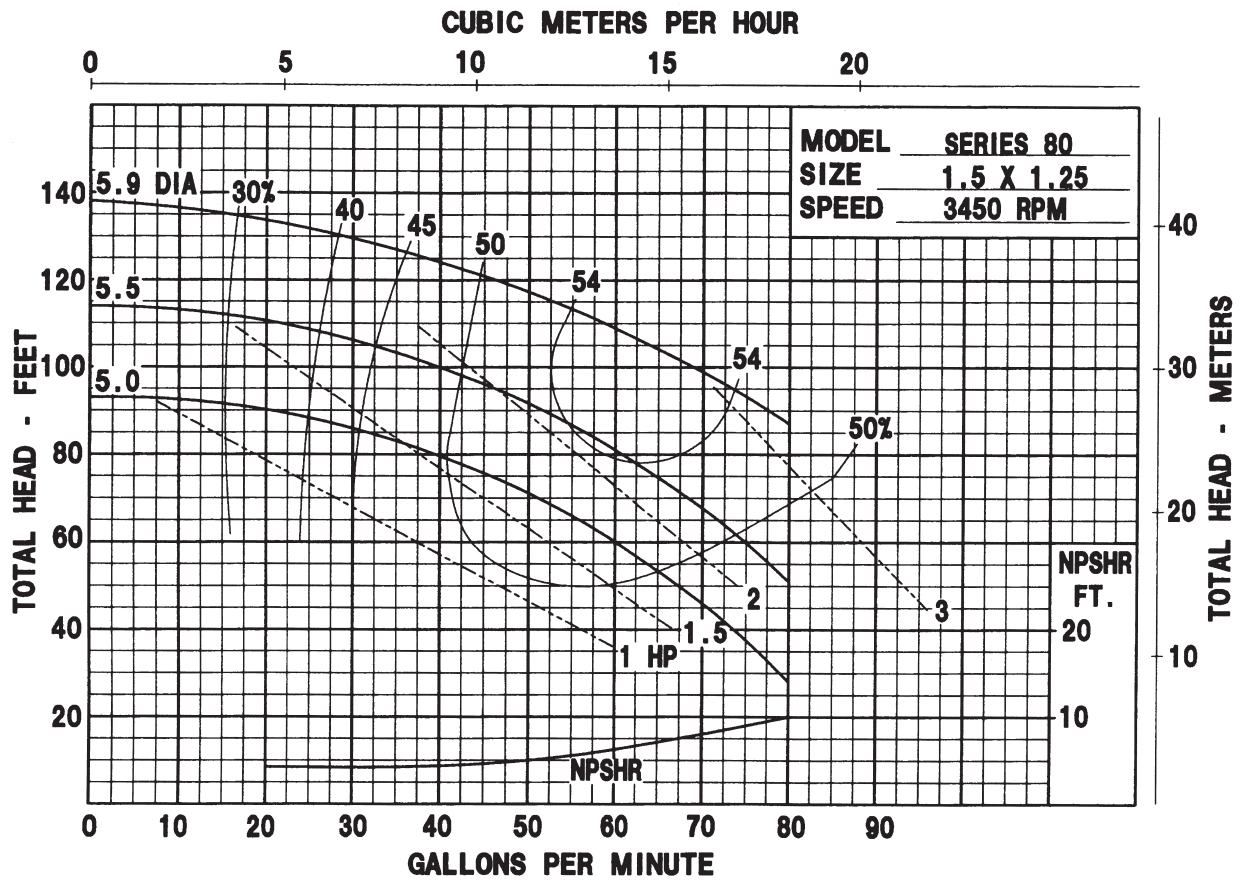


Series 60 Pump Performance Curves

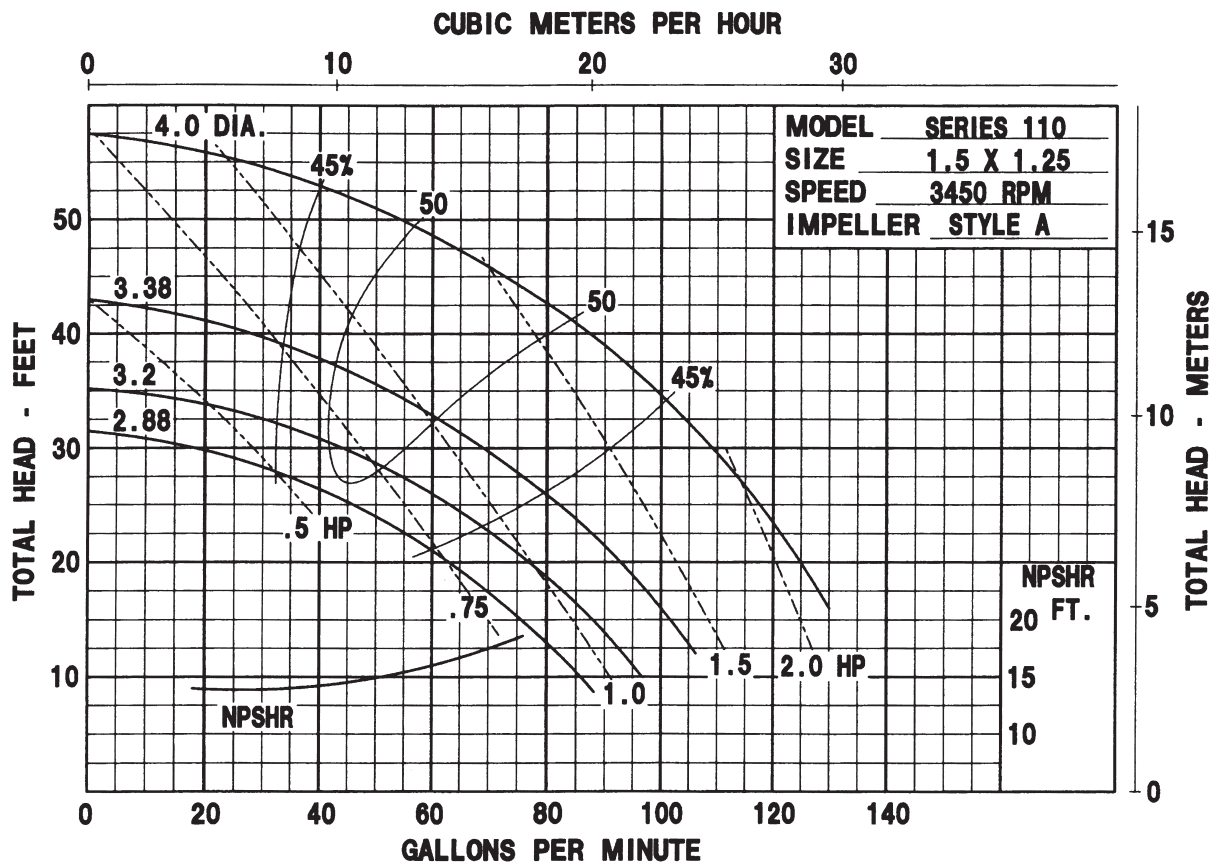
CUBIC METERS PER HOUR



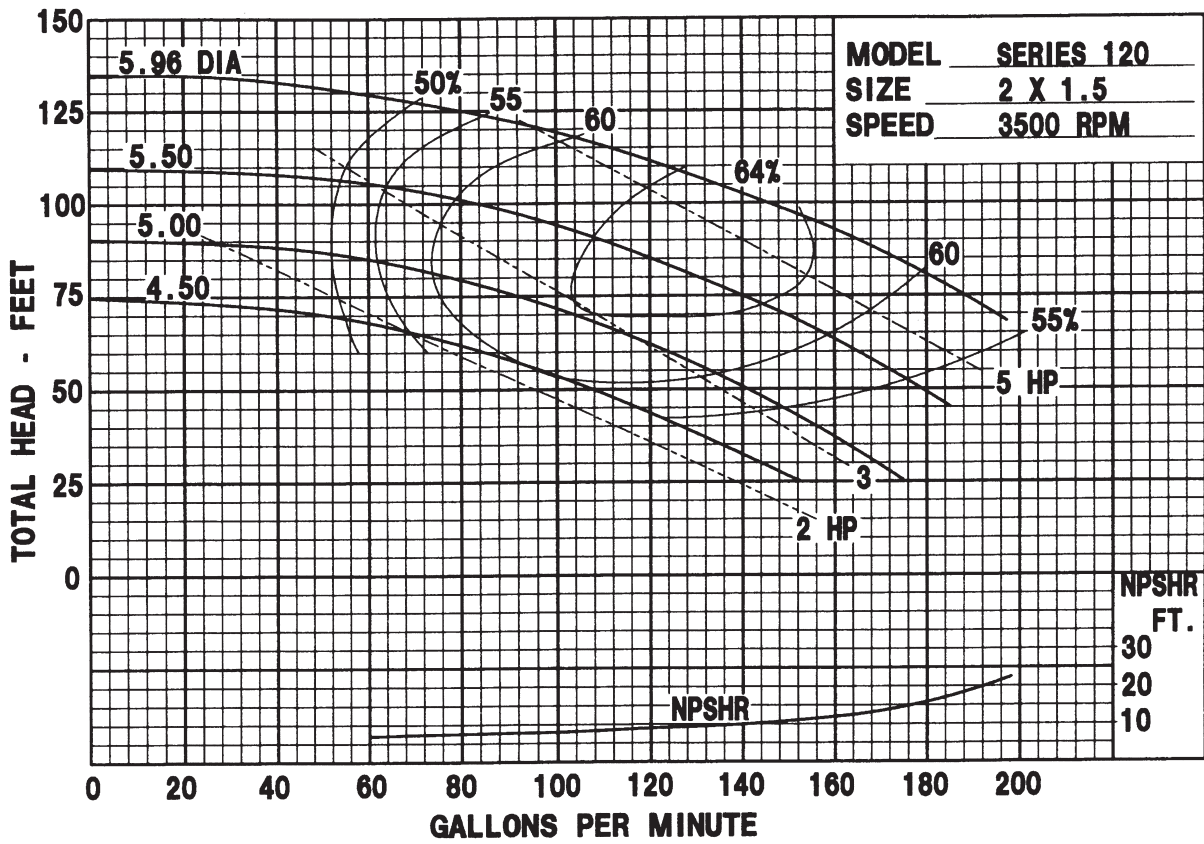
Series 80 Pump Performance Curves



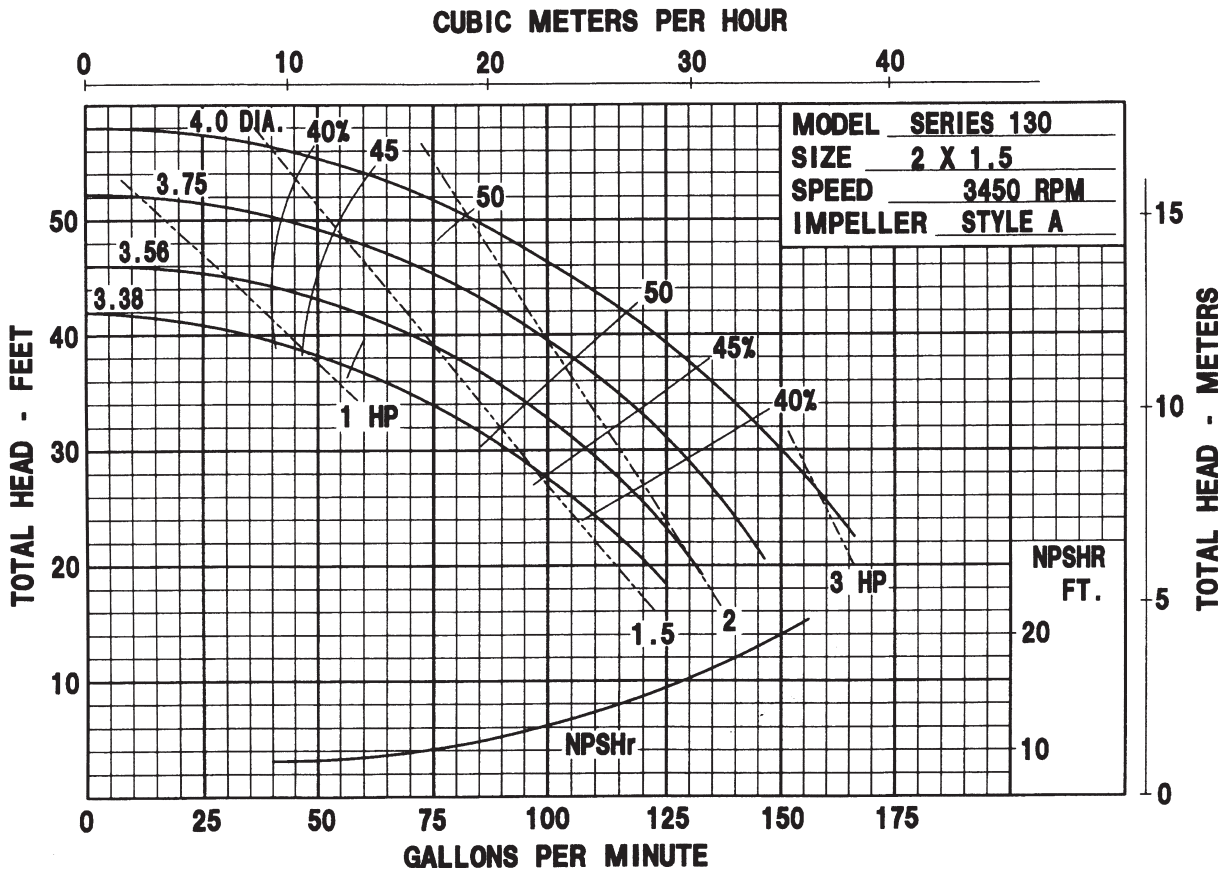
Series 110 Pump Performance Curves



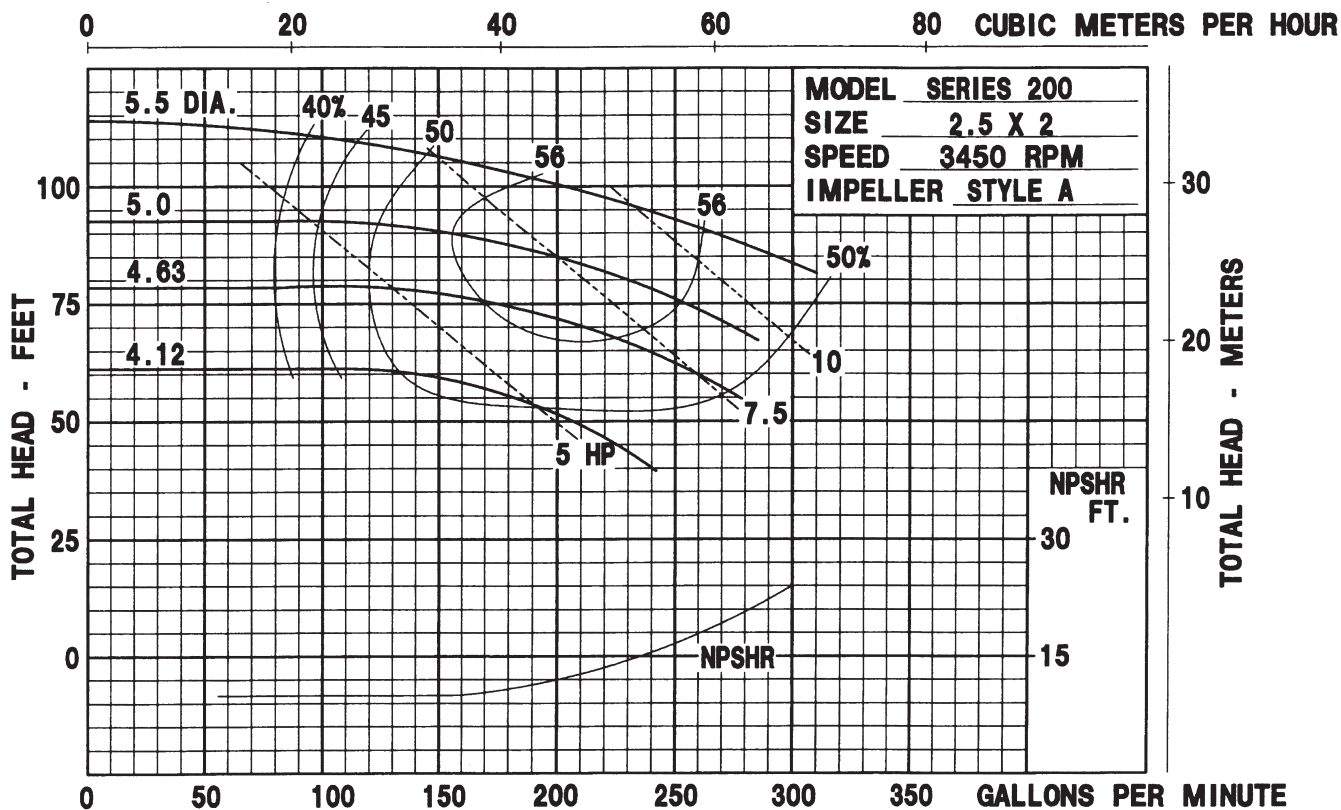
Series 120 Pump Performance Curves



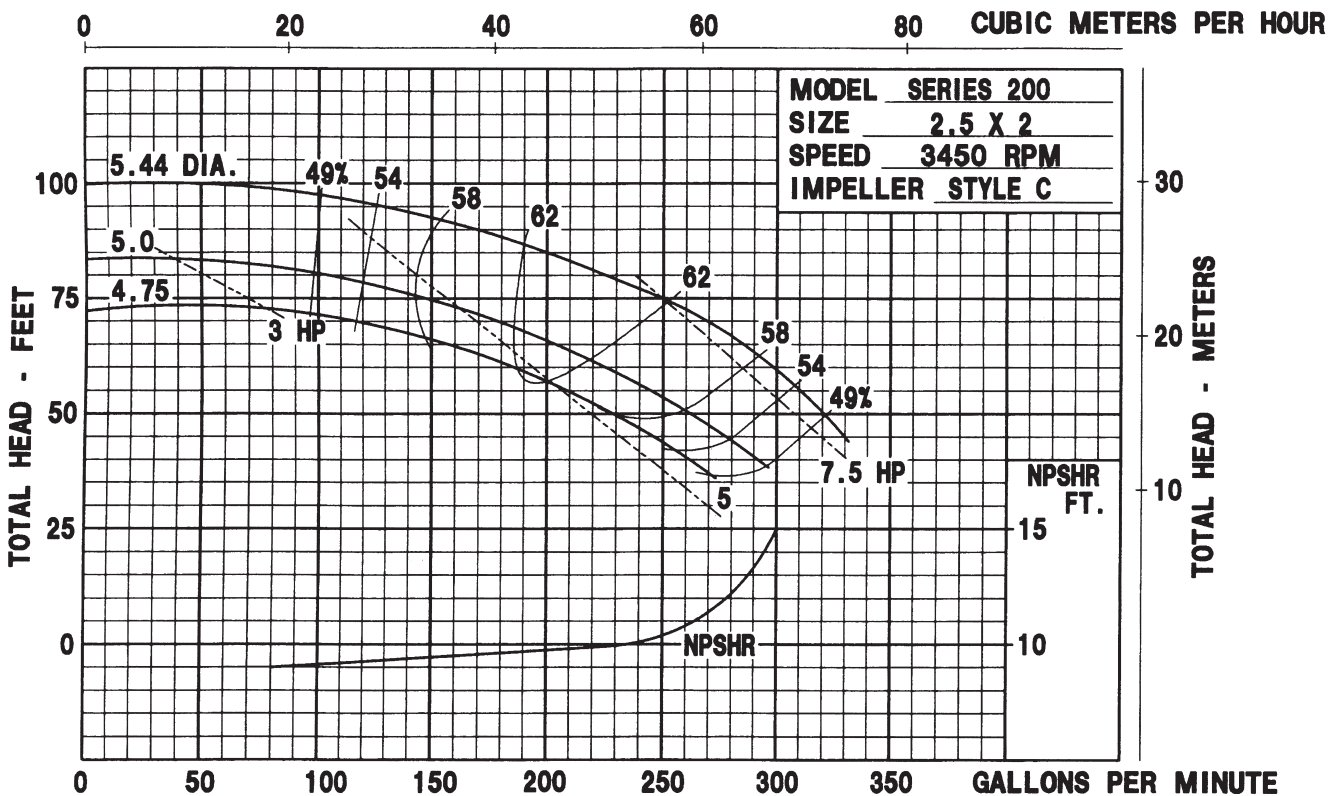
Series 130 Pump Performance Curves



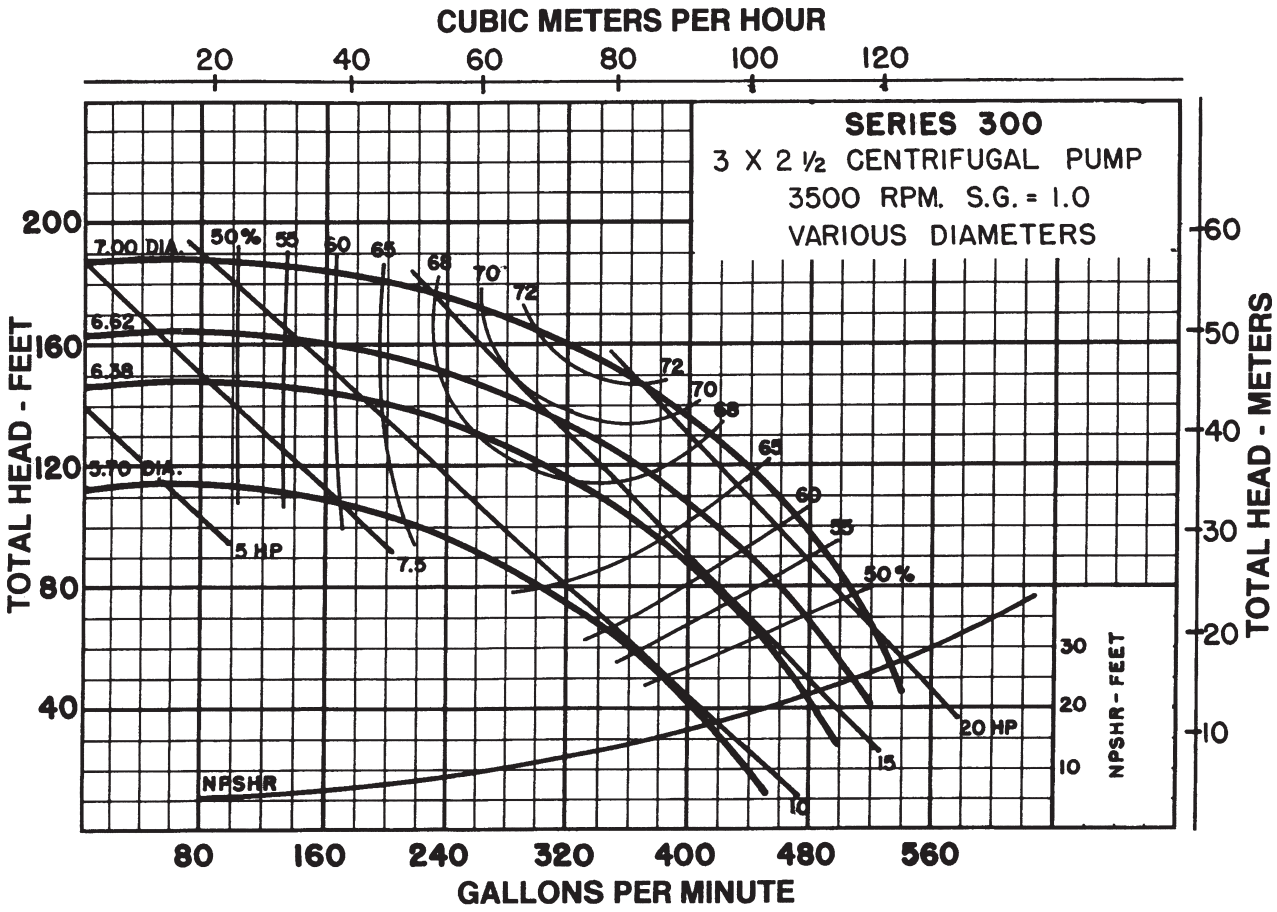
Series 200 Style A Pump Performance Curves



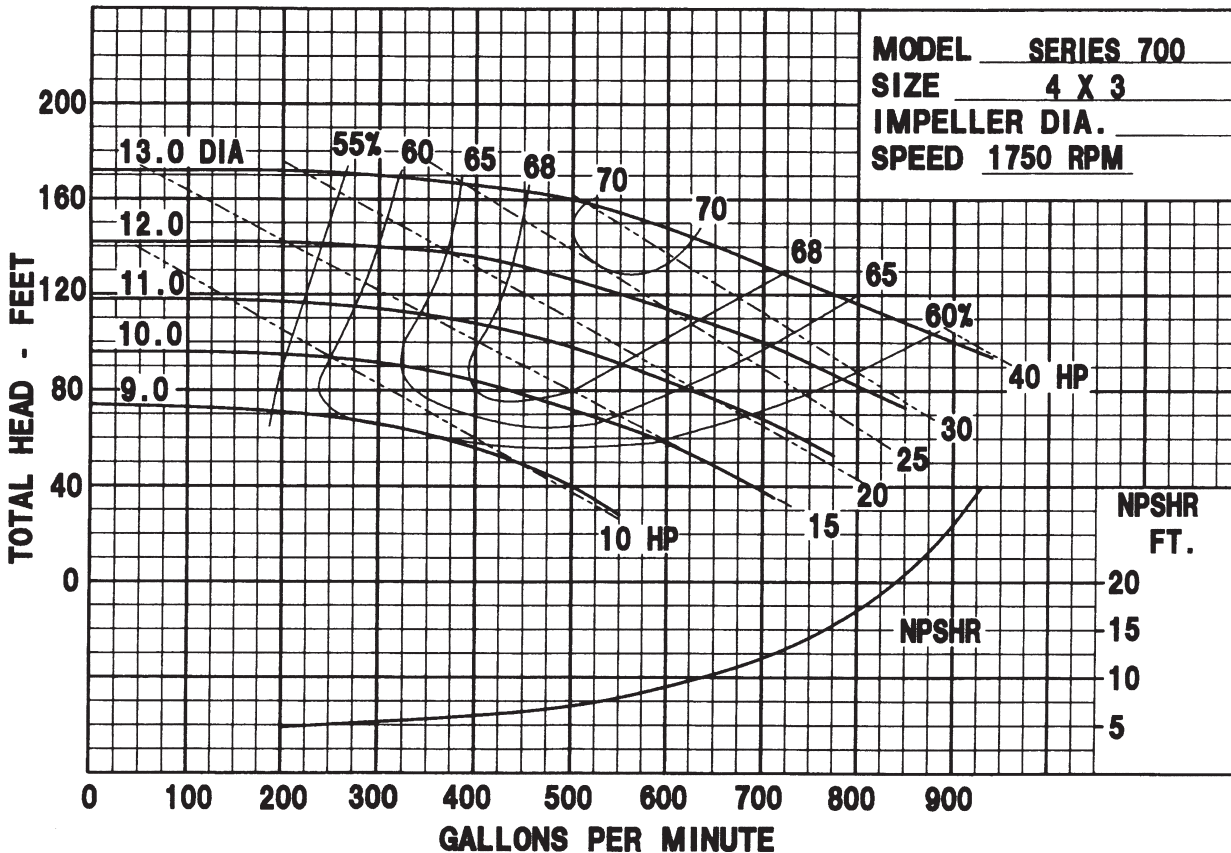
Series 200 Style C Pump Performance Curves



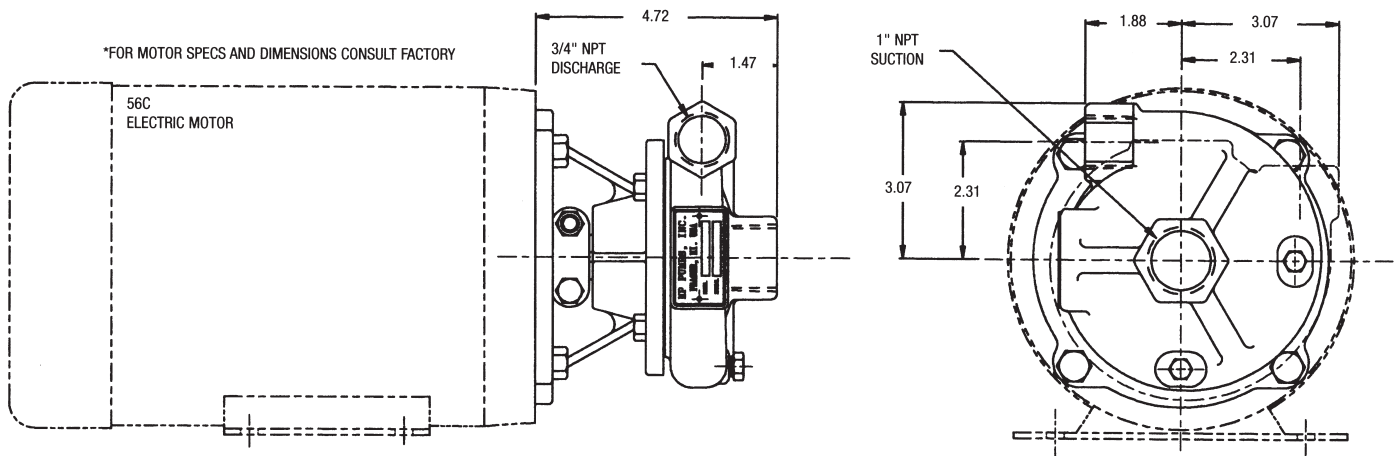
Series 300 Pump Performance Curves



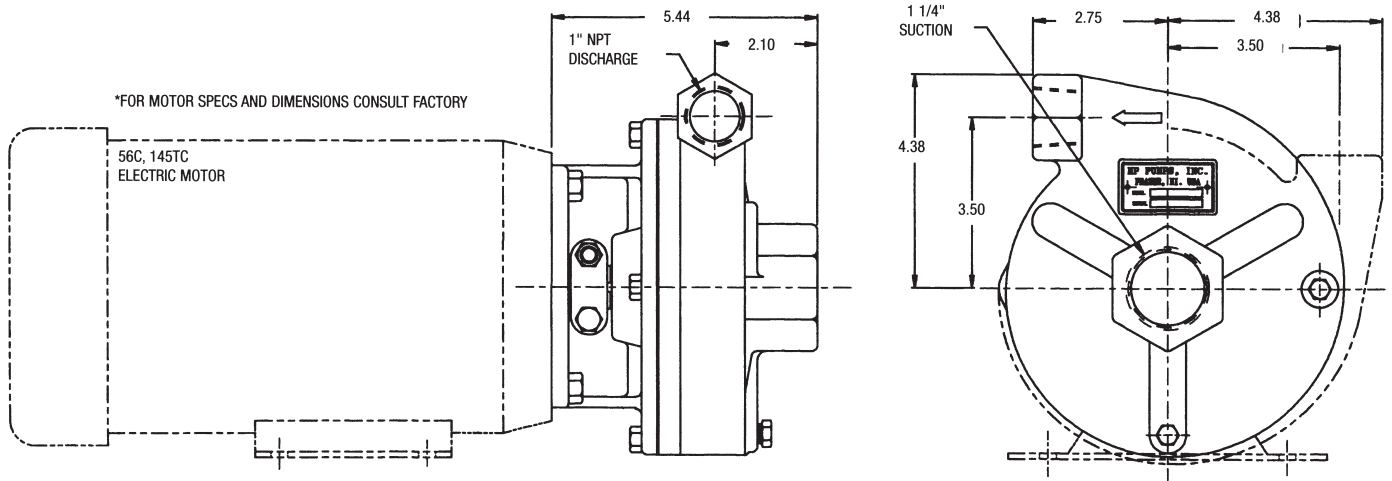
Series 700 Pump Performance Curves



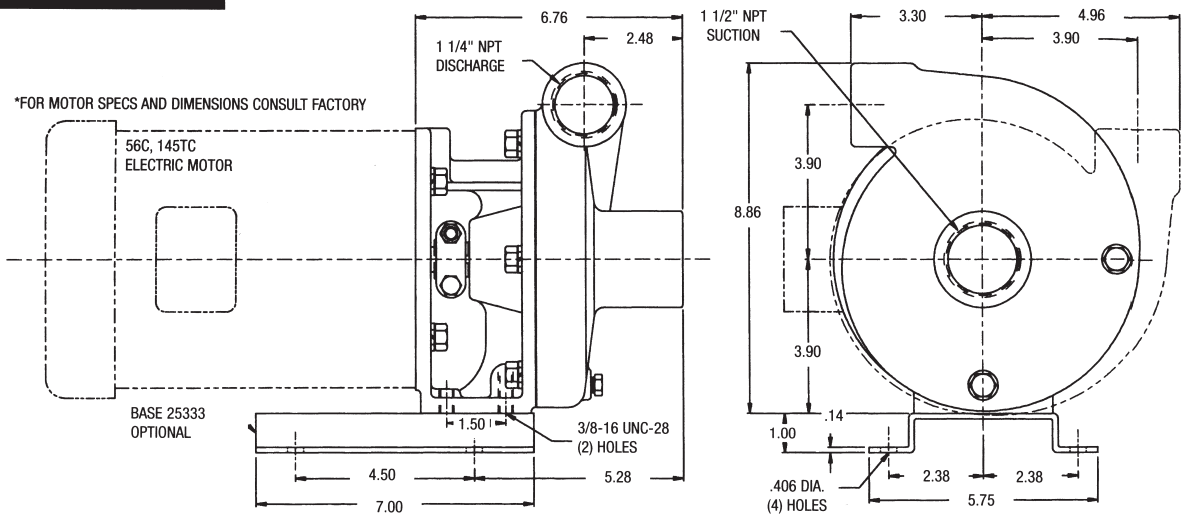
Series 30 Dimensions



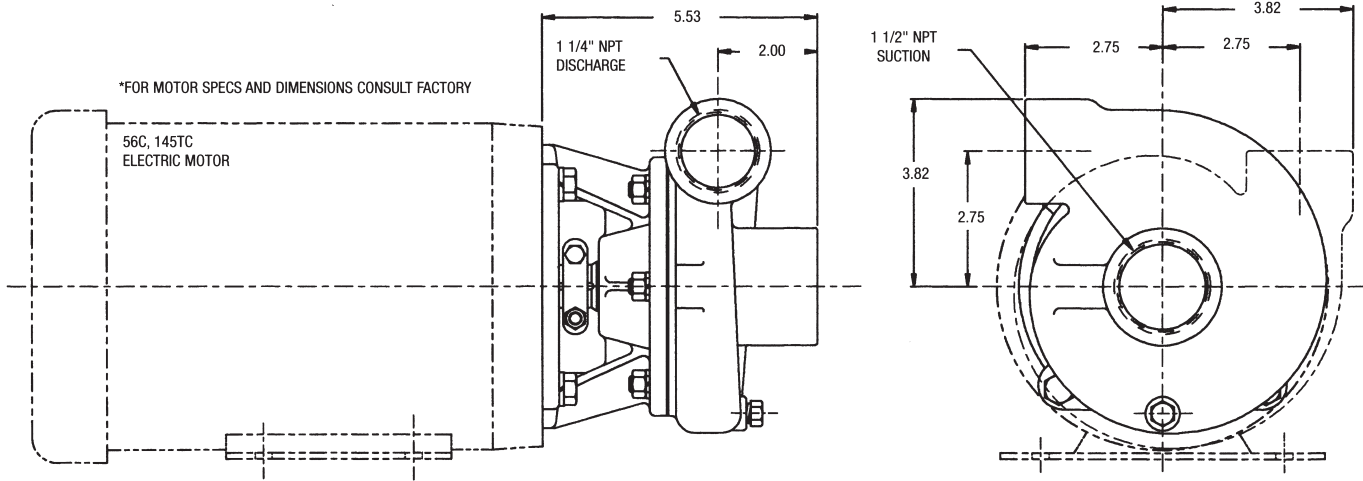
Series 60 Dimensions



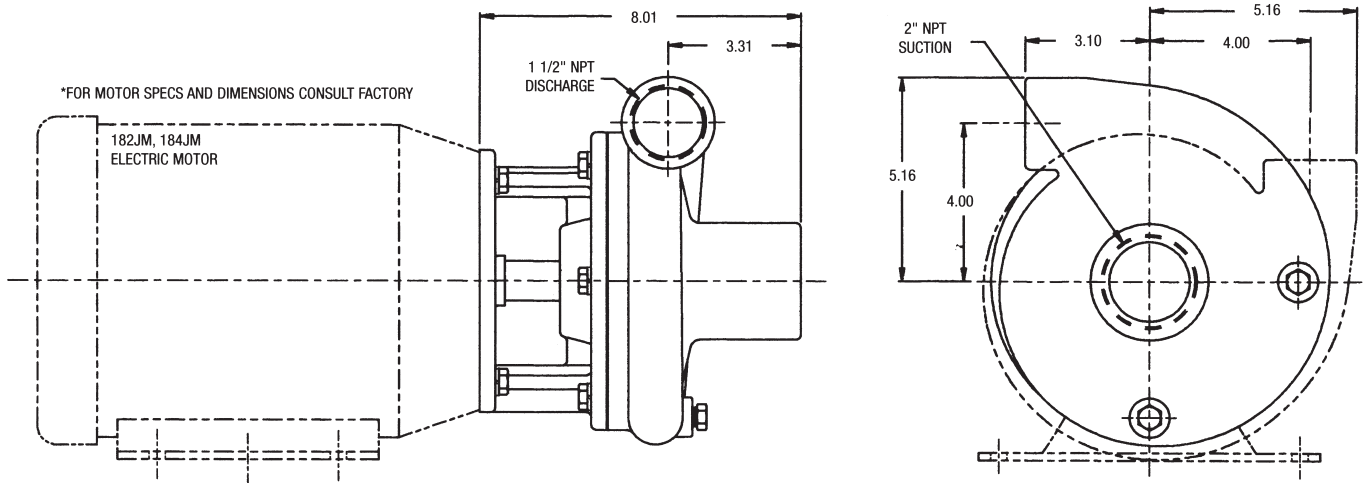
Series 80 Dimensions



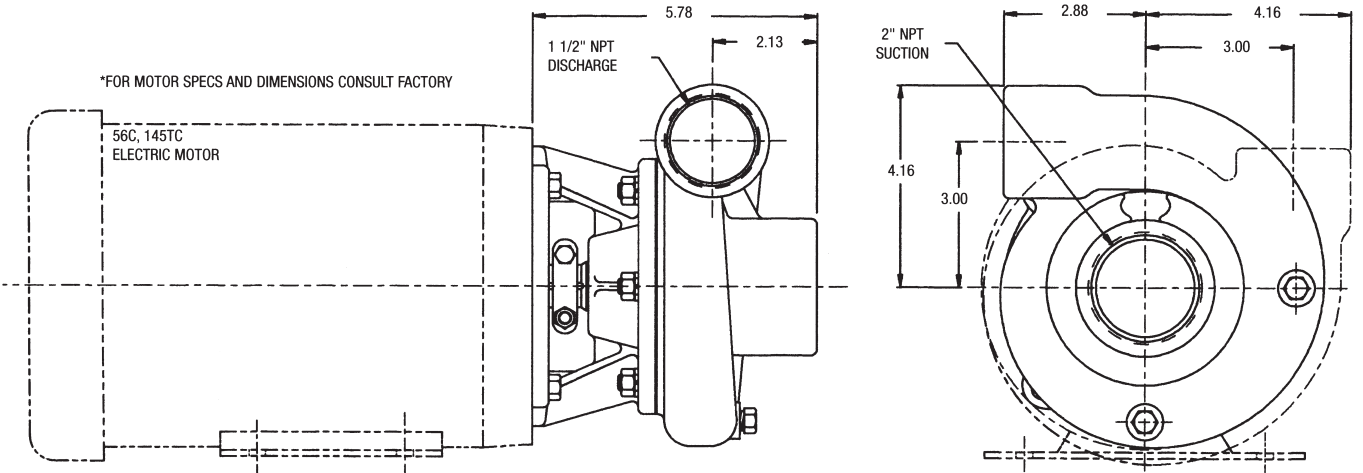
Series 110 Dimensions



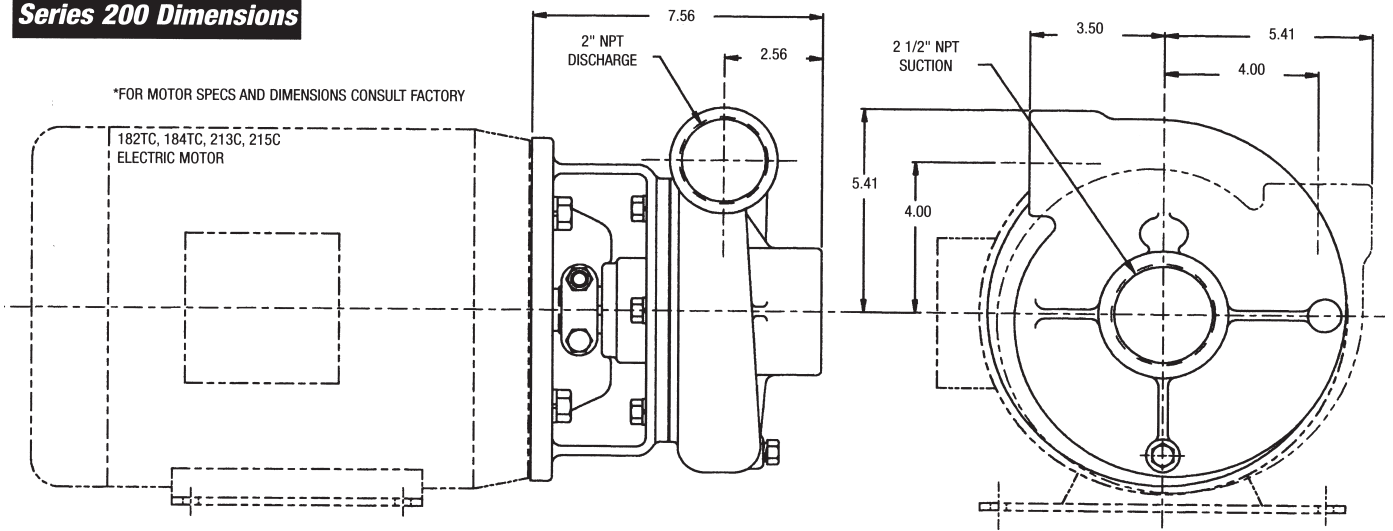
Series 120 Dimensions



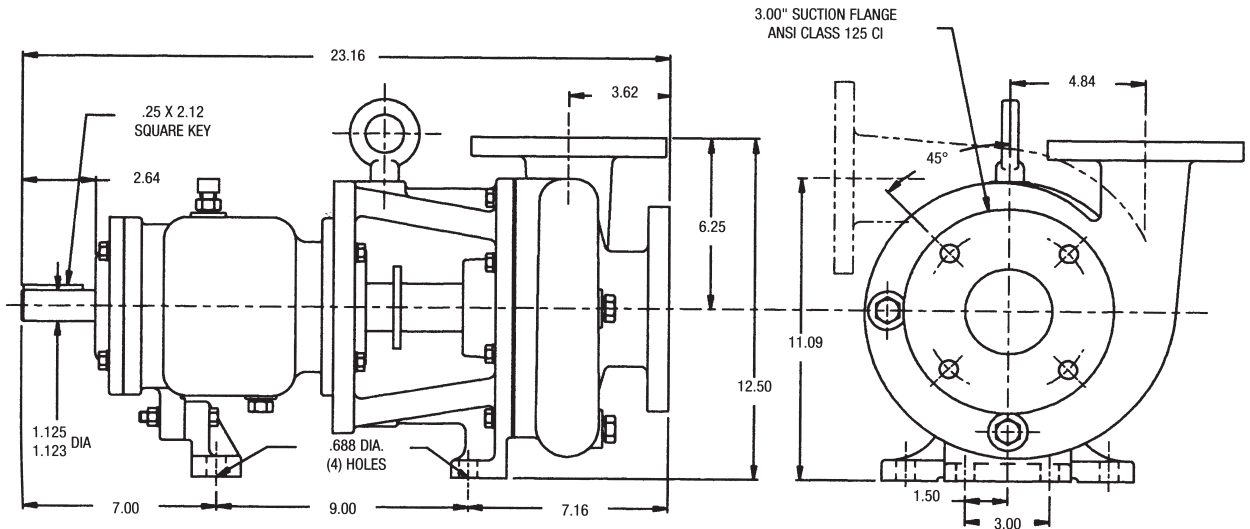
Series 130 Dimensions



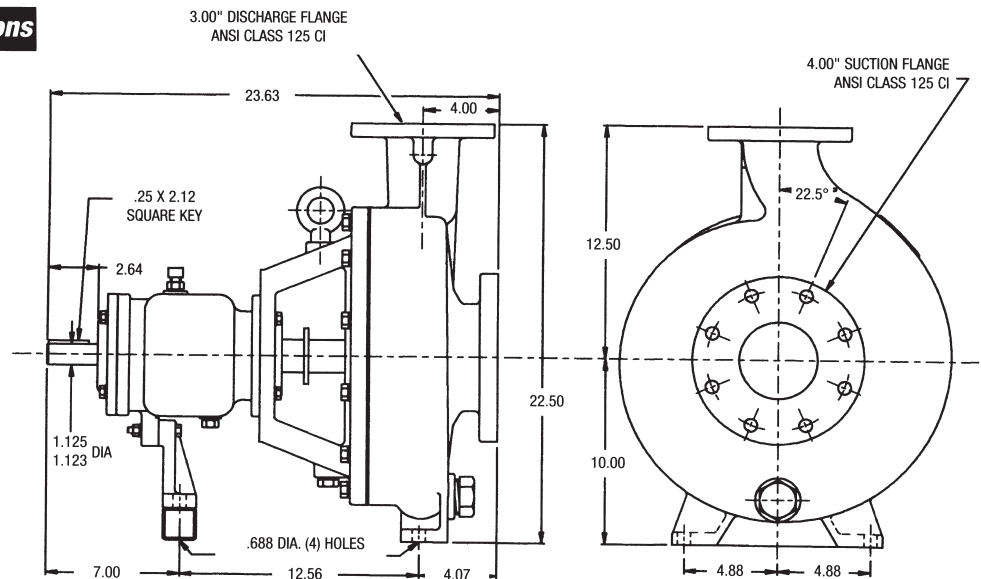
Series 200 Dimensions



Series 300 Dimensions



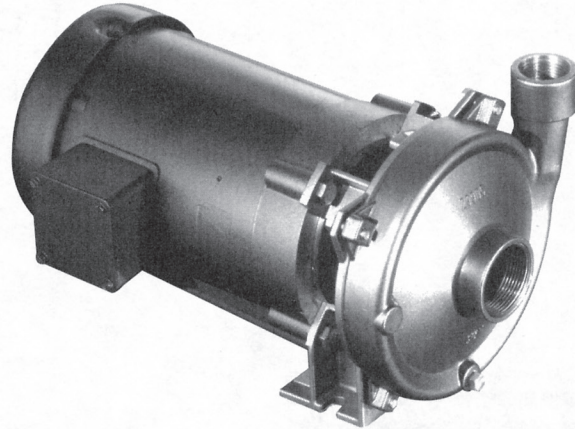
Series 700 Dimensions



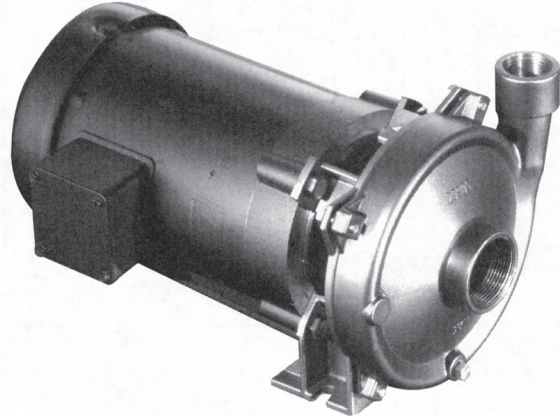
CHEMFLO 1 2 3 4

END SUCTION CENTRIFUGAL PUMP FEATURES

- CHEMFLO 1,2,3 & 4 - INVESTMENT-CAST, 316 STAINLESS STEEL IS STRONGER THAN STAMPED/FORMED 304
CHEMFLO 5,6,7 & 8 - 316 CF8M STAINLESS STEEL HOUSING, SEAL HOUSING & IMPELLER
- PRESSURES - 105-225 FEET HEAD
- FLOWS - 100-450 GPM
- CHEMFLO 1,2,3,4 PUMPAKS FOR 56C FACE ELECTRIC MOTORS
CHEMFLO 6,7 & 8 PUMPAKS FOR 145TC,182TC,184TC,213C,213TC,215C, 215TC ELECTRIC MOTORS
- HORSEPOWER - 1-25 HP
- EXOTIC ELASTOMERS AVAILABLE



CHEMFLO 1 & 2



CHEMFLO 3 & 4

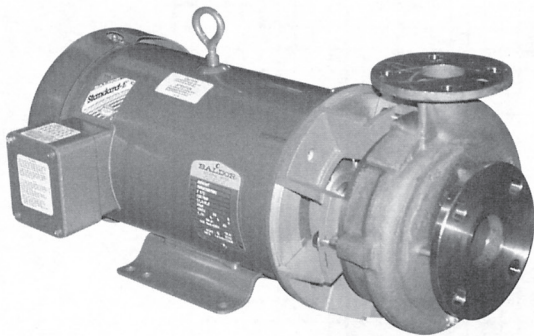
MODEL	Suction	Discharge
CHEMFLO 1 & 2	1 1/2" NPT	1" NPT
CHEMFLO 3 & 4	2" NPT	1 1/2" NPT
CHEMFLO 5	2" ANSI 125 Flange	1 1/2" ANSI 125 Flange
CHEMFLO 6	3" ANSI 125 Flange	2" ANSI 125 Flange
CHEMFLO 7	2" ANSI 125 Flange	1" ANSI 125 Flange
CHEMFLO 8	3" ANSI 125 Flange	1 1/2" ANSI 125 Flange

Ford's Words

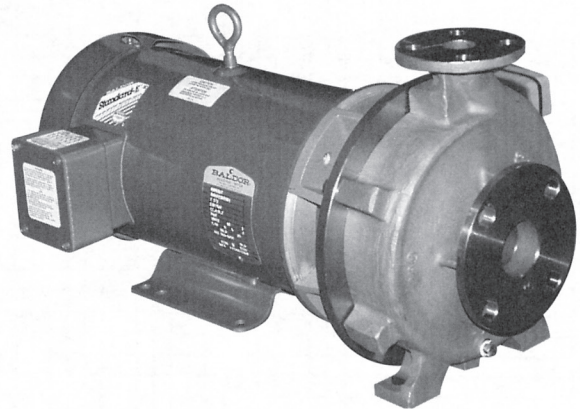
Thoughts and Observations from American Entrepreneur Henry Ford

- "Thinking is the hardest work there is, which is the probable reason so few engage in it."
- "Money is like an arm or a leg--use it or lose it."
- "Failure is the opportunity to begin again, more intelligently."
- "The man who is too set to change is dead already. The funeral is a mere detail."
- "There are two fools in this world. One is the millionaire who thinks that by hoarding money he can accumulate real power, and the other is the penniless reformer who thinks that by taking the money from one class and giving it to another, all the world's ills will be cured."

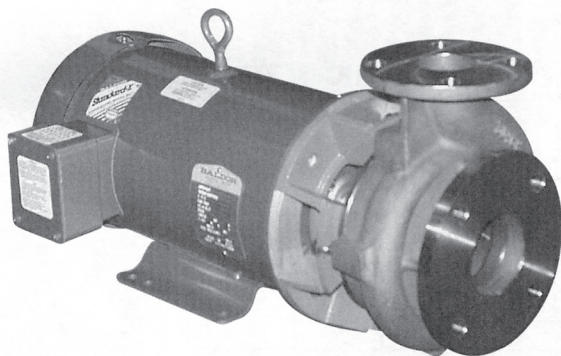
5 6 7 8



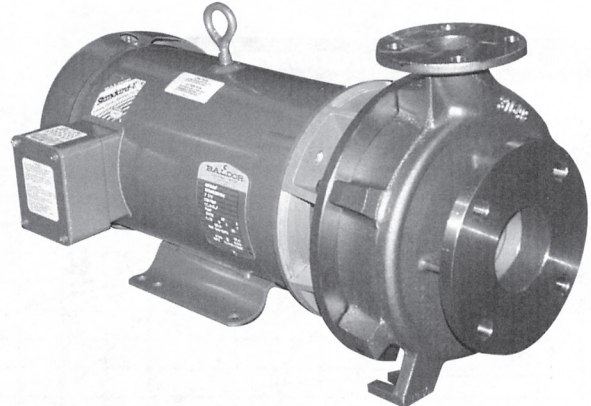
CHEMFLO 5



CHEMFLO 7



CHEMFLO 6

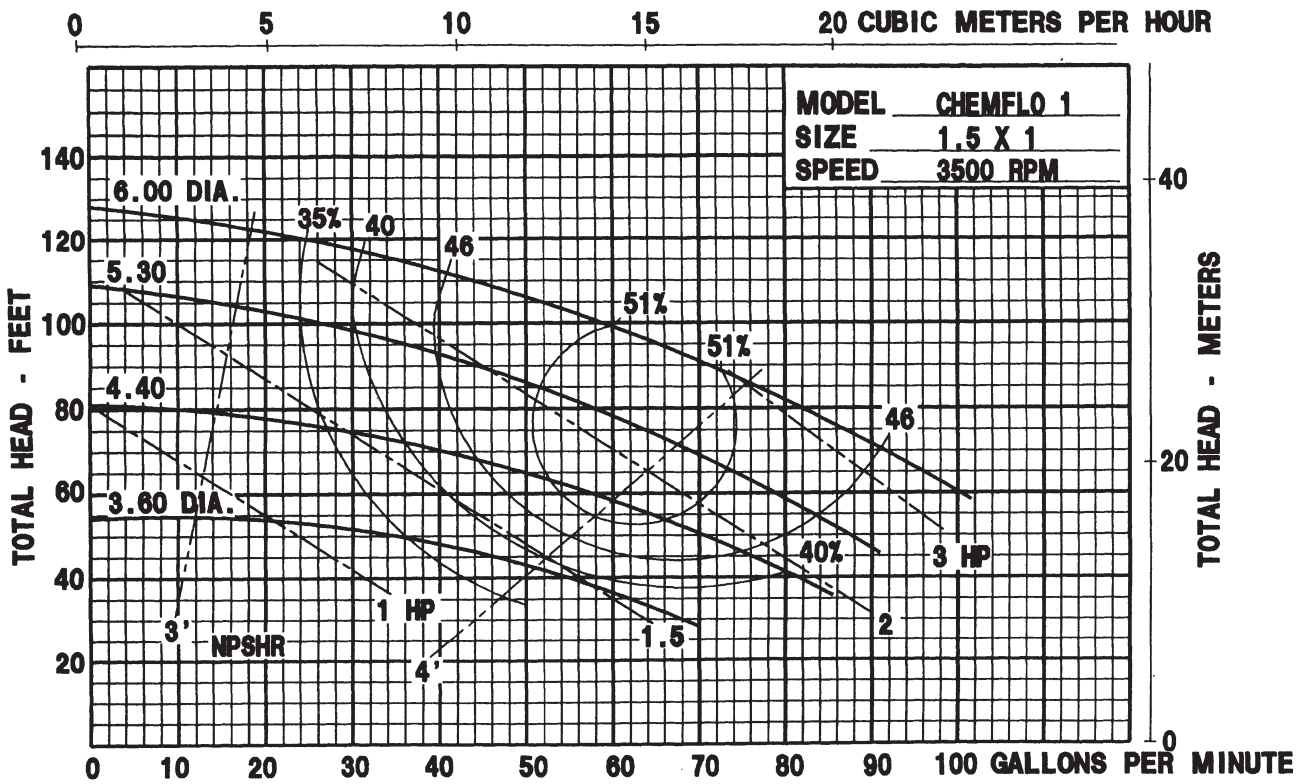


CHEMFLO 8

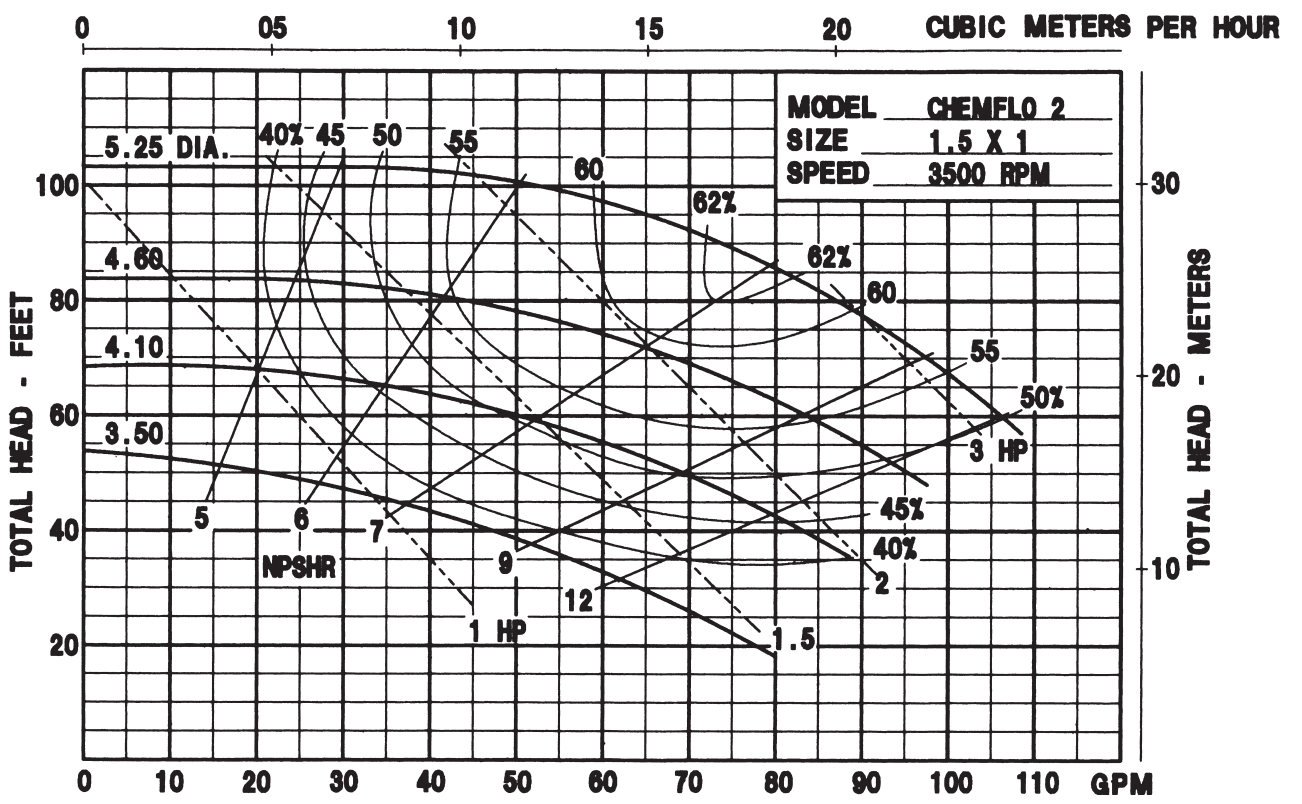
FORD'S WORDS (CONT'D)

- “If you have an idea, that’s good. If you also have an idea as to how to work it out, that’s better.”
- “Before everything else, getting ready is the secret of success.”
- “If you take all the experience and judgment of men over 50 out of the world, there wouldn’t be enough left to run it.”
- “Whether you think you can or whether you think you can’t, you’re right!”
- “Every piece of work in the shops moves. Save 10 steps a day for each of the 12,000 employees, and you will have saved 50 miles of wasted motion and misspent energy.” -On the theory of the assembly line
- “Even a mistake may turn out to be the one thing necessary to a worthwhile achievement.”
- “New York is a different country. Maybe it ought to have a separate government. Everybody thinks differently, acts differently. They just don’t know what the hell the rest of the United States is.”
- “Paying attention to little things that most men neglect makes a few men rich.”

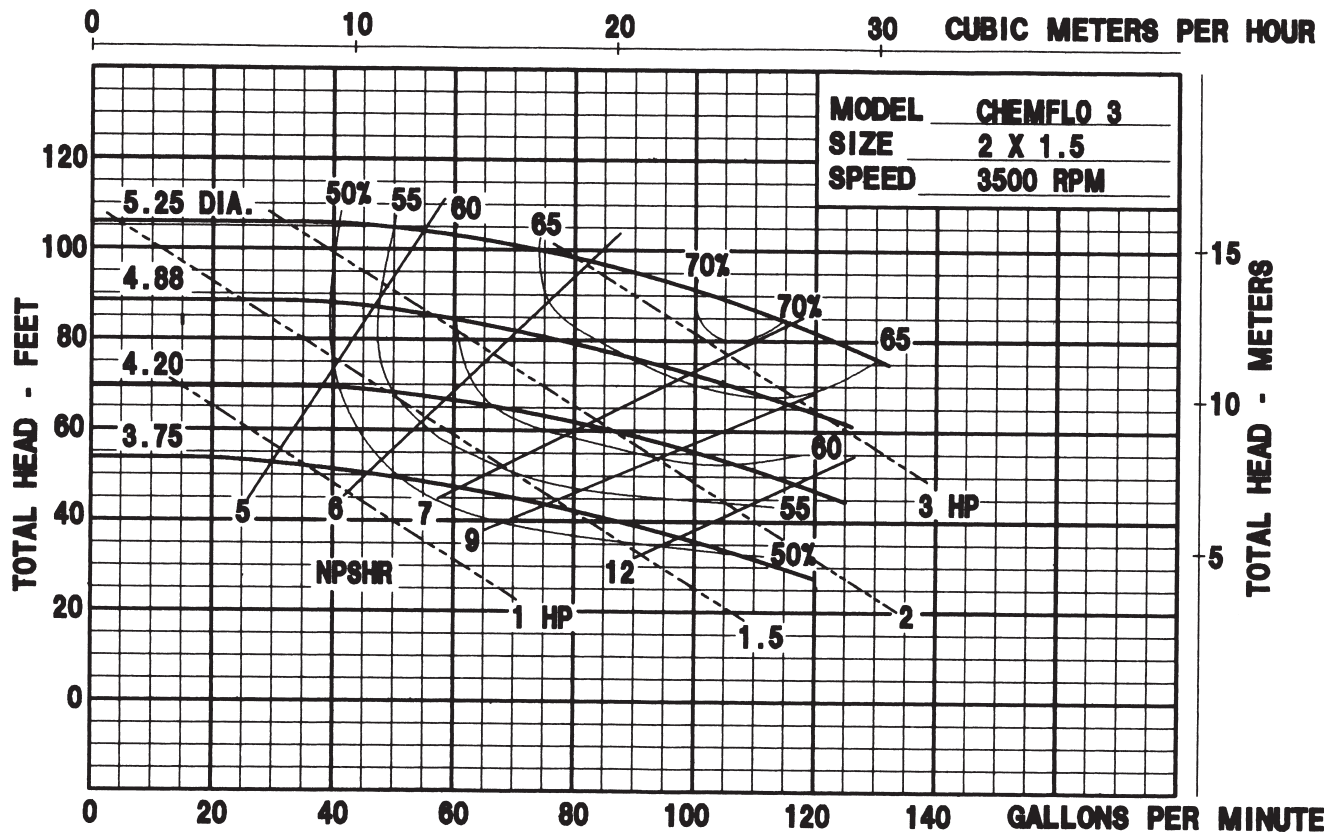
CHEMFLO 1 Pump Performance Curves



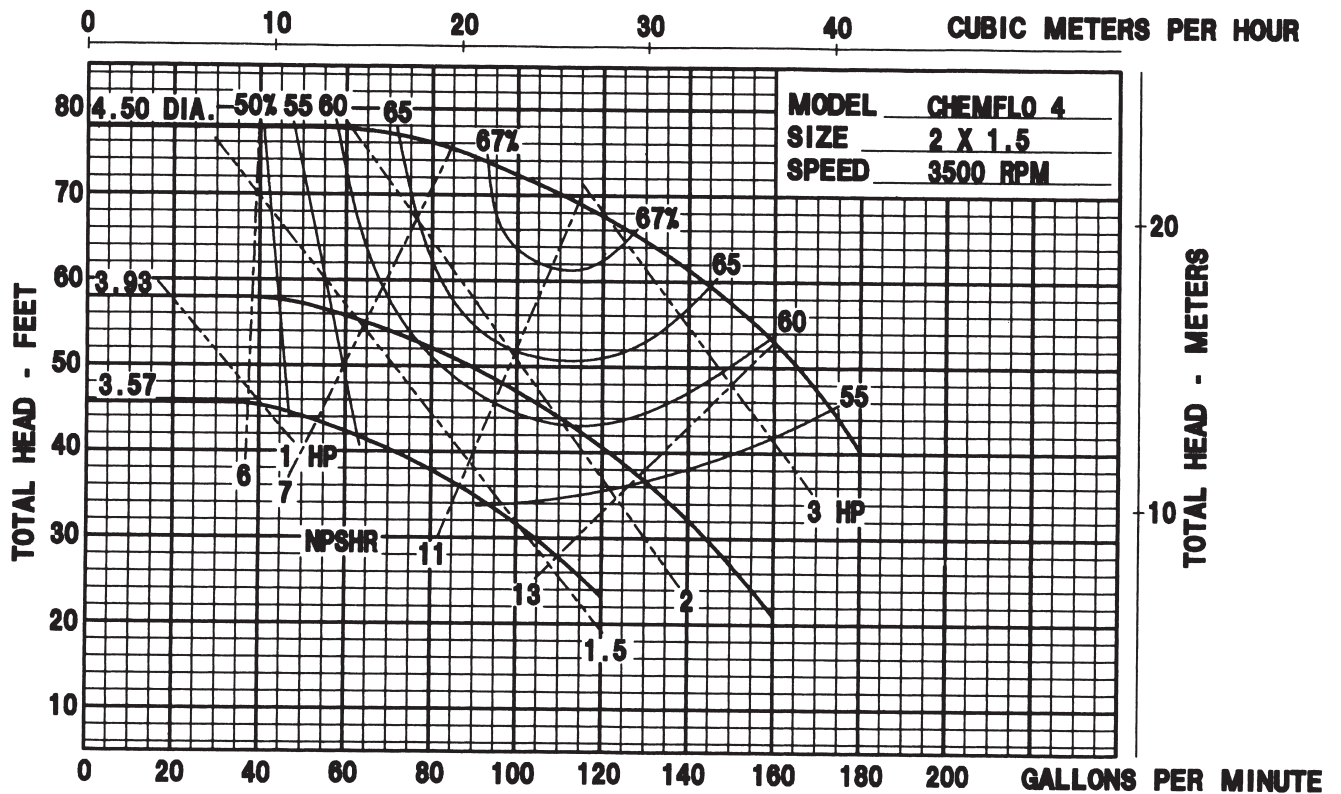
CHEMFLO 2 Pump Performance Curves



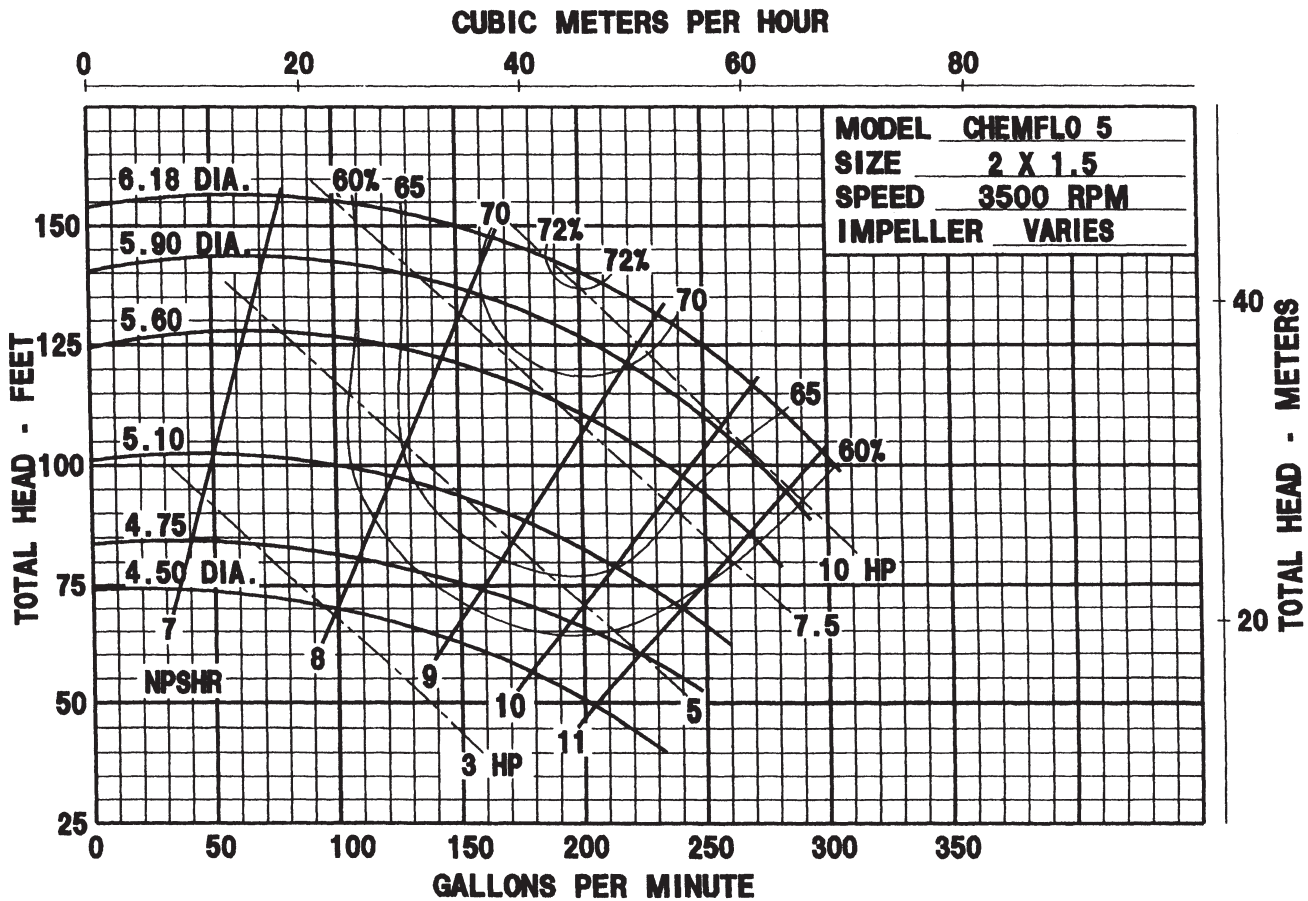
CHEMFLO 3 Pump Performance Curves



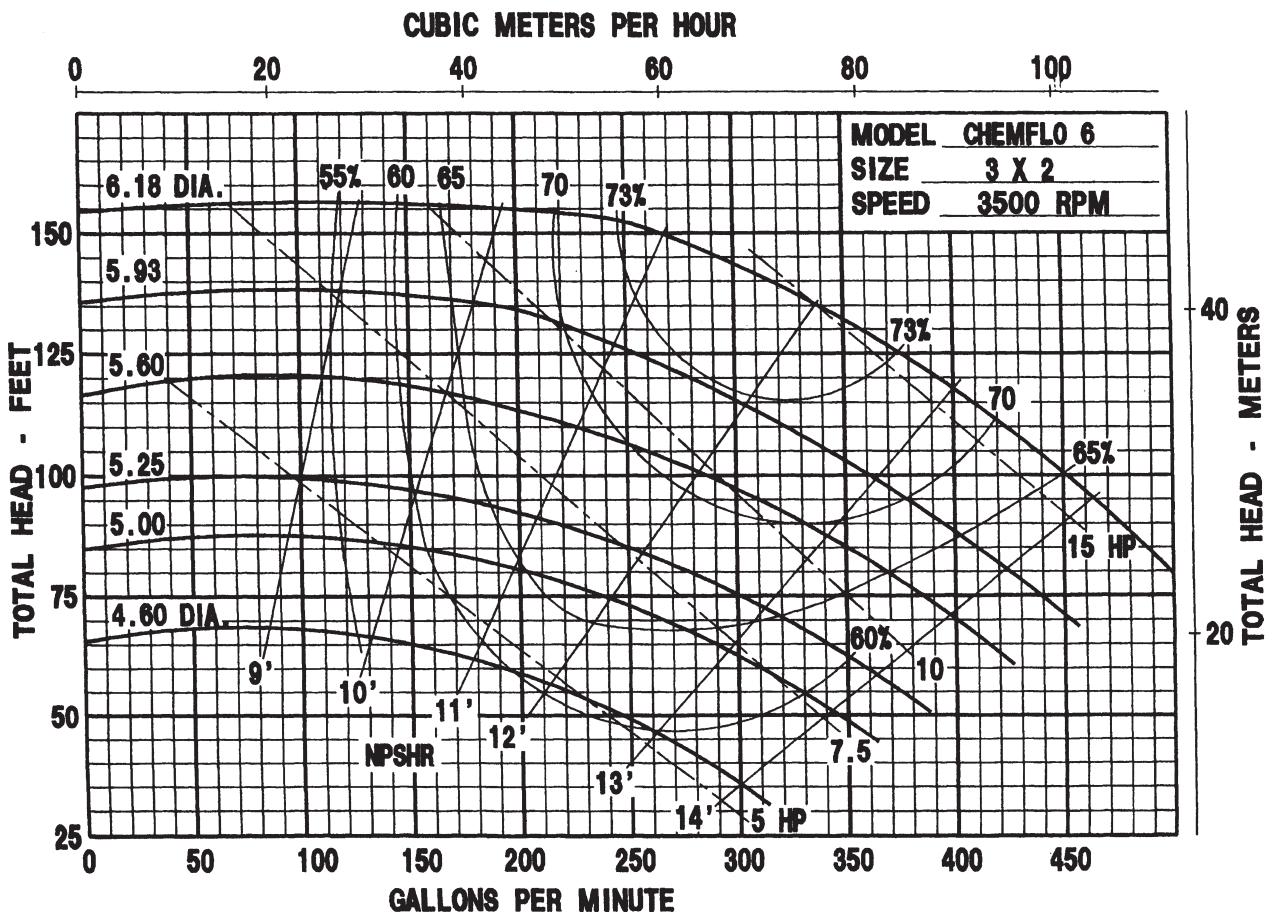
CHEMFLO 4 Pump Performance Curves



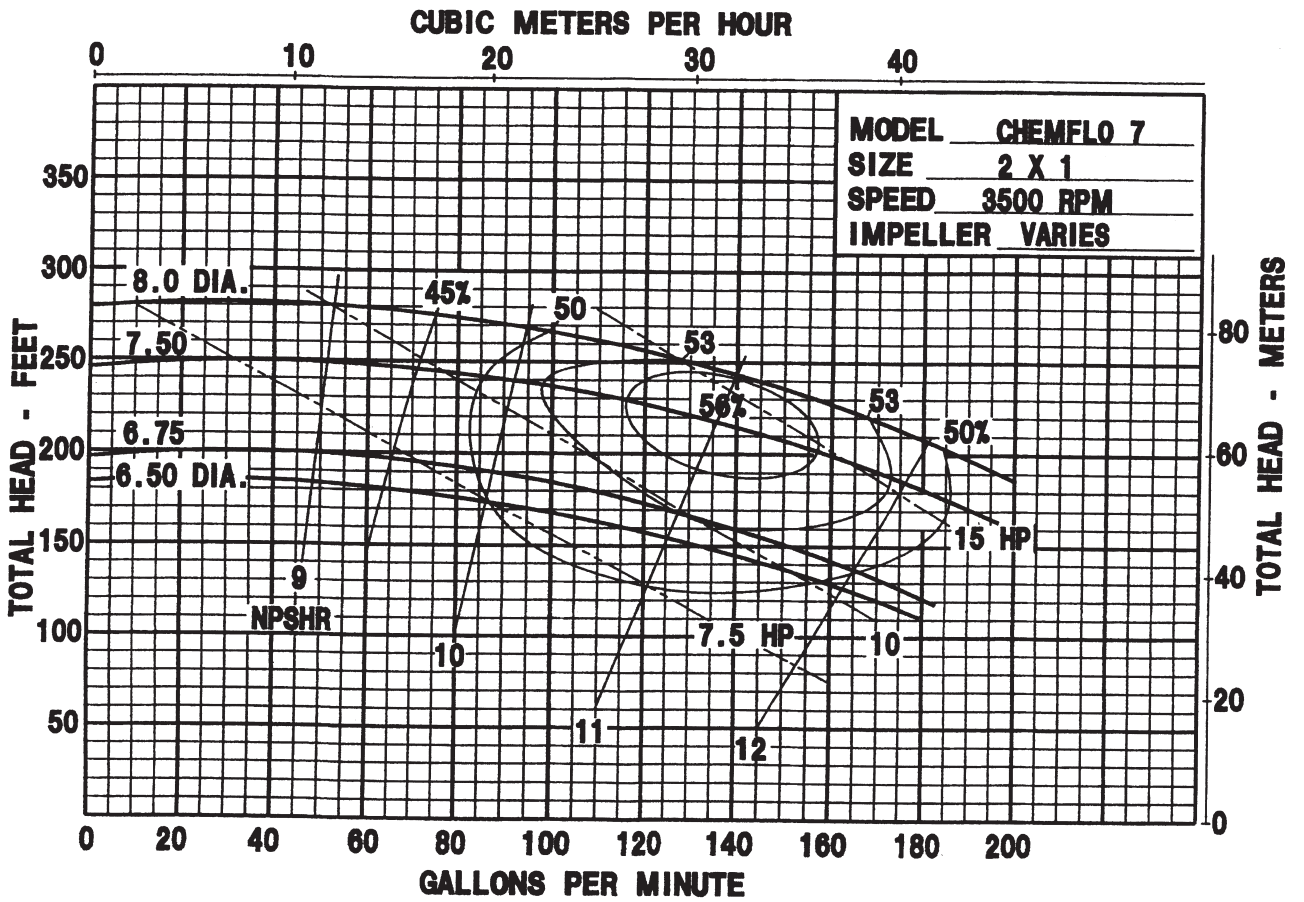
CHEMFLO 5 Pump Performance Curves



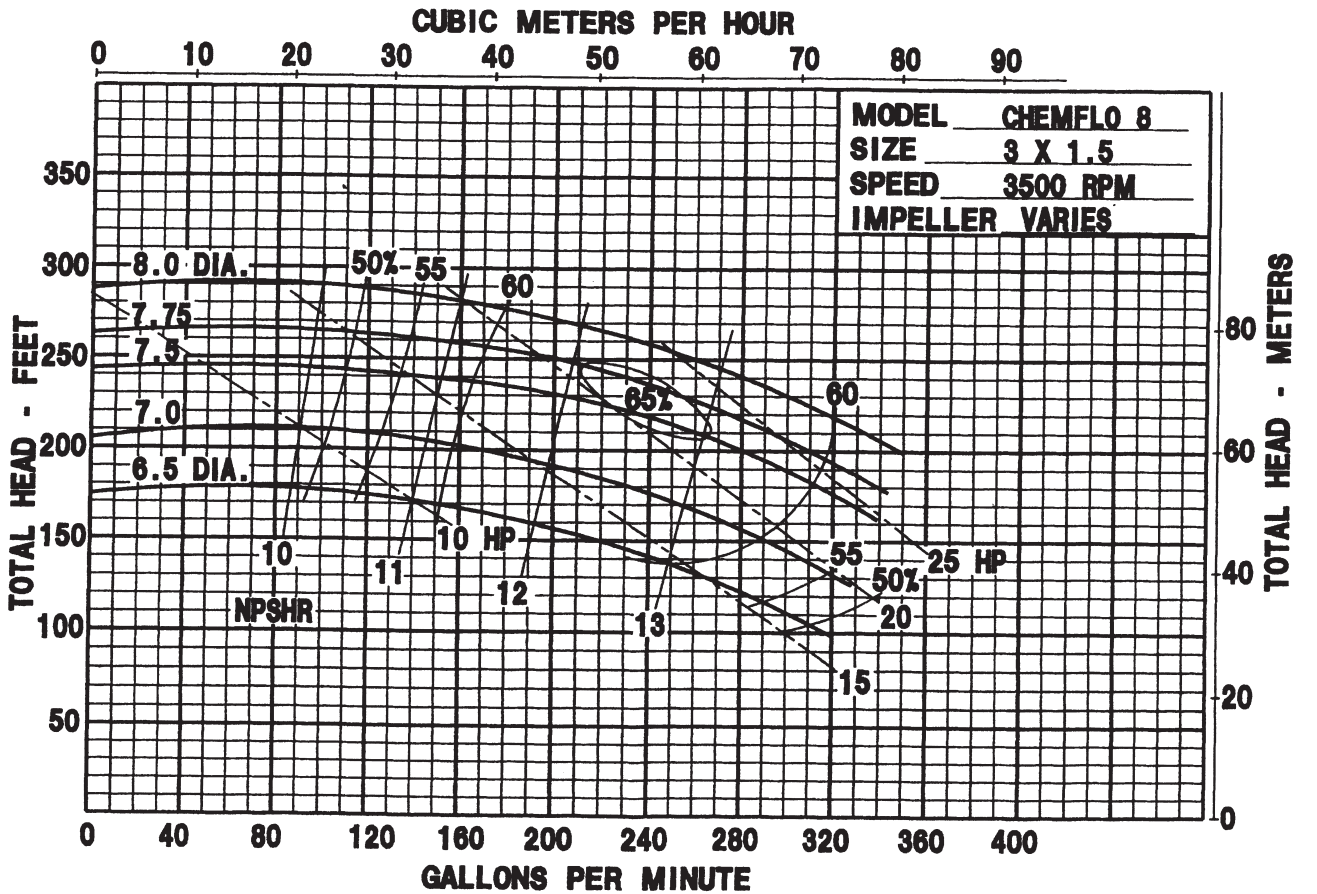
CHEMFLO 6 Pump Performance Curves



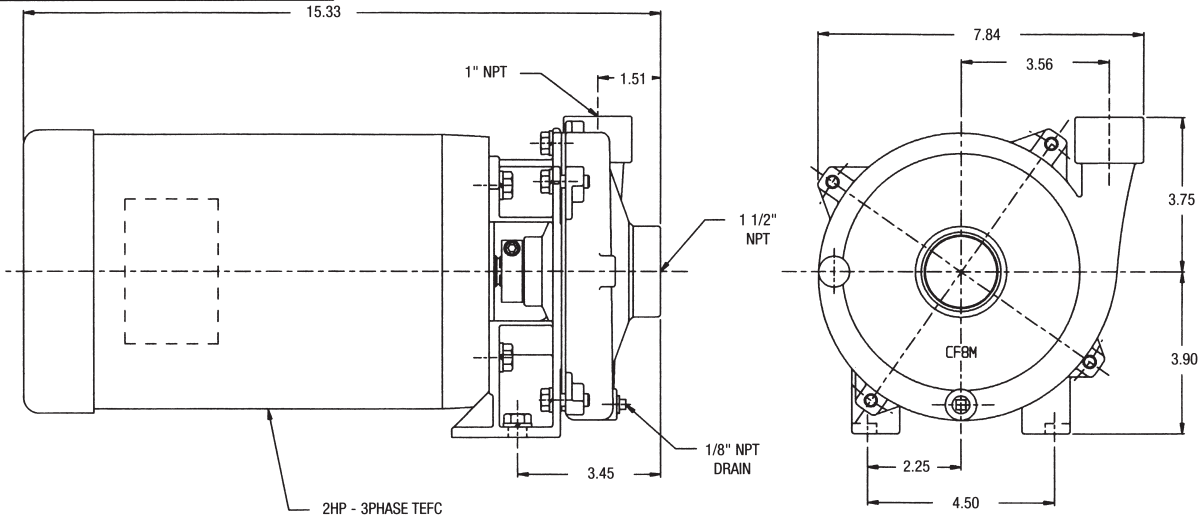
CHEMFLO 7 Pump Performance Curves



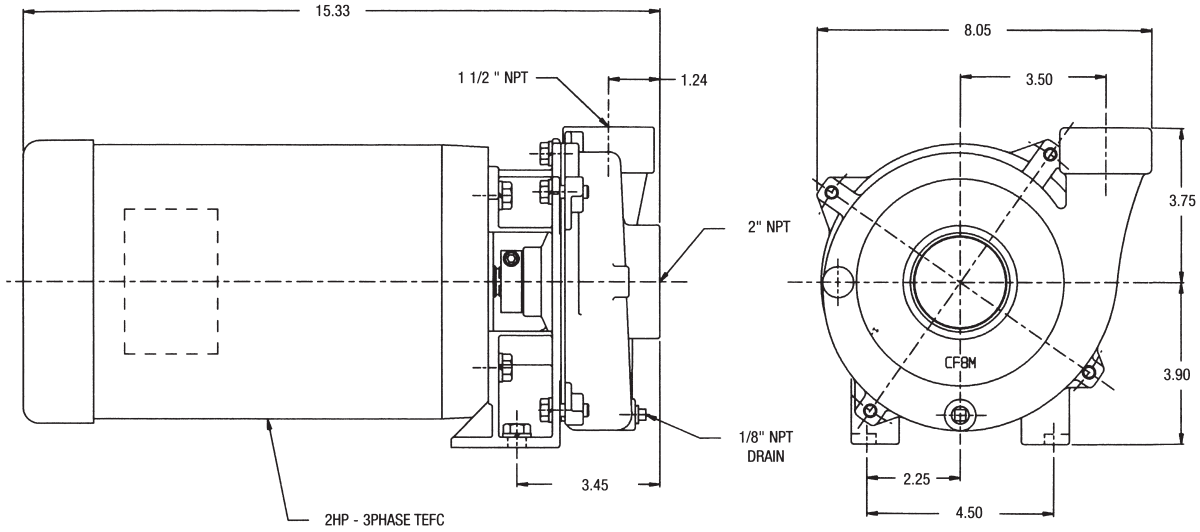
CHEMFLO 8 Pump Performance Curves



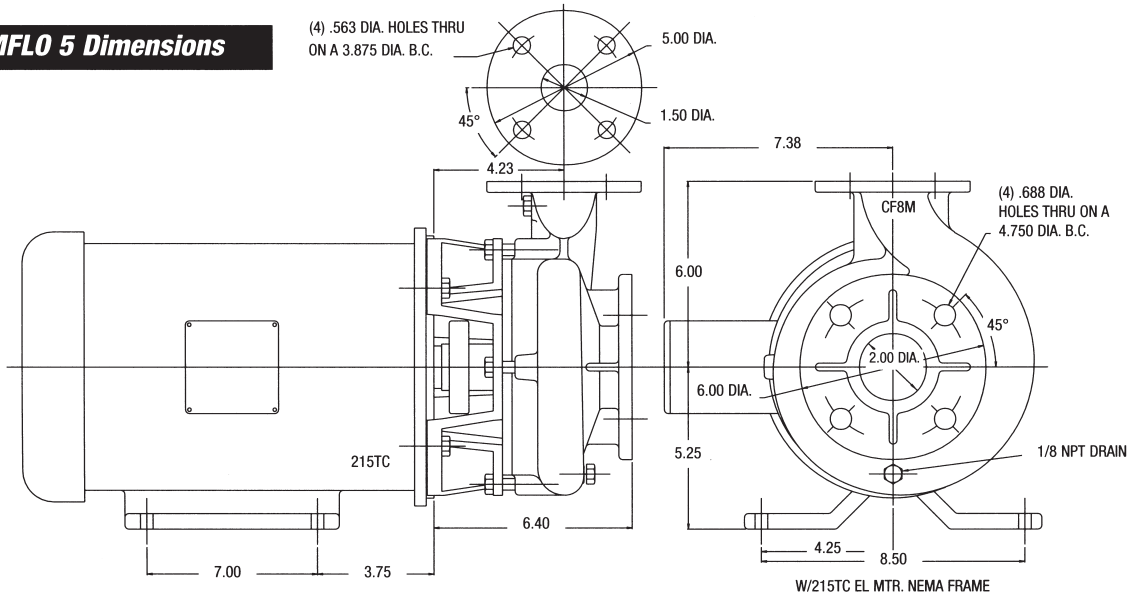
CHEMFLO 1&2 Dimensions



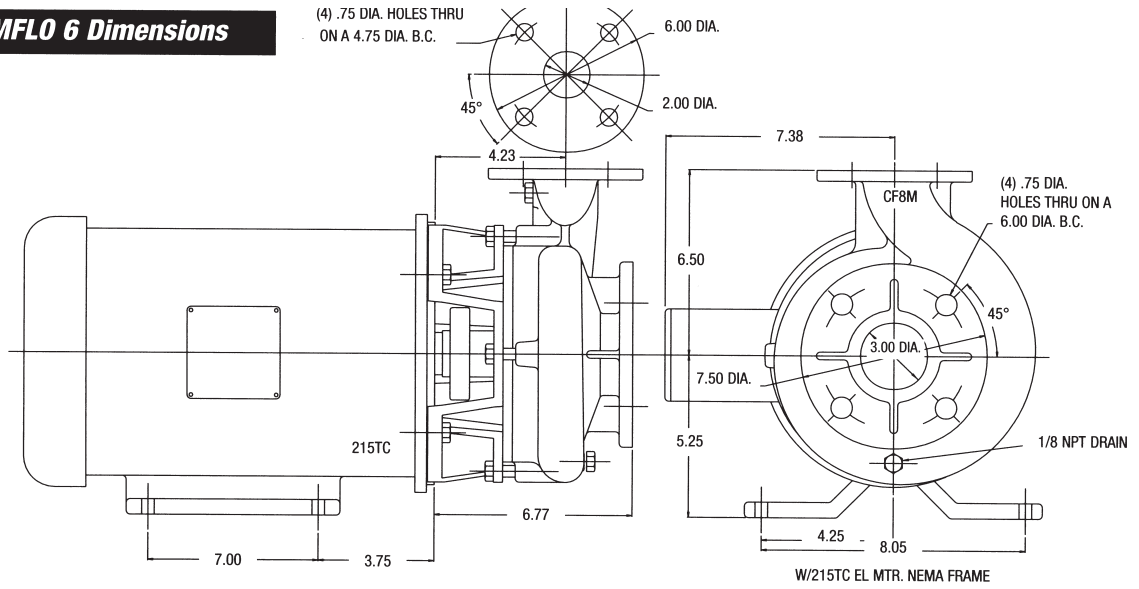
CHEMFLO 3&4 Dimensions



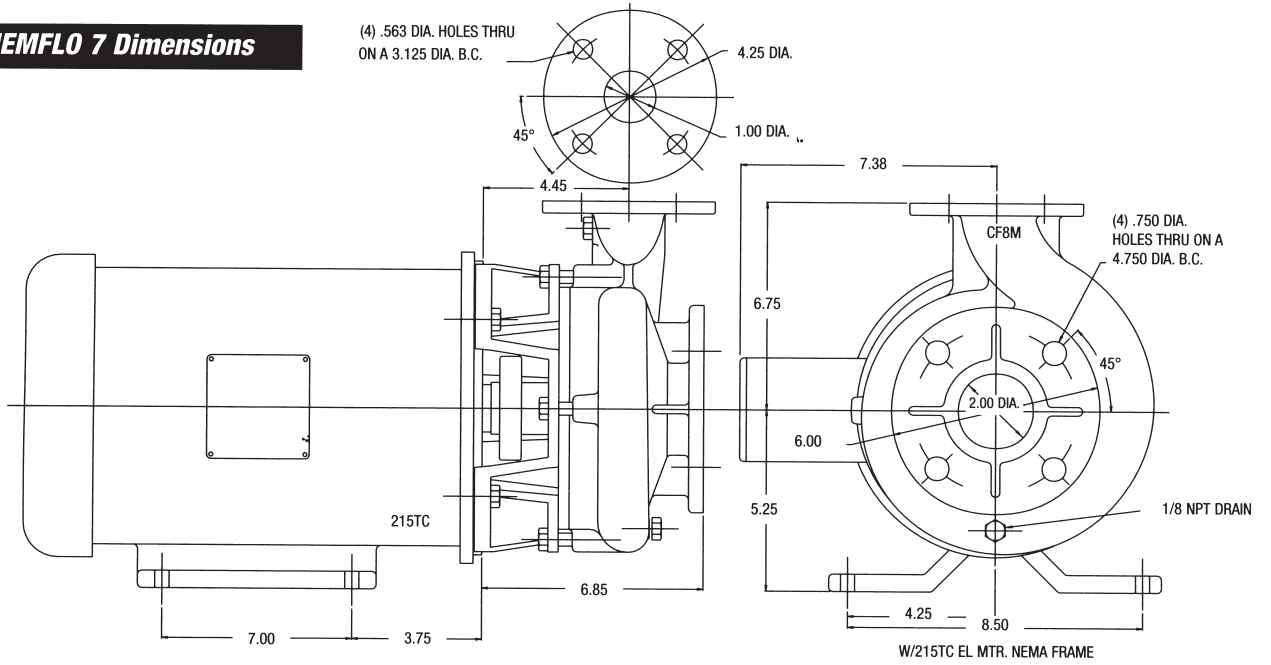
CHEMFLO 5 Dimensions



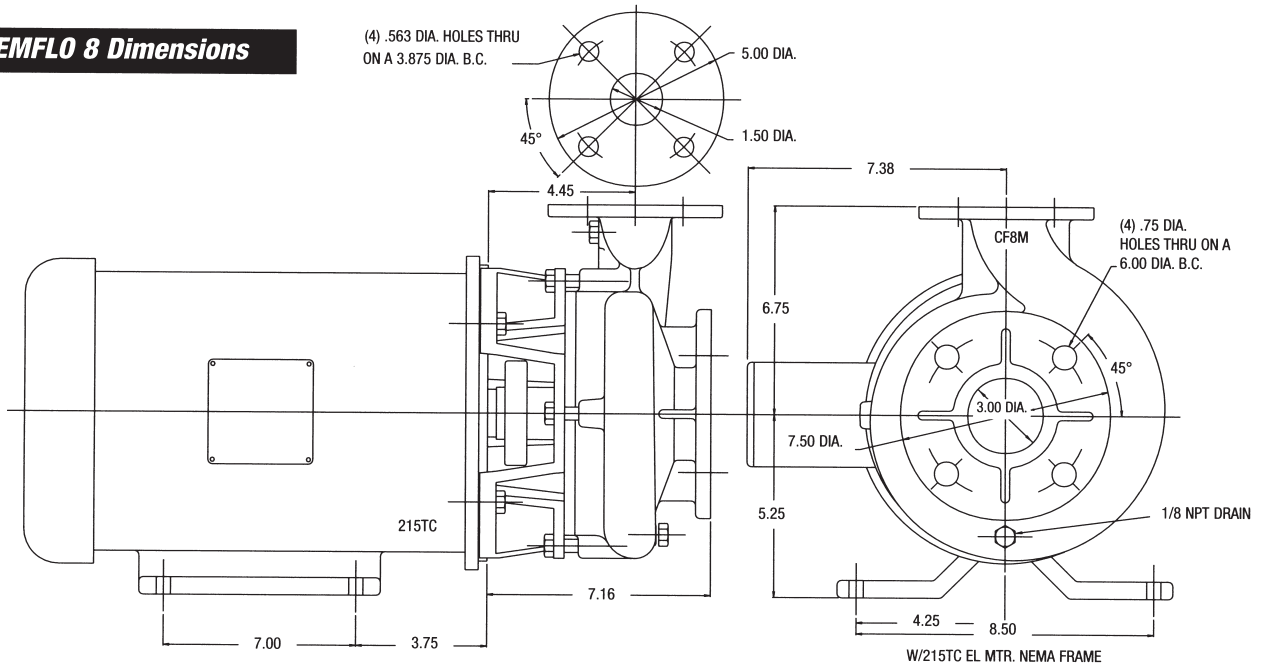
CHEMFLO 6 Dimensions



CHEMFLO 7 Dimensions



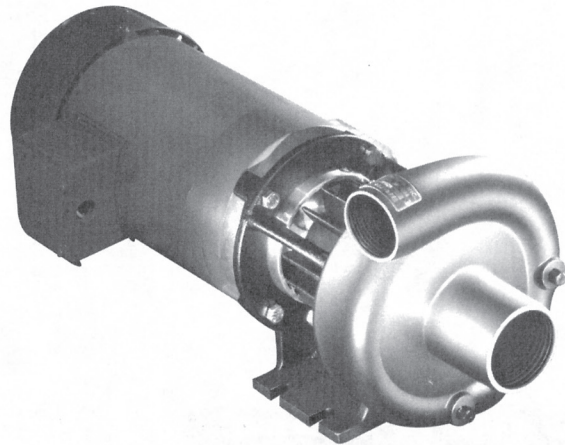
CHEMFLO 8 Dimensions



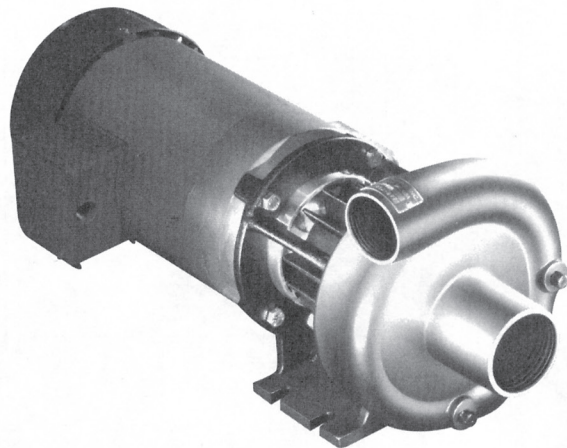
HTO 80 120 300

CENTRIFUGAL HOT OIL PUMP FEATURES

- APPLICATIONS: PLASTICS, CHEMICAL, FOOD, AND PROCESSING INDUSTRIES WHICH REQUIRE PUMPING OF HIGH TEMPERATURE FLUIDS
- UTILIZES AN ISOLATED SEAL CHAMBER, EFFECTIVELY COOLED BY A FAN CLAMP, WHICH COUPLES THE UNIT TO THE SHAFT OF A C-FRAME MOTOR
- STANDARD CARBON/CERAMIC MECHANICAL SEAL WITH VITON ELASTOMERS, STAINLESS STEEL FITTED
- CARBON GRAPHITE ISOLATOR BUSHING SEPARATES MECHANICAL SEAL FROM HIGH TEMPERATURE FLUIDS
- STAINLESS STEEL DRIVE SLEEVE AND ALUMINUM DRIVE CLAMP COUPLES PUMP UNIT TO MOTOR
- VERTICAL & HORIZONTAL DISCHARGE
- WITH OR WITHOUT ELECTRIC MOTOR
- A UNIQUE CENTRIFUGAL PUMP (PATENTED) DESIGNED FOR HIGH TEMPERATURE APPLICATIONS WITHOUT REQUIRING EXTERNAL FLUSHES OR JACKET COOLING
- CAPACITIES - 85-200 GPM
- HEADS - 135-140 FT. TDH.
- TEMPERATURES - TO 650°F



HTO 80



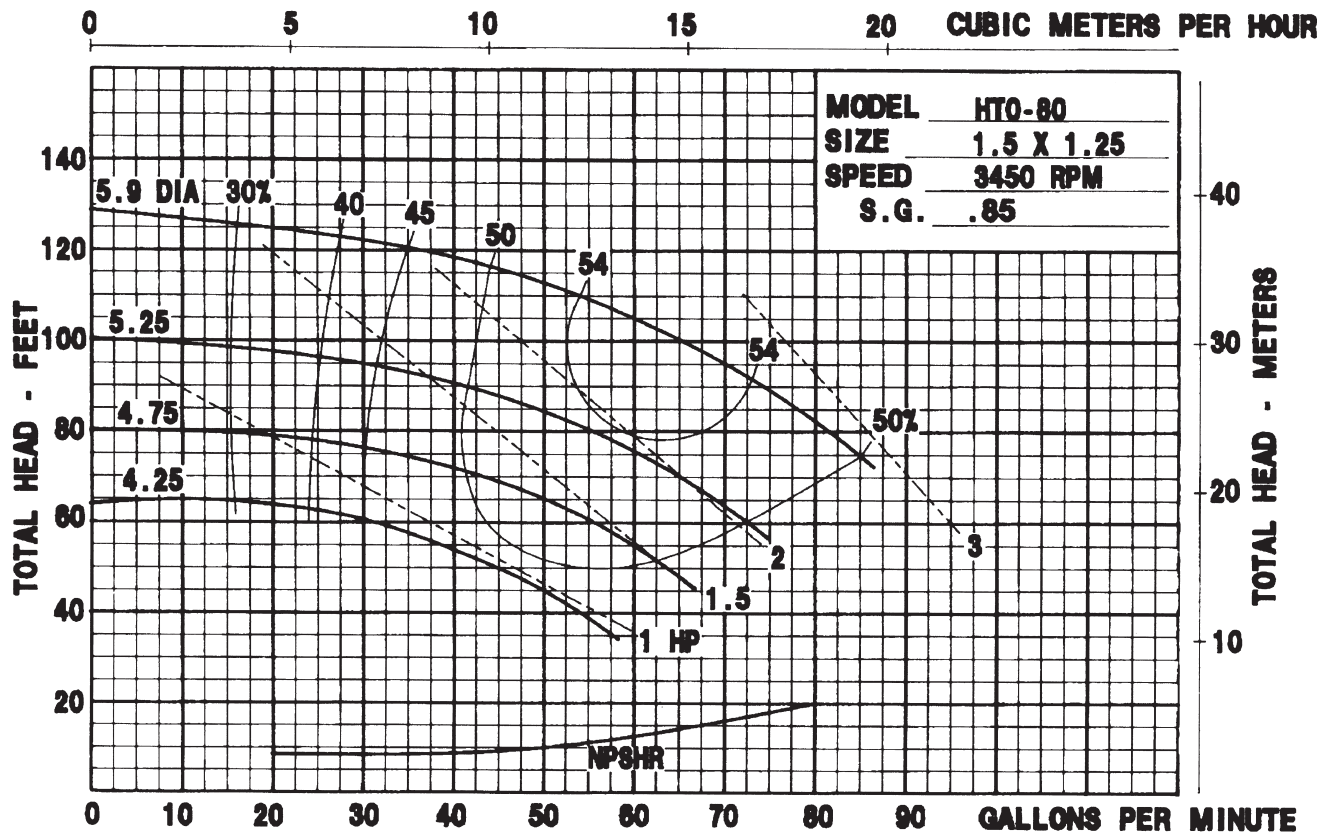
HTO 120



HTO 300

MODEL	Suction	Discharge
HTO 80	1 1/2" NPT (Flange Option)	1 1/4" NPT (Flange Option)
HTO 120	2" NPT (Flange Option)	1 1/2" NPT (Flange Option)
HTO 300	3" ANSI 125 Flange	2 1/2" ANSI 125 Flange

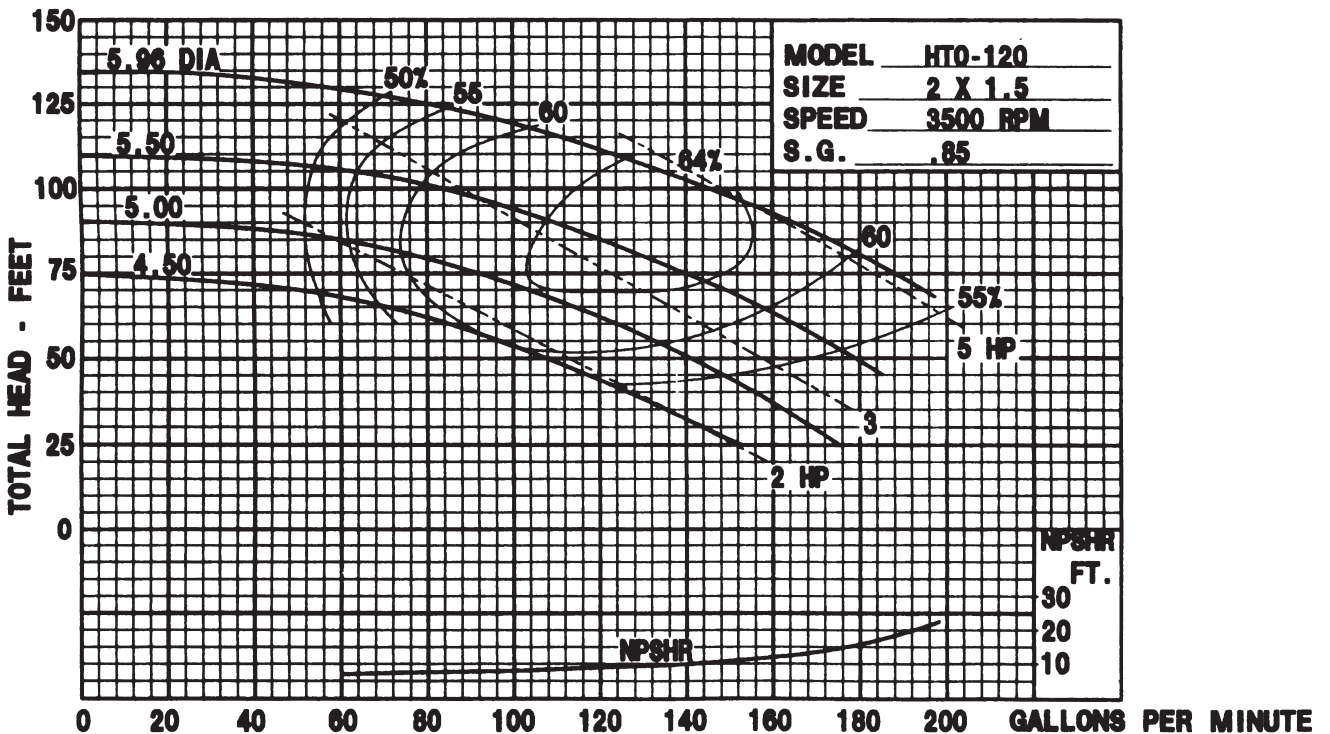
HTO 80 Pump Performance Curves



Horsepower requirements based upon 0.85 specific gravity. Calculations can be applied for fluids of other specific gravities.

Maximum operating temperature is 650°F. Maximum working pressure is 150 PSI.

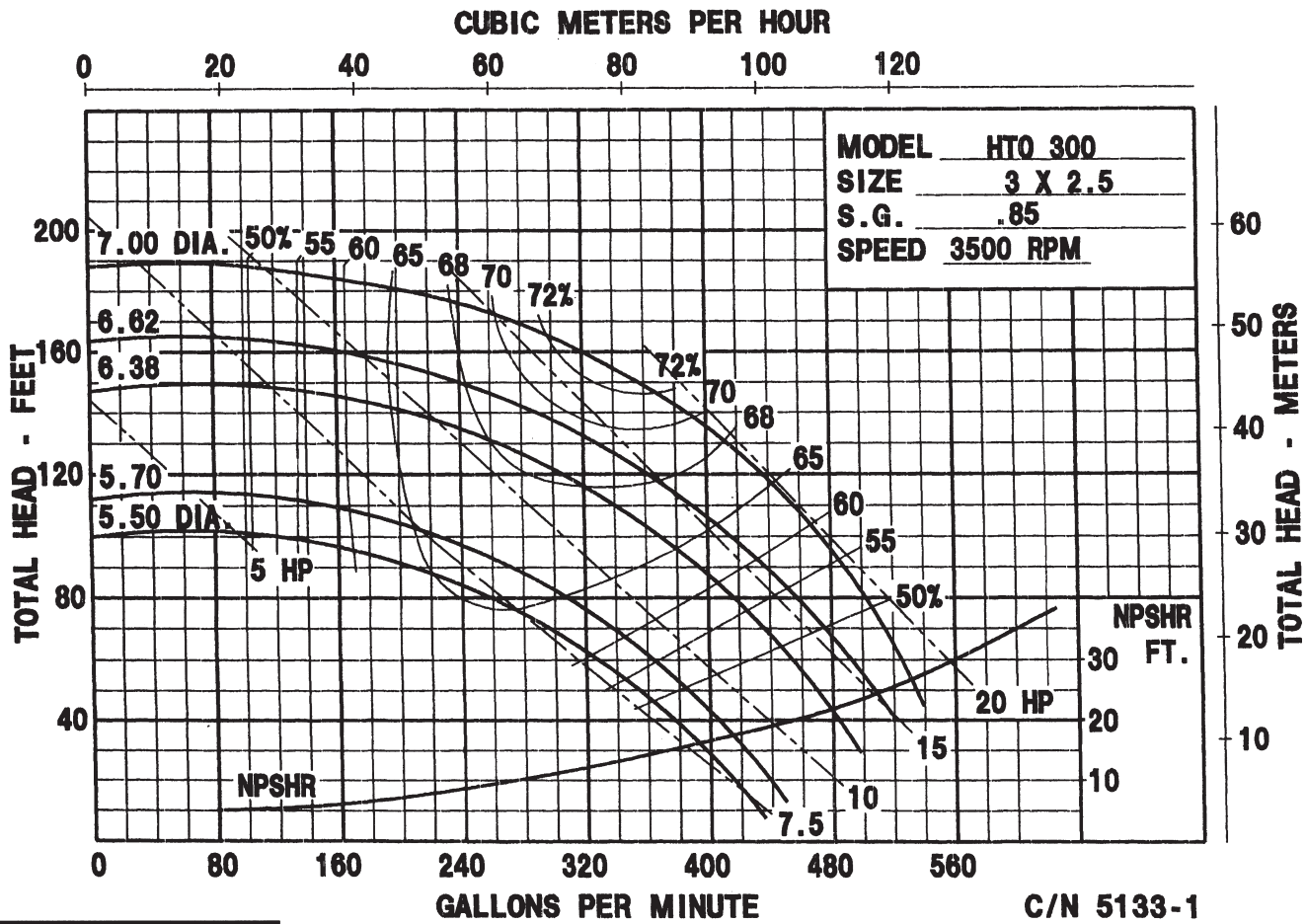
HTO 120 Pump Performance Curves



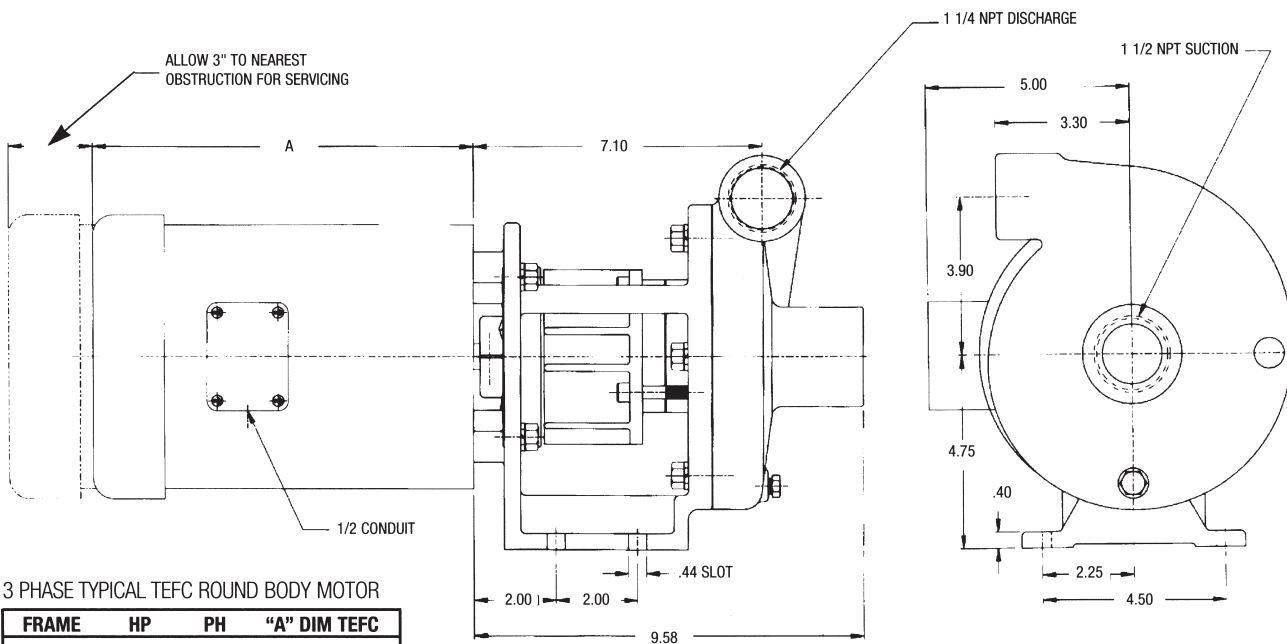
Horsepower requirements based upon 0.85 specific gravity. Calculations can be applied for fluids of other specific gravities.

Maximum operating temperature is 650°F. Maximum working pressure is 150 PSI.

HTO 300 Pump Performance Curves

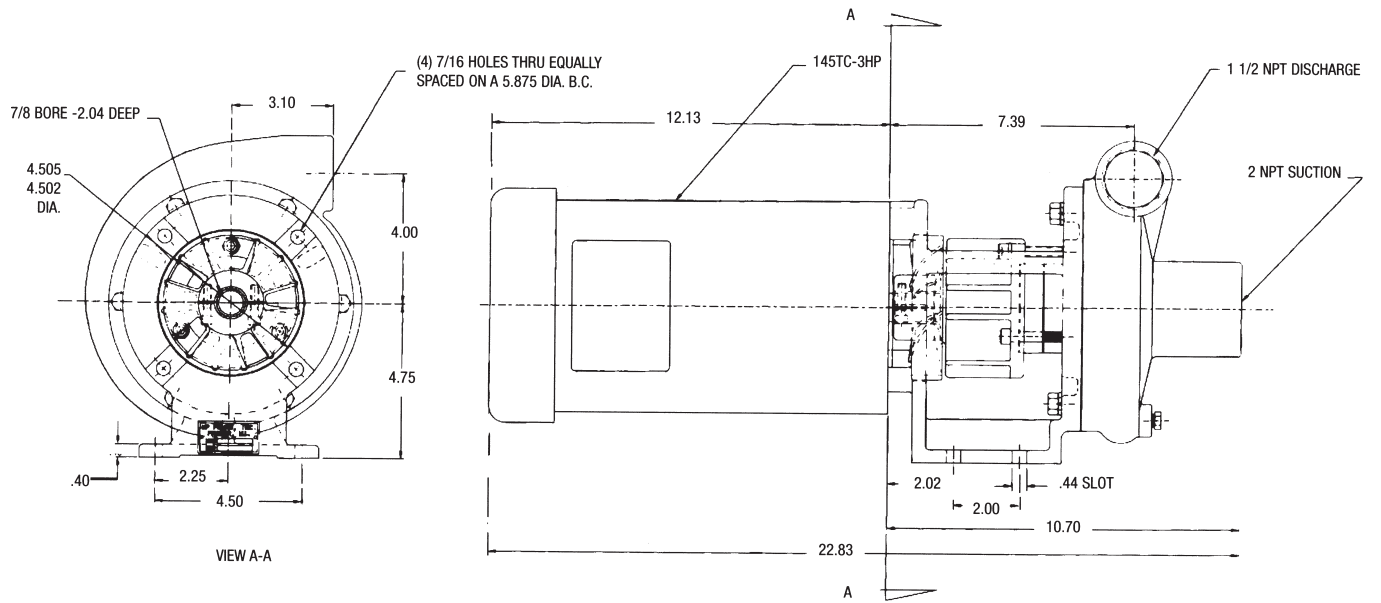


HTO 80 Dimensions



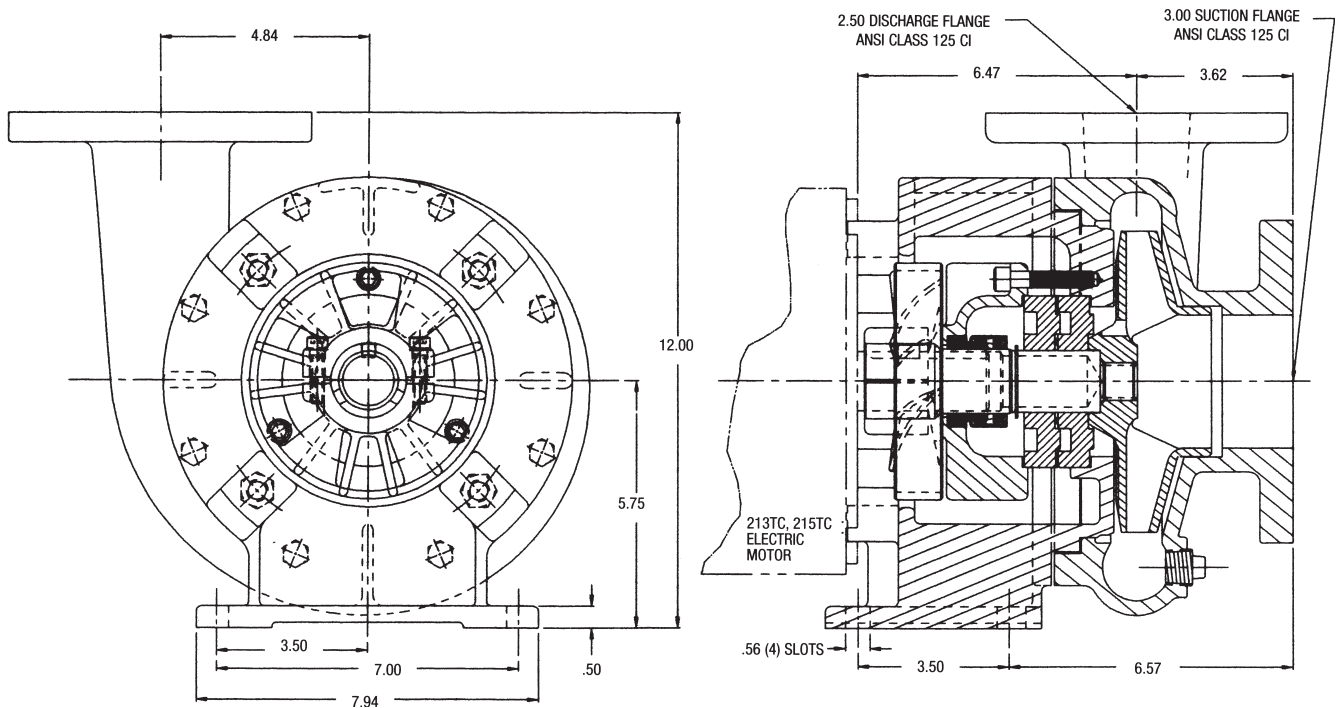
Pump dimensions certifiable for construction purposes.
 Motor dimensions dependent upon motor manufacturer.

HTO 120 Dimensions



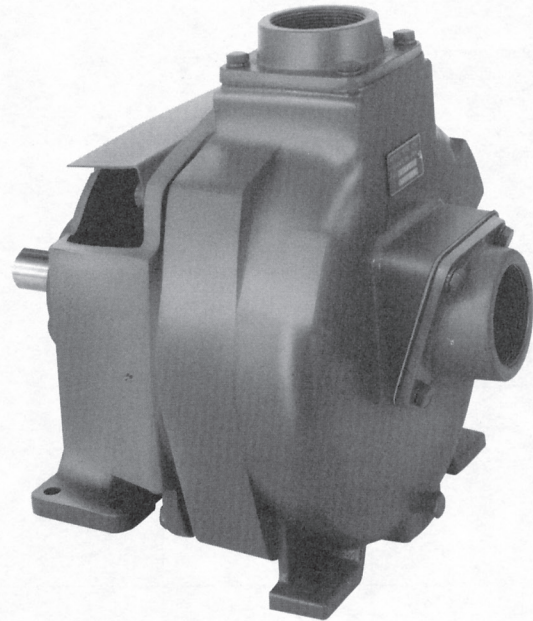
Pump dimensions certifiable for construction purposes.
 Motor dimensions dependent upon motor manufacturer.

HTO 300 Dimensions



HIGH HEAD CENTRIFUGAL PUMP FEATURES

- 1 1/2 x 1 1/2
2 X 2 HIGH HEAD PUMPAK
- "C" FACE ELECTRIC MOTOR DRIVE 5-7.5 HP
- PEDESTAL DRIVE
- FLOWS - TO 140 GPM
- PRESSURES - TO 190 TDH
- CAST IRON OR BRONZE CONSTRUCTION
- DRIVE SLEEVE - 304 STAINLESS STEEL
- FASTENERS - STAINLESS STEEL
- SEALS - STANDARD CARBON, CERAMIC, STAINLESS STEEL AND VITON WITH OTHER OPTIONS AVAILABLE (CONSULT FACTORY)



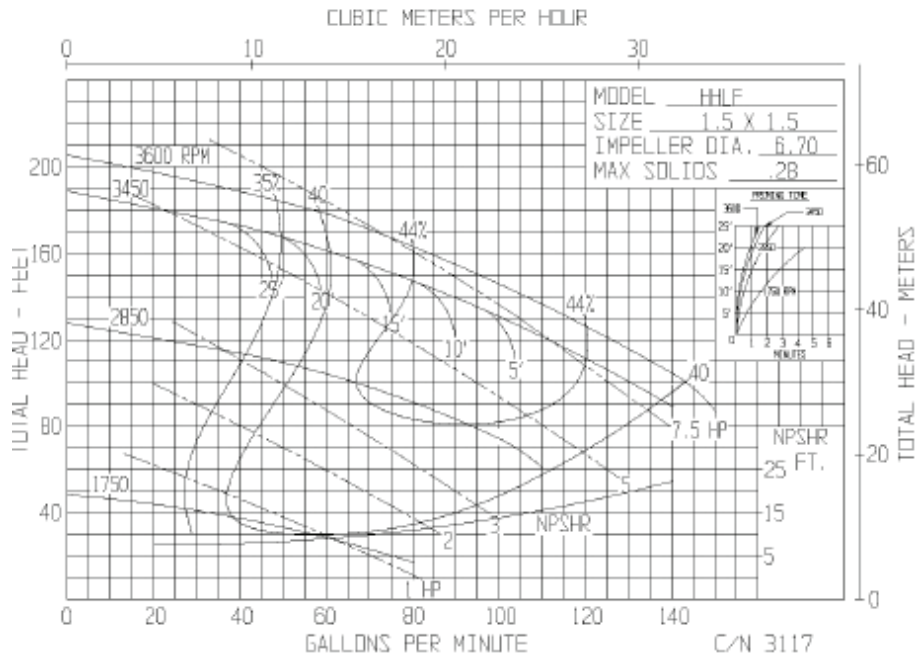
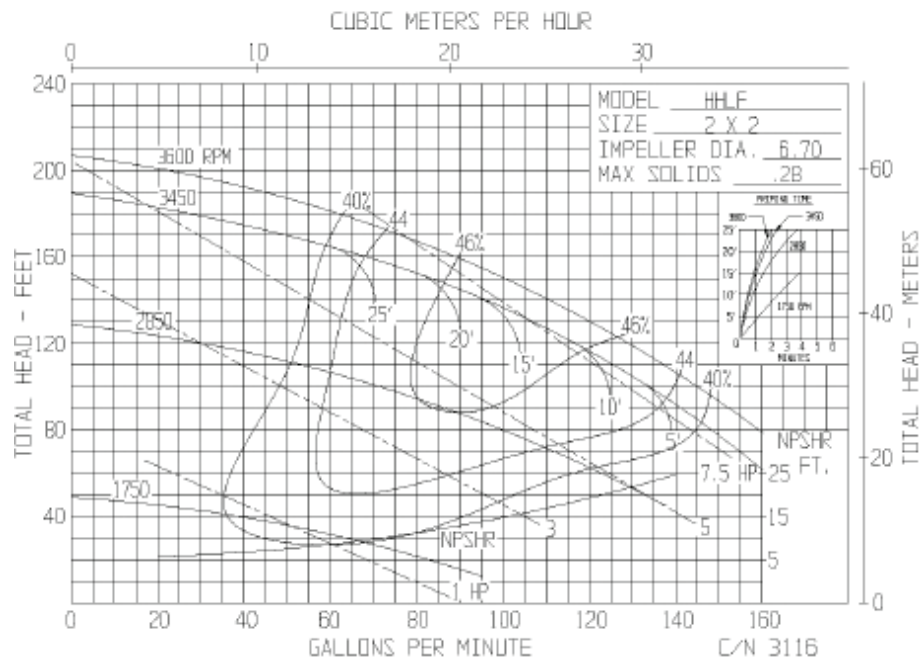
NOW ABS APPROVED

MODEL	Suction	Discharge
HHLF	1 1/2"-2" NPT	1 1/2"-2" NPT

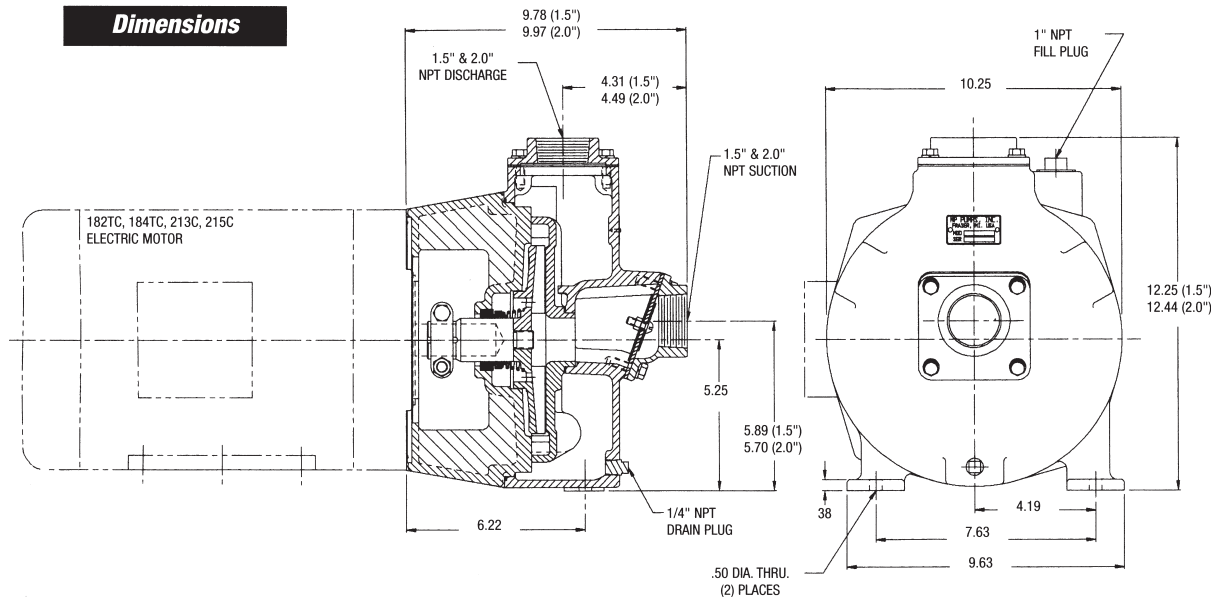
HHLF

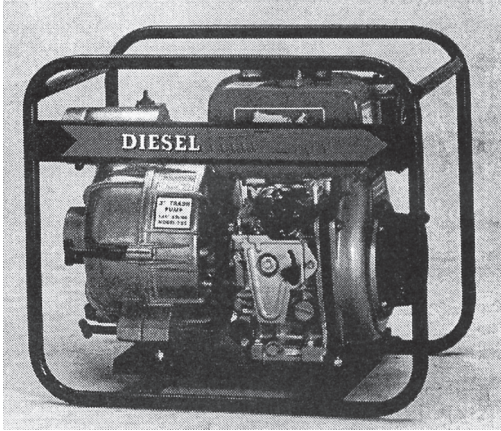
HITLER, A HYPOCRITE?

Despite his own merciless actions, Hitler chose to be a vegetarian. As hypocritical as this sounds, he believed that killing and eating animals was inhumane and cruel. He believed that by respecting the animals' rights and abstaining from eating meat, he was saving innocent lives. Too bad he didn't feel that way about human.



Dimensions





These pumps are designed for use with water containing solids, which would normally clog a standard centrifugal pump. The trash pumps are designed with clean-out wing bolts and are mounted in a rugged stainless steel roll cage. The pump housings are constructed of die-cast aluminum with cast iron impellers and volutes.

L48E-2SD5E 2" Centrifugal Trash Pump

L48E-3SD5E 3" Centrifugal Trash Pump

Model	L48E-2SD5E	L48E-3SD5E
TYPE	Trash	Trash
SOLIDS HANDLING?	1"	1 1/4"
SIZE: (suction)	2"	3"
SIZE: (Discharge)	2"	3"
CAPACITY: (GPM)	180	300
TOTAL HEAD (UP TO)	110'	103'
PRIMING LIFT:	26'	26'
MAXIMUM PRESSURE:	48 psi	44 psi
SEALS:	Viton	Viton
IMPELLER:	Cast Iron	Cast Iron
PUMP HOUSING:	Die-cast Alum.	Die-cast Alum.
ENGINE:	Yanmar® L48EE	Yanmar® L48EE
HORSEPOWER:	4.7 HP	4.7 HP
FUEL TANK CAPACITY:	3.5 Liter	3.5 Liter
RUNNING TIME:	4-5 Hrs.	4-5 Hrs.
WEIGHT (lb)	110 lb	118 lb
DIMENSIONS (LxWxH)	24"x18"x20"	24"x18"x20"
STARTING	Recoil	Recoil

Specifications subject to change without notice

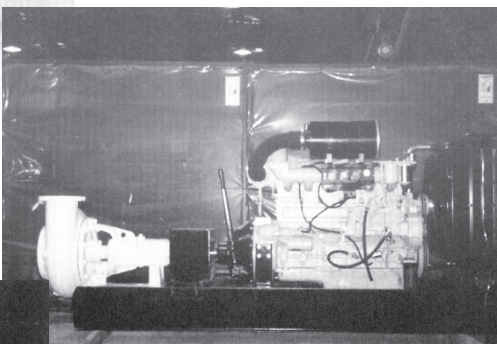
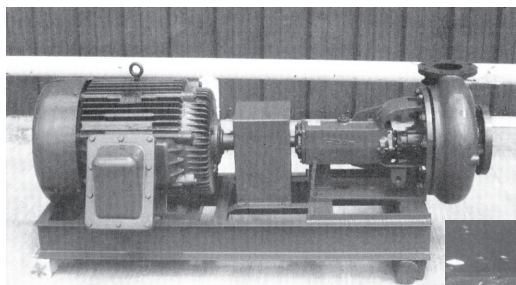
CENTRIFUGAL PUMP

250 SERIES MODEL PUMP offers longer service life, more power and easier maintenance than conventional pumps on the market today. Compared to conventional pumps, this pump provides increased capacity and higher head with no increase in piping size or base mounting size. The 250 Series pump has proved to provide greater savings on the toughest jobs through extended life and enhanced performance.

FEATURES:

THE 250 SERIES CONCENTRIC PUMP HOUSINGS are heavier and stronger to outlast conventional pumps. The housings are thicker for extra strength and extended service life. The concentric design allows the distance between the impeller and the housing to be the same at all points. The pump provides streamlined flow, even at shutoff. The concentric housing eliminates turbulence and cavitation within the pump. It also reduces the radial load on the bearings. The required suction pressure is lower due to the full pipe diameter of the pump entrance. The housing gasket is recessed to protect it from fluid leaving the impeller.

THE 250 SERIES OPEN-VANE IMPELLER eliminates recirculation that occurs in closed impellers. The impeller is designed to reduce turbulence, lower radial and thrust loads, and provides a smooth flow of fluid through the pump. Housing wear is reduced by eliminating the high scrubbing action that occurs on conventional pumps. The 250 series impeller is designed to allow fluid leaving the impeller to blend



250 "DL-DELUX" FLUID END. Now offering "DL" extended life fluid ends that include the stuffing box, impeller, and housing assembly. These parts are poured from the highest grade of ductile iron, then finished to exacting specifications. After machining and inspection, these parts are processed through a quench and temper heat treating process to fully harden the parts throughout. During this process the parts are hardened to 40-44 ROCKWELL -C scale, this gives the "DL" parts the hardness to withstand the harshest pumping conditions.

DOUBLE LIFE

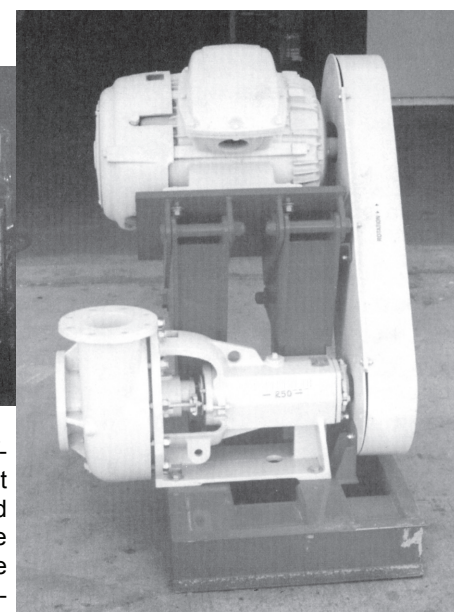
with recirculating fluid to reduce abrasive wear of the casing. The open-vane impeller has no exposed impeller nuts or shaft threads. The impeller is screwed on and the threads are protected by an o-ring. The 250 series pump and impeller are designed to increase service life many times over that of conventional pumps.

THE 250 SERIES SHAFT has a greater diameter to provide heavy-duty performance with minimal shaft deflection. This design extends the packing life. The replaceable shaft sleeve allows the wear from the packing to be renewed without replacing the entire shaft. The shaft sleeve and mechanical seal can be replaced without removing the shaft from the pump.

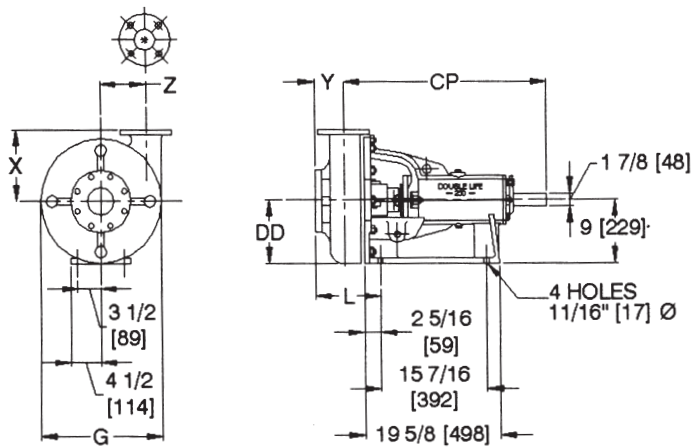
THE 250 SERIES BEARINGS are designed for easy maintenance. The outboard bearing assembly is comprised of two angular contact bearings with high thrust load ratings and zero end play. The inboard bearing is a heavy-duty, double row ball bearing with a high radial load capacity to compensate for the larger impeller sizes and heavy-duty applications. DL only uses the best bearings available.

THE 250 SERIES STUFFING BOX COVER combine the functions of wear plate and stuffing box into a one-piece replacement unit. One bolt holds the slip fitted stuffing box in place. The 250 series stuffing box is available for packing or mechanical seal operation. The slip fit design allows easy access to the shaft sleeve.

THE DOUBLE LIFE 250 MECHANICAL SEAL This top quality seal is manufactured from the finest materials available today. This seal delivers superior performance due to superior design. Our seal distributes drive torque over 10 drive tabs, which are 25-50% thicker than others on the market, therefore reducing stress on the outer retainer. All metal parts are manufactured of 316 stainless steel. Elastomers are manufactured from viton. Both rotating and stationary seal faces are tungsten carbide.

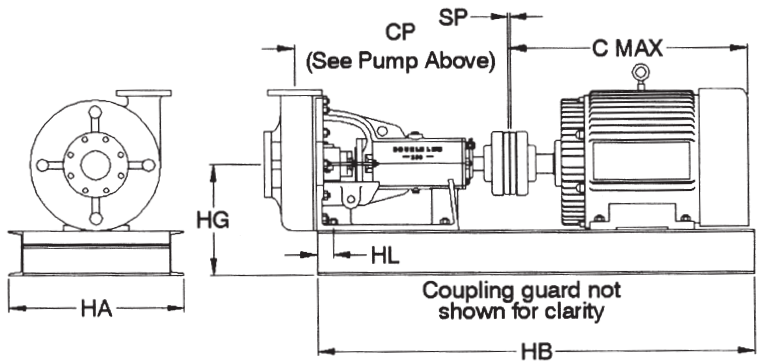


DOUBLE LIFE



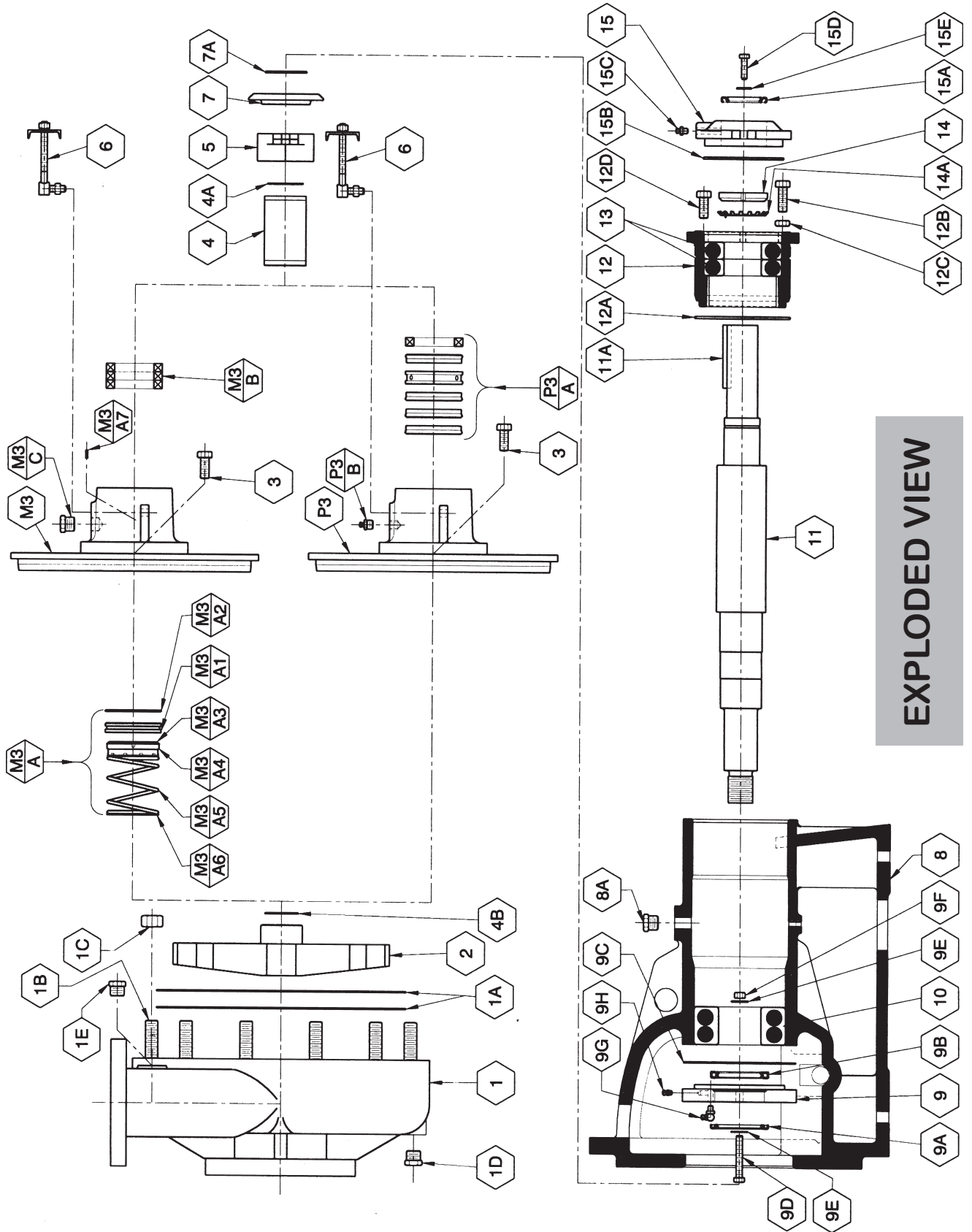
FLANGE DIMENSIONS											
SIZE	ID		OD		BC		THICK.		NO. OF HOLES	HOLE SIZE	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.		In.	mm.
2	2	51	6	152	4 3/4	121	5/8	16	4	3/4	19
3	3	76	7 1/2	191	6	152	3/4	19	4	3/4	19
4	4	102	9	229	7 1/2	191	15/16	24	8	3/4	19
5	5	127	10	254	8 1/2	216	15/16	24	8	7/8	22
6	6	152	11	279	9 1/2	241	1	25	8	7/8	22
8	8	203	13 1/2	343	11 3/4	298	1 1/8	29	8	7/8	22

PUMP SIZE	G		L		X		Y		Z		CP		DD		WEIGHT								
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	Lbs.	kg.							
3 x 2 x 13	17	7/8	454	8	3/4	222	10	1/4	260	3	3/4	95	7	178	29	1/4	743	8	15/16	227	440	200	
4 x 3 x 13	17	7/8	454	9	3/8	238	10	1/4	260	4	1/4	108	6	3/4	171	29	3/8	746	8	15/16	227	436	198
5 x 4 x 14	19		483	10	3/4	273	11		279	5		127	6	1/8	156	30		762	9	1/2	241	485	220
6 x 5 x 11	17	7/8	454	12	1/16	306	11		279	5	3/4	146	6		152	30	5/8	778	8	15/16	227	507	230
6 x 5 x 14	21		533	12	1/16	306	11		279	5	3/4	146	6		152	30	5/8	778	10	1/2	267	550	250
8 x 6 x 14	23	9/16	598	13	1/4	337	14		356	6	1/4	159	8	3/8	213	31	1/4	794	11	13/16	300	616	280



MOTOR FRAME	C MAX		HA		HB		HG		HL		SP		ASSEMBLY WEIGHT (less pump)			
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	1750 rpm Motor		1150 rpm Motor	
													Lbs.	kg.	Lbs.	kg.
182T	15 1/4	387	24	610	42	1067	15	381	2 1/4	57	1/4	6	267	121	263	120
184T	16 1/4	413	24	610	43	1092	15	381	2 1/4	57	1/4	6	283	129	263	120
213T	18 1/4	464	24	610	45	1143	15	381	2 1/4	57	1/4	6	356	162	339	154
215T	19 3/4	502	24	610	47	1194	15	381	2 1/4	57	1/4	6	397	180	385	175
254T	23	584	24	610	51	1295	15	381	2 1/4	57	1/4	6	495	225	477	217
256T	24 1/2	622	24	610	53	1346	15	381	2 1/4	57	1/4	6	542	246	507	230
284T	26 1/4	667	24	610	54	1372	15	381	2 1/4	57	1/4	6	716	325	677	308
286T	27 3/4	705	24	610	55	1397	15	381	2 1/4	57	1/4	6	748	340	758	345
324T	28 3/4	730	24	610	56	1422	15	381	2 1/4	57	1/4	6	972	442	954	434
326T	30 1/4	768	24	610	58	1473	15	381	2 1/4	57	3/8	10	1014	461	964	438
364T	31 1/2	800	24	610	60	1524	15	381	2 1/4	57	3/8	10	1337	608	1176	534
365T	32 1/2	826	24	610	60	1524	15	381	2 1/4	57	1/4	6	1331	605	1283	583
405T	37	940	24	610	64	1626	16	406	2 1/4	57	1/4	6	1513	688	1493	679

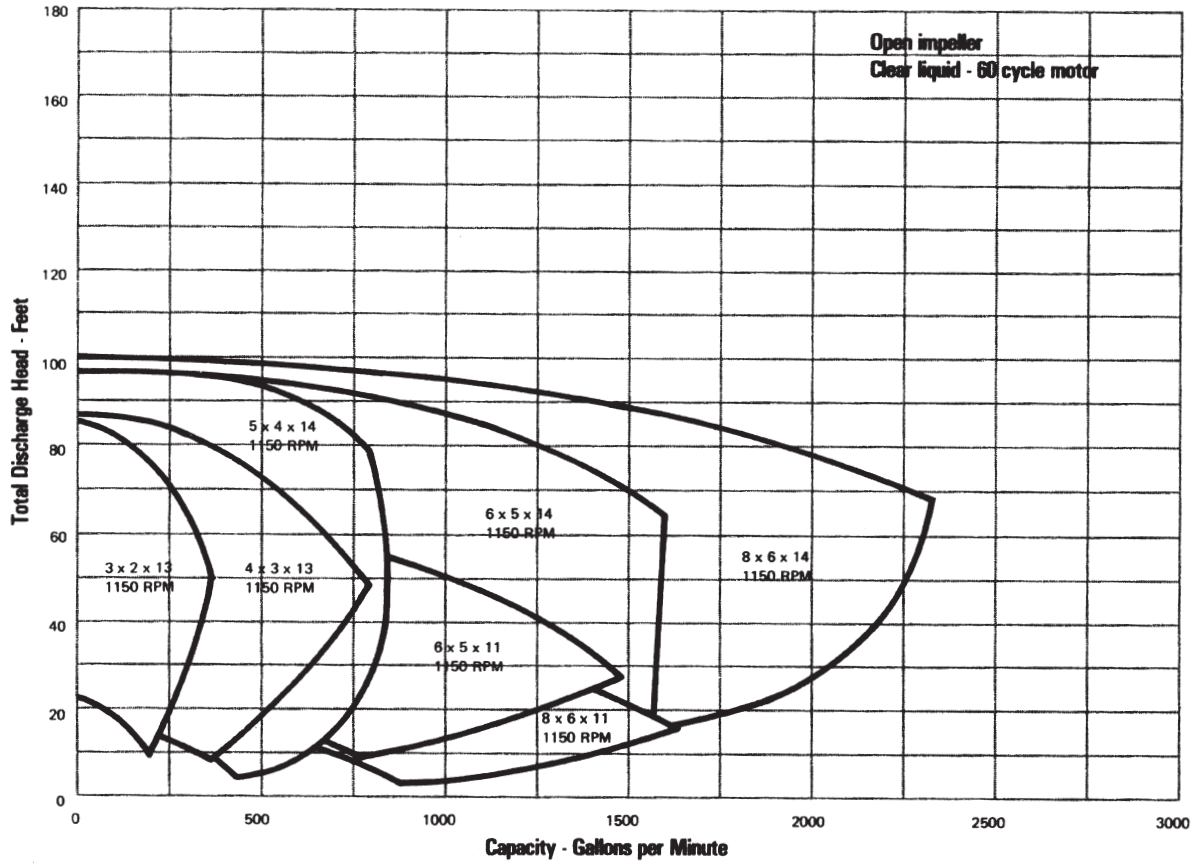
DOUBLE LIFE



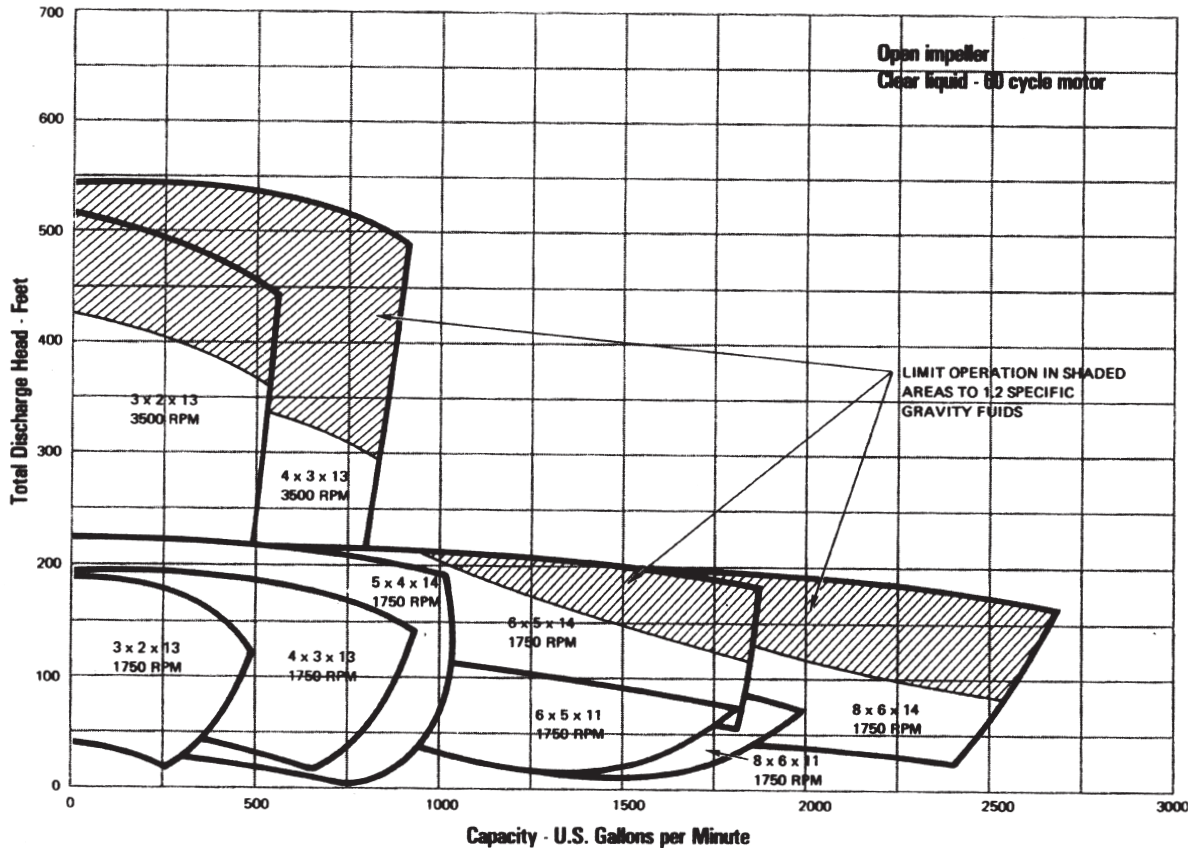
EXPLODED VIEW

	ITEM	QUAN.	DESCRIPTION	PART NUMBER
Housing	1	1	Housing	
	1A	2	Gasket, Housing	720700
	1B	12	Stud, Housing	B16092121000048
	1C	12	Nut, Housing	N19052121000000
	1D	1	Plug, Drain	721651
	1E	1	Plug, Neck (3 x 2 x 13 & 4 x 3 x 13 Only)	721651
	2	1	Impeller	
	3	1	Bolt, Stuffing Box	B03F52081300020
Mechanical Seal Arrangement	M3	1	Stuffing Box - Mechanical Seal	721350
	M3-A	1	Mechanical Seal Assembly	721540
	M3-A-1		Stationary Seat	Information Only
	M3-A-2		O-Ring, Stationary Seat	
	M3-A-3		Rotating Seal Ring	
	M3-A-4		Cage Assembly	
	M3-A-5		Spring	
	M3-A-6		Spring Retainer	
	M3-A-7		Spring Pin	
	M3-B	1 Set	Back-Up Packing	720441
M3-C	1	Plug, Clean-Out	721651	
Packed Arrangement	P3	1	Stuffing Box - Packed	721340
	P3A	1	Packing - King	720470
			Packing - Graphite	720440
			Packing - Teflon	720500
P3B	1	Grease Fiting - Packing	0399D	
Shaft Sleeve Ass'y.	4	1	Shaft Sleeve, 416SSC	721580
	4A	1	Seal, Shaft Sleeve	721490
	4B	1	Seal, Impeller	721480
	5	1	Packing Gland	720590
	6	2	Gland Bolt Assembly	720600
	7	1	Deflector	721040
	7A	1	O-Ring, Deflector	721500
	8	1	Pedestal	720175
	8A	1	Plug, Pedestal	721651
Inboard Bearing Cover Assembly	9	1	Cover, Inboard Bearing	720780
	9A	1	Seal, Inboard Bearing Exclusion	720370
	9B	1	Seal, Inboard Bearing Cover	720380
	9C	1	Gasket, Inboard Bearing Cover	720670
	9D	2	Bolt, Inboard Bearing Cover	B03F52061600044
	9E	4	Flatwasher, Inboard Bearing Cover	W01052140605000
	9F	2	Nut, Inboard Bearing Cover	N19052061600000
	9G	1	Grease Fitting, Inboard Bearing	720781
	9H	1	Grease Fitting, Seal	720782
	10	1	Bearing, Inboard	720300
	11	1	Shaft	721227
	11A	1	Key, Shaft	721270
Outboard Bearing Housing Assembly	12	1	Housing, Outboard Bearing	720800
	12A	1	Seal, Outboard Bearing Housing	721510
	12B	2	Bolt, Adjustment, Outboard Brng. Hsg.	B03F52081300024
	12C	2	Jam Nut	N12052081300000
	12D	2	Bolt, Attachment, Outboard Brng. Hsg.	B03F52081300020
	13	2	Bearing, Outboard	720320
	14	1	Nut, Bearing	721560
	14A	1	Lockwasher, Bearing Nut	721550
Outboard Bearing Cover Assembly	15	1	Cover, Outboard Bearing	720790
	15A	1	Seal, Shaft, Outboard Bearing Cover	720390
	15B	1	Seal, Outboard Bearing Cover	721520
	15C	1	Grease Fitting, Outboard Bearing	721671
	15D	2	Bolt, Attachment, Outboard Brng. Cover	B03F52081300020

Composite 1150 rpm

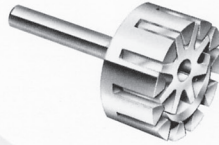


Composite 1750 and 3500 rpm



Viking Pump provides an unmatched combination of application expertise and positive-displacement pumping products to meet your pumping needs. We specialize in the design, manufacture, and application of standard and custom pumping products to some of the most challenging pumping applications in the world. We offer one of the industry's broadest selection of pumping technologies and product designs and are dedicated to helping our customers achieve the best performance of their systems.

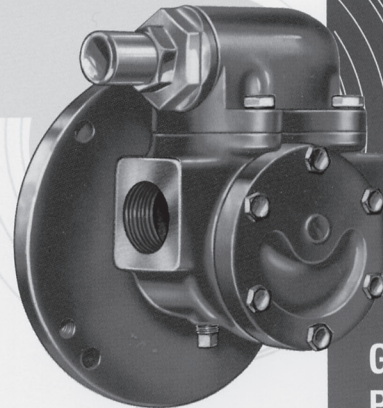
Internal Gear



General-Purpose Flange-Mounted Pumps

Compact, general-purpose pumps for **medium-duty applications**. Mounts on NEMA or IEC motors. No speed reducer required.

- 8 sizes
- Cast iron construction
- Lip seals or mechanical seals



Capacities:

To 6.8 m³/h

To 30 gpm

Differential Pressures:

To 7 bar

To 100 psi

Viscosity Range:

1 to 550 cSt

28 to 2,500 ssu

Temperature Range:

-30°C to +175°C

-20°F to +350°F

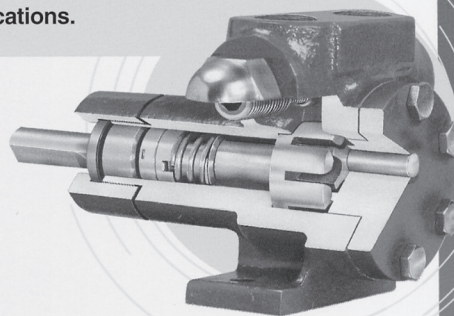
Global Presence, Local Service—

Viking Pump provides local service through a highly trained network of more than 200 stocking distributors spanning the globe. They are backed by regional manufacturing facilities and sales offices throughout the world.

General-Purpose Foot-Mounted Pumps

General-purpose pumps for **medium-duty applications**.

- 14 sizes
- Cast iron construction
- Packing or mechanical seals (C-HL sizes)
- Jacketing option available



Capacities:

To 103 m³/h

To 450 gpm

Differential Pressures:

To 7 bar

To 100 psi

Viscosity Range:

1 to 55,000 cSt

28 to 250,000 ssu

Temperature Range:

-50°C to +230°C

-60°F to +450°F

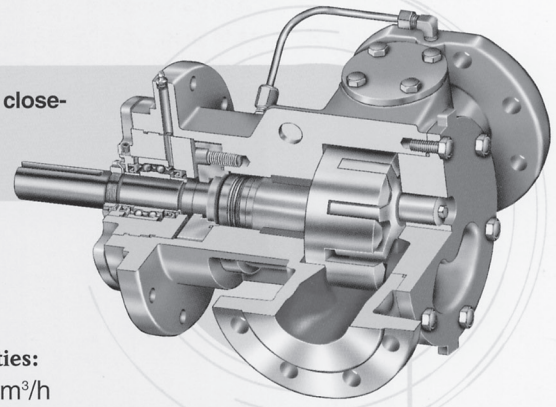
John Wooden Quote

Define success for those under your leadership as total commitment and effort to the team's welfare. Then show it yourself with your own effort and performance. Most of those you lead will do the same. Those who don't should be encouraged to look for a new team.

Motor Speed Pumps

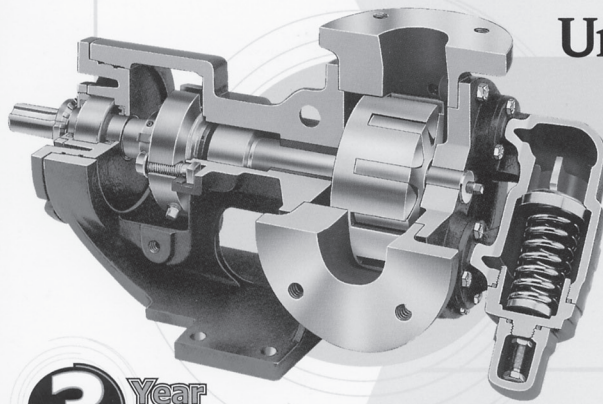
This metric-designed pump may be foot-mounted or close-coupled to IEC frame motors for a compact footprint in a high-capacity pump.

- 6 sizes
- Ductile iron construction
- Mechanical seals
- Large-diameter shaft, oversize bearings and bushings
- Pressure relief valve standard
- New idler gear and root-feed-groove design for quiet operation



Capacities:
To 45 m³/h
To 200 gpm

Differential Pressures:	Viscosity Range:	Temperature Range:
To 12 bar	1 to 22,000 cSt	-30°C to +150°C
To 175 psi	28 to 100,000 ssu	-20°F to +300°F



3 Year Warranty

Universal Seal Pumps

Heavy-duty, foot-mounted pumps with enlarged bearing housing lets user replace seals or change seal technologies without removing pump.

- 12 sizes
- Stainless steel, steel external, ductile iron, or cast iron construction
- Packing, component seals, or cartridge seals
- Behind-the-rotor seal option
- Flanged or NPT ports
- Multiple port locations
- Thrust bearing adjustment sets end clearance
- Pressure relief valve standard
- Jacketing option available

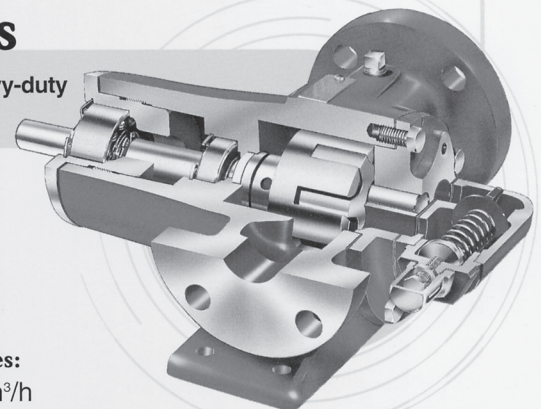
Capacities:
To 345 m³/h
To 1,500 gpm

Differential Pressures:	Viscosity Range:	Temperature Range:
To 14 bar	1 to 440,000 cSt	-85°C to +425°C
To 200 psi	28 to 2,000,000 ssu	-120°F to +800°F

High-Speed Compact Pumps

Compact, motor-speed pumps for medium- to heavy-duty applications. No speed reducer required.

- 6 sizes
- Stainless steel, steel, or cast iron construction
- Mechanical seals standard
- Ball bearing construction
- Flanged or NPT ports
- Available in foot or flange mount
- Pressure relief valve standard



Capacities:
To 17 m³/h
To 75 gpm

Differential Pressures:	Viscosity Range:	Temperature Range:
To 17 bar	1 to 3,300 cSt	-30°C to +175°C
To 250 psi	28 to 15,000 ssu	-20°F to +350°F

John Wooden Quote

When you punish your people for making a mistake or falling short of a goal, you create an environment of extreme caution, even fearfulness. In sports it's similar to playing "not to lose" - a formula that often brings on defeat.

SPECIFICATIONS

FLOW RATE
adjustable to.....0-35 gpm (132 lpm)

PORT SIZE
Inlet.....1.0" Female NPT (BSP)
Discharge.....1.0" Female NPT (BSP)

AIR INLET0.375" NPT

AIR EXHAUST0.50" NPT

SUCTION LIFT15' Dry/25' Wet (4.57m/7.62m)

Teflon®10' Dry/20' Wet (3.05m/6.10m)

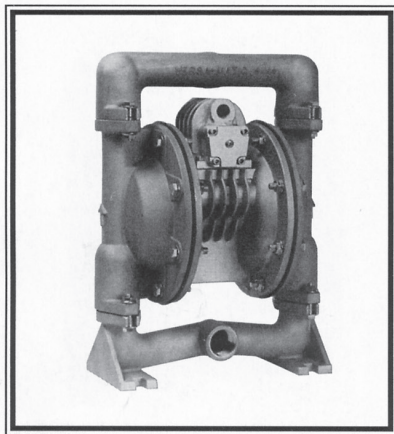
MAX. PARTICLE SIZE (Diameter) ...0.125" (3.17mm)

SHIPPING WEIGHTS

Aluminum31 lbs (14.07 kg)

Stainless42 lbs (19.05 kg)

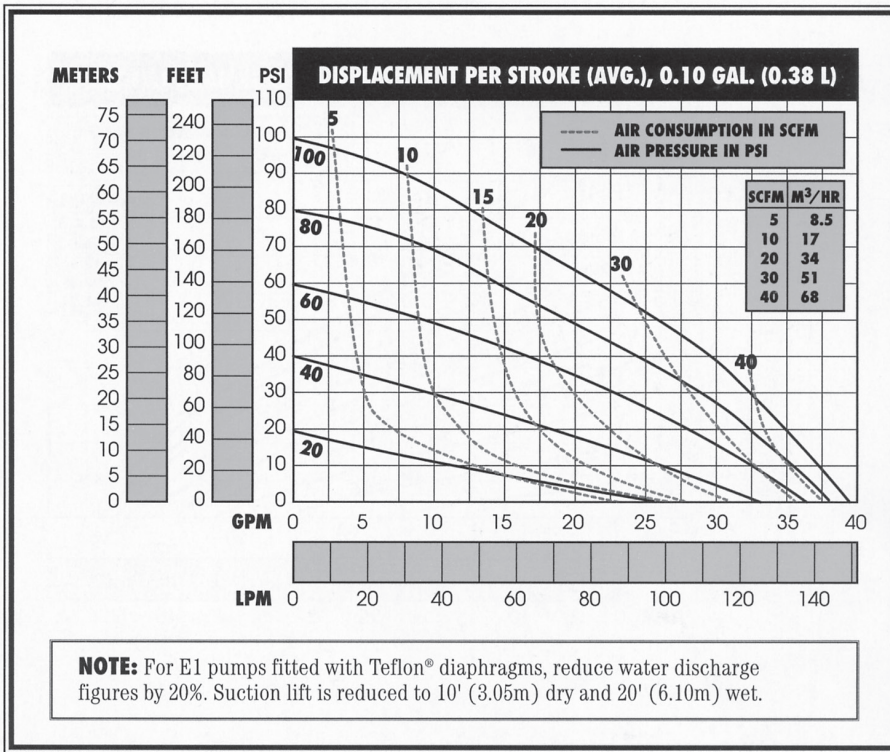
Hastelloy C42 lbs (19.05 kg)



UL Listed Models Available.

PERFORMANCE

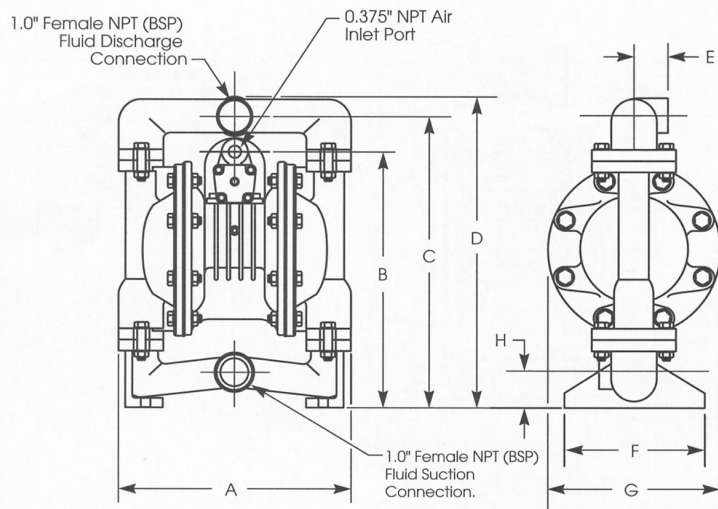
Volumes indicated on the chart below were determined by actual flow meter tests.



CAUTION: Do not exceed 125 psig (8.5 bars) air supply or liquid pressure.

DIMENSIONS

Consult factory for certified drawings.



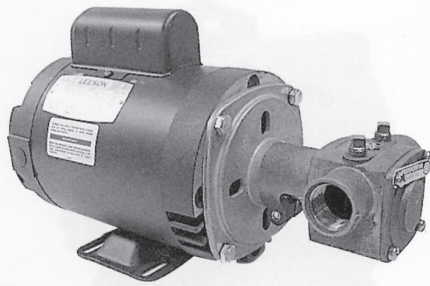
DIMENSIONS MODEL E1		
ITEM	INCHES	METRIC MM
A	12 10.62*	305 270*
B	11.87 11.81*	301 300*
C	13.5 13.59*	343 345
D	14.5 14.28*	368 363*
E	1.62 1.58*	41 40*
F	4.75 4.81*	121 122*
G	8.0 8.12*	203 206
H	1.5 1.56*	38 40*
I	8.25	209
J	0.5	12.70
K	4.0 4.25*	102 108*

* Designates Stainless Steel Pumps.

LARGER SIZES AVAILABLE

BRONZE FLEXIBLE IMPELLER

OBERDORFER



305M (3/4") & 405M (1") Series

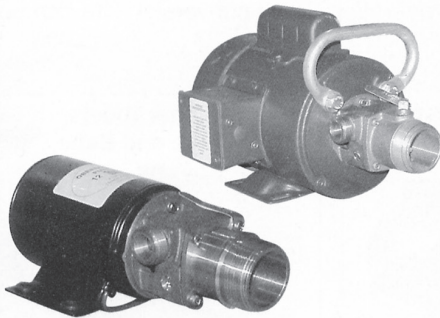
8 – 25 GPM, 1/3 - 1 HP, IN AC & DC VOLTAGES

The Oberdorfer 305M & 405M series bronze rubber impeller pumps are self-priming and have a choice of Neoprene or Nitrile (Buna-N) impellers. They are available in single and three phase, 50 & 60 Hz, 12 & 24 vdc, ODP, TEFC, & explosion proof. Below are a few of the pump & motor combinations available. (See page 123 for parts.)

Model Number	Volts	Phase	HP	Motor Enclosure	Port Sizes	GPM @ Feet of Head				
						0	20	40	60	80
OB 305M-C75	12 vdc		1/4	TENV	3/4" FPT	8	6.4	3	-	-
OB 305M-8-10F18BCT	115/230 vac	1	1/3	TEFC	3/4" FPT	12	10.5	9.2	6.7	3.0
OB 305M-8-30F18BCT	230/460 vac	3	1/3	TEFC	3/4" FPT	12	10.5	9.2	6.7	3.0
OB 305M-8-xxF18BCT	12 vdc or 24 vdc		1/3	TEFC	3/4" FPT	12	10.5	9.2	6.7	3.0
OB 405M-4-M26	115/230 vac	1	3/4	ODP	1" FPT*	25	24	22	-	-
OB 405M-4-N26	115/230 vac	1	1	ODP	1" FPT*	25	24	22	17	11
OB 405M-4-10N18BCT	115/230 vac	1	1	TEFC	1" FPT*	25	24	22	17	11
OB 405M-4-30N18BCT	230/460 vac	3	1	TEFC	1" FPT*	25	24	22	17	11
OB 405M-4-xxN18BCT	12 vdc or 24 vdc		1	TEFC	1" FPT*	25	24	22	17	11

FLEXIBLE IMPELLER MACERATORS

OBERDORFER



BRONZE MACERATORS IN 12 & 32 VDC, 115 VAC

Oberdorfer's bronze macerator pumps come in AC and DC voltages for onboard sewage or fish box pump-out. Their oversized motors provide ample horsepower for these demanding applications. Service kits: OB 10938 (214M) and OB 10829 (209M). (See page 123 for service parts.)

Model Number	Volts	Amps	Max. GPM	Inlet Port	Outlet Port	Dimensions (H x W x L)
OB 209M-A92	12 vdc	18	9	1 1/2" MPT	3/4" GHT	3 13/32" x 4" x 8 1/8"
OB 209M-A94	32 vdc	8	9	1 1/2" MPT	3/4" GHT	3 13/32" x 4" x 8 1/8"
OB 214M-F35	115 vac	-	12.5	1 1/2" MPT	3/4" GHT	8" x 7 1/4" x 12 7/16"

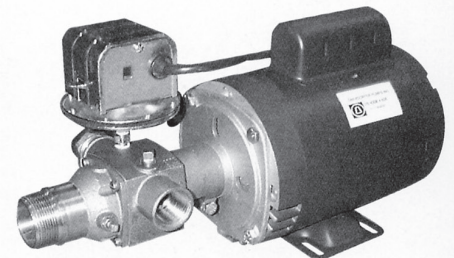
MACERATOR PUMPS

1HP, 25 GPM DOCKSIDE OR ON-BOARD MACERATOR PUMP

Oberdorfer's 406M is the largest series marine macerator pump available and comes in single and three phase, 12 and 24 vdc, 50 and 60 hz, and in custom configurations including models that meet IEEE-45, MCA, Lloyds, ABS and USCG specifications. The optional 406MK series comes equipped with a vacuum switch which shuts down the pump once the holding tank is empty. The suction port is 1 1/2" MPT or 2" slip-on and the discharge port is 1" FPT or 1 1/2" slip-on. Service kit = OB 10956. (See page 123 for service parts.)

Model Number	Volts	HP	Max. GPM	Inlet Port	Outlet Port
OB 406M-4-N26	115/230 vac	1	25	1 1/2" MPT & 2" Slip-on	1" FPT & 1 1/2" Slip-on
OB 406MK-4-N26	115/230 vac	1	25	1 1/2" MPT & 2" Slip-on	1" FPT & 1 1/2" Slip-on
OB 406M-4-30N18BCT	115/230 vac	1	25	1 1/2" MPT & 2" Slip-on	1" FPT & 1 1/2" Slip-on
OB 406M-4-12N18BCT	12 vdc	1	25	1 1/2" MPT & 2" Slip-on	1" FPT & 1 1/2" Slip-on
OB 406M-4-24N18BCT	24 vdc	1	25	1 1/2" MPT & 2" Slip-on	1" FPT & 1 1/2" Slip-on

OBERDORFER



Politics

What counts is not necessarily the size of the dog in the fight - it's the size of the fight in the dog. Dwight D. Eisenhower

Reason

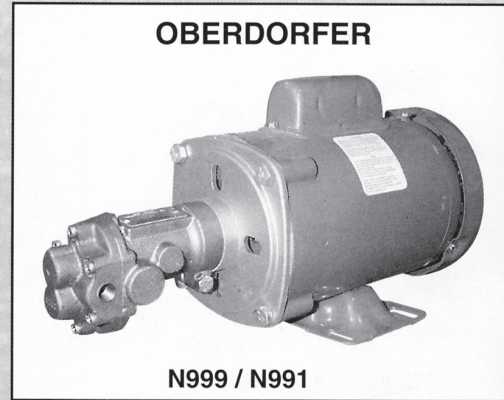
When a man has not a good reason for doing a thing, he has one good reason for letting it alone. Sir Walter Scott

OBERDORFER DIESEL TRANSFER GEAR PUMPS

1 - 2 GPM IN AC & DC VOLTAGES

The low flow bronze Oberdorfer gear pumps are ideal for diesel transfer in the marine environment. They are available with or without relief valve in single or three phase, 50 or 60 hz, 12 or 24 vdc, IEEEE-45 enclosure and custom configurations that meet MCA, Lloyds, ABS and USCG specifications. Below are some examples of the sizes available. Call us for information on a model to meet your specifications.

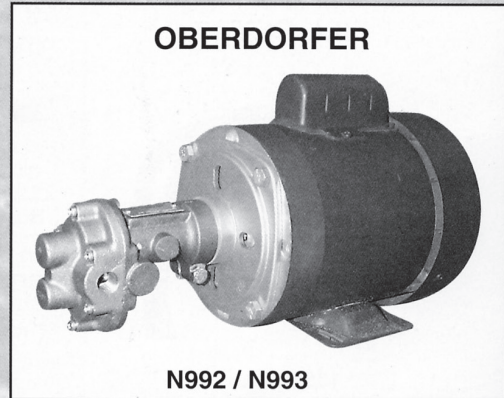
GPM at 20 PSI	HP	Port Size	115/230 vac, 1 Phase 60hz, TEFC Model	230/460 vac, 3 Phase 60hz, TEFC Model	12 vdc TEFC Model	24 vdc TEFC Model
.84	1/4	1/4" FPT	OB N999Q-10C18BCT	OB N999Q-30C18BCT	OB N999Q-12C18BCT	OB N999Q-24C18BCT
1.35	1/4	1/4" FPT	OB N991Q-10C12BCT	OB N991Q-30C12BCT	OB N991Q-12C12B	
1.98	1/3	1/4" FPT	OB N991Q-10F18BCT	OB N991Q-30F18BCT	OB N991Q-12F18BCT	OB N991Q-24F18BCT



3 - 7 GPM IN AC & DC VOLTAGES

The low flow bronze Oberdorfer gear pumps are ideal for diesel transfer in the marine environment. They are available with or without relief valve in single or three phase, 50 or 60 hz, 12 or 24 vdc, IEEEE-45 enclosure and custom configurations that meet MCA, Lloyds, ABS and USCG specifications. Below are some examples of the sizes available. Call us for information on a model to meet your specifications.

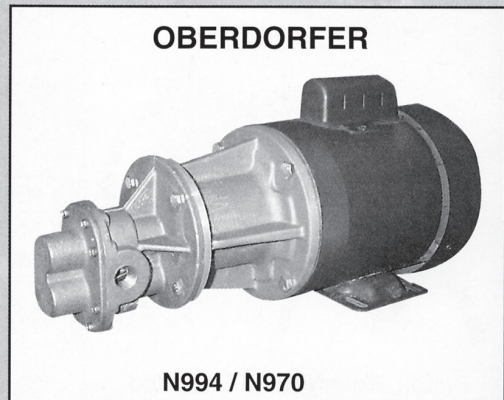
GPM at 20 PSI	HP	Port Size	115/230 vac, 1 Phase 60hz, TEFC Model	230/460 vac, 3 Phase 60hz, TEFC Model	12 vdc TEFC Model	24 vdc TEFC Model
2.72	1/4	3/8" FPT	OB N992Q-10C12BCT	OB N992Q-30C12BCT	OB N992Q-12C12B	
3.86	1/3	3/8" FPT	OB N992Q-10F18BCT	OB N992Q-30F18BCT	OB N992Q-12F18BCT	OB N992Q-24F18BCT
4.6	1/2	1/2" FPT	OB N993Q-10J12BCT	OB N993Q-30J12BCT		
7.00	3/4	1/2" FPT	OB N993Q-10M18BCT	OB N993Q-30M18BCT	OB N993Q-12M18BCT	OB N993Q-24M18BCT



6 - 20 GPM IN AC & DC VOLTAGES

These medium flow bronze Oberdorfer gear pumps are ideal for diesel transfer in the marine environment. They are available with or without relief valve in single or three phase, 50 or 60 hz, 12 or 24 vdc, IEEEE-45 enclosure and custom configurations that meet MCA, Lloyds, ABS and USCG specifications. Below are some examples of the sizes available. Call us for information on a model to meet your specifications.

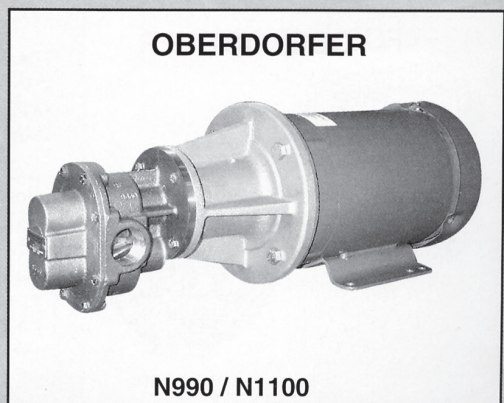
GPM at 20 PSI	HP	Port Size	115/230 vac, 1 Phase 60hz, TEFC Model	230/460 vac, 3 Phase 60hz, TEFC Model	12 vdc TEFC Model	24 vdc TEFC Model
6.6	1/2	1/2" FPT	OB N994H-10J12BCT	OB N994H-30J12BCT		
10.3	1	1/2" FPT	OB N994H-10N18BCT	OB N994H-30N18BCT	OB N994H-12N18BCT	OB N994H-24N18BCT
13	1	3/4" FPT	OB N970H-10N12BCT	OB N970H-30N12BCT		
15	1 1/2	1" FPT	OB N990H-30T12BCT			
19.2	1 1/2	3/4" FPT	OB N970H-10T18BCT	OB N970H-30T18BCT	OB N970H-12T18BCT (ODP) motor	



20 - 40 GPM IN AC & DC VOLTAGES

These high flow bronze Oberdorfer gear pumps are ideal for diesel transfer in the marine environment. The N990 series is available with or without relief valve. Both series are available in single or three phase, 50 or 60 hz, IEEEE-45 enclosure and custom configurations that meet MCA, Lloyds, ABS and USCG specifications. Below are some examples of the sizes available. Call us for information on a model to meet your specifications.

GPM at 20 PSI	HP	Port Size	115/230 vac, 1 Phase 60hz, TEFC Model	230/460 vac, 3 Phase 60hz, TEFC Model
22.9	2	1" FPT	OB N990H-10W18BCT	OB N990H-30W18BCT
38	3	1 1/2" FPT	OB N1100Y-10Y12BCT	OB N1100Z-30Y12BCT



Rebellion

By gnawing through a dyke, even a rat may drown a nation. Edmund Burke