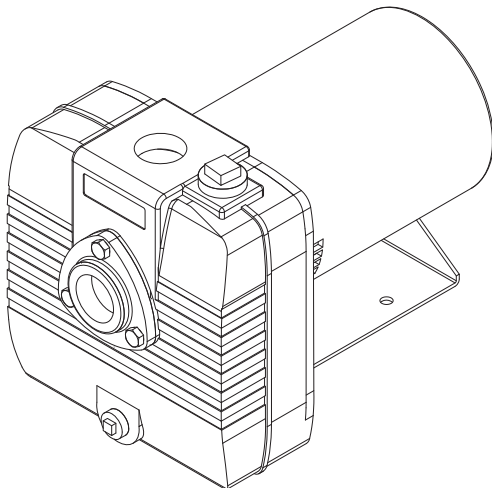
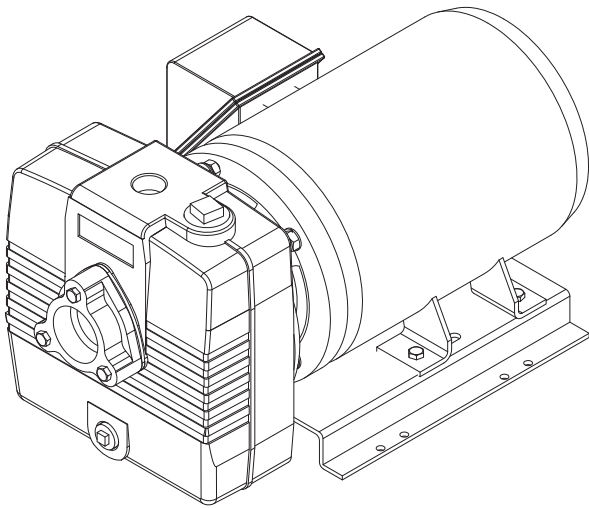


POWER-FLO

Pumps & Systems



**Series: PF3CCE3,
PF4CCE3, PF5CCE3,
PF10CCE3, PF15CCE3,
PF20CCE, PF25CCE**

***Self-Priming Universal
Pumps***

General Safety Information


Before installation, read the following instructions carefully. Failure to follow instruction and Safety information could cause serious bodily injury, death and/or property damage. Each Power-Flo pump is individually factory tested to insure proper performance. Closely following these instructions will eliminate potential operating problems, assuring years of trouble-free service.

⚠ DANGER "Danger" indicates an imminent hazardous situation which, if not avoided, WILL result in death or serious injury.

⚠ WARNING "Warning" indicates an imminent hazardous situation which, if not avoided, MAY result in death or serious injury.

⚠ CAUTION "Caution" indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.

IMPORTANT - Power-Flo Pumps and Systems is not responsible for losses, injury or death resulting from failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.

 **ALL RETURNED PRODUCTS MUST BE CLEANED, SANITIZED, OR DECONTAMINATED PRIOR TO SHIPMENT, TO INSURE EMPLOYEES WILL NOT BE EXPOSED TO HEALTH HAZARDS IN HANDLING SAID MATERIAL. ALL APPLICABLE LAWS AND REGULATIONS SHALL APPLY.**

⚠ WARNING Installation, wiring, and junction connections must be in accordance with the National Electric Code and all applicable state and local codes. Requirements may vary depending on usage and location.

⚠ WARNING Installation and servicing is to be conducted by qualified personnel only.

⚠ DANGER Keep clear of suction and discharge openings. **Do not** insert fingers in pump with power connected.

⚠ WARNING Always wear eye protection when working on pumps. Do not wear loose clothing that may become entangled in moving parts

⚠ DANGER Pumps build up heat and pressure during operation. Allow time for pumps to cool before handling or servicing.

⚠ DANGER This pump is **not** intended for use in swimming pools or water installations where human contact with pumped fluid.

⚠ DANGER Risk of electric shock. To reduce risk of electric shock, always disconnect pump from power source before handling. **Lock out power & tag.**

⚠ WARNING **Do not** use these pumps in water over 160°F. **Do not** exceed manufactures recommended maximum performance, as this could cause the motor to overheat.

⚠ DANGER Operation against a closed discharge valve will cause premature bearing and seal failure.

Heat build up on self-priming and end suction pumps may cause dangerous pressures. A high temperature switch or pressure relief valve is recommended to be installed in pump case.

⚠ WARNING Carefully read instruction manuals supplied with motor or engine before operating or servicing.

⚠ DANGER **DO NOT** pump hazardous material. These pumps are NOT to be installed in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70.

⚠ WARNING Pumps constructed with or fitted with bronze/brass may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications.

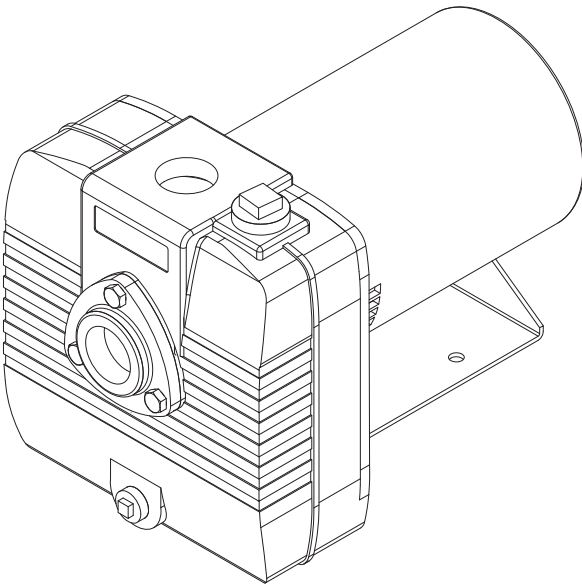
IMPORTANT! Prior to installation, record Model Number, MFG Date, and/or serial number, from pump name plate for future reference.

Model:
Serial:
MFG Date:



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Specifications

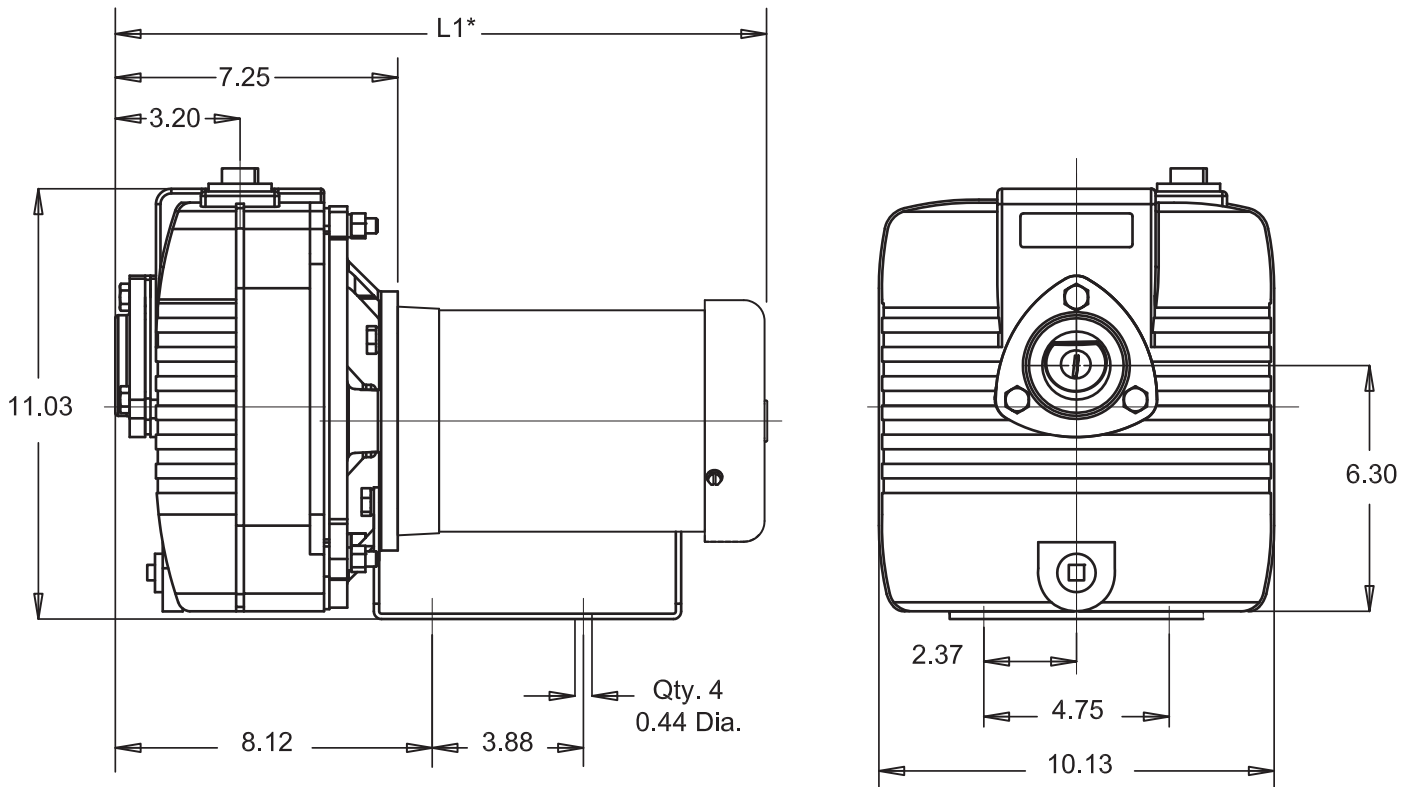


**Series:
PF3CCE3, PF4CCE3,
PF5CCE3**

**Self-Priming Universal
Pumps**

SUCTION/DISCHARGE	1½" x 1½" NPT, female
LIQUID TEMPERATURE	160°F Continuous
INTERMEDIATE	Cast Iron ASTM, Class 30
VOLUTE	Cast Iron ASTM, Class 30 Optional: Bronze
BODY	Cast Iron ASTM, Class 30
PEDESTAL	Steel
PAINT	Air dry enamel
SQUARE RING	Bune-N
SHAFT	416 Stainless Steel
HARDWARE	Steel & Stainless Steel
IMPELLER	Open, trash type, dynamically balanced Material: Cast Iron Optional: Bronze
SEAL	Design: Mechanical Lubrication: Self Lubrication Material: Carbon/Ceramic/Buna-N
CHECK VALVE	Valve Flap-Neoprene Weight- Steel
MOTOR	Open Drip Proof, C-Face, Footed, Squirrel Cage Induction. 40°C Ambient Insulation: Class B
	TEFC, C-Face, Squirrel Cage Induction. 40°C Ambient, Insulation: Class B or F
THREE PHASE	Dual-Voltage 230/460, Usable at 208
SINGLE PHASE	Dual-Voltage 230 & 115/230
OPTIONAL	Bronze Fitted, Volute and Impeller

Dimensions & Data

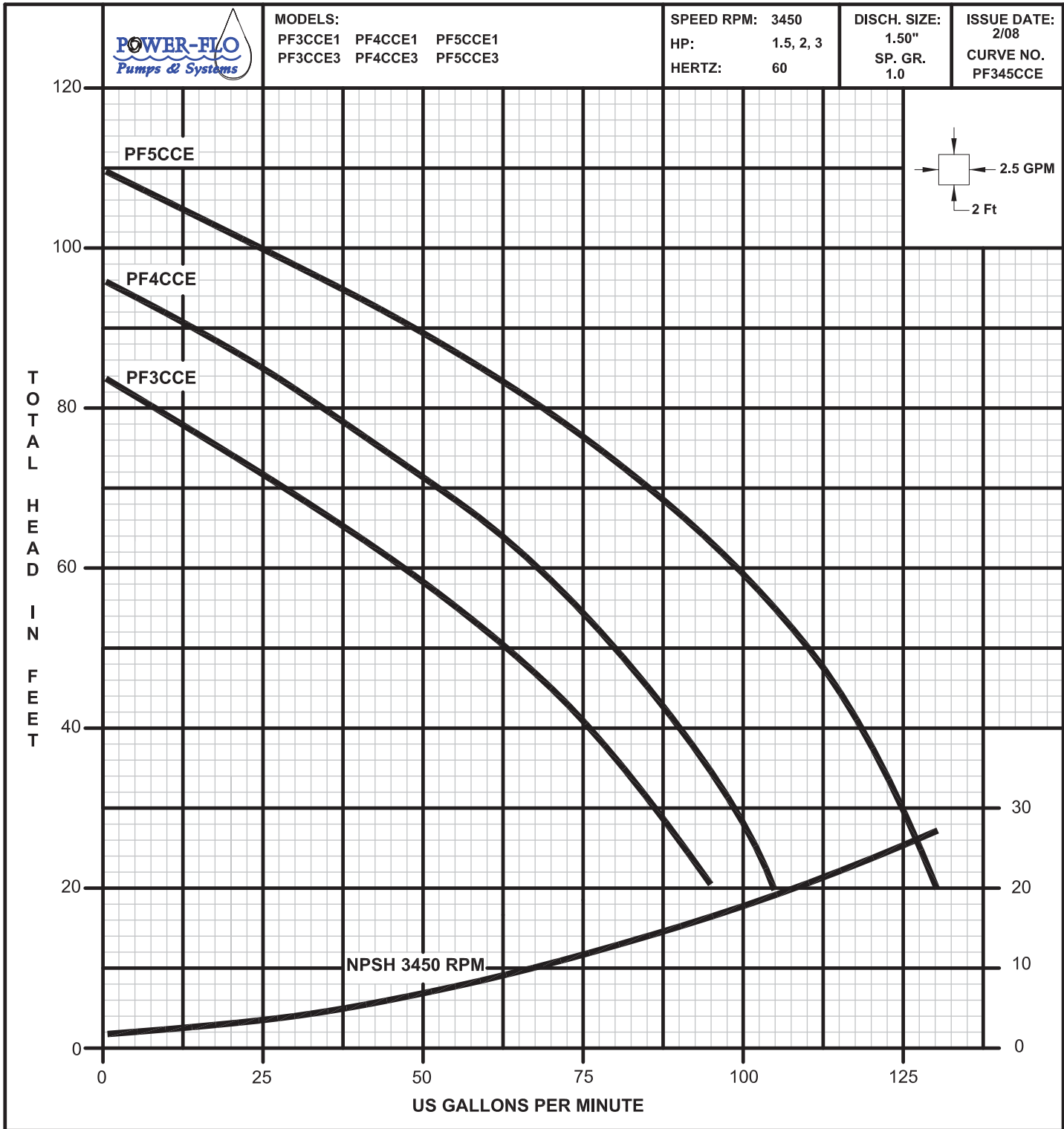


Model	HP	Enclosure	Volts Usable at 208	Phase	Hz	RPM	Full Load Amps*	L1 * inches	Weight lbs
PF3CCE1	1-1/2	ODP	115/230	1	60	3450	13/6.5	18.58	91
PF3CCE1-T	1-1/2	TEFC	115/230	1	60	3450	16.6/8.3	18.43	98
PF3CCE3	1-1/2	ODP	208-230/460	3	60	3450	5.5- 4.4/2.2	17.91	84
PF3CCE3-T	1-1/2	TEFC	208-230/460	3	60	3450	4.9 - 4.6/2.3	17.16	85
PF4CCE1	2	ODP	115/230	1	60	3450	26/13	17.93	101
PF4CCE1-T	2	TEFC	115/230	1	60	3450	23/11.5	19.31	112
PF4CCE3	2	ODP	208-230/460	3	60	3450	6.4-5.4/2.7	18.41	92
PF4CCE3-T	2	TEFC	208-230/460	3	60	3450	7.0-5.4/2.7	18.43	98
PF5CCE1	3	ODP	208-230	1	60	3450	13.9-13	18.81	105
PF5CCE1-T	3	TEFC	115/230	1	60	3450	26/13	20.68	117
PF5CCE3	3	ODP	208-230/460	3	60	3450	8.5-8/4	18.43	94
PF5CCE3-T	3	TEFC	208-230/460	3	60	3450	8.1-7.6/3.8	18.43	97

(* Overall length of unit, weight and AMPS is subject to the Motor Manufacture. For Bronze Fitted add suffix (-BF or -TBF for TEFC) to model number.

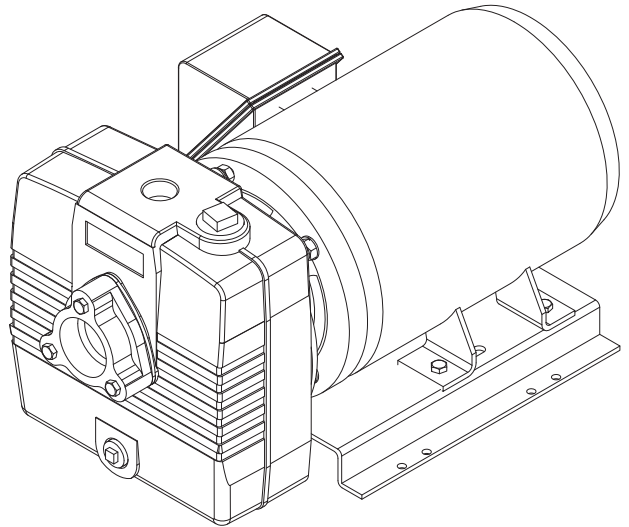


Performance



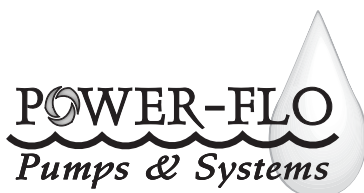
Specifications

SUCTION/DISCHARGE PF10CCE1, PF10CCE3 PF15CCE, PF20CCE PF25CCE	2" x 2" NPT, female 3" x 3" NPT, female 3" x 3" NPT, female
LIQUID TEMPERATURE	160°F Continuous
INTERMEDIATE	Cast Iron ASTM, Class 30
VOLUTE	Cast Iron ASTM, Class 30 Optional: Bronze
BODY	Cast Iron ASTM, Class 30
BASE	Steel
PAINT	Air dry enamel
SQUARE RING	Buna-N
SHAFT	1035 cold rolled Steel with bronze sleeve
HARDWARE	Steel & Stainless Steel
IMPELLER	Open, trash type, dynamically balanced Material: Cast Iron Optional: Bronze
SHAFT SLEEVE	Bronze
SEAL	Design: Mechanical Lubrication: Self Lubrication Material: Carbon/Ni-Resist/Buna-N
CHECK VALVE	Valve Flap-Neoprene Weight-Steel
MOTOR	Open Drip Proof, C-Face, Footed, Squirrel Cage Induction. 40°C Ambient Insulation: Class B or F
	TEFC, C-Face, Squirrel Cage Induction. 40°C Ambient, Insulation: Class B or F
THREE PHASE	Tri-Voltage 208-230/460
SINGLE PHASE	230 Volt
OPTIONAL	Bronze Fitted: Volute & Impeller

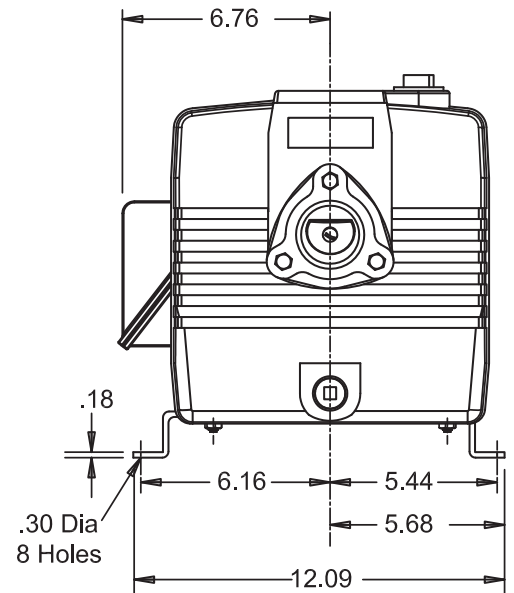
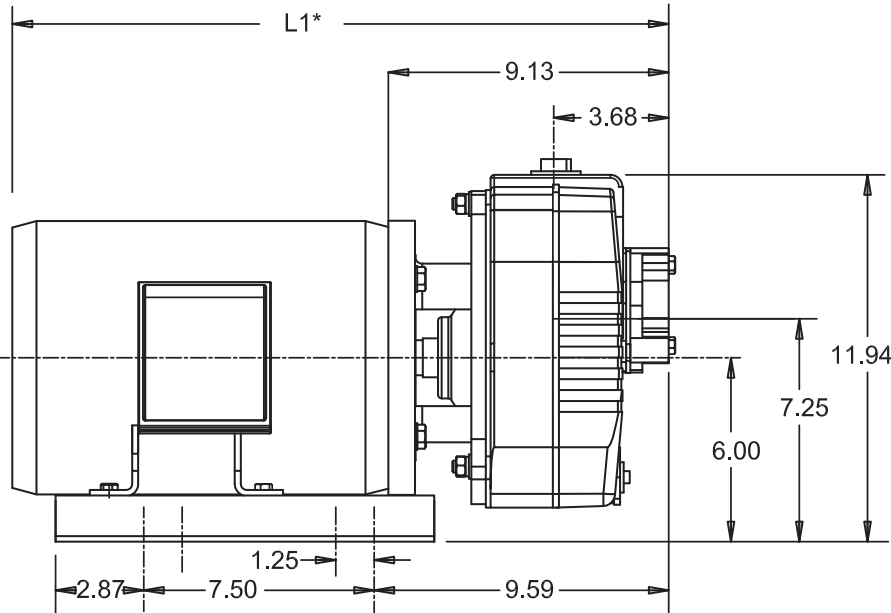


Series: PF10CCE3, PF15CCE3, PF20CCE3, PF25CCE3

**5.0, 7.5, 10 & 15HP, 3450 RPM
Self-Priming Universal Pumps**



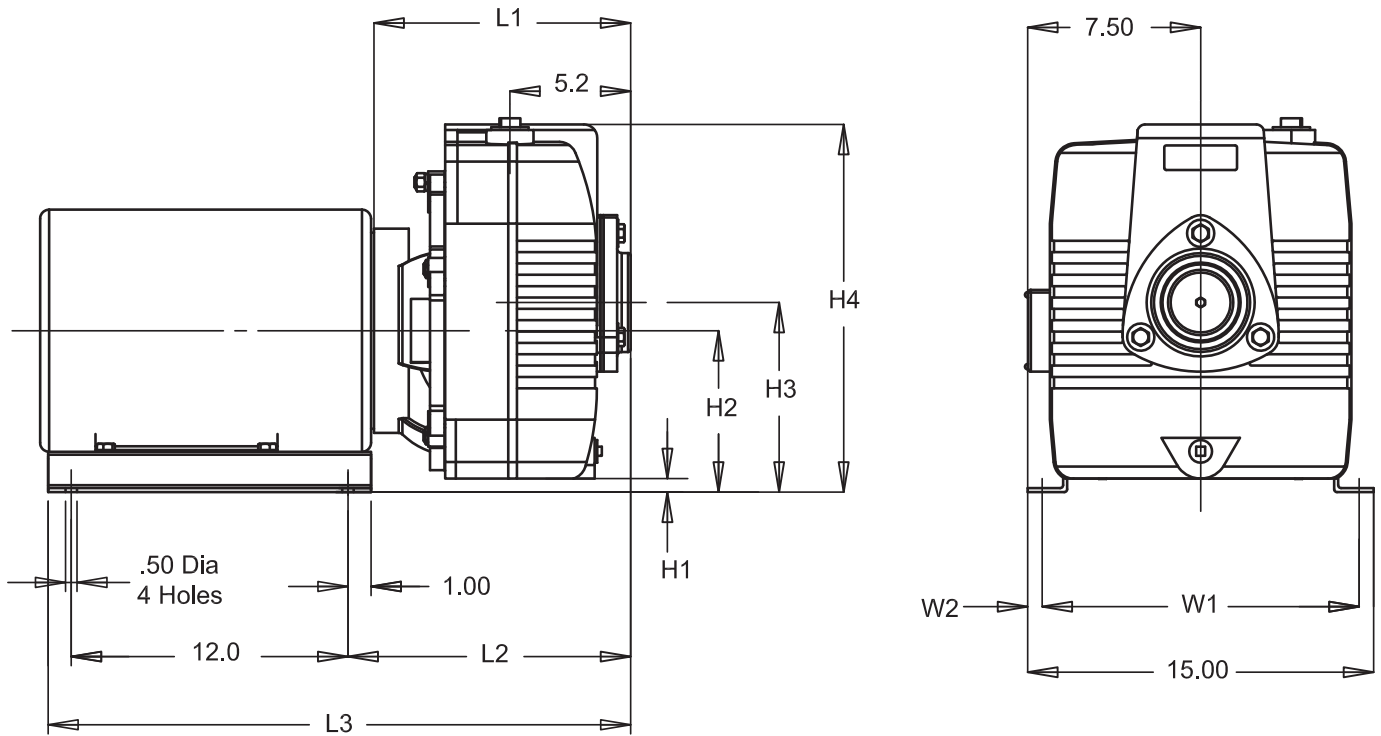
Dimensions & Data



Model	HP	Enclosure	Frame	Volt Usable at 208	Phase	Hz	RPM	Full Load Amps*	L1* inches	Weight lbs
PF10CCE1	5.0	ODP	184T	208-230	1	60	3450	24-23	20.57	165
PF10CCE1-T	5.0	TEFC	184T	230	1	60	3450	19.5	23.63	178
PF10CCE3	5.0	ODP	182T	208-230/460v	3	60	3450	13-12/6	21.25	168
PF10CCE3-T	5.0	TEFC	182T	208-230/460	3	60	3450	12.6-11.6/5.8	22.81	165

(* Overall length of unit and AMPS is subject to the Motor Manufacture. For Bronze Fitted add suffix (-BF or -TBF) to model number.

Dimensions & Data

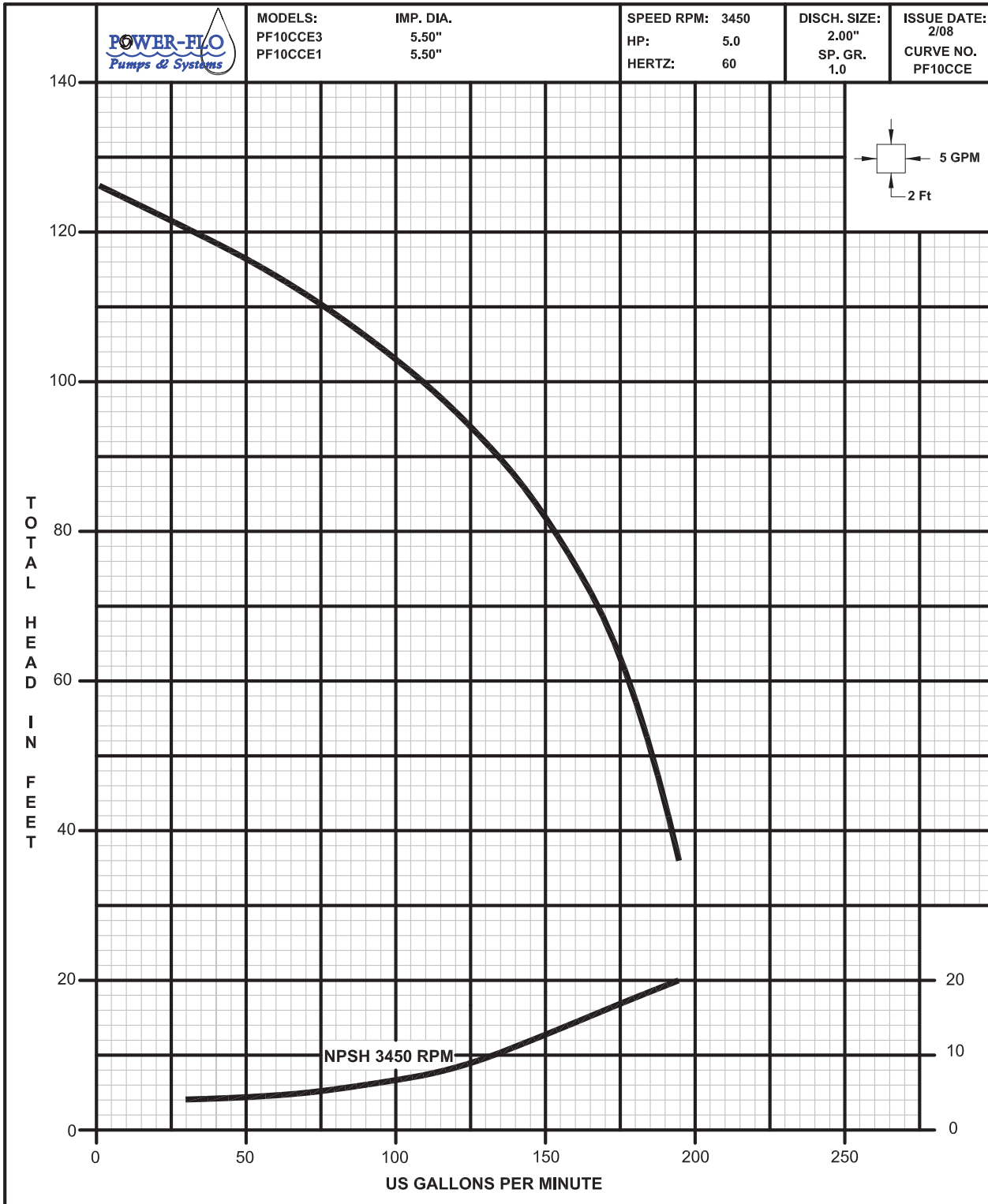


Model	HP	Enclosure	Frame	Volt Usable at 208	Phase	Hz	RPM	Full Load Amps*	L1* inches	Weight lbs
PF15CCE3	7.5	ODP	184T	208-230/460	3	60	3450	18.8 - 17.4/8.7	23.22	248
PF15CCE3-T	7.5	TEFC	184T	208-230/460	3	60	3450	18.5-17.4/8.7	26.28	251
PF20CCE3	10	ODP	213T	208-230/460	3	60	3450	25.2-24/12	24.79	294
PF20CCE3-T	10	TEFC	213T	208-230/460	3	60	3450	25-23/11.5	26.36	301
PF25CCE3	15	ODP	213T	208-230/460	3	60	3450	44-40/20	24.79	322
PF25CCE3-T	15	TEFC	215T	208-230/460	3	60	3450	38-35/17.5	27.49	341

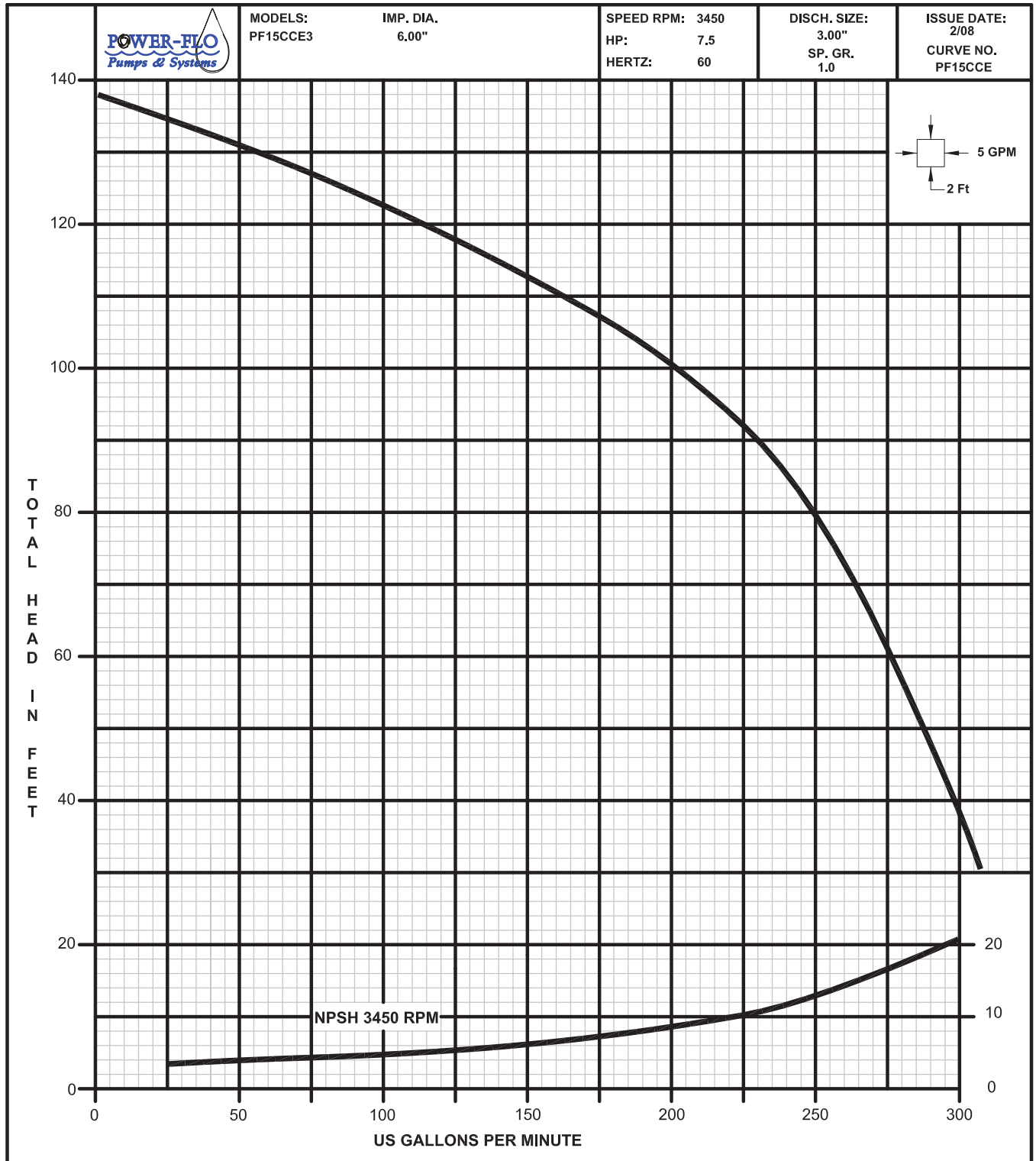
(* Overall length of unit and AMPS is subject to the Motor Manufacture. For Bronze Fitted add suffix (-BF or -TBF for TEFC) to model number.



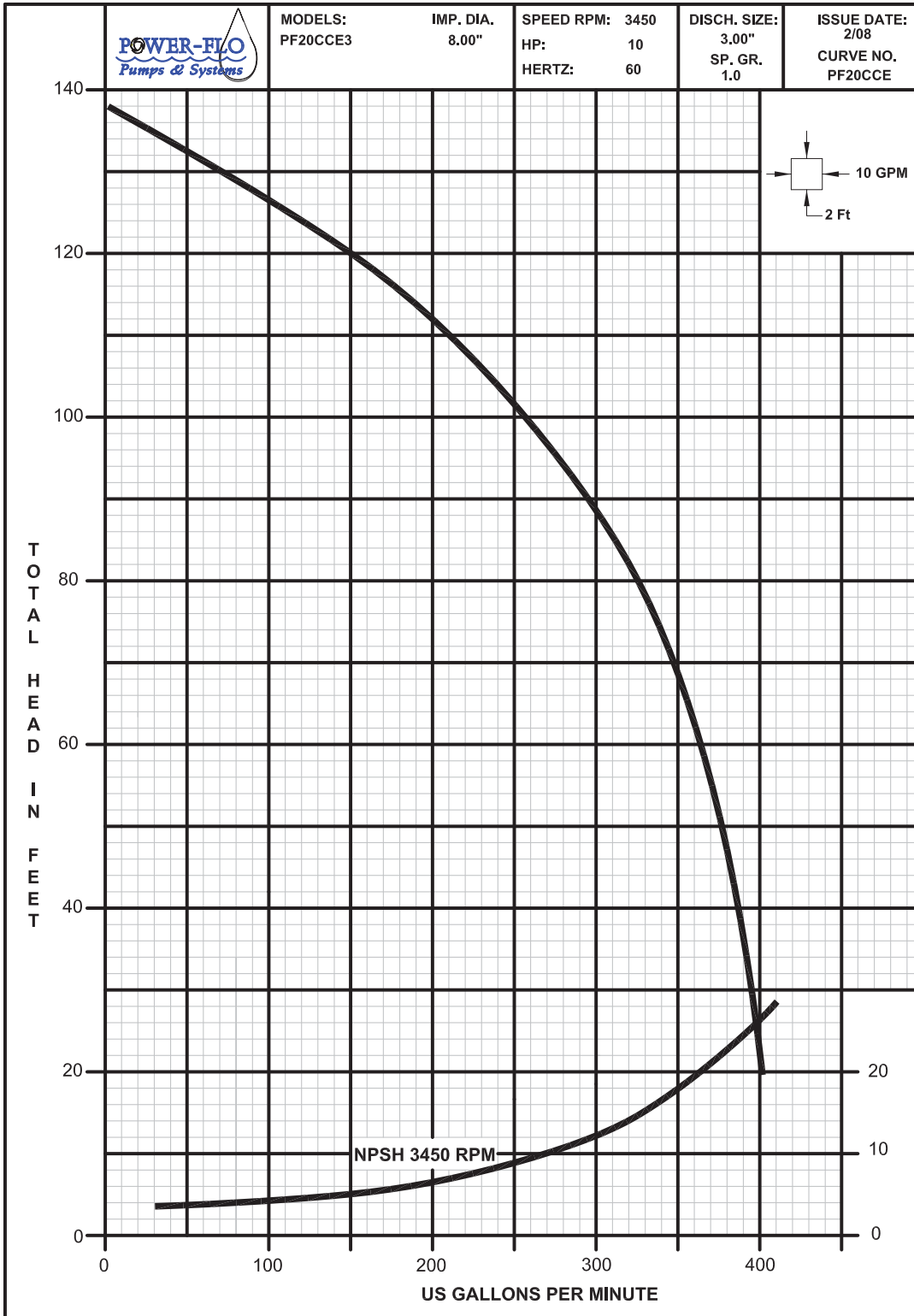
Performance



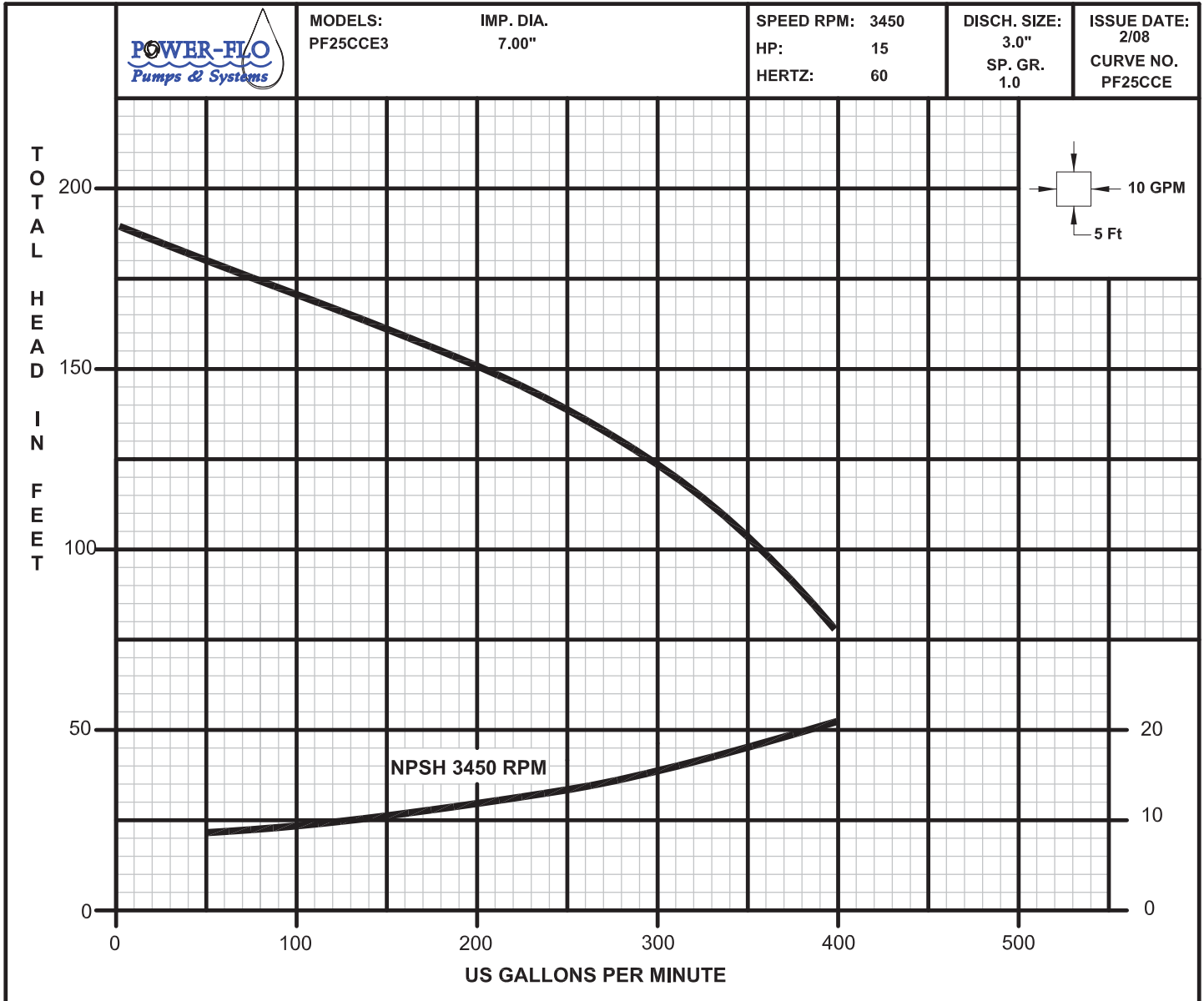
Performance



Performance



Performance



Receiving, Installation & Service

Receiving Inspection

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. If the manual is removed from the packaging, do not lose or misplace.

Storage

Any product that is stored for a period longer than six (6) months from the date of purchase should be bench tested prior to installation. A bench test consists of, checking the impeller to assure it is free turning and a run test to assure the motor (and switch if provided) operate properly. Do not pump out of liquid.

Location

Locate pump as near as possible to the liquid being pumped. Do Not place pump more than 25 feet above the surface of the liquid supply. Be sure pump is level. Mount pump on a firmly so not to move due to vibration.

Controls

Be sure the electrical specification of the control selected properly match the electrical specifications of the pump.

Motor Connection

All wiring of motor and control, overload protection and grounding should be in accordance with the National Electrical Code, State and Local codes. Make motor connection per label located on motor or motor manufactures manual.

Rotation

Pump rotation should agree with the direction on the rotation plate. If rotation on 3 phase is incorrect, interchange any two incoming wire leads. Rotation is "clockwise" when looking from the motor end.

Suction



CAUTION! - Pump should not be operated without a suction strainer to prevent foreign matter from being drawn into impeller. The strainer should be cleaned regularly.

The use of pipe the same size as the port size is highly recommended. Using a smaller pipe line can cause internal damage. Make sure all lines are have air-tight joints. The smallest air leak in the suction line may prevent the pump from priming. All horizontal suction lines should slope up to the pump to avoid trapped air pockets.

Discharge

Connect discharge hose or pipe to the discharge port. Make sure all lines are have air-tight joints.

Priming

Remove pipe plug (15) in top of body (16) and fill the pump body completely with solids free liquid. In freezing weather prime pump with warm water.



DO NOT operate pump without priming first. Operating dry will damage seal.

Starting

To start pump, apply power to motor per the Motor manufactures instructions.

Shutdown

Disconnect electric power to shut down. It is recommended to drain and flush pump if pump has been operating in freezing weather.

Service

Turn off and lock out power before servicing pump.

Check Valve

Disconnect suction piping and remove capscrews (23) and suction flange (22). Remove gasket (18), weights (17), (19), screw (20) and lockwasher (21) and replace if worn or damaged.

To replace, the *HINGE* section of gasket is at the *TOP* and the *LARGE* weight is on the pump side of gasket.

Body, Volute & Impeller

Disconnect suction and discharge piping. Remove hex nuts (4) and lockwashers (5) then remove body (16) from intermediate coupling (6).

Pull volute (13) from intermediate (6). On PF3CCE remove set screw (12) on PF4CCE & PF5CCE remove hex nut (12), on PF10CCE thru PF25CCE's remove capscrew (12), and unscrew the impeller (11) from motor shaft in the right hand direction. Take note of the size and quantity of shims (10) & (29) used.

To reassemble, use the required number of shims (10) and (29) to result in an impeller-to-volute clearance of .015" max.

Shaft Seal

Remove rotating member, spring and retaining ring of seal (8) from shaft. Remove stationary by prying out with screwdriver. If any part shows wear or damage replace complete seal (8).



Handle all seal parts with care. Do Not damage lapped faces.

To reassemble, lightly oil ring and press stationary member over shaft and into intermediate coupling (6). Lightly oil motor shaft and inner surface of bellows of rotating member. With lapped surface facing intermediate coupling, slide rotating member onto shaft until lapped faces are of rotating member and stationary together.

Motor

Remove capscrews (25) and lockwashers (26) to remove motor (1) and slinger (2).

REASSEMBLE PUMP IN OPPOSITE ORDER.

Repair Parts

For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

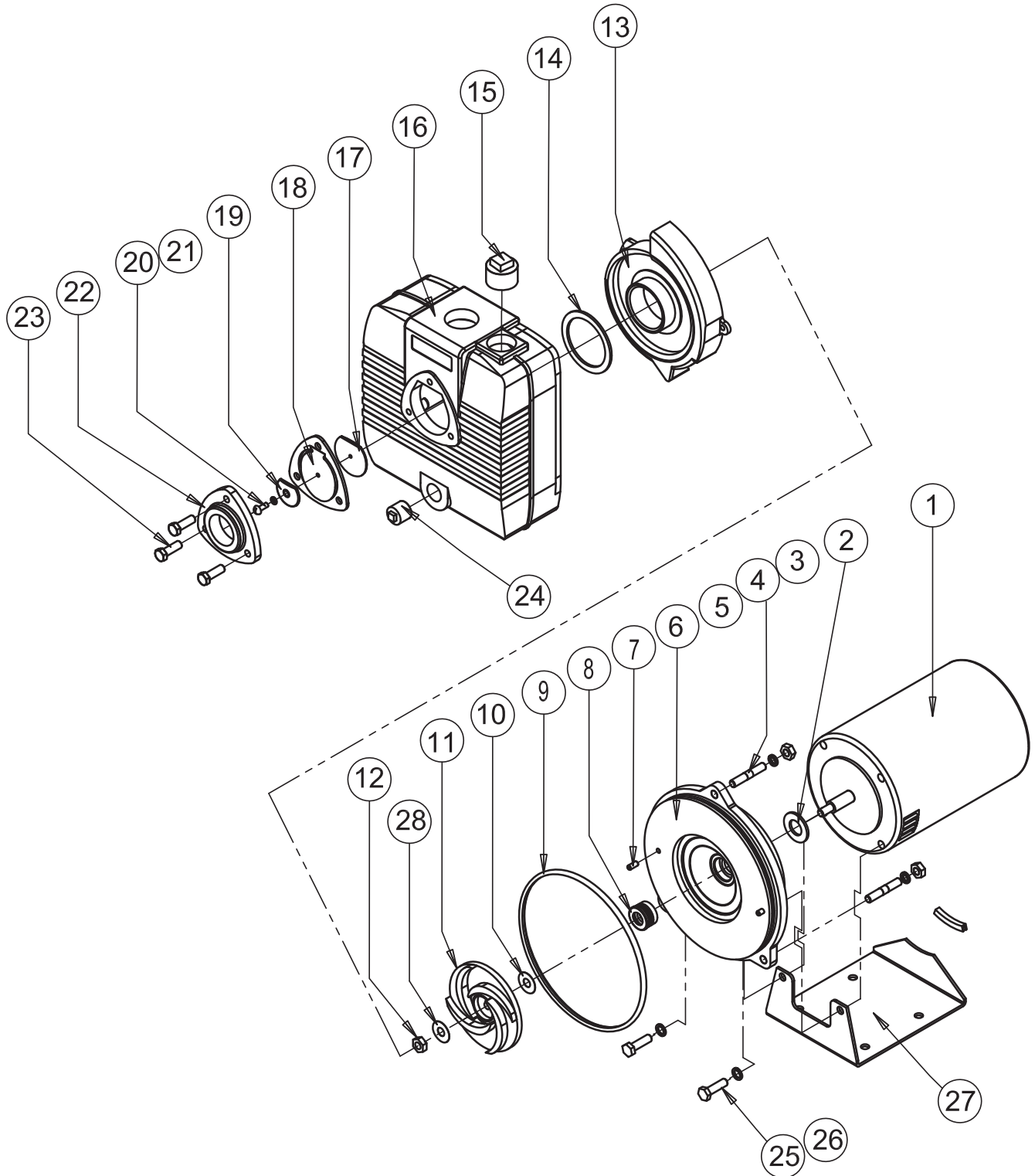


Figure 1



PF3CCE, PF4CCE, PF5CCE

Self-Priming Universal Pumps

For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

Repair Parts

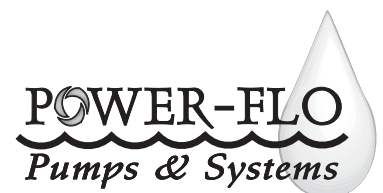
ITEM		QTY	DESCRIPTION	PF3CCE PART No.	PF4CCE PART No.	PF5CCE PART No.
1		1	Motor, ODP, 1Phase	PF4015CE1MTR	PF4020CE1MTR	PF4030CE1MTR
			Motor, ODP, 3Phase	PF4015CE3MTR	PF4020CE3MTR	PF4030CE3MTR
			Motor, TEFC, 1 Phase	PF4015CE1TEFCMTR	PF4020CE1TEFCMTR	PF4030CE1TEFCMTR
			Motor, TEFC, 3 Phase	PF4015CE3TEFCMTR	PF4020CE3TEFCMTR	PF4030CE3TEFCMTR
2		1	Slinger - supplied with motor	PF008105	PF008105	PF008105
3		3	Stud, 3/8-16 x 1.75" Lg	PF017716	PF017716	PF017716
4		3	Lockwasher, 3/8"	◆	◆	◆
5		3	Hex nut, 3/8-16	◆	◆	◆
6		1	Stuff Box Cover	PFC15CCECVR	PFC15CCECVR	PFC15CCECVR
7		2	Pin	PF017715	PF017715	PF017715
8	◇	1	Shaft seal C/C/B - PS516	PF012703	PF012703	PF012703
9	◇	1	O-ring (Buna -268)	PF017713	PF017713	PF017713
10	◇	2	Shim, .005	PF026706	PF026706	PF026706
11	☆	1	Impeller, Cast Iron	PFC13CCEIMP	PFC14CCEIMP	PFC15CCEIMP
			Impeller, Bronze	PFBRZ3CCEIMP	PFBRZ4CCEIMP	PFBRZ5CCEIMP
12		1	Set screw, 7/16-20	PF026155	----	----
			Hex nut, 7/16-20	----	PF028153	PF028153
13	☆	1	Volute, Cast Iron	PFC15CCEVOL	PFC15CCEVOL	PFC15CCEVOL
			Volute, Bronze	PFBRZ5CCEVOL	PFBRZ5CCEVOL	PFBRZ5CCEVOL
14	◇	1	Gasket	PF017714	PF017714	PF017714
15		1	Pipe plug, 1.25" NPT	◆	◆	◆
16		1	Body	PFC15CCETNK	PFC15CCETNK	PFC15CCETNK
*		1	Check valve assy	PF017718	PF017718	PF017718
17	◆	1	Weight, 2.25" O.D.	PF001338	PF001338	PF001338
18	◇◆	1	Gasket	PF017712	PF017712	PF017712
19	◆	1	Weight, 1.56" O.D.	PF001339	PF001339	PF001339
20	◆	1	Lockwasher, 1/4"	◆	◆	◆
21	◆	1	Round Hd screw, 1/4-20 x .625" Lg	◆	◆	◆
22	◆	1	Suction flange	PF018099	PF018099	PF018099
23		3	Cap screw, 5/16-18 x .875" Lg	◆	◆	◆
24		1	Pipe plug, .75" NPT	◆	◆	◆
25		4	Cap screw, 3/8-16 x 1.25" Lg	◆	◆	◆
26		4	Lock washer, 3/8"	◆	◆	◆
27		1	Base	5000013	5000013	5000013
28		1	Lockwasher, external tooth, 7/16"	◆	◆	◆
Repair Kits						
◇	Seal & Gasket Kit - Includes; 8, 9, 10, 14, 18			PF1.5SEAL-KIT		
◆	Check Valve Assembly - Includes; 17, 18, 19, 20, 21, 22			PF017718		
Wet End - Cast Iron , includes all items except, 1, 25, 26, 27, 28				PF3CCEWEK	PF4CCEWEK	PF5CCEWEK
Wet End - Bronze , includes all items except, 1, 25, 26, 27, 28				PF3CCEWEK-BF	PF4CCEWEK-BF	PF5CCEWEK-BF

◆ = Acquire standard hardware locally.

◇ = Seal/Gasket Kit

◆ = Check Valve Assembly

☆ = Supplied as individual items



Parts List

For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

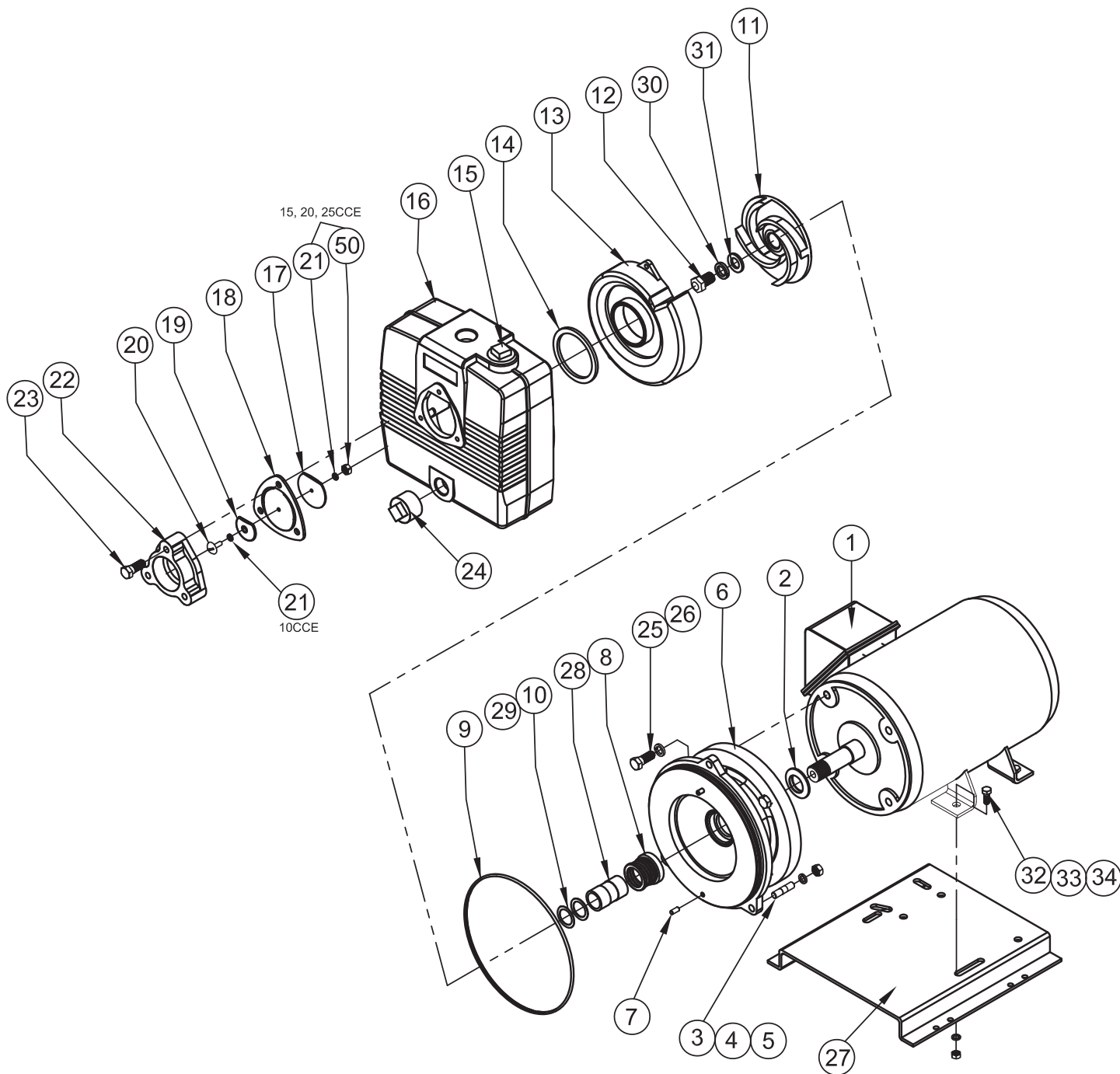
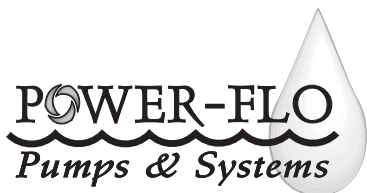


Figure 2



For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

Repair Parts

ITEM		QTY	DESCRIPTION	PF10CCE3 PART No.	PF15CCE3 PART No.	PF20CCE3 PART No.	PF25CCE3 PART No.
1		1	Motor, ODP, 1Phase	PF4050CE1MTR	----	----	----
			Motor, ODP, 3Phase	PF4050CE3MTR	PF4075CE3MTR	PF4100CE3MTR	PF4150CE3MTR
			Motor, TEFC, 1 Phase	PF4050CE1TEFCMTR	----	----	----
			Motor, TEFC, 3 Phase	PF4050CE3TEFCMTR	PF4075CE3TEFCMTR	PF4100CE3TEFCMTR	PF4150CE3TEFCMTR
2		1	Slinger	PF005163	PF005163	PF005163	PF005163
3		3	Stud, 3/8-16 x 1.75" Lg	◆	----	----	----
		5	Stud, 1/2-13 x 2" Lg	----	PF017717	PF017717	PF017717
4		3	Lockwasher, 3/8"	◆	----	----	----
		5	Lockwasher, 1/2"	----	◆	◆	◆
5		3	Hex nut, 3/8-16	◆	----	----	----
		5	Hex nut, 1/2-13	----	◆	◆	◆
6		1	Intermediate coupling	PFCI10CCECVR	PFCI25CCECVR	PFCI25CCECVR	PFCI25CCECVR
7		2	Pin	PF017715	PF017715	PF017715	PF017715
8	◇	1	Shaft seal C/NR/B, PS756	PF019146	PF019146	PF019146	PF019146
9	◇	1	O-ring -268	PF017713	PF018386	PF018386	PF018386
10	◇	2	Shim, .010	PF001349	PF001349	PF001349	PF001349
11	☆	1	Impeller, Cast Iron (STD)	PFCI10CCEIMP	PFCI15CCEIMP	PFCI20CCEIMP	PFCI25CCEIMP
			Impeller, Bronze, Optional (-BF)	PFBRZ10CCEIMP	PFBRZ15CCEIMP	PFBRZ20CCEIMP	PFBRZ25CCEIMP
12		1	Hex screw, 1/2-20 x 1.00" Lg	PF019802	PF019802	PF019802	PF019802
13	☆	1	Volute, Cast Iron (STD)	PFCI10CCEVOL	PFCI20CCEVOL	PFCI20CCEVOL	PFCI25CCEVOL
			Volute, Bronze Optional (-BF)	PFBRZ10CCEVOL	PFBRZ20CCEVOL	PFBRZ20CCEVOL	PFBRZ25CCEVOL
14	◇	1	Gasket	PF019245	PF018388	PF018388	PF018388
15		1	Pipe Plug, 1" NPT	◆	◆	◆	◆
16		1	Body (Tank)	PFCI10CCETNK	PFCI25CCETNK	PFCI25CCETNK	PFCI25CCETNK
17	◆	1	Weight, 2.25" O.D.	PF001338	----	----	----
		1	Weight, 4" O.D.	----	PF067500	PF067500	PF067500
18	◆	1	Gasket	PF017712	----	----	----
	◇	1	Gasket	----	PF018008	PF018008	PF018008
19	◆	1	Weight, 1.56" O.D.	PF001339	----	----	----
		1	Weight, 2.75" O.D.	----	PF001588	PF001588	PF001588
20	◆	1	Round Hd screw, 1/4-20 x .625" Lg	◆	----	----	----
		1	Round Hd screw, 1/4-20 x 1.00" Lg	----	◆	◆	◆
21	◆	1	Lockwasher, 1/4"	◆	◆	◆	◆
22	◆	1	Suction flange	PF018100	PF018884	PF018884	PF018884
23		3	Cap screw, 5/16-18 x 1.75" Lg	◆	----	----	----
			Cap screw, 1/2-13 x 1.25" Lg	----	◆	◆	◆

- ◆ = Acquire standard hardware locally.
- ◇ = Seal/Gasket Kit
- ◆ = Check Valve Assembly
- ☆ = Supplied as individual items



Parts List

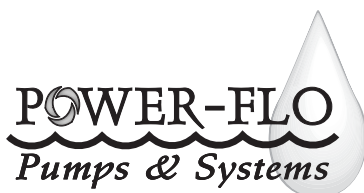
For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

ITEM		QTY	DESCRIPTION	PF10CCE3 PART No.	PF15CCE3 PART No.	PF20CCE3 PART No.	PF25CCE3 PART No.
24		1	Pipe plug, .75" NPT	◆	----	----	----
			Pipe plug, 1" NPT	----	◆	◆	◆
25		4	Cap screw, 1/2-13x 1.50" Lg	◆	◆	◆	◆
26		4	Lock washer, 1/2"	PF001350	PF001350	PF001350	PF001350
27		1	Base	5000014	5000017	5000015	5000015
28	◇	1	Shaft Sleeve	PF018071	PF018071	PF018071	PF018071
29	◇	2	Shim, .031	PF001348	PF001348	PF001348	PF001348
30		1	Lockwasher, 1/2 int/ext tooth	◆	◆	◆	◆
31		1	Flatwasher, 1/2	◆	◆	◆	◆
32		4	Hex nut, 3/8-16	◆	◆	◆	◆
33		4	Lockwasher, 3/8	◆	◆	◆	◆
34		4	Cap screw, 3/8-16 x 1.00" Lg	◆	◆	◆	◆
50		1	Hex Nut, 1/4-20	◆	◆	◆	◆

Repair Kits

◇	Seal & Gasket Kit - Includes, 8, 9, 10, 14, 18, 28, 29	PF2SEAL-KIT	PF3SEAL-KIT			
◆	Check Valve Assy - Includes; 17, 18, 19, 20, 21, 22, 50	PF017718-2	PF018387			
Wet End - Cast Iron; includes all items except, 1, 25, 26, 27, 32, 33, 34		PF10CCEWEK	PF15CCEWEK	PF20CCEWEK	PF25CCEWEK	
Wet End - Bronze; includes all items except, 1, 25, 26, 27, 32, 33, 34		PF10CCEWEK-BF	PF15CCEWEK-BF	PF20CCEWEK-BF	PF25CCEWEK-BF	

- ◆ = Acquire standard hardware locally.
- ◇ = Seal/Gasket Kit
- ◆ = Check Valve Assembly
- ☆ = Supplied as individual items



Trouble Shooting Chart



Risk of electric shock. Always disconnect the pump from the power source before handling inspections or repairs.

Symptom	Possible Cause(s)	Corrective Action
Little or no discharge and will not prime	<ol style="list-style-type: none"> 1. Pump body not filled with water 2. Total head too high 3. Suction head higher than pump designed for 4. Impeller partially or completely plugged 5. Leak in suction line 6. Foot-valve too small 7. Impeller damaged 8. Foot-valve or suction line not submerged deep enough in water, pulling air 9. Insufficient inlet pressure or suction head 10. Suction piping too small 11. Body gasket leaking 12. Suction or discharge line valves closed 13. Piping damaged 14. Clogged strainer or foot-valve 	<ol style="list-style-type: none"> 1. Fill pump body with water. 2. Shorten suction head 3. Lower suction head, install foot-valve and prime 4. Disassemble pump and clean out impeller 5. Repair or replace suction line 6. Match foot-valve size to piping or install one larger size foot-valve 7. Disassemble pump and replace impeller 8. Submerge lower in water 9. Increase inlet pressure by adding more water to tank or increasing back pressure by turning gate valve on discharge line partially closed. 10. Increase pipe size to pump inlet size or larger 11. Replace 12. Open 13. Clean or replace 14. Clean or replace
Loss of suction after satisfactory operation	<ol style="list-style-type: none"> 1. Air leak in suction line 2. When pump was last turned off, water siphoned out of pump body 3. Suction head higher than pump designed for 4. Insufficient inlet pressure or suction head 5. Clogged foot-valve, strainer or pump 6. Defective wearplate 	<ol style="list-style-type: none"> 1. Repaire or replace suction line 2. Refill (reprime) pump body before restarting 3. Lower suction head, install foot-valve and prime 4. Increase inlet pressure by adding more water to tank or increasing back pressure by turning gate valve on discharge line to partially closed. 5. Unclog or replace 6. Replace
Pump overloads driver	<ol style="list-style-type: none"> 1. Total head lower than pump rating, unit delivering too much water 2. Specific gravity and viscosity of liquid being pumped different than the pump rating 	<ol style="list-style-type: none"> 1. Increase back pressure by turning gate valve on discharge line to partially closed position that will not overload motor. 2. Consult factory
Pump vibrates and/or makes excessive noise	<ol style="list-style-type: none"> 1. Mounting plate or foundation not rigid enough 2. Foreign material in pump causing unbalance 3. Impeller bent 4. Cavitation present 5. Piping not supported to relieve any strain on pump assembly 	<ol style="list-style-type: none"> 1. Reinforce 2. Disassemble pump and remove 3. Replace impeller 4. Check suction line for proper size and check valve in suction line if completely open, remove any sharp bends before pump and shorten suction line 5. Make necessary adjustments
Pump runs but no fluid	<ol style="list-style-type: none"> 1. Air leak in suction piping 2. Pump located too far from fluid source 3. Gate valve closed 4. Clogged strainer 5. Fouled foot-valve 6. Discharge height too great 7. Fouled impeller 8. Faulty mechanical seal 	<ol style="list-style-type: none"> 1. Replace 2. Replace 3. Open 4. Clean or Replace 5. Clean or Replace 6. Lower the height 7. Clean or Replace 8. Replace
Pump leaks at shaft	<ol style="list-style-type: none"> 1. Worn mechanical seal 2. Seal not installed properly 	<ol style="list-style-type: none"> 1. Replace 2. Follow service instructions for installing seal

NOTE: Power-Flo Pumps & Systems assumes no responsibility for damage or injury due to disassembly in the field. Disassembly of the pumps or supplied accessories other than at Power-Flo Pumps & Systems or its authorized service centers, automatically voids warranty.



LIMITED WARRANTY

Manufacturer warrants, to the immediate purchaser and subsequent initial owner during the warranty period, every new pump to be free from defects in material and workmanship under normal use and service, when properly used and maintained, for a period of eighteen (18) months from date of manufacture or twelve (12) months from date of installation (which ever comes first). Failure due to wear due to excessive abrasives is not covered. The initial owner is the purchaser who first uses the pump after its initial installation, or for non-permanent installation, the first owner who uses the pump. The date of installation shall be determined by a dated sales receipt noting the model and serial number of the pump. The dated sales receipt must accompany the returned pump. Product will be repaired, replaced or remanufactured at Manufacturer's option. No allowance will be made for shipping charges, damages, labor or other charges that may occur due to product failure, repair or replacement. This warranty does not apply to and there shall be no warranty for any material or product that has been disassembled without prior approval of Manufacturer, subjected to misuse, misapplication, neglect, alteration, accident or act of God; that has not been installed, operated or maintained in accordance with Manufacturer's installation instructions; that has been exposed to outside substances including but not limited to the following: sand, gravel, cement, mud, tar, hydrocarbons, hydrocarbon derivatives (oil, gasoline, solvents, etc.), or other abrasive or corrosive substances, wash towels or feminine sanitary products, etc. in all pumping applications. The warranty set out in the paragraph above is in lieu of all other warranties expressed or implied; and we do not authorize any representative or other person to assume for us any other liability in connection with our products. Contact Manufacturer at: 1-877-24PUMPS or www.powerflopumps.com, Attention: Customer Service Department, to obtain any needed repair or replacement of part(s) or additional information pertaining to our warranty.

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Some states do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

