



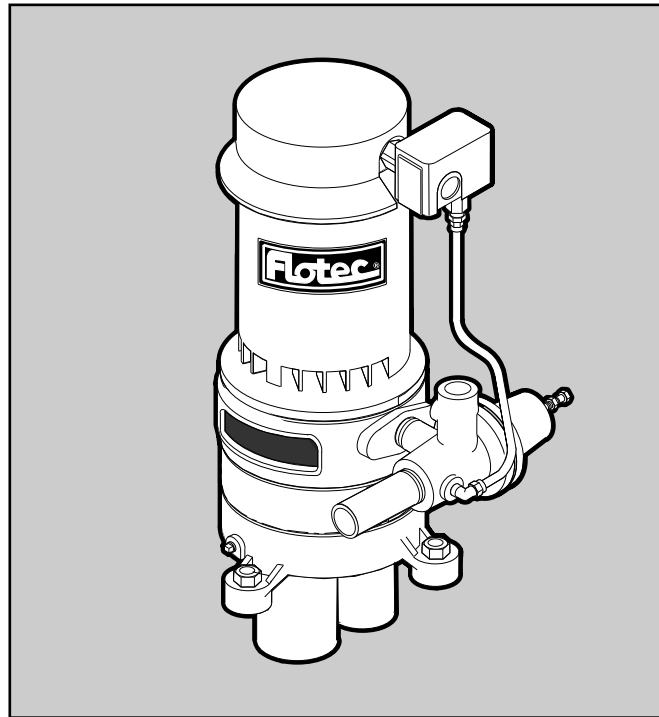
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**Multi-Stage Pump**

NOTICE D'UTILISATION  
**Pompe multiprofondeur**

MANUAL DEL USUARIO  
**Bomba Multietapas**



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**Thank you for purchasing a top quality, factory tested pump.**

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**ATTACH ORIGINAL RECEIPT HERE FOR WARRANTY CONSIDERATION.**

### Flotec Limited Warranty

FLOTEC warrants to the original consumer purchaser ("Purchaser") of its products that they are free from defects in material or workmanship.

If within twelve (12) months from the date of the original consumer purchase any such product shall prove to be defective, it shall be repaired or replaced at FLOTEC's option, subject to the terms and conditions set forth below. Your original receipt of purchase is required to determine warranty eligibility.

**Exceptions to the Twelve (12) Month Warranty**

**Ninety (90) Day Warranty:**

If within ninety (90) days from original consumer purchase any Drill Pump, Pitcher Pump, or In-Line Water Filter Cartridge shall prove to be defective, it shall be replaced, subject to the terms set forth below.

**Two (2) Year Warranty:**

If within two (2) years from original consumer purchase any 1/3 HP Submersible Sump Pump or Model FP2800DCC shall prove to be defective, it shall be repaired or replaced at FLOTEC's option, subject to the terms and conditions set forth below.

**Three (3) Year Warranty:**

If within three (3) years from original consumer purchase any 4" Submersible Well Pump, or 1/2 HP Submersible Sump Pump, shall prove to be defective, it shall be repaired or replaced at FLOTEC's option, subject to the terms and conditions set forth below.

**Four (4) Year Warranty:**

If within four (4) years from original consumer purchase any FLOODMATE™ 7000 or IRONMATE™ Submersible Sump Pump shall prove to be defective, it shall be repaired or replaced at FLOTEC's option, subject to the terms and conditions set forth below.

**Five (5) Year Warranty:**

If within five (5) years from original consumer purchase any Pre-Charge water system tank shall prove to be defective, it shall be repaired or replaced at FLOTEC's option, subject to the terms and conditions set forth below.

**General Terms and Conditions**

Purchaser must pay all labor and shipping charges necessary to replace product covered by this warranty. This warranty shall not apply to acts of God, nor shall it apply to products which, in the sole judgement of FLOTEC, have been subject to negligence, abuse, accident, misapplication, tampering, alteration; nor due to improper installation, operation, maintenance or storage; nor to other than normal application, use or service, including but not limited to, operational failures caused by corrosion, rust or other foreign materials in the system, or operation at pressures in excess of recommended maximums.

Requests for service under this warranty shall be made by returning the defective product to the Retail outlet or to FLOTEC as soon as possible after the discovery of any alleged defect. FLOTEC will subsequently take corrective action as promptly as reasonably possible. No requests for service under this warranty will be accepted if received more than 30 days after the term of the warranty.

This warranty sets forth FLOTEC's sole obligation and purchaser's exclusive remedy for defective products.

FLOTEC SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, OR CONTINGENT DAMAGES WHATSOEVER.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE DURATION OF THE APPLICABLE EXPRESS WARRANTIES PROVIDED HEREIN.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusions 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.

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## READ AND FOLLOW SAFETY INSTRUCTIONS!

**⚠ This is the safety alert symbol.** When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury!

**⚠ DANGER** DANGER warns about hazards that **will** cause serious personal injury, death or major property damage if ignored.

**⚠ WARNING** WARNING warns about hazards that **can** cause serious personal injury, death or major property damage if ignored.

**⚠ CAUTION** CAUTION warns about hazards that **will** or **can** cause minor personal injury or property damage if ignored.

The word **NOTICE** indicates special instructions which are important but not related to hazards.

**Carefully read and follow all safety instructions in this manual and on pump.**

Keep safety labels in good condition.

Replace missing or damaged safety labels.

## ELECTRICAL SAFETY

**⚠ WARNING**



**Hazardous voltage. Can shock, burn, or cause death.**

Ground pump before connecting to power supply. Disconnect power before working on pump, motor or tank.

**⚠ Wire motor for correct voltage.** See “Electrical” section of this manual and motor nameplate.

**⚠ Ground motor before connecting to power supply.**

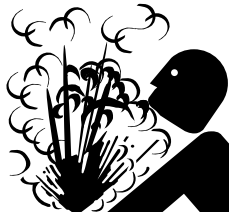
**⚠ Meet National Electrical Code, Canadian Electrical Code, and local codes for all wiring.**

**⚠ Follow wiring instructions in this manual when connecting motor to power lines.**

Make workshops childproof; use padlocks and master switches; remove starter keys.

**⚠ WARNING** Capacitor voltage may be hazardous. To discharge motor capacitor, hold insulated handle screwdriver **BY THE HANDLE** and short capacitor terminals together. Do not touch metal screwdriver blade or capacitor terminals. If in doubt, consult a qualified electrician.

## GENERAL INFORMATION

	<p><b>⚠ WARNING</b></p> <p><b>Hazardous pressure! Install pressure relief valve in discharge pipe.</b></p> <p>Release all pressure on system before working on any component.</p>
--	---

Do not allow pump or any system component to freeze. To do so will void warranty.

Pump water only with this pump.

Periodically inspect pump and system components.

Wear safety glasses at all times when working on pumps.

Keep work area clean, uncluttered and properly lighted; store properly all unused tools and equipment.

Keep visitors at a safe distance from the work areas.

To avoid over pressure hazard and possible injury, install pressure relief valve capable of passing full pump flow at 75 PSI (517kPa). Pressurized suction may cause pump body to explode.

**⚠ CAUTION** Do not touch an operating motor. Modern motors are designed to operate at high temperatures. To avoid burns when servicing pump, allow it to cool for 20 minutes after shut-down before handling.

TABLE II – 4” Double Pipe Deep Well Installation Jet Selection Chart

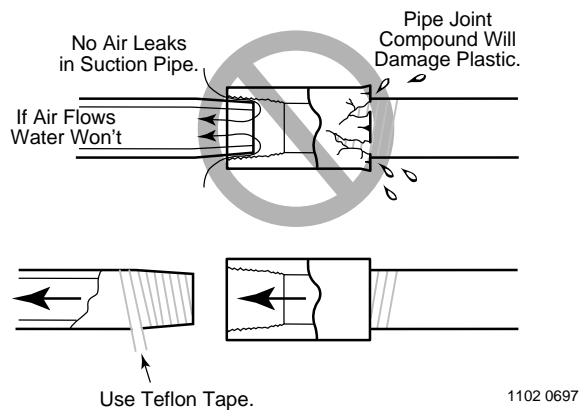
H.P.	JET NO.	PIPE SIZES		DISCH PRESS PSI(kPa)	DEPTH TO WATER – FT (M) PERFORMANCE IN GPH (LPH)																		
		SUCT.	PRESS		30 (9)	40 (12)	50 (15)	60 (18)	70 (21)	80 (24)	90 (27)	100 (30)	110 (33)	120 (36)	130 (40)	140 (43)	180 (55)	200 (61)	220 (67)	240 (73)	260 (79)		
1	J32P-24 Venturi  #52 Nozzle	1-1/4"	1"	20 (138)	730 (2763)	730 (2763)	730 (2763)	730 (2763)	690 (2612)	580 (2195)	510 (1930)	400 (1514)	320 (1211)	250 (946)	190 (719)	—	—	—	—	—	—		
				30 (207)	730 (2763)	710 (2687)	700 (2650)	695 (2631)	635 (2403)	570 (2157)	475 (1798)	395 (1495)	315 (1192)	250 (946)	190 (719)	—	—	—	—	—	—	—	—
				40 (275)	725 (2744)	700 (2650)	695 (2631)	665 (2517)	610 (2309)	550 (2082)	465 (1760)	385 (1457)	300 (1136)	240 (908)	180 (681)	—	—	—	—	—	—	—	—
				50 (344)	720 (2725)	690 (2612)	660 (2498)	625 (2366)	575 (2176)	525 (1987)	445 (1684)	365 (1382)	275 (1041)	210 (795)	165 (625)	—	—	—	—	—	—	—	—
				60 (413)	700 (2650)	660 (2498)	615 (2328)	570 (2157)	520 (1968)	470 (1779)	400 (1514)	325 (1230)	230 (871)	180 (681)	140 (530)	—	—	—	—	—	—	—	—
				1	J32P-18 Venturi  #52 Nozzle	1-1/4"	1"	20 (138)	330 (1249)	330 (1249)	330 (1249)	330 (1249)	320 (1211)	310 (1173)	305 (1154)	305 (1154)	300 (1136)	290 (1098)	270 (1022)	230 (871)	190 (719)	150 (568)	115 (435)
30 (207)	330 (1249)	330 (1249)	330 (1249)					330 (1249)	320 (1211)	310 (1173)	305 (1154)	305 (1154)	300 (1136)	290 (1098)	270 (1022)	215 (814)	175 (662)	135 (511)	100 (379)	70 (265)			
40 (275)	330 (1249)	330 (1249)	330 (1249)					325 (1230)	320 (1211)	315 (1192)	310 (1173)	305 (1154)	305 (1154)	300 (1136)	290 (1098)	270 (1022)	195 (738)	160 (606)	120 (454)	80 (303)	60 (227)		
50 (344)	330 (1249)	330 (1249)	325 (1230)					320 (1211)	315 (1192)	310 (1173)	305 (1154)	305 (1154)	300 (1136)	295 (1117)	280 (1060)	270 (1022)	175 (662)	140 (530)	100 (379)	70 (265)	50 (189)		
60 (413)	325 (1230)	325 (1230)	320 (1211)					315 (1192)	310 (1173)	305 (1154)	300 (1136)	295 (1117)	285 (1079)	280 (1060)	270 (1022)	255 (965)	155 (587)	125 (473)	85 (322)	60 (227)	40 (151)		

Table III – 2” Single Pipe Deep Well Installation Jet Selection Guide

H.P.	JET NO.	PIPE SIZES		DISCH PRESS PSI(kPa)	DEPTH TO WATER – FT (M) PERFORMANCE IN GPH (LPH)													
		SUCT.	PRESS		30 (9)	40 (12)	50 (15)	60 (18)	70 (21)	80 (24)	90 (27)	100 (30)	110 (33)	120 (36)	130 (40)	140 (43)	180 (55)	
1	J32P-24 Venturi  #52 Nozzle	1-1/4"	1"	20 (138)	730 (2763)	710 (2687)	705 (2668)	660 (2498)	600 (2271)	480 (1817)	430 (1628)	350 (1325)	210 (795)	110 (416)	—	—	—	
				30 (207)	730 (2763)	690 (2612)	675 (2555)	630 (2385)	555 (2101)	470 (1779)	400 (1514)	345 (1306)	205 (776)	110 (416)	—	—	—	
				40 (275)	730 (2763)	680 (2574)	670 (2536)	600 (2271)	530 (2006)	455 (1722)	390 (1476)	335 (1268)	195 (738)	105 (397)	—	—	—	
				50 (344)	725 (2744)	670 (2536)	640 (2422)	565 (2139)	500 (1893)	435 (1646)	375 (1419)	320 (1211)	180 (681)	90 (341)	—	—	—	
				60 (413)	700 (2650)	640 (2422)	595 (2252)	515 (1949)	450 (1703)	390 (1476)	335 (1268)	285 (1079)	150 (568)	80 (303)	—	—	—	
				1	J32P-18 Venturi  #52 Nozzle	1-1/4"	1"	20 (138)	330 (1249)	330 (1249)	320 (1211)	320 (1211)	320 (1211)	310 (1173)	300 (1136)	300 (1136)	300 (1136)	300 (1136)
30 (207)	330 (1249)	330 (1249)	320 (1211)					320 (1211)	320 (1211)	310 (1173)	300 (1136)	300 (1136)	300 (1136)	300 (1136)	300 (1136)	270 (1022)	250 (946)	130 (492)
40 (275)	330 (1249)	330 (1249)	320 (1211)					315 (1192)	310 (1173)	305 (1154)	300 (1136)	300 (1136)	300 (1136)	300 (1136)	300 (1136)	270 (1022)	250 (946)	120 (454)
50 (344)	330 (1249)	330 (1249)	315 (1192)					310 (1173)	305 (1154)	300 (1136)	300 (1136)	300 (1136)	300 (1136)	295 (1117)	260 (984)	250 (946)	105 (397)	
60 (413)	325 (1230)	325 (1230)	310 (1173)					305 (1154)	300 (1136)	295 (1117)	290 (1098)	290 (1098)	290 (1098)	280 (1060)	250 (946)	235 (889)	95 (360)	

## PRE-INSTALLATION

1. A pump cannot pump air.
2. Long runs and many fittings increase friction and reduce flow. Locate pump as close to well as possible. Keep pipe straight and angled up to pump. Use as few elbows and fittings as possible. Support weight of pipe.
3. Be sure well is clear of sand, dirt and scale which will plug pump and void warranty.
4. Protect pump and piping from freezing. Freezing will split pipe, damage pump and void warranty. Check locally for frost protection requirements (usually pipe must be 12" (30.5 cm) below frost line and pump must be insulated).
5. Be sure pipes and foot valve are clean and in good shape. Leaking foot valve due to dirt or scale may allow pump to lose prime and cause pump failure.
6. No air pockets in suction pipe.

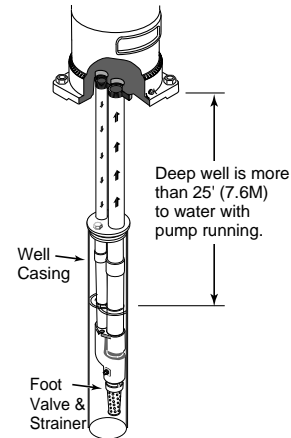


**Figure 1 – Suction pipe must not leak**

7. No air leaks in suction pipe. Use Teflon tape or Plasto-Joint Stik to seal pipe joints. Do not use pipe joint compound.(Fig. 1).  
**NOTICE:** A leak in suction may not drip (allows air to be drawn in). Jet pumps will not pump air or prime until all joints are sealed properly.

8. Match pump to well. Deep well is 25' (7.6M) or more to water with pump running. (Fig. 2)

**NOTICE:** Flow in to well must at least equal flow out through pump! See Performance Chart.



**Figure 2 – Match pump to well**

9. Unions installed near pump and well will aid in servicing. Leave room to use wrenches.
10. **⚠ WARNING** Pump body may explode if used as booster pump unless relief valve capable of passing full pump flow at 75PSI (517kPa) is installed.
11. Be sure to prime pump before starting. Water acts as lubricant. Starting without water will cause internal damage and void warranty.

## DEEP WELL / DOUBLE PIPE

### PIPING IN THE DEEP WELL (Figures 3 & 4)

**NOTICE:** Deep well installations are either single pipe (2" wells) or double pipe (4" and larger wells). In a double pipe installation, the larger pipe is the suction pipe and the smaller pipe is the drive pipe (very deep wells may use suction and drive pipes of the same diameter). Suction pipe always aligns with center of pump.

Plastic pipe is ideal for double pipe installations. Due to its light weight, it is easy to handle and does not usually require a block and tackle for installation and removal.

### PLASTIC PIPE INSTALLATION – DOUBLE PIPE (Figures 3 & 4)

**NOTICE:** Use Teflon tape on all male threads on plastic pipe and fittings to prevent air leaks in suction piping.

1. Inspect jet to make sure that nozzle and venturi openings are clean and clear.
2. Inspect pipe for any foreign matter or obstructions.
 

**IMPORTANT:** Make sure that no foreign matter enters pipe openings while installing pump.
3. Make sure foot valve operates freely: attach to jet with a close nipple. Use Teflon tape on male threads.
4. Install nozzle and venturi in deep well jet. Consult Table II for proper nozzle and venturi.
5. Using Teflon tape on male threads, install special plastic pipe adapter (supplied with jet package) by

screwing adapter into 1-1/4" tapped hole in ejector body.

6. Thread a 1" plastic pipe adapter into the 1" tapped hole in jet body.
7. Install sufficient plastic pipe in well casing to place jet at the proper depth. (Your well driller should supply this information.)
 

**IMPORTANT:** As a guide, the jet should be set at least 10 to 20 ft. (3-6M) below lowest water level with pump running, but always at least 5 ft. (1.5M) from bottom of well.
8. Tighten hose clamps on plastic pipe. Use 2 clamps per joint to prevent air leaks into suction pipe. Clamp screws should be on opposite sides of pipe. Fill pipes with water to make sure foot valve and connections do not leak.
9. Install sanitary well seal on top of well casing; use steel nipple through well seal.

**IMPORTANT:** Align locating lugs on adapter flange and pump base so pump discharge will be aligned with piping.

10. Install nipple in drive pipe side of adapter flange. Slide threadless coupling down over drive pipe from well. Thread adapter flange onto suction pipe from well and align nipple and drive pipe.
11. Slide threadless coupling up and secure nipple to drive pipe.

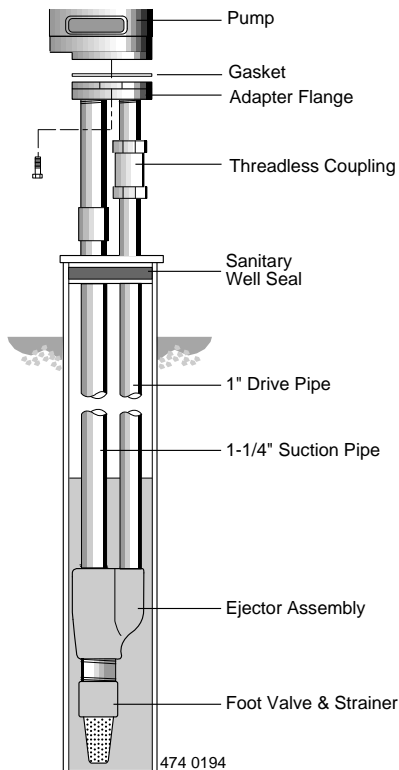


Figure 3 – Over the well installation

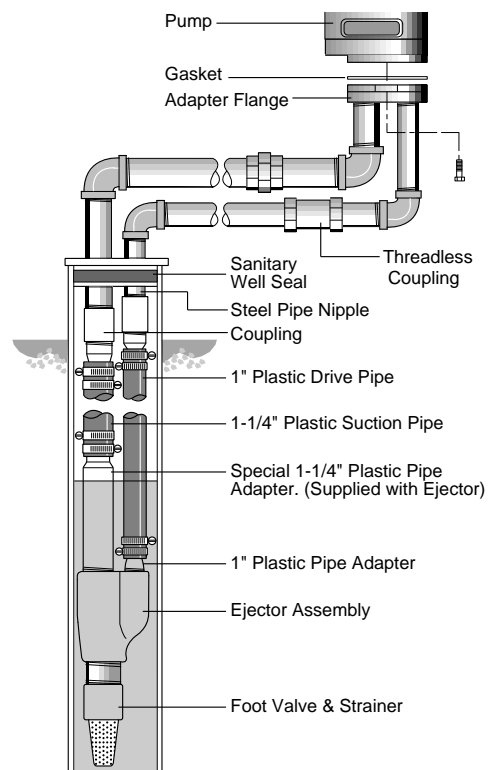


Figure 4 – Offset installation

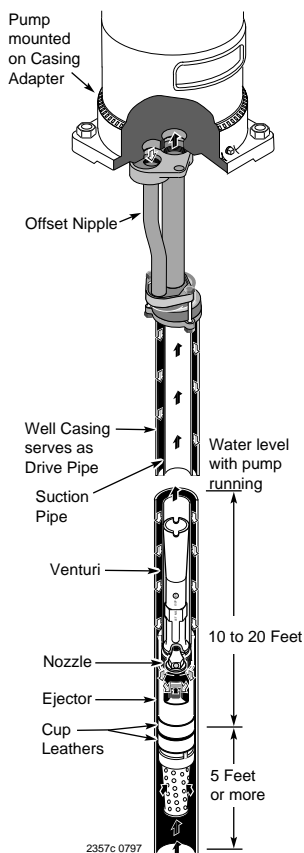
12. Apply gasket to adapter flange. Be sure holes line up.
13. Align locating lugs on pump base with locating lugs on adapter flange; attach pump to flange with cap screws provided.
14. See "Discharge Pipe Sizes" for information regarding correct discharge pipe size.

## DEEP WELL / SINGLE PIPE

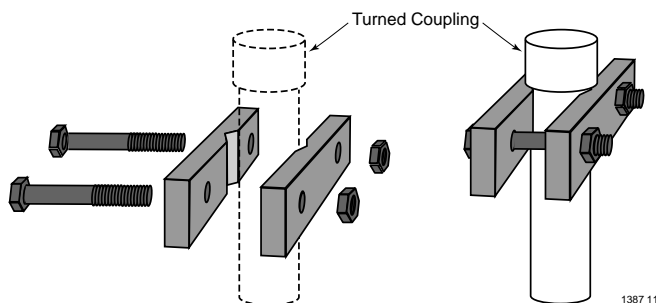
### 2" SINGLE PIPE JET DEEP WELL INSTALLATION (Figures 5 and 6)

Single pipe installations require :

- A. Galvanized steel pipe
- B. Leather packer-type jet with built-in foot valve
- C. Turned couplings (supplied with jet package)



**Figure 5 – 2" Single pipe**



**Figure 6 – Pipeholder details**

- D. Well casing adapter and adapter flange (supplied with jet package)
- E. Offset nipple (supplied with jet package)
- F. Pipe holders (see Figure 6B)

1. Place jet in pail of water for two or more hours to soak cup seals. See Table III for proper venturi and nozzle.
2. After cup seals are thoroughly soaked, connect jet to first length of pipe. Use pipe joint compound sparingly on male threads.

**NOTICE:** Due to normal irregularities in the leather of the cup seals and the inner walls of the drop pipe, 2" packer jets do not form a perfect seal. In a dormant system, water will leak back into well over time and pump will normally start and cycle to maintain system pressure level.

3. Lower pipe into casing. Use specially turned couplings (included with 2" single pipe jet package) to increase water flow. Use pipe joint compound sparingly on male couplings threads.

**NOTICE:** Fill pipe with water as each length is added to be sure foot valve and connections do not leak.

4. Add lengths of pipe until jet reaches proper depth. (Contact your local well driller.)

**IMPORTANT:** As a guide, the jet should be set at least 10 to 20 ft. (3-6M) below lowest water level with pump running, but always at least 5 ft. (1.5M) from bottom of well.

5. With jet at the proper depth for your installation, mark the drop pipe 6" above the top of the well casing, then raise the drop pipe about 18 inches and clamp it there to allow room to install the casing adapter, offset nipple, and adapter flange.
  6. Cut off the drop pipe at the mark you made in Step 5. Thread the top of the pipe 1" NPT to take the adapter flange.
  7. Slide the casing adapter over the top of the drop pipe with bolts in place and leave it loose on the pipe.
  8. Thread the drop pipe into the adapter flange; thread the offset nipple into the adapter flange until it is tight and aligns with its port in the casing adapter.
  9. Remove pipe holder and lower pipe assembly until casing adapter seats on well head and offset nipple seats in casing adapter port. Before tightening casing adapter bolts, move assembly up and down slightly. Water pressure in the casing will seal the cup seals.
  10. Tighten casing adapter bolts to fasten the casing adapter to the well casing.
  11. Install gasket on adapter flange and bolt pump to adapter flange.
- IMPORTANT:** Align locating lugs on adapter flange and pump base so that pump discharge will be aligned with piping.

## DISCHARGE PIPE SIZES

1. If increasing discharge pipe size, install reducer in pump discharge port. Do not increase pipe size by stages.
2. When pump is set away from the points of water use, discharge pipe size should be increased to reduce pressure losses caused by friction.
  - Up to 100 ft (30M) run: Same size as pump discharge port.
  - 100 ft. to 300 ft (30-91M) run: Increase one pipe size.
  - 300 ft. to 600 ft (91M-183M)run: Increase two pipe sizes.

## PRESSURE TANK INSTALLATION – DEEP WELL

A pressure tank provides a reservoir of water under pressure and maintains a cushion of air pressure to prevent pipe hammering and possible damage to plumbing components. When water is drawn off through house fixtures, pressure in tank is lowered and pressure switch starts pump.

### STANDARD TANK CONNECTION (Figure 7)

With a standard tank - an air volume control (AVC) adds air to the tank when needed. To connect AVC to pump, thread a 1/8" compression fitting into tapped hole on front of pump. Cut tubing to length to reach AVC; assemble to fitting on pump and to AVC on tank. See installation instructions provided with tank and AVC for details.

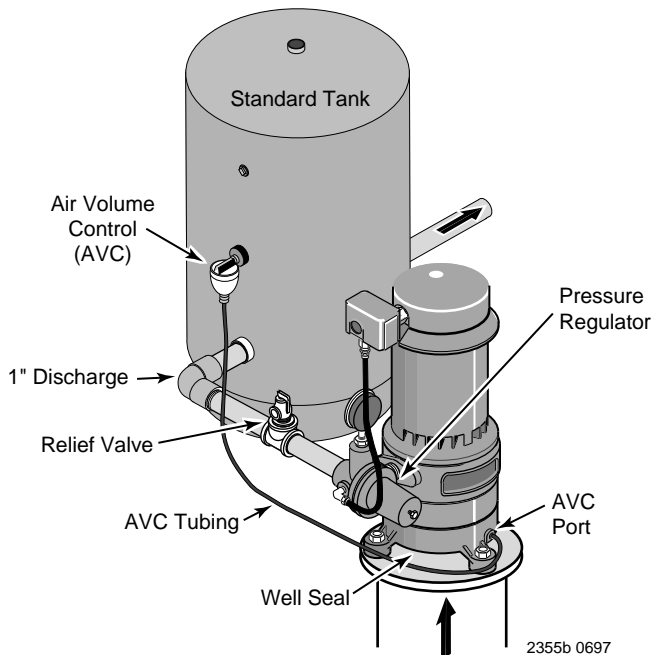


Figure 7 – Pump on standard tank - shallow well

### PRECHARGED TANK CONNECTION (Figure 8)

No AVC is necessary with a precharged tank. A precharged tank contains a factory provided air charge.

**IMPORTANT:** Pump pressure switch is set for a 40-60 PSI (275-414kPa) range and requires a tank pre-charge of 38 PSI (262 kPa) for proper operation. See tank owner's manual for air charge. An annual check on tank air charge is recommended.

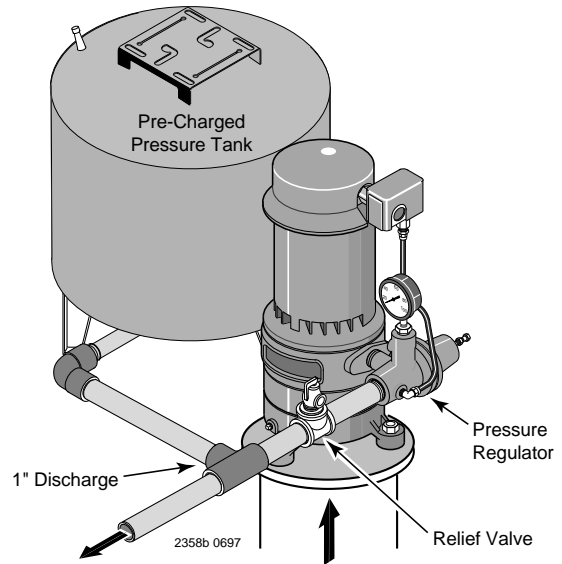



Figure 8 – Pump with pre-charged tank

## ELECTRICAL

**⚠ WARNING**



**Hazardous voltage. Can shock, burn, or cause death.**

Ground pump before connecting to power supply

- ⚠ Ground motor before connecting to electrical power supply.
- ⚠ Failure to ground motor can cause severe or fatal electrical shock hazard.
- ⚠ Do not ground to a gas supply line.
- ⚠ To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.
- ⚠ Supply voltage must be within ±10% of name-

plate voltage. Incorrect voltage can cause fire or seriously damage motor and voids warranty. If in doubt consult a licensed electrician.

⚠ Use wire size specified in Wiring Chart. If possible, connect pump to a separate branch circuit with no other appliances on it.



## Wiring (Figure 9)

1. Install, ground, wire and maintain pump in accordance with your local electrical code and all other codes/ordinances that apply. Consult your local building inspector for local code information.
2. Ground pump permanently using wire of size and type specified by approved local or national codes.

**⚠ DANGER Risk of explosion. Do not ground to gas supply line.**

3. Connect ground wire first. Connect to ground first, then to green grounding terminal provided on pressure switch identified as GRD. Ground connection **MUST** be made to this terminal. Do not connect motor to electrical power supply until unit is permanently grounded; otherwise serious or fatal electrical shock hazard may be caused.
4. For best ground connection, connect to grounded lead in service panel or to metal underground water pipe or well casing at least 10 ft. (3 M) long. If plastic pipe or insulated fittings are used, run ground wire directly to metal well casing or use ground electrode furnished by the power company.

## To Connect Pressure Switch: (Figure 9)

**⚠ Make sure power to pump has been disconnected at service panel before connecting pressure switch.**

1. Remove switch cover.
2. Connect green ground wire to terminal in base or side of switch marked GROUND, GRD, or  $\oplus$ . There may be two ground terminals; connect to either one.
3. Connect power supply leads to switch terminals marked LINE, L, or L1/L2.
4. Motor leads should be connected to switch terminals marked LOAD, MOTOR, M or M1/M2. If not, connect them to switch terminals.
5. Make sure that either:
  - A. Motor frame is connected to pressure switch by a solid metal connection, or
  - B. Motor ground wire is connected to ground terminal in switch.

**⚠ Risk of electric shock. Do not operate pump unless motor and pressure switch are connected to each other by a solid metal connection and are grounded.**

6. Replace pressure switch cover.
7. Match power supply voltage to motor voltage. Pump is now wired for operation.

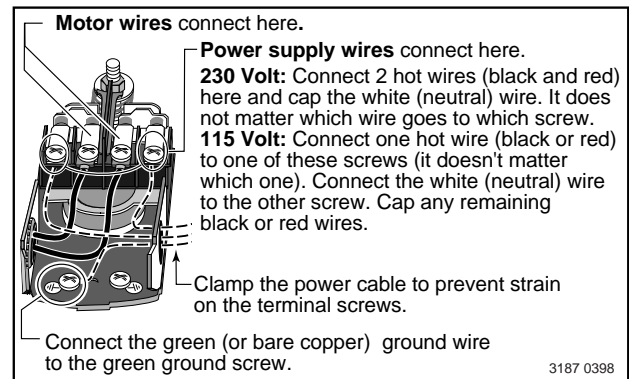
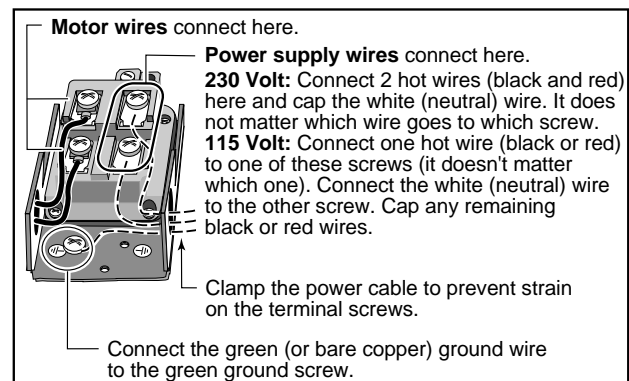
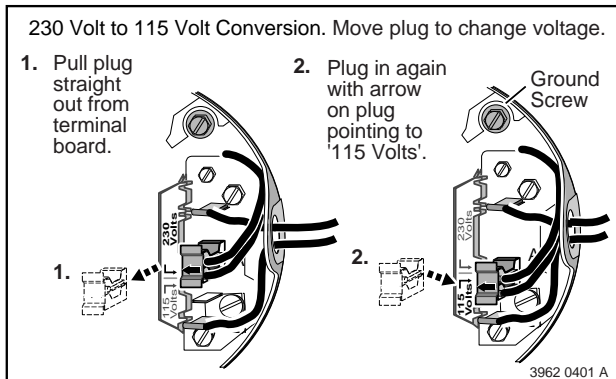
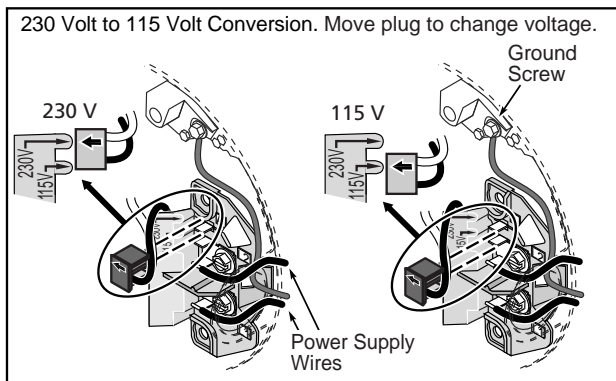


Figure 9 – 115/230V Wiring

## WIRING CHART – Recommended Wire and Fuse Sizes

MOTOR HP	VOLTS	MAX. LOAD AMPS	BRANCH FUSE RATING AMPS*	DISTANCE IN FEET (M) FROM MOTOR TO SUPPLY		
				0 - 100 (0 - 30)	101 - 200 (30 - 61)	201 - 300 (61 - 91)
1	115/230	19.2/9.6	20/15	10/14 (5/2mm <sup>2</sup> )	8/12(7/3mm <sup>2</sup> )	6/12(13/3mm <sup>2</sup> )

(\*)Time delay fuse or circuit breakers are recommended in any motor circuit.

**For parts or assistance, call Flotec Customer Service at 1-800-365-6832**

## PRIMING THE PUMP (Figure 10)

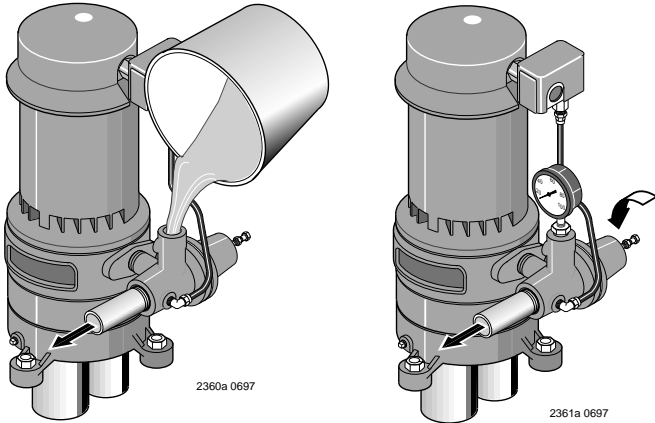


Figure 10 – Fill Pump

**CAUTION** NEVER run pump dry. Running pump without water may cause pump to overheat, damaging seal and possibly causing burns to persons handling pump. Fill pump with water before starting.

**WARNING** NEVER run pump against closed discharge. To do so can boil water inside pump, causing hazardous pressure in unit and possibly scalding persons handling pump.

**NOTICE:** Open water system faucets before priming pump for the first time.

1. Remove pressure gauge.
  - A. Close regulator valve (turn clockwise).
  - B. Fill pump and suction pipe with water.
  - C. Replace pressure gauge, using teflon tape on thread; tighten gauge.

**IMPORTANT:** If a priming tee and plug have been provided for a long horizontal run, fill suction pipe through tee and replace plug. (Remember: teflon tape plug.)

2. Start Pump:

Pressure should build rapidly to 50 PSI (345 kPa) or more as jet and pump prime.

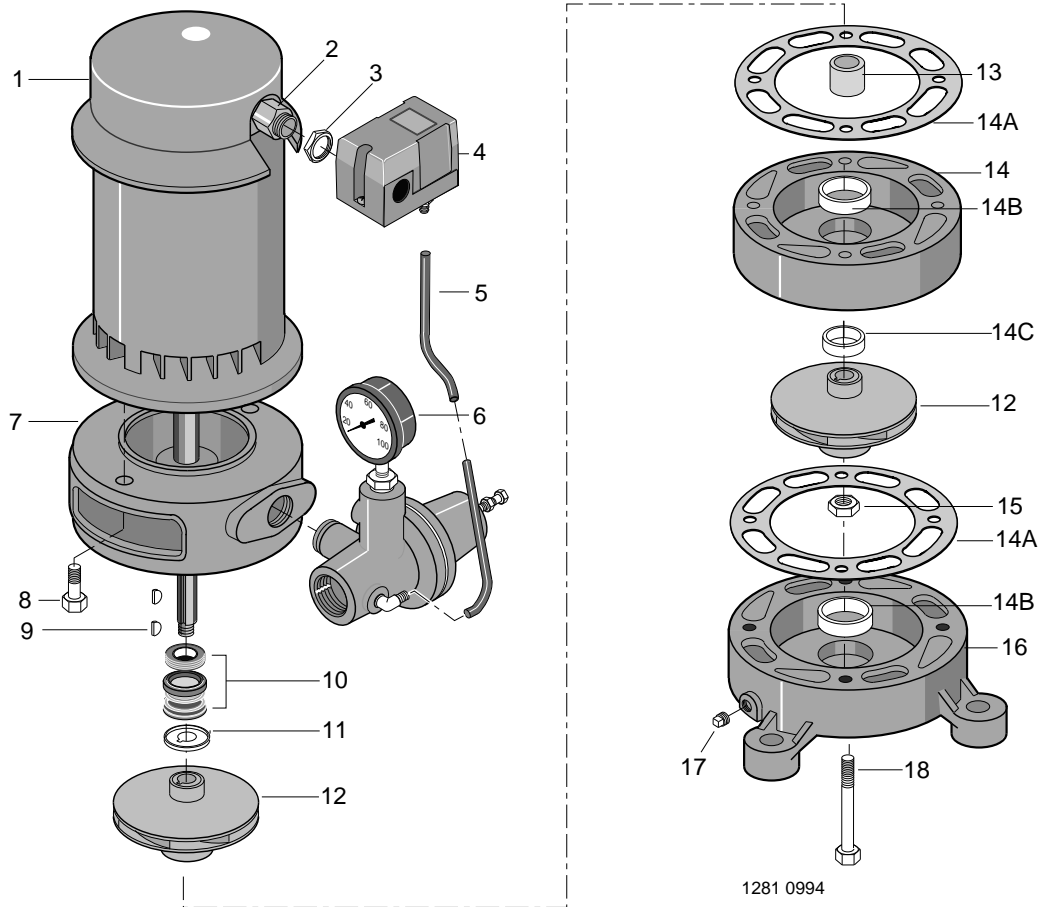
IF NO PRESSURE OR NO WATER, REPEAT STEP No.1 two or three times to remove entrapped air from suction pipes.

3. If, after priming pump several times and no water is pumped, make sure that:
  - A. Suction pipe is in the water and has no leaks.
 

**NOTE:** Air can leak in where water won't leak out. Make sure all joints are tight.
  - B. Control valve, check valve, or foot valve is installed and operating correctly.
  - C. Pump is not trying to lift water more than 25 feet (7.6M) (shallow well) or more than rated lift for deep well jet used (including compensation for horizontal piping). See "Performance and Jet Chart" for your installation.
  - D. Pump is not airlocked, suction port should be highest point in suction pipe; no sags in suction pipe (run it straight and angled slightly upward from well head to pump).

**NOTE:** For deep well installation, go to step 4. Shallow well installations go to step 6.

4. Once unit has primed and pressure is stabilized, slowly open regulator valve (turn counterclockwise) until pressure falters (pressure gauge needle flutters). Close control valve (turn clockwise) slightly until pressure stabilizes. This setting provides maximum flow.
5. Pump may draw well down far enough to lose its prime. If so, close regulator valve until pressure is stable throughout pumping cycle. Close faucets and allow pump to pressurize tank and shut off.
6. Check system by alternately opening and closing faucets in the system. With faucets open, pressure will drop until pump starts; with faucets closed, pressure will build up until pump shuts off.
7. There are conditions of deep well operation when the regulator valve may be completely open without any faltering of pressure. In this case, operate pump with regulator valve open.



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Key No.	Part Description	FP4432-01
1	Motor	A300EH
2	Pressure Switch	U217-1228
3	Pressure Gauge	U239-3
4	Pump Adapter	L2-16
5	Adapter Flange Package*	J216-27
6	Base Volute w/Wear Ring	J101-33
7	Impeller Nut	U36-175D
8	Impeller Spacer	J43-23
9	Intermediate Volute w/Wear Ring	J101-26
10	Seal & Gasket Kit**	TC1650
11	Overhaul Kit***	TC1657

\* Includes adapter gasket, adapter, capscrews.

\*\* Includes shaft keys, shaft seal, spring holder, and gaskets.

\*\*\* Includes Seal & Gasket Kit (10) plus wear rings and impellers.

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Motor will not run	Disconnect switch is off Fuse is blown Starting switch is defective Wires at motor are loose, disconnected, or wired incorrectly  Pressure switch contacts are dirty	Be sure switch is on Replace fuse DISCONNECT POWER; Replace starting switch. Refer to instructions on wiring. DISCONNECT POWER; check and tighten all wiring.  <b>⚠ WARNING</b> Capacitor voltage may be hazardous. To discharge capacitor, hold insulated handle screwdriver BY THE HANDLE and short capacitor terminals together. Do not touch metal screwdriver blade or capacitor terminals. If in doubt, consult a qualified electrician.  DISCONNECT POWER and file contacts with emery board or nail file.
Motor runs hot and overload kicks off	Motor is wired incorrectly Voltage is too low  Pump cycles too frequently	Refer to instructions on wiring Check with power company. Install heavier wiring if wire size is too small (See Electrical / Wiring Chart)  See section below on too frequent cycling.
Motor runs but no water is delivered  * (Note: Check prime before looking for other causes. Unscrew priming plug and see if water is in priming hole).	*Pump in new installation did not pick up prime through: 1. Improper priming 2. Air leaks 3. Leaking foot valve  *Pump has lost prime through: 1. Air leaks 2. Water level below suction of pump  Jet or impeller is plugged Check valve or foot valve is stuck in closed position Pipes are frozen Foot valve and/or strainer are buried in sand or mud	In new installation: 1. Re-prime according to instructions 2. Check all connections on suction line, AVC and jet. 3. Replace foot valve  In installation already in use: 1. Check all connections on suction line and shaft seal 2. Lower suction line into water and re-prime. if receding water level in well exceeds suction lift, a deep well pump is needed  Clean jet or impeller according to instructions. Replace check valve or foot valve  Thaw pipes. Bury pipes below frost line. Heat pit or pump house. Raise foot valve and/or strainer above well bottom
Pump does not deliver water to full capacity	Water level in well is lower than estimated Steel piping (if used) is corroded or limed, causing excess friction Discharge piping is too small in size	A deep well jet pump may be needed (over 25 ft. (7.6m) to water)  Replace with plastic pipe where possible, otherwise with new steel pipe  Use larger discharge piping
Pump delivers water but does not shut off.	Pressure switch is out of adjustment or contacts are 'frozen'. Faucets have been left open. Venturi, nozzle or impeller is clogged. Water level in well is lower than estimated.	DISCONNECT POWER; adjust or replace pressure switch.  Close faucets. Clean venturi, nozzle or impeller. Check possibility of using a deep well jet pump.
Pump cycles too frequently.	Standard pressure tank is waterlogged and has no air cushion. Pipes leak. Faucets or valves are open. Foot valves leak. Pressure switch is out of adjustment. Air charge too low in pre-charged tank.	Drain tank to air volume control port. Check AVC for defects. Check for air leaks at any connection. Check connections. Close faucets or valves. Replace foot valve. Adjust or replace pressure switch. DISCONNECT POWER and open faucets until all pressure is relieved. Using tire pressure gauge, check air pressure in tank at valve stem located on the tank. If less than pressure switch cut-in setting (40 PSI (275 kPa)), pump air into tank from outside source until air pressure is 2 PSI (13.8 kPa) less than cut-in setting of switch. Check air valve for leaks, using soapy solution and replace core if necessary.
Air spurts from faucets.	Pump is picking up prime. Leak in suction side of pump. Intermittent over-pumping of well. (Water drawn down below foot valve.)	When pump picks up prime, all air will be ejected. Suction pipe is sucking air. Check joints. Lower jet in well if possible, otherwise restrict pump discharge.