

FRX 75 is a high performance stainless steel centrifugal pump. Its uses are marine, commercial, and industrial transfer of chemicals or potable water. FRX 75 features a totally enclosed long life, ball bearing, 12VDC motor with marine ignition protection. All pump parts are 316 stainless for superior corrosion resistance when pumping chemical compounds, A carbon, ceramic, viton, bellows shaft seal is standard. 3/4 inch NPT flanges and base mounted vibration isolators simplify installation.

**GENERAL SAFETY INFORMATION:**

THE FOLLOWING WARNINGS ARE USED TO NOTIFY AND ADVISE THE USER OF THIS PRODUCT OF PROCEDURES THAT MAY BE DANGEROUS TO THE USER OR RESULT IN DAMAGE TO THE PRODUCT.

THIS BULLETIN MUST BE READ COMPLETELY BEFORE INSTALLING, OPERATING, OR SERVICING, THE PUMP.

- **DO NOT perform service or maintenance when the pumping system is pressurized. Injury or death may occur.**
- **DO NOT operate the pump in a manner that it was not intended to be used.**
- **DO NOT mount the pump such that high piping loads exist on the pump flanges, or in a rigid piping system that does not allow the pipe to expand and cause the pump to be strained.**
- **DO NOT continue to operate the pumping system when a known leak exists.**
- **DO NOT continue to operate the pump when unusual noise or vibration occurs.**
- **DO NOT operate beyond the pressure or temperature limits stated in the product literature. See Form 8110.**
- **DO NOT allow severe temperature changes to occur in a short time period within the pumping system.**

**INSTALLATION:**

Install the pump where the inlet is below the liquid level. A valve may be used to isolate the pump for service. The pump is not self-priming and needs the inlet to be flooded at start-up. The motor is splash resistant, not submersible, and should be located in a dry environment.

### PIPING/MOUNTING:

The pump inlet and outlet has 3/4" pipe connections. Use pipe sealant on the threads and other connections. The base does not require direct mounting if one of the pipe flanges is rigid mounted. Do not rigid mount both the flanges and the base to avoid mounting tolerances that may distort the motor base. Install the pump with the shaft in a horizontal direction. Never install the pump vertical with the motor below the pump.

### ELECTRICAL:

The motor must be protected from over current by using a fuse or circuit breaker (see chart below for correct protection). The proper minimum wire size is stated for each voltage application. Make sure that the pump has the proper voltage rating to match the installation power. Do not use or install if the voltage on the label is different than the installation. All wire connections must be secure and sealed to protect arcing. Follow all local installation codes.

MOTOR VOLTAGE ON NAME PLATE	FUSE/CB AMPS	WIRE SIZE AWG
12VDC	15	14
24VDC	10	16
32VDC	6	18
115VAC	2	18
230VAC	1	18

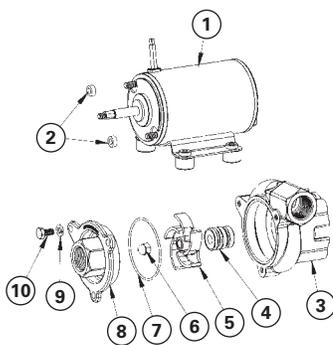
### OPERATION:

The pump should be operated with liquid in the pump otherwise seal damage may occur. If an inlet valve is present, the valve should always be completely open during operation to avoid cavitation. An outlet valve may be used to throttle the flow rate. Avoid repeated starts and stops; the pump can operate for a long period of time without any flow. DC motors are brush type and may emit a noise from the brush that can sound like a squeal, this is normal. The pump will be extremely quiet unless there is air in the system.

### REPAIR AND MAINTENANCE:

DC motor brush life expectancy is 6,000 hours total brush life. The motor is not rebuildable after the brushes have worn to the limits.

The pump has a carbon/ceramic seal that may last several thousand hours based upon the application. If the motor is replaced, the mechanical shaft seal should also be replaced. A seal that leaks will show leakage through the slot between the pump housing and the motor. Extreme leakage may damage the motor bearings and contaminate the inside of the motor.



### DISASSEMBLY:

1. Remove three cover screws and remove the cover, discarding the o-ring.
2. Secure the impeller and remove the impeller locknut. Pull the impeller straight out off the motor shaft.
3. Remove the seal-rotating portion by pulling the seal off by hand.
4. Remove the capscrews that hold the pump housing onto the motor. Remove the pump housing and push the seal seat out using a screwdriver.

### INSPECT PUMP PARTS:

Always replace the mechanical seal. Check the seal for dry run wear or damage. Check the motor shaft for wear at the secondary sealing surface from the mechanical seal. If worn, replace the motor. Check the motor bearings by rotating the motor by hand. If the shaft rotation is not smooth or has radial/axial endplay, replace the motor. Check the impeller running surface between the impeller and cover. If the surfaces are worn or irregular, replace each item.

Clean the parts that are to be reused using a solvent or mild cleaner. Remove abrasive material.

### REASSEMBLY:

1. Press the new seal seat into the pump housing. A light lubricant may be used to aid the assembly. Install the pump housing onto the motor and fasten the screws through the motor.
2. Install the rotating portion of the mechanical seal by sliding the seal over the motor shaft. Do not use any lubricant.
3. Place the impeller onto the shaft over the D drive against the shoulder and tighten the impeller lock nut until the impeller is securely shouldered on the motor shaft. Thread locking grade Loctite should be used to secure the nut.
4. Stretch the o-ring over the cover pilot. Install the cover onto the housing and fasten the capscrews and lockwashers.

Check the pump for internal interference by rotating the impeller. The pump should rotate freely with only seal friction.

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	34036	12VDC MOTOR
		34293	24VDC MOTOR
		34504	115VDC ODP
		35178	115VAC TENV
		35179	230VAC TENV
2	2	34369	GROMMET
3	1	34032	HOUSING- 316 SS
4	1	34038	MECH SEAL- VITON
5	1	34033	IMPELLER- 316 SS
6	1	28766	ACORN NUT 316 SS
7	1	34040	O-RING- VITON
8	1	34035	COVER- 316 SS
9	3	33564	LOCKWASHER 316 SS
10	3	34037	1/4-20 CAPSCREW 316 SS



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