



MAGPRIME CHAMBER KC11 Series - Self Priming Option

Installation and Maintenance Instructions

INTRODUCTION

FTI's MagPrime Chamber provides a self-priming feature to the KC1145 sealless centrifugal pump. A state-of-the-art, one piece modular design allows the MagPrime pump to lift liquids up to 15 feet (4.57 meters) in two minutes.

HOW IT WORKS

The MagPrime Chamber is initially filled with liquid. When the pump is started, recirculating liquid creates a vacuum in the suction line. This vacuum draws air from the suction line and releases it through the discharge outlet. When the liquid in the suction line reaches the pump inlet, the pump is primed and normal operation begins (see Figure 1).

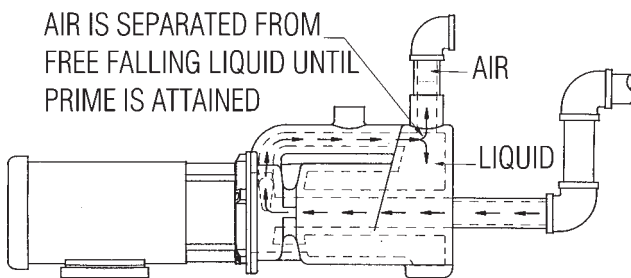


Figure 1

SAFETY PRECAUTIONS

WARNING: Read this instruction manual completely before installing and operating this unit. Failure to follow these precautions can result in serious bodily injury.

WARNING: Magnetic field hazard. This pump contains powerful rare earth magnets. When the pump is disassembled (not connected to a motor) and the magnets are exposed, these magnets produce powerful magnetic fields. Individuals with cardiac pacemakes, implanted defibrillators, other electronic medical devices, metallic prosthetic heart valves, internal wound clips (from surgery), metallic prosthetic devices or sickle cell anemia must not handle or be in the proximity of the magnets contained

- Wear proper eye and skin protection when installing, operating, and maintaining this equipment.
- All electrical wiring (e.g., motor) should be performed by a qualified electrician.
- Never use this pump for flammables or combustibles.

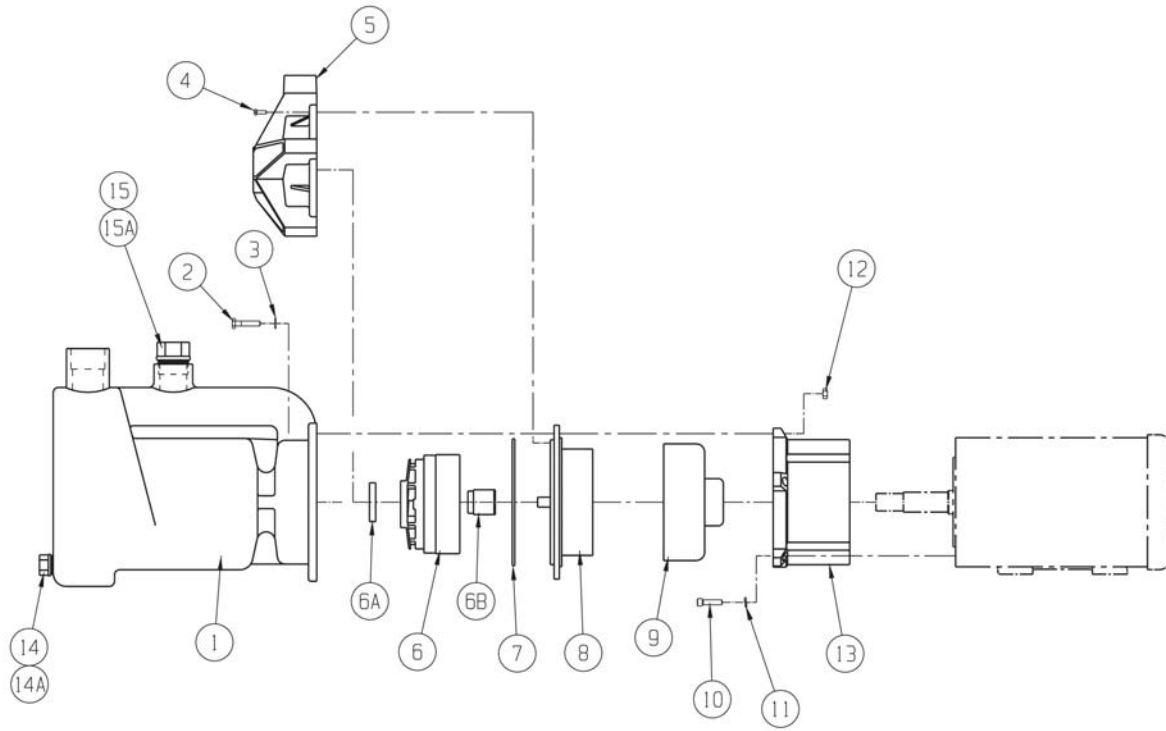
- Verify chemical compatibility of the pump's materials of construction with the liquid being pumped.
- Maximum liquid temperature is 120°F (49°C).

INSTALLATION

The MagPrime Chamber comes complete with housing gasket and hardware. The user must supply 1-1/2" rigid suction piping and 1-1/4" discharge piping. The suction inlet is located at the front of the priming chamber.

SECTION 1 - INSTALLATION OF MAGPRIME CHAMBER FOR AN EXISTING KC11 PUMP

1. Remove any piping from the pump impeller housing.
2. Remove the (5) 1/4- 20 x 1" bolts and (4) Phillips pan head screws from the impeller housing.
3. Gently tap the impeller housing's discharge outlet (using rubber mallet) to remove the impeller housing.
4. Save the impeller housing - DO NOT DISCARD. It is necessary for pump assembly and disassembly.
5. Remove the old housing o-ring (item 7) from the pump barrier (item 8) and discard.
6. Install the new housing o-ring (supplied with MagPrime Chamber) onto the pump barrier.
7. Verify that the white ceramic thrust washer is firmly seated into the MagPrime Chamber.
8. Install the MagPrime Chamber by aligning the groove in the MagPrime Chamber with the ridges on the KC11 barrier. Press in place until firmly seated.
9. Install the (5) 1/4-20 x 1-3/4" hex bolts, washers and nuts (supplied with the MagPrime Chamber). The nuts will insert into the back tabs on the motor adapter (item 13). Tighten each bolt to between 30 and 35 in.-lbs. (3.4 and 4.0 Nm) using star pattern sequence (shown in Figure 2 of the KC11 Series Installation and Maintenance Instructions). Do not overtighten.
NOTE: Periodic retightening of the bolts is required. The bolts will loosen from vibration and the expansion/contraction of the plastic parts.
10. Firmly support the motor, prime chamber and piping. Shim as necessary. **Important:** Failure to support these items will result in damage to the pump.



Item	Qty	Description	Pump Material	
			Polypropylene	CF PVDF
1	1	MagPrime Chamber Assembly	A101556	
2	5	SS Hex Head Cap Screw	J102279	
3	5	SS Flat Washer	J100113	
4	4	Phillips Head Screw	J101020	
5	1	KC11 Impeller Housing	A101014-1	A101014-2
6	1	Impeller Hub w/carbon bushing - 3"	A101931	A101939
		Impeller Hub w/PTFE bushing - 3"	A101935	A101943
		Impeller Hub w/ceramic bushing - 3"	A103109	A103113
		Impeller Hub w/carbon bushing - 3.5"	A101930	A101938
		Impeller Hub w/PTFE bushing - 3.5"	A101934	A101942
		Impeller Hub w/ceramic bushing - 3.5"	A103108	A103112
		Impeller Hub w/carbon bushing - 4.0"	A101929	A101937
		Impeller Hub w/PTFE bushing - 4.0"	A101933	A101941
		Impeller Hub w/ceramic bushing - 4.0"	A103107	A103111
		Impeller Hub w/carbon bushing - 4.5"	A101928	A101936
		Impeller Hub w/PTFE bushing - 4.5"	A101932	A101940
		Impeller Hub w/ceramic bushing - 4.5"	A103106	A103110
6A	1	PTFE thrust ring	J101606	
6B	1	Carbon bushing only	J100977	
		PTFE bushing only	J100977-1	
		Ceramic bushing only	J100977-2	

Item	Qty	Description	Pump Material	
			Polypropylene	CF PVDF
7	1	Viton o-ring	J102774	
	1	EPDM o-ring	J102775	
8	1	KC11 Barrier Assembly	A101008-1	A101008-2
9	1	Drive Magnet Assembly - fits 56C motors - fits 145TC motors - fits 80 frame motors - fits 90 frame motors	A101019-1 A101019-2 A101019-3 A101019-4	
10	4	SS Socket Head Cap Screws - U.S. - Metric (80 frame) - Metric (90 frame)	J101000 J101080 J101081	
11	4	SS Lock Washers - Metric (80 frame) - Metric (90 frame)	J100672 J102282	
12	4	SS Hex Nut	J100321	
13	1	Motor Adapter - U.S. - Metric (80 frame) - Metric (90 frame)	M101629-1 M101629-2 M101629-3	
14	1	1/2" Pipe Plug	J102183	
14A	1	O-ring	J102280	
15	1	1" Pipe Plug	J102187	
15A	1	O-ring	J102281	

11. Plumb the pump into your system. Use only 1-1/2" rigid piping on the suction side. **Important:** Suction piping must be raised approximately 7" (18 cm) above the center line of the suction inlet on the MagPrime Chamber (see Figure 2). This ensures proper priming and pump operation.

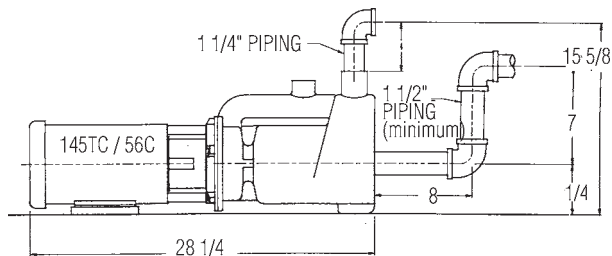


Figure 2

12. Install 1-1/4" rigid piping on the discharge of the MagPrime Chamber. **Important:** If the MagPrime Chamber mounting and piping are not extremely rigid, leakage can occur and possible pump damage.

SECTION 2 - INSTALLATION USING NEW KC11 AND CUSTOMER SUPPLIED MOTOR

1. Install the KC11 pump (not MagPrime Chamber) in accordance with "KC11 Series Installation and Maintenance Instructions: Assembly Section - steps 1 - 7."
2. Follow installation steps 2 - 12 from Section 1 of this manual.

SECTION 3 - INSTALLATION USING NEW KC11 WITH FACTORY SUPPLIED MOTOR

Follow installation steps 2 - 12 from Section 1 of this manual.

OPERATION

Remove the fill port plug (located on the top of the MagPrime Chamber). Use approximately 3 quarts (3 liters) of the liquid being pumped to fill the MagPrime Chamber to capacity. Replace the fill port plug.

CAUTION: Do not allow MagPrime Chamber to overflow.

Start the pump. Check all pump components and piping for leaks.

NOTE: It is critical that the suction piping is air tight. Any leaks, no matter how small, will prevent the pump from priming properly.

TROUBLESHOOTING

If pump does not prime and begin to pump within three minutes (specific gravity of 1.0 - higher specific gravities require longer prime times), verify the following:

- No air leaks in suction plumbing.
- Priming chamber filled to proper level.
- The liquid's specific gravity is not greater than 1.4.
- The impeller is a 4" or 4-1/2" version.
- The motor is at least 2900 rpm and rotating in the proper direction.

For further troubleshooting, consult the factory.

MAINTENANCE

DISASSEMBLY

1. Drain MagPrime Chamber into an appropriate container. Remove the 1/2" pipe plug from front of MagPrime Chamber. Reinstall plug after draining.
2. Remove the piping from the suction and discharge on the MagPrime Chamber.
3. Remove the (5) 1/4-20 x 1- 3/4" bolts from the MagPrime Chamber.
4. Remove the MagPrime Chamber.

CAUTION: Some fluid may leak out when the chamber is removed.

5. Reinstall the KC11 housing (saved from step 4 in Section 1 of this manual). Using (4) Phillips pan head screws, secure the housing to the barrier.

NOTE: Reinstalling the housing allows the impeller and barrier to be easily and safely removed from the motor adapter.

6. Remove the impeller and barrier in accordance with "KC11 Series Installation and Maintenance Instructions: Maintenance Section - Disassembly," step 4.
7. Follow the steps outlined in the "KC11 Series Installation and Maintenance Instructions: Maintenance Section - Examination" to check for worn parts. Replace parts as necessary.
8. Reassemble following the steps outlined in the "KC11 Series Installation and Maintenance Instructions: Maintenance Section - Reassembly," steps 1 - 4.
9. Install wet end following steps outlined in the "KC11 Series Installation and Maintenance Instructions: Assembly Section," step 6.
10. Reinstall the MagPrime Chamber following installation steps 2 - 12 from Section 1 of this manual.

WARRANTY

Finish Thompson, Inc (manufacturer) warrants this product to be free of defects in materials and workmanship for a period of 180 days from date of purchase by original purchaser. If a warranted defect, which is determined by manufacturer's inspection, occurs within this period, it will be repaired or replaced at the manufacturer's option, provided (1) the product is submitted with proof of purchase date and (2) transportation charges are prepaid to the manufacturer. Liability under this warranty is expressly limited to repairing or replacing the product or parts thereof and is in lieu of any other warranties, either expressed or implied. This warranty does apply only to normal wear of the product or components. This warranty does not apply to products or parts broken due to, in whole or in part, accident, overload, abuse, chemical attack, tampering, or alteration. The manufacturer accepts no responsibility for product damage or personal injuries sustained when the product is modified in any way. If this warranty does not apply, the purchaser shall bear all cost for labor, material and transportation.

Manufacturer shall not be liable for incidental or consequential damages including, but not limited to process down time, transportation costs, costs associated with replacement or substitution products, labor costs, product installation or removal costs, or loss of profit. In any and all events, manufacturer's liability shall not exceed the purchase price of the product and/or accessories.

Call our toll free Technical Service Hot Line, 1-800-888-3743, if you have any questions regarding product operation or repair.

ORDERING SPARE PARTS

Spare parts can be ordered from your local distributor. Always refer to the pump model number to avoid error.

OTHER FTI PRODUCTS

Drum Transfer Pumps, available in sanitary construction, stainless steel, polypropylene, PVDF, and CPVC, are capable of flows to 40 gpm, discharge head to 80 feet and viscosities to 100,000+ cps.

Portable Mixers for turbine mixing and blending handle viscosities to 1,000 cps with gentle, non-vortexing circulation. Available in 316 stainless steel.

Centrifugal Pumps, in polypropylene, PVDF, 316 stainless steel, and cast iron are offered in mag drive sealless or mechanical seal models. Pumps are capable of 330 gpm, up to 325 feet discharge head, and 220°F (104°C) maximum.

For more information, contact Finish Thompson Inc. or your local distributor.



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