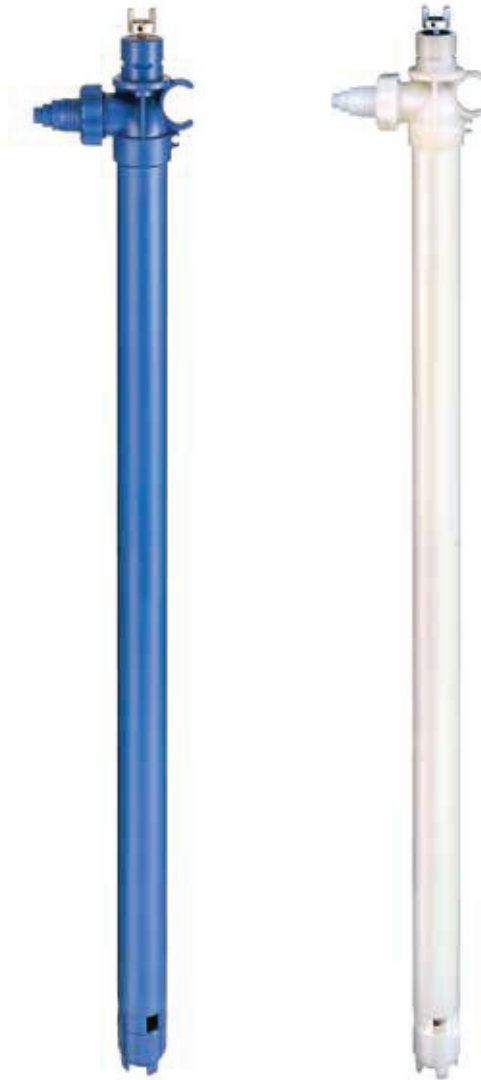




FINISH THOMPSON INC.

PF SERIES PUMPS

PFM, PFP, PFV OPERATION, INSTALLATION & PARTS MANUAL





FINISH THOMPSON INC.

921 Greengarden Road • Erie, PA 16501-1591 U.S.A.
Ph 814-455-4478 • Fax 814-455-8518
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EU Declaration of Conformity



Finish Thompson Inc. hereby declares that the following machine(s) fully comply with the applicable health and safety requirements as specified by the EU Directives listed. The product may not be taken into service until it has been established that the drive motor for the Drum and Container Pump complies with the provisions of all relevant EU Directives. The complete product complies with the provisions of the EU Directive on machinery safety provided motors manufactured by Finish Thompson Inc. are used.

This declaration is valid provided that the devices are fully assembled and no modifications are made to these devices.

Type of Device:

Drum and Container Pump Tubes

| | | |
|-----------------------|--------------------|----------------------------|
| BTS – 40 | EPPI/EPPS 15/27/40 | EFV/EFV/EFV-16/27/40/48/54 |
| HVDP LR-27/40/48 | HVDP HR-27/40/28 | PFM-27/40/48/60 |
| PFP-15/27/40/48/60/72 | PFS-27/40/48/60/72 | PFV-27/40/48/60/72 |
| TBP-27/40/48 | TBS-40 | TTC/TTS-27/40/48 |
| STTS-40 | TMS-40 | |

Models:

EU Directives:

Machinery Safety (2006/42/EC)

Applied Harmonized Standards:

EN ISO 12100
EN 809

Manufacturer: Finish
Thompson Inc.
921 Greengarden Road
Erie, Pennsylvania 16501-1591 U.S.A

Signed,

President

1 August 2016

Person(s) Authorized to Compile Technical File: Finish Thompson GmbH
Otto-Hahn-Strasse 16
Maintal, D-63477 DEU
Telephone: 49 (0)6181-90878-0

Introduction

This manual pertains to the PF Series, specifically the PFP, PFM, and PFV plastic drum pumps. Finish Thompson Inc. thanks you for choosing our products. We believe the use of our products will be fully satisfactory. When properly installed and operated, your Finish Thompson motor and pump will provide long, trouble-free service; therefore, please read this manual carefully before carrying out any operations on the pump/motor unit. Any use other than that described herein is considered incorrect; and, consequently, Finish Thompson Inc. shall not be held responsible for any damages to people or property. In case of doubt or enquiries, please reply to our Technical Service department directly at the following address:

Finish Thompson, Inc.
921 Greengarden Rd.
Erie, PA 16501 U.S.A.
Tel. 1-814-455-4478; Fax 1-814-455-8518
www.finishthompson.com; fti@finishthompson.com

Index

| | |
|---|-----|
| Introduction | 1 |
| Warranty, General Terms & Conditions..... | 2 |
| Safety | 3 |
| Pump Specifications | 4 |
| Installation | 5 |
| Maintenance | |
| Disassembly | 5 |
| Inspection | 6 |
| Reassembly | 6 |
| Exploded View | 7 |
| Pump Tube Spare Parts List | 8-9 |

Technical Service Hotline: 1-800-888-3743 or email techservice@finishthompson.com

Warranty, General Terms & Conditions

1. The following terms and conditions apply to the sale of machinery, components and related services and products, of Finish Thompson Inc. (hereinafter “the products”)
2. Finish Thompson Inc. (the manufacturer) warrants only that:
 - a) its products are free of defects in material, design and workmanship at the time of original purchase;
 - b) its products will function in accordance with Finish Thompson Inc. operation manuals; Finish Thompson Inc. does not guarantee that the product will meet the precise needs of the Customer, except for those purposes set out in any invitation to render documents or other documents specifically made available to Finish Thompson Inc. before entering into this agreement;
 - c) high quality materials are used in the construction of the pumps and that machining and assembly are carried out to the highest standards. Except as expressly stated above, Finish Thompson Inc. makes no warranties, express or implied, concerning the products, including all warranties of fitness for a particular purpose.

This warranty shall not be applicable in circumstances other than defects in material, design, and workmanship. In particular warranty shall not cover the following:

- d) Periodic checks, maintenance, repair and replacement of parts due to normal wear and tear;
 - e) Damage to the product resulting from:
 - i. Tampering with, abuse or misuse, including but not limited to failure to use the product for its normal purposes as stated at the time of purchase or in accordance with Finish Thompson, Inc. instructions for use and maintenance of the product, or the installation or improper ventilation or use of the product in a manner inconsistent with the technical or safety standard in force;
 - ii. Repairs performed by non-authorized service workshop, or opening of the unit by non-authorized personnel, or use of non genuine Finish Thompson Inc. parts;
 - iii. Accidents, force majeure or any cause beyond the control of Finish Thompson Inc., including but not limited to lightning, water, fire, earthquake, and public disturbances, etc.
3. The warranty shall cover the replacement or repair of any part, which is documented to be faulty due to construction or assembling, with new or repaired parts free of charge delivered by Finish Thompson, Inc. Parts subjected to normal wear and tear shall not be covered by the warranty. Finish Thompson, Inc. shall decide as to whether the defective or faulty part shall be replaced or repaired. Transportation charges are prepaid to Finish Thompson.
4. The warranty of the products shall be valid for a period of **12 months** from the date of delivery, under the condition that notice of the alleged defect to the products or parts thereof be given to Finish Thompson, Inc. within the term of 8 days from the discovery.
5. Repair or replacement under the terms of this warranty shall not give a right to an extension to, or a new commencement of, the period of warranty. Repair or replacement under the terms of this warranty may be fulfilled with functionally equivalent re-conditioned units. Finish Thompson Inc. qualified personnel shall be solely entitled to carry out repair or replacement of faulty parts after careful examination of the motor. Faulty parts or components when replaced by Finish Thompson Inc. will become the property of Finish Thompson Inc. If this warranty does not apply, the purchaser shall bear all cost for labor, material and transportation.
6. Finish Thompson Inc. will not be liable on any claim, whether in contract, tort, or otherwise, for any indirect, special, incidental, or consequential damages, caused to the customer or to third parties, including loss of profits, process down time, transportation costs, costs associated with replacement or substitution products, labor costs, installation or removal costs. In any and all events, manufacturer's liability shall not exceed the purchase price of the product and/or accessories.
7. **Return Policy.** Should you have any problems with this product, please contact the distributor in your area. The distributor will determine if a return to the factory is necessary and will contact the factory for a Return Authorization Number. Otherwise, contact our Technical Service Hotline (1-800-888-3743) or e-mail techservice@finishthompson.com if you have any questions regarding product operation or repair.

Safety

1. Introduction

This manual contains all the information needed for the correct installation, use and maintenance of your new Finish Thompson pump. It should be read and understood by all the personnel involved in installation, operating and servicing of the pump before it is started.

2. Operator Qualification and Training

The personnel in charge of the installation, the operation, and the maintenance of the pump must be qualified and able to perform the operations described in this manual. Finish Thompson, Inc. shall not be held responsible for the training level of personnel and for the fact that they are not fully aware of the contents of this manual.

3. Safety Instructions



FOR YOUR OWN SAFETY

BEFORE using or servicing your pump, please make sure to wear the proper clothing, eye protection and follow standard safety procedures when handling corrosive or personally harmful materials.



GENERAL DANGER

NEVER use a plastic pump or an open, splash-proof, TEFC or non-ATEX motor when pumping or mixing flammable or combustible material.

ALWAYS use and store the pump and motor in an upright position.



DANGER: POWER SUPPLY

Refer to instructions in the appropriate motor Operation & Installation Manual.

4. Noise Level

Refer to specifications in the appropriate motor Operation & Installation Manual.

5. Modifications and Spare Parts

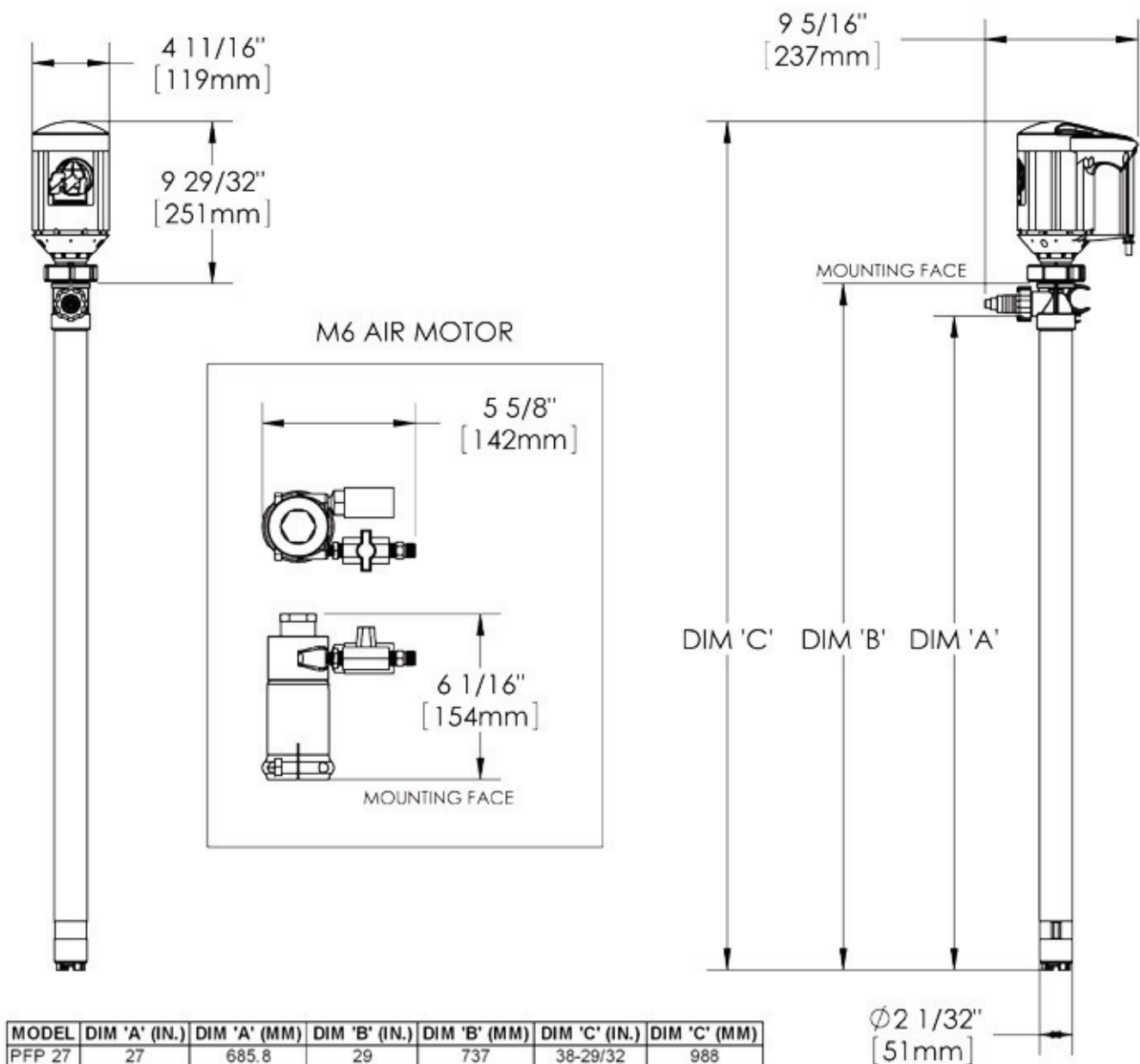
Any changes concerning the service of the pump as originally purchased can be executed only after written approval from Finish Thompson Inc. It is recommended to use only genuine Finish Thompson Inc. spare parts and approved accessories. The use of non-original spare parts or non-approved accessories will void warranty and removes any responsibility on the manufacturer's behalf for any damage caused to people or things.

6. Cleaning

It is highly recommended to flush pumps with clean water or some other neutralizing fluid compatible with pump materials when done pumping or when switching chemicals.

| PUMP SPECIFICATIONS | | | |
|------------------------------|----------------------------------|---|--|
| | MODEL PFM | MODEL PFP | MODEL PFV |
| Outer Tube Diameter | 2" (51 mm) | 2" (51 mm) | 2" (51 mm) |
| Discharge Spout | Variable orifice barb fitting | Variable orifice barb fitting | Variable orifice barb fitting |
| Discharge Thread | 1-1/4" NPSM | 1-1/4" NPSM | 1-1/4" NPSM |
| Max. Specific Gravity | 1.83 | 1.83 | 1.83 |
| Max. Viscosity | 2000 cP | 2000 cP | 2000 cP |
| Min./ Max. Fluid Temperature | 35°F Minimum to 160°F Maximum | 35°F Minimum to 160°F Maximum | 35°F Minimum to 120°F Maximum* |
| | (1.6°C Minimum to 71°C Maximum) | (1.6°C Minimum to 71°C Maximum) | (1.6°C Minimum to 49°C Maximum) |
| Wetted Materials | Polypro, FKM, PTFE, ETFE, 316 SS | Polypro, FKM, PTFE, ETFE, Alloy 625 (PFP) | Unfilled Polypro, PVDF, FKM, PTFE, ETFE, Alloy 625 |

*PFV-72: 35°F Min. to 115°F Max. (2°C Min. to 49°C Max.)



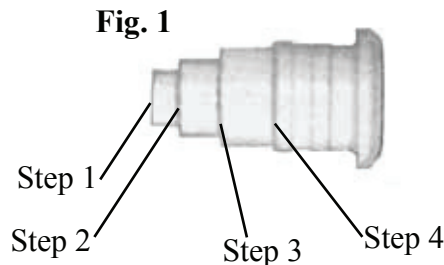
| MODEL | DIM 'A' (IN.) | DIM 'A' (MM) | DIM 'B' (IN.) | DIM 'B' (MM) | DIM 'C' (IN.) | DIM 'C' (MM) |
|--------|---------------|--------------|---------------|--------------|---------------|--------------|
| PFP 27 | 27 | 685.8 | 29 | 737 | 38-29/32 | 988 |
| PFP 40 | 40 | 1016 | 42 | 1067 | 51-29/32 | 1318 |
| PFP 48 | 48 | 1219.2 | 50 | 1270 | 59-29/32 | 1522 |
| PFP 60 | 60 | 1524 | 62 | 1575 | 71-29/32 | 1826 |
| PFP 72 | 72 | 1828.8 | 74 | 1880 | 83-29/32 | 2131 |

INSTALLATION & MAINTENANCE INSTRUCTIONS

Installation

1. Remove the drum pump from its packaging and inspect for shipping damage.
2. Turn the pump coupling to verify there is no binding.
3. Verify the housing cover (item 16) is on tight (it has a left hand thread).
4. Adjust the coupling so that the empty slots in the insert are at 3 and 9 o'clock with the pump discharge at 12 o'clock.
5. Install the motor onto the drum pump per the installation instructions from the Operation & Installation Manual of the specific motor model.

Note: Pumps with the standard 1" barb spout include a variable orifice fitting, which initially limits the flow of the pump to 10 gpm. As it is cut away, flow will increase from 10 gpm up to maximum flow (to increase flow, simply trim back orifice). Orifice steps control flow as follows: Step 1 = 10 gpm, Step 2 = 20 gpm, Step 3 = 30 gpm, Step 4 (maximum opening) = maximum flow (see Fig. 1).



Note: ALWAYS use a 1" I.D. hose properly secured to the barb spout using a hose clamp.

Maintenance

Disassembly

1. Remove the housing cover (item 16) by turning it clockwise (left hand thread) while gripping the impeller housing (item 14).
2. Turn the impeller until a hole in the shaft can be seen through the square slot in the impeller housing (item 14), and insert 3/32 pin into the hole. Holding the pin, turn the impeller (item 15) counterclockwise (right-hand thread) and remove it.
3. Remove the impeller housing (item 14) by gripping the intake tube and spinning the housing clockwise (left hand thread). Re-insert the 3/32 pin and while gripping the pump coupling unthread (counterclockwise) and remove the shaft (item 4) from the bearing assembly (item 3).
4. Place the pump head (item 6) in a vise (do not crush) and remove the intake tube (item 7) by unthreading clockwise (left hand thread). Remove the inner upper (item 10) and shaft sleeve (item 8) from the head. Remove the bearing assembly (item 3) and the FKM lip seal (item 5) from the head.
5. Remove the center support (item 11) from the inner tube (item 10).

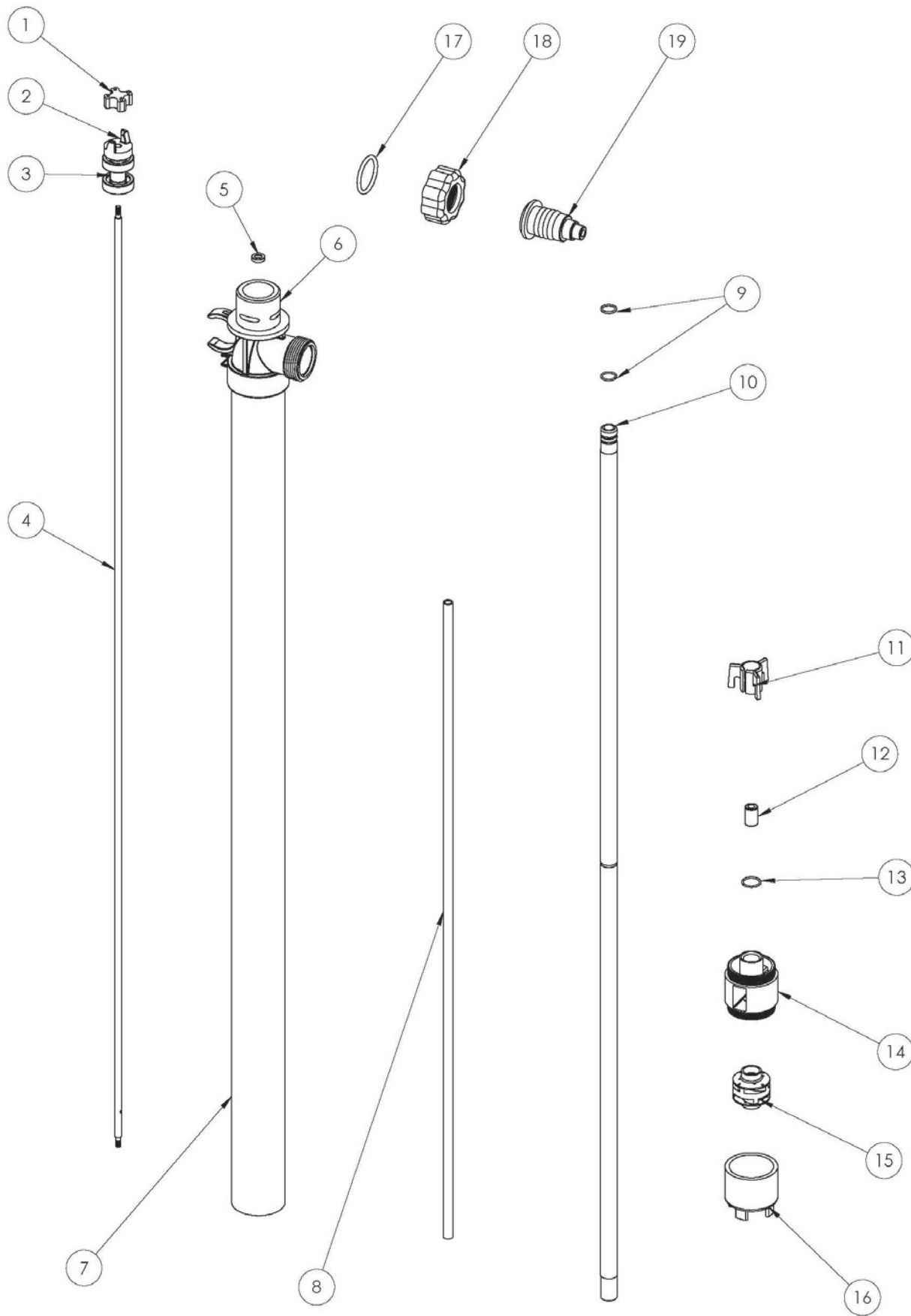
Inspection

1. Check the housing cover (item 16), the impeller (item 15), and the impeller housing (item 14) for wear, rubbing, or damage from foreign objects. Replace if damaged.
Note: The double impeller design of this pump is dependant on the impeller working correctly. Any damage to the impeller can cause pump failure.
2. Inspect the pump shaft (item 4) for wear in the bottom (item 12), and the FKM lip seal (item 5) areas. Replace the shaft if needed.
3. Inspect the bottom bearing (item 12) and the shaft sleeve (item 8) for internal wear. Inspect all o-rings (items 9, 13, & 17) for nicks or chemical attack. Replace as needed.
4. Inspect the bearing assembly (item 3) for rust or corrosion. Never reuse the lip seal (item 5).

Reassembly

1. Install new lip seal (item 5) into the pump head (item 6) with the grooved side facing the bottom of the pump.
2. Thread the shaft (item 4) into the bearing assembly (item 3) with the 3/32 hole in the shaft on the other end. Carefully insert the shaft straight through the vapor seal (to avoid seal damage) from the top and seat the bearing assembly (item 3) into the pump head (item 6).
3. If o-rings are replaced: Install 2 upper inner tube o-rings (items 9), and install the impeller housing o-ring (item 13) inside the top of the housing (item 14). Apply a small amount of Vaseline to the o-rings to aid in assembly. Install the center support (item 11) onto the inner tube (item 10).
4. Slide the inner tube (item 10) up the shaft and into the counter bore in the bottom of the head. Slide the shaft sleeve (item 8) up inside the inner tube. Slide the intake tube up from the bottom, centering the center support, and thread it (left hand thread) into the head (item 6).
5. Gripping the coupling (item 7) at the top of the pump, thread the impeller on (right hand thread). Install the housing cover (left hand thread). Turn the coupling to verify there is no binding inside the pump.

PFM/PFP/PFV SPARE PARTS EXPLODED VIEW



PUMP SPARE PARTS LIST

| ITEM | QTY | DESCRIPTION | PART NUMBER | | |
|------|----------------------------------|--|-------------|------------|------------|
| | | | MODEL PFM | MODEL PFP | MODEL PFV |
| 1 | 1 | COUPLING INSERT | | | |
| | | NITRILE | J100014 | J100014 | J100014 |
| 2 | 1 | COUPLING HALF | | | |
| | | CAST ALUMINUM | J100012 | J100012 | J100012 |
| 3* | 1 | BEARING ASSEMBLY | | | |
| | | STEEL | A101110 | A101110 | A101110 |
| 4 | 1 | MAIN SHAFT (PFM=316SS, PFP/PFV=ALLOY 625) | | | |
| | | 27" MODELS | M100004-5 | M100004-1 | M100004-1 |
| | | 40" MODELS | M100004-7 | M100004-3 | M100004-3 |
| | | 48" MODELS | M100004-8 | M100004-4 | M100004-4 |
| | | 60" MODELS | M100004-12 | M100004-9 | M100004-9 |
| | | 72" MODELS | M100004-13 | M100004-11 | M100004-11 |
| 5* | 1 | LIP SEAL | | | |
| | | 1/4" FKM | 107592 | 107592 | 107592 |
| 6 | 1 | HEAD | | | |
| | | POLYPROPYLENE | 107755-1 | 107755-1 | N/A |
| | | PVDF | N/A | N/A | 107755-2 |
| 7 | 1 | INTAKE TUBE (PFM/PFP = POLYPROPYLENE, PFV = PVDF) | | | |
| | | 27" MODELS | 107475-2 | 107475-2 | 107475-7 |
| | | 40" MODELS | 107475-3 | 107475-3 | 107475-8 |
| | | 48" MODELS | 107475-4 | 107475-4 | 107475-9 |
| | | 60" MODELS | 107475-5 | 107475-5 | 107475-10 |
| | | 72" MODELS | 107475-6 | 107475-6 | 107475-11 |
| 8* | 1 | SHAFT SLEEVE (ALL MODELS = PTFE) | | | |
| | | 27" MODELS | 108375-2 | 108375-2 | 108375-2 |
| | | 40" MODELS | 108375-3 | 108375-3 | 108375-3 |
| | | 48" MODELS | 108375-4 | 108375-4 | 108375-4 |
| | | 60" MODELS | 108375-5 | 108375-5 | 108375-5 |
| | | 72" MODELS | 108375-6 | 108375-6 | 108375-6 |
| 9* | 2 | INNER TUBE O-RING | | | |
| | | FKM | J100249 | J100249 | J100249 |
| | | EPDM | 106519 | 106519 | 106519 |
| | | PERLAST | 105621 | 105621 | 105621 |
| 10 | 1 | INNER TUBE (PFM/PFP = POLYPROPYLENE, PFV = PVDF) | | | |
| | | 27" MODELS | 108373-2 | 108373-2 | 108373-7 |
| | | 40" MODELS | 108373-3 | 108373-3 | 108373-8 |
| | | 48" MODELS | 108373-4 | 108373-4 | 108373-9 |
| | | 60" MODELS | 108373-5 | 108373-5 | 108373-10 |
| | | 72" MODELS | 108373-6 | 108373-6 | 108373-11 |
| 11* | 1 (27-48") 2 (60") 3 (72") | CENTER SUPPORT | | | |
| | | ETFE | 108277 | 108277 | 108277 |
| 12* | 1 | BOTTOM BEARING | | | |
| | | PTFE | M100007 | M100007 | M100007 |
| 13* | 1 | IMPELLER HOUSING O-RING | | | |
| | | FKM | J100019 | J100019 | J100019 |
| | | EPDM | 106799 | 106799 | 106799 |
| | | PERLAST | 105622 | 105622 | 105622 |
| 14* | 1 | IMPELLER HOUSING | | | |
| | | POLYPROPYLENE | 107316-1 | 107316-1 | N/A |
| | | PVDF | N/A | N/A | 107316-2 |
| 15* | 1 | IMPELLER ASSEMBLY | | | |
| | | PVDF | A100002-2 | A100002-2 | A100002-2 |
| 16* | 1 | HOUSING COVER | | | |
| | | POLYPROPYLENE | M101612-1 | M101612-1 | N/A |
| | | PVDF | N/A | N/A | M101612-2 |

| ITEM | QTY | DESCRIPTION | PART NUMBER | | |
|------|-----|------------------------------------|-------------|-----------|-----------|
| | | | MODEL PFM | MODEL PFP | MODEL PFV |
| 17 | 1 | DISCHARGE O-RING | | | |
| | | FKM | J100991 | J100991 | J100991 |
| | | EPDM | J102378 | J102378 | J102378 |
| | | PERLAST | 107017 | 107017 | 107017 |
| 18 | 1 | DISCHARGE NUT | | | |
| | | FOR USE WITH 1" OR 3/4" BARB SPOUT | M101610-1 | M101610-1 | M101610-2 |
| | | FOR USE WITH 1" MNPT SPOUT ONLY | 106622 | 106622 | 106622-1 |
| 19 | 1 | SPOUT | | | |
| | | 1" BARB (STANDARD) | M100028-1 | M100028-1 | M100028-2 |
| | | 3/4" BARB (OPTIONAL) | 105439-1 | 105439-1 | 105439 |
| | | 1" MNPT (OPTIONAL) | 106599 | 106599 | 106599-1 |

*Recommended Spare Parts

N/A = Not Applicable

Note: Bearing assembly and lip seal can be purchased as a kit using part number 108110.



FINISH THOMPSON INC.

Service 1-800-888-3743
P/N 108097, Rev.4, 7/16/13