BEARCAT PUMPS

F003 / F008 / F02 / F04 / F07 / F15 / F30

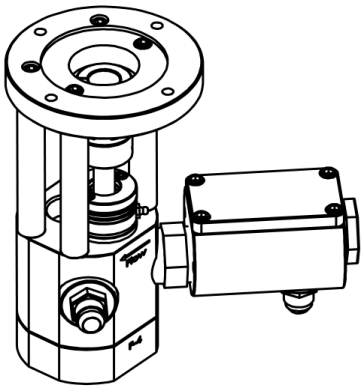
F-Series Pump Manual

Pump identification, operation, parts and service

TECHNICAL MANUAL

Rev F | 2026.11.02

Document BCP-F-PM



BearCat Pumps

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SCOPE

Common pump reference for F003, F008, F02, F04, F07, F15 and F30. Use the VP System Manual for vertical systems and the F-Series Legacy System Manual for existing horizontal and belt-driven systems. The F-series pump family remains current.

1 Pump sizes and operating data

Record the complete model and serial number before ordering parts or changing settings.

SPEED LIMIT

All F-series pumps are capped at **1,200 pump RPM**. Verify actual pump speed and set the drive to enforce this limit.

Model	Displacement US gal/rev	Reference flow at 1,200 RPM	
		GPM	lbs/min
F003	0.0003	0.3	2.8
F008	0.0008	0.9	7.6
F02	0.0020	2.3	19.0
F04	0.0040	4.6	38.0
F07	0.0070	8.4	70.1
F15	0.0150	18.0	150.1
F30	0.0300	36.0	300.2

Delivered flow

Delivered flow depends on viscosity, differential pressure, inlet conditions and internal slip. Use the installed meter when delivered quantity matters. The pump curves are on pages 16-17.

Select the system manual

BearCat favors vertical systems for new equipment. Motor selection, mounting, piping, metering and system controls belong in the matching system manual.

VP System Manual, Rev G - vertical installation and motor sizes

F-Series Legacy System Manual, Rev B - existing drive arrangements

2 Safety and pump operation

Apply these pump requirements with the instructions for the installed system.

Before work

Only qualified personnel may install, wire or service the equipment. Stop and isolate the drive, prevent automatic restart, relieve trapped pressure and verify zero hazardous energy before opening the pump or removing guards. Cool hot equipment and contain the product.

Any pump that is heated or pumping hot liquid should be operated with Safety Blankets properly installed. Use PPE appropriate to the product and temperature.

Pressure protection

This is a positive-displacement pump. Provide suitable system pressure protection and an open discharge path. Where fitted, an internal relief valve is not a pressure regulator. Its setting is where opening begins; it does not guarantee maximum pressure or unlimited bypass flow. An anode/blocked passage provides no internal relief.

Start and operate

1. With the drive isolated, confirm the assembly is free to turn by the approved service method. Restore all coupling, shaft and drive guards.

2. Confirm inlet supply, valve positions, discharge path and pressure protection. Bring temperature-sensitive product and the pump to the required operating condition.

3. At first commissioning or after the pump has been opened and drained for service, fill with compatible liquid while stopped and depressurized. Close all fill points before operation.

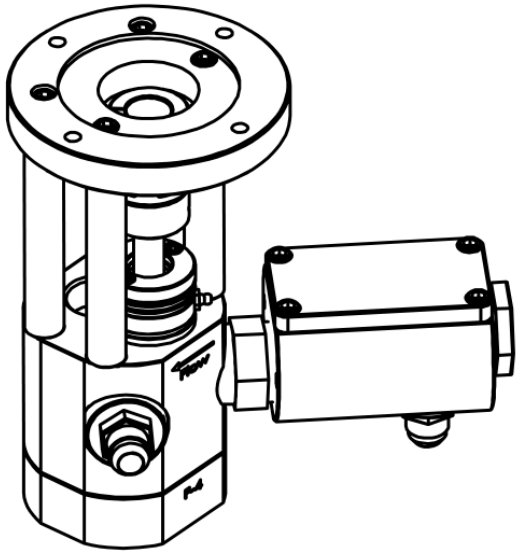
4. Verify rotation against the installed pump markings. Start slowly, check delivery, pressure and leakage, then increase speed as conditions allow. Keep pump speed at or below 1,200 RPM.

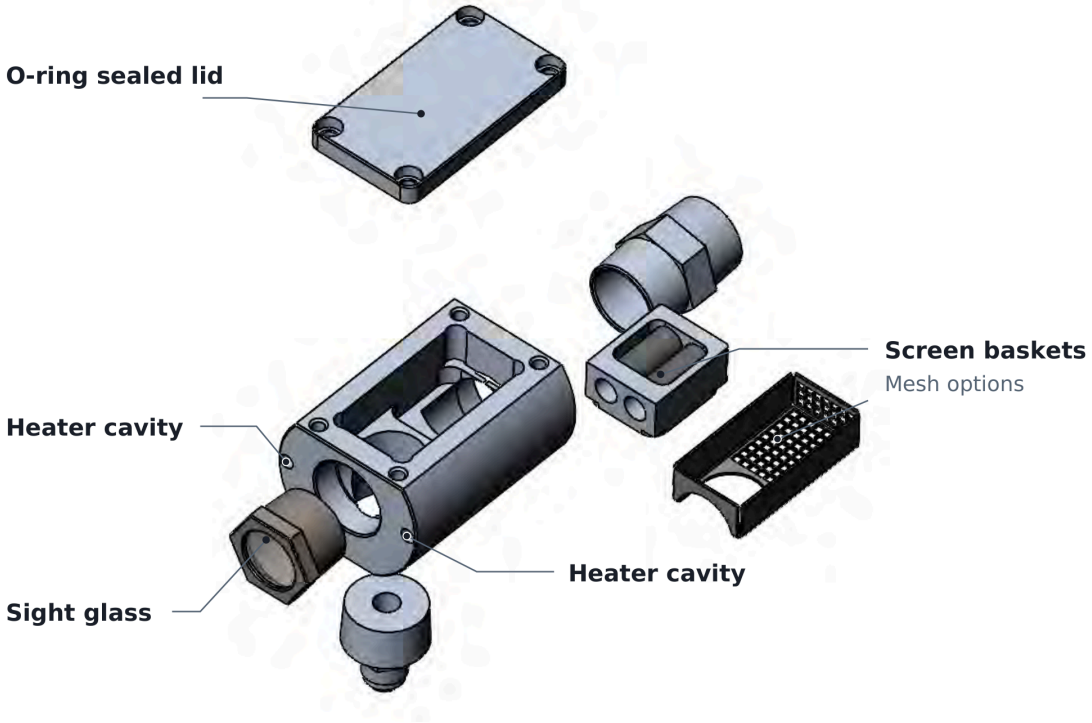
Stop and isolate

Use the installed stop sequence. Before service, isolate the drive and product supply, prevent restart, relieve trapped pressure and verify the equipment is safe to open. Follow the system manual for line clearing and shutdown.

3 Pump and screen box

The screen box is an integral part of the vertical pump assembly.





The screen box screens incoming product and provides the inlet geometry needed for **liquid lock.**

The displacement body sits below the screen box outlet. With the upward discharge, the liquid charge cannot escape during reversing. No replenishment is needed between cycles. Preserve the screen box ledge and port elevations.

Two baskets show examples of available mesh options.
Install one basket at a time.

Clean and inspect the screen box

1. Stop, isolate and depressurize before removing the lid. Contain liquid and protect personnel from hot or hazardous product.

2. Remove and clean the basket. Inspect the basket, lid, O-ring and sealing faces; replace damaged parts.

3. Reinstall the basket and O-ring, secure the lid, and check for leaks during a slow restart.

4 Identify the pump assembly

Use the complete model, serial number and actual parts when selecting service items.

Displacement body and idler arrangement

Pump models	Idler arrangement
F003 / F008 / F02 / F04	Blind bushing; fixed idler shaft only as tall as the idler gear.
F07 / F15 / F30	Idler shaft fits a through-bushing in the shaft plate.

Identify the installed options

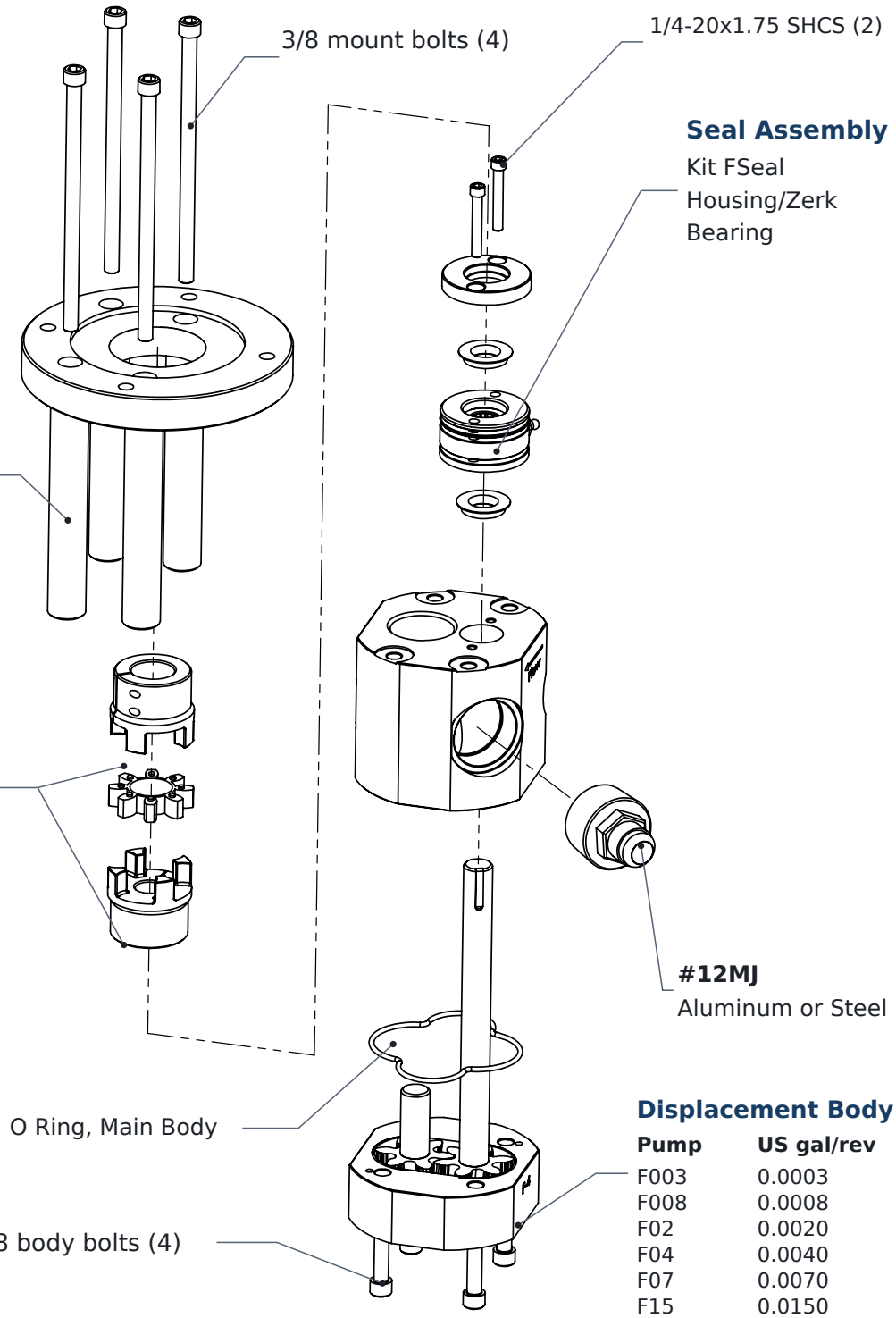
Item	Source identification
Pump and rebuild identity	**F**: steel pump; **FA**: aluminum pump; **R**: rebuild kit. Retain all model suffixes when ordering.
Shaft seal	Match the actual assembly. **FSeal** is shown on page 7. **D** double-seal and **M** modified single-seal kits are shown on page 9. **P** identifies a packing option in the original model convention.
Bushing material	**I**: iron; **B**: bronze; **S**: hardened steel. Specify the installed material and duty when ordering.
Relief / anode	**A**: Anode plug; no internal relief. **7**: Fixed relief setting (0.70"). **Z**: No relief valve. Provide system pressure protection; see page 4.
Mount and clearance	Identify the physical motor interface or base and the complete factory model. Use the matching dimensional drawing; do not infer clearance from pump size.

The through-shaft drawings also support matching older assemblies. Keep the installed configuration with the equipment record; do not substitute one shaft, seal or bushing arrangement for another from model size alone.

Seal or bushing material temperature limits are not the rating of the complete pump. Housing, seals, clearances, product, pressure and drive must all suit the duty.

5 F003-F30 pump assembly

Pump assembly and options for the complete F-series range.

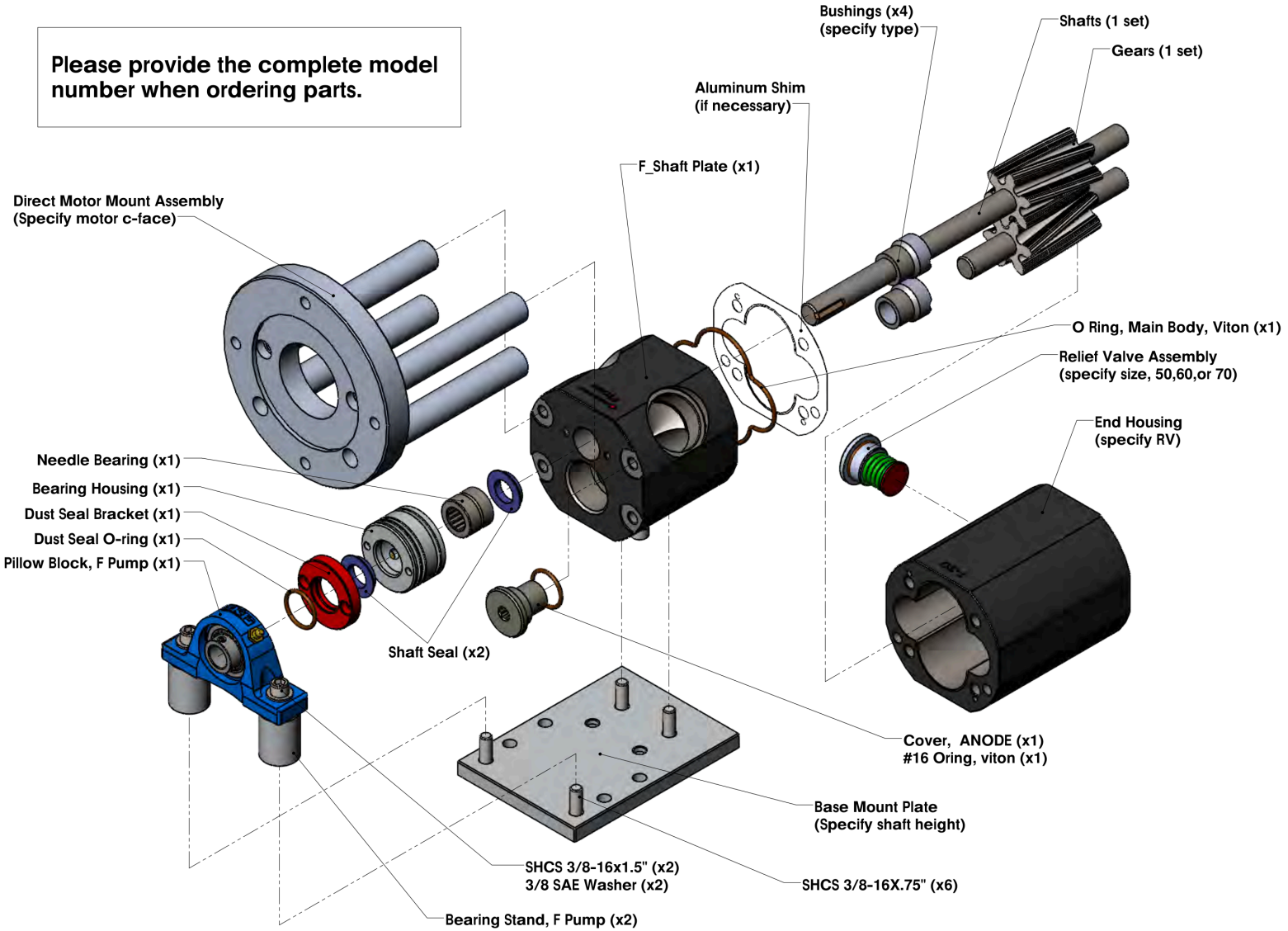


F07-F30: Idler shaft fits a through-bushing in the shaft plate.

F003-F04: Blind bushing; fixed idler shaft is only as tall as the idler gear.

6 Through-shaft pump parts

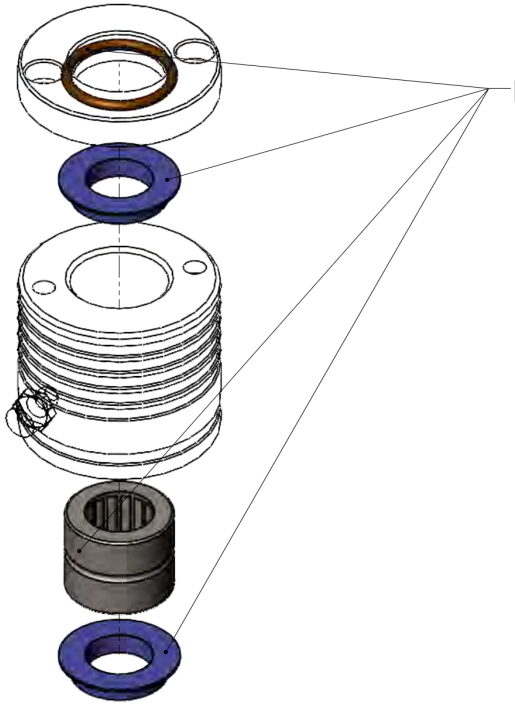
F07-F30 through-shaft arrangement. Match the installed seal, relief option and mounting interface.



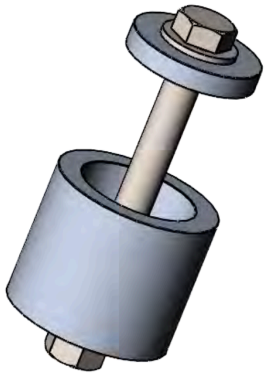
This source view includes alternative pump mounting parts. Order the actual configuration by complete model and serial number. Use the assembly-specific tightening specification.

7 Shaft-seal kits

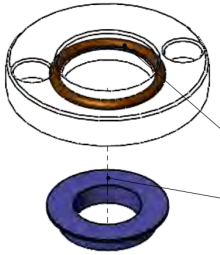
D double-seal and M modified single-seal assemblies; use the kit matching the installed housing.



D = Double Seal Kit
- (2) Main Seals
- (1) Needle Bearing
- (1) Dust Seal Oring



F-Pump Bushing and Seal Removal TOOL: Bushing/Bearing/Seal removal and installation tool

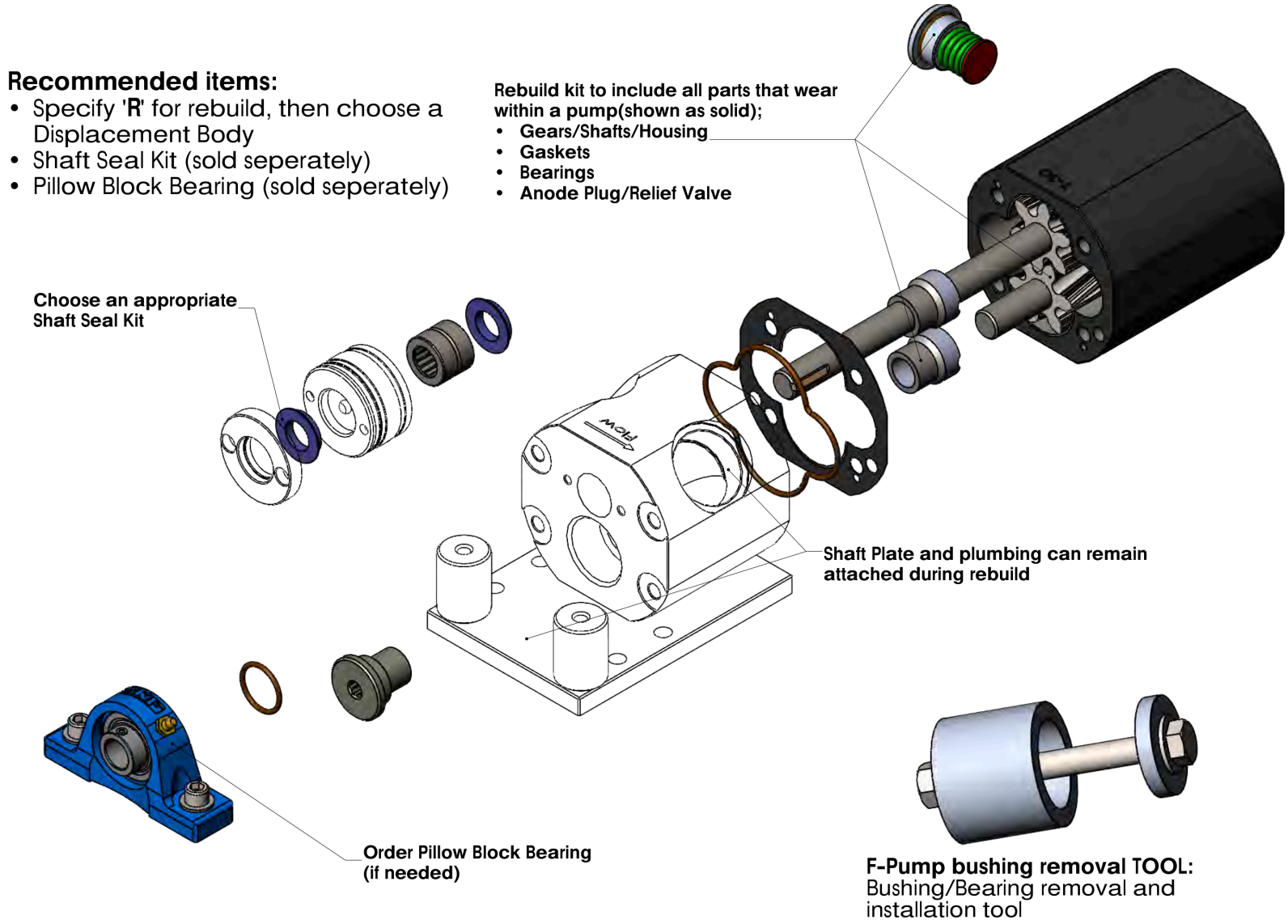


M = Single Mod Seal Kit
- (1) Main Seal
- (1) Dust Seal Oring

D: two main seals, one needle bearing and one dust-seal O-ring. M: one main seal and one dust-seal O-ring. The FSeal assembly is identified separately on page 7.

8 Displacement-body rebuild

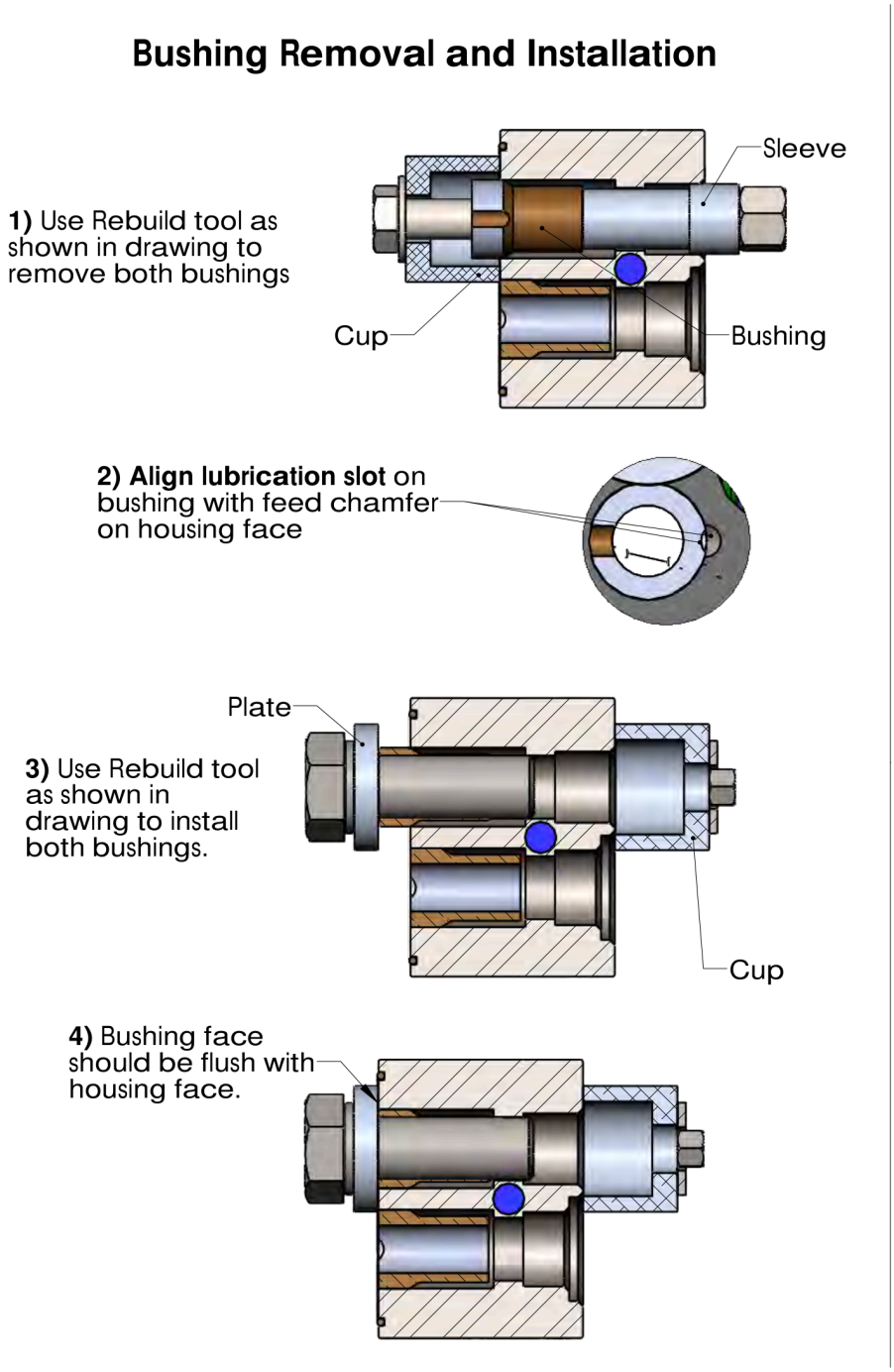
Through-shaft rebuild arrangement; confirm body size, seal kit and relief/anode configuration.



Support the pump parts and contain product. The illustrated shaft plate and plumbing can remain attached during rebuild. Seal and pillow-block kits are separate source items.

9 Bushing service

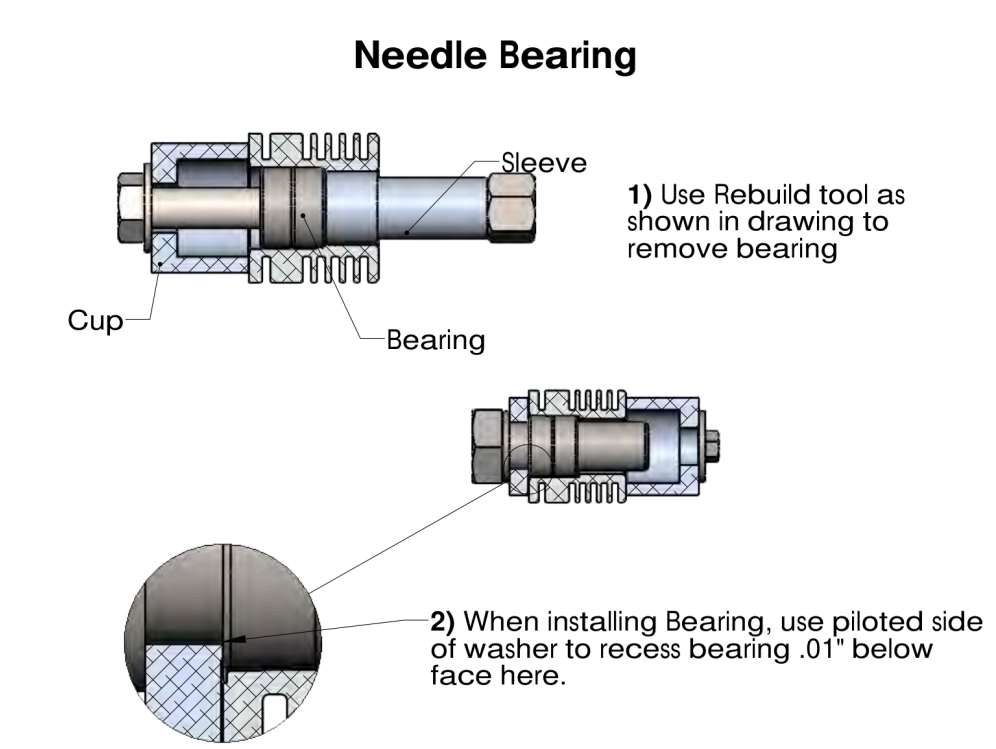
Tooling method for the illustrated through-bushing assemblies.

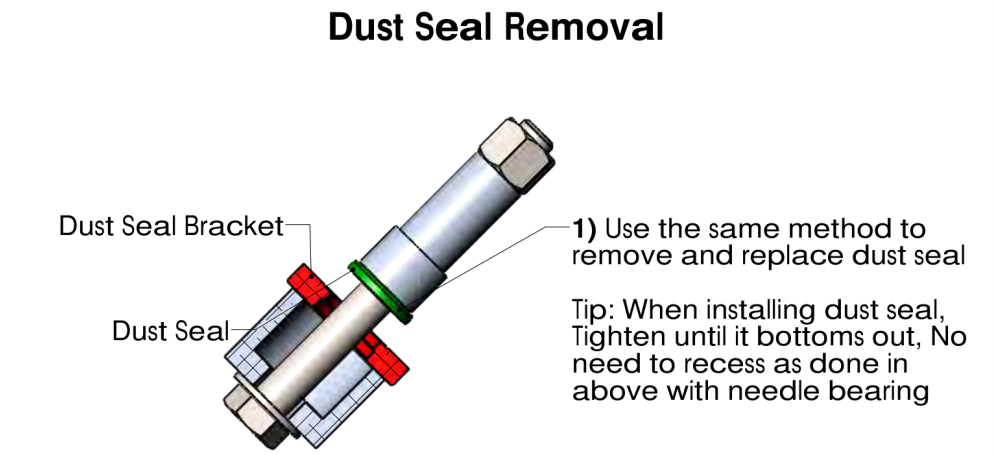


Align each lubrication slot with the housing feed chamfer and finish the bushing face flush with the housing face. This through-bushing procedure does not describe the small-pump blind bushing.

10 Needle bearing and dust seal

Use these methods only with the illustrated bearing housing and dust-seal bracket.

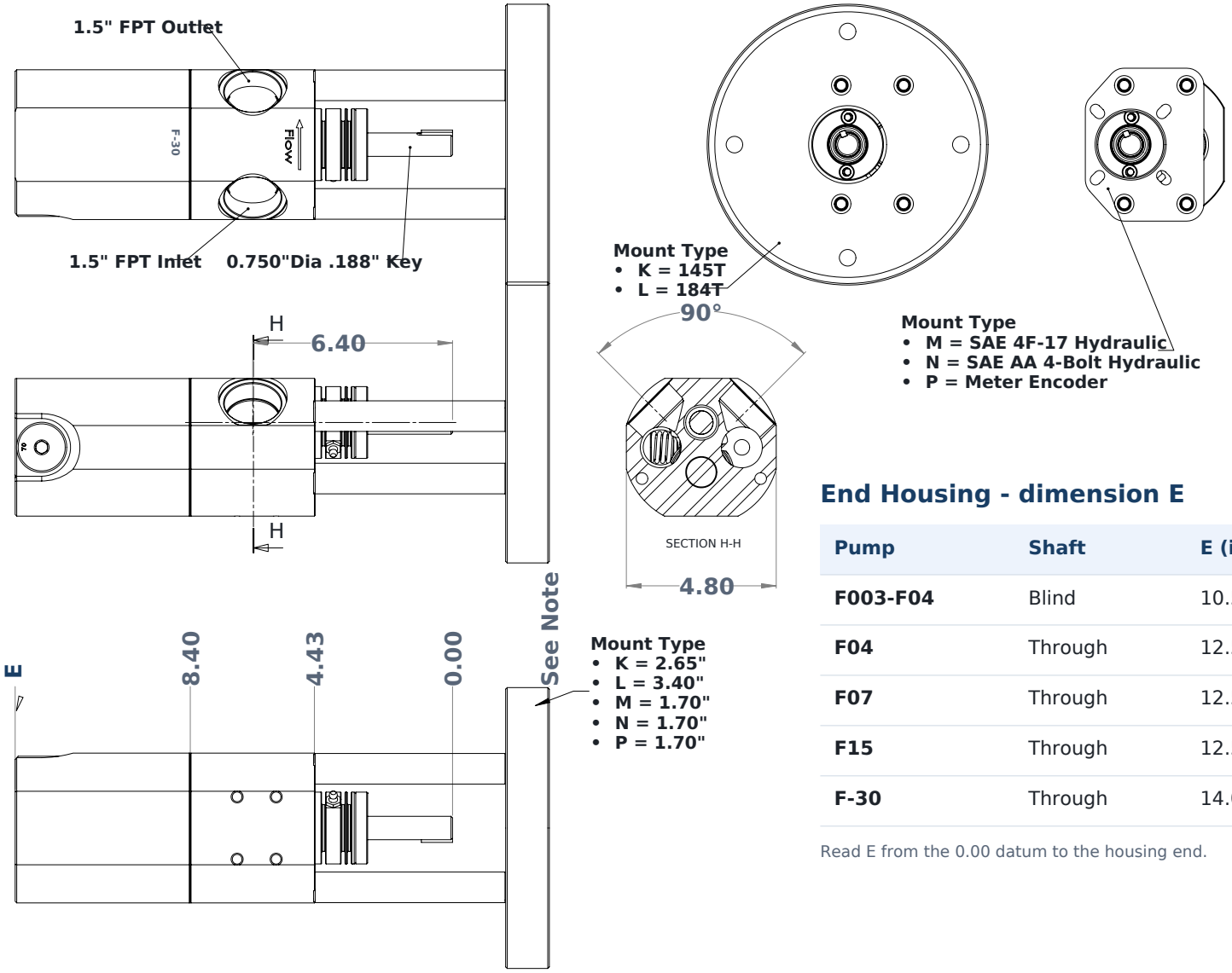




Use the piloted washer to recess the illustrated needle bearing 0.01 in below the housing face. Seat the dust seal as shown; do not apply the needle-bearing recess to it.

11 Face-mount pump dimensions

F003-F30 end-housing dimensions by shaft arrangement. Dimensions in inches.



End Housing - dimension E

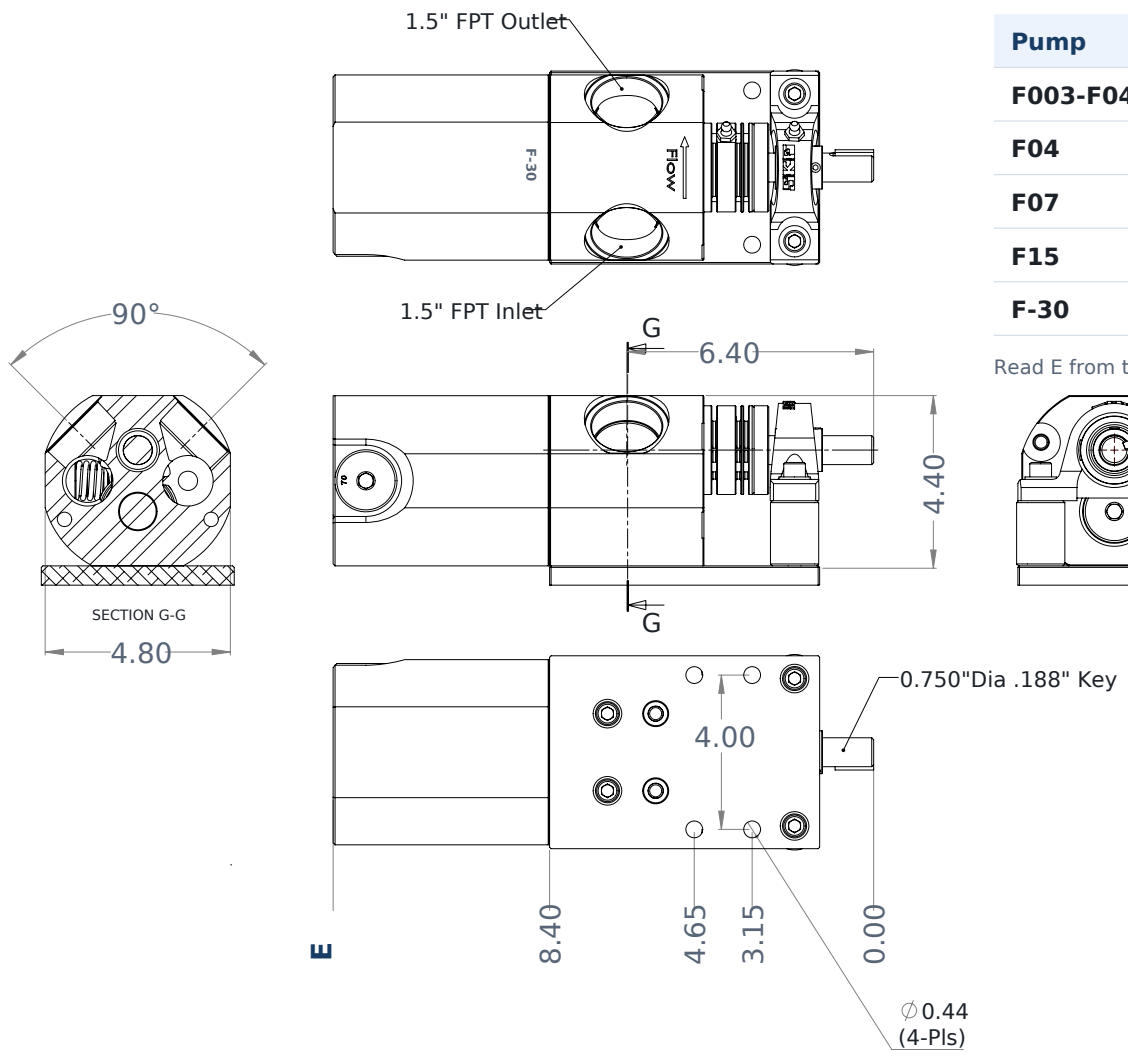
Pump	Shaft	E (in)
F003-F04	Blind	10.5
F04	Through	12.50
F07	Through	12.50
F15	Through	12.50
F-30	Through	14.00

Read E from the 0.00 datum to the housing end.

Use the End Housing table for dimension E. F003-F04 blind-shaft assemblies use E = 10.5 in. Match the actual motor/hydraulic interface and supplied assembly drawing.

12 Base-mount pump dimensions

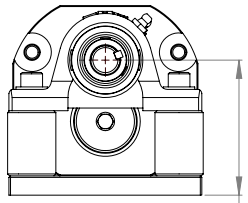
F003-F30 end-housing dimensions by shaft arrangement. Dimensions in inches.



End Housing - dimension E

Pump	Shaft	E (in)
F003-F04	Blind	10.5
F04	Through	12.50
F07	Through	12.50
F15	Through	12.50
F-30	Through	14.00

Read E from the 0.00 datum to the housing end.



Mount Type

A = 3.500" (145T)
B = 4.170" (Honda)
C = 4.743"
D = 4.500" (186T)
E = 5.250" (213T)

Use the End Housing table for dimension E. F003-F04 blind-shaft assemblies use E = 10.5 in. Select the installed base and shaft-center height; system skid drawings are in the companion manuals.

13 Maintenance and service support

Keep pump identity and service history with the equipment.

Inspect and record

Check product leakage, mounting hardware, guards and changes in noise or measured delivery. Record product, temperature, pump RPM, discharge pressure and inlet vacuum when available.

Inspect the installed seal assembly and grease fitting. Use the lubricant and quantity specified for that assembly and temperature; do not mix unknown lubricants.

Before disassembly, identify the correct body, seal kit, bushings, clearances and tightening specification.

Return to service

Isolate, depressurize and drain or contain product before opening the pump. Support removed components. After reassembly, refill the opened pump with compatible liquid, restore guards and restart slowly. Follow the matching system manual for piping, controls and line clearing.

SEND PHOTOS BEFORE CALLING

Send wide, well-lit, high-resolution photos from several angles: the complete pump, drive, piping, valve positions, controls and surrounding installation. Close-ups may supplement the wide views. BearCat can zoom in; it cannot zoom out.

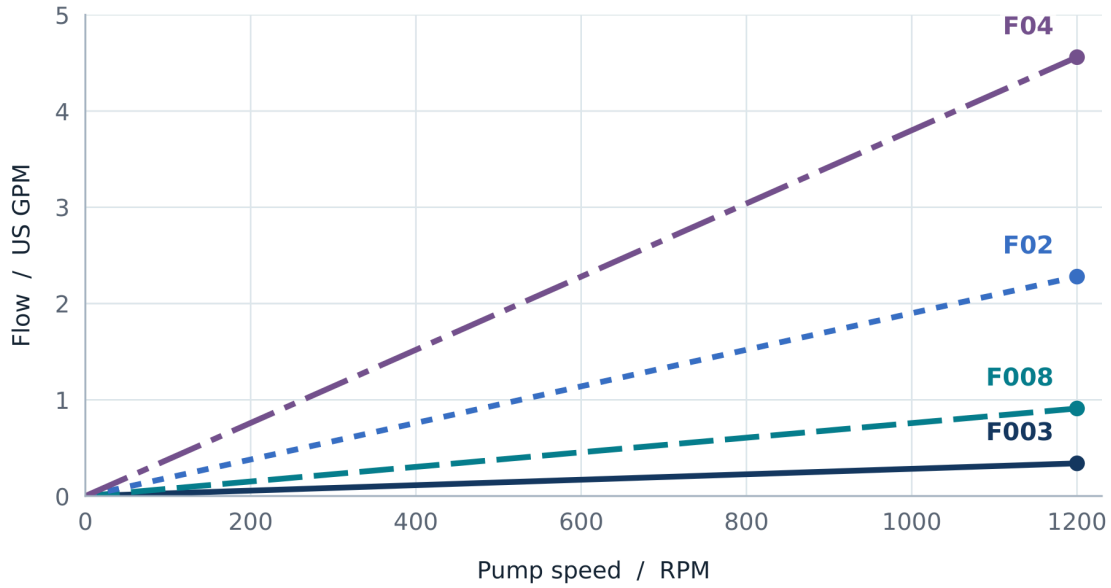
Rev F - 2026.11.02. Clarifies option codes, assembly labels and end-housing dimensions; corrects F-30 markings and base C height; shortens service text. Rev E corrected heater-cavity leaders. Earlier revisions established the shared pump reference, screenbox detail and curves. Sources: BearCat F-Pump (2023), VP (May 2025), Rev C curves, current F-Series price sheet and Kevin Hill corrections.

14 F003-F04 pump curves

Flow and hydraulic power references. All models shown stop at 1,200 RPM.

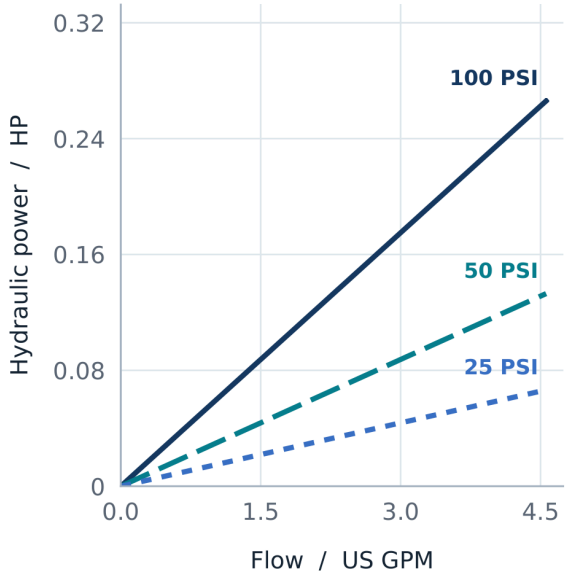
01 FLOW / SPEED

Published flow references | F02 = 0.5 x F04



02 HYDRAULIC POWER

Differential pressure across the pump



REFERENCE POINTS

Model	Reference flow at 1,200 RPM	
	GPM	lbs/min
F003	0.3	2.8
F008	0.9	7.6
F02	2.3	19.0
F04	4.6	38.0

READ THE CURVES

Flow is a reference, not guaranteed delivery. Actual output depends on viscosity, pressure, inlet conditions and internal slip.

HP = GPM × differential PSI ÷ 1,714. This is hydraulic power only; friction, viscosity, efficiency and motor service margin are excluded.

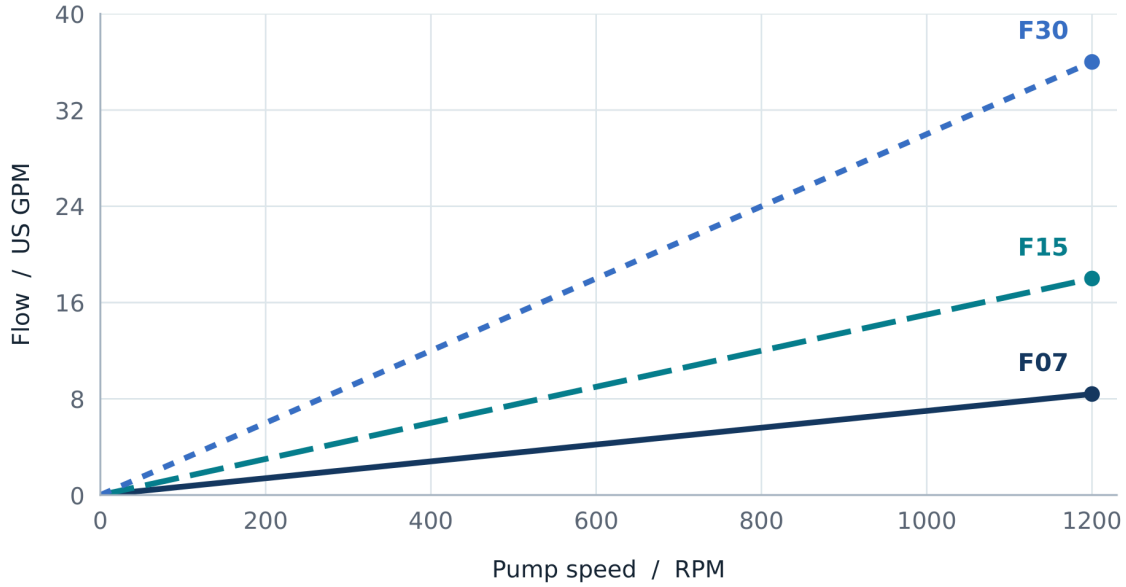
The 25 / 50 / 100 PSI lines are calculation examples, not pressure ratings or relief settings.

15 F07-F30 pump curves

Flow and hydraulic power references. All models shown stop at 1,200 RPM.

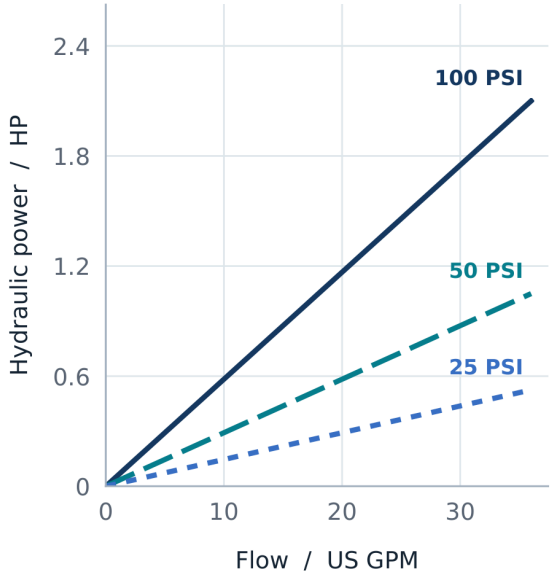
01 FLOW / SPEED

Nominal displacement flow



02 HYDRAULIC POWER

Differential pressure across the pump



REFERENCE POINTS

Model	Reference flow at 1,200 RPM	
	GPM	lbs/min
F07	8.4	70.1
F15	18.0	150.1
F30	36.0	300.2

READ THE CURVES

Flow is a reference, not guaranteed delivery. Actual output depends on viscosity, pressure, inlet conditions and internal slip.

HP = GPM × differential PSI ÷ 1,714. This is hydraulic power only; friction, viscosity, efficiency and motor service margin are excluded.

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