



LEGACY PUMP AND METER SERIES

300 / 450 / 600

Legacy Pump and Meter Manual

Styles C, B, V, T and W | Installed-equipment reference

LEGACY MANUAL

Rev B | 2026.09.18

Document BCP-300-600-LEG | Legacy equipment

BearCat Pumps

1954 East Deer Valley Road, Suite 103 | Phoenix, AZ 85024

www.bearcatpumps.com | 623-587-1350

CONTENTS

Index

Legacy styles C, B, V, T and W. Click a section title to open it.

1	Legacy models and applicability	3
2	Safety boundary	4
3.1	Installation and liquid-lock priming	5
3.2	Start, operate and shut down	6
3.3	Relief valves and pressure protection	7
4	Maintenance and service preparation	8
5.1	Read the model number	9
5.2	Shaft, seal and configuration codes	10
5.3	Base component identification	11
6.1	M single modified seal	12
6.2	Legacy cooling double seal	13
6.3	Modified B seal	14
6.4	Double bearing B seal	15
7.1	C style end plate	16
7.2	B style end plate	17
7.3	V style end plate	18
7.4	T style gear-meter end plate	19
7.5	W style bearing end plate	20
8.1	300 / 450 / 600 legacy dimensions	21
8.2	Bushed-series shaft dimensions	22
9	Service evidence and revision record	23

LEGACY EQUIPMENT

These styles are obsolete. This manual preserves identification and service information for equipment already in use.

Legacy models and applicability

This manual covers obsolete C, B, V, T and W styles for the 300 / 450 / 600 families. Use it to identify and service existing equipment. These designs are obsolete and are not current new-build products.

Styles covered by this edition

Style	Shaft support / duty	Integral relief	Heat arrangement
C	Bushed pump	No	No heat-trace arrangement shown
B	Bushed pump	Yes	Non-heated
V	Bushed pump	Yes	Heat-traced
T	Bushed gear meter	No	Heat-traced
W	Bearing pump	No	Non-heated

C, B and V drawings show bronze bushings. The T meter drawing shows Dura Steel bushings. The W drawing shows spherical bearings, W sleeves and W sealing components.

W IS A BEARING DESIGN

W is included because the style is obsolete. It is not a bushed pump.

Match the complete build

The series number, style, shaft, seal, port orientation and options all matter. This edition covers the 300 / 450 / 600 families only; it does not establish that every style exists in every size.

For new bearing equipment using K, N, R, U or S styles, use the current Pump and Meter Manual. The 110 / 170 and 960 families have separate legacy manuals.

A shared letter or similar drawing does not establish that parts interchange. Identify the installed assembly before selecting a repair or replacement.

Safety boundary

Only trained personnel should install, operate or service this equipment. Follow the equipment owner's procedures and the requirements for the material being handled.

BEFORE INSPECTION OR SERVICE

Stop the process, isolate and lock out all drive and heating energy, relieve trapped pressure, control hot product and verify zero hazardous energy. A stop button, HMI or VFD is not an energy-isolation device.

Protect people and the installation

- **Hot product:** Any pump that is heated or pumping hot liquid should be operated with Safety Blankets properly installed. Keep the protection maintained and use the required face, hand and body protection.
- **Pressure:** Provide suitable pressure protection for the pump, piping and accessories. Confirm the discharge and relief paths before starting; a positive-displacement pump must not run against a blocked outlet.
- **Moving parts:** Fit all coupling, belt and shaft guards before operation. Keep hands, clothing and tools clear of the drive.
- **Opening the system:** Do not loosen a plug, hose, cover or fastener to check whether pressure is present. Isolate, depressurize and drain by the established procedure first.
- **Electrical and heating work:** Use qualified personnel and the component manufacturer's instructions. Heat only equipment built for that service.
- **Lifting and support:** Use lifting equipment suited to the complete assembly. Support the pump and piping so the ports do not carry unsupported pipe loads.

STOP FOR AN UNSAFE CONDITION

Stop if there is uncontrolled leakage, loss of flow, abnormal noise or vibration, a drive trip, or pressure outside the approved operating range. Find the cause before restarting.

Installation and liquid-lock priming

1 Prepare the system

Confirm the pump, seals, drive and heating arrangement suit the product. Clean the suction piping and screen box; remove installation debris.

2 Support, align and connect

Secure the assembly, support the piping and verify drive alignment. Keep the suction path open and airtight. Provide accessible pressure and vacuum readings.

3 Establish a safe flow path

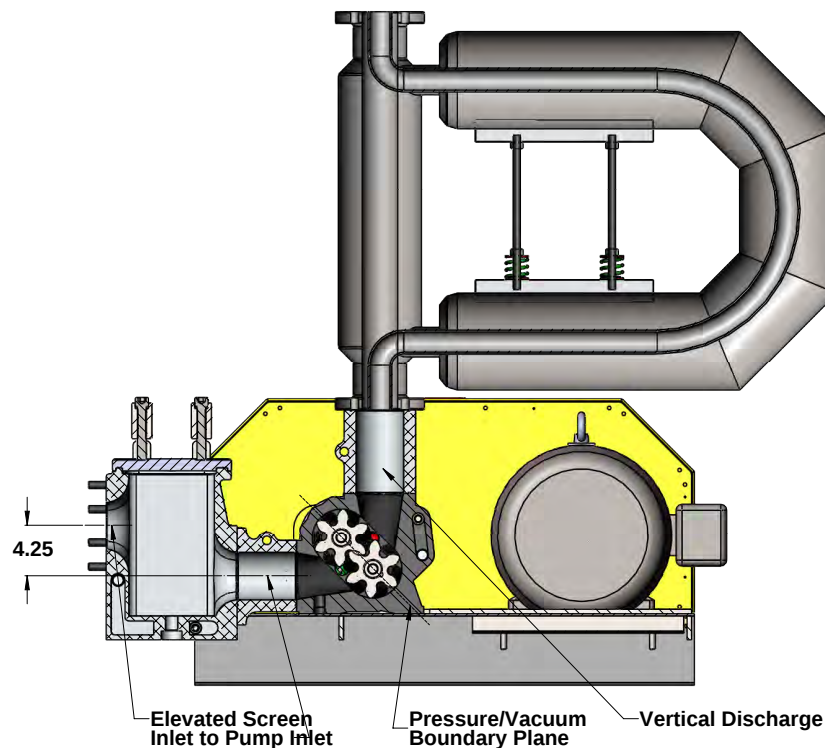
Check valve positions, discharge routing and pressure protection. Confirm that any relief return path is available in the intended direction.

4 Prepare to prime slowly

Where practical, add compatible pumped liquid to wet the pump before first startup. Bring heat-traced equipment to the required operating temperature before turning it.

Liquid-lock arrangement

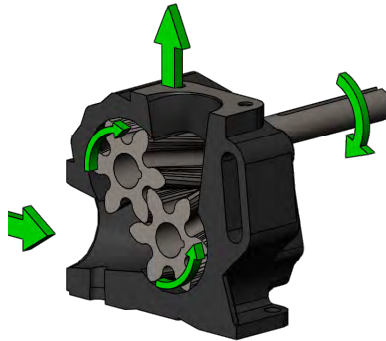
The illustrated arrangement combines an elevated screen inlet, the pressure/vacuum boundary and an upward discharge route. Retained liquid supports priming at low speed and helps keep the pumping elements wetted.



Example liquid-lock arrangement. The 4.25-in dimension belongs to the assembly shown; use the installation drawing for the actual piping geometry.

Start, operate and shut down

Begin at low speed. Increasing speed does not correct an empty pump or a restricted suction line.



Rotation and flow example. Verify the installed direction before operating.

- 1 Check free movement with energy isolated**
With the pump safe and depressurized, confirm it turns freely by hand. Restore every guard before energizing.
- 2 Verify heat, valves and liquid supply**
Open the required valves gradually and check for leakage. Confirm the product can flow and the pressure-protection path is available.
- 3 Check rotation with a brief controlled jog**
Keep guards in place and people clear. Compare the observed rotation and flow path with the installed arrangement.
- 4 Start slowly and confirm delivery**
Watch discharge pressure, suction vacuum, drive load and leaks. If flow does not establish, stop and investigate.
- 5 Increase speed only as conditions allow**
Stay within the pump and complete-system limits. Watch the readings as the rate changes; record normal values in the service log.

Normal shutdown and reversal

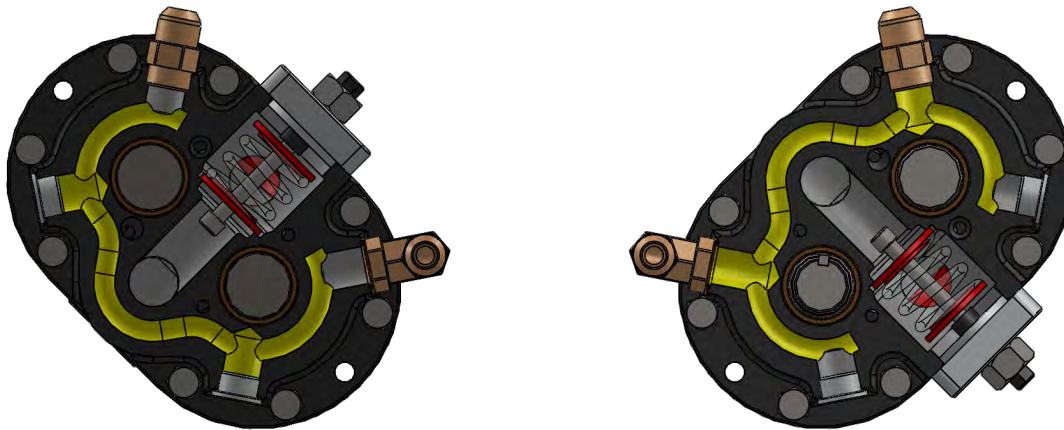
Reduce speed and stop the drive before changing the flow direction. Verify valves, destination and pressure protection for reverse operation before restarting slowly. For shutdown, stop before closing a valve that would block a running pump; secure the system under the site procedure.

Relief valves and pressure protection

PRESSURE PROTECTION IS REQUIRED

Provide protection sized for the actual flow, speed, viscosity and piping arrangement. An internal relief valve is a bypass device, not a pressure regulator or a substitute for a properly designed relief system.

Each end-plate relief valve works in one flow direction. Reversing flow changes which valve can bypass. B and V styles include relief provisions. C and W pumps and T gear meters require pressure protection elsewhere in the system.



Cutaway feature	Meaning
Red passage	Internal pressure-bypass path
Yellow passage	Heating passage, separate from the product bypass
Opposite end plates	The active bypass depends on flow direction; verify protection in both directions when reversal is used.

What a relief setting means

Opening pressure is where a valve begins to bypass; pressure can rise as more flow is forced through it. A stated test value such as **80 psi at 100 GPM** describes that test condition. It does not establish the same pressure at every flow or guarantee a maximum system pressure.

Do not set pressure by bolt position or counted turns alone. Adjustment and testing require an approved procedure, appropriate gauges and a safe discharge path. Confirm the setting for the actual duty; do not assume every pump was factory set for the installation.

Maintenance and service preparation

Identify the installed style before opening the pump. C, B and V pumps, the T gear meter and the W bearing pump use different shaft-support and sealing arrangements.

Task	Service point
Before operation	Check supply, screen condition, valve positions, guards, mounting, leakage and Safety Blankets where required.
Before opening	Isolate the drive and heating energy, control temperature, relieve pressure and drain safely. Record model, orientation and gasket arrangement.
C / B / V bushings	The original drawings show three long bronze bushings and one short bushing. Preserve location and orientation during service.
T gear meter	The original drawing shows four Dura Steel bushings and both end-plate holes plugged. Use the T drawing.
W bearings	Match the W sleeves, face O-rings and quad O-rings shown on the W drawing; preserve the bearing and washer arrangement.
Gaskets and caps	Match the installed cap gasket or pre-2019 cap O-rings. Record the original gasket stack; use verified build data for clearance.

Lubrication points

A bushed pump can still have a greased bearing in its shaft-seal assembly. Identify the seal housing and each grease point separately. On a W pump, identify the end-cover grease points as well as any seal-assembly grease point.

The B seal drawings specify NLGI No. 2 grease. Confirm grease compatibility, quantity and interval for the installed seal, product and temperature. Do not apply that one specification to every assembly.

Use a hand-operated grease gun and avoid forcing grease against a seal. **Grease is useful. Hydraulic pressure delivered through a grease gun is not.**

Torque: the small chart on each end-plate drawing lists only the values given for that assembly. Seal diagrams identify fasteners but do not provide a separate torque specification; obtain the installed seal service data before tightening.

Read the model number

Read the code by position. The same letter can mean different things in the style, seal, shaft, relief or option fields.

ILLUSTRATIVE MODEL CODE

450 V N X - RH - AA - OB - .045

Legacy model-code example from the original manual. Read the full code and match it to the installed equipment before selecting parts.

Field	Example	Meaning
Displacement	450	0.45 gal/rev nominal displacement
Pump / meter style	V	Bushed pump with relief and heat tracing
Shaft seal	N	Narrow cooling double-seal arrangement
Drive shaft	X	Extended shaft
Configuration	RH	Right side port, high shaft; viewed looking down the drive shaft toward the pump
Top / side outlet relief	AA	Adjustable top-outlet and side-outlet relief designations
Option	OB	Outboard bearing
Combined gasket clearance	.045	Recorded assembly-clearance code; preserve the build specification

Relief and option codes

Relief: A = adjustable; B = blocked; 4 = fixed 40 psi at 100 GPM; 8 = fixed 80 psi at 100 GPM. These codes identify the build and its stated test condition; see page 7 before interpreting pressure behavior.

Options: OB = outboard bearing; PB = pillow block; EH = electric-heat cavities; EA = encoder guard and coupler, with encoder supplied separately. Multiple option codes can be combined.

Combined-clearance codes include .030, .045 and .060. Use the verified assembly record for the actual gasket stack and clearance; the code alone is not a field-adjustment instruction.

Shaft, seal and configuration codes

Shaft code	Identification
X	Extended shaft
H	Hydraulic-mount shaft
S	Short shaft
C	Cut to a specified custom length

Legacy seal identification

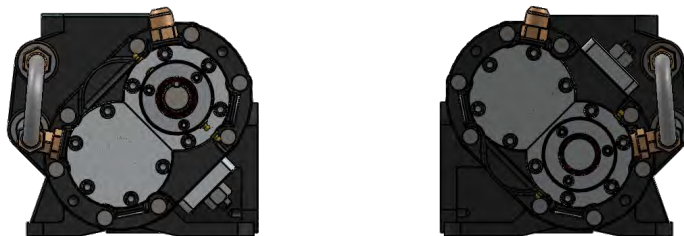
Code	Assembly / historical identification
M	Single modified lip seal; obsolete
P	3/8-in packing; obsolete
N	Narrow cooling spacer with double seals
B	Bearing spacer seal assembly; identify single modified or double construction from the installed parts
C	Wide cooling double seal; defined separately from C pump style
H / J	Heated / non-heated packing designations; J is shown as 1/4-in packing in the source

These codes identify assemblies; they are not a compatibility or retrofit table. The original manual contains no exploded drawing for the obsolete P packing. Match its actual parts and build record before ordering.

View from the drive-shaft end

RH = right port / high shaft; **RL** = right port / low shaft;

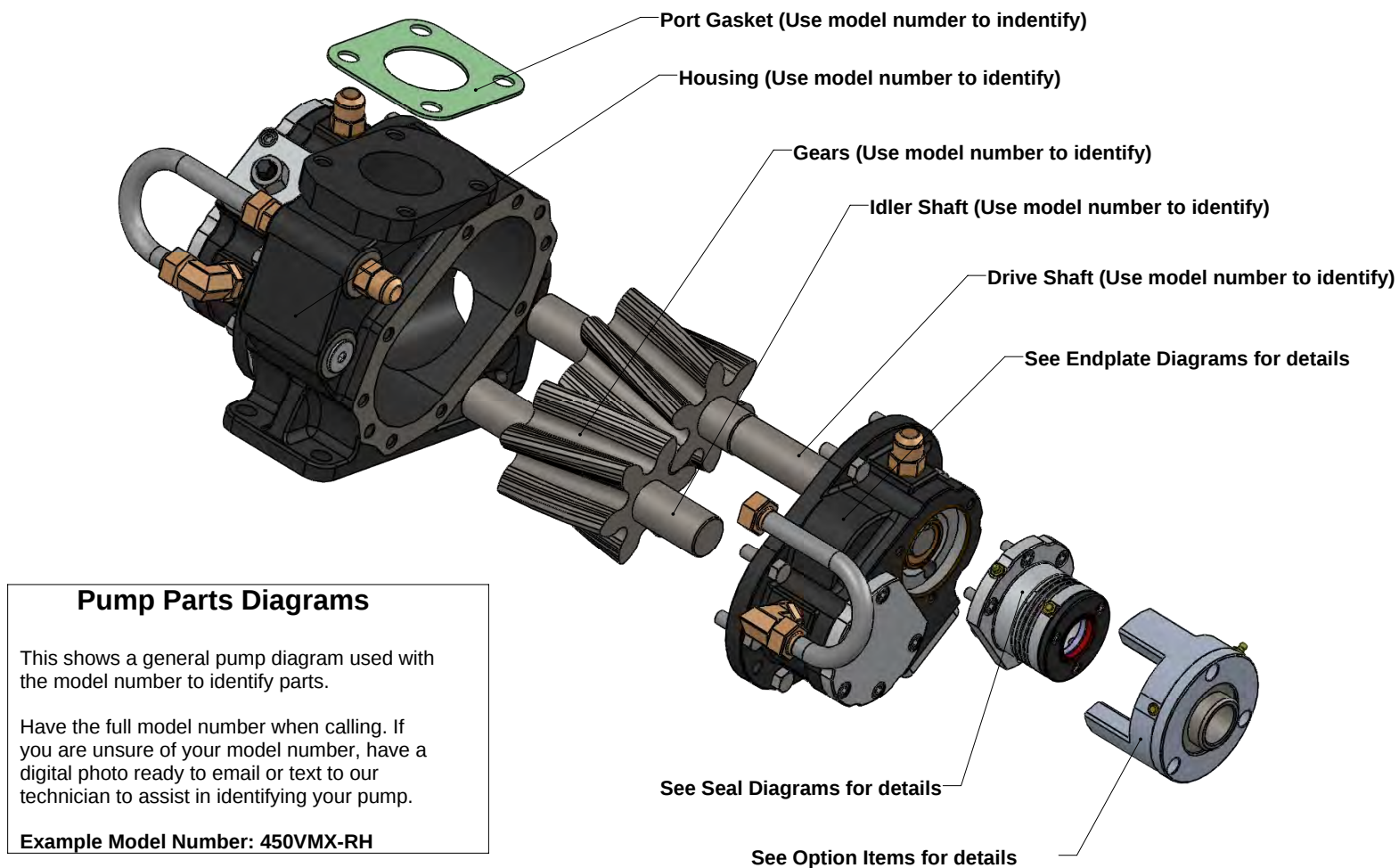
LH = left port / high shaft; **LL** = left port / low shaft.



Left image: RH. Right image: LL.

Base component identification

Use the complete model number to identify housing, gears, shafts, port gasket, end plates, seals and installed options.

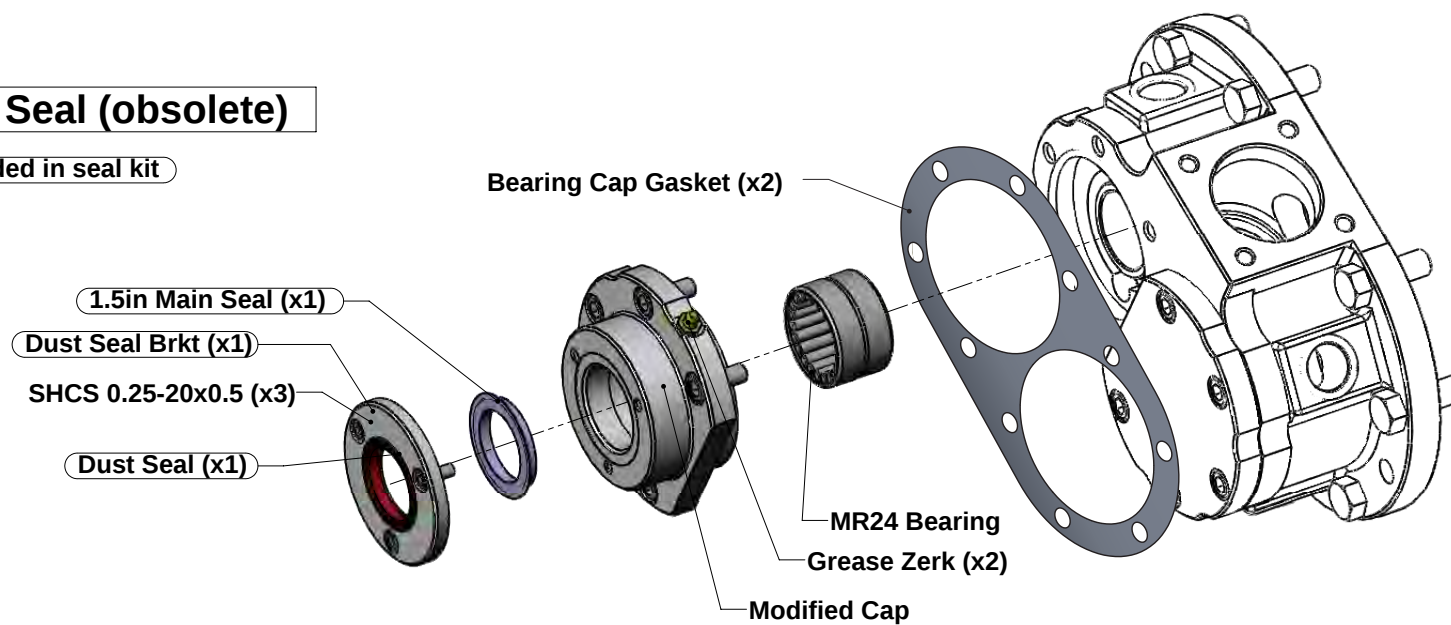


M single modified seal

Original single-lip modified seal assembly. The MR24 bearing shown belongs to the seal assembly.

Modified Seal (obsolete)

* Items included in seal kit



Match the cap gasket or pre-2019 cap O-rings to the actual build. Outlined callouts identify seal-kit items.

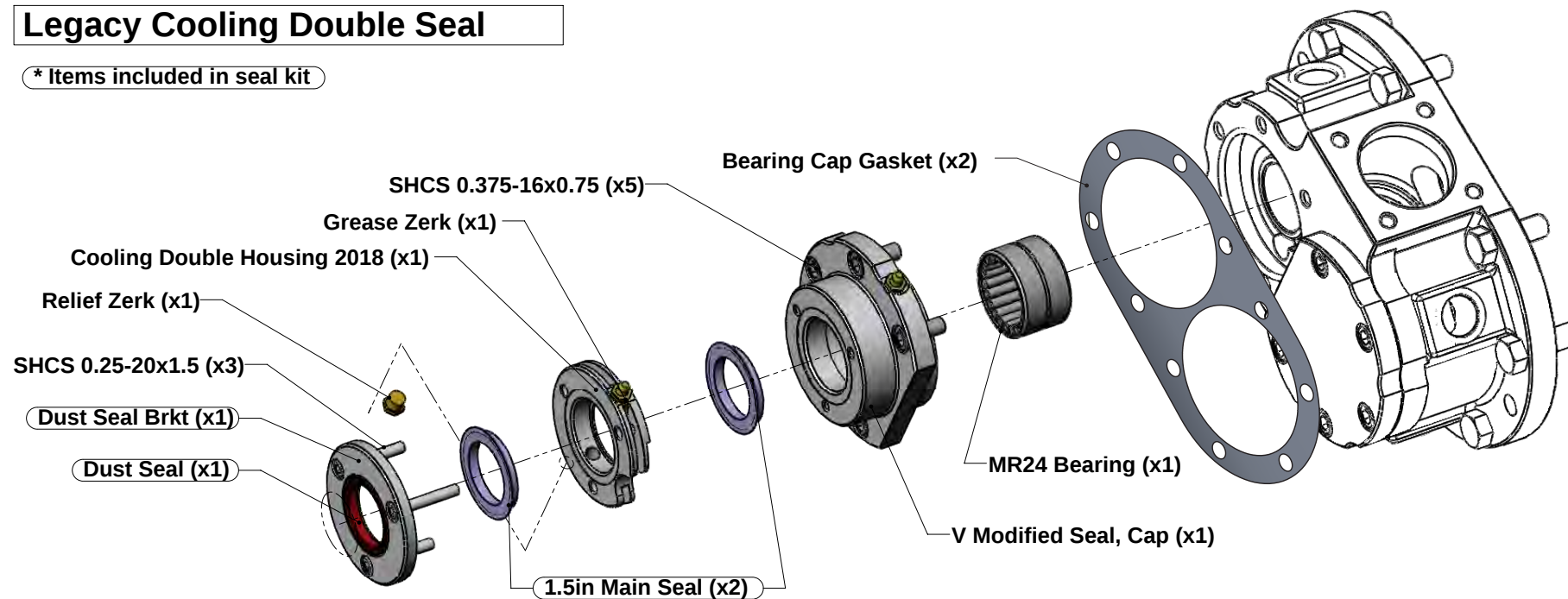
Seal-fastener torque is not specified on these original drawings. Use the service specification for the installed assembly.

Legacy cooling double seal

Original double-seal arrangement with the 2018 cooling housing and V modified-seal cap.

Legacy Cooling Double Seal

* Items included in seal kit



Match the cap gasket or pre-2019 cap O-rings to the actual build. Outlined callouts identify seal-kit items.

Seal-fastener torque is not specified on these original drawings. Use the service specification for the installed assembly.

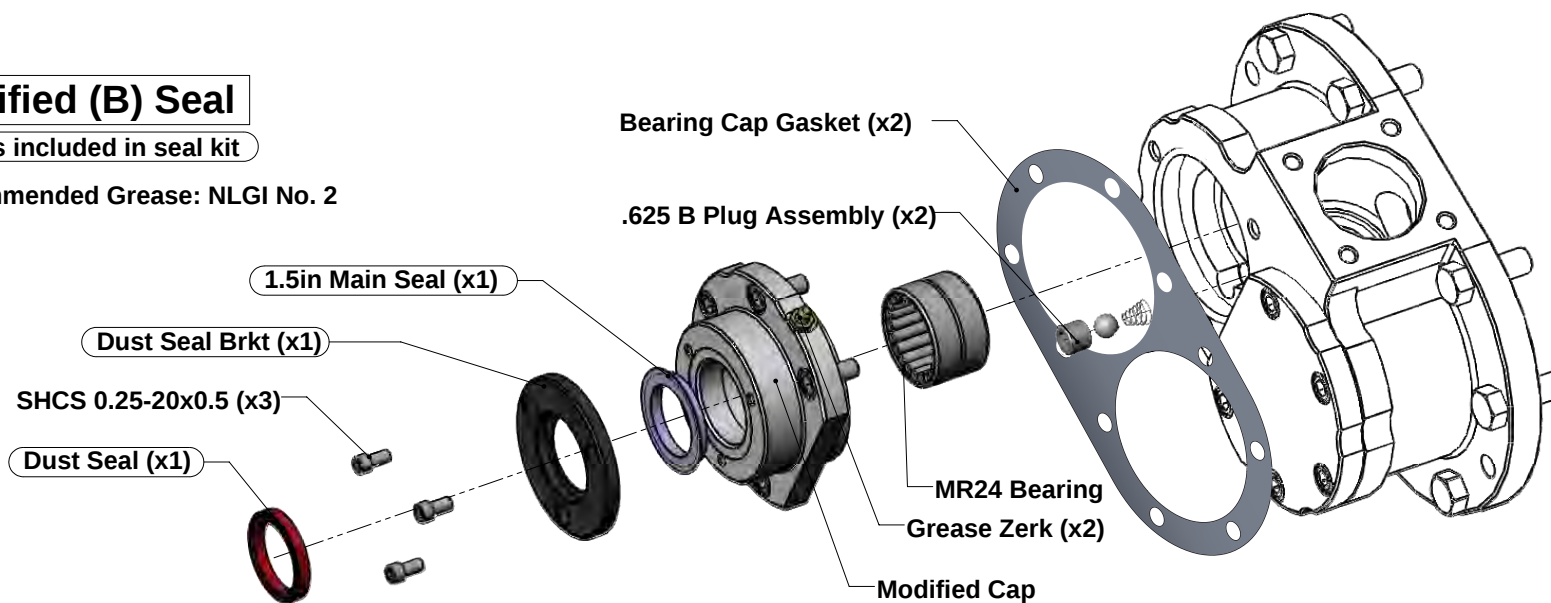
Modified B seal

Original modified B seal with one main seal, MR24 bearing and .625 B plug assemblies.

Modified (B) Seal

* Items included in seal kit

Recommended Grease: NLGI No. 2

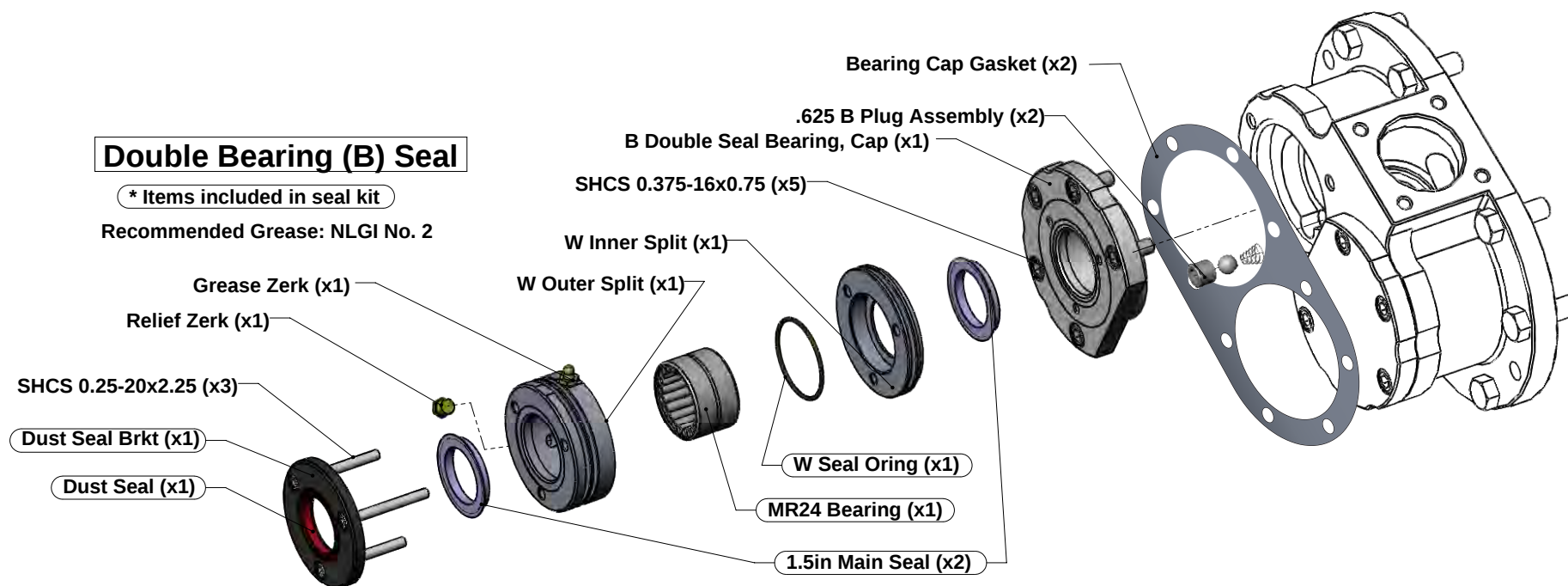


Match the cap gasket or pre-2019 cap O-rings to the actual build. Outlined callouts identify seal-kit items.

Seal-fastener torque is not specified on these original drawings. Use the service specification for the installed assembly.

Double bearing B seal

Original double B seal with two main seals, split components, seal O-ring and .625 B plug assemblies.

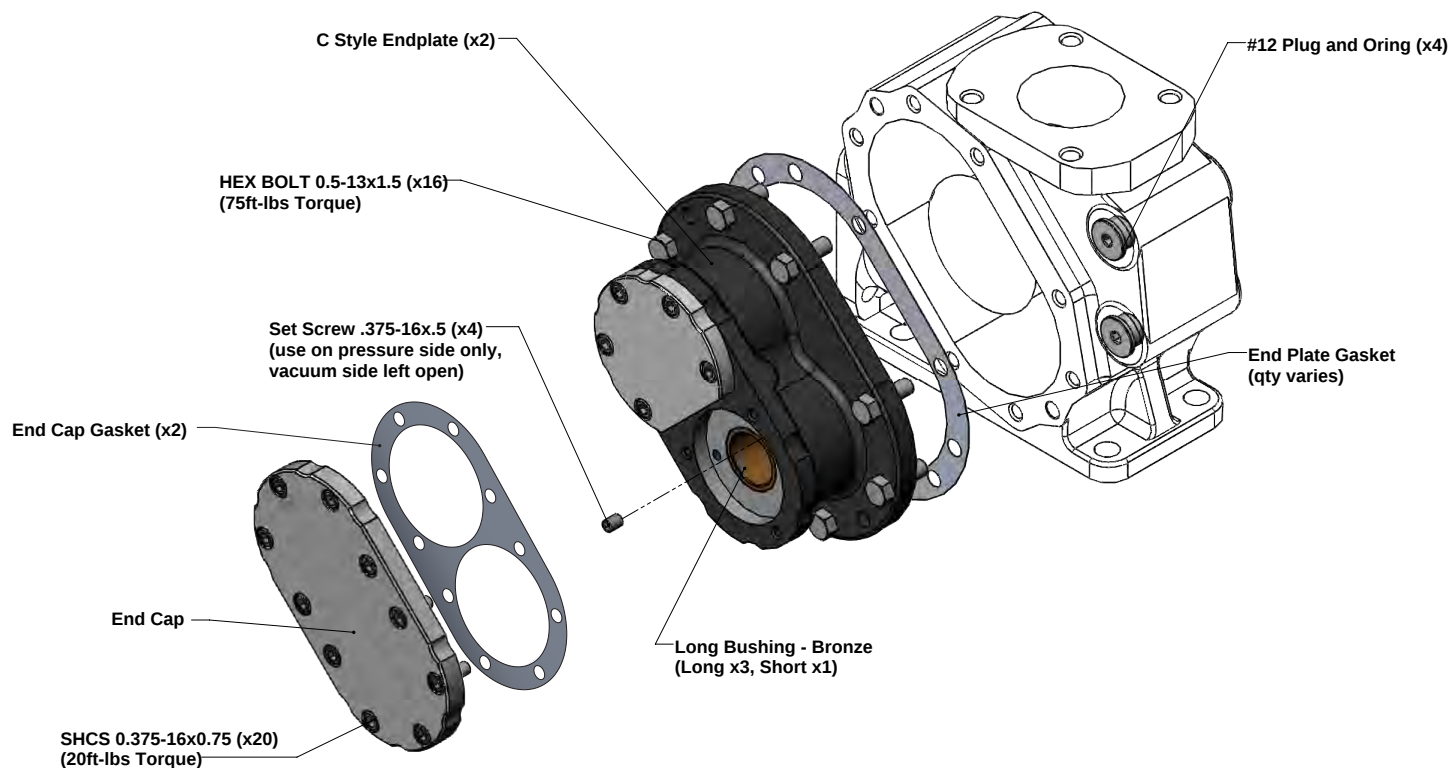


Match the cap gasket or pre-2019 cap O-rings to the actual build. Outlined callouts identify seal-kit items.

Seal-fastener torque is not specified on these original drawings. Use the service specification for the installed assembly.

C style end plate

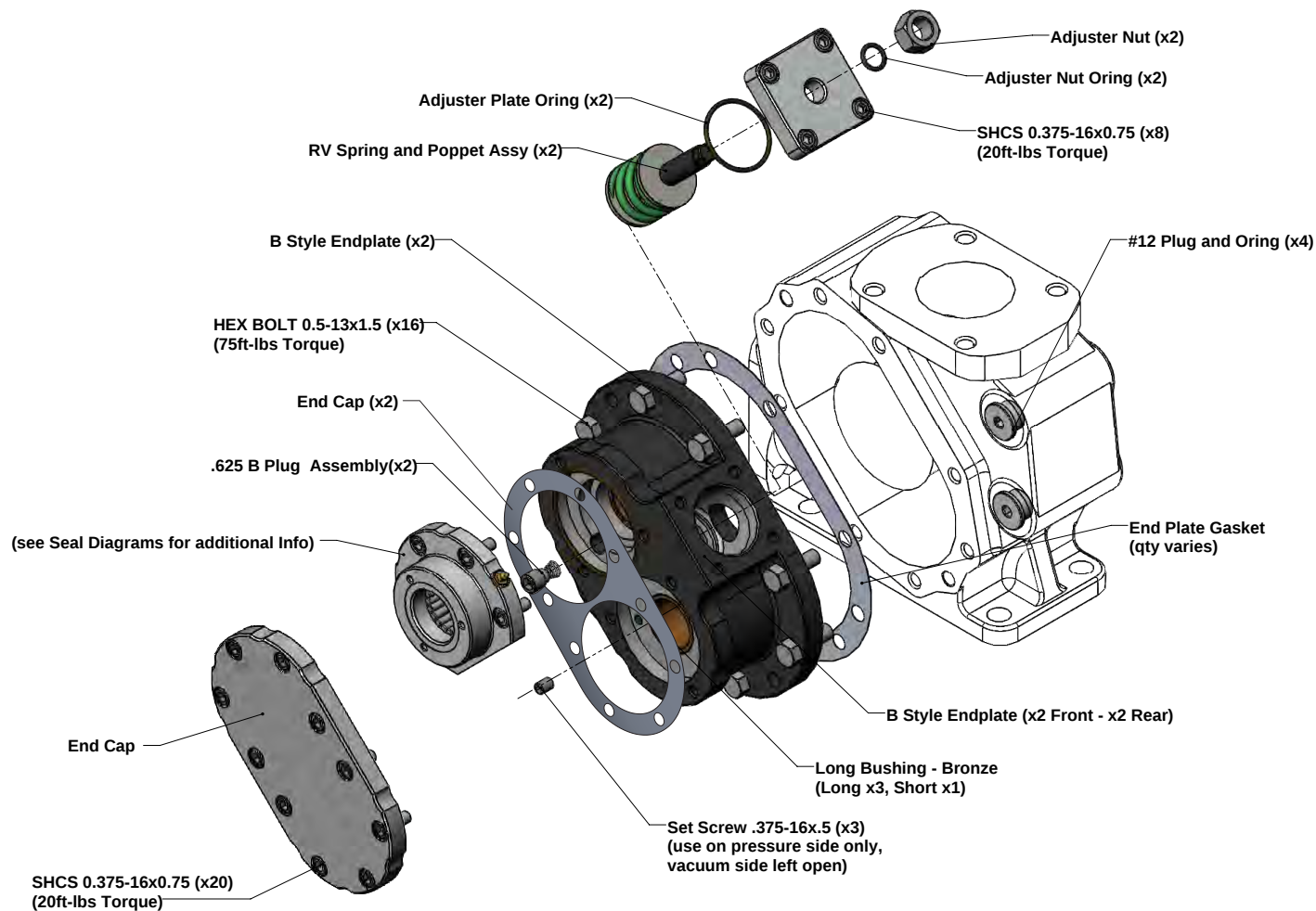
Legacy bushed pump without integral relief. Pressure-side set screws only; vacuum-side holes remain open.



1/2-13 x 1.5 (end plate)	75 ft-lb
3/8-16 x 0.75 (end cap)	20 ft-lb

B style end plate

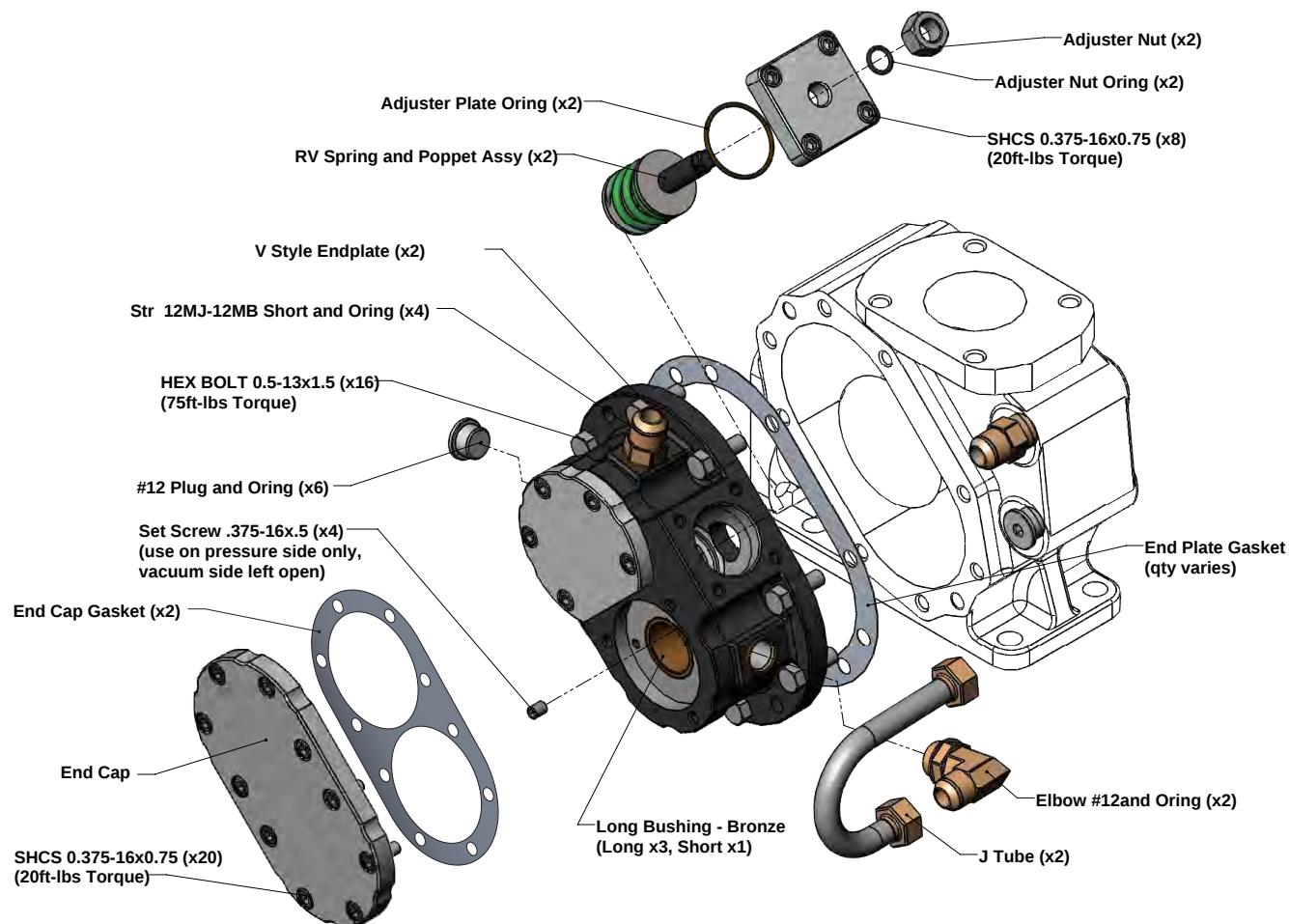
Legacy non-heated bushed pump with relief. Use the pressure-side set-screw arrangement shown.



1/2-13 x 1.5 (end plate)	75 ft-lb
3/8-16 x 0.75 (end cap)	20 ft-lb
3/8-16 x 0.75 (relief cap)	20 ft-lb

V style end plate

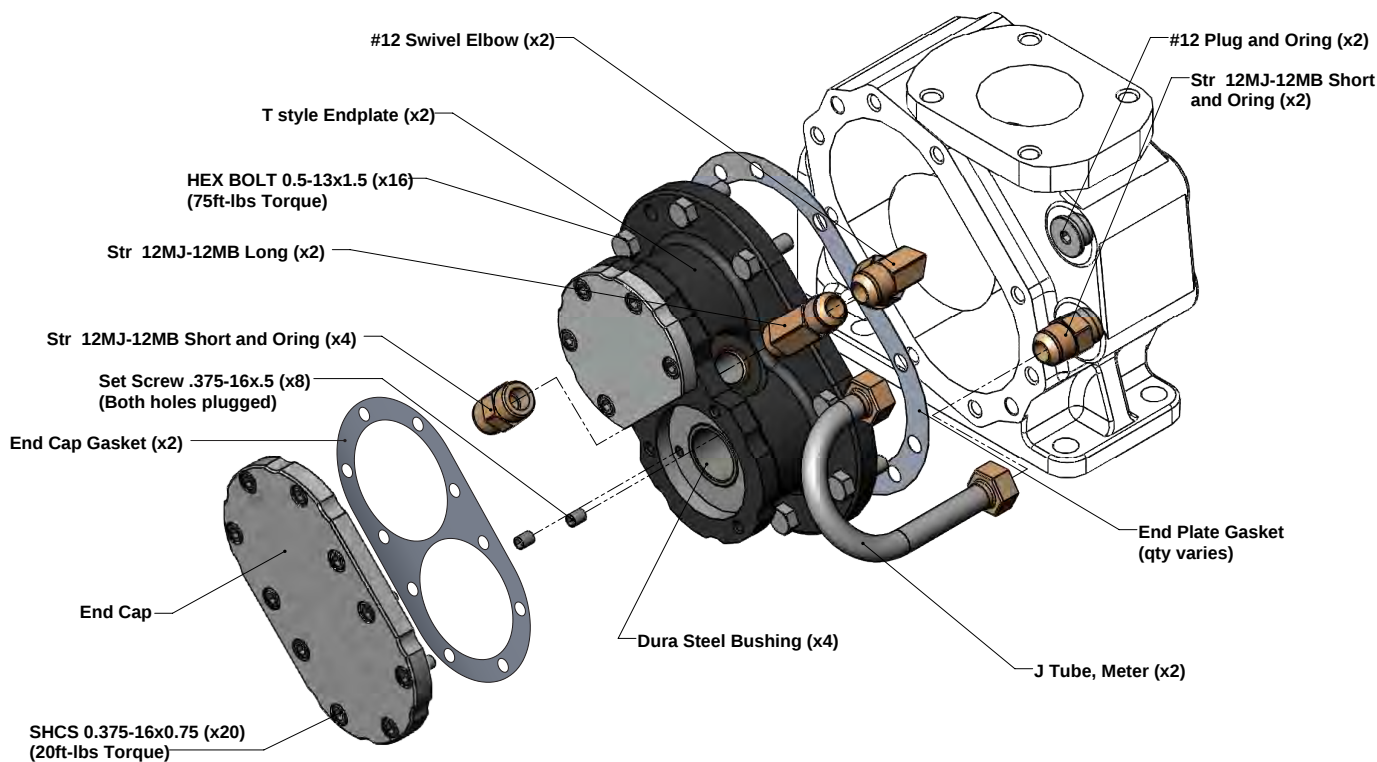
Legacy heat-traced bushed pump with relief. Match the J tubes, fittings and plug positions shown.



1/2-13 x 1.5 (end plate)	75 ft-lb
3/8-16 x 0.75 (end cap)	20 ft-lb
3/8-16 x 0.75 (relief cap)	20 ft-lb

T style gear-meter end plate

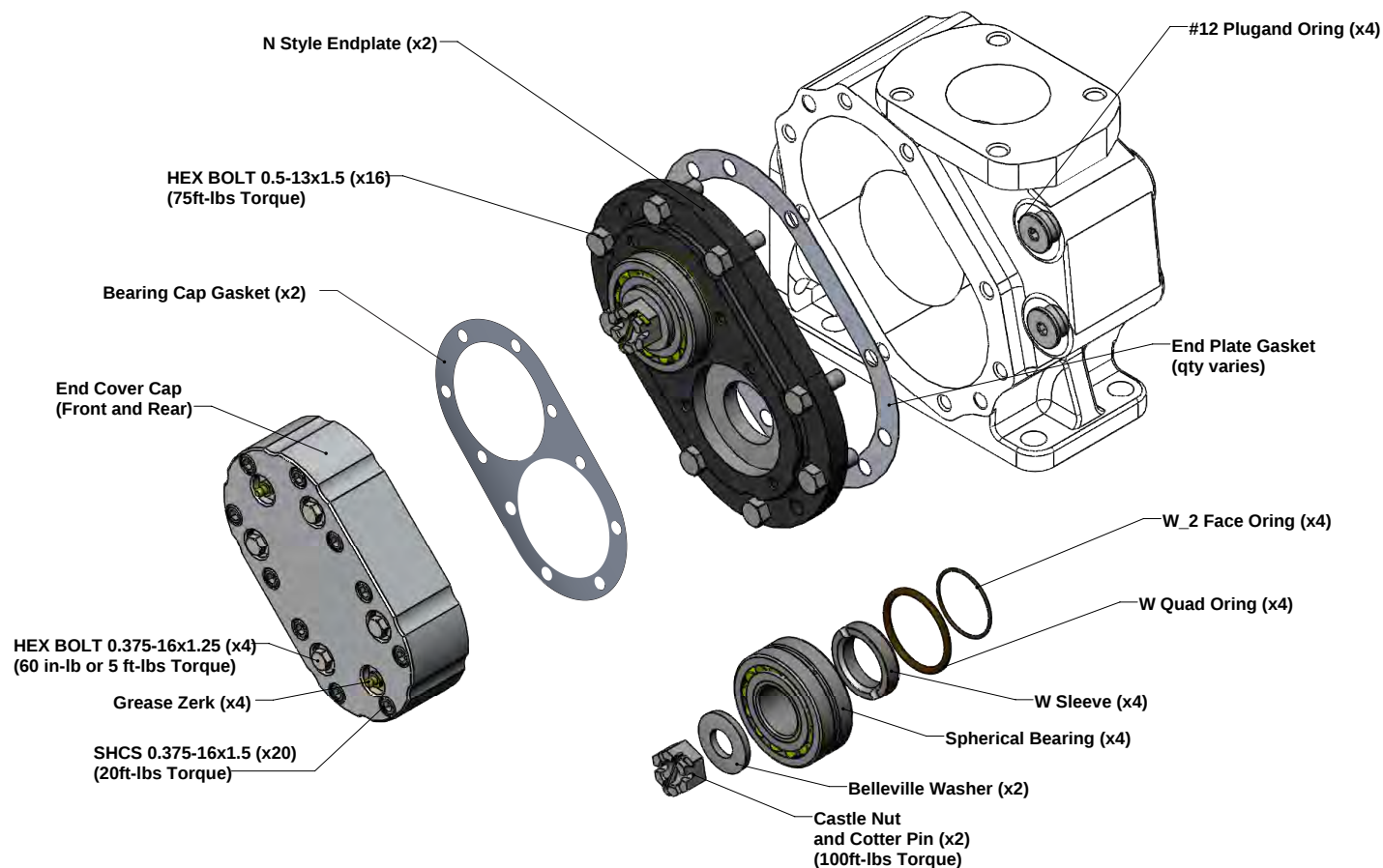
Legacy heat-traced bushed gear meter. Both holes are plugged; use the meter J tubes and fittings shown.



1/2-13 x 1.5 (end plate)	75 ft-lb
3/8-16 x 0.75 (end cap)	20 ft-lb

W style bearing end plate

Legacy bearing pump without relief or heat tracing. N style end plate is the part name on the original W assembly drawing.



1/2-13 x 1.5 (end plate)	75 ft-lb
3/8-16 x 1.5 (end cover)	20 ft-lb
3/8-16 x 1.25 (bracket)	60 in-lb
Castle nut	100 ft-lb

300 / 450 / 600 legacy dimensions

Dimensions in inches. Style-dependent values apply to C, B, V, T and W as labeled. Shared envelope views are retained from the source.



8.2

Bushed-series shaft dimensions

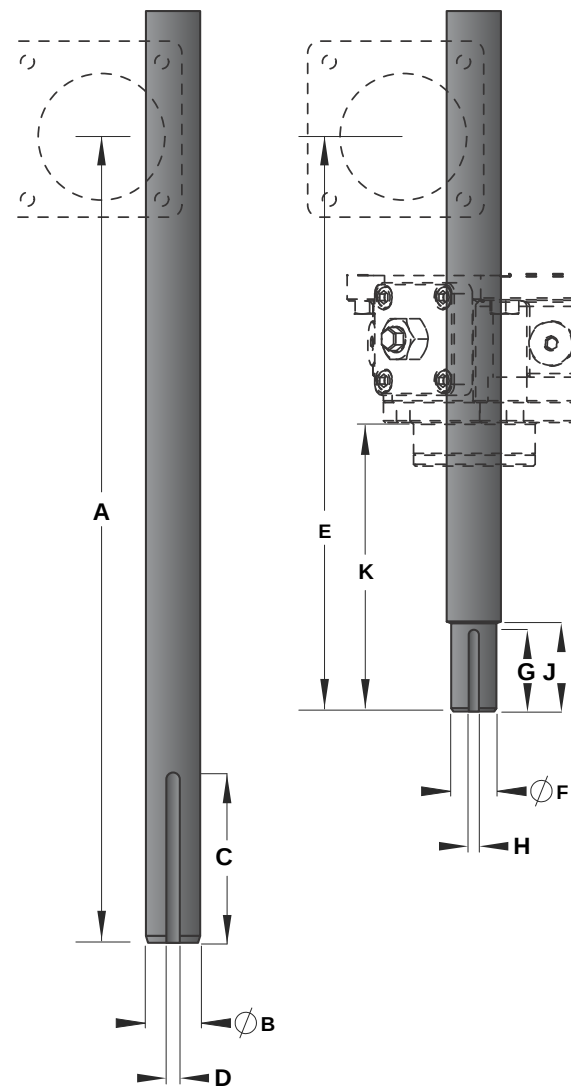
[RETURN TO INDEX](#)

Dimensions in inches. C / B / V / T series only. A-D describe the straight shaft; E-K describe the hydraulic or short shaft.

Series	Shaft	A	B	C	D	E	F	G	H	J	K
300	H	-	-	-	-	9.43	1.25	2	0.313	2.25	4.5
300	S	-	-	-	-	12.25	1.25	2	0.25	2.25	-
300	X	15.25	1.5	5.25	0.375	-	-	-	-	-	-
450	H	-	-	-	-	11.93	1.25	2	0.313	2.25	4.5
450	S	-	-	-	-	13.6	1.25	2	0.25	2.25	-
450	X	18	1.5	6.25	0.375	-	-	-	-	-	-
600	H	-	-	-	-	13.18	1.25	2	0.25	2.25	4.5
600	S	-	-	-	-	13.6	1.25	2	0.25	2.25	-
600	X	18	1.5	6.25	0.375	-	-	-	-	-	-

A dash means that dimension is not specified for that shaft in the source table. Seal compatibility must be verified against the complete build record.

W is a bearing design and is not included in this bushed-series table.



Service evidence and revision record

SEND PHOTOS BEFORE CALLING

Send wide, well-lit, high-resolution photographs of the complete installation from several angles. Include the pump, drive, piping, valve positions, controls and surrounding area. Add close-ups for part identification. BearCat can zoom in, but cannot zoom out.

Include these details

Record	What BearCat needs
Identity	Complete model and serial number, legacy style, shaft and seal arrangement, and installed options
Operating conditions	Product and temperature; speed; measured flow; suction vacuum; discharge pressure and drive load
Observed behavior	What changed, when it occurs, what still works and any relation to heat-up, direction, speed or recent maintenance
Controls / meter	Exact fault message and indicator states; meter identity and HMI / PLC revisions when applicable
Recent work	Parts replaced, lubrication, piping or valve changes, gasket arrangement and configuration changes

BearCat Pumps | 623-587-1350 | www.bearcatpumps.com

Revision record

Revision / date	Change
Rev A 2026.09.15	First legacy edition for obsolete C, B, V, T and W styles.
Rev B 2026.09.18	Corrected scope to the 300 / 450 / 600 families; removed the inapplicable dimensional page. Updated index and pagination.

Engineering basis

Source: original combined BearCat Pump Manual. Legacy style and model identification: source pages 7-11. Seal assemblies: pages 12-13. C / B / V / T / W drawings: pages 16-19 and 22. Dimensions: pages 26 and 28.

Legacy status directed by Kevin Hill, 2026.09.15. T7 Rev H governs the document format. This manual supports existing equipment; it does not make these styles current products.