

***BC, BCF, BFF,
BWF & BHF***

Chokes



AOP™

A Proud Cameron Brand

BC, BCF, BFF, BWF & BHF CHOKES

CAMERON TECHNOLOGIES: AOP CHOKES

AOP chokes are general purpose chokes suitable for a host of applications within the oil and gas industry. Based upon the proven needle and seat principle, and optimized through design, these choke products offer a comprehensive solution for challenging flow control applications throughout the industry.

AOP chokes are characterized by their robust, clean design features and rugged, easily assembled components. They are available in pressures ratings up to 10,000 psi and in a combination of threaded, butt-welded and flanged interface connections. Positive or adjustable trim configurations may also be specified.

As part of a commitment to meeting customer needs, AOP chokes are stocked by a network of authorized distributors and are marketed worldwide through our representatives.

STANDARD FEATURES

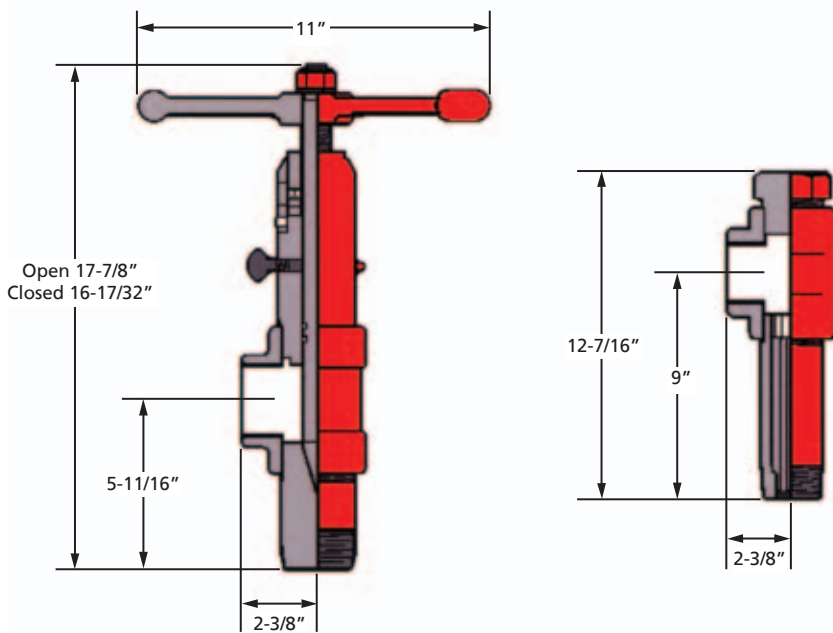
AOP threaded and flanged chokes are designed to meet or exceed today's abrasive and corrosive applications, and incorporate the following standard features:

- Adjustable and positive option
- ANSI Class 150 through 600 and ANSI Class 2000 through 10,000
- Adjustable models easily adaptable to positive configuration
- Forged or cast carbon steel body
- Heat-treated, hardened steel stem and seat with optional stainless steel/tungsten carbide trim
- Series BHF interchangeable with CAMERON® H2 chokes
- Thumbscrew secures stem position at any setting
- Lube fitting enhances corrosion-resistant, smooth stem operation
- Adjustable models available with 3/4" maximum orifice or 1" maximum orifice, both adjustable in 1/64" increments
- 100% production testing
- Hammer lug models facilitate quick disassembly – lug is pressure-relief vented for safe removal

BC, BCF, BFF, BWF & BHF CHOKES

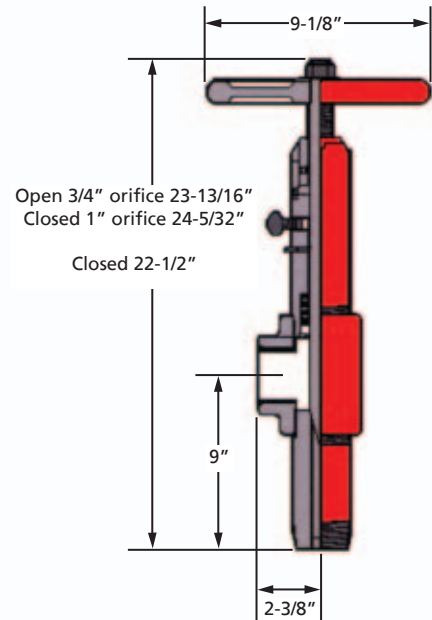
SERIES BC M-20 2" THREADED

2000 psi CWP Adjustable Chokes



SERIES BC S-20 2" THREADED

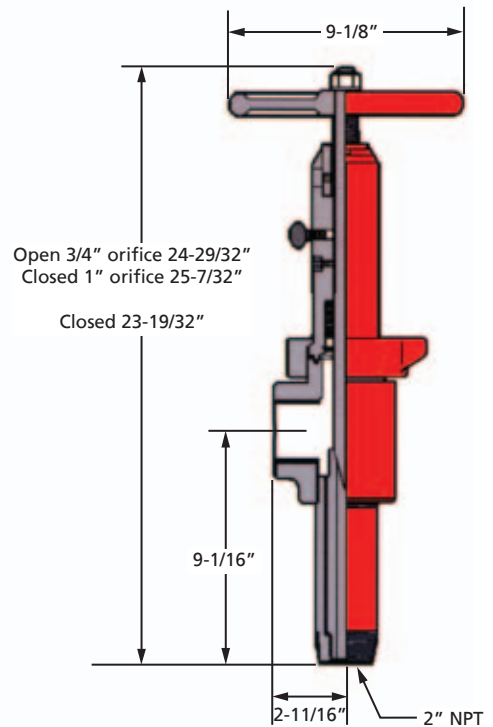
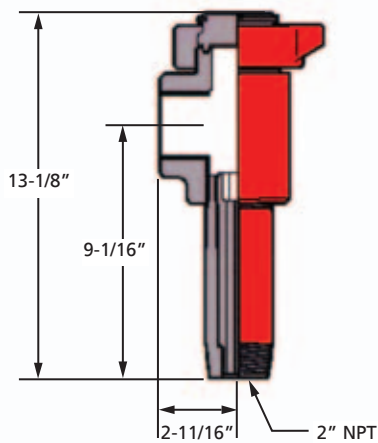
2000 psi CWP Adjustable and Positive Chokes



SERIES BC 2" THREADED X THREADED

3000 and 5000 psi CWP Adjustable and Positive Chokes

3/4" and 1" MAXIMUM ORIFICE AVAILABLE IN LOW-ALLOY STEEL,
STAINLESS STEEL OR STAINLESS STEEL/TUNGSTEN CARBIDE

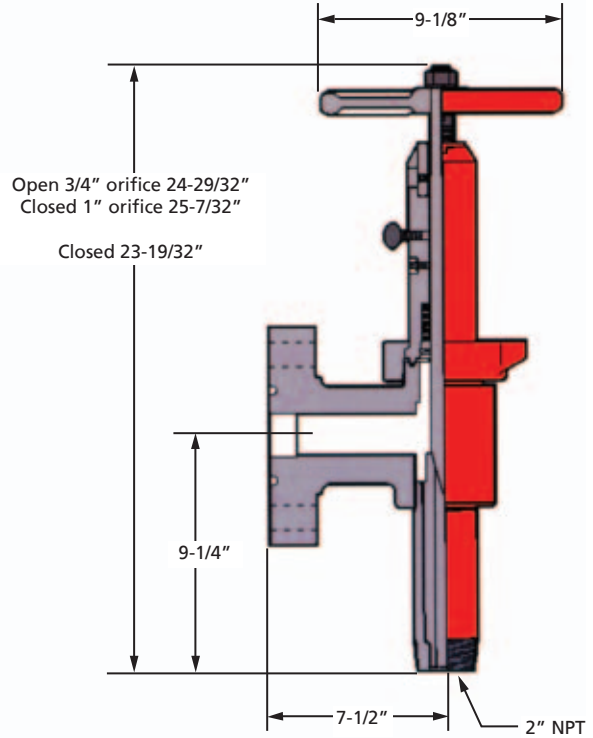
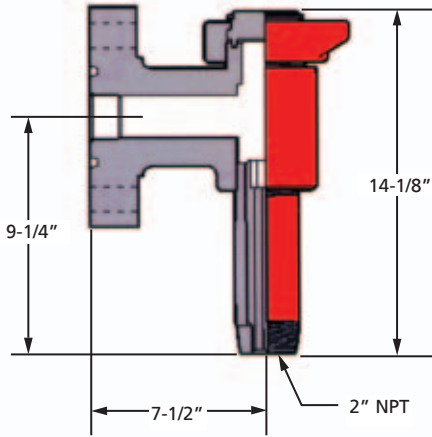


BC, BCF, BFF, BWF & BHF CHOKES

SERIES BCF 2" THREADED X FLANGED

3000 and 5000 psi CWP Adjustable and Positive Chokes

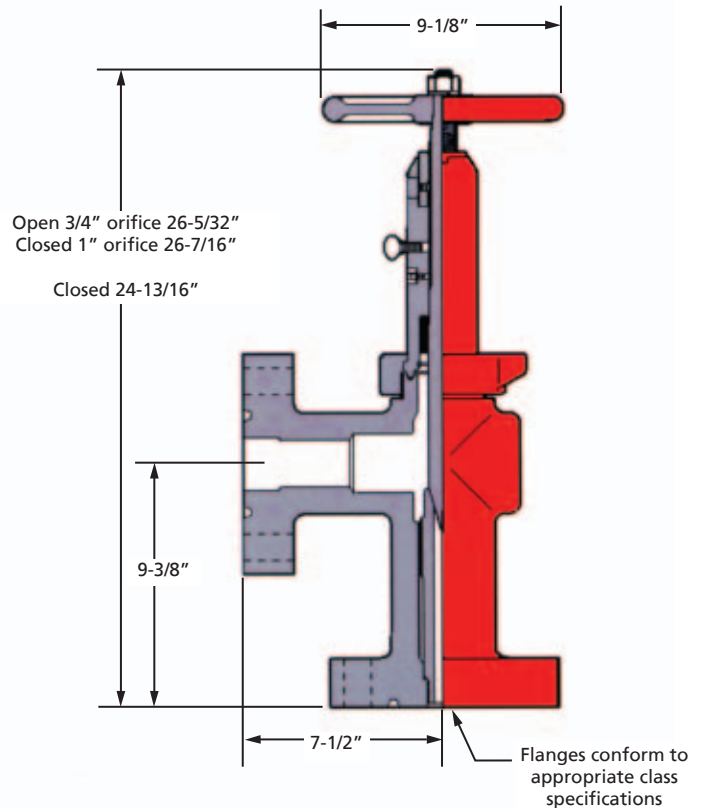
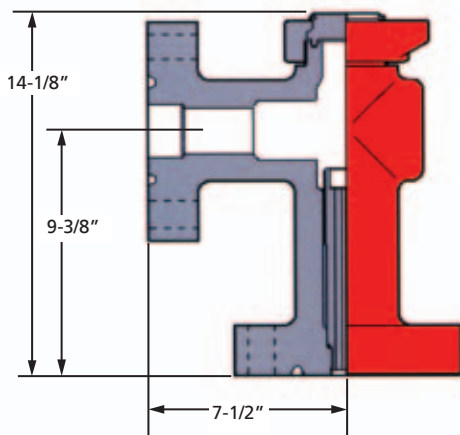
3/4" and 1" MAXIMUM ORIFICE AVAILABLE IN LOW-ALLOY STEEL, STAINLESS STEEL OR STAINLESS STEEL/TUNGSTEN CARBIDE



SERIES BFF 2-1/16" FLANGED X FLANGED

API 2000 and 5000 Adjustable and Positive Chokes

3/4" and 1" MAXIMUM ORIFICE AVAILABLE IN LOW-ALLOY STEEL, STAINLESS STEEL OR STAINLESS STEEL/TUNGSTEN CARBIDE

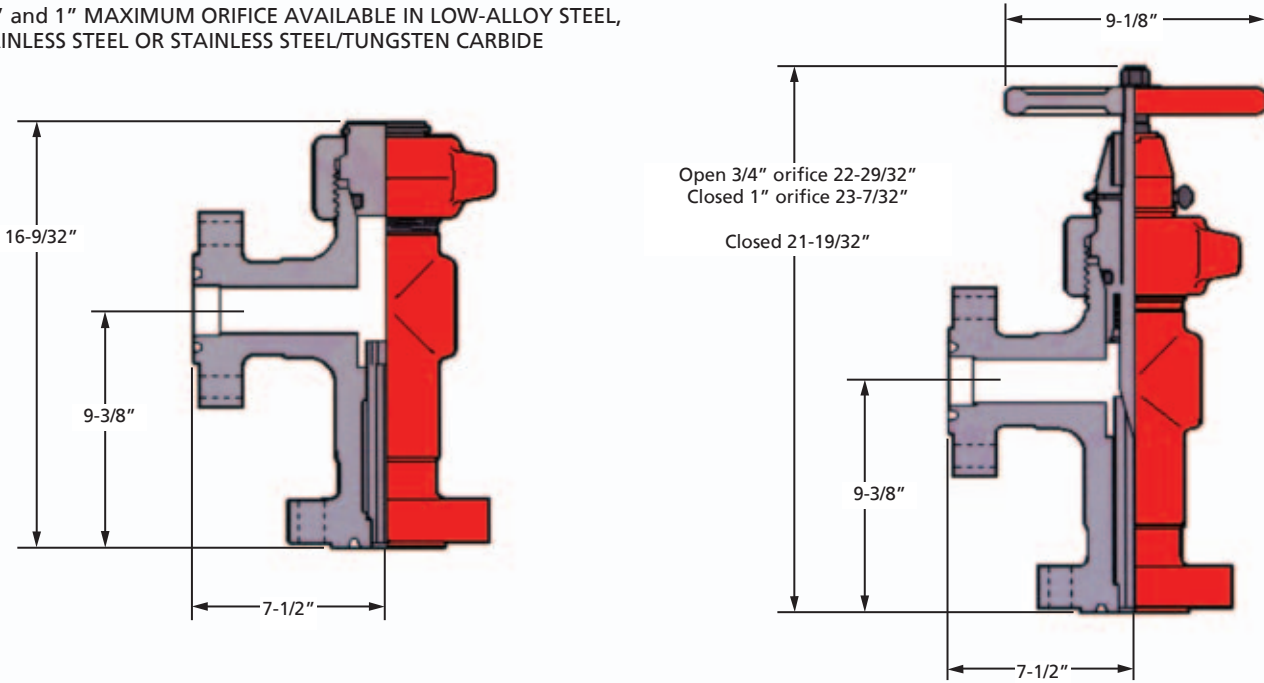


BC, BCF, BFF, BWF & BHF CHOKES

SERIES BWF 1-13/16" AND 2-1/16" FLANGED X FLANGED

API 10,000 Adjustable and Positive Chokes

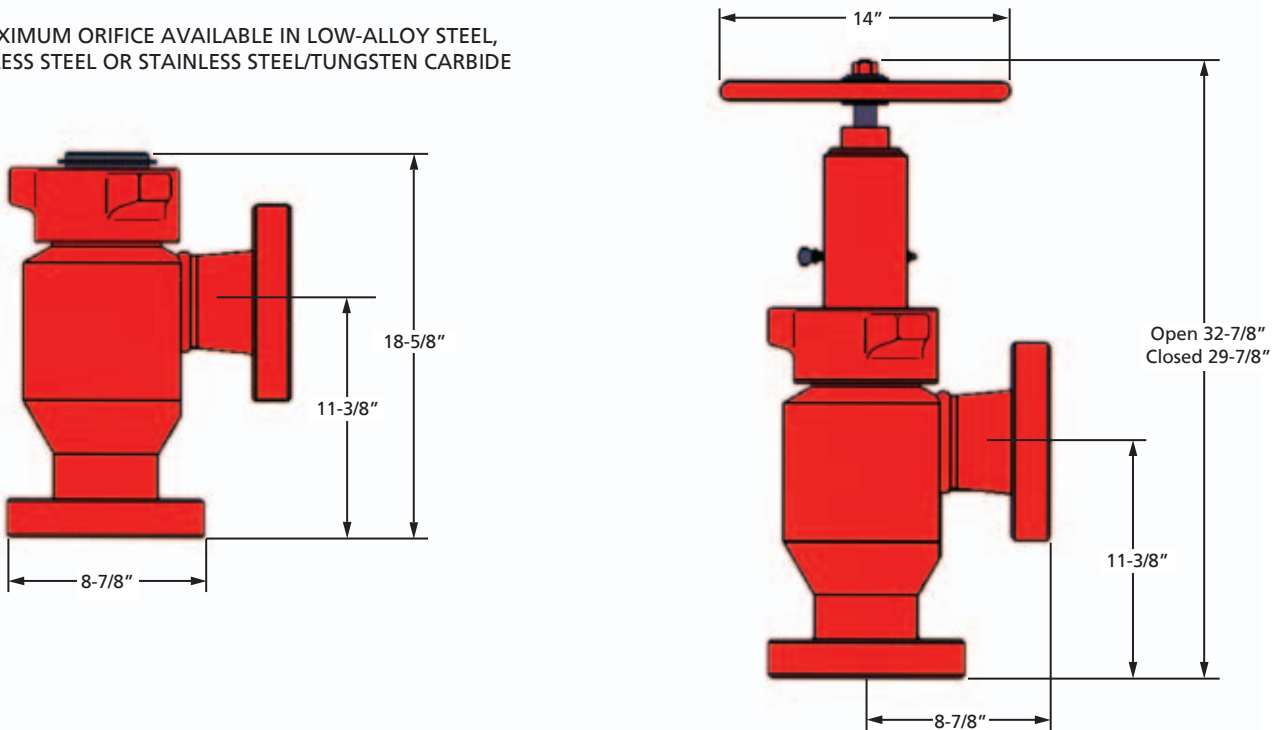
3/4" and 1" MAXIMUM ORIFICE AVAILABLE IN LOW-ALLOY STEEL, STAINLESS STEEL OR STAINLESS STEEL/TUNGSTEN CARBIDE



SERIES BHF 3-1/8" – 7-1/16" FLANGED X FLANGED

API 2000 Through 10,000 Adjustable and Positive Chokes

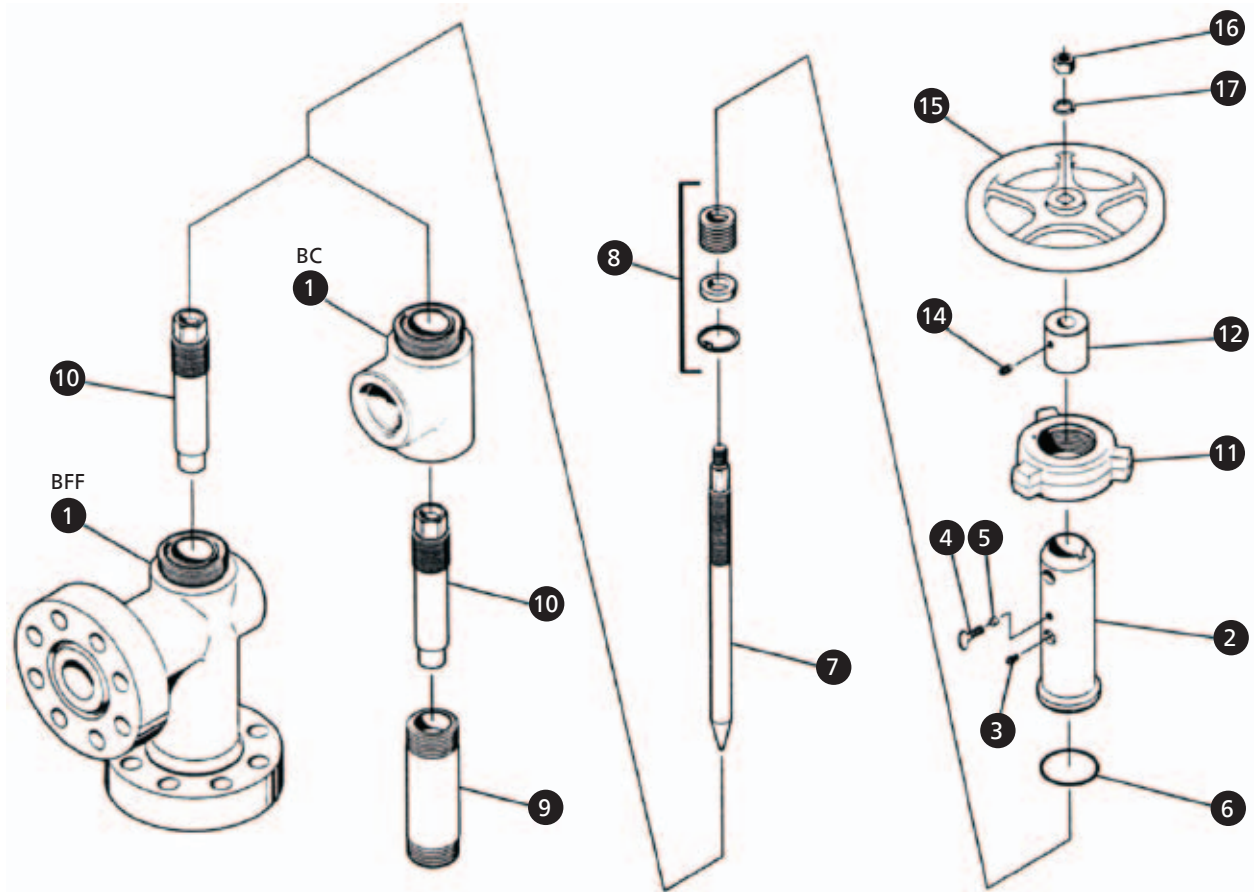
2" MAXIMUM ORIFICE AVAILABLE IN LOW-ALLOY STEEL, STAINLESS STEEL OR STAINLESS STEEL/TUNGSTEN CARBIDE



CUSTOM DIMENSIONS AVAILABLE – CONSULT FACTORY

BC, BCF, BFF, BWF & BHF CHOKES

SERIES BC/BFF INSTALLATION, OPERATION AND MAINTENANCE



Installation

AOP chokes are shipped with indicator (12) loose. Install choke in system using proper size mating flanges or threaded end connections and appropriate gasket seal rings or thread sealant. Rectangular indicator window may be relocated for more convenient reading by loosening hammer lug nut (11) and rotating bonnet (2) as desired.

CAUTION: Choke must be in open position and internal system pressure MUST BE BLED TO ZERO PSI prior to making this adjustment. Retighten hammer lug nut. Turn handwheel (15) clockwise until choke is in closed position. With choke closed, turn indicator (12) until CLSD is positioned directly above rectangular opening in the bonnet (2). Indicator set screw (14) now will be accessible through round window in the side of bonnet. Tighten set screw. Indicator is now set.

Operation

As the choke is opened, numbers will appear in the rectangular window, indicating the equivalent orifice setting of the choke, in 1/64". Once the choke has been set at the desired orifice size, thumbscrew (4) should be tightened to secure that setting. Flow may now be opened through the choke. Should further adjustment be necessary, simply loosen the thumbscrew, turn the handwheel in the direction needed to correct the flow, then re-tighten the thumbscrew.

BC, BCF, BFF, BWF & BHF CHOKES

SERIES BC/BFF INSTALLATION, OPERATION AND MAINTENANCE

Maintenance

Routine maintenance on AOP chokes consists of periodic injection (once a month is adequate) of grease through the lube fitting (3). In the event major service or rebuild is required, the stem (7), seat (10), stem packing and bonnet seal (6) may be replaced without removing the choke body from the piping system.

CAUTION: If the choke is to be disassembled while installed in a piping system, it must be isolated from the system pressure and flow. With the choke at an open setting, internal pressure must be bled to zero PSI.

Disassembly

Loosen nut (16) and set screw (14). Then, remove handwheel (15), indicator (12), thumbscrew (4) and thread lock protector (5). Loosen lug nut (11) with hammer blows (turn counter-clockwise looking into handle-end of stem) and remove nut and bonnet (2), stem (7), and packing (8) as an assembly. To disassemble the stem from this assembly, screw the bonnet off the stem's square end. When the threads become disengaged, pull the stem and bonnet apart. Remove stem packing retainer from the bonnet and pry out the steel junk ring and packing rings with a screwdriver (be careful not to damage stuffing box bore in bonnet). Finally, remove seat (10) from the body using a common 3" orifice choke seat wrench. Clean and inspect bonnet seal (6) and all other components for wear and corrosion. Discard and replace all questionable parts.

Reassembly

Assemble the stem/bonnet/packing sub-assembly by placing the seal rings (lips toward point of stem) and the steel packing junk ring on the stem. Note: 1" orifice chokes require that the packing and junk ring be installed from the threaded end of the stem. Use of grease on the stem will facilitate moving these parts over the threads to their proper location, just behind the point of the stem. Take care that the packing is installed with the junk ring closest to the point of the stem, followed by the seal rings. Screw the bonnet and stem together and seat the packing junk ring in the stuffing box, exposing the retainer ring in groove. Reassemble other components in reverse order of assembly. After assembly is complete, inject several pumps of grease through lube fitting, and re-calibrate indicator per the Installation and Operation Instructions.

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REPLACEMENT PARTS

A complete line of replacement parts are manufactured for all AOP chokes. Available replacement parts include:

Individual Parts:

- Seats
- Stems
- Bonnets
- Blanking caps
- Cage nipples
- Hammer lug nuts
- Packing assemblies
- Flow beans
- Bean wrenches

Bonnet Assemblies Include:

- Bonnet
- Stem
- Indicator
- Handwheel
- Seals and fittings
- Lug nut (optional)

Adaption Kits Include:

(For converting adjustable chokes to positive)

- Blanking cap
- Retainer
- Seal
- Lug nut
- Flow bean (optional)

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REPLACEMENT PARTS

A complete line of replacement parts are manufactured for all AOP chokes. Available replacement parts include:

Ceramic Lined Carbon Steel Flow Beans:

SIZE	PART NUMBER
4/64"	16-00-0610
5/64"	16-00-0611
6/64"	16-00-0612
7/64"	16-00-0613
8/64"	16-00-0614
9/64"	16-00-0615
10/64"	16-00-0616
11/64"	16-00-0617
12/64"	16-00-0618
13/64"	16-00-0619
14/64"	16-00-0620
15/64"	16-00-0621
16/64"	16-00-0622
17/64"	16-00-0623
18/64"	16-00-0624
19/64"	16-00-0625
20/64"	16-00-0626
21/64"	16-00-0627
22/64"	16-00-0628
23/64"	16-00-0629
24/64"	16-00-0630
25/64"	16-00-0631
26/64"	16-00-0632

SIZE	PART NUMBER
27/64"	16-00-0633
28/64"	16-00-0634
29/64"	16-00-0635
30/64"	16-00-0636
31/64"	16-00-0637
32/64"	16-00-0638
33/64"	16-00-0639
34/64"	16-00-0640
35/64"	16-00-0641
36/64"	16-00-0642
37/64"	16-00-0643
38/64"	16-00-0644
39/64"	16-00-0645
40/64"	16-00-0646
41/64"	16-00-0647
42/64"	16-00-0648
43/64"	16-00-0649
44/64"	16-00-0650
45/64"	16-00-0651
46/64"	16-00-0652
47/64"	16-00-0653
48/64"	16-00-0654

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