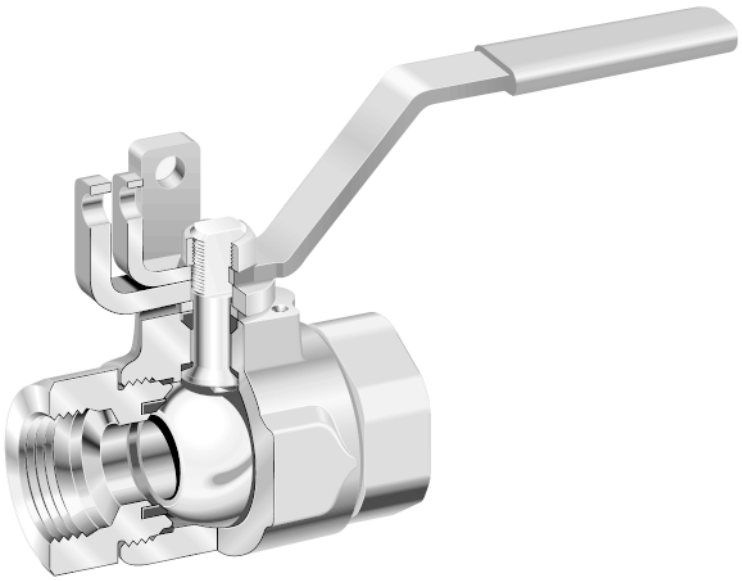
W-K-M® DynaSeal® 310C 3-piece Ball Valve



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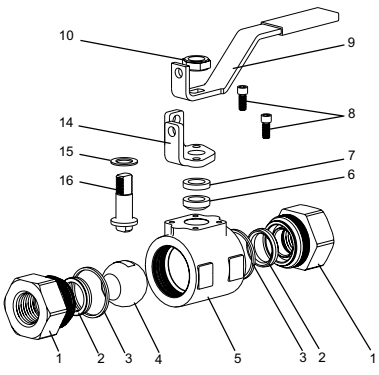
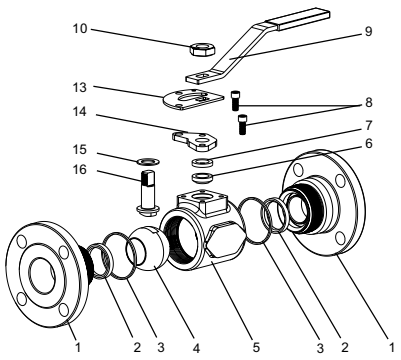
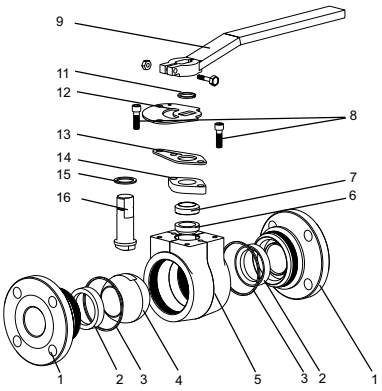






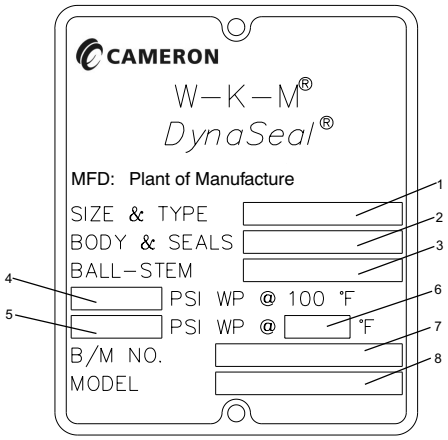
1/4" - 1" bore 310C 3-piece Ball Valve 1-1/2" bore 310C 3-piece Ball Valve 2"-3" bore 310C 3-piece Ball Valve

Item	Description
1	Tailpiece
2	Seat Ring
3	Tailpiece Gasket
4	Ball
5	Body
6	Packing
7	Compression Ring
8	Cap Screws
9	Handle/Lever
10	Lock Nut
11	Retainer Ring
12	Stop Plate
13	Locking Plate
14	Bonnet Cap
15	Stem Gasket
16	Stem

Scope

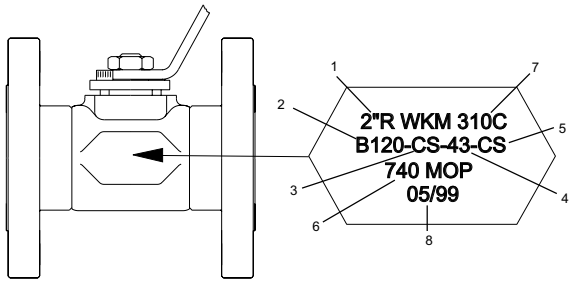
The W-K-M DynaSeal 310C 3-piece ball valve is designed to satisfy a wide range of applications. It has deep-pocketed seats, an adjustable replaceable stem packing and is available in carbon steel and stainless trims. The 310C 3-piece design is offered in sizes 1/4" to 3" full bore and 1/2" to 4" regular port and pressures up to 5000 psi depending on size. It is available with flanged, threaded and socket weld end connections.

Nameplate Information



Size 2”F and Larger

Item	Description
1	Nominal valve size and type designation
2	Body material symbol and seat-seal code designation
3	Ball-Stem material designation
4	Maximum cold working pressure
5	Maximum working pressure
6	Maximum temperature
7	Assembly part number
8	Model number



Size 2”R and Smaller

Item	Description
1	Nominal valve size
2	Valve type designation
3	Body material designation
4	Seat-Seal code designation
5	Ball-Stem material designation
6	Maximum cold working pressure
7	Model number
8	Date of manufacture

Storage

After valves are assembled and tested, they are placed in the full open position, flange seal surfaces and bores are greased and end protectors are installed. This will provide adequate protection for indoor storage. Extended outdoor storage requires periodic inspection and the addition of a corrosion inhibitor. Contact your Cameron representative for extended storage guideline. Valves should only be stored in the full open or full close position to prevent seat distortion.

Installation

DynaSeal 310C 3-piece ball valves may be installed in any position with flow from either direction. However, for best service life there is a preferred vertical or horizontal position to maximize sealing and minimize the accumulation of sediment. In the vertical position it is preferred to have the upstream pressure from above so the weight of the ball will assist the pressure in sealing. With the run of the valve in a horizontal position, it is preferred to have the stem lying horizontal (i.e. toward the viewer) with pressure from the right. During operation, flow will act as a siphon and minimize retention of sediment.

When handling or installing a valve, keep the valve in the full open position whenever possible to prevent foreign object damage to the ball.

Threaded-End valves are installed using two pipe wrenches, one on the flats of the tailpiece adjacent to the pipe being installed and the other on the adjacent pipe. DO NOT apply wrench to the body section or opposite side tailpiece as this may result in the tailpiece turning and transmitting torque to the valve body.

Socket Welded-End – To prevent ball and seat damage due to excessive heat or weld slag, the following procedure is recommended for welding DynaSeal 310C valves into a line:

1. Use solvent to clean grease or rust inhibitor from the ball and/or bore of the valve.

2. Electric welding equipment is preferred for all installations. However, if only oxygen-acetylene welding equipment is available, extreme caution should be taken regarding excess welding temperature.
3. Weld with ball in the “Full Open” position.
4. Make sure temperature of body/seat area does not exceed 250 F (Check with a Tempil stick).
5. Avoid rapid application of excess welding material. Weld each end of valve with a continuous bead using a 1/8 in. maximum diameter electric welding rod.

Thoroughly clean (by pigging and/or flushing) weld slag from valve bore and line before turning ball to closed position.

Flanged-End valves may be bolted into the line using two open or boxed end wrenches.

1. Threads of flange bolts and nuts should be lubricated to obtain maximum loading of bolts.
2. Finger tighten all nuts first.
3. When tightening bolts, use the crisscross method and torque each bolt to ANSI or gasket manufacturers specifications.

Field testing, if performed after the valve has been properly installed into the line, should be done in accordance with the following procedure:

Caution: Ensure that all test fluids contain corrosion inhibitors and are compatible with valve seat and seal material.

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1. Preliminary Testing – Completely flush the system or the line to minimize damage to the seats and ball surface which might be caused by weld slag or other foreign matter resulting from installation procedures.
2. Line Testing – When performing this test, the valve should be in the half-open position to ensure that the body cavity is completely filled with the test media and to prevent accidental over pressure of the seats. NOTE: Line may be tested at a maximum of 1 1/2 times the valve’s cold working pressure rating without consulting the factory.
3. Seat Testing – When testing the seats with the valve in the closed position, do not exceed the valve’s cold working pressure rating.
4. Upon completion of testing, purge all test fluids from the valve.

Operation

DynaSeal 310C ball valves operate from fully open to fully close by a 90 degree turn of the handle. The handle aligned with the pipe always means the valve is open and with the handle perpendicular to the pipe means the valve is closed. Additionally, the stems have flats that align the handle and can be used to indicate ball position. The bore of the ball is parallel with the faces of the stem flats.

DynaSeal 310C valves may be power actuated. Pneumatic and hydraulic actuators, whether of the fail-open, fail-close, or fail-last position type, have “OPEN – CLOSE” indicators on the top of each unit. On a pneumatic actuator, make sure filters and lubricators (if recommended by the actuator manufacturer) are installed prior to valve and actuator installation. Should any maintenance be necessary, obtain the part number from the unit’s nameplate and contact Cameron or the nearest representative.

Routine Maintenance

Due to its design and simplicity the 310C ball valve requires very little maintenance. Its non-lubricated, self-cleaning ball can provide reliable, leak free performance over a long period of time.

The only preventative maintenance recommended is to periodically inspect the valve for leaks around the stem or actuator. Should a leak be noticed, the following procedure is for adjusting the packing.

Stem Packing Adjustment –

1. With an Allen wrench, snug up each of the two packing adjustment screws in a clockwise direction.
2. Snug up each screw an equal amount only as much as required to stop the leak, not to exceed the maximum specified in the following table.

3. The following table gives torque values that will seal stem packing in good condition. Torque values above this indicate seals are worn and need replacement and excessive tightening will also cause an unacceptable increase in valve stem torque.

Torque Values for Packing Adjustment Screws

Valve Size	Screw Size	Torque	
		in-lb	(kg-m)
3/8F, 1/2R	8-32 NC	5-8	(0.06-0.09)
1/2F, 3/4R, 3/4F, 1R	10-24 NC	8-12	(0.09-0.14)
1F	1/4-20 NC	12-60	(0.14-0.7)
1 1/2R, 1 1/2F, 2R	5/16-18 NC	60-120	(0.7-1.4)
2F, 3R	3/8-16 NC	120-180	(1.4-2.1)
3F, 4R	1/2-13 NC	180-240	(2.1-2.8)

Warning: Valves should be placed in a partially open position prior to working on a valve or removing it from service to vent pressure or drain product that may be trapped in the body cavity. When removing threaded end valves from the line, apply wrenches in the same manner used for installation and NOT to the valve body section or opposite side tailpiece as this may result in breaking loose the threaded tailpiece to body joint.

Troubleshooting Chart

Trouble	Probable Cause	Remedy
Will not open or close	a. Iced up due to restricted flow or low temperatures. b. Pressure locked. (Condition in which the body pressure exceeds the line pressure by an excessive amount)	a. Flush out with warm material. b. Reduce valve temperature or pressurize line to rated working pressure to reduce pressure differential sufficient to operate valve.
Hard to operate	a. Accumulation or solidification of material in the body of valve. b. Swelling seats. c. Corrosion between stem and valve body. d. Operator not installed properly.	a. Flush valve to get material out of body. b. Install correct trim.* c. Apply penetrating oil around stem. If still won't operate, disassemble valve and polish stem.* d. Check operator.
Will not seal properly	a. Worn or damaged seats and/or ball. b. Foreign matter between seat and ball. c. Operator stops not set properly.	a. Replace worn parts* (Requires valve removal and disassembly) b. Operate several times to wipe clean. c. Adjust stops to proper setting.
Valve leaking between body and tailpiece.	a. Leaking tailpiece gasket. b. Tailpiece and valve body are not tightened together properly.	a. Replace gasket. * b. Tighten parts to specified torque. *
Leaking around stem	a. Loose stem packing b. Worn or damaged stem packing.	a. Adjust stem packing screws. b. Replace stem packing.*