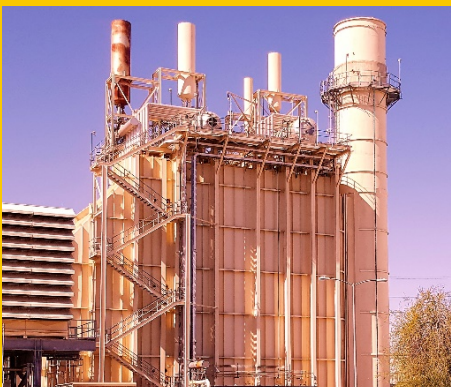
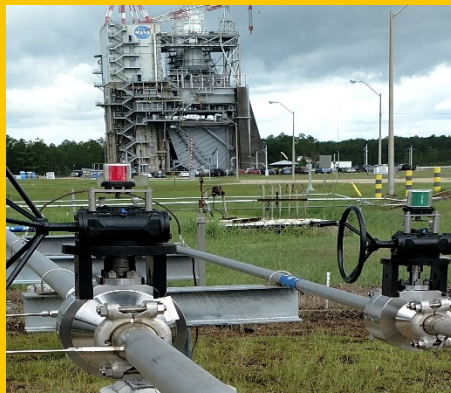
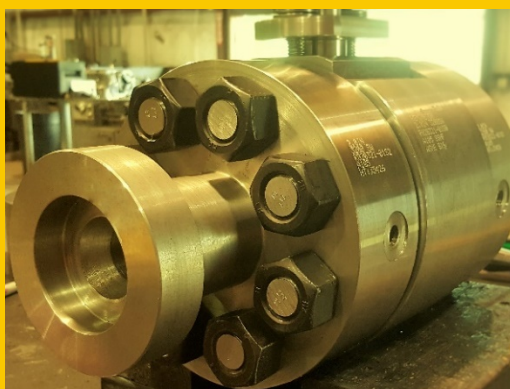


REMINGTON VALVE

Severe Service Ball Valves

Rev 4, 10-15-2021



R-SERIES IOM

Installation, Operation, and Maintenance Manual

CRITICAL SERVICE

FIELD PROVEN

ENGINEERED

SUPPORT

SERVICE

Manufactured in Houston, Texas

Simplifying the way you buy valves

1. WHY CHOOSE REMINGTON?
2. MARKING INFORMATION
3. VALVE POSITION INDICATORS
4. WELDING VALVE IN-LINE
5. PWHT (POST WELD HEAT TREAT)
6. INSULATION HEIGHT
7. OPERATION & MAINTENANCE
8. ACTUATOR INSTALLATION
11. REPLACING TRIM SET
13. BOLTING TORQUES

REMINGTON VALVE located in Houston, Texas is a leading manufacturer of severe service isolation ball valves for the most extreme applications for the Refining, Chemical, Petrochemical, Power Generation, Oil & Gas, Mining, Cryogenic, and Aerospace industries. The core employees combine decades of innovative engineering, manufacturing, cutting edge technology, technical sales, customer service, and field proven designs to help customers like you.

Why Choose REMINGTON?

- Optimized ball valve design and calculations
- 3D Parametric modeling
- Proprietary coating technology
- Automated lapping process laps both sides of ball
- Vacuum testing to validate Class VI shut-off
- All valves built from forgings – no castings

R-SERIES Applications:

- High temperature
- High pressure
- Hot reheat spray
- Main turbine drain
- Sootblower header
- Superheater spray
- Main steam supply
- Boiler feed pump
- Boiler drains
- Feedwater drains
- Above and below seat drains
- Attemperator spray block

R-SERIES (In-line repairability)

Manufactured in Houston, Texas

5 Year Warranty

SIZE

- ½" – 24" (3 piece design)

PRESSURE CLASS

- 150# - 4500#

CENTER SECTION MATERIALS

- A105, F11, F22, F316, F91, F92

All ASME B16.34 materials available

END CONNECTIONS

- SW Standard (BW, HUB, FNPT, RFF, RTJ)
- A105, F11, F22, F316, F91, F92

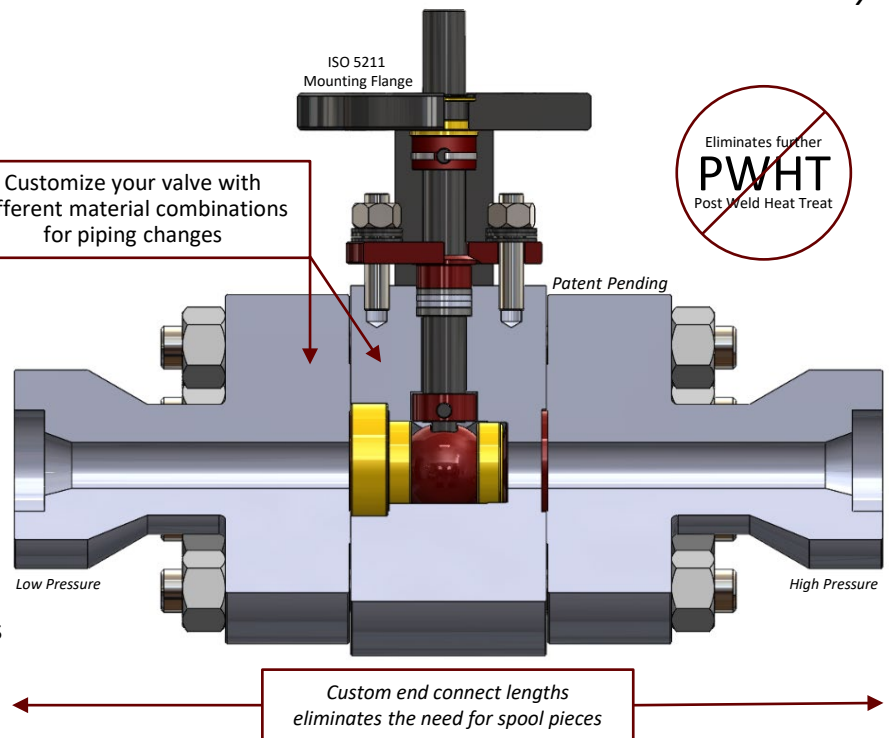
All ASME B16.34 materials available

SEALING OPTIONS

- Uni-directional (Standard)
- Bi-directional

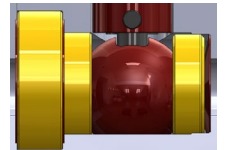
R-SERIES ADVANTAGES

- Serviceable in-line
- Saves money & time
- Ease of maintenance
- Repairable without cutting the installation welds
- Eliminates further Post Weld Heat Treat (PWHT)

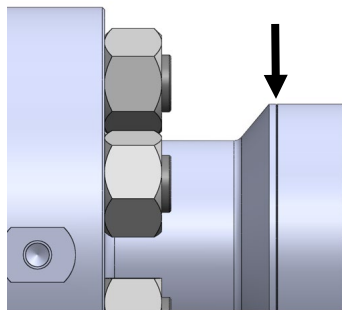
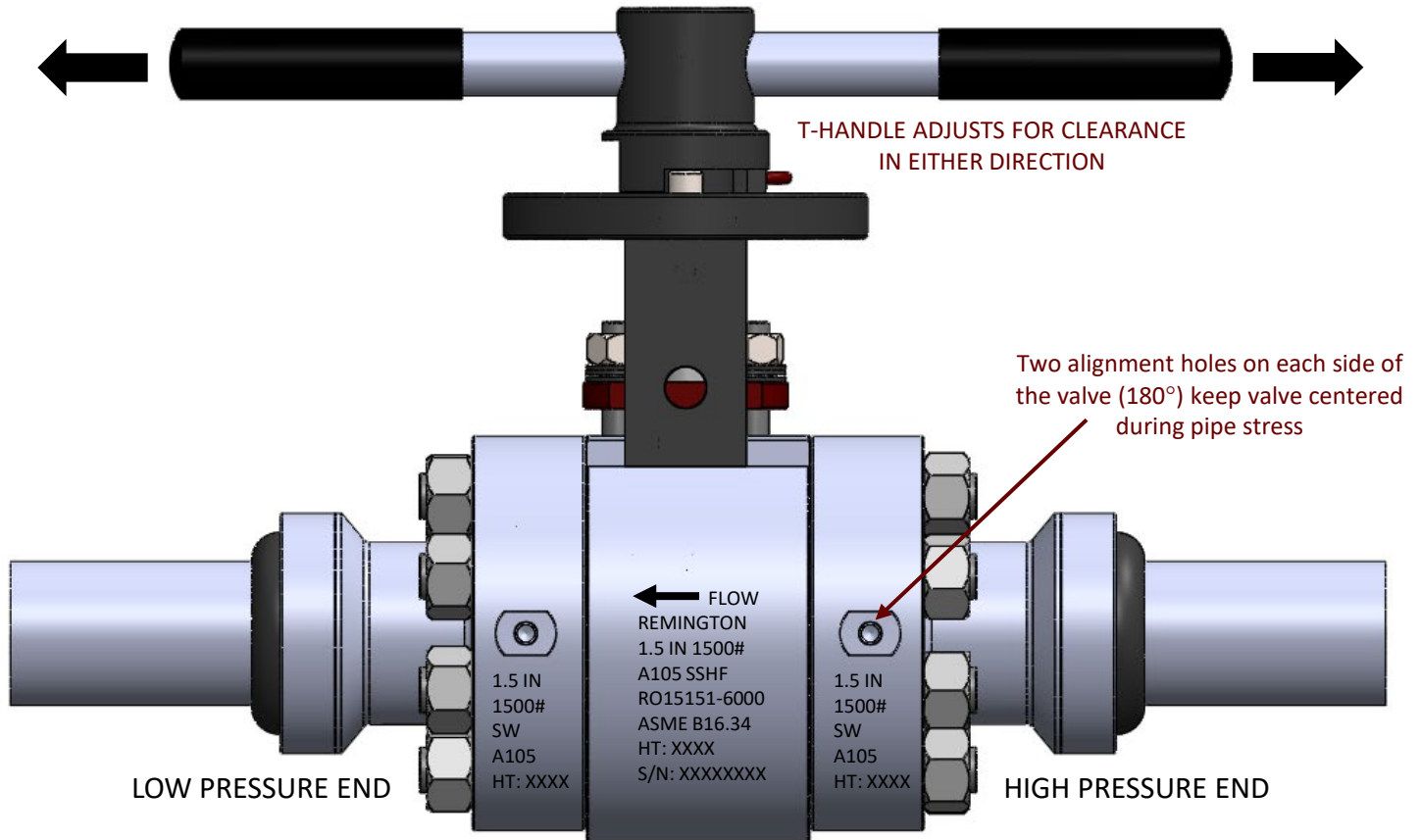


Features and Benefits

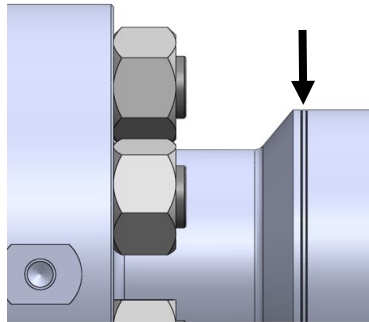
- **Ball & Seats:** Both made from the same material to match thermal expansions
- **Lapping:** Automated lapping process laps both sides of the ball to Class VI shut-off
- **Coating:** Proprietary HVOF and Spray & Fused coatings, with cutting edge technology
- **Stem:** Blowout proof stem with surface hardening to prevent galling
- **Articulating Gland Flange:** Spherical engagement allows for equal load distribution on packing
- **Spring:** Allows for thermal expansion and provides a constant mechanical seal
- **Grafoil Packing:** Premium die-formed with Anti-extrusion rings – Live loaded
- **Body Seals:** Three Proprietary (TF) seals allow the body to be removed without cutting the installation welds
- **Vacuum Testing:** To ensure Class VI shut-off prior to installation
- **ASME B16.34:** All valves built to ASME B16.34 requirements



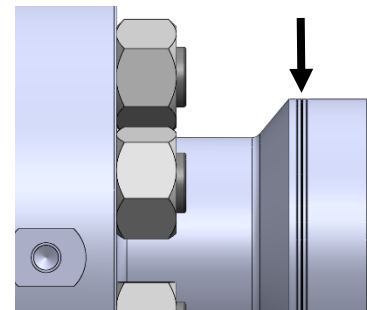
Trim set is vacuumed tested to ensure a Class VI shut-off prior to rebuilding the valve



1 GROOVE: A105



2 GROOVES: F22



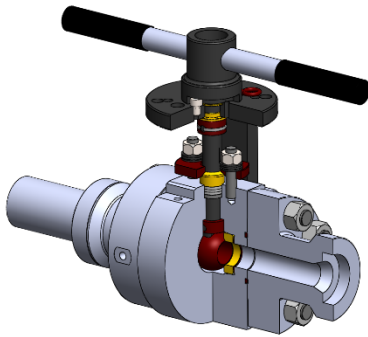
3 GROOVES: F91

POST WELD HEAT TREAT GUIDELINE PER B31.1

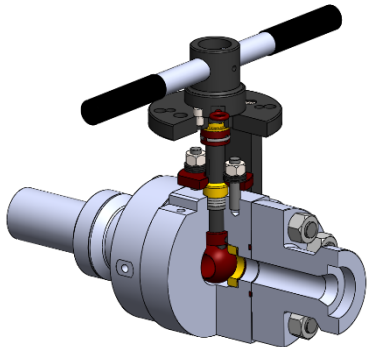
NOTE: The flow arrow may not always point in the direction of flow. Make sure the arrow points towards lowest pressure side.

ALL REMINGTON VALVES ARE TESTED AT THE FACTORY PRIOR TO SHIPMENT TO B16.34 REQUIREMENTS

- HYDROSTATIC SHELL TEST AT 1.5 TIMES THE 100°F RATED WORKING PRESSURE
- HIGH PRESSURE LIQUID SEAT CLOSURE TEST AT 1.1 TIMES THE 100°F RATED WORKING PRESSURE
- FCI 70-2 CLASS VI LOW PRESSURE GAS SEAT TEST
(REMINGTON VACUUM TEST BALL AND SEAT TO VERIFY CLASS VI SEAL PRIOR TO INSTALLATION)

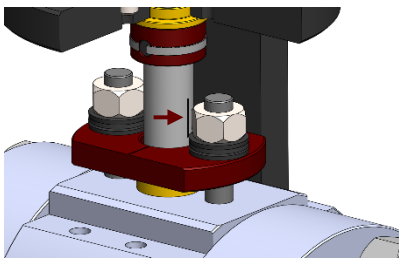


- Handle in-line with flow indicates valve is OPEN.

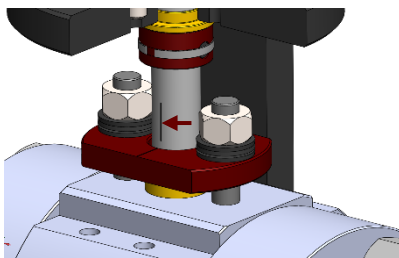


- Handle Perpendicular to flow indicates valve is CLOSED.

SCRIBE LINE ON STEM

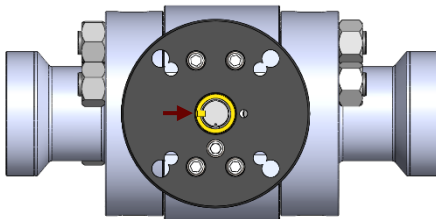


- Scribe line on stem in-line with flow indicates valve is OPEN.

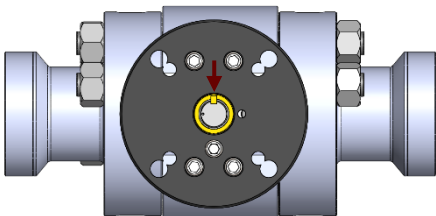


- Scribe line on stem perpendicular to flow indicates valve is CLOSED.

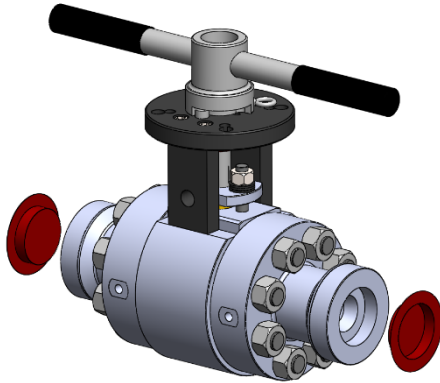
KEY POSITION ON STEM



- Key position on stem facing downstream indicates valve is OPEN.

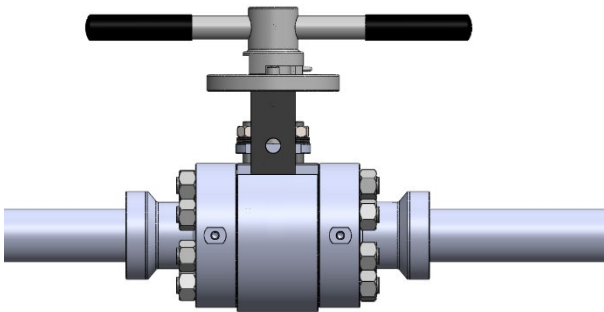


- Key position on stem perpendicular to flow indicates valve is CLOSED.



- Remove protective covers from the ends.

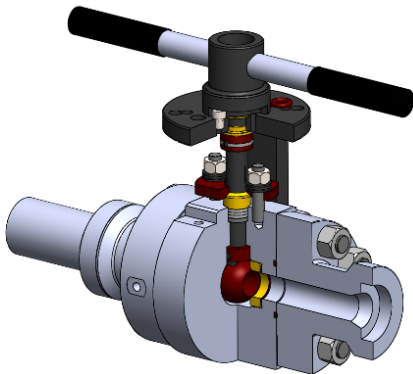
POSITION VALVE IN-LINE



- Position valve in-line in the **OPEN** position.

NOTE:

THE FLOW ARROW MAY NOT ALWAYS POINT IN THE DIRECTION OF FLOW.
MAKE SURE THE ARROW POINTS TOWARDS THE LOWEST PRESSURE SIDE



- Verify the valve is in the **OPEN** position.

WARNING: USE THE FOLLOWING PRECAUTION

Before welding, the valve must be in the **OPEN** position to protect the ball from weld splatter or surface damage to the coating.

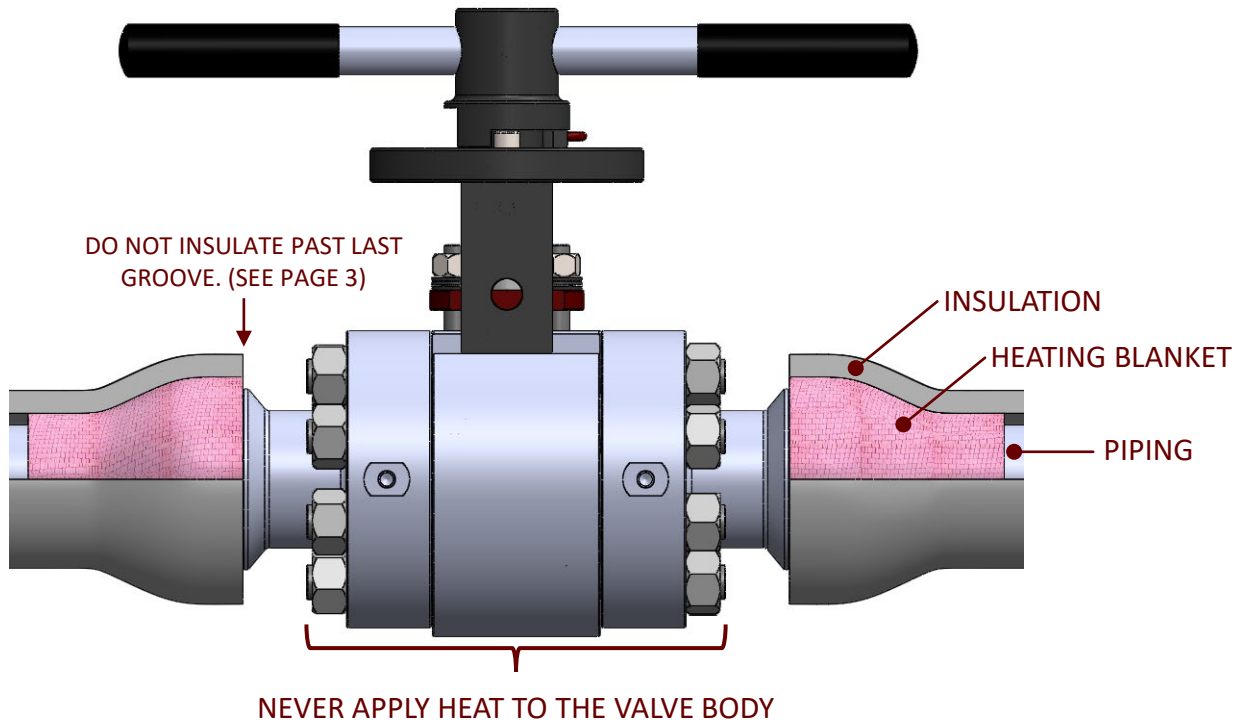
NOTE: Always attach welding ground strap to the same end being welded. Strapping across the valve may cause arcing and damage the coated surfaces.

CAUTION:

Valves should never be used as part of a load bearing structure.

CAUTION!

DO NOT POST WELD HEAT TREAT BOTH SIDES OF THE VALVE AT THE SAME TIME. DOING SO MAY DAMAGE THE VALVE AND VOID THE WARRANTY.



WARNING: USE THE FOLLOWING PRECAUTIONS!

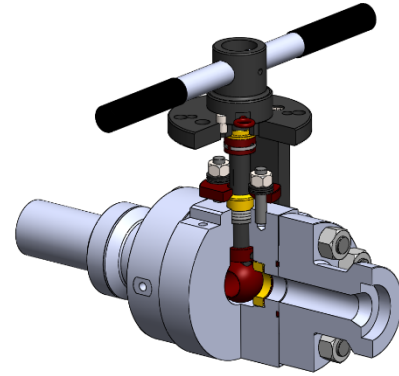
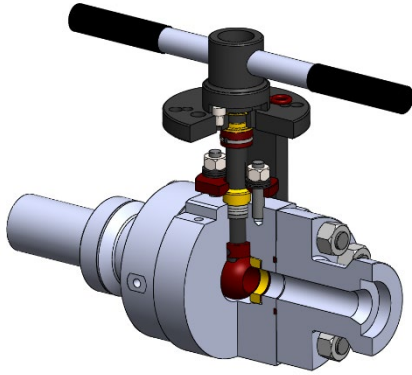
- HEATING BLANKETS AND ISULATION SHOULD ONLY COVER THE WELD AREA.
- INSTALL HEATING BLANKETS WITH NO GAPS OR OVERLAPS.
- BLANKETS SHOULD NOT COVER ANY PART OF THE CENTER SECTION.

GUIDELINE ONLY

PWHT Requirements per ASME B31.1					Holding Time based on Nominal Thickness	
Material	Part Number ASME Sec. IX	Group Number	Preheat °F(°C)	Holding Temp. Range, °F(°C)	Up to 2in. (50mm)	Over 2in. (50mm)
A105 ^a	1	2	200(95)	1,100-1200 (600-650)	1 hour / inch (25mm) 15 minutes minimum	2 hours plus 15 minutes for each additional inch over 2 inches (50mm)
A182-F22 Cl. 3	5A	1	300(150)	1,300-1,400 (700-760)		
A182-F91	15e	1	400(205)	1,350-1425 (730-775)		

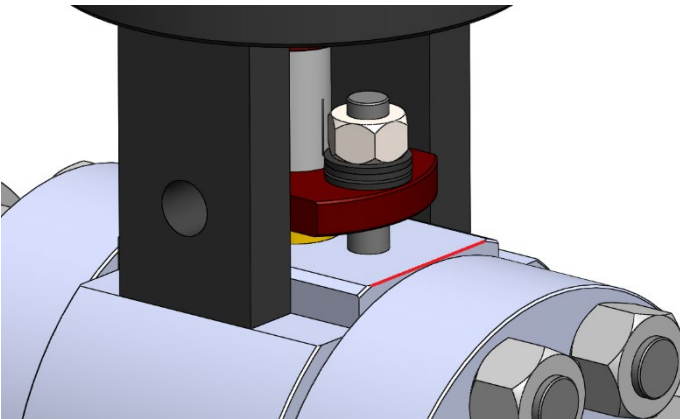
GENERAL NOTES:

- (a) PWHT of P-No. 1 materials is not mandatory, provided that all of the following conditions are met:
- (1) the nominal thickness, as defined in para. 132.4.1, is $\frac{3}{4}$ in. (19.0mm) or less
 - (2) a minimum preheat of 200°F (95°C) is applied when the nominal material thickness of either of the base metals exceeds 1 in. (25mm)



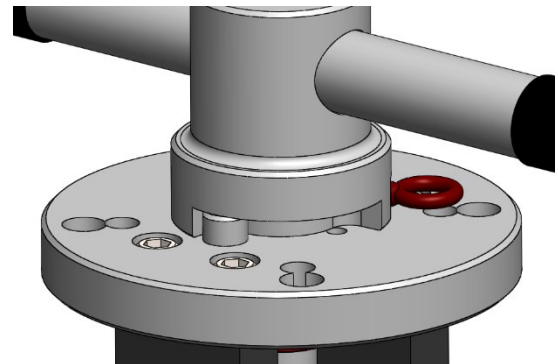
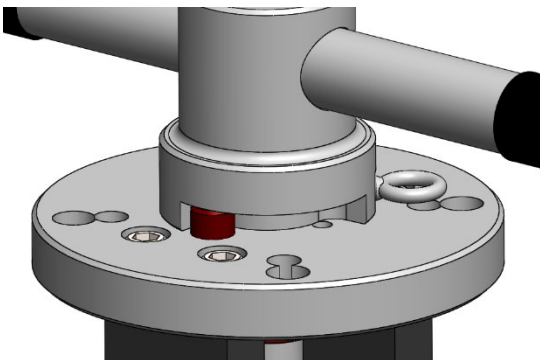
- After installation, **OPEN** and **CLOSE** the valve to ensure smooth operation and check body fastener torque.

INSULATION HEIGHT



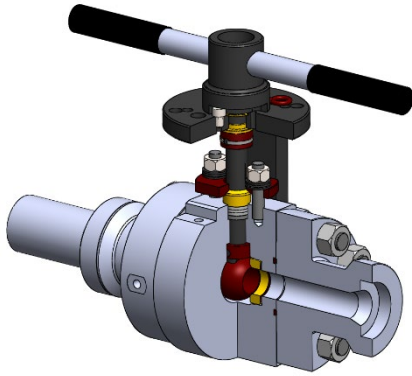
- Do **NOT** apply insulation above the body flat. (Red Line)

OPERATION & MAINTENANCE

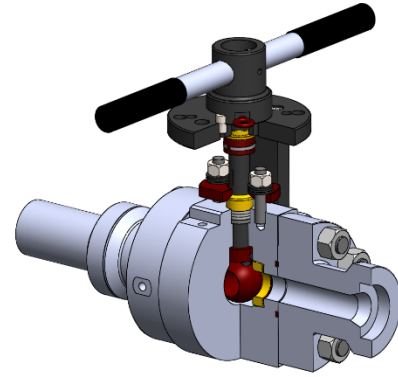


- Precision mechanical stop to locate the **OPEN/CLOSED** positions.

- Lockout devices can be used to provide secure **OPEN/CLOSED** positions.



- Counter clockwise to OPEN.



- Clockwise to CLOSE.

WARNING:

VALVE SHOULD BE POSITIONED IN THE FULL **OPEN** OR **CLOSED** POSITION. THROTTLING IS **NOT** RECOMMENDED AND WILL REDUCE THE LIFE OF THE VALVE AND VOID THE WARRANTY.

OPEN/CLOSE THE VALVE YEARLY: Valves should be operated at least once a year.

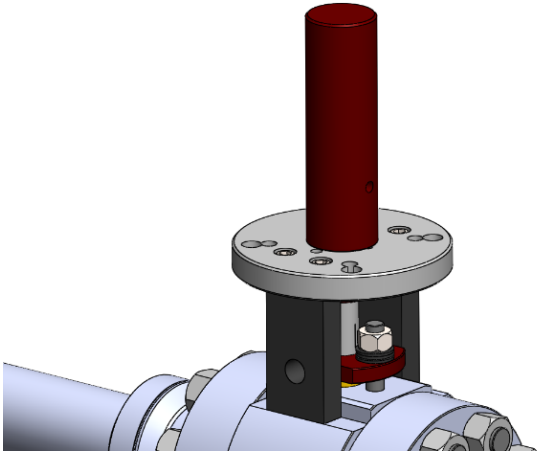
TIGHTEN PACKING: Re-tighten packing gland after its first exposure to elevated pressure and temperature. Check packing gland periodically, and re-torque if necessary.

REMINGTON VALVES REQUIRE NO INTERNAL LUBRICATION

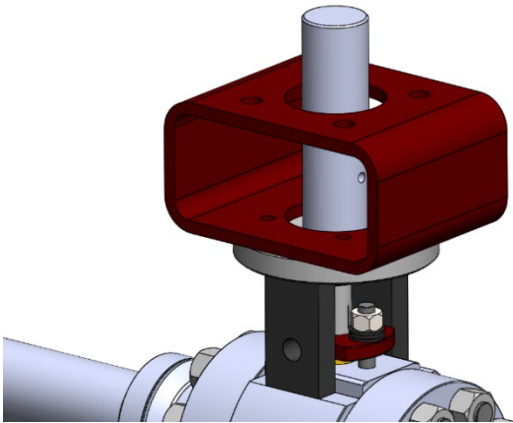
ACTUATOR INSTALLATION

NOTE: Verify that the actuator is properly sized.

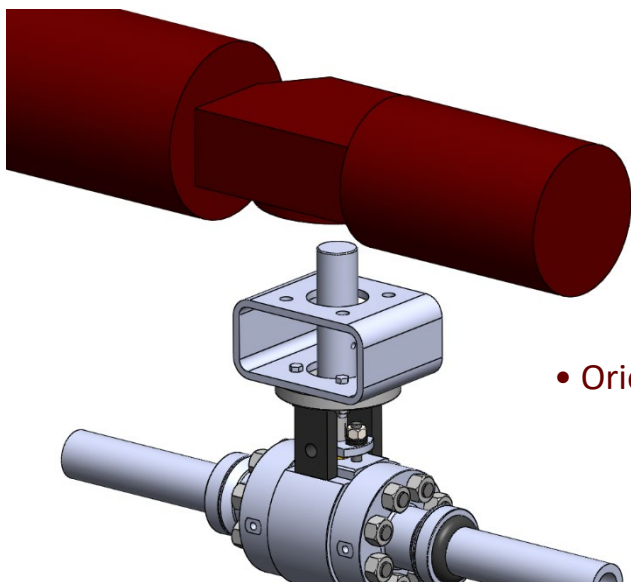
If the valve has a handle, remove the handle, adapter, and precision mechanical stop. PMS is **NOT** to be used for the primary stop with an actuator or gear.



- Place coupler on the valve stem. Do **NOT** hammer the coupler on to the valve.

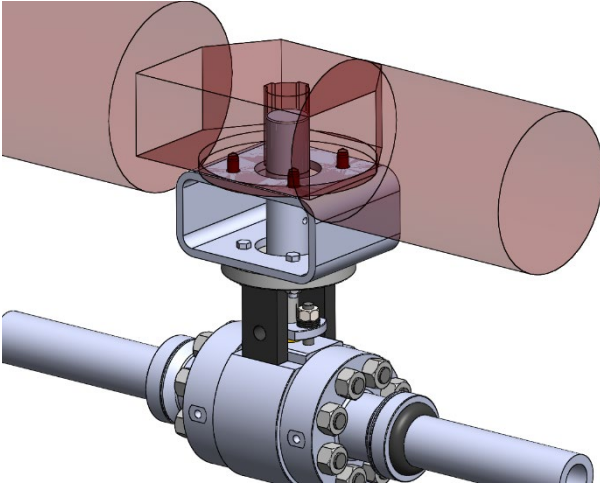


- Place mounting bracket on the mounting flange and hand tighten the nuts and bolts.



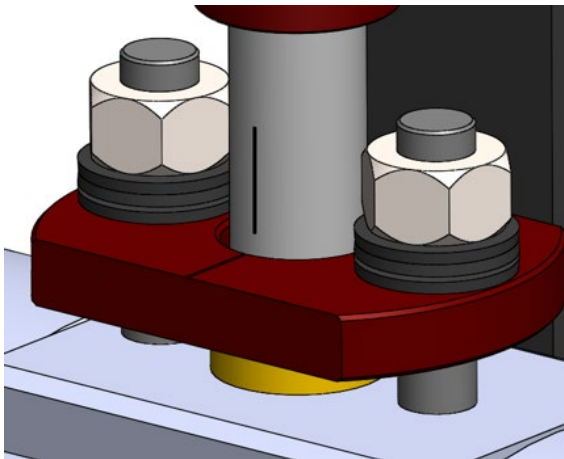
- Orient the operator on top of the mounting bracket and coupler in the desired position.

NOTE: Refer to the manufacturer's manual for specific actuator installation details.



- Hand tighten the nuts and bolts to the actuator.
- Cycle the actuator twice to ensure proper centering with no binding.
- Tighten the bracket and actuator nuts and bolts proportionally to distribute the torque stress before tightening them completely.

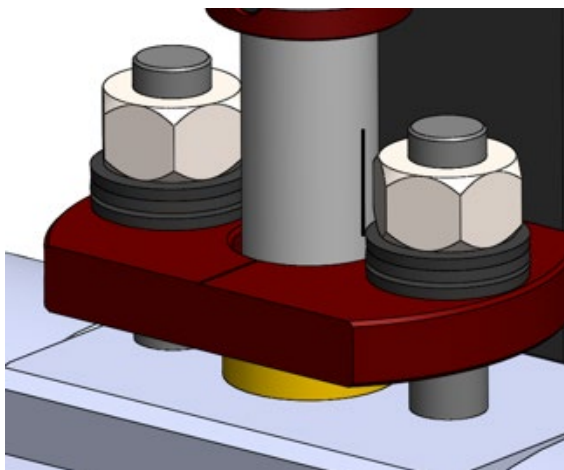
NOTE: CHECK TO MAKE SURE THE COUPLER IS NOT BINDING AGAINST THE BRACKET OR ACTUATOR



← FLOW

FAIL POSTION

- If **FAIL CLOSED**, the scribe line on the stem should be slightly past (2° left) the scribe line on the articulation gland flange.
- If **FAIL OPEN**, look inside the valve bore to ensure the ball is fully **OPEN** or the scribe line on the stem is in-line with the flow.



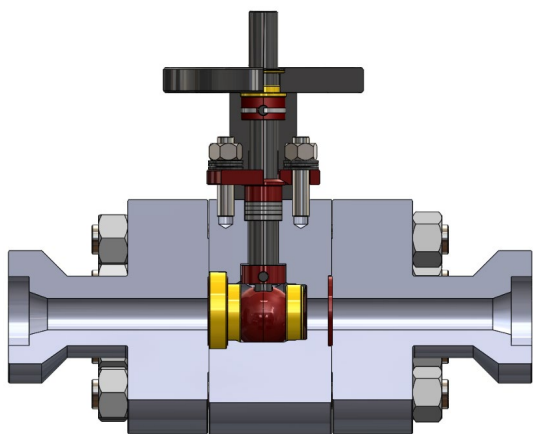
← FLOW

NON-FAIL POSTION

- If **FAIL CLOSED**, adjust the **OPEN** stop by looking inside the valve bore to ensure the ball is fully **OPEN** or the scribe mark is in-line with the flow.
- If **FAIL OPEN**, align the scribe line on the stem slightly past (2° left) the scribe line on the articulating gland flange.

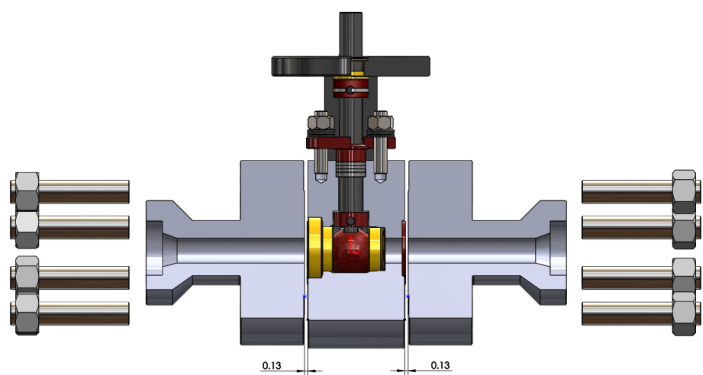
TRIM SET PARTS IN ORDER:

- Gasket • Flanged Seat • Gasket • Ball • Pusher Seat • Gasket



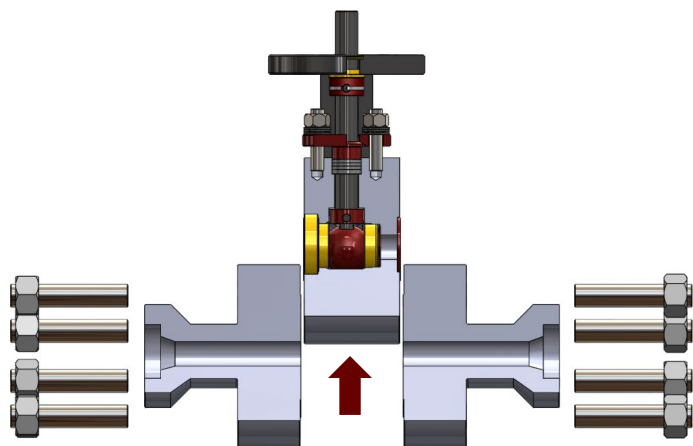
STEP 1:

- Do **NOT** cut installation weld.



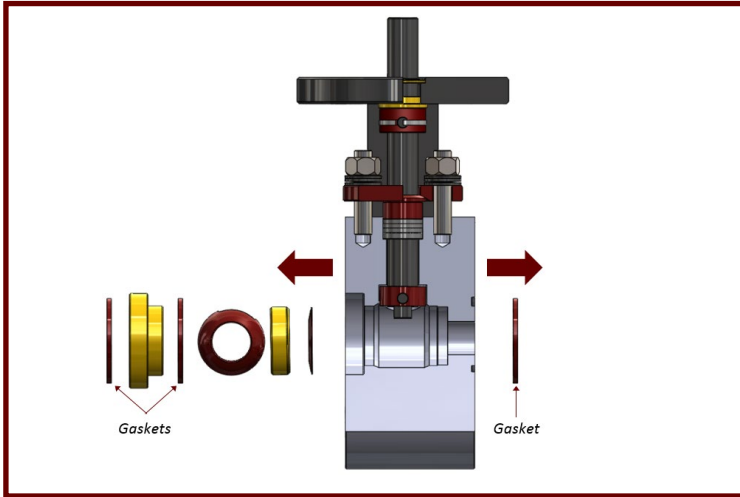
STEP 2:

- Remove all nuts and bolts. Spread the valve 1/8" each side.



STEP 3:

- Lift center section out of the end connections. No need to remove actuation.

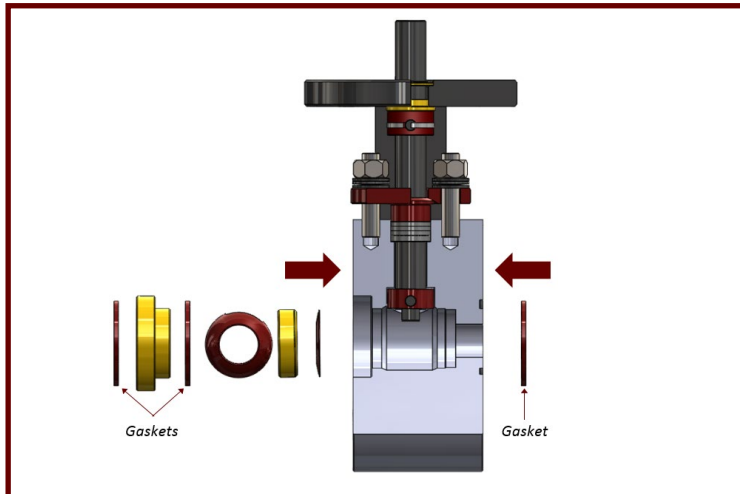
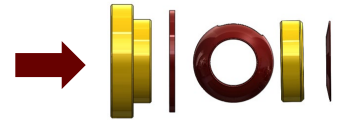


STEP 4:

- Remove trim set and gaskets from the body. Inspect and clean any debris found in the valve.

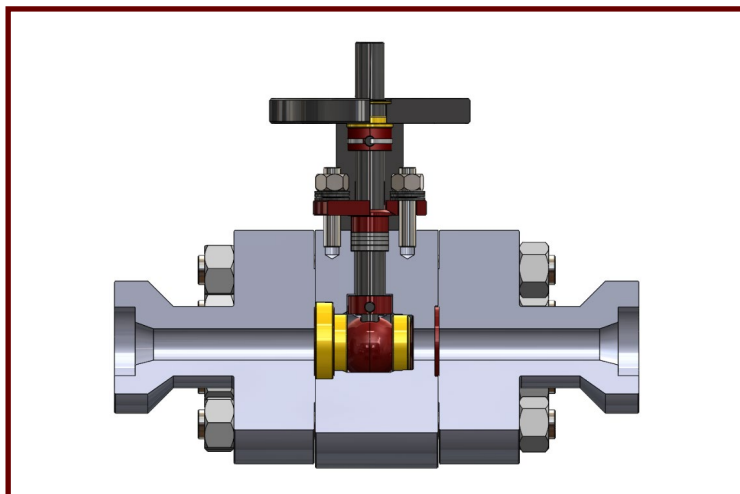
TRIM SET PARTS IN ORDER:

- Spring • Pusher Seat • Ball • Gasket • Flanged Seat



STEP 5:

1. **Spring:** Cone pointing downstream.
2. **Pusher seat:** Insert backwards into the bore allowing to flip over inside the valve (Rotate stem if necessary) ***compare dimensions of the existing push ring to the newly supplied one with a repair kit – reuse existing push ring if dimensions do not match and contact Remington***
3. **Ball:** Place valve in closed position, insert ball with dot in stem slot facing downstream.
4. **Gasket:** Insert TF gasket on flanged seat.
5. **Flanged Seat:** Insert flanged seat and TF gasket into valve.



STEP 6:

- Install center section between flanges with outer TF gaskets and secure bolting. See bolting torque chart on page 14 for proper body torques.

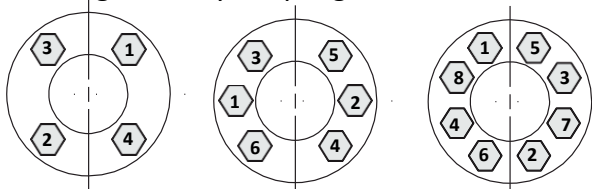
Bolting Torque – ft. lbs.			
B7, B16		B8, B8C, B8M, CL.1 LUBRICATED	
Size	Torque ft/lb	Size	Torque ft/lb
½-13UNC	70	½-13UNC	21
5/8-11UNC	139	5/8-11UNC	42
¾-10UNC	247	¾-10UNC	75
7/8-9UNC	398	7/8-9UNC	121
1.00-8UNC	596	1.00-8UNC	182
1.13-8UNC	875	1.13-8UNC	266
1.25-8UNC	1,230	1.25-8UNC	375
1.38-8UNC	1,447	1.38-8UNC	508
1.50-8UNC	2,203	1.50-8UNC	671
1.63-8UNC	2,839	1.63-8UNC	
1.75-8UNC	3,587	1.75-8UNC	
1.88-8UNC	4,456	1.88-8UNC	
2.00-8UNC	5,455	2.00-8UNC	
2.25-8UNC	7,879	2.13-8UNC	
2.5-8UNC	10,932	2.25-8UNC	

All fasteners use Copper Based Anti-Seize. Nut factor on bolting is .15. All listed torque are to 75% Yield.

Bolting Tightening Pattern. Bolt torque should be done in increments of ¼ until final loading is achieved.

Example if Max torque is 100 ft-lbs torque to 25 ft-lbs then 50, 75 and final at 100 ft-lbs.

*Set gaskets by torquing to 150 ft-lbs before applying final torques.



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