



**MANN FLOW CONTROLS, INC**

TRUNNION MOUNTED  
BALL VALVE  
INSTALLATION, MAINTENANCE,  
& REPAIR MANUAL

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WARNING: BEFORE ATTEMPTING TO REPAIR A VALVE THAT HAS BEEN IN SERVICE BE SURE TO BLOCK THE ENDS AND SLOWLY OPEN AND CLOSE THE VALVE TO VENT ANY INTERNAL PRESSURE.

## **MFC TRUNNION MOUNTED BALL VALVE STORAGE**

MFC ships ball valves in the open position. In order to protect valves during shipment, MFC ships trunnion mounted valves in cardboard cartons or wooden boxes. The hand wheels on gear-operated valves are removed and secured to the valves for shipment.

Valves should always be stored in the fully open position and should be kept indoors under clean, dry conditions.

## **MFC TRUNNION MOUNTED BALL VALVE INSTALLATION**

MFC ball valves seal bi-directionally and may be installed in either direction.

Valves should be installed in the open position. Flange end protectors should be left in place while valves are being handled and should not be removed until final installation. Heavy valves should be lifted into position using suitable straps. The straps should be positioned around the conduits near the langes or through the eye bolts, if provided. The straps should never be positioned around a gear operator, handwheel, or actuator.

Industry accepted make-up practice should be followed when installing langed end valves.

Trash, such as welding slag, dirt, sand, and other foreign matter, should always be lushed from the line before operating any valve.

Piping systems are often pressure tested prior to being placed in service. Assure that all valves are in the open position during the introduction of the test medium. With valves in the open position or partially open position, valve shell testing may be done at a pressure up to 1.5 times the rated working pressure of the valves. Valves should be kept in the open position or partially open position during shell testing. Valve shell testing should never be done with the valves in the closed position.

With valves in the fully closed position, valve seat testing may be done at pressures up to 1.1 times the rated working pressure of the valves.

With all valves in the fully open position to avoid the entrapment of debris, the pressure test medium should be completely eliminated from the system after testing has been completed. Water that is allowed to remain trapped inside valves can freeze. Water that freezes inside valves can damage the valves and any pipe, fittings, or equipment directly or indirectly connected to the valve.

## **MFC TRUNNION MOUNTED BALL VALVE OPERATION**

A ball valve is designed to be used in the fully open or fully closed position. On gear operated valves, the position indicator is located on the top of the gear box. To open the valve, rotate the handwheel counterclockwise. To close the valve, rotate the handwheel clockwise. Using a ball valve in the partially open position can result in seat damage and, under certain conditions, damage to other valve components or to pipe, fittings, or equipment directly or indirectly connected to the valve. Applying excessive torque in an attempt to turn a ball beyond its 90 degree stop point could damage the valve stops and misalign the ball.

A valve should always be operated within the pressure and temperature limits designated by the manufacturer.

It is good practice to operate any valve periodically in order to assure that the ball is able to move freely.

The MFC trunnion mounted ball valve is equipped with a body bleed fitting that can be used for draining the body cavity or for performing a double block and bleed procedure. Draining the body can be done with the valve in either the closed or the open position. The double block and bleed procedure must be performed with the valve in the closed position. Locate the bleed fitting and determine the position of the bleed hole. Be aware that fluid and debris will be vented under pressure through this hole. Position yourself and others safely out of line of venting pressure. To prevent the inadvertent removal of the bleed fitting, place a backup wrench on the body of the bleed fitting, assuring that the backup wrench does not cover the bleed hole. With another wrench, carefully and slowly loosen the hex head on the bleed fitting, allowing pressure, fluid, and debris to vent.

Note that a trunnion mounted ball valve can unexpectedly release residual pressure from the body cavity past the downstream seat. Valve users should exercise caution by protecting personnel and equipment from spontaneous pressure release.

## **MAINTENANCE FOR MFC TRUNNION MOUNTED BALL VALVES**

MFC trunnion mounted ball valves require no regular maintenance to maintain proper operation and sealing. MFC stems require no adjustment or greasing for proper sealing and operation.

## **SECONDARY SEALING IN MFC TRUNNION MOUNTED BALL VALVES**

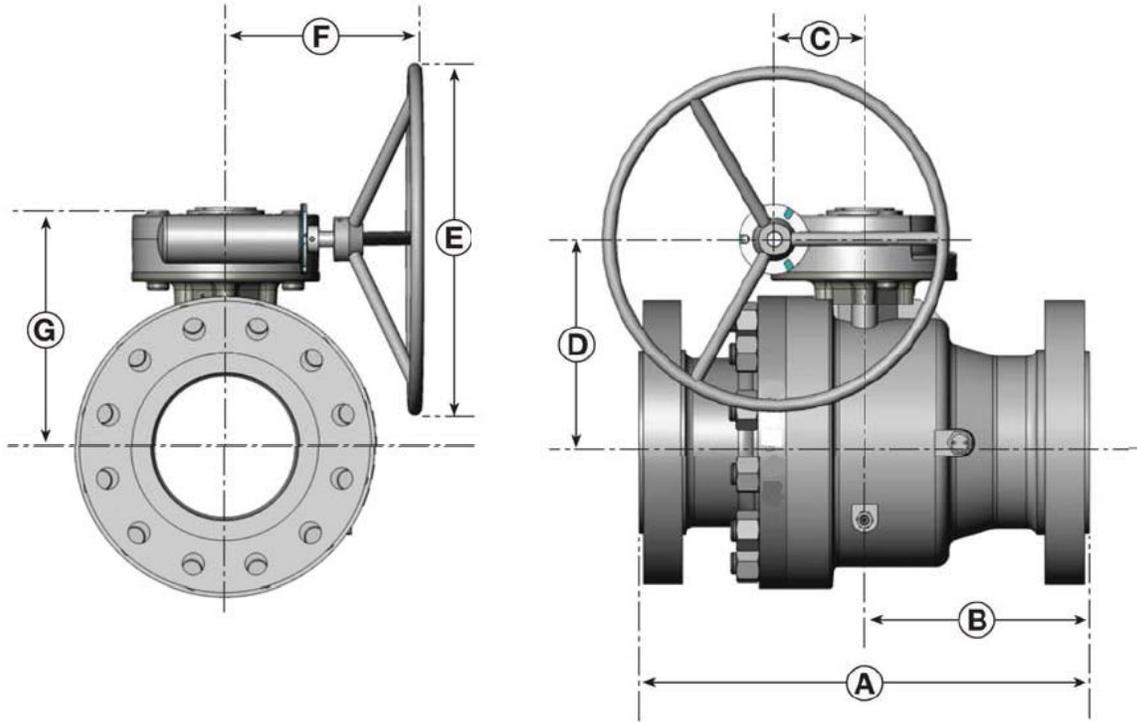
MFC trunnion mounted valves are equipped with grease injection fittings that may be used when attempting to restore the seat seal or to deliver grease to the surface of the ball. Grease should be injected into the upstream injection fitting when attempting to restore the seat seal. Always assure the compatibility of injected grease with the valve components and the medium in the line.

Before using grease injection fittings, assure that the valve is in the fully closed position. Each grease fitting is equipped with a protective cap that must be removed before grease can be injected. Place a backup wrench on the body of the injection fitting and, using a separate wrench, carefully remove the protective cap. Never remove the grease fitting from the valve while the valve is under pressure.

Connect a grease gun to the fitting and inject an appropriate volume of grease. If the valve fails to seal after the injection of a reasonable volume of grease, turn the handwheel gently back and forth, moving the ball against the seat in order to assist the spread of the grease over the seat surface and dislodge debris. Then repeat the grease injection procedure.

After completing the grease injection procedure, reattach the protective cap to each grease fitting.

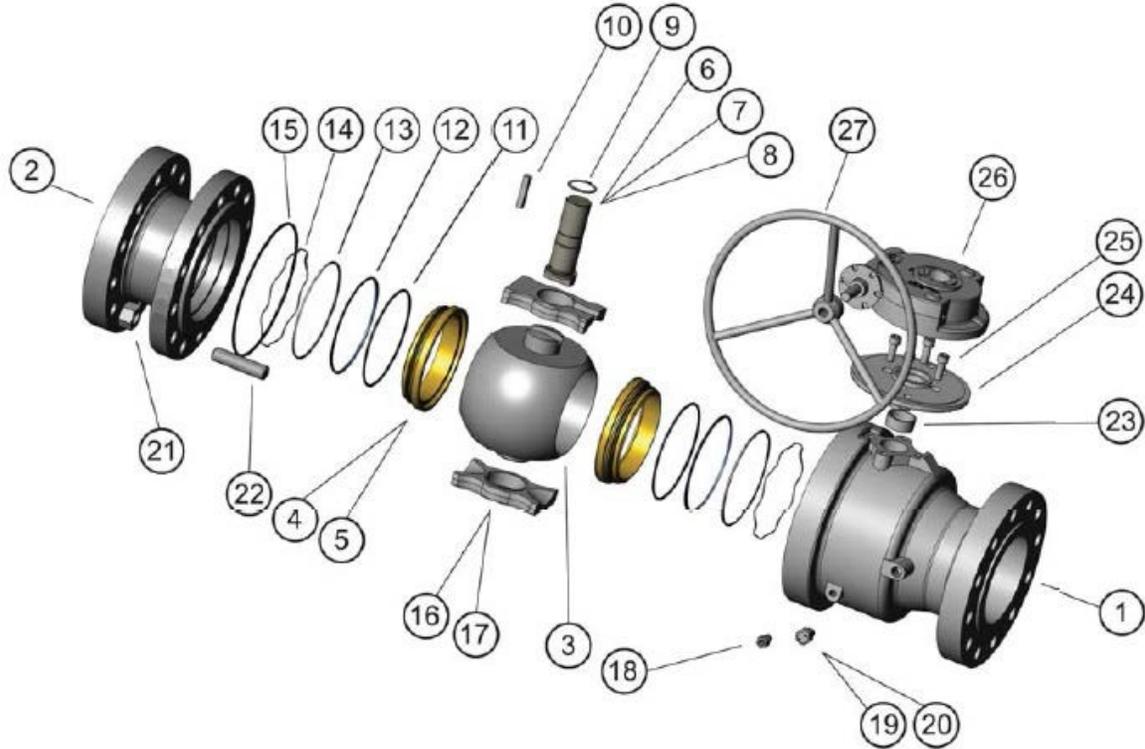
**MFC TRUNNION MOUNTED BALL  
VALVE 8" ANSI CLASS 300 (740)**



**Dimensional Data**

SIZE	CATALOG NUMBER			PORT	A	B	C	D	E	F	G	LBS.
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM CARBON STEEL BALL & STEM*	NACE TRIM 316 SS BALL & STEM*									
8x8x8	8F-133-RF	8F-133CN-RF	8F-133SN-RF	8	19.75	9.37	5.25	11.75	20	11.56	13.68	684

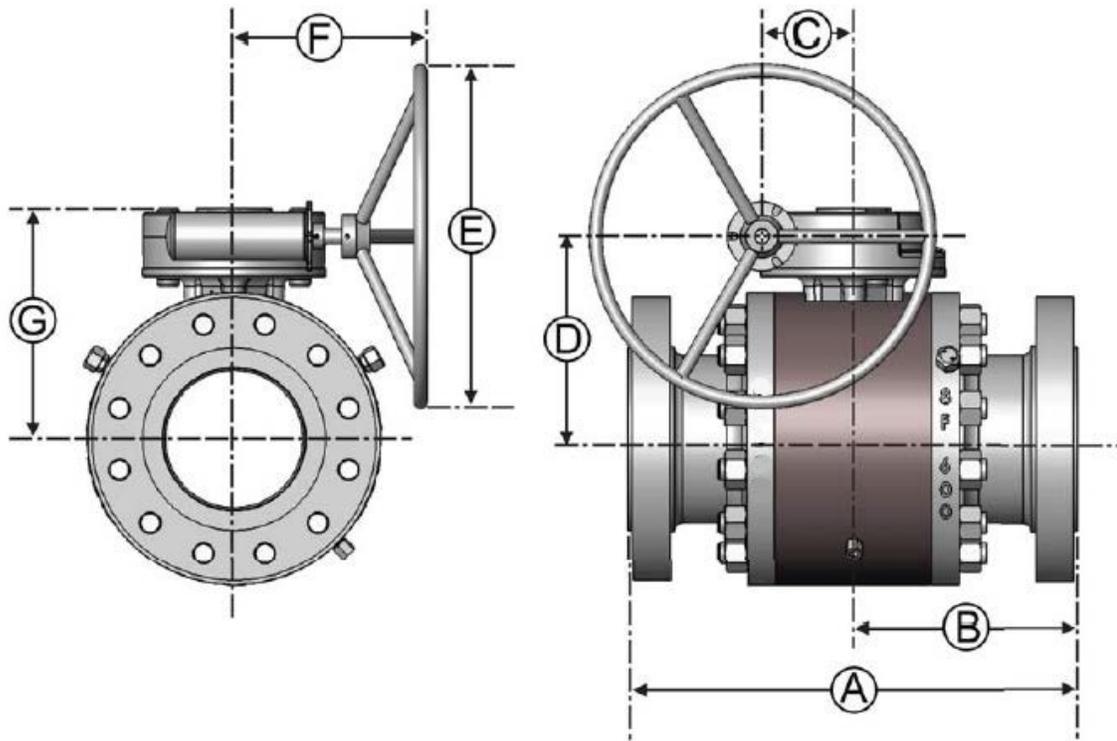
**MFC TRUNNION MOUNTED BALL  
VALVE 8" ANSI CLASS 300 (740)**



**Material Description**

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE
1	Body	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105
2	Adapter	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
4	Seat Carrier	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
5	Seat Insert	Nylon/Acetal	Nylon/Acetal	Nylon/Acetal
6	Stem	Carbon Steel	Carbon Steel	316 Stainless Steel
7	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
8	Stem Thrust Washer	TFE	TFE	TFE
9	Snap Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
10	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
11	Seat O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
12	Fireseal	Graphite	Graphite	Graphite
13	Fireseal Support Ring	Stainless Steel	Stainless Steel	Stainless Steel
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Bearing Block	Carbon Steel	Carbon Steel	Stainless Steel
17	Trunnion Bearing	316 SS/TFE	316 SS/TFE	316 SS/TFE
18	Bleed Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
19	Grease Fitting	Alloy Steel	Alloy Steel	Alloy Steel
20	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
21	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A194 2HM
22	Studs	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B7M
23	Stem Bearing	Glass/TFE	Glass/TFE	Glass/TFE
24	Adapter Plate	Ductile Iron	Ductile Iron	Ductile Iron
25	Capscrews	Alloy Steel	Alloy Steel	Alloy Steel
26	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
27	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel

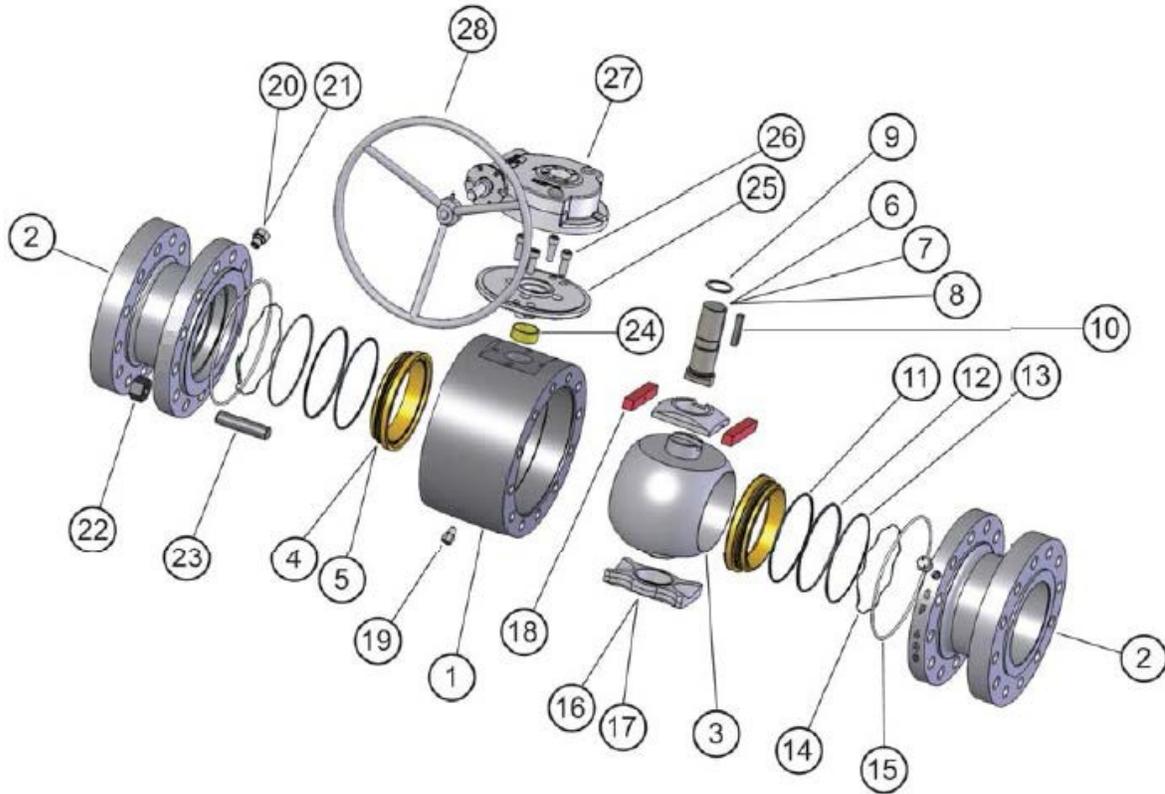
**MFC TRUNNION MOUNTED BALL  
4" THROUGH 8" ANSI CLASS 600 (1480 PSI WP)**



**Dimensional Data**

SIZE	CATALOG NUMBER			PORT	A	B	C	D	E	F	G	LBS.
	STANDARD TRIM CARBON STEEL BALL & STEM	NACE TRIM CARBON STEEL BALL & STEM*	NACE TRIM 316 SS BALL & STEM*									
4x4x4	4F-T63-RF	4F-T63CN-RF	4F-T63SN-RF	4	17	8.5	3.04	8.06	13	8.75	9.68	309
6x6x6	6F-T63-RF	6F-T63CN-RF	6F-T63SN-RF	6	22	11	4.06	9.69	20	11.19	11.31	560
8x8x8	8F-T63-RF	8F-T63CN-RF	8F-T63SN-RF	8	26	13	5.25	11.75	20	11.56	13.68	998

**MFC TRUNNION MOUNTED BALL  
4" THROUGH 8" ANSI CLASS 600 (1480 PSI WP)**



**Material Description**

ITEM	PART NAME	STANDARD TRIM	CARBON STEEL NACE	STAINLESS STEEL NACE
1	Body	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105
2	Adapter	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105	ASTM A216 GR WCB/A105
3	Ball	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
4	Seat Carrier	Carbon Steel Nickel Chrome Plated	Carbon Steel Nickel Chrome Plated	316 Stainless Steel
5	Seat Insert	Nylon/Acetal	Nylon/Acetal	Nylon/Acetal
6	Stem	Carbon Steel	Carbon Steel	316 Stainless Steel
7	Stem O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
8	Stem Thrust Washer	TFE	TFE	TFE
9	Snap Ring	Carbon Spring Steel	Carbon Spring Steel	Carbon Spring Steel
10	Stem Key	Steel Key Stock	Steel Key Stock	Steel Key Stock
11	Seat O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
12	Fireseal	Graphite	Graphite	Graphite
13	Fireseal Support Ring	Stainless Steel	Stainless Steel	Stainless Steel
14	Spring	Inconel X-750	Inconel X-750	Inconel X-750
15	Body O-Ring	Buna-N	Fluorocarbon	Fluorocarbon
16	Bearing Block	Carbon Steel	Carbon Steel	Stainless Steel
17	Trunnion Bearing	316 SS/TFE	316 SS/TFE	316 SS/TFE
18	Spacer Block	Stainless Steel	Stainless Steel	Stainless Steel
19	Bleed Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
20	Grease Fitting	Alloy Steel	Alloy Steel	Alloy Steel
21	Internal Check Fitting	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
22	Nuts	ASTM A194 2H	ASTM A194 2HM	ASTM A194 2HM
23	Studs	ASTM A193 B7	ASTM A193 B7M	ASTM A193 B7M
24	Stem Bearing	Glass/TFE	Glass/TFE	Glass/TFE
25	Adapter Plate	Ductile Iron	Ductile Iron	Ductile Iron
26	Capscrews	Alloy Steel	Alloy Steel	Alloy Steel
27	Gear Operator	Ductile Iron	Ductile Iron	Ductile Iron
28	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel