



## M&H VALVE CO

### REDESIGNED BUTTERFLY VALVE for ISO/MSS ACTUATOR MOUNTING

STYLE 4500 – AWWA C504 Class 150B  
3"–12" (Currently 12" Only)

#### ACTUATOR MOUNTING PAD

M&H Style 4500 Butterfly Valves come standard with an integrally cast actuator mounting pad machined and pre-drilled in accordance with ISO-5211 and MSS SP-101. This allows for the direct mounting of manual and automatic actuators without the need of additional pieces or adapters, providing a more compact and rigid arrangement.

#### NSF 61 and NSF 372 CERTIFICATION

M&H Style 4500 Butterfly Valves meet NSF/ANSI Standard 61 for Drinking Water System Components and NSF 372 for Drinking Water System Components – Lead Content.

#### VALVE BODY

M&H Style 4500 Butterfly Valve Bodies are heavy duty ASTM A536 Ductile Iron that are designed to meet or exceed the latest revision of AWWA standard C504.

#### CORROSION RESISTANT SHAFT

Valve operating shafts are constructed of centerless ground ASTM A276 Type 304 stainless steel bar. Shafts are one-piece, through-shaft construction, sized to meet or exceed the requirements of AWWA Standard C504 for Class 150B Butterfly Valves. Type 630 Stainless Steel shafts are furnished for Class 250B rated valves (other Stainless Steel options available).

#### VALVE DISC

Designed to minimize pressure drop and turbulence, the valve discs are secured to the shafts by stainless steel torque plugs used to transmit required torques and withstand stresses imposed under numerous operating conditions.

#### OFFSET SEAT

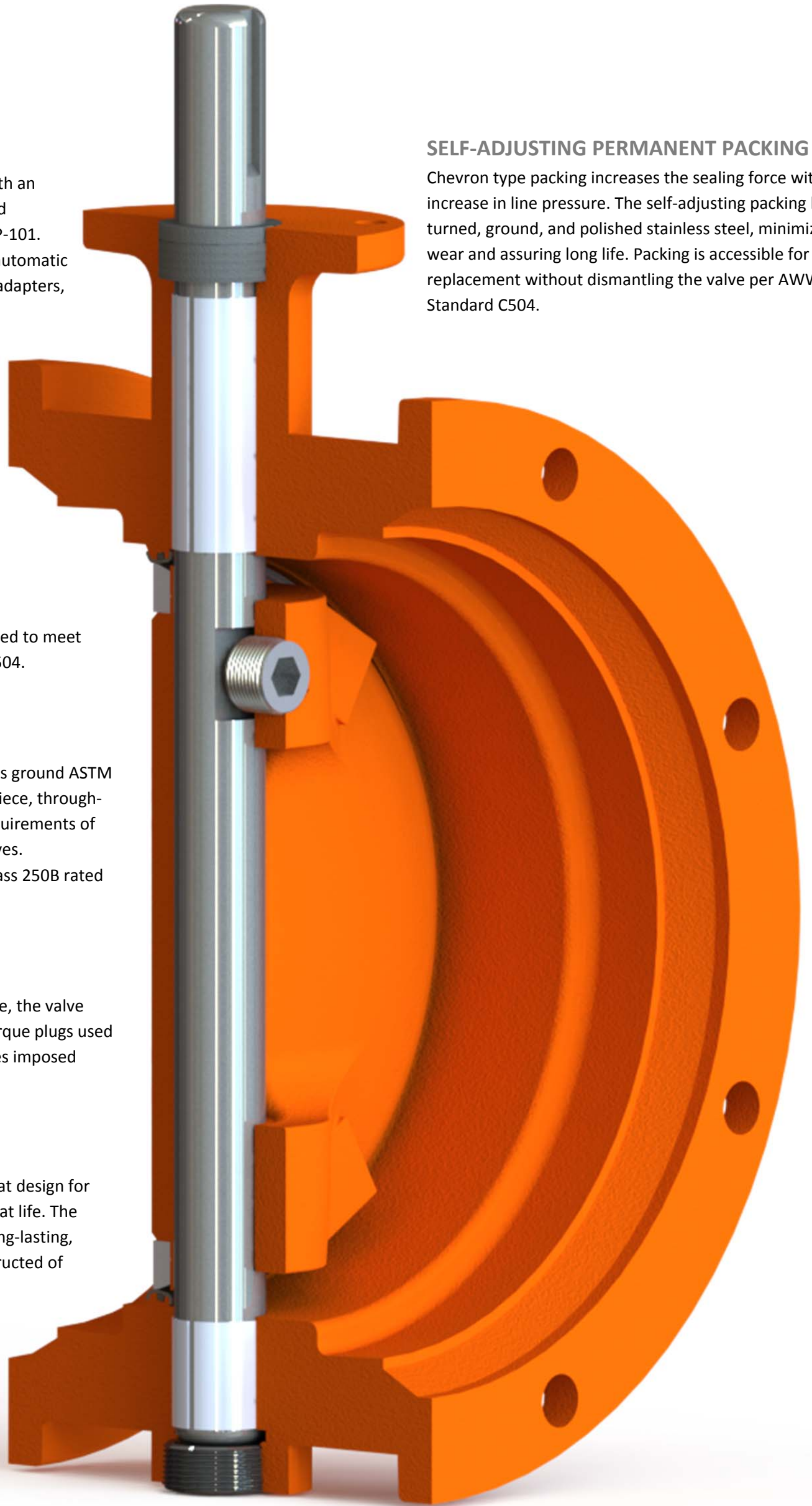
M&H Style 4500 Butterfly Valves have an offset seat design for improved seating performance, ensuring longer seat life. The offset design assures bubble-tight shutoff and a long-lasting, maintenance free seal. The body seat ring is constructed of Type 304 corrosion resistant Stainless Steel.

#### LIFETIME BEARINGS

Nylon bearings are sized to meet or exceed AWWA C504 specification for axial pressure loads. The bearings are self-lubricating and require no periodic maintenance.

#### SELF-ADJUSTING PERMANENT PACKING

Chevron type packing increases the sealing force with the increase in line pressure. The self-adjusting packing bears on turned, ground, and polished stainless steel, minimizing wear and assuring long life. Packing is accessible for replacement without dismantling the valve per AWWA Standard C504.



Visit [www.mh-valve.com](http://www.mh-valve.com) for technical drawings and additional details.

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## MODEL 450 MANUAL ACTUATOR



## Actuator Features and Benefits

### BUILT TO LAST

When durability and manual actuation are essential, the M&H Model 450 Actuator is the optimal choice. The Model 450 Manual Actuator is ideal for numerous applications, including buried service, and is specifically designed for long service life without requiring maintenance. Our actuators can be trusted to maintain valve disc position under demanding conditions of fluctuating, turbulent, and intermittent flow, yet still be operated smoothly and easily. Stop limiting devices are designed to withstand 1-1/2 times the AWWA C504 standard input torque at fully opened and closed positions without damage to valve or actuator components.

### FEATURES

The Model 450 Actuator has many new features, including the use of gaskets, seals, and o-rings to protect the interior of the actuator from dirt, debris, and moisture. Our product is factory lubricated and can be used in buried service without requiring additional lubrication or maintenance. Manual actuators are available with a 2" nut for weatherproof or buried service, handwheel, or chainwheel for above ground service.

### OPERATION

Designed to meet or exceed the operating and testing requirements of the latest revision of AWWA C504, the Model 450 Actuator is a traveling nut type design and is self-locking to hold the valve in any intermediate position between fully open and fully closed without creeping or fluttering. Actuators are equipped with mechanical stop-limiting devices to prevent over-travel of the disc in the open and closed positions.



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### DUCTILE IRON HOUSING

Actuator housing provides rigid support and protects internal operating components. The housing mounts to the valve trunnion with a four bolt connection complying with ISO-5211 and MSS-101 specifications. Bolt holes are bottom tapped eliminating a leak path.

### PRECISION MACHINED LEVER

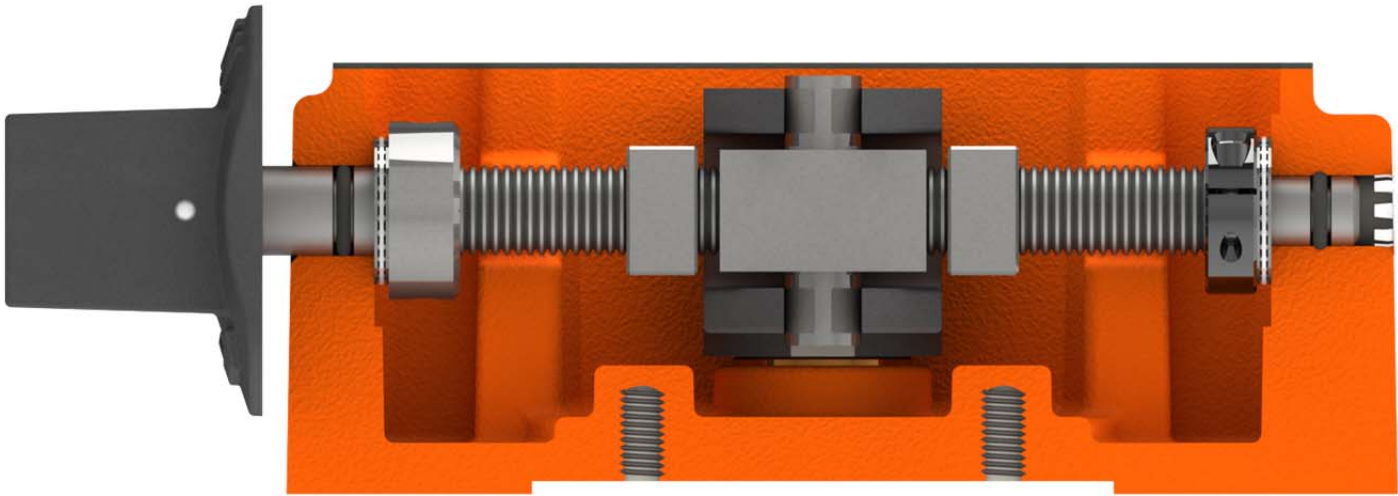
Ductile iron lever is precision machined to eliminate tolerance stack-up and transmit torque seamlessly. Lever has multiple keyways to allow changing from open left to open right easily.

### HIGH STRENGTH INPUT SHAFT

High tensile strength alloy steel shaft provides a strong and durable drive mechanism. Precision machined threads keep the shaft free from stress, generating lower contact pressures.

### STOP LIMITING COLLARS

Durable stop collars can withstand an input torque of 450 ft-lbs against the open and closed positions without damage. This exceeds the requirements for AWWA C504 standard for input torque.



### HIGH STRENGTH TRAVELING NUT

Ductile iron traveling nut exceeds AWWA C504 specification. It is precision machined for a perfect fit with the input shaft and lever, and is capable of withstanding excessive input torque. The high strength nut transmits motion from drive screw to the valve operating shaft.

### POSITION STOP NUTS

High strength steel position stop nuts control the position of the valve disc and prevent the actuator from going beyond the open and closed positions of the valve. The stops are factory preset and do not require further adjustment.

### GASKETS AND O-RINGS

Actuator is fully grease packed and lubricated for the life of the valve without requiring additional lubrication or maintenance. Reusable rubber gaskets between the cover and housing and o-rings on the input shaft guarantee a water tight seal to keep the actuator free from dirt, debris, and moisture.

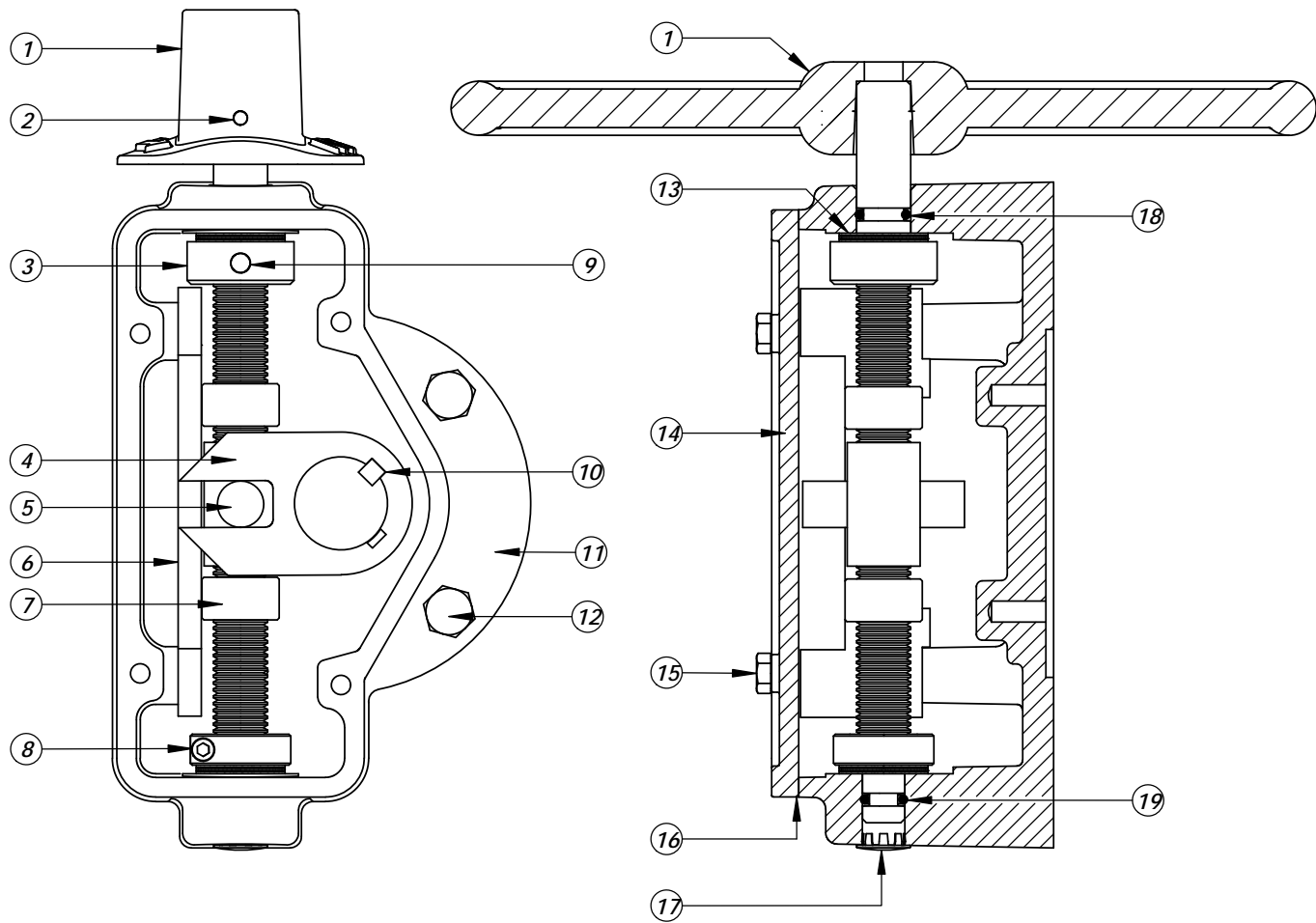
### 360° ROTATION

Actuator can be mounted in 90° increments for maximum convenience in installation and operation without the need of adapter plates or additional parts. Actuator can achieve optimal position for various applications, including vertical pipe assemblies.



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ITEM NO.	DESCRIPTION	MATERIAL
1	OPERATING NUT or HANDWHEEL	CAST IRON ASTM A-126 CL.B
2	OPERATING NUT SHEAR PIN	HIGH CARBON STEEL
3	INPUT SHAFT COLLAR	STEEL, AISI 1215
4	LEVER	DUCTILE IRON ASTM A-536 GR. 70-50-05
5	CROSSHEAD	DUCTILE IRON ASTM A-536 GR. 80-55-06
6	YOKE GUIDE BAR	STEEL, AISI 1018
7	STOP NUT	STEEL, AISI 1018
8	INPUT SHAFT ADJUSTMENT COLLAR	1215 CARBON STEEL
9	HEAVY DUTY GROOVE PIN	HIGH CARBON STEEL
10	KEY	C-1018 C.F.STEEL
11	ACTUATOR HOUSING	DUCTILE IRON ASTM A-536 GR. 70-50-05
12	HEX HEAD MOUNTING BOLT	18-8 STAINLESS STEEL
13	INPUT SHAFT NEEDLE BEARING	STEEL
14	ACTUATOR HOUSING COVER	DUCTILE IRON ASTM A-536 GR. 70-50-05
15	HEX HEAD COVER BOLT	18-8 STAINLESS STEEL
16	ACTUATOR HOUSING COVER GASKET	BUNA-N
17	ACTUATOR HOUSING END PLUG	NICKEL PLATED STEEL
18	INPUT SHAFT O-RING -208	BUNA-N
19	INPUT SHAFT O-RING -205	BUNA-N

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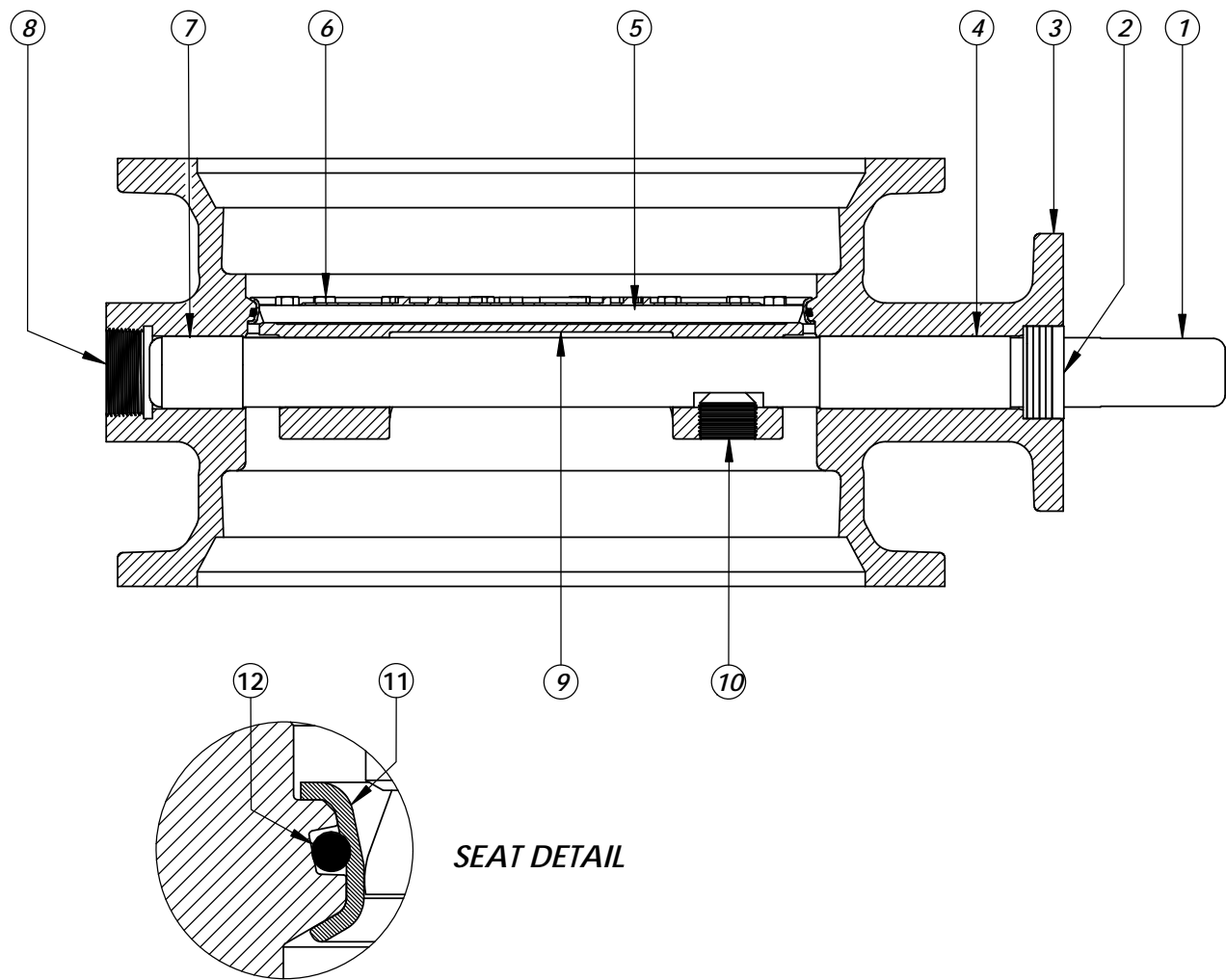
**DRAWN:** KLM

**DATE:** 10/2016

**DWG. NO.**

BFV-OP-450

**3" - 12" BFV 450 OPERATOR  
SUB-ASSEMBLY/MATERIAL LIST**



**SEAT DETAIL**

<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>MATERIAL</b>
1	VANE SHAFT	304 STAINLESS STEEL, ASTM A-276
2	V-RING PACKING SET	EPDM, BUNA-N
3	BFV BODY	DUCTILE IRON ASTM A-536
4	UPPER JOURNAL BEARING	NYLATRON
5	VANE SEAT RING	EPT with SS INSERT
6	HEX HEAD CAPSCREW	18-8 STAINLESS STEEL with NYLOC PATCH
7	LOWER JOURNAL BEARING	NYLATRON
8	BFV BODY END PLUG	STEEL
9	BFV VANE	DUCTILE IRON ASTM A-536
10	VANE SHAFT TORQUE PLUG	18-8 STAINLESS STEEL
11	BODY SEAT RING	316 STAINLESS STEEL
12	BODY SEAT O-RING	BUNA-N

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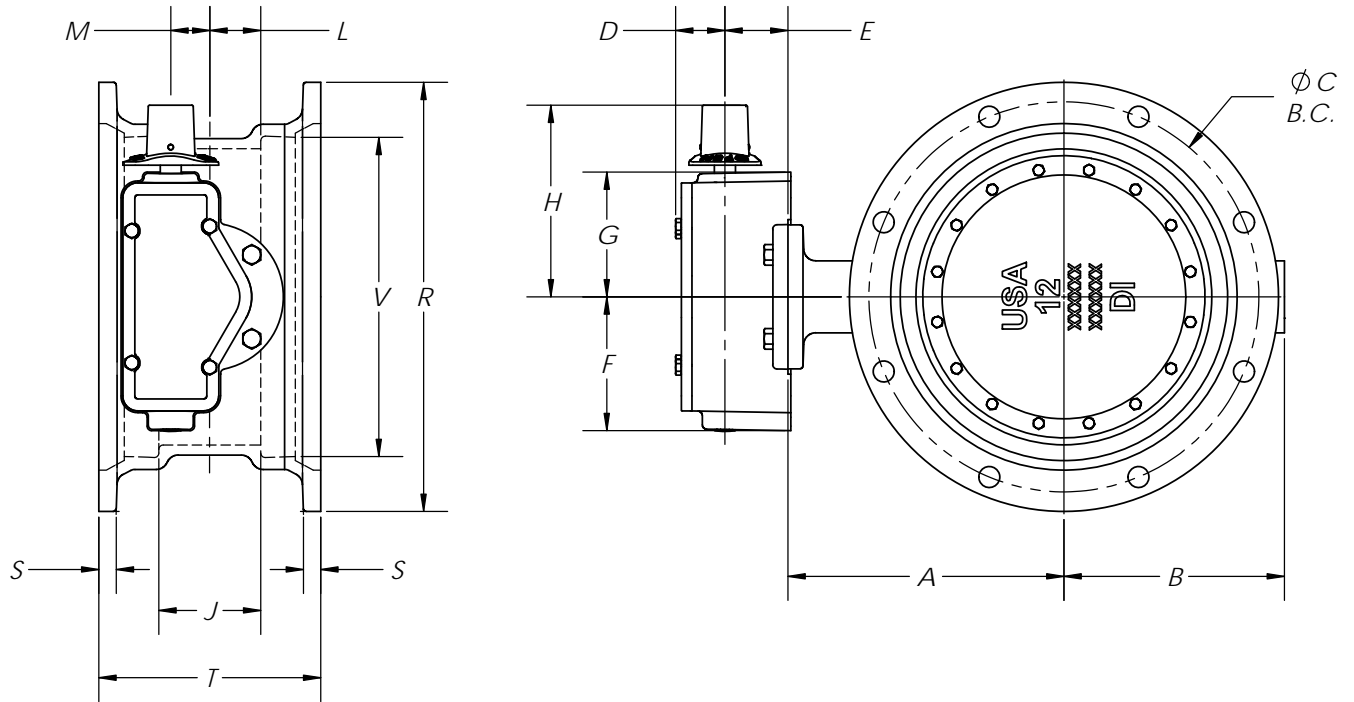
**DRAWN:** KLM

**DATE:** 10/2016

**DWG. NO.**

BMJ-15-45-412-ISO

**12" AWWA C504 - Style 4500 - CL150  
BFV with F/A 12 MSS/ISO Connection  
Sub-Assembly - Material List  
MECHANICAL JOINT**



1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED AWWA C504 REQUIREMENTS
3. 'N' - NUMBER OF TURNS TO CLOSE
4. 'P' - NUMBER OF BOLTS ON EACH FLANGE
5. 'Q' - DIAMETER OF BOLTS
6. 'V' - INSIDE DIAMETER OF VALVE HUB
7. OPERATED BY 2" AWWA OPERATING NUT/WRENCH NUT
8. RATED AND TESTED FOR 150psi WORKING PRESSURE
9. GASKETS, GLANDS, AND BOLTS FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

VALVE SIZE	OPERATOR MODEL	A	B	C	D	E	F	G	H	J	L	M	N	P	Q	R	S	T	V	WEIGHT
12"	450	11.50"	9.19"	16.25"	2.06"	2.63"	5.63"	5.25"	7.93"	4.25"	2.13"	1.63"	29	8	3/4"	17.88"	.75"	9.25"	13.30"	175 LB

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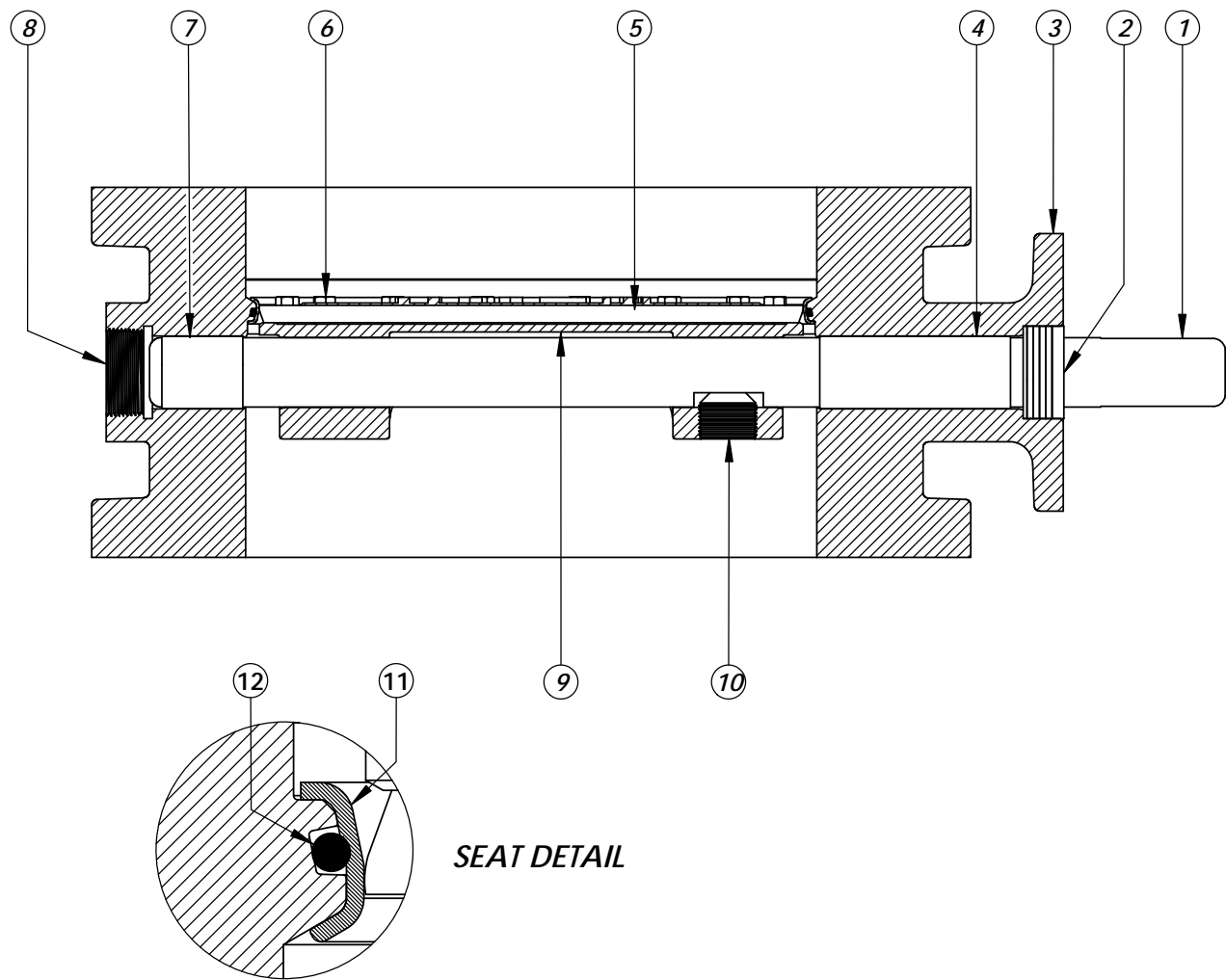


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**DRAWN:** KLM  
**DATE:** 10/2016  
**DWG. NO.**  
BMJ-15-45-424-ISO

**12" - Style 4500 - CL150  
BFV with F/A 12 MSS/ISO Connection-  
MECHANICAL JOINT - Buried Operator**



**SEAT DETAIL**

<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>MATERIAL</b>
1	VANE SHAFT	304 STAINLESS STEEL, ASTM A-276
2	V-RING PACKING SET	EPDM, BUNA-N
3	BFV BODY	DUCTILE IRON ASTM A-536
4	UPPER JOURNAL BEARING	NYLATRON
5	VANE SEAT RING	EPT with SS INSERT
6	HEX HEAD CAPSCREW	18-8 STAINLESS STEEL with NYLOC PATCH
7	LOWER JOURNAL BEARING	NYLATRON
8	BFV BODY END PLUG	STEEL
9	BFV VANE	DUCTILE IRON ASTM A-536
10	VANE SHAFT TORQUE PLUG	18-8 STAINLESS STEEL
11	BODY SEAT RING	316 STAINLESS STEEL
12	BODY SEAT O-RING	BUNA-N

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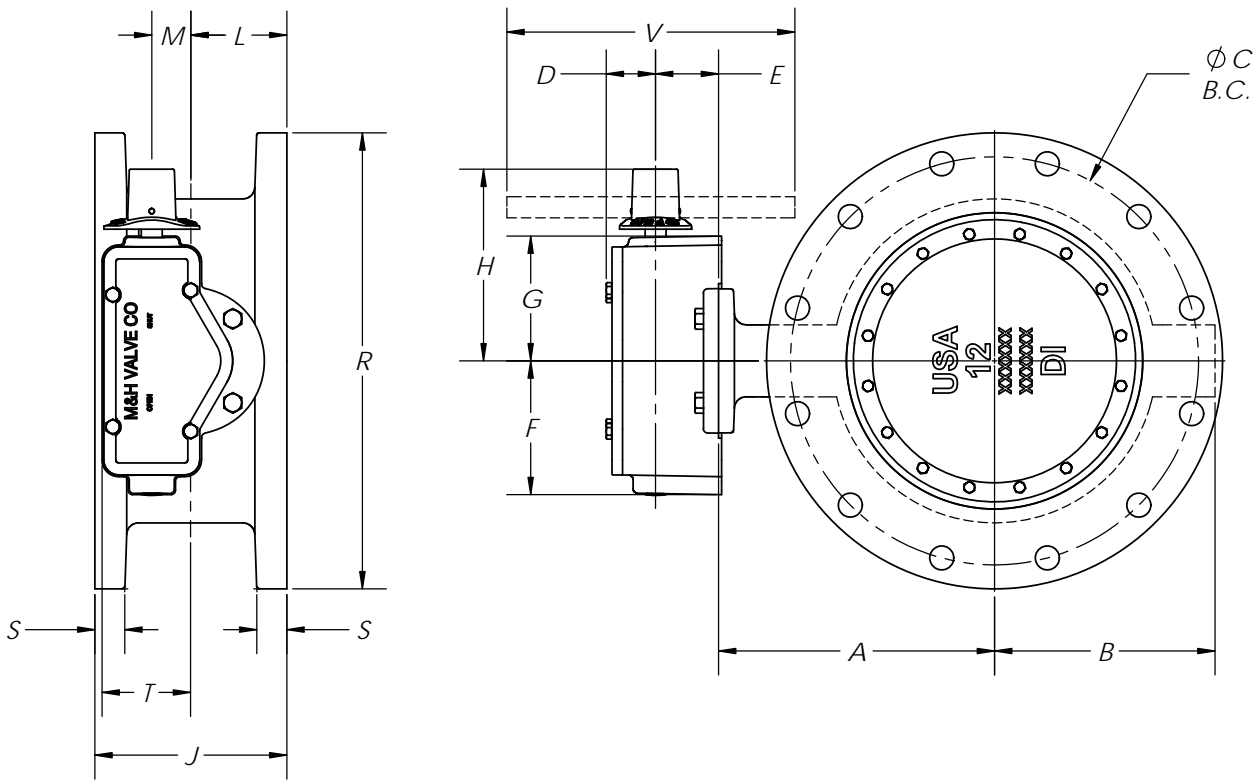
**DRAWN:** KLM

**DATE:** 10/2016

**DWG. NO.**

BF-15-45-312-ISO

**12" AWWA C504 - Style 4500 - CL150  
BFV with F/A 12 MSS/ISO Connection  
Sub-Assembly - Material List  
FLANGED END**



1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED AWWA C504 REQUIREMENTS
3. REFERENCE AWWA C504 FOR FLANGES AND DRILLING (ANSI 125)
4. 'N' - NUMBER OF TURNS TO CLOSE
5. 'P' - NUMBER OF BOLTS ON EACH FLANGE
6. 'Q' - DIAMETER OF BOLTS
7. OPERATED BY 2" AWWA OPERATING NUT/WRENCH NUT
8. RATED AND TESTED FOR 150psi WORKING PRESSURE

VALVE SIZE	OPERATOR MODEL	A	B	C	D	E	F	G	H	J	L	M	N	P	Q	R	S	T	V	W
12"	450	11.50"	9.19"	17.00"	2.06"	2.63"	5.63"	5.25"	7.93"	8.00"	4.00"	1.63"	29	12	7/8"	19.00"	1.25"	3.69"	14	235 LB

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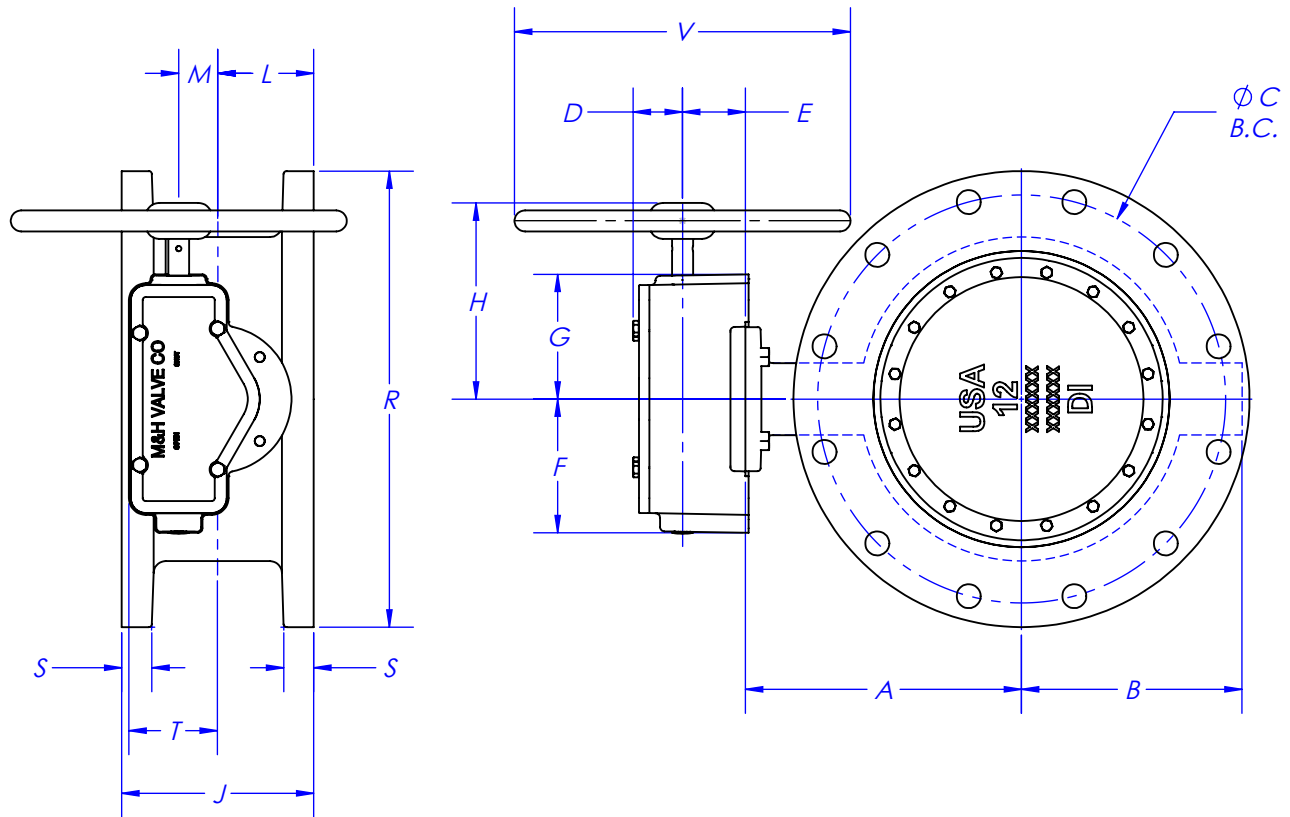
**DRAWN:** KLM

**DATE:** 10/2016

**DWG. NO.**  
BFE-15-45-324-ISO

12" - Style 4500 - CL150  
BFV with F/A 12 MSS/ISO Connection-  
FLANGED ENDS - Buried Operator





1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED AWWA C504 REQUIREMENTS
3. REFERENCE AWWA C504 FOR FLANGES AND DRILLING (ANSI 125)
4. 'N' - NUMBER OF TURNS TO CLOSE
5. 'P' - NUMBER OF BOLTS ON EACH FLANGE
6. 'Q' - DIAMETER OF BOLTS
7. OPERATED BY HANDWHEEL
8. RATED AND TESTED FOR 150psi WORKING PRESSURE

VALVE SIZE	OPERATOR MODEL	A	B	C	D	E	F	G	H	J	L	M	N	P	Q	R	S	T	V	W
12"	450	11.50"	9.19"	17.00"	2.06"	2.63"	5.63"	5.25"	8.17"	8.00"	4.00"	1.63"	29	12	7/8"	19.00"	1.25"	3.69"	14	235 LB

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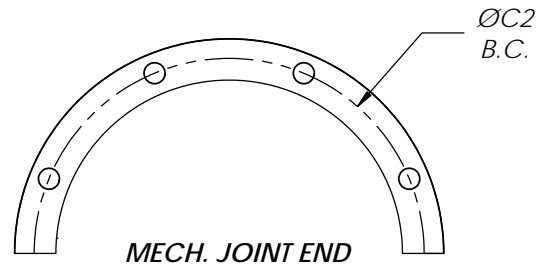
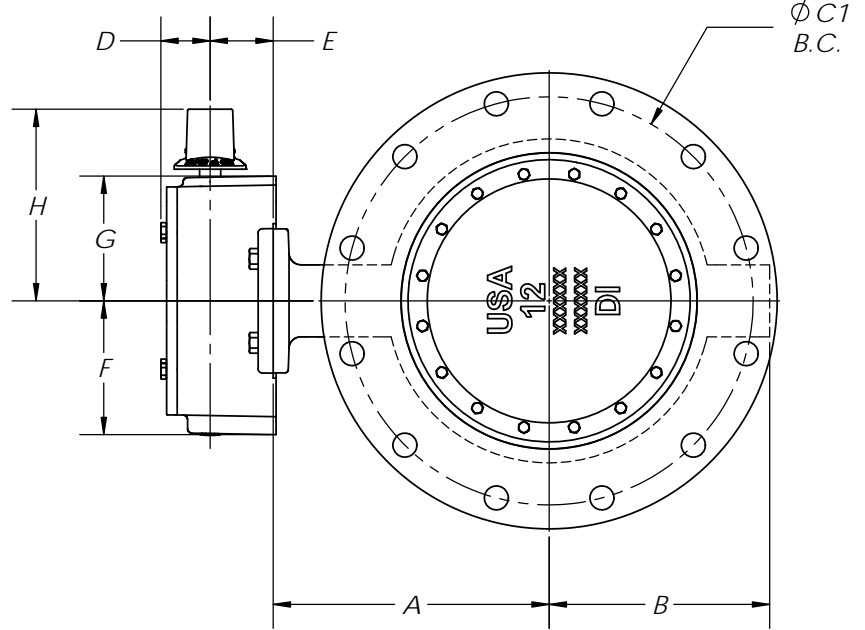
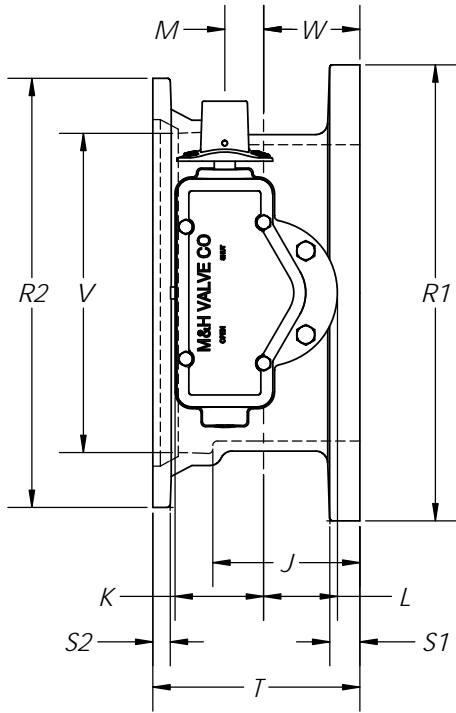
**DRAWN:** ZF

**DATE:** 5/10/2017

**DWG. NO.**

**BF E-15-45-324-ISO**

**12" - Style 4500 - CL150  
BFV with F/A 12 MSS/ISO Connection-  
FLANGED ENDS - Handwheel**



1. FLOW MAY BE IN EITHER DIRECTION
2. VALVE SHAFT WILL MEET OR EXCEED AWWA C504 REQUIREMENTS
3. REFERENCE AWWA C504 FOR FLANGES AND DRILLING (ANSI 125)
4. CHART NUMBERS: FLANGE (1); MECH. JOINT (2)
5. 'N' - NUMBER OF TURNS TO CLOSE
6. 'P' - NUMBER OF BOLTS ON EACH FLANGE
7. 'Q' - DIAMETER OF BOLTS
8. OPERATED BY 2" AWWA OPERATING NUT/WRENCH NUT
9. RATED AND TESTED FOR 150psi WORKING PRESSURE
10. GASKET, GLANDS, AND BOLTS FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

VALVE SIZE	OPERATOR MODEL	A	B	C1	C2	D	E	F	G	H	J	K	L	M	N	P1	P2	Q1	Q2	R1	R2	S1	S2	T	V	W	WEIGHT
12"	450	11.50"	9.19"	17.00"	16.25"	2.06"	2.63"	5.63"	5.25"	7.93"	6.13"	3.69"	3.06"	1.63"	29	12	8	7/8"	3/4"	19.00"	17.88"	1.25"	.75"	8.63"	13.30"	4.00"	205 LB

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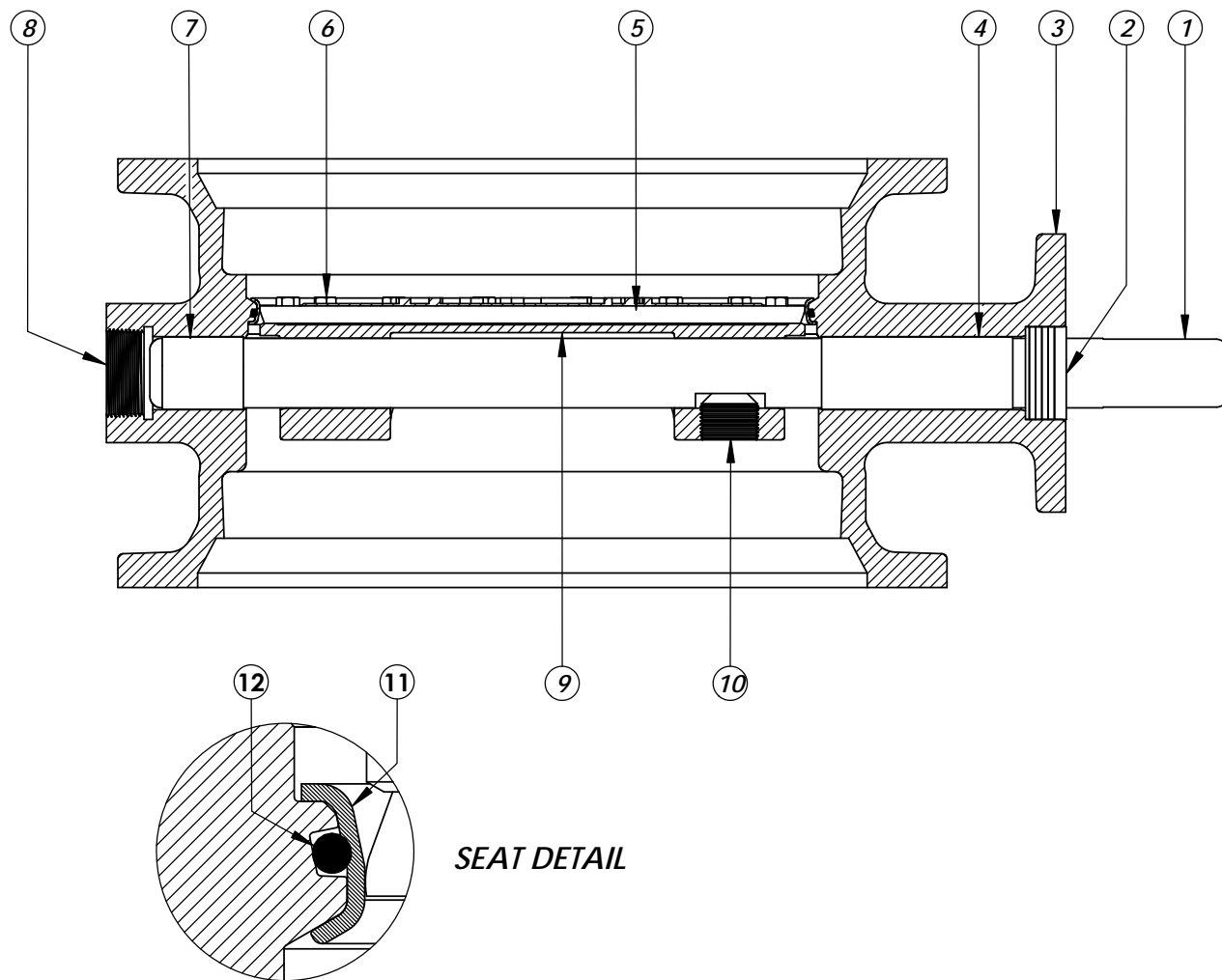


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**DRAWN:** KLM  
**DATE:** 10/2016  
**DWG. NO.**  
BFMJ-15-45-424-ISO

**12" - Style 4500 - CL150**  
**BFV with F/A 12 MSS/ISO Connection-**  
**FLANGED x MECH. JOINT - Buried Operator**



**SEAT DETAIL**

<b>ITEM NO.</b>	<b>DESCRIPTION</b>	<b>MATERIAL</b>
1	VANE SHAFT	630 STAINLESS STEEL ASTM A-564
2	V-RING PACKING SET	EPDM, BUNA-N
3	BFV BODY	DUCTILE IRON ASTM A-536
4	UPPER JOURNAL BEARING	NYLATRON
5	VANE SEAT RING	EPT with SS INSERT
6	HEX HEAD CAPSCREW	18-8 STAINLESS STEEL with NYLOC PATCH
7	LOWER JOURNAL BEARING	NYLATRON
8	BFV BODY END PLUG	STEEL
9	BFV VANE	DUCTILE IRON ASTM A-536
10	VANE SHAFT TORQUE PLUG	18-8 STAINLESS STEEL
11	BODY SEAT RING	316 STAINLESS STEEL
12	BODY SEAT O-RING	BUNA-N

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**DRAWN:** KLM

**DATE:** 10/2016

**DWG. NO.**

BMJ-15-45-412-ISO

**12" AWWA C504 - Style 4500 - CL250  
BFV with F/A 12 MSS/ISO Connection  
Sub-Assembly - Material List  
MECHANICAL JOINT**