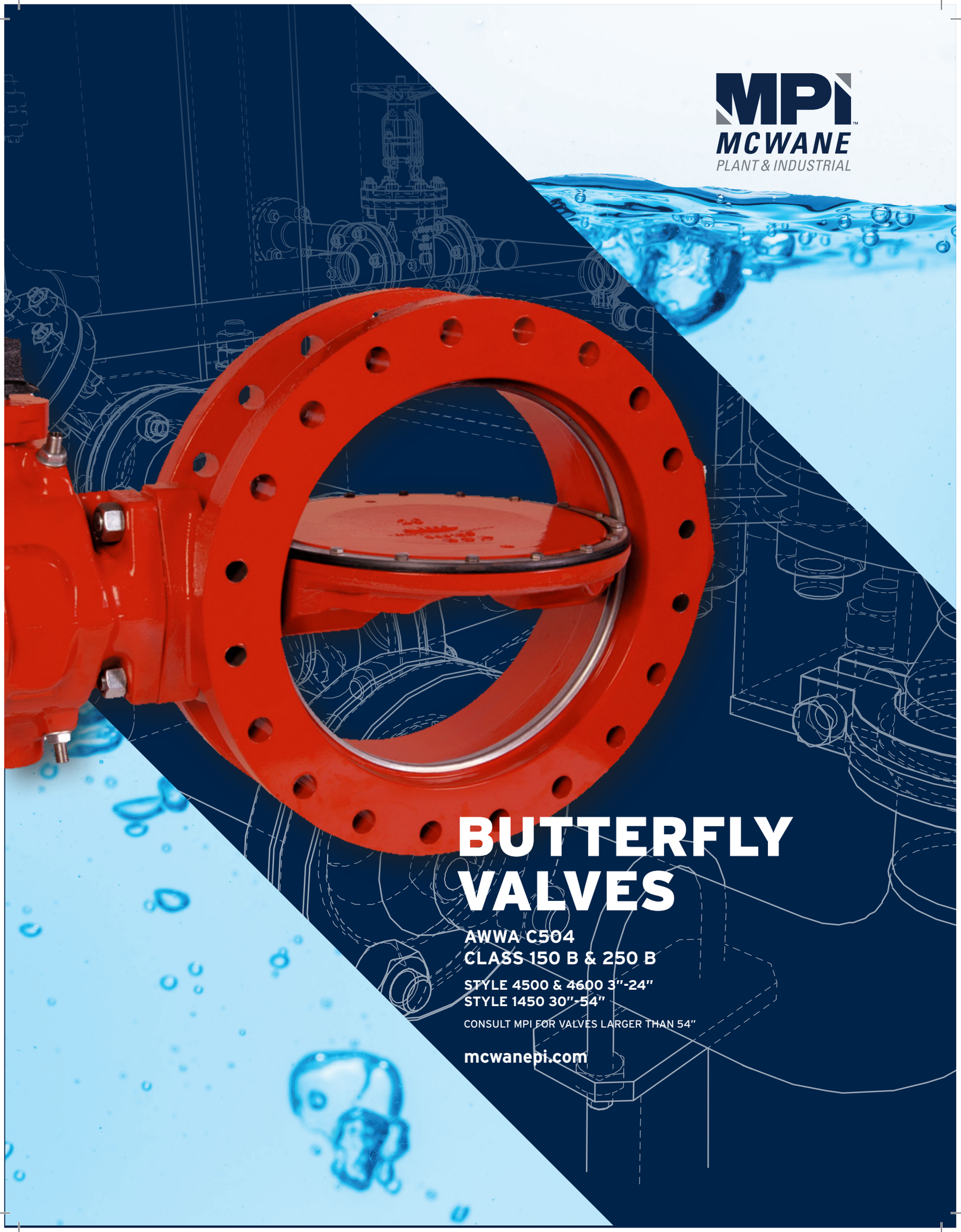
MPI
MCWANE
PLANT & INDUSTRIAL



BUTTERFLY VALVES

AWWA C504
CLASS 150 B & 250 B

STYLE 4500 & 4600 3"-24"
STYLE 1450 30"-54"

CONSULT MPI FOR VALVES LARGER THAN 54"

mcwanepi.com

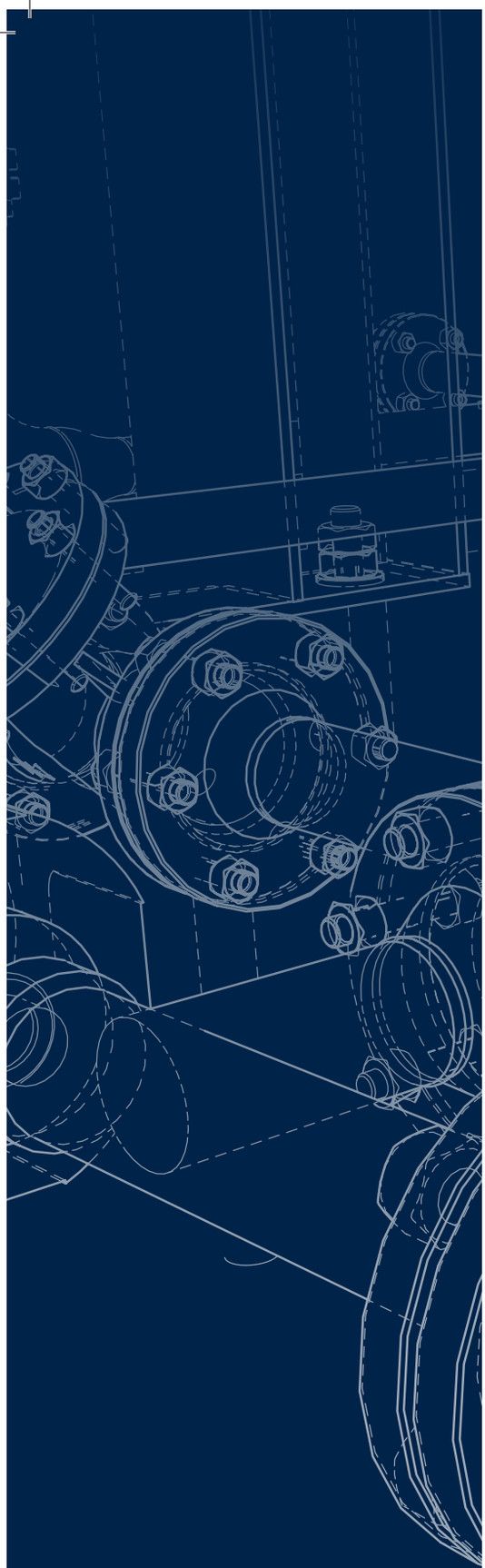


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MPI

THE INTEGRATED SOLUTION FOR TREATMENT PLANT NEEDS

Combining expertise from eight key water infrastructure brands in the McWane family of companies, McWane Plant & Industrial (MPI) provides a singular access point for the essential products and service required for any water or wastewater plant project.

WHY MPI?

We're a new kind of company formed in service of three simple goals:

- To provide a primary source for best-in-class products from time-tested brands
- Offer veteran specialists as resources for any plant project of any scale
- Increase the ease and efficiency of the planning and completion of our clients' projects

Our dedicated team is comprised of dozens of treatment plant specialists with decades of experience. We work cooperatively with industry partners to give each project the attention it deserves, providing unprecedented levels of communication, access and collaboration. Our support teams work within dedicated services regions allowing our experts to apply regionally specific knowledge, including state regulations, codes and environmental specifications. Our nationally certified Associate Design-Build Professionals are a valuable asset to Design-Build projects.

The extended manufacturing capabilities of MPI mean your precise requirements are closer in reach and delivered faster with less legwork from you. We offer products that conform to rigorous industry standards and can work with your team to customize and fulfill unique requests. As part of our commitment to American workers and industries, we're proud of our ability to provide products from domestic facilities and to meet all domestic funding requirements.

MPI — One smart source, ready to work for you.

AWWA C-504 BUTTERFLY VALVES

SIZES 3"-54" AWWA C504





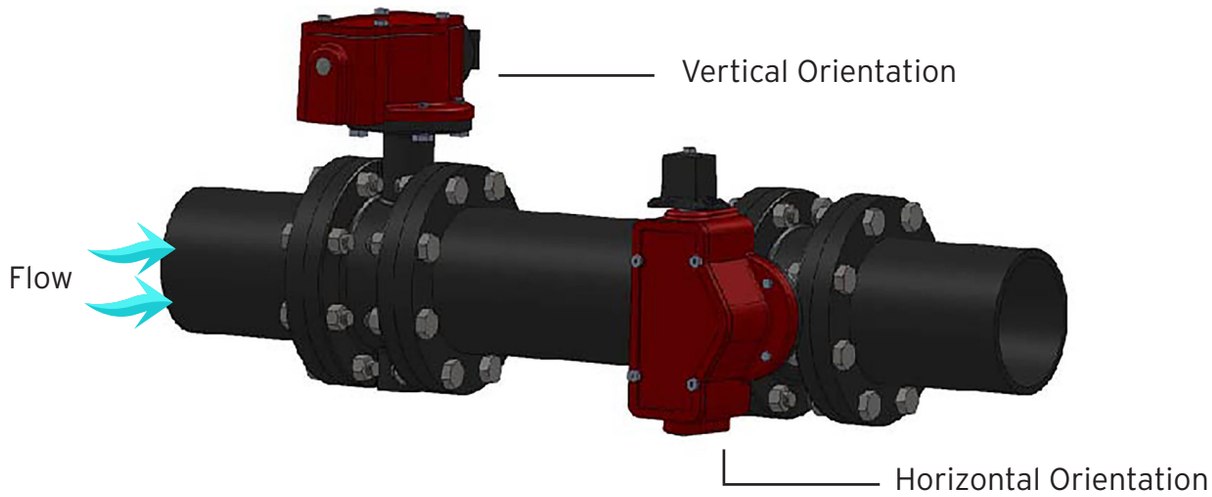
PRODUCT OVERVIEW

Designed for years of dependable service, the superior design of our butterfly valve provides ease of adjustment along with the ensured dependability expected in any distribution system or plant installation. Our butterfly valve has a 100% bubble tight seal via a 316 stainless steel ring located in the body, and rubber seat located on the vane. The rubber seat provides a 'zero leakage' alternative to metal-seated valves.

For pump station and treatment plant applications, butterfly valves offer flow control advantages (such as throttling) over gate valves,and are much more economical. Our butterfly valves are manufactured in accordance with the American Water Works Association (AWWA) C504 standard. Butterfly valves are constructed of ductile iron, stainless steel, rubber seats & seals. The strength of ductile iron along with stainless steel components provide corrosion resistance for buried service applications.

KEY CHARACTERISTICS	
Size Range	3"-54" (other sizes available upon request)
Materials	Ductile Iron ASTM A536 body cover and vane, seat ring 316 SS, 304 or 630 SS shafts, EPDM
O-Ring Seals	Chevron Type 3"-24" and O-ring type 30" and up
Pressure Range	CL 150 or CL 250
Temperature Range	33ºF-125ºF
Body Style	FLG, MJ or MJxFLG
Actuator Types	Traveling Nut Operator, Lever, Handwheel, 2" OP nut, Electric Motor Operator, Pneumatic Operator
Standards	AWWA C504, NSF/ANSI 61/362 certified

BUTTERFLY VALVE
FEATURES & BENEFITS



STANDARD FEATURES

- Sizes: 3"-54"
- Heavy duty ASTM A536 ductile iron body designed and manufactured to meet or exceed AWWA standard C504.
- Offset vane design: Heavy duty A536 ductile iron meets or exceeds AWWA C504.
- EPDM rubber is vulcanized to a 304 stainless steel ring and attached to the vane utilizing self-locking, stainless steel cap screws. Body ring seat is composed of 316 stainless steel, forming an uninterrupted 360-degree seal.

ADDITIONAL FEATURES

- **Stainless steel shafts:** One-piece shaft of stainless steel meets or exceeds AWWA C504: Class 150B – 304 stainless steel Class 250B – 630 stainless steel. Other options are available.
- **Direct mounted actuators:** Size 3"-24" butterfly valves come standard with an integrally cast actuator mounting pad machined and drilled in accordance with ISO-5211 and MSS SP-101. This allows for direct mounting a manual and automatic actuator without the need of additional pieces or adapters, providing a more compact and rigid arrangement.
- **Metal to metal:** Full metal-to-metal contact, vane to shaft connection utilizing a stainless-steel torque plug.
- **Strength:** Traveling nut actuators are manufactured with ductile iron housing and position stops are factory preset to prevent the actuator from going beyond the open and closed positions of the valve.
- **Overload protection:** Up to 450 ft-lbs. of input torque against the stops (open/close) to prevent damage to the valve and actuator.
- **Ease of maintenance:** The vane rubber seat ring is field adjustable or replaceable. Bearings for each size butterfly valve require no maintenance.
- **Vertical or Horizontal Orientation:** BFVs can be mounted both vertically and horizontally.

ENGINEERING FEATURES

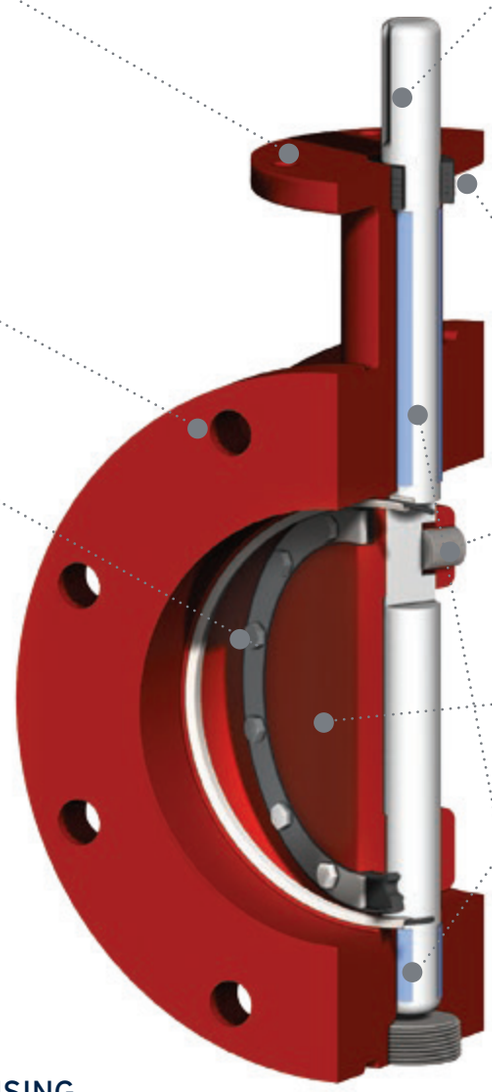
STYLE 4500 & 4600

SIZES 3"-12"

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

VALVE BODY
Butterfly Valve Bodies consist of heavy duty ASTM A536 ductile iron that are designed to meet or exceed AWWA C504.

SEALING SYSTEM
EPDM rubber is vulcanized to a 304 stainless steel ring and attached to the vane utilizing self-locking, stainless steel cap screws. The body ring seat is composed of 316 stainless steel, forming an uninterrupted 360-degree seal. Butterfly Valve vane rubber seat ring is easily field replaceable.



STAINLESS STEEL SHAFT
One-piece shaft of stainless steel meets or exceeds AWWA C504: Class 150B – 304 stainless steel Class 250B – 630 stainless steel. Other options are available.

SELF-ADJUSTING PERMANENT PACKING
Self-adjusting chevron-type seal that increases the sealing force with the increase in line pressure. Accessible without dismantling the valve, per AWWA C504.

TORQUE PLUG
Full metal-to-metal contact, vane to shaft connection utilizing a stainless steel torque plug.

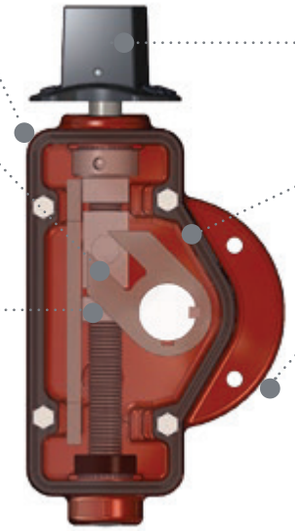
OFFSET VANE DESIGN
Heavy duty A536 ductile iron meets or exceeds AWWA C504.

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

DUCTILE IRON HOUSING
Includes a four bolt ISO-5211 & MSS-101 compliant connection.

LEVER & TRAVELING NUT
Ductile Iron construction, precision machined to transmit torque seamlessly. Contains multiple keyways to change the opening direction.

POSITION STOP NUTS
Factory preset internal adjusters prevent the actuator from going beyond the open and closed positions of the valve.



OVERLOAD PROTECTION
Up to 450 ft-lbs of input torque protection to prevent damage to the valve and actuator.

SEALS
Actuator is fully greased and utilizes a reusable rubber gasket in the housing cover and O-rings to seal the input shaft.

360° ROTATION
Actuator can be mounted in 90-degree increments for easy installation and operation without the need of adapter plates and additional parts.

MODEL 450 TRAVELING NUT ACTUATOR (SIZES 3"-12")

ENGINEERING FEATURES

STYLE 4500 & 4600

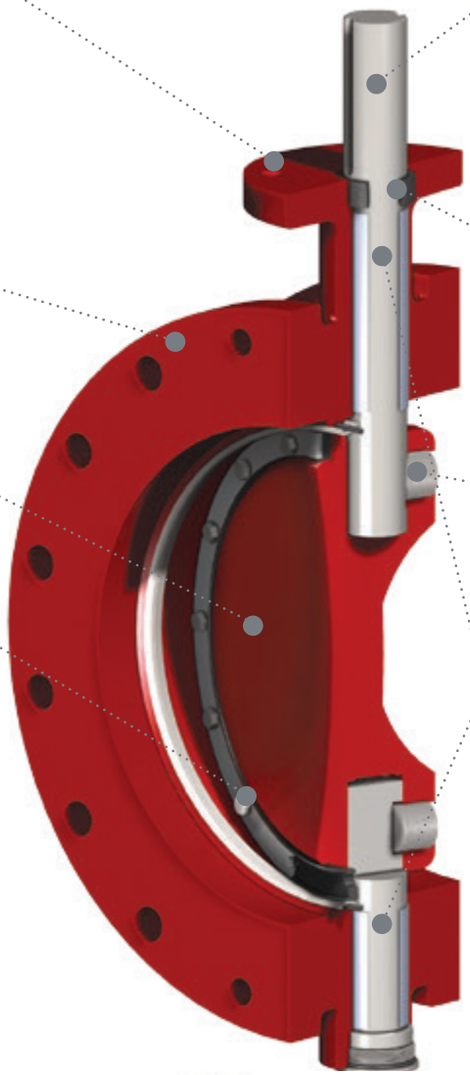
SIZES 14"-24"

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

VALVE BODY
Butterfly Valve bodies consist of heavy duty ASTM A536 ductile iron that are designed to meet or exceed the latest revision of AWWA C504.

OFFSET VANE DESIGN
Heavy duty A536 ductile iron meets or exceeds AWWA C504.

SEALING SYSTEM
EPDM rubber is vulcanized to a 304 stainless steel ring and attached to the vane utilizing self-locking, stainless steel cap screws. The body ring seat is composed of 316 stainless steel, forming an uninterrupted 360-degree seal. Butterfly Valve vane rubber seat ring is easily field replaceable.



STAINLESS STEEL SHAFT
Two-piece shaft of stainless steel meets or exceeds AWWA C504: Class 150B – 304 stainless steel Class 250B – 630 stainless steel. Other options are available.

SELF-ADJUSTING PERMANENT PACKING
Self-adjusting chevron-type seal that increases the sealing force with the increase in line pressure. Accessible without dismantling the valve, per AWWA C504.

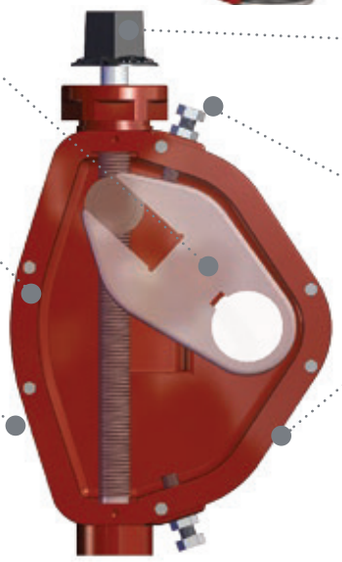
TORQUE PLUG
Full metal-to-metal contact, vane to shaft connection utilizing a stainless steel torque plug.

LIFETIME BEARINGS
PTFE-filled fiber bearings are sized to meet or exceed the AWWA C504 specification for axial pressure loads. The bearings are self-lubricating and require no maintenance.

LEVER
Ductile Iron construction, precision machined to transmit torque seamlessly. Contains multiple keyways to change the opening direction.

SEAL
Permanently lubricated and sealed to protect from the elements and groundwater.

DUCTILE IRON HOUSING
Includes a four bolt (14"–20") or eight bolt (24") ISO-5211 & MSS-101 compliant connection.



OVERLOAD PROTECTION
Up to 450 ft-lbs of input torque against the stops (open/close) to prevent damage to the valve and actuator.

POSITION STOP
Factory preset prevents the actuator from going beyond the open and closed positions of the valve.

360° ROTATION
Actuator can be mounted in 90-degree increments for easy installation and operation without the need of adapter plates and additional parts.

MODEL 1250 TRAVELING NUT ACTUATOR (SIZES 14"-24")

ENGINEERING FEATURES

STYLE 1450

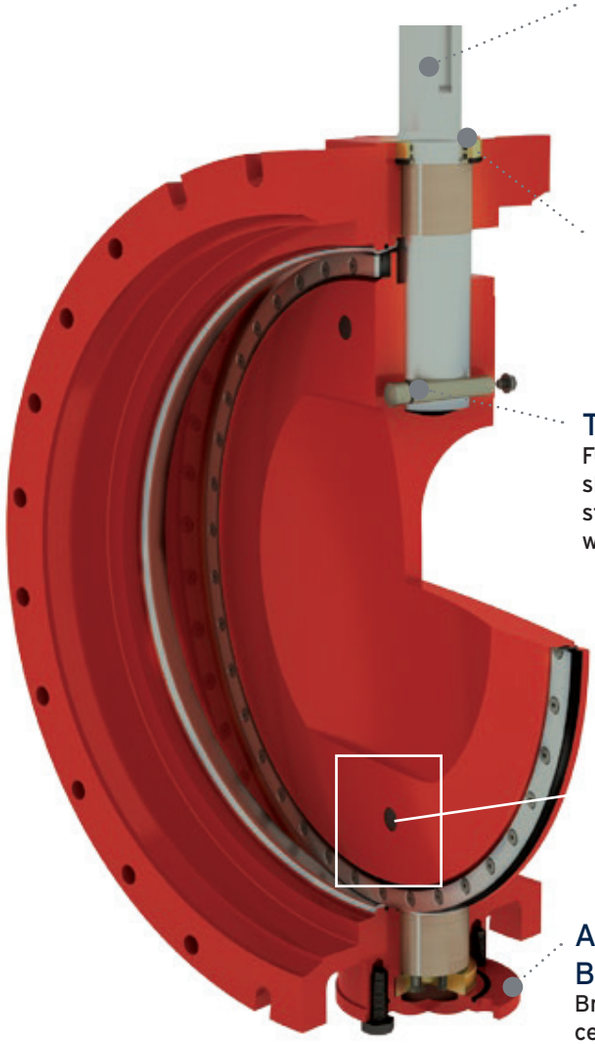
SIZES 30"-54"

BEARINGS
Generously sized, stainless steel backed, Teflon bearings provided on operator and thrust ends are self-lubricated, providing low friction support for the life of the valve. No maintenance is required.

OFFSET VANE DESIGN
Newly engineered vane provides large free flow area without sacrificing vane strength. Vane construction is of A536 ductile iron to meet or exceed AWWA standard C504.

VALVE BODY
Heavy duty ASTM A536 Ductile Iron body designed and manufactured to meet or exceed AWWA standard C504.

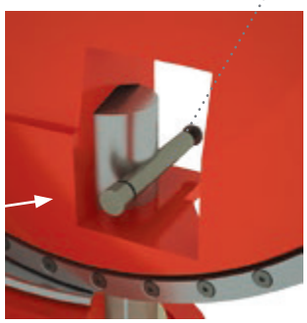
SEALING SYSTEM
EPDM rubber is vulcanized to a 304 stainless steel ring and attached to the vane utilizing self-locking, stainless steel cap screws. The body ring seat is composed of 316 stainless steel, forming an uninterrupted 360-degree seal. The style 4500 Butterfly Valve vane rubber seat ring is easily replaced in the field.



STAINLESS STEEL SHAFT
Two-piece shaft of stainless steel meets or exceeds AWWA C504: Class 150B – 304 stainless steel Class 250B – 630 stainless steel. Other options are available.

O-RING CARTRIDGE
Maximum shaft sealing efficiency with a non-adjustable bronze O-ring cartridge.

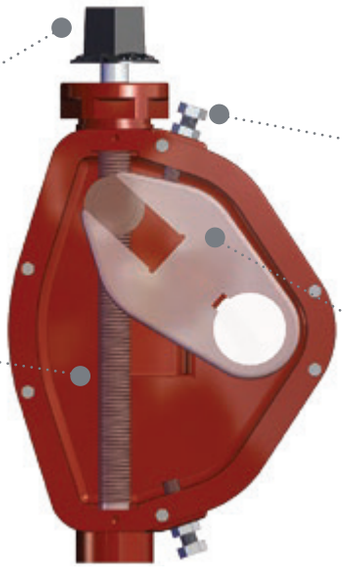
TAPER PINS
Full metal-to-metal contact, vane to shaft connection is accomplished by stainless steel taper pins secured with stainless steel lock bolts.



ADJUSTABLE THRUST BEARING
Bronze thrust bearing accurately centers vane in valve body. Accurate alignment is held in installation position. Factory adjusted for the life of the valve.

OVERLOAD PROTECTION
Up to 450 ft-lbs of input torque against the stops (open/close) to prevent damage to the valve and actuator.

DUCTILE IRON HOUSING
Proven strength, permanently lubricated and sealed to protect from the elements and groundwater.



POSITION STOP
Factory preset external adjusters prevent the actuator from going beyond the open and closed positions of the valve.

LEVER
Ductile Iron construction, precision machined to transmit torque seamlessly. Contains multiple keyways to change the opening direction.

RECOMMENDED SPECIFICATIONS
AWWA C-504 BUTTERFLY VALVE SIZE 3"-54"



GENERAL

All butterfly valves shall be of rubber-seated, tight-closing type. All valves shall be style 4500/1450. The butterfly valve shall be ANSI A21.11 mechanical joint or per flanged ANSI B16.1 (or as otherwise noted on plans and specs). Handcrank, handwheel or chainwheel – all manual operators for service other than underground shall have a position indicator and shall be totally enclosed and permanently lubricated. Actuators shall be designed to produce the required operating torque with a maximum rim pull of 80 lb. on handwheel or chainwheel and a maximum input of 150 ft. lb. on operating nuts.

REFERENCE STANDARDS

Butterfly valves shall meet or exceed AWWA Standard C504, latest edition, Class 150 or 250. Valves used in potable water service shall be certified to NSF/ANSI 61 "Drinking Water System Components-Health Effects" and certified to be lead free in accordance with NSF/ANSI 372.

VALVE BODY

The valve interior and exterior surfaces shall be coated in accordance with the latest revisions of AWWA C504 and must be NSF 61 Certified. The valve body and vane shall be high-strength ductile iron to ASTM A-536 with ASTM A-276 Type 316 stainless steel body seats.

VALVE SHAFT

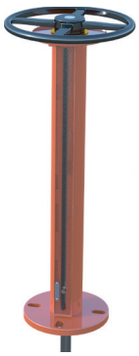
Valve shafts shall be ASTM A276 Type 304 stainless steel for CL150 or ASTM A564 Type 630 stainless steel for CL150. Each valve shaft shall be of a one-piece design for valves 12" and smaller and a two-piece design for valves 14" and larger. Valve shafts shall have a minimum diameter extending through the valve bearings and into the valve disc as specified in AWWA C504. All valve shafts must meet or exceed the minimum connection torque requirement set forth in AWWA C504.

Valve shaft seals shall be of the chevron-type for 3" – 24" and O-ring type for 30" and larger utilizing the same elastomer as specified for the valve seats and the intended service. All valve shaft seals must be easily field replaceable.

VALVE SEAT

Valve seat shall be EPDM. Rubber valve seats shall be a full-circle 360-degree seat not penetrated by the valve shaft. The valve seat will be attached to the valve vane by 18-8 Type 304 stainless steel self-locking fasteners. The valve seat must be easily field adjustable and replaceable without any special tools or lengthy curing time.

BUTTERFLY VALVE
ACCESSORIES & OPTIONS



Floor Stands

The F-5500-T Floor stand is for use on NRS valves. Floor stands are of high strength ductile iron and may be provided with extension arms of steel, stainless steel or bronze as specified. The F-5500-T indicating floor stand is for use on NRS valves where open/ close valve indication is needed.



Extension Stems

Valve extension stems are available in steel, or bronze and are provided with a 2" square nut or handwheel as specified. Extension stems are available for use with mud valves, gate valves, butterfly valves, etc. diameters up to 2-1/2" any length.

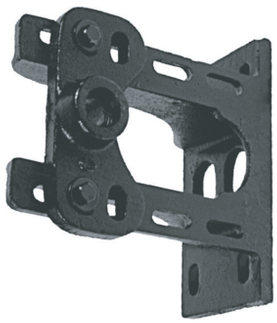


Size Range	Medium Length*	Maximum Length*
#1	2-1/2"	17"
#2	15"	24"
#3	24"	35"

**Distance from wall*

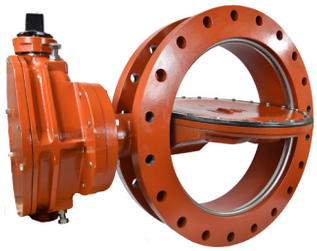
Floor Box

Floor boxes are designed for use with NRS valves. Installed in concrete floors or slabs they provide support for the extension stem and a cover for the operating nut on the stem. Available in 8", 10", and 12" lengths. Maximum stem diameter 1-3/4".



Stem Guides

Stem guides are installed as wall brackets to support extension arms. They are fully adjustable and are made of high strength ductile iron. The guide is bronze bushed where the extension stem passes through. They should be installed at a height which does not permit the stem to be unsupported through a length or more that 10 feet. Stem guides are available in three sizes. When ordering state distance from center line of operating stem to face of wall, or give the size as shown.

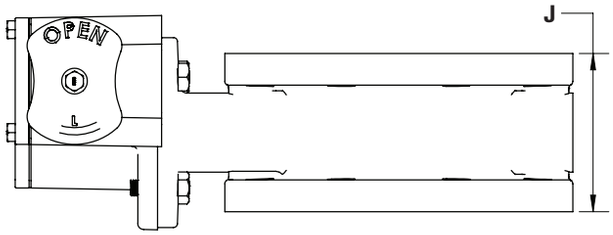


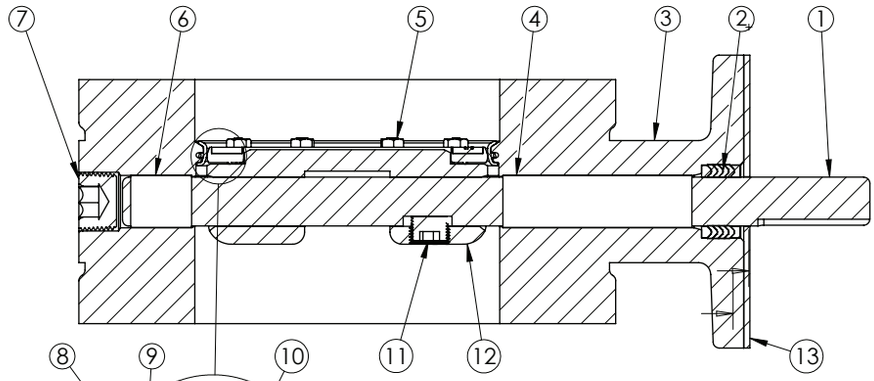
Valve Operators

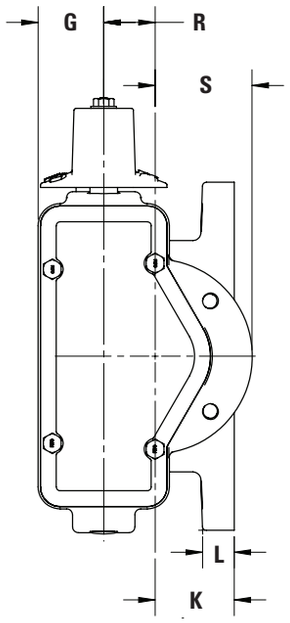
Cylinder operator, electric motor operator, worm gear operator, lever operator, hand wheel, chain wheel, and 2" op nut available. Other types upon request.

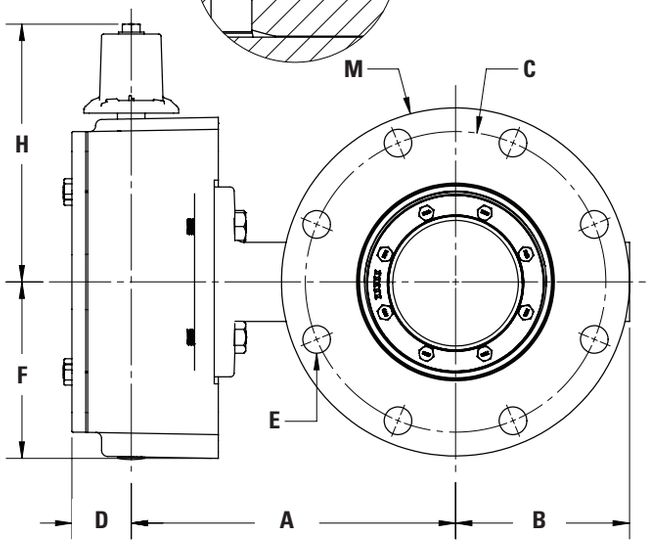
AWWA C504 BUTTERFLY VALVE
FLANGED ENDS - CL150 WITH BURIED SERVICE
SIZES 3″-12″

DRAWING NO.- **BD06-F11-M2210-11110** REV - **7/9/21**
DRAWN BY - **CM** 6″ valve shown here









ITEM	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Lower Journal Bearing	Nylatron
7	Body End Plug	Steel
8	Body O-ring	EPDM
9	Body Seat Ring	316 Stainless Steel
10	Vane Seat Ring	EPDM w/ Stainless Steel Insert
11	Vane Shaft Torque Plug	18-8 Stainless Steel
12	Vane	Ductile Iron, ASTM A-536
13	Seal Plate*	Steel

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. Rated for 150 PSI working pressure

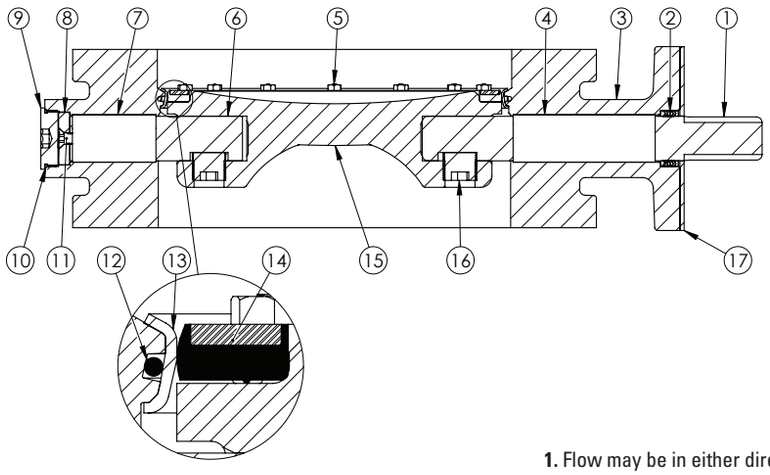
E - Bolt hole size
N - Number of turns
P - Number of bolt holes
Q - Diameter of bolts

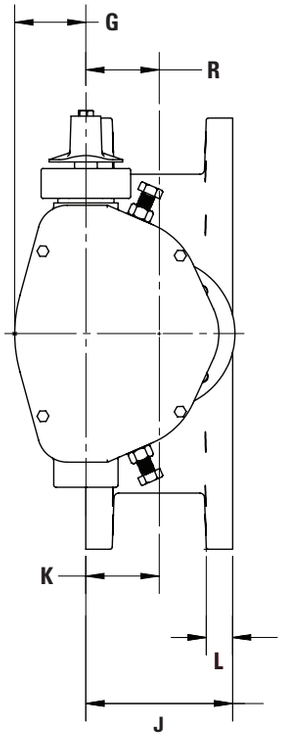
* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	OP. FLG	WEIGHT
3″	9-7/16″	4-13/16″	6″	1-7/8″	5/8″	5-9/16″	2-1/16″	8-1/8″	5″	2-1/2″	1″	9″	29	4	5/8″-11 UNC	1-5/8″	3-1/16″	FA12	75 lbs.
4″	9-7/16″	4-13/16″	7-1/2″	1-7/8″	3/4″	5-9/16″	2-1/16″	8-1/8″	5″	2-1/2″	1″	9″	29	8	5/8″	1-5/8″	3-1/16″	FA12	75 lbs.
6″	10-1/4″	5-1/2″	9-1/2″	1-7/8″	7/8″	5-9/16″	2-1/16″	8-1/8″	5″	2-1/2″	1″	11″	29	8	3/4″	1-5/8″	3-1/16″	FA12	95 lbs.
8″	13″	6-3/4″	11-3/4″	1-7/8″	7/8″	5-9/16″	2-1/16″	8-1/8″	6″	3″	1-1/8″	13-1/2″	29	8	3/4″	1-5/8″	N/A	FA12	140 lbs.
10″	13-1/4″	8-1/4″	14-1/4″	1-7/8″	1″	5-9/16″	N/A	8-1/8″	8″	4″	1-3/16″	16″	29	12	7/8″	1-5/8″	N/A	FA12	232 lbs.
12″	14-1/8″	9-1/2″	17″	1-7/8″	1″	5-9/16″	N/A	8-1/8″	8″	4″	1-1/4″	19″	29	12	7/8″	1-5/8″	N/A	FA12	300 lbs.

AWWA C504 BUTTERFLY VALVE
FLANGED ENDS - CL150 WITH BURIED SERVICE
SIZES 14″-24″

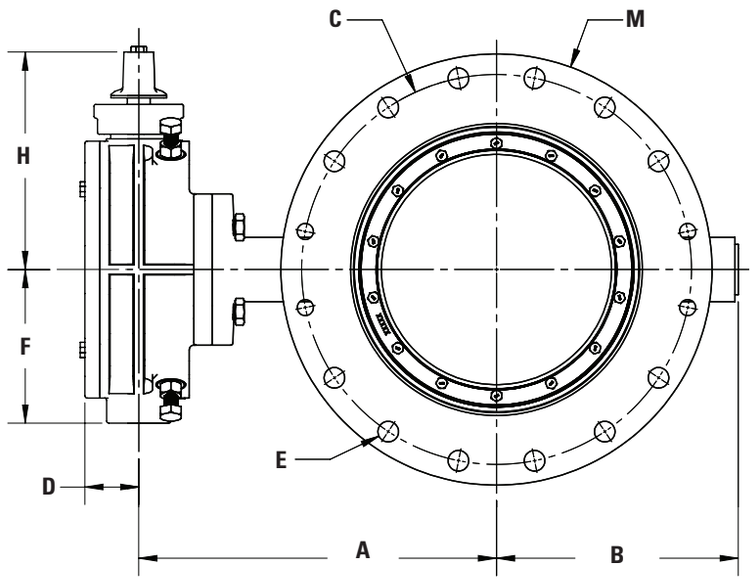
DRAWING NO.- **BD16-F11-M1110-11110** REV - **10/28/20**
DRAWN BY - **CTJ** 16″ valve shown here





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. Rated for 150 PSI working pressure

AA - Number of threaded holes
AB - Diameter of threaded holes
N - Number of turns
- Number of bolt holes
Q - Diameter of bolts



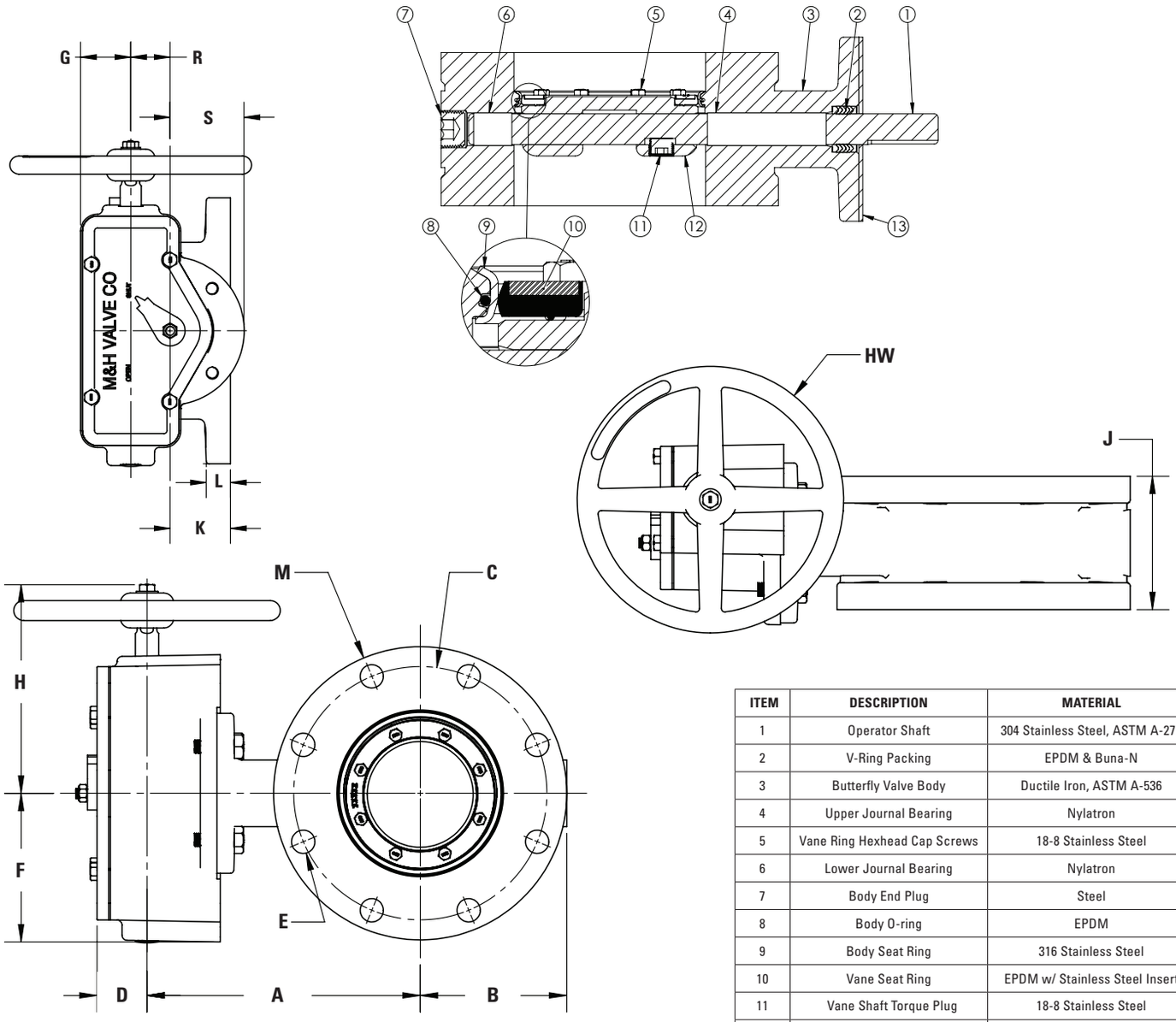
ITEM	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Thrust Shaft	304 Stainless Steel, ASTM A-276
7	Lower Journal Bearing	Nylatron
8	Thrust Bearing	Bronze Alloy
9	Body End Plug	Steel
10	Body End Plug O-ring	EPDM
11	Thrust Bearing Cap Screw	18-8 Stainless Steel
12	Body O-ring	EPDM
13	Body Seat Ring	316 Stainless Steel
14	Vane Seat Ring	EPDM w/ Stainless Steel Insert
15	Vane	Ductile Iron, ASTM A-536
16	Vane Shaft Torque Plug	18-8 Stainless Steel
17	Seal Plate*	Steel

* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	AA	AB	OP. FLG	WEIGHT
14″	18-3/4″	12-3/16″	18-3/4″	2-15/16″	1-1/8″	8-3/8″	3-7/8″	11-7/8″	8″	4″	1-3/8″	21″	48	12	1″	4″	4	1″-8 UNC	FA16	485 lbs.
16″	19-1/2″	13-3/16″	21-1/4″	2-15/16″	1-1/8″	8-3/8″	3-7/8″	11-7/8″	8″	4″	1-7/16″	23-1/2″	48	16	1″	4″	4	1″-8 UNC	FA16	570 lbs.
18″	20-1/4″	14-7/16″	22-3/4″	2-15/16″	1-1/4″	8-3/8″	3-7/8″	11-7/8″	8″	4″	1-9/16″	25″	48	16	1-1/8″	4″	4	1-1/8″-7 UNC	FA16	735 lbs.
20″	21-1/2″	15-7/16″	25″	2-15/16″	1-1/4″	8-3/8″	3-7/8″	11-7/8″	8″	4″	1-11/16″	27-1/2″	48	20	1-1/8″	4″	4	1-1/8″-7 UNC; 1-3/4″ Min. Depth	FA16	860 lbs.
24″	24-1/8″	18-1/2″	29-1/2″	2-15/16″	1-3/8″	10-3/8″	4-3/4″	13-7/8″	8″	4″	1-7/8″	32″	72	20	1-1/4″	6″	4	1-1/4″-7 UNC	FA25	1,165 lbs.

AWWA C504 BUTTERFLY VALVE
FLANGED ENDS - CL150 WITH HANDWHEEL OPERATOR
SIZES 3″-12″

DRAWING NO.- **BD06-F11-M2210-11110** REV - **7/9/21**
DRAWN BY - **CM** 6″ valve shown here



ITEM	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Lower Journal Bearing	Nylatron
7	Body End Plug	Steel
8	Body O-ring	EPDM
9	Body Seat Ring	316 Stainless Steel
10	Vane Seat Ring	EPDM w/ Stainless Steel Insert
11	Vane Shaft Torque Plug	18-8 Stainless Steel
12	Vane	Ductile Iron, ASTM A-536
13	Seal Plate	Steel

N - Number of turns
P - Number of bolt holes
Q - Bolt hole size

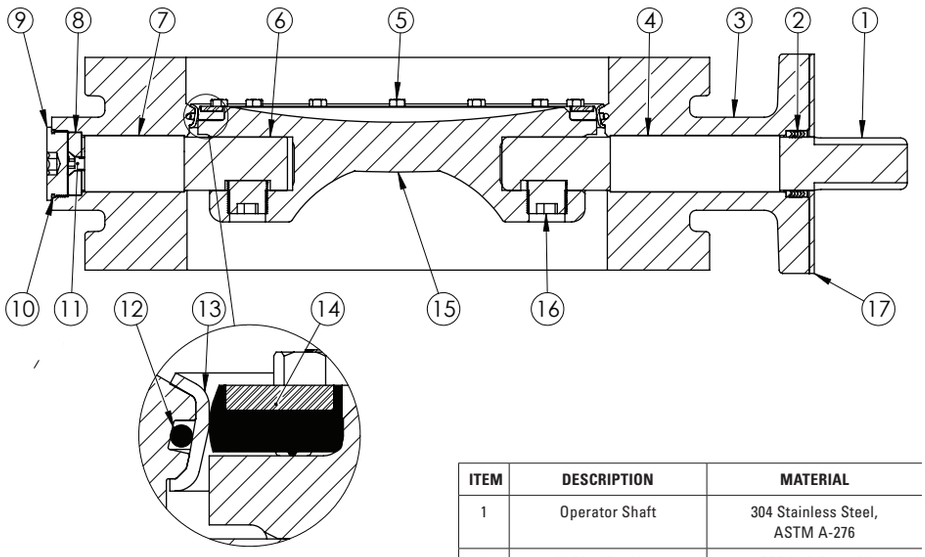
1. Flow may be in either direction
2. Valve shaft will meet or exceed AWWA C504 requirements
3. Reference AWWA C504 for flanges and drilling (ANSI 125)

* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	HW	OP. FLG	WEIGHT
3″	9-7/16″	4-13/16″	6″	1-7/8″	5/8″	5-9/16″	2-1/16″	7-13/16″	5″	2-1/2″	1″	9″	29	4	5/8″-11 UNC	1-5/8″	3-1/16″	10″	FA12	75 lbs.
4″	9-7/16″	4-13/16″	7-1/2″	1-7/8″	3/4″	5-9/16″	2-1/16″	7-13/16″	5″	2-1/2″	1″	9″	29	8	5/8″	1-5/8″	3-1/16″	10″	FA12	75 lbs.
6″	10-1/4″	5-1/2″	9-1/2″	1-7/8″	7/8″	5-9/16″	2-1/16″	7-13/16″	5″	2-1/2″	1″	11″	29	8	3/4″	1-5/8″	3-1/16″	10″	FA12	95 lbs.
8″	13″	6-3/4″	11-3/4″	1-7/8″	7/8″	5-9/16″	2-1/16″	7-13/16″	6″	3″	1-1/8″	13-1/2″	29	8	3/4″	1-5/8″	N/A	10″	FA12	140 lbs.
10″	13-1/4″	8-1/4″	14-1/4″	1-7/8″	1″	5-9/16″	N/A	7-13/16″	8″	4″	1-3/16″	16″	29	12	7/8″	1-5/8″	N/A	10″	FA12	232 lbs.
12″	14-1/8″	9-1/2″	17″	1-7/8″	1″	5-9/16″	N/A	7-13/16″	8″	4″	1-1/4″	19″	29	12	7/8″	1-5/8″	N/A	10″	FA12	300 lbs.

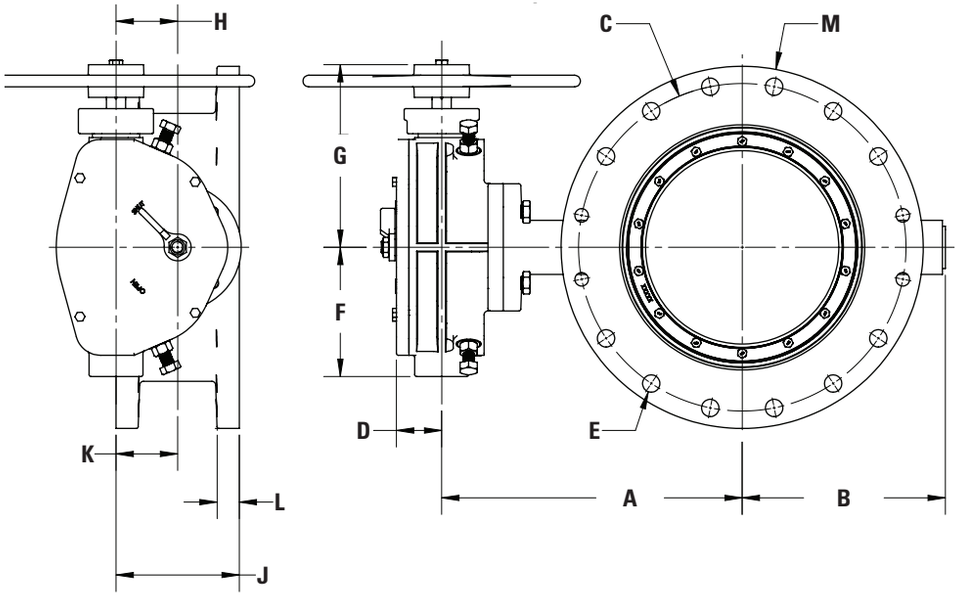
AWWA C504 BUTTERFLY VALVE
FLANGED ENDS - CL150 WITH HANDWHEEL OPERATOR
SIZES 14"-24"

DRAWING NO.- **BD16-F11-M2210-11110** REV - **10/28/20**
DRAWN BY - **CTJ** 16" valve shown here



N - Number of turns
P - Number of bolt holes
Q - Diameter of bolts
AA - Number of threaded holes
AB- Diameter of threaded holes
HW - Handwheel diameter

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. Rated for 150 PSI working pressure



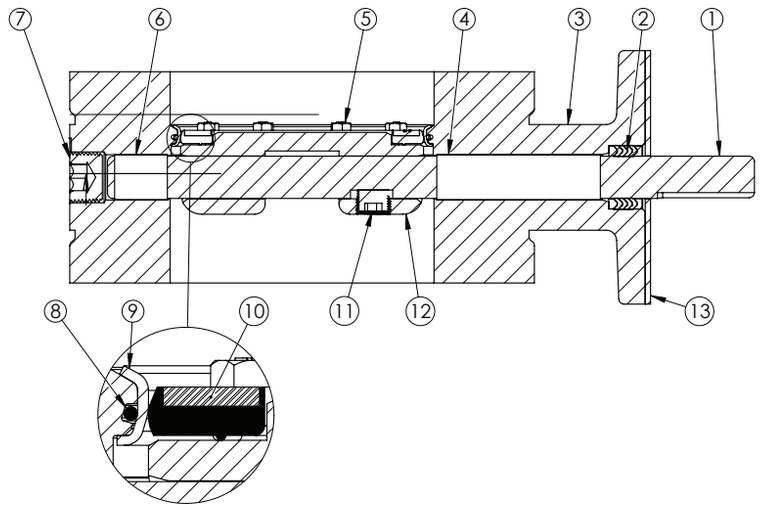
ITEM	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Thrust Shaft	304 Stainless Steel, ASTM A-276
7	Lower Journal Bearing	Nylatron
8	Thrust Bearing	Bronze Alloy
9	Body End Plug	Steel
10	Body End Plug O-ring	EPDM
11	Thrust Bearing Cap Screw	18-8 Stainless Steel
12	Body O-ring	EPDM
13	Body Seat Ring	316 Stainless Steel
14	Vane Seat Ring	EPDM w/ Stainless Steel Insert
15	Vane	Ductile Iron, ASTM A-536
16	Vane Shaft Torque Plug	18-8 Stainless Steel
17	Seal Plate*	Steel

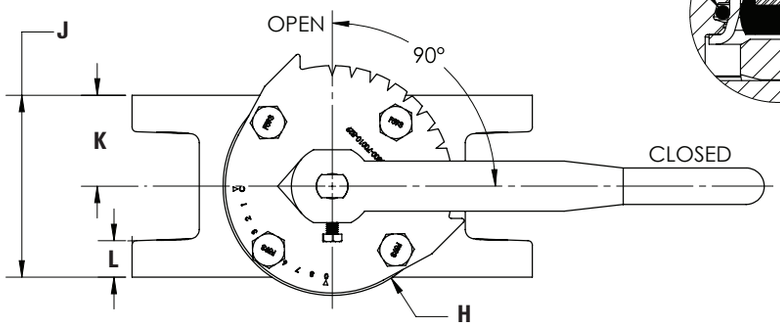
* Seal Plate provided with all barestem valves, and used with all purchased operators.

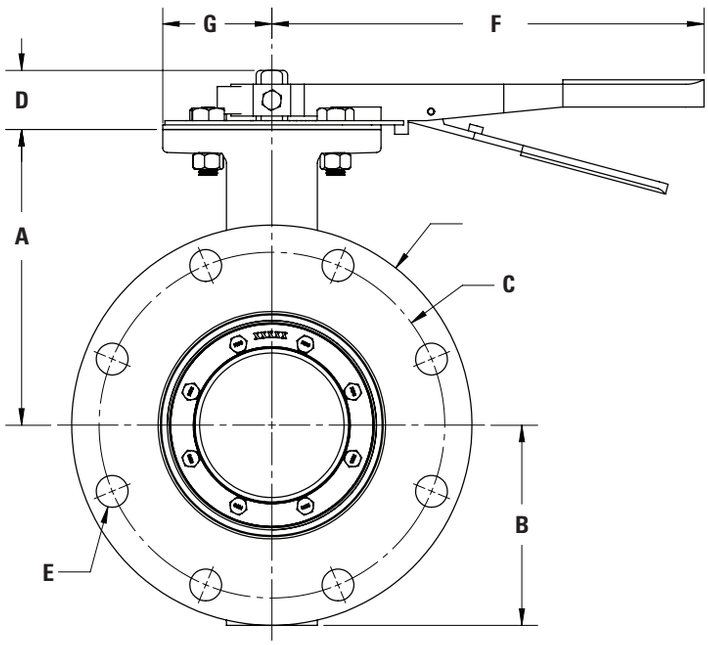
SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	AA	AB	OP. FLG	HW	WEIGHT
14"	18-3/4"	12-3/16"	18-3/4"	2-15/16"	1-1/8"	8-3/8"	11-7/8"	N/A	8"	4"	1-3/8"	21"	48	12	1"	4	1"-8 UNC Thru	FA16	18"	485 lbs.
16"	19-1/2"	13-3/16"	21-1/4"	2-15/16"	1-1/8"	8-3/8"	11-7/8"	4"	8"	4"	1-7/16"	23-1/2"	48	16	1"	4	1"-8 UNC Thru	FA16	18"	570 lbs.
18"	20-1/4"	14-7/16"	22-3/4"	2-15/16"	1-1/4"	8-3/8"	11-7/8"	4"	8"	4"	1-9/16"	25"	48	16	1-1/8"	4	1-1/8"-7 UNC Thru	FA16	18"	735 lbs.
20"	21-1/2"	15-7/16"	25"	2-15/16"	1-1/4"	8-3/8"	11-7/8"	4"	8"	4"	1-11/16"	27-1/2"	48	20	1-1/8"	4	1-1/8"-7 UNC; 1-3/4" Min. Depth	FA16	18"	860 lbs.
24"	24-1/8"	18-1/2"	29-1/2"	2-15/16"	1-3/8"	10-3/8"	11-7/8"	6"	8"	4"	1-7/8"	32"	72	20	1-1/4"	4	1-1/4"-7 UNC; 7/8" Min. Depth	FA25	18"	1,165 lbs.

AWWA C504 BUTTERFLY VALVE
FLANGED ENDS - CL150 WITH LEVER
SIZES 3″-8″

DRAWING NO.- **BD06-F11-L0000-11110** REV - **10/14/20**
DRAWN BY - **CTJ** 6″ valve shown here







P - Number of bolt holes
Q - Diameter of bolts

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 turns to close
5. (P) Q bolts on each flange
6. Rated for 150 PSI working pressure

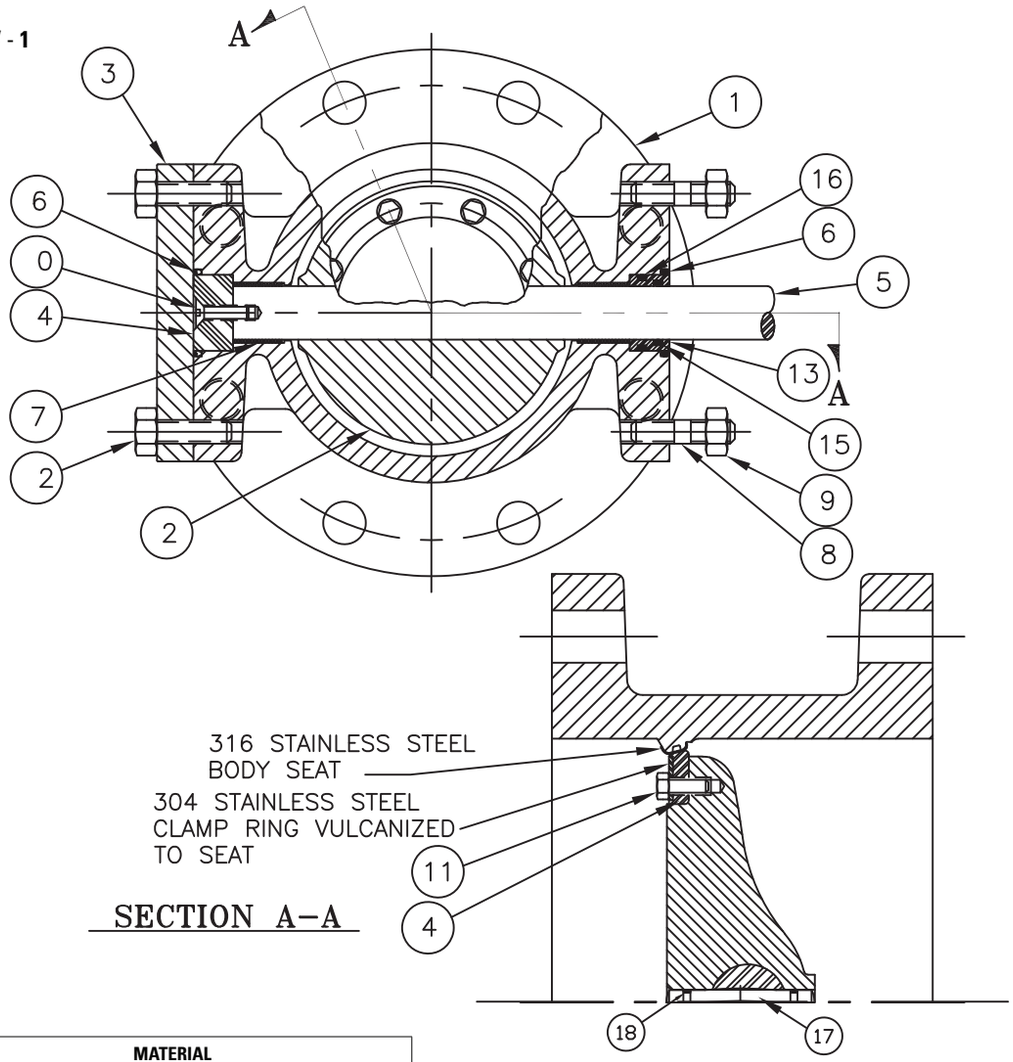
SIZE	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Lower Journal Bearing	Nylatron
7	Body End Plug	Steel
8	Body O-ring	EPDM
9	Body Seat Ring	316 Stainless Steel
10	Vane Seat Ring	EPDM w/ Stainless Steel Insert
11	Vane Shaft Torge Plug	18-8 Stainless Steel
12	Vane	Ductile Iron, ASTM A-536
13	Seal Plate*	Steel

* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	D	E	F	G	H	J	K	L	P	Q	OP. FLG	WEIGHT
3″	6-13/16″	4-13/16″	6″	1-3/4″	5/8″	11-7/8″	3″	6″	5″	2-1/2″	1″	4	5/8″-11 UNC	FA12	75 lbs.
4″	6-13/16″	4-13/16″	7-1/2″	1-3/4″	3/4″	11-7/8″	3″	6″	5″	2-1/2″	1″	8	5/8″	FA12	75 lbs.
6″	7-5/8″	5-1/2″	9-1/2″	1-7/16″	7/8″	11-7/8″	3″	6″	5″	2-1/2″	1″	8	3/4″	FA12	95 lbs.
8″	10-3/8″	6-3/4″	11-3/4″	1-5/8″	7/8″	11-7/8″	3″	6″	6″	3″	1-1/8″	8	3/4″	FA12	140 lbs.

STYLE 4500, CLASS 150 BUTTERFLY VALVE
FLANGED ENDS SUB ASSEMBLY / MATERIAL LIST
SIZES 3"-12"

DRAWING NO.- **CAT914C10011-01** REV - **1**
DRAWN BY - **D SKAKAL**

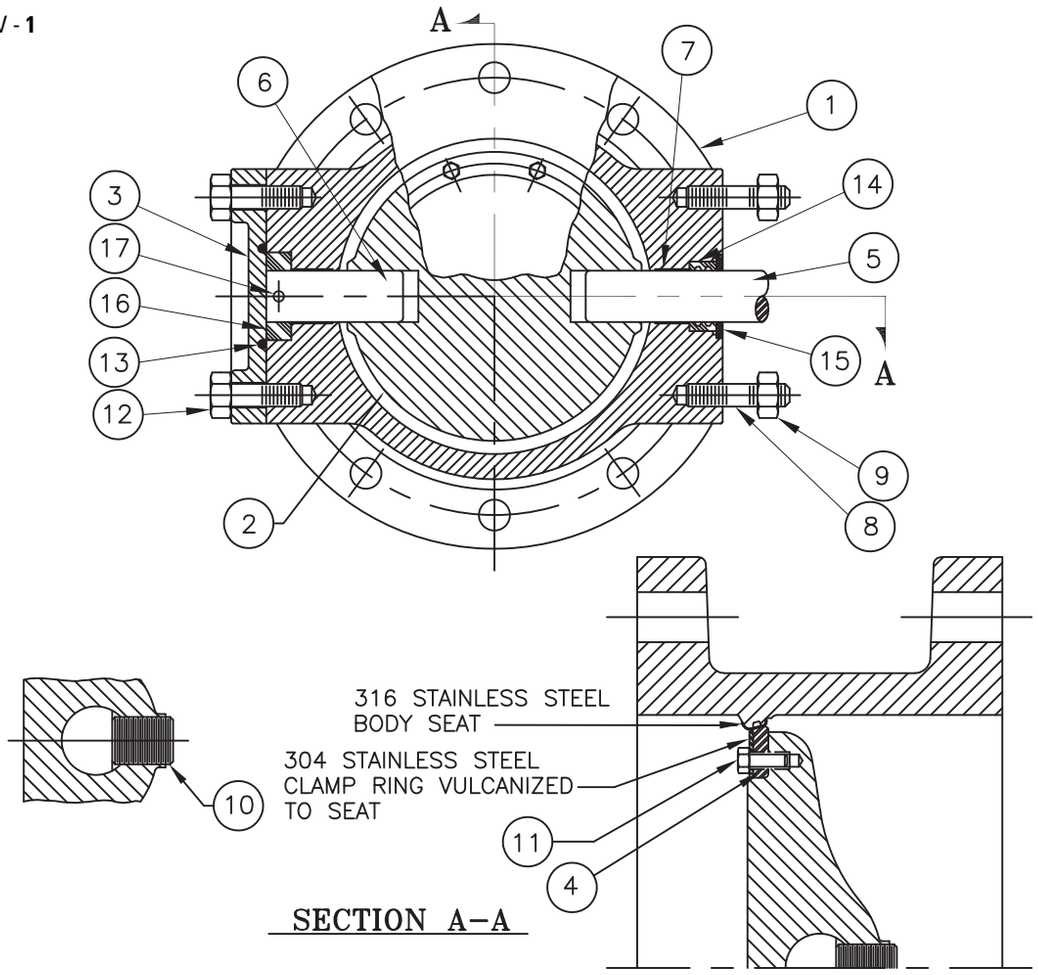


SECTION A–A

ITEM	PART NAME	MATERIAL
1	Body, Valve	Cast Iron, A-126, Class B with 316 Stainless Steel Seat
2	Vane	Cast Iron, A-126, Class B
3	Cover, End	Cast Iron, A-126, Class B
4	Seat Ring, Vane	EPDM with 304 Stainless Steel Insert
5	Shaft	304 Stainless Steel, ASTM A-276
6	O-Ring, Body	Buna-N
7	Bearing, Body	Nylatron GS Nylon
8	Stud	A307 Steel (Standard) / 304 SS (Optional) / 316 SS (Optional)
9	Nut, Heavy Hex	A307 Steel (Standard) / 304 SS (Optional) / 316 SS (Optional)
10	Socket Screw, Flat Head Hex	Stainless Steel, 18-8
11	Capscrew, Hex	Stainless Steel, 18-8 with Nylok Insert
12	Capscrew, Hex	A307 Steel (Standard) / 304 SS (Optional) / 316 SS (Optional)
13	Capscrew, Seal	Acetal
14	Thrust Disk	Acetal
15	O-Ring Cartridge, Inside	Buna-N
16	O-Ring Cartridge, Outside	Buna-N
17	Grooved Pin	303 Stainless Steel
18	O-Ring, Grooved Pin	Buna-N

STYLE 4500, CLASS 150 BUTTERFLY VALVE
FLANGED ENDS SUB ASSEMBLY / MATERIAL LIST
SIZES 14"-24"

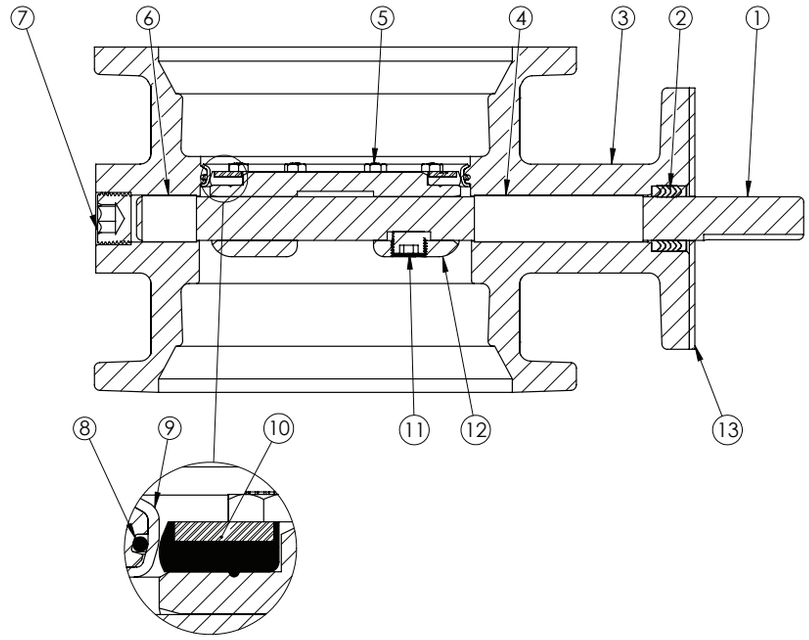
DRAWING NO.- **CAT914C10011-01** REV - **1**
DRAWN BY - **D SKAKAL**



ITEM	PART NAME	MATERIAL
1	Body, Valve	Cast Iron, A-126, Class B with 316 Stainless Steel Seat
2	Vane	Cast Iron, A-126, Class B
3	Cover, End	Cast Iron, A-126, Class B
4	Seat Ring, Vane	EPDM with 304 Stainless Steel Insert
5	Shaft, Operator	304 Stainless Steel, ASTM A-276
6	Shaft, Thrust	304 Stainless Steel, ASTM A-276
7	Bushing	Reinforced Teflon
8	Stud	A307 Steel (Standard) / 304 SS (Optional) / 316 SS (Optional)
9	Nut, Hex	A307 Steel (Standard) / 304 SS (Optional) / 316 SS (Optional)
10	Torque Plug, Shaft	304 Stainless Steel, ASTM A-276
11	Capscrew, Hex	Stainless Steel, 18-8 with Nylok Insert
12	Bolt, Hex Head	A307 Steel (Standard) / 304 SS (Optional) / 316 SS (Optional)
13	O-Ring, End Cover	Buna-N
14	Shaft Seal	Buna-S
15	Seal Ring	Steel, C-1018
16	Thrust Collar	Bronze Alloy UNS C93200
17	Roll Pin	Stainless Steel A.I.S.I. 420

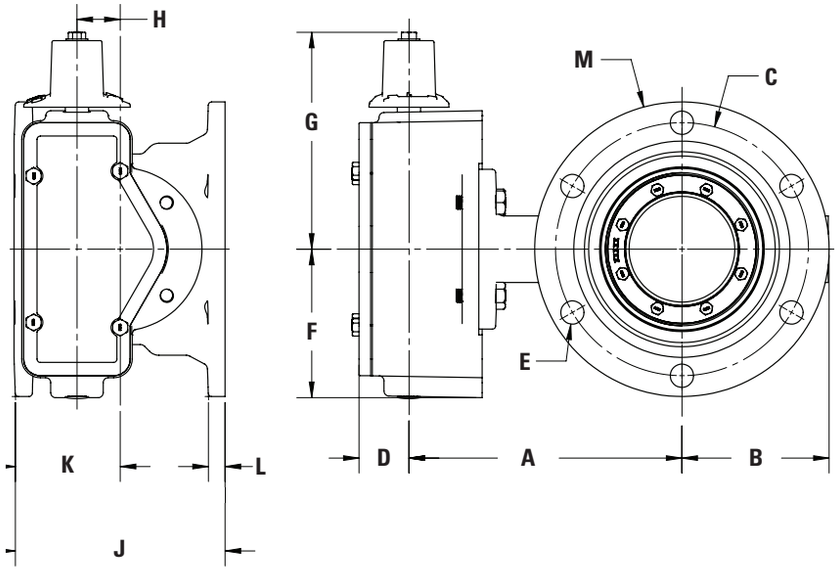
AWWA C504 BUTTERFLY VALVE
MECHANICAL JOINT ENDS- CL150 WITH BURIED SERVCE
SIZES 4"-12"

DRAWING NO.BD16-M11-M1110-11110 REV 7/6/21
DRAWN BY CM 6" valve shown here



N - Number of turns
P - Number of bolt holes
Q - Diameter of bolts

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 turns to close
5. Rated for 150 PSI working pressure



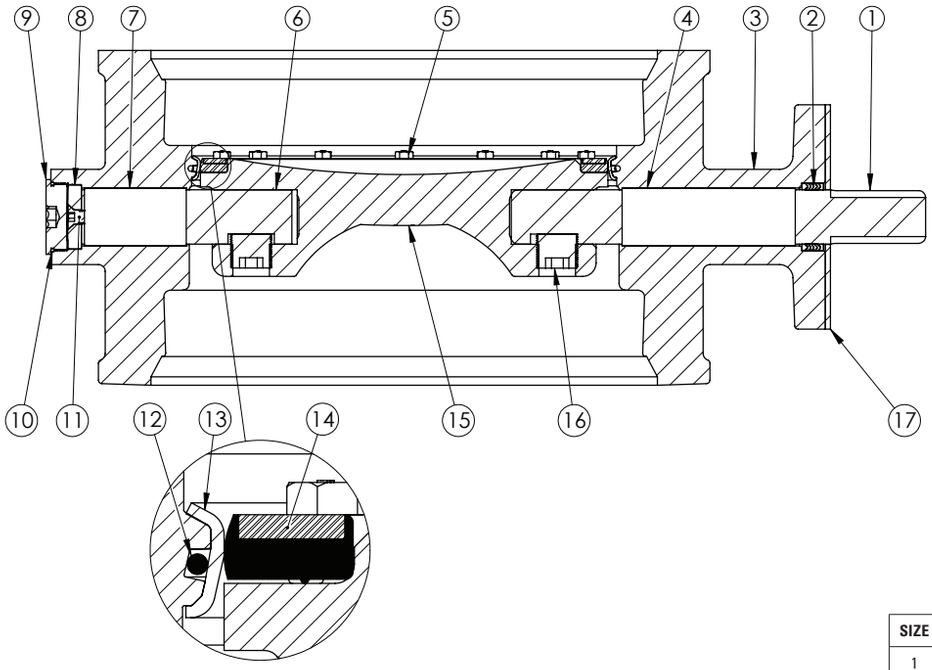
ITEM	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Lower Journal Bearing	Nylatron
7	Body End Plug	Steel
8	Body O-ring	EPDM
9	Body Seat Ring	316 Stainless Steel
10	Vane Seat Ring	EPDM w/ Stainless Steel Insert
11	Vane Shaft Torque Plug	18-8 Stainless Steel
12	Vane	Ductile Iron, ASTM A-536
13	Seal Plate*	Steel

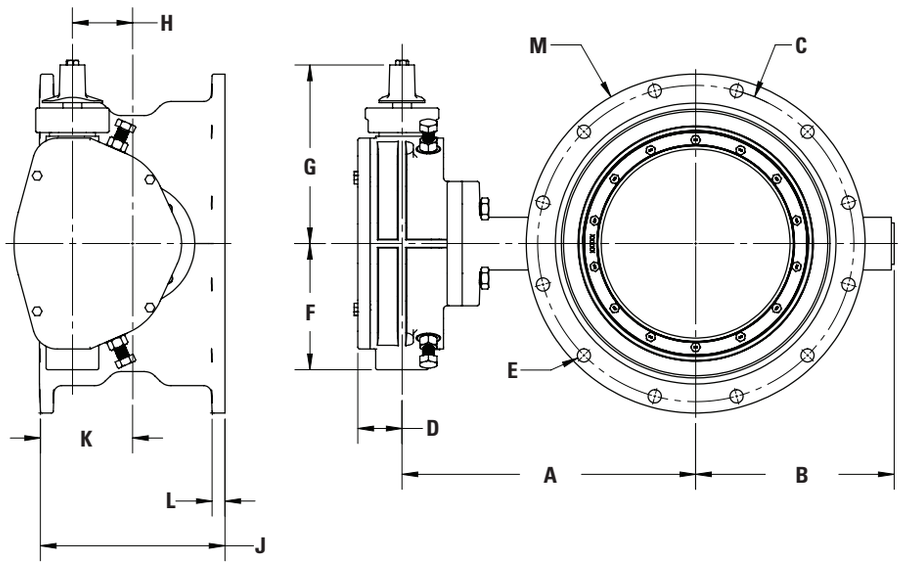
* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	OP. FLG	WEIGHT
4"	9-7/16"	4-13/16"	7-1/2"	1-7/8"	7/8"	5-9/16"	8-1/8"	1-5/8"	7-1/2"	3-15/16"	5/8"	9-1/16"	29	4	5/8"	FA12	100 lbs.
6"	10-1/4"	5-1/2"	9-1/2"	1-7/8"	7/8"	5-9/16"	8-1/8"	1-5/8"	7-7/8"	3-15/16"	5/8"	11-1/16"	29	6	3/4"	FA12	135 lbs.
8"	13"	6-3/4"	11-3/4"	1-7/8"	7/8"	5-9/16"	8-1/8"	1-5/8"	8"	4"	5/8"	13-5/16"	29	6	3/4"	FA12	185 lbs.
10"	13-1/4"	8-1/4"	14-1/4"	1-7/8"	7/8"	5-9/16"	8-1/8"	1-5/8"	9-1/4"	4-5/8"	11/16"	15-5/8"	29	8	3/4"	FA12	285 lbs.
12"	14-1/8"	9-3/16"	16-1/4"	1-7/8"	7/8"	5-9/16"	8-1/8"	1-5/8"	9-1/4"	4-5/8"	3/4"	17-7/8"	29	8	3/4"	FA12	335 lbs.

AWWA C504 BUTTERFLY VALVE
MECHANICAL JOINT ENDS - CL150 WITH BURIED SERVICE
SIZES 14"-24"

DRAWING NO.- **BD16-M11-M1110-11110** REV - **10/30/20**
DRAWN BY - **CTJ** 16" valve shown here





N - Number of turns
P - Number of bolt holes
Q - Diameter of bolts

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 turns to close
5. (P) E bolts on each flange
6. Operated by 2" AWWA Operating / Wrench Nut
7. Rated for 150 PSI working pressure
8. Gaskets, glands, and bolts for Mechanical Joint furnished with valve when specified on order

SIZE	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Thrust Shaft	304 Stainless Steel, ASTM A-276
7	Lower Journal Bearing	Nylatron
8	Thrust Bearing	Bronze Alloy
9	Body End Plug	Steel
10	Body End Plug O-ring	EPDM
11	Thrust Bearing Cap Screw	18-8 Stainless Steel
12	Body O-ring	EPDM
13	Body Seat Ring	316 Stainless Steel
14	Vane Seat Ring	EPDM w/ Stainless Steel Insert
15	Vane	Ductile Iron, ASTM A-536
16	Vane Shaft Torge Plug	18-8 Stainless Steel
17	Seal Plate*	Steel

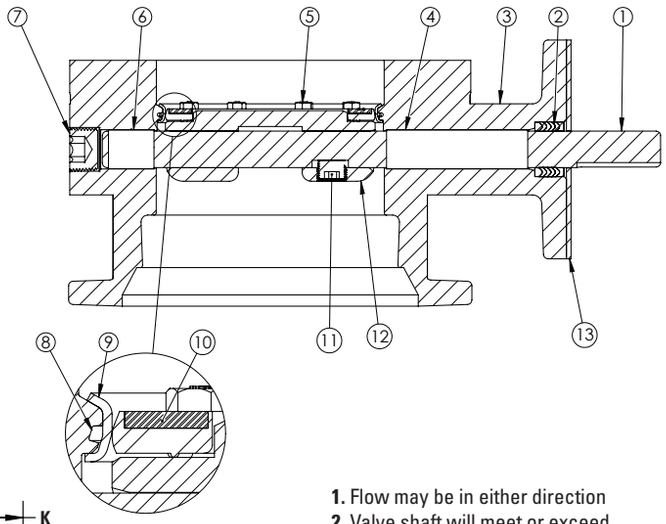
* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	OP. FLG	WEIGHT
14"	18-3/4"	12-3/16"	18-3/4"	2-15/16"	7/8"	8-3/8"	11-7/8"	4"	12-1/4"	4"	13/16"	20-1/4"	48	10	3/4"	FA16	580 lbs.
16"	19-1/2"	13-3/16"	21"	2-15/16"	7/8"	8-3/8"	11-7/8"	4"	12-1/4"	4"	7/8"	22-1/2"	48	12	3/4"	FA16	670 lbs.
18"	20-1/4"	14-7/16"	23-1/4"	2-15/16"	7/8"	8-3/8"	11-7/8"	4"	13-1/8"	4"	1"	24-13/16"	48	12	3/4"	FA16	920 lbs.
20"	21-1/2"	15-7/16"	25-1/2"	2-15/16"	7/8"	8-3/8"	11-7/8"	4"	13-1/8"	4"	1"	27-1/16"	48	14	3/4"	FA16	1,065 lbs.
24"	24-1/8"	18-1/2"	30"	2-15/16"	7/8"	10-3/8"	13-7/8"	6"	14-1/2"	4"	1"	31-9/16"	72	16	3/4"	FA25	1,475 lbs.

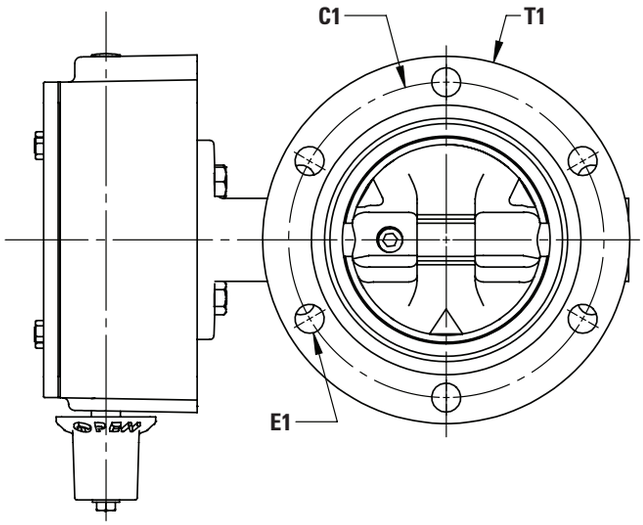
AWWA C504 BUTTERFLY VALVE
FLG x MJ - CL150 WITH BURIED SERVICE
SIZES 6", 8", 12", 16"

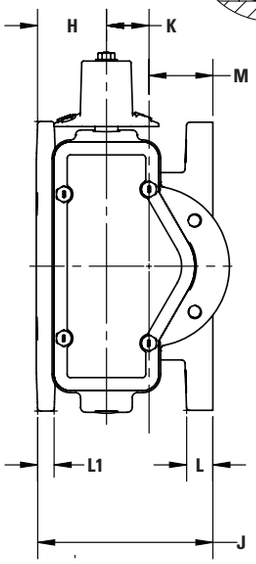
DRAWING NO.- **BD16-X11-M1110-11110** REV - **7/9/21**

DRAWN BY - **CM** 6" valve shown here

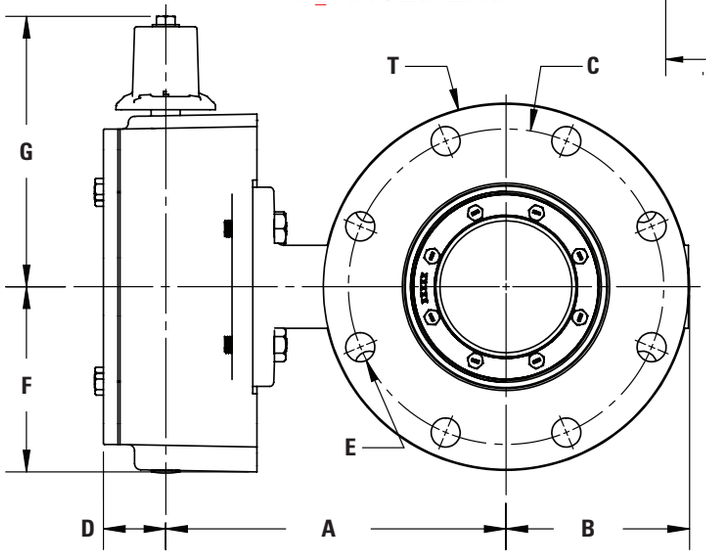


MECHANICAL JOINT





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. (R) S bolts on each flange
5. Rated for 150 PSI working pressure
6. Gasket, glands, and bolts for mechanical joint furnished with valve when specified on order

AA - Number of threaded holes
AB - Diameter of threaded holes
N - Number of turns
P - Number of bolt holes on flange
Q - Diameter of flange bolts
R - Number of bolts on MJ end
S - Diameter of MJ bolts

ITEM	DESCRIPTION	MATERIAL
1	Operator Shaft	304 Stainless Steel, ASTM A-276
2	V-Ring Packing	EPDM & Buna-N
3	Butterfly Valve Body	Ductile Iron, ASTM A-536
4	Upper Journal Bearing	Nylatron
5	Vane Ring Hexhead Cap Screws	18-8 Stainless Steel
6	Lower Journal Bearing	Nylatron
7	Body End Plug	Steel
8	Body O-ring	EPDM
9	Body Seat Ring	316 Stainless Steel
10	Vane Seat Ring	EPDM w/ Stainless Steel Insert
11	Vane Shaft Torge Plug	18-8 Stainless Steel
12	Vane	Ductile Iron, ASTM A-536
13	Seal Plate*	Steel

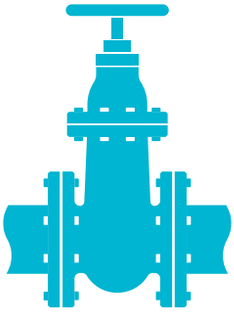
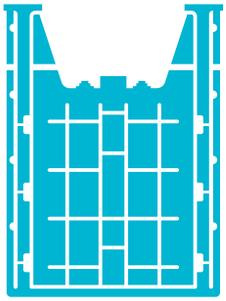
* Seal Plate provided with all barestem valves, and used with all purchased operators.

SIZE	A	B	C	C1	D	E	E1	F	G	H	J	K	L	L1	M	N	P	Q	R	S	T	T1	AA	AB	OP. FLG	WEIGHT
6"	10-1/4"	5-1/2"	9-1/2"	9-1/2"	1-7/8"	7/8"	7/8"	5-9/16"	8-1/8"	2-5/8"	6-11/16"	1-5/8"	1"	5/8"	2-7/16"	29	8	3/4"	6	3/4"	11"	11-1/16"	N/A	N/A	FA12	120 lbs.
8"	13"	6-3/4"	11-3/4"	11-3/4"	1-7/8"	7/8"	7/8"	5-9/16"	8-1/8"	2-7/8"	7-1/2"	1-5/8"	1-1/8"	1"	3"	29	8	3/4"	6	3/4"	13-1/2"	13-5/16"	N/A	N/A	FA12	160 lbs.
12"	14-1/8"	9-1/2"	17"	16-1/4"	1-7/8"	1"	7/8"	5-9/16"	8-1/8"	3-1/8"	8-3/4"	1-5/8"	1-1/4"	3/4"	N/A	29	12	7/8"	8	7/8"	19"	17-7/8"	N/A	N/A	FA12	315 lbs.
16"	19-1/2"	13"	21-1/4"	21"	2-15/16"	1-1/8"	7/8"	8-3/8"	11-7/8"	3-7/8"	10-1/8"	4"	1-7/16"	7/8"	4"	48	16	1"	12	1"	23-1/2"	22-1/2"	4	1"-8 UNC Thru	FA16	645 lbs.

MPI PRODUCT LINE
VALVES • GATES • PIPE & FITTINGS






VALVES

SOLUTIONS:

- Rotating Disc Gate Valves (AWWA C500)
- Eccentric Plug Valves (AWWA C517)
- Butterfly Valves (AWWA C504)
- High Performance Butterfly Valves (API 609)
- Swing Check Valve (AWWA C508)
- Ken-Flex Resilient Hinged Check Valve
- Telescoping Valve
- Resilient Seat Gate Valve (AWWA C509/C515)
- Pressure Relief Valves (Floor & Wall)
- Mud Valves
- Shear Gate Valves
- Solid Wedge Gate Valve

GATES

SOLUTIONS:

- Fabricated Stainless Steel Gates
- Fabricated Aluminum Gates
- Stop Logs & Stop Gates
- Cast Iron Sluice Gates
- Rectangular Butterfly Gates
- Automatic Level Contro; Gates
- Flap Gates

PIPE & FITTINGS

SOLUTIONS:

- Fabricated Flange and Wall Pipe
- Ductile Iron Pipe
- Grooved Pipe & Fittings
- Pipe Linings: cement, glass, Protecto 401™
- Welded Outlets, Thread-O-Lets, Welded Boss
- Restrained Joint Fittings
- Seismic Solutions

NOTES:

NOTES:



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