

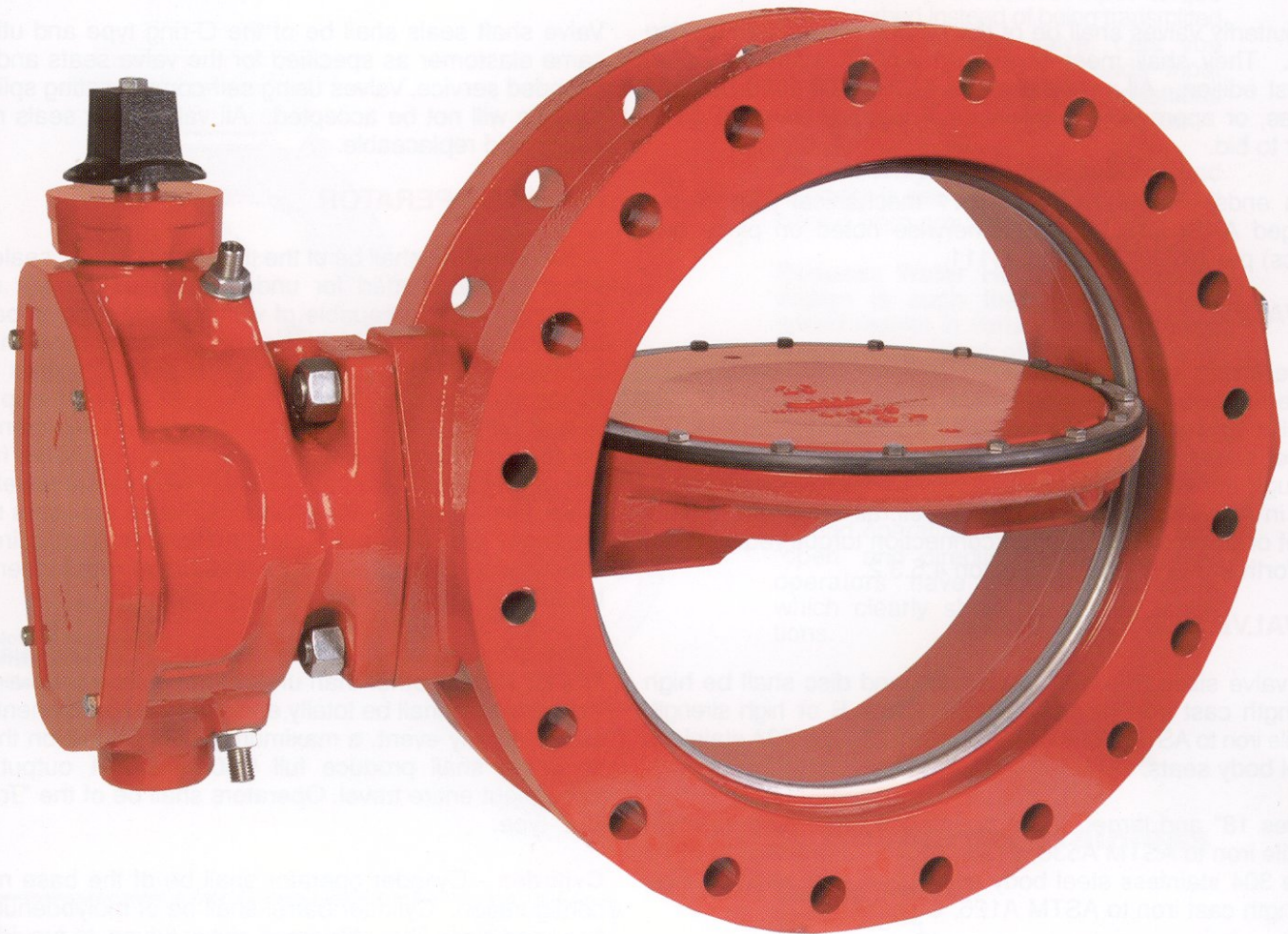


## **AWWA BUTTERFLY VALVES**

**STYLE 4500 3" - 24"**

**STYLE 1450 30" - 54"**

**STYLE 2500 3" - 54"**



**An Industry Leader in Underground and In-Plant applications.**



**PROUDLY**



**MADE IN ANNISTON, ALABAMA  
USA**



# M&H Style 4500 & 1450

- AWWA Class 150B Butterfly Valves
- Suggested Specifications: 3" - 54"
- Consult Factory for valves 60" - 120"

## A. GENERAL

All butterfly valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA standard C504, Latest edition. All valves shall be M&H 4500/1450 butterfly valves, or approved equal. Written approval must be given prior to bid.

Both ends shall be AWWA C111 mechanical joint or per flanged ANSI B16.1 (or as otherwise noted on plans and specs) per AWWA Standard C111.

## B. VALVE SHAFT

Valve shafts shall be 18-8 Type 304 stainless steel. 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, Table 3. As well, all valve shafts must meet or exceed the minimum connection torque requirement set forth in AWWA C504, Section 4.5.3.2.

## C. VALVE BODY AND DISC

For valve sizes 3" – 16", valve body and disc shall be high strength cast iron to ASTM A126, Class B or high strength ductile iron to ASTM A536 with ASTM A276 Type 304 stainless steel body seats.

Valves 18" and larger, Valve body shall be of high strength ductile iron to ASTM A536, Grade 65-45-12 with ASTM A276 Type 304 stainless steel body seat. Valve disc shall be high strength cast iron to ASTM A126, Class B.

## D. VALVE SEAT

Rubber valve seats shall be a full-circle 360-degree seat not penetrated by the valve shaft. Valve seat may be Buna-N or Buna-S for cold water applications and EPDM for air and high temperature applications.

The valve seat will be attached to the valve disc by ASTM A276 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.

## E. SHAFT SEALS

Valve shaft seals shall be of the O-ring type and utilize the same elastomer as specified for the valve seats and for the intended service. Valves using self-compensating split V-type packing will not be accepted. All valve shaft seals must be easily field replaceable.

## F. VALVE OPERATOR

Valve operators shall be of the traveling nut type, sealed, gasketed and lubricated for underground or in-plant service. Operator shall be capable of withstanding an overload input torque of 450 ft-lbs. at full-open or full-closed position without damage to the valve operator. Operators for valves 14" and larger must have a 304 stainless steel external stop limiting device and travel adjustment. The travel adjustments must be able to be operated without removing the valve from the line or removing the actuator cover. No internal travel adjustment devices will be acceptable. All valve actuators must be sized per AWWA C504, Latest edition torque requirements. Certification of proof of design and torque requirements shall be submitted to the owner during shipment.

**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. In any event, a maximum pull of 80 lbs. on the crank or wheel shall produce full C50A Table 1 output torque throughout entire travel. Operators shall be of the "Traveling-Nut" type.

**Cylinder** – Cylinder operator shall be of the base mounted configuration. Cylinder barrel shall be of molybdenum-disulfide lined glass fiber reinforced epoxy tubing, to provide a corrosion-free, self-lubricated high strength barrel. Rod seal shall be of urethane, molybdenum-disulfide filled, to provide a self-lubricated, long life seal.

## G. COATINGS

The valve interior and exterior surfaces shall be coated in accordance with the latest revisions of AWWA C504 and must be NSF 61 certified.



# M&H Style 2500

- AWWA Class 250B Butterfly Valves
- High Test Butterfly Valves
- Suggested Specifications (3" – 54")

## A. GENERAL

All Butterfly Valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA Standard C504B, Latest edition, Class 250. All valves shall be M&H 250B Style 2500 Butterfly Valves, or approved equal. Written approval must be given prior to bid.

Both ends shall be AWWA C111 mechanical joint or per flanged ANSI B16.1 (or as otherwise noted on plans and specifications) per AWWA Standard C111.

## B. VALVE SHAFT

Valve shafts shall be ASTM A564 Type 630 stainless steel. Each valve shaft shall be of a one piece design for valves 12" and smaller, and a two piece design on 14" and larger. Valve Shafts shall have a minimum diameter extending through the valve bearings and into the valve disc as specified in AWWA C504B, Table 3. As well, all valve shafts must meet or exceed the minimum connection torque requirements set forth in AWWA C504B, Section 4.5.3.2.

## C. VALVE BODY & DISC

All valve bodies and discs 3"-54" shall be of high strength ductile iron to ASTM A536, Grade 65-45-12 with ASTM A276 Type 304 stainless steel body seat.

## D. VALVE SEAT

Rubber seats shall be a full-circle 360-degree seat not penetrated by the valve shaft. Valve seats may be Buna-N or Buna-S for cold water applications and EPDM for air or high temperature applications.

The valve seat will be attached to the valve disc by ASTM A276 Type 304 stainless steel self-locking fasteners. The valve seat must be easily field adjustable without any special tools or lengthy curing time.

## E. SHAFT SEALS

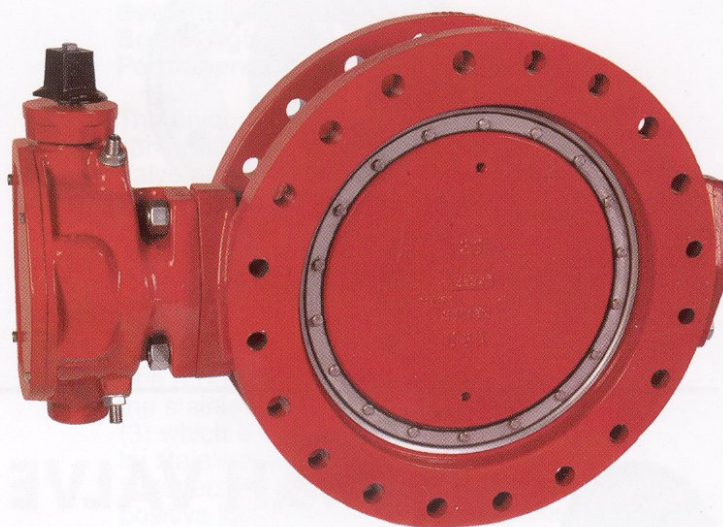
Valve shaft seals shall be O-ring type and utilize the same elastomer as specified for the valve seats and for the intended service. Valves using self-compensating split V-type packing will not be accepted. All valve shaft seals must be easily field replaceable.

## F. VALVE OPERATOR

Valve operators shall be of the traveling nut type, sealed, gasketed and lubricated for underground or in-plant service. Operator shall be capable of with standing an overload input torque of 450 ft-lbs. at full-open or full-closed position without damage to the valve operator. Operators for valves 14" and larger must have a 304 stainless steel external stop limiting device and travel adjustment. The travel adjustments must be able to be operated without removing the valve from the line or removing the operator cover. No internal travel adjustments will be acceptable. All valve actuators must be sized per AWWA C504B, Latest edition torque requirements. Certification of proof of design and torque requirements shall be submitted to the owner during shipment.

## G. COATINGS

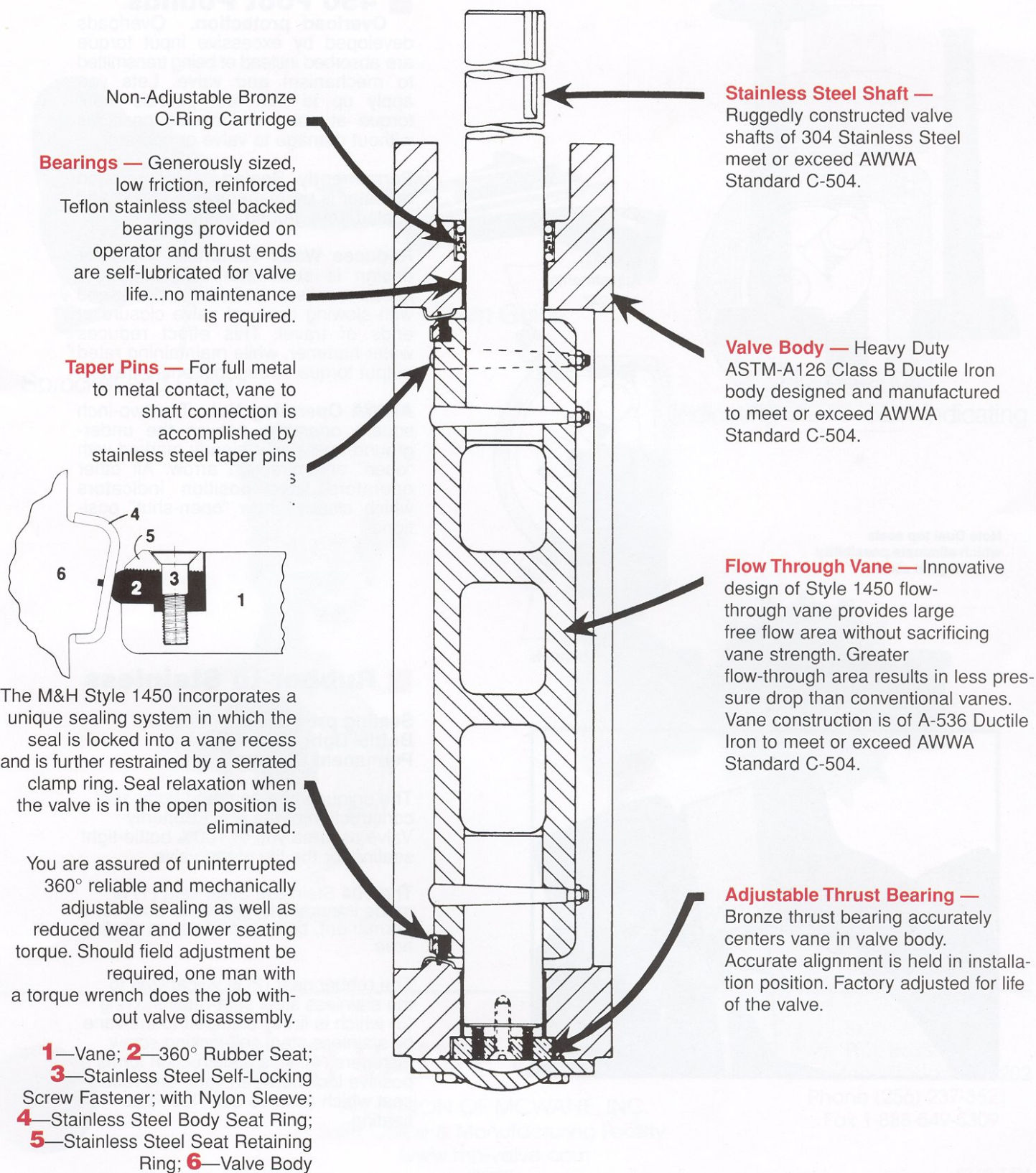
The valve interior and exterior surfaces shall be coated in accordance with the latest revision of AWWA C504B and must be NSF 61 certified.





# M&H Style 1450 Exclusive Features

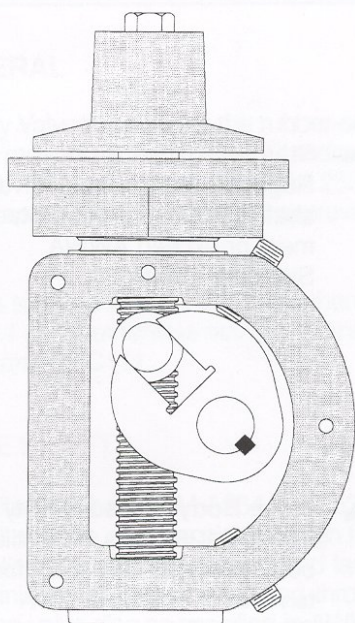
The cross section drawing below shows the design features and relative position of working parts of the M&H Style 1450 butterfly valve.



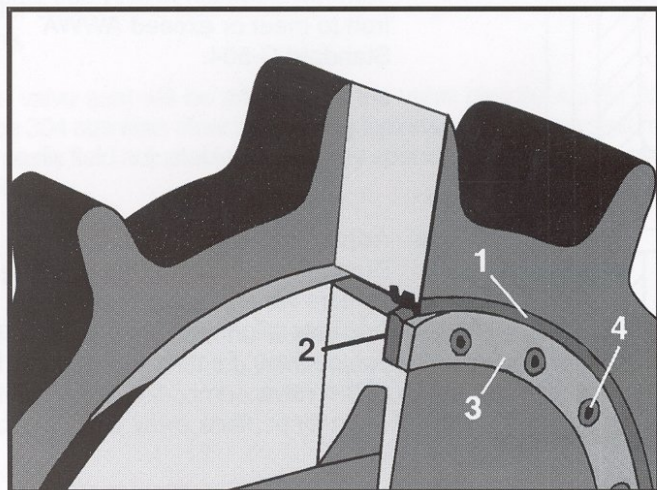
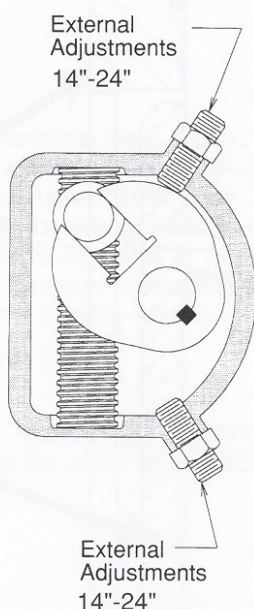


# M&H AWWA C504 Butterfly Valves

- Style 4500
- 3" Thru 24"
- Traveling Nut Operator



Note Dual top seals which eliminate possibility of leakage at stem.



## ■ 450 Foot Pounds

**Overload protection.** Overloads developed by excessive input torque are absorbed instead of being transmitted to mechanism and valve. Lets you apply up to 450 foot pounds input torque at open and closed positions without damage to valve or operator.

**Permanently Sealed.** Underground operator is permanently lubricated and sealed from ground water.

**Reduces Water Hammer.** Operator design is such that constant input speed results in variable output speed with slowing down of valve closure at ends of travel. This effect reduces water hammer, while maintaining rated output torque throughout entire travel.

**AWWA Operating Nut.** The two-inch square operating nut on the underground operator is clearly marked with "open" and direction arrow. All other operators have position indicators which clearly show "open-shut" positions.

## ■ Rubber-to Stainless

**Seating provides  
Bottle-Tight,  
Permanent Closure**

The unique vane-seat and body-seat construction of the M&H Butterfly Valve assures you of 100% bottle-tight sealing for the life of the valve.

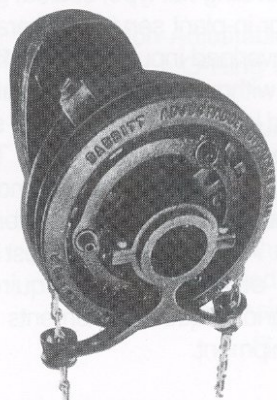
The 304 Stainless Steel seat (1) is made integral with the valve body for a permanent, corrosion-resistant seating area.

The rubber seat (2) is vulcanized to the stainless steel seat-retaining ring (3) which is firmly clamped to the vane by stainless steel self-locking screw fasteners (4). This construction forms a positive lock between vane and rubber seat which assures 360° leak-free seating.

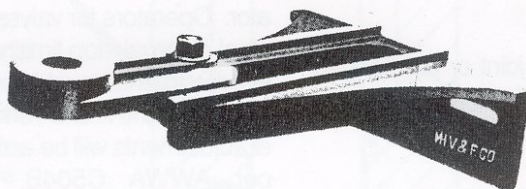


## ACCESSORIES/OPTIONS

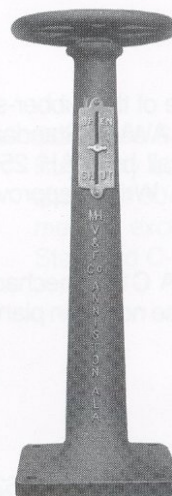
- EPDM Seats & Seals
- Fusion Bonded Epoxy
- Extension Stem



Sprocket and Chain



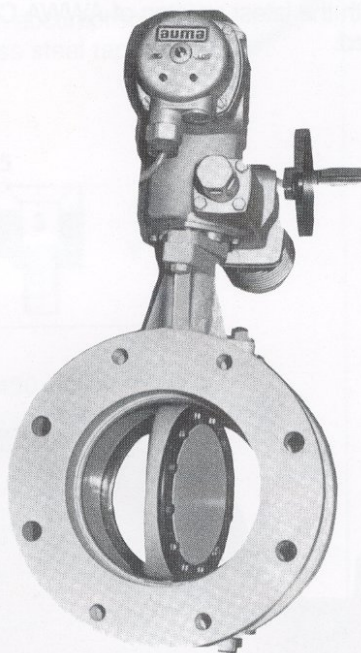
Stem Guide



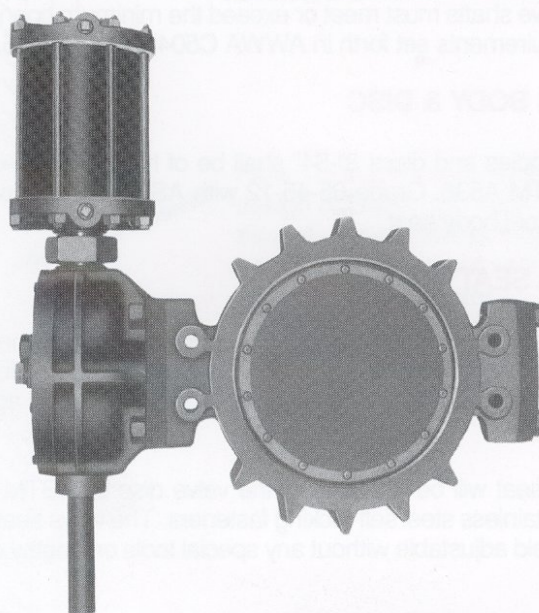
Indicating



Non-Indicating



Motor Operator



Cylinder Operator



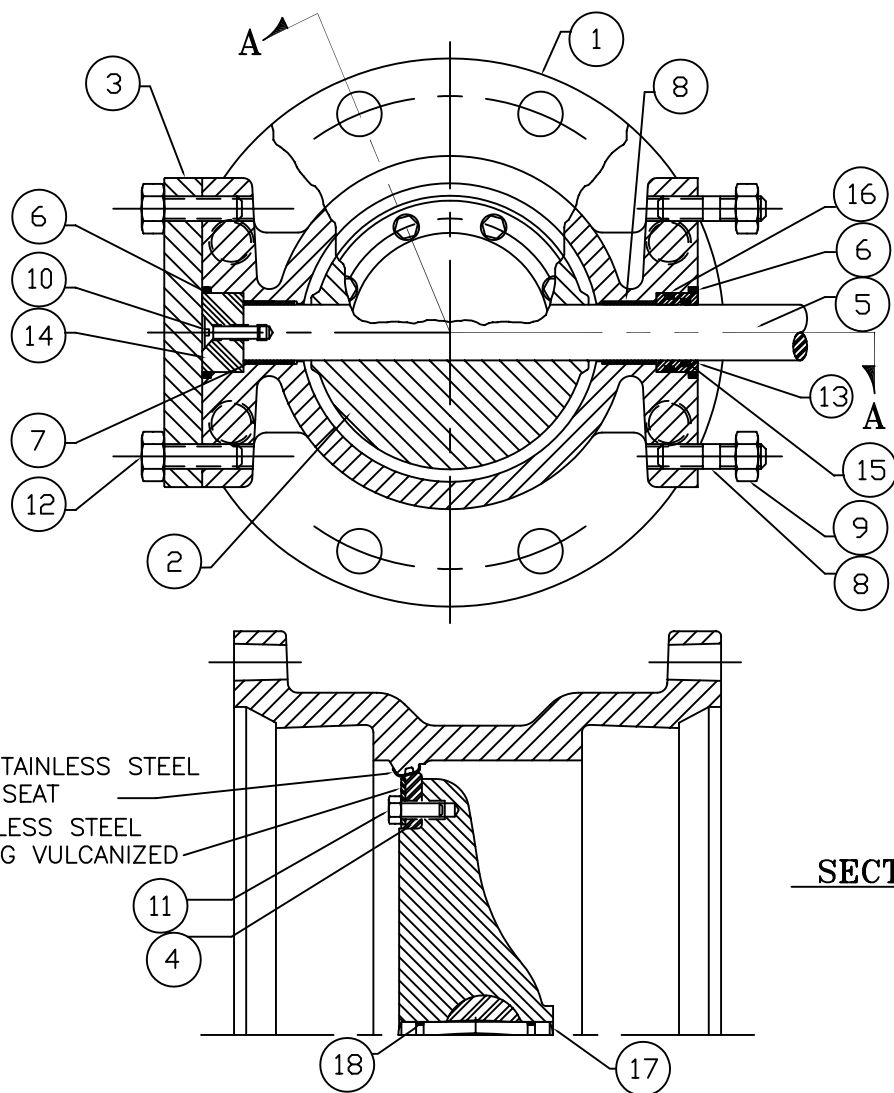
## M&H VALVE COMPANY

A DIVISION OF MCWANE, INC.  
Sales Office & Manufacturing Facility  
[www.mh-valve.com](http://www.mh-valve.com)

2005

P.O. Box 2088  
Anniston, Alabama 36202  
Phone (256) 237-3521  
Fax 1-888-549-5309

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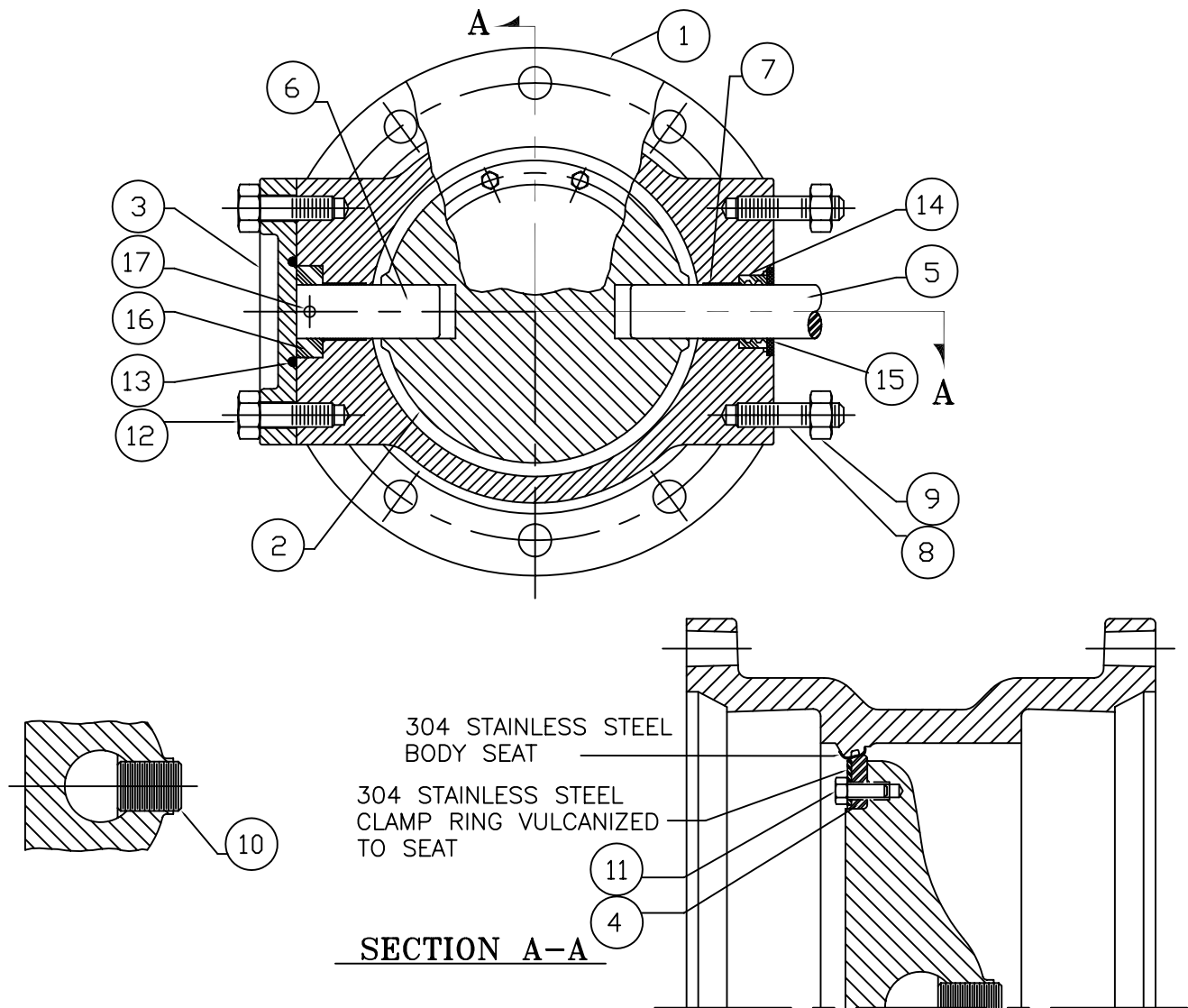


ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A-126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A-48, CLASS 40
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	304 STAINLESS STEEL, ASTM A-276
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYEHTYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-45A

4"-12" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
MJ X MJ



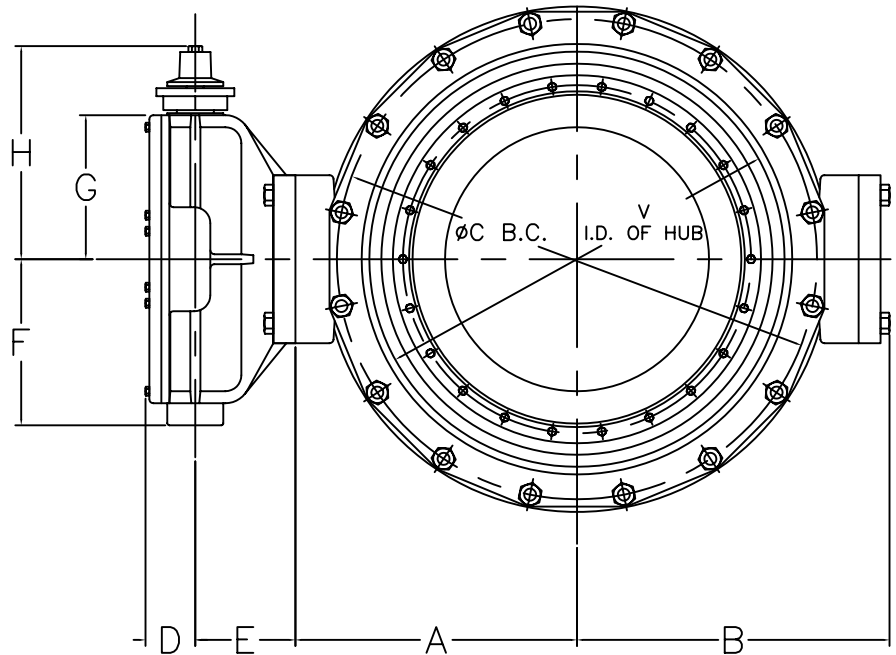
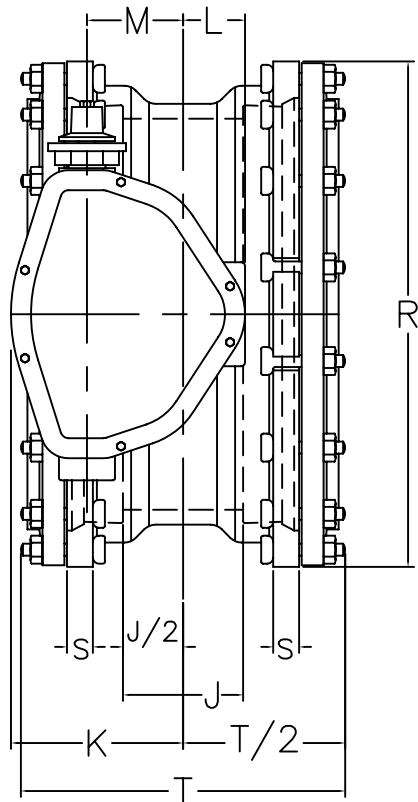
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A-126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A-48, CLASS 40
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	304 STAINLESS STEEL, ASTM 1-276
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-45B

14" THRU 24" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
MJ X MJ





VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90±.03	80
6"	5	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00±.03	100
8"	6	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15±.03	150
10"	7 3/4	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20±.03	242
12"	9 1/2	11 3/8	16 1/4	4 1/4	8	3/4x4	17 15/16	1 1/4	16	13.30±.03	310
14"	10 7/16	12 15/16	18 3/4	5 1/4	10	3/4x4	20 5/16	1 5/16	17 5/8	15.44±.03	510
16"	12 3/16	14 11/16	21	5 1/4	12	3/4x4 1/2	22 9/16	1 3/8	18 1/2	17.54±.03	595
18"	13 5/16	15 13/16	23 1/4	6 1/8	12	3/4x4 1/2	24 13/16	1 7/16	19 1/4	19.64±.03	760
20"	14 7/8	17 3/8	25 1/2	6 1/8	14	3/4x4 1/2	27 1/16	1 1/2	19 1/8	21.74±.03	885
24"	17 19/32	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	25.94±.03	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

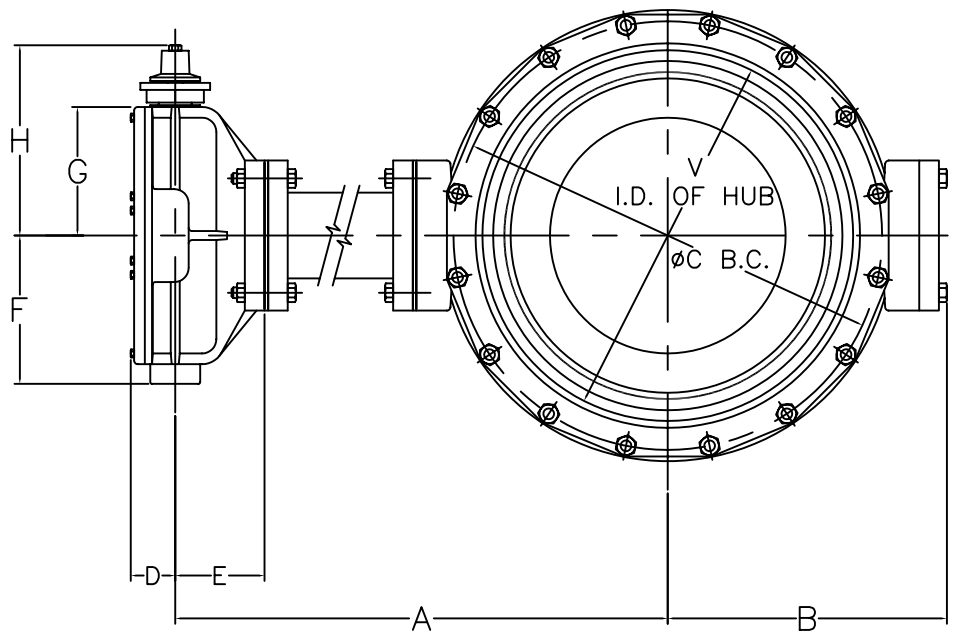
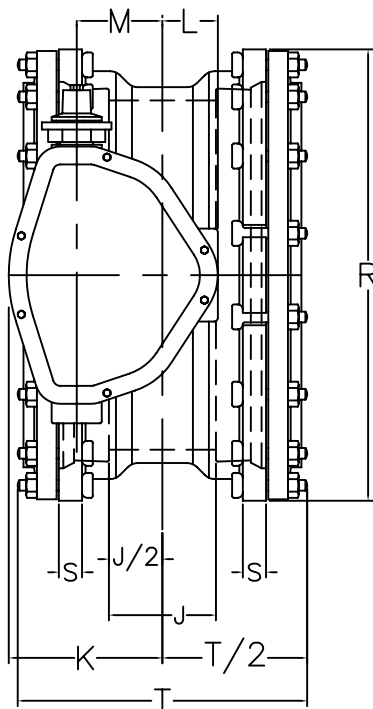
NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-45C

4"-24" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
BURIED OPERATOR  
MJ x MJ





VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
4"	NOTE AA	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90 <sup>+0.07</sup> <sub>-0.07</sub>	80
6"	NOTE AA	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00 <sup>+0.07</sup> <sub>-0.07</sub>	100
8"	NOTE AA	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15 <sup>+0.07</sup> <sub>-0.07</sub>	150
10"	NOTE AA	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20 <sup>+0.07</sup> <sub>-0.07</sub>	240
12"	NOTE AA	11 3/8	16 1/4	4 1/4	8	3/4x4	17 15/16	1 1/4	16	13.30 <sup>+0.07</sup> <sub>-0.07</sub>	310
14"	NOTE AA	12 15/16	18 3/4	5 1/4	10	3/4x4	20 5/16	1 5/16	17 5/8	15.44 <sup>+0.06</sup> <sub>-0.07</sub>	510
16"	NOTE AA	14 11/16	21	5 1/4	12	3/4x4 1/2	22 9/16	1 3/8	18 1/2	17.54 <sup>+0.06</sup> <sub>-0.07</sub>	595
18"	NOTE AA	15 13/16	23 1/4	6 1/8	12	3/4x4 1/2	24 13/16	1 7/16	19 1/4	19.64 <sup>+0.06</sup> <sub>-0.07</sub>	760
20"	NOTE AA	17 3/8	25 1/2	6 1/8	14	3/4x4 1/2	27 1/16	1 1/2	19 1/8	21.74 <sup>+0.06</sup> <sub>-0.07</sub>	885
24"	NOTE AA	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	25.94 <sup>+0.06</sup> <sub>-0.07</sub>	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

NOTE 9: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

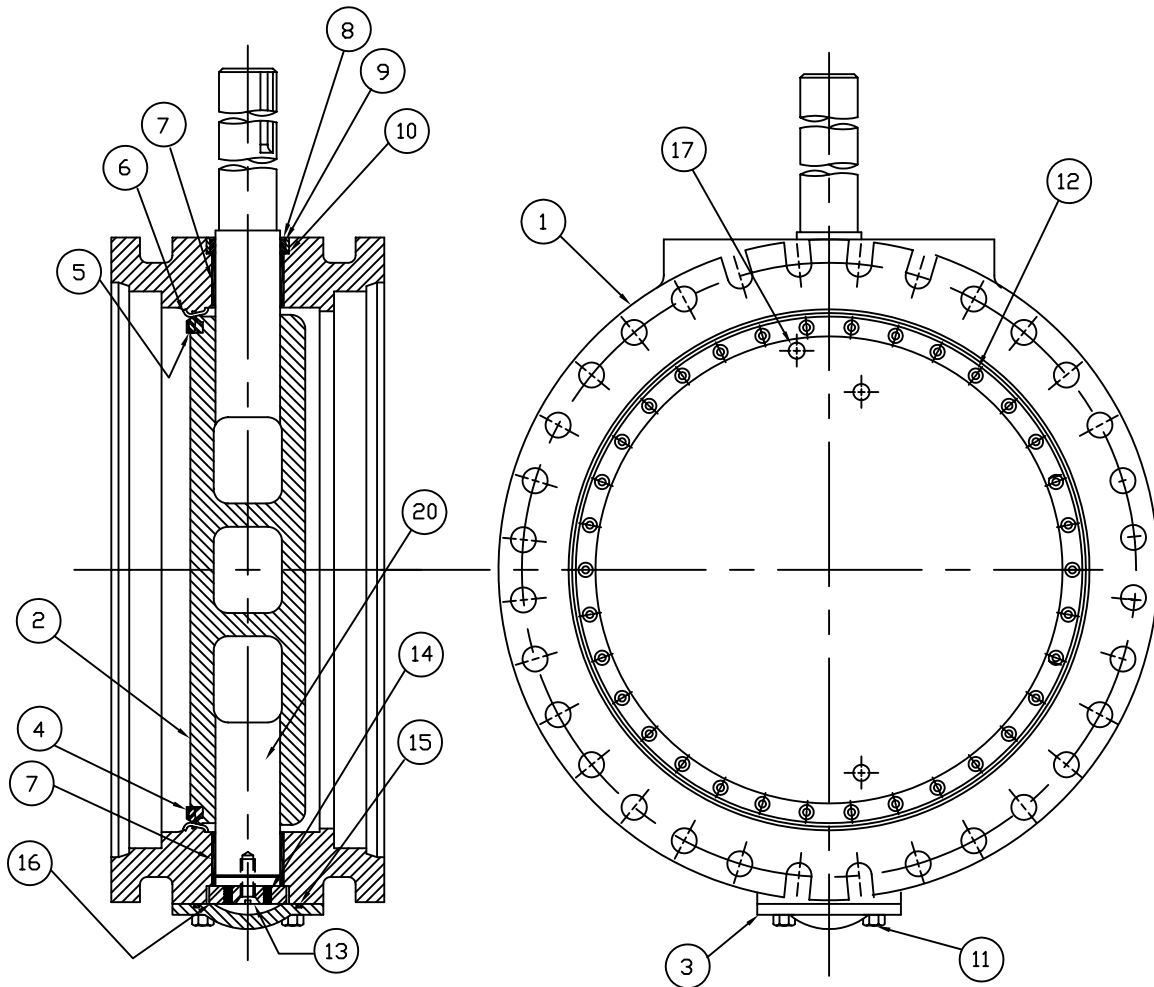
\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(4"-12"), 150LBS(14"-16"), 180LBS(18"-24")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-45D

4" THRU 24" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
WITH EXTENDED BONNET  
BURIED OPERATOR  
MJ X MJ





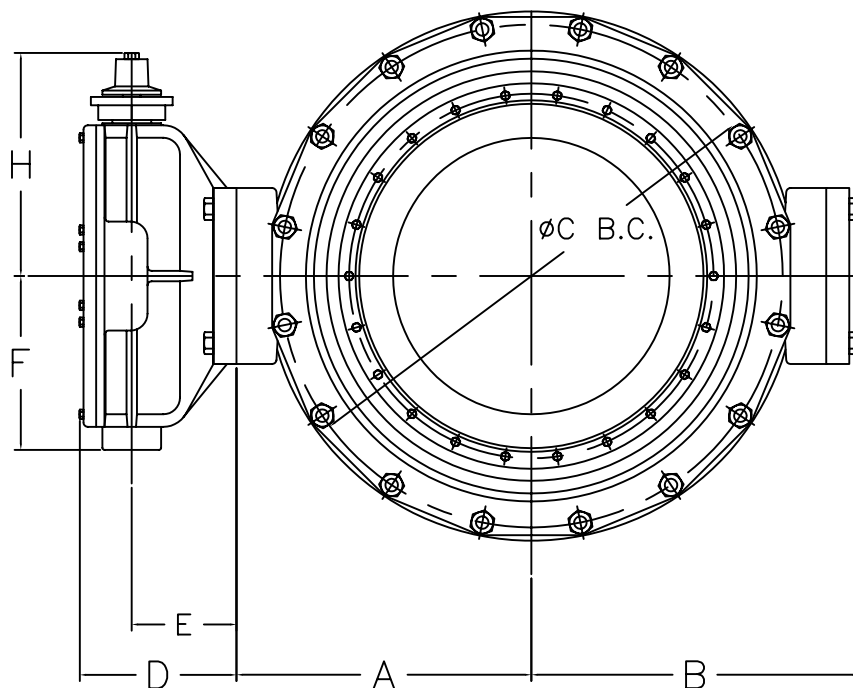
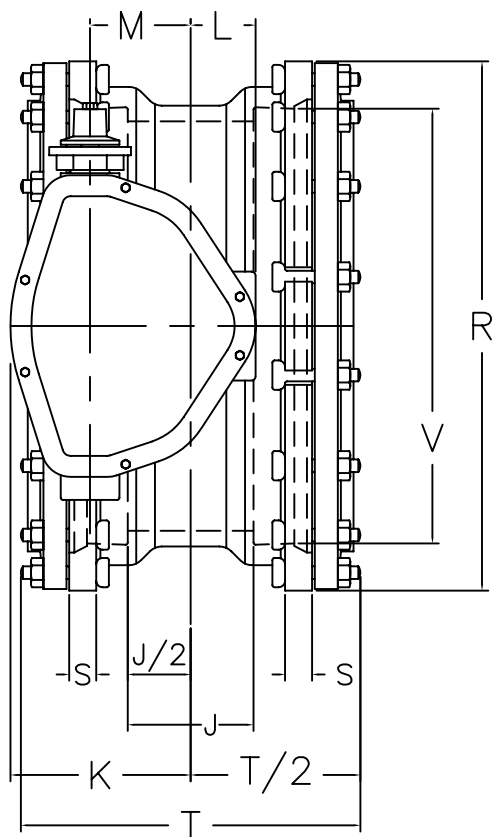
ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, ASTM A-126, CL B W/304 STN. STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA 'S'
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
8	CARTRIDGE, SHAFT	BRONZE
9	SEAL, SHAFT	BUNA 'N'
10	SEAL, CARTRIDGE	BUNA 'N'
11	BOLT, END COVER	COMMERCIAL STEEL
12	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
13	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
14	SET SCREW ~ FLAT POINT	18-8 STAINLESS STEEL W/NYLOK INSERT
15	END COVER SEAL	BUNA 'N'
16	THRUST BEARING R	BRONZE
17	TAPER PIN	STAINLESS STEEL
18	TAPER PIN NUT	18-8 STAINLESS STEEL
19	SHAFT (OPERATOR)	304 STAINLESS STEEL
20	SHAFT (THRUST)	304 STAINLESS STEEL

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-14A

30" THRU 48" STYLE 1450  
CLASS 150 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
(NON-ADJUSTABLE PACKING)  
MJ X MJ





	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

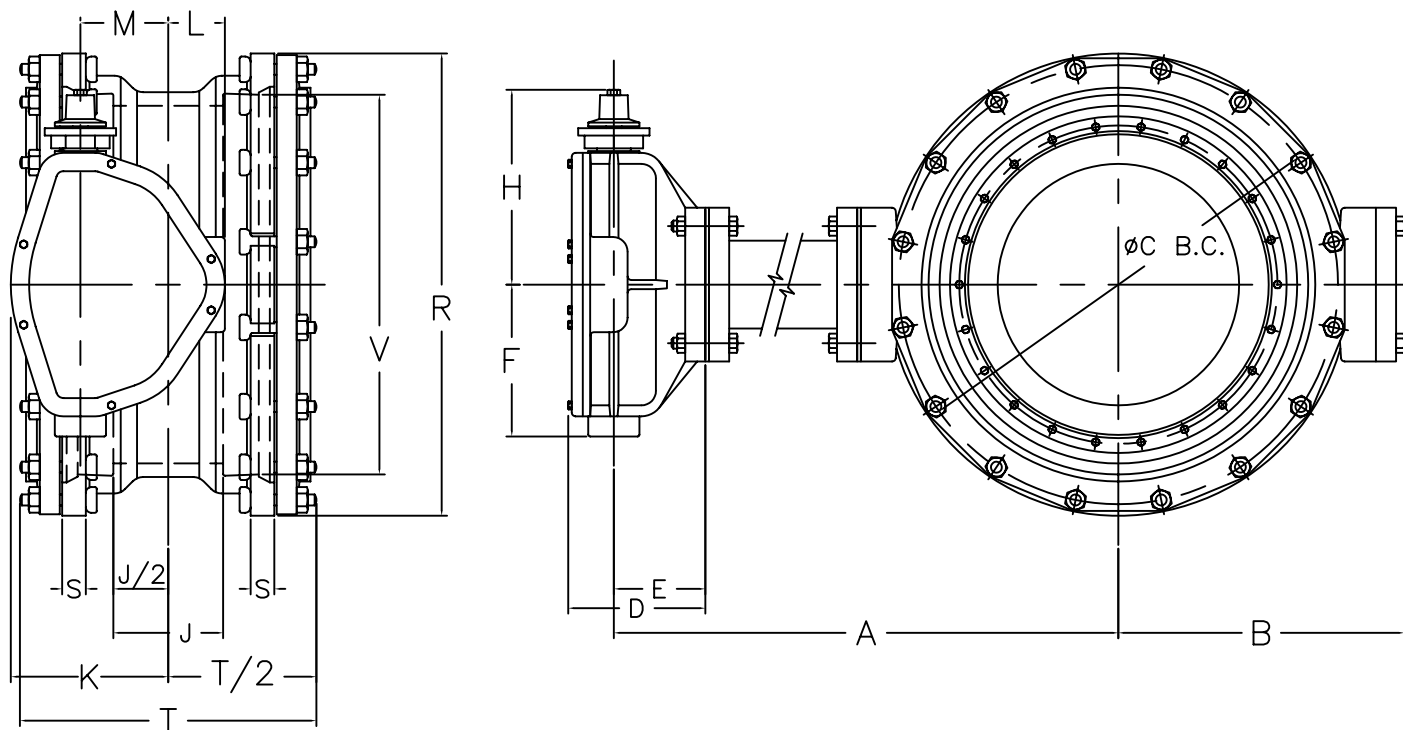
NOTE 9: 2200 OPERATOR ON 30" & 36"—4350 OPERATOR ON 42" & 48"

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-14B

30" THRU 42" STYLE 1450  
CLASS 150 BUTTERFLY VALVE  
BURIED OPERATOR  
MJ X MJ





	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
30"	NOTE AA	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	NOTE AA	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	NOTE AA	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

NOTE 9: 2200 OPERATOR ON 30" & 36"—4350 OPERATOR ON 42" & 48"

NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)—BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

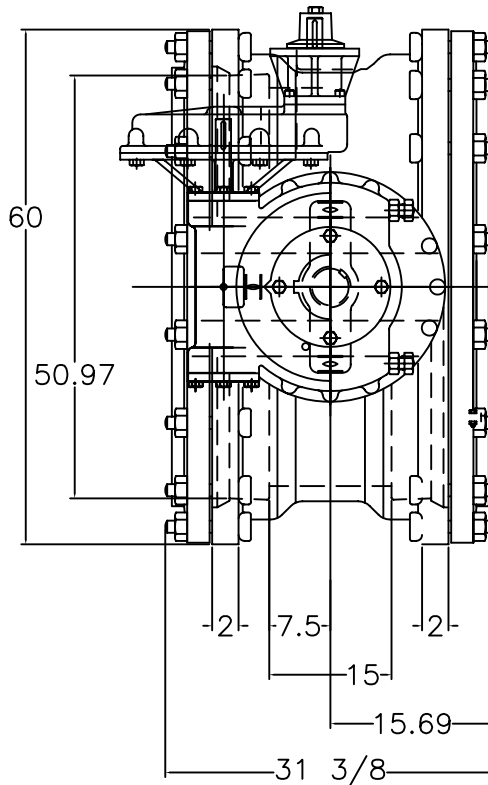
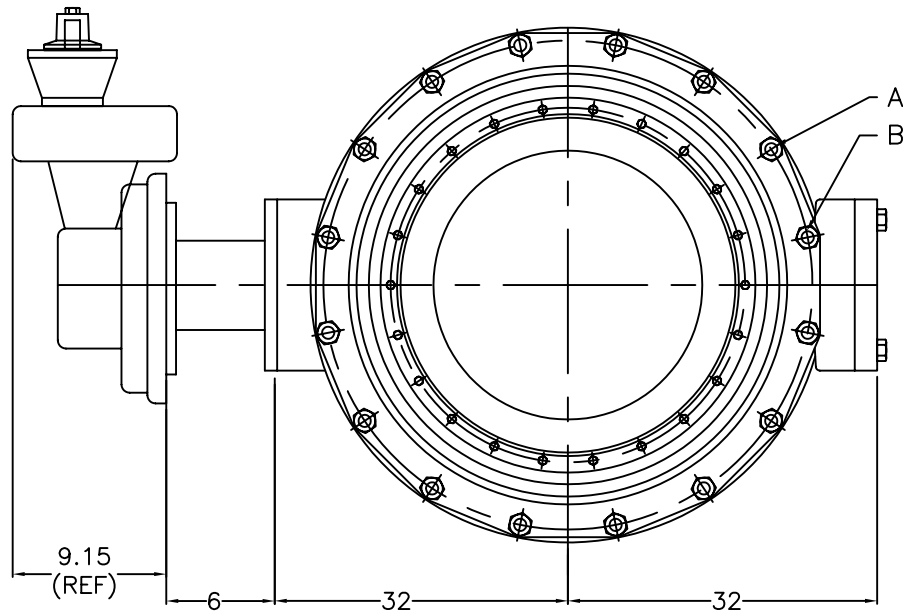
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250lbs (30"—42")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-15-14C

30" THRU 42" STYLE 1450  
CLASS 150 BUTTERFLY VALVE  
WITH EXTENDED BONNET  
BURIED OPERATOR  
MJ X MJ



NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504-B

NOTE 4: NUMBER OF TURNS TO CLOSE = 60

NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 6: A = (44) 1.50" BOLTS PER FLANGE

NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.

NOTE 8: APPROXIMATE WEIGHT = 6300lbs.

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ

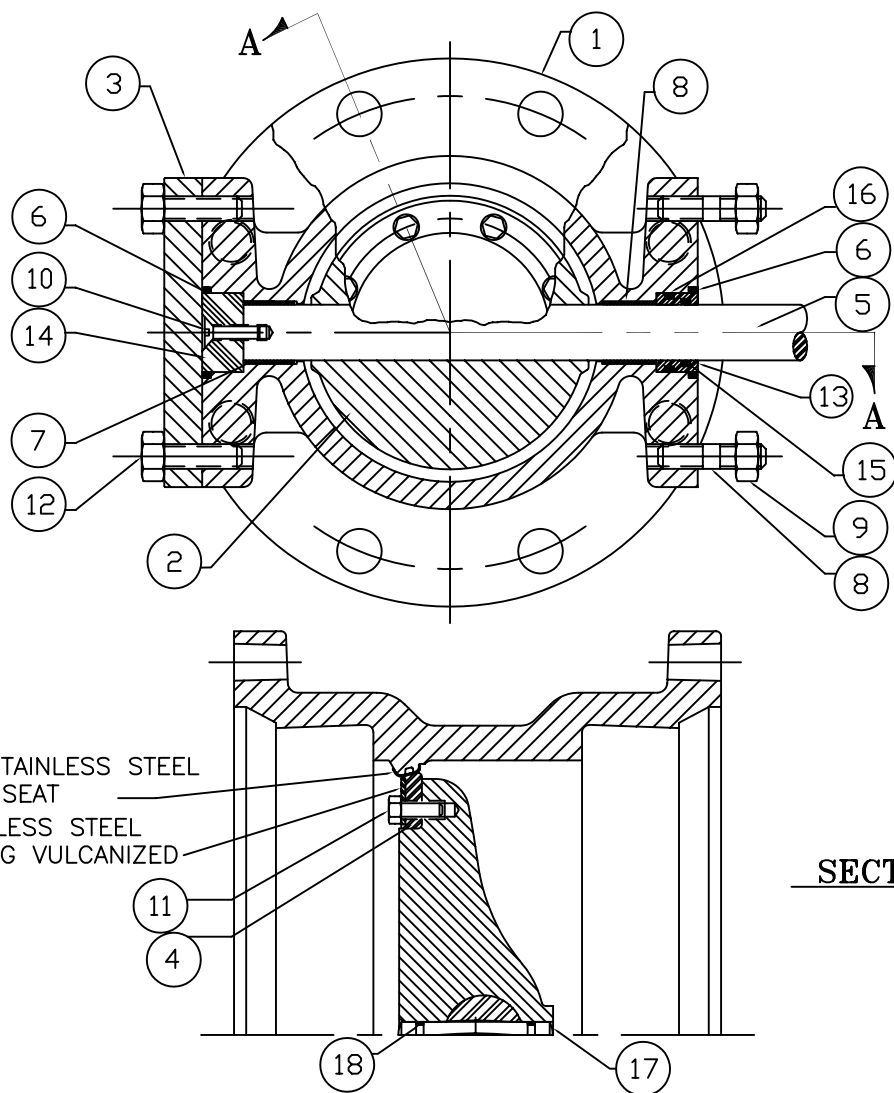
DATE: 7/1/05

DWG. NO.

BMJ-15-RA

48" STYLE 1450  
CLASS 150 BUTTERFLY VALVE  
(ROTORK IW7 GEAR BOX)  
BURIED OPERATOR  
MJ X MJ ENDS



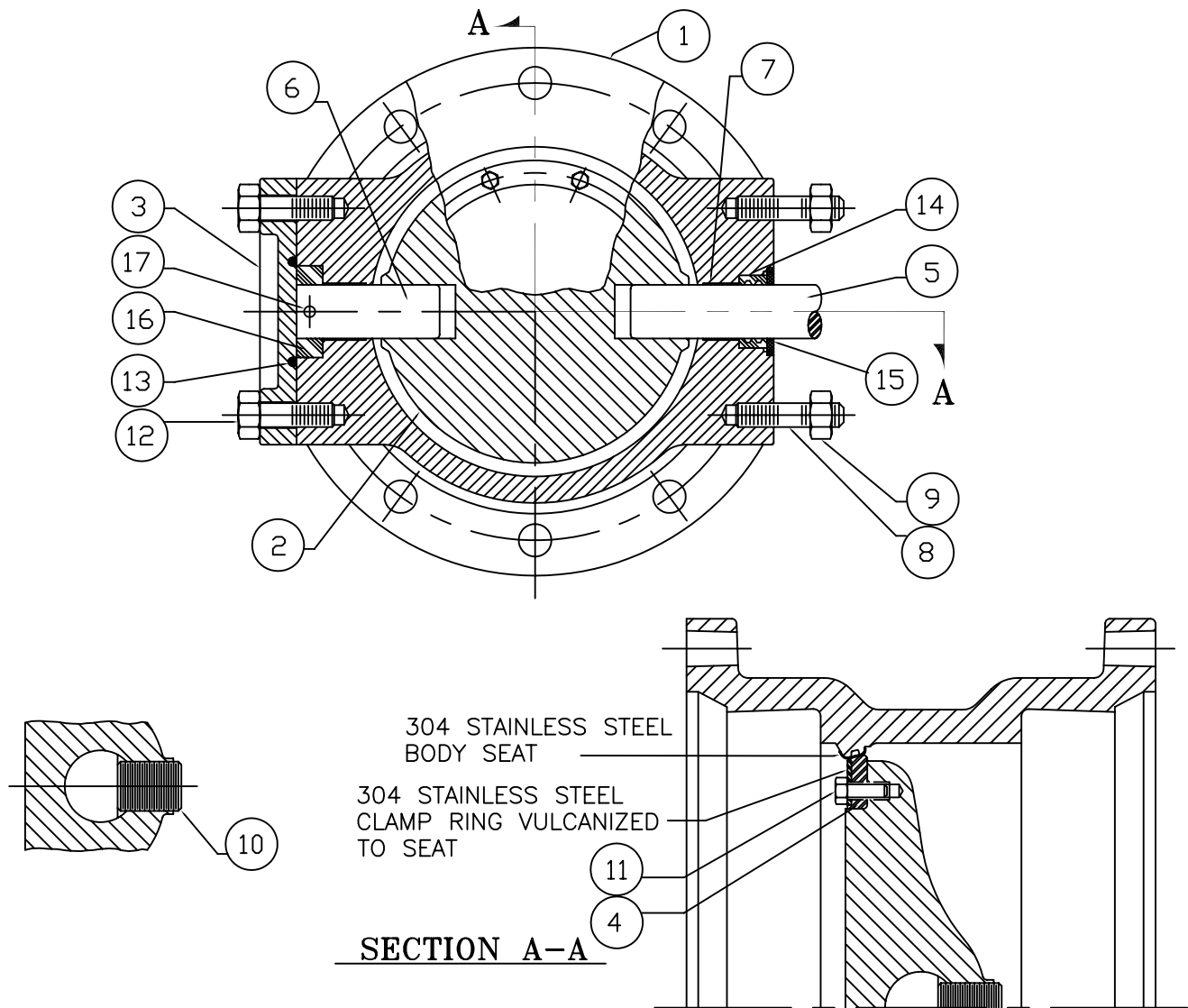


ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A-564
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYEHTYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-45A

4"-12" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
MJ X MJ



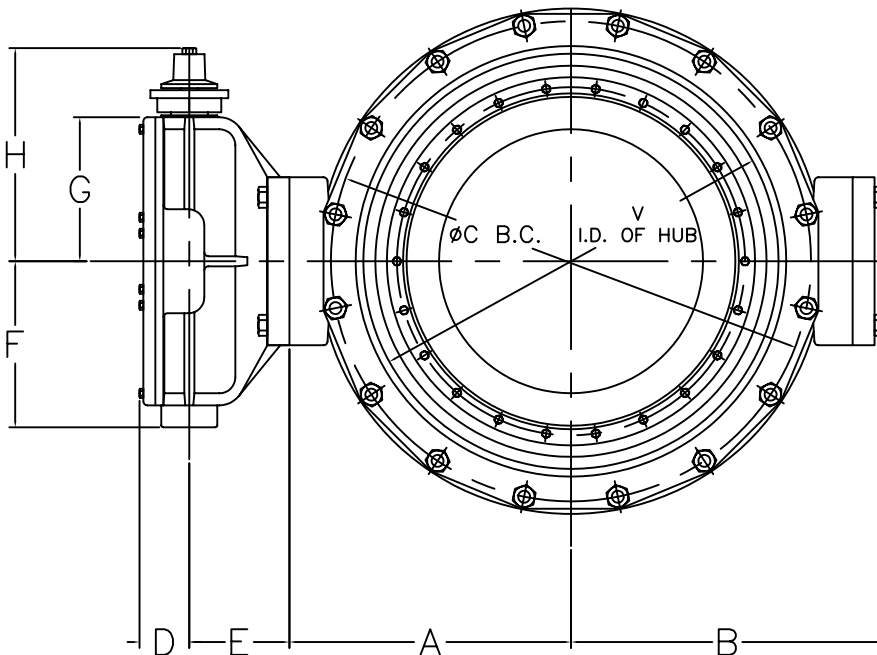
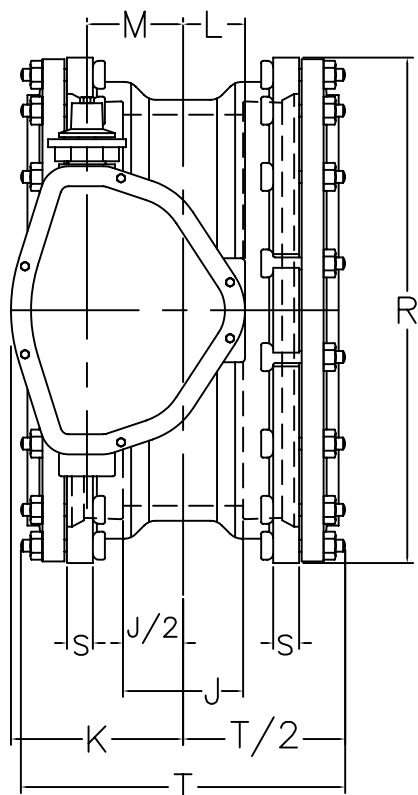
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	TYPE 630, CONDITION H1100 STN. STL. ASTM A-564
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-45B

14" THRU 24" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
MJ X MJ





VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90± <sup>0.03</sup> <sub>0.02</sub>	80
6"	5	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00± <sup>0.03</sup> <sub>0.02</sub>	100
8"	6	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15± <sup>0.03</sup> <sub>0.02</sub>	150
10"	7 3/4	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20± <sup>0.03</sup> <sub>0.02</sub>	240
12"	9 1/2	11 3/8	16 1/4	4 1/4	8	3/4x4	17 15/16	1 1/4	16	13.30± <sup>0.03</sup> <sub>0.02</sub>	310
14"	10 7/16	12 15/16	18 3/4	5 1/4	10	3/4x4	20 5/16	1 5/16	17 5/8	15.44± <sup>0.03</sup> <sub>0.02</sub>	510
16"	12 3/16	14 11/16	21	5 1/4	12	3/4x4 1/2	22 9/16	1 3/8	18 1/2	17.54± <sup>0.03</sup> <sub>0.02</sub>	595
18"	13 5/16	15 13/16	23 1/4	6 1/8	12	3/4x4 1/2	24 13/16	1 7/16	19 1/4	19.64± <sup>0.03</sup> <sub>0.02</sub>	760
20"	14 7/8	17 3/8	25 1/2	6 1/8	14	3/4x4 1/2	27 1/16	1 1/2	19 1/8	21.74± <sup>0.03</sup> <sub>0.02</sub>	885
24"	17 19/32	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	25.94± <sup>0.03</sup> <sub>0.02</sub>	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

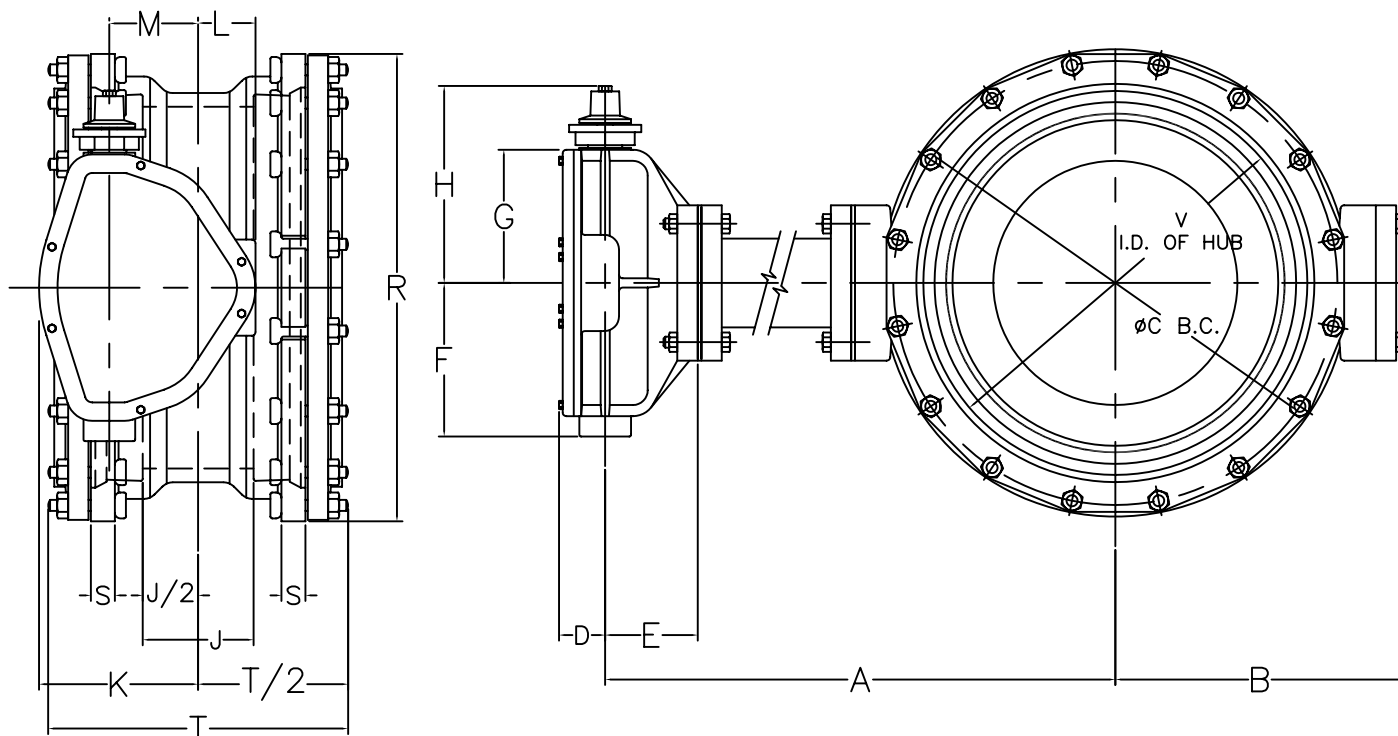
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-45C

4"-24" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
BURIED OPERATOR  
MJ x MJ



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
4"	NOTE AA	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90 <sup>+0.07</sup> <sub>-0.03</sub>	80
6"	NOTE AA	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00 <sup>+0.07</sup> <sub>-0.03</sub>	100
8"	NOTE AA	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15 <sup>+0.07</sup> <sub>-0.03</sub>	150
10"	NOTE AA	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20 <sup>+0.07</sup> <sub>-0.03</sub>	240
12"	NOTE AA	11 3/8	16 1/4	4 1/4	8	3/4x4	17 15/16	1 1/4	16	13.30 <sup>+0.07</sup> <sub>-0.03</sub>	310
14"	NOTE AA	12 15/16	18 3/4	5 1/4	10	3/4x4	20 5/16	1 5/16	17 5/8	15.44 <sup>+0.07</sup> <sub>-0.03</sub>	510
16"	NOTE AA	14 11/16	21	5 1/4	12	3/4x4 1/2	22 9/16	1 3/8	18 1/2	17.54 <sup>+0.07</sup> <sub>-0.03</sub>	595
18"	NOTE AA	15 13/16	23 1/4	6 1/8	12	3/4x4 1/2	24 13/16	1 7/16	19 1/4	19.64 <sup>+0.07</sup> <sub>-0.03</sub>	760
20"	NOTE AA	17 3/8	25 1/2	6 1/8	14	3/4x4 1/2	27 1/16	1 1/2	19 1/8	21.74 <sup>+0.07</sup> <sub>-0.03</sub>	885
24"	NOTE AA	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	25.94 <sup>+0.07</sup> <sub>-0.03</sub>	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

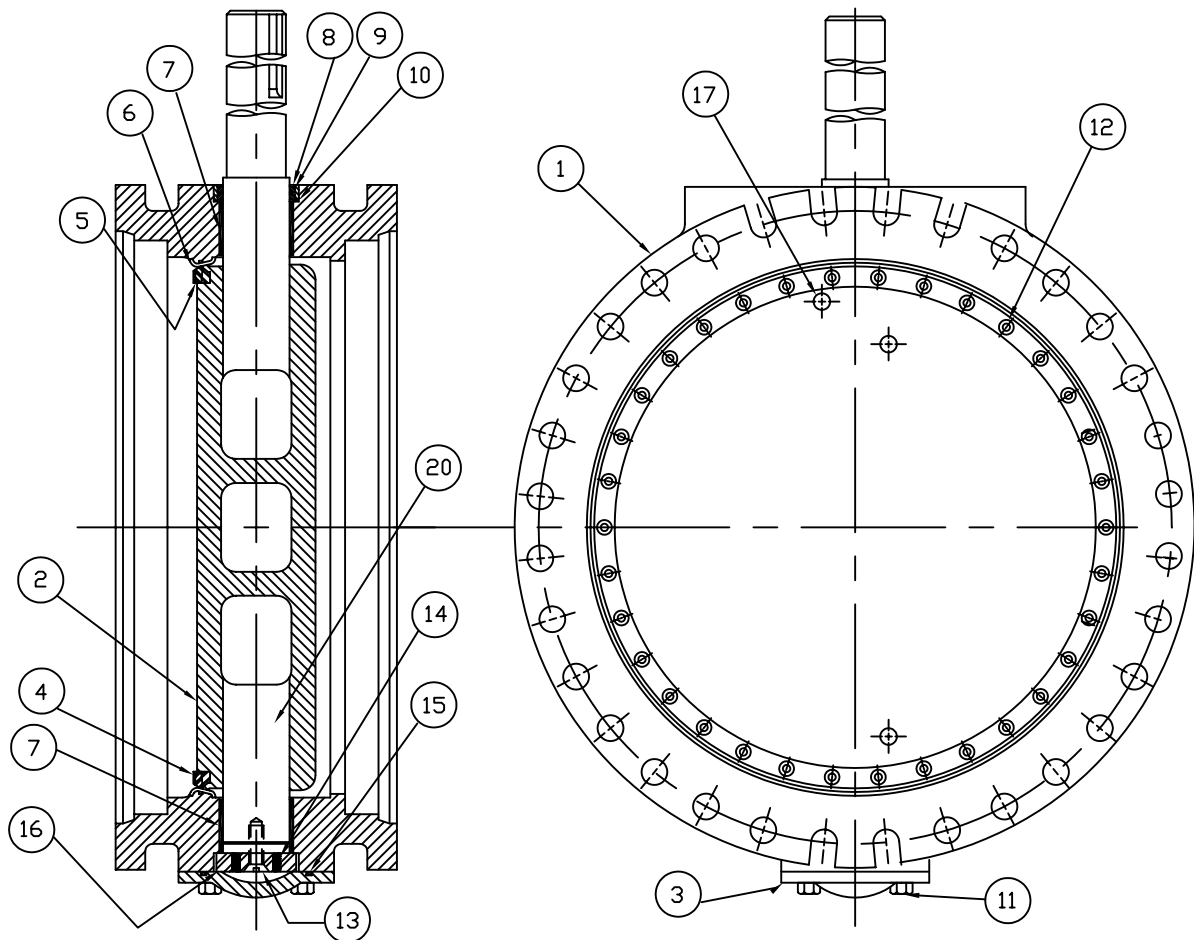
\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(4"-12"), 150LBS(14"-16"), 180LBS(18"-24")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-45D

4" THRU 24" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
WITH EXTENDED BONNET  
BURIED OPERATOR  
MJ X MJ



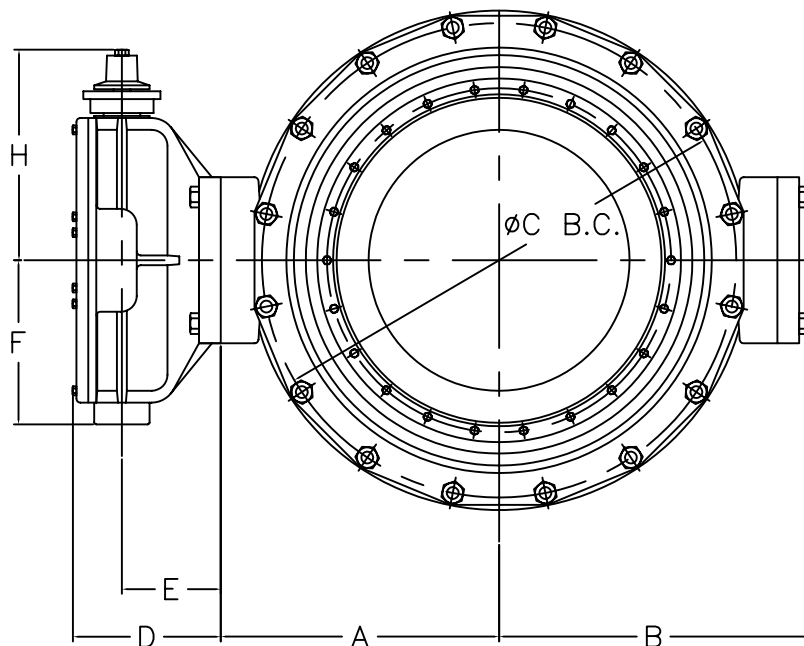
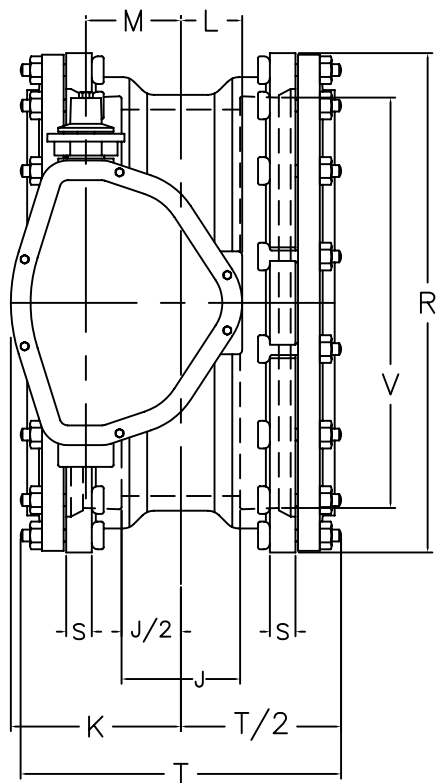


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536, GR. 70-50-05 W/304 STN. STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA 'S'
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE (REINFORCED TEFLON)
8	CARTRIDGE, SHAFT	BRONZE
9	SEAL, SHAFT	BUNA 'N'
10	SEAL, CARTRIDGE	BUNA 'N'
11	BOLT, END COVER	COMMERCIAL STEEL
12	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
13	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
14	SET SCREW ~ FLAT POINT	18-8 STAINLESS STEEL W/NYLOK INSERT
15	END COVER SEAL	BUNA 'N'
16	THRUST BEARING R	BRONZE
17	TAPER PIN	STAINLESS STEEL
18	TAPER PIN NUT	18-8 STAINLESS STEEL
19	SHAFT (OPERATOR)	TYPE 630, CONDITION H1100 STN STL ASTM A-564
20	SHAFT (THRUST)	304 STAINLESS STEEL

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-14A

30" THRU 48" STYLE 1450  
CLASS 250 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
(NON-ADJUSTABLE PACKING)  
MJ X MJ



	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

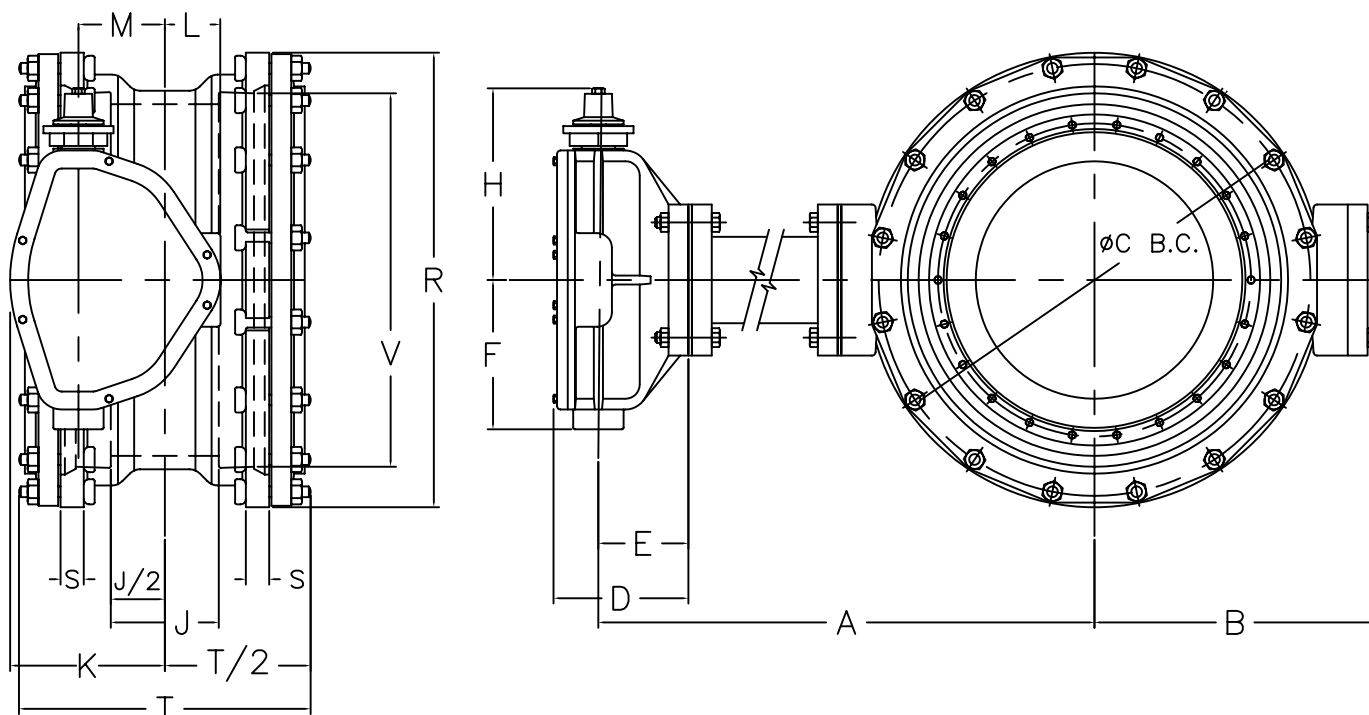
NOTE 9: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-14B

30" THRU 42" STYLE 1450  
CLASS 250 BUTTERFLY VALVE  
BURIED OPERATOR  
MJ X MJ





	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
30"	NOTE AA	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	NOTE AA	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	NOTE AA	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

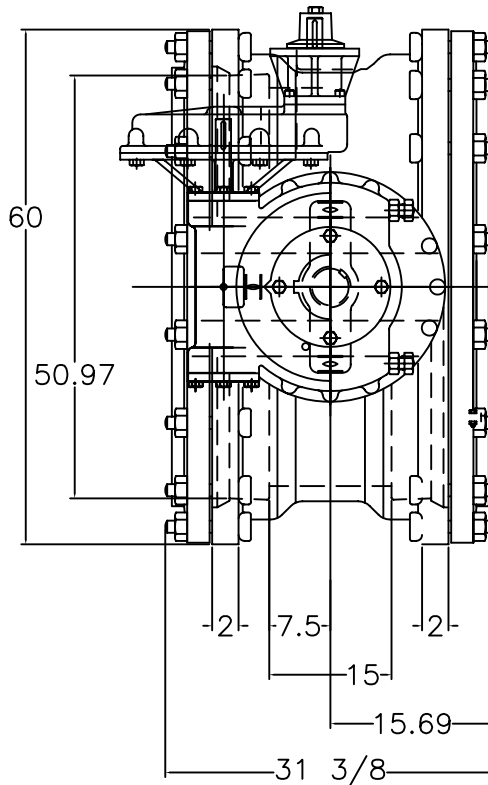
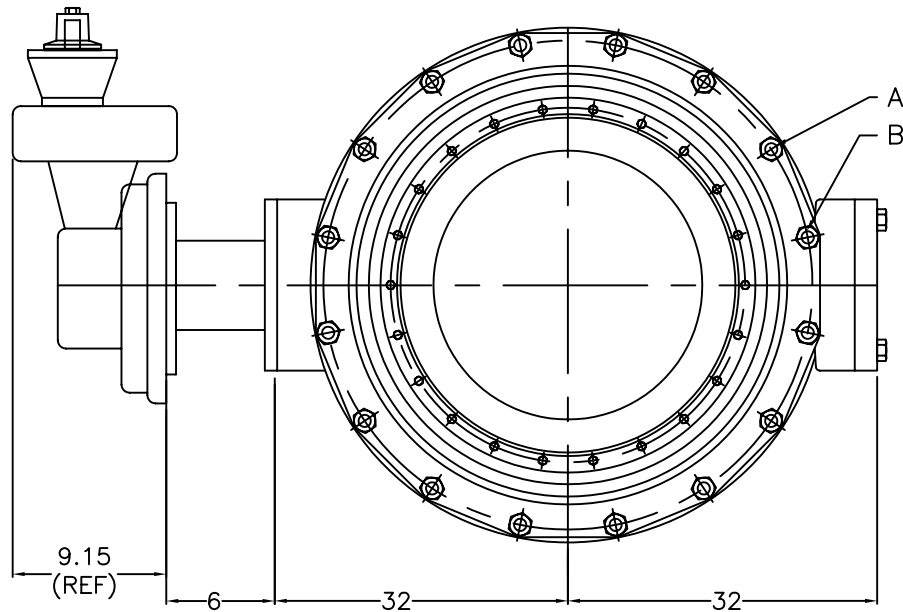
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BMJ-25-14C

30" THRU 42" STYLE 1450  
CLASS 250 BUTTERFLY VALVE  
WITH EXTENDED BONNET  
BURIED OPERATOR  
MJ X MJ



NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504-B

NOTE 4: NUMBER OF TURNS TO CLOSE = 60

NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 6: A = (44) 1.50" BOLTS PER FLANGE

NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.

NOTE 8: APPROXIMATE WEIGHT = 6300lbs.

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ

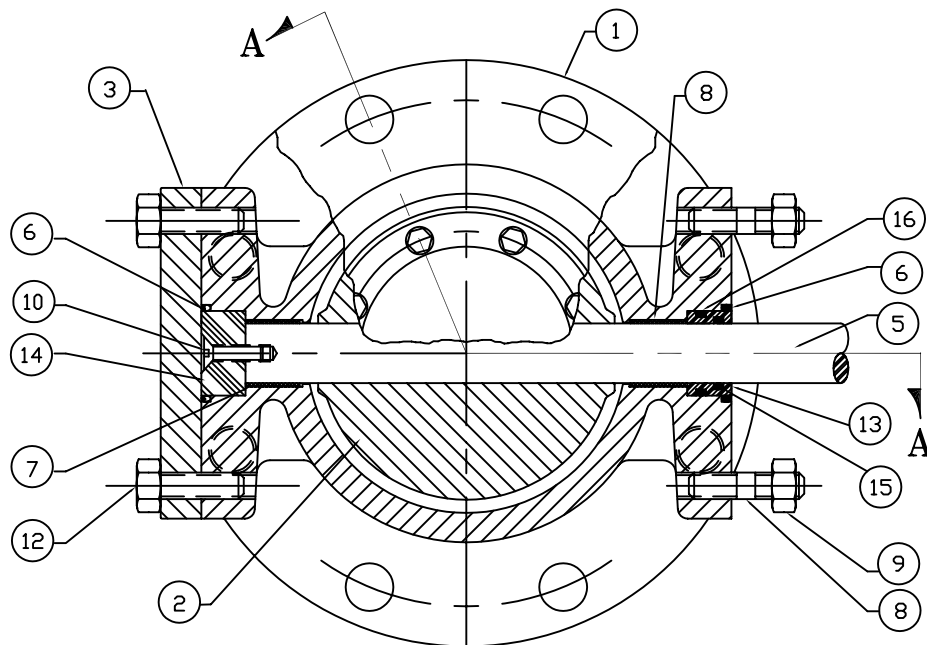
DATE: 7/1/05

DWG. NO.

BMJ-25-RA

48" STYLE 1450  
CLASS 250 BUTTERFLY VALVE  
(ROTORK IW7 GEAR BOX)  
BURIED OPERATOR  
MJ X MJ ENDS

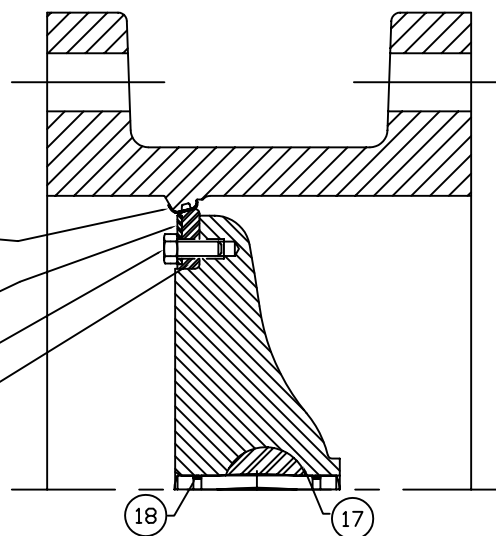




304 STAINLESS STEEL  
BODY SEAT

304 STAINLESS STEEL  
CLAMP RING VULCANIZED  
TO SEAT

### SECTION A-A

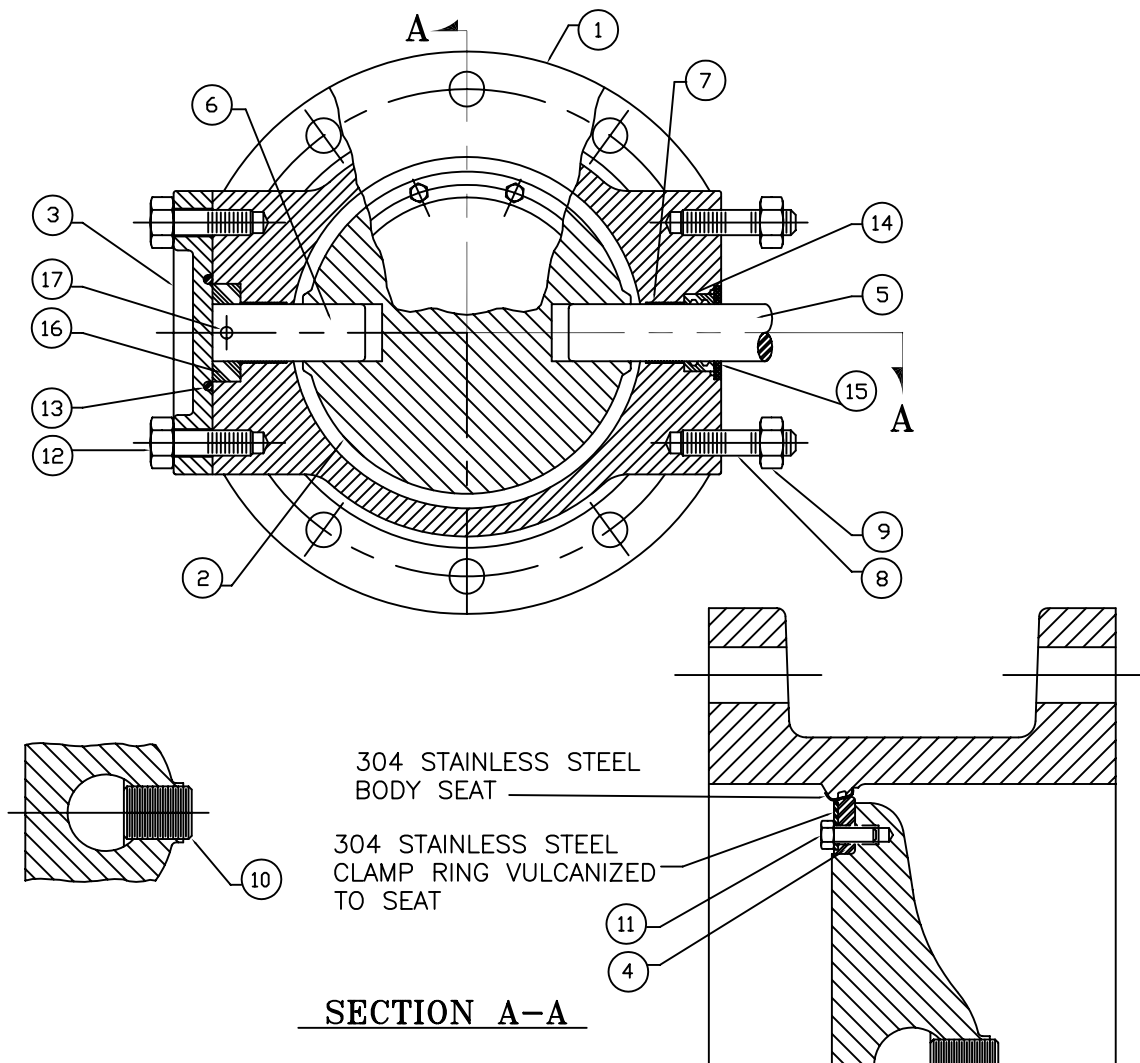


ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON ASTM A-126 CLASS B WITH STN STL SEAT
2	VANE	CAST IRON ASTM A-48 CLASS 40
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 304 STN. STL. ASTM A-276
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYEHTYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-45A

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



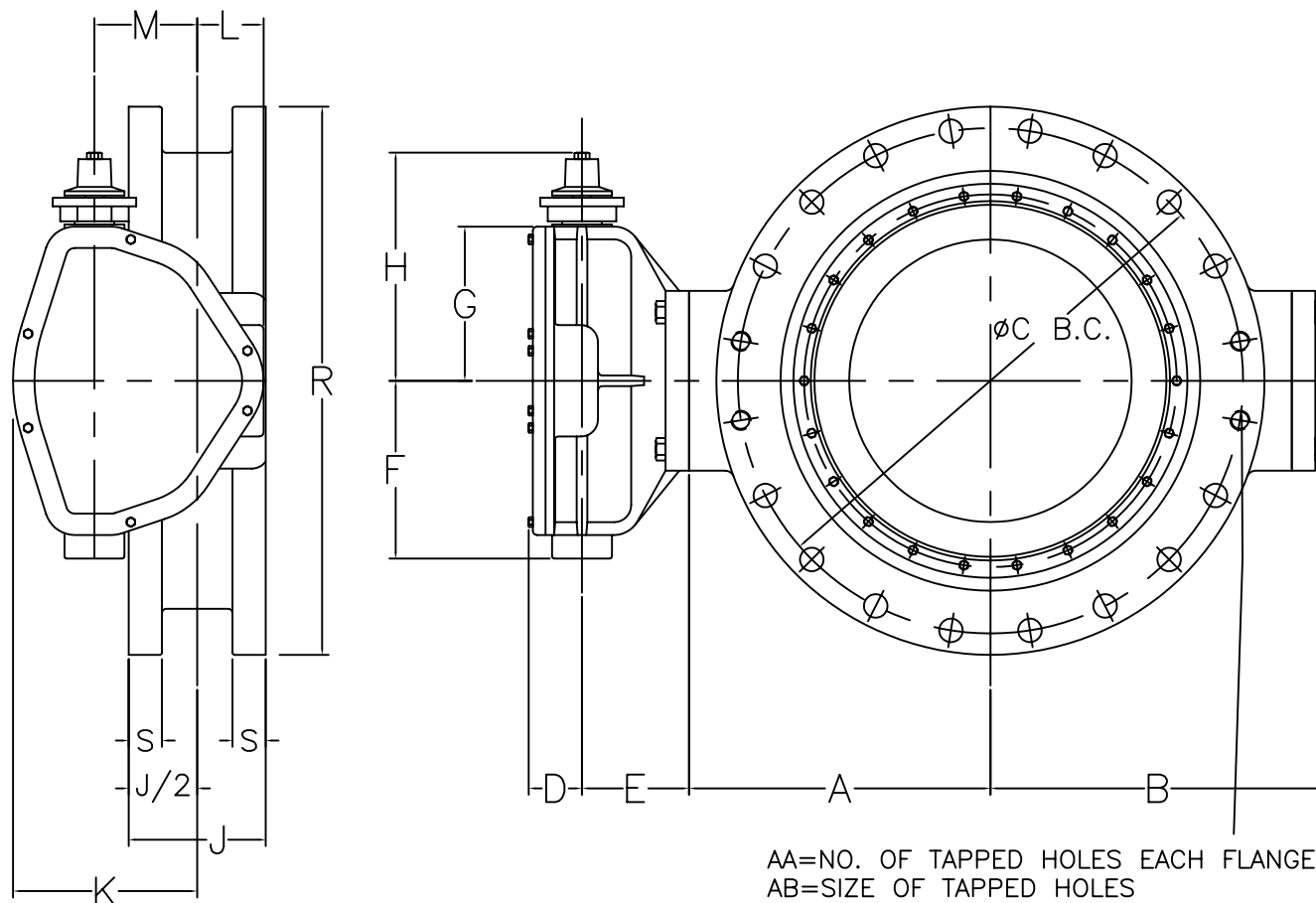
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A-126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A-48, CLASS 40
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "N" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	304 STAINLESS STEEL, ASTM A-276
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-45B

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





VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15 /16	4	5/8-11	75
4"	4	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8-11	75
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	95
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	140
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	-	-	232
12"	9 1/2	11 3/8	17	8	12	7/8	19	1 1/4	-	-	300
14"	10 7/16	12 15/16	18 3/4	8	12	1	21	1 3/8	4	1-8	485
16"	12 3/16	14 11/16	21 1/4	8	16	1	23 1/2	1 7/16	4	1-8	570
18"	13 5/16	15 13/16	22 3/4	8	16	1 1/8	25	1 9/16	4	1 1/8-7	735
20"	14 7/8	17 3/8	25	8	20	1 1/8	27 1/2	1 11/16	4	1 1/8-7	860
24"	17 19/32	20 1/8	29 1/2	8	20	1 1/4	32	1 7/8	4	1 1/4-7	1165

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

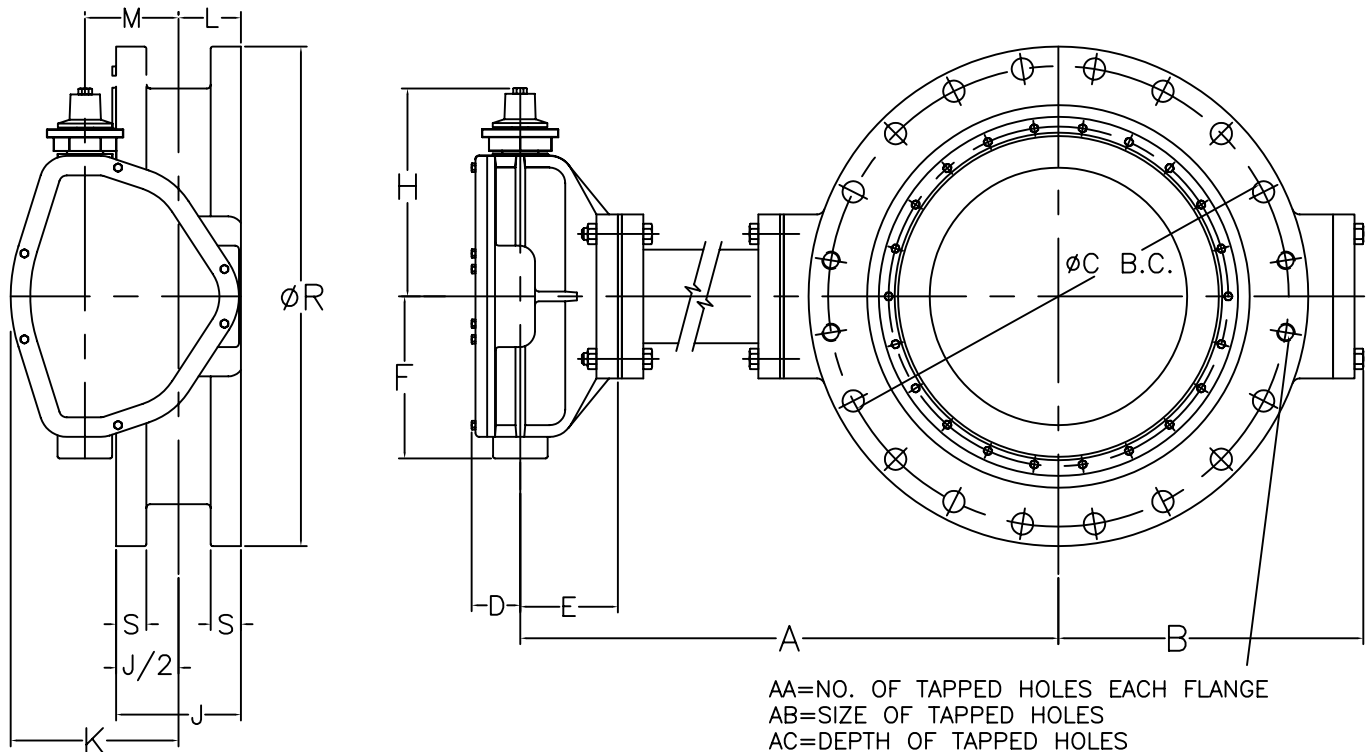
NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

M&H VALVE COMPANY  
 ANNISTON,ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-45C

3" THRU 24" STYEL 4500  
 CLASS 150 BUTTERFLY VALVE  
 BURIED OPERATOR  
 FLANGED ENDS



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2	3 9/16	3 7/16	—	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	—	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	—	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	—	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	—	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	—	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
3"	NOTE AA	5 7/16	6	5	4	5/8	9	15 /16	4	5/8-11	80
4"	NOTE AA	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8-11	80
6"	NOTE AA	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	100
8"	NOTE AA	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	150
10"	NOTE AA	9 5/8	14 1/4	8	12	7/8	16	1 3/16	—	—	242
12"	NOTE AA	11 3/8	17	8	12	7/8	19	1 1/4	—	—	310
14"	NOTE AA	12 15/16	18 3/4	8	12	1	21	1 3/8	4	1-8	510
16"	NOTE AA	14 11/16	21 1/4	8	16	1	23 1/2	1 7/16	4	1-8	595
18"	NOTE AA	15 13/16	22 3/4	8	16	1 1/8	25	1 9/16	4	1 1/8-7	760
20"	NOTE AA	17 3/8	25	8	20	1 1/8	27 1/2	1 11/16	4	1 1/8-7	885
24"	NOTE AA	20 1/8	29 1/2	8	20	1 1/4	32	1 7/8	4	1 1/4-7	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

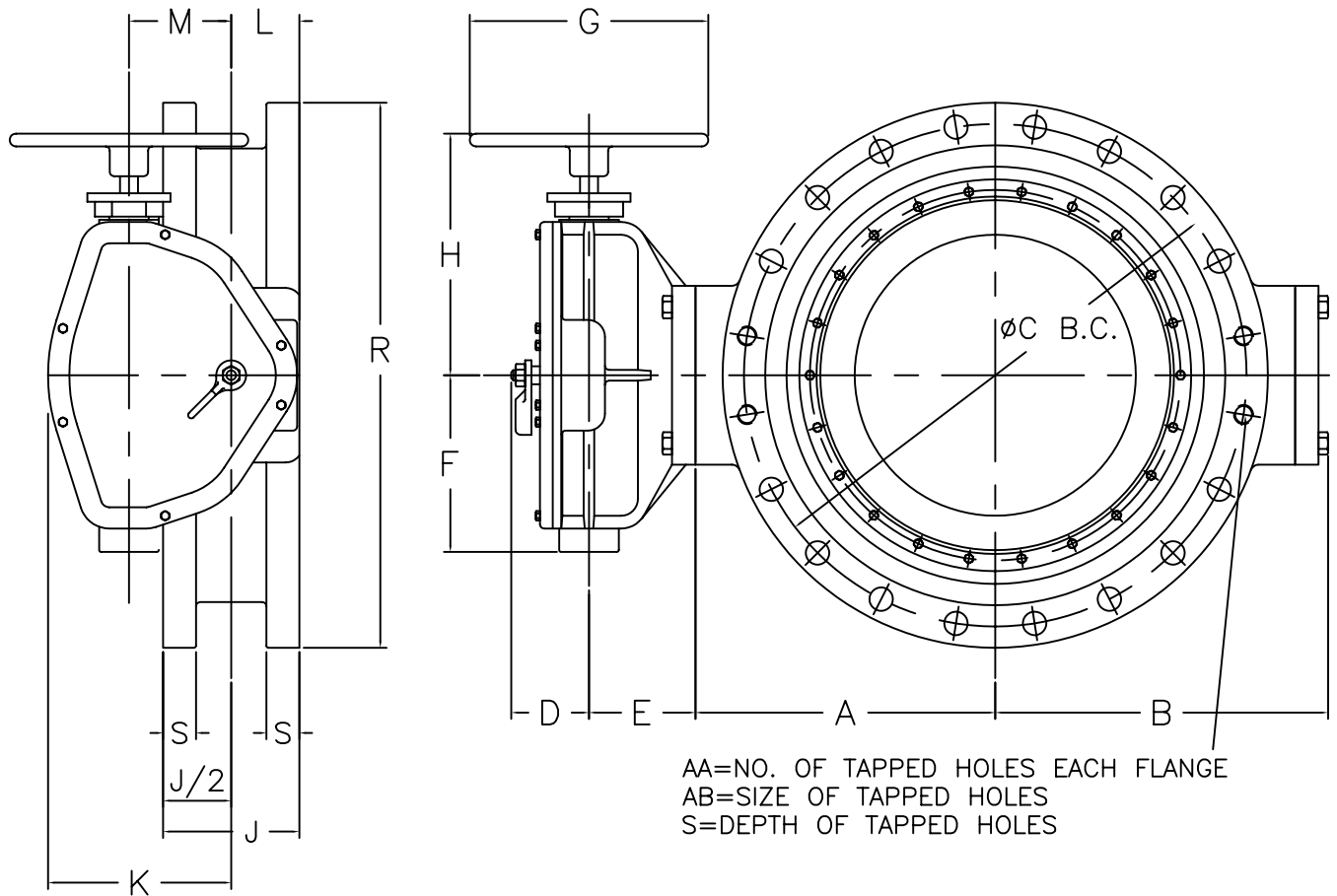
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(3"-12"), 150LBS(14"-16"), 180LBS(18"-24")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-45D

3" THRU 24" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
EXTENDED BONNET  
BURIED OPERATOR  
FLANGED ENDS



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48
24"	2200	4 1/16	6 1/4	10 3/8	18	14 1/2	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15/16	4	5/8-11	75
4"	4	5 7/16	7 1/2	5	8	5/8	9	15/16	4	5/8-11	75
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	95
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	140
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	-	-	237
12"	9 1/2	11 3/8	17	8	12	7/8	19	1 1/4	-	-	300
14"	10 7/16	12 15/16	18 3/4	8	12	1	21	1 3/8	4	1-8	485
16"	12 3/16	14 11/16	21 1/4	8	16	1	23 1/2	1 7/16	4	1-8	570
18"	13 5/16	15 13/16	22 3/4	8	16	1 1/8	25	1 9/16	4	1 1/8-7	735
20"	14 7/8	17 3/8	25	8	20	1 1/8	27 1/2	1 11/16	4	1 1/8-7	860
24"	17 19/32	20 1/8	29 1/2	8	20	1 1/4	32	1 7/8	4	1 1/4-7	1165

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

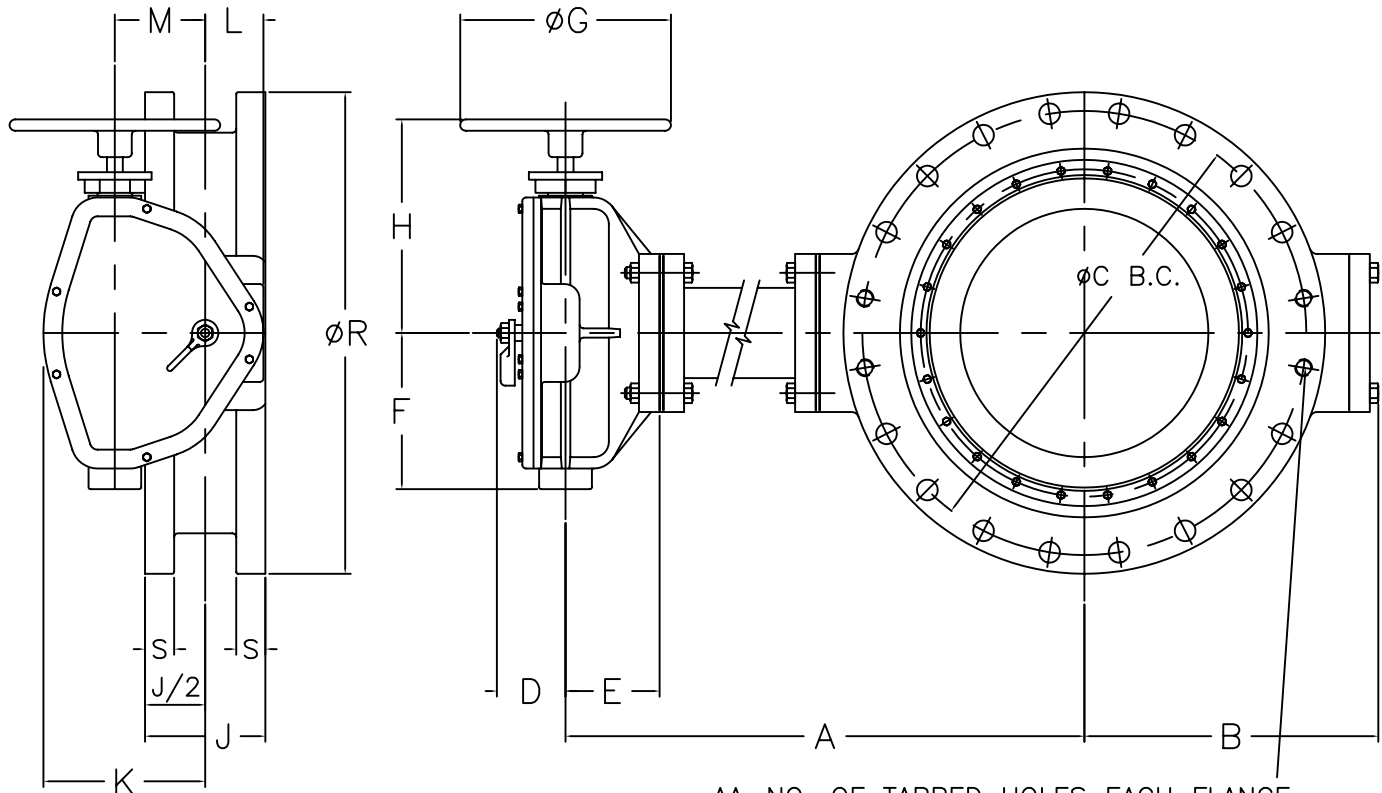
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-45E

3" THRU 24" STYLE 4500  
 CLASS 150 BUTTERFLY VALVE  
 POSITION INDICATOR  
 HANDWHEEL OPERATOR  
 FLANGED ENDS





AA=NO. OF TAPPED HOLES EACH FLANGE  
AB=SIZE OF TAPPED HOLES  
S=DEPTH OF TAPPED HOLES

VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48
24"	2200	4 1/16	6 1/4	10 3/8	18	14 1/2	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
3"	NOTE AA	5 7/16	6	5	4	5/8	9	15 /16	4	5/8-11	80
4"	NOTE AA	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8-11	80
6"	NOTE AA	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	100
8"	NOTE AA	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	150
10"	NOTE AA	9 5/8	14 1/4	8	12	7/8	16	1 3/16	-	-	242
12"	NOTE AA	11 3/8	17	8	12	7/8	19	1 1/4	-	-	310
14"	NOTE AA	12 15/16	18 3/4	8	12	1	21	1 3/8	4	1-8	510
16"	NOTE AA	14 11/16	21 1/4	8	16	1	23 1/2	1 7/16	4	1-8	595
18"	NOTE AA	15 13/16	22 3/4	8	16	1 1/8	25	1 9/16	4	1 1/8-7	760
20"	NOTE AA	17 3/8	25	8	20	1 1/8	27 1/2	1 11/16	4	1 1/8-7	885
24"	NOTE AA	20 1/8	29 1/2	8	20	1 1/4	32	1 7/8	4	1 1/4-7	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

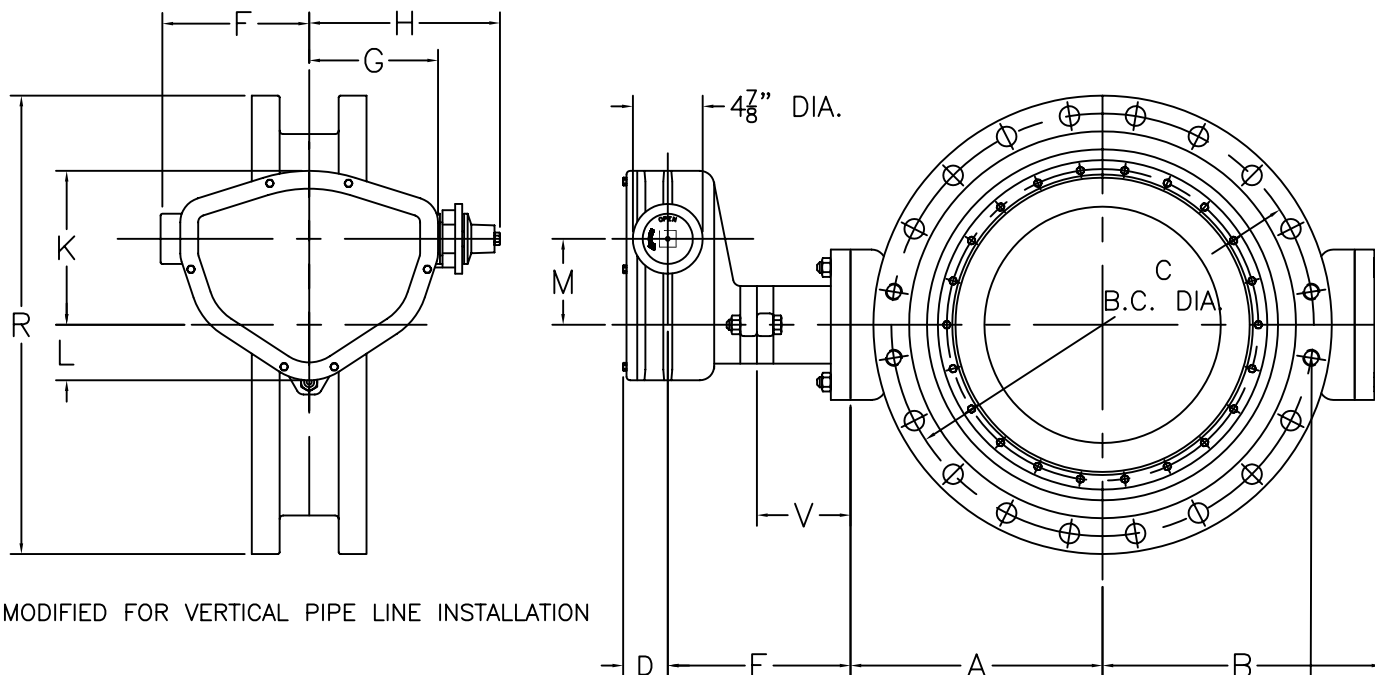
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(3"-12"), 150LBS(14"-16"), 180LBS(18"-24")

M&H VALVE COMPANY  
ANNISTON,ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-45F

3" THRU 24" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
WITH EXTENDED BONNET  
POSITION INDICATOR  
HANDWHEEL OPERATED  
FLANGED ENDS



MODIFIED FOR VERTICAL PIPE LINE INSTALLATION

AA = NO. OF TAPPED HOLES  
EACH FLANGE  
AB = SIZE OF TAPPED HOLES  
S = DEPTH OF TAPPED HOLES

VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15/16	4	5/8-11	80
4"	4	5 7/16	7 1/2	5	8	5/8	9	15/16	4	5/8-11	80
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	100
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	150
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	-	-	242
12"	9 1/2	11 3/8	17	8	12	7/8	19	1 1/4	-	-	310
14"	10 7/16	12 15/16	18 3/4	8	12	1	21	1 3/8	8	1-8	510
16"	12 3/16	14 11/16	21 1/4	8	16	1	23 1/2	1 7/16	8	1-8	595
18"	13 5/16	15 13/16	22 3/4	8	16	1 1/8	25	1 9/16	8	1 1/8-7	760
20"	14 7/8	17 3/8	25	8	20	1 1/8	27 1/2	1 11/16	8	1 1/8-7	885
24"	17 19/32	20 1/8	29 1/2	8	20	1 1/4	32	1 7/8	8	1 1/4-7	1190

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

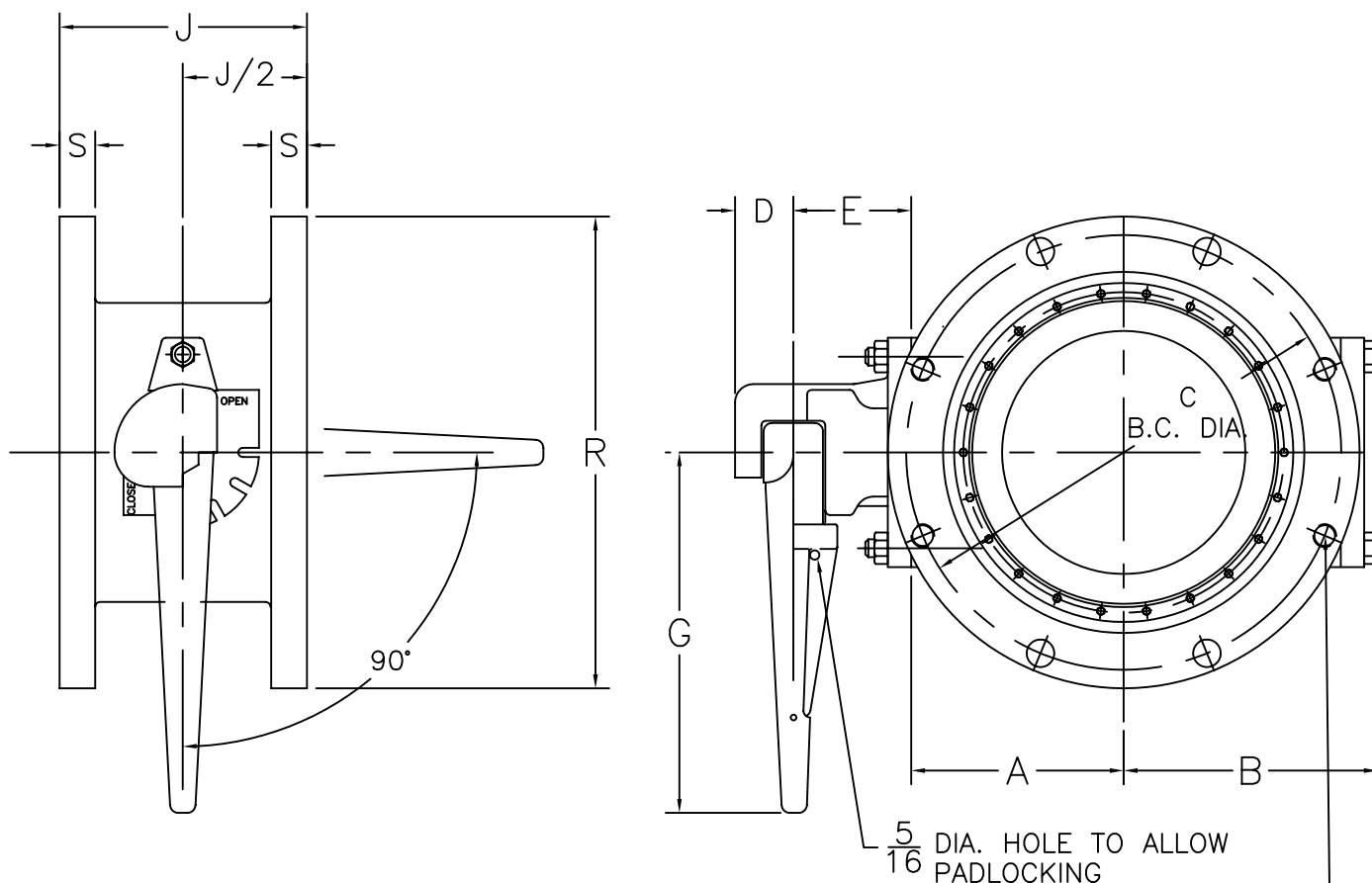
NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-45G

3" THRU 24" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
BURIED OPERATOR  
WITH VPA-(VERTICAL PIPE ADAPTER)  
FLANGED ENDS



AA = NO. OF TAPPED HOLES EACH FLANGE.  
 AB = SIZE OF TAPPED HOLES.  
 S = DEPTH OF TAPPED HOLES

VALVE SIZE	A	B	C	D	E	G	J
4"	4	5 7/16	7 1/2	1 1/2	3 13/16	11	5
6"	5	6 1/2	9 1/2	1 1/2	3 13/16	11	5
8"	6	7 9/16	11 3/4	1 1/2	4 1/16	11	6

VALVE SIZE	P	Q	R	S	AA	AB	WEIGHT
4"	8	5/8	9	15/16	4	5/8-11	60
6"	8	3/4	11	1	4	3/4-10	85
8"	8	3/4	13 1/2	1 1/8	4	3/4-10	115

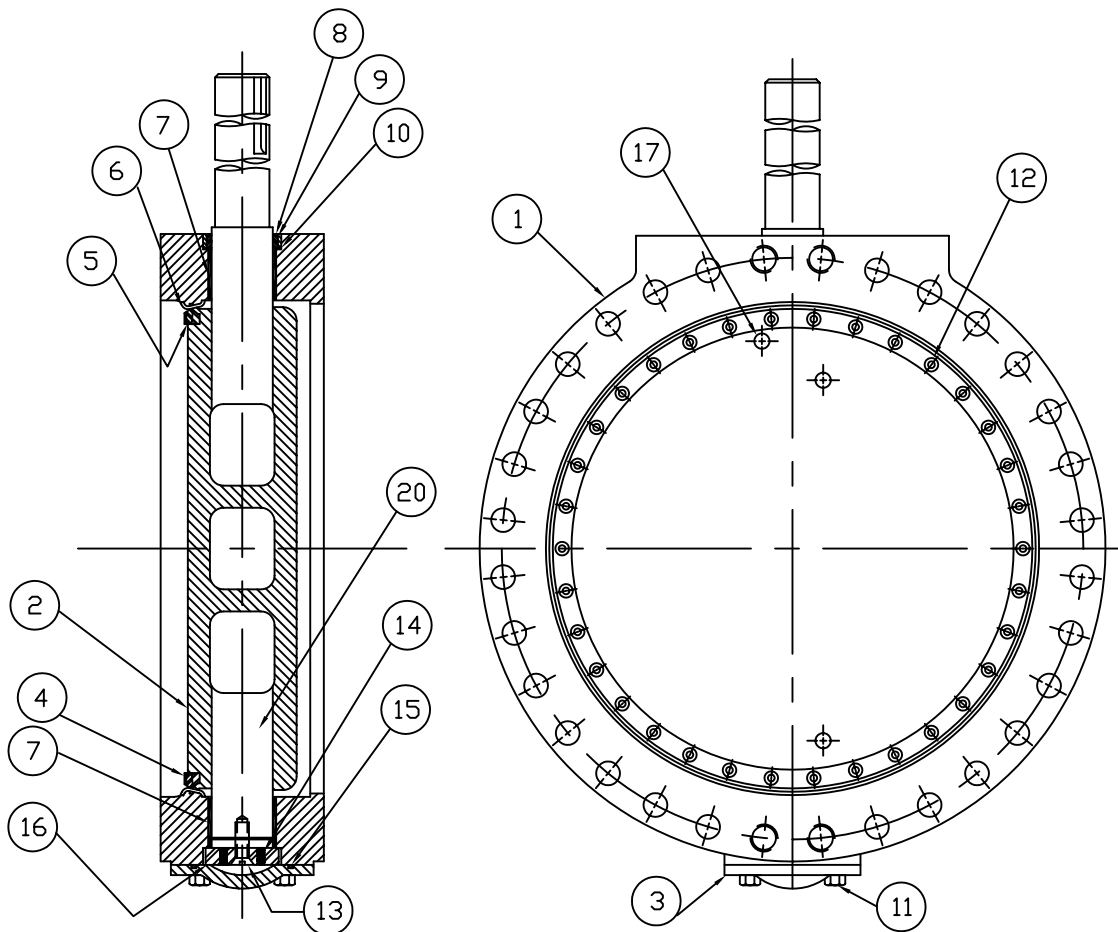
- NOTE 1: FLOW MAY BE IN EITHER DIRECTION  
 NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.  
 NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)  
 NOTE 4: "P" = NUMBER OF BOLTS ON EACH FLANGE  
 NOTE 5: "Q" = DIAMETER OF BOLTS  
 NOTE 6: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-45H

4" THRU 8" STYLE 4500  
 CLASS 150 BUTTERFLY VALVE  
 LEVER OPERATOR  
 FLANGED ENDS



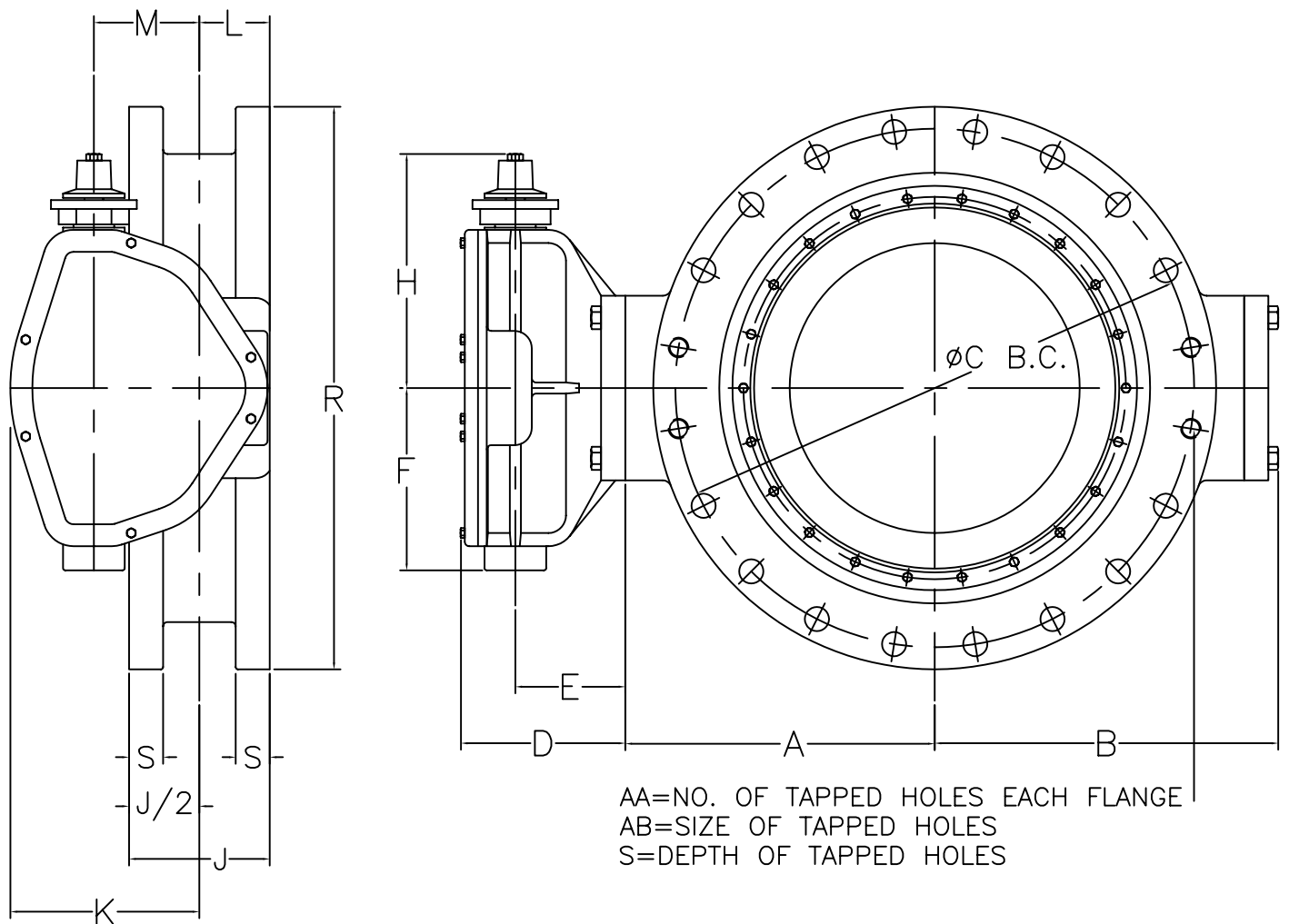


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, ASTM A-126, CL. B W/304 STAINLESS STEEL SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA 'S'
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
8	CARTRIDGE, SHAFT	BRONZE
9	SEAL, SHAFT	BUNA 'N'
10	SEAL, CARTRIDGE	BUNA 'N'
11	BOLT, END COVER	COMMERCIAL STEEL
12	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
13	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
14	SET SCREW ~ FLAT POINT	18-8 STAINLESS STEEL W/NYLOK INSERT
15	END COVER SEAL	BUNA 'N'
16	THRUST BEARING	BRONZE
17	TAPER PIN	STAINLESS STEEL
18	TAPER PIN NUT	18-8 STAINLESS STEEL
19	SHAFT (OPERATOR)	304 STAINLESS STEEL
20	SHAFT (THRUST)	304 STAINLESS STEEL

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-14A

30" THRU 48" STYLE 1450  
CLASS 150 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
(NON-ADJUSTABLE PACKING)  
FLANGED ENDS



	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
30"	20.625	21.250	36	12	28	1.250	38.750	2.125	4	1.250-7	1790
36"	24.250	25.187	42.750	12	32	1.500	46	2.375	4	1.500-6	2515
42"	28.250	24.875	49.500	12	36	1.500	53	2.625	4	1.500-6	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

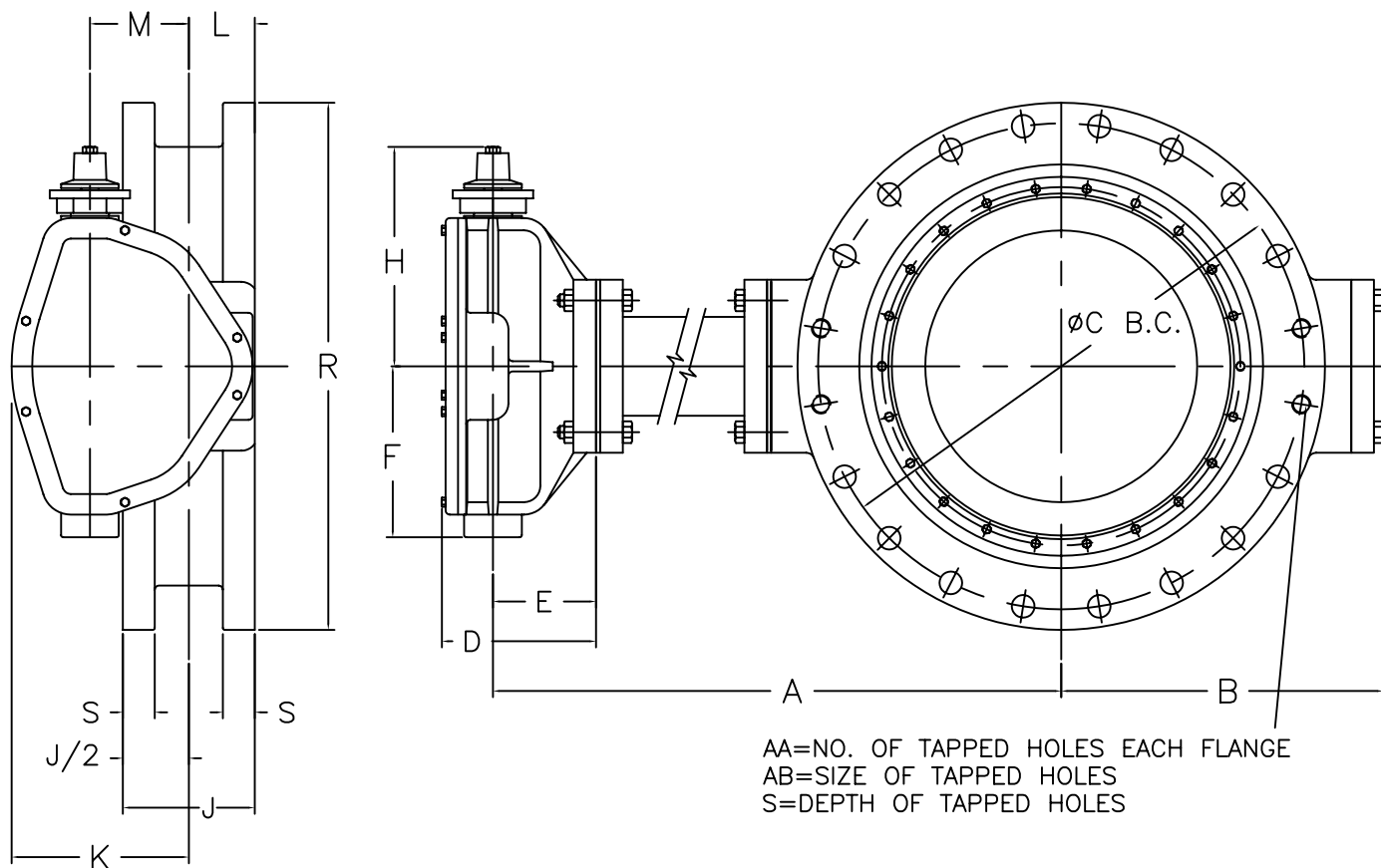
NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-14B

30" THRU 42" STYLE 1450  
 CLASS 150 BUTTERFLY VALVE  
 BURIED OPERATOR  
 FLANGED ENDS



	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
30"	NOTE AA	21 1/4	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	NOTE AA	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	NOTE AA	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

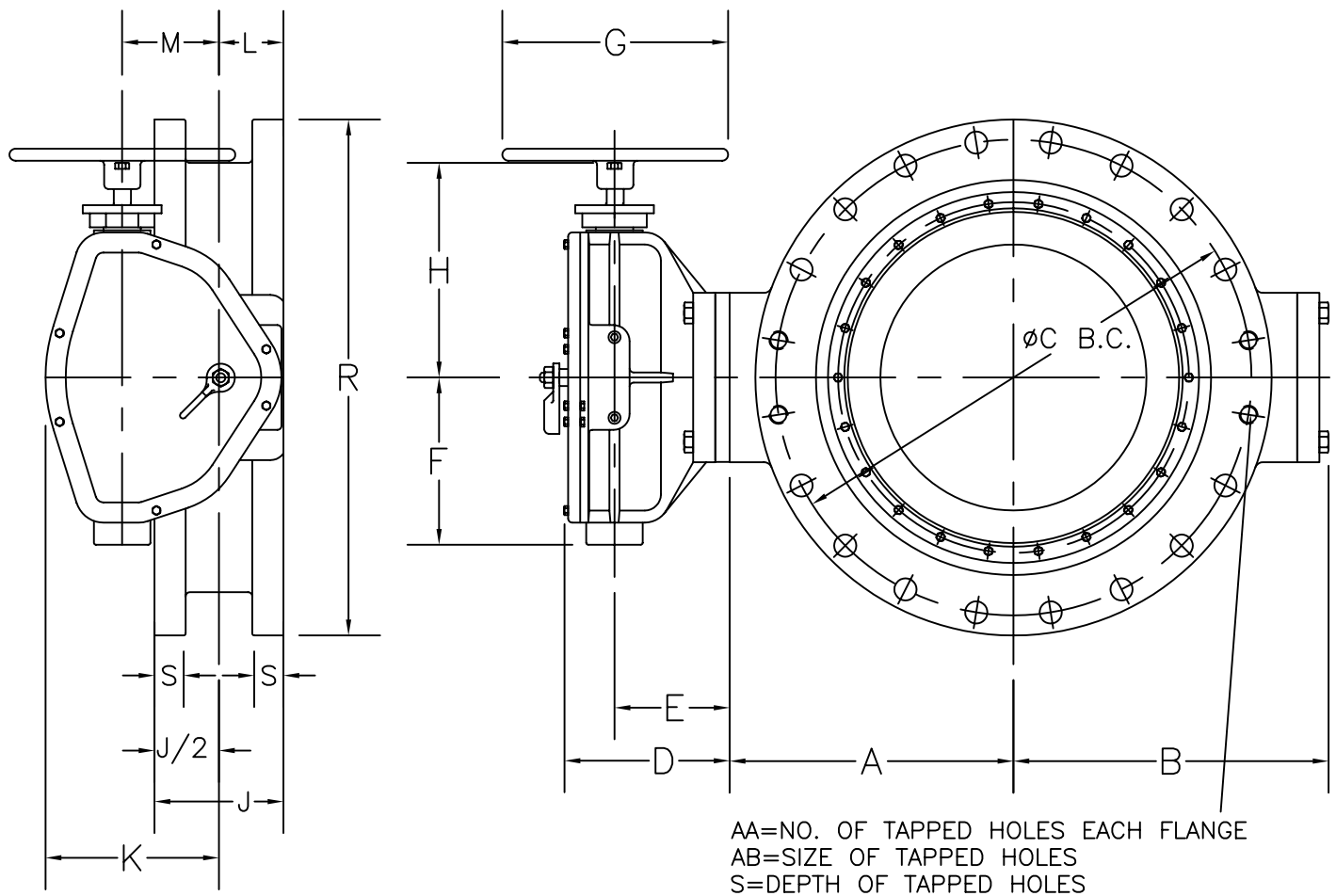
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-14C

30" THRU 42" STYLE 1450  
 CLASS 150 BUTTERFLY VALVE  
 WITH EXTENDED BONNET  
 BURIED OPERATOR  
 FLANGED ENDS



	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	AB
30"	20 5/8	21 5/8	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	24 1/4	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	28 1/4	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

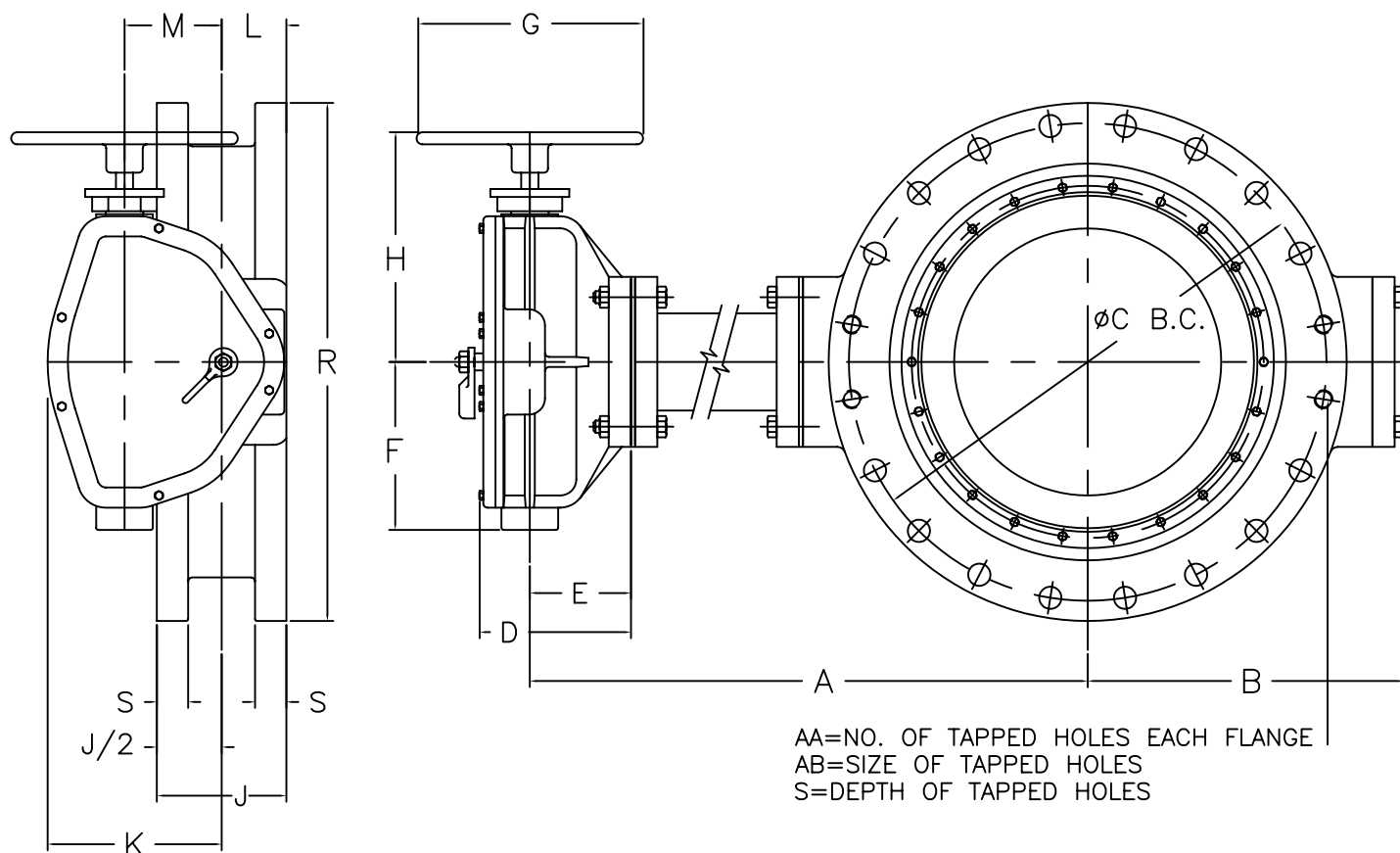
NOTE 6: "Q" = DIAMETER OF BOLTS

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-14D

30" THRU 42" STYLE 1450  
 CLASS 150 BUTTERFLY VALVE  
 POSITION INDICATOR  
 HANDWHEEL OPERATOR  
 FLANGED ENDS





	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
30"	NOTE AA	21 1/4	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	NOTE AA	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	NOTE AA	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

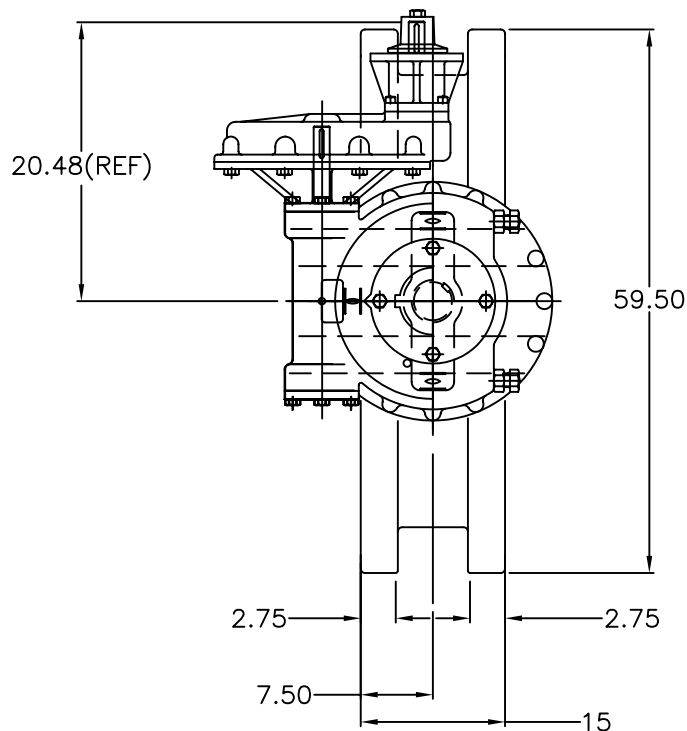
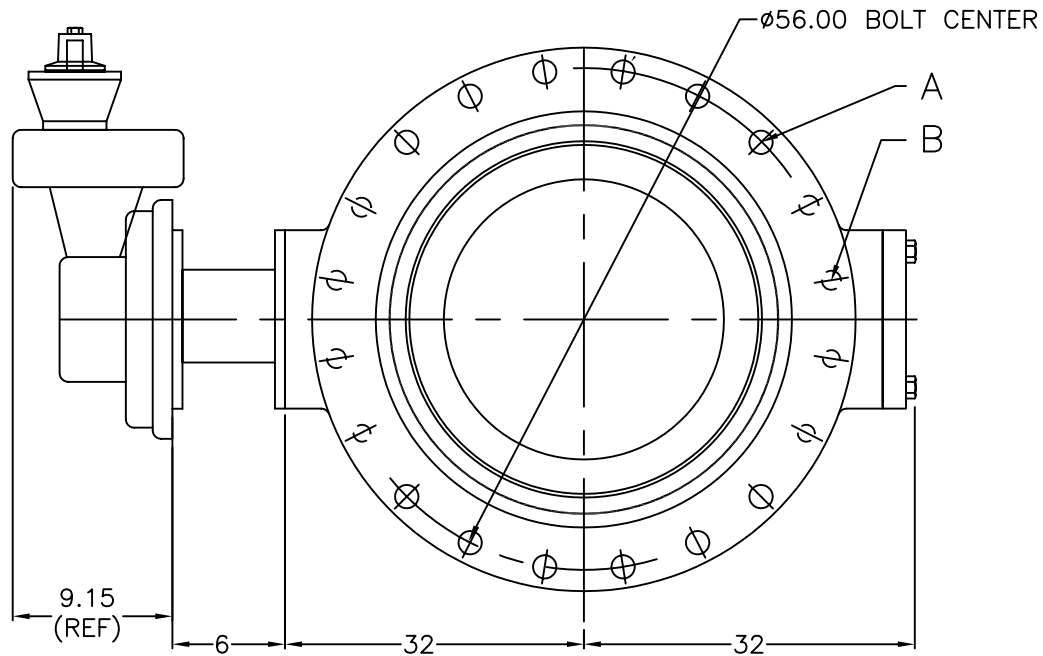
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-14E

30" THRU 42" STYLE 1450  
 CLASS 150 BUTTERFLY VALVE  
 WITH EXTENDED BONNET  
 HANDWHEEL OPERATOR  
 FLANGED ENDS



NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: NUMBER OF TURNS TO CLOSE = 60

NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 6: A = (44) 1.50" BOLTS PER FLANGE

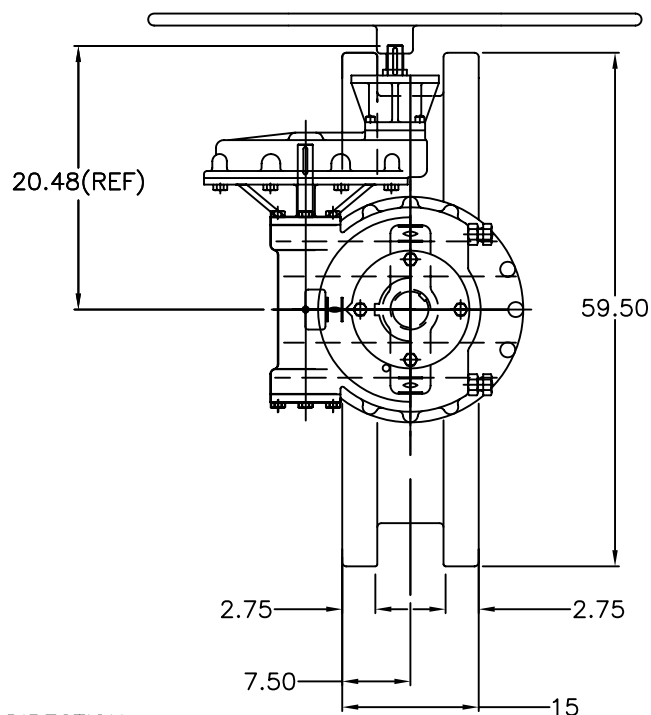
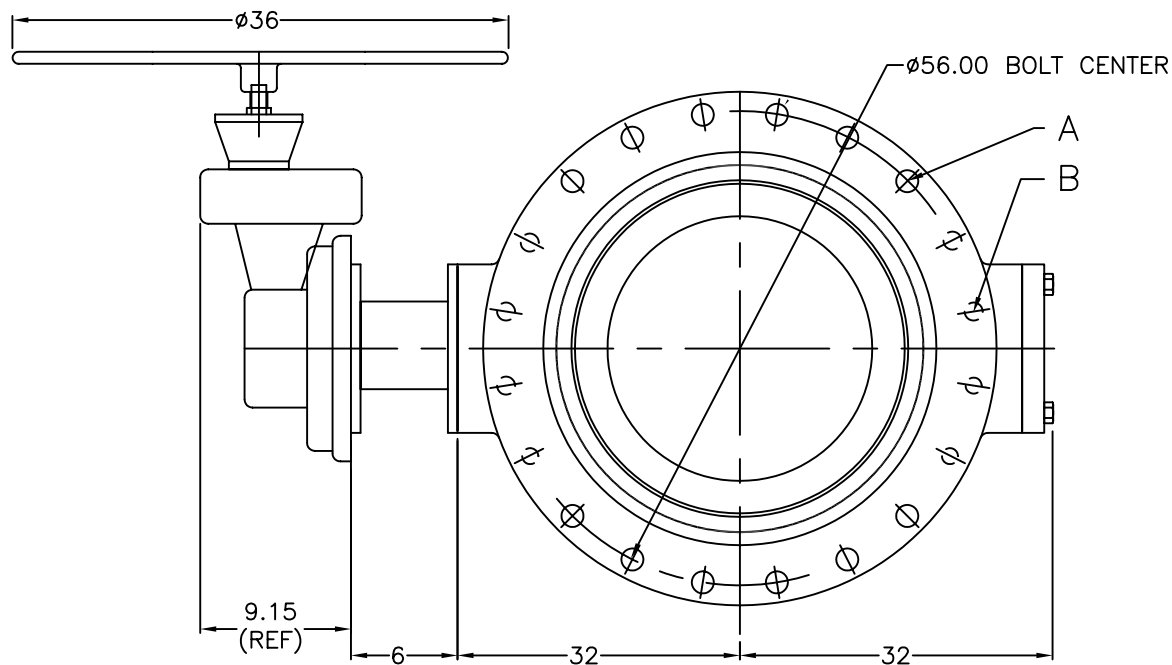
NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.

NOTE 8: APPROXIMATE WEIGHT = 6300lbs.

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-15-RA

48" STYLE 1450  
CLASS 150 BUTTERFLY VALVE  
(ROTORK IW7 GEAR BOX)  
BURIED OPERATOR  
FLANGED ENDS

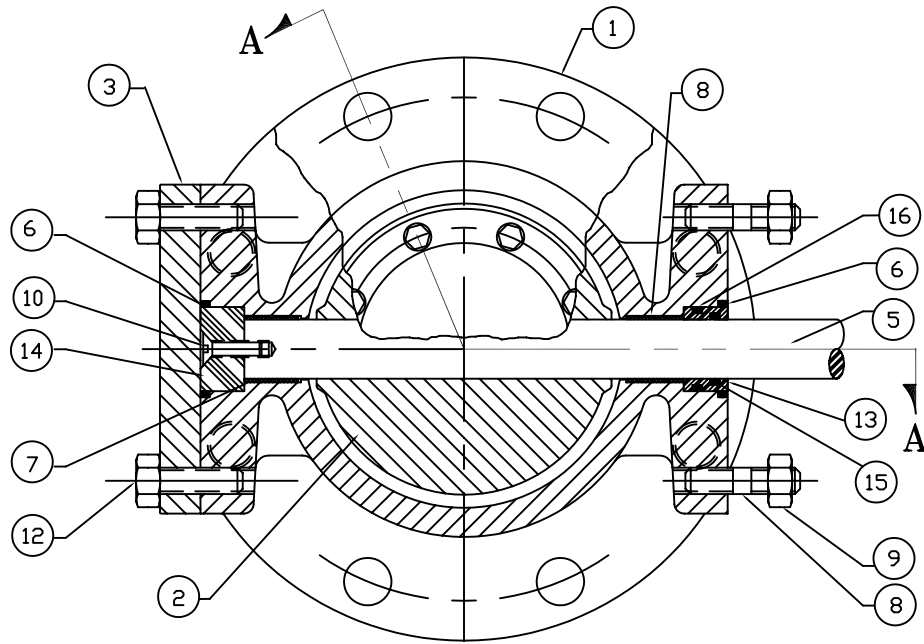


- NOTE 1: FLOW MAY BE IN EITHER DIRECTION  
 NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.  
 NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)  
 NOTE 4: NUMBER OF TURNS TO CLOSE = 60  
 NOTE 5: OPERATED BY 36" HANDWHEEL  
 NOTE 6: A = (44) 1.50" BOLTS PER FLANGE  
 NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.  
 NOTE 8: APPROXIMATE WEIGHT = 6300lbs.

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-15-RB

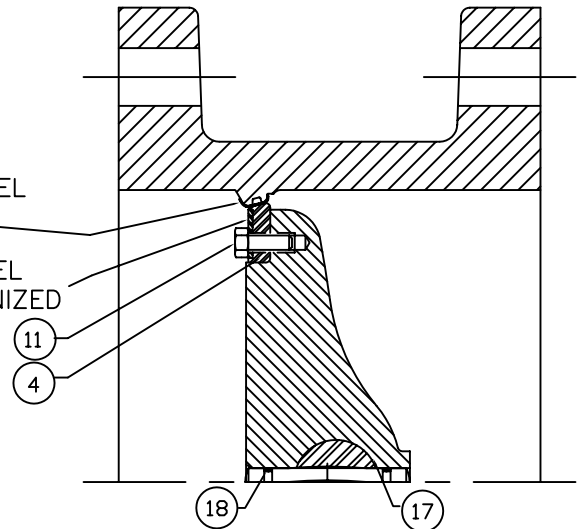
48" STYLE 1450  
 CLASS 150 BUTTERFLY VALVE  
 (ROTORK IW7 GEAR BOX)  
 HANDWHEEL OPERATOR  
 FLANGED ENDS



304 STAINLESS STEEL  
BODY SEAT

304 STAINLESS STEEL  
CLAMP RING VULCANIZED  
TO SEAT

### SECTION A-A



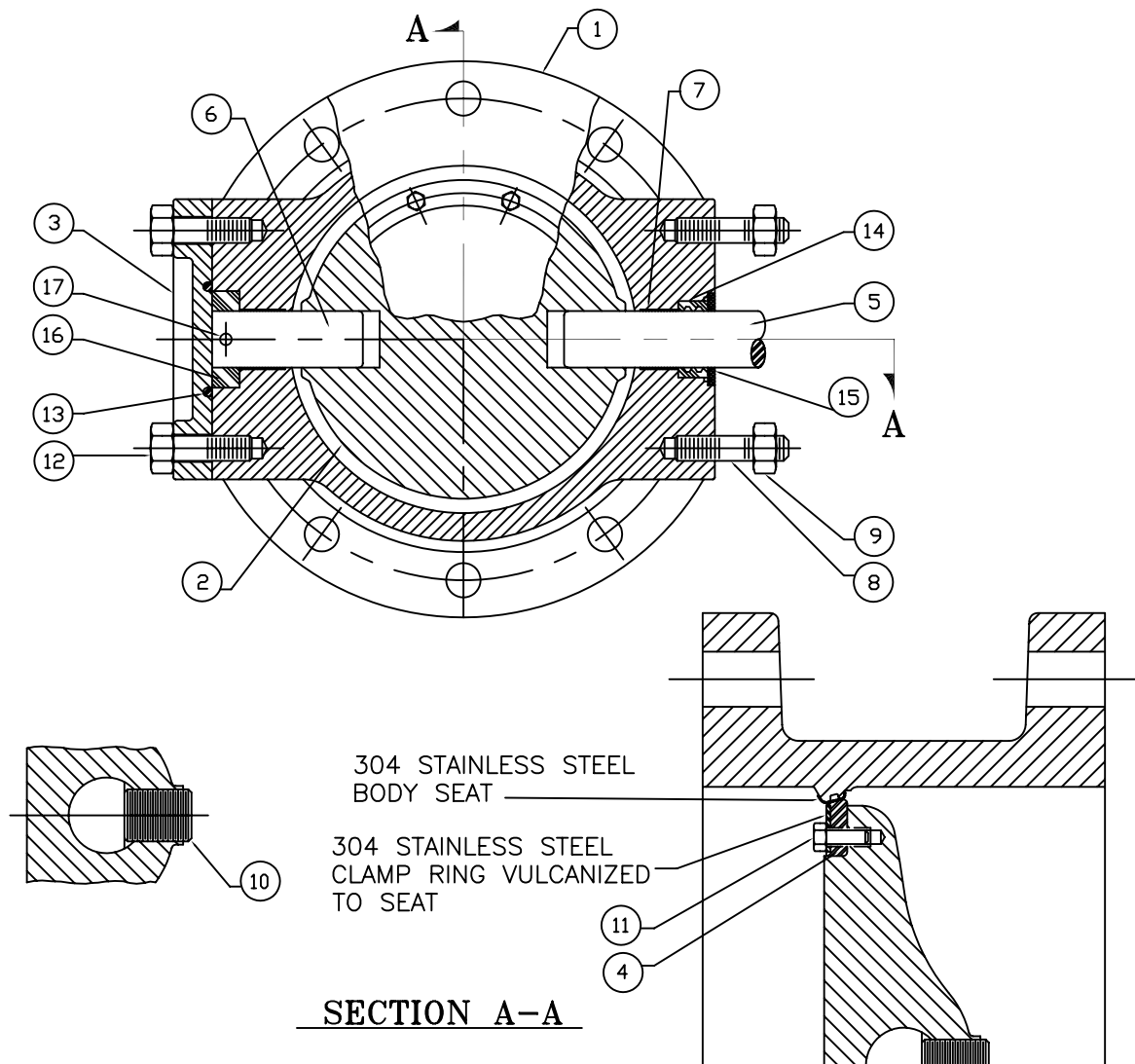
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A-564
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYEHTYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-25-45A

3" THRU 12" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
FLANGED ENDS



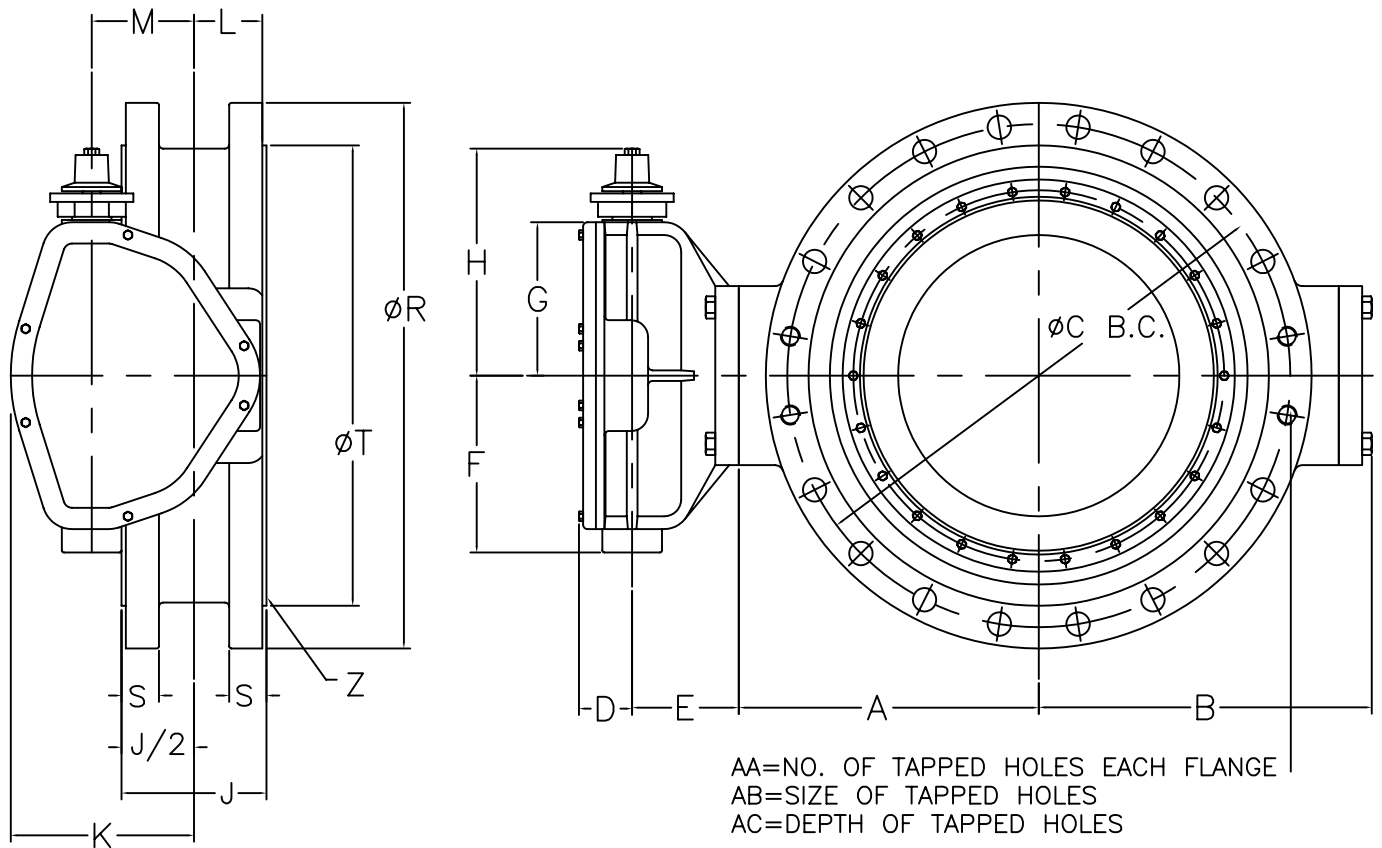


ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A-536 GR. 70-50-05
2	VANE	DUCTILE IRON ASTM A-536 GR. 70-50-05
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	TYPE 630, CONDITION H1100 STN. STL. ASTM A-564
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-25-45B

14" THRU 24" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
FLANGED ENDS



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	AC
3"	4	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 9/16	160
10"	7 3/4	9 5/8	15 1/4	9 1/4	16	1	17 1/2	1 7/8	14 1/16	4	1-8	1 1/2	252
12"	9 1/2	11 3/8	17 3/4	9 3/8	16	1 1/8	20 1/2	2	16	4	1 1/8-7	1 9/16	330
14"	10 7/16	12 15/16	20 1/4	9 3/8	20	1 1/8	23	2 1/8	18 15/16	8	1 1/8-7	1 5/8	515
16"	12 3/16	14 11/16	22 1/2	9 1/2	20	1 1/4	25 1/2	2 1/4	21 1/16	8	1 1/4-7	1 3/4	600
18"	14 5/16	15 13/16	24 3/4	9 1/2	24	1 1/4	28	2 3/8	23 5/16	8	1 1/4-7	1 3/4	775
20"	15 7/8	18 3/8	27	9 1/2	24	1 1/4	30 1/2	2 1/2	25 9/16	8	1 1/4-7	1 3/4	900
24"	23 11/32	20 1/8	32	9 5/8	24	1 1/2	36	2 3/4	30 5/16	8	1 1/2-6	1 7/8	1180

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

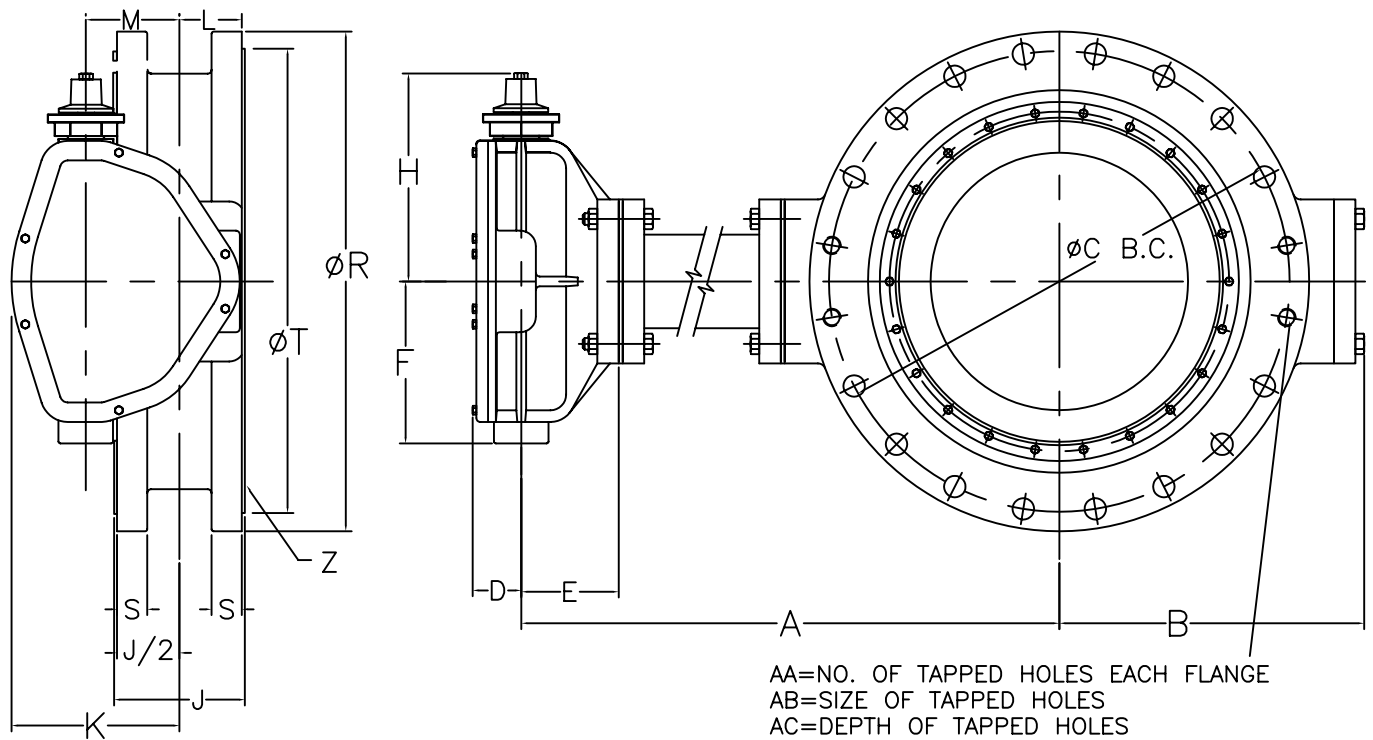
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-45C

3" THRU 24" STYLE 4500  
 CLASS 250 BUTTERFLY VALVE  
 BURIED OPERATOR  
 FLANGED ENDS



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48
24"	2200	4 1/16	6 1/4	10 3/8	18	14 1/2	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	*WEIGHT
3"	NOTE AA	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	NOTE AA	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	NOTE AA	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	NOTE AA	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 9/16	160
10"	NOTE AA	9 5/8	15 1/4	9 1/4	16	1	17 1/2	1 7/8	14 1/16	4	1-8	1 1/2	252
12"	NOTE AA	11 3/8	17 3/4	9 3/8	16	1 1/8	20 1/2	2	16	4	1 1/8-7	1 9/16	330
14"	NOTE AA	12 15/16	20 1/4	9 3/8	20	1 1/8	23	2 1/8	18 15/16	8	1 1/8-7	1 5/8	515
16"	NOTE AA	14 11/16	22 1/2	9 1/2	20	1 1/4	23 1/2	2 1/4	21 1/16	8	1 1/4-7	1 3/4	600
18"	NOTE AA	15 13/16	24 3/4	9 1/2	24	1 1/4	28	2 3/8	23 5/16	8	1 1/4-7	1 3/4	775
20"	NOTE AA	18 3/8	27	9 1/2	24	1 1/4	30 1/2	2 1/2	25 9/16	8	1 1/4-7	1 3/4	900
24"	NOTE AA	20 1/8	32	9 5/8	24	1 1/2	36	2 3/4	30 5/16	8	1 1/2-6	1 7/8	2005

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: "Z" (1/16 or .0625 RAISED FACE ON EACH FLANGE)

NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

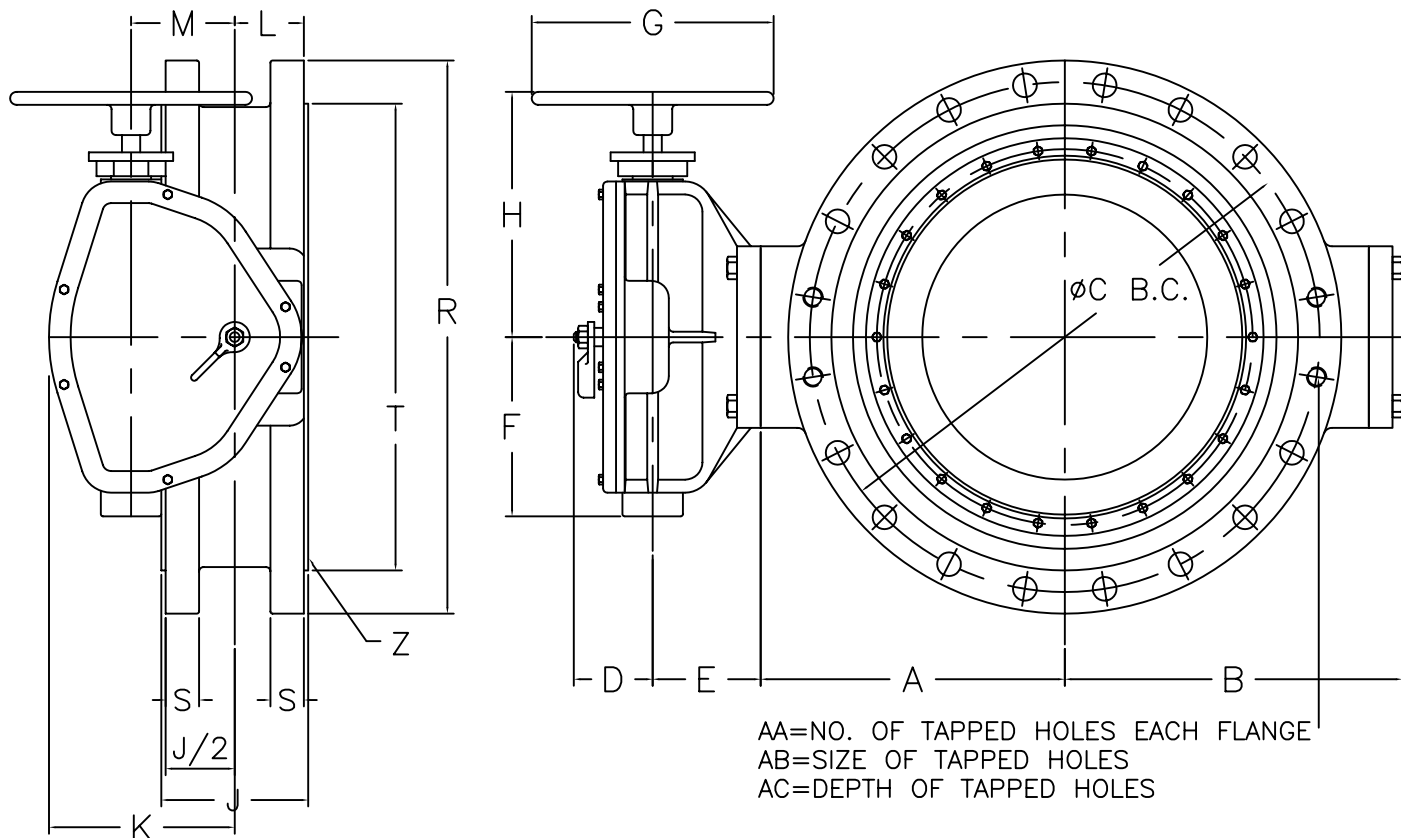
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROX. WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(3"-12"), 150LBS(14"-16"), 180LBS(18"-24")

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-45D

3" THRU 24" STYLE 4500  
 CLASS 250 BUTTERFLY VALVE  
 EXTENDED BONNET  
 BURIED OPERATOR  
 FLANGED ENDS



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48
24"	2200	4 1/16	6 1/4	10 3/8	18	14 1/2	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	WEIGHT
3"	4	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 9/16	160
10"	7 3/4	9 5/8	15 1/4	9 1/4	16	1	17 1/2	1 7/8	14 1/16	4	1-8	1 1/2	252
12"	9 1/2	10 5/8	17 3/4	9 3/8	16	1 1/8	20 1/2	2	16	4	1 1/8-7	1 5/8	330
14"	10 7/16	12 15/16	20 1/4	9 3/8	20	1 1/8	23	2 1/8	18 15/16	8	1 1/8-7	1 5/8	515
16"	12 3/16	13 3/4	22 1/2	9 1/2	20	1 1/4	25 1/2	2 1/4	21 1/16	8	1 1/4-7	1 3/4	600
18"	14 5/16	15 13/16	24 3/4	9 1/2	24	1 1/4	28	2 3/8	23 5/16	8	1 1/4-7	1 3/4	775
20"	15 7/8	18 3/8	27	9 1/2	24	1 1/4	30 1/2	2 1/2	25 9/16	8	1 1/4-7	1 3/4	900
24"	23 11/32	20 1/8	32	9 5/8	24	1 1/2	36	2 3/4	30 5/16	8	1 1/2-6	1 7/8	1185

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

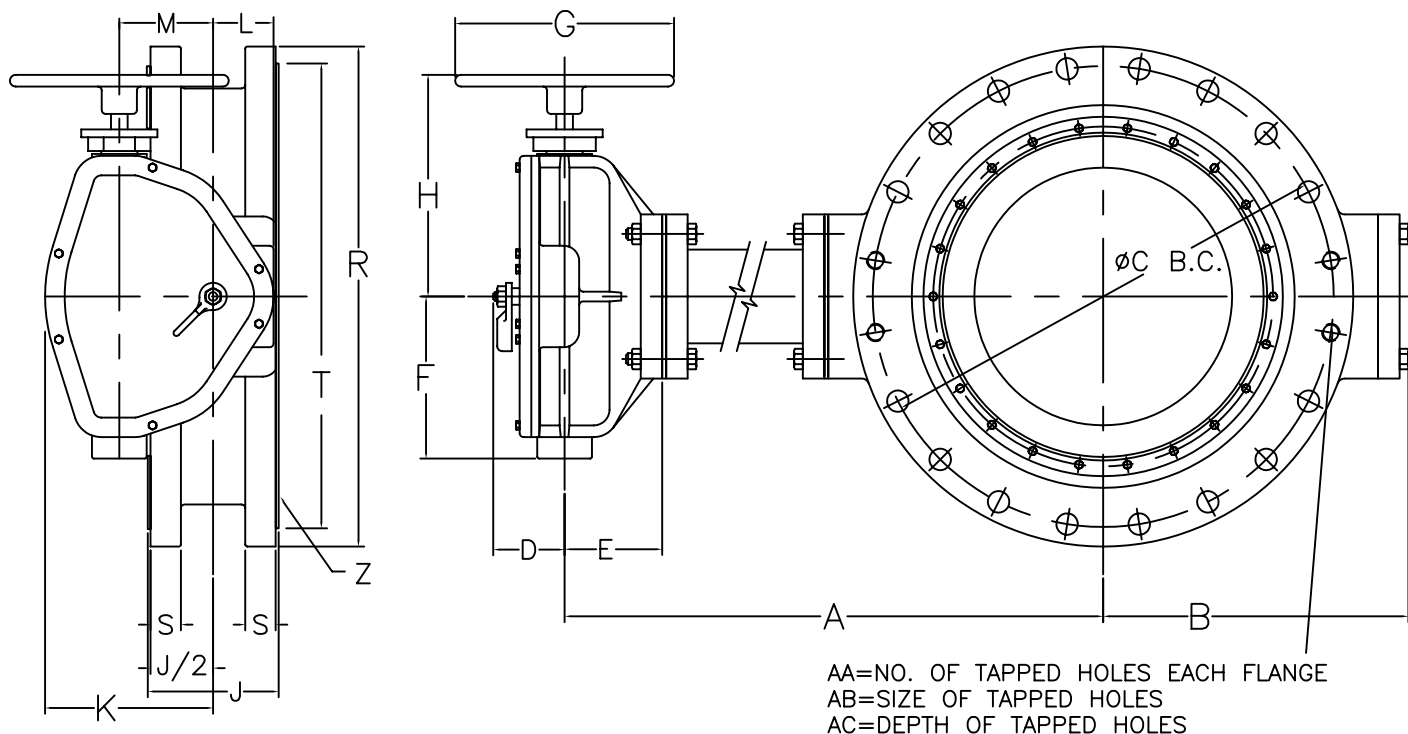
NOTE 8: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-45E

3" THRU 24" STYLE 4500  
 CLASS 250 BUTTERFLY VALVE  
 POSITION INDICATOR  
 HANDWHEEL OPERATOR  
 FLANGED ENDS





AA=NO. OF TAPPED HOLES EACH FLANGE  
AB=SIZE OF TAPPED HOLES  
AC=DEPTH OF TAPPED HOLES

VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
3" & 4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48
24"	2200	4 1/16	6 1/4	10 3/8	18	14 1/2	10 3/4	3 7/8	6	72

VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	*WEIGHT
3"	NOTE AA	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	NOTE AA	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	NOTE AA	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	NOTE AA	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 9/16	160
10"	NOTE AA	9 5/8	15 1/4	9 1/4	16	1	17 1/2	1 7/8	14 1/16	4	1-8	1 1/2	252
12"	NOTE AA	11 3/8	17 3/4	9 3/8	16	1 1/8	20 1/2	2	16	4	1 1/8-7	1 9/16	330
14"	NOTE AA	12 15/16	20 1/4	9 3/8	20	1 1/8	23	2 1/8	18 15/16	8	1 1/8-7	1 5/8	515
16"	NOTE AA	14 11/16	22 1/2	9 1/2	20	1 1/4	23 1/2	2 1/4	21 1/16	8	1 1/4-7	1 3/4	600
18"	NOTE AA	15 13/16	24 3/4	9 1/2	24	1 1/4	28	2 3/8	23 5/16	8	1 1/4-7	1 3/4	775
20"	NOTE AA	18 3/8	27	9 1/2	24	1 1/4	30 1/2	2 1/2	25 9/16	8	1 1/4-7	1 3/4	900
24"	NOTE AA	20 1/8	32	9 5/8	24	1 1/2	36	2 3/4	30 5/16	8	1 1/2-6	1 7/8	1195

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 8: "Z" (1/16 or .0625 RAISED FACE ON EACH FLANGE)

NOTE 9: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

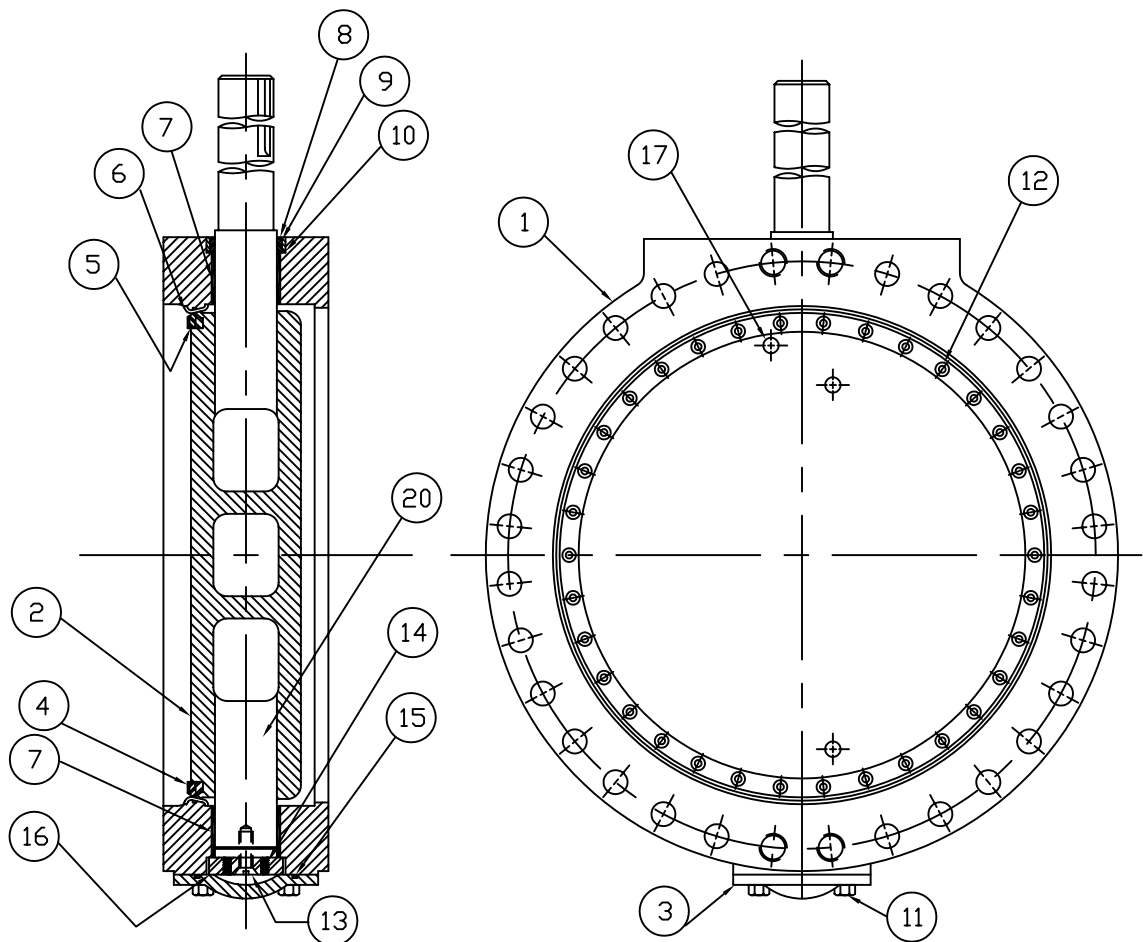
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(3"-12"), 150(14"-16"), 180(18"-24")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-25-45F

3" THRU 24" STYLE 4500  
CLASS 250 BUTTERFLY VALVE  
WITH EXTENDED BONNET  
POSITION INDICATOR  
HANDWHEEL OPERATOR  
FLANGED ENDS

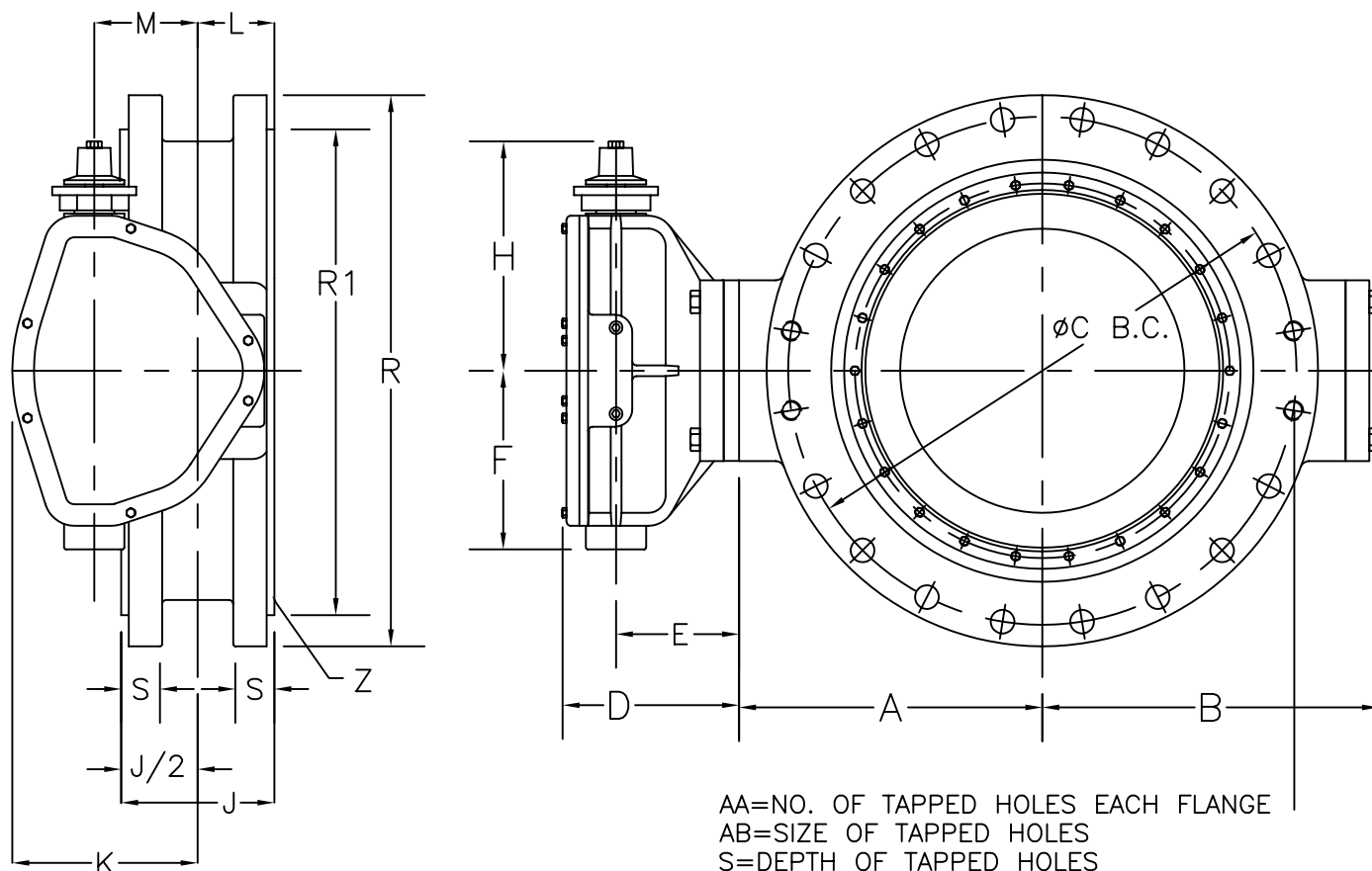


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536 GR. 70-50-05 W/304 STN.STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA 'S'
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
8	CARTRIDGE, SHAFT	BRONZE
9	SEAL, SHAFT	BUNA 'N'
10	SEAL, CARTRIDGE	BUNA 'N'
11	BOLT, END COVER	COMMERCIAL STEEL
12	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
13	SOCKET SCREW ~ FLAT HEAD	18-8 STAINLESS STEEL W/NYLOK INSERT
14	SET SCREW ~ FLAT POINT	18-8 STAINLESS STEEL W/NYLOK INSERT
15	END COVER SEAL	BUNA 'N'
16	THRUST BEARING R.	BRONZE
17	TAPER PIN	STAINLESS STEEL
18	TAPER PIN NUT	18-8 STAINLESS STEEL
19	SHAFT (OPERATOR)	TYPE 630, CONDITION H1100 STN STL ASTM A-564
20	SHAFT (THRUST)	304 STAINLESS STEEL

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-25-14A

30" THRU 48" STYLE 1450  
CLASS 250 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
(NON-ADJUSTABLE PACKING)  
FLANGED ENDS



	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	WEIGHT
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

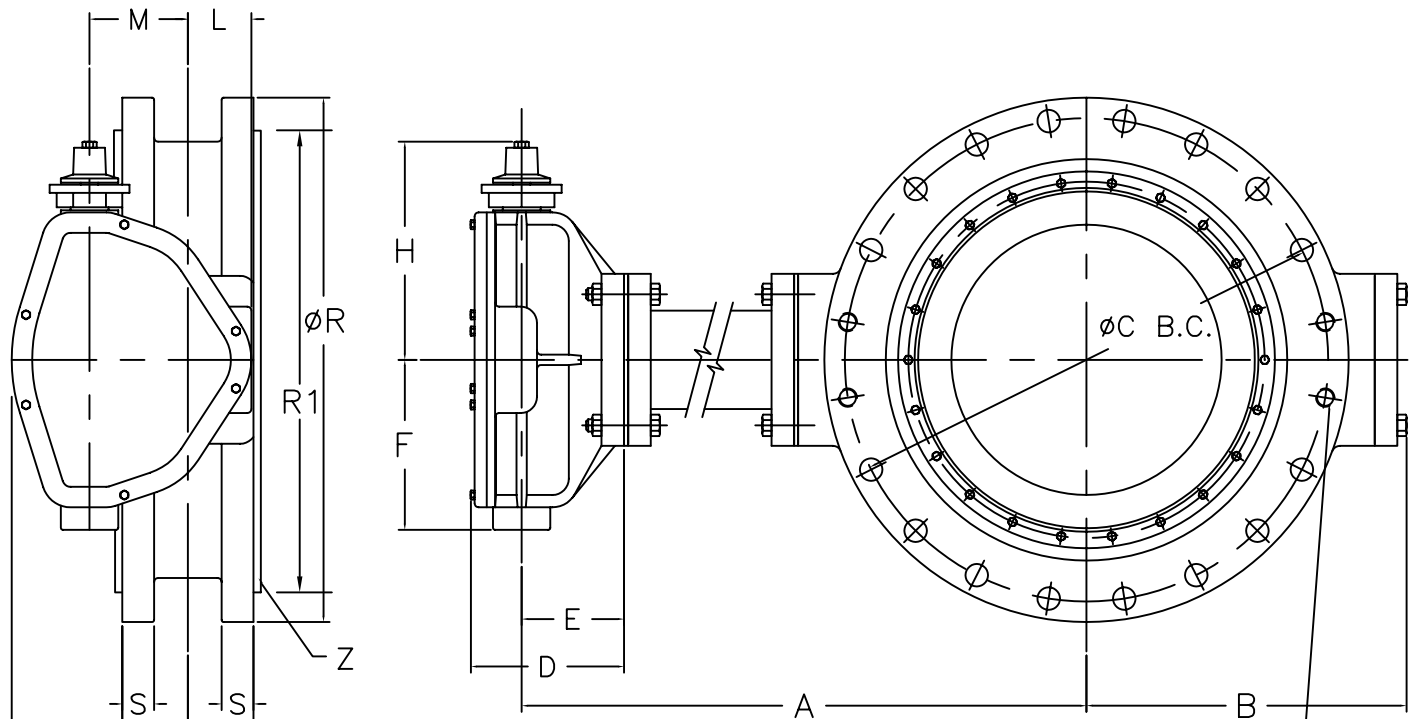
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-14B

30" THRU 42" STYLE 1450  
 CLASS 250 BUTTERFLY VALVE  
 BURIED OPERATOR  
 FLANGED ENDS



AA=NO. OF TAPPED HOLES EACH FLANGE  
 AB=SIZE OF TAPPED HOLES  
 S=DEPTH OF TAPPED HOLES

	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	*WEIGHT
30"	NOTE AA	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	NOTE AA	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	NOTE AA	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 9: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

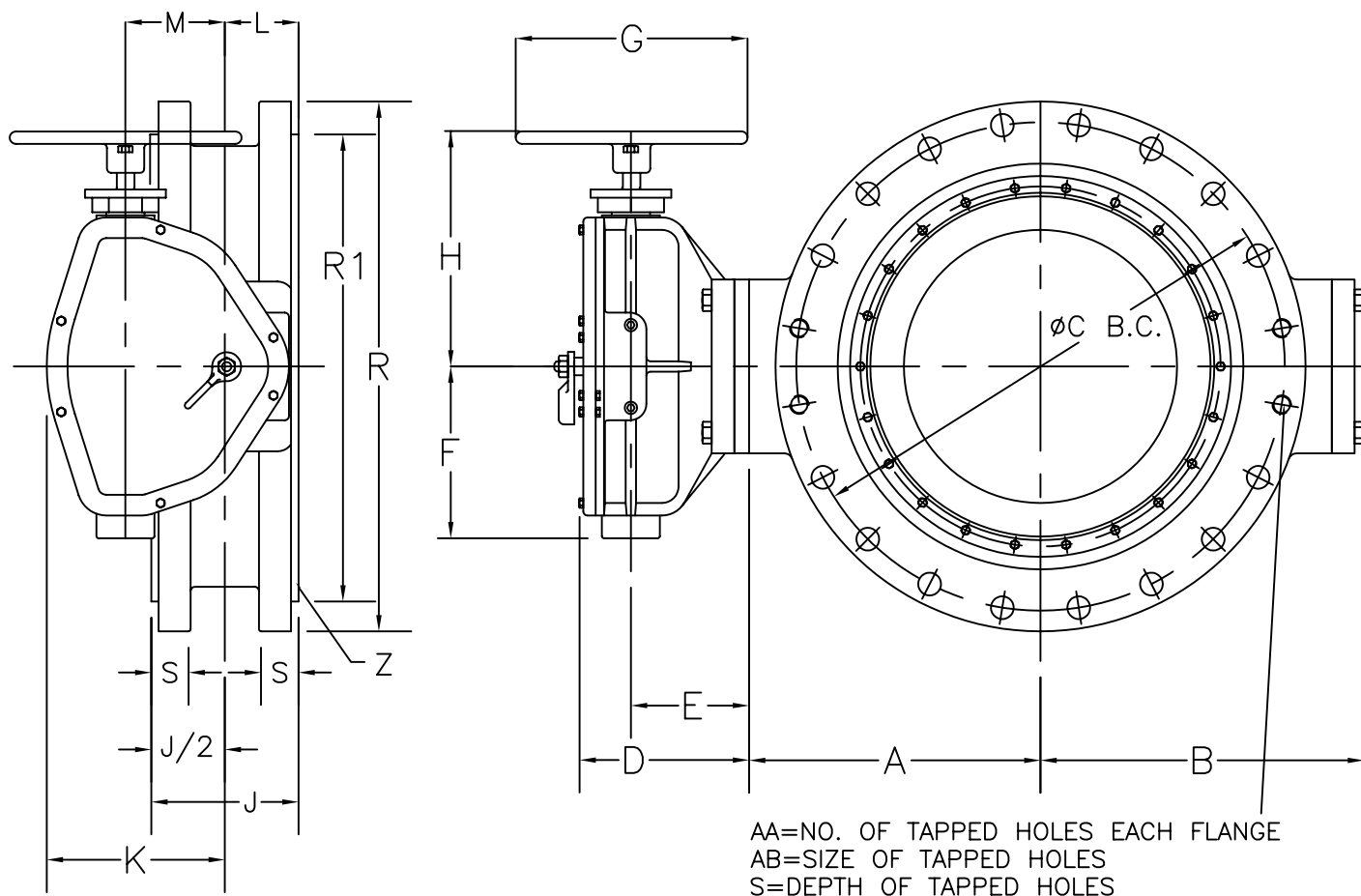
\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-14C

30" THRU 42" STYLE 1450  
 CLASS 250 BUTTERFLY VALVE  
 EXTENDED BONNET  
 BURIED OPERATOR  
 FLANGED ENDS





	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	WEIGHT
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

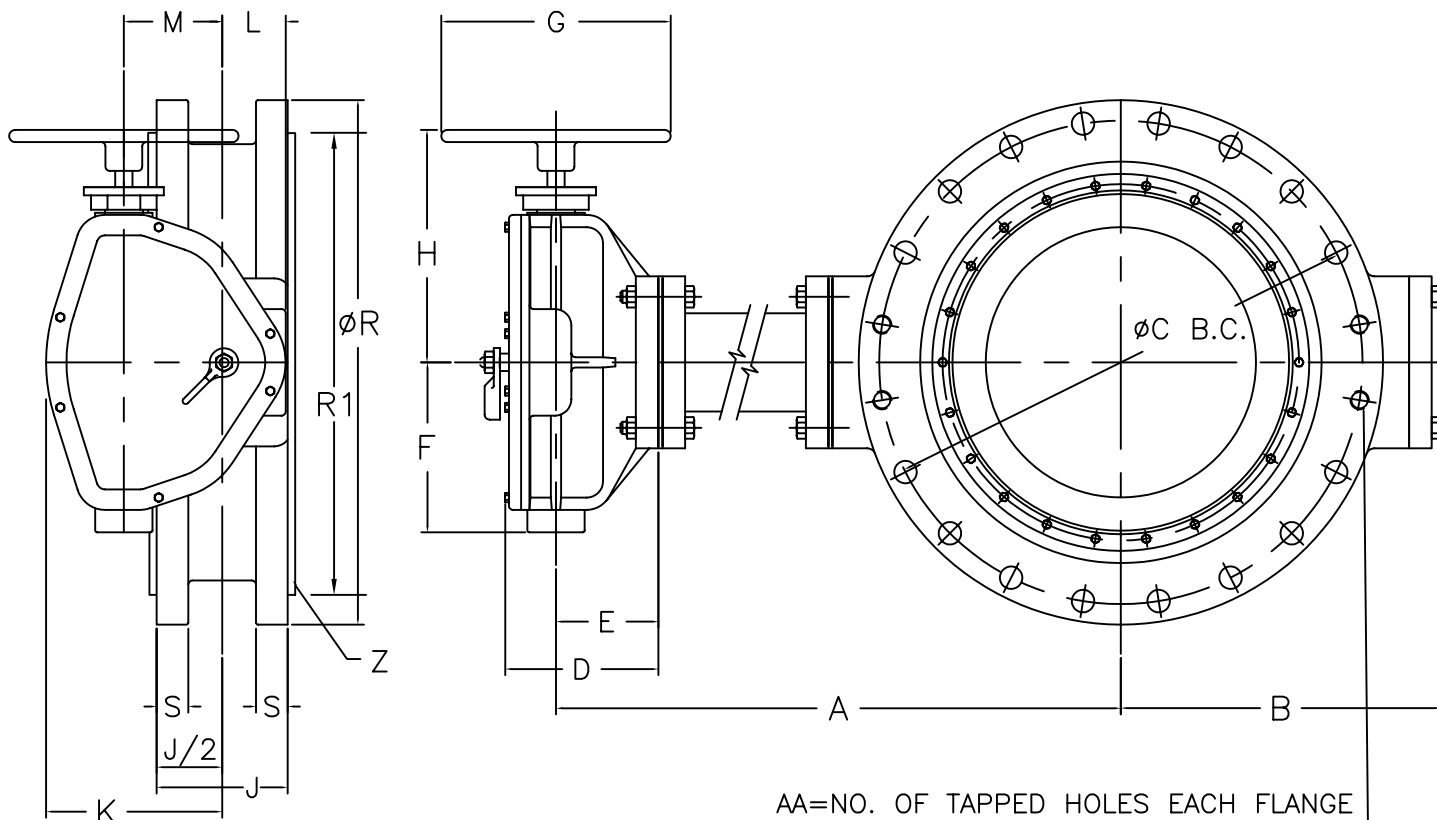
NOTE 7: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 8: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-14D

30" THRU 42" STYLE 1450  
 CLASS 250 BUTTERFLY VALVE  
 POSITION INDICATOR  
 HANDWHEEL OPERATOR  
 FLANGED ENDS



AA=NO. OF TAPPED HOLES EACH FLANGE  
AB=SIZE OF TAPPED HOLES  
S=DEPTH OF TAPPED HOLES

	OPERATOR MODEL	D	E	F	H	K	L	M	N
30" & 36"	2200	9 1/16	6 1/4	10 3/8	14 1/2	10 3/4	3 7/8	6	72
42"	4350	10 1/16	6 1/16	15 1/8	18	13 5/16	4 3/16	7 1/2	90

VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	*WEIGHT
30"	NOTE AA	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	NOTE AA	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	NOTE AA	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: RATED AND TESTED FOR 250 PSI WORKING PRESSURE

NOTE 8: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

NOTE 9: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER

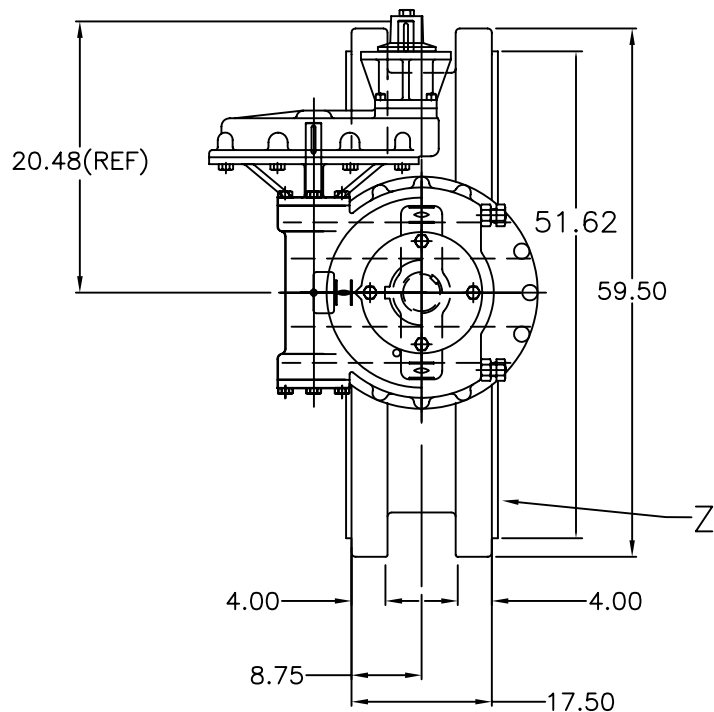
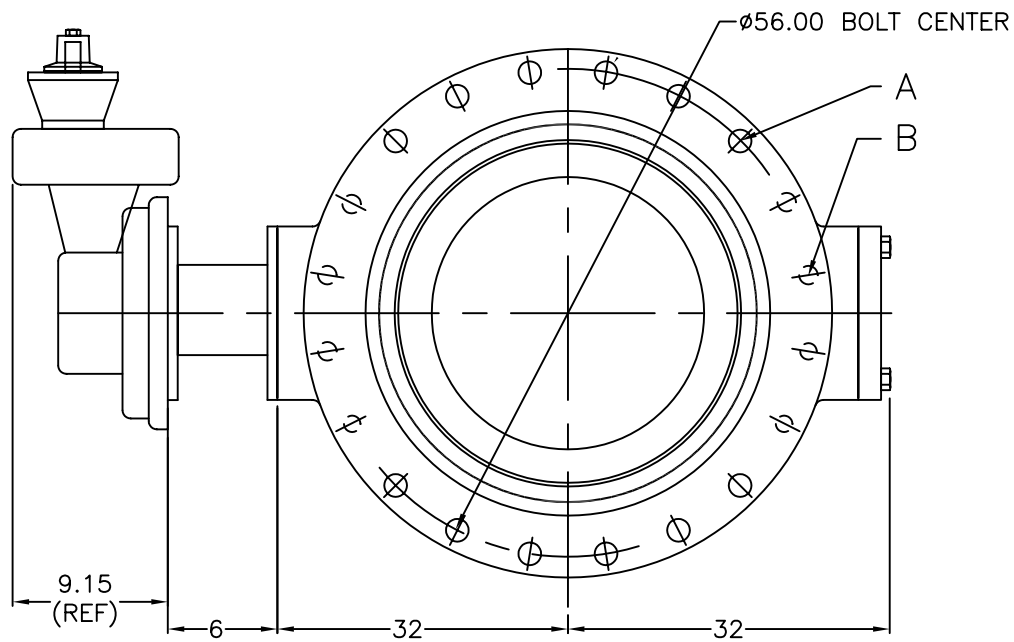
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS

\*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-25-14E

30" THRU 42" STYLE 1450  
CLASS 250 BUTTERFLY VALVE  
EXTENDED BONNET  
HANDWHEEL OPERATOR  
FLANGED ENDS

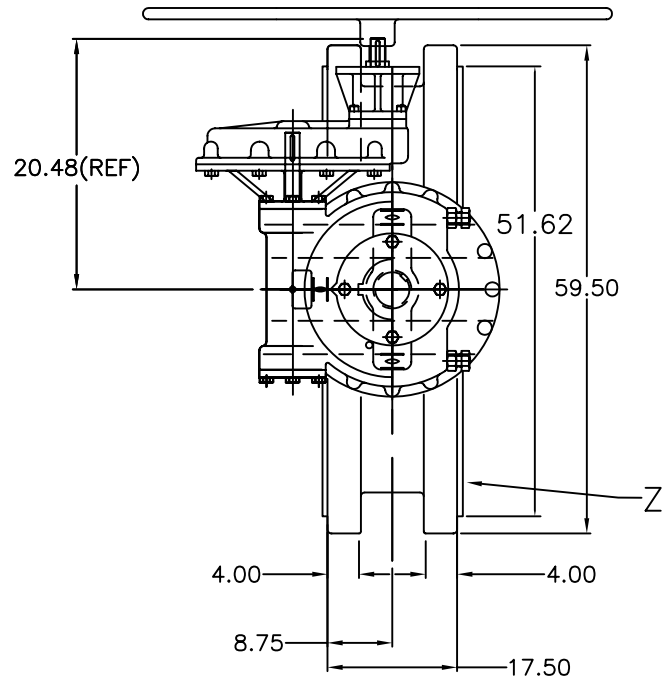
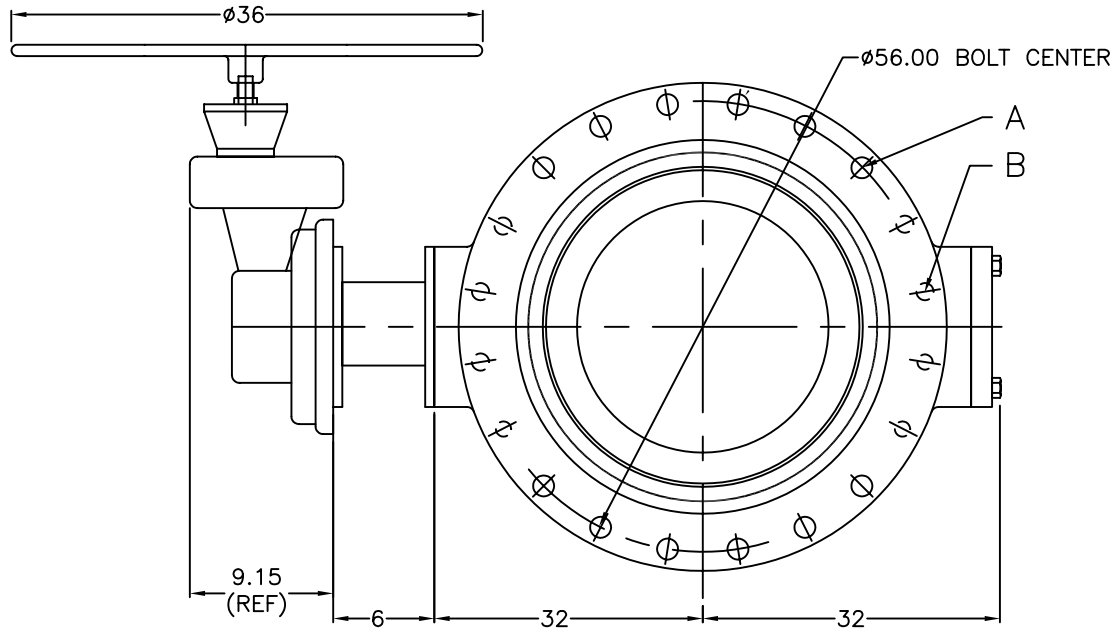


- NOTE 1: FLOW MAY BE IN EITHER DIRECTION  
 NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.  
 NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)  
 NOTE 4: NUMBER OF TURNS TO CLOSE = **60**  
 NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT  
 NOTE 6: A = (32) 2.25" BOLTS PER FLANGE  
 NOTE 7: B = (8) 2.0-4.5 UNC TAPPED HOLES EACH FLANGED  
 NOTE 8: "Z" = (1/16" OR .0625 RAISED FACE ON EACH FLANGE)  
 NOTE 9: RATED AND TESTED FOR 250 PSI WORKING PRESSURE  
 NOTE 10: **APPROXIMATE** WEIGHT = 6300lbs.

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-RA

48" STYLE 1450  
 CLASS 250 BUTTERFLY VALVE  
 (ROTORK IW7 GEAR BOX)  
 BURIED OPERATOR  
 FLANGED ENDS

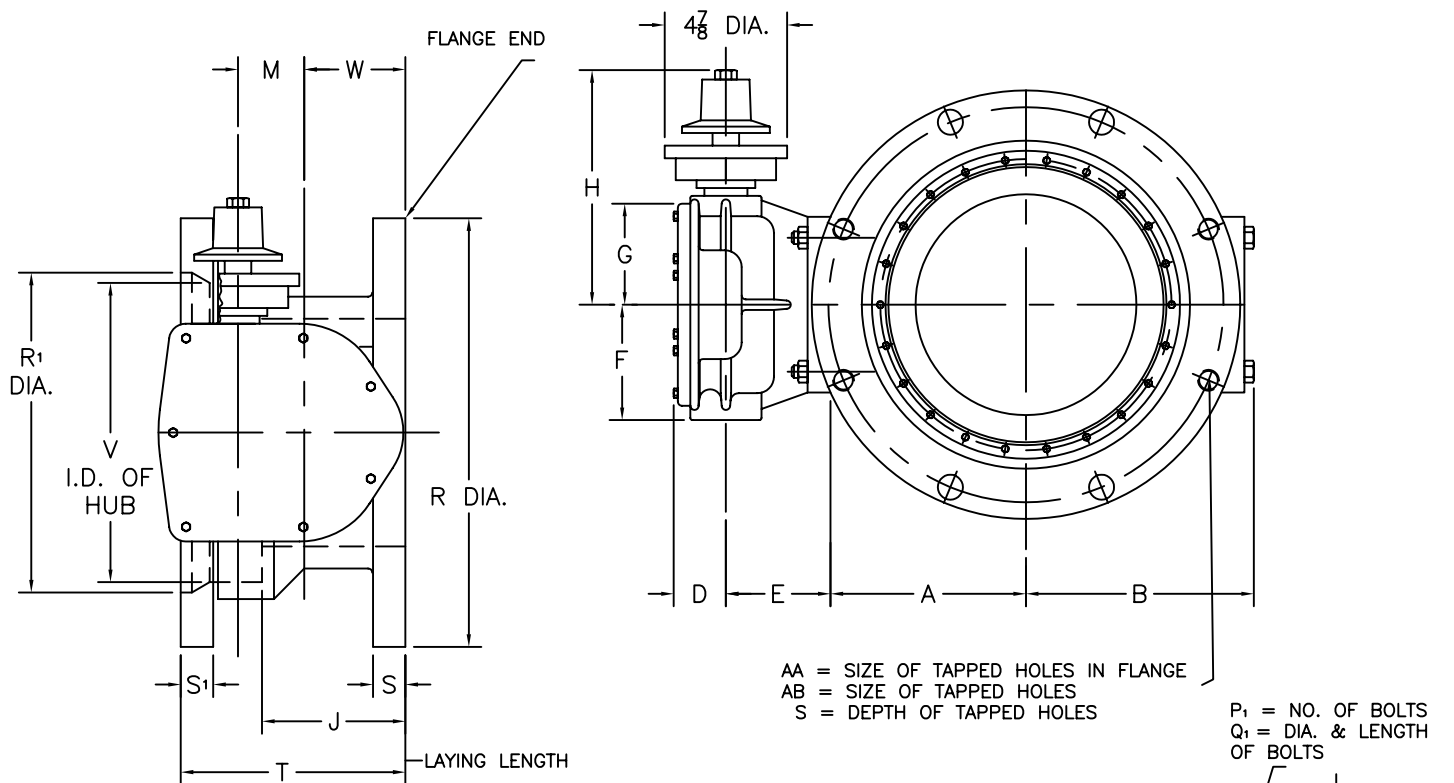


- NOTE 1: FLOW MAY BE IN EITHER DIRECTION  
 NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.  
 NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)  
 NOTE 4: NUMBER OF TURNS TO CLOSE = 60  
 NOTE 5: OPERATED BY 36" HANDWHEEL  
 NOTE 6: A = (32) 2.25" BOLTS PER FLANGE  
 NOTE 7: B = (8) 2.0-4.5 UNC TAPPED HOLES EACH FLANGED  
 NOTE 8: "Z" = (1/16" OR .0625 RAISED FACE ON EACH FLANGE)  
 NOTE 9: RATED AND TESTED FOR 250 PSI WORKING PRESSURE  
 NOTE 10: APPROXIMATE WEIGHT = 6300lbs.

M&H VALVE COMPANY  
 ANNISTON, ALABAMA  
 A DIVISION OF MCWANE INC.

DWN: TRIJ  
 DATE: 7/1/05  
 DWG. NO.  
 BFE-25-RB

48" STYLE 1450  
 CLASS 250 BUTTERFLY VALVE  
 (ROTORK IW7 GEAR BOX)  
 HANDWHEEL OPERATOR  
 FLANGED ENDS



VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
16"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 3/8	3 1/4	4	48

VALVE SIZE	A	B	C	C <sub>1</sub>	J	P	P <sub>1</sub>	Q	Q <sub>1</sub>
6"	5	6 1/2	9 1/2	9 1/2	4 3/16	8	6	3/4	3/4 X 3 1/2
8"	6	7 9/16	11 3/4	11 3/4	5	8	6	3/4	3/4 X 4
12"	9 1/2	11 3/8	17	16 1/4	6 5/8	12	8	7/8	3/4 X 4
16"	12 3/16	14 11/16	21 1/4	21	6 9/16	16	12	1	3/4 X 4 1/2

VALVE SIZE	R	R <sub>1</sub>	S	S <sub>1</sub>	T	V	W	AA	AB	WEIGHT
6"	11	11 1/8	1	1 1/16	9 11/16	7.00 +07 -03	2 1/2	4	3/4-10	90
8"	13 1/2	13 3/8	1 1/8	1 1/8	10 15/16	9.15 +07 -03	3	4	3/4-10	145
12"	19	17 15/16	1 1/4	1 1/4	12 7/16	13.30 +07 -03	4	-	-	295
16"	23 1/2	22 9/16	1 3/16	1 3/8	13 1/4	17.54 +06 -07	4	4	1-8	585

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

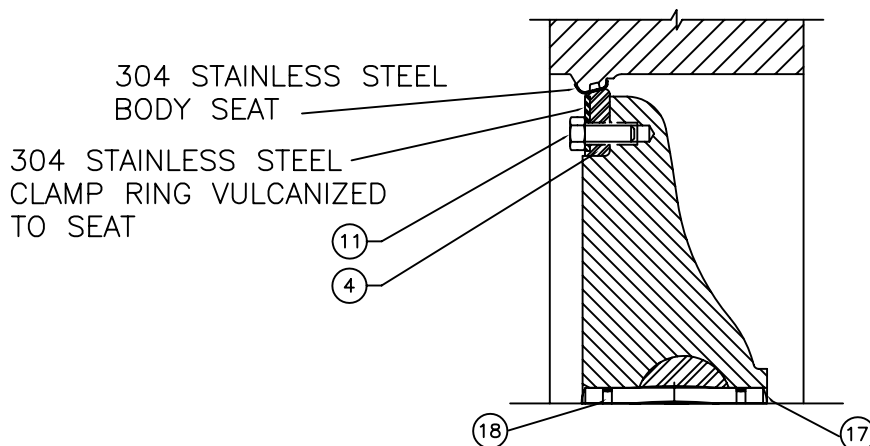
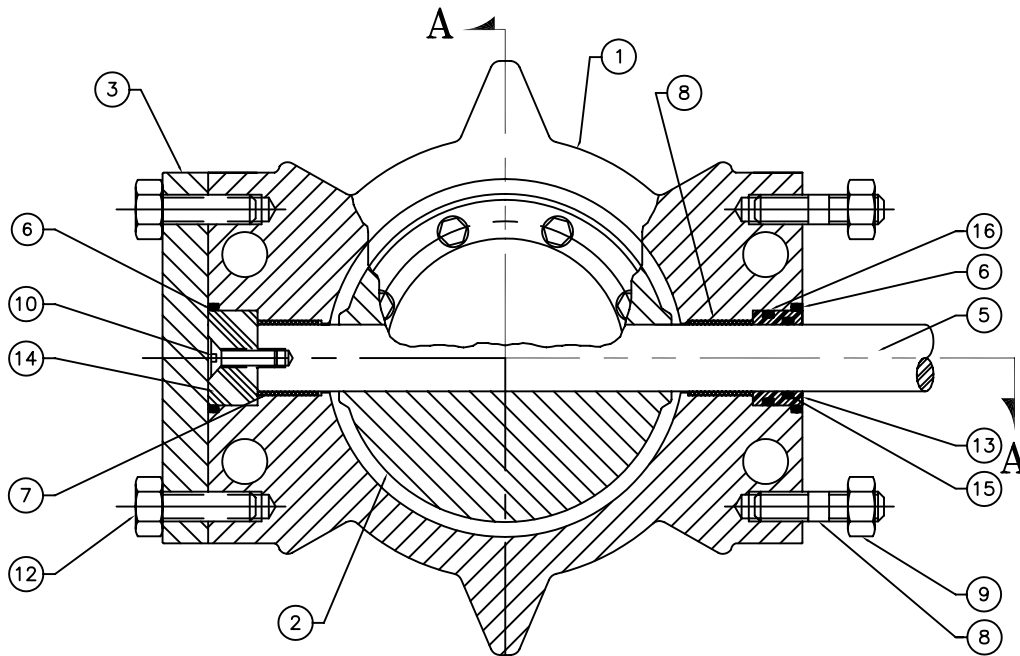
NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFE-MJ-J1

6"-8"-12"-16"  
STYLE 4500  
BURIED OPERATOR  
FLANGED X MJ





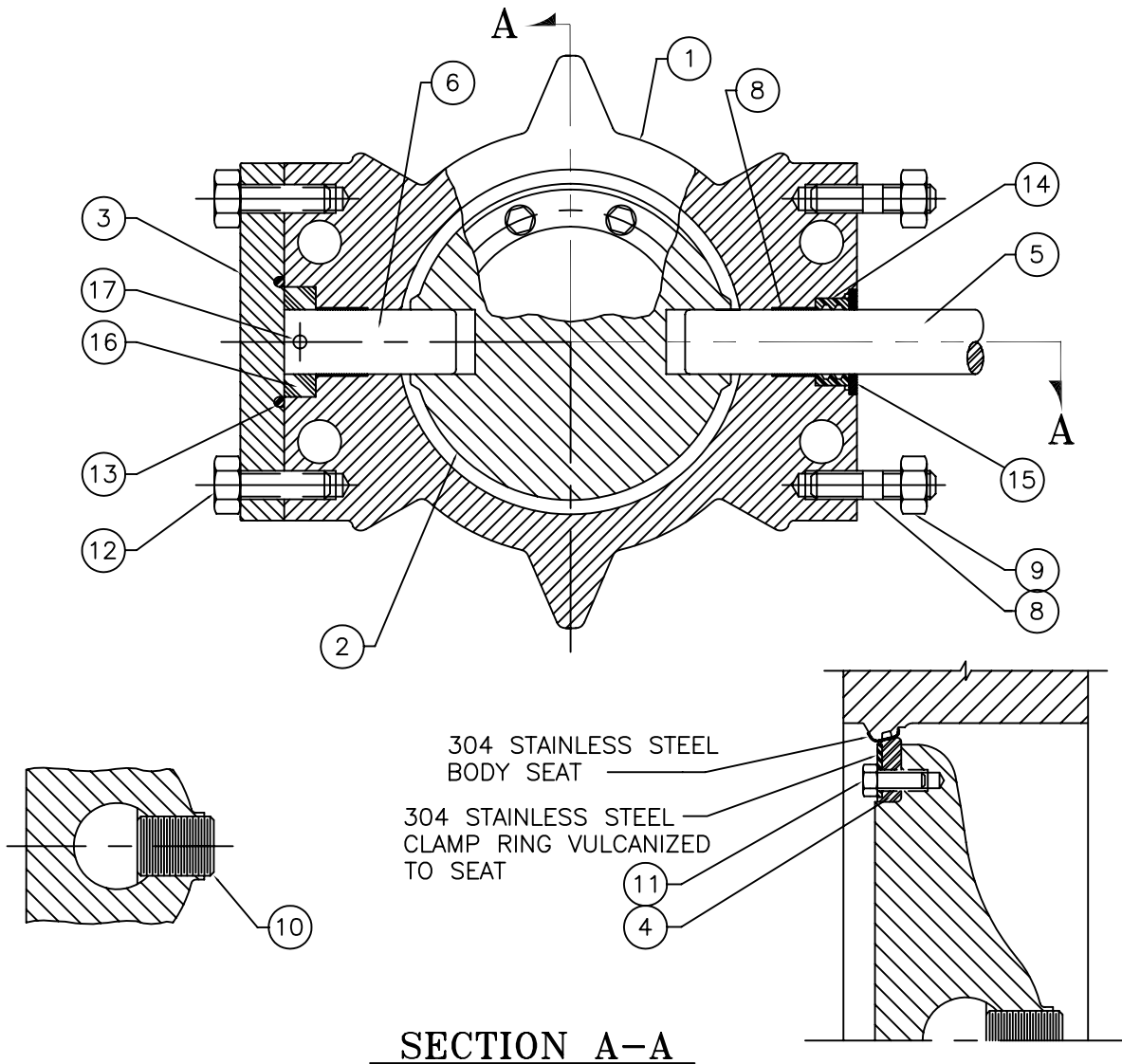
## SECTION A-A

ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A-126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A-48, CLASS 40
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	NATURAL RUBBER WITH INSERT
5	SHAFT	304 STAINLESS STEEL, ASTM A-276
6	O-RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY FIBERGLASS WITH TEFLON LINER
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEAVY HEX	STEEL, ASTM A-563, GRADE A, ELCTRO ZINC PLATED
10	SOCKET SCREW, FLAT HEAD HEX	STAINLESS STEEL, 18-8
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	CAPSCREW, HEX	STEEL, ASTM A-307, ELCTRO ZINC PLATED
13	CARTRIDGE SEAL	UHMW (POLYEHTYLENE)
14	THRUST DISK	ACETEL
15	"O" RING CARTRIDGE, INSIDE	BUNA "N"
16	"O" RING CARTRIDGE, OUTSIDE	BUNA "N"
17	GROOVED PIN	393 STAINLESS STEEL
18	O-RING, GROOVED PIN	BUNA-N

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BW-15-K1

4" THRU 12" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
WAFER ENDS

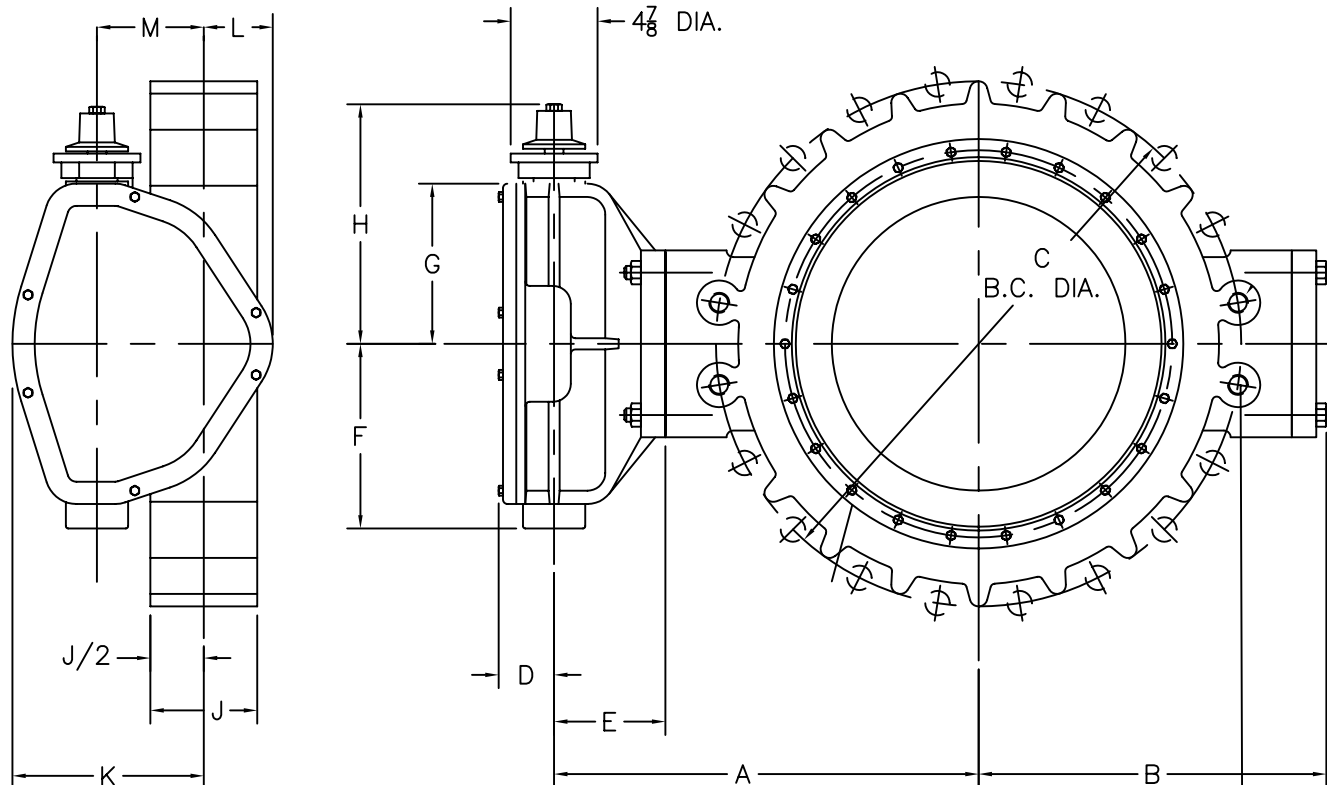


ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A-126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A-48, CLASS 40
3	COVER, END	CAST IRON, A-126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT, OPERATOR	304 STAINLESS STEEL, ASTM A-276
6	SHAFT, THRUST	304 STAINLESS STEEL, ASTM A-276
7	BUSHING	REINFORCED TEFLON
8	STUD	STEEL, ASTM A-307, ELCTRO ZINC PLATED
9	NUT, HEX	STEEL, ASTM A-307, GRADE A, ELCTRO ZINC PLATED
10	TORQUE PLUG, SHAFT	304 STAINLESS STEEL, ASTM A-276
11	CAPSCREW, HEX	STAINLESS STEEL, 18-8 WITH NYLOK INSERT
12	BOLT, HEX HEAD	STEEL, ASTM A-307, GRADE B, ELCTRO ZINC PLATED
13	O-RING, END COVER	BUNA "N"
14	SHAFT SEAL	BUNA "S"
15	SEAL RING	STEEL, C-1018
16	THRUST COLLAR	BEARING BRONZE, ASTM B-144, ALLOY 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BW-15-K2

14" THRU 20" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
SUB-ASSEMBLY / MATERIAL LIST  
WAFFER ENDS



FOR INSTALLATION BETWEEN  
125# OR 150# ASA FLANGES

FOUR HOLES, "AB" DIAMETER  
(18" & 20" ONLY, THESE FOUR  
HOLES ARE TAPPED 1/8"-7NC X  
"AD" DEEP EACH FACE)

VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14", 16", 18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48

VALVE SIZE	A	B	C	J	P	Q	AB	AD	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	8	5/8	—	—	60
6"	5	6 1/2	9 1/2	2 1/2	8	3/4	—	—	70
8"	6	7 9/16	11 3/4	2 3/4	8	3/4	—	—	100
10"	7 3/4	9 5/8	14 1/4	3 1/4	12	7/8	—	—	155
12"	9 1/2	11 3/8	17	3 1/4	12	7/8	—	—	190
14"	10 7/16	12 15/16	18 3/4	4 1/2	12	1	—	—	405
16"	12 3/16	14 11/16	21 1/4	4 1/2	16	1	—	—	465
18"	13 5/16	15 13/16	22 3/4	5 3/4	16	1 1/8	1 1/8-7	1 3/8	595
20"	14 7/8	17 3/8	25	5 3/4	20	1 1/8	1 1/8-7	1 1/4	675

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

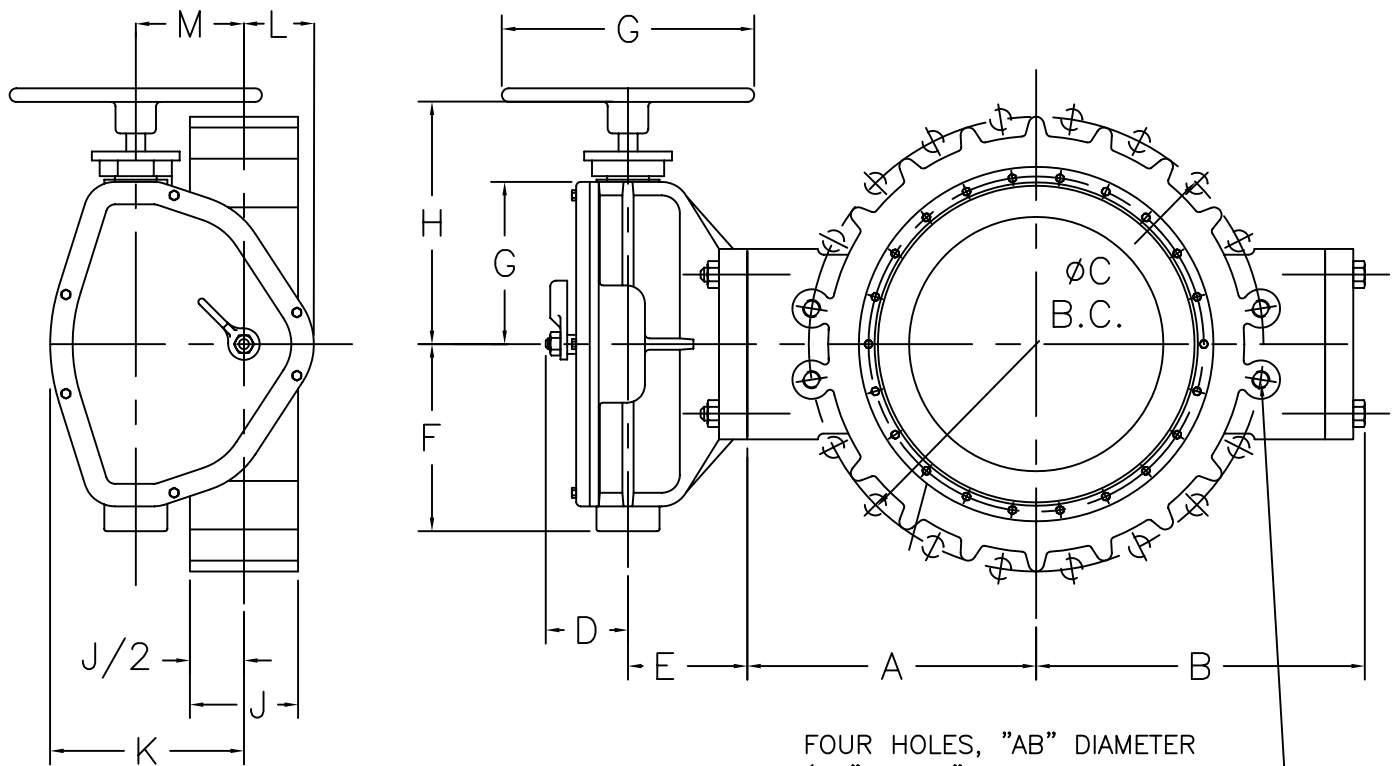
NOTE 6: "Q" = DIAMETER OF BOLTS

NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BW-15-K3

4" THRU 20" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
BURIED OPERATOR  
WAFER ENDS



FOR INSTALLATION BETWEEN  
125# OR 150# ASA FLANGES

FOUR HOLES, "AB" DIAMETER  
(18" & 20" ONLY, THESE FOUR  
HOLES ARE TAPPED 1.125-7NC X  
"AD" DEEP EACH FACE)

VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250	4 1/16	5 3/4	8 3/8	18	12 1/2	7 7/8	3 1/4	4	48

VALVE SIZE	A	B	C	J	P	Q	AB	AD	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	8	5/8	—	—	60
6"	5	6 1/2	9 1/2	2 1/2	8	3/4	—	—	70
8"	6	7 9/16	11 3/4	2 3/4	8	3/4	—	—	100
10"	7 3/4	9 5/8	14 1/4	3 1/4	12	7/8	—	—	155
12"	9 1/2	11 3/8	17	3 1/4	12	7/8	—	—	190
14"	10 7/16	12 15/16	18 3/4	4 1/2	12	1	—	—	405
16"	12 3/16	14 11/16	21 1/4	4 1/2	16	1	—	—	465
18"	13 5/16	15 13/16	22 3/4	5 3/4	16	1 1/8	1 1/8-7	1 3/8	595
20"	14 7/8	17 3/8	25	5 3/4	20	1 1/8	1 1/8-7	1 1/4	675

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "N" = NUMBER OF TURNS TO CLOSE

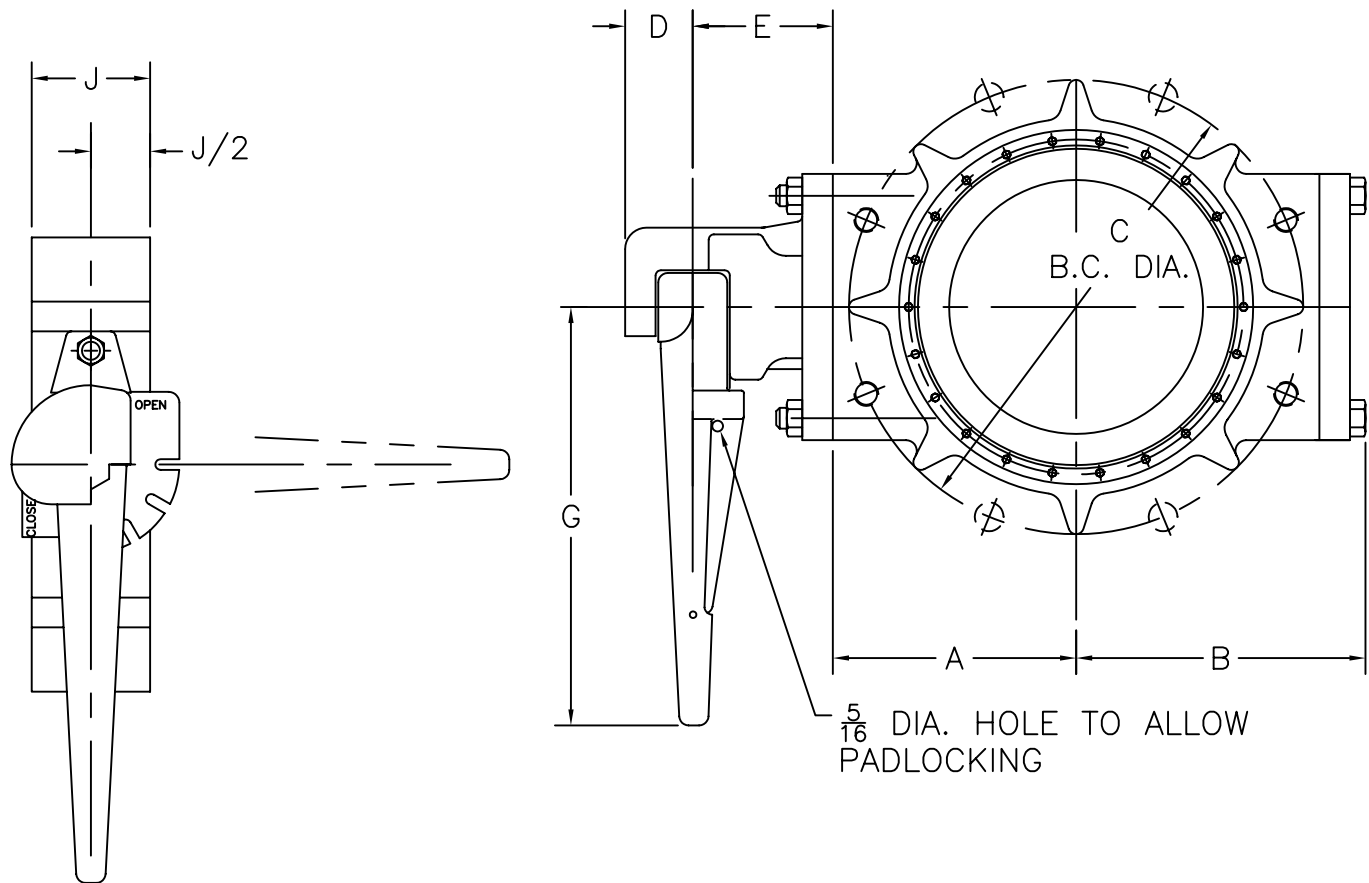
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE

NOTE 6: "Q" = DIAMETER OF BOLTS

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BW-15-K4

4" THRU 20" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
HANDWHEEL OPERATOR  
WITH POSITION INDICATOR  
WAFER ENDS



VALVE SIZE	OPERATOR MODEL	D	E	G
4"	150	1 1/2	3 13/16	11
6"	150	1 1/2	3 13/16	11
8"	150	1 1/2	3 13/16	11

VALVE SIZE	A	B	C	D	E	G	J	P	Q	WEIGHT
4"	4	5 7/16	7 1/2	1 1/2	3 13/16	11	2 1/2	8	5/8	40
6"	5	6 1/2	9 1/2	1 1/2	3 13/16	11	2 1/2	8	3/4	55
8"	6	7 9/16	11 3/4	1 1/2	4 1/16	11	2 3/4	8	3/4	65

NOTE 1: FLOW MAY BE IN EITHER DIRECTION

NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.

NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)

NOTE 4: "P" = NUMBER OF BOLTS ON EACH FLANGE

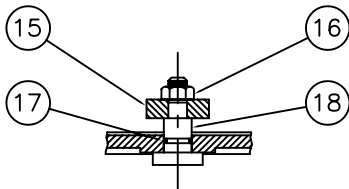
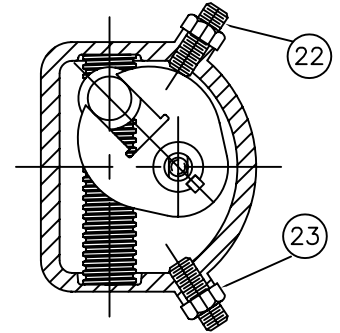
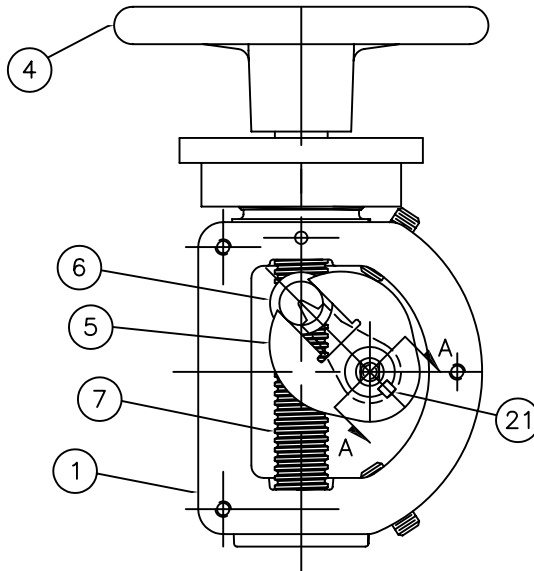
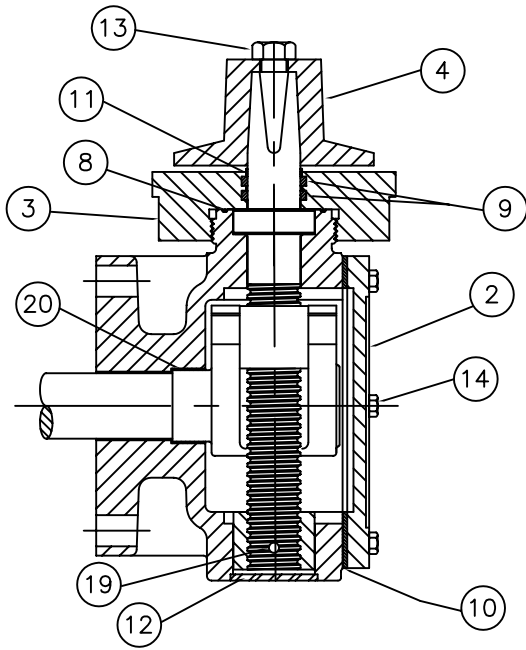
NOTE 5: "Q" = DIAMETER OF BOLTS

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BW-15-K5

4" THRU 8" STYLE 4500  
CLASS 150 BUTTERFLY VALVE  
LEVER OPERATOR  
WAFER ENDS





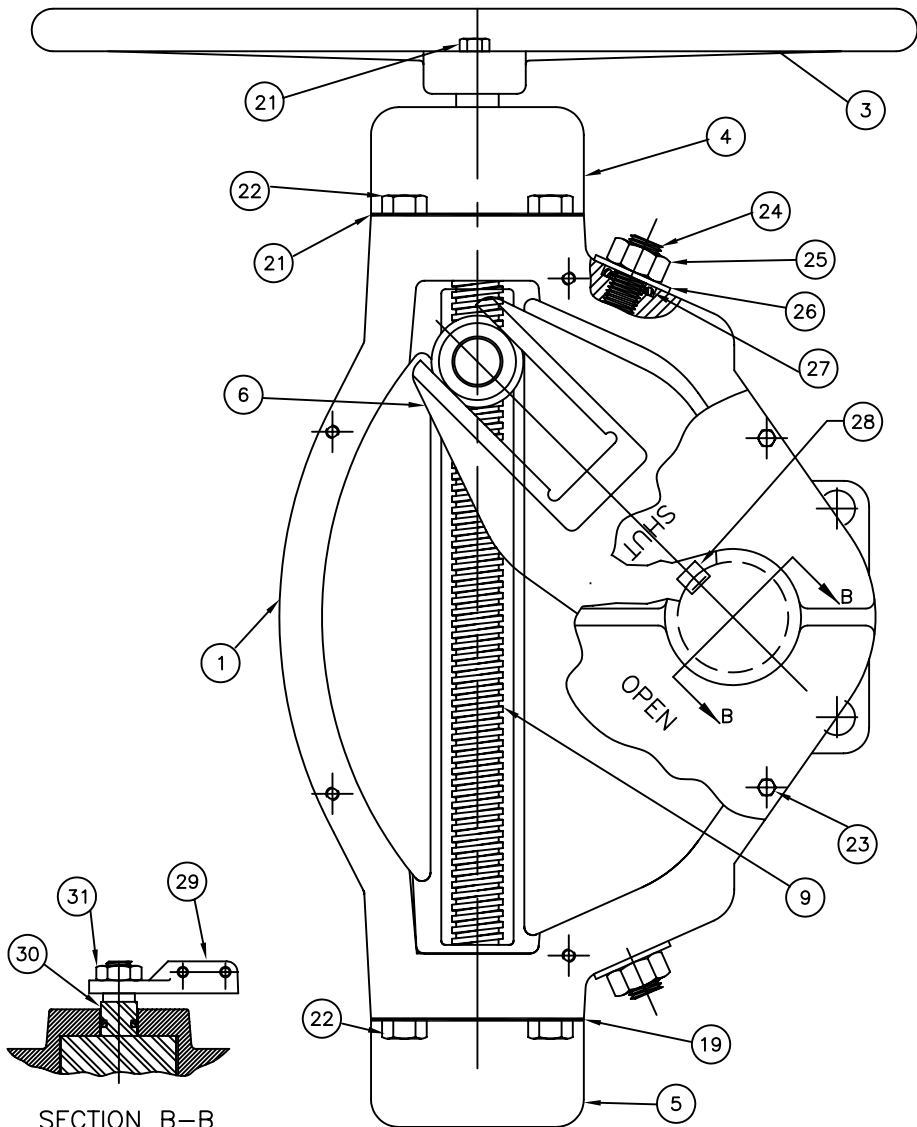
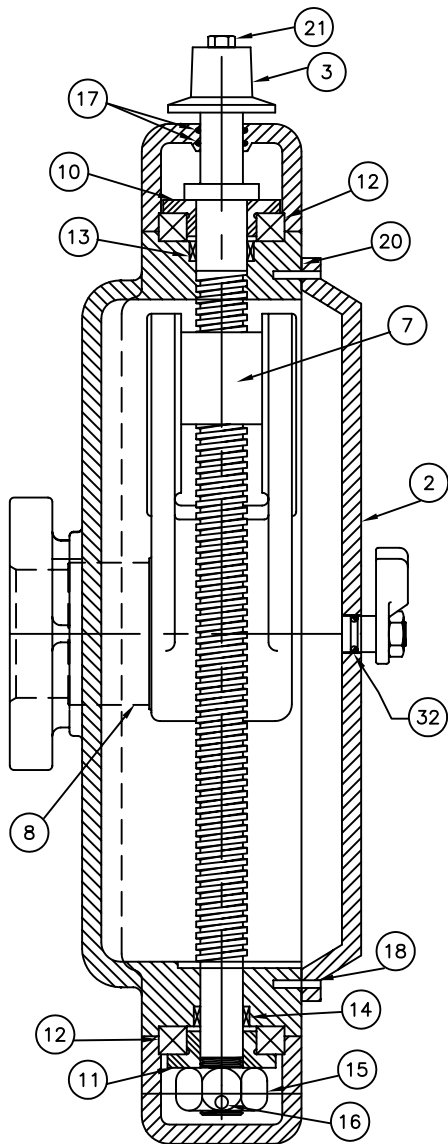
SECTION A-A FOR  
HANDWHEEL OPERATORS  
POSITION INDICATOR

ITEM #	DESCRIPTION	MATERIAL
1	HOUSING OPERATOR	CAST IRON, A-126, CLASS B
2	COVER, HOUSING	CAST IRON, A-126, CLASS B
3	CAP, THRUST	CAST IRON, A-126, CLASS B
4	AS REQUIRED	CAST IRON, A-126, CLASS B
5	LEVER	DUCTILE IRON, A-536, GRADE 80-45-06
6	CROSSHEAD	DUCTILE IRON, A-536, GRADE 65-55-12
7	SHAFT, INPUT	C.D. STEEL, 12L14
8	"O" RING	N.B.R.
9	"O" RING	N.B.R.
10	GASKET, COVER	CORK-NEOPRENE
11	SHEILD, SHAFT	REINFORCED TEFLON
12	PLUG, EXPANSION	BRASS COMM.
13	BOLT, HEX HEAD (AWWA NUT)	STAINLESS STEEL, 316
14	BOLT, HEX HEAD (COVER)	STAINLESS STEEL, 316
15	INDICATOR	CAST IRON, A-126, CLASS B
16	NUT, HEX	STEEL, COMM.
17	"O" RING	N.B.R.
18	PIN, INDICATOR	STEEL, COMM.
19	PIN, INPUT SHAFT	STEEL, COMM.
20	BUSHING	REINFORCED TEFLON
21	KEY	STEEL, COMM.
22	SET SCREW, LEVER	STAINLESS STEEL, 18-8
23	NUT, JAM	STAINLESS STEEL, 18-8

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFV-OP-1

1250 / 2200  
MANUAL OPERATOR  
SUB-ASSEMBLY / MATERIAL LIST



SECTION B-B

ITEM NO.	DESCRIPTION	MATERIAL	NO. REQ.
1	OPERATOR HOUSING	CAST IRON, ASTM A-126 CL. B	1
2	HOUSING COVER	CAST IRON, ASTM A-126 CL. B	1
3	OPERATOR NUT OR HANDWHEEL	CAST IRON, ASTM A-126 CL. B	1
4	END CAP (INPUT)	CAST IRON, ASTM A-126 CL. B	1
5	END CAP (LOCK NUT)	CAST IRON, ASTM A-126 CL. B	1
6	LEVER	DUCTILE IRON, ASTM A-536, GR. 65-45-12	1
7	CROSSHEAD	CDS 12L14	1
8	BUSHING	NYLATRON GS	1
9	INPUT SHAFT	CDS AISI C1141 LEADED	1
10	BEARING RETAINER	CDS AISI C1117 LEADED	1
11	BEARING RETAINER	CDS AISI C1117 LEADED	1
12	BALL THRUST BEARING	COMMERCIAL STEEL	2
13	SLEEVE BEARING	OILITE BRONZE	1
14	SLEEVE BEARING	OILITE BRONZE	1
15	SLOTTED NUT	COMMERCIAL STEEL	1
16	LOCK PIN	COMMERCIAL STEEL	1
17	END CAP SEAL	BUNA "N"	2

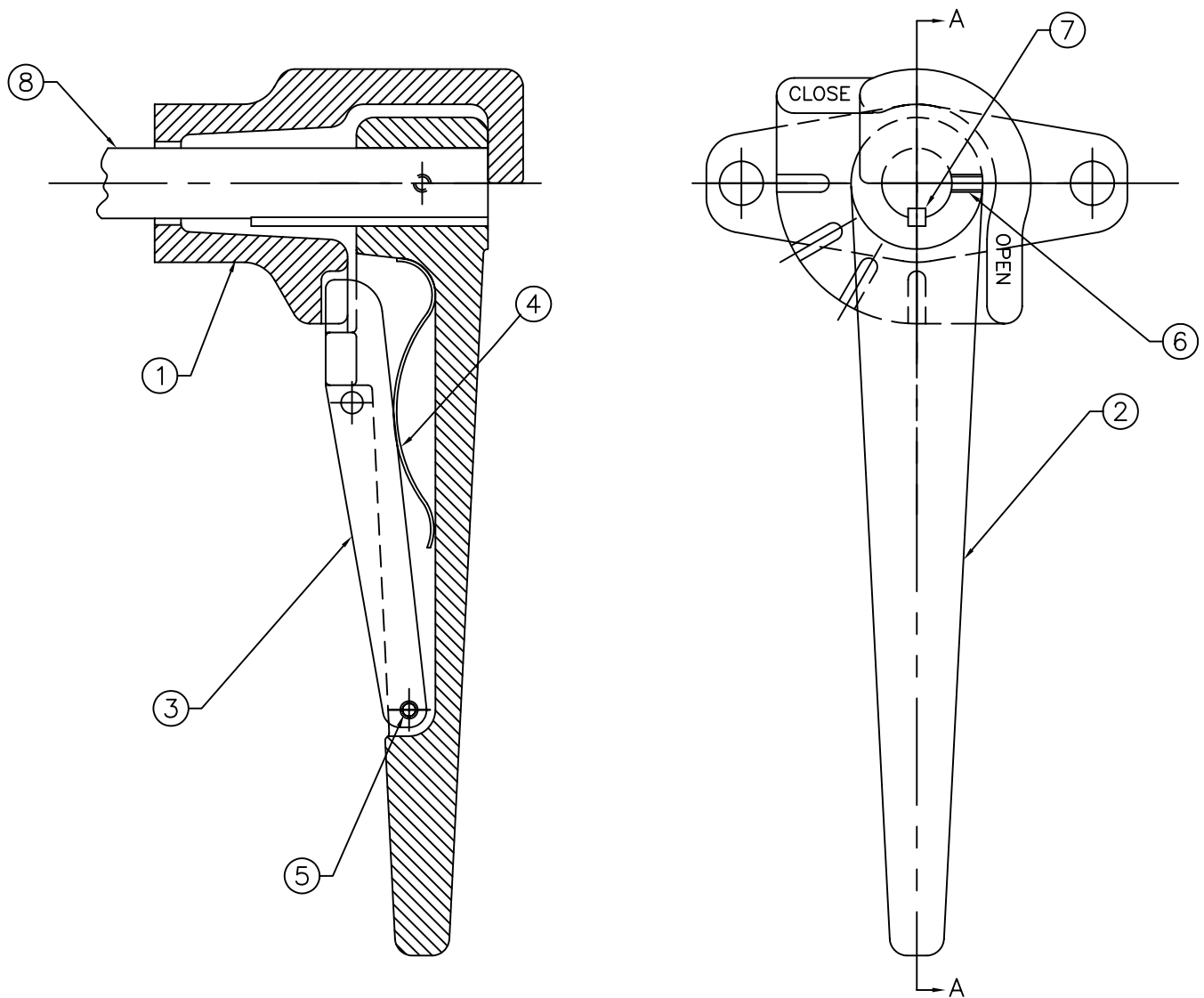
ITEM NO.	DESCRIPTION	MATERIAL	NO. REQ.
18	DOWEL PIN	STEEL, COMMERCIAL	2
19	END CAP GASKET	PERMATX FORM-A GASKET NO. 2	2
20	COVER GASKET	PERMATX FORM-A GASKET NO. 2	1
21	HEX HEAD CAP SCREW	COMMERCIAL STEEL	1
22	HEX HEAD CAP SCREW	COMMERCIAL STEEL	8
23	HEX HEAD CAP SCREW	COMMERCIAL STEEL	6
24	SETSCREW (LEVER ADJUSTMENT)	SS 18-8	1
25	HEX JAM NUT (LEVER ADJUSTMENT)	COM. STEEL-ASTM A563 GRADE A, ZINC PLATED-ASTM B-633	1
26	WASHER (LEVER ADJUSTMENT)	COM. STEEL-ASTM A563 GRADE A, ZINC PLATED-ASTM B-633	1
27	O-RING (LEVER ADJUSTMENT)	BUNA "N"	1
28	KEY	COMMERCIAL STEEL	1
*29	INDICATOR	CAST IRON A-126 CL. B	1
*30	INDICATOR PIN	COMMERCIAL STEEL	1
*31	NUT, HEX (INDICATOR PIN)	COMMERCIAL STEEL	1
*32	O-RING (INDICATOR PIN)	BUNA "N"	1

\* PARTS FOR HANDWHEEL ACTUATOR WITH POSITION INDICATOR

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFV-OP-2

SUB-ASSEMBLY / MATERIAL LIST  
M&H 4350 OPERATOR



ITEM NO.	DESCRIPTION	MATERIAL
1	BRACKET	CAST IRON; A-126, CL. B
2	LEVER	CAST IRON; A-126, CL. B
3	LATCH	CAST IRON; A-126, CL. B
4	SPRING	SPRING STEEL, CADMIUM PLATED
5	SPRING PIN	STEEL; CADMIUM PLATED
6	SCREW, SOCKET SET	ALLOY STEEL
7	KEY	C-1018 C.F.
8	SHAFT	STAINLESS STEEL, TYPE 304

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 7/1/05  
DWG. NO.  
BFV-OP-3

4"-6"-8"  
LEVER OPERATOR  
SUB-ASSEMBLY / MATERIAL LIST