M&H PDF PAGE INDEX

**** NOTE: Product drawings currently under review.**
Please contact factory or download html files at mh-valve.com

GENERAL FEATURES / GENERAL SPEC

M&H AWWA C502 FIRE HYDRANTS

- Model 129
- Traffic Model
- 250 PSI Working Pressure – 500 PSI Hydrostatic Test – AWWA
- UL / FM Approved

Type: Compression type, opening against line pressure. Main valve will remain closed should hydrant be broken off by traffic accident.

Classification and Size: Hydrants are classified by the main valve size, number and size of hose and pumper nozzles. Hydrant sizes are designated as 4 ½ and 5 ¼ inches, size being the inside diameter of the main valve seat opening.

Length: Hydrant lengths are determined by depth of trench below ground level. Lengths are in multiples of six inches.

Barrel: Upper section of barrel (nozzle section) contains the hose and pumper nozzles. The water way is uniform in diameter for entire length of barrel.

Hydrant Inlet: Hydrant shoe or elbow is provided with flange or mechanical joint connection to fit connecting pipe. All shoe types except flanged are provided with lugs for strapping. The two drain openings in the hydrant shoe are bronze bushed. All shoes are protected from corrosion with fusion bonded epoxy coating.

Hose and Pumper Nozzles: Threaded with fine thread and screwed (not leaded) into tapped openings in nozzle section of hydrant. Hose and pumper nozzle caps are provided with rubber gaskets and chained to nozzle section.

Dry Top: Operating threads are isolated from the waterway by a double O-ring seal in the one piece bonnet. Operating nut has lubricating hole for lubrication of operating threads and thrust bearing.

Dry Barrel: When the valve of the hydrant is closed, two drain valves in the hydrant shoe automatically open and allow rapid and complete drainage of the hydrant barrel. This dry barrel eliminates danger of damage to the hydrant by freezing.

Operating Mechanism and Working Parts: A tamper resistant cast iron weather shield protects the operating mechanism and rubber O-ring seals from environmental elements and painting solvents. The bronze operating nut drives a steel main valve rod, which is bronze sheathed where it passes through the one-piece bonnet. A bronze-to-bronze seat assembly allow for all working parts to be easily removable through the top of the hydrant without excavating. The bronze seat ring threads into a bronze retainer ring bushing, which is permanently affixed into the shoe. The dual positive acting drain valve is constructed of a high strength aluminum bronze to provide additional strength for operation and disassembly. The rubber drain valve facings are water pressure activated and effectively eliminate the drain valve as a maintenance issue.

Component Materials: All gray iron parts conform to ASTM A-126, Class B. Ductile Iron components conform to ASTM A536. All non-corrosive metal parts are made of copper alloys conforming to AWWA Standard C502 requirements. Remaining components are performance selected from some of the highest quality materials available today.

Shop Tests: Main valve tested from inlet side to 250psi. With main valve open, drain valve and entire hydrant, hydrant hydrostatic pressure tested to 500psi.

FEATURES AND BENEFITS

M&H AWWA C502 MODEL 129 FIRE HYDRANTS

YESTERDAY, TODAY, AND TOMORROW-----An American Company with an American made product. M&H has been around since 1854 and have been producing hydrants since 1929. We back up our M&H 129 Fire Hydrants with a 10 Year Limited Warranty.

(1) WEATHER SHIELD---One-piece cast iron component deflects moisture and dust exposure to bronze stem nut. Affords protection against freezing conditions ensuring operational efficiency. Protects bronze operating nut from pipe wrench damage seen on all bronze actuated hydrants.

(2) LUBRICATION PLUG BOLT---Firmly attaches operating nut / weather shield unit to bronze stem nut. Bolt fits flush with top of weather shield causing it to be tamper resistant. Using Allen wrench, plug is easily removed for field servicing or maintenance.

(3) BRONZE OPERATING NUT---Primary operating component. Is a heavy duty design. Ample amounts of brass along the throat of nut.

(4 & 5) HOLD DOWN NUT---Non-corrodible bronze nut secures stem nut for operating thrusts. Lock nut provides additional weather protection with threading attachment to bonnet and large O-ring seal.

(6) HOLD DOWN NUT SET SCREW
Stainless Steel setscrew keeps hold down nut from backing out during operation. Is removed / re-installed with Allen wrench.

(7) NYLON THRUST WASHER---Nylon antifriction bearing at thrust collar reduces operating torque up to 40% for smoother open / close cycles. Standard on 5 ¼" hydrants

(8, 14, & 15) BONNET DESIGN / HYDRANT DUAL LUBRICATION
With the single unit design, an M&H 129 Fire Hydrant customer is afforded the option of using either grease or oil as an operating mechanism lubricant. Standard factory procedure is to lubricate with grease. Oil is easily substituted in field by removing lubrication plug bolt. Two O-ring seals in bonnet prevents pressurized water from entering and lubricant from escaping into the hydrant. Bonnet flange ring gives finished appearance at bonnet / nozzle section flange. Prevents dirt build-up between flanges. Hidden flange connection sealed with heavy O-ring.

(11) UPPER STEM ASSEMBLY---High strength steel stem has rugged acme threads at top end to match threads in bronze stem nut. Brass stem sleeve is machined fitted on segment that penetrates grease / oil reservoir providing smooth, non-corrodible bearing surface for double O-ring seals. O-ring inset between sleeve and stem provides additional leakage protection.

(22, 23, 24, & 25) BRASS NOZZLES / NOZZLE O-RINGS---Hose and pumper nozzles are machine threaded into nozzle outlets, an original M&H design. They are easily removed for field replacement. Nozzle leak protection afforded by O-ring behind each nozzle.

(20 & 21) NOZZLE SET SCREWS---Nozzles are firmly set into place by stainless steel set screw. Prevents turning of nozzle during hose coupling attachment or removal. If nozzles ever need to be replaced, setscrew can be removed using standard Allen wrench.

(26) NOZZLE SECTION---Molded from durable cast iron and available with either two hose and one pumper nozzle or two hose nozzles. Has generous cross-sectional area and smoothly contoured hose outlets to deliver maximum available pressure / velocity.

(26) NOZZLE SECTION 360 ROTATION / ALIGNMENT--- Above ground hydrant assembly may be rotated full 360 degrees on the standpipe flange to improve alignment to curb. This is accomplished without dismantling. Simply loosen flange bolts, rotate and re-tighten.

(34) TRAFFIC IMPACT PROTECTION---Upon vehicular impact, two lower safety flange rings fracture and stem couple separates below break line. This allows the above ground hydrant assembly to separate cleanly from standpipe and keeps accidental opening of hydrant from vehicle tire. Repair is easily accomplished with economical field repair kit.

(15) O-RING SEALS---Heavy Duty O-Rings provides superior sealing contact between standpipe flange joints. O-ring at break joint makes hydrant rotation easier than traditional flat gaskets.

(29) TRAFFIC STEM COUPLING---Designed to break from collision without damage to main valve or rod assembly. Bottom half of coupling is square and accepts short disassembly wrench. Square design provides a direct drive area below break area for main valve seat removal and maintenance.

(36) DUCTILE IRON STANDPIPE---Fabricated for exceptional strength and support below grade.

HYDRANT EXTENSIONS---M&H 129 Fire Hydrants may be lengthened where ground level is being raised without digging up hydrant or requiring complete new barrel. Simply add an M&H hydrant extension available in 6" increments to the existing standpipe.

(43, 44, & 45) UPPER DRAIN VALVE---Made of high strength aluminum-bronze alloy Includes double drains with rubber facings. Design provides positive closure of two bronze-bushed drain ports during operation. After operation, the drain valve quickly drains all water from the standpipe preventing cold weather freeze-up. Drain ports are purged during first three operating turns on opening and again on closing.

(51) BRONZE MAIN VALVE SEAT RING---Generous amount of material and contoured design provide smooth flow and low-pressure drop.

(54) BRONZE SHOE RETAINER RING----Permanently affixed to hydrant shoe with O-ring seal. Shoe Retainer Ring provides a bronze-to-bronze interface with the Main Valve Seat Ring for years for easy seat disassembly.

(41) HYDRANT SHOE / ELBOW---Ductile iron hydrant shoe designed to provide smooth, even flow around valve assembly assuring highest possible flow through main valve. Coated internal and externally with fusion bonded epoxy that meets AWWA C550 standards. Provides corrosion resistance to water or soil. Mechanical Joint shoes come standard with strapping lugs for restraining hydrant shoe to pipeline.

(49 & 50) LOCK WASHER / BOTTOM PLATE---Bottom plate is single component made from cast iron. Bottom plate compresses lock washer and rubber seat against top plate and securely attaches valve assembly to lower operating stem. Bottom plate is coated with same fusion bonded epoxy applied to shoe.

PARTS INTERCHANGABILITY---Several design and material improvements have been made to the current Style 129 Fire Hydrant. In no case have any changes sacrificed interchangeability. Parts produced today will work on M&H hydrants produced since 1929.

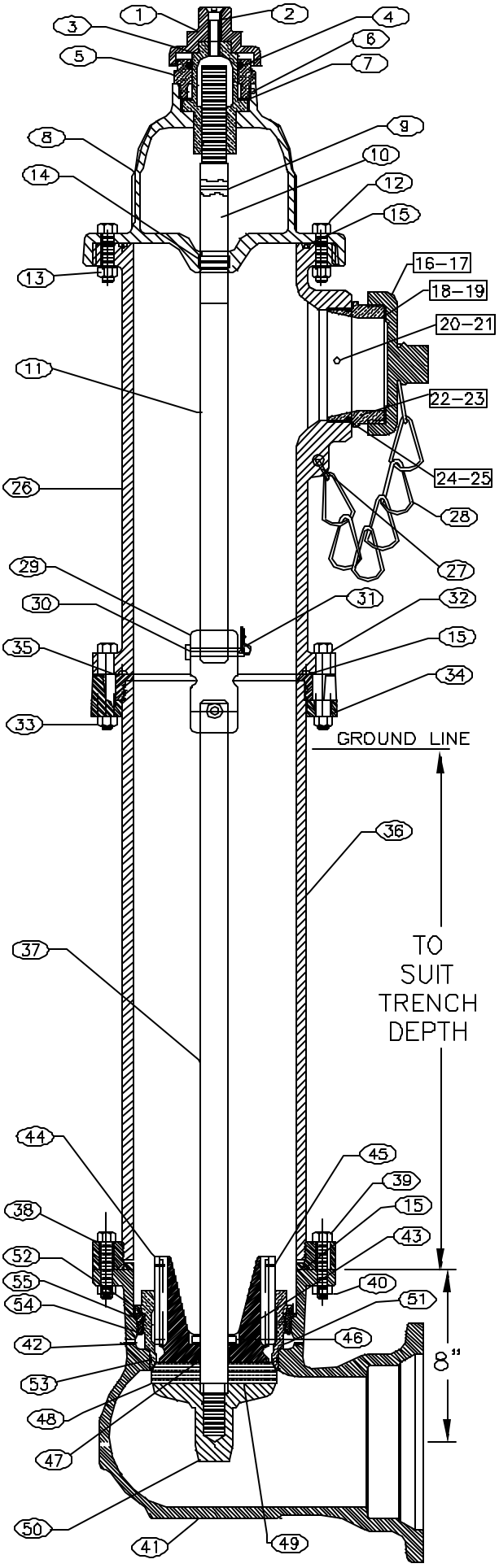
VALVE DISASSEMBLY---Disassembly of internal valve is achieved with the use of a Short Disassembly Wrench that engages the square end of our traffic coupling. No large removal wrench needed.

VALVE OPENING SELECTION---We offer the choice between a 4 ½" and 5 ¼" valve opening on our 129 fire hydrants.

APPROVALS---M&H 129 Fire Hydrants meet or exceed AWWA C502. Underwriters Laboratory and Factory Mutual approvals.

TESTING---M&H 129 Fire Hydrants are individually seat tested at 250 psi followed by a 500 psi shell test to assure material and seal quality.

M&H MODEL 129 FIRE HYDRANT



ITEM#	QTY	DESCRIPTION	MATERIAL
1	1	WEATHER SHIELD	CAST IRON ASTM A-126, CLASS B
2	1	LUBRICATION PLUG BOLT 1/2-13X2	ELECTRO ZINC PLATED STEEL
3	1	OPERATING NUT	BRONZE ALLOY CDA 84400,ASTM B-584
4	1	HOLD DOWN NUT "O" RING	N.B.R.
5	1	HOLD DOWN NUT	BRONZE ALLOY CDA 84400,ASTM B-584
6	1	HOLD DOWN NUT SET SCREW	18-8 SS ASTM F-593 GROUP 1
7	**1	THRUST WASHER	NYLON
8	1	BONNET	CAST IRON ASTM A-126 CLASS B
9	*1	BRONZE STEM SLEEVE "O" RING	N.B.R.
10	*1	BRONZE STEM SLEEVE	BRASS TUBING, ASTM B-135 ALLOY NO. 2
11	1	UPPER ROD/STEM ASSEMBLY	STEEL C1117 HFS w/BRZ STEM SLEEVE
12	6	BONNET BOLTS 1/2-13 x 2 1/4	ELECTRO ZINC PLATED STEEL
13	6	BONNET NUTS 1/2-13	ELECTRO ZINC PLATED STEEL
14	2	LOWER BONNET STEM "O" RINGS	N.B.R.
15	3	NOZZLE/STAND PIPE "O" RINGS	N.B.R.
16	2	HOSE NOZZLE CAP	CAST IRON ASTM A-126, CLASS B
17	1	PUMPER NOZZLE CAP	CAST IRON ASTM A-126, CLASS B
18	2	HOSE NOZZLE CAP GASKET	RUBBER ASTM D2000
19	1	PUMPER NOZZLE CAP GASKET	RUBBER ASTM D2000
20	2	HOSE NOZZLE SET SCREW	18-8 SS ASTM F-593 GROUP 1
21	1	PUMPER NOZZLE SET SCREW	18-8 SS ASTM F-593 GROUP 1
22	2	HOSE NOZZLE 2 1/2	BRONZE ALLOY CDA 84400,ASTM B-584
23	1	PUMPER NOZZLE 4 1/2	BRONZE ALLOY CDA 84400,ASTM B-584
24	2	HOSE NOZZLE "O" RING	N.B.R.
25	1	PUMPER NOZZLE "O" RING	N.B.R.
26	1	NOZZLE SECTION	CAST IRON ASTM A-126, CLASS B
27	1	"S" HOOK	ELECTRO ZINC PLATED STEEL
28	1	NOZZLE CAP CHAINS	ELECTRO ZINC PLATED STEEL
29	1	SAFETY STEM COUPLING/BREAK COUPLING	CAST IRON ASTM A126, CLASS B
30	2	CLEVIS PIN 3/8 x 2 1/2	410 STAINLESS STEEL
31	2	RETAINING CLIP	C1038 ELECTRO ZINC PLATED STEEL
32	8	SAFETY FLANGE BOLTS 5/8-11 X 4	ELECTRO ZINC PLATED STEEL
33	8	SAFETY FLANGE NUTS 5/8-11	ELECTRO ZINC PLATED STEEL
34	2	SAFETY FLANGE (HALF)	CAST IRON ASTM A126, CLASS B
35	*1	STAND PIPE UPPER FLANGE	DUCTILE IRON
36	1	STAND PIPE	DUCTILE IRON PIPE
37	1	LOWER ROD / LOWER STEM	STEEL C1117 HFS
38	*1	STAND PIPE LOWER FLANGE	DUCTILE IRON
39	8	SHOE BOLTS 5/8-11 X 3 1/2	ELECTRO ZINC PLATED STEEL
40	8	SHOE BOLT NUTS 5/8-11	ELECTRO ZINC PLATED STEEL
41	1	HYDRANT SHOE/ELBOW	DUCTILE IRON ASTM A-536, GRADE 70-50-5
42	2	DRAIN HOLE BUSHINGS	BRONZE ASTM B-135
43	1	UPPER DRAIN VALVE/UPPER VALVE PLATE	ALUMINUM-BRONZE ALLOY ASTM B-763
44	2	DRAIN VALVE FACINGS	BUNA "S"
45	8	DRAIN VALVE FACING RIVETS	COPPER
46	1	LOWER STEM PIN 1/2 X 1 3/4	18-8 STAINLESS STEEL TYPE E
47	1	LOWER STEM "O" RING SEAL	N.B.R.
48	1	MAIN VALVE RUBBER SEAT	S.B.R.
49	1	LOWER VALVE PLATE LOCKWASHER	18-8 STAINLESS STEEL SPRING LOCKWASHER
50	1	LOWER VALVE PLATE/BOTTOM PLATE	CAST IRON ASTM A-126, CLASS B
51	1	BRONZE MAIN VALVE SEAT RING	ALUMINUM-BRONZE ALLOY ASTM B-763
52	1	MAIN VALVE SEAT RING UPPER "O" RING	N.B.R.
53	1	MAIN VALVE SEAT RING LOWER "O" RING	N.B.R.
54	*1	SHOE RETAINER RING	BRONZE ALLOY CDA 8440, ASTM B-584
55	*1	SHOE RETAINER RING "O"-RING	N.B.R.

* NOT FIELD REPLACEABLE – PERMANENTLY INSTALLED
** NOT STANDARD ON 4 1/2" VALVE OPENING

MAIN VALVE SIZES AVAILABLE: 4 1/2" & 5 1/4"

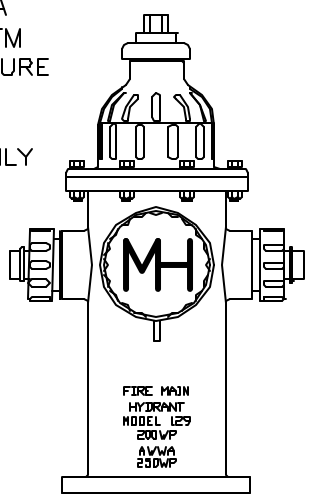
MEETS OR EXCEEDS AWWA C502

250 PSI WORKING PRESSURE AWWA
200 PSI WORKING PRESSURE UL/FM
500 PSI HYDROSTATIC TEST PRESSURE

HYDRANT SHOE STYLES AVAILABLE:
**NOTE: 5 1/4" WITH 6" SHOE ONLY
4" & 6" – MECHANICAL JOINT
4" & 6" – FLANGED

LISTED
UL
888H

FM
APPROVED



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. FH-1291

SUGGESTED SPECIFICATIONS (1 of 2)

M&H AWWA C502 FIRE HYDRANTS

- Model 129
- Traffic Model
- 250 PSI Working Pressure – 500 PSI Hydrostatic Test - AWWA
- UL / FM Approved

GENERAL

Fire hydrants shall comply in all respects with AWWA Standard C-502, latest revision. Fire hydrants shall be of the compression type, with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be (4 ½" or 5 ¼") in diameter. Fire Hydrant shall be of a dry barrel, dry top design. The nozzle section shall consist of two (2) hose nozzles and one (1) pumper nozzle or other as specified.

RATING

Fire hydrants shall be rated at 250 psi water working pressure, tested at 500 pounds hydrostatic for structural soundness in the following manner: 500 pound hydrostatic test supplied from the inlet side, first with the main valve closed for the testing of the valve seat: second, with the main valve open for testing of the drain valves and the hydrant barrel. Testing to be complete in accordance with AWWA C-502 and ULFM requirements.

END CONFIGURATION

Hydrants shall be connected to the main by a 4" or 6" fusion bonded, epoxy coated mechanical joint or flanged shoe. Mechanical joint shoes shall be fitted with strapping lugs.

DESIGN

The main valve seat of the hydrant shall be made of rubber and be supported by a one-piece bronze top plate / drain valve mechanism. Drain valves shall be faced with rubber.

The bottom stem threads of the main valve rod shall be fitted with an epoxy coated, cast iron bottom plate, sealing lower rod threads from the water.

Changes in size or shape of the waterway (hydrant nozzles) shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than 120% of that of the net opening of the main valve.

Hose and pumper nozzles shall be threaded and screwed into the nozzle section. And then mechanically locked to prevent turning.

Hose and pumper caps shall be chained to the hydrant

The hydrant shall be so designed that when it is in place, no excavation will be required to remove the main valve and movable parts of the drain valve. Further, the hydrant shall be of the type that can be extended without excavating.

Hydrants shall be so designed that, in the event of accident, or breaking of the hydrant above or near grade level; the main valve will remain closed.

The main valve rod shall be made in two parts and fitted with breakable coupling at the ground line flange.

The ground line connection between nozzle section and the barrel shall incorporate the use of traffic flange. This connection shall be so designed that the nozzle section can be rotated in any increment of 360°. The ground line connection between the barrel and nozzle sections shall have a rubber o-ring gasket to provide a seal.

The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.

DESIGN (Continued)

The operating thread shall be lubricated at factory with food grade grease. Access shall be provided to field lubricate the operating mechanism.

The operating thread shall be sealed from water at all times when the valve is either in the opened or closed position. The operating rod shall be bronze sheathed where it passes through the double "O" ring seal in the bonnet.

The bonnet shall be weather proof and utilize a weather shield integral with the external wrench operating nut.

The operating nut shall be made of bronze with a self-lubricating design.

Hydrants shall be of the dry barrel type and hydrant shoe shall have two positive acting non-corrosive drain valves that shall drain the hydrant completely by opening when the main valve is closed, and close tightly in accordance with AWWA C-502 requirements when main valve is open.

The main valve assembly shall be seated in the hydrant with a bronze-to-bronze interface to facilitate removal of the main valve, should maintenance be required. The nozzle section shall consist of two-2 1/2" hose nozzles to the specified thread designation (NST or other, as specified) and one pumper nozzle 4 ½" in diameter to the specified thread designation (NST or other, as specified), or other combination of nozzle outlets, including independent hose gate valves, as specified.

Two O-ring seals shall be utilized where the main hydrant rod passes through the 1 piece bonnet.

Hydrant standpipe shall be ductile iron and single piece for all bury depths.

All like parts of hydrants of the same size and model produced by the same manufacturer shall be interchangeable.

Hydrant shall open by turning to the (left or right). Direction of opening to be permanently marked on hydrant bonnet.

Threads on hose and steamer nozzles shall be National Standard unless otherwise specified.

Size and shape of operating nuts cap nuts shall conform to National Standard unless otherwise specified.

Bury shall be (specify depth of bury) measuring depth from grade line to bottom of trench or connecting pipe.

Auxiliary shut-off (isolation) gate valves, when required, shall be of the same manufacture as the hydrant.

COATING

The inside of all hydrants shall be coated in accordance with AWWA standards except for bronze and threaded machined surfaces. Exterior on hydrant nozzle section shall be painted Fire Hydrant Red (or as specified).

Hydrant shoes shall have an interior and exterior thermosetting epoxy coating of 5 to 6 mils meeting AWWA C550.

MARKINGS

Hydrant shall be marked with the name of the manufacturer, size of valve opening, direction of opening and the year of manufacture all in accordance with the AWWA C-502. Country of origin to be cast on all major hydrant castings.

SOURCE

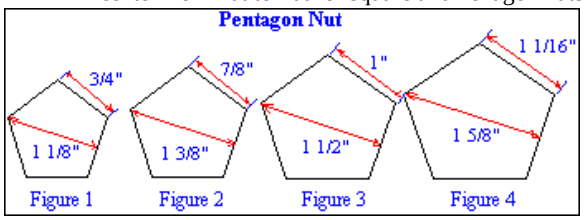
Hydrants shall be M&H Model 129

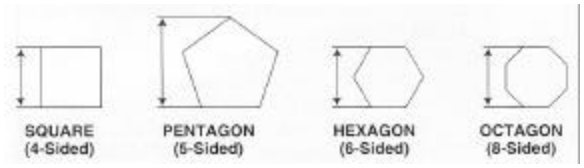
HOW TO ORDER

M&H AWWA C502 FIRE HYDRANTS

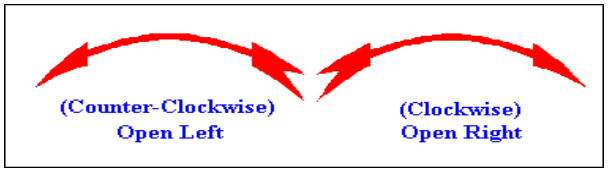
- ♦ Model #
- ♦ Traffic Model
- ♦ 250 PSI Working Pressure – 500 PSI Hydrostatic Test - AWWA
- ♦ UL / FM Approved

1. **Model:** Model #
2. **Size of Hydrant Valve Opening:** 4 ½" or 5 ¼"
3. **Number and size of Hose Nozzels:** Two. Usually 2 ½"
4. **Hose Nozzle Threading:** If other than National Standard, Specify standard by name or send male coupling from discarded section of hose so that hose connections can be accurately measured. Do not send hydrant cap as this is not always an accurate gauge.
5. **Number and Size of Steamer Nozzles:** One. Usually 4 ½"
6. **Steamer Nozzle Threading:** Same instructions as No. 4. above
7. **Size of Shoe Connection:** 4 ½" VO Hydrants: 4" or 6" Shoe 5 ¼" VO Hydrants: 6" shoe
8. **Type of Shoe Connection:** Mechanical Joint, Flanged
9. **Size and Shape of Operating Nut:** If other than National Standard pentagon measuring 1 ½" Point to Flat, give dimension measuring Point to Flat for pentagon and across center from flat to flat for square and hexagon nuts.





10. ***Hose and Pumper Caps:** Unless other wise specified, hose and pumper cap will match dimensions of operating nut.
11. **Direction of Opening:** Open left (counter-clockwise) or open right (Clockwise). ***Unless open-right is specified, all hydrants will be made to open / turn to the left.



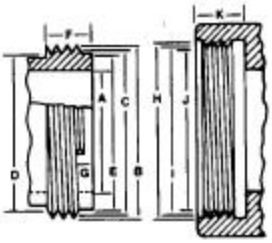
12. **Depth of Trench:** Distance from ground line to bottom of connecting pipe. "Trench" and "Ditch" are the same as "Bury". "Cover" is the distance from the ground line to the top of pipe leading to hydrant shoe.
13. **Color:** Unless otherwise specified, final paint coat will be Fire Hydrant Red.
14. ***Hydrant Chains:** All hydrants are supplied with chains unless you specify otherwise.
15. **STORZ Connections:** M&H can supply / install NST "STORZ" Connection in place of pumper nozzle.

NATIONAL STANDARD SPECIFICATIONS
(As adopted by National Board of Fire Underwriters)

Hose Nozzle: 2 ½" I.D.; 3 1/16" O.D.; 7 ½" threads per inch.
Steamer Nozzle: 4 ½" I.D.; 5 3/4 " O.D.; 4 threads per inch.
Operating Nut: 1 ½" point to flat.
Direction of Opening: Left (counter-clockwise)

National Standard Hose Coupling Thread Specifications (NST)

A. Nominal inside diameter		2½"	3"	3½"	4"	4½"
Number of threads per inch		7½	6	6	4	4
B. Major diameter nozzle thread	Max.	3.0686	3.6239	4.2439	5.0109	5.7609
	Min.	3.0366	3.5879	4.2079	4.9609	5.7109
C. Pitch diameter nozzle thread	Max.	2.9820	3.5156	4.1356	4.8485	5.5985
	Min.	2.9660	3.4976	4.1176	4.8235	5.5735
D. Minor diameter nozzle thread	Max.	2.8954	3.4073	4.0273	4.6861	5.4361
E. Diameter pilot nozzle		2.8500	3.3540	3.9730	4.6100	5.3570
F. Length of thread – nozzle		1"	1⅛"	1⅛"	1⅛"	1⅛"
G. Face to start of second turn		1/8"	5/16"	5/16"	7/16"	7/16"
H. Major diameter coupling thread	Min.	3.0836	3.6389	4.2639	5.0359	5.7859
I. Pitch diameter coupling thread	Max.	3.0130	3.5486	4.1736	4.8985	5.6485
	Min.	2.9970	3.5306	4.1556	4.8735	5.6235
J. Minor diameter coupling thread	Max.	2.9424	3.4583	4.0833	4.7611	5.5111
	Min.	2.9104	3.4223	4.0473	4.7111	5.4611
K. Depth of coupling		15/16"	1 1/16"	1 1/16"	1 1/16"	1 1/16"



All dimensional data and tolerances are in accord with ANSI 26

M&H VALVE COMPANY
Anniston, Alabama

M&H C502 Fire Hydrants

TEN-YEAR LIMITED WARRANTY

M&H Valve Company warrants that its AWWA C502 Fire Hydrant will be free from defects in material and workmanship under normal and customary use and maintenance for a period of ten (10) years from the date of purchase, provided the hydrant is installed and maintained according to M&H instructions, and applicable codes. The foregoing warranty does not cover failure of any part or parts from external forces, including, but not limited to, earthquake, vandalism, vehicular or other impact, application of excessive torque to the operating mechanism or frost heave.

Should any M&H Valve Company part or parts fail to conform to the foregoing warranty, M&H shall, upon prompt written notice thereof, repair or replace, F.O.B. point of manufacture, such defective part or parts. Purchaser shall, if requested, return the part or parts to M&H, transportation prepaid. Purchaser shall bear all responsibility and expense incurred for removal, reinstallation and shipping in connection with any part supplied under the foregoing warranty.

THE FOREGOING WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS. IN NO EVENT SHALL CLOW VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES, DAMAGES, OR EXPENSES.

GENERAL FEATURES / SPEC

M&H AWWA C502 FIRE HYDRANTS

- Style 929
- Traffic Model
- 250 PSI Working Pressure – 500 PSI Hydrostatic Test – AWWA
- UL / FM Approval

Type: Compression type, opening against line pressure. Main valve on Traffic Model will remain closed should hydrant be broken off by traffic accident.

Classification and Size: Hydrants are classified by the main valve size, number and size of hose and pumper nozzles. Hydrant size is designated as a 5 ¼ “, size being the inside diameter of the main valve seat opening.

Length: Hydrant lengths are determined by depth of trench below ground level. Lengths are in multiples of six inches.

Barrel: Upper section of barrel (nozzle section) contains the hose and pumper nozzles. The water way is uniform in diameter for entire length of barrel.

Hydrant Inlet: Hydrant shoe or elbow is provided with flange or mechanical joint connection to fit connecting pipe. All type shoes except flanged are provided with lugs for strapping. The two drain openings in the hydrant shoe are bronze bushed. All shoes are protected from corrosion with fusion bonded epoxy coating.

Hose and Pumper Nozzles: Threaded with fine thread and screwed (not Leaded) into tapped openings in nozzle section of hydrant. Hose and pumper nozzle caps are provided with rubber gaskets and chained to nozzle section.

Operating Mechanism and Working Parts: Main valve rod is made of steel and is bronze sheathed where it passes through a two piece bonnet system. Bronze retainer ring bushing is permanently affixed into shoe. Main valve seat ring is threaded into seat retainer ring providing bronze to bronze assembly. Main valve seat material is rubber. All working parts, including main valve assembly, are removable through the top of hydrant without excavating. Two positive acting non-corrodible drain valves are integral parts of main valve assembly. All parts of hydrant of same size and type are interchangeable with out any special fittings. Integral operating nut and weathershield provide tamper resistant top works and protects the operating mechanism form the elements. Also operating hold down is O-ring sealed for added protection.

Dry Top: Operating threads are isolated from the waterway by a seal plate having double O-rings. Operating nut has lubricating hole in top for lubrication of operating threads and thrust bearing.

Dry Barrel: When the valve of the hydrant is closed, two drain valves in the hydrant shoe automatically open and allow rapid and complete drainage of the hydrant barrel. This dry barrel eliminates danger of damage to the hydrant by freezing.

Materials of Construction: All iron parts are made of high strength gray iron conforming to specification A-126, Class B of the American Society for Testing Materials or ductile iron. All non-corrodible metal parts are made of copper alloys conforming to AWWA Standard C502 requirements. Other materials are also of high quality for their respective uses.

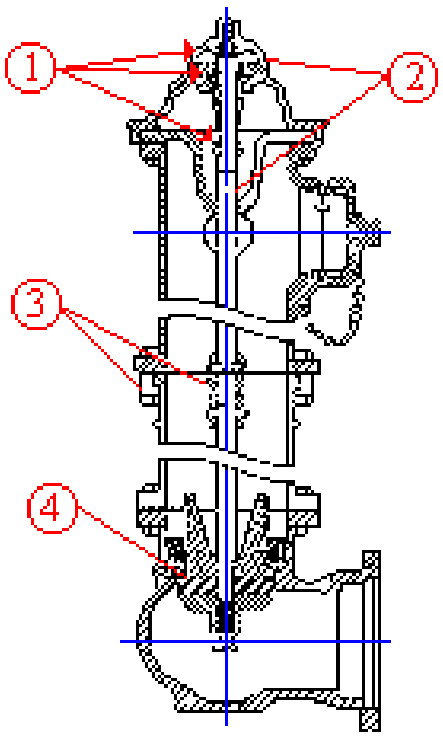
Shop Tests: Tested to 500 pounds hydrostatic pressure supplied from the inlet side, first with main valve closed for testing of valve seat; second, with main valve open for testing of drain valves and entire hydrant.

FEATURES AND BENEFITS

M&H AWWA C502 STYLE 929 FIRE HYDRANTS

The "Reliant" provides the following features and benefits:

1). Integral Operating Nut and Weather Shield provide tamper resistant top works and protects the operating mechanism from the elements. Ease of operation is assured by a nylon antifriction thrust bearing. A positive stop stem nut protects the main valve stem, stem coupling and main valve from potential damages occurring from excess input torque in the open position.

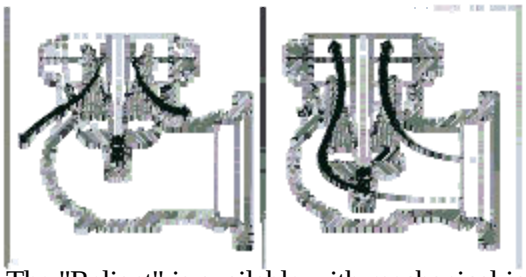


2). Factory-lubricated with grease, the "Reliant" hydrant can be greased or oil lubricated in the field. This important maintenance requirement of all 2 fire hydrants can be performed by re-greasing or by simply filling the oil reservoir through the weather shield bolt. These reservoirs are dual "O" ring sealed to provide positive prevention of lubricant leakage into the hydrant or water leakage into the bonnet area.

3). A unique field-proven lug arrangement provides full 360-degree rotation of nozzle section. Also assures effective breakaway on vehicle impact and fast, low cost repair. Additionally, the stem coupling between the upper and lower main valve stem fractures on a plane below the level of the standpipe flange. This assures that a vehicle tire cannot depress the main valve after impact.

4). The 5-1/4" main valve opening assures high flow capacity. The compression type main valve opens against the pressure and is held shut by this pressure during repair or maintenance. Two drain valves provide quick drainage of the hydrant standpipe following closure of the hydrant. These drains are self-flushing with each cycle of the main valve. A bronze-to-bronze seat retainer ring insures easy removal of the main valve seat if maintenance or repair is required. This is accomplished with either a short disassembly wrench. The RELIANT meets or exceeds all requirements of the American Waterworks Standard C-502 for fire hydrants.

Quick-Opening Drain Valve assures complete drainage of the Reliant 929 after its use. During operation a tight seal is achieved between the drain ports and main valve... assuring full water pressure at the nozzle.

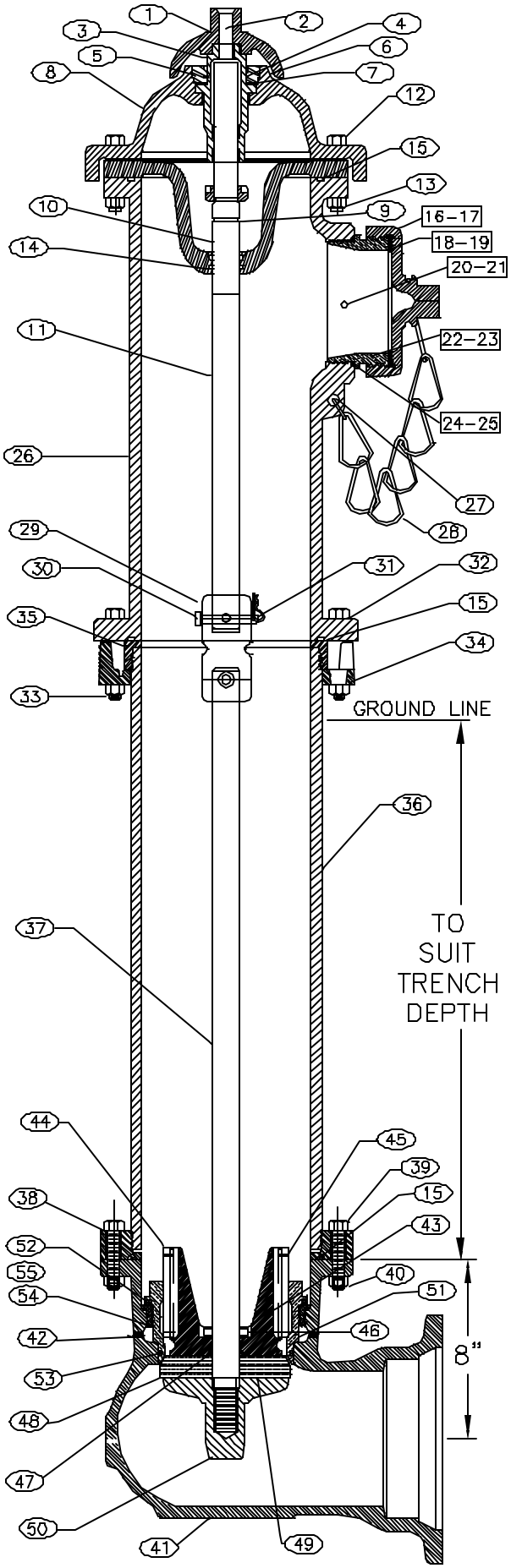


The "Reliant" is available with mechanical joint and flanged end connections. Mechanical joint are equipped with strapping lugs. All hydrant shoes are provided with large blocking pads for ease of installation. Shoes are protected against corrosion with fusion bonded epoxy, I. D. & O. D.

M&H MODEL 929 FIRE HYDRANT

ITEM#	QTY	DESCRIPTION	MATERIAL
1	1	WEATHER SHIELD	CAST IRON ASTM A-126, CLASS B
2	1	LUBRICATION PLUG BOLT 1/2 X 2 1/4	ELECTRO ZINC PLATED STEEL
3	1	OPERATING NUT	BRONZE ALLOY CDA B4400,ASTM B-584
4	1	HOLD DOWN NUT "O" RING	N.B.R.
5	1	HOLD DOWN NUT	BRONZE ALLOY CDA B4400,ASTM B-584
6	1	HOLD DOWN NUT SET SCREW	18-8 SS ASTM F-593 GROUP 1
7	1	THRUST WASHER	NYLON
8	1	BONNET	CAST IRON ASTM A-126 CLASS B
9	*1	BRONZE STEM SLEEVE "O" RING	N.B.R.
10	*1	BRONZE STEM SLEEVE	BRASS TUBING, ASTM B-135 ALLOY NO. 2
11	1	UPPER ROD/STEM ASSEMBLY	STEEL C1117 HFS w/BRZ STEM SLEEVE
12	6	BONNET BOLTS 1/2-13 x 2 1/4	ELECTRO ZINC PLATED STEEL
13	6	BONNET NUTS 1/2-13	ELECTRO ZINC PLATED STEEL
14	2	LOWER BONNET STEM "O" RINGS	N.B.R.
15	3	NOZZLE/STAND PIPE "O" RINGS	N.B.R.
16	2	HOSE NOZZLE CAP	CAST IRON ASTM A-126, CLASS B
17	1	PUMPER NOZZLE CAP	CAST IRON ASTM A-126, CLASS B
18	2	HOSE NOZZLE CAP GASKET	RUBBER ASTM D2000
19	1	PUMPER NOZZLE CAP GASKET	RUBBER ASTM D2000
20	2	HOSE NOZZLE SET SCREW	18-8 SS ASTM F-593 GROUP 1
21	1	PUMPER NOZZLE SET SCREW	18-8 SS ASTM F-593 GROUP 1
22	2	HOSE NOZZLE 2 1/2	BRONZE ALLOY CDA 84400,ASTM B-584
23	1	PUMPER NOZZLE 4 1/2	BRONZE ALLOY CDA 84400,ASTM B-584
24	2	HOSE NOZZLE "O" RING	N.B.R.
25	1	PUMPER NOZZLE "O" RING	N.B.R.
26	1	NOZZLE SECTION	CAST IRON ASTM A-126, CLASS B
27	1	"S" HOOK	ELECTRO ZINC PLATED STEEL
28	1	NOZZLE CAP CHAINS	ELECTRO ZINC PLATED STEEL
29	1	SAFETY STEM COUPLING/BREAK COUPLING	CAST IRON ASTM A126, CLASS B
30	2	CLEVIS PIN 3/8 x 2 1/2	410 STAINLESS STEEL
31	2	RETAINING CLIP	C1038 ELECTRO ZINC PLATED STEEL
32	8	SAFETY FLANGE BOLTS 5/8-11 X 4	ELECTRO ZINC PLATED STEEL
33	8	SAFETY FLANGE NUTS 5/8-11	ELECTRO ZINC PLATED STEEL
34	2	SAFETY FLANGE (HALF)	CAST IRON ASTM A126, CLASS B
35	*1	STAND PIPE UPPER FLANGE	DUCTILE IRON
36	1	STAND PIPE	DUCTILE IRON PIPE
37	1	LOWER ROD / LOWER STEM	STEEL C1117 HFS
38	*1	STAND PIPE LOWER FLANGE	DUCTILE IRON
39	8	SHOE BOLTS 5/8-11 X 3 1/2	ELECTRO ZINC PLATED STEEL
40	8	SHOE BOLT NUTS 5/8-11	ELECTRO ZINC PLATED STEEL
41	1	HYDRANT SHOE/ELBOW	DUCTILE IRON ASTM A-536, GRADE 70-50-5
42	2	DRAIN HOLE BUSHINGS	BRONZE ASTM B-135
43	1	UPPER DRAIN VALVE/UPPER VALVE PLATE	ALUMINUM-BRONZE ALLOY ASTM B-763
44	2	DRAIN VALVE FACINGS	BUNA "S"
45	8	DRAIN VALVE FACING RIVETS	COPPER
46	1	LOWER STEM PIN 1/2 X 1 3/4	18-8 STAINLESS STEEL TYPE E
47	1	LOWER STEM "O" RING SEAL	N.B.R.
48	1	MAIN VALVE RUBBER/SEAT	S.B.R.
49	1	LOWER VALVE PLATE LOCKWASHER	18-8 STAINLESS STEEL SPRING LOCKWASHER
50	1	LOWER VALVE PLATE/BOTTOM PLATE	CAST IRON ASTM A-126, CLASS B
51	1	BRONZE MAIN VALVE SEAT RING	ALUMINUM-BRONZE ALLOY ASTM B-763
52	1	MAIN VALVE SEAT RING UPPER "O" RING	N.B.R.
53	1	MAIN VALVE SEAT RING LOWER "O" RING	N.B.R.
54	*1	SHOE RETAINER RING	BRONZE ALLOY CDA 8440, ASTM B-584
55	*1	SHOE RETAINER RING "O"-RING	N.B.R.
56	1	SEAL PLATE	CAST IRON ASTM A-126, CLASS B
57	1	SEAL PLATE GASKET	???
58	1	STOP NUT	BRONZE

* NOT FIELD REPLACEABLE - PERMANENTLY INSTALLED



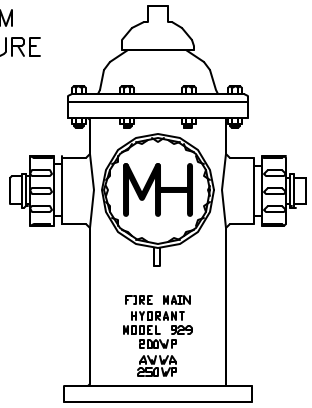
MAIN VALVE SIZES AVAILABLE: 5 1/4"

MEETS OR EXCEEDS AWWA C502

250 PSI WORKING PRESSURE AWWA
200 PSI WORKING PRESSURE UL/FM
500 PSI HYDROSTATIC TEST PRESSURE

HYDRANT SHOE STYLES AVAILABLE:
6" - MECHANICAL JOINT
6" - FLANGED

LISTED
UL
888H
FM
APPROVED



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. FH-929

SUGGESTED SPECIFICATIONS (1 of 2)

M&H AWWA C502 FIRE HYDRANTS

- Model 929
- Traffic Model
- 250 PSI Working Pressure – 500 PSI Hydrostatic Test - AWWA
- UL / FM Approved

GENERAL

Fire hydrants shall comply in all respects with AWWA Standard C-502, latest revision. Fire hydrants shall be of the compression type, with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be (5 ¼") in diameter. Fire Hydrant shall be of a dry barrel, dry top design. The nozzle section shall consist of two (2) hose nozzles and one (1) pumper nozzle or other as specified.

RATING

Fire hydrants shall be rated at 250 psi water working pressure, tested at 500 pounds hydrostatic for structural soundness in the following manner: 500 pound hydrostatic test supplied from the inlet side, first with the main valve closed for the testing of the valve seat: second, with the main valve open for testing of the drain valves and the hydrant barrel. Testing to be complete in accordance with AWWA C-502 and ULFM requirements.

END CONFIGURATION

Hydrants shall be connected to the main by a 6" fusion bonded, epoxy coated mechanical joint or flanged shoe. Mechanical joint shoes shall be fitted with strapping lugs.

DESIGN

The main valve seat of the hydrant shall be made of rubber and be supported by a one-piece bronze top plate / drain valve mechanism. Drain valves shall be faced with rubber.

The bottom stem threads of the main valve rod shall be fitted with an epoxy coated, cast iron bottom plate, sealing lower rod threads from the water.

Changes in size or shape of the waterway (hydrant nozzles) shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than 120% of that of the net opening of the main valve.

Hose and pumper nozzles shall be threaded and screwed into the nozzle section. And then mechanically locked to prevent turning.

Hose and pumper caps shall be chained to the hydrant

The hydrant shall be so designed that when it is in place, no excavation will be required to remove the main valve and movable parts of the drain valve. Further, the hydrant shall be of the type that can be extended without excavating.

Hydrants shall be so designed that, in the event of accident, or breaking of the hydrant above or near grade level; the main valve will remain closed.

The main valve rod shall be made in two parts and fitted with breakable coupling at the ground line flange.

The ground line connection between nozzle section and the barrel shall incorporate the use of breakaway lugs. This connection shall be so designed that the nozzle section can be rotated in any increment of 360°. The ground line connection between the barrel and nozzle sections shall have an o-ring to provide a seal.

The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.

DESIGN (Continued)

The operating thread shall be lubricated at factory with food grade grease. Access shall be provided to field lubricate the operating mechanism.

The operating thread shall be sealed from water at all times when the valve is either in the opened or closed position. The operating rod shall be bronze sheathed where it passes through the double "O" ring seal in the bonnet.

The bonnet shall be weather proof and utilize a weather shield integral with the external wrench operating nut.

The operating nut shall be made of bronze with a self-lubricating design.

Hydrants shall be of the dry barrel type and hydrant shoe shall have two positive acting non-corrosive drain valves that shall drain the hydrant completely by opening when the main valve is closed, and close tightly in accordance with AWWA C-502 requirements when main valve is open.

The main valve assembly shall be seated in the hydrant with a bronze-to-bronze interface to facilitate removal of the main valve, should maintenance be required. The nozzle section shall consist of two-2 1/2" hose nozzles to the specified thread designation (NST or other, as specified) and one pumper nozzle 4 ½" in diameter to the specified thread designation (NST or other, as specified), or other combination of nozzle outlets, including independent hose gate valves, as specified.

Two O-ring seals shall be utilized where the main hydrant rod passes through the 1 piece bonnet.

Hydrant standpipe shall be ductile iron and single piece for all bury depths.

All like parts of hydrants of the same size and model produced by the same manufacturer shall be interchangeable.

Hydrant shall open by turning to the (left or right). Direction of opening to be permanently marked on hydrant bonnet.

Threads on hose and steamer nozzles shall be National Standard unless otherwise specified.

Size and shape of operating nuts cap nuts shall conform to National Standard unless otherwise specified.

Bury shall be (specify depth of bury) measuring depth from grade line to bottom of trench or connecting pipe.

Auxiliary shut-off (isolation) gate valves, when required, shall be of the same manufacture as the hydrant.

COATING

The inside of all hydrants shall be coated in accordance with AWWA standards except for bronze and threaded machined surfaces. Exterior on hydrant nozzle section shall be painted Fire Hydrant Red (or as specified).

Hydrant shoes shall have an interior and exterior thermosetting epoxy coating of 5 to 6 mils meeting AWWA C550.

MARKINGS

Hydrant shall be marked with the name of the manufacturer, size of valve opening, direction of opening and the year of manufacture all in accordance with the AWWA C-502. Country of origin to be cast on all major hydrant castings.

SOURCE

Hydrants shall be M&H Model 929

DESCRIPTION

M&H POST TYPE HYDRANT

- Style 33
- Style 133
- Style 233

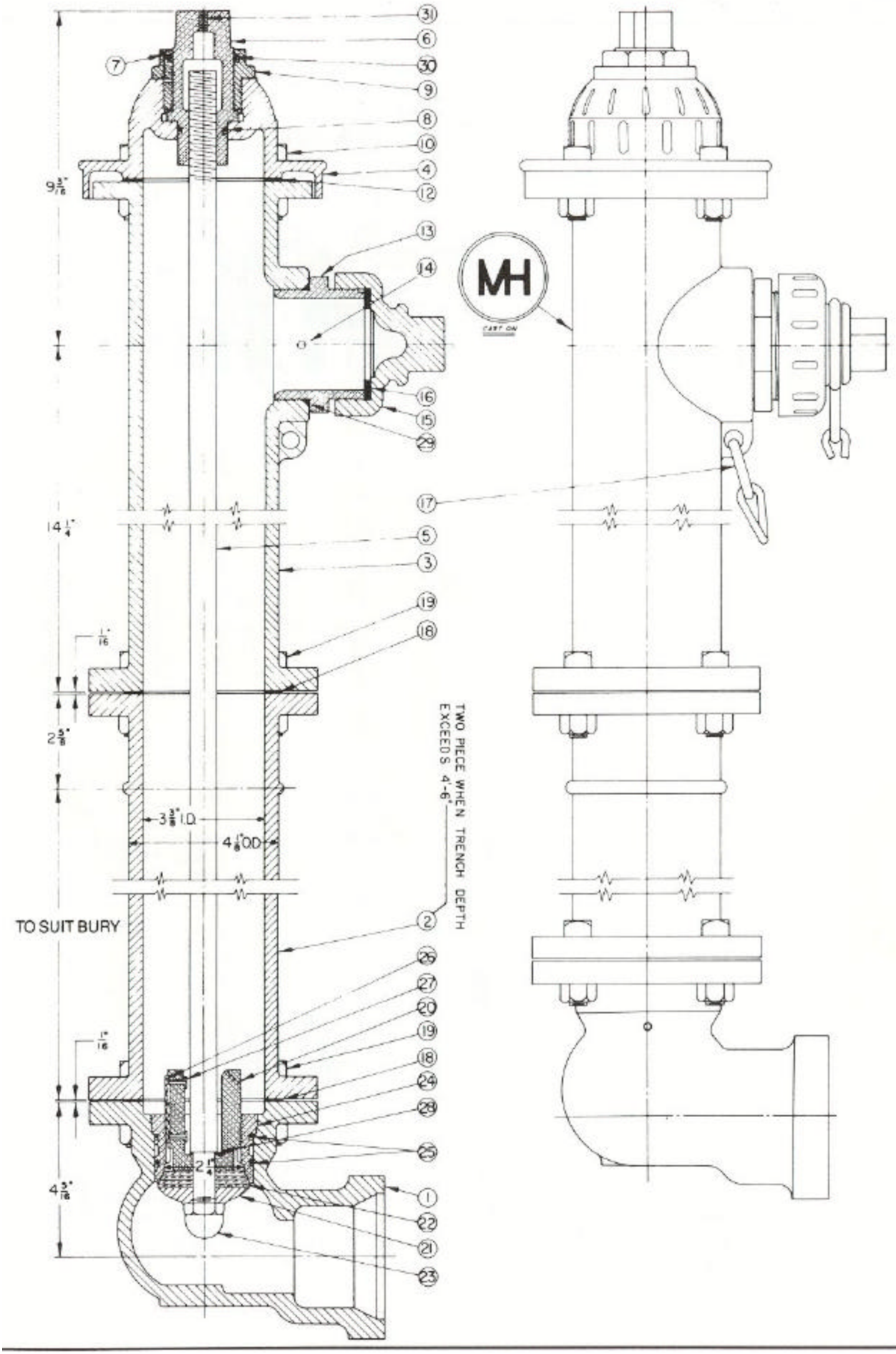
Post type hydrants are special purpose hydrants for use where fire fighting is not the primary function. They are smaller in size than standard AWWA hydrants and are furnished with main valve opening diameter of 2 ½". They are most often used for wash down service at treatment plants. Other uses may be in water systems to flush, bleed air pockets or fill fire department tank trucks in non-emergency service. Although the 2 ¼" post type model is not recognized by AWWA C502 standards for dry barrel fire hydrants, they are nonetheless manufactured to the same strict quality of materials and workmanship as full size M&H hydrants. Rated working pressure is 150 psi and each hydrant is hydrostatically tested to 300 psi.

Available options for hose nozzles configurations:

Style 33	**Post type has 1-2 ½" hose nozzle**
Style 133	**Post type has 1-1 ½" hose nozzle**
Style 233	**Post type has 2-1 ½" hose nozzle**

Available options for shoe inlet connections:

2" or 3" Mechanical Joint
2", 2 ½", 3" Flanged Joint
2", 2 ½" Screwed joint


MH
CAST ON
TWO PIECE WHEN TRENCH DEPTH EXCEEDS 4'-6"
TO SUIT BURY
3⅜" I.D.
4⅛" O.D.
2¼"
9 3/16"
14 1/4"
2 3/8"
4 3/16"
1/16"
1/16"

M&H POST HYDRANT PARTS BREAK DOWN 2 ¼”

ITEM #	DESCRIPTION	QUANTITY REQ’D	MATERIAL
1	HYDRANT SHOE / ELBOW	1	CAST IRON ASTM A-126, CLASS B
2	STAND PIPE	1	DUCTILE IRON PIPE
3	NOZZLE SECTION	1	CAST IRON ASTM A-126, CLASS B
4	BONNET (Open Left)	1	CAST IRON ASTM A-126, CLASS B
5	MAIN VALVE ROD	1	STEEL C1117 HFS
6	OPERATING NUT	1	BRONZE ALLOY CDA 84400, ASTM B-584
7	LUBRICATION SCREW	1	BRASS
8	BONNET / OPERATING NUT “O” RING	1	N.B.R.
9	HOLD DOWN NUT	1	BRONZE ALLOY CDA 84400, ASTM B-584
10	BONNET BOLTS	4	ELECTRO ZINC PLATED STEEL
11	BONNET NUTS	4	ELECTRO ZINC PLATED STEEL
12	BONNET GASKET	1	NON-ASBESTOS
13	HOSE NOZZLE	*	BRONZE ALLOY CDA 84400, ASTM B-584
14	HOSE NOZZLE SET SCREW	*	18-8 SS ASTM F-593 GROUP 1
15	HOSE NOZZLE CAP	*	CAST IRON ASTM A-126, CLASS B
16	HOSE NOZZLE CAP	*	RUBBER ASTM D2000
17	CHAIN	*	ELECTRO ZINC PLATED STEEL
18	STANDPIPE GASKET	1	NON-ASBESTORS
19	STANDPIPE BOLT	4	ELECTRO ZINC PLATED STEEL
20	UPPER DRAIN VALVE	1	BRONZE
21	LOWER VALVE PLATE / BOTTOM PLATE	1	CAST IRON ASTM A-126, CLASS B
22	MAIN VALVE RUBBER / SEAT	1	RUBBER
23	MAIN VALVE ACORN NUT	1	BRASS
24	BRONZE MAIN VALVE SEAT RING	1	BRONZE ALLOY CDA 84400, ASTM B-584
25	MAIN VALVE SEAT “O” RINGS	2	N.B.R.
26	DRAIN VALVE FACING	1	RUBBER
27	DRAIN VALVE RIVET	2	BRASS
28	STEM PIN / VALVE ROD LOCK PIN	1	C D STEEL
29	HOSE NOZZLE “O” RING	1	N.B.R.
30	OPERATING NUT HOLD DOWN “O” RING)	1	N.B.R
31	LUBRICATING PLUG	1	STEEL

SUGGESTED SPECIFICATIONS FOR:

M&H POST TYPE HYDRANT

- Style 33
- Style 133
- Style 233

GENERAL

Post Type Hydrants shall comply, where applicable, to AWWA Standard C-502, latest revision. Post Hydrants shall be of the compression type, with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be 2 ¼" diameter. Post Hydrants shall be of a dry barrel design.

RATING

Post Hydrants shall be rated at 150 psi water working pressure, tested at 300 pounds hydrostatic for structural soundness in the following manner; 300 pound hydrostatic test supplied from the inlet side, first with the main valve open for the testing of the drain valves and hydrant barrel.

END CONFIGURATION

Hydrants shall be connected to the main by a ((specify One) 2", 2 ¼", 3") mechanical joint, screwed or flange shoe. Mechanical joint shoes shall be fitted with strapping lugs.

DESIGN

Hydrants shall be constructed of ASTM A-126. The main valve facing of the hydrant shall be made of rubber.

The bottom stem treads of the main valve rods shall be fitted with a bronze scorn nut, or suitable means, for sealing the threads away from the water.

Changes in size or shape of the waterway shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than 120% of that of the net opening of the main valve, except for hydrants with 2" barrels.

Hose and pumper nozzles shall be threaded and screwed into the nozzle section and then mechanically locked to prevent turning.

Hose cap(s) shall be individually chained to the hydrant.

The hydrant shall be so designed that when it is in place, no excavation will be required to remove the main valve and moveable drain valve. Further, the hydrants shall be of the type that can be extended without excavating.

The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.

Bonnet shall be weather proof, free draining, and of a type that will maintain the operating mechanism in readiness for use under freezing conditions.

The operating nut shall be provided with a convenient means to afford lubrication to insure ease of operating and the prevention of wear and corrosion. Hydrants shall be of dry barrel type. Hydrant shoe shall have two positive acting non-corrodible drain valves that shall drain the hydrant completely by opening when the main valve is closed, and also to close tightly when the main valve is open.

All like parts of hydrants of the same size and model produced by the same manufacturer shall be inter-changeable.

Hydrants shall open by turning to the (specify one (left or right)).

DESIGN (Continued)

Threads on hose nozzles shall be National Standard unless otherwise specified.

Operating nuts and cap nuts shall conform to National Standard unless otherwise specified.

Bury shall be (specify depth of bury) measuring depth from grad line to bottom of connecting pipe.

Auxiliary shut-off (isolation) gate valves shall be of the same manufacturer as the hydrant when required.

Hydrants shall have one of the following nozzle configurations.

Style 33	Post type has 1-2 ½" hose nozzle
Style 133	Post type has 1-1 ½" hose nozzle
Style 233	Post type has 2-1 ½" hose nozzle

Note: Consult factory for custom or unlisted size hose nozzle.

COATING

The inside of all hydrants shall be coated in accordance with AWWA standards except for bronze and machined surfaces. Exterior on hydrant nozzle section shall be painted Fire Hydrant Red (or as specified).

Hydrant shoe shall have protective, thermosetting epoxy coating applied inside and out before assembly. Prior to application of coating. Shoe shall be mechanically and chemically cleaned in compliance with SSPC Standards SP-5 and SP-8. Average dry film thickness of 3 mils shall be applied on interior and exterior surfaces of hydrant shoe. Coating designation to be M0601 epoxy and conform fully to AWWA C550-81, Section 3.

MARKINGS

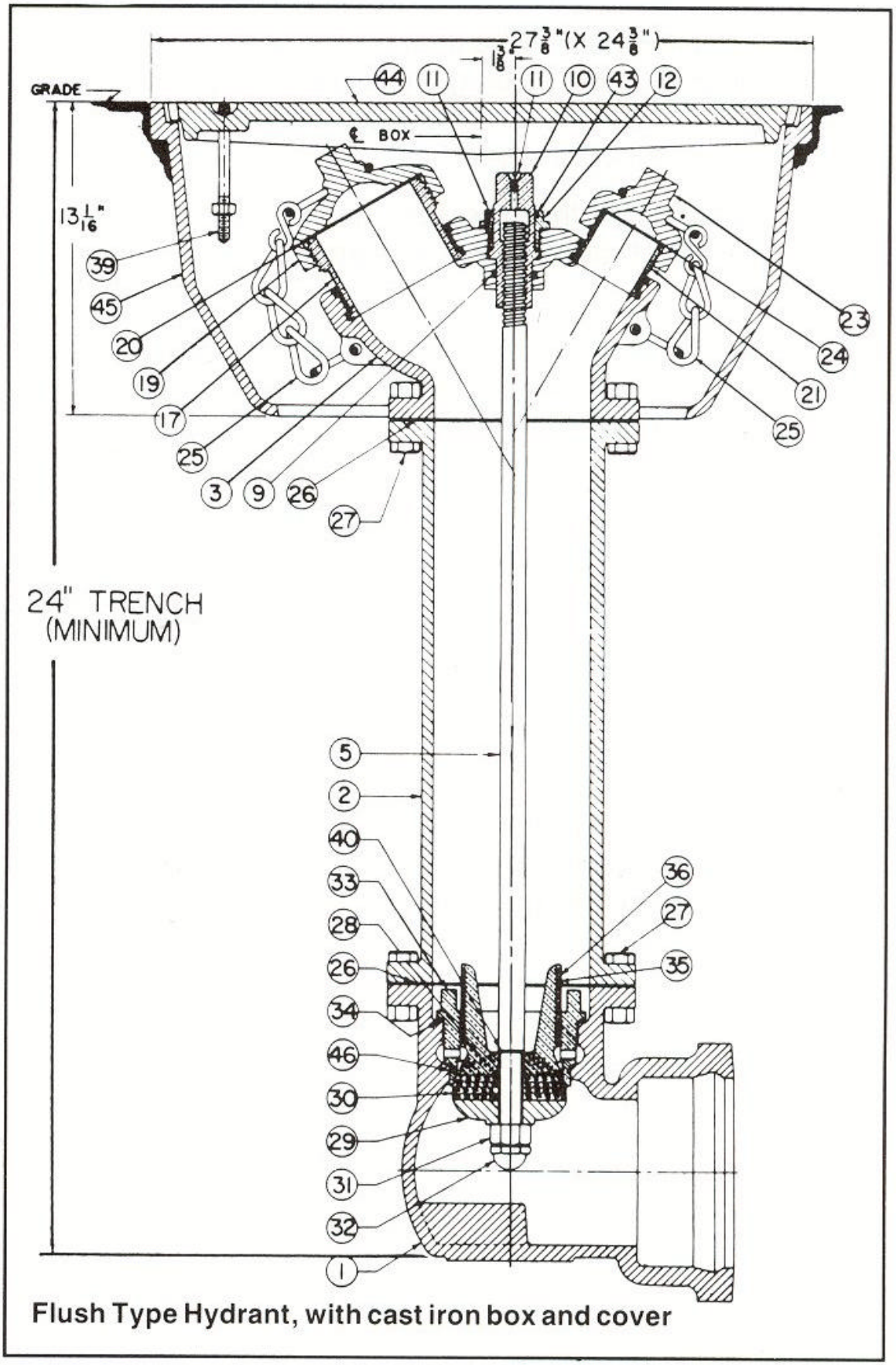
Hydrants shall be marked with name of manufacturer, year of manufacture, and size

DESCRIPTION

M&H FLUSH TYPE FIRE HYDRANTS

♦ Style 229—5 ¼” V.O.

M&H Flush Type Hydrant are for use where traffic model hydrants protruding above ground might interfere with traffic in such places as airport runways and industrial areas. May be set in vaults or can be supplied with cast iron box and cover. This flush type hydrant sets completely underground and is accessible by simply lifting the box cover. Internal parts of the hydrant are exactly the same as the M&H 129 hydrant.



Flush Type Hydrant, with cast iron box and cover

150 PSI Working Pressure / 300 PSI Hydrostatic Test
May 2003 / M&H C502 / Flush Type

M&H FLUSH HYDRANT PARTS BREAK DOWN 5 ¼”

ITEM #	DESCRIPTION	QUANTITY REQ'D	MATERIAL
1	Hydrant Shoe	1	Cast Iron
2	Stand Pipe	1	Ductile Iron
3	Nozzle Section	1	Cast Iron
5	Main Valve Rod	1	Steel
9	“O” Ring Seal	1	Rubber
10	Operating Nut	1	Bronze
11	Lubricating Plug	1	Steel
12	Hold Down Nut	1	Bronze
17	Steamer Nozzle	1	Bronze
19	Steamer Nozzle Cap	1	Cast Iron
20	Steamer Nozzle Cap Washer	1	Rubber
21	Hose Nozzle	2	Bronze
23	Hose Nozzle Cap	2	Cast Iron
24	Hose Nozzle Cap Washer	2	Rubber
25	Cap Chain	*	Steel
26	Stand-Pipe Gasket	2	Rubber
27	Stand-Pipe Bolt and Nut	16	Steel
28	Upper Drain Valve /Upper Valve Plate	1	Bronze
29	Lower Valve Plate / Bottom Plate	1	Cast Iron
30	Main Valve Rubber / Seat	1	Rubber
31	Main Valve Rod Nut	1	Bronze
32	Main Valve Rod Acorn Nut	1	Bronze
33	Bronze Main Valve Seat Ring	1	Bronze
34	Main Valve Seat Ring-Upper O-Ring	1	Rubber
35	Drain Valve Facings	2	Rubber
36	Drain Valve Facing Rivets	8	Copper
39	Cover Handle	1	Steel
40	Lower Stem Seal	1	Rubber
43	Weatherproof Washer	1	Rubber
44	Hydrant Box Cover	1	
45	Hydrant Box	1	Cast Iron
46	Main Valve Seat Ring-Lower O-Ring	1	Rubber

SUGGESTED SPECIFICATIONS FOR:

M&H FLUSH TYPE FIRE HYDRANTS

♦ Style 229—5 ¼" V.O.

GENERAL

Flush Type Fire Hydrants shall comply, where applicable, to AWWA Standard C-502, latest revision. Flush Type Fire Hydrants shall be of the compression type, with the main valve opening against the pressure and closing with the pressure. The main valve opening shall be 5 ¼" diameter. Flush Type Fire Hydrants shall be of a dry barrel design.

RATING

Flush Type Fire Hydrants shall be rated at 150 psi water working pressure, tested at 300 pounds hydrostatic for structural soundness in the following manner; 300 pound hydrostatic test supplied from the inlet side, first with the main valve closed for the testing of the valve seat; second, with the main valve open for testing of the drain valves and the hydrant barrel.

END

Hydrants shall be connected to the main by a 6" mechanical joint or flanged shoe. Mechanical joint shoes shall be fitted with strapping lugs.

DESIGN

Hydrants shall be constructed of ASTM A-126 Class B cast iron. The main valve of the hydrant shall be made of rubber.

The bottom stem threads of the main valve rods shall be fitted with a cap nut for sealing the threads away from the water.

Changes in size or shape of the waterway shall be accomplished by means of easy curves. Exclusive of the main valve opening, the net area of the waterway of the barrel and the foot piece at the smallest part shall not be less than 120% of that of the net opening of the main valve.

Hose and pumper caps shall be individually chained to the hydrant.

The operating threads of the hydrant shall be so designed as to avoid the working of any iron or steel parts against either iron or steel. The operating stem and operating nut threads shall be square or acme type.

Bonnet shall be weather proof, free draining, and of a type that will maintain the operating mechanism in readiness for use under freezing conditions.

The operating nut shall be provided with a convenient means to afford lubrication to insure ease of operating and the prevention of wear and corrosion. Hydrants shall be of dry barrel type. Hydrant shoe shall have two positive acting non-corrodible drain valves that shall drain the hydrant completely by opening when the main valve is closed, and also to close tightly when the main valve is open.

All like parts of hydrants of the same size and model produced by the same manufacturer shall be interchangeable.

Hydrants shall open by turning to the (specify one (left or right)).

Threads on hose and steamer nozzles shall be National Standard unless otherwise specified.

Operating nuts and cap nuts shall conform to National Standard unless otherwise specified.

Bury shall be (specify depth of bury) measuring depth from grade line to bottom of connecting pipe.

GENERAL

Auxiliary shut-off (isolation) gate valves shall be of the same manufacturer as the hydrant when required.

Hydrant Assembly shall include a cast iron box and cover for installation flush with grade level.

The hydrant box shall not be attached to the hydrant at any point thus prohibiting loads from being transferred to the hydrant, standpipe, or connecting pipe.

Hydrant box, when properly installed with cover shall withstand a 25,000 pound load.

Hydrants shall have 2-2 ½" hose connections and 1-4 ½" steamer nozzle.

COATING

The inside of all hydrants shall be coated in accordance with AWWA standards except for bronze and machined surfaces. Exterior on hydrant nozzle section shall be painted Fire Hydrant Red (or as specified).

Hydrant shoe shall have protective, thermosetting epoxy coating applied inside and out before assembly. Prior to application of coating. Shoe shall be mechanically and chemically cleaned in compliance with SSPC Standards SP-5 and SP-8. Average dry film thickness of 5 mils shall be applied on interior and exterior surfaces of hydrant shoe. Coating designation to be M0601 epoxy and conform fully to AWWA C550-81, Section 3.

MARKINGS

Hydrants shall be marked with name of manufacturer, year of manufacture, and size

C-509 FULL BODY CAST IRON RESILIENT WEDGE VALVE

2" THROUGH 12"

Style 4067

AWWA C-509
AWWA C-550

FM UL

NSF Approved

PROUDLY

MADE IN ANNISTON, ALABAMA
USA

C-509 CAST IRON RESILIENT WEDGE VALVE

During the decade of the 1980's, the waterworks industry was introduced to the Resilient Seated Gate Valve, a design principle that is dominant in preference for use in distribution systems. M&H Valve Company was at the forefront in this industry-wide movement by introducing the Style 4067, our AWWA C509 Resilient Seated Gate Valve.

With the end user in mind, M&H introduced a redesign of the 4067 in 2001. The goal of the redesign was to eliminate the customer need for any anti-rotational bolts. M&H did this by designing a machined elliptical bolthole in place of an as-cast opening. This elliptical design allows valve installers to slide a standard sized bolt into the slot, therefore eliminating the need to have two different types of bolts on the installation.

RECOMMENDED SPECIFICATIONS FOR C-509 CAST IRON RESILIENT WEDGE GATE VALVES

M&H VALVE COMPANY

Valves shall conform to the latest revision of AWWA Standard C-509 covering resilient seated gate valves for all water supply service.

The valves shall have a cast iron body, bonnet, and o-ring plate. The wedge shall be totally encapsulated with rubber.

The sealing rubber shall be permanently bonded to the wedge per ASTM D429.

Valves shall be supplied with o-ring seals at all pressure retaining joints. No flat gaskets shall be allowed. Blind bolts shall not be allowed.

The valves shall be either non-rising stem or rising stem, opening by turning left or right, and provided with 2" square operating nut or a handwheel with the word "Open" and an arrow to indicate the direction to open.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. OS&Y (rising stems) shall be bronze. All stems shall operate with bronze stem nuts independent of wedge and of stem (in NRS valves). Stainless steel stems or stem nuts are not allowed. NRS stems shall have two o-rings located above thrust collar and one o-ring below. Stem o-rings shall be replaceable with valve fully opened and subjected to full pressure. The NRS stems on 2"-12" shall also have two low torque thrust bearings located above and below the stem collar to reduce friction during operation.

Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. Tapping valves 4" and larger shall accept a full size tapping cutter.

The body, bonnet, and o-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy coating shall be NSF 61 approved and applied in accordance with AWWA C550.

Each valve shall have manufacturers name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C-509 (and UL/FM where applicable).

Valves shall have all component parts cast and assembled in the USA and shall be manufactured by the M&H Valve Company.

M&H ULFM - AWWA R/W VALVE

Features and Benefits

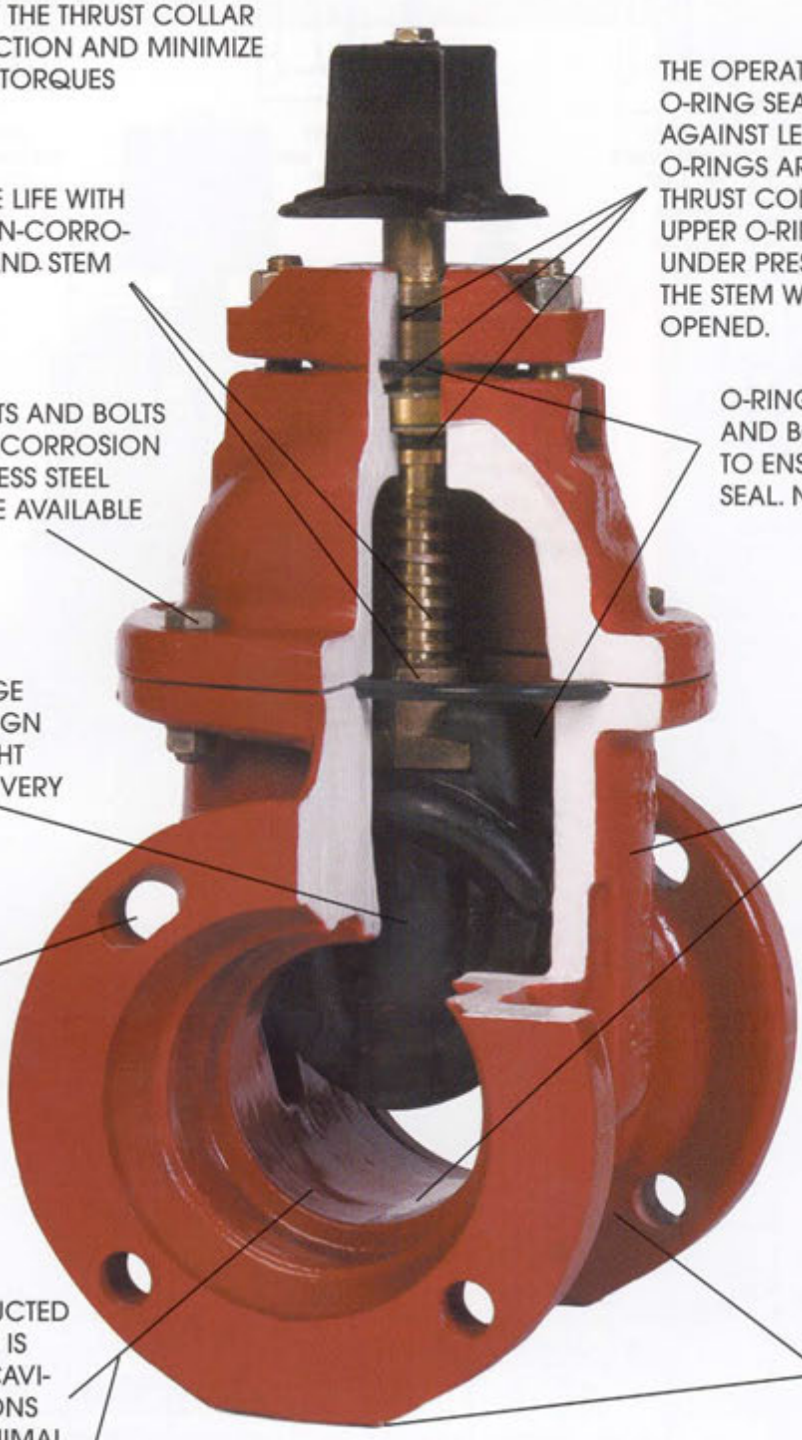
DELRIN THRUST BEARINGS ABOVE AND BELOW THE THRUST COLLAR REDUCE FRICTION AND MINIMIZE OPERATING TORQUES

THE OPERATING MECHANISM IS TRIPLE O-RING SEALED TO COMPLETELY SEAL AGAINST LEAKAGE PAST THE STEM. TWO O-RINGS ARE PROVIDED ABOVE THE THRUST COLLAR AND ONE BELOW. UPPER O-RINGS CAN BE REPLACED UNDER PRESSURE WITHOUT REMOVING THE STEM WHEN THE VALVE IS FULLY OPENED.

LONG, TROUBLE FREE LIFE WITH HIGH STRENGTH, NON-CORROSIVE BRONZE STEM AND STEM NUT.

O-RING SEALS AT STUFFING BOX AND BONNET TO BODY FLANGES TO ENSURE THE BEST POSSIBLE SEAL. NO FLAT GASKETS.

ELECTRO-PLATED NUTS AND BOLTS PROVIDE LONG-LIFE CORROSION PROTECTION. STAINLESS STEEL BOLTS AND NUTS ARE AVAILABLE WHEN REQUESTED.



100% COATED WEDGE WITH TWIN SEAL DESIGN ENSURES BUBBLE-TIGHT SEAL UP TO 250 PSI EVERY TIME.

M&H CORROSION RESISTANT FUSION-BONDED EPOXY COATING, CONFORMING TO AWWA C-550 AND NSF61 APPROVED, PROTECTS BOTH INSIDE AND OUTSIDE OF VALVE.

ELLIPTICAL BOLT HOLE DESIGN ELIMINATES THE NEED FOR ANTI-ROTATION BOLTS

SMOOTH, UNOBSTRUCTED FULL SIZE WATERWAY IS FREE OF POCKETS, CAVITIES, AND DEPRESSIONS ALLOWING FOR MINIMAL FLOW LOSS AND LOWER PUMPING COSTS.

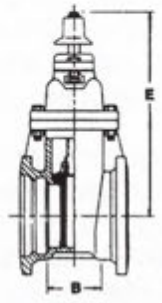
PADS ON THE BOTTOM OF ALL VALVES KEEP VALVE IN UPRIGHT POSITION FOR EASIER STORAGE AND PROTECTION FROM THE ELEMENTS.

ALL TAPPING VALVES ACCEPT FULL SIZE TAPPING CUTTER.

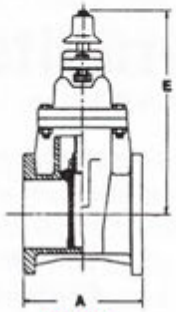
ALL VALVES ARE RATED AT 250 PSI FOR AWWA SERVICE AND 200 PSI FOR ULFM SERVICE. ALL VALVES ARE HYDROSTATICALLY TESTED TO 500 PSI.

10 YEAR LIMITED WARRANTY

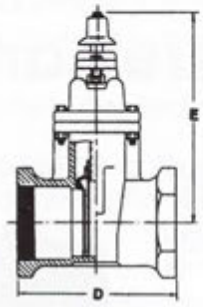
AVAILABLE END CONNECTIONS & DIMENSIONS FOR M&H 2" - 12" C-509 CAST IRON RESILIENT WEDGE VALVE



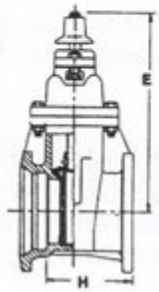
4067
MECHANICAL JOINT ENDS
2" • 12"



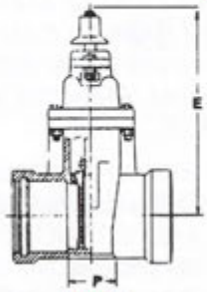
4067-02
FLANGED ENDS
2" • 12"



4067-07
THREADED ENDS
2" • 3"

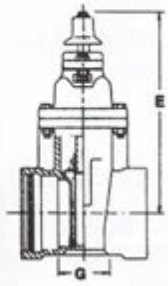


4067-13
FLANGED X MJ
3" • 12"

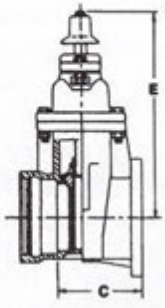


4067-03
PUSH-ON FOR PVC
2" • 8"

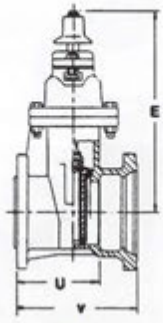
4576-01
MECHANICAL
CUTTING-IN JOINT
4" • 12"



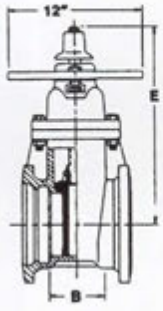
4067-22
TYTON ENDS
PUSH-ON FOR (D.I. & C900)
4" • 12"



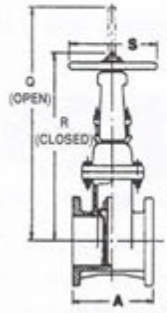
4067-23
FLANGED & TYTON JOINT
PUSH-ON FOR (D.I. & C900)
4" • 12"



4751-01
TAPPING X MJ
TAPPING VALVE
4" • 12"



4067-01P
MECHANICAL JOINT
POST INDICATOR VALVE (PIV)
2" • 12"



4068-02
FLANGED ENDS
OS&Y CONSTRUCTION
2 1/2" • 12"

	A	B	C	D	E	G	H	P	Q	R	S	U	V	No. of Turns to Full Open
2"	7	3 1/4	—	5 1/4	10 7/8	—	—	3	—	—	7 1/4	—	—	4 3/4
2 1/2"	7 1/2	—	—	7	11 3/8	—	—	3 1/4	16 3/8	13 7/8	7 1/4	—	—	5 1/2
3"	8	3 1/2	—	7 1/8	12 3/8	—	5 3/4	3 1/2	18 7/8	15 5/8	10	—	—	10
4"	9	4 1/2	6 3/4	—	14 3/4	4 1/2	6 3/4	4 1/2	22 3/4	18 1/4	10	6 3/4	9 3/4	13 1/2
6"	10 1/2	5	7 7/8	—	19	5 1/4	7 3/4	5	30 1/8	23 3/4	12	7 5/8	11 3/16	19 1/2
8"	11 1/2	5 1/2	8 1/2	—	22 1/2	5 5/8	8 1/2	5 1/2	37 3/4	29 1/4	14	8 1/2	11 3/4	25 1/2
10"	13	7	10	—	26 1/2	7	10	—	45 3/4	35 3/8	18	10	13 1/2	31 1/2
12"	14	6 3/4	11 1/4	—	30	8 1/2	10 7/8	—	53 1/8	40 5/8	18	11	14 3/4	37 3/4

REV. 2004

M&H VALVE COMPANY

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M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

During the decade of the 1980's, the waterworks industry was introduced to the Resilient Seated Gate Valve, a design principal that now dominates in preference for use in distribution systems. M&H Valve Company was at the forefront in this industry-wide movement by introducing the Style 4067, our version of the best European and domestic designs.

The combination of evolving technology and changing market influences presents the unique opportunity once again for M&H to be at the forefront as a leader in modern valve design.

The Style 4067 RS gate valve embodies all of the latest valve technology for simplicity, durability and superior performance; It is available in size range 2" thru 12" and meets AWWA standards C-509 and C-550 in all sizes. Additionally, 2" thru 12" are listed by Underwriters Laboratories and are approved by Factory Mutual Association.

Designed to control. . . built to perform. . .here's the valve that sets the standard. The M&H valve was engineered on the belief that bottle-tight closure is the primary function of any valve. That's why the totally encapsulated wedge was designed to provide dual seating. A whistle-clean waterway provides maximum flow without the loss of head experienced in other valves.

A durable fusion bonded epoxy coating both inside and out, providing unexcelled abrasion and corrosion protection is standard. Absolutely no compromise in materials or workmanship and it carries a 10 year limited warranty. . . it's the clear choice of those who demand the best.

EASE OF OPERATION

The M&H RSGV has only two moving internal parts—the gate and the stem.

The gate is fully supported throughout travel by an integrally cast tongue and groove fit between it and the valve body. Lugs on the gate fully engage the coated guides cast into the valve body so the gate closes smoothly, without "chatter", every time.

This positive gate alignment, plus positioning and engagement of the stem nut, virtually eliminate stem binding, and provide balanced loads and low operating torques. The M&H RSGV is among the lowest in operating torques of all available competitive type valves

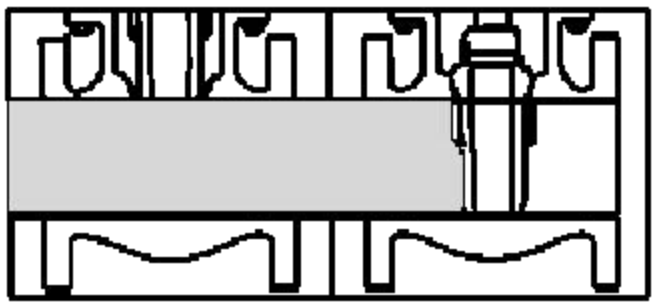
POSITIVE SEALING

A dual rubber seal is formed between the rubber encapsulated resilient wedge and the valve body to guarantee drop-tight shut-off every time. The combination of true compression and dynamic wedging of the gate is created without harmful sliding, shearing or other wear-inducing action.

The massive vulcanized rubber seating edges on the gate self-absorb normal wear and tear, assuring a positive seal, even after years of service. The M&H RSGV will seal bubble-tight to 250 psi working pressure, with the flow in either direction and the valve in any position.

FULL FLOW CAPACITY / DUAL SEATING

The M&H RSGV features an unobstructed, thru-conduit flow path for full flow capacity. Closed, the RSGV provides bottle-tight, zero leakage in either direction at full rated differential pressure with dual body gate seating.



PRODUCT ANALYSIS / FEATURES & BENEFITS / PERFORMANCE INFORMATION

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

FEATURES	BENEFIT
Bubble Tight Closure at 250 psi (AWWA) 2" – 12" at 250 psi (AWWA)	• No Leakage – No loss of water
Dual Rubber Seal	• Assures drop-tight shut-off in either direction.
Smooth, unobstructed waterway to maximize flow.	• High flow characteristics • 100% smooth passage without turbulent flow • No sediment build up • Will not impede travel of line cleaning tools
Only Three Internal Parts	• Virtually maintenance free
Only Two Moving Parts, the gate & the stem	• Less friction, less torque, longer life.
Integral Cast Tongue and Groove between wedge and valve body.	• Positive gate alignment every time
No Seat Rings	• Nothing to be damaged by scoring
Delrin* Anti-Friction Thrust Bearing	• Operating torque to close and open held to absolute minimum
Solid, Bronze Stem Nut and High Strength Bronze Stem	• No corrosion • Trouble free service
Stem Nut is Self Centering	• Eliminates possible stress on stem and wedge
Two O-Ring Seals Above Stem Thrust Collar and One Below	• Two O-Rings can be replaced with valve in service
High Strength Iron Wedge Fully Encapsulated with rubber Permanently Bonded to Metal.	• Trouble free service with minimum maintenance • No leaks – no wear
No Lubrication Required	• Trouble free service
American Cast and Assembled	• American Jobs • American backed product for more than 100 years • American quality
10 year limited warranty against defective materials or workmanship	• Customer assurance that M&H believes in the strong product they produce.
Body / Bonnet Epoxy Coating Inside & Only	• Unprecedented Protection Against Corrosion and abrasion

* DuPont Trademark

PERFORMANCE INFORMATION

- 2"- 6" valves sizes have been hydrostatically shell tested at five (5) times UL rated pressure (1000 psi).
- 8",10", and 12" have been hydrostatically shell tested at four (4) times UL rated pressure (800 psi).
- Valve is capable of bubble-tight seal at pressures up to (400psi) for short periods of time.
- Valve has been subjected to torques 150 percent of the designated minimum required torques.
- Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
- For complete data on the tests Underwriters Laboratories performed, reference UL File EX 783

END CONNECTIONS (2”-12”)

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

Shown at right are the principal ends available on M&H Gate valves. Other type ends are available upon request.

Mechanical Joint end valves are furnished for use with mechanical joint cast iron pipe. Mechanical joint bolts, glands and gaskets are furnished unless otherwise specified in order Mechanical joint for AWWA C111.

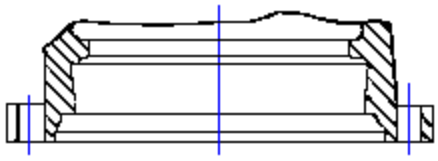
PVC Plastic end valves are furnished for use with PVC water pipe. Gaskets are furnished with valves for installation on pipe.

Push on ends for C900 plastic and ductile and cast iron pipe furnished with stab rubber gaskets to AWWA C111.

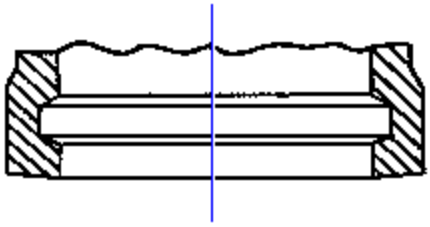
Flanged end valves are furnished with flanges made to ANSI B16.1 dimensions. Flanged end valves are most commonly used for filtration plants, sewage disposal plants and pump stations. Flanged valves have the advantage of quick and easy removal for repairs or replacement without disrupting the pipe line. 125 pound flanges are per ANSI B16.1.

Flanged by mechanical joint end valves frequently are used as auxiliary gate valves with flanged end fire hydrants, also to connect flanged pipe to mechanical joint pipe lines.

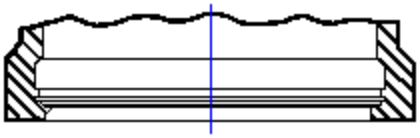
Screwed end valves are furnished for smaller pipelines for general service with iron pipe threads.



Mechanical Joint End



PVC End



Push-On-End

Flanged End

Screwed End

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

SPECIFICATIONS / AVAILABLE CONFIGURATIONS & STYLE NUMBERS (2”-12”)

Size Range	Water Working Pressure psi	Bubble Tight Seat Test psi	Hydrostatic Shell Test psi
AWWA 2” – 12”	250 Water Works	250 Both Sides 400 One Side	500
ULFM 4” – 12”	200 Fire Protection	250 Both Sides 400 One Side	500

Available End Connections	Size Range	Style No. With 2” Nut	Style No. With Hand wheel	Style No. With Post Plate
Mechanical Joint (except 2 ½”) (NRS)	2”-12”	4067-01	4067-01-HW	(3”-12”) 4067-01P
Flanged Ends (NRS)	2”-12”	4067-02	4067-02-HW	(3”-12”) 4067-02P
Note: 4067A-02 is Tapped & Plugged in the “A” Position			2“ – 4” = ½ “ Tap	6” – 12” = ¾” Tap
Flanged End X Mechanical Joint (NRS)	3”-12”	4067-13	4067-13-HW	4067-13P
Push-on (For PVC / SDR) (NRS)	2”-8”	4067-03	4067-03-HW	(3”-8”) 4067-03P
Threaded (NRS)	2”-3”	4067-07	4067-07-HW	(3” only) 4067-07P
Push-on (For D.I. / C900) (NRS)	4”-12”	4067-22	4067-22-HW	4067-22P
Push-on X Flange (For D.I. / C900)(NRS)	4”-12”	4067-23	4067-23-HW	4067-23P
Flanged Ends (OS&Y)	2”-12”	4068-02	N/A	N/A
Note: 4068A-02 is Tapped & Plugged in the “A” Position			2“ – 4” = ½ “ Tap	6” – 12” = ¾” Tap
Tapping Valve (NRS)	4”-12”	4751-01	4751-01HW	4751-01P
Note: Each size accommodates a full size diameter tapping cutter.				
M.J. Cutting-in valve (NRS)	4”-12”	4576-01	4576-01-HW	4576-01P

VALVE ACCESSORIES

Mechanical operational accessories are used for valves having special operational needs such as;

1. Location with limited access
2. Hazardous locations
3. Revision of operational position
4. High Torque Operation
5. Indication of Valve Position

Accessory selection must be evaluated for its capability to transmit the required torque requirements to the valve. To assure long-term trouble free operation, its materials of construction should take into account factors relating to corrosion and maintenance.

Accessories used on M&H valves can include the following:

Electric Motor Operators	Stem Guides
Indicator Posts	Hand wheels
“T” Handles	Extension Stems
Floor Boxes	Chain Wheels
Floor stands (Non-rising stem)	Position Indicators
Miter Box Gearing	Electronic Switches

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

SUGGESTED SPECIFICATIONS (2”-12”) (Styles 4067 NRS: 4068 OS&Y)

General: Gate valves shall be of the resilient seated wedge type, fusion bonded epoxy coated to AWWA C550, cast iron body design. They shall comply with the American Water Works Association Gate Valve Standard C-509 as latest revised.

Approvals:
Gate Valve to Meet or Exceed the Requirements of AWWA C509
Gate Valve to Meet or Exceed the Requirements of UL-262
Gate Valve to Meet or Exceed FM – 1120 / 1130
Gate Valve to Meet or Exceed ULC – Underwriters’ of Canada
Gate Valve to Meet NSF 61
Gate Valve Wedge to Meet or Exceed ASTM D429

Testing: Each valve shall be hydrostatically tested to the requirements of both AWWA and UL/FM and be rated for 250 psi AWWA service.

Valves shall be rated for zero leakage at 250psi water working pressure and have a 500psi hydrostatic test for
structural soundness for 2” through 12”.

All testing shall be conducted in accordance with AWWA C-509

Pressure Ratings:

Size Range	Water Working Pressure psi	Bubble-tight Test psi	Hydrostatic Shell Test psi
2”-12” AWWA	250psi	250psi	500psi
4”-12” ULFM	200psi	200psi	400psi

Materials: All cast iron shall conform to ASTM-A-126 Class B. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed.

Stems shall be manganese bronze having a minimum tensile strength of 60,000 psi, a minimum yield of 20,000psi.

Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307, and A-563 respectively.

Coating Thickness: 5-8 mill inside and out.

Wedge / Gate: The wedge shall be of cast iron and completely encapsulated with a resilient elastomer material permanently bonded to the wedge and have a rubber tearing bond that meets ASTM D429.

Markings: Markings in accordance with AWWA C-509 standard. Includes name of manufacturer, the year of manufacture, maximum working pressure and size of valve. In addition, country of origin to be clearly cast into body & cover castings.

End Connections:
Mechanical joint end valves to match ANSI STD. Drilling A-21.11
Flanged end valves to match 125 LBS. ANSI STD. Drilling B-16.1
Tapping valves through 12” shall mate all sleeves through 12” outlet regardless of manufacturer. Valves shall be furnished with tapping sleeve side to ANSI B16.1 flanged end with centering ring. Outlet side of valve shall be mechanical joint with (without) accessories to AWWA C-111.
Push-on ends suitable for stab joints with ductile or cast iron and C900 / SDR plastic pipe.

July 2003 / C509 GATE VALVE

Laying Lengths / Configurations	Valves not listed in ANSI, AWWA, UL, or FM have dimensions per M&H design as noted in catalog.
Design:	Resilient Seated valves shall conform to the latest revision of AWWA Standard C-509. 2"-12" shall be UL listed and FM approved. All internal parts shall be accessible for repair or maintenance without removing the body from the line. NRS and OS&Y stems shall be of cast bronze. NRS stems shall have integral thrust collar with Delrin thrust bearing above and below the collar. NRS stems shall have two machined grooves above the thrust collar and one groove below for O-ring seals. The upper two O-rings shall be field removable with the valve under pressure. Valves shall be supplied with O-ring seals at all joints. No flat gaskets allowed. Blind bolts threaded into tapped holes in bonnet or body shall not be acceptable. The stem nut shall be of cast bronze and independent of the stem and wedge for NRS valves. Stem nuts for OS&Y valves shall be securely fastened to the stem. Tapping valve shall pass a full size cutter 4"-12" Tapping valves through 12"shall be furnished with tapping sleeve side to ANSI B16.1 flanged end with centering ring. The waterway in the seat area shall be smooth, unobstructed, free of cavities and for valves 4" and larger at least 0.19" greater in diameter than the nominal valve size.
Powder Coating:	A high performance, one-part, heat-curable, thermosetting coating which provides superior corrosion resistance protection for metal parts. M&H Powder Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. M&H Powder Coating is formulated from materials deemed acceptable in the Food and Drug Administration Document Title 21 of the Federal Regulations on food additives; Section 175.3000 entitled "Resinous and Polymeric Coatings". M&H Powder Coating is applied using a heat application, fusion-bonding process which secures the coating material to the metal valve components. This process provides a visibly void-free coating 5-8 mils thick with excellent adhesion qualities. The durable M&H Powder Coating has a hard finish and exhibits excellent corrosion resistance in most aqueous solutions. It will not sag or cold flow or become soft during long-term storage. In addition to excellent corrosion resistance to aqueous solutions, the coating has excellent stability and resistance to acidic soil conditions. M&H Powder Coating meets both the application and performance requirements of the American Water Works Association standard C-550 entitled "Protective Interior Coatings for Valves and Hydrants".
Warranty:	Resilient seated gate valves shall be covered by a ten-year limited warranty against defective materials or workmanship.

MATERIAL SPECIFICATIONS (2”-12”)

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

CAST IRON SPECIFICATION ASTM A126 CLASS B

Physical Properties	
Minimum tensile strength	31,000 psi
Minimum transverse strength	3,300 lbs.
Minimum deflection (12” Centers)	.12 in
Chemical Analysis (percent)	
Phosphorus (maximum)	.75
Sulfur (maximum)	.15

STANDARD CAST BRONZE—ASTM B584 CDA844 (Stem Nut) – To AWWA GRADE A

Physical Properties	
Minimum tensile strength	29,000psi
Minimum yield strength	14,000psi
Minimum elongation (in 2 inches)	18%
Chemical Analyisi	
*Copper	78.0 – 82.0
Lead	6.0 – 8.0
Tin	2.3 – 3.5
Nickel (maximum)	1.0
Zinc	7.0 – 10.0

* = CU + NI = 79% Min

CAST BRONZE – ASTM B584 CDA867 (NRS Stem) – To AWWA Grade C

Physical Properties		
Minimum tensile strength		80,000 psi
Minimum yield strength		32,000 psi
Minimum elongation (in 2 inches)		15%
Chemical Analysis		
Copper	55.0 – 60.0 Lead (maximum)	.50 – 1.5
Aluminum		1.0 – 3.0
Iron		1.0 – 3.0
Nickel (maximum)		1.0
Zinc		30.0 – 38.0
Manganese		1.0 – 3.5
Tin (maximum)		.2

STYRENE BUTADINE RUBBER – ASTM D-5000

Hardness	78±5
100% Modulus (PSI)	800

ALTENATE CAST BRONZE – NDZ-S CA> No. 995 (NRS Stem) To AWWA GRADE E

Physical Properties	
Minimum tensile strength	70,000 psi
Minimum yield strength	40,000 psi
Minimum elongation (in 2 inches)	12%
Chemical Analysis	
Copper	82.8
Lead (maximum)	.25
Aluminum (maximum)	2.0
Iron (maximum)	5.5
Nickel (maximum)	5.5
Zinc (maximum)	2.0
Silicon (maximum)	2.0

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

FLOW COEFFICIENTS (2”-12”)

VALVE SIZE	Cv (FULL OPEN)	K (FULL OPEN)
2”	300	0.15
2 ½”	500	0.130
3”	800	0.115
4”	1500	0.105
6”	3600	0.090
8”	6700	0.080
10”	10,500	0.080
12”	15,000	0.080

$$Cv = \frac{Q}{\sqrt{\Delta P}} \qquad K = f\,\frac{L}{D}$$

Values given are calculated, based on hydraulic lab test on 6” R/W valve.

NEW VALVE ORDERING INFORMATION

Be sure to give correct style number along with an end connection description when ordering
All valves furnished open left unless specified otherwise.
If product application requires materials other than standard, give specification of component parts material to be used.
All mechanical joint valves are furnished with accessories unless specified otherwise.
A 2-inch square-operating nut on underground valves is standard unless specified otherwise.
Handwheel on OS&Y and flanged end valves are standard unless specified otherwise.

ORDERING PARTS FOR VALVES

When ordering parts indicate the following:

- Part number and descriptions
- Size of valve
- Direction to open
- Year of manufacture
- End configuration
- NRS or OS&Y
- Pressure Rating

LIMITED WARRANTY (2”-12”)

M&H AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

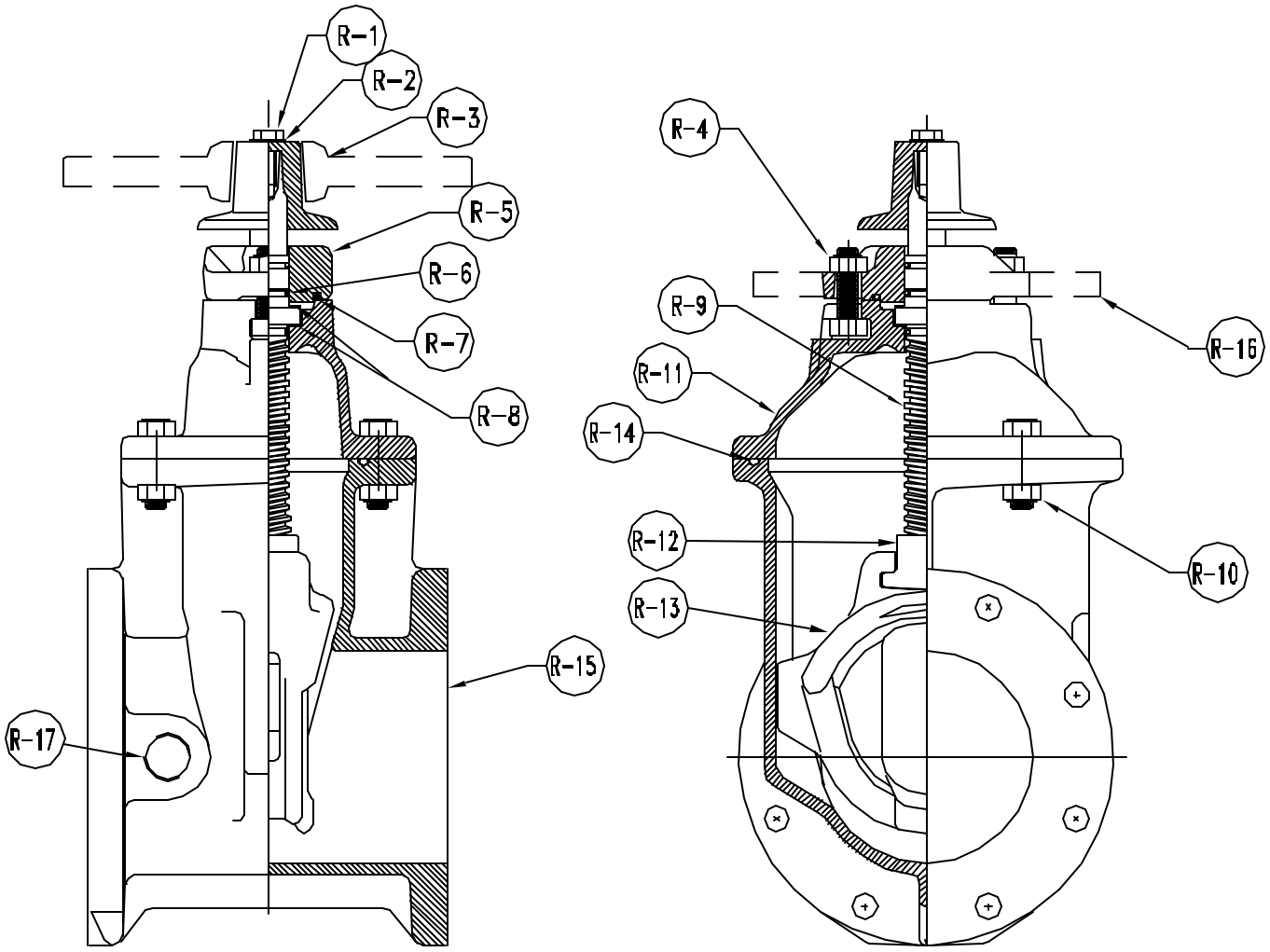
M&H VALVE CO. RESILIENT SEAT GATE VALVE TEN YEAR LIMITED WARRANTY

M&H Valve Company warrants that its R/S valves will be free from defects in material and workmanship under normal and customary use and maintenance for a period of ten (10) years from the date of purchase, provided the valve is installed and maintained according to M&H instruction, and applicable codes. The foregoing warranty does not cover failure of any part or parts from external forces, including but not limited to earthquake, vandalism, vehicular or other impact, and application of excessive torque to the operating mechanism or frost heave.

Should any M&H Valve Company part or parts fail to conform to the foregoing warranty, Clow shall, upon prompt written notice thereof, repair or replace, F.O.B. point of manufacture, such defective part or parts. Purchaser shall, if requested, return the part or parts to M&H, transportation prepaid. Purchaser shall bear all responsibility and expense incurred for removal, reinstallation and shipping in connection with any part supplied under the foregoing warranty.

THE FOREGOING WARRANTY IS IN LIEU OF AN EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS. IN NO EVENT SHALL M&H VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES. DAMAGES OR EXPENSES.

ITEM	DESCRIPTION		MATERIAL	ASTM SPEC.
R-1	HOLD DOWN HEX BOLT		ZINC PLATED STEEL	ASTM A307 GRADE B
R-2	HOLD DOWN BOLT WASHER		ZINC PLATED STEEL	ASTM A307 GRADE B
R-3	OPERATING NUT OR HAND WHEEL		CAST IRON	ASTM A126 CLASS B
R-4	BOLTS & NUTS(STUFFING BOX)		ZINC PLATED STEEL	ASTM A307 GRADE B
R-5	STUFFING BOX	2"-8"	CAST IRON	ASTM A126 CLASS B
	SEAL PLATE	10"-12"	DUCTILE IRON	ASTM A536 70-50-05
R-6	O-RING (STEM) QTY=3		NBR	---------
R-7	O-RING (STUFFING BOX)		NBR	---------
R-8	THRUST WASHER		DELRIN	---------
R-9	STEM (AWWA GRADE C)		BRONZE	ASTM B584 CDA 867
R-10	HEX HEAD BOLTS & NUTS		ZINC PLATED STEEL	ASTM A307 GRADE B
R-11	COVER/BONNET		CAST IRON	ASTM A126 CLASS B
R-12	STEM NUT (AWWA GRADE A)		BRONZE	ASTM A584 CDA 844
R-13	WEDGE/DISC/GATE		CAST IRON & SBR COATED	ASTM A126 CLASS B
R-14	O-RING (COVER)		NBR	---------
R-15	BODY - ALL TYPES		CAST IRON	ASTM A126 CLASS B
R-16	POST PLATE		CAST IRON	ASTM A126 CLASS B
R-17	PIPE PLUG (OPTIONAL)		GALVANIZED IRON	---------

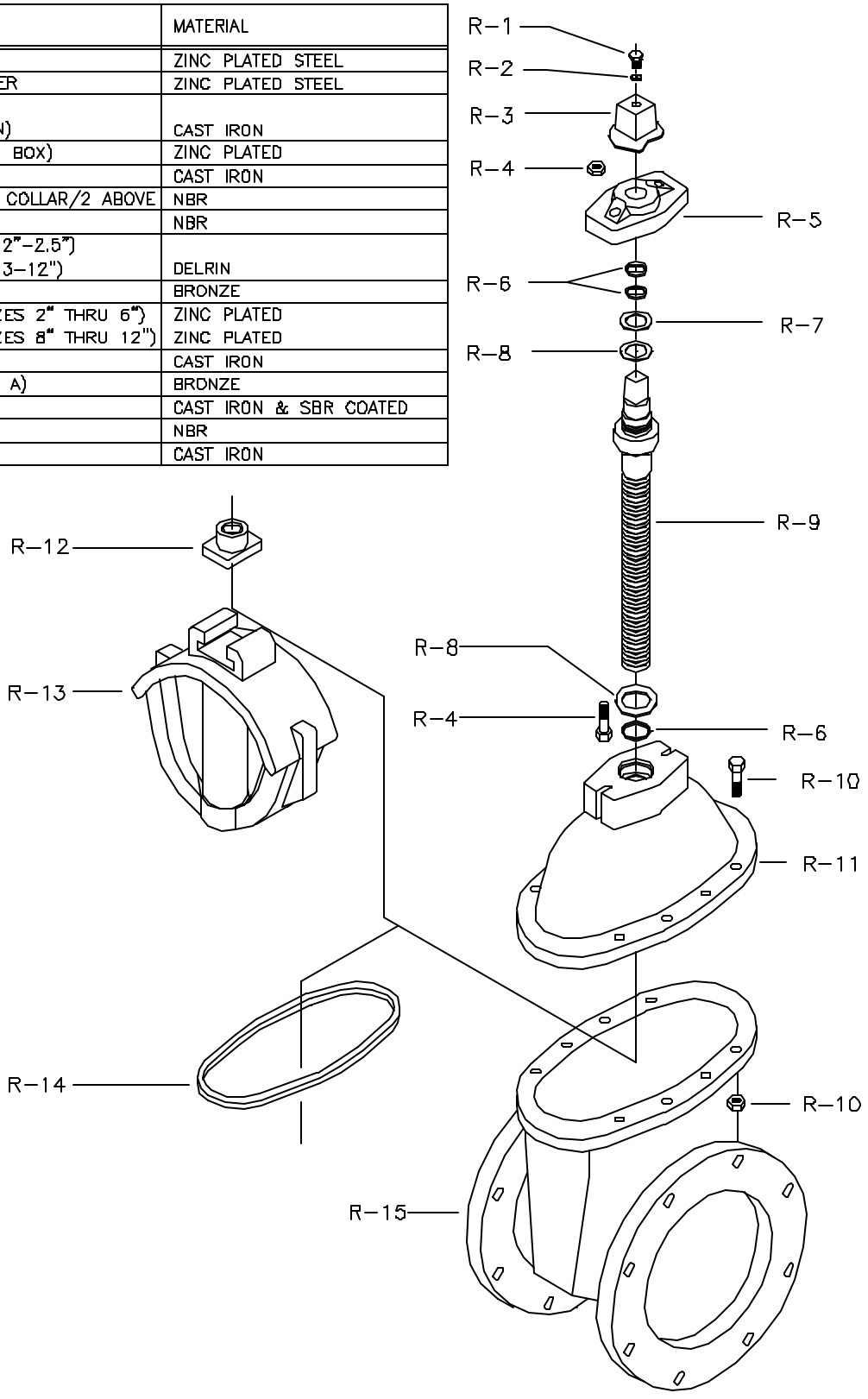


M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 4067

2" THRU 12"
RESILIENT SEAT GATE
VALVE ASSEMBLY/MATERIAL LIST
C509-NRS-STYLE 4067

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
R-1	1	HOLD DOWN HEX BOLT	ZINC PLATED STEEL
R-2	1	HOLD DOWN BOLT WASHER	ZINC PLATED STEEL
R-3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)	CAST IRON
R-4	2	BOLTS & NUTS(STUFFING BOX)	ZINC PLATED
R-5	1	STUFFING BOX	CAST IRON
R-6	3	O-RING(STEM) 1 BELOW COLLAR/2 ABOVE	NBR
R-7	1	O-RING (STUFFING BOX)	NBR
R-8	1	THRUST WASHER (SIZES 2"-2.5")	
	2	THRUST WASHER (SIZES 3-12")	DELRIN
R-9	1	STEM (AWWA GRADE C)	BRONZE
R-10	4	COVER BOLTS&NUTS (SIZES 2" THRU 6")	ZINC PLATED
	8	COVER BOLTS&NUTS (SIZES 8" THRU 12")	ZINC PLATED
R-11	1	COVER/BONNET	CAST IRON
R-12	1	STEM NUT (AWWA GRADE A)	BRONZE
R-13	1	WEDGE DISK	CAST IRON & SBR COATED
R-14	1	O-RING (COVER)	NBR
R-15	1	BODY	CAST IRON



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

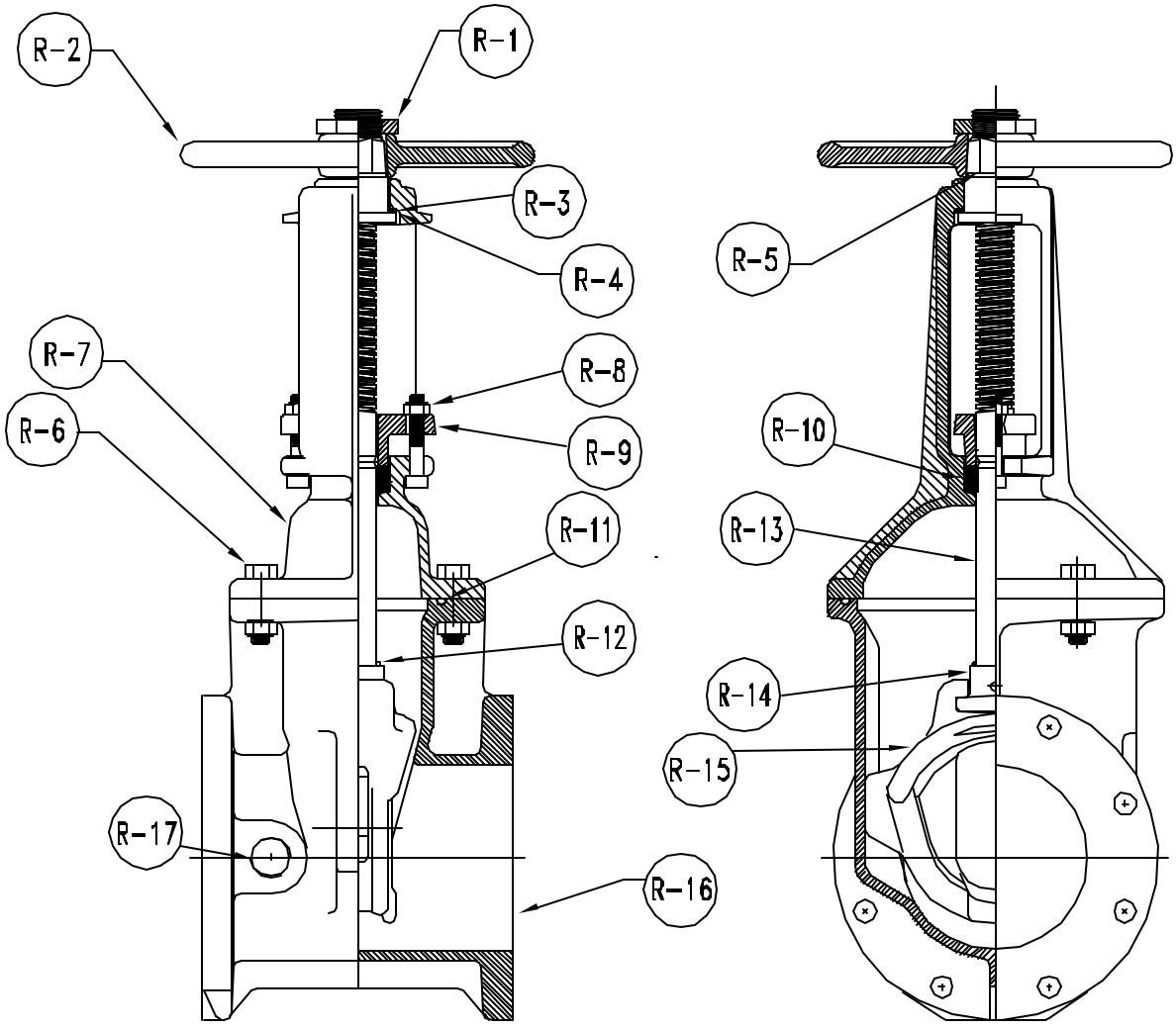
DWN: TRIJ

DATE: 6/2/03

DWG. NO. 4067EV

RESILIENT SEAT GATE VALVE
ASSEMBLY EXPLOSION / MATERIAL LIST
C509-NRS-STYLE 4067

ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
R-1	HAND WHEEL HOLD DOWN NUT	BRONZE (AWWA GRADE A)	ASTM B584 CDA 844
R-2	HAND WHEEL	CAST IRON	ASTM A126 CLASS B
R-3	UPPER THRUST WASHER	BRONZE	ASTM B36 CDA 260
R-4	LOWER THRUST WASHER	BRONZE	---------
R-5	YOKE NUT	BRONZE	ASTM B584 CDA 862
R-6	COVER/YOKE BOLTS & NUTS	ZINC PLATED STEEL	ASTM A307 GRADE B
R-7	COVER/YOKE	CAST IRON	ASTM A126 CLASS B
R-8	HEX HEAD PACKING GLAND BOLTS	ZINC PLATED STEEL	ASTM A307 GRADE B
	HEX HEAD PACKING GLAND BOLTS	BRASS	ASTM A563
R-9	PACKING GLAND	DUCTILE IRON	ASTM A536 70-50-05
R-10	PACKING	BRAIDED, LUBRICATED (NON-ASBESTOS) FIBER	
R-11	O-RING (COVER/YOKE)	NBR	---------
R-12	O-RING (STEM)	NBR	---------
R-13	STEM	BRONZE	ASTM B584/B21
R-14	STEM NUT	BRONZE	ASTM A584 CDA 844
R-15	WEDGE/GATE/DISK	CAST IRON & SBR COATED	ASTM A126 CL B/D2000
R-16	BODY - ALL TYPES	CAST IRON	ASTM A126 CLASS B
R-17	PIPE PLUG	GALVANIZED IRON	---------



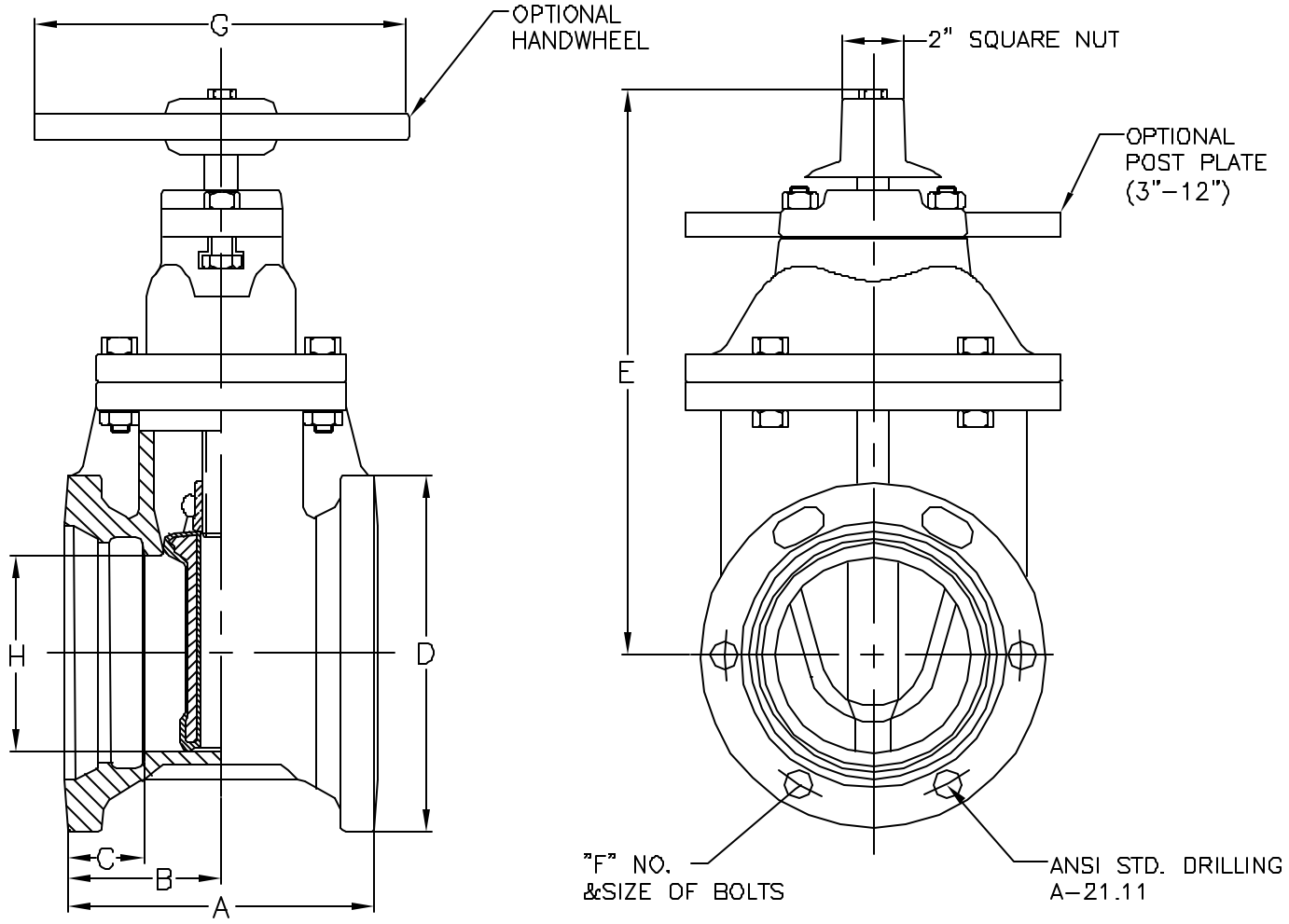
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 4068

2" THRU 12"
RESILIENT SEAT GATE VALVE
VALVE ASSEMBLY / MATERIAL LIST
C509-OS&Y-STYLE 4068

LISTED UL BBBH ® F M APPROVED NSF A.W.W.A Standard C509

4067-01 WITH 2" SQUARE NUT
4067-01HW WITH HANDWHEEL
4067-01P WITH POST PLATE (3"-12")



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
2	8 1/4	4 1/8	2 1/2	4 1/2	10 7/8	2 5/8	7 1/4	2	38
2 1/2	——	——	——	——	——	——	——	——	——
3	8 1/2	4 1/4	2 1/2	7 3/4	12 3/8	4 5/8	10	3	63
4	9 1/2	4 3/4	2 1/2	9 1/8	14 3/4	4 3/4	10	4 1/4	85
6	10	5	2 1/2	11 1/8	19	6 3/4	12	6 1/4	128
8	10 1/2	5 1/4	2 1/2	13 3/4	22 1/2	6 3/4	14	8 1/4	200
10	12	6	2 1/2	15 3/4	26 1/2	8 3/4	18	10 1/4	309
12	13	6 1/2	2 5/8	18	30	8 3/4	18	12 1/4	471

*HANDWHEEL--ADD 1# (2" - 2 1/2"), 6.5# (3"-4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"-12") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3"), 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD-11

2" THRU 12"
RESILIENT SEAT GATE VALVE
C509-STYLE 4067-01
MJ X MJ

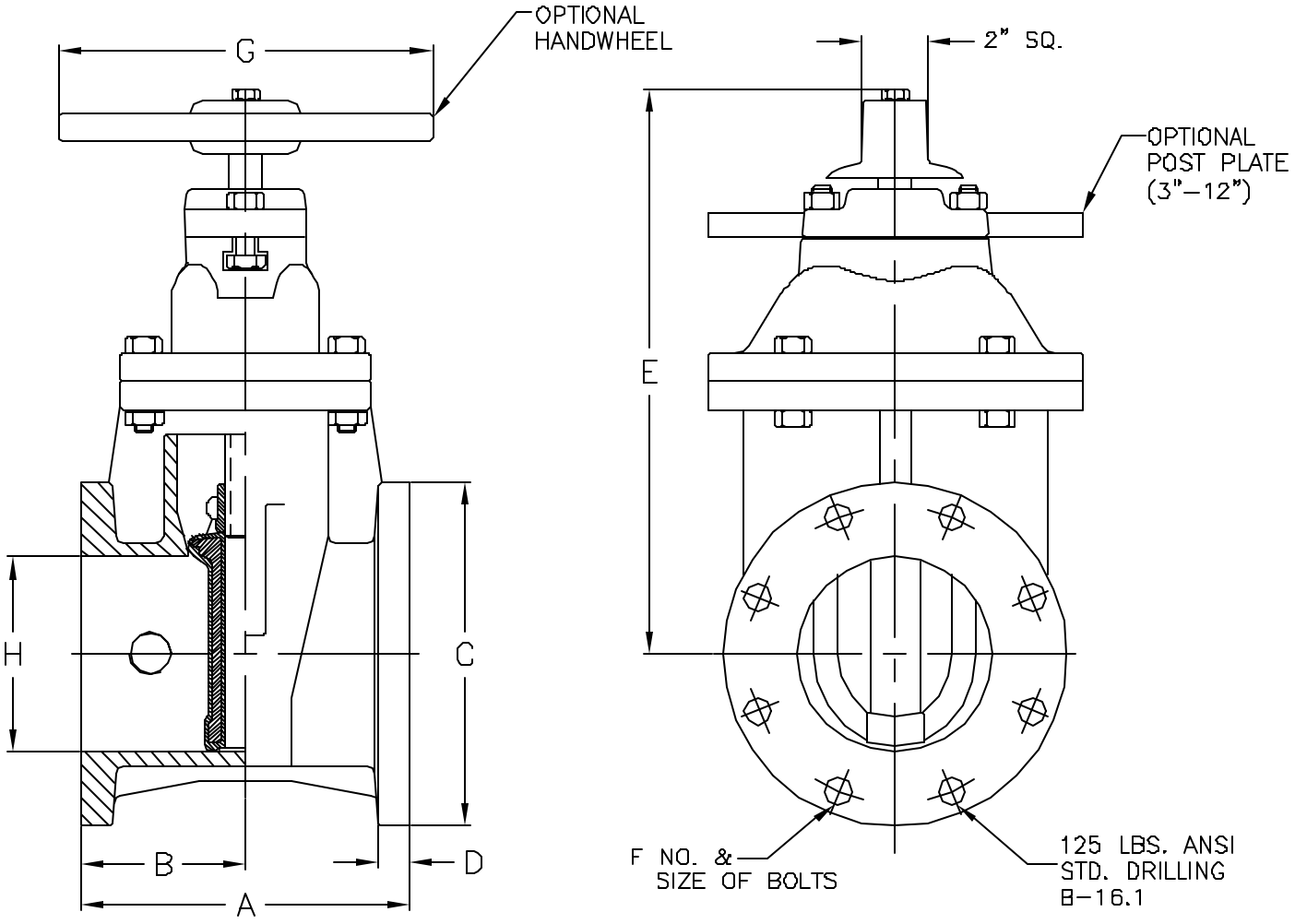
LISTED UL 888H

FM APPROVED

NSF

A.W.W.A Standard C509

4067–02 WITH 2" SQUARE NUT
4067–02HW WITH HANDWHEEL
4067–02P WITH POST PLATE (3"–12")



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
2	7	3 1/2	6	5/8	10 7/8	4 5/8	7 1/4	2	41
2 1/2	7 1/2	3 3/4	7	11/16	11 3/8	4 5/8	7 1/4	2 1/2	51
3	8	4	7 1/2	3/4	12 3/8	4 5/8	10	3	62
4	9	4 1/2	9	15/16	14 3/4	8 5/8	10	4 1/4	87
6	10 1/2	5 1/4	11	1	19	8 3/4	12	6 1/4	134
8	11 1/2	5 3/4	13 1/2	1 1/8	22 1/2	8 3/4	14	8 1/4	205
10	13	6 1/2	16	1 3/16	26 1/2	12 7/8	18	10 1/4	331
12	14	7	19	1 1/4	30	12 7/8	18	12 1/4	515

*HANDWHEEL--ADD 1# (2" – 2 1/2"), 6.5# (3"–4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"–12") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

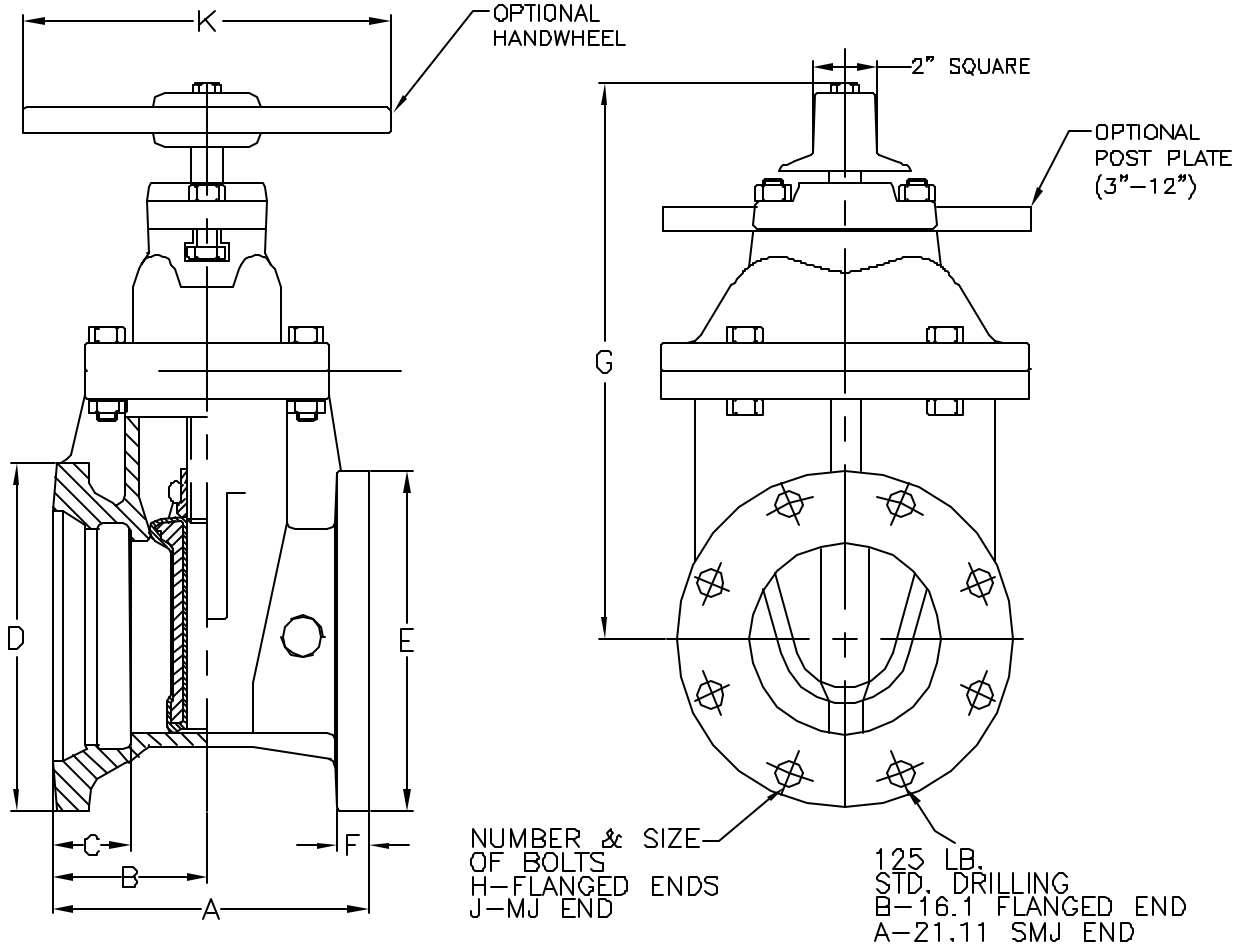
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD–9

2" THRU 12" RESILIENT SEAT GATE VALVE C509–STYLE 4067–02 FLANGED ENDS

LISTED UL 888H FM APPROVED NSF A.W.W.A Standard C509

4067–13	WITH 2" SQUARE NUT
4067–13HW	WITH HANDWHEEL
4067–13P	WITH POST PLATE (3"–12")



ELLIPTICAL BOLT HOLE DESIGN ON MJ END ALLEVIATES THE NEED FOR ANTI–ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	WEIGHT 2" NUT
3	8 1/4	4 1/4	2 1/2	7 3/4	7 1/2	3/4	12 3/8	4–5/8	4–5/8	10	61
4	9 1/4	4 3/4	2 1/2	9 1/8	9	15/16	14 3/4	8–5/8	4–3/4	10	65
6	10 1/4	5	2 1/2	11 1/8	11	1	19	8–3/4	6–3/4	12	137
8	11	5 1/4	2 1/2	13 3/4	13 1/2	1 1/8	22 1/2	8–3/4	6–3/4	14	203
10	12 1/2	6	2 1/2	15 3/4	16	1 3/16	26 1/2	12–7/8	8–3/4	18	320
12	13 1/2	6 1/2	2 5/8	18	19	1 1/4	30	12–7/8	8–3/4	18	485

*HANDWHEEL––ADD 6.5# (3"–4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"–12") ONLY
*PALLET QUANTITIES 2" NUT: 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD–16

3" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 4067–13
FLANGED X MJ

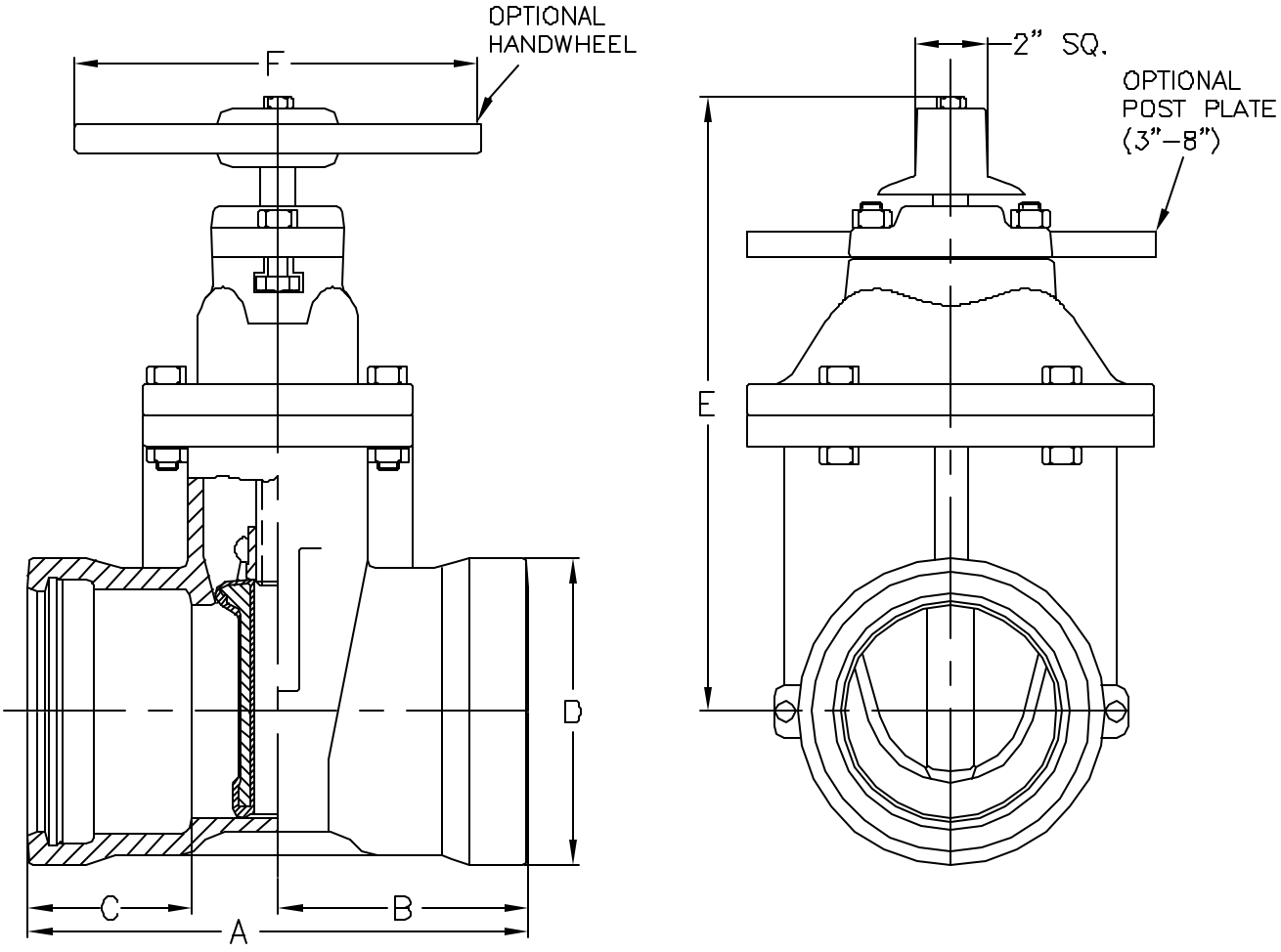
LISTED UL 88BH

FM APPROVED

NSF

A.W.W.A Standard C509

4067–03	WITH 2" SQUARE NUT
4067–03HW	WITH HANDWHEEL
4067–03P	WITH POST PLATE (3"–8")



VALVE SIZE	A	B	C	D	E	F	WEIGHT 2' NUT
2	10	5	3 1/2	3 1/2	10 7/8	7 1/4	37
2 1/2	10 3/4	5 3/8	3 3/4	4 3/8	11 3/8	7 1/4	47
3	11 5/8	5 13/16	4 1/6	5 1/8	12 3/8	10	57
4	13 1/2	6 3/4	4 1/2	6 1/4	14 3/4	10	83
6	15 3/4	7 7/8	5 3/8	8 1/2	19	12	134
8	16 1/4	8 1/8	5 3/8	11	22 1/2	14	369

*HANDWHEEL--ADD 1# (2" – 2 1/2"), 6.5# (3"–4"), 7#(6"), 10#(8"),
*INDICATOR POST PLATE ADD 16# (3"–8") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3"), 40(4"), 21(6"), 8(8)"
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 21(6"), 8(8")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"),

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ

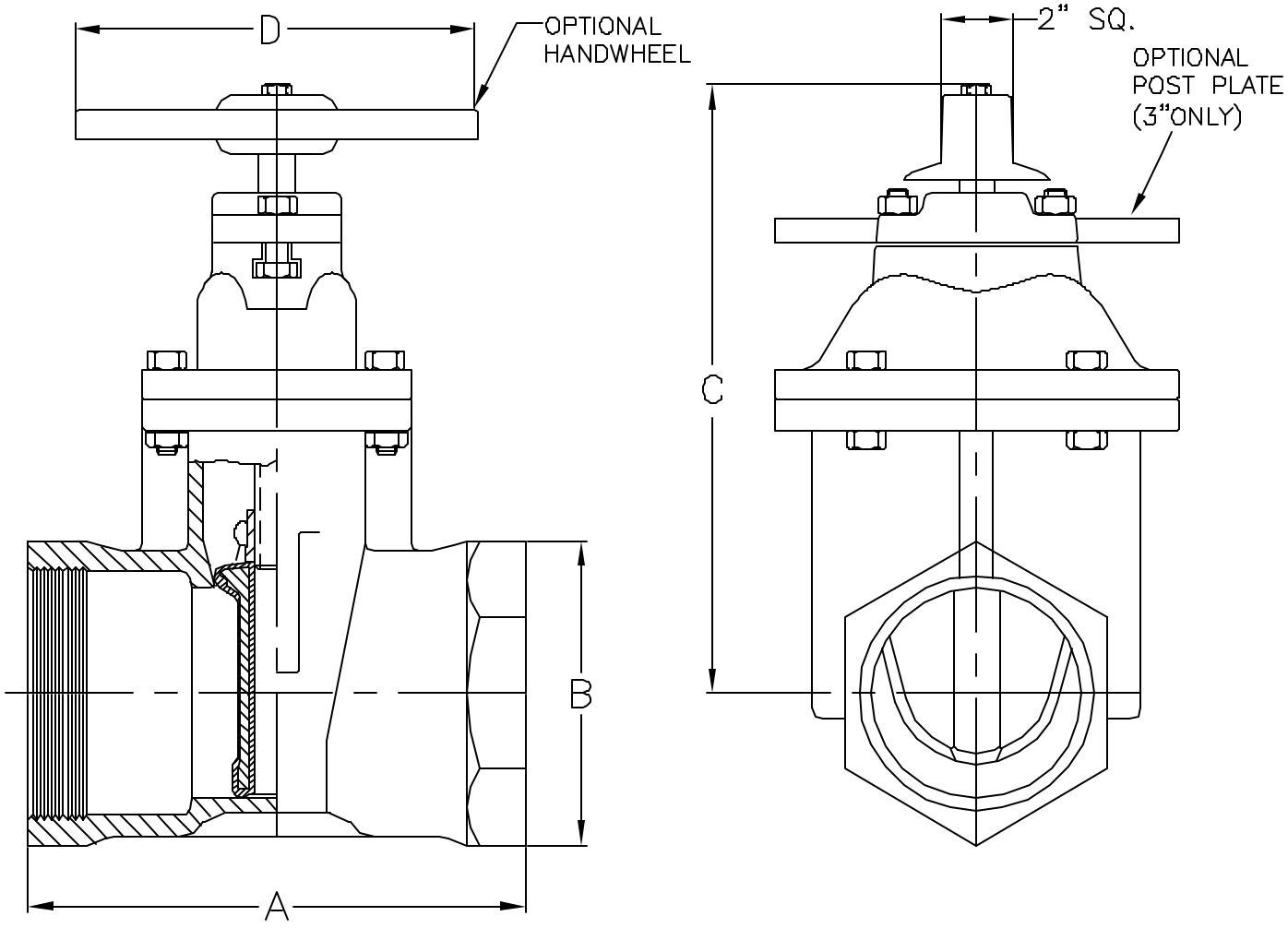
DATE: 6/2/03

DWG. NO. SD–21

2" THRU 8"
RESILIENT SEAT GATE VALVE
C509–STYLE 4067–03
PUSH–ON X PUSH–ON (PVC/SDR)

LISTED UL 888H ® FM APPROVED NSF A.W.W.A Standard C509

4067-07 WITH 2" SQUARE NUT
4067-07HW WITH HANDWHEEL
4067-07P WITH POST PLATE (3" ONLY)



VALVE SIZE	A	B	C	D	WEIGHT 2" NUT
2	5 1/4	5 1/8	10 7/8	7 1/4	33
2 1/2	7	5 13/16	11 3/8	7 1/4	44
3	7 1/8	5 13/16	12 3/8	10	50

*HANDWHEEL--ADD 1# (2" – 2 1/2"), 6.5# (3")
*INDICATOR POST PLATE ADD 16# (3") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD-23

2", 2 1/2", & 3"
RESILIENT SEAT GATE VALVE
C509-STYLE 4067-07
THREADED ENDS

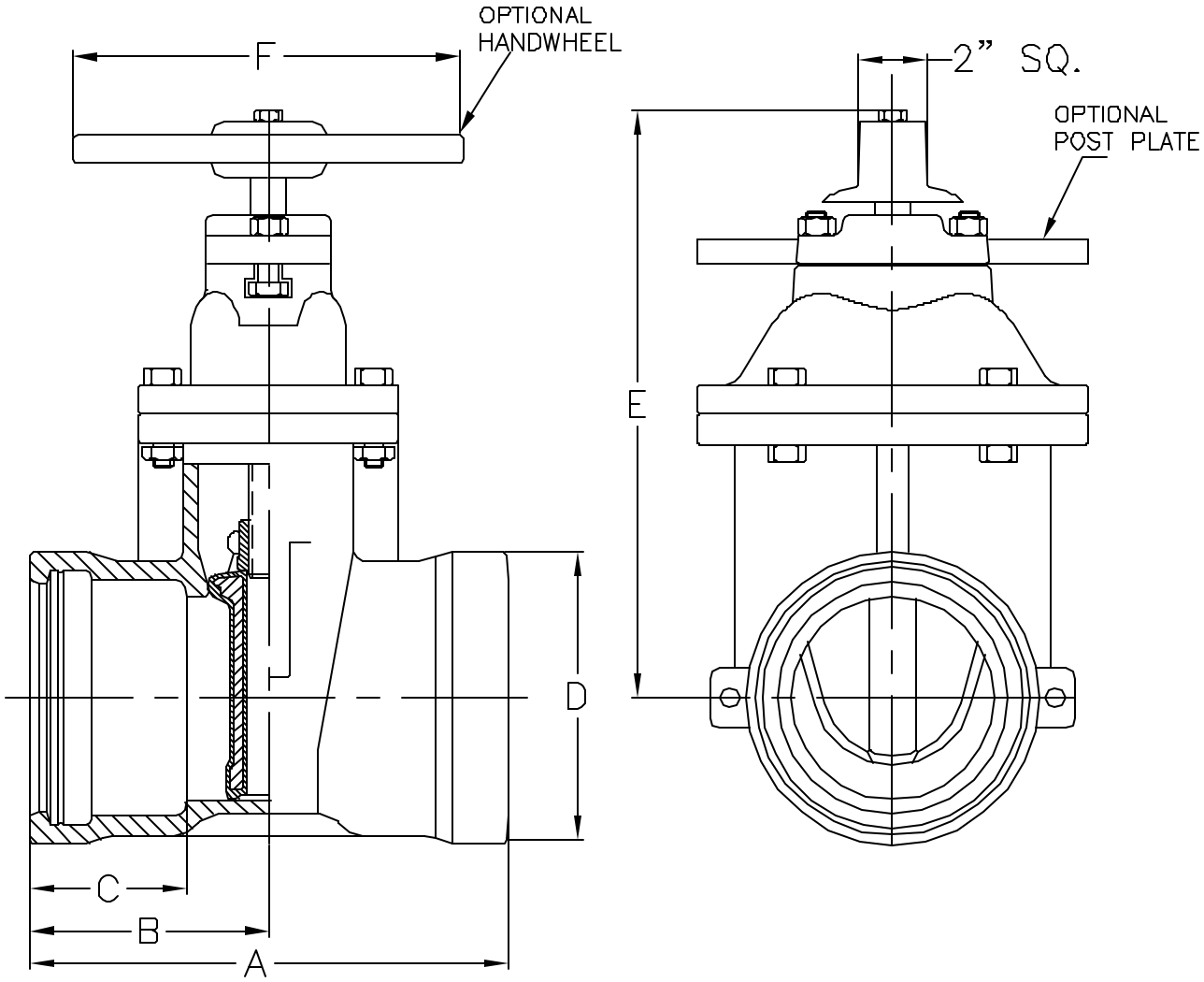
LISTED UL 888H

FM APPROVED

NSF

A.W.W.A Standard C509

4067–22	WITH 2" SQUARE NUT
4067–22HW	WITH HANDWHEEL
4067–22P	WITH POST PLATE



VALVE SIZE	A	B	C	D	E	F	WEIGHT 2" NUT
4	13 1/4	6 5/8	4 11/32	6 3/4	14 3/4	10	87
6	14 3/4	7 3/8	4 3/4	9 3/8	19	12	146
8	17 1/8	8 9/16	5 45/64	11 3/4	22 1/2	14	215
10	14	7	3 1/2	14	26 1/2	18	348
12	16	8	3 3/4	16	30	18	520

*HANDWHEEL--ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"–12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD–18

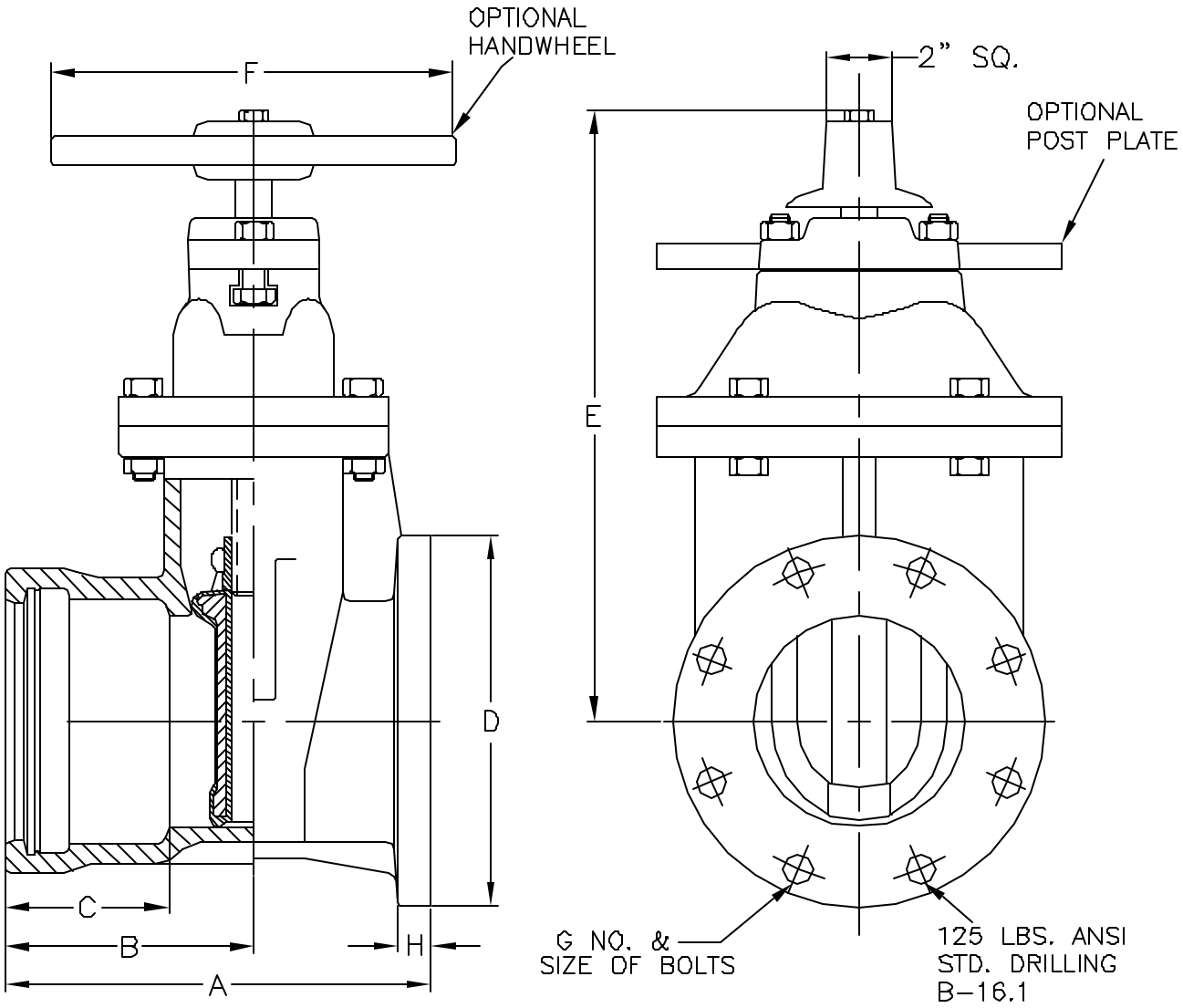
4" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 4067–22
PUSH–ON X PUSH–ON (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

LISTED UL 888H

FM APPROVED

NSF A.W.W.A Standard C509

4067–23	WITH 2" SQUARE NUT
4067–23HW	WITH HANDWHEEL
4067–23P	WITH POST PLATE



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
4	11 1/8	6 5/8	4.34	9	14 3/4	10	8–5/8	15/16	85
6	12 5/8	7 3/8	4.75	11	19	12	8–3/4	1	136
8	14 5/16	8 9/16	5.70	13 1/2	22 1/2	14	8–3/4	1 1/8	207
10	13 1/2	7	3.50	16	26 1/2	18	12–7/8	1 3/16	306
12	15	8	3.75	19	30	18	12–7/8	1 1/4	535

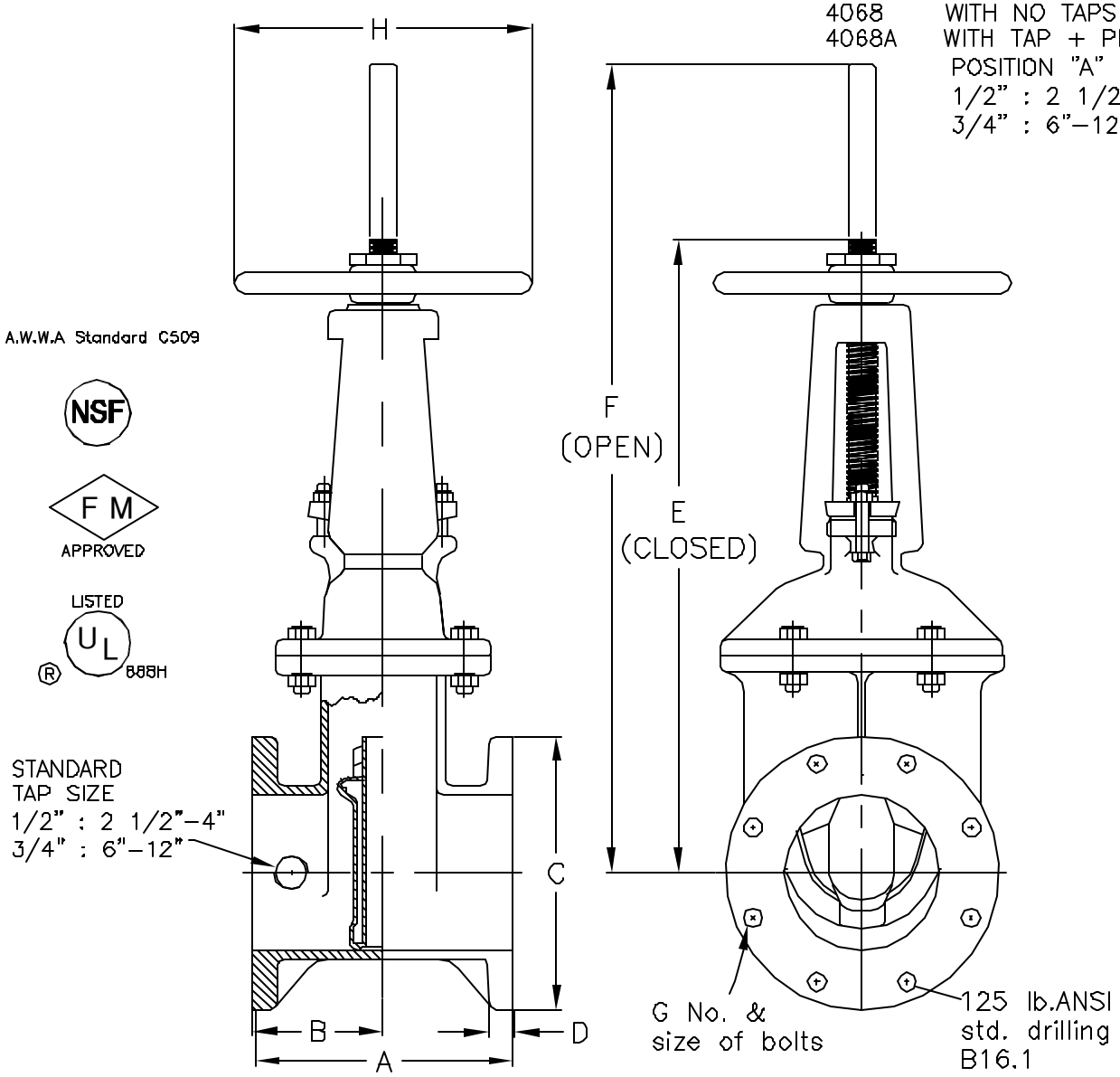
*HANDWHEEL––ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"–12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD–19

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 4067–23
PUSH–ON X FLANGE (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

4068 WITH NO TAPS IN BODY
4068A WITH TAP + PLUG AT POSITION "A"
1/2" : 2 1/2"–4"
3/4" : 6"–12"



A.W.W.A Standard C509

NSF

F M
APPROVED

LISTED
UL
®
888H

STANDARD
TAP SIZE
1/2" : 2 1/2"–4"
3/4" : 6"–12"

VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT
2*	–	–	–	–	–	–	–	–	–
2 1/2	7 1/2	3 3/4	7	11/16	13 7/8	16 3/8	4 5/8	7 1/4	55
3	8	4	7 1/2	3/4	15 5/8	18 7/8	4 5/8	10	70
4	9	4 1/2	9	15/16	18 1/4	22 3/4	8 5/8	10	100
6	10 1/2	5 1/4	11	1	23 3/4	30 1/8	8 3/4	12	150
8	11 1/2	5 3/4	13 1/2	1 1/8	29 1/4	37 3/4	8 3/4	14	250
10	13	6 1/2	16	1 3/16	35 3/8	45 3/4	12 7/8	18	400
12	14	7	19	1 1/4	40 5/8	53 1/8	12 7/8	18	580

* 2" CONSULT FACTORY FOR AVAILABILITY AND DIMENSIONS
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD–39

2" THRU 12"
RESILIENT SEAT OS&Y GATE VALVE
C509–STYLE 4068–02
FLANGED ENDS

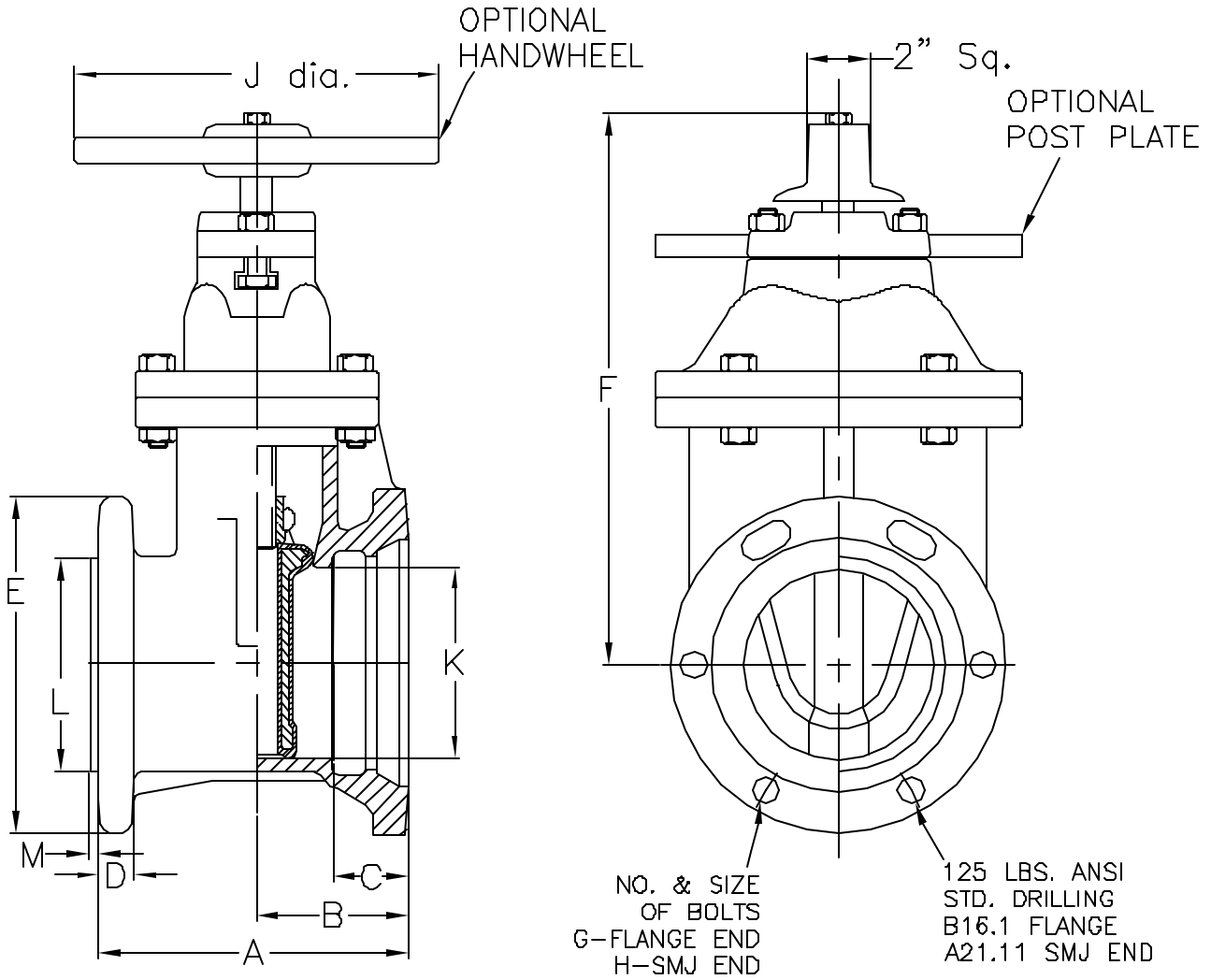
LISTED UL 88BH

FM APPROVED

NSF

A.W.W.A Standard C509

4751 WITH 2" SQUARE NUT
4751-01HW WITH HANDWHEEL
4751-01P WITH POST PLATE



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT 2" NUT
4	9 3/4	5 1/4	3	15/16	9	14 3/4	8-5/8	4-3/4	10	4 1/4	4 63/64	3/16	89
6	11 3/16	5 15/16	3 1/2	1	11	19	8-3/4	6-3/4	12	6 1/4	6 63/64	1/4	144
8	11 3/4	6	3 1/4	1 1/8	13 1/2	22 1/2	8-3/4	6-3/4	14	8 1/4	8 63/64	1/4	203
10	13 1/2	7	3 1/2	1 3/16	16	26 1/2	12-7/8	8-3/4	18	10 1/4	10 63/64	1/4	358
12	14 3/4	7 3/4	3 3/4	1 1/4	19	30	12-7/8	8-3/4	18	12 1/4	12 63/64	1/4	496

*EACH SIZE ACCOMODATES A FULL SIZE DIAMETER TAPPING CUTTER
*HANDWHEEL--ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"-12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SD-17

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509-STYLE 4751-01
TAPPING VALVE

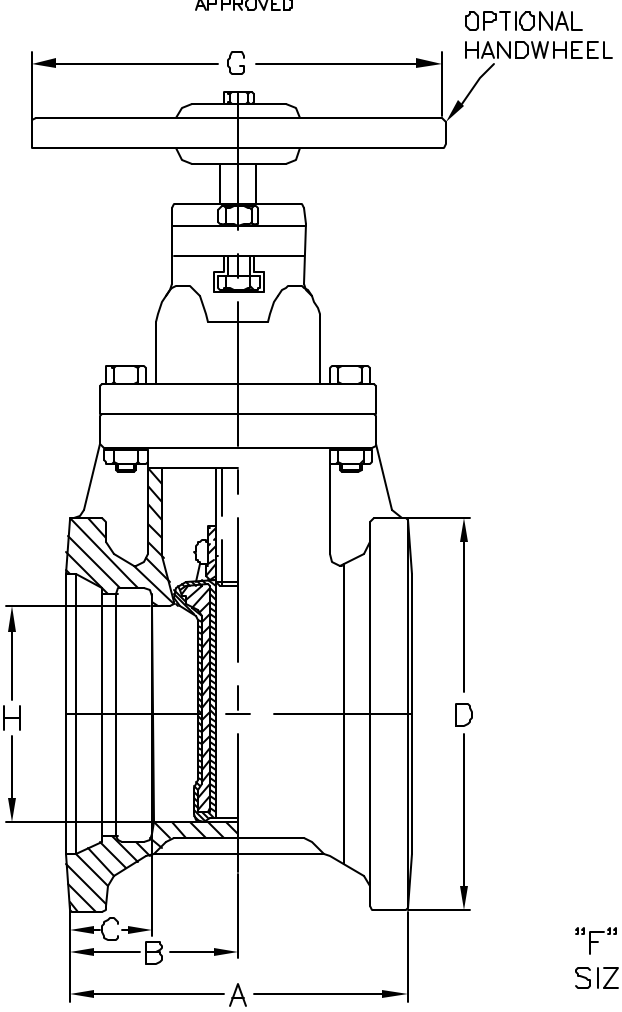
LISTED UL 888H

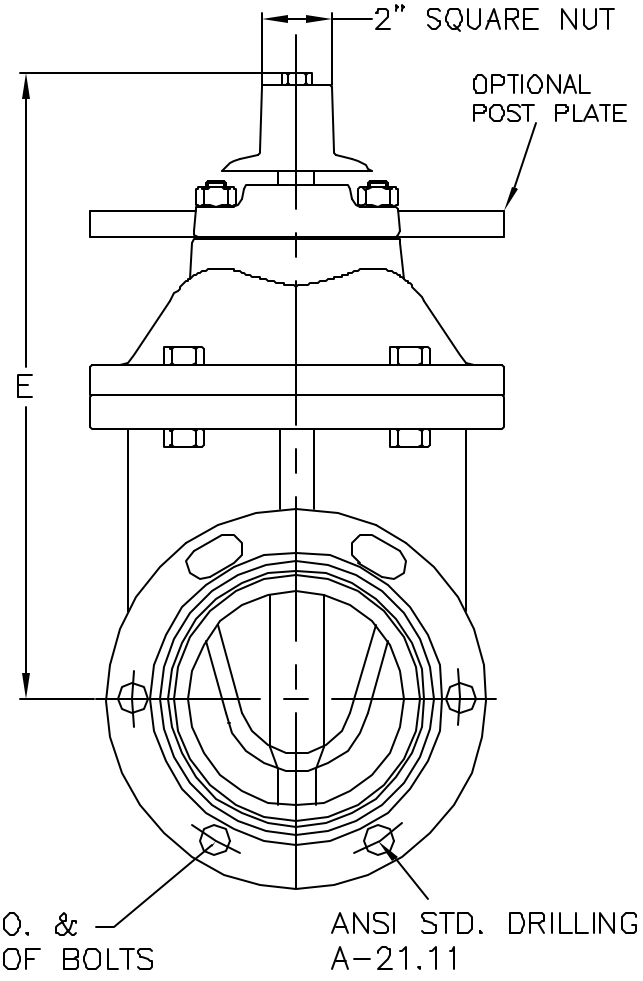
FM APPROVED

NSF

A.W.W.A Standard C509

4576-01	WITH 2" SQUARE NUT
4576-01HW	WITH HANDWHEEL
4576-01P	WITH POST PLATE





ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
4	9 1/2	4 3/4	2 1/2	9 1/8	14 3/4	4 3/4	10	4 1/4	85
6	10	5	2 1/2	11 1/8	19	6 3/4	12	6 1/4	128
8	10 1/2	5 1/4	2 1/2	13 3/4	22 1/2	6 3/4	14	8 1/4	200
10	12	6	2 1/2	15 3/4	26 1/2	8 3/4	18	10 1/4	309
12	13	6 1/2	2 5/8	18	30	8 3/4	18	12 1/4	471

*HANDWHEEL--ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"-12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 4576

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509-STYLE 4576-01
OVERSIZED MJ X MJ BELL
(CUTTING-IN JOINT) VALVE

C-515 REDUCED WALL DUCTILE IRON RESILIENT WEDGE VALVE

4" THROUGH 12"

Style 7000

AWWA C-515
AWWA C-550

FM UL

NSF Approved

PROUDLY

MADE IN ANNISTON, ALABAMA
USA

C-515 DUCTILE IRON RESILIENT WEDGE VALVE

During the decade of the 1980's, the waterworks industry was introduced to the Resilient Seated Gate Valve, a design principal that is dominate in preference for use in distribution systems. M&H Valve Company was at the forefront in this industry-wide movement by introducing the Style 4067, our AWWA C509 Resilient Seated Gate Valve.

After the official adoption of the AWWA C515 specification, M&H once again is on the forefront of modern valve design and construction.

The M&H Style 7000 Resilient Seated Gate Valve embodies all of the latest valve technology for simplicity, durability and superior performance. With the end user in mind, M&H engineering designed the M&H Style 7000 to be fully interchangeable with the M&H C509 Style 4067. M&H Style 7000 meets or exceeds AWWA C515 and C550 in all sizes. M&H C515 valves are listed by Underwriters Laboratories and are approved by Factory Mutual Research. With no compromise in materials or workmanship, M&H Style 7000 valves carry a 10 year limited warranty. . . it's the clear choice of those who demand the best.

RECOMMENDED SPECIFICATIONS FOR C-515 DUCTILE IRON RESILIENT WEDGE GATE VALVES

M&H VALVE COMPANY

Valves shall conform to the latest revision of AWWA Standard C-515 covering resilient seated gate valves for all water supply service.

The Valves shall have a ductile iron body, bonnet, and o-ring plate. The wedge shall be totally encapsulated with rubber. Blind bolts shall not be allowed.

The sealing rubber shall be permanently bonded to the wedge per ASTM D429.

Valves shall be supplied with o-ring seals at all pressure retaining joints. No flat gaskets shall be allowed. . Blind bolts shall not be allowed.

The valves shall be either non-rising stem or rising stem, opening by turning left or right, and provided with 2" square operating nut or a handwheel with the word "Open" and an arrow to indicate the direction to open.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. OS&Y (rising stems) shall be bronze. All stems shall operate with bronze stem nuts independent of wedge and of stem (in NRS valves). Stainless steel stems or stem nuts are not allowed. NRS stems shall have two o-rings located above thrust collar and one o-ring below. Stem o-rings shall be replaceable with valve fully opened and subjected to full pressure. The NRS stems on 4"-12" shall also have two low torque thrust bearings located above and below the stem collar to reduce friction during operation.

Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. Tapping valves 4" and larger shall accept a full size tapping cutter.

The body, bonnet, and o-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy coating shall be NSF 61 approved and applied in accordance with AWWA C550.

Each valve shall have manufacturers name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C-515 (and UL/FM where applicable).

Valves shall have all component parts cast and assembled in the USA and shall be manufactured by the M&H Valve Company.

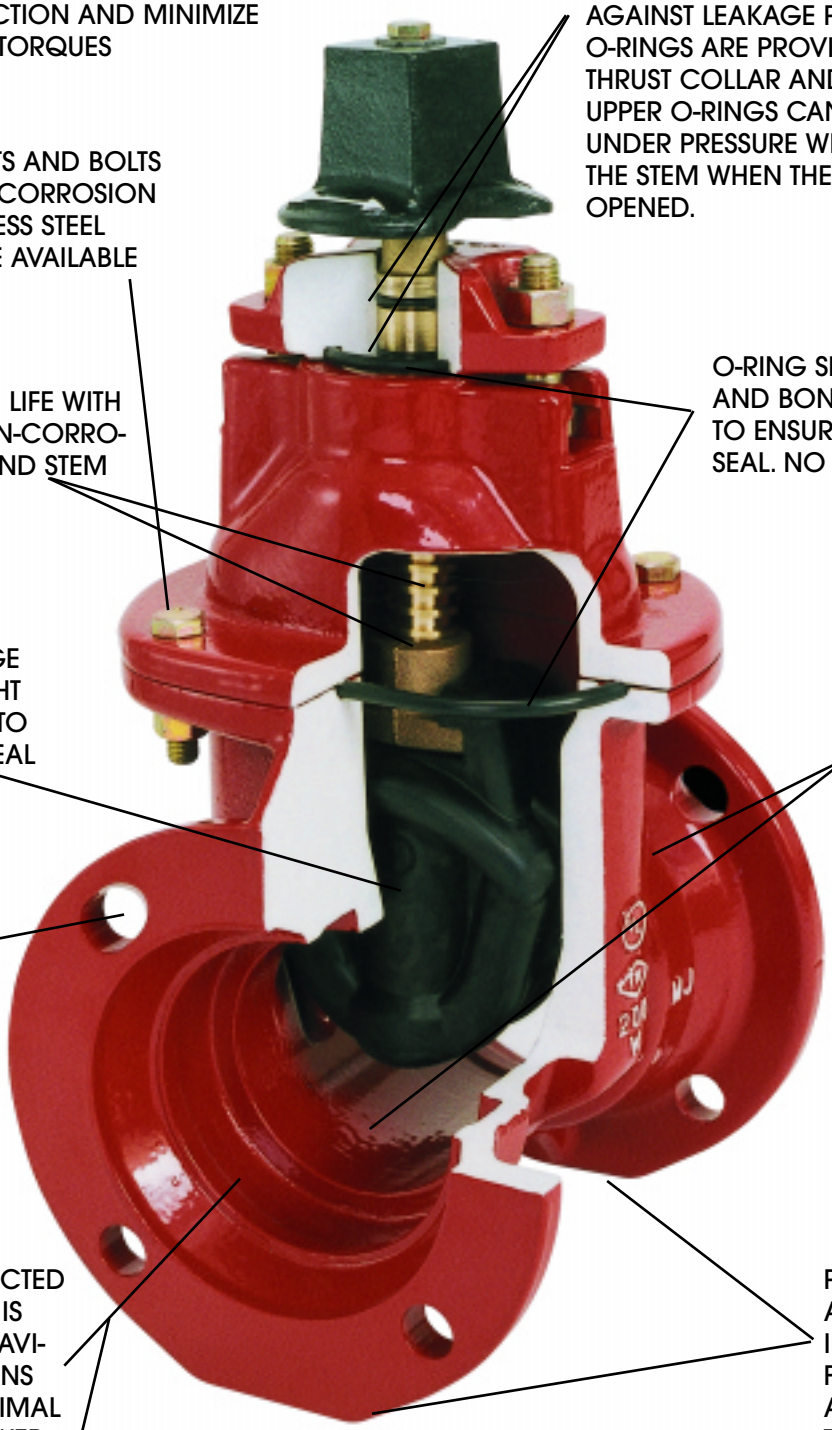
M&H ULFM - AWWA R/W VALVE

Features and Benefits

DELRIN THRUST BEARINGS ABOVE AND BELOW THE THRUST COLLAR REDUCE FRICTION AND MINIMIZE OPERATING TORQUES

THE OPERATING MECHANISM IS TRIPLE O-RING SEALED TO COMPLETELY SEAL AGAINST LEAKAGE PAST THE STEM. TWO O-RINGS ARE PROVIDED ABOVE THE THRUST COLLAR AND ONE BELOW. UPPER O-RINGS CAN BE REPLACED UNDER PRESSURE WITHOUT REMOVING THE STEM WHEN THE VALVE IS FULLY OPENED.

ELECTRO-PLATED NUTS AND BOLTS PROVIDE LONG-LIFE CORROSION PROTECTION. STAINLESS STEEL BOLTS AND NUTS ARE AVAILABLE WHEN REQUESTED.



O-RING SEALS AT STUFFING BOX AND BONNET TO BODY FLANGES TO ENSURE THE BEST POSSIBLE SEAL. NO FLAT GASKETS.

LONG, TROUBLE FREE LIFE WITH HIGH STRENGTH, NON-CORROSIVE BRONZE STEM AND STEM NUT.

100% COATED WEDGE ENSURES BUBBLE-TIGHT SEAL EVERY TIME UP TO 250 PSI. WITH TWIN SEAL DESIGN.

M&H CORROSION RESISTANT FUSION-BONDED EPOXY COATING, CONFORMING TO AWWA C-550 AND NSF61 APPROVED, PROTECTS BOTH INSIDE AND OUTSIDE OF VALVE.

ELLIPTICAL BOLT HOLE DESIGN ELIMINATES THE NEED FOR ANTI-ROTATION BOLTS

SMOOTH, UNOBSTRUCTED FULL SIZE WATERWAY IS FREE OF POCKETS, CAVITIES, AND DEPRESSIONS ALLOWING FOR MINIMAL FLOW LOSS AND LOWER PUMPING COSTS.

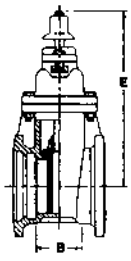
PADS ON THE BOTTOM OF ALL VALVES KEEP VALVE IN UPRIGHT POSITION FOR EASIER STORAGE AND PROTECTION FROM THE ELEMENTS.

ALL TAPPING VALVES ACCEPT FULL SIZE TAPPING CUTTER.

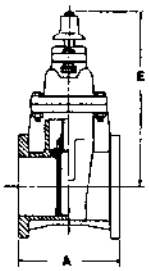
ALL VALVES ARE RATED AT 250 PSI FOR AWWA SERVICE AND 200 PSI FOR ULFM SERVICE. ALL VALVES ARE HYDROSTATICALLY TESTED TO 500 PSI.

10 YEAR LIMITED WARRANTY

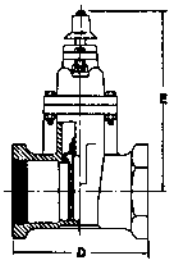
AVAILABLE END CONNECTIONS & DIMENSIONS FOR M&H 4" - 12" C-515 DUCTILE IRON RESILIENT WEDGE VALVE



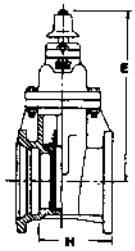
7571
MECHANICAL JOINT ENDS
2" • 12"



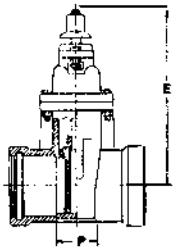
7561
FLANGED ENDS
2" • 12"



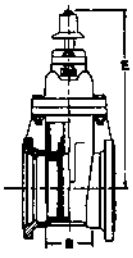
7057
THREADED ENDS
2" • 3"



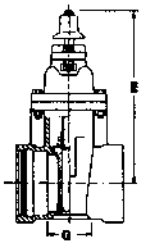
7572
FLANGED X MJ
3" • 12"



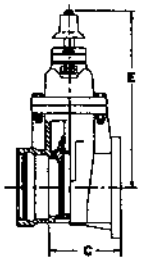
7597
PUSH-ON FOR PVC
2" • 8"



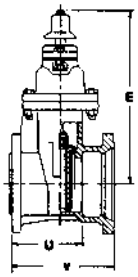
7576
MECHANICAL
CUTTING-IN JOINT
4" • 12"



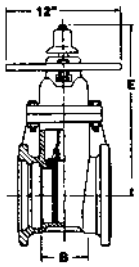
7901
TYTON ENDS
PUSH-ON FOR (D.I. & C900)
4" • 12"



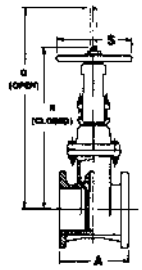
7902
FLANGED & TYTON JOINT
PUSH-ON FOR (D.I. & C900)
4" • 12"



7590
TAPPING X MJ
TAPPING VALVE
4" • 12"



7571-P
MECHANICAL JOINT
POST INDICATOR VALVE (PIV)
2" • 12"



7068
FLANGED ENDS
OS&Y CONSTRUCTION
2 1/2" • 12"

Style 7000

***NOTE 2" TO 3" VALVES ARE FULL WALL DUCTILE IRON

	A	B	C	D	E	G	H	P	Q	R	S	U	V	No. of Turns to Full Open
2"	7	3 1/4	—	5 1/4	10 7/8	—	—	3	—	—	7 1/4	—	—	4 3/4
2 1/2"	7 1/2	—	—	7	11 3/8	—	—	3 1/4	16 3/8	13 7/8	7 1/4	—	—	5 1/2
3"	8	3 1/2	—	7 7/8	12 3/8	—	5 3/4	3 1/2	18 7/8	15 5/8	10	—	—	10
4"	9	4 1/2	6 3/4	—	14 3/4	4 1/2	6 3/4	4 1/2	22 3/4	18 1/4	10	6 3/4	9 1/4	13 1/2
6"	10 1/2	5 1/2	7 7/8	—	19	5 1/4	7 3/4	5	30 1/8	23 3/4	12	8	10 1/2	19 1/2
8"	11 1/2	8 1/2	8 1/2	—	22 1/2	5 5/8	9 3/4	5 1/2	37 3/4	29 1/4	14	10 3/4	13 1/4	25 1/2
10"	13	10 1/2	10	—	26 1/2	7	11 3/4	—	45 3/4	35 3/8	18	11 3/4	14 1/4	31 1/2
12"	14	10 3/4	11 1/4	—	30	8 1/2	12 3/8	—	53 1/8	40 5/8	18	12 3/8	15	37 3/4

M&H VALVE COMPANY

A DIVISION OF MCWANE, INC.
Sales Office & Manufacturing Facility
www.mh-valve.com

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

M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

During the decade of the 1980's the waterworks industry was introduced to the Resilient Seated Gate Valve, ad design principal that is dominate in preference for use in distribution systems. M&H valve Company was at the fore front in this industry-wide movement by introducing the Style 4067, our AWWA C509 Resilient Seated Gate Valve.

After the official adoption of the AWWA C515 specification, M&H once again is on the forefront of modern valve design and construction.

The M&H Style 7000 Resilient Seated Gate Valve embodies all of the latest valve technology for simplicity, durability and superior performance. With the end user in mind, M&H engineering designed the M&H Style 7000 to be fully interchangeable with the M&H C509 Style 4067. M&H Style 7000 meets or exceeds AWWA C515 and C550 in all sizes. M&H C515 valves are listed by Underwriters Laboratories and are approved by Factory Mutual Research. With no compromise in materials or workmanship. M&H Style 7000 valves carry a 10 year limited warranty. . it's the clear choice of those who demand the best.

EASE OF OPERATION

The M&H RSGV has only two moving internal parts—the gate and the stem.

The gate is fully supported throughout travel by an integrally cast tongue and groove fit between it and the valve body. Lugs on the gate fully engage the coated guides cast into the valve body so the gate closes smoothly, without "chatter", every time.

This positive gate alignment, plus positioning and engagement of the stem nut, virtually eliminate stem binding, and provide balanced loads and low operating torques. The M&H RSGV is among the lowest in operating torques of all available competitive type valves

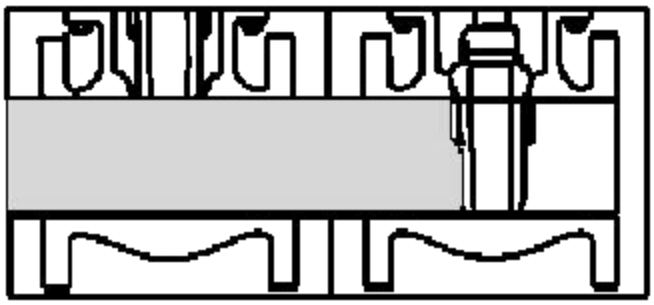
POSITIVE SEALING

A dual rubber seal is formed between the rubber encapsulated resilient wedge and the valve body to guarantee drop-tight shut-off every time. The combination of true compression and dynamic wedging of the gate is created without harmful sliding, shearing or other wear-inducing action.

The massive vulcanized rubber seating edges on the gate self-absorb normal wear and tear, assuring a positive seal, even after years of service. The M&H RSGV will seal bubble-tight to 250 psi working pressure, with the flow in either direction and the valve in any position.

FULL FLOW CAPACITY / DUAL SEATING

The M&H RSGV features an unobstructed, thru-conduit flow path for full flow capacity. Closed, the RSGV provides bottle-tight, zero leakage in either direction at full rated differential pressure with dual body gate seating.



M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

FEATURES & BENEFITS / PERFORMANCE INFORMATION

FEATURES	BENEFIT
Ductile Iron Body, Bonnet, Stuffing Box	• Easier handling
Bubble Tight Closure at 250 psi (AWWA) 2" – 12" at 250 psi (AWWA)	• No Leakage – No loss of water
Dual Rubber Seal	• Assures drop-tight shut-off in either direction.
Smooth, unobstructed waterway to maximize flow.	• High flow characteristics • 100% smooth passage without turbulent flow • No sediment build up • Will not impede travel of line cleaning tools
Only Three Internal Parts	• Virtually maintenance free
Only Two Moving Parts, the gate & the stem	• Less friction, less torque, longer life.
Integral Cast Tongue and Groove between wedge and valve body.	• Positive gate alignment every time
No Seat Rings	• Nothing to be damaged by scoring
Delrin* Anti-Friction Thrust Bearing	• Operating torque to close and open held to absolute minimum
Solid, Bronze Stem Nut and High Strength Bronze Stem	• No corrosion • Trouble free service
Stem Nut is Self Centering	• Eliminates possible stress on stem and wedge
Two O-Ring Seals Above Stem Thrust Collar and One Below	• Two O-Rings can be replaced with valve in service
High Strength Iron Wedge Fully Encapsulated with rubber Permanently Bonded to Metal.	• Trouble free service • No leaks – no wear
No Lubrication Required	• Trouble free service
American Cast and Assembled	• American Jobs • American backed product for more than 100 years • American quality
10 year limited warranty against defective materials or workmanship	• Customer assurance that M&H believes in the strong product they produce.
Body / Bonnet Epoxy Coating Inside & Only	• Unprecedented Protection Against Corrosion and abrasion

* DuPont Trademark

PERFORMANCE INFORMATION

- 2"- 6" valves sizes have been hydrostatically shell tested at five (5) times UL rated pressure (1000 psi).
- 8",10", and 12" have been hydrostatically shell tested at four (4) times UL rated pressure (800 psi).
- Valve is bubble-tight at all pressures up to full rated pressure (250 psi).
- Valve is capable of bubble-tight seal at pressures up to (400psi) for short periods of time.
- Valve has been subjected to torques 150 percent of the designated minimum required torques.
- Valve has been cycle tested 5,000 times without loss of bubble-tight seal.
- Rubber to iron bond on wedge is inspected for strength as per ASTM D429 specification

M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

END CONNECTIONS (2”-12”)

Shown at right are the principal ends available on M&H Gate valves. Other type ends are available upon request.

Mechanical Joint end valves are furnished for use with mechanical joint cast iron pipe. Mechanical joint bolts, glands and gaskets are furnished unless otherwise specified in order Mechanical joint for AWWA C111.

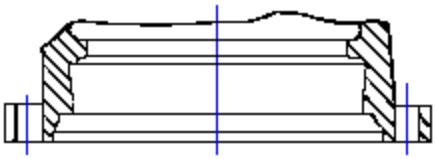
PVC Plastic end valves are furnished for use with PVC water pipe. Gaskets are furnished with valves for installation on pipe.

Push on ends for C900 plastic and ductile and cast iron pipe furnished with stab rubber gaskets to AWWA C111.

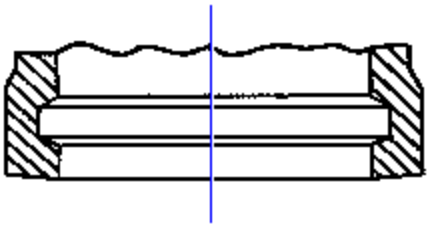
Flanged end valves are furnished with flanges made to ANSI B16.1 dimensions. Flanged end valves are most commonly used for filtration plants, sewage disposal plants and pump stations. Flanged valves have the advantage of quick and easy removal for repairs or replacement without disrupting the pipe line. 125 pound flanges are per ANSI B16.1.

Flanged by mechanical joint end valves frequently are used as auxiliary gate valves with flanged end fire hydrants, also to connect flanged pipe to mechanical joint pipe lines.

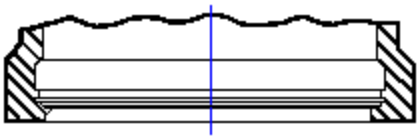
Screwed end valves are furnished for smaller pipelines for general service with iron pipe threads.



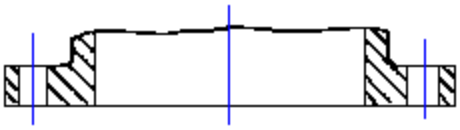
Mechanical Joint End



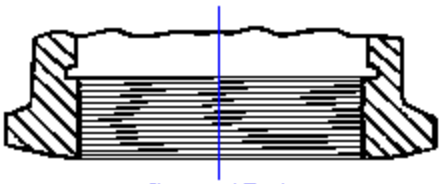
PVC End



Push-On-End



Flanged End



Screwed End

M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

SPECIFICATIONS / AVAILABLE CONFIGURATIONS & STYLE NUMBERS (2”-12”)

Size Range	Water Working Pressure psi	Bubble Tight Seat Test psi	Hydrostatic Shell Test psi
AWWA 2” – 12”	250 Water Works	250 & 400	500
ULFM 4” – 12”	200 Fire Protection	250 & 400	500

Available End Connections	**Size** Range	**Style No. With** 2” Nut	**Style No. With** Hand wheel	**Style No. With** Post Plate
Mechanical Joint (NRS)	2”-12”(no 2 ½”)	7571	7571-HW	(3”-12”) 7571-P
Flanged Ends (NRS)	2”-12”	7561	7561-HW	(3”-12”) 7561-P
Note: 7561A is Tapped & Plugged in “A” Position		2“ – 4” = ½ “ Tap		6” – 12” = ¾” Tap
Flanged End X Mechanical Joint (NRS)	3”-12”	7572	7572-HW	7572-P
Push-on (For PVC / SDR)	2”-8”	7597	7597-HW	(3”-8”) 7597-P
Threaded (NRS)	2”-3”	7057	7057-HW	(3” only) 7057-P
Push-on (For D.I. / C900) (NRS)	4”-12”	7901	7901-HW	7901-P
Push-on X Flange (For D.I. / C900)(NRS)	4”-12”	7902	7902-HW	7902-P
Flanged Ends (OS&Y)	2½”-12”	7068	N/A	N/A
Note: 7068A is Tapped & Plugged in “A” Position		2“ – 4” = ½ “ Tap		6” – 12” = ¾” Tap
Tapping Valve (NRS)	4”-12”	7950	7950-HW	7950-P
Note: Each size accommodates a full size diameter tapping cutter.				
M.J. Cutting-in Valve (NRS)	4”-12”	7576	7576-HW	7576-P

VALVE ACCESSORIES

Mechanical operational accessories are used for valves having special operational needs such as;

1. Location with limited access
2. Hazardous locations
3. Revision of operational position
4. High Torque Operation
5. Indication of Valve Position

Accessory selection must be evaluated for its capability to transmit the required torque requirements to the valve. To assure long-term trouble free operation, its materials of construction should take into account factors relating to corrosion and maintenance.

Accessories used on M&H valves can include the following:

Electric Motor Operators	Stem Guides
Indicator Posts	Hand wheels
“T” Handles	Extension Stems
Floor Boxes	Chain Wheels
Floor stands (Non-rising stem)	Position Indicators
Miter Box Gearing	Electronic Switches

M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

RECOMMENDED SPECIFICATIONS (2”-12”) (Styles 7000 NRS: 7068 OS&Y)

General: Gate valves shall be of the resilient seated wedge type, fusion bonded epoxy coated to AWWA C550, ductile iron body design. They shall comply with the American Water Works Association Gate Valve Standard C-515-99 as latest revised.

Approvals:
Gate Valve to Meet or Exceed the Requirements of AWWA C515
Gate Valve to Meet or Exceed the Requirements of UL-262
Gate Valve to Meet or Exceed FM – 1120 / 1130
Gate Valve to Meet NSF 61

Testing: Each valve shall be hydrostatically tested to the requirements of both AWWA and UL/FM and be rated for 250 psi AWWA service.

Valves shall be rated for zero leakage at 250psi water working pressure and have a 500psi hydrostatic test for structural soundness for 2” through 12”.

All testing shall be conducted in accordance with AWWA C-515

Pressure Ratings:

Size Range	Water Working Pressure psi	Bubble-tight Test psi	Hydrostatic Shell Test psi
2”-12” AWWA	250psi	250psi	500psi
4”-12” ULFM	200psi	200psi	400psi

Materials: All cast iron shall conform to ASTM-A-126 Class B. Castings shall be clean and sound without defects that will impair their service. No plugging or welding of such defects will be allowed.

All ductile iron shall conform to ASTM-536 70-50-05

Stems shall be manganese bronze having a minimum tensile strength of 60,000 psi, a minimum yield of 20,000psi.

Bolts shall be electro-zinc plated steel with hex heads and hex nuts in accordance with ASTM A-307, and A-563 respectively.

Powder Coating: A high performance, one-part, heat-curable, thermosetting coating which provides superior corrosion resistance protection for metal parts.

M&H Powder Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. M&H Powder Coating is formulated from materials deemed acceptable in the Food and Drug Administration Document Title 21 of the Federal Regulations on food additives; Section 175.3000 entitled “Resinous and Polymeric Coatings”.

M&H Powder Coating is applied using a heat application, fusion-bonding process which secures the coating material to the metal valve components. This process provides a visibly void-free coating 5-8 mils thick with excellent adhesion qualities.

The durable M&H Powder Coating has a hard finish and exhibits excellent corrosion resistance in most aqueous solutions. It will not sag or cold flow or become soft during long-term storage. In addition to excellent corrosion resistance to aqueous solutions, the coating has excellent stability and resistance to acidic soil conditions.

M&H Powder Coating meets both the application and performance requirements of the American Water Works Association standard C-550 entitled “Protective Interior Coatings for Valves and Hydrants”.

Design:	Resilient Seated valves shall conform to the latest revision of AWWA Standard C-515-99. 2"-12" shall be UL listed and FM approved. The valve shall have a ductile iron body and bonnet. All internal parts shall be accessible for repair or maintenance without removing the body from the line. NRS and OS&Y stems shall be of cast bronze. NRS stems shall have integral thrust collar with Delrin thrust bearing above and below the collar. NRS stems shall have two machined grooves above the thrust collar and one groove below for O-ring seals. The upper two O-rings shall be field removable with the valve under pressure. Valves shall be supplied with O-ring seals at all joints. No flat gaskets allowed. Blind bolts threaded into tapped holes in bonnet or body shall not be acceptable. The stem nut shall be of cast bronze and independent of the stem and wedge for NRS valves. Stem nuts for OS&Y valves shall be securely fastened to the stem. Tapping valve shall pass a full size cutter 4"-12" Tapping valves through 12"shall be furnished with tapping sleeve side to ANSI B16.1 flanged end with centering ring. The waterway in the seat area shall be smooth, unobstructed, free of cavities and for valves 4" and larger at least 0.19" greater in diameter than the nominal valve size.
Coating Thickness	5-8 mill inside and out.
Wedge / Gate:	The wedge shall be of cast iron and completely encapsulated with a resilient elastomer material permanently bonded to the wedge and have a rubber tearing bond that meets ASTM D429.
Marking:	Markings in accordance with AWWA C-515 standard. Includes name of manufacturer, the year of manufacture, maximum working pressure and size of valve. In addition, country of origin to be clearly cast into body & cover castings.
Warranty:	Resilient seated gate valves shall be covered by a ten-year limited warranty against defective materials or workmanship.
End Connections:	Mechanical joint end valves to match ANSI STD. Drilling A-21.11 Flanged end valves to match 125 LBS. ANSI STD. Drilling B-16.1 Tapping valves through 12" shall mate all sleeves through 12" outlet regardless of manufacturer. Valves shall be furnished with tapping sleeve side to ANSI B16.1 flanged end with centering ring. Outlet side of valve shall be mechanical joint with (without) accessories to AWWA C-111. Push-on ends suitable for stab joints with ductile or cast iron.
Laying Lengths / Configurations	Valves not listed in ANSI, AWWA, UL, or FM have dimensions per M&H design as noted in catalog.

M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

FLOW COEFFICIENTS (2”-12”)

VALVE SIZE	Cv (FULL OPEN)	K (FULL OPEN)
2”	300	0.15
2 ½”	500	0.130
3”	800	0.115
4”	1500	0.105
6”	3600	0.090
8”	6700	0.080
10”	10,500	0.080
12”	15,000	0.080

$$Cv = \frac{Q}{\sqrt{\Delta P}} \qquad K = f\,\frac{L}{D}$$

Values given are calculated, based on hydraulic lab test on 6” R/W valve.

NEW VALVE ORDERING INFORMATION

Be sure to give correct style number along with an end connection description when ordering
All valves furnished open left unless specified otherwise.
If product application requires materials other than standard, give specification of component parts material to be used.
All mechanical joint valves are furnished with accessories unless specified otherwise.
A 2-inch square-operating nut on underground valves is standard unless specified otherwise.
Handwheel on OS&Y and flanged end valves are standard unless specified otherwise.

ORDERING PARTS FOR VALVES

When ordering parts indicate the following:

- Part number and descriptions
- Size of valve
- Direction to open
- Year of manufacture
- End configuration
- NRS or OS&Y
- Pressure Rating

M&H AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

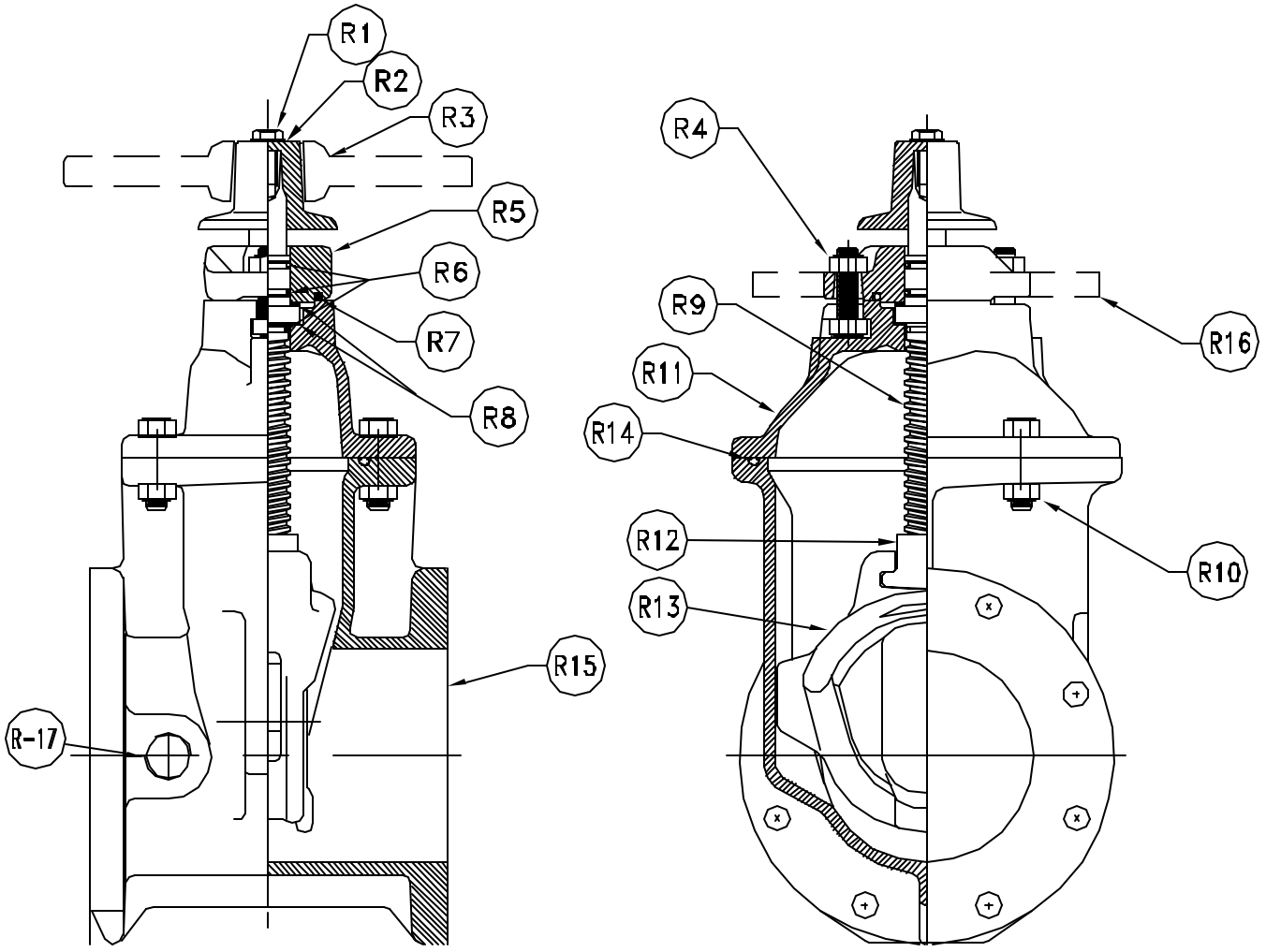
M&H VALVE CO. RESILIENT SEAT GATE VALVE TEN YEAR LIMITED WARRANTY

M&H Valve Company warrants that its Resilient Seated Wedge Gate Valves will be free from defects in material and workmanship under normal and customary use and maintenance for a period of ten (10) years from the date of purchase, provided the valve is installed and maintained according to M&H instruction, and applicable codes. The foregoing warranty does not cover failure of any part or parts from external forces, including but not limited to earthquake, vandalism, vehicular or other impact, and application of excessive torque to the operating mechanism or frost heave.

Should any M&H Valve Company part or parts fail to conform to the foregoing warranty, M&H shall, upon prompt written notice thereof, repair or replace, F.O.B. point of manufacture, such defective part or parts. Purchaser shall, if requested, return the part or parts to M&H, transportation prepaid. Purchaser shall bear all responsibility and expense incurred for removal, reinstallation and shipping in connection with any part supplied under the foregoing warranty.

THE FOREGOING WARRANTY IS IN LIEU OF AN EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS. IN NO EVENT SHALL M&H VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES. DAMAGES OR EXPENSES.

ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
R-1	HOLD DOWN HEX BOLT	ZINC PLATED STEEL	ASTM A307 GRADE B
R-2	HOLD DOWN BOLT WASHER	ZINC PLATED STEEL	ASTM A307 GRADE B
R-3	OPERATING NUT OR HAND WHEEL	CAST IRON	ASTM A126 CLASS B
R-4	BOLTS/NUTS (STUFFING BOX)	ZINC PLATED STEEL	ASTM A307 GRADE B
R-5	STUFFING BOX/SEAL PLATE	DUCTILE IRON	ASTM A536 70-50-05
R-6	O-RING (STEM) QTY=3	NBR	---------
R-7	O-RING (STUFFING BOX)	NBR	---------
R-8	THRUST WASHER	DELRIN	---------
R-9	STEM (AWWA GRADE C)	BRONZE	ASTM B584 CDA 867
R-10	HEX HEAD BOLTS & NUTS	ZINC PLATED STEEL	ASTM A307 GRADE B
R-11	COVER/BONNET	DUCTILE IRON	ASTM A536 70-50-05
R-12	STEM NUT (AWWA GRADE A)	BRONZE	ASTM A584 CDA 844
R-13	WEDGE/DISC/GATE	CAST IRON & SBR COATED	ASTM A126 CLASS B
R-14	O-RING (COVER)	NBR	---------
R-15	BODY - ALL TYPES	DUCTILE IRON	ASTM A536 70-50-05
R-16	POST PLATE	CAST IRON	ASTM A126 CLASS B
R-17	PIPE PLUG (OPTIONAL)	GALVANIZED	---------

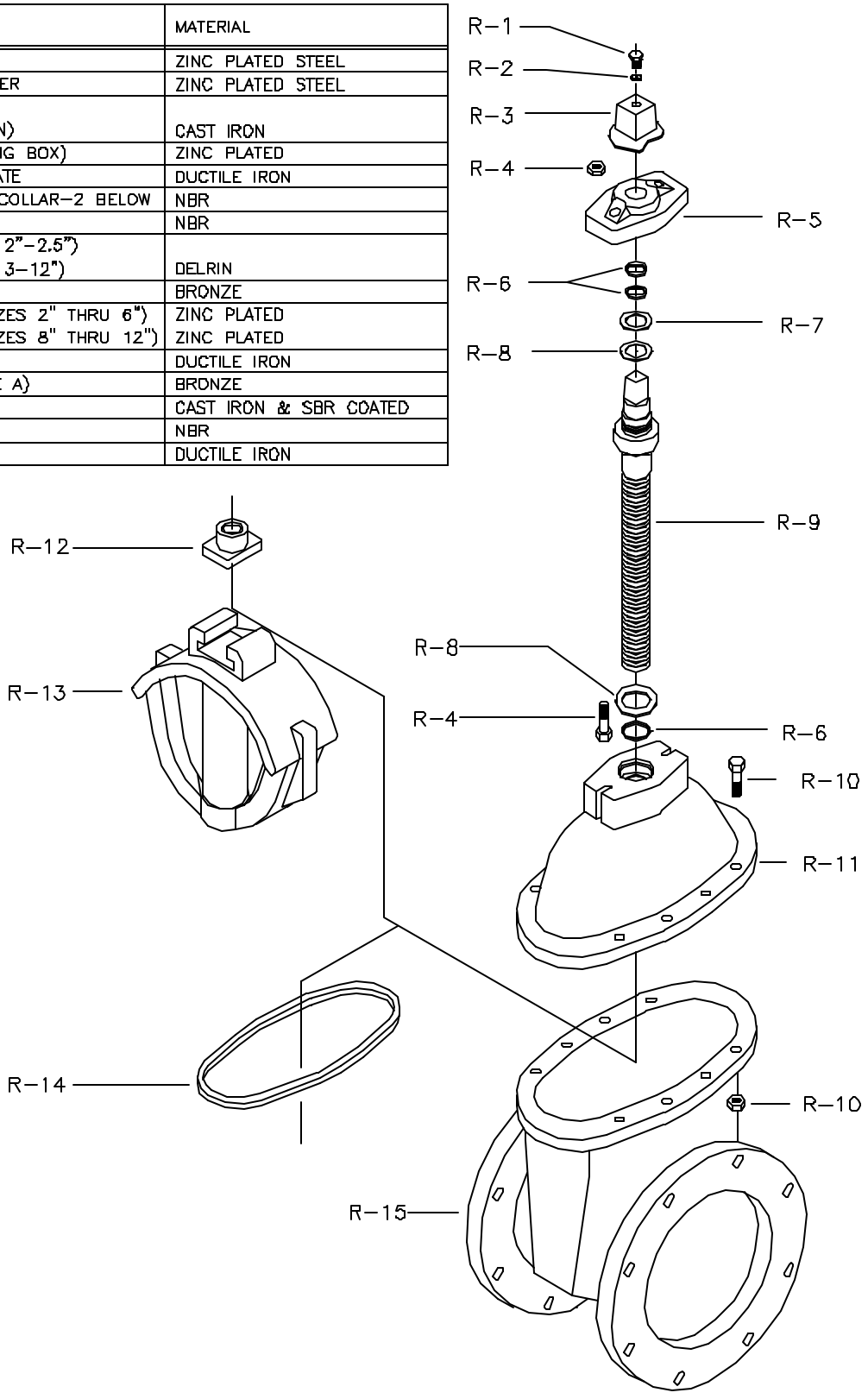


M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7000

4" THRU 12"
RESILIENT SEAT GATE VALVE
C515-NRS-STYLE 7000
VALVE ASSEMBLY / MATERIAL LIST

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
R-1	1	HOLD DOWN HEX BOLT	ZINC PLATED STEEL
R-2	1	HOLD DOWN BOLT WASHER	ZINC PLATED STEEL
R-3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)	CAST IRON
R-4	2	BOLTS & NUTS (STUFFING BOX)	ZINC PLATED
R-5	1	STUFFING BOX/SEAL PLATE	DUCTILE IRON
R-6	3	O-RING(STEM)1 BELOW COLLAR-2 BELOW	NBR
R-7	1	O-RING (STUFFING BOX)	NBR
R-8	1 2	THRUST WASHER (SIZES 2"-2.5") THRUST WASHER (SIZES 3-12")	DELRIN
R-9	1	STEM (AWWA GRADE C)	BRONZE
R-10	4 8	COVER BOLTS&NUTS (SIZES 2" THRU 6") COVER BOLTS&NUTS (SIZES 8" THRU 12")	ZINC PLATED ZINC PLATED
R-11	1	COVER/BONNET	DUCTILE IRON
R-12	1	STEM NUT (AWWA GRADE A)	BRONZE
R-13	1	WEDGE/DISK/GATE	CAST IRON & SBR COATED
R-14	1	COVER O-RING	NBR
R-15	1	BODY	DUCTILE IRON



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

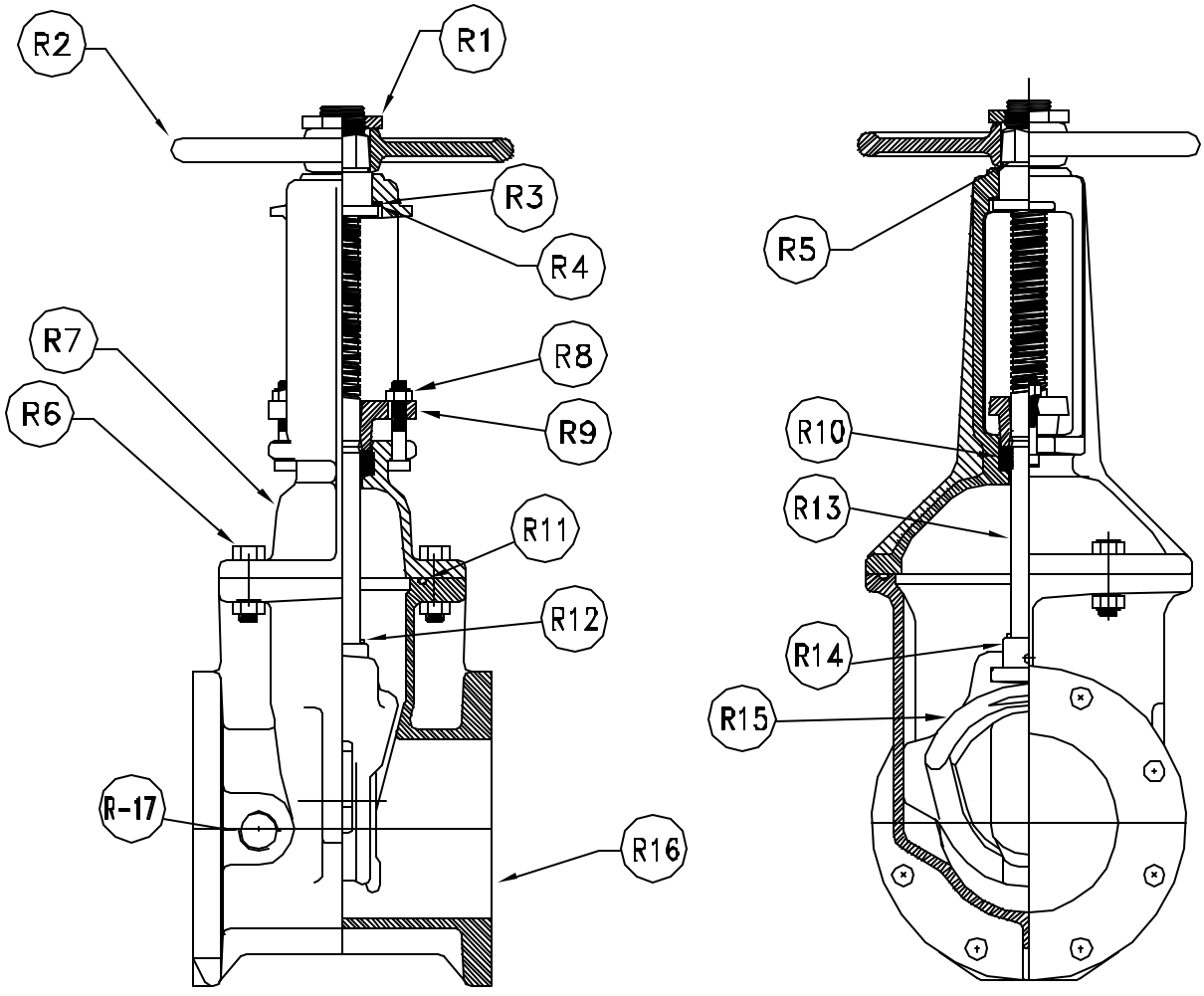
DWN: TRIJ

DATE: 6/2/03

DWG. NO. 7000EV

RESILIENT SEAT GATE VALVE
ASSEMBLY EXPLOSION / MATERIAL LIST
C515-NRS-STYLE 7000

ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
R-1	HAND WHEEL HOLD DOWN NUT	BRONZE (AWWA GRADE A)	ASTM B584 CDA 844
R-2	HAND WHEEL	CAST IRON	ASTM A126 CLASS B
R-3	UPPER THRUST WASHER	BRONZE	ASTM B36 CDA 260
R-4	LOWER THRUST WASHER	BRONZE	---------
R-5	YOKE NUT	MANGANESE BRONZE	ASTM B584 CDA 862
R-6	BOLTS & NUTS (COVER/YOKE)	ZINC PLATED STEEL	ASTM A307 GRADE B
R-7	COVER/YOKE	DUCTILE IRON	ASTM A536 70-50-05
R-8	HEX HEAD BOLTS (PACKING GLAND)	ZINC PLATED STEEL	ASTM A307 GRADE B
R-8	HEX HEAD NUTS (PACKING GLAND)	BRASS	ASTM A563
R-9	PACKING GLAND	DUCTILE IRON	ASTM A536 70-50-05
R-10	PACKING	BRAIDED, LUBRICATED (NON-ASBESTOS) FIBER	
R-11	O-RING (COVER/YOKE)	NBR	---------
R-12	O-RING (STEM)	NBR	---------
R-13	STEM	BRONZE	ASTM B584/B21
R-14	STEM NUT	BRONZE	ASTM A584 CDA 844
R-15	WEDGE	CAST IRON & SBR COATED	ASTM A126 CL B/D2000
R-16	BODY - ALL TYPES	DUCTILE IRON	ASTM A536 70-50-05
R-17	PIPE PLUG (OPTIONAL)	GALVANIZED IRON	---------



M&H VALVE COMPANY
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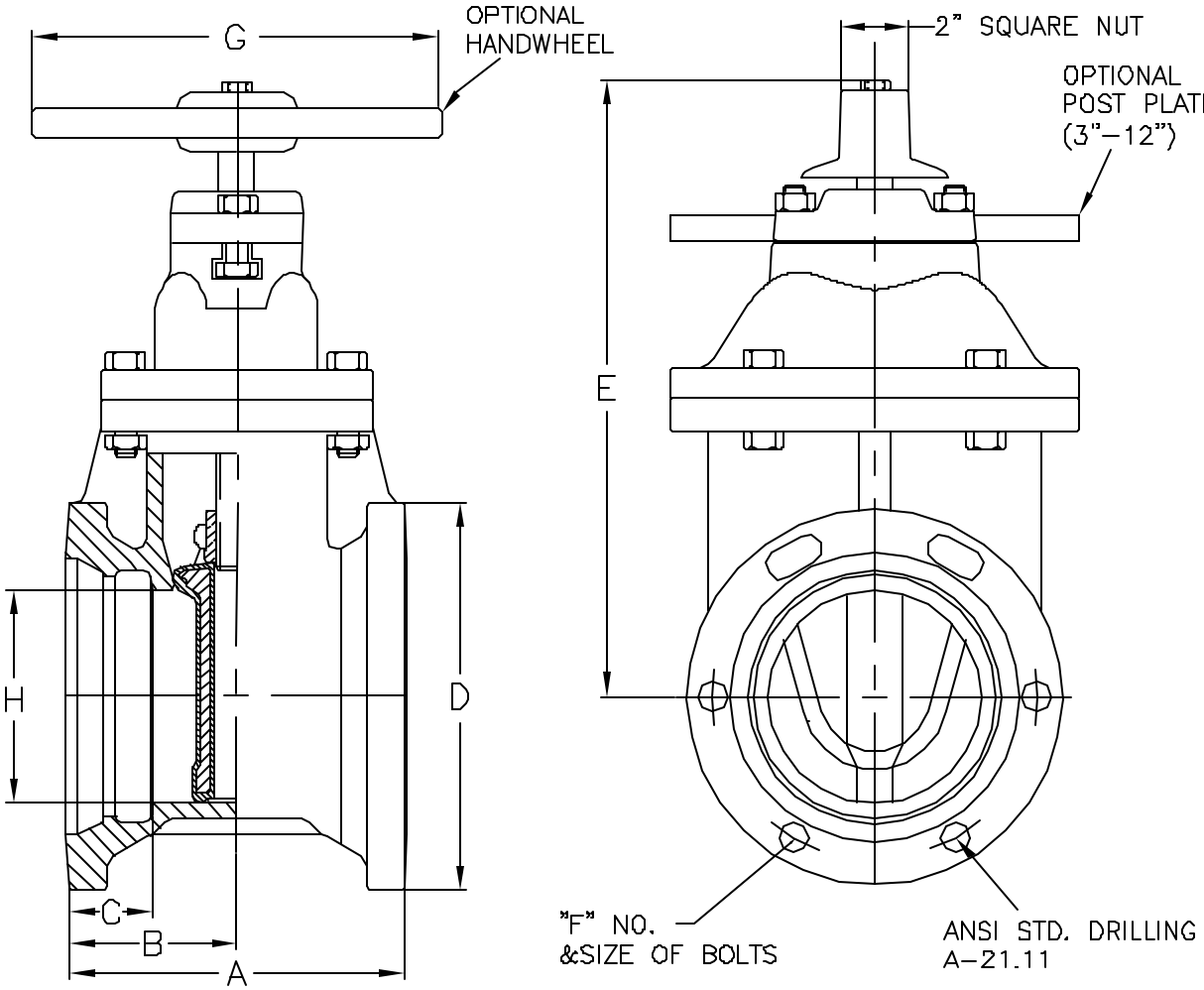
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7068

2" THRU 12"
RESILIENT SEAT GATE VALVE
VALVE ASSEMBLY / MATERIAL LIST
C515-OS&Y-STYLE 7068

LISTED UL 888H ® FM APPROVED NSF A.W.W.A Standard C515

7571	WITH 2" SQUARE NUT
7571–HW	WITH HANDWHEEL
7571–P	WITH POST PLATE (3"–12")



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI–ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
2	8 1/4	4 1/8	2 1/2	4 1/2	10 7/8	2 5/8	7 1/4	2	25
2 1/2	——	——	——	——	——	——	——	——	——
3	8 1/2	4 1/4	2 1/2	7 3/4	12 3/8	4 5/8	10	3	40
4	9	4 1/2	2 1/2	9 1/8	14 3/4	4 3/4	10	4 1/4	75
6	10 1/2	5 1/4	2 1/2	11 1/8	19	6 3/4	12	6 1/4	120
8	13 1/8	6 9/16	2 1/2	13 1/4	22 1/2	6 3/4	14	8 1/4	185
10	15 1/2	7 3/4	2 1/2	15 3/4	26 1/2	8 3/4	18	10 1/4	331
12	16	8	2 5/8	18	30	8 3/4	18	12 1/4	523

NOTE: 3" AND BELOW MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
*HANDWHEEL--ADD 1# (2" – 2 1/2"), 6.5# (3"–4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"–12") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

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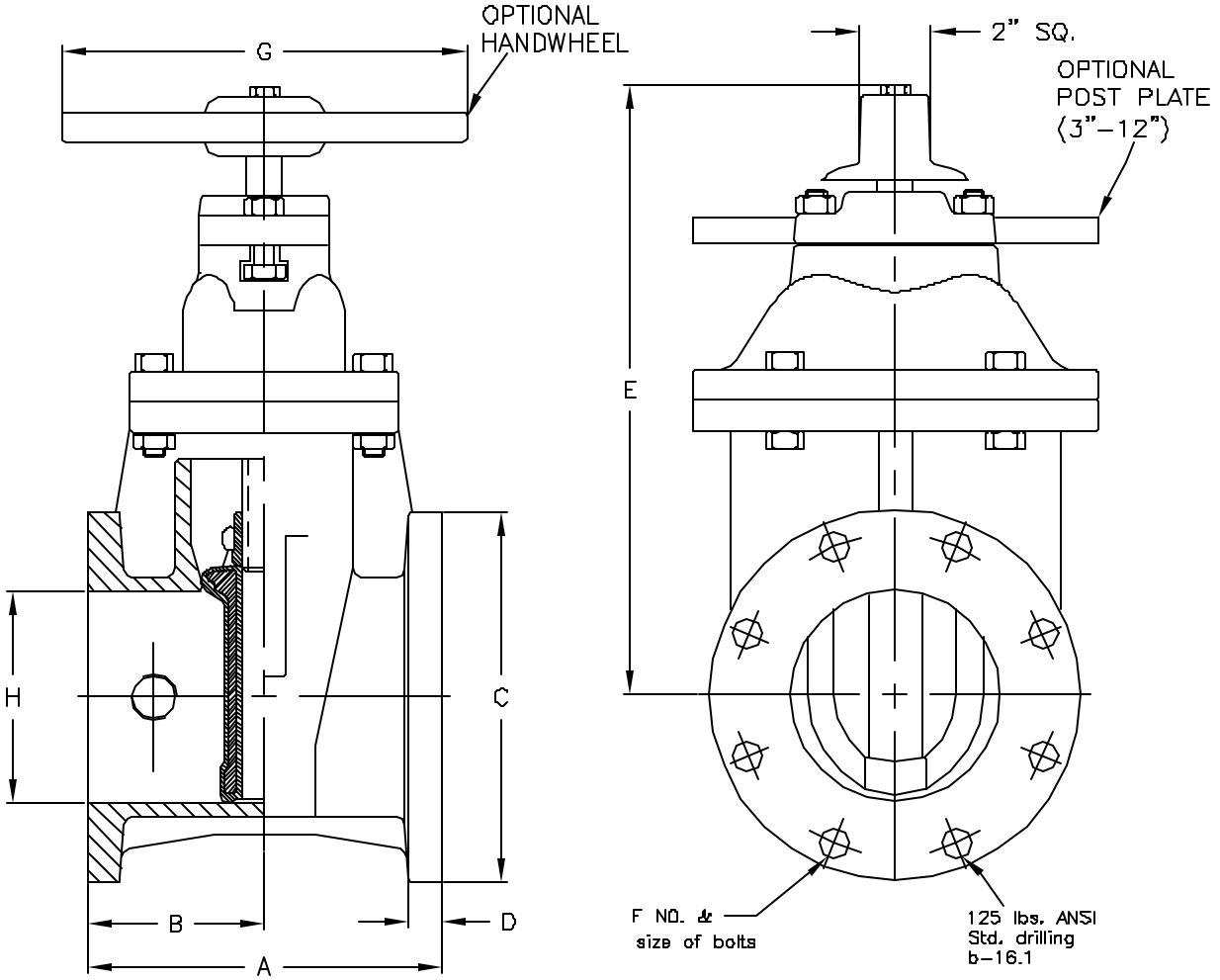
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7571

2" THRU 12"
RESILIENT SEAT GATE VALVE
C515–STYLE 7571
MJ X MJ

LISTED UL 888H FM APPROVED NSF A.W.W.A Standard C515

7561 WITH 2" SQUARE NUT
7561-HW WITH HANDWHEEL
7561-P WITH POST PLATE (3"-12")



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
2	7	3 1/2	6	5/8	10 7/8	4 5/8	7 1/4	2	26
2 1/2	7 1/2	3 3/4	7	11/16	11 3/8	4 5/8	7 1/4	2 1/2	34
3	8	4	7 1/2	3/4	12 3/8	4 5/8	10	3	38
4	9	4 1/2	9	15/16	14 3/4	8 5/8	10	4 1/4	75
6	10 1/2	5 1/4	11	1	19	8 3/4	12	6 1/4	120
8	11 1/2	5 3/4	13 1/2	1 1/8	22 1/2	8 3/4	14	8 1/4	185
10	13	6 1/2	16	1 3/16	26 1/2	12 7/8	18	10 1/4	331
12	14	7	19	1 1/4	30	12 7/8	18	12 1/4	523

NOTE: 3" AND BELOW MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
*HANDWHEEL--ADD 1# (2" - 2 1/2"), 6.5# (3"-4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"-12") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3"), 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

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DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7561

2" THRU 12"
RESILIENT SEAT GATE VALVE
C515-STYLE 7561
FLANGED ENDS

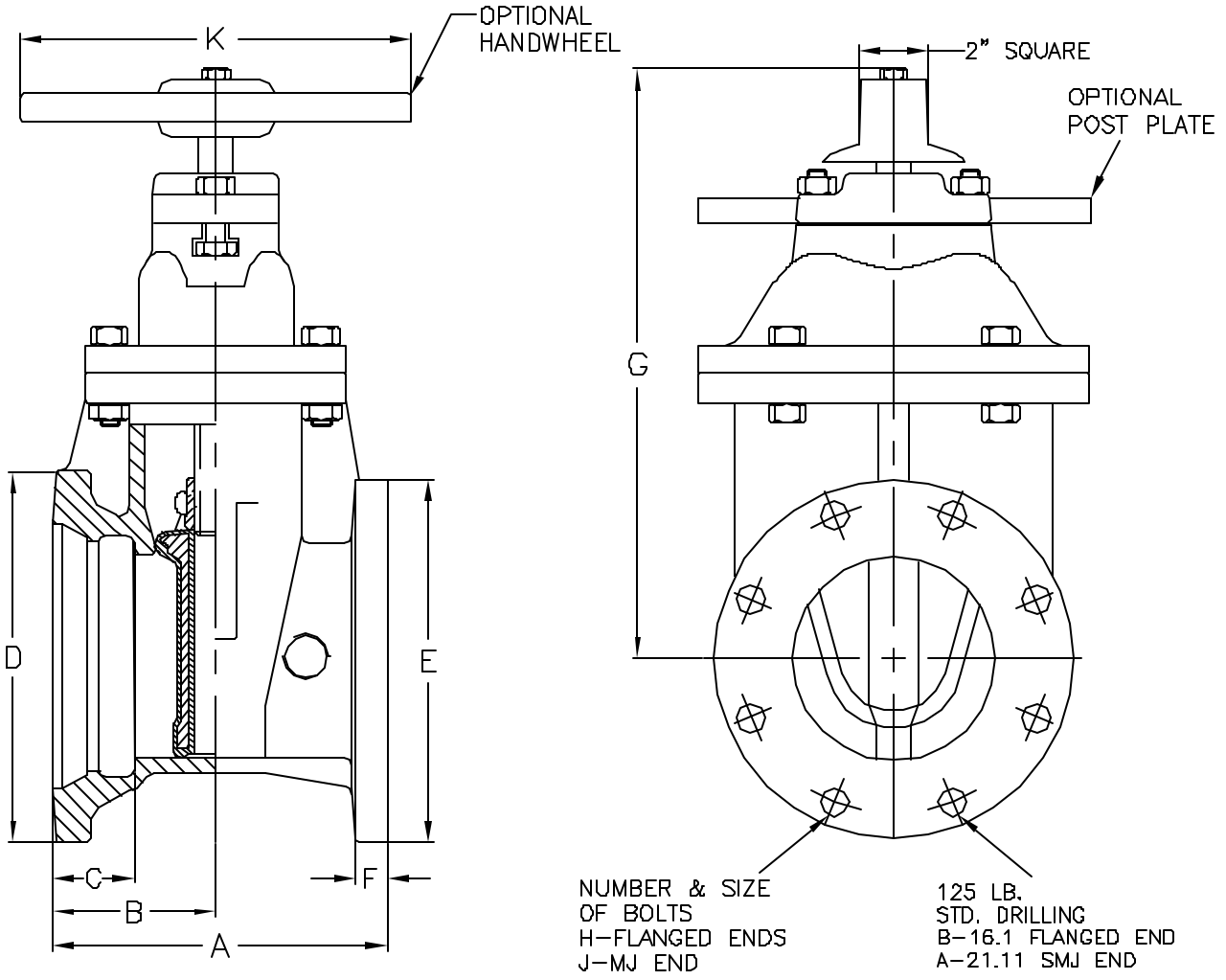
LISTED UL 888H

FM APPROVED

NSF

A.W.W.A Standard C515

7572	WITH 2" SQUARE NUT
7572-HW	WITH HANDWHEEL
7572-P	WITH POST PLATE



VALVE SIZE	A	B	C	D	E	F	G	H	J	K	WEIGHT 2" NUT
3	8 1/4	4 1/4	2 1/2	7 3/4	7 1/2	3/4	12 3/8	4-5/8	4-5/8	10	38
4	9 1/4	4 3/4	2 1/2	9 1/8	9	15/16	14 3/4	8-5/8	4-3/4	10	75
6	10 1/2	5 1/4	2 1/2	11 3/8	11	1	19	8-3/4	6-3/4	12	120
8	12 5/16	6 9/16	2 1/2	13 3/4	13 1/2	1 1/8	22 1/2	8-3/4	6-3/4	14	185
10	14 1/4	7 3/4	2 1/2	15 3/4	16	1 3/16	26 1/2	12-7/8	8-3/4	18	331
12	15	8	2 5/8	18	19	1 1/4	30	12-7/8	8-3/4	18	523

NOTE: 3" MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
*HANDWHEEL--ADD 6.5# (3"-4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"-12") ONLY
*PALLET QUANTITIES 2" NUT: 30(3"), 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7572

3" THRU 12"
RESILIENT SEAT GATE VALVE
C515-STYLE 7572
FLANGE X MJ

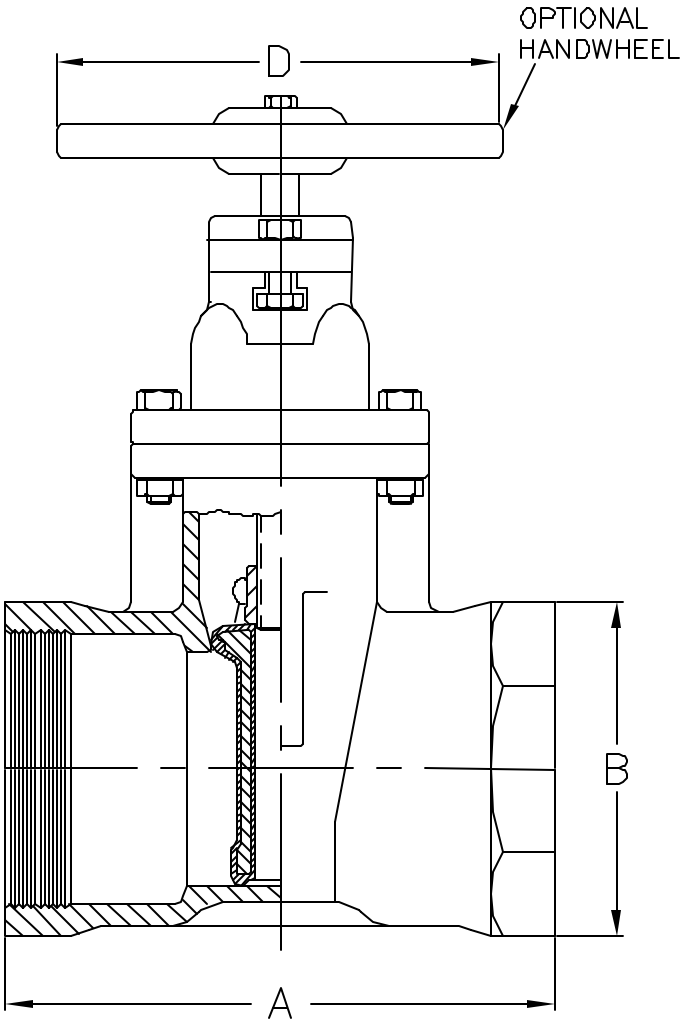
LISTED UL 888H

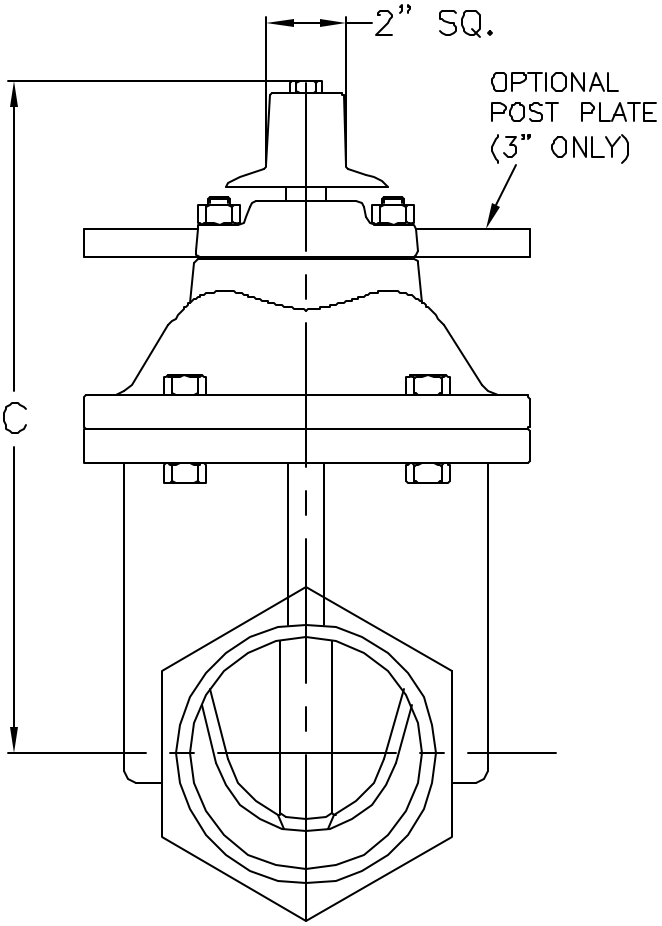
FM APPROVED

NSF

A.W.W.A Standard C515

7057	WITH 2" SQUARE NUT
7057–HW	WITH HANDWHEEL
7057–P	WITH POST PLATE (3" ONLY)





VALVE SIZE	A	B	C	D	WEIGHT 2" NUT
2	5 1/4	4 1/8	10 7/8	7 1/4	33
2 1/2	7	5 3/16	11 3/8	7 1/4	44
3	7 1/8	5 13/16	12 3/8	10	50

NOTE: 3" AND BELOW MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
*HANDWHEEL--ADD 1# (2" – 2 1/2"), 6.5# (3")
*INDICATOR POST PLATE ADD 16# (3") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3")

M&H VALVE COMPANY
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P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ	
DATE: 6/2/03	
DWG. NO. 7057	

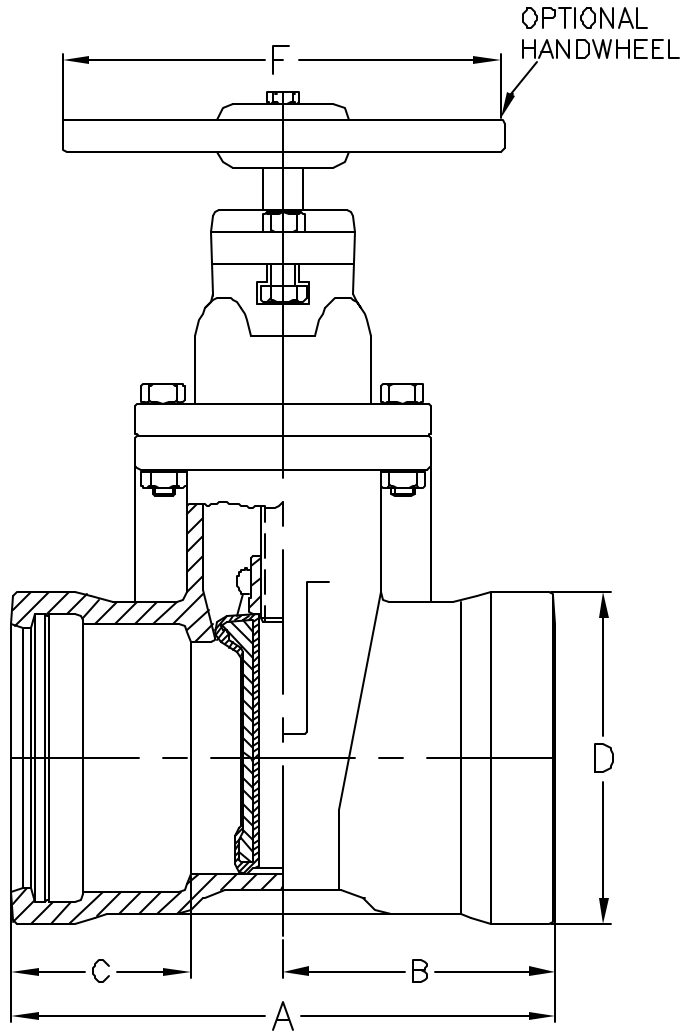
2", 2 1/2", & 3"
RESILIENT SEAT GATE VALVE
NRS–C515–STYLE 7057
THREADED ENDS

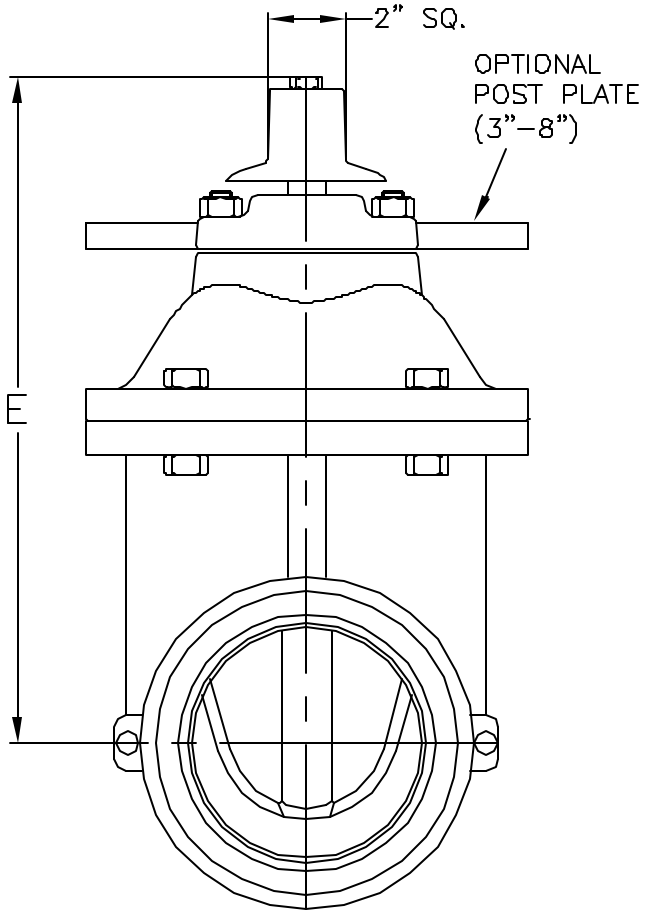
LISTED UL 888H

FM APPROVED

NSF A.W.W.A Standard C515

7597 WITH 2" SQUARE NUT
7597-HW WITH HANDWHEEL
7597-P WITH POST PLATE (3"-8")





VALVE SIZE	A	B	C	D	E	F	WEIGHT 2' NUT
2	10	5	3 1/2	3 1/2	10 7/8	7 1/4	26
2 1/2	10 3/4	5 3/8	3 3/4	4 3/8	11 3/8	7 1/4	30
3	11 5/8	5 13/16	4 1/6	5 1/8	12 3/8	10	60
4	13 1/2	6 3/4	4 1/2	6 3/16	14 3/4	10	93
6	15 3/4	7 7/8	5 3/8	8 1/2	19	12	115
8	16 1/4	8 1/8	5 3/8	10 1/2	22 1/2	14	173

NOTE: 3" AND BELOW MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
*HANDWHEEL--ADD 1# (2" - 2 1/2"), 6.5# (3"-4"), 7#(6"), 10#(8")
*INDICATOR POST PLATE ADD 16# (3"-8") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3"), 40(4"), 21(6"), 8(8")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 21(6"), 8(8")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7597

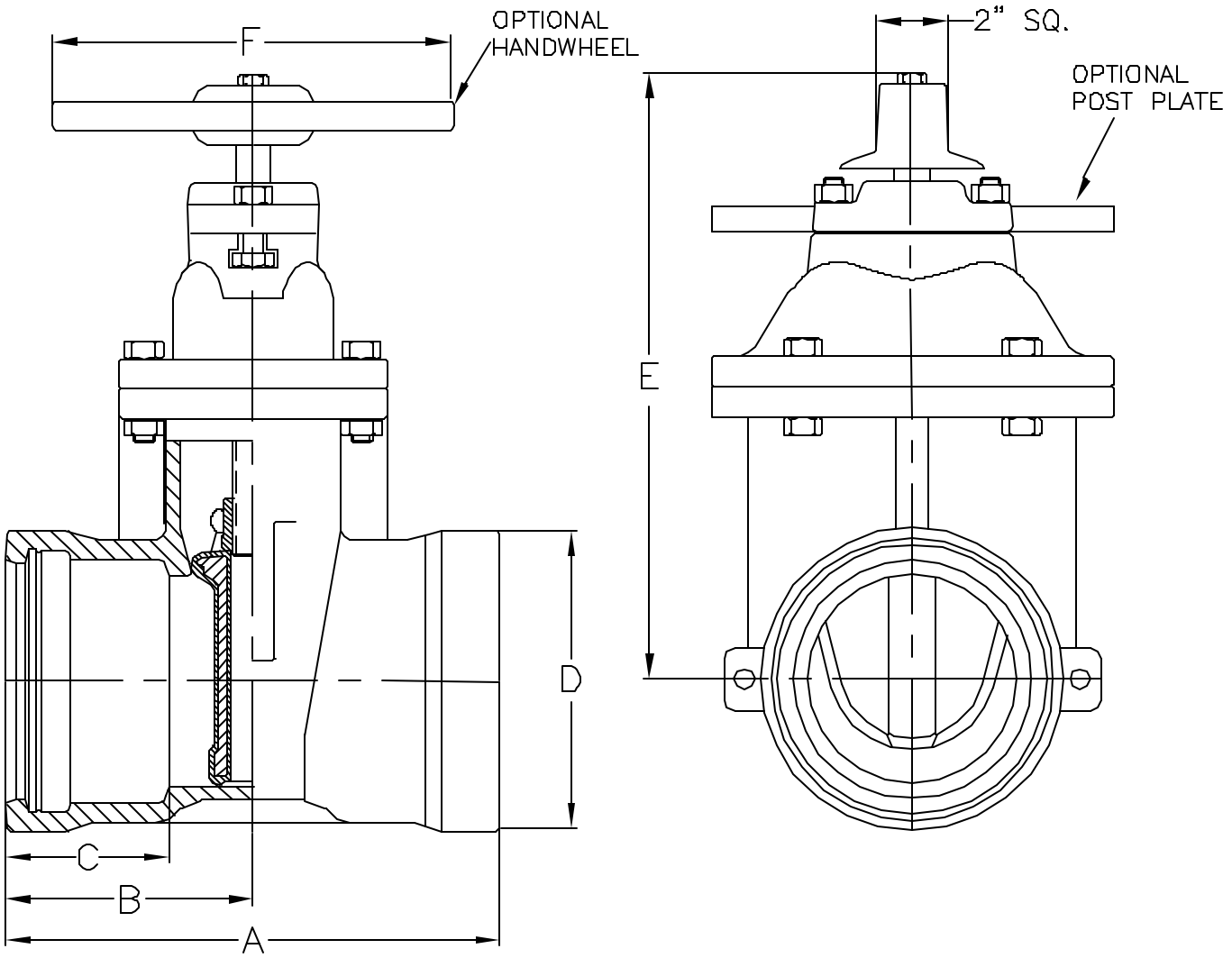
2" THRU 8"
RESILIENT SEAT GATE VALVE
C515-STYLE 7597
PUSH-ON X PUSH-ON-(PVC/SDR)

LISTED UL 888H

FM APPROVED

NSF A.W.W.A Standard C515

7901	WITH 2" SQUARE NUT
7901-HW	WITH HANDWHEEL
7901-P	WITH POST PLATE



VALVE SIZE	A	B	C	D	E	F	WEIGHT 2" NUT
4	13 1/4	6 5/8	4 11/32	6 1/2	14 3/4	10	92
6	14 3/4	7 3/8	4 3/4	8 3/4	19	12	150
8	17 1/8	8 9/16	5 45/64	11	22 1/2	14	240
10	19 3/8	9 11/16	6 3/16	13 1/8	26 1/2	18	360
12	20 7/8	10 7/16	6 3/16	15 3/8	30	18	460

*HANDWHEEL--ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"-12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

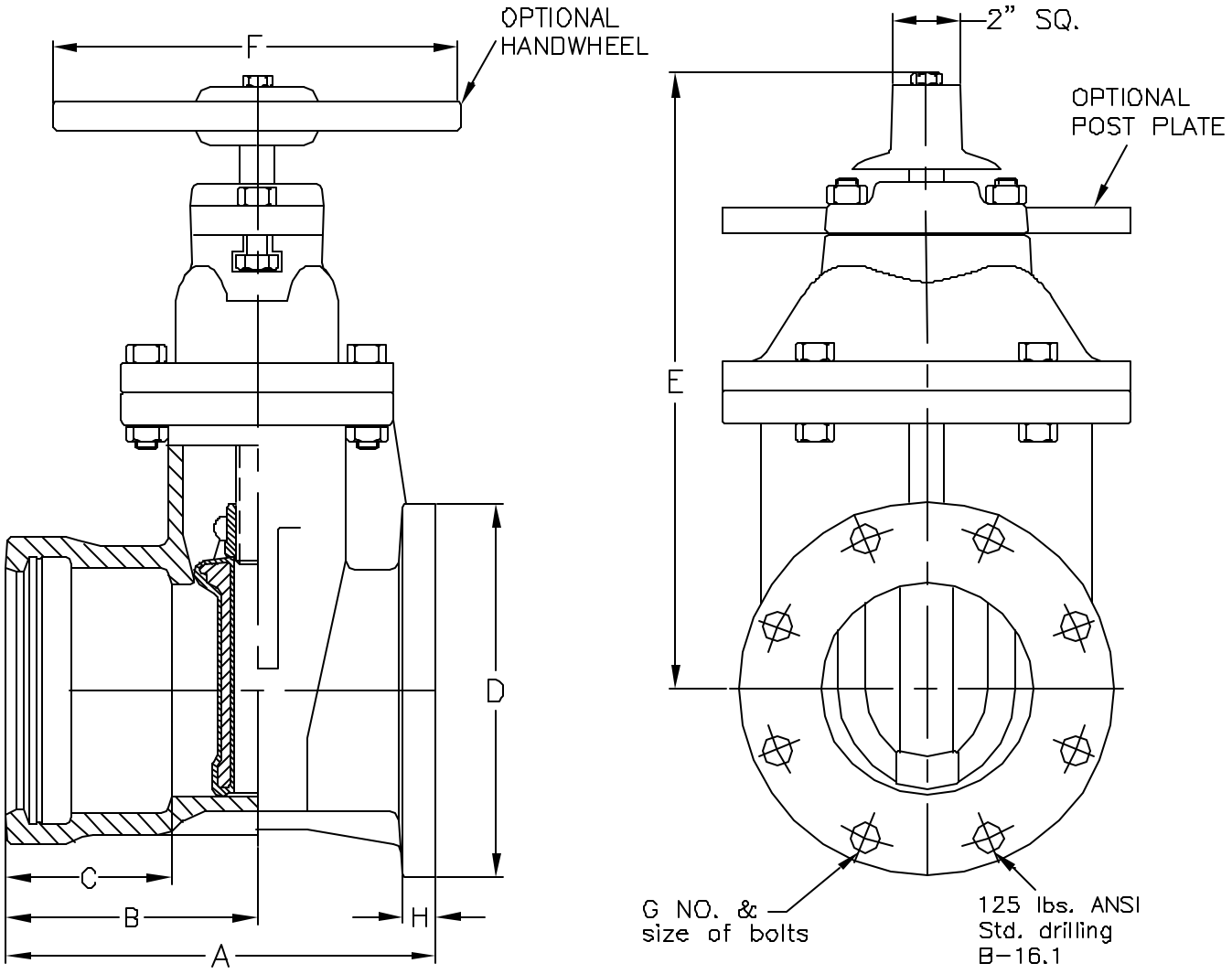
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7901

4" THRU 12"
RESILIENT SEAT GATE VALVE
C515-STYLE 7901
PUSH-ON X PUSH-ON (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

LISTED UL 888H ® FM APPROVED NSF A.W.W.A Standard C515

7902 WITH 2" SQUARE NUT
7902-HW WITH HANDWHEEL
7902-P WITH POST PLATE



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
4	11 1/8	6 5/8	4 5/16	9	14 3/4	10	8-5/8	15/16	100
6	12 5/8	7 3/8	4 3/4	11	19	12	8-3/4	1	160
8	14 5/16	8 9/16	5 11/16	13 1/2	22 1/2	14	8-3/4	1 1/8	240
10	16 3/16	9 11/16	6 3/16	16	26 1/2	18	12-7/8	1 3/16	340
12	17 7/16	10 7/16	6 3/16	19	30	18	12-7/8	1 1/4	500

*HANDWHEEL--ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"-12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7902

4" THRU 12"
RESILIENT SEAT GATE VALVE
C515-STYLE 7902
PUSH-ON X FLANGE (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

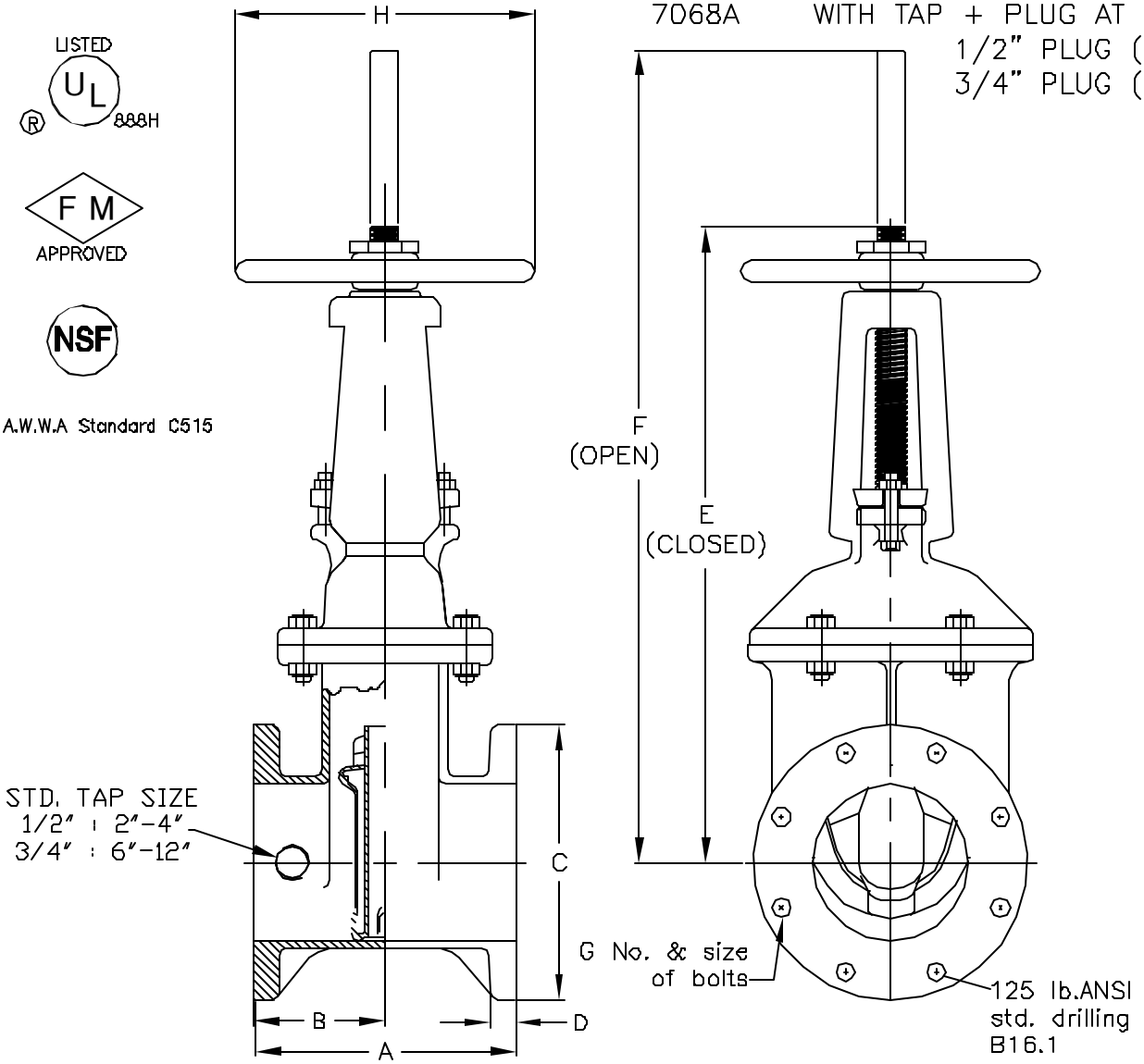
7068 WITH NO TAPS IN BODY
7068A WITH TAP + PLUG AT POSITION "A"
1/2" PLUG (2"–4")
3/4" PLUG (6"–12")

LISTED UL 888H

FM APPROVED

NSF

A.W.W.A Standard C515



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
2	7	3 1/2	6	11/16	12	10	4–5/8	7 1/4	SEE NOTE
2 1/2	7 1/2	3 3/4	7	11/16	13 7/8	16 3/8	4 5/8	7 1/4	52
3	8	4	7 1/2	3/4	15 5/8	18 7/8	4 5/8	10	68
4	9	4 1/2	9	15/16	18 1/4	22 3/4	8 5/8	10	94
6	10 1/2	5 1/4	11	1	23 3/4	30 1/8	8 3/4	12	157
8	11 1/2	5 3/4	13 1/2	1 1/8	29 1/4	37 3/4	8 3/4	14	239
10	13	6 1/2	16	1 3/16	35 3/8	45 3/4	12 7/8	18	320
12	14	7	19	1 1/4	40 5/8	53 1/8	12 7/8	18	425

NOTE: 3" AND BELOW MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
NOTE: 2" CONSULT FACTORY FOR AVAILABILITY---AWAITING UL APPROVAL
TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

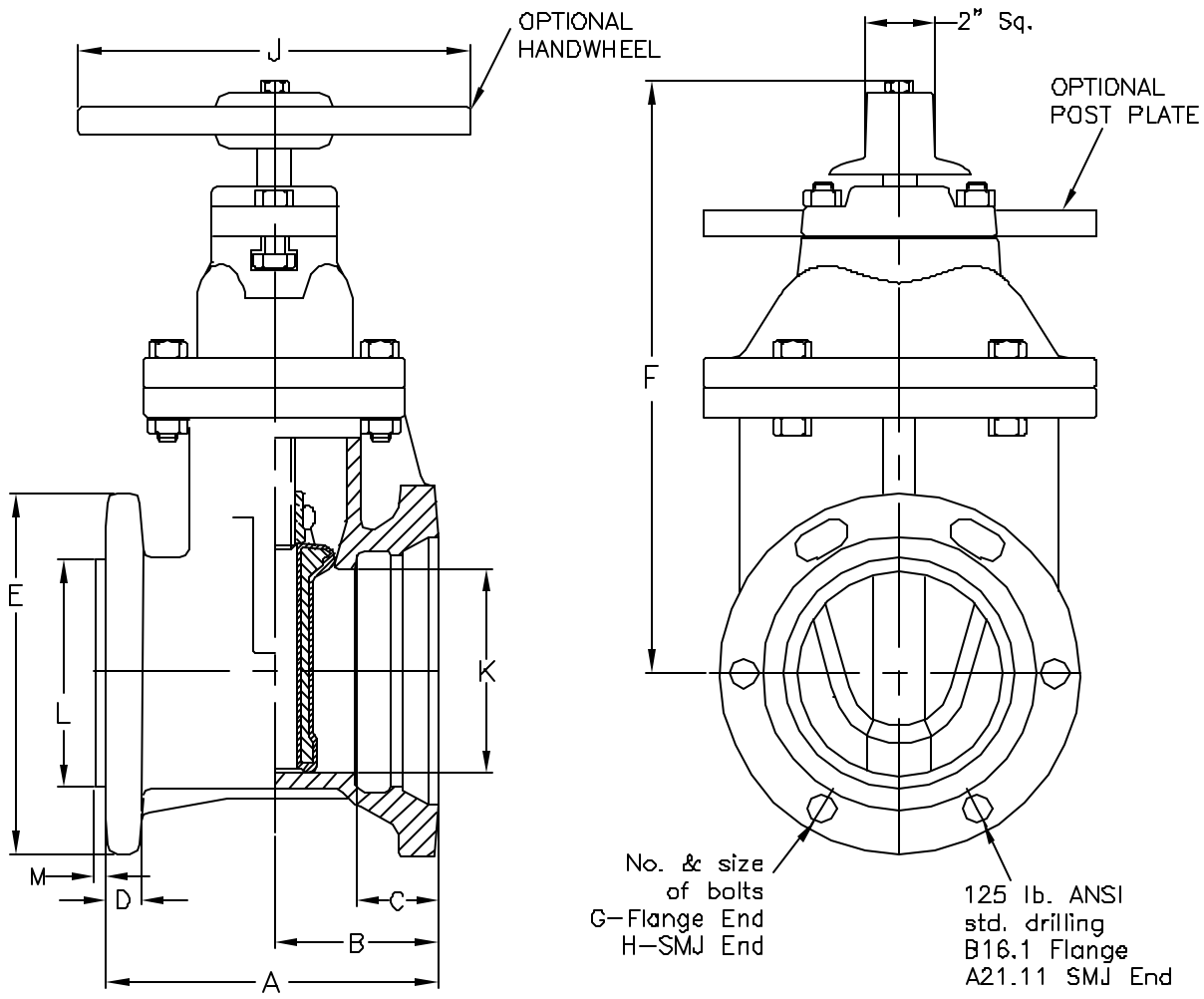
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7068

2" THRU 12"
RESILIENT SEAT OS&Y GATE VALVE
C515–STYLE 7068
FLANGED ENDS

LISTED UL 888H FM APPROVED NSF A.W.W.A Standard C515

7950 WITH 2" SQUARE NUT
7950-HW WITH HANDWHEEL
7950-P WITH POST PLATE



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT 2" NUT
3**	8 1/4	4 1/4	2 1/2	3/4	7 1/2	11 1/2	8-5/8	4-3/4	10	3 5/32	3 63/64	3/16	58
4	9 1/4	4 3/4	2 1/2	15/16	9	14 3/4	8-5/8	4-3/4	10	4 1/4	4 63/64	3/16	104
6	10 1/2	5 1/4	2 1/2	1	11	19	8-3/4	6-3/4	12	6 1/4	6 63/64	1/4	120
8	13 1/4	7 1/2	2 1/2	1 1/8	13 1/2	22 1/2	8-3/4	6-3/4	14	8 1/4	8 63/64	1/4	204
10	14 7/8	8 3/8	2 1/2	1 3/16	16	26 1/2	12-7/8	8-3/4	18	10 1/4	10 63/64	1/4	300
12	15	8	2 5/8	1 1/4	19	30	12-7/8	8-3/4	18	12 1/4	12 63/64	1/4	394

EACH SIZE ACCOMODATES A FULL SIZE DIAMETER TAPPING CUTTER
** 3" CONSULT FACTORY FOR AVAILABILITY---CURRENTLY NOT AVAILABLE
** 3" WILL BE MANUFACTURED TO C509 SPEC, BUT MADE OF DUCTILE IRON
*HANDWHEEL--ADD 6.5# (3"-4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (3"-12") ONLY
*PALLET QUANTITIES 2" NUT: 30(3"), 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 30(3"), 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 10(3"), 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

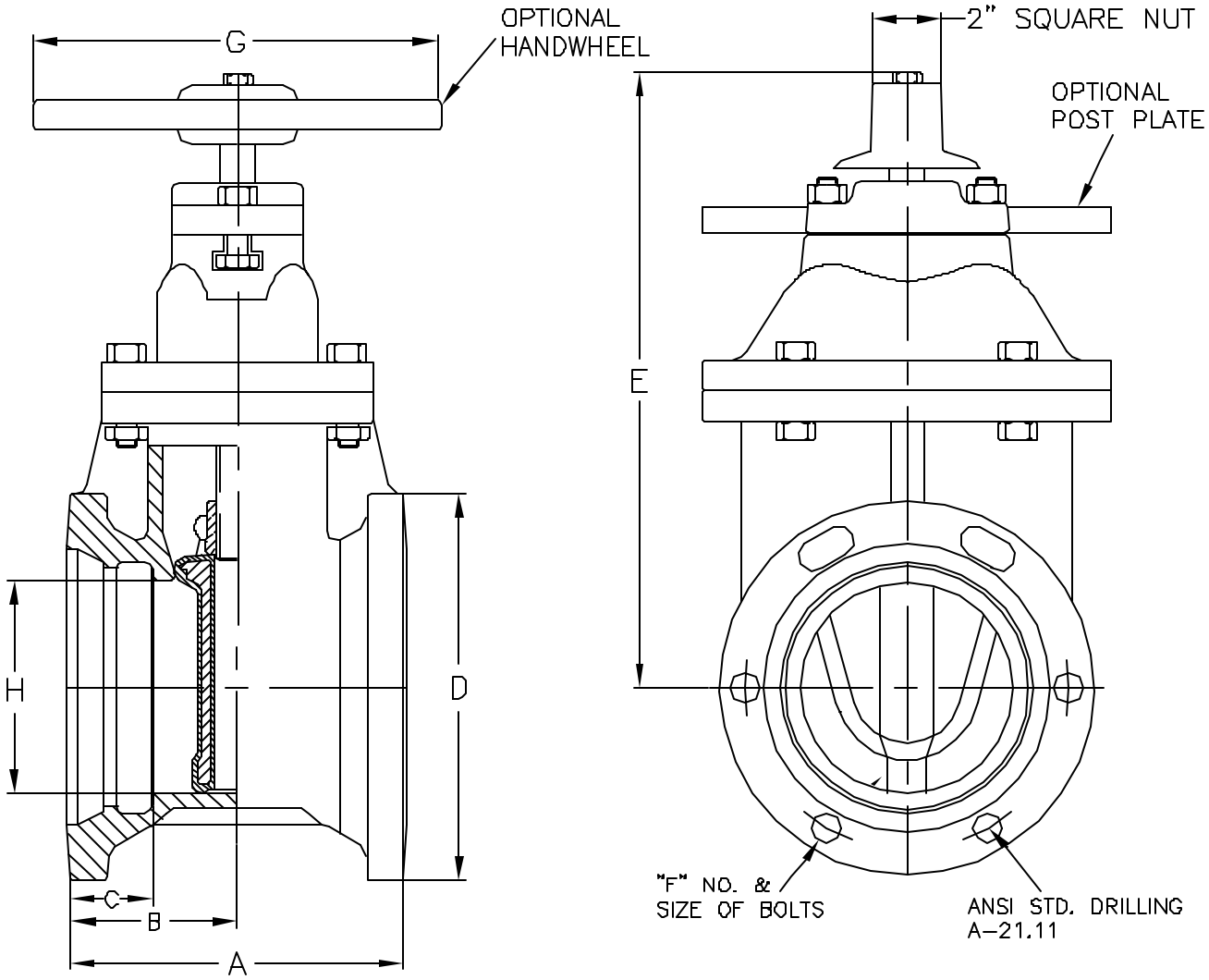
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7950

3" THRU 12"
RESILIENT SEAT GATE VALVE
C515-STYLE 7950
TAPPING VALVE---TAP X MJ

LISTED UL 888H FM APPROVED NSF A.W.W.A Standard C515

7576	WITH 2" SQUARE NUT
7576-HW	WITH HANDWHEEL
7576-P	WITH POST PLATE



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
4	9	4 1/2	2 1/2	9 1/8	14 3/4	4 3/4	10	5 1/10	85
6	10 1/2	5 1/4	2 1/2	11 1/8	19	6 3/4	12	7 1/5	128
8	13 1/8	6 9/16	2 1/2	13 1/4	22 1/2	6 3/4	14	9 2/5	200
10	15 1/2	7 3/4	2 1/2	15 3/4	26 1/2	8 3/4	18	11 1/2	309
12	16	8	2 5/8	18	30	8 3/4	18	13 3/5	471

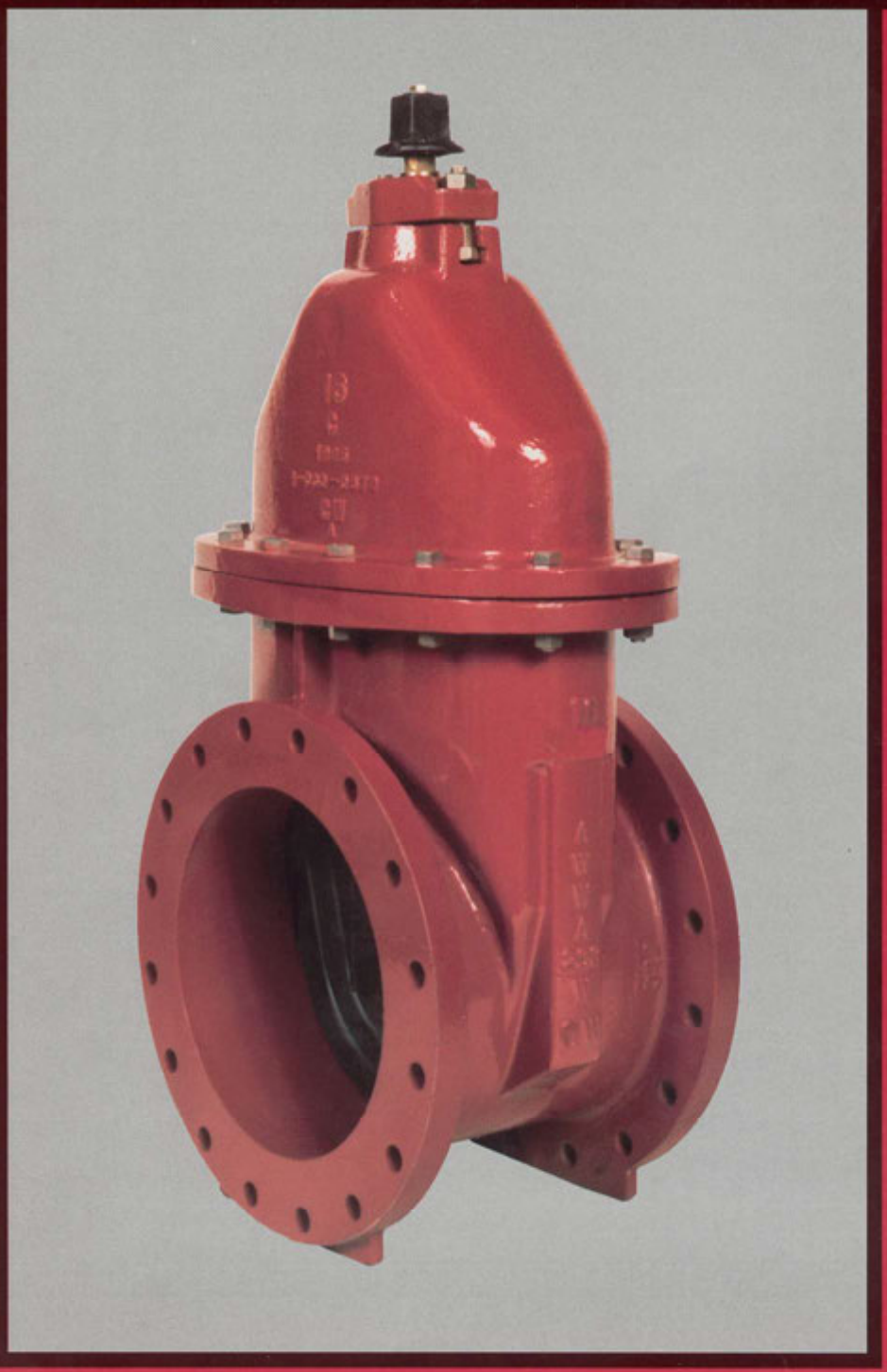
*HANDWHEEL--ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")
*INDICATOR POST PLATE ADD 16# (4"-12") ONLY
*PALLET QUANTITIES 2" NUT: 40(4"), 21(6"), 8(8)", 6(10"), 4(12")
*PALLET QUANTITIES HANDWHEEL: 40(4"), 21(6"), 8(8"), 6(10"), 4(12")
*TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. 7576

4" THRU 12"
RESILIENT SEAT GATE VALVE
C515-STYLE 7576
(CUTTING-IN JOINT) VALVE
OVERSIZED MJ X MJ BELL

RESILIENT WEDGE VALVE



14" THROUGH 24"

M&H AWWA R/W VALVE

Features and Benefits

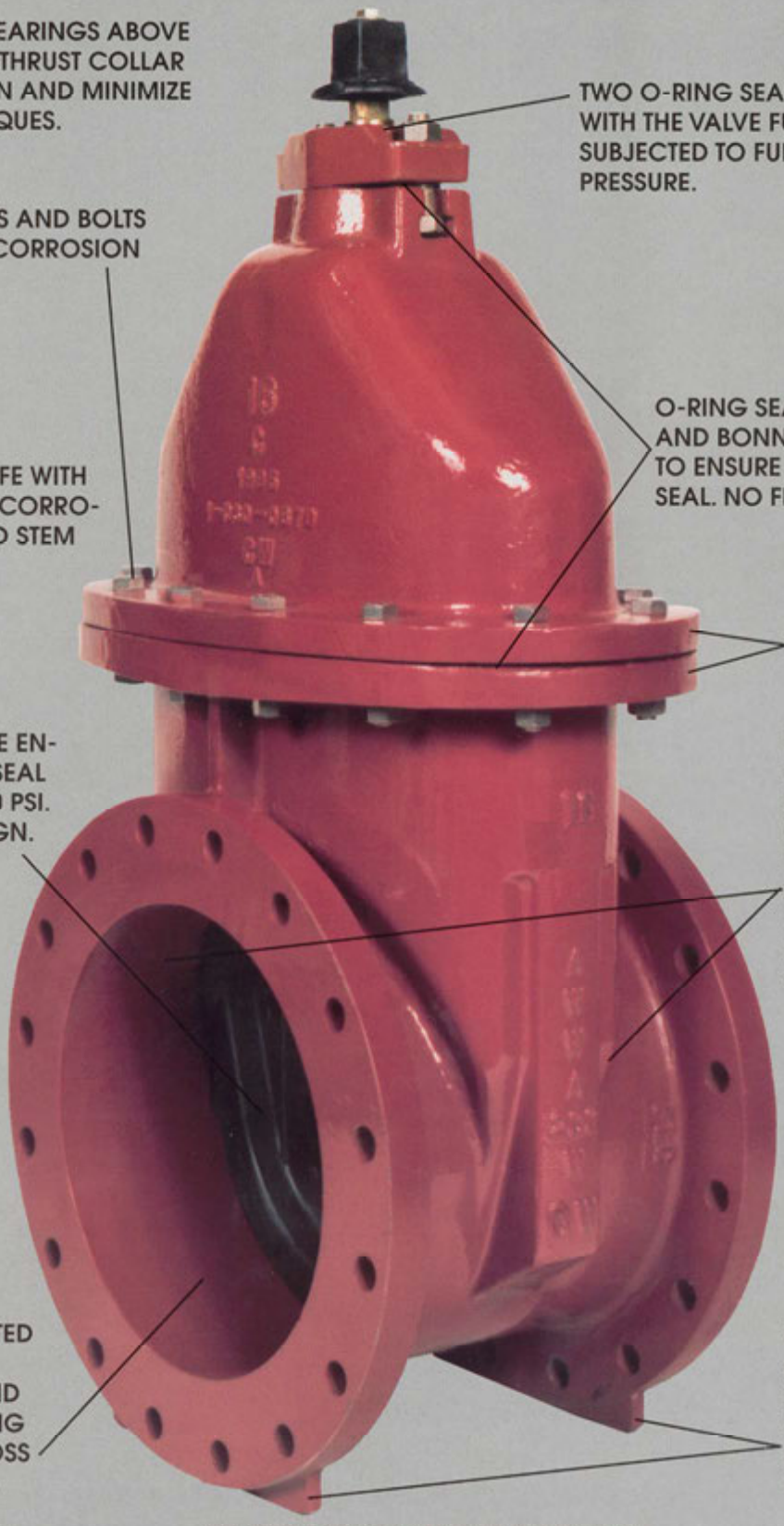
DELRIN THRUST BEARINGS ABOVE AND BELOW THE THRUST COLLAR REDUCE FRICTION AND MINIMIZE OPERATING TORQUES.

TWO O-RING SEALS ARE REPLACEABLE WITH THE VALVE FULLY OPEN AND SUBJECTED TO FULL-RATED WORKING PRESSURE.

ELECTRO-PLATED NUTS AND BOLTS PROVIDE LONG-LIFE CORROSION PROTECTION.

O-RING SEALS AT STUFFING BOX AND BONNET TO BODY FLANGES TO ENSURE THE BEST POSSIBLE SEAL. NO FLAT GASKETS.

LONG, TROUBLE FREE LIFE WITH HIGH STRENGTH, NON-CORROSIVE BRONZE STEM AND STEM NUT.



DUCTILE IRON BODY AND BONNET.

100% COATED WEDGE ENSURES BUBBLE-TIGHT SEAL EVERY TIME UP TO 200 PSI. WITH TWIN SEAL DESIGN.

M&H CORROSION RESISTANT FUSION-BONDED EPOXY COATING, CONFORMING TO AWWA C-550 AND NSF 61 APPROVED, PROTECTS BOTH INSIDE AND OUTSIDE OF VALVE.

SMOOTH, UNOBSTRUCTED WATERWAY IS FREE OF POCKETS, CAVITIES, AND DEPRESSIONS ALLOWING FOR MINIMAL FLOW LOSS AND LOWER PUMPING COSTS.
ALL VALVES ACCEPT FULL SIZE TAPPING CUTTER.

PADS ON THE BOTTOM OF ALL VALVES KEEP VALVE IN UPRIGHT POSITION FOR EASIER STORAGE AND PROTECTION FROM THE ELEMENTS.

ALL VALVES ARE RATED AT 200 PSI FOR AWWA SERVICE. ALL VALVES ARE HYDROSTATICALLY TESTED TO 400 PSI. NO BYPASS VALVE NEEDED.

M&H AWWA LARGE RESILIENT WEDGE GATE VALVES

SPECIFICATIONS / AVAILABLE CONFIGURATIONS & STYLE NUMBERS (14”-24”)

Size Range	Water Working Pressure psi	Bubble Tight Seat Test psi	Hydrostatic Shell Test psi
AWWA 14” – 24”	200	200	400

SIZE RANGE / STYLE NUMBER / STANDARD--Non Geared

	Size Range	Style No. With 2” Nut	Style No. With Hand wheel	Style No. With Post Plate
Mechanical Joint	14”-16”	4067-01	4067-01HW	4067-01P
Flanged Ends	14”-16”	4067-02	4067-02HW	4067-02P
Mechanical Joint X Flange	14”-16”	4067-13	4067-13HW	4067-13P
Tapping Valve	14”-16”	4751-01	4751-01HW	4751-01P
Push On (For Ductile Iron / C900)	16”	4067-22	4067-22HW	4067-22P
OS&Y	14”-16”	------	4068	------

SIZE RANGE WITH SPUR GEAR OPERATOR

Mechanical Joint (With Spur Gears)	14”-24”
Flanged Ends (With Spur Gears)	14”-24”
Mechanical Joint X Flange (With Spur Gears)	14”-24”
Tapping Valve (With Spur Gears)	14”-24”

SIZE RANGE WITH BEVEL GEAR OPERATOR

Mechanical Joint X Flange (With Bevel Gears)	14”-24”
Flanged Ends (With Bevel Gears)	14”-24”
Tapping Valve (With Bevel Gears)	14”-24”
Mechanical Joint (With Bevel Gears)	14”-24”
Push On (For Ductile Iron / C900)	16”

NOTES: 14” size and larger are not UL Listed / FM Approved
18”, 20”, 24” valves require either spur gears or bevel gears.
BY-Pass valve not required on 14” – 24” RW Valves

VALVE ACCESSORIES

Mechanical operational accessories are used for valves having special operational needs such as;

1. Location with limited access
2. Hazardous locations
3. Revision of operational position
4. High Torque Operation
5. Indication of Valve Position

Accessory selection must be evaluated for its capability to transmit the required torque requirements to the valve. To assure long-term trouble free operation, its materials of construction should take into account factors relating to corrosion and maintenance.

Accessories used on M&H valves can include the following:

Electric Motor Operators	Stem Guides	Indicator Posts
Hand wheels	“T” Handles	Extension Stems
Floor Boxes	Chain Wheels	Floor stands (Non-rising stem)
Position Indicators	Miter Box Gearing	Electronic Switches

M&H AWWA LARGE RESILIENT WEDGE GATE VALVES

RECOMMENDED SPECIFICATIONS FOR C-515 RESILIENT WEDGE GATE VALVES

Valves shall conform to the latest revision of AWWA Standard C-515 covering Resilient Wedge Gate Valves for Water Supply Service.

The valves shall have a ductile iron body, bonnet and o-ring plate. The wedge shall be totally encapsulated with rubber.

The sealing rubber shall be permanently bonded to the wedge per ASTM D429.

Valves shall be supplied with o-ring seals at all pressure retaining joints. No flat gaskets shall be allowed.

The valves shall be either non-rising or rising stem, opening by turning left or right, and provided with 2" square operating nut or a handwheel with the word "Open" and an arrow to indicate the direction to open.

Stems for NRS assemblies shall be cast bronze with integral collars in full compliance with AWWA. OS&Y (rising stems) shall be of bronze. All stems shall operate with bronze stem nuts independent of wedge and of stem (in NRS valves). Stainless steel stems or stem nuts are not allowed. NRS stems shall have two o-rings located above thrust collar and one o-ring below. Stem o-rings shall be replaceable with valve fully opened and subjected to full pressure. The NRS stems on 4"-12" shall also have two low torque thrust bearings located above and below the stem collar to reduce friction during operation.

Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. Valves 4" and larger shall accept a full size tapping cutter.

The body, bonnet, and o-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C-550 and be NSF 61 approved.

Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C-515 (and ULFM where applicable).

Valves shall have all component parts cast and assembled in the USA and shall be supplied by M&H Valve Company.

M&H AWWA LARGE RESILIENT WEDGE GATE VALVES

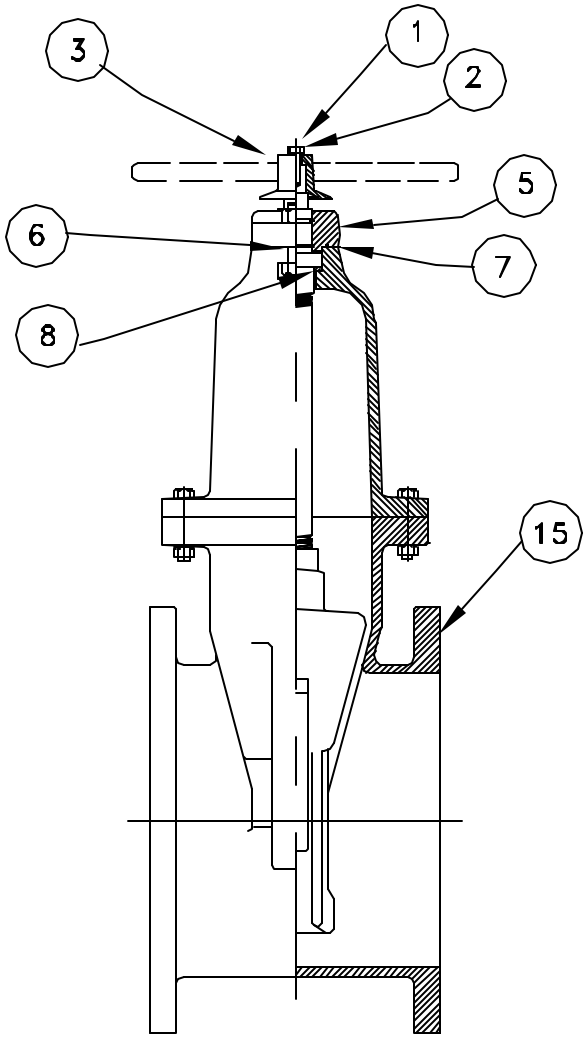
M&H VALVE CO. RESILIENT SEAT GATE VALVE TEN YEAR LIMITED WARRANTY

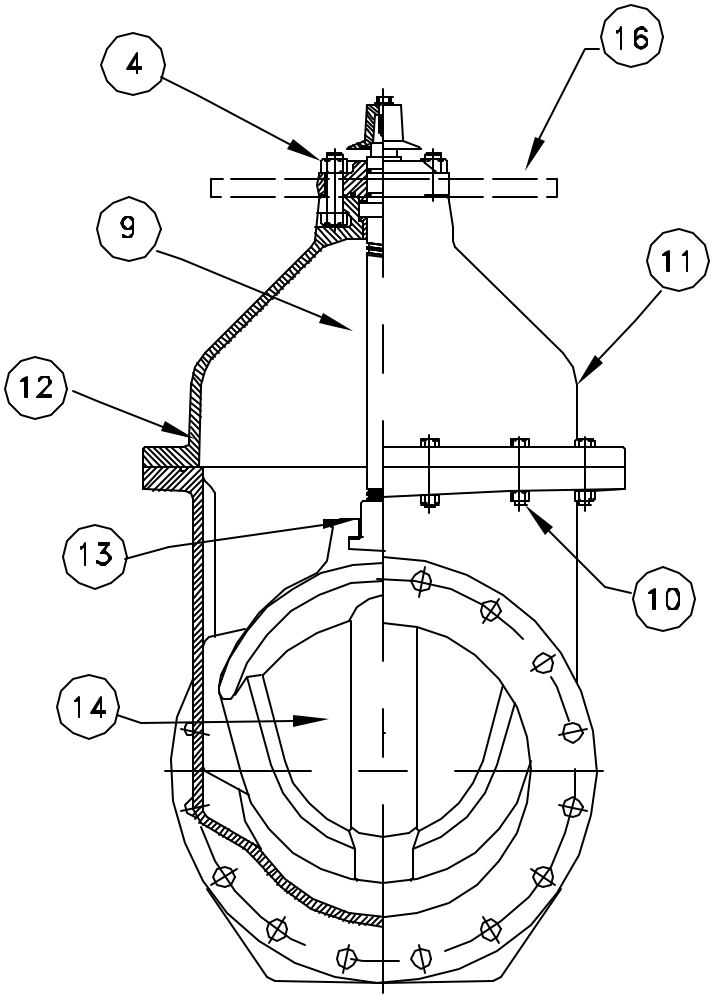
M&H Valve Company warrants that its R/S valves will be free from defects in material and workmanship under normal and customary use and maintenance for a period of ten (10) years from the date of purchase, provided the valve is installed and maintained according to M&H instruction, and applicable codes. The foregoing warranty does not cover failure of any part or parts from external forces, including but not limited to earthquake, vandalism, vehicular or other impact, and application of excessive torque to the operating mechanism or frost heave.

Should any M&H Valve Company part or parts fail to conform to the foregoing warranty, M&H shall, upon prompt written notice thereof, repair or replace, F.O.B. point of manufacture, such defective part or parts. Purchaser shall, if requested, return the part or parts to M&H, transportation prepaid. Purchaser shall bear all responsibility and expense incurred for removal, reinstallation and shipping in connection with any part supplied under the foregoing warranty.

THE FOREGOING WARRANTY IS IN LIEU OF AN EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANT ABILITY OR FITNESS. IN NO EVENT SHALL M&H VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES. DAMAGES OR EXPENSES.

ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
1	HOLD DOWN HEX HEAD BOLT	ZINC PLATED STEEL	ASTM A307 GRADE B
2	HOLD DOWN BOLT WASHER	ZINC PLATED STEEL	ASTM A307 GRADE B
3	OPERATING NUT OR HAND WHEEL	GRAY IRON	ASTM A126 CI B
4	BOLTS / NUTS (STUFFING BOX)	ZINC PLATED STEEL	ASTM A307 GRADE B
5	STUFFING BOX / SEAL PLATE	DUCTILE IRON	ASTM A536 70-50-05
6	STEM O-RING	BUNA N	---------
7	O-RING (STUFFING BOX)	BUNA N	---------
8	COVER / BONNET BUSHING	BRONZE	ASTM B584 CDA 844
9	STEM	BRONZE	ASTM B584 CDA 867
10	HEX HEAD BOLTS & NUTS	ZINC PLATED STEEL	ASTM A307 GRADE B
11	COVER / BONNET	DUCTILE IRON	ASTM A536 70-50-05
12	COVER / BONNET O-RING	BUNA N	---------
13	STEM NUT	BRONZE	ASTM A584 CDA 844
14	WEDGE / DISC / GATE	CAST IRON & SBR COATED	ASTM A126 CL B
15	BODY - ALL TYPES	DUCTILE IRON	ASTM A536 70-50-05
16	POST PLATE (16" ONLY)	DUCTILE IRON	ASTM A536 70-50-05





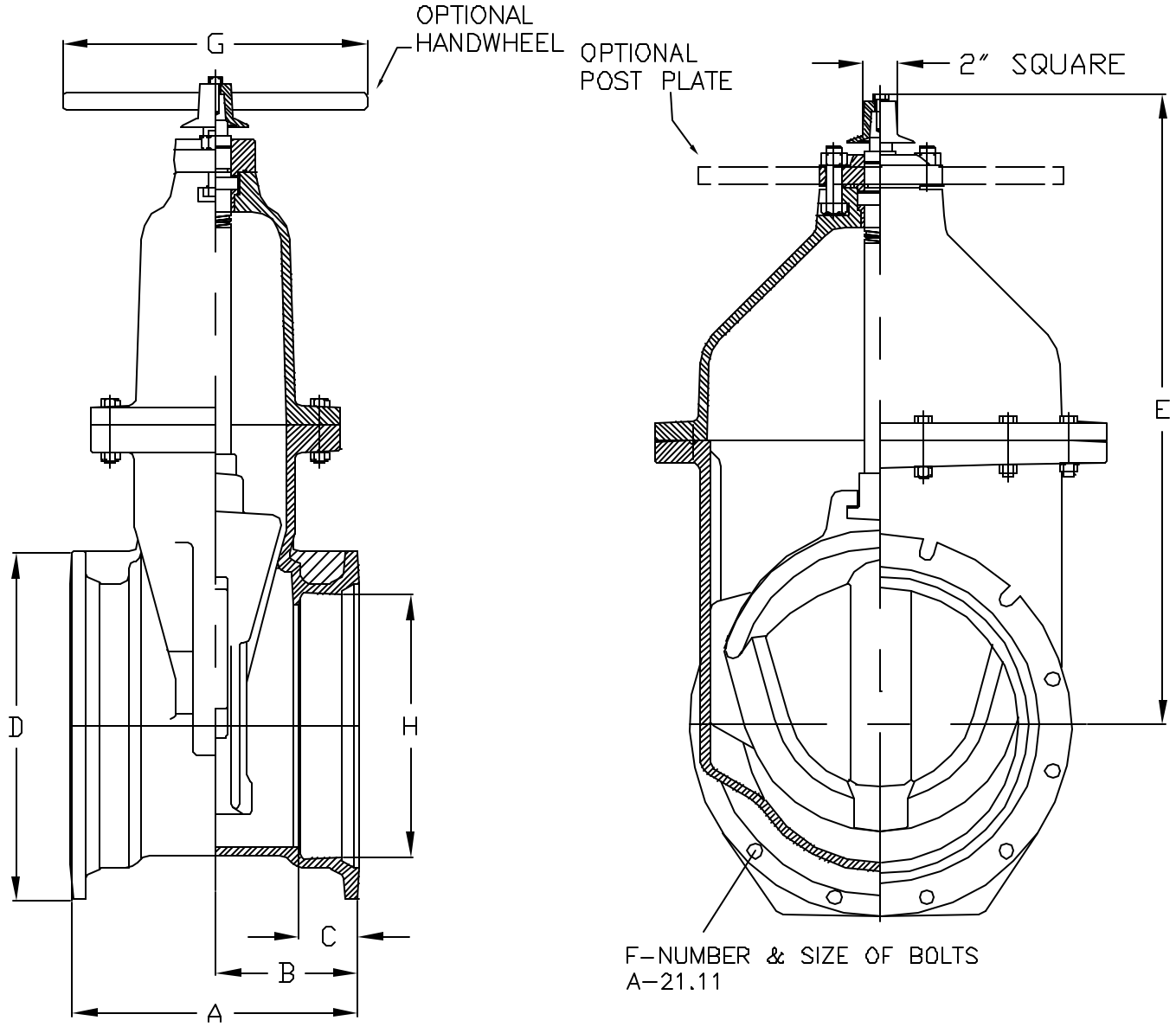
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-A1

14" & 16"
NRS RESILIENT SEAT GATE VALVE
VALVE ASSEMBLY / MATERIAL LIST

Complies with AWWA C515

4067–01	WITH 2" SQUARE NUT
4067–01HW	WITH HANDWHEEL
4067–01P	WITH POST PLATE (16" ONLY)



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT
14	17	8.5	3.5	20.25	37.75	10 3/4	26.00	14.25	625
16	17	8.5	3.5	22.5	37.75	12 3/4	26.00	16.25	701

TURNS TO OPEN: 14" & 16"=50
OPTIONAL 24" DIAMETER HANDWHEEL

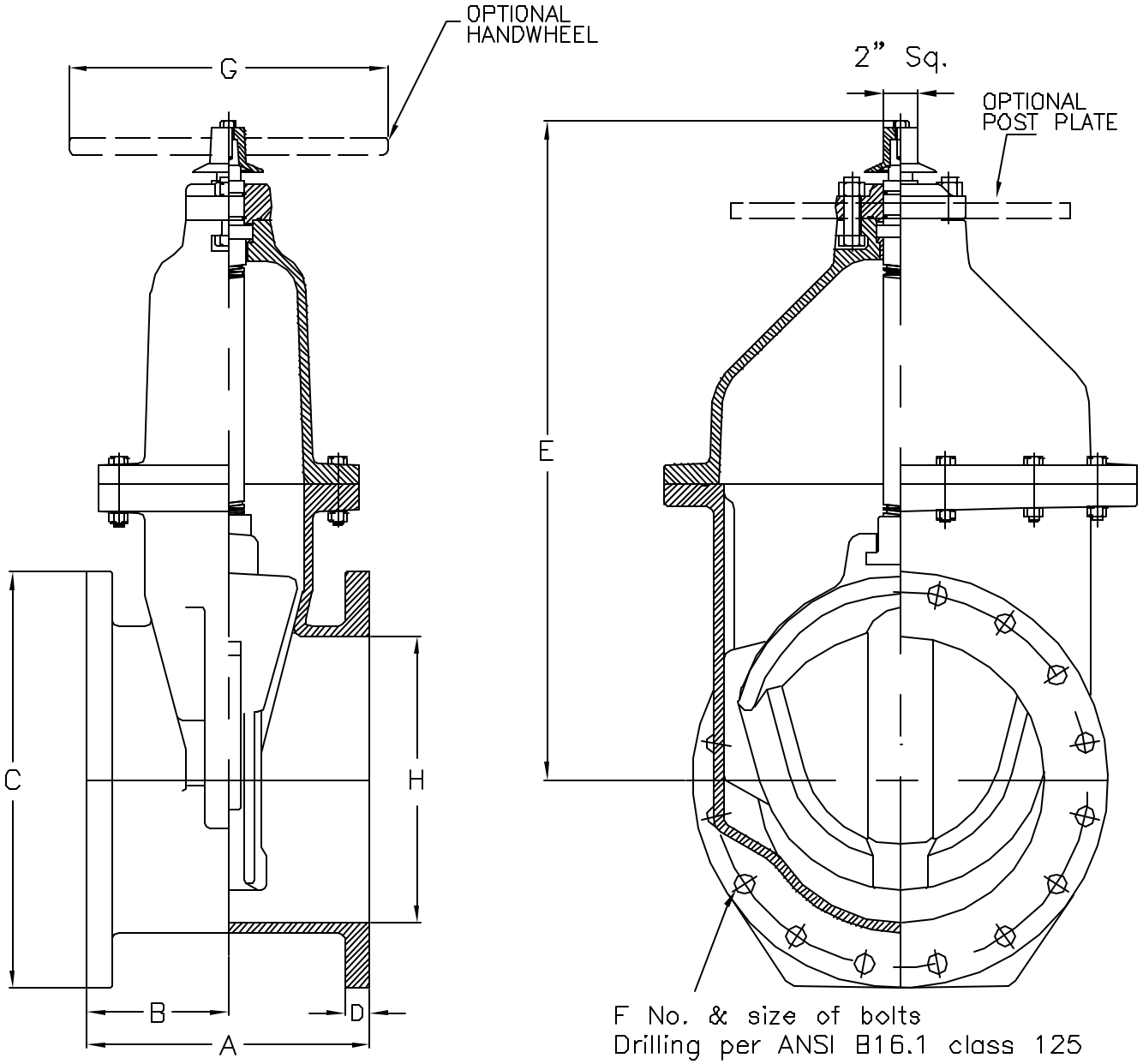
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–A2

14" & 16"
NRS RESILIENT SEAT GATE VALVE
MJ x MJ

Complies with AWWA C515

4067–02 WITH 2" SQUARE NUT
4067–02HW WITH HANDWHEEL
4067–02P WITH POST PLATE (16" ONLY)



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT
14	15.00	7.50	21.00	1.38	37.75	12–1	26.00	14.25	650
16	16.00	8.00	23.50	1.44	37.75	16–1	26.00	16.25	720

TURNS TO OPEN: 14" & 16"=50
OPTIONAL 24" DIAMETER HANDWHEEL

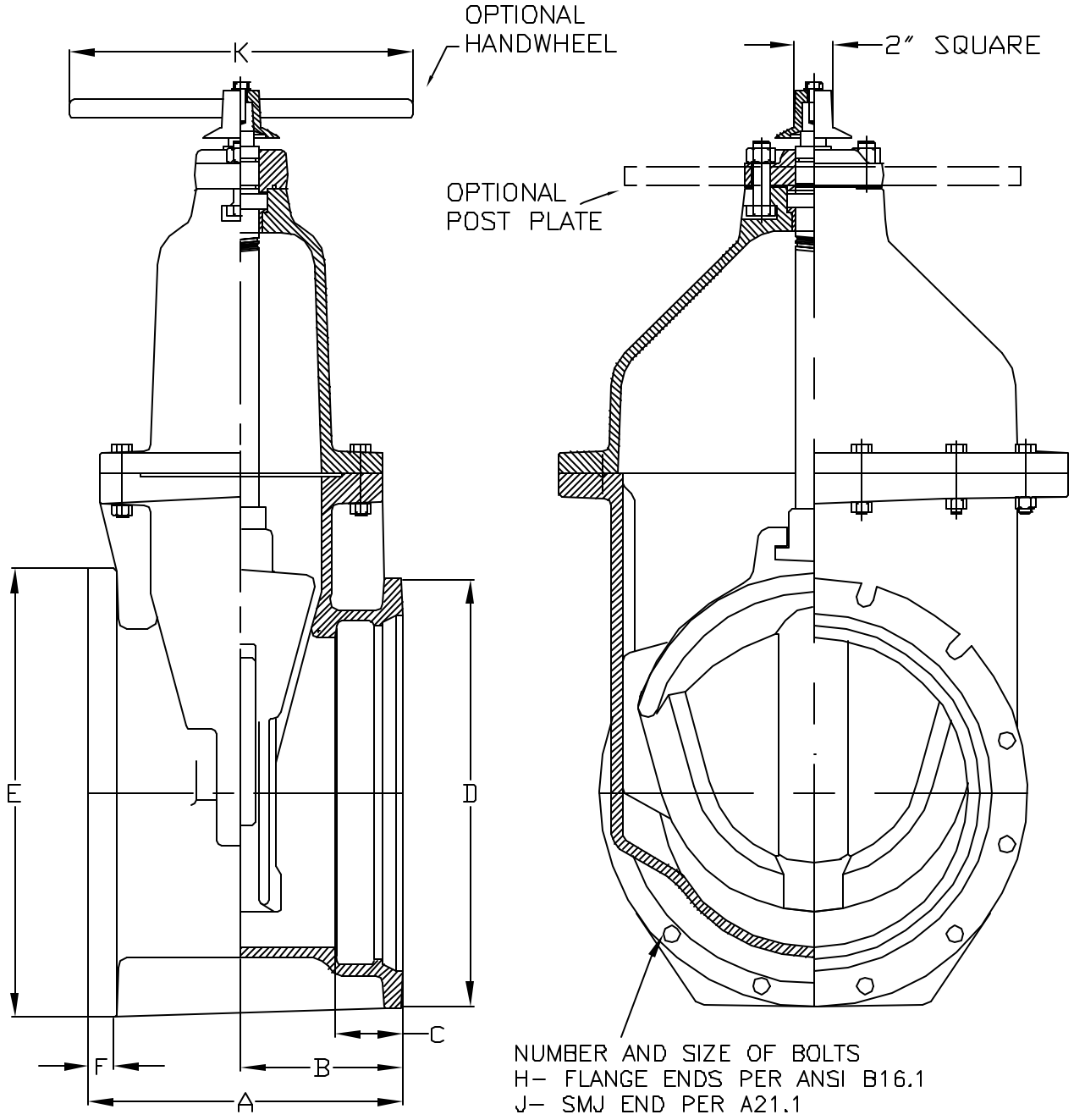
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–A3

14" & 16"
NRS RESILIENT SEAT GATE VALVE
FLANGED ENDS

Complies with AWWA C515

4067–13 WITH 2" SQUARE NUT
4067–13HW WITH HANDWHEEL
4067–13P WITH POST PLATE (16" ONLY)



VALVE SIZE	A	B	C	D	E	F	G	H	J	K	WEIGHT
14	17	8.5	3.5	20.25	21	1.38	37.75	12–1	10 3/4	26.00	700
16	16.5	8.5	3.5	22.5	23.5	1.50	37.75	16–1	12 3/4	26.00	1000

TURNS TO OPEN: 14" & 16"=50
OPTIONAL 24" DIAMETER HANDWHEEL

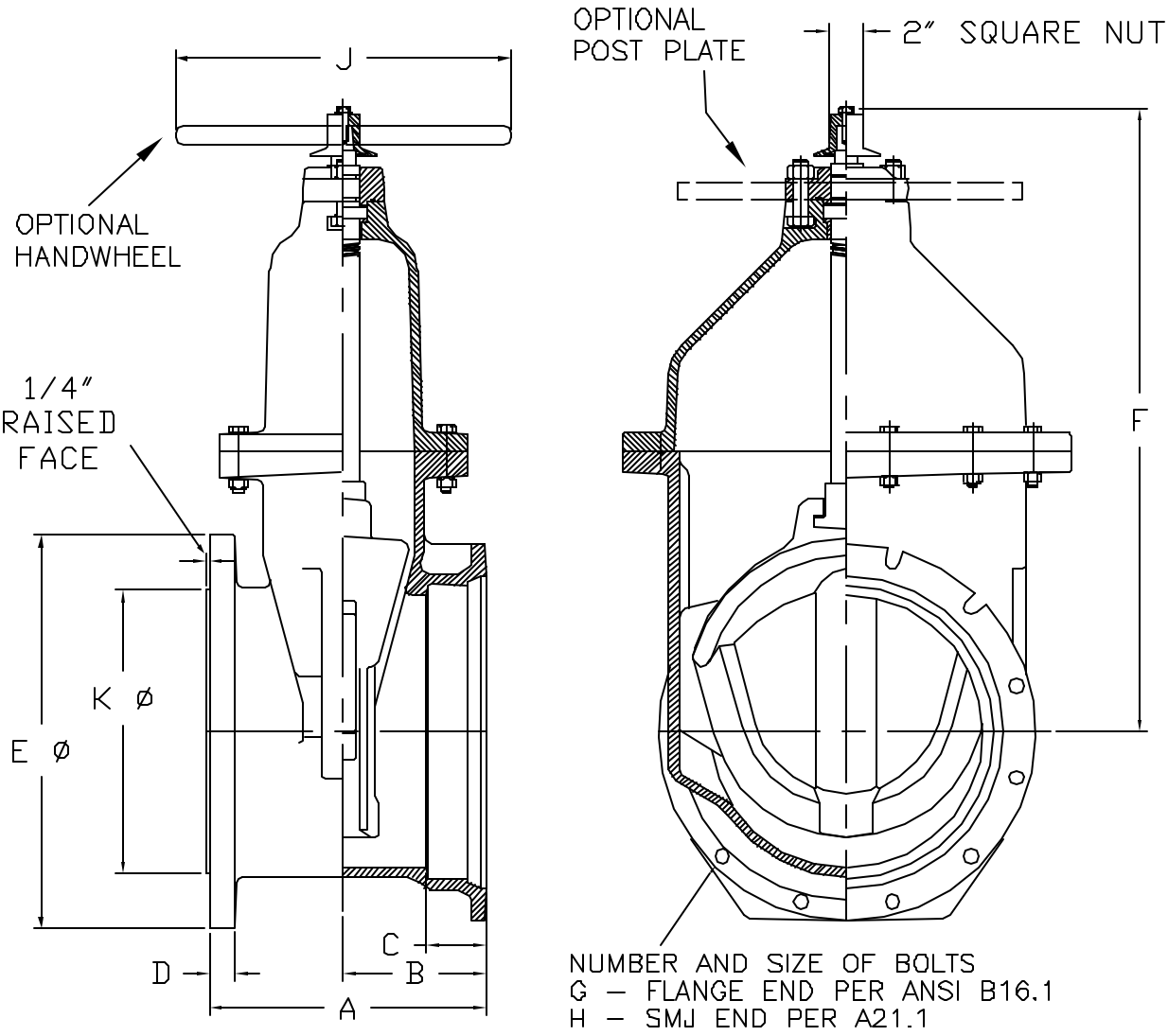
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–A4

14" & 16"
NRS RESILIENT SEAT GATE VALVE
MJ x FLANGE

Complies with AWWA C515

4751-01	WITH 2" SQUARE NUT
4751-01HW	WITH HANDWHEEL
4751-01P	WITH POST PLATE (16" ONLY)



VALVE SIZE	A	B	C	D	E	F	G	H	J	K	WEIGHT
14	16.75	8.5	3.5	1.18	21	37.75	12-1	10-3/4	26	14.98	700
16	16.25	8.5	3.5	1.25	23.5	37.75	16-1	12-3/4	26	16.98	1000

TURNS TO OPEN: 14" & 16"=50
OPTIONAL 24" DIAMETER HANDWHEEL

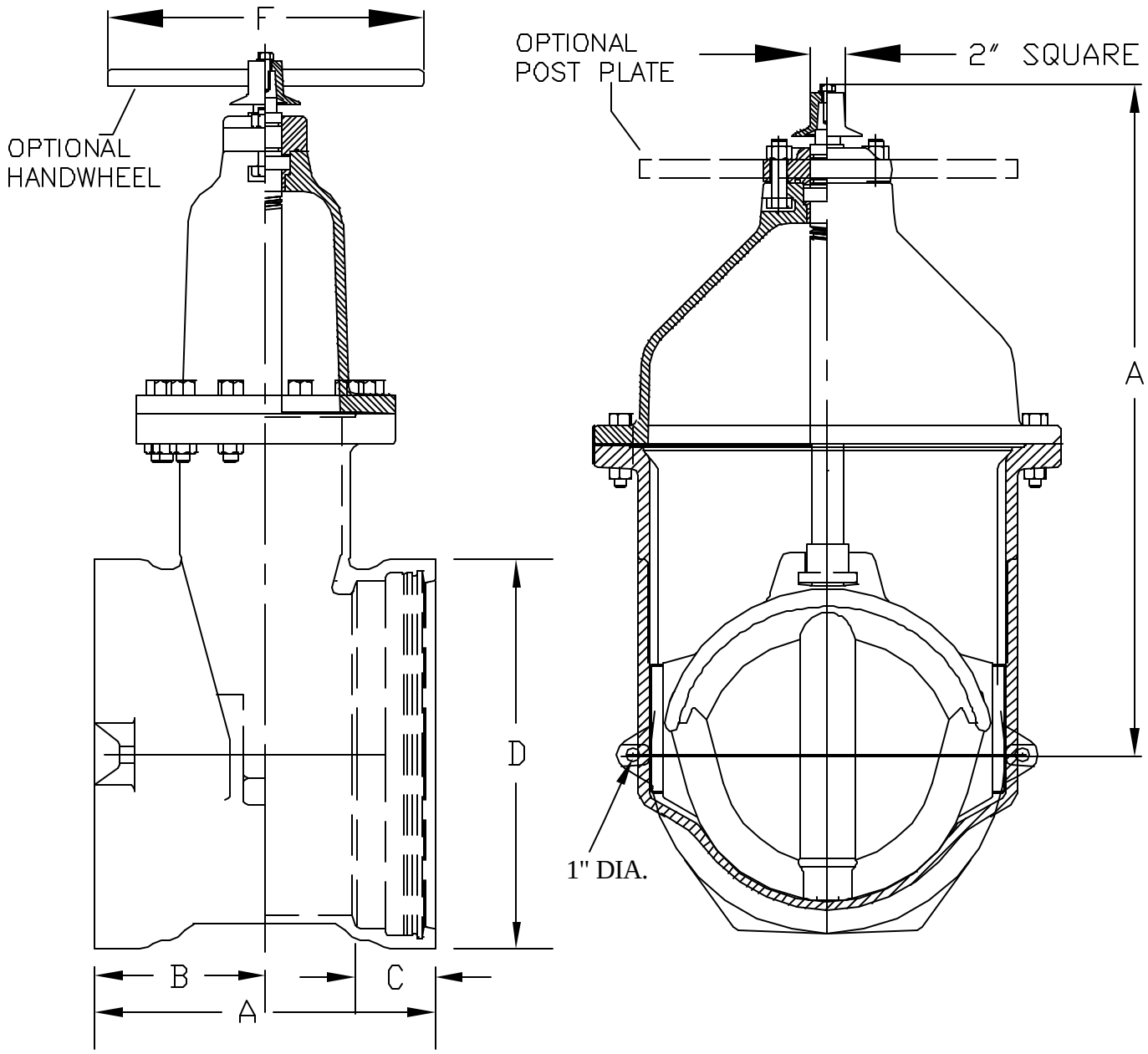
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ	
DATE: 6/2/03	
DWG. NO. LR-A5	

14" & 16"
NRS RESILIENT SEAT GATE VALVE
TAPPING VALVE

Complies with AWWA C515

4067–22 WITH 2" SQUARE NUT
4067–22HW WITH HANDWHEEL
4067–22P WITH POST PLATE (16" ONLY)



VALVE SIZE	A	B	C	D	E	F	WEIGHT
16	20 1/2	10 1/4	5	19 7/8	50	18	645

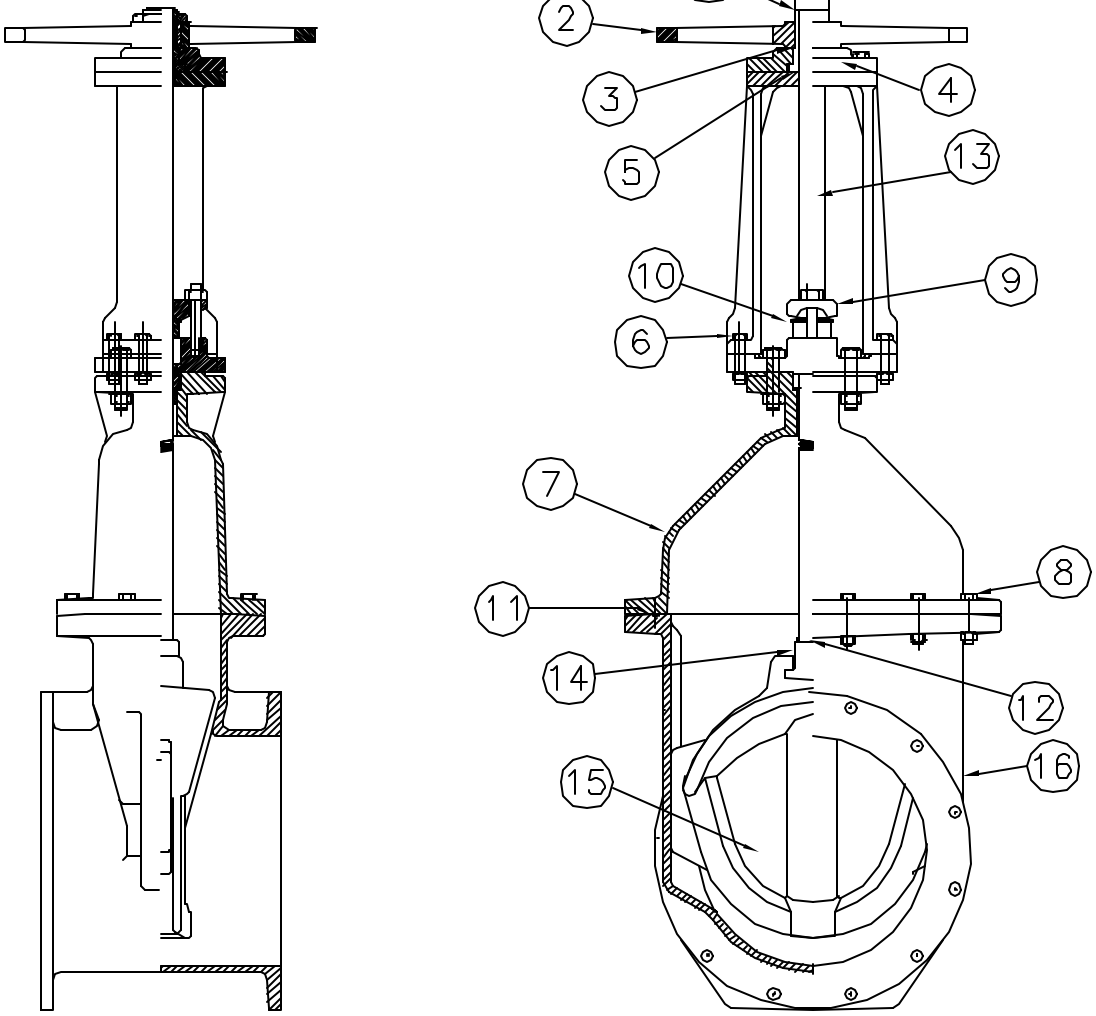
TURNS TO OPEN: 6"=50
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane. Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–A6

16"
NRS RESILIENT SEAT GATE VALVE
PUSH–ON x PUSH–ON (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
1	HAND WHEEL NUT	BRASS	ASTM B584 UNS 836
2	HAND WHEEL	GRAY IRON	ASTM A126 Cl B
3	THRUST WASHER	DELRIN	ASTM A36
4	THRUST WASHER	---------	---------
5	TOP STEM NUT	BRASS	ASTM B584 UNS 836
6	HEX HEAD BOLTS & NUTS	ZINC PLATED STEEL	ASTM A307
7	COVER	DUCTILE IRON	ASTM A536 70-50-05
8	HEX HEAD BOLTS & NUTS	ZINC PLATED STEEL	ASTM A307
9	GLAND	DUCTILE IRON	ASTM A536 70-50-05
10	PACKING	SQ. BRAIDED	---------
11	COVER O-RING	BUNA N	---------
12	STEM O-RING	BUNA N	---------
13	STEM	BRONZE	EVERDUR
14	STEM NUT	BRASS	ASTM A584 UNS 836
15	WEDGE	GRAY IRON & RUBBER	ASTM A126 CL B
16	BODY - ALL TYPES	DUCTILE IRON	ASTM A536 70-50-05

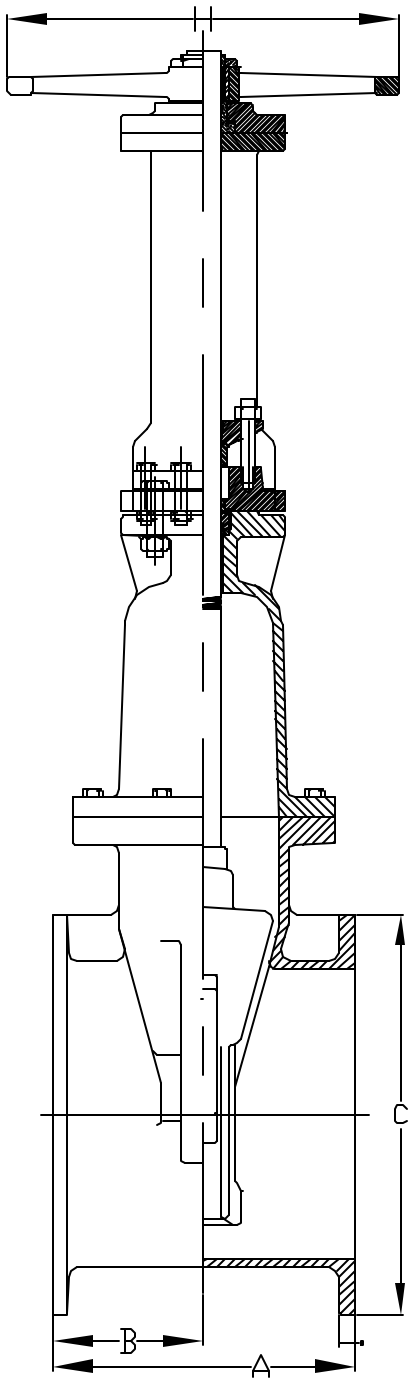


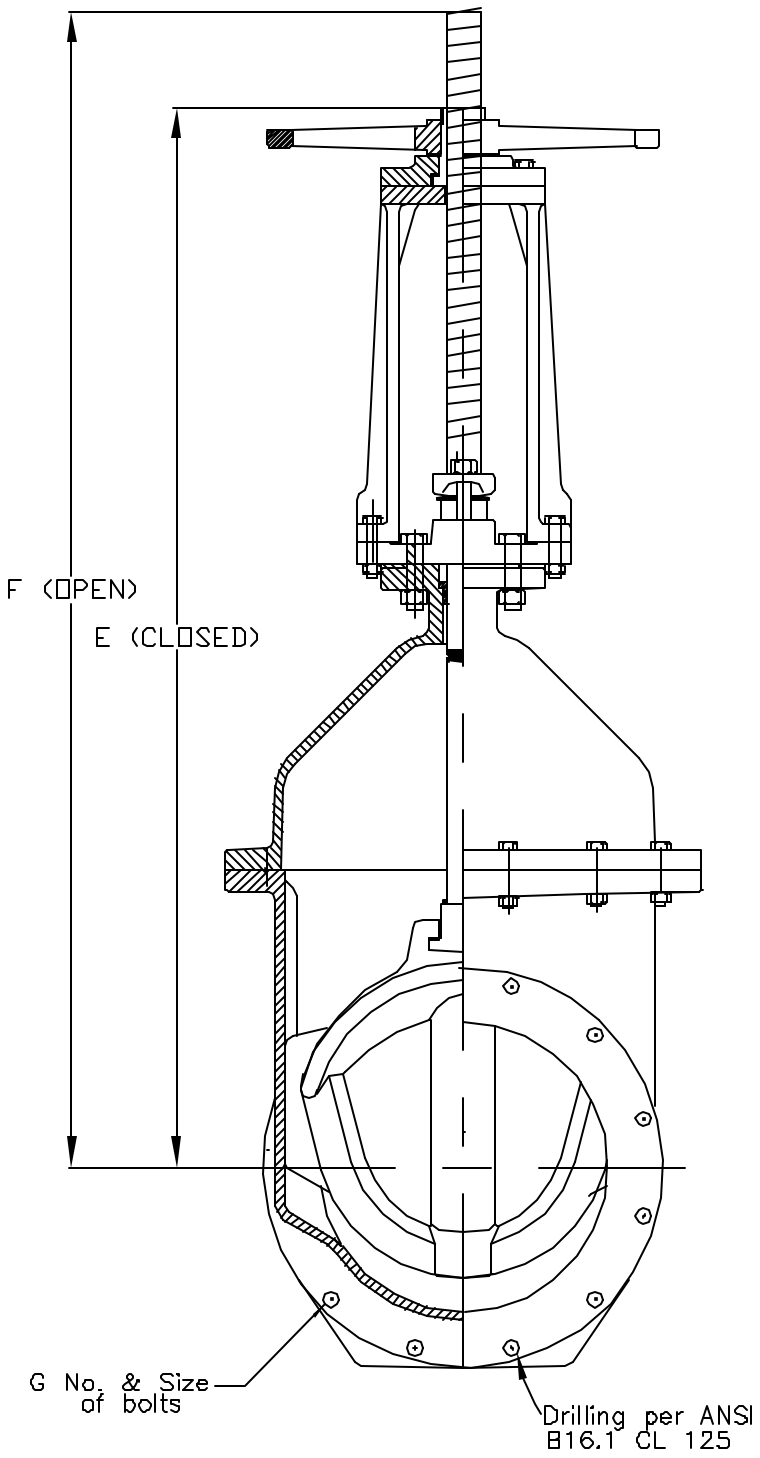
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-B1

14" & 16"
RESILIENT SEAT GATE VALVE
OS&Y
MATERIAL LIST / MATERIAL LIST

Complies with AWWA C515





	A	B	C	D	E	F	G	H	WEIGHT
14″	15	7 1/2	21	1 3/8	59 3/4	74 3/4	12-1	22	635
16″	16	8	23 1/2	1 7/16	59 3/4	74 3/4	16-1	22	735

TURNS TO OPEN: 14" & 16"=50

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-B2

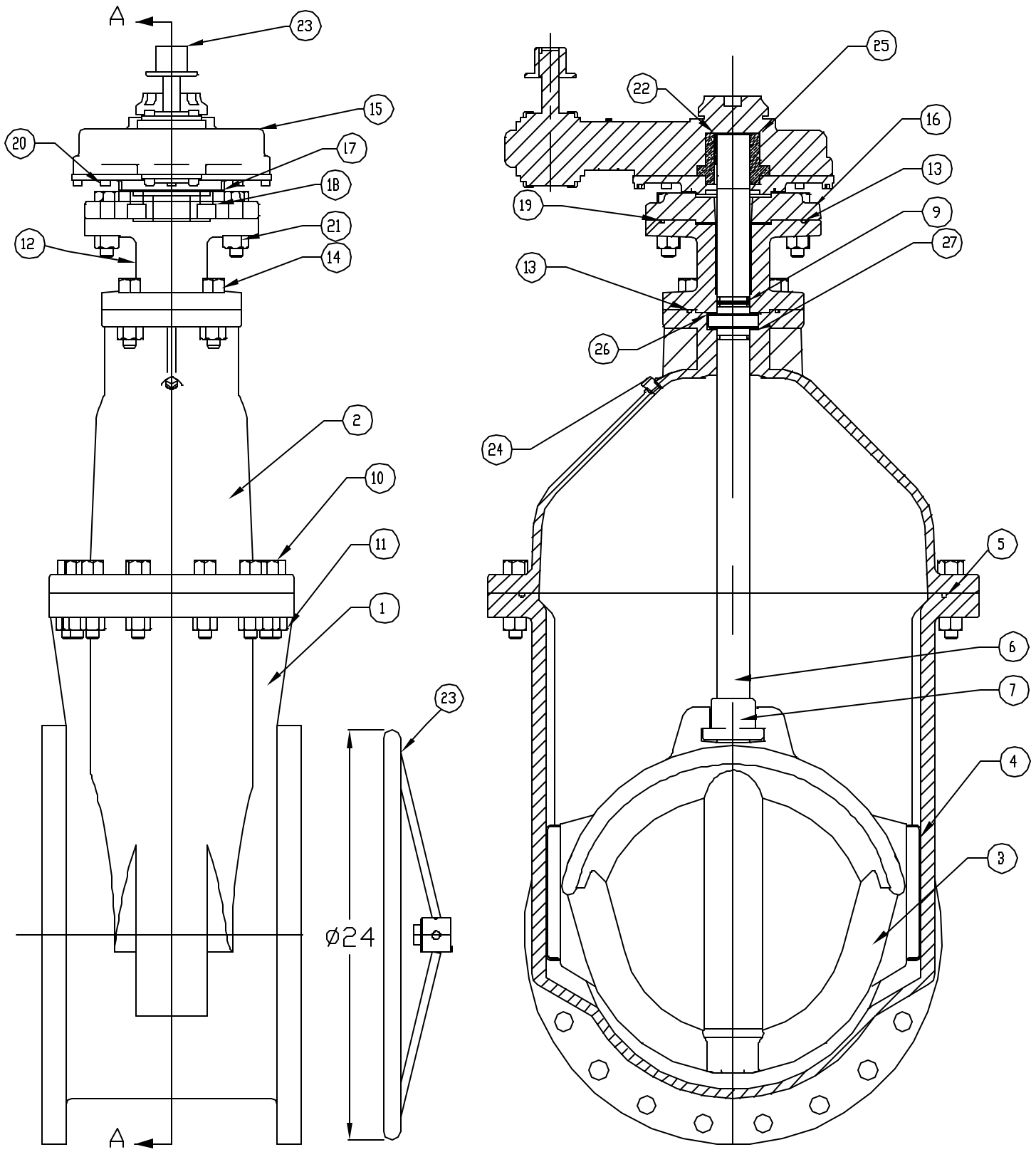
14" & 16"
RESILIENT SEAT GATE VALVE
OS&Y---STYLE 4068
FLANGED ENDS

ITEM NO.	DESCRIPTION	MATERIAL	MATERIAL SPECIFICATION
1	Body	Ductile Iron	ASTM A536 65-45-12
2	Cover	Ductile Iron	ASTM A536 65-45-12
3	Wedge	Ductile Iron/Rubber	ASTM A536 65-45-12/SBR
4	Wedge Cap (18"-24" only)	Delrin	Delrin
5	Oring	Rubber	NBR
6	Stem	Bronze	ASTM B584 C86700
7	Stem Nut	Bronze	ASTM B584 C86700
9	Oring	Rubber	NBR
10	Hex Head Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B
11	Hex Nut	Zinc Chromate Plated Steel	ASTM A307 Gr B
12	Extension	Ductile Iron	ASTM A536 65-45-12
13	Oring	Rubber	NBR
14	Hex Head Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B
15	Actuator-3:1 (18-24") 2:1 (14-16")		
16	Adaptor Plate	Ductile Iron	ASTM A536 65-45-12
17	Actuator Gasket	Rubber	NBR
18	Socket Head Bolt	Alloy Steel	Alloy Steel
19	Oring	Rubber	NBR
20	Hex Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B
21	Hex Nut	Zinc Chromate Plated Steel	ASTM A307 Gr B
22	Key	Steel	----------
23	Op Nut	Ductile Iron	ASTM A536 65-45-12
24	Pipe Plug	Steel	Steel
25	Drive Sleeve	Steel	AISI 1023
26	Thrust Bearing	Delrin	----------
27	Thrust Bearing (18"-24" only)	Delrin	----------

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

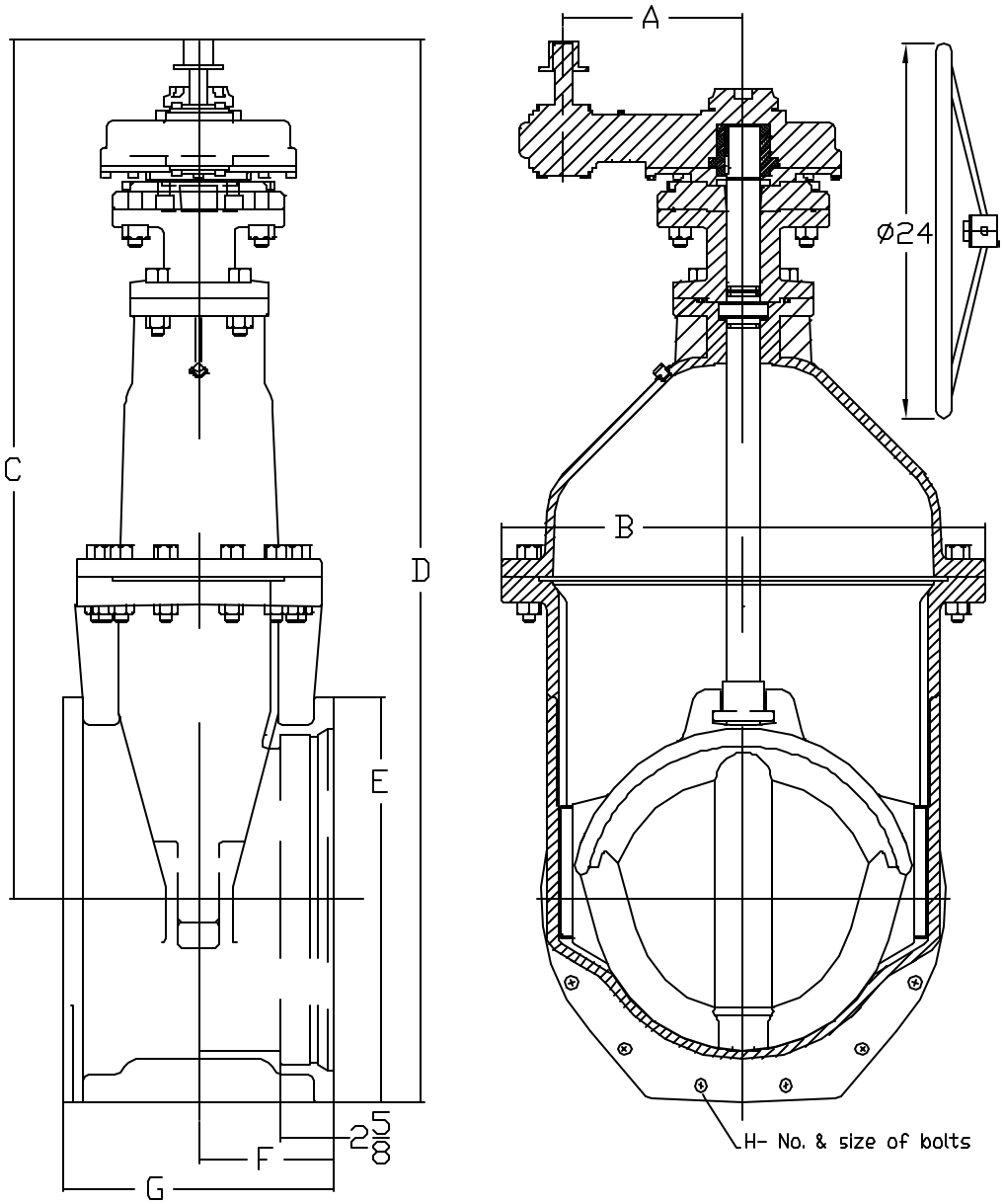
DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-C1A

14" THRU 24"
NRS-RESILIENT SEAT GATE VALVE
WITH (SPUR GEAR)
MATERIAL LIST



M&H VALVE COMPANY A DIVISION OF McWane, Inc. P.O. BOX 2088 ANNISTON, ALABAMA 36202	DWN: TRIJ DATE: 6/2/03 DWG. NO. LR-C1B	14" THRU 24" NRS-RESILIENT SEAT GATE VALVE WITH (SPUR GEAR) VALVE ASSEMBLY

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT
14	8	26 11/16	52 1/8	62 1/2	20 1/4	8 1/2	17	10–3/4	900
16	8	26 11/16	51 1/8	62 1/2	22 1/2	8 1/2	17	12–3/4	1200
18	12	32 1/4	58	70 1/2	24 3/4	9 5/32	18 3/4	12–3/4	2000
20	12	32 1/4	57	70 1/2	27	9 5/32	18	14–3/4	2130
24	12	36 1/2	62 1/8	77 3/8	31 1/2	9 1/2	19	16–3/4	3030

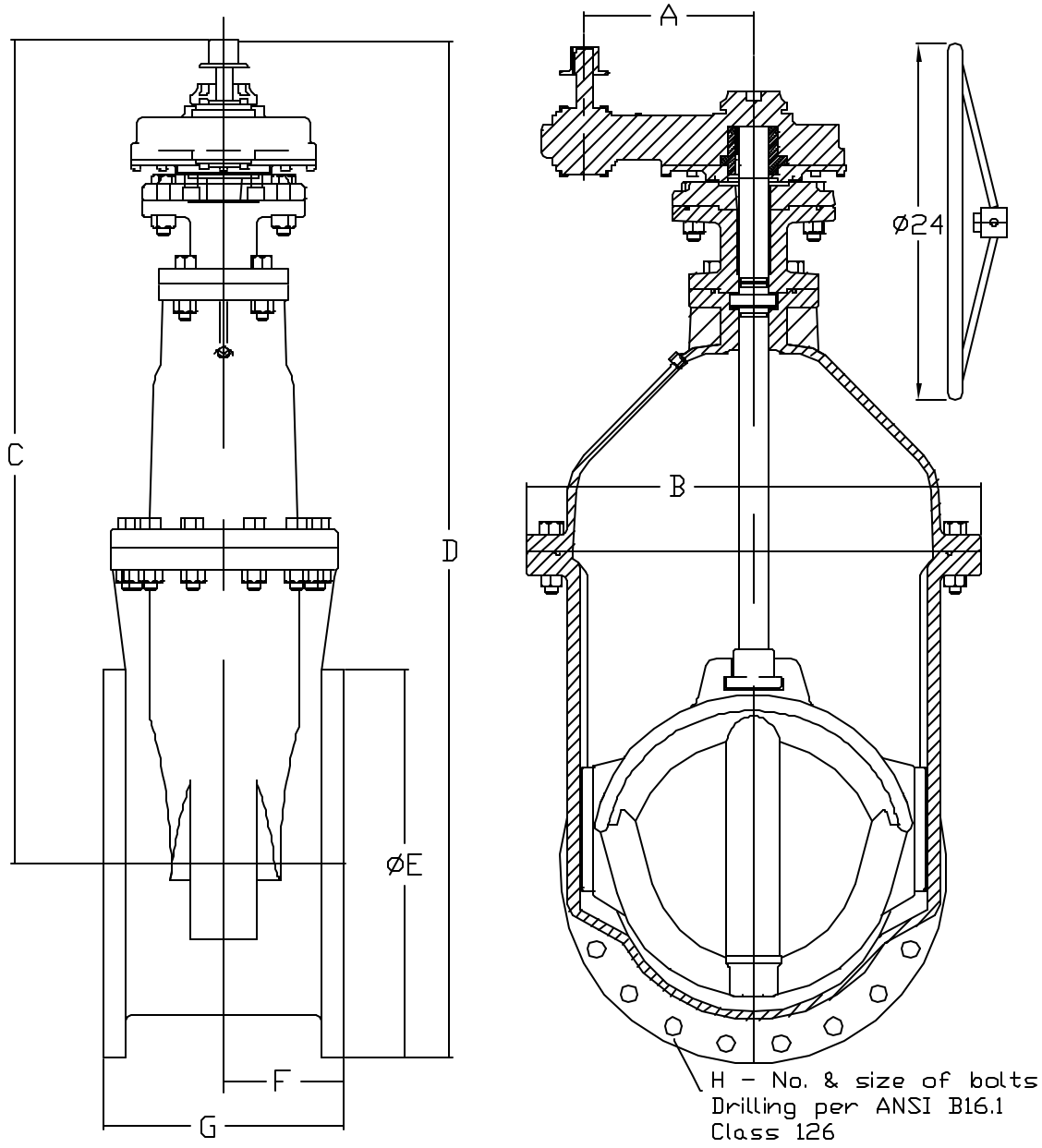
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–C2

14" THRU 24"
NRS–RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
MJ x MJ

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT
14	8	26 11/16	52 1/8	63	21	7 1/2	15	12–1	850
16	8	26 11/16	51 1/8	63	23 1/2	8	16	16–1	900
18	12	32 1/4	58	70 1/2	25	8 1/2	17	16–1 1/8	2000
20	12	32 1/4	57	70 1/2	27 1/2	9	18	20–1 1/8	2130
24	12	36 1/2	62 5/8	78 1/2	32	10	20	20–1 1/4	3030

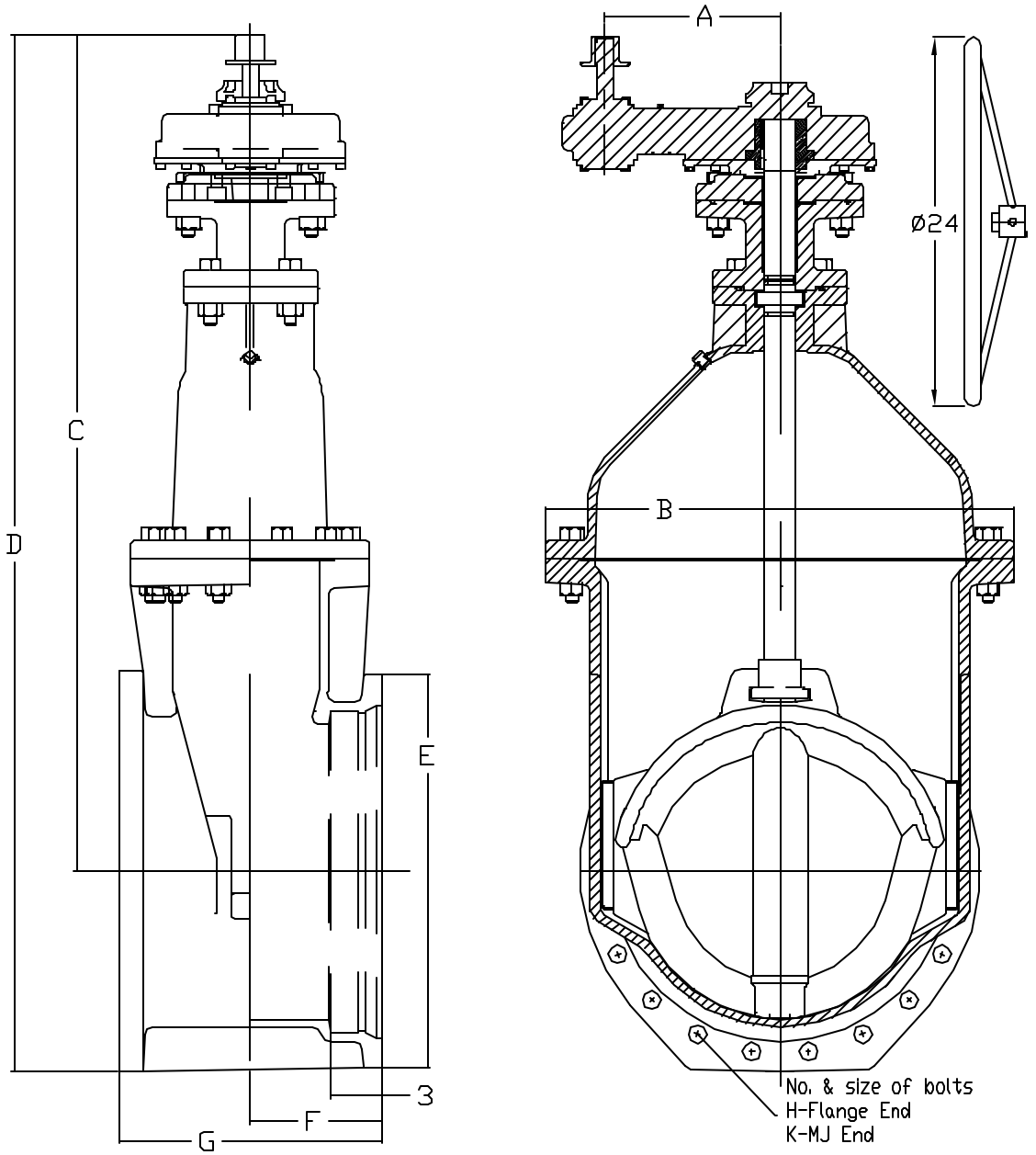
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–C3

14" THRU 24"
NRS–RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
FLANGED ENDS

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	K	WEIGHT
14	8	26 11/16	52 1/8	62 1/2	20 1/4	8 1/2	17	12–1 1/8	10–3/4	900
16	8	26 11/16	51 1/8	62 1/2	22 1/2	8 1/2	16 1/2	16–1	12–3/4	1200
18	12	32 1/4	58	70 1/2	24 3/4	9 3/8	18 3/8	16–1 1/8	12–3/4	2000
20	12	32 1/4	57	70 1/2	27	9 5/32	18	20–1 1/8	14–3/4	2130
24	12	36 1/2	62 1/8	77 3/8	31 1/2	9 1/2	20 1/4	20–1 1/4	16–3/4	3030

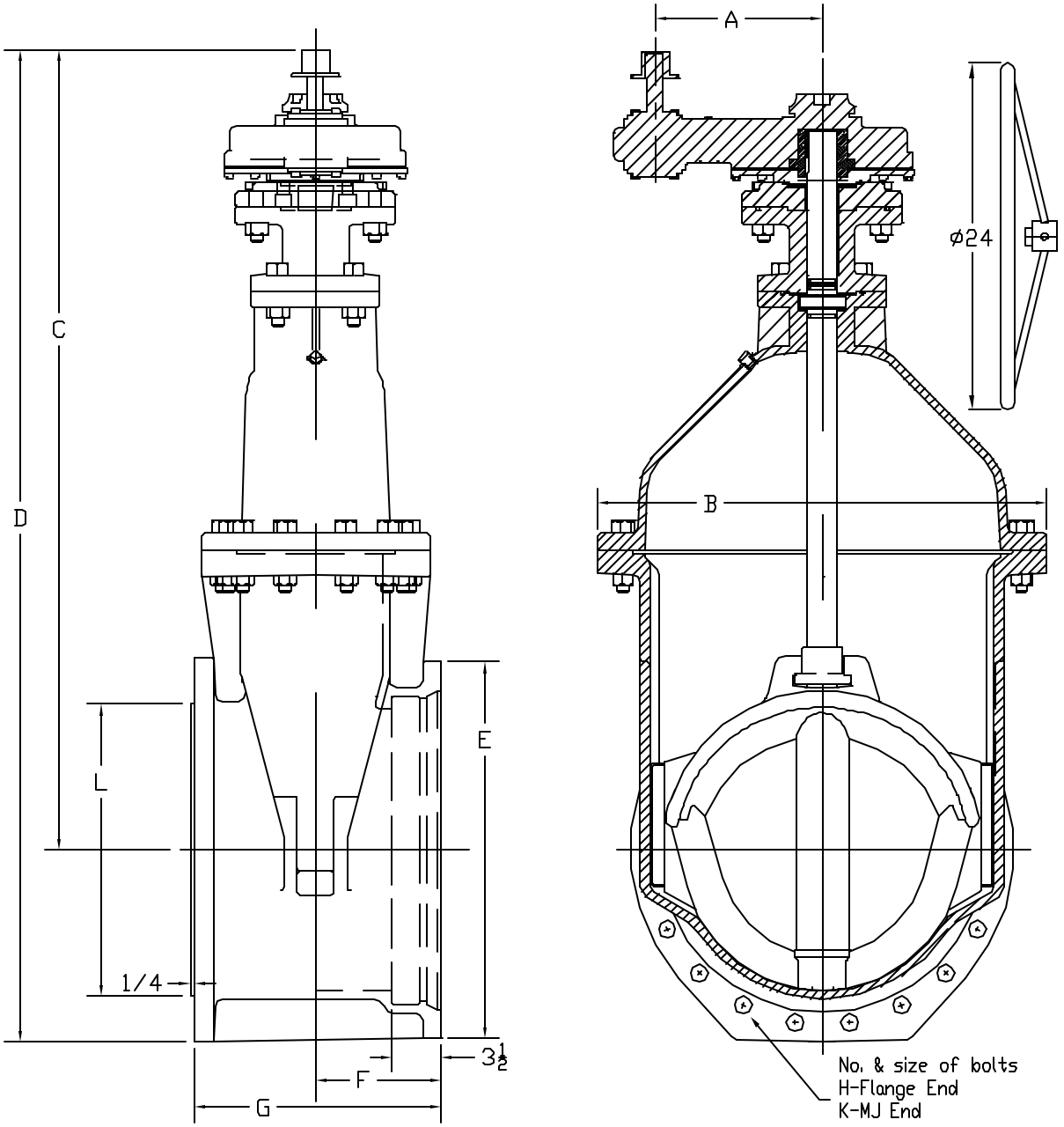
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–C4

14" THRU 24"
NRS–RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
FLANGE X MJ

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	K	L	WEIGHT
14	8	26 11/16	52 1/8	62 1/2	20 1/4	8 1/2	16 3/4	12–1	10–3/4	14 15/16	900
16	8	26 11/16	51 1/8	62 1/2	22 1/2	8 1/2	16 1/4	16–1	12–3/4	16 15/16	1200
18	12	32 1/4	58	70 1/2	24 3/4	9 3/8	18 1/8	16–1 1/8	12–3/4	18 15/16	2000
20	12	32 1/4	57	70 1/2	27	9	18	20–1 1/8	14–3/4	20 15/16	2130
24	12	36 1/2	62 1/8	77 3/8	31 1/2	10 1/2	20 1/2	20–1 1/4	16–3/4	24 15/16	3030

TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–C5

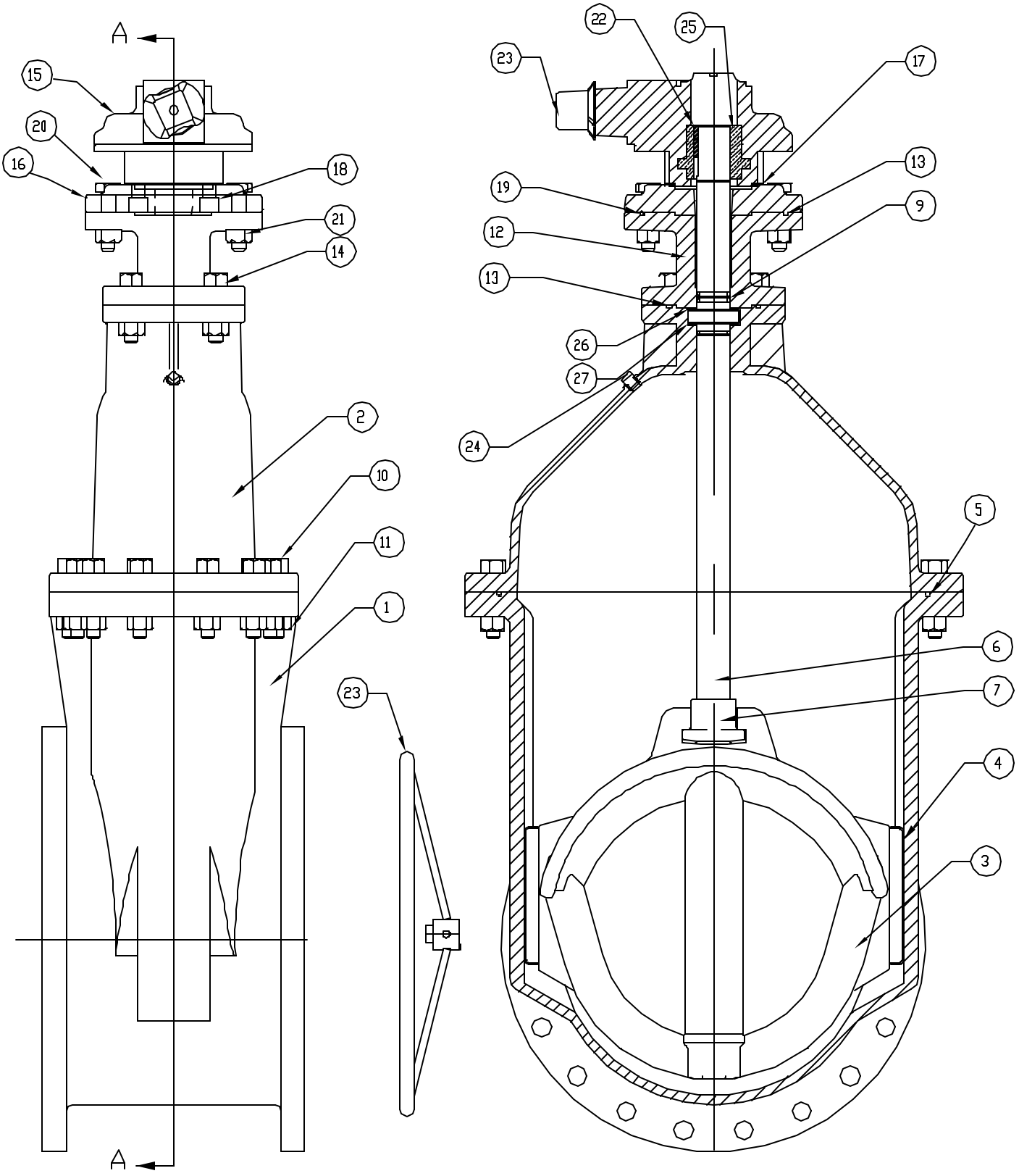
14" THRU 24"
NRS–RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
TAPPING VALVE

ITEM NO.	DESCRIPTION	MATERIAL	MATERIAL SPECIFICATION
1	Body	Ductile Iron	ASTM A536 65-45-12
2	Cover	Ductile Iron	ASTM A536 65-45-12
3	Wedge	Ductile Iron/Rubber	ASTM A536 65-45-12/SBR
4	Wedge Cap (18"-24" only)	Delrin	Delrin
5	Oring	Rubber	NBR
6	Stem	Bronze	ASTM B584 C86700
7	Stem Nut	Bronze	ASTM B584 C86700
9	Oring	Rubber	NBR
10	Hex Head Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B
11	Hex Nut	Zinc Chromate Plated Steel	ASTM A307 Gr B
12	Extension	Ductile Iron	ASTM A536 65-45-12
13	Oring	Rubber	NBR
14	Hex Head Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B
15	Actuator-3:1 (18-24") 2:1 (14-16")		
16	Adaptor Plate	Ductile Iron	ASTM A536 65-45-12
17	Actuator Gasket	Rubber	NBR
18	Socket Head Bolt	Alloy Steel	Alloy Steel
19	Oring	Rubber	NBR
20	Hex Bolt	Zinc Chromate Plated Steel	ASTM A307 Gr B
21	Hex Nut	Zinc Chromate Plated Steel	ASTM A307 Gr B
22	Key	Steel	----------
23	Operating Nut/24" Handwheel	Ductile Iron	ASTM A536 65-45-12
24	Pipe Plug	Steel	Steel
25	Drive Sleeve	Steel	AISI 1023
26	Thrust Bearing	Delrin	----------
27	Thrust Bearing (18"-24" only)	Delrin	----------

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

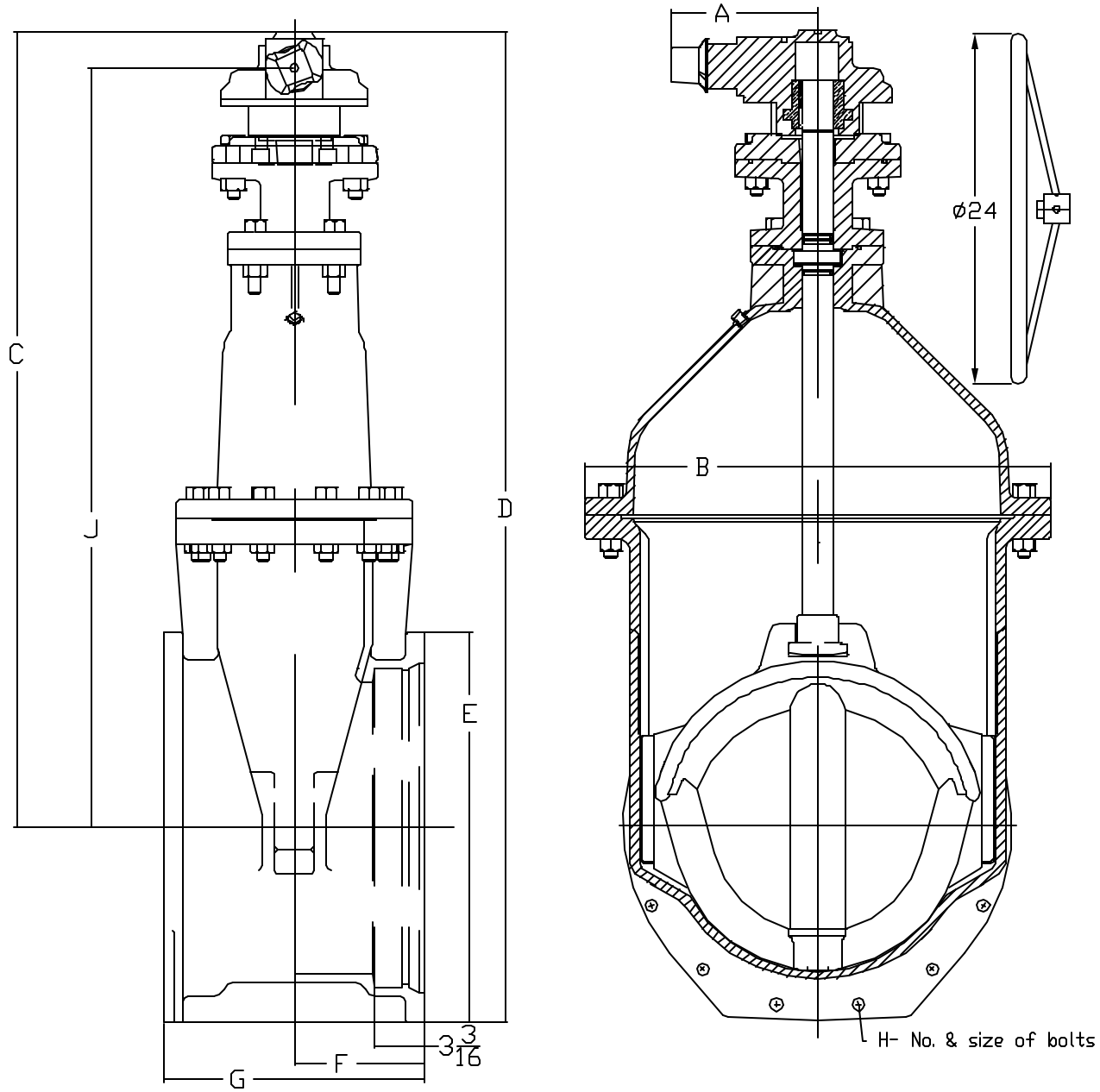
DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-D1A

14" THRU 24"
NRS-RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR)
MATERIAL LIST



M&H VALVE COMPANY A DIVISION OF McWane, Inc. P.O. BOX 2088 ANNISTON, ALABAMA 36202	DWN: TRIJ DATE: 6/2/03 DWG. NO. LR-D1B	14" THRU 24" NRS-RESILIENT SEAT GATE VALVE (WITH BEVEL GEAR) VALVE ASSEMBLY

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	J	WEIGHT
14	9 1/8	26 11/16	48 5/8	59	20 1/4	8 1/2	17	10-3/4	46 5/8	900
16	9 1/8	26 11/16	47 5/8	59	22 1/2	8 1/2	17	12-3/4	45 5/8	1200
18	10 1/8	32 1/4	55 3/4	68 1/4	24 3/4	9 5/32	18 3/4	12-3/4	53 3/4	2000
20	10 1/8	32 1/4	54 3/4	68 1/4	27	9 5/32	18	14-3/4	52 3/4	2130
24	10 1/8	36 1/2	59 7/8	75 1/8	31 1/2	9 1/2	19	16-3/4	57 3/8	3030

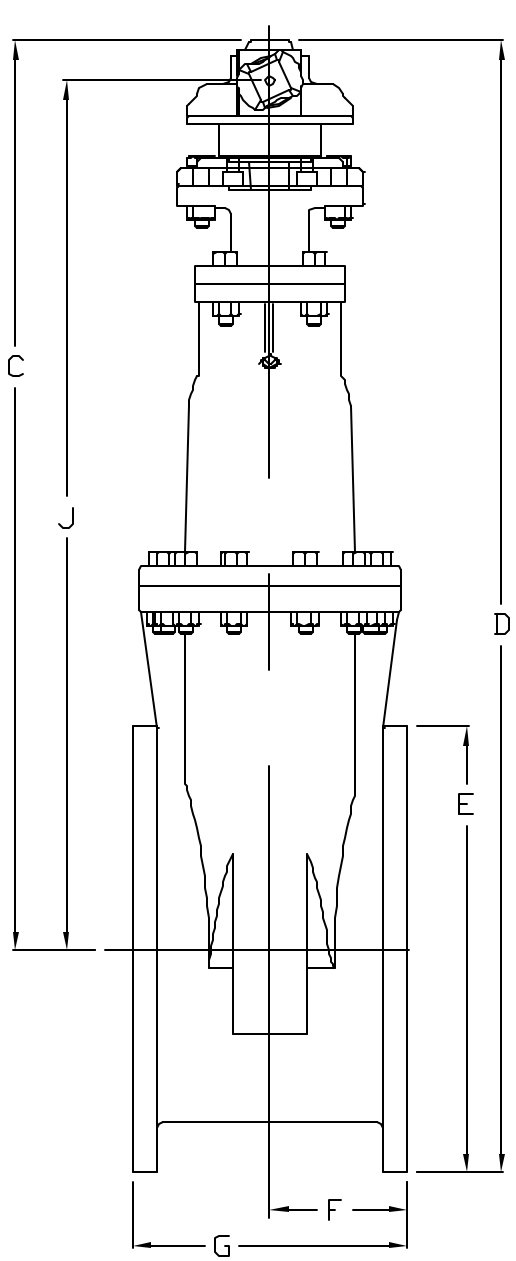
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

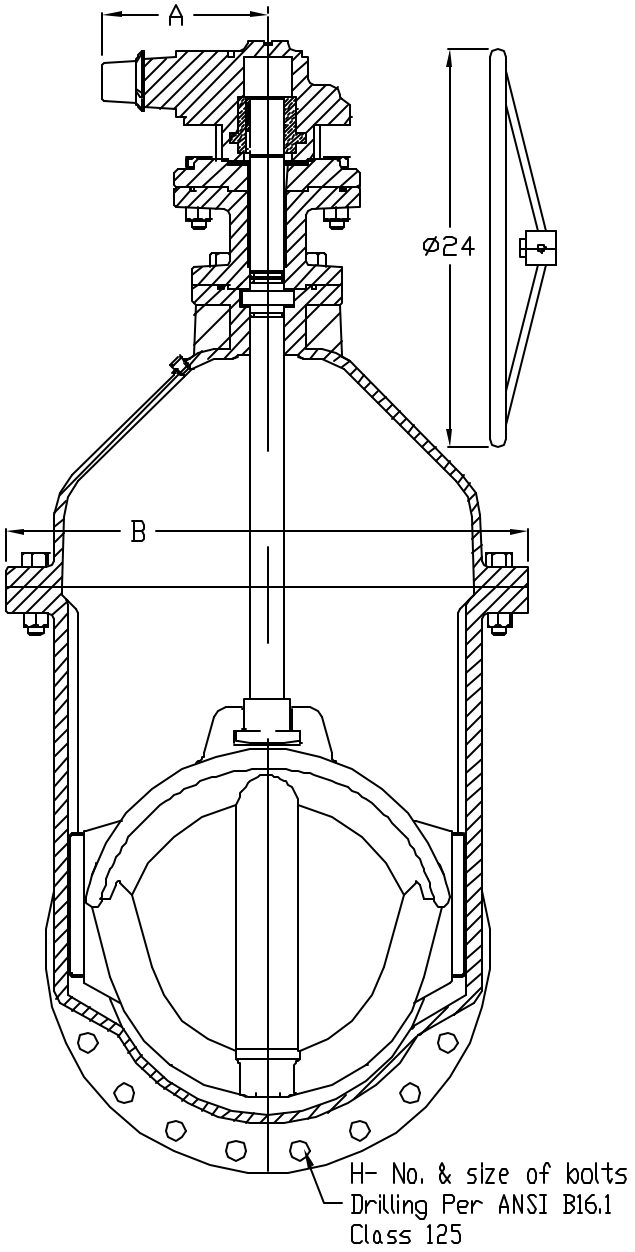
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-D2

14" THRU 24"
NRS-RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR OPERATOR)
MJ X MJ

Complies with AWWA C515





VALVE SIZE	A	B	C	D	E	F	G	H	J	WEIGHT
14	9 1/8	26 11/16	48 5/8	59 1/2	21	7 1/2	15	12–1	46 3/8	900
16	9 1/8	26 11/16	47 5/8	59 1/2	23 1/2	8	16	16–1	45 3/8	1200
18	10 1/8	32 1/4	55 3/4	68 1/4	25	8 1/2	17	16–1 1/8	53 3/4	2000
20	10 1/8	32 1/4	54 3/4	68 1/4	27 1/2	9	18	20–1 1/8	52 3/4	2130
24	10 1/8	36 1/2	60 3/8	76 1/4	32	10	20	20–1 1/4	57 7/8	3030

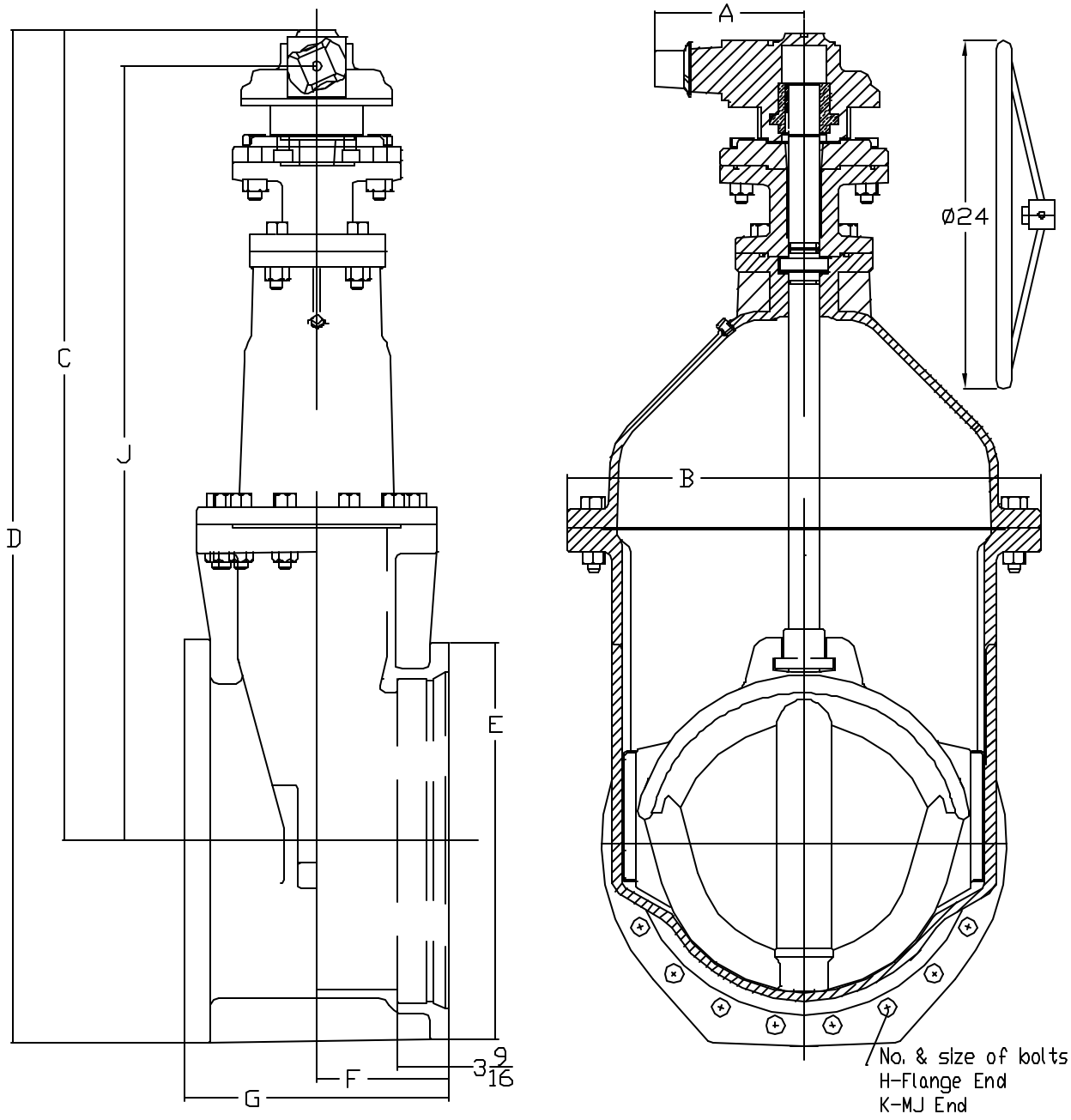
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–D3

14" THRU 24" NRS–RESILIENT SEAT GATE VALVE (WITH BEVEL GEAR OPERATOR) FLANGED ENDS

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	J	K	K
14	9 1/8	26 11/16	48 5/8	59 1/2	20 1/4	8 1/2	17	12-1 1/8	46 3/8	10-3/4	900
16	9 1/8	26 11/16	47 5/8	59 1/2	22 1/2	8 1/2	16 1/2	16-1	45 3/8	12-3/4	1200
18	10 1/8	32 1/4	55 3/4	68 3/4	24 3/4	9 3/8	18 3/8	16-1 1/8	53 3/4	12-3/4	2000
20	10 1/8	32 1/4	54 3/4	68 3/4	27	9 5/32	18	20-1 1/8	52 3/4	14-3/4	2130
24	10 1/8	36 1/2	59 7/8	75 1/8	31 1/2	9 1/2	20 1/4	20-1 1/4	57 3/8	16-3/4	3030

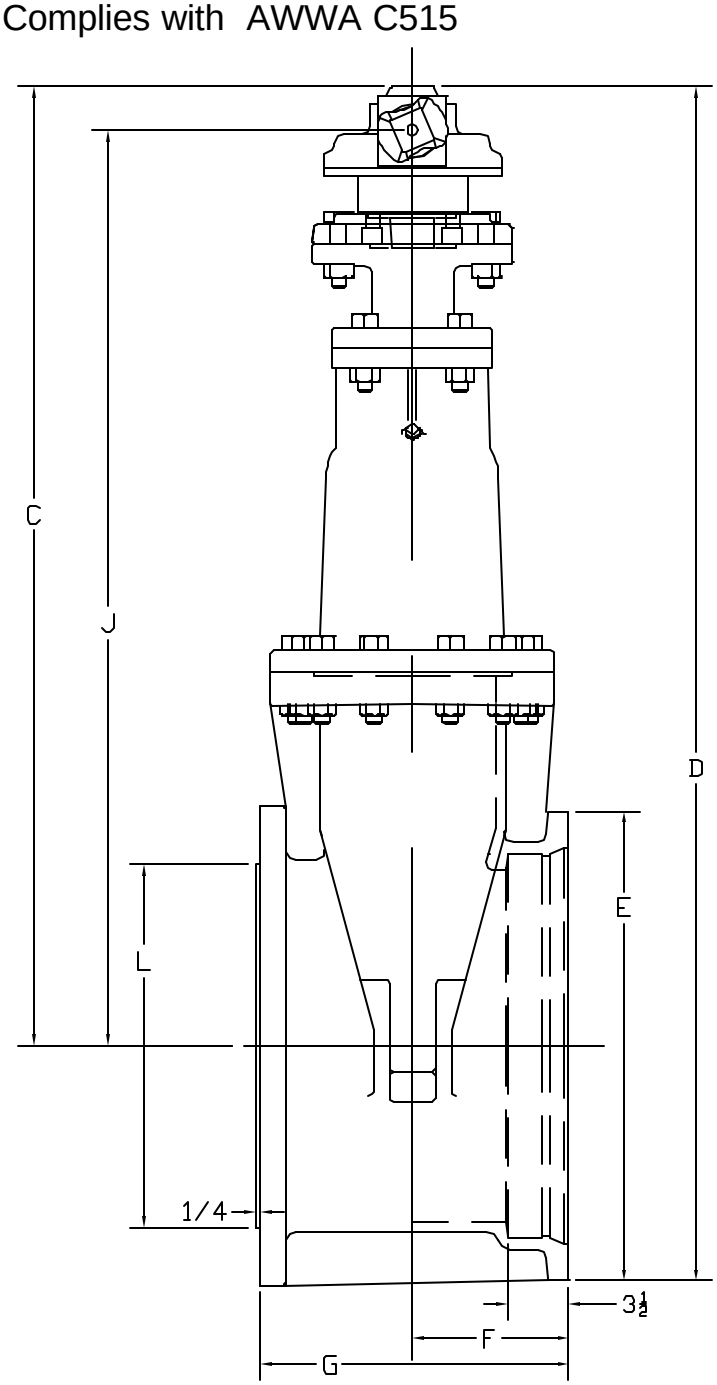
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

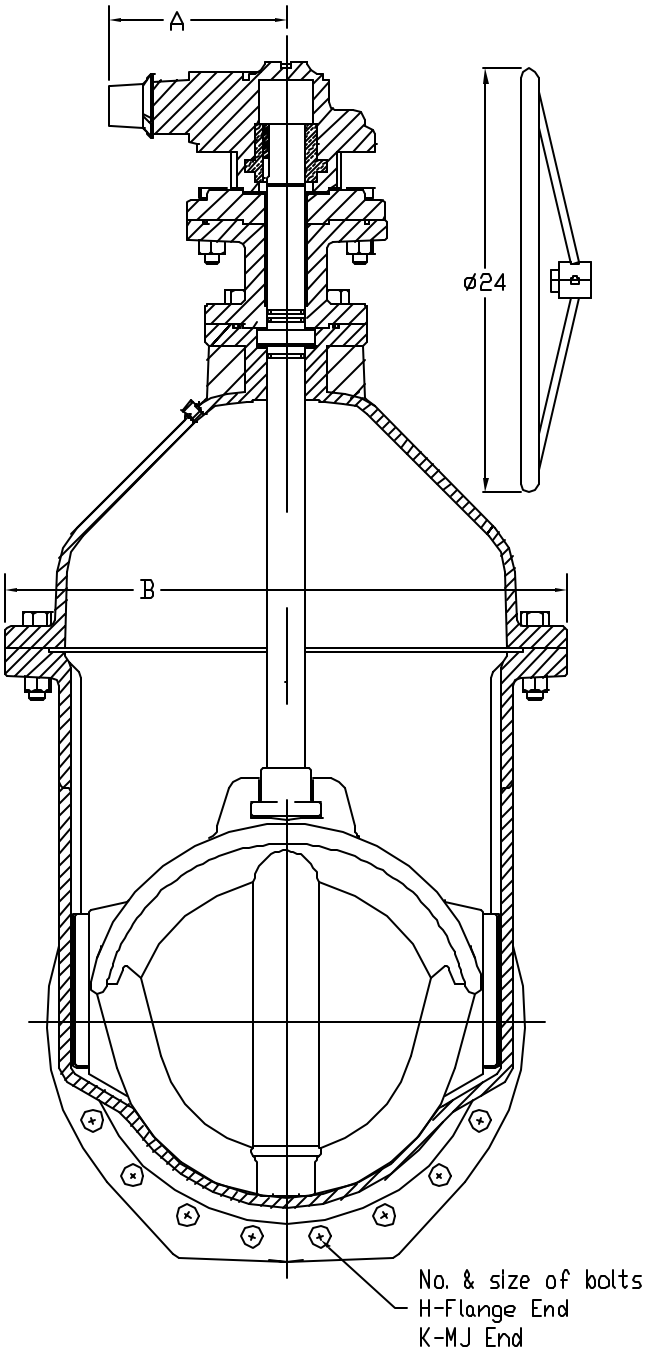
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-D4

14" THRU 24"
NRS-RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR OPERATOR)
MJ X FLANGE

Complies with AWWA C515





VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	WEIGHT
14	9 1/8	26 11/16	48 5/8	59 1/2	20 1/4	8 1/2	16 3/4	12–1	46 3/8	10–3/4	14 15/16	900
16	9 1/8	26 11/16	47 5/8	59 1/2	22 1/2	8 1/2	16 1/4	16–1	45 3/8	12–3/4	16 15/16	1200
18	10 1/8	32 1/4	55 3/4	68 3/4	24 3/4	9 3/8	18 1/8	16–1 1/8	53 3/4	12–3/4	18 15/16	2000
20	10 1/8	32 1/4	54 3/4	68 3/4	27	9	18	20–1 1/8	52 3/4	14–3/4	20 15/16	2130
24	10 1/8	36 1/2	59 7/8	75 1/8	31 1/2	10 1/2	20 1/2	20–1 1/4	57 3/8	16–3/4	24 15/16	3030

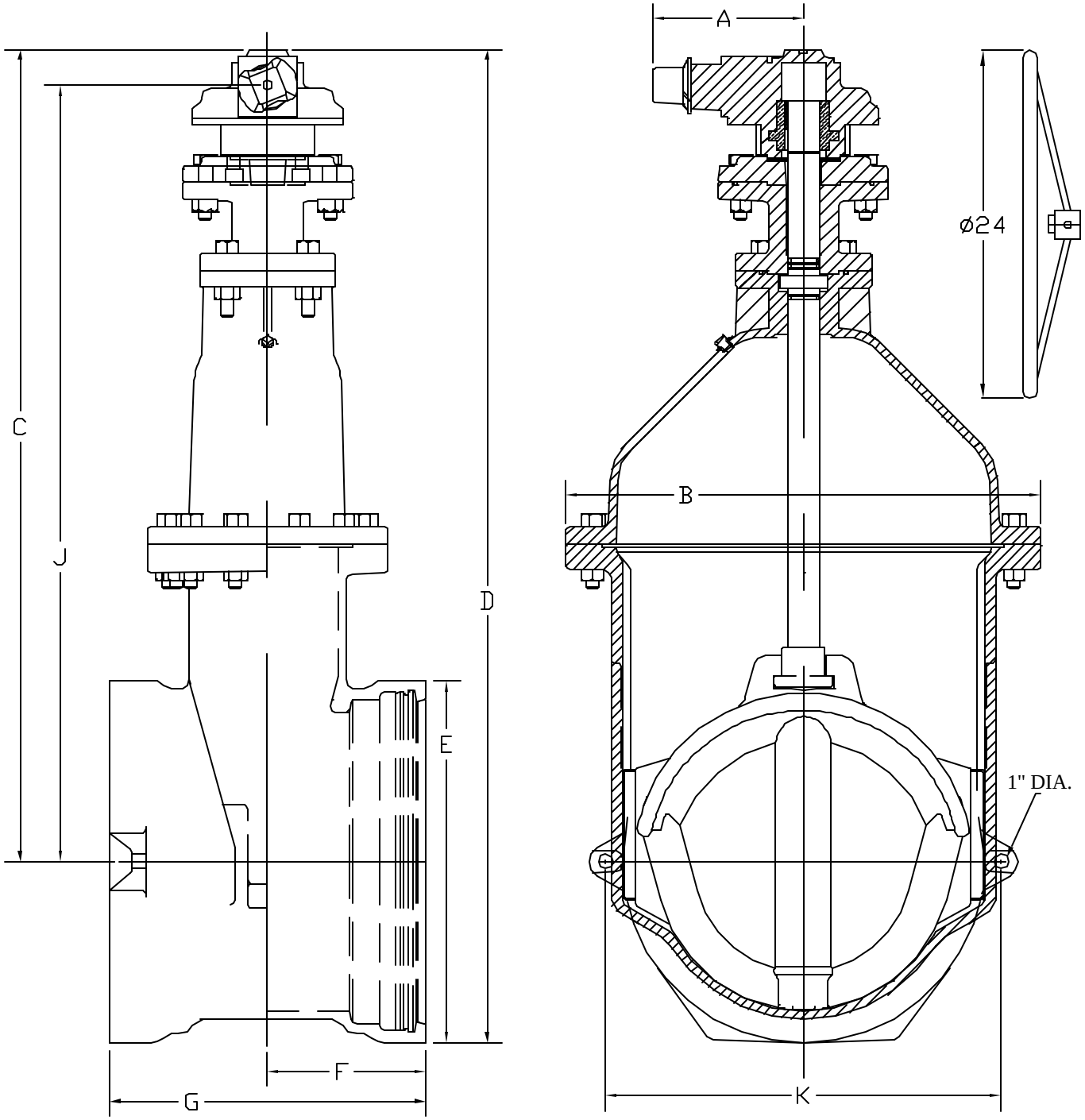
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR–D5

14" THRU 24"
NRS–RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR OPERATOR)
TAPPING VALVE

Complies with AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	J	K	WEIGHT
16	9 1/8	26 11/16	47 5/8	57 7/8	20.22	8 1/2	17	45 3/8	22 1/2	1150

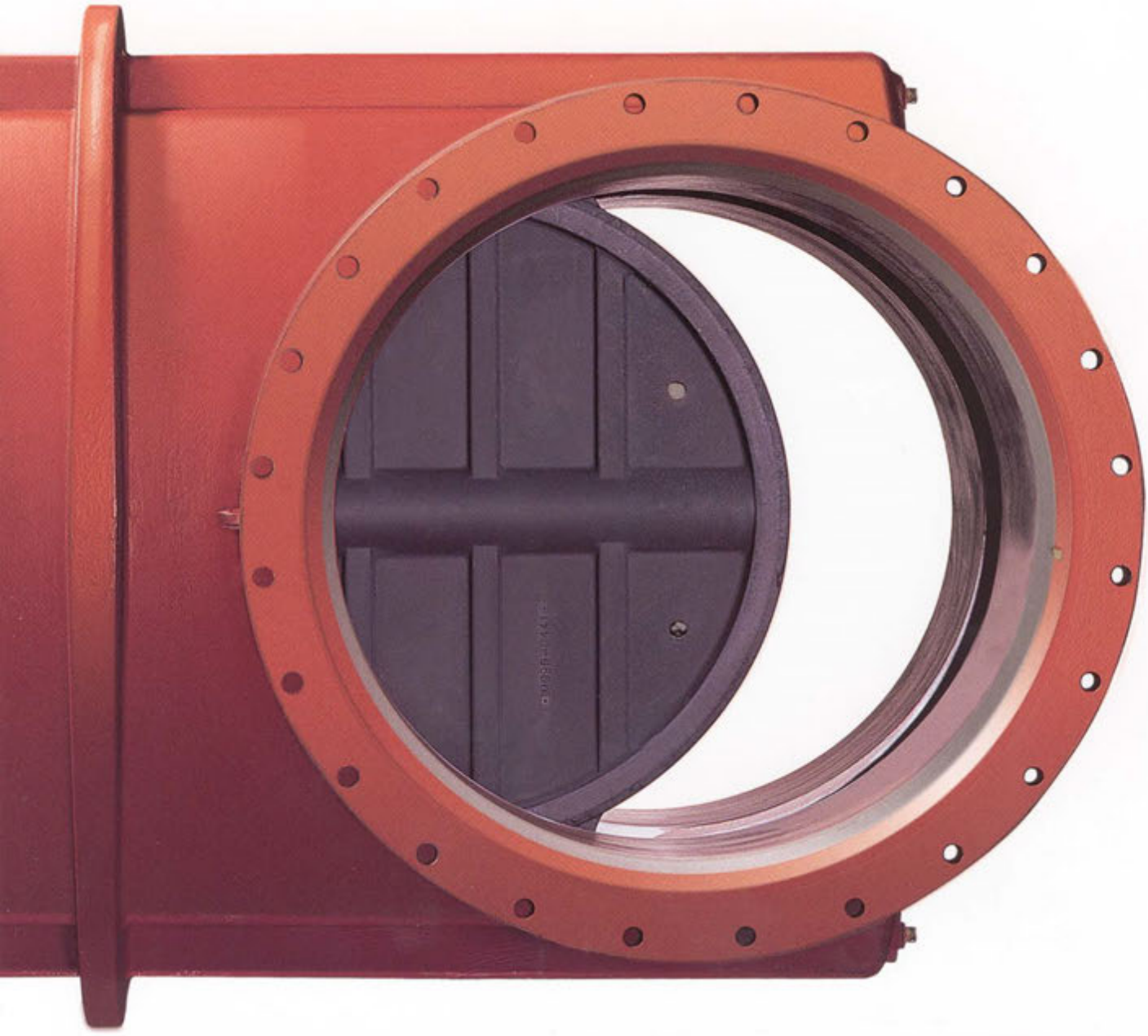
TURNS TO OPEN: 100
OPTIONAL 24" DIAMETER HANDWHEEL

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

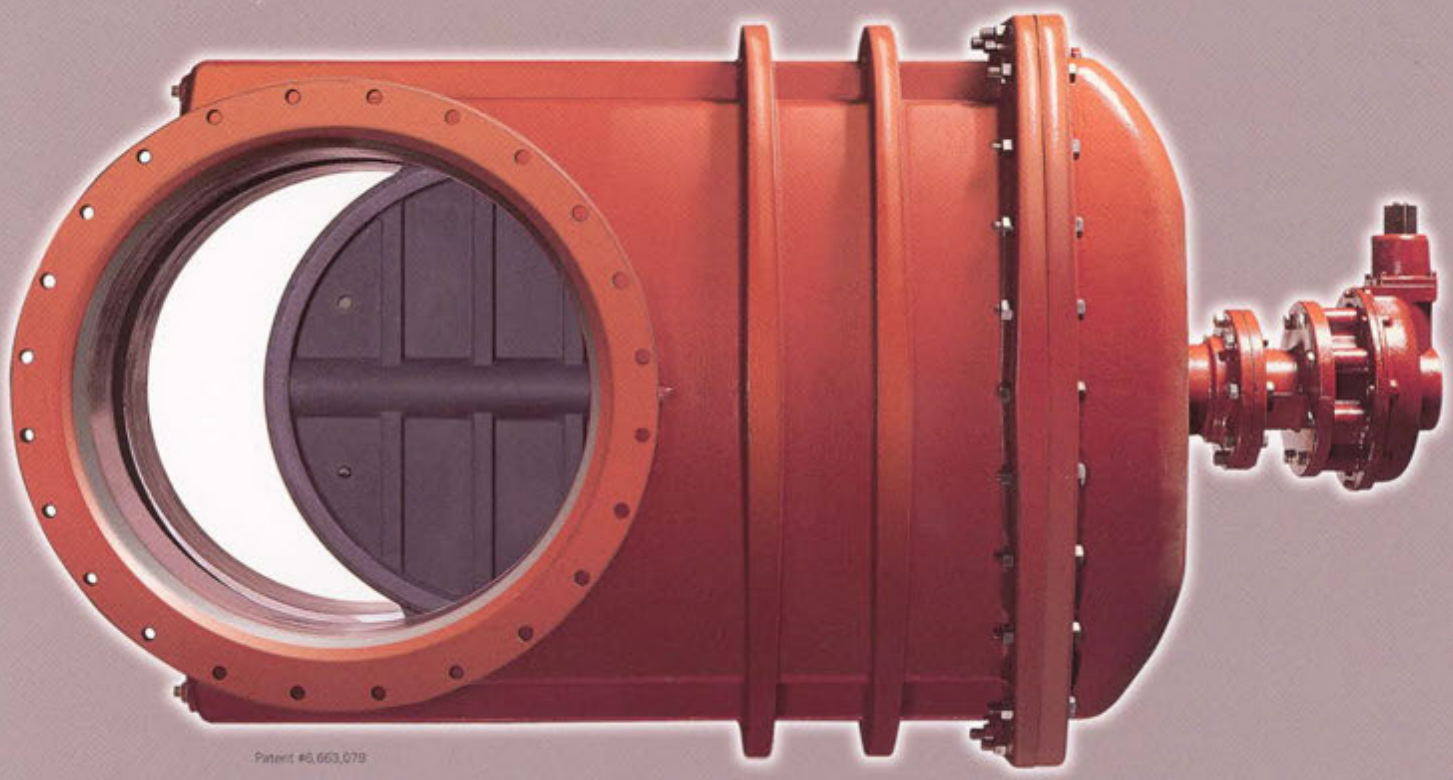
DWN: TRIJ
DATE: 6/2/03
DWG. NO. LR-D6

16"
NRS RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR OPERATOR)
PUSH-ON x PUSH-ON (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

30" & 36" RESILIENT WEDGE GATE VALVE



PROUDLY MADE IN THE USA

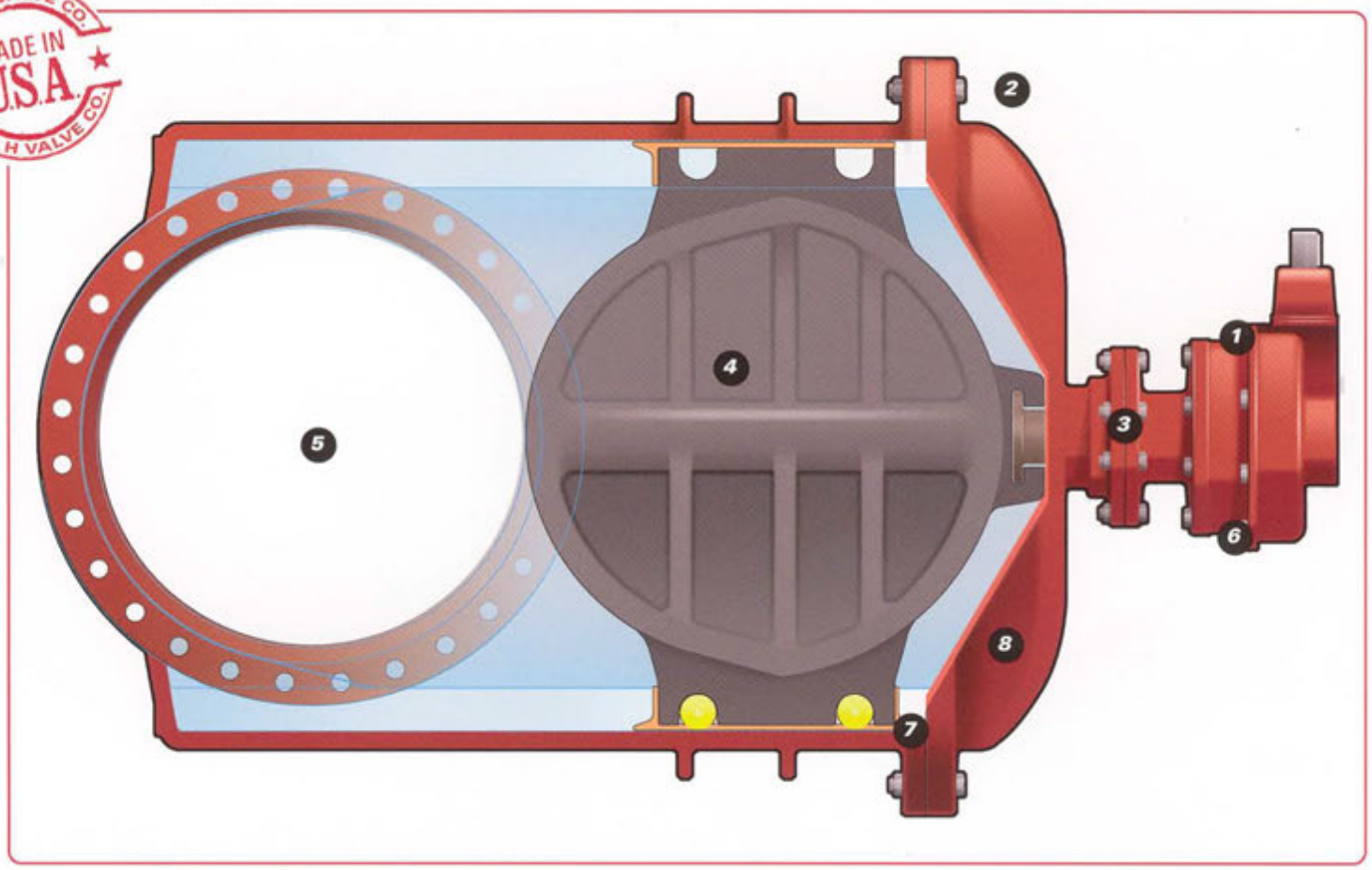


Patent #6,663,079

INTRODUCING THE FIRST RESILIENT WEDGE VALVE WITH CLEANTRACK™* TECHNOLOGY.

In America today, systems are increasing their demand for larger-sized water lines. With these growing demands M & H has made the commitment to meet, and surpass, previous large resilient seated gate valve requirements with a new concept.

Since water valves were created, the issue of sediment buildup in valves has always been a costly proposition. Systems with sediment-laden valves in years past faced time consuming, and costly, valve removal or repair. Advanced large double disc technology of decades past would use various methods in an attempt to clear the line of debris prior to closing. M & H's 30" & 36" gate valves have taken the best of this century old double disc design experience and integrated it with the best of the latest resilient seated gate valve design and technology, to now provide you with valves featuring CleanTrack™ technology. Engineering developed CleanTrack™, which uses a unique roller-scraper system that automatically cleans the track in the valve body when the valve is closing. Less sediment buildup makes for improved performance which means reduced maintenance and lower potential replacement costs to you.



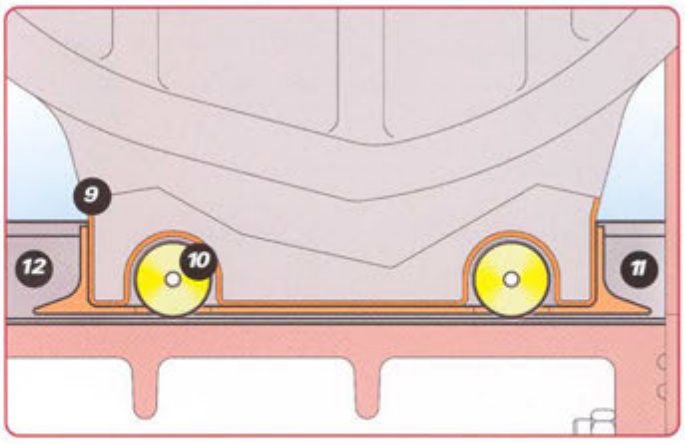
FEATURES AND BENEFITS

1 Derlin thrust bearings above and below the thrust collar reduce friction and minimize operating torques.

2 Stainless steel nuts and bolts provide long-life corrosion protection.

3 Long, trouble-free life with high strength, non-corrosive bronze stem and stem nut.

4 100% coated wedge ensures bubble-tight seal every time up to 250 PSI. With twin seal design.



5 All valves accept full-size tapping cutter.

6 Two O-ring seals are replaceable with the valve fully open and subjected to full-rated working pressure.

7 O-ring seals at stuffing box and bonnet to body flanges ensures the best possible seal. There are no flat gaskets.

8 Corrosion resistant fusion-bonded epoxy coating, conforming to AWWA C-550 and NSF61 approved, protects both inside and outside of valve.

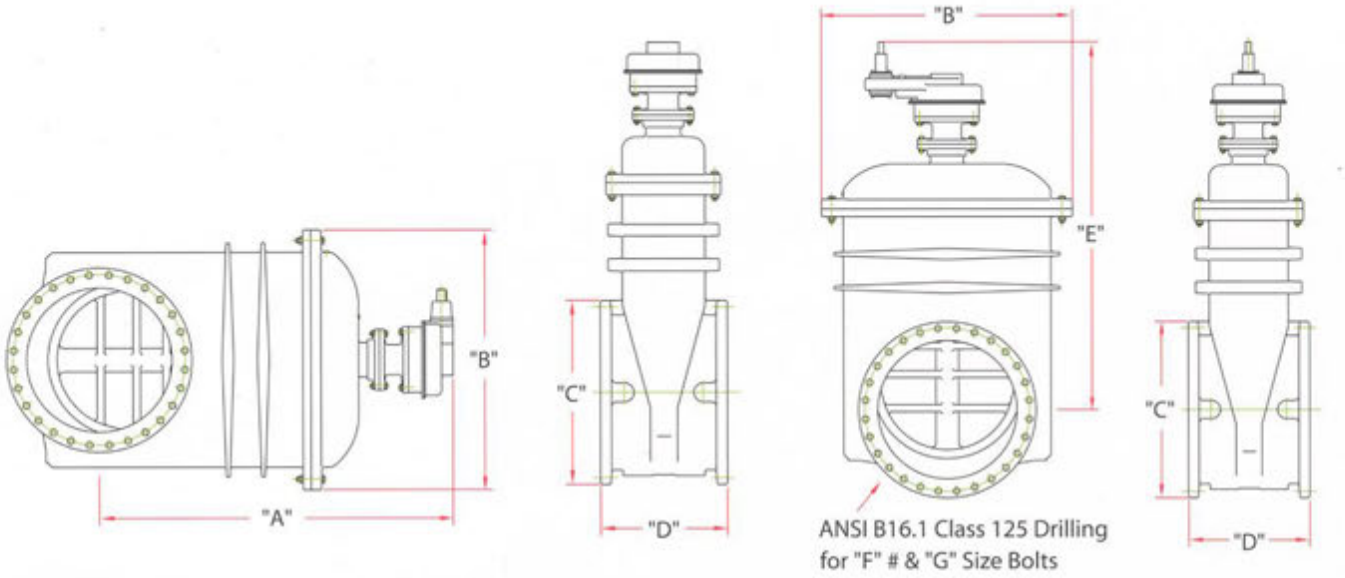
9 Bronze scraper affixed to resilient wedge wing is designed for long life performance.

10 Rollers integrated into scraper protect valve body from damage.

11 Bronze scrapers designed to push sediment from stainless steel track.

12 Stainless steel track.

* CleanTrack™ Technology is a registered trademark of sister company Clow Valve.



Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"	NO. TURNS
30"	77-3/4	54-3/4	38-3/4	26-1/2	80-1/2	28	1-1/4	587
36"	83-7/16	58-7/8	46	30-3/4	90-3/16	32	1-1/2	705

Please visit www.mh-valve.com for additional options, end connections, drawing details, weights, and warranty information.

C-515 30" & 36" RESILIENT WEDGE GATE VALVE – Sample Specification

1. Valves shall conform to AWWA Standard C-515 covering Resilient Seated Gate Valves for Water Supply Service, and be rated for 250 psig cold water working pressure.

2. The valves shall have a ductile iron body, bonnet, and stuffing box. The wedge shall be ductile iron and totally encapsulated with rubber.

3. The sealing rubber shall be permanently bonded to the wedge per ASTM D429.

4. Valves shall be supplied with o-ring seals at all pressure retaining joints. No flat gaskets or conventional type packing shall be allowed on NRS valves.

5. The valves shall be non-rising stem, opening by turning clockwise or counter-clockwise, and provided with a 2" square operating nut or a handwheel.

6. Stems for NRS assemblies shall be brass with integral collars in full compliance with AWWA. Stems shall operate with brass stem nuts independent of wedge and of stem. Stainless steel stems or stem nuts are not allowed. NRS stems shall have two o-rings located above thrust collar and two o-rings below. Stem o-rings above the thrust collar shall be replaceable with valve fully opened and subjected to full pressure. The stems shall also have one low torque thrust bearing located above and one below the stem collar to reduce friction during operation.

7. Valves shall accept a full size tapping cutter.

8. The body, bonnet, and stuffing box shall be fusion-bond epoxy coated, both interior and exterior. Epoxy shall be applied in accordance with AWWA C-550 and be NSF61 approved.

9. Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C-515.

10. Valves shall be provided with bevel gears (horizontal) or spur gears (vertical) as indicated.

11. Valves in sizes 30" and larger shall have brass bushings where the stem passes through the bonnet.

12. All external bolting materials shall be stainless steel and have hexagonal heads.

13. All valves shall include CleanTrack Technology. CleanTrack consists of bronze rollers housed in a bronze scraper on the bottom of the wedge, traveling in a 316 stainless steel track.

14. Valves shall have component parts cast, machined, assembled, and tested in the USA and shall be supplied by M & H Valve, Anniston, Alabama.

M & H VALVE COMPANY
A DIVISION OF MCWANE, INC.
Sales Office & Manufacturing Facility
www.mh-valve.com

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

RECOMMENDED SPECIFICATIONS FOR
M&H STYLE 4067 30" & 36" C-515 RESILIENT SEAT GATE VALVES

Valves shall confirm to the latest revision of AWWA Standard C-515-99 covering Resilient Seated Gate Valves for Water Supply Service.

Valves shall be resilient wedge type rated for 250 psig maximum cold water working pressure, 500 psig static test pressure. Valve body and bonnet shall be ASTM A536 ductile iron, with wedge made of same material. DI or Ductile Iron shall be cast on the valve body.

Valve wedge shall be fully encapsulated rubber meeting ASTM tests for rubber metal bond ASTM D429, and shall seal 100% leak tite. The wedge shall be symmetrical seat equally well with flow in either direction. Seating rubber shall be either SBR or EPDM elastomer as specified.

Valves shall have extended wedge cap bearing made of urethanes which snap over each rubber encapsulated guide on wedge. Theses guides provide a bearing interface between wedge guides and valve body interior guide channel resulting in lower torque requirements to operate valve.

Valves shall be supplied with o-rings at all joints, no flat gaskets shall be allowed.

Valves shall be non-rising stem, opening by turning left or right, and be provided with 2-inch ductile iron operator nut or hand-wheel with the word "Open" and a arrow cast in the metal to indicate direction of opening. Operators shall have 4 (four) flats at stem connection to assure even distribution of torque at stem.

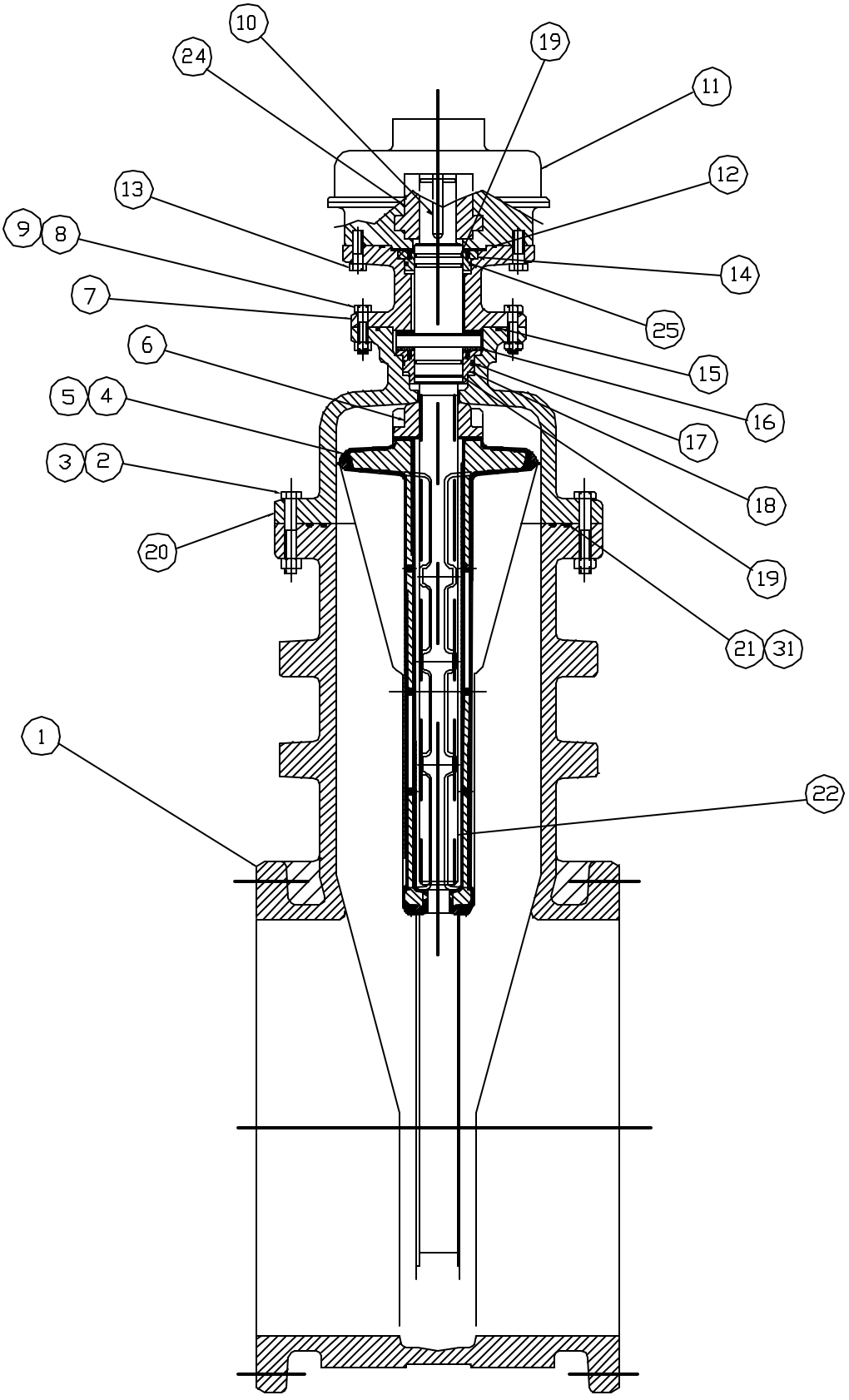
Valve stem and wedge nut shall be cast bronze meeting AWWA B584 alloy 836 brass specifications. All stems shall operate with stem nuts independent of stem. Stainless steel stems or stem nuts are not allowed. Valve stem shall have 2 (two) o-rings located above thrust collar and 2 (two) o-rings located below. All stem o-rings shall be fully replaceable with the valve fully opened and subjected to full pressure. O-rings set in a cartridge shall not be allowed. Valve stems shall have 1 (one) low torque Nylatron thrust bearings located above and 1 (one) located below stem collar to reduce friction and assure trouble free operation.

Valve waterways shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. All internal and external surfaces shall be coated with fusion bonded epoxy coating applied in accordance with AWWA C550 and be NSF 61 approved. Epoxy shall be electro statically applied prior to assembly of valve.

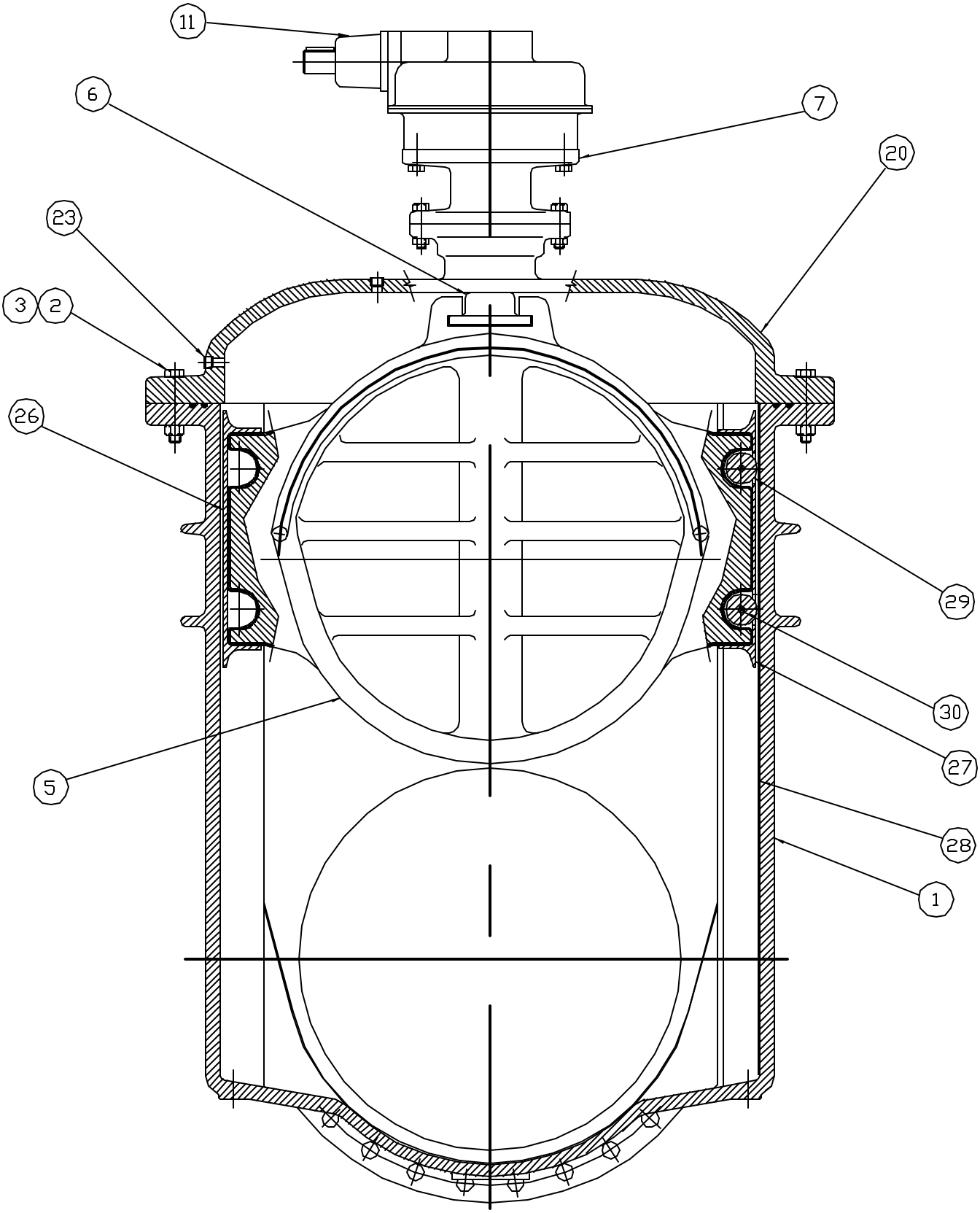
Nuts and bolts for connecting bonnet and body shall be ANSI 304 stainless steel or meet ASTM A307 requirements. Bolts may be regular square or hexagonal heads confirming to ANSI B18.2.1. Metric size socket head cap screws are not allowed.

Valves shall have manufactures name, pressure rating, and year manufactured cast on body. Each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA.

Valves shall have all components cast and assembled in the USA and shall be M&H Valve Company 30&36-inch Model 4067.



M&H VALVE COMPANY A DIVISION OF McWane, Inc. P.O. BOX 2088 ANNISTON, ALABAMA 36202	DWN: TRIJ DATE: 1/1/04 DWG. NO. LRW50	30" & 36" RESILIENT SEAT GATE VALVE NRS – STYLE 4067 BEVEL GEAR--ASSEMBLY I



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	
DATE: 1/1/04	
DWG. NO. LRW51	

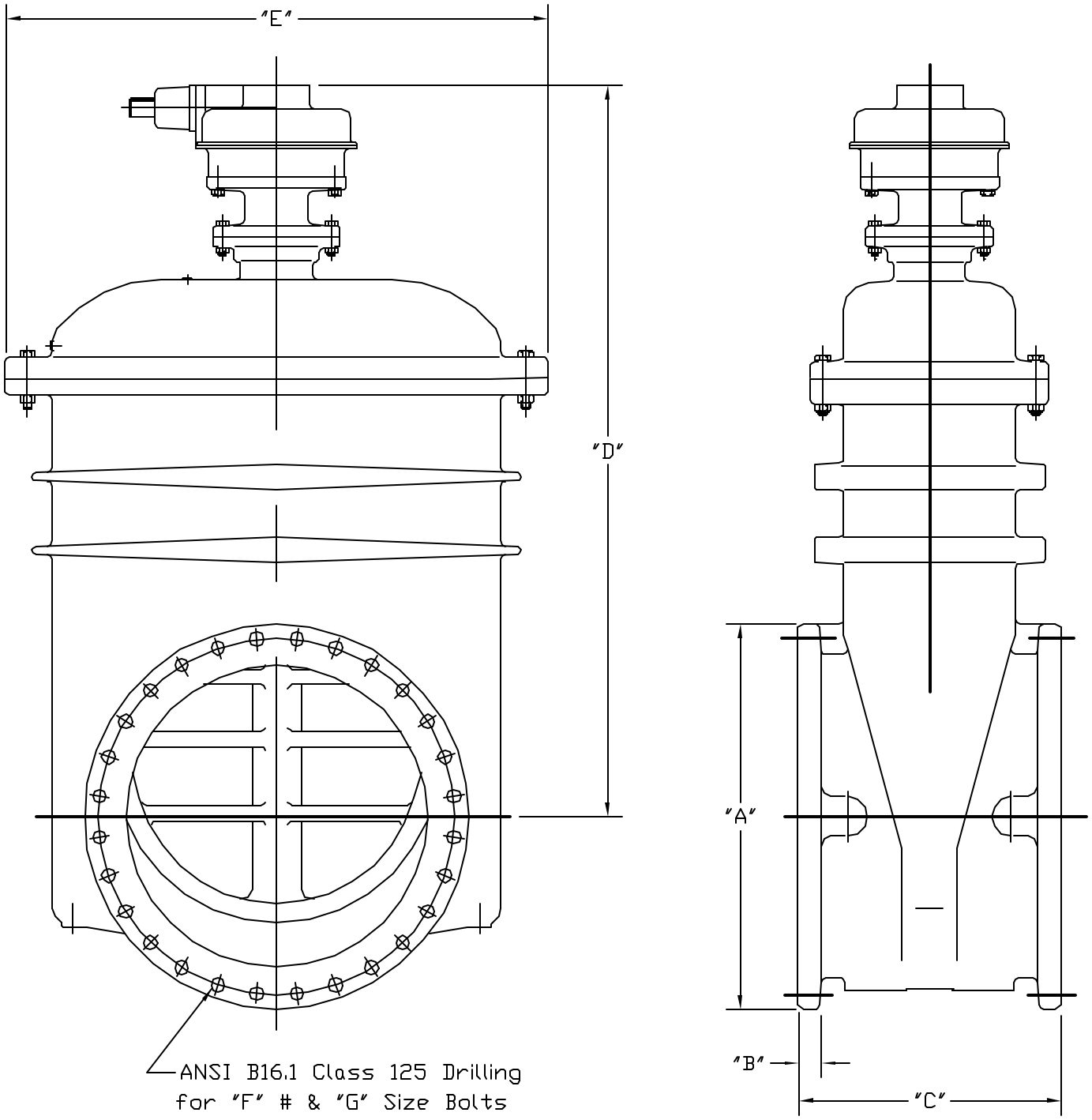
30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
BEVEL GEAR--ASSEMBLY II

Item	Qty	Description	Material
1	1	Body - Mechanical Joint	ASTM A536 Ductile Iron
		Body - Flange	ASTM A536 Ductile Iron
		Body - MJ x Flange	ASTM A536 Ductile Iron
		Body - Fastite	ASTM A536 Ductile Iron
2	22	Bolt - 7/8-9NC hex hd x 5-1/2 lg	AISI 304 Stainless Steel
3	22	Nut - 7/8-9NC hex	AISI 304 Stainless Steel
4	1	Wedge Casting	ASTM A536 Ductile Iron
5	1	Molded Wedge	EPDM
6	1	Stem Nut	ASTM B584 alloy 836 Brass
7	1	Extension - actuator	ASTM A536 Ductile Iron
8	8	Bolt - 3/4-10NC x 3" lg hex hd	AISI 304 Stainless Steel
9	8	3/4-10NC hex nut	AISI 304 Stainless Steel
10	1	Key - 5/8 square x 4 lg	5/8 sq steel keystock
11	1	Actuator - bevel gear	
12	1	O-ring #369	Buna N rubber
13	8	Bolt - 3/4-10NC x 2-1/2 lg hex hd	AISI 304 Stainless Steel
14	1	Bushing - stem guide	ASTM B584 alloy 836 Brass
15	1	O-ring #371	Buna N rubber
16	2	Thrust Bearing	Nylatron
17	1	O-ring #352	Buna N rubber
18	1	Cover Bushing	ASTM B584 alloy 836 Brass
19	4	O-ring #236	Buna N rubber
20	1	Cover	ASTM A536 Ductile Iron
21	1	O-ring - cover outer	Buna N rubber
22	1	Stem	ASTM B584 alloy 867 Brass
23	2	Pipe Plug - 3/4 NPT w/ square hd	AISI 304 Stainless Steel
24	1	Actuator Drive Bushing	Bronze
25	1	O-ring #348	Buna-N rubber
26	1	Wedge Protector	Urethane
27	1	Scraper	ASTM B148 C954 Al Bronze
28	1	Track	AISI 316 Stainless Steel
29	2	Roller	ASTM B148 C954 Al Bronze
30	2	Pin - roller	AISI 316 Stainless Steel
31	1	O-ring - cover inner	Buna N rubber

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 1/1/04
DWG. NO. LRW52

30" & 36"
RESILIENT SEAT GATE VALVE
NRS - STYLE 4067
BEVEL GEAR--MATERIAL LIST

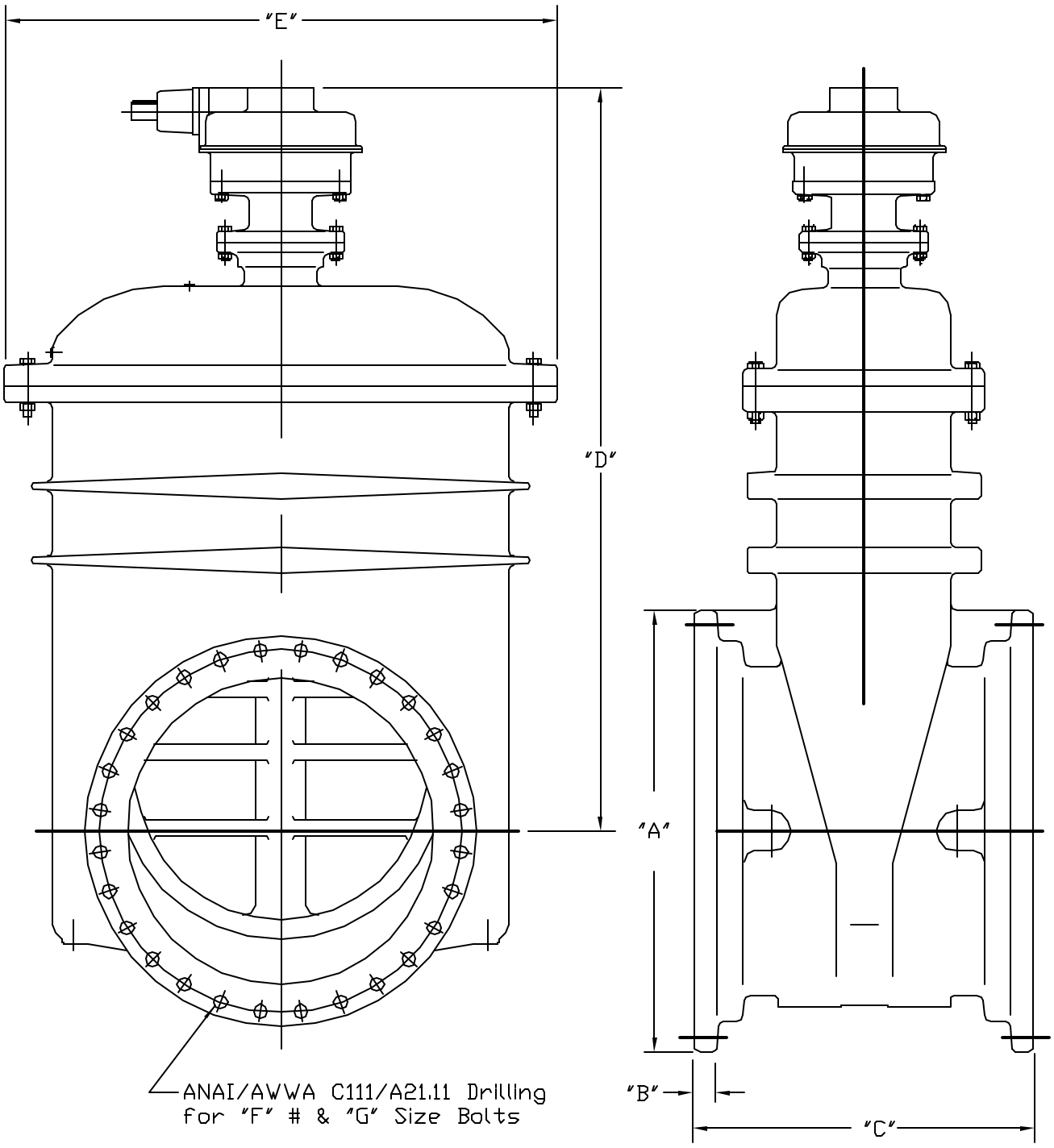


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	38-3/4	2.12	26-1/2	73-3/4	54-3/4	28	1-1/4
36"	46	2.38	30-3/4	83-7/16	58-7/8	32	1-1/2

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 1/1/04
DWG. NO. LRW53

30" & 36" RESILIENT SEAT GATE VALVE NRS – STYLE 4067 BEVEL GEAR--FLANGED ENDS

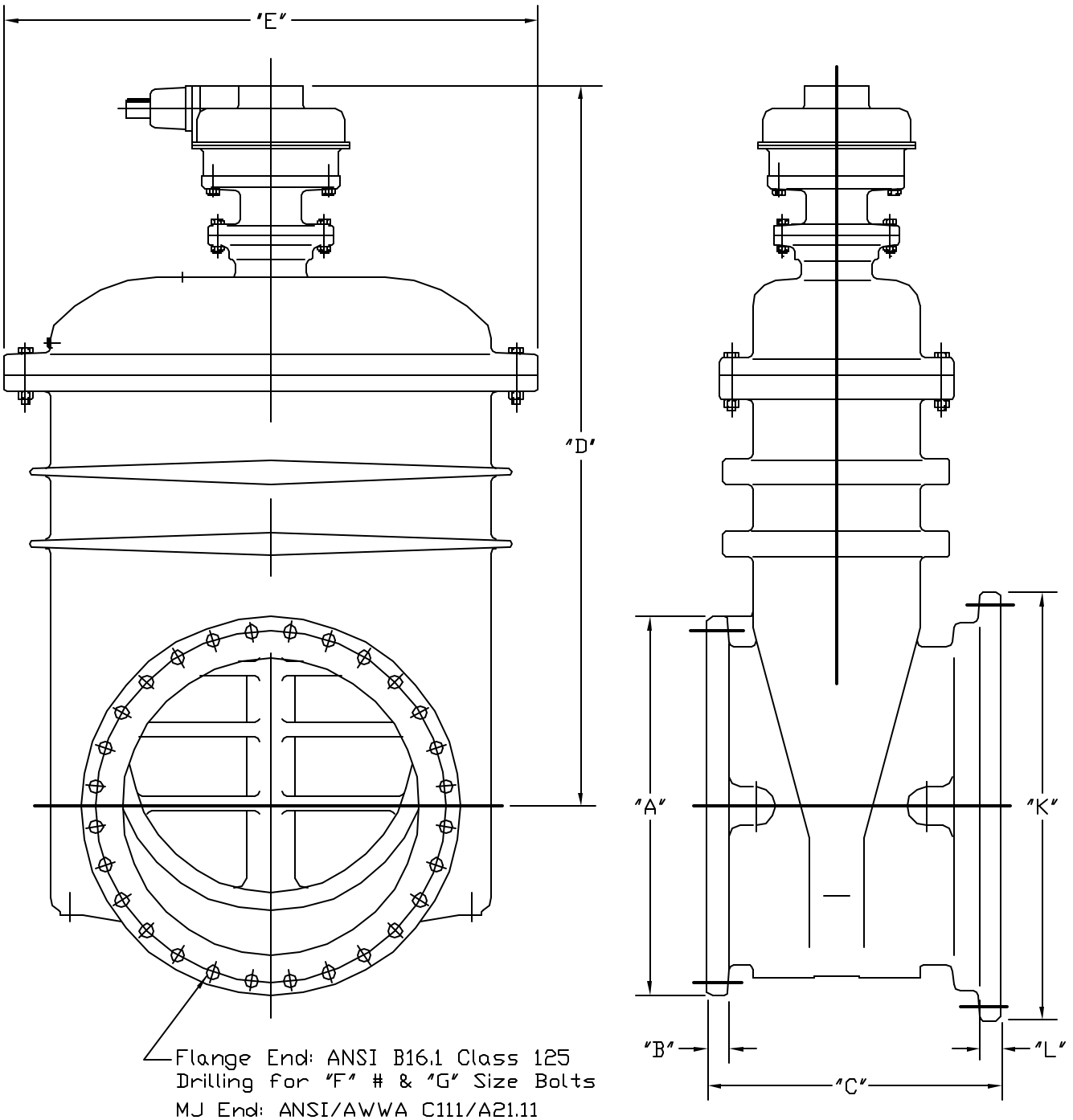


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	39-1/2	1-11/16	35-1/2	73-3/4	54-3/4	20	1"
36"	46-1/2	2	38-3/4	83-7/16	58-7/8	24	1"

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 1/1/04
DWG. NO. LRW54

30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
BEVEL GEAR--MJ X MJ

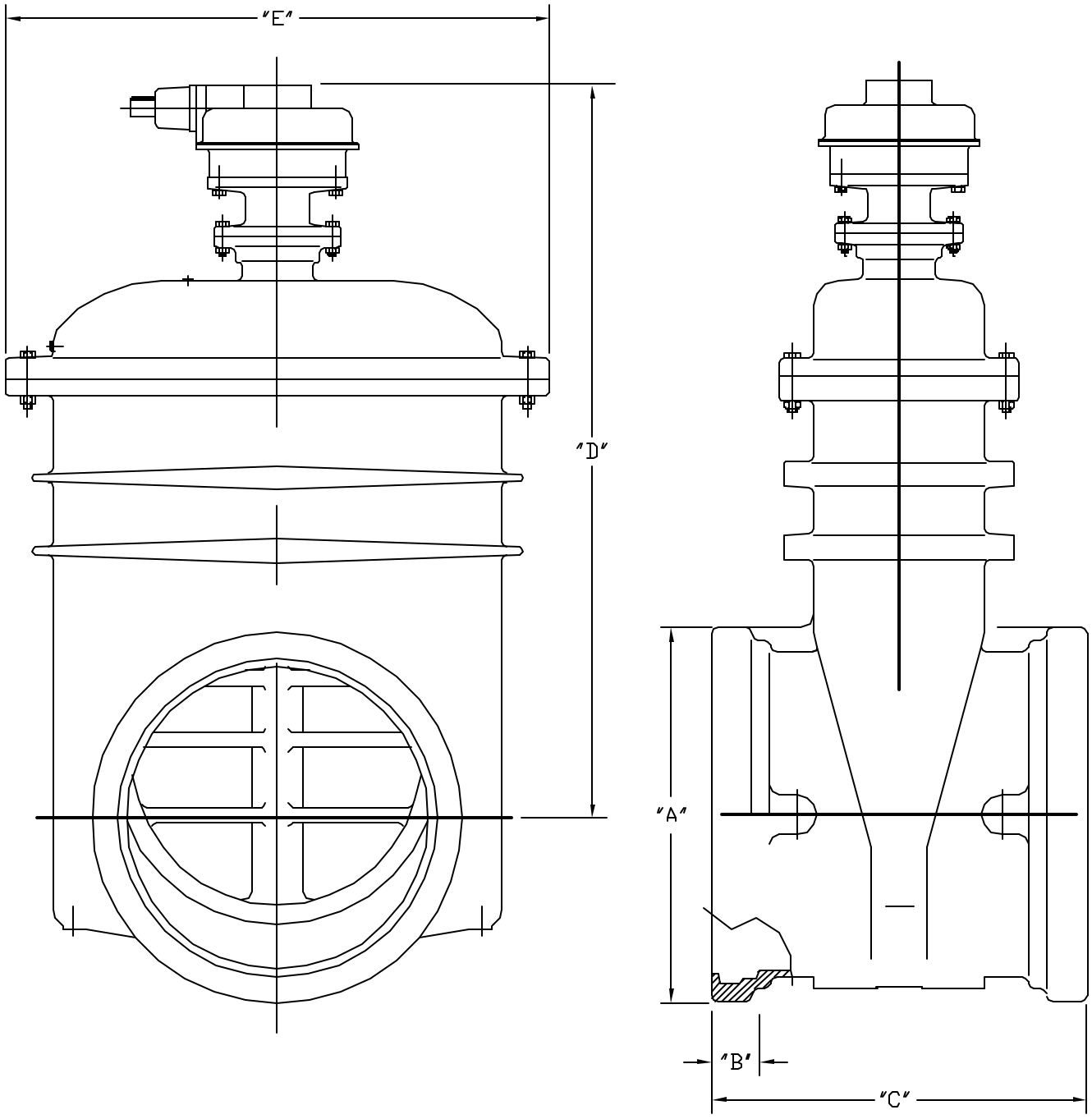


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"
30"	38-3/4	2.12	31	73-3/4	54-3/4	28	1-1/4	20	1"	39-1/2	2-1/8
36"	46	2.38	34-3/4	83-7/16	58-7/8	32	1-1/2	24	1"	46-1/2	2-3/8

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 1/1/04
DWG. NO. LRW55

30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
BEVEL GEAR--MJ X FLANGED ENDS

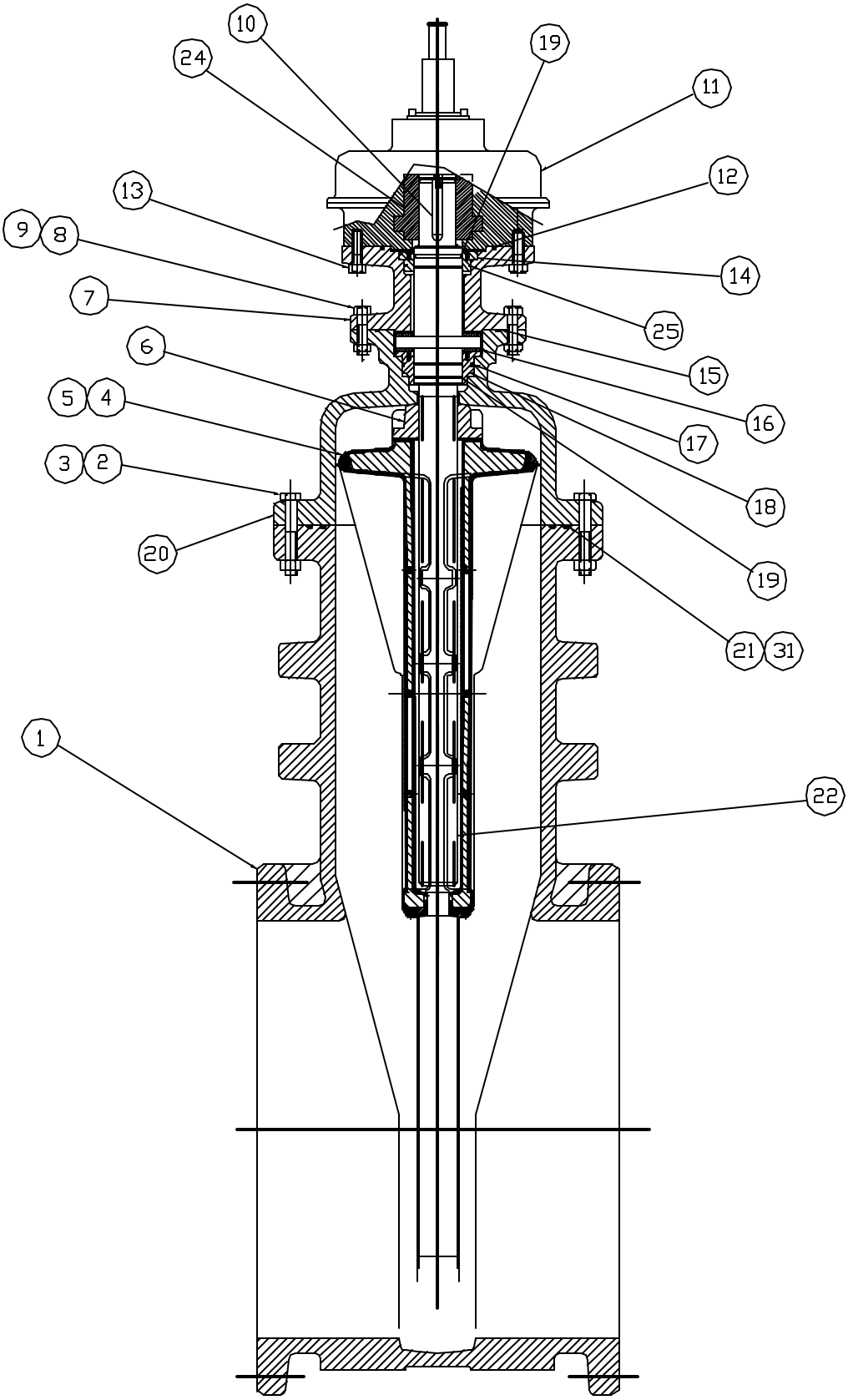


Valve Size	"A"	"B"	"C"	"D"	"E"
30"	37	6-1/4	36	73-3/4	54-3/4
36"	43-3/8	6-1/4	39	83-7/16	58-7/8

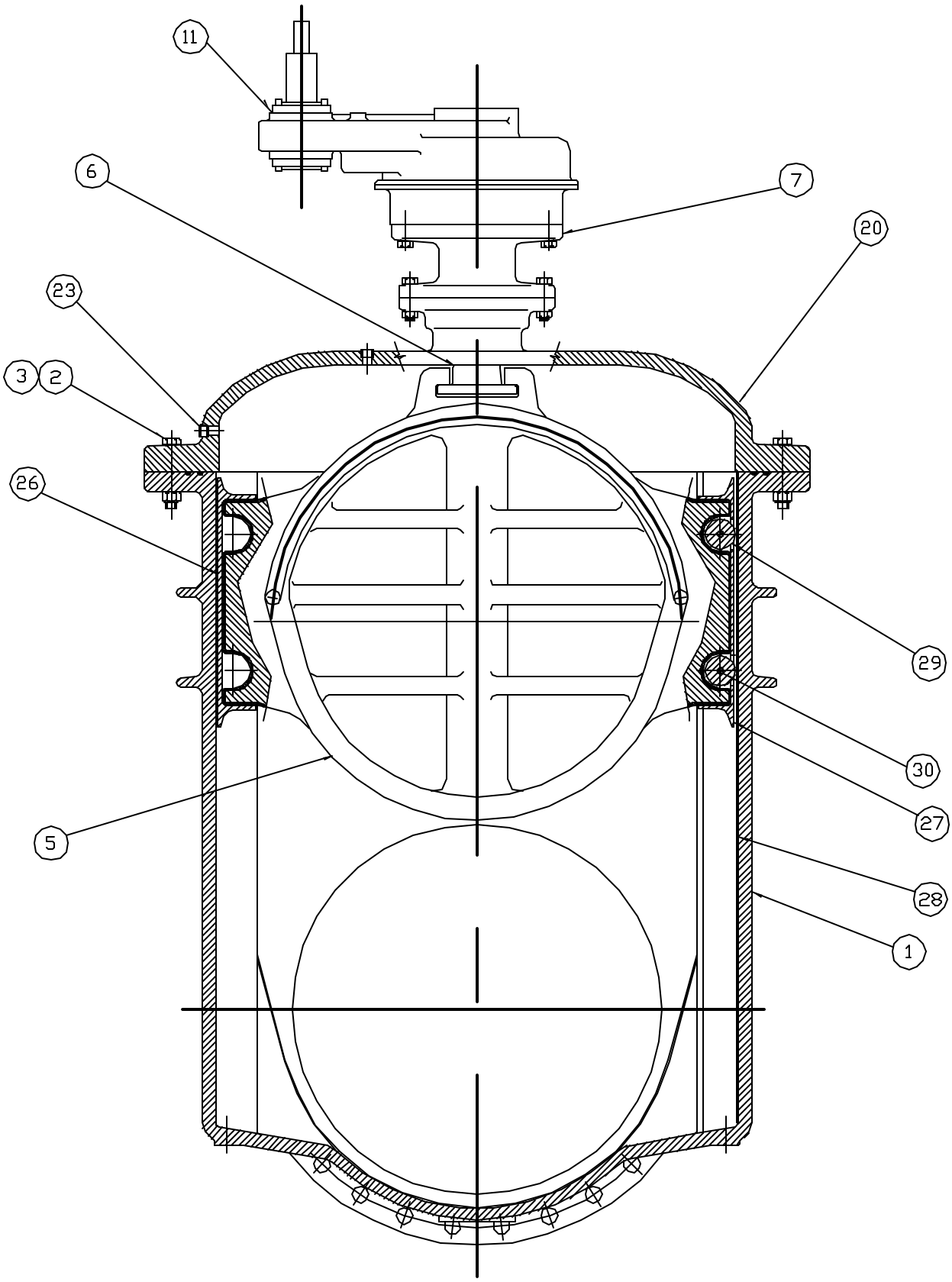
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 1/1/04
DWG. NO. LRW56

30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
BEVEL GEAR--FASTITE ENDS



M&H VALVE COMPANY A DIVISION OF McWane, Inc. P.O. BOX 2088 ANNISTON, ALABAMA 36202	DWN: TRIJ DATE: 6/2/03 DWG. NO. LRW57	30" & 36" RESILIENT SEAT GATE VALVE NRS – 4067 SPUR GEAR--ASSEMBLY I



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN:	TRIJ
DATE:	6/2/03
DWG. NO.	LRW58

30" & 36" RESILIENT SEAT GATE VALVE NRS – STYLE 4067 SPUR GEAR--ASSEMBLY II

Item	Qty	Description	Material
1	1	Body - Mechanical Joint	ASTM A536 Ductile Iron
		Body - Flange	ASTM A536 Ductile iron
		Body - MJ x Flange	ASTM A536 Ductile iron
		Body - Fastite	ASTM A536 Ductile iron
2	22	Bolt - 7/8-9NC hex hd x 5-1/2 lg	AISI 304 Stainless Steel
3	22	Nut - 7/8-9NC hex	AISI 304 Stainless Steel
4	1	Wedge Casting	ASTM A536 Ductile Iron
5	1	Molded Wedge	EPDM
6	1	Stem Nut	ASTM B584 alloy 836 Brass
7	1	Extension - actuator	ASTM A536 Ductile Iron
8	8	Bolt - 3/4-10NC x 3" lg hex hd	AISI 304 Stainless Steel
9	8	3/4-10NC hex nut	AISI 304 Stainless Steel
10	1	Key - 5/8 square x 4 lg	5/8 sq steel keystock
11	1	Actuator - spur gear	
12	1	O-ring #369	Buna N rubber
13	8	Bolt - 3/4-10NC x 2-1/2 lg hex hd	AISI 304 Stainless Steel
14	1	Bushing - stem guide	ASTM B584 alloy 836 Brass
15	1	O-ring #371	Buna N rubber
16	2	Thrust Bearing	Nylatron
17	1	O-ring #352	Buna N rubber
18	1	Cover Bushing	ASTM B584 alloy 836 Brass
19	4	O-ring #236	Buna N rubber
20	1	Cover	ASTM A536 Ductile iron
21	1	O-ring - cover outer	Buna N rubber
22	1	Stem	ASTM B584 alloy 867 Brass
23	2	Pipe Plug - 3/4 NPT w/ square hd	AISI 304 Stainless Steel
24	1	Actuator Drive Bushing	Bronze
25	1	O-ring #348	Buna-N rubber
26	1	Wedge Protector	Urethane
27	1	Scraper	ASTM B148 C954 Al Bronze
28	1	Track	AISI 316 Stainless Steel
29	2	Roller	ASTM B148 C954 Al Bronze
30	2	Pin - roller	AISI 316 Stainless Steel
31	1	O-ring - cover inner	Buna N rubber

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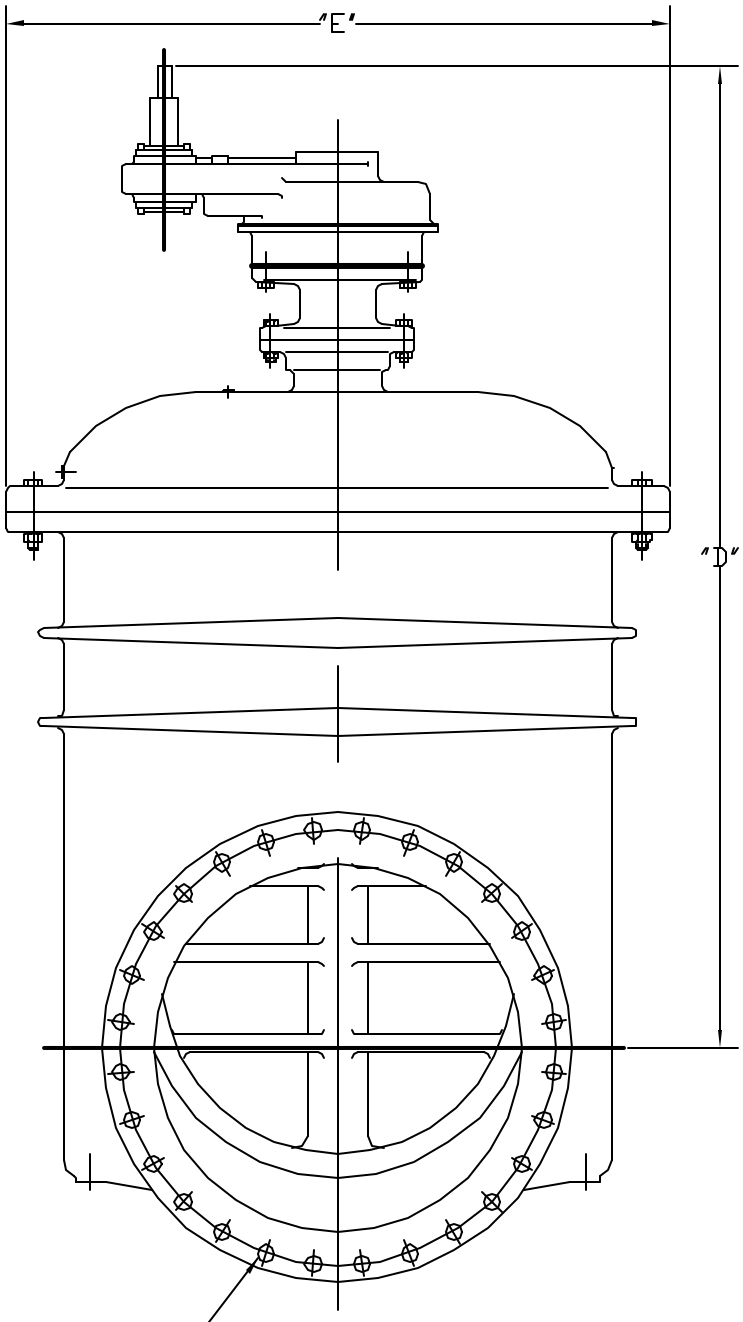
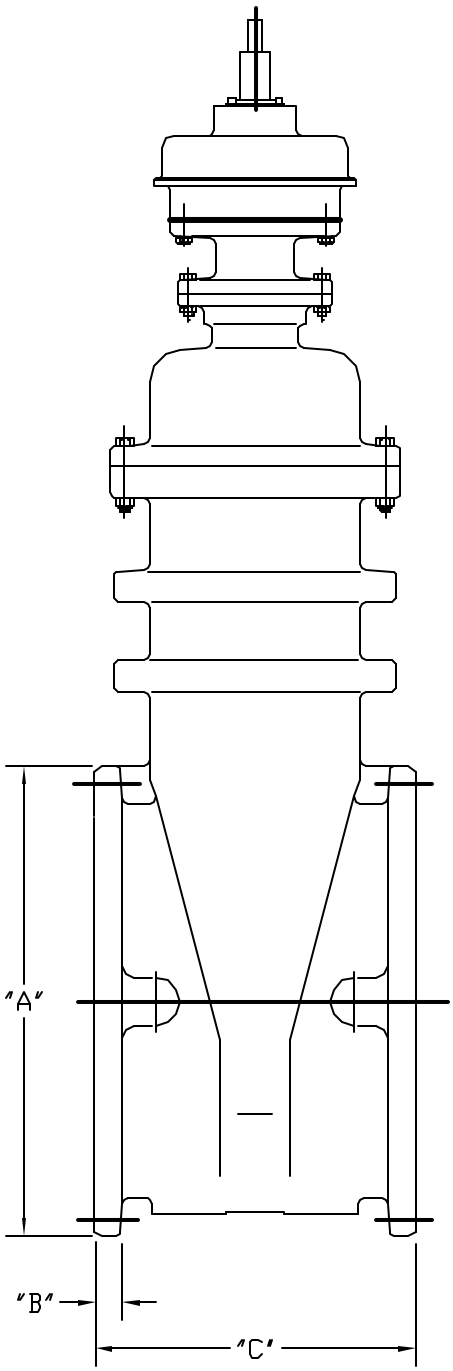
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LRW59

30" & 36"
RESILIENT SEAT GAVE VALVE
NRS - 4067
SPUR GEAR--MATERIAL LIST





Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	38-3/4	2.12	26-1/2	80-1/2	54-3/4	28	1-1/4
36"	46	2.38	30-3/4	90-3/16	58-7/8	32	1-1/2

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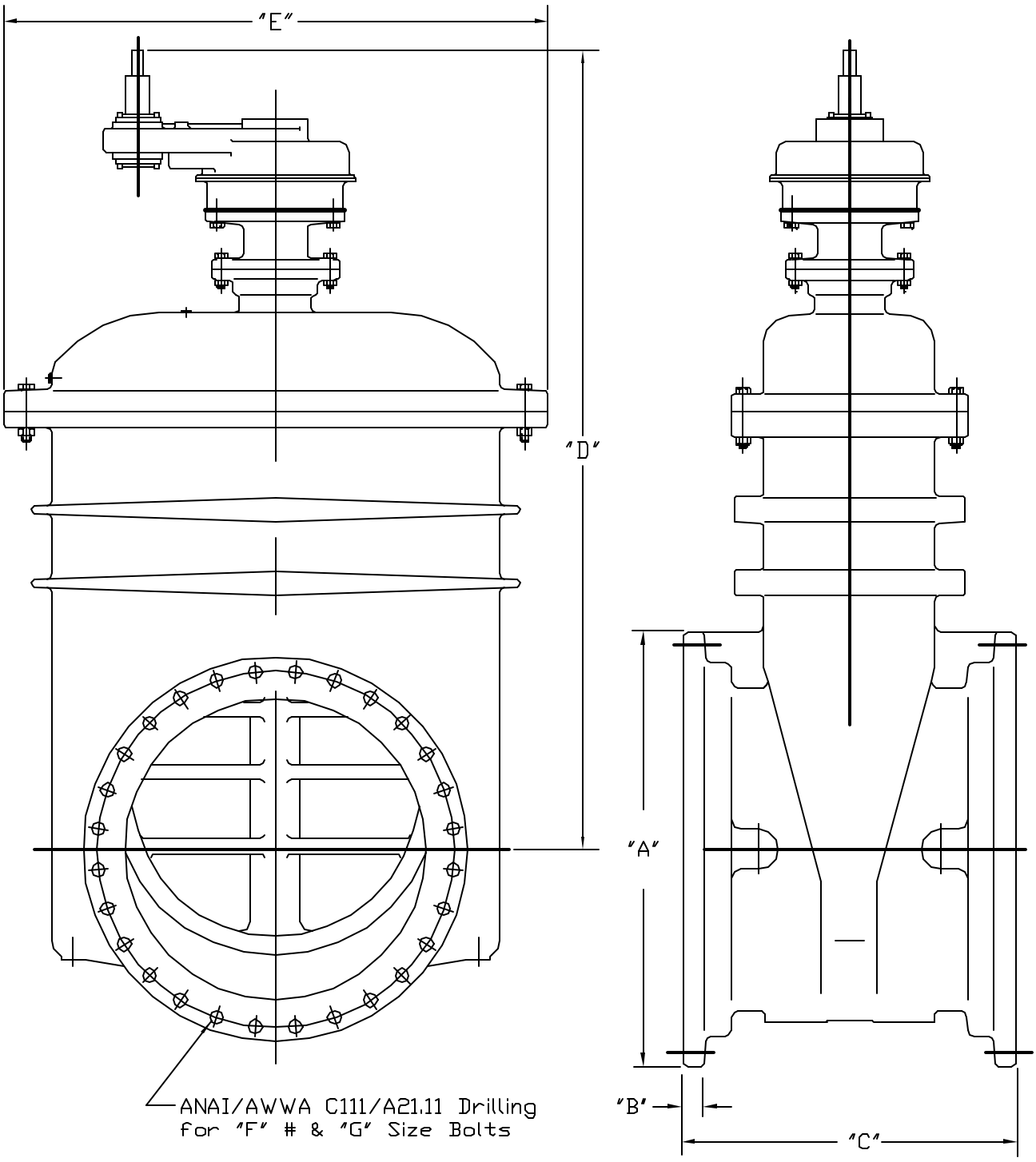
DWN: TRIJ
DATE: 6/2/03
DWG. NO. LRW60

30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
SPUR GEAR--FLANGED ENDS



Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	39-1/2	1-11/16	35-1/2	80-1/2	54-3/4	20	1"
36"	46-1/2	2	38-3/4	90-3/16	58-7/8	24	1"

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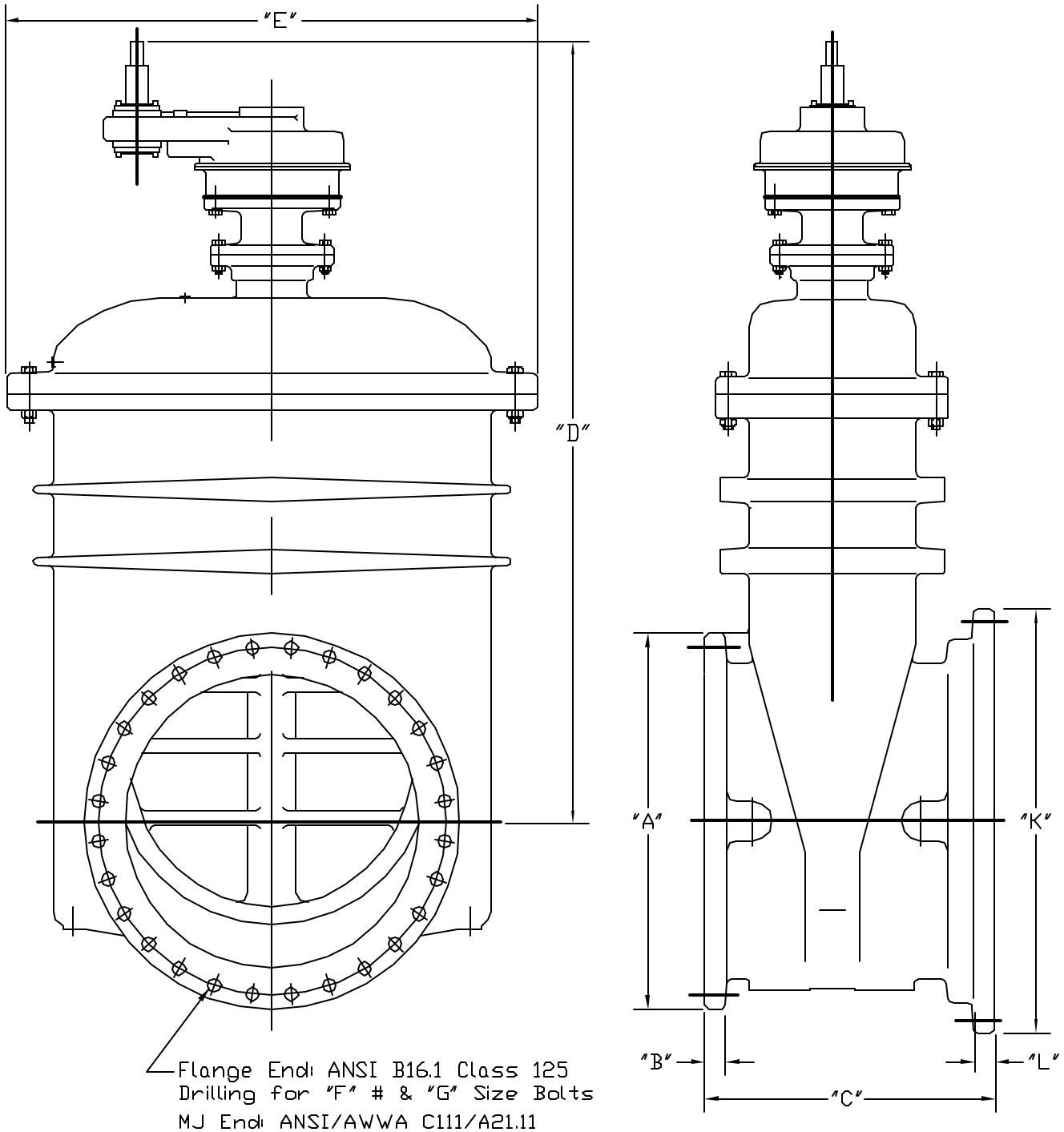
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LRW61

30" & 36" RESILIENT SEAT GATE VALVE NRS – STYLE 4067 SPUR GEAR--MJ x MJ



Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"
30"	38-3/4	2.12	31	80-1/2	54-3/4	28	1-1/4	20	1"	39-1/2	2-1/8
36"	46	2.38	34-3/4	90-3/16	58-7/8	32	1-1/2	24	1"	46-1/2	2-3/8

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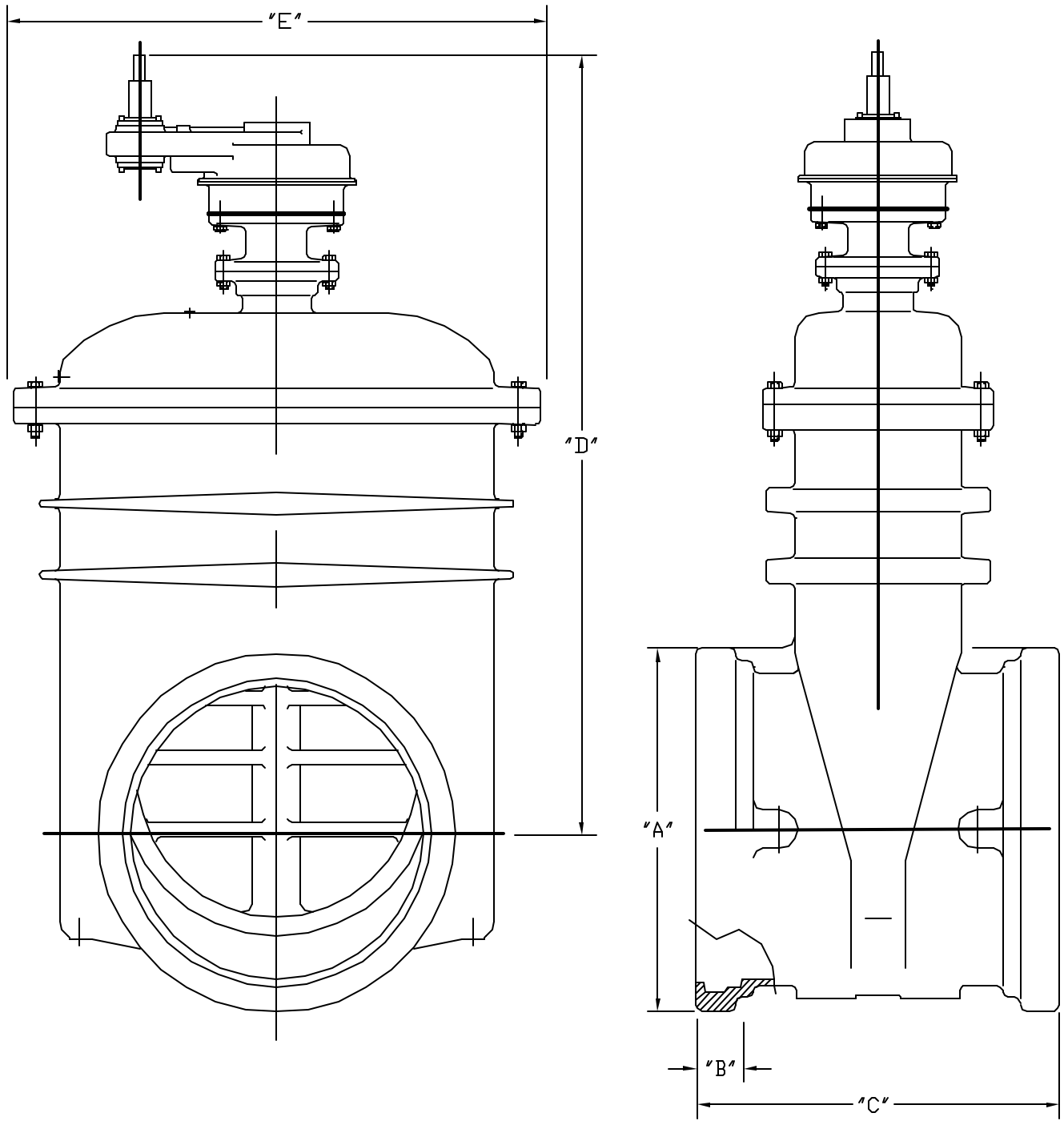
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LRW62

30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
SPUR GEAR--MJ x FLANGED ENDS



Valve Size	"A"	"B"	"C"	"D"	"E"
30"	37	6-1/4	36	80-1/2	54-3/4
36"	43-3/8	6-1/4	39	90-3/16	58-7/8

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. LRW63

30" & 36"
RESILIENT SEAT GATE VALVE
NRS – STYLE 4067
SPUR GEAR--FASTITE ENDS

MULTI-TURN GEAR OPERATORS

With more than 20 years experience in actuated valve and damper control and instrumentation, Exeeco has developed three ranges of Gear Operators - SPUR (IS), BEVEL (IB) and WORM (IW).

The SPUR (IS), BEVEL (IB) and MUTLI-TURN WORM (MTW) Gear Operators are for use on gate, globe, sluice and penstock valves; as well as other applications where screwed or keyed shafts are used to operate equipment.

An Emphasis on Quality

Exeeco Gear operators are versatile, economical, and manufactured from high quality materials. A programme of continuous product development together with life testing of units at Exeeco's works, ensures that maximum performance, quality and reliability are consistently maintained.

BSI registered and with accreditation to BS EN ISO 9001, Exeeco strives to provide the valve industry with the highest quality standards of engineering and service. It is upon this commitment that Exeeco's reputation has been built.

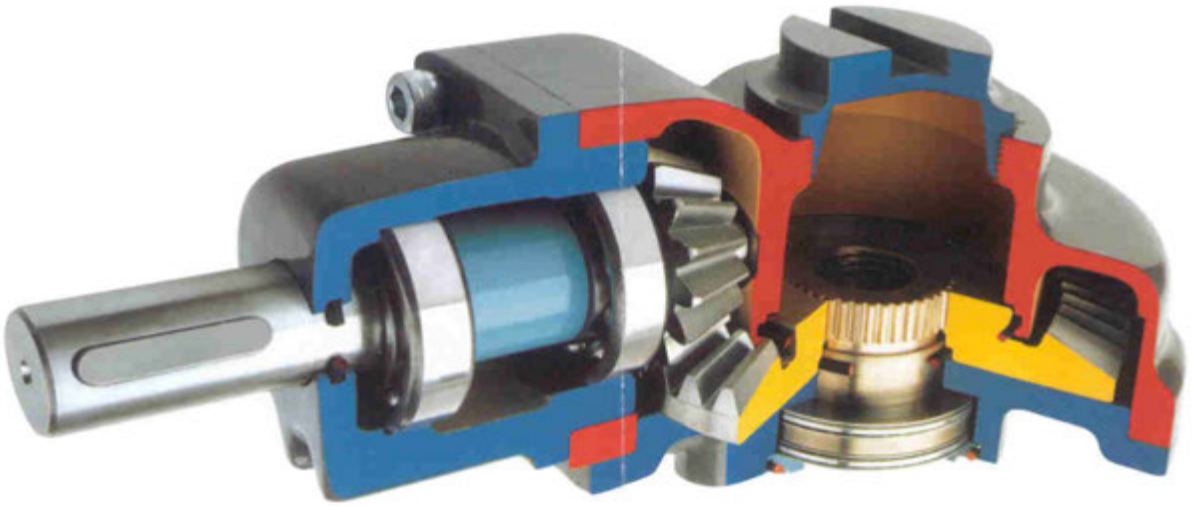
Standard ratio, torque, thrust and spindle acceptances cover all valve requirements. Exeeco gear operators have been designed and produced for almost every application, including

low and high temperature, submersible duty, buried service, marinised duty, AWWA specification and special indication.

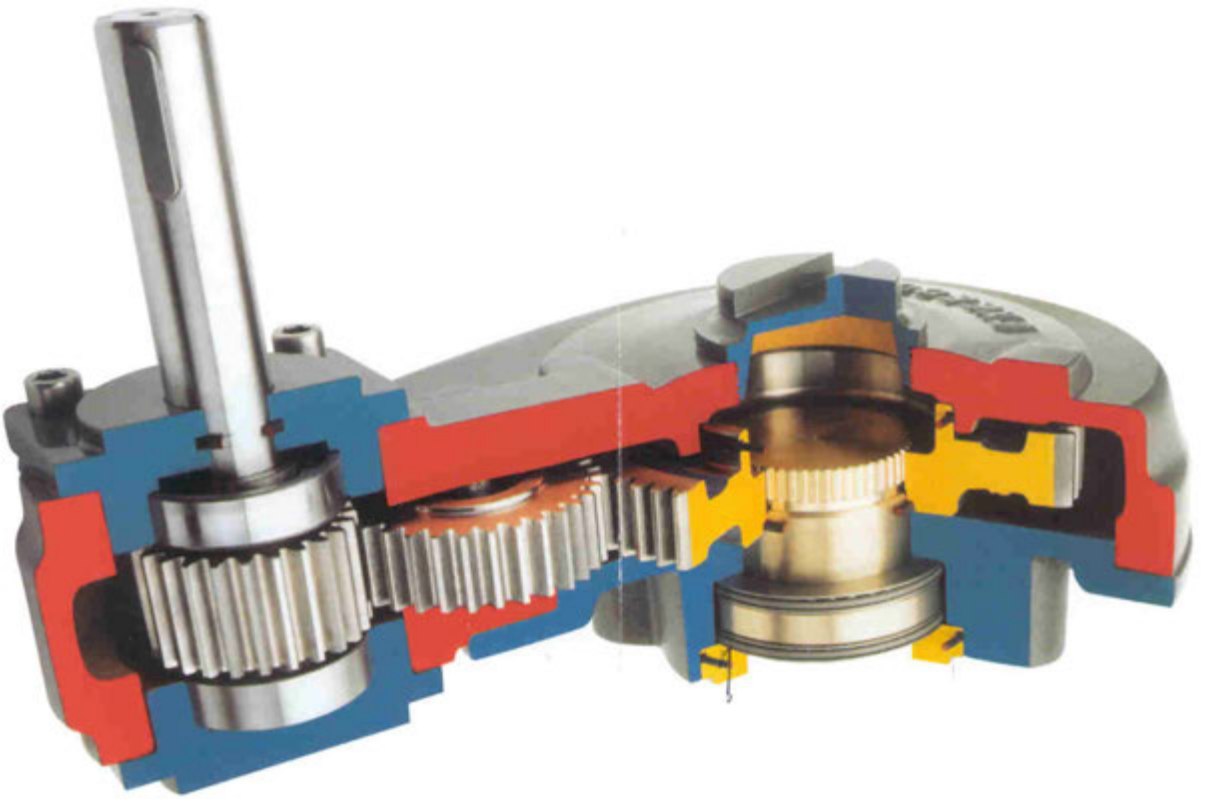
Output sleeves are made from materials compatible with valve stems and are easily removable for machining to customer requirements. A range of auxiliary input gear reducers is available to decrease operating effort *(see combinations on back page)*.

Exeeco gear operators are suitable for both manual and motorised use. Input and output flanges are supplied to ISO, DIN or American standards. However, the flexibility exists to cater for variation in valve design and construction.

Catalogues with sizing details are available for each range of Exeeco gear operator. Please contact an Exeeco office for further information.



IB BEVEL GEAR OPERATOR 4:1 RATIO



IS SPUR GEAR OPERATOR 4:1 RATIO

Common features of Exeeco BEVEL and SPUR Gear Valve Operators

- Totally enclosed gearing
- Grease filled for life and fully sealed
- Comprehensive gear ratios
- Removable output sleeve facility
- Optional input flanges for motorisation
- Optional facility to mount auxiliary spur/bevel input reducers
- Optional two-speed spur input drive
- Variety of handwheel sizes available
- Spur and bevel combinations available

Additional features of Exeeco BEVEL Gear Valve Operators

- Substantial torque range (up to 10846 Nm/8000lbs ft)
- Substantial thrust range (up to 1557 kN/350000lbs)
- Pinions mounted on ball bearings
- Optional twin pinion units to facilitate secondary drive

Additional features of Exeeco SPUR Gear Valve Operators

- Substantial torque range (up to 46100 Nm/34000lbs ft)
- Substantial thrust range (up to 3342 kN/750000lbs)
- Input and idler gears mounted on ball bearings
- Upward or downward drive option
- Twin speed option

Material specification for Exeeco IS and IB ranges of Gear Valve Operators

Component	Material	UK Standard	USA Standard
Gearcase	Cast Iron	BS1452 250	ASTM A48 35B/40B
Baseplate	Cast Iron (IS2 to IS7) SG Iron (IB & IS8 to IS20)	BS1452 250 BS2789 420/12	ASTM A48 35B/40B ASTM A536 65-45-12
Gears	SG Iron Steel Designed basically to BS436 (IS) & BS545 (IB)	BS2789 700/2 BS970 605M36T or 817M40T	ASTM A536 100-70-03 AISI/SAE 4340
O Ring Seals	Synthetic Rubber		
Fixing Screws	HT Steel Metric Standard	BS3692 & BS4168	
Input Shaft Bearings	Ball Bearings		
Output Thrust Bearings	Needle Roller Bearings (with the exception of output sizes 14,16,18, 19 & 20, which have roller thrust bearings)		
Output Sleeve A1	Steel	BS970 070M20	AISI/SAE 1023
Output Sleeve A2	Aluminium Bronze	BS1400 AB2	ASTM B505 C95800
Grease	Renolit CL-X2		
Finish	PA10 Grey Primer (other finishes available on request)		

Note: Because of the company's policy of continuous improvement, Exeeco reserves the right to change specification details without prior notice.
For further information on 1/4 turn Worm operators please refer to brochure code EX/WORM/7749/1B

M&H VALVE—HI-RISER RW IRON OS&Y GATE VALVE
STYLE 7168

SIZE RANGE
PRESSURE RATING
AVAIALBLE END CONNECTIONS
FEATURES
APPLICATIONS

SIZE RANGE	WORKING PRESSURE
2 1/2" – 8”	300 PSI Working Pressure 600 PSI Hydrostatic Seat Test 600 PSI Hydrostatic Shell Test

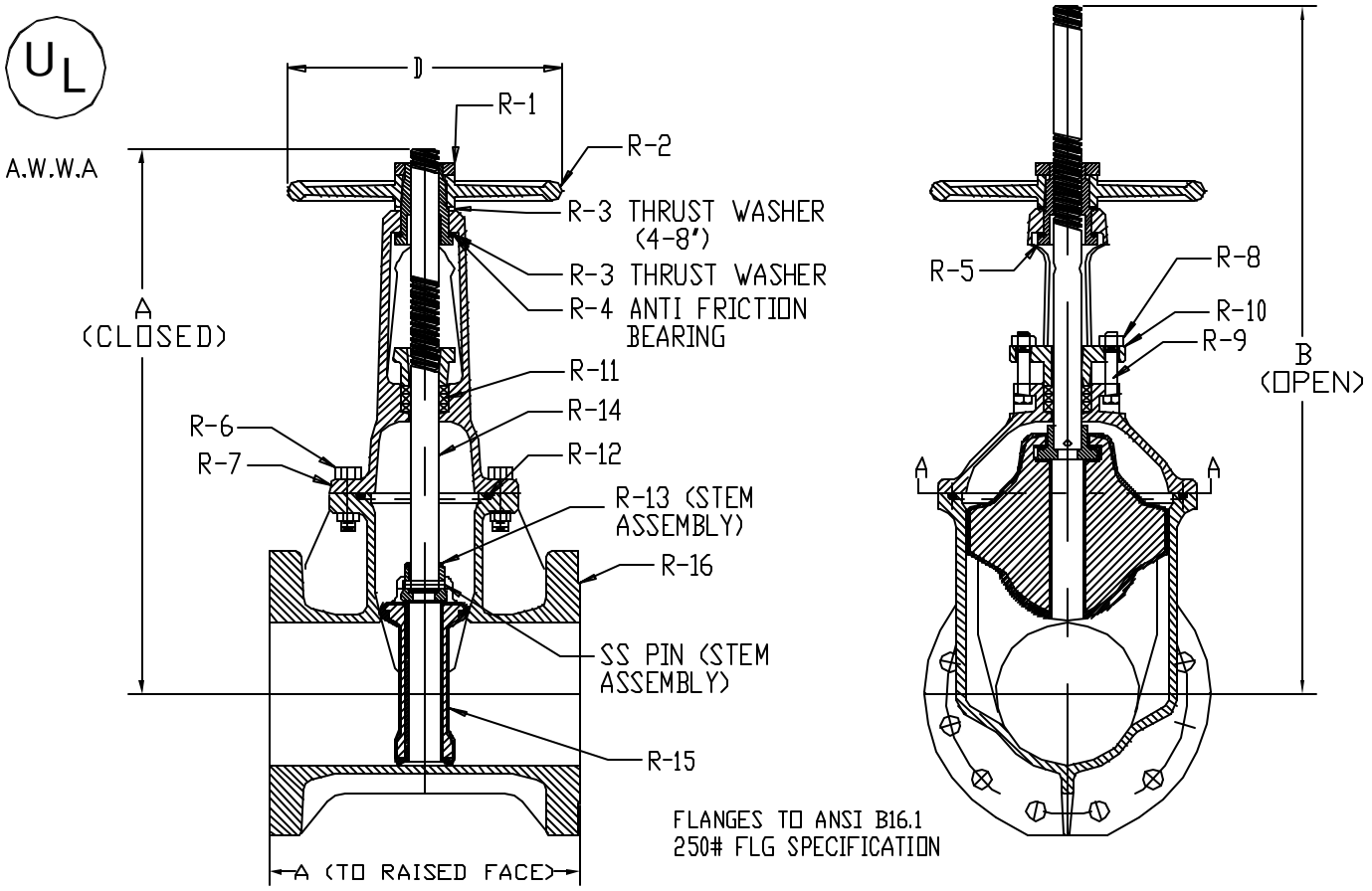
Available End Connections	**Size Range**	**Style No.**
Flanged Ends	2 ½” – 8”	7168

Features

Heavier Flange (250 lbs ANSI Raised Face)
300 PSI Working Pressure
600 PSI Test Pressure
Designed for Higher Pressures Associated with High-Rise Buildings
Bubble Tight Shut Off-Zero Leakage
Full Size Waterway for Unobstructed Flow
Walls Conform to AWWA C515

Applications

Any high-pressure service where better than normal performance is desired.



ITEM	DESCRIPTION	# REQ'D	MATERIAL	SPECIFICATION
R-1	HANDWHEEL NUT	1	* BRONZE	ASTM B584 / CDA 836
R-2	HANDWHEEL	1	CAST IRON	ASTM A-126 CLASS B
R-3	THRUST WASHER	1 (2.5", 3") 2 (4"-8")	BRONZE	ASTM B36
R-4	ANTI FRICTION BEARING	1	NYLATRON--SIZES 3"-12"	
R-5	YOKE NUT	1	BRONZE NDZ OR BRONZE ASTM B-584 CDA836	ASTM B584 / CDA 836
R-6	HEX HEAD BOLTS / NUTS	VARIES	ZINC PLATED STEEL	ASTM A307
R-7	COVER	1	DUCTILE IRON	ASTM A536
R-8	HEX NUTS	2	BRASS	ASTM 563
R-9	SQUARE HEAD BOLTS	2	ZINC PLATED STEEL	ASTM A307
R-10	GLAND	1	DUCTILE IRON	ASTM 536
R-11	PACKING		SQ. BRAIDED NON-ASBESTOS	
R-12	"O" RING	1	BUNA-N	
R-13	"O" RING (STEM ASSY)	**	BUNA-N	
R-14	STEM	1	BRASS B16	
R-15	WEDGE DISC	1	DUCTILE IRON (6" & 8")	ASTM A536
			GRAY IRON (3" & 4")	ASTM 126 CLASS B
			URETHANE OR SBR MODED WEDGE	
R-16	FLANGED BODY	1	DUCTILE IRON	ASTM A536

* TO MEET THE REQUIREMENT OF AWWA ALLOY "A"-YIELD AND COMPOSITION

** (1) PART OF STEM ASSEMBLY

WORKING PRESSURE	300 PSI
HYDROSTATIC SEAT TEST:	600 PSI
HYDROSTATIC SHELL TEST:	600 PSI

SIZE	A	B	C	D
2.5"/3"	8.63	18 7/8	15 5/8	10
4"	11.75	22 3/4	18 1/4	10
6"	13.63	30 1/8	23 3/4	12
8"	14.13	37 3/4	29 1/4	14

* 3" IS AVAILABLE WITH 2.5" DRILLING

SIZE	NUMBER OF TURNS TO OPEN	APPROX. WEIGHT
2.5"/3"	10	80 LB
4"	13 1/2	115 LB
6"	19 1/2	180 LB
8"	25 1/2	275 LB

M&H VALVE COMPANY
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ANNISTON, ALABAMA 36202

DWN: TRIJ

DATE: 6/2/03

DWG. NO. HRV-A1

2 1/2" THRU 8" STYLE 7168 RESILIENT SEAT GATE VALVE (HI-RISER) (HIGH-PRESSURE) OS&Y 300 PSI WORKING PRESSURE 250 LBS FLANGED ENDS

M&H MECHANICAL JOINT TAPPING SLEEVES
STYLE 2074—AB Pipe
STYLE 2174—CD Pipe

SUGGESTED SPECIFICATIONS---INSTALLATION INSTRUCTIONS

- SIZE (6" X 4" to 12"X12")
- FOR TAPPING WATER MAINS UNDER PRESSURE

SAMPLE SPECIFICATION

Ductile Iron Mechanical Joint Tapping Sleeves furnished by M&H Valve Company are produced in accordance with manufacturer's standards. Chemical and physical properties of the ductile iron are in accordance with the requirements of ANSI/AWWA C153/A21.53.
Recess dimensions are per Manufacturer's Standardization Society standard practice SP-60.

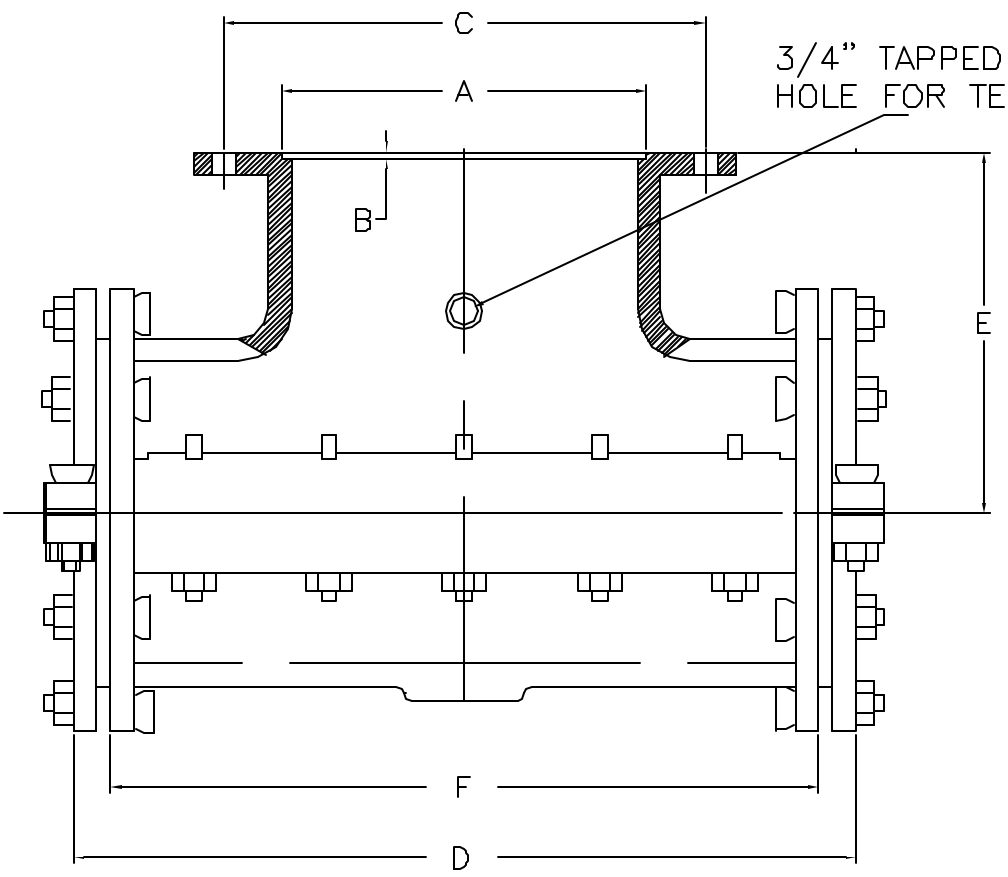
For Cast Iron or Ductile Iron Pipe

Mechanical joint tapping sleeves – for 6" through 12" cast iron or ductile iron pipe.

- Outlet flange facing & drilling per ANSI/AWWA C110/A21.10
- Flange Thickness per Manufacturers Standards
- Gaskets furnished.
- Working pressure – 200 p.s.i

GENERAL INSTALLATION INSTRUCTIONS FOR M&H VALVE MJ TAPPING SLEEVES

1. Clean pipe – insert side gasket into back half of gasket grooves. Make sure ends are flush with or slightly protrude into the end gasket seating area.
2. Bolt sleeve halves together and trim side gaskets as necessary.
   MAKE SURE SLEEVE WILL ROTATE FREELY ON PIPE.
3. Install end gaskets, locating cut ends 90° from side gasket. If pipe is maximum OD, stretch gasket to make certain cut ends match with no gap in between.
4. Install glands and bolts – rotate sleeve to desired position. Be sure pipe is centered inside the sleeve.
5. Tighten gland bolts alternately, using 80 to 90 foot-pounds.
6. After assembly, PRESSURE TEST ALL JOINTS BEFORE TAPPING. If additional tightening is required, release pressure and relax tension on gland bolts before tightening side bolts.
   NOTE: DO NOT ATTEMPT TO AIR TEST TAPPING SLEEVE



SIZE	A	B	C	D	E	F	O.D. RANGE DI MIN.	O.D. RANGE DI MAX.	WEIGHT DI
6x4	5.016	.250	7.500	15.75	8.00	12.75	6.85	7.15	104
6x6	7.016	.312	9.500	15.75	8.00	12.75	6.85	7.15	108
8x4	5.016	.250	7.500	16.50	9.00	13.50	9.00	9.35	134
8x6	7.016	.312	9.500	16.50	9.00	13.50	9.00	9.35	140
8x8	9.016	.312	11.750	16.50	9.00	13.50	9.00	9.35	148
10x4	5.016	.250	7.500	24.00	11.00	20.75	11.04	11.45	236
10x6	7.016	.312	9.500	24.00	11.00	20.75	11.04	11.45	240
10x8	9.016	.312	11.750	24.00	11.00	20.75	11.04	11.45	246
10x10	11.016	.312	14.250	24.00	11.00	20.75	11.04	11.45	257
12x4	5.016	.250	7.500	26.50	12.000	23.25	13.14	13.56	273
12x6	7.016	.312	9.500	26.50	12.000	23.25	13.14	13.56	286
12x8	9.016	.312	11.750	26.50	12.000	23.25	13.14	13.56	292
12x10	11.016	.312	14.250	26.50	12.000	23.25	13.14	13.56	303
12x12	13.016	.312	17.000	26.50	12.000	23.25	13.14	13.56	320

NOTE: Unless otherwise specified, sleeve will be furnished for Class A–B Pipe.

M&H VALVE COMPANY
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P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. TS–1

MECHANICAL JOINT TAPPING SLEEVES
(6" X 4") to (12" X 12")
STYLE 2074–For AB Pipe
SYTLE 2174–For CD Pipe

M&H VALVE-RESILIENT HINGED CHECK VALVE
KEN FLEX—STYLE 506 (4”-12”)

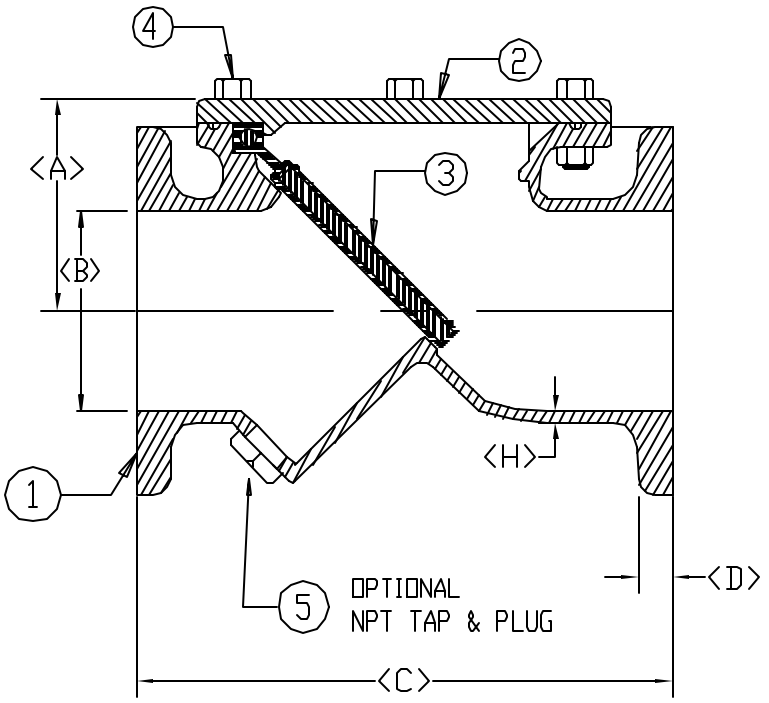
Size Range	Seat Test psi	Hydrostatic Shell Test psi
4”-12”	250	500

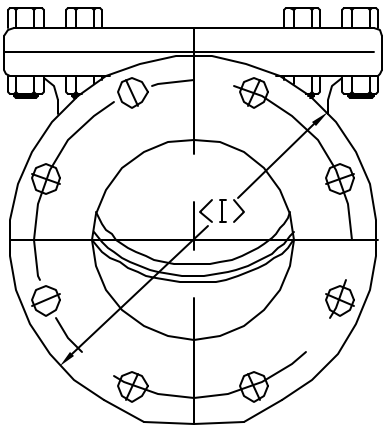
Available End Connections	**Size Range**	**Style No.**
Flanged Ends	4”-12”	506

***14” and Larger Consult Factory

Accessories / Options:
Back flush device
Tapped mounting pad – Sampling Station
Tapped mounting pad – Position Indicator
Stainless Steel Hardware

Features
All ductile iron construction.
Reversible reinforced resilient seat.
One moving part for long life.
Fusion bonded epoxy for superior corrosion resistance.
ANSI-B-16.1 Flanges
250 PSI Working Pressure
500 PSI Shell Test
ASTM-A-536-65-45-12





PART NO.	NO. REQ'D	PART	MATERIAL
1	1	BODY	DUCTILE IRON
2	1	COVER PLATE	DUCTILE IRON
3	1	FLAPPER	RESILIENT FLAPPER, MET. INSERT
4	Varies	COVER BOLTS AND NUTS	STEEL
5	1	NPT PLUG, STD ALL VALVES	STEEL

SIZE	A (approx)	ø B	C	D (nominal)	ø E	F	ø G	H (nom.)	I	WEIGHT
4	4.88	4.00	13	1.00	7.50	8	0.75	0.31	9.0	70
6	6.38	6.00	16	1.06	9.50	8	0.88	0.34	11.0	126
8	7.63	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	190
10	9.06	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	273
12	10.63	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	357

E - BOLT CIRCLE DIA. END FLANGE
F - NUMBER OF BOLTS REQ'D EACH END FLANGE
G - BOLT HOLE DIAMETER FOR END FLANGE
END FLANGES CONFORM TO ANSI B16.1

M&H VALVE COMPANY
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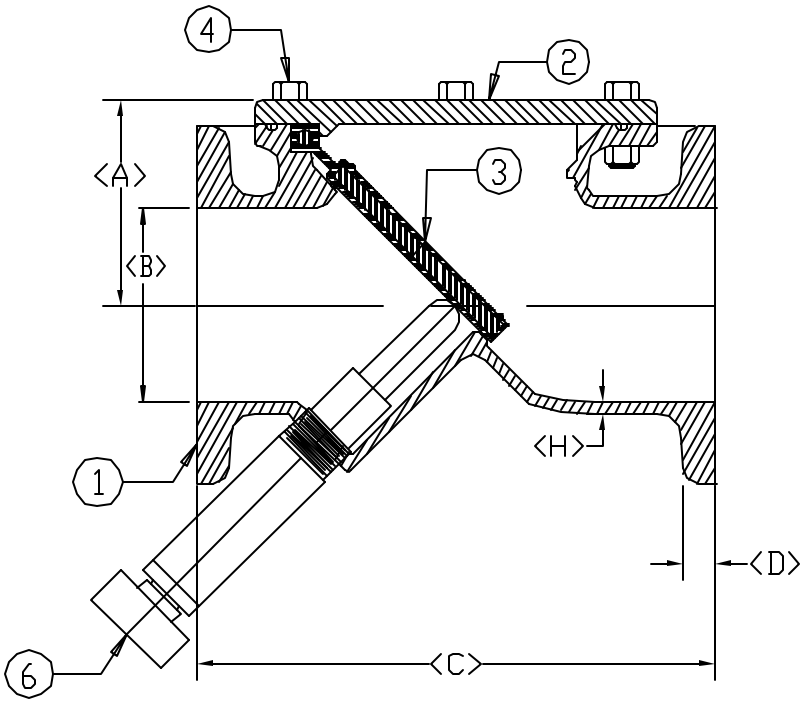
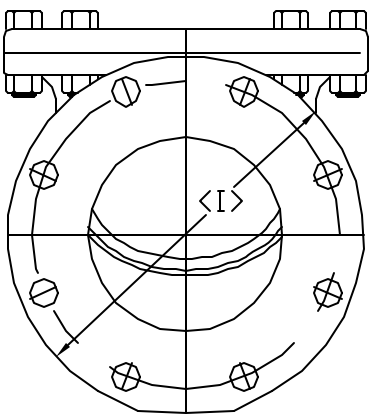
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. K506-S

4" THRU 12"
KENFLEX RESILIENT HINGED CHECK VALVE
STYLE 506-S





PART NO.	NO. REQ'D	PART	MATERIAL
1	1	BODY	DUCTILE IRON
2	1	COVER PLATE	DUCTILE IRON
3	1	FLAPPER	RESILIENT FLAPPER, MET. INSERT
4	Varies	COVER BOLTS AND NUTS	STEEL
6	1	BACKFLOW JACK SUBASSEMBLY	STEEL COMPONENTS

SIZE	A (approx)	ø B	C	D (nom.)	ø E	F	ø G	H (nom.)	I	WEIGHT
4	4.88	4.00	13	1.00	7.50	8	0.75	0.31	9.0	83
6	6.38	6.00	16	1.06	9.50	8	0.88	0.34	11.0	139
8	7.63	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	203
10	9.06	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	295
12	10.63	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	370

E - BOLT CIRCLE DIA. END FLANGE
F - NUMBER OF BOLTS REQ'D EACH END FLANGE
G - BOLT HOLE DIAMETER FOR END FLANGE
END FLANGES CONFORM TO ANSI B16.1

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. K506-J

4" THRU 12"
KENFLEX RESILIENT HINGED
CHECK VALVE WITH BACKFLOW JACK
STYLE 506-J

M&H VALVE--ECCENTRIC PLUG VALVES (3”-24”)

PRESSURE RATINGS
AVAILABLE CONFIGURATIONS
ACCESSORIES / OPTIONS

Size Range	Seat Test psi	Hydrostatic Shell Test psi
3”-12”	175	350
14”-24”	150	300

Available End Connections	**Size Range**	**Style No.**
Flanged Ends	3”-24”	1820-02
Mechanical Joint	3”-24”	1820-01
Grooved Ends	4”-16”	1820-GR
Flanged Ends “Full Port”	3”-12”	1820-FP

Accessories / Options:

Floor stands
Extension Stems
2” Square Operating Nuts
Hand wheels
Chain wheels
Lever Wrench Head (3”-8”)
Worm Gear Actuators
Electric Motors Actuators
Cylinder Actuators
Limit Switches
Stem Guides
Floor boxes
“T” Handles
Chain Levers (3”-8”)

NOTE 1: Contact Factory For Special Applications

NOTE 2: Valves 3” through 8” are available with lever actuators. Geared actuators are recommended on 6” and larger valves. It is also recommended that valves installed in pipelines with high velocity or where water hammer conditions can be caused by sudden valve shut-off that geared actuators be installed. Lever actuators can only be used for pressure ratings of 100 psi maximum and 25 psi in the reverse flow condition.

M&H VALVE--ECCENTRIC PLUG VALVES (3”-24”)

FEATURES AND BENEFITS

1. **STEM PACKING SEALS** – M&H utilizes Buna-N multiple “V” ring stem packing seals. This sealing system conforms to AWWA C054 and AWWA C507 standards. The M&H valve can be repacked under pressure without removing the actuation. The packing seal is held in place with an adjustable gland follower to provide many years of reliable service.

2. **BOLTED BONNET** – Valve bonnets are fully sealed and securely bolted to the valve body for easy removal of the plug should maintenance be required.

3. **SHAFT BEARINGS** – Sintered 316 stainless steel shaft bearing are used in the upper and lower truunions. These bearings are permanently lubricated for ease of operation even after long periods of inactivity.

4. **VALVE BODY** – The body and cover of the M&H valve is cast iron (Semi-Steel) conforming to ASTM A126 Class B. Flanged valves are in full compliance with ANSI B16.1 Class 125 standards including flange thickness. Mechanical Joint valves are in compliance with AWWA C111/ANSI 21.11. Grooved End valves are in compliance with AWWA C606.

5. **WELDED NICKEL SEAT** – M&H welds a corrosion resistant nickel seat to a raised area in the body. The weld is of 90% pure nickel, at least 1/8” thick after it is machined. The nickel covers the entire seat surface so that there is no possibility of corrosion that could damage the plug face.

6. **PLUG** – The valve plug is cast iron ASTM A126, Class B. The portion of the plug in the valve body cavity is coated with Buna-N rubber using an injection molding process. This allows for the entire surface to be covered not just the plug face. With this injection molding process, you do not have to worry about the rubber dis-bonding from the iron.

7. **O-RING BONNET SEAL** – The seal between the body and bonnet is an O-ring allowing for easier maintenance, and since O-rings seal better than flat gaskets the number of bonnet bolts is reduced.

M&H VALVE--ECCENTRIC PLUG VALVES (3”-24”)
SUGGESTED SPECIFICATIONS

Eccentric Plug valves shall be of the tight closing, resilient faced, non-lubricating variety and shall be of eccentric design such that the valves pressure member (plug) rises off the body seat contact area immediately upon shaft rotation during the opening movement. Valves shall be drop-tight at the rated pressure (175 psi through 12”, 150 psi 14” and above) and shall be satisfactory for applications involving throttling service as well as frequent or infrequent on-off service. The valve closing member should rotate approximately 90 degrees from the full-open to full-close position and vice-versa.

The valve body shall be constructed of cast iron (semi-steel) conforming to ASTM A126, Class B. Body ends shall be:

1. Flanged with dimensions, facing, and drilling in full conformance with ANSI B16.1, Class 125. This includes flange thickness.
2. Mechanical Joint to meet the requirements of AWWA C111 / ANSI A21.11.
3. Grooved ends to meet the requirements of AWWA C606.

Eccentric Plug Valves shall have a rectangular shaped port. Port areas for 3”-20” valves shall be a minimum 80% of full pipe area. Port area for 24” valve shall be a minimum 70% of full pipe area.

Valve seat surface shall be welded-in overlay, cylindrically shaped of not less than 90% pure nickel. Seat area shall be raised, with raised area completely covered with weld to insure proper seat contact. The machined seat area shall be a minimum of .125” thick and .500” wide.

The valve plug shall be constructed of cast iron (semi-steel) conforming to ASTM A126, Class B. The plug shall have a cylindrical seating surface that is offset from the center of the plug shafts. The plug shafts shall be integral. The entire plug shall be 100% encapsulated with Buna-N rubber in all valve sizes. The rubber compound shall be approximately 70 (Shore A) durometer hardness. The rubber to metal bond must withstand 75 lbs. pull under test procedure ASTM D-429-73 Method B.

Shaft bearing, upper and lower, shall be sleeve type metal bearings, sintered, oil impregnated, and permanently lubricated Type 316 stainless steel conforming to ASTM A743 Grade CF-8M. Thrust bearings shall be Nylatron.

Plug valve shaft seals shall be on the multiple V-ring type (Chevron) and shall be adjustable. All packing shall be replaceable without removing the bonnet or actuator and while the valve is in service. Shaft seals shall be made of Buna N.

Each valve shall be given a test against the seat at the full rated working pressure and a hydrostatic shell test at twice the rated working pressure. Certified copies of individual test shall be submitted when requested. Certified copies of proof-of-design tests shall be submitted upon request.

Manual valves shall have lever or worm gear type actuators with handwheels, 2” square nuts, or chainwheels attached. Lever actuators shall be furnished on valves 8” and smaller where the maximum unseating pressure is 25 psig or less. Worm gear type actuators shall be furnished on all 4” or larger valves where the maximum unseating pressure is 25 psig or more.

All eccentric plug valves shall be M&H 1820-02 (flanged), 1820-01 (mechanical joint), or 1820-GR (grooved) or approved equal.

M&H VALVE--ECCENTRIC PLUG VALVES (3”-24”)
MATERIALS SPECIFICATIONS

CAST IRON SPECIFICATION ASTM A126 CLASS B

Physical Properties	
Minimum tensile strength	31,000 psi
Minimum transverse strength	3,300 lbs.
Minimum deflection (12” Centers)	.12 in
Chemical Analysis (percent)	
Phosphorus (maximum)	.75
Sulfur (maximum)	.15

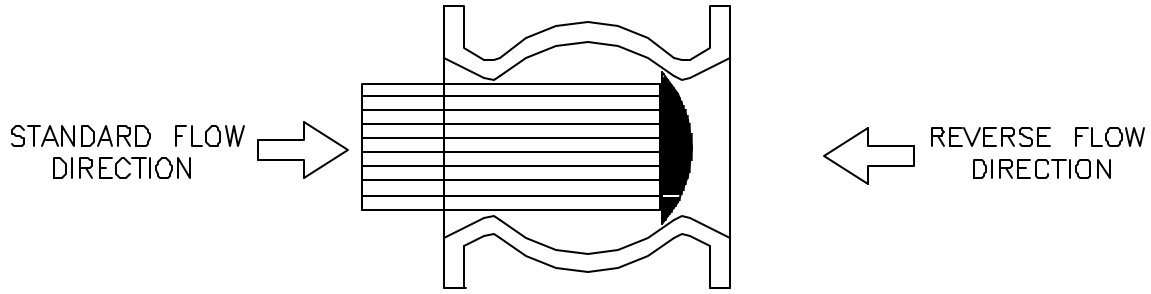
STAINLESS STEEL – 316 – ASTM A743 – Grade CF-8M

Physical Properties	
Ultimate tensile strength	70,000 psi
Yield Strength	30,000 psi
Elongation	30%
Rockwell Hardness	B50
Chemical Analysis (percent)	
Chromium	19
Nickel	9.0 – 12.0
Molybdenum	2.0 – 3.0
Silicon	2

BUNA- N RUBBER (Acrylonitrile)

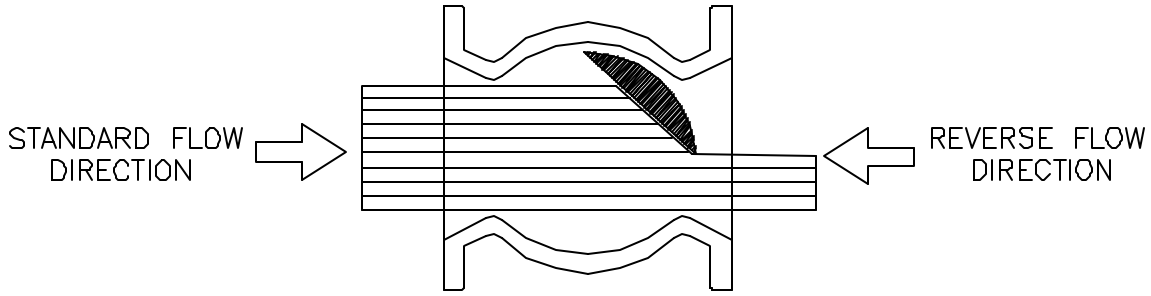
Physical and Mechanical Properties	
Tensile strength	1,475 psi
Elongation	238%
Hardness (Shore A)	70
Compression set (Method B, 22 hrs. @ 150 F.)	18.70%
Specific Gravity	1.24

CLOSED



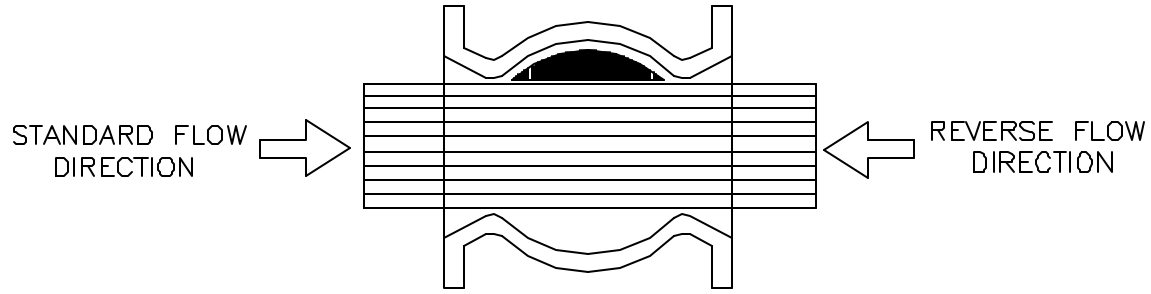
As the plug componet is rotated to valve closure, the offset condition of the plug causes the seating surface to move axially downstream into the nickel. This results in a high seating force thereby crushing trapped solids and resulting in a bubble–tight seal. The upstream pressure acting on the convex side of the plug further improves the bubble–tight seal.

OPENING



Upon opening the valve, the initial rotation of the plug causes the resilient seating surface to move axially away from the nickel seat in the body. This action minimizes wear and scraping of the resilient seat, thereby improving the life of the valve. The plug can be postioned at any position between open and closed for throttling applications.

OPEN



In the full–open position, the plug is rotated out of the main fluid stream as shown. This allows for high capacity flow through the valve.

FLOW DIRECTION DESIGNATION

Valves 3" through 8" are available with lever actuators. Geared actuators are recommended on 6" and larger valves. It is also recommended that valves installed in pipelines with high velocity or where water hammer conditions can be caused by sudden valve shut–off that geared actuators be installed. Lever actuators can only be used for pressure ratings of 100 psi maximum and 25 psi in the reverse flow conditions.

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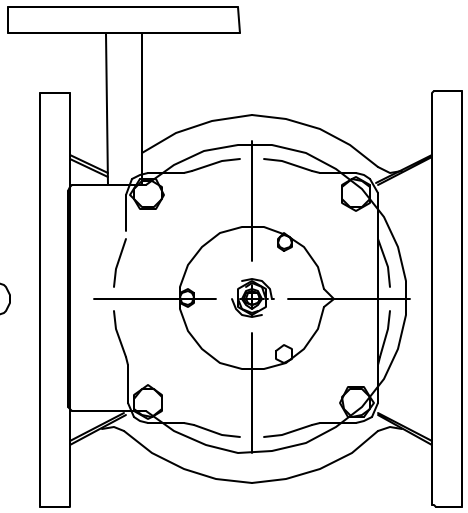
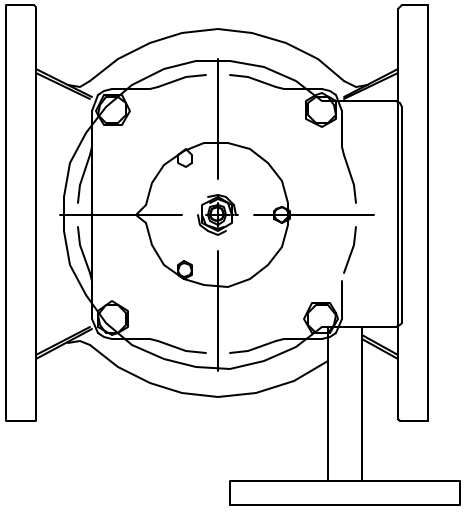
DWN: TRIJ	STYLE 1820 ECCENTRIC PLUG VALVE FLOW DESIGNATION
DATE: 6/2/03	
DWG. NO. PV–5	

OPTIONAL MOUNTING POSITION

SEAT END



SEAT END



STANDARD MOUNTING POSITION

ACTUATOR MOUNTING POSITION AS VIEWED FROM THE TOP OF THE VALVE

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P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	4"THRU 24" STYLE 1820 ECCENTRIC PLUG VALVE OPERATION ORIENTATION OPTION
DATE: 6/2/03	
DWG. NO. PV-6	

VALVE SIZE	PORT AREA %	Cv
3″	85	335
4″	88	565
6″	87	1210
8″	89	2050
10″	81	3100
12″	84	4170
14″	84	5460
16″	84	7420
18″	83	9675
20″	89	12920
24″	71	17670

FLOW IN GPM (GALLONS PER MINUTE) TO EQUAL A 1 PSI PRESSURE DROP

SIZING FORMULA

(1) $CV = \frac{Q}{\sqrt{\Delta}}$

(2) $Q = C\sqrt{\Delta}$

(3) $= \left(\frac{Q}{CV}\right)$

SYMBOL DEFINITIONS

Cv = VALVE SIZING COEFFICIENT

P = PRESSURE DROP, POUNDS PER SQUARE INCH (PSI)

Q = FLOW, GALLONS PER MINUTE (GPM)

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ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-7

ECCENTRIC PLUG VALVE
CV VALUES

GEAR OPERATORS WITH 2" SQUARE NUTS, 150 Ft. –LB. Max. Input Torque
Consult factory for Reverse Flows above 50 psig.

VALVE SIZE	50 PSIG	75 PSIG	100 PSIG	125 PSIG	150 PSIG	175 PSIG
4"	U10N	U10N	U10N	U10N	U10N	U10N
6"	U10N	U10N	U10N	U10N	U10N	U10N
8"	U10N	U10N	U10N	U10N	U10N	U10N
10"	U10N	U10N	U10N	U10N	U10N	U10N
12"	U10N	U10N	U10N	U10N	U10N	U10N
14"	U90N	U90N	U90N	U90N	U90N	---
16"	U90N	U90N	U90N	U90N	U100N	---
18"	U100N	U100N	U100N	U100N	U100N	---
20"	U100N	U100N	U100N	U100N	U100N	---
24"	U100N	U100N	U100N	U160N	U160N	---

U10N = 1KE / OP NUT BURIED SERVICE
U90N = 9KE / OP NUT BURIED SERVICE
U100N = 10KE 2.5 / OP NUT BURIED SERVICE
U160N = 16KE / OP NUT BUREID SERVICE

GEAR OPERATORS WITH HANDWHEELS & 80 LB. MAX, RIM PULL
CONSULT FACTORY FOR REVERSE FLOWS ABOVE 50 PSIG.

VALVE SIZE	50 PSIG	75 PSIG	100 PSIG	125 PSIG	150 PSIG	175 PSIG
4"	A110	A110	A110	A110	A110	A110
6"	A110	A110	A110	A110	A110	A110
8"	A110	A110	A110	A110	A110	A110
10"	A118	A118	A118	A118	A118	A118
12"	A118	A118	A118	A118	A118	A118
14"	A924	A924	A924	A924	A930	---
16"	A1024	A1024	A1024	A1024	A1624	---
18"	A1024	A1024	A1024	A1030	A1624	---
20"	A1024	A1024	A1030	A1624	A1624	---
24"	A1024	A1030	A1624	A1630	A1630	---

A110 = 1KE / 10" HANDWHEEL
A118 = 1KE / 18" HANDWHEEL
A924 = 9KE / 24" HANDWHEEL
A930 = 9KE / 30" HANDWHEEL
A1024 = 10KE 2.5 / 24" HANDWHEEL
A1030 = 10KE 2.5 / 30" HANDWHEEL
A1624 = 10KE 6 / 24" HANDWHEEL
A1630 = 16KE / 30" HANDWHEEL

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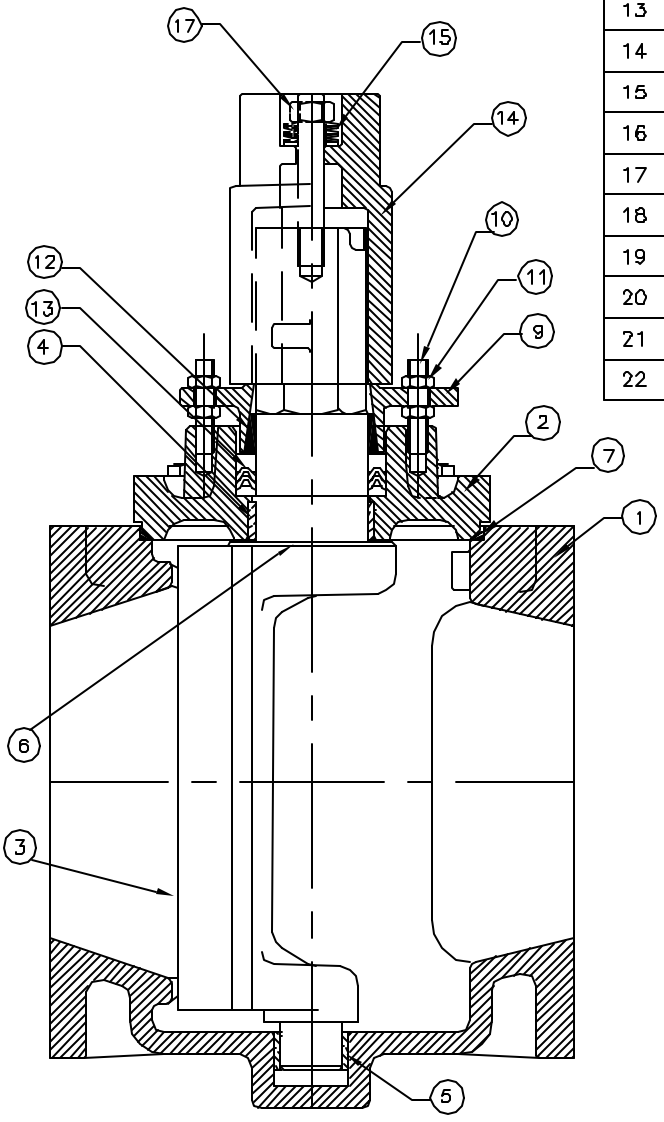
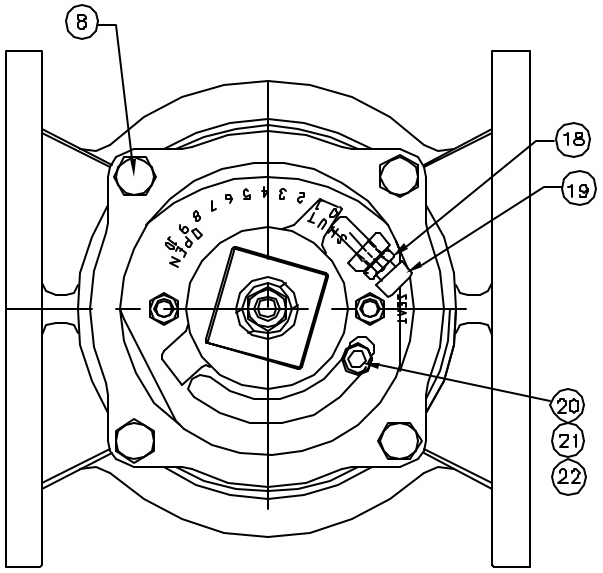
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV–8

4" THRU 24" STYLE 1820 ECCENTRIC PLUG VALVE WORM GEAR ACTUATOR SELECTION CHART

SEQ	QUAN	DESCRIPTION	MATERIAL
1	1	BODY	CAST IRON ASTM A-126 CLASS B
2	1	COVER	CAST IRON ASTM A-126 CLASS B
3	1	PLUG	CAST IRON & BUNA-N
4	1	TOP BEARING	316 STAINLESS STEEL
5	1	BOTTOM BEARING	316 STAINLESS STEEL
6	1	THRUST WASHER	NYLATRON
7	1	COVER O-RING	BUNA-N
8		COVER CAPSCREWS	ZINC PLATED STEEL
9	1	GLAND / BRAKE FOLLOWER	CAST IRON ASTM A-126 CLASS B
10	2	FOLLOWER STUD	ZINC PLATED STEEL
11	4	FOLLOWER NUTS	ZINC PLATED STEEL
12	1	BRAKE	GLASS REINFORCED PPS
13	1-SET	" V " PACKING	BUNA-N
14	1	OPERATING NUT	CAST IRON ASTM A-126 CLASS B
15	1	BELLVEU SPRING WASHER	ZINC PLATED STEEL
16	1	ADJUSTING STUD	ZINC PLATED STEEL
17	1	LOCK NUT	ZINC PLATED STEEL
18	1	SQUARE HEAD SET SCREW	ZINC PLATED STEEL
19	1	JAM NUT	ZINC PLATED STEEL
20	1	SOCKET HEAD CAPSCREW	ZINC PLATED STEEL
21	1	FLAT WASHER	ZINC PLATED STEEL
22	1	JAM NUT	ZINC PLATED STEEL





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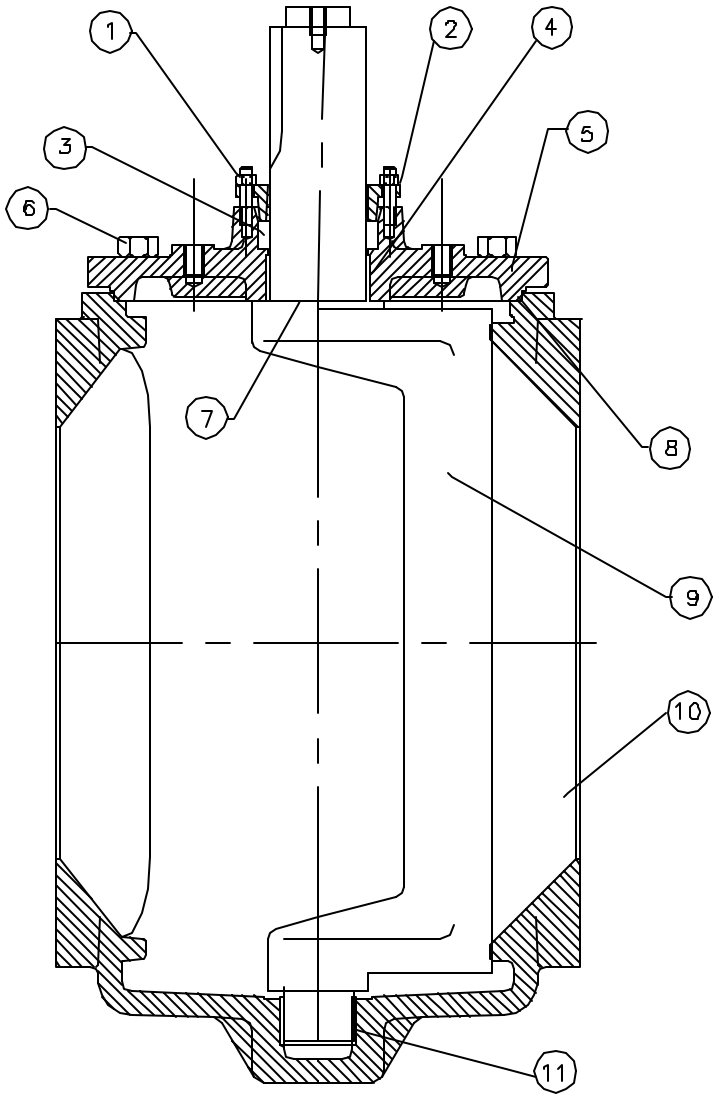
DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-A1

3" THRU 8" STYLE 1820 ECCENTRIC PLUG VALVE ASSEMBLY DRAWING / MATERIAL LIST



ITEM NO.	DESCRIPTION		ASTM
1	STUD & HEX NUTS	STEEL–ZINC PLATED	
2	FOLLOWER GLAND	CAST IRON	ASTM A–126 CLASS B
3	"V" RING SEALS	BUNA–N	
4	316 S S OIL IMPREGNATED SLEEVE BEARING		
5	COVER	CAST IRON	ASTM A–126 CLASS B
6	HEX HEAD CAPSCREW	STEEL–ZINC PLATED	
7	THRUST WASHER	NYLATRON	
8	COVER O–RING	BUNA–N	
9	PLUG	CAST IRON & BUNA–N	ASTM A–126 CLASS B
10	BODY	CAST IRON	ASTM A–126 CLASS B
11	316 S S OIL IMPREGNATED SLEEVE BEARING		

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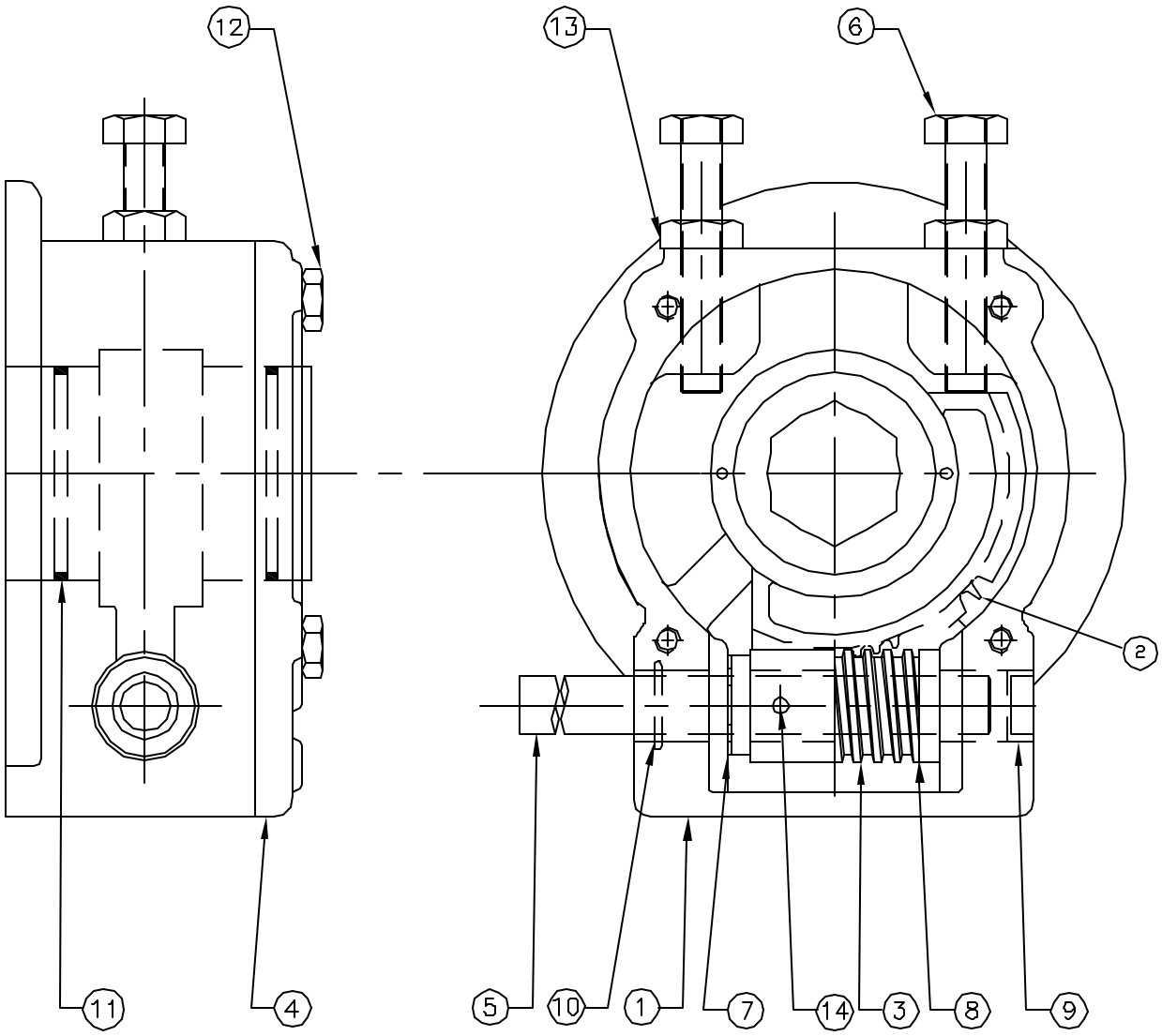
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV–A2

14" THRU 24" STYLE 1820 ECCENTRIC PLUG VALVE ASSEMBLY DRAWING / MATERIAL LIST



DET.	QTY.	DESCRIPTION	MATERIAL
1	1	HOUSING	CAST IRON ASTM A-126 CLASS B
2	1	DRIVE SLEEVE	MANGANESE BRONZE
3	1	WORM	AISI-11L41
4	1	COVER PLATE	CAST IRON ASTM A-126 CLASS B
5	1	WORM SHAFT	AISI-11L41
6	2	STOP SCREW	ASTM A108
7	2	SHIM	MILD STEEL
8	2	THRUST BEARING	OIL IMPREGNATED BRONZE
9	1	EXPANSION PLUG	ASTM A108
10	2	O-RING	BUNA-N
11	2	O-RING	BUNA-N
12	4	HEX HEAD CAP SCREW	ASTM A100
13	2	LOCK NUT	ASTM A-108
14	1	SPRING PIN	HIGH TENSILE STEEL

NOTE: THIS VIEW SHOWN IN THE OPEN POSITION WITH THE COVER PLATE REMOVED

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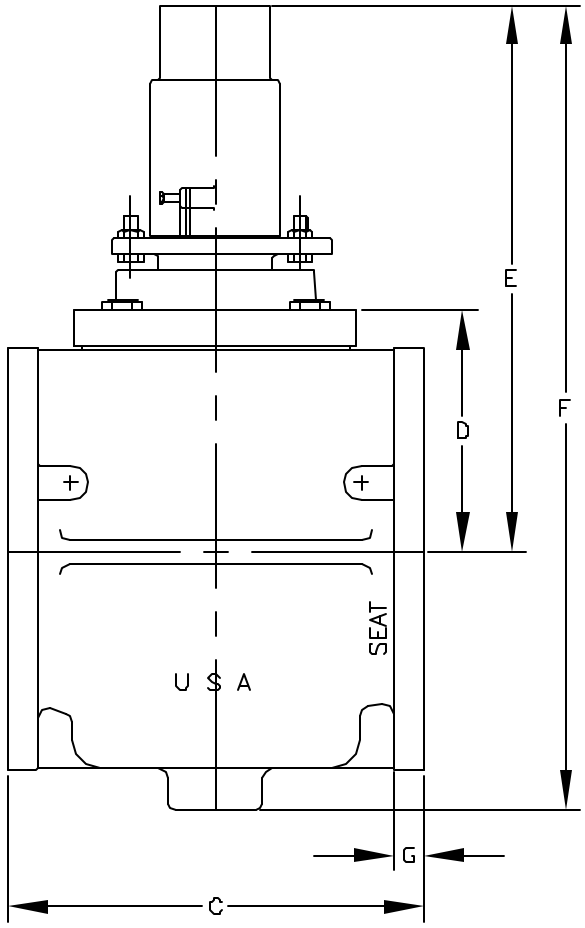
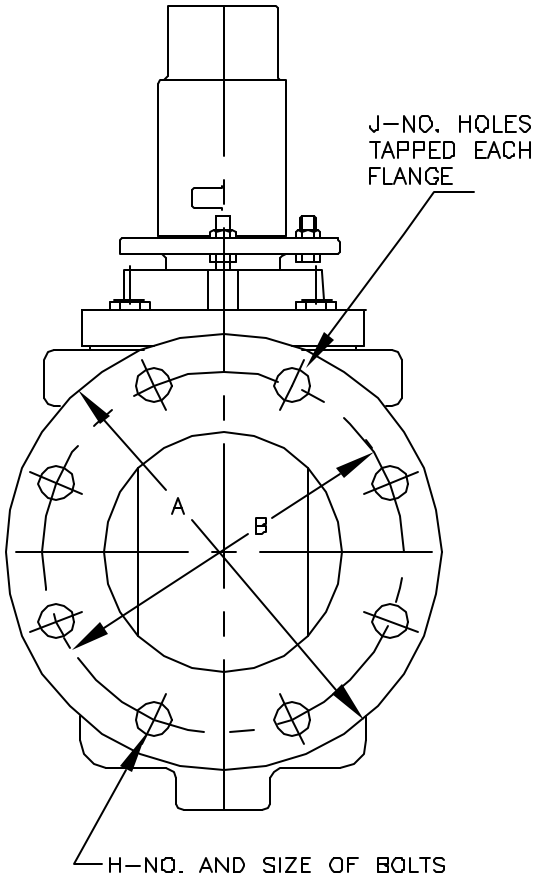
A DIVISION OF McWane. Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-A3

3" THRU 24" SYLE 1820
ECCENTRIC PLUG VALVE
WORM GEAR OPERATOR
ASSEMBLY DRAWING /
MATERIAL LIST





VALVE SIZE	A	B	C	D	E	F	G	H	J	WEIGHT* 2" NUT
3"	7 1/2	6	8	3 15/32	16 3/4	11	3/4	4–3/4	0	20
4"	9	7 1/2	9	4 7/16	11	16 3/8	1	8–5/8	4	68
6"	11	9	10 1/2	6 1/8	12 3/4	21	1 1/16	8–3/4	2	110
8"	13 1/2	11 3/4	11 1/2	7 5/8	14 1/4	24 1/4	1 3/16	8–3/4	4	176

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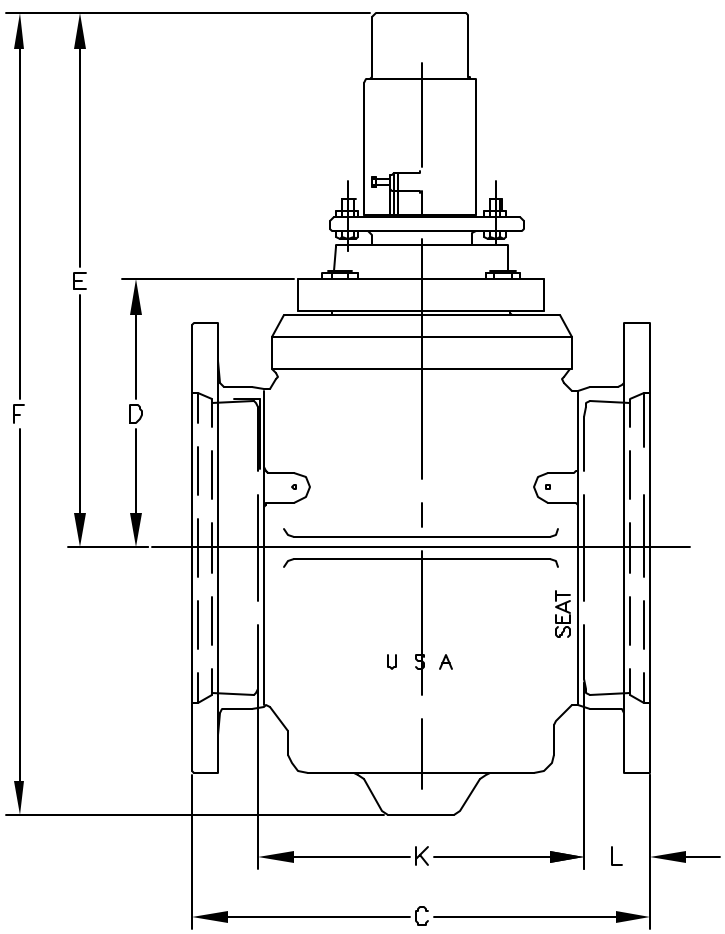
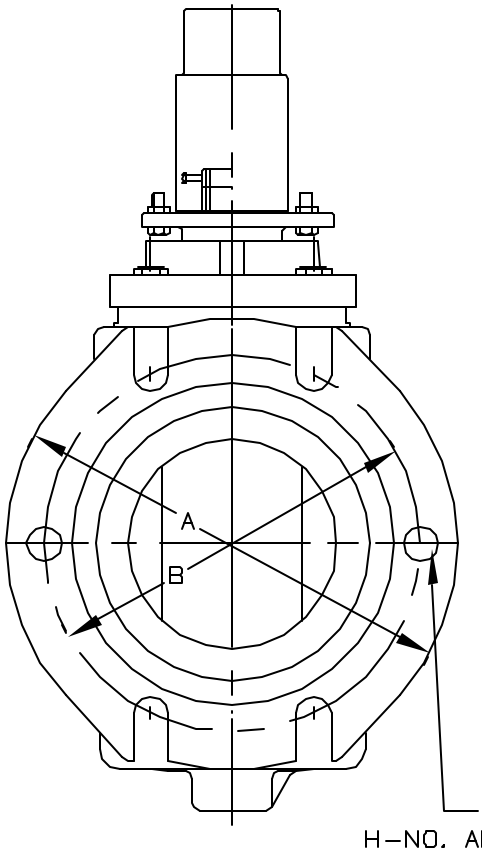
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV–A4

3" THRU 8" STYLE 1820–02 ECCENTRIC PLUG VALVE FLANGED ENDS





VALVE SIZE	A	B	C	D	E	F	H	K	L	WEIGHT* 2" NUT
3"	7 5/8	6 3/16	11 7/8	3 15/32	6 3/4	11	4–3/4	6 7/8	2 1/2	21
4"	9 1/8	7 1/2	12 1/4	4 7/16	11	16 3/8	4–3/4	7 1/4	2 1/2	60
6"	11 1/8	9 1/2	14 1/8	6 1/8	14 1/2	21	6–3/4	9 1/8	2 1/2	108
8"	13 3/4	11 3/4	17 1/2	7 5/8	16	24 1/4	6–3/4	12 1/2	2 1/2	195

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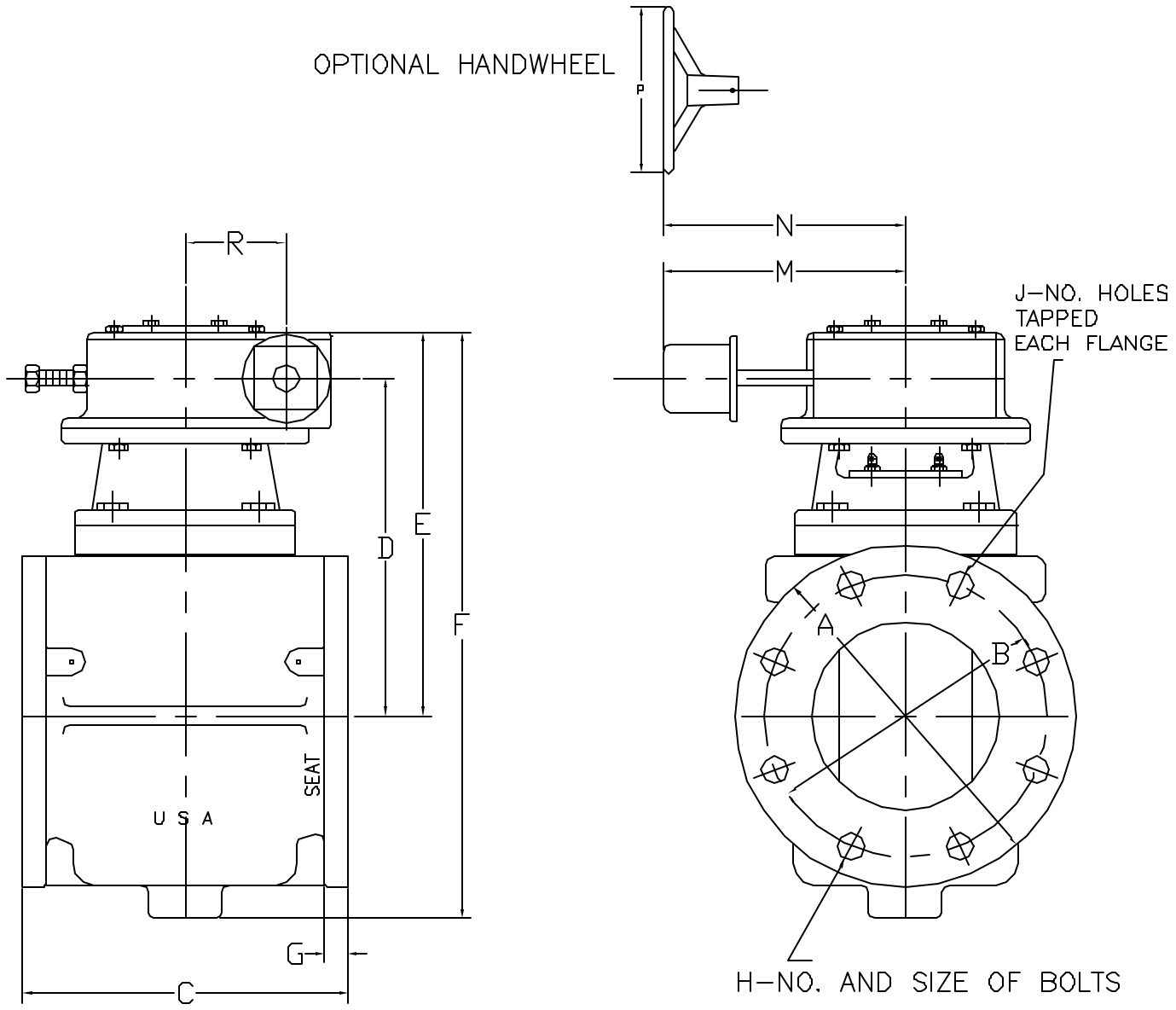
A DIVISION OF McWane. Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV–A5

3" THRU 8" STYLE 1820–01
ECCENTRIC PLUG VALVE
MJ X MJ



VALVE SIZE	A	B	C	D	E	F	G	H	J	M	N	P	R	WEIGHT* 2" NUT
4"	9	7 1/2	9	9 3/16	11 1/16	16 7/16	1	8–5/8	4	8	11	10"	3 1/4	108
6"	11	9 1/2	10 1/2	10 7/8	12 3/4	19 1/4	1 1/16	8–3/4	2	8	11	10"	3 1/4	150
8"	13 1/2	11 3/4	11 1/2	12 3/8	14 1/4	22 1/2	1 3/16	8–3/4	4	8	11	10"	3 1/4	218
10"	16	14 1/4	13	14 1/2	16 3/8	26 11/16	1 1/4	12–7/8	4	8	11–12	10"–18"	3 1/4	310
12"	19	17	14	16 1/16	17 15/16	30	1 1/4	12–7/8	4	8	11–12	10"–18"	3 1/4	415
14"	21	18 3/4	17	18 7/8	22 1/4	36 9/16	1 3/8	12–7/8	4	10	16	24"	4 3/4	735
16"	23 1/2	21 1/4	17 3/4	20 1/16	23 7/16	39 3/16	1 7/16	16–1	6	12	18	24"	5	900
18"	25	22 3/4	21 1/2	22 1/8	25 1/2	42 11/16	1 9/16	16–1 1/8	8	12	18	24"	5	1150
20"	27 1/2	25	23 1/2	23 7/16	26 13/16	46 13/16	1 13/16	20–1 1/8	8	12	18	24"	5	1420
24"	32	29 1/2	30	25 1/16	28 7/16	51 3/8	1 7/8	20–1 1/4	8	12	18	24"	5	2100

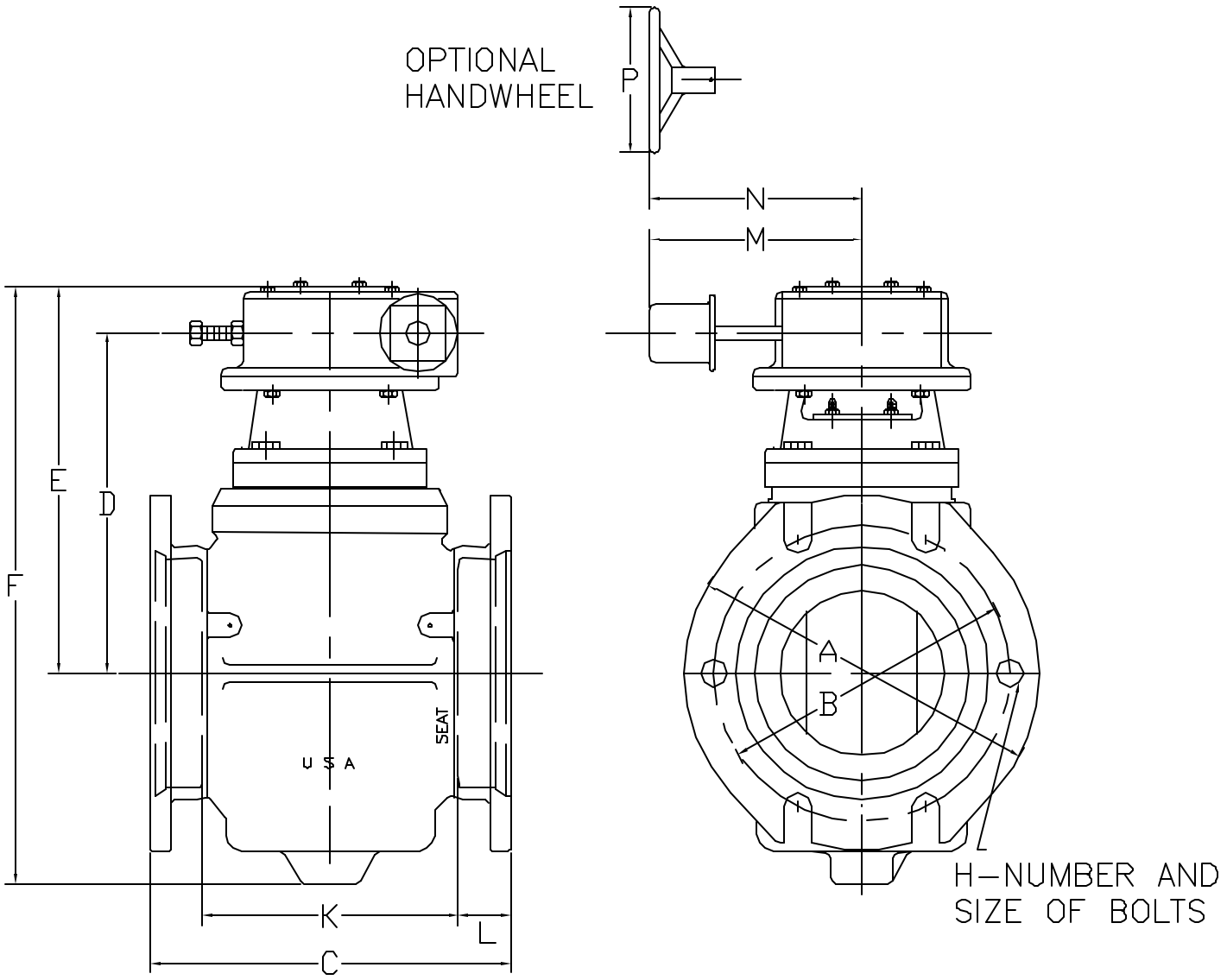
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ

DATE: 6/2/03

DWG. NO. PV–A6

4" THRU 24" STYLE 1820–02 ECCENTRIC PLUG VALVE WORM GEAR OPERATOR FLANGED ENDS



VALVE SIZE	A	B	C	D	E	F	H	K	L	M	R	WEIGHT* 2" NUT
4"	9 1/8	7 1/2	12 1/4	9 3/16	11 1/16	16 7/16	4–3/4	7 1/4	2 1/2	8	3 1/4	???
6"	11 1/8	9 1/2	14 1/8	10 7/8	12 3/4	19 1/4	6–3/4	9 1/8	2 1/2	8	3 1/4	148
8"	13 3/4	11 3/4	11 1/2	12 3/8	14 1/4	22 1/2	6–3/4	12 1/2	2 1/2	8	3 1/4	235
10"	15 3/4	14	19 3/8	14 1/2	16 3/8	26 11/16	8–3/4	14 3/8	2 1/2	8	3 1/4	448
12"	18	16 1/4	20 3/4	16 1/16	17 15/16	30	8–3/4	15 3/4	2 1/2	8	3 1/4	555
14"	20 5/16	18 3/4	24 1/2	18 7/8	22 1/4	36 9/16	10–3/4	17 1/2	3 1/2	10	4 3/4	750
16"	22 1/2	21	24 3/4	20 1/16	23 7/16	39 3/16	12–3/4	17 3/4	3 1/2	12	5	950
18"	24 3/4	23 1/4	28 5/8	22 1/8	25 1/2	42 11/16	12–3/4	21 5/8	3 1/2	12	5	1150
20"	27	25 1/2	30 3/4	23 7/16	26 13/16	46 13/16	14–3/4	23 3/4	3 1/2	12	5	1450
24"	31 1/2	30	37	25 1/16	28 7/16	51 3/8	16–3–4	30	3 1/2	12	5	2200

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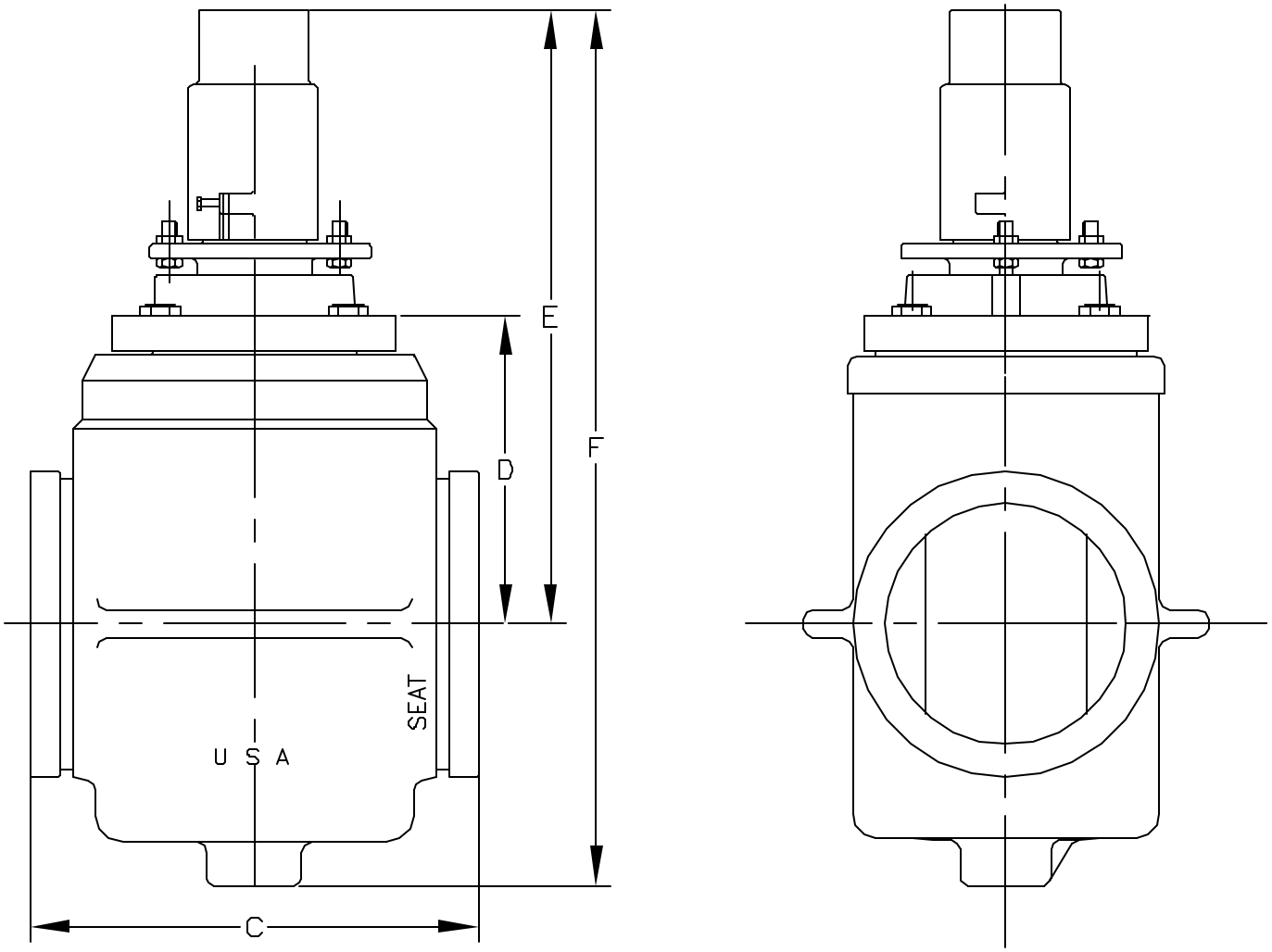
ANNISTON, ALABAMA 36202

DWN: TRIJ

DATE: 6/2/03

DWG. NO. PV–A7

4" THRU 24" STYLE 1820–01 ECCENTRIC PLUG VALVE WITH WORM GEAR OPERATOR MJ X MJ



VALVE SIZE	C	D	E	F	WEIGHT* 2" NUT
3"	8	3 15/32	6 3/4	11	20
4"	9	4 7/16	11	16 3/8	56
6"	10 1/2	6 1/8	14 1/2	21	103
8"	15 1/2	7 5/8	16	24 1/4	189

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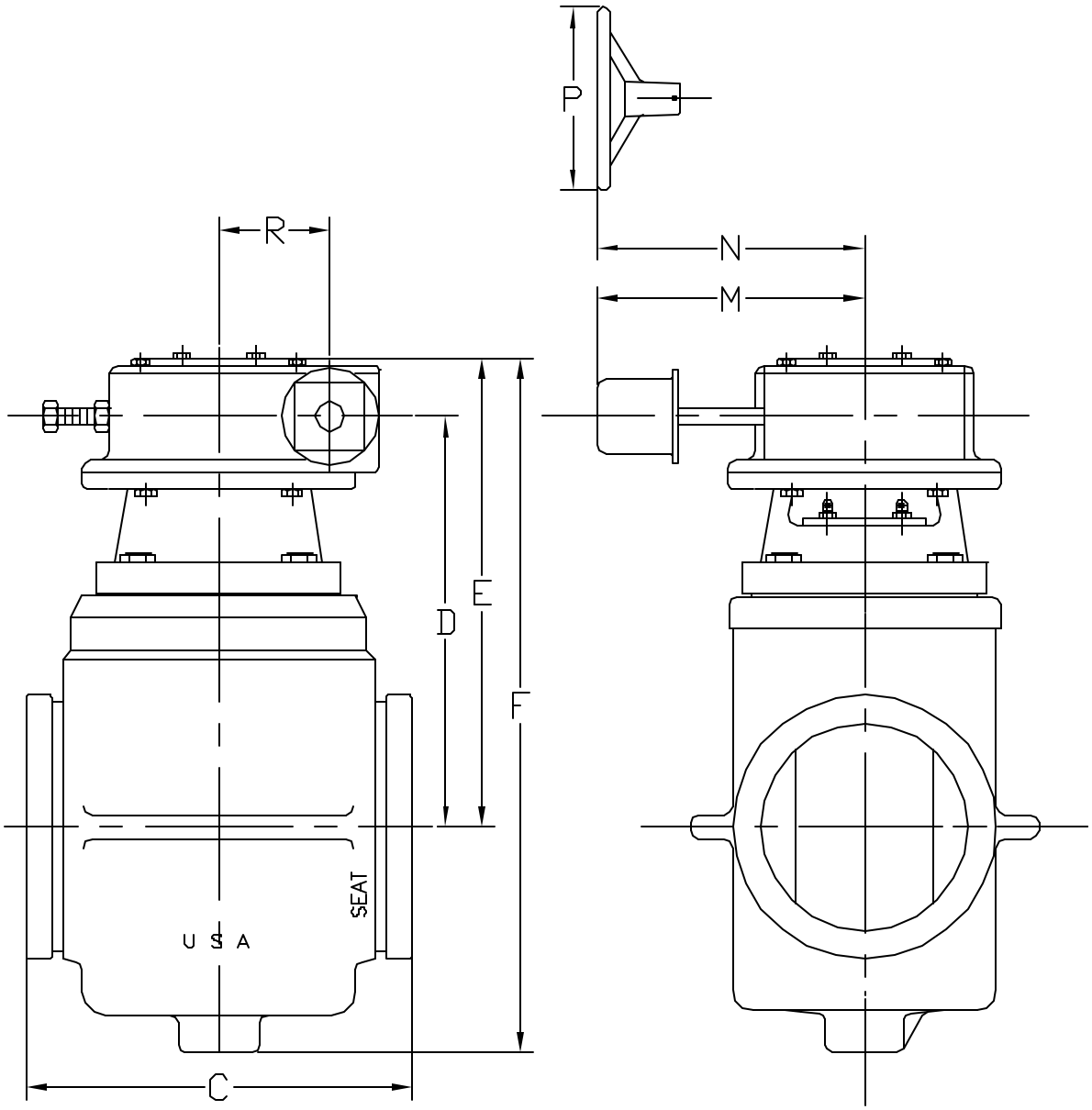
DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-A8

3" THRU 8" STYLE 1820-GR
ECCENTRIC PLUG VALVE
GROOVED ENDS



VALVE SIZE	C	D	E	F	M	N	P	R	WEIGHT* 2" NUT
4"	9	9 3/16	11 1/16	16 7/16	8	11	10"	3 1/4	???
6"	10 1/2	10 7/8	12 3/4	19 1/4	8	11	10"	3 1/4	146
8"	15 1/2	12 3/8	14 1/4	22 1/2	8	11	10"	3 1/4	230
10"	17 1/4	14 1/2	16 3/8	26 11/16	8	11–12	10"–18"	3 1/4	435
12"	18	16 1/16	17 15/16	30	8	11–12	10"–18"	3 1/4	540
14"	21 5/8	18 7/8	22 1/4	36 9/16	10	16	24"	4 3/4	735
16"	22 1/2	20 1/16	23 7/16	39 3/16	12	18	24"	5	932

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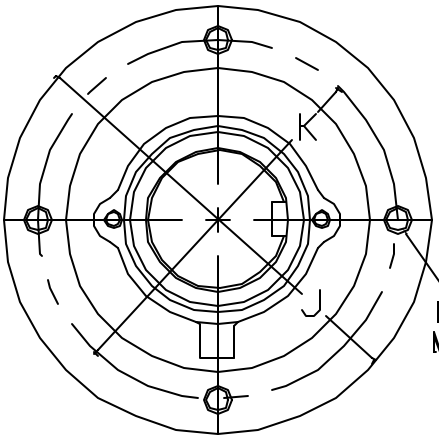
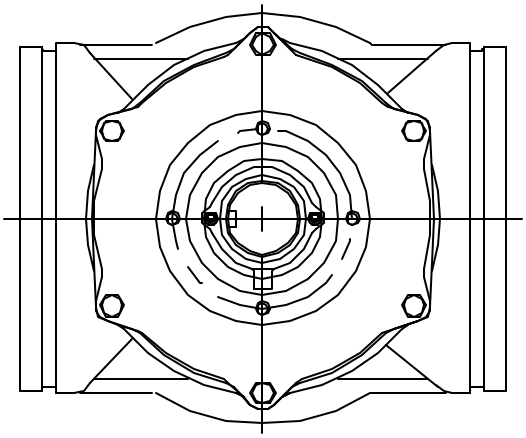
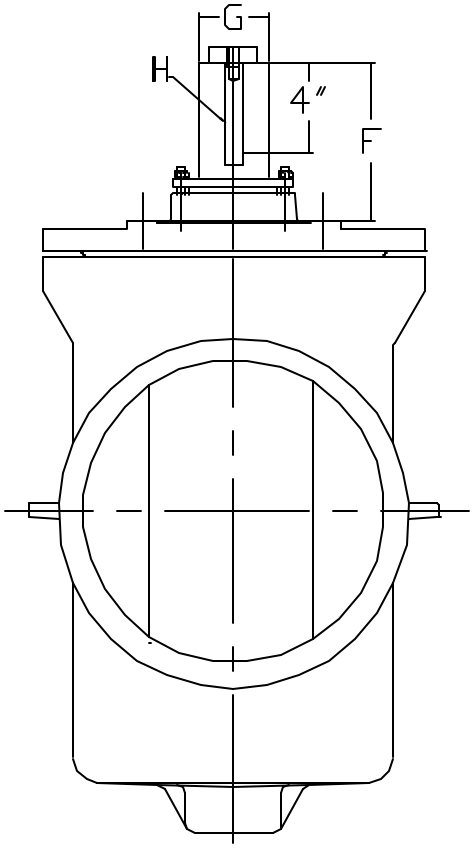
DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV–A9

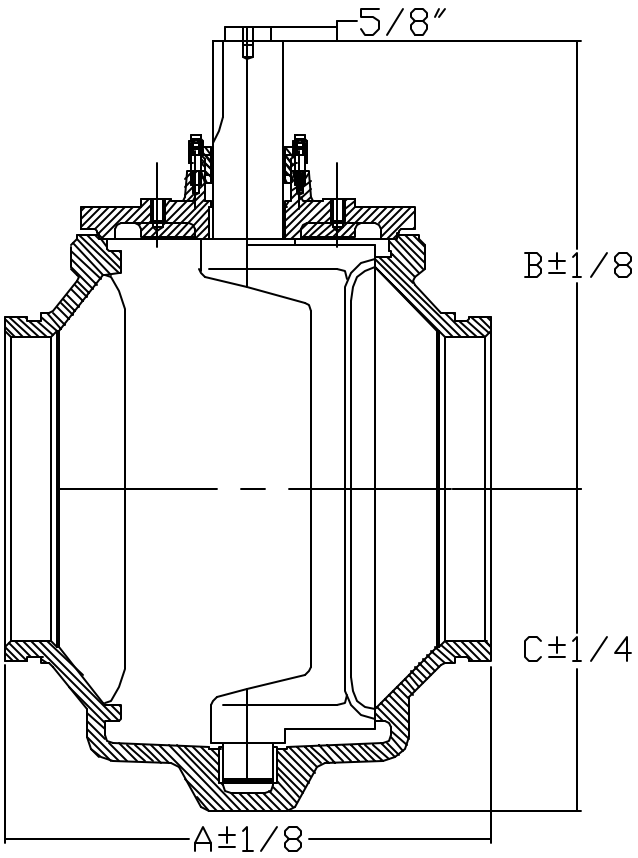
4" THRU 16" STYLE 1820–GR ECCENTRIC PLUG VALVE WITH WORM GEAR OPERATOR GROOVED ENDS





Actuator Mounting Dimensions





Grooved End for Rigid Joint – Ductile Iron Pipe
Per ANSI/AWWA C606

Valve Size	A	B	C	F	G	H	J	K	L	M	WEIGHT
14	21 5/8	19.69	14.31	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
16	22 1/2	20.88	15.75	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???

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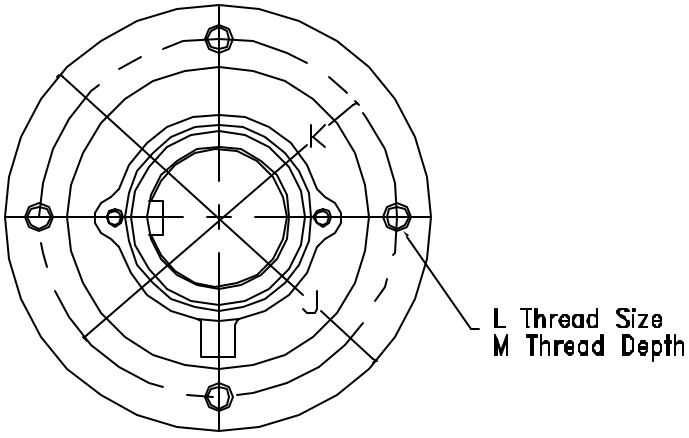
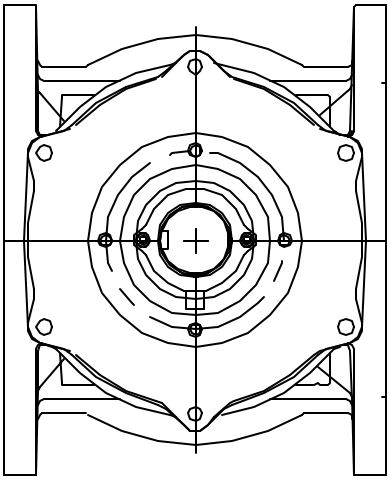
ANNISTON, ALABAMA 36202

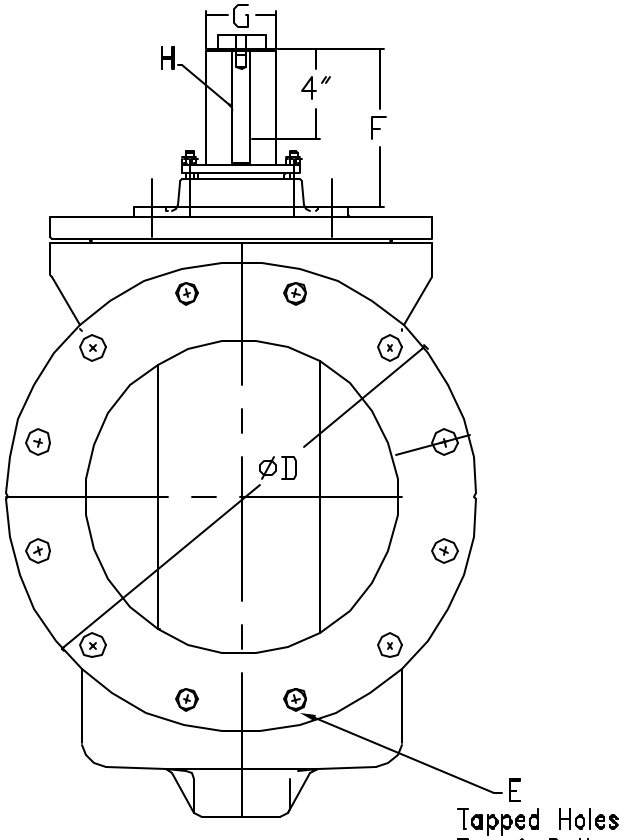
DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-A11

14" THRU 16" STYLE 1820-GR ECCENTRIC PLUG VALVE (BARE STEM) GROOVED ENDS

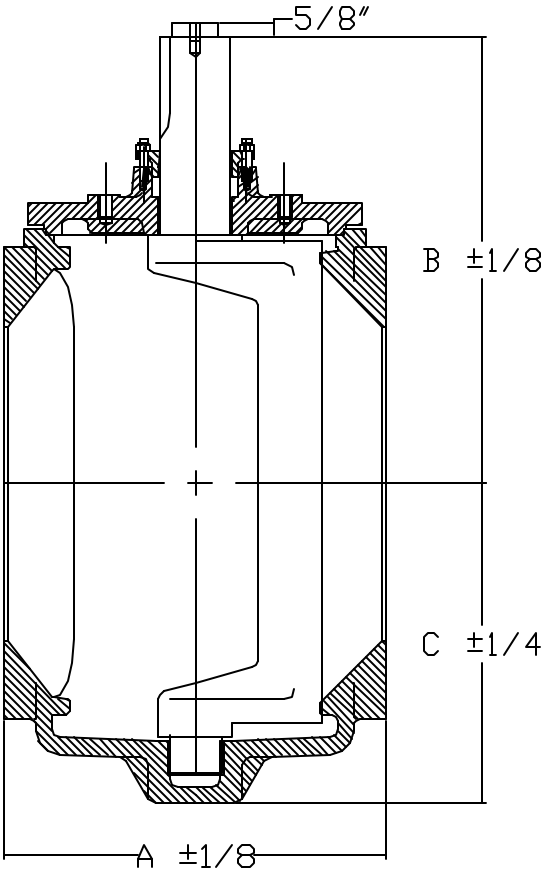


Actuator Mounting Dimensions





End Flange Dimension
Conform to ANSI B16.1



Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT
14	17.00	19.69	14.31	21.00	4	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
16	17.75	20.88	15.75	23.50	6	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
18	21.50	22.94	17.18	25.00	8	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
20	23.50	24.22	20.00	27.50	8	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
24	30.00	25.28	22.94	32.00	8	6.18	3.750	.875 sq	11.00	9.00	3/4-10	7/8	???

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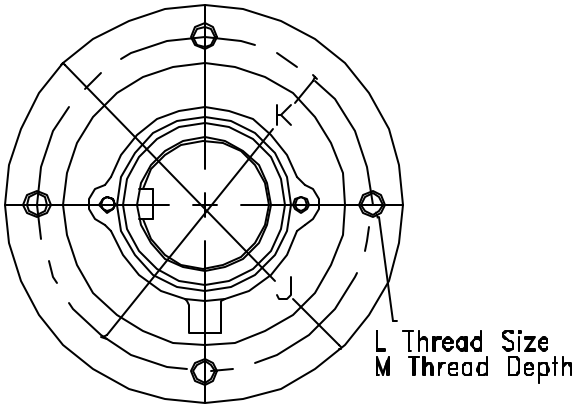
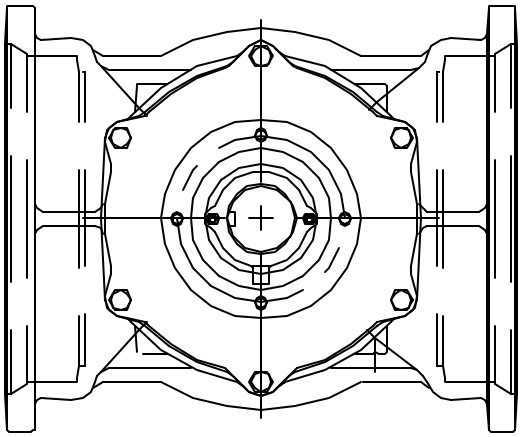
ANNISTON, ALABAMA 36202

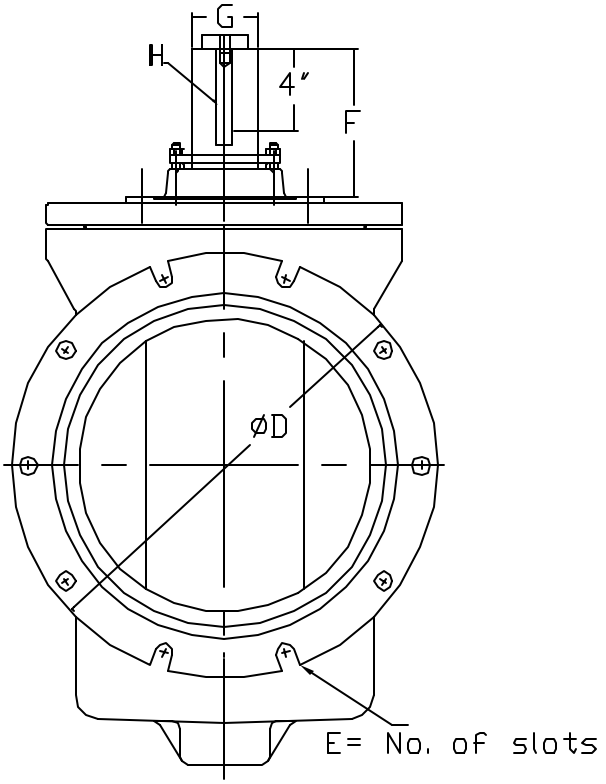
DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-A12

14" THRU 24" STYLE 1820-02 ECCENTRIC PLUG VALVE (BARE STEM) FLANGED ENDS

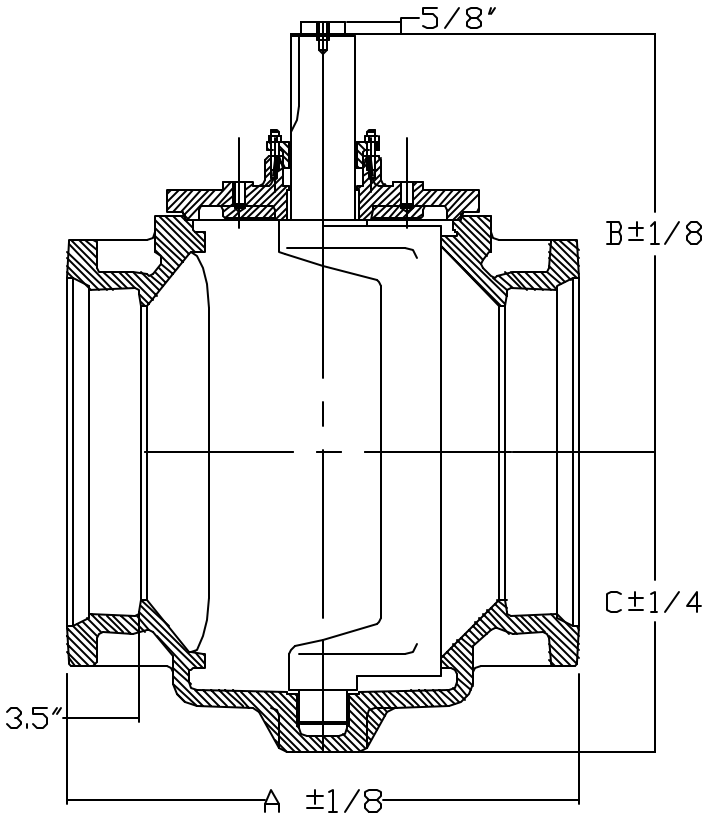


Actuator Mounting Dimensions





SMJ Flange Dimension
Conform to ANSI 21.11/AWWA C111



Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	WEIGHT
14	24.50	19.69	14.31	20.31	4	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
16	24.75	20.88	15.75	22.50	4	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
18	28.63	22.94	17.18	24.75	4	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
20	30.75	24.22	20.00	27.00	2	6.81	3.121	.75 sq	9.50	8.00	5/8-11	7/8	???
24	37.00	25.28	22.94	31.50	2	6.18	3.750	.875 sq	11.00	9.00	3/4-10	7/8	???

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ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV-A13

14" THRU 24" STYLE 1820-01 ECCENTRIC PLUG VALVE (BARE STEM) MJ X MJ ENDS

M&H VALVE—MUD VALVES (4”-24”) STYLE 140-02

SIZE RANGE
PRESSURE RATING
ACCESSORIES / OPTIONS
SUGGESTED SPECIFICATIONS

SIZE RANGE	WORKING PRESSURE
4”-24”	Mud valves are recommended for use in lines of low seating or unseating pressures only.

Available End Connections	**Size Range**	**Style No.**
Flanged End, (Non-Rising Stem)	4”-24”	140-02
Flanged End, (Rising Stem)	4”-24”	1040-02

Accessories / Options:
Hand wheels
“T” Handles
2” Square Operating Nuts
Stem Guides
Floor stands (Non-rising (NRS) / Rising Stem (RS)
Floor boxes
Extension Stems---(Consult Factory Rep or Distributor for material other than cold rolled steel.)

NOTE: Consult Factory for special applications

SUGGESTED SPECIFICATIONS:
The Mud valve shall be of the heavy duty flanged type designed to provide a positive seal under both seating and unseating head conditions. The Valve shall be (non-rising) stem style as detailed on the schedule or the plans.

The frame, yoke and gate shall be sturdily proportioned for strength and rigidity and be of cast iron conforming to ASTM specifications A126 Class B.

The stem, and stem nut shall be bronze. The stem shall be machined with accurately cut modified acme threads.

The seat ring shall be bronze with a tapered, accurately machined seating face. The plug seat shall be a seamless molded ring of BUNA-N tapered to accurately mate with the seat ring to form a positive seal.

Mud valves shall be F-3075-T non-rising stem design or F-3085-T rising stem design as furnished by Kennedy Valve or approved equal.

M&H VALVE—MUD VALVES (4”-24”) STYLE 140-02
INSTALLATION / OPERATION / MAINTENANCE

General

Kennedy Mud Valves are designed for settling basin drain line, sump blow-offs, swimming pool drains, waterworks, sewage and filtration plant, irrigation systems, and industrial installations. They are recommended for use in lines of low seating or unseating pressures only.

Kennedy Mud Valves are rising stem, non-rising stem or sliding stem type. Bodies are cast iron. The stem, stem nut, and seat ring are bronze. The plug seat is seamless molded Buna-n tapered to mate with bronze seat ring. Bolts and nuts are rust proof steel.

Kennedy Mud Valves can be furnished with handwheel or operating nut as required. They can also be furnished with extension stem, with plain or indicating floorstand.

Installation

- **A.** Valve should be mounted to a standard 125# flange. Flange should be flush with the floor, level and free of debris.
- **B.** Check that valve end joints are clean.
- **C.** Remove packing material, if any.
- **D.** Operate valve before installation. Check that seat is free of defects.
- **E.** Do not lift or sling on sealing or operating surfaces.
- **F.** Install valve to flange using a full face soft rubber flange gasket and proper sized bolts/studs and nuts for valve size.
- **G.** Tighten all bolts evenly using a star tightening pattern. Do not overtighten. Uneven tightening, jacking or overtightening may result in excessive leakage.
- **H.** Before filling tanks, operate valve and insure that there is no binding or warping of the seat due to uneven torque on mounting bolts or studs.
- **I.** Specific valve installation, in relation to container base, varies per application and should be the responsibility of the design engineer.

Operation

The operation of the Kennedy Mud Valve is straight forward, the gate is seated and unseated by rotating operating nut or handwheel in proper direction (unless sliding stem). The valve seats with the pressure in normal installations. Excess torque is not required.

Maintenance/Troubleshooting

At least once per year or whenever the tank or pool is drained, the valve should be inspected. Valve should be rinsed clean and seats inspected for damage. All bolts and nuts should be tightened as necessary. Operate valve to insure proper operation. Record all inspections with comments on work performed.

Lubrication Requirements

Periodic lubrication of the bronze valve operating stem is recommended using a *suitable lubricant.

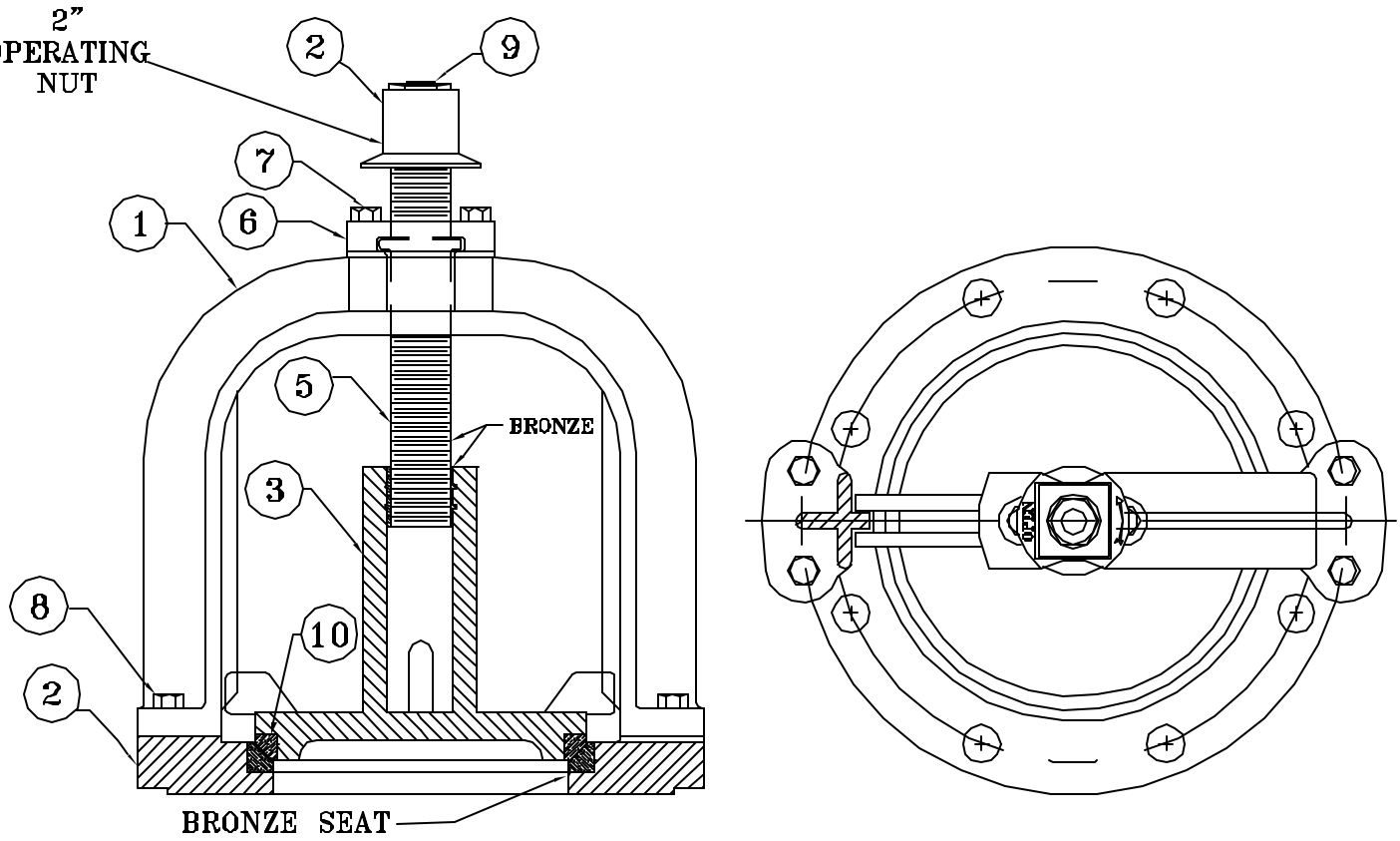
Recommended Spare Parts

None required

Field disassembly is not required or recommended by factory.

**Food grade grease similar to Chevron FM Grease EP NLGI 2.*

July 2003 / M&H MUD VALVES



PARTS LIST					
ITEM	DESCRIPTION	REQ'D	MATERIAL	ASTM	
1	YOKE	1	CAST IRON	A126	CL. B
2	FRAME W/BRZ RING	1	CAST IRON	A126	CL. B
3	PLUG	1	CAST IRON	A126	CL. B
4	WRENCH NUT	1	CAST IRON	A126	CL. B
5	STEM	1	BRONZE	B136	ALLOY 675
6	STEM CAP	1	CAST IRON	A126	CL .B
7	CAP SCREW	2	STEEL		ASA B18.6.2
8	CAP SCREW	4	STEEL		ASA B18.6.2
9	CAP NUT	1	STEEL	A307	GR. B PLT'D
10	PLUG SEAT	1	BUNA-N		50 DURO

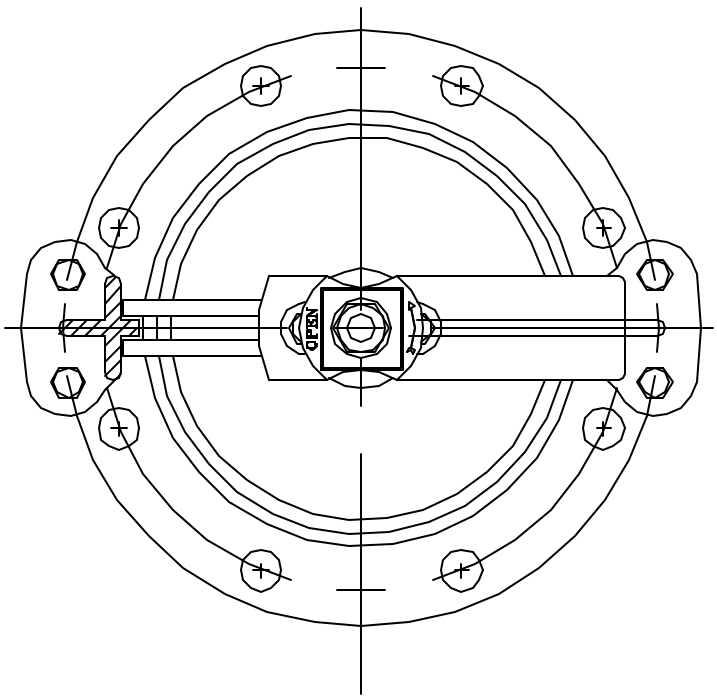
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

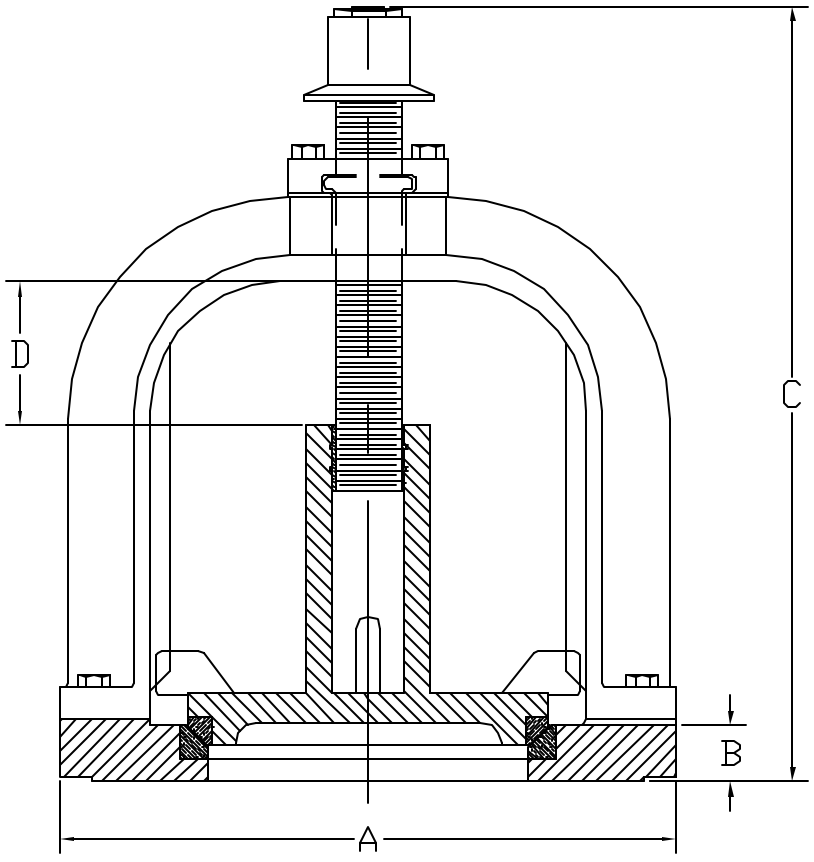
DWN: TRIJ
DATE: 6/2/03
DWG. NO. MV-A1

4" THRU 24" MUD VALVES
VALVE ASSEMBLY / MATERIAL LIST
STYLE 140-02
FLANGED CONNECTION

NON-RISING STEM MUD VALVE				
SIZE	A	B	C	D
3"	7 1/2	3/4	11 3/16	1 3/4
4"	9	15/16	14 3/4	1 7/8
6"	11	1	16 3/8	3 1/8
8"	13 1/2	1 1/8	19 3/8	4 5/16
10"	16	1 3/16	22 7/8	5 3/8
12"	19	1 1/4	24 3/4	6 9/16
14"	21	1 3/8	27 1/4	7 5/8
16"	23 1/2	1 7/16	29 7/8	8 7/16
18"	25	1 9/16	32 3/4	8 7/8
20"	27 1/2	1 11/16	37	9 7/8
24"	32	1 7/8	41 7/8	12 1/4

RISING STEM MUD VALVE				
SIZE	A	B	C	D
4"	9	15/16	10 3/4	1 7/8
6"	11	1	12 7/16	3 1/8
8"	13 1/2	1 1/8	14 1/4	4 5/16
10"	16	1 3/16	16 1/4	5 3/8
12"	19	1 1/4	18 3/16	6 9/16
14"	21	1 3/8	20 3/8	7 5/8
16"	23 1/2	1 7/16	21 1/4	8 7/16
18"	25	1 9/16	23 1/16	8 7/8





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P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. MV-A2

4" THRU 24" MUD VALVES
GENERAL DIMENSIONS
STYLE 140-02
FLANGED CONNECTION

M&H VALVE—FLAP VALVES (4”-30”)
STYLE 47-02

SIZE RANGE
PRESSURE RATING
SUGGESTED SPECIFICATIONS

SIZE RANGE	WORKING PRESSURE
4”-30”	Valves unseat and swing open under unseating pressure to release the outfall fluid and close when pressure is relieved.

Available End Connections	**Size Range**	**Style No.**
Flanged End	4”-30”	47-02

SUGGESTED SPECIFICATIONS:

Flap valves shall be of the circular port design with offset single pivoted hinge. They shall be of the iron body bronze mounted type and furnished with a flanged end.

The assembly shall consist of three parts: flap gate, body and hinge pin. The flap gate and body shall be cast iron conforming to ASTM specifications A-126 Class B. The seats and hinge pin shall be furnished of bronze. The flap gate seat ring shall be rolled into a dovetailed groove under pressure to make one inseparable unit. The body seat ring shall be threaded and screwed into place in the body. Both gate and body seat ring faces shall be machined to a smooth finish. The valve shall be constructed with a 10 degree offset from vertical to ensure positive closure. The flange shall be drilled using an ANSI 125 pound template. Valves shall be as furnished by M&H Valve or approved equal.

M&H VALVE—FLAP VALVES (4”-30”)
STYLE 47-02

INSTALLATION
OPERATION
MAINTENANCE

General Inspect all assemblies at time of delivery for shipping damage and to confirm compliance with order. The valve should be protected from rough handling. Water and debris should not be allowed to collect in valve.

I. Installation

A. Check that valve end joints are clean
B. Remove any material used to restrain the gate during shipment and storage.
C. The gate should be checked to insure freedom of motion and proper operation
D. When handling the valve, do not use the outside mechanism for lifting.
E. Prepare pipe end of manhole as required, and install valve as per appropriate instructions for the specified joint. Bolt holes should straddle the vertical centerline.

II. Operations

Once installed, the valve will operate as pressure conditions dictate. The valve will open under direct pressure to release the outfall fluid and will close to prevent entrance of backwater when the direct pressure is relieved. The flap valve is a 10 degree inclined plane to insure positive seating.

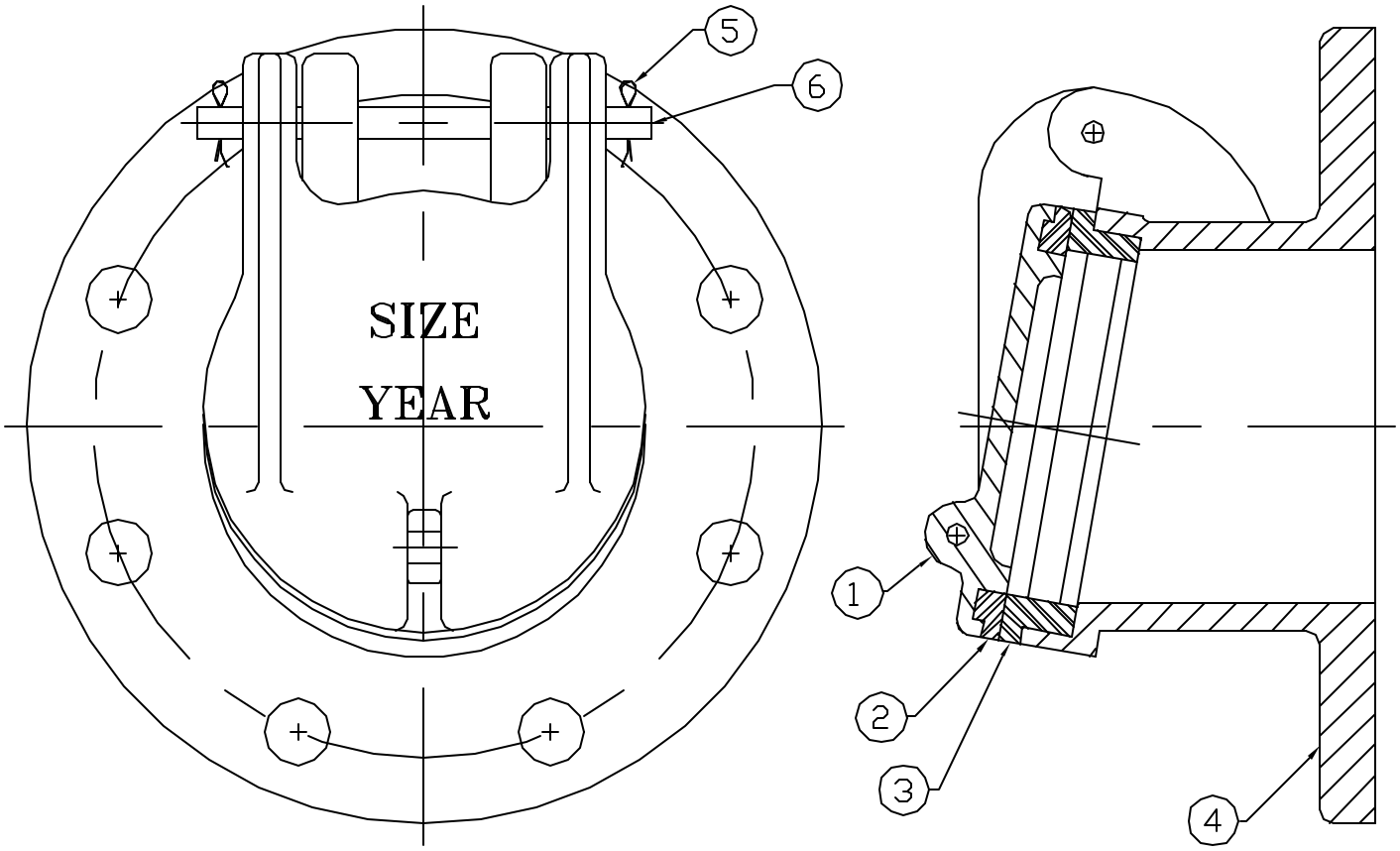
III. Maintenance

Frequency of inspection should be at least on an annual basis. Joint should be visually inspected for leakage. Raise and lower the flap so pin can be checked for free operation.

Notes:

There are no recommended spare parts

*Recommend food grade grease similar to Chevron FM Grease EP NLGI 2.

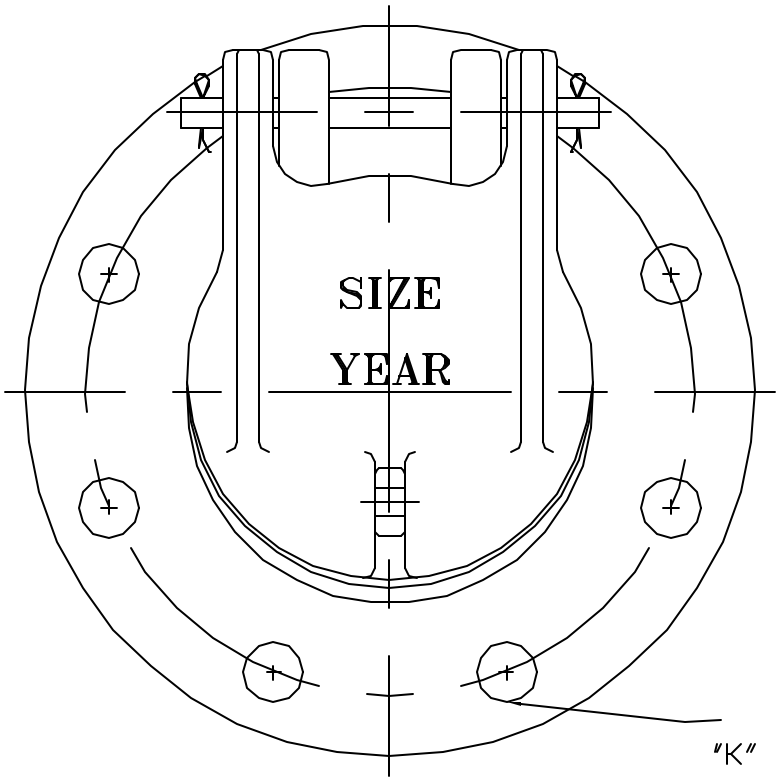


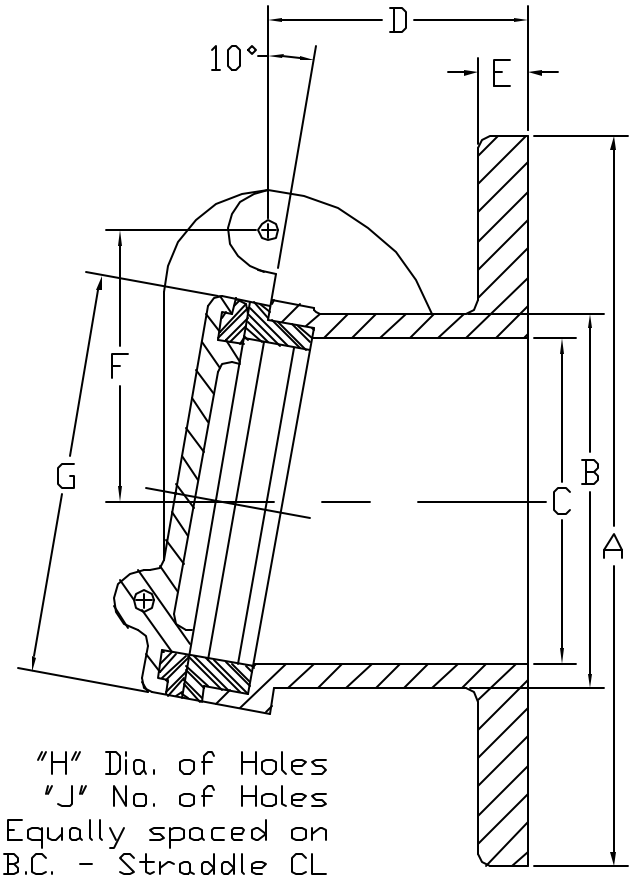
PARTS LIST			
ITEM	DESCRIPTION	REQ'D	MATERIAL
1	F/V DISC	1	CAST IRON A126 CL. B
2	DISC RING	1	BRONZE B62
3	SEAT RING	1	BRONZE B62
4	F/V BODY	1	CAST IRON A126 CL. B
5	COTTER PIN	2	BRASS CDA360
6	HINGE PIN	1	BRASS CDA360

M&H VALVE COMPANY
A DIVISION OF McWane. Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. FV-A1

4" THRU 30" FLAP VALVES
VALVE ASSEMBLY / MATERIAL LIST
STYLE 47-02
FLANGED END





"H" Dia. of Holes
"J" No. of Holes
Equally spaced on
"K" B.C. - Straddle CL

DIMENSIONS										
ITEM	A	B	C	D	E	F	G	H	J	K
4	9.00	4.62	4.00	3.25	.62	3.44	5.00	.75	8	7.50
6	11.00	6.75	6.00	3.50	.69	4.50	7.00	.88	8	9.50
8	13.50	8.75	8.00	4.00	.75	5.62	9.25	.88	8	11.75
10	16.00	10.88	10.00	4.50	.81	6.88	11.50	1.00	12	14.25
12	19.00	13.00	12.00	4.50	.88	7.91	13.50	1.00	12	17.00
14	21.00	15.75	14.50	4.62	1.19	9.12	15.75	1.12	12	18.75
16	23.50	18.06	16.69	4.50	1.25	10.25	18.00	1.12	16	21.25
18	25.00	19.75	18.50	7.50	1.12	11.62	20.00	1.25	16	22.75
20	27.50	22.00	20.62	6.00	1.12	12.69	22.25	1.25	20	25.00
24	32.00	25.75	24.00	6.56	1.38	14.53	26.25	1.38	20	29.50
30	38.75	31.50	30.00	8.50	1.50	17.88	32.75	1.00	28	36.00

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. FV-A2

4" THRU 30" FLAP VALVES
GENERAL DIMENSIONS
STYLE 47-02
FLANGED END

M&H VALVE—SHEAR GATES (4”-30”) STYLE 44-02

SIZE RANGE
PRESSURE RATING
ACCESSORIES / OPTIONS
SUGGESTED SPECIFICATIONS

SIZE RANGE	WORKING PRESSURE
4”-30”	Recommended for use in lines of low seating pressure only.

Note: Seating pressure is tending to push gate to seat.

Available End Connections	**Size Range**	**Style No.**
Flanged End Frame	4”-30”	44-02

Note: Flanged End Frame are faced and drilled to ANSI 125lb. template.

Accessories / Options:
Lifting Handle & Hooks

SUGGESTED SPECIFICATIONS:
Shear gate shall be full opening; circular port, iron body bronze mounted design and furnished with flanged ends.

The body (frame), gate and wedges shall be of cast iron conforming to ASTM specification A-126 Class B.

The valve shall be furnished with a wedge bolted to the body so they can easily be removed and replaced due to wear.

The gate shall be sturdily proportioned and pivot on a solid bronze hinge bolt.

The bronze gate (seat ring shall be rolled into a dovetailed groove under pressure to make one inseparable unit. The bronze gate ring face shall be machined to a smooth finish. The body seat ring shall be bronze, threaded and screwed into place and the face machined to a smooth finish.

Lift rods are used to manually raise and lower the Shear Gate disc from a position above the gate. A cast iron catch hook may be adjusted on the lift rod to allow the rod to be hung on a hanger placed in the wall. Lift rod material is ¾” dia. Carbon steel. Catch and loop handle are cast iron. Lift rods may be made to specified length in 6” increments.

M&H VALVE—SHEAR GATES (4”-30”) STYLE 44-02

INSTALLATION
OPERATION
MAINTENANCE

General Inspect all assemblies at time of delivery for shipping damage and to confirm compliance with order. The valve should be protected from rough handling. Water and debris should not be allowed to collect in valve.

I. Installation

A. Check that valve end joints are clean
B. Remove any material used to restrain the gate during shipment and storage.
C. The gate should be checked to insure freedom of motion and proper operation.
D. When handling the valve, do not use the outside mechanisms for lifting.
E. Prepare pipe end as required, and install valve as per appropriate instructions for the specified joint. The valve is mounted 30 degrees offset from the vertical centerline to allow for proper closure.

II. Operations

Once installed, operation of the shear gate is simple and straight forward, using the lift handle to open and close the gate. The valve may be held in various open positions by using the adjustable catch hook on the lift handle.

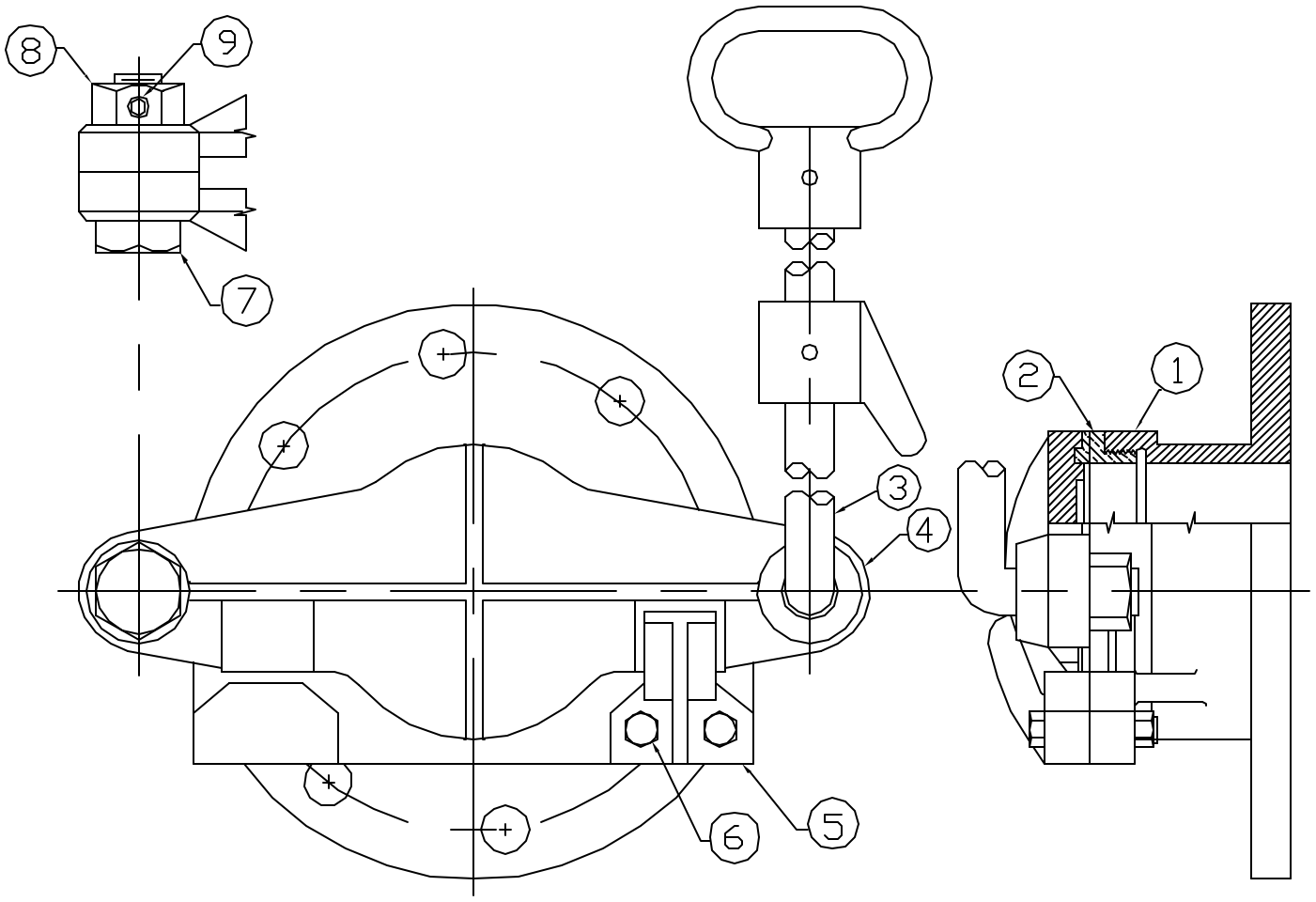
III. Maintenance

Inspection should be conducted at least once a year. Joint should be visually inspected for leakage. Raise and lower the gate to check for free operation. Check bronze gate ring and seat ring for freedom from damage. The seating may be adjusted by tightening or loosening the hinge bolt nut to change the relationship between the hinge about and wedge. Use a feeler gauge of .004 to adjust gate disc to the proper seat gap around the total seating circumference. Remove any debris found on the inside of valve.

Periodic visual inspection of the coating is recommend with field cleaning and painting as required.

There are no recommended spare parts.

There are no lubrication requirements.



PARTS LIST					
ITEM	DESCRIPTION	REQ'D	MATERIAL	ASTM	
1	BODY	1	CAST IRON	A126	CL. B
2	SEAT RING	1	BRONZE	B62	
3	LIFT HANDLE DISC W/BR	1	STEEL	A107	GR. 1115
4	DISC RING	1	CAST IRON	A126	CL. B
5	RIGHT HAND WEDGE	1	CAST IRON	A126	CL. B
6	WEDGE BOLT	2	STEEL		ASA B18.2
7	HINGE BOLT	1	BRONZE	B62	
8	HINGE BOLT NUT	1	BRONZE	B62	
9	SET SCREW	1	STEEL		PLATED

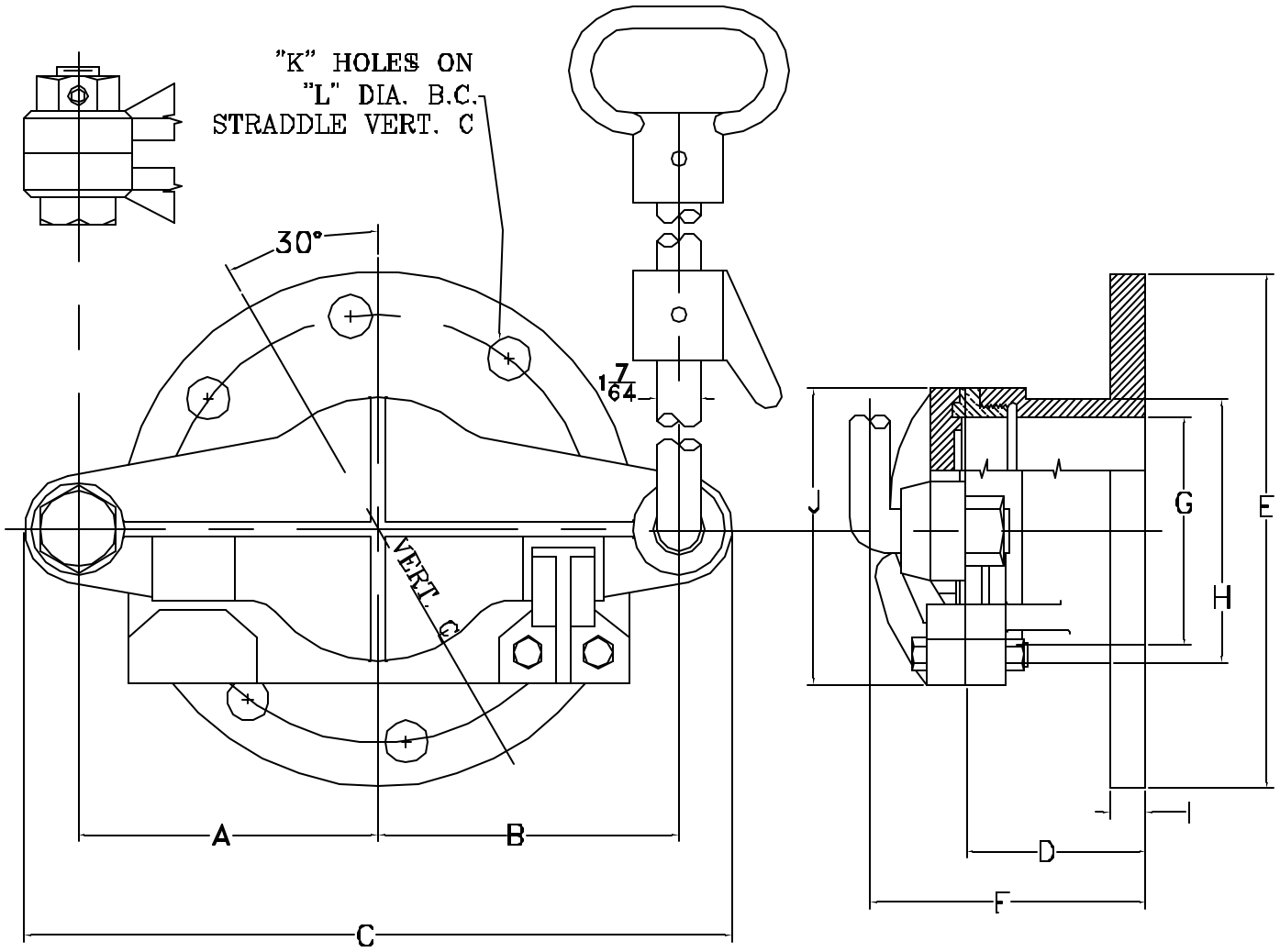
FURNISHED WITH TWO FOOT LIFT
HANDLE AND CATCH

LONGER LIFT HANDLE
FURNISHED WHEN SPECIFIED

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SGV-A1

4" THRU 30" SHEAR GATES
VALVE ASSEMBLY / MATERIAL LIST
STYLE 44-02
FLANGED END



VALVE SIZE	4	6	8	10	12	14	16	18	20	24	30
A	5 1/4	6 1/2	8	9 3/8	11	13 1/2	14 1/2	15 1/2	18	21	24
B	5 1/4	6 1/2	8	9 3/8	11	13 1/2	14 1/2	15 1/2	18	21	24
C	12 3/8	15 1/8	18 3/8	21 3/8	24 3/4	31	33 1/2	36	41	47	53 1/2
D	3 1/4	3 3/8	3 5/8	4	4 3/8	4 3/4	5 1/2	6	6	6 1/2	6 1/2
E	9	11	13 1/2	16	19	21	23 1/2	25	27 1/2	32	38 3/4
F	5	5 1/4	5 3/8	6	6 5/8	7 1/4	8 9/16	9 3/8	9 1/2	10 1/2	10 3/4
G	4	6	8	10	12	14	16	18	20	24	30
H	4 5/8	6 3/4	8 3/4	10 7/8	13	15 1/4	17 1/4	19 1/4	21 1/2	25 3/4	32
I	5/8	11/16	3/4	13/16	7/8	1	1 1/8	1 1/4	1 1/4	1 3/8	1 1/2
J	5	7	9 1/4	11 1/2	13 1/2	15 3/4	18	20	22 1/4	26 1/4	32 3/4
K	8-3/4	8-7/8	8-7/8	12-1	12-1	12-1 1/8	16-1 1/8	16-1 1/4	20-1 1/4	20-1 3/8	28-1 3/8
L	7 1/2	9 1/2	11 3/4	14 1/4	17	18 3/4	21 1/4	22 3/4	25	29 1/2	36
WEIGHT	37	61	90	138	174	246	320	362	500	672	980

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. SGV-A2

4" THRU 30" SHEAR GATES
GENERAL DIMENSIONS
STYLE 44-02
FLANGED END

M&H VALVE
PRESSURE RELIEF VALVES---"FLOOR TYPE"
STYLE F-1493

SIZE RANGE
PRESSURE RATING
SUGGESTED SPECIFICATIONS

SIZE RANGE	WORKING PRESSURE
4" & 6"	The valve starts to open at a head of approximately 9" of water.

Available End Connections	**Size Range**	**Style No.**
Flanged End	4"	F-1493

SUGGESTED SPECIFICATIONS:

Floor type hydrostatic pressure relief valve shall be designed for installing in the bottom of concrete tanks.

The assembly shall consist of three parts: cover, body, and grate. All three parts shall be of cast iron conforming to ASTM specifications A-126 Class B. They shall be designed so that neither the cover nor grate can become separated from the body of the valve, due to groundwater pressure around the tank. However, when necessary, both may be easily removed by turning them to right or left to free them from locking lugs cast integrally on the inside of the body.

The seats shall be of BUNA-N rubber, bonded to the cover, mating with a machined bronze seat in the body.

Floor type pressure relief valves shall be as furnished by M&H or approved equal.

M&H VALVE
PRESSURE RELIEF VALVES---"FLOOR TYPE"
STYLE F-1493

INSTALLATION
OPERATION
MAINTENANCE

General Inspect all assemblies at time of delivery for shipping damage and to confirm compliance with order. The valve should be protected from rough handling. Water and debris should not be allowed to collect in valve.

I. Installation

A. Check that valve end joints are clean
B. Remove any material used to restrain the gate during shipment and storage.
C. The cover should be checked to insure freedom of motion and proper operation.
D. The valve should be installed over a bed of crushed stone.
E. The valve must be installed in the vertical position to operate properly.

II. Operations

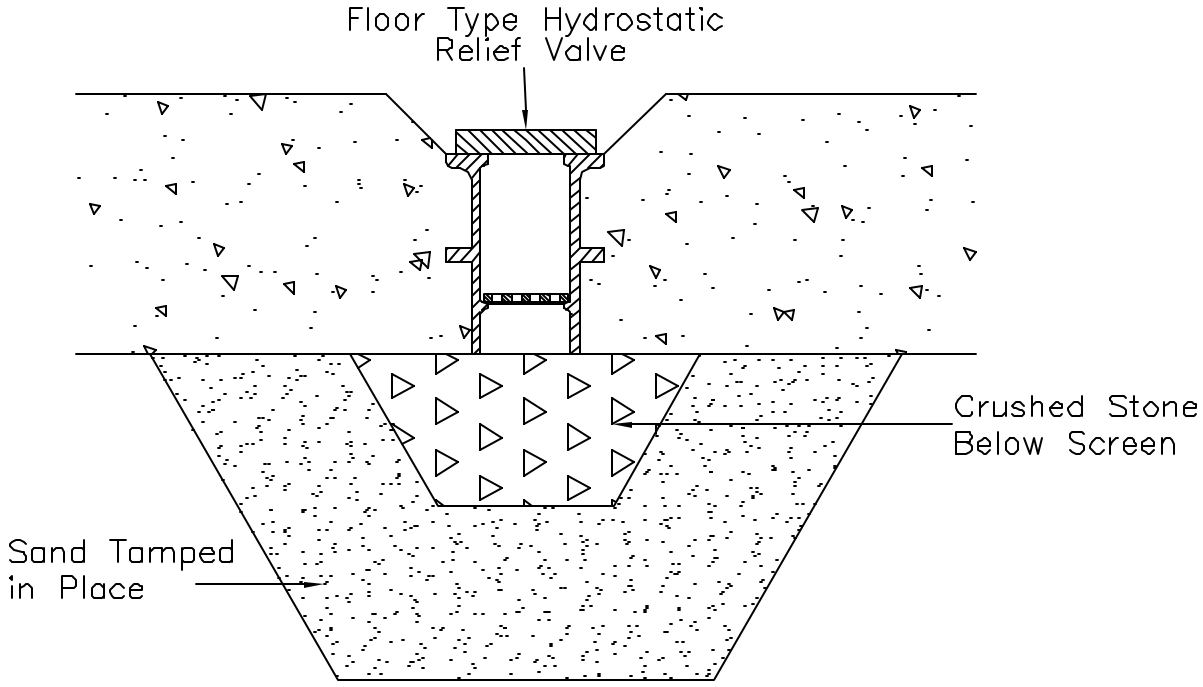
Once installed, the valve will operate as pressure conditions dictate. When outside water pressure builds up. Exceeding the inside pressure, the valve will open and allow water to enter the tank to equalize pressure. When the pressure is relieved, the valve will close to prevent seepage of liquid out into the ground.

III. Maintenance

Frequency of inspection should be at least on an annual basis, or whenever valve is accessible. Remove the cover by turning it right or left and lifting out. Examine and clean seating surfaces. Remove any debris from inside of body. Remove and clean grate if necessary. Reassemble and insure proper operation and retention of cover.

Note:
There are no recommended spare parts

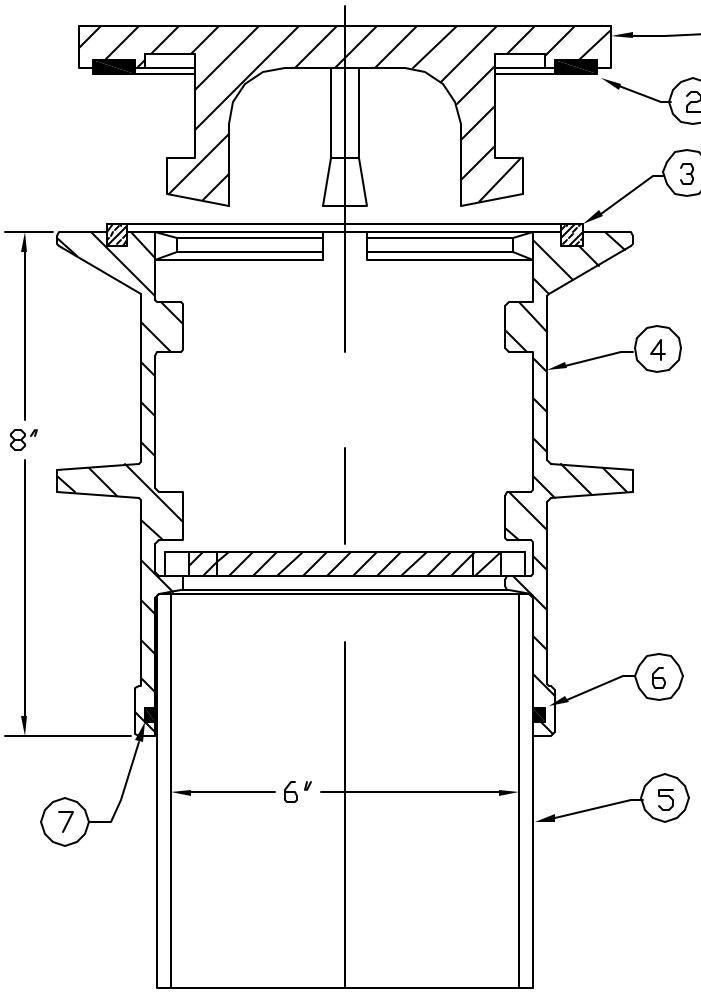
There are no lubrication requirements.



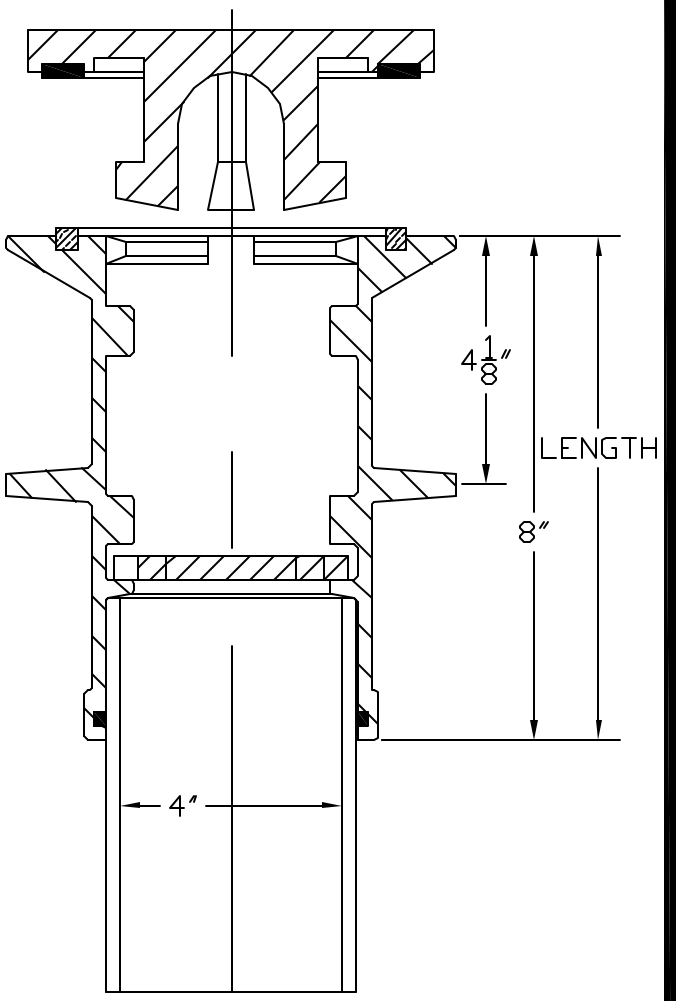
NOTE 1: A rubber (Buna–N) To metal seal is accomplished when the cover is in the closed position, metal face is a machined bronze seat.
NOTE 2: Ground water pressure cannot separate cover or grate from body.
NOTE 3: Cover and grate can be removed by turning to right or left and lifting out.
NOTE 4: Valve starts to open at a head of approximately 9" of water
NOTE 5: In order for the F–1493 "Floor Type Valve" to operate correctly, it must be installed in a vertical position.
NOTE 6: The 8" long cast iron body is designed to be extended to any length by using C900 PVC pipe and field cutting to desired length.

M&H VALVE COMPANY
A DIVISION OF McWane. Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	4" PRESSURE RELIEF VALVES (FLOOR TYPE) INSTALLATION DETAIL / NOTES STYLE F–1493
DATE: 6/2/03	
DWG. NO. PRV–F	



6" SIZE--Weight 42LBS.



4" SIZE--Weight 30LBS.

ITEM	DESCRIPTION	MATERIAL	
1	COVER	CAST IRON	A126B
2	SEAL	BUNA-N	50 DUR
3	SEAT	BRONZE	SAE660
4	BODY	CAST IRON	A126B
5	EXTENSION	P.V.C.	C900
6	O RING	BUNA-N	60 DUR
7	GRATE	CAST IRON	A126B

NOTE:
#5. P.V.C PIPE IS NOT SUPPLIED ON 8" LENGTH
#3. BRONZE SEAT IS PRESSED & SEALED INTO GROOVE
#7. GRATE SHOWN 45° OUT OF POSITION, SLOTS LINE UP W/RIBS TO ASSEMBLE ONLY

M&H VALVE COMPANY
A DIVISION OF McWane. Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PRV-F

4" & 6"PRESSURE RELIEF VALVES
(FLOOR TYPE)
MATERIAL LIST / DIMENSIONS / WEIGHTS
STYLE F-1493

M&H VALVE—PRESSURE RELIEF VALVE---WALL TYPE STYLE F-1494-T

SIZE RANGE
PRESSURE RATING
ACCESSORIES / OPTIONS
SUGGESTED SPECIFICATIONS

SIZE RANGE	WORKING PRESSURE
4" & 6"	Valves unseat and swing open under unseating pressure to release the outfall fluid and close when pressure is relieved.

Available End Connections	**Size Range**	**Style No.**
Flanged End	4"	F-1494-T

Accessories / Options:
4" & 6" F-1496-T Wall Pipe with Grate

SUGGESTED SPECIFICATIONS:
The wall type hydrostatic pressure relief valve shall be suitable for sidewall installation in tanks and digesters.

The valve shall be of the 1.0degree seat design with offset single pivoted hinge.

The flap gate and body shall be of cast iron conforming to ASTM specifications A-126 Class B.

The body seat ring and hinge pin shall be furnished of bronze.

The gate shall have a neoprene rubber seat cemented and mechanically retained in place by a retainer plate. The body seat ring shall be threaded and screwed into place and the face machined to a smooth finish.

The valve shall have a 4" or 6" flanged end faced and drilled to ANSI 125 pound template for connection to a 4" or 6" wall pipe.

Wall type pressure relief valves shall be furnished by M&H or approved equal.

M&H VALVE
PRESSURE RELIEF VALVE---WALL TYPE
STYLE F-1494-T

INSTALLATION
OPERATION
MAINTENANCE

General Inspect all assemblies at time of delivery for shipping damage and to confirm compliance with order. The valve should be protected from rough handling. Water and debris should not be allowed to collect in valve.

I. Installation

A. Check that valve end joints are clean
B. Remove any material used to restrain the gate during shipment and storage.
C. The gate should be checked to insure freedom of motion and proper operation
D. When handling the valve, do not use the outside mechanism for lifting.
E. Prepare mounting flange of wall thimble that has been cast into wall tank, as required. Install the valve as per appropriate instructions for the specified joint. Bolts holes should straddle the vertical centerline.

II. Operations

Once installed, the valve will operate as pressure conditions dictate. When outside water pressure builds up, exceeding the inside pressure, the valve will open and allow water to enter the tank to equalize pressure. When the pressure is relieved, the valve will close to prevent seepage of liquid out into the ground.

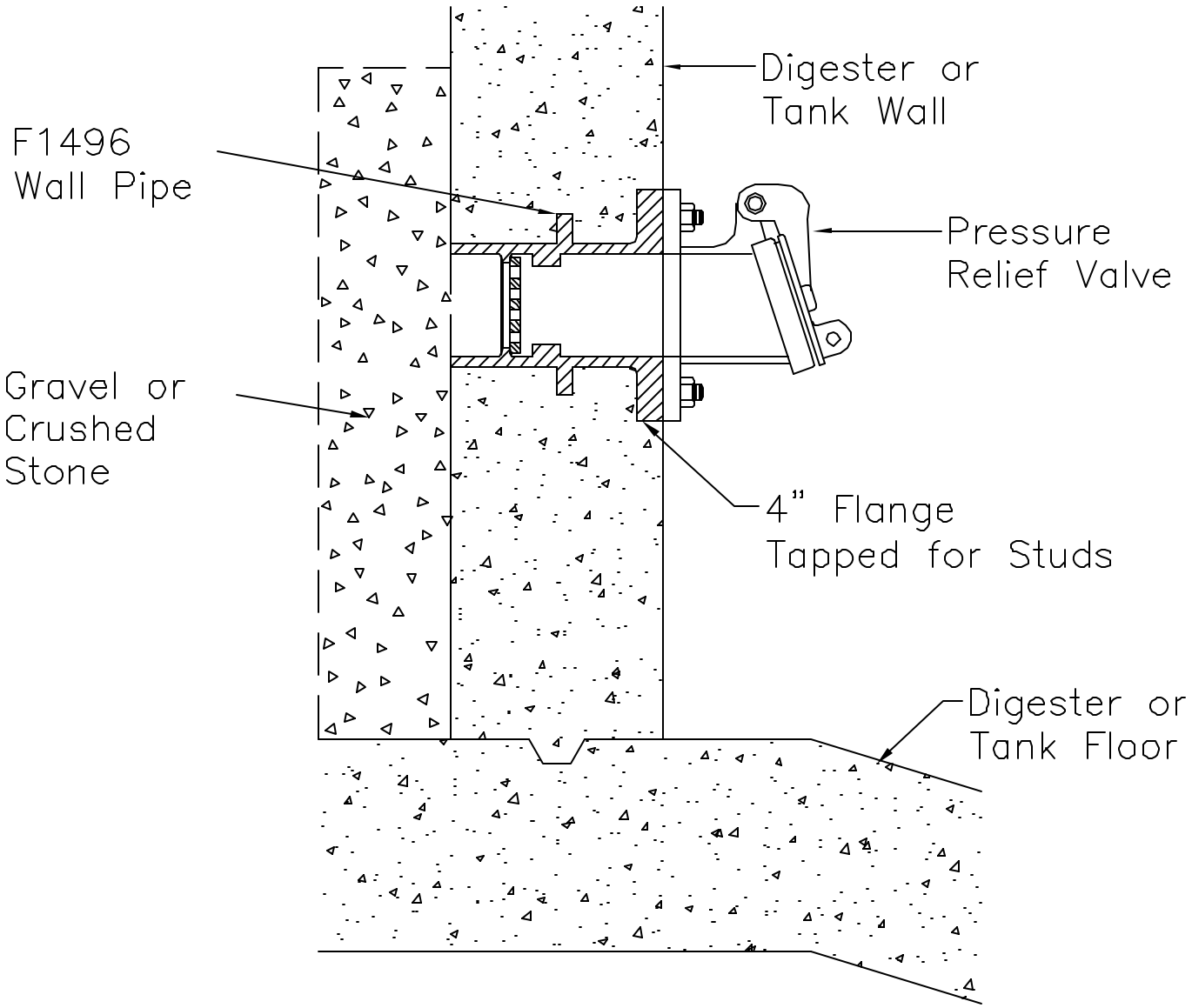
III. Maintenance

Frequency of inspection should be at least on an annual basis, or whenever valve is accessible. Joint should be visually inspected for leakage. Raise and lower the flap so pin can be checked for free operation. Exercise and lubricate the hinge/shaft pin (* with suitable lubricant) at least annually to assure free operation. Check rubber flap ring and seat ring for freedom from damage. Remove any debris found on inside of valve.

Notes:

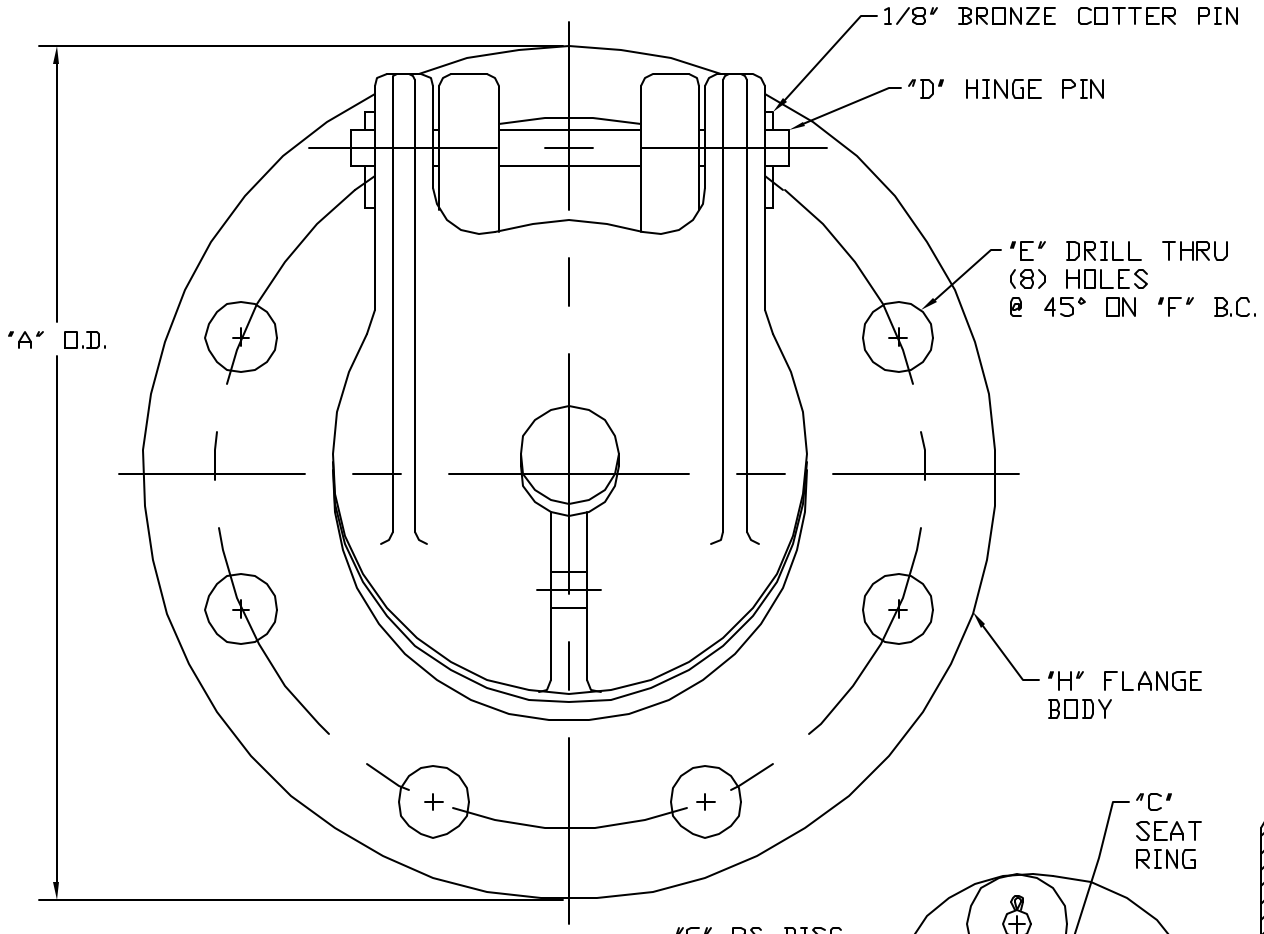
There are no recommended spare parts

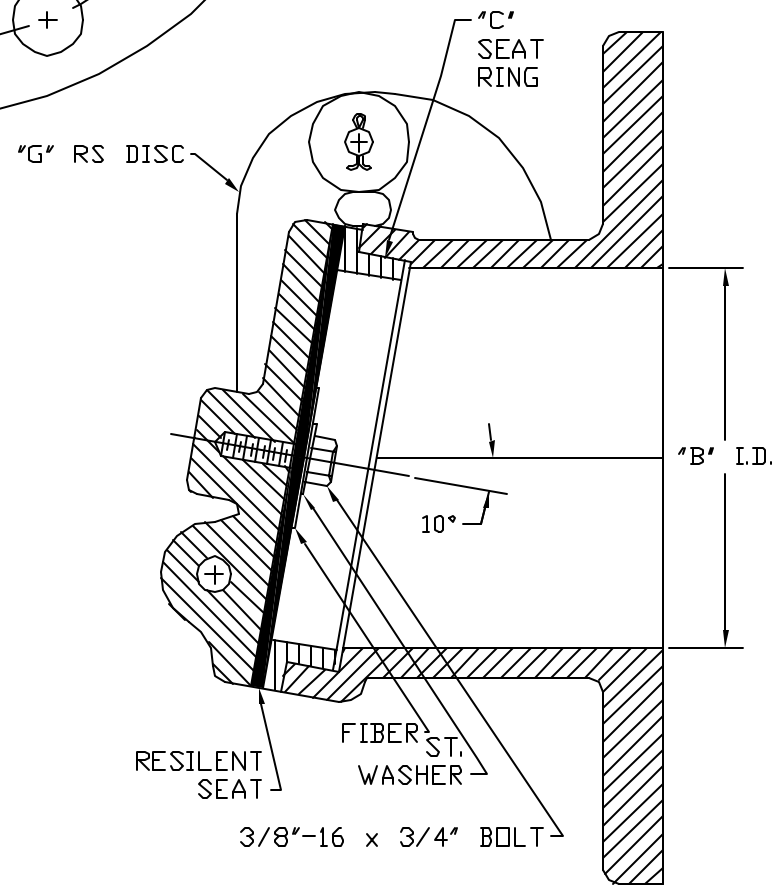
Recommend food grade grease similar to Chevron FM Grease EP NLGI 2.



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ	4" & 6" PRESSURE RELIEF VALVE (WALL TYPE) INSTALLATION DETAIL STYLE F-1494-T
DATE: 6/2/03	
DWG. NO. PRV-W3	



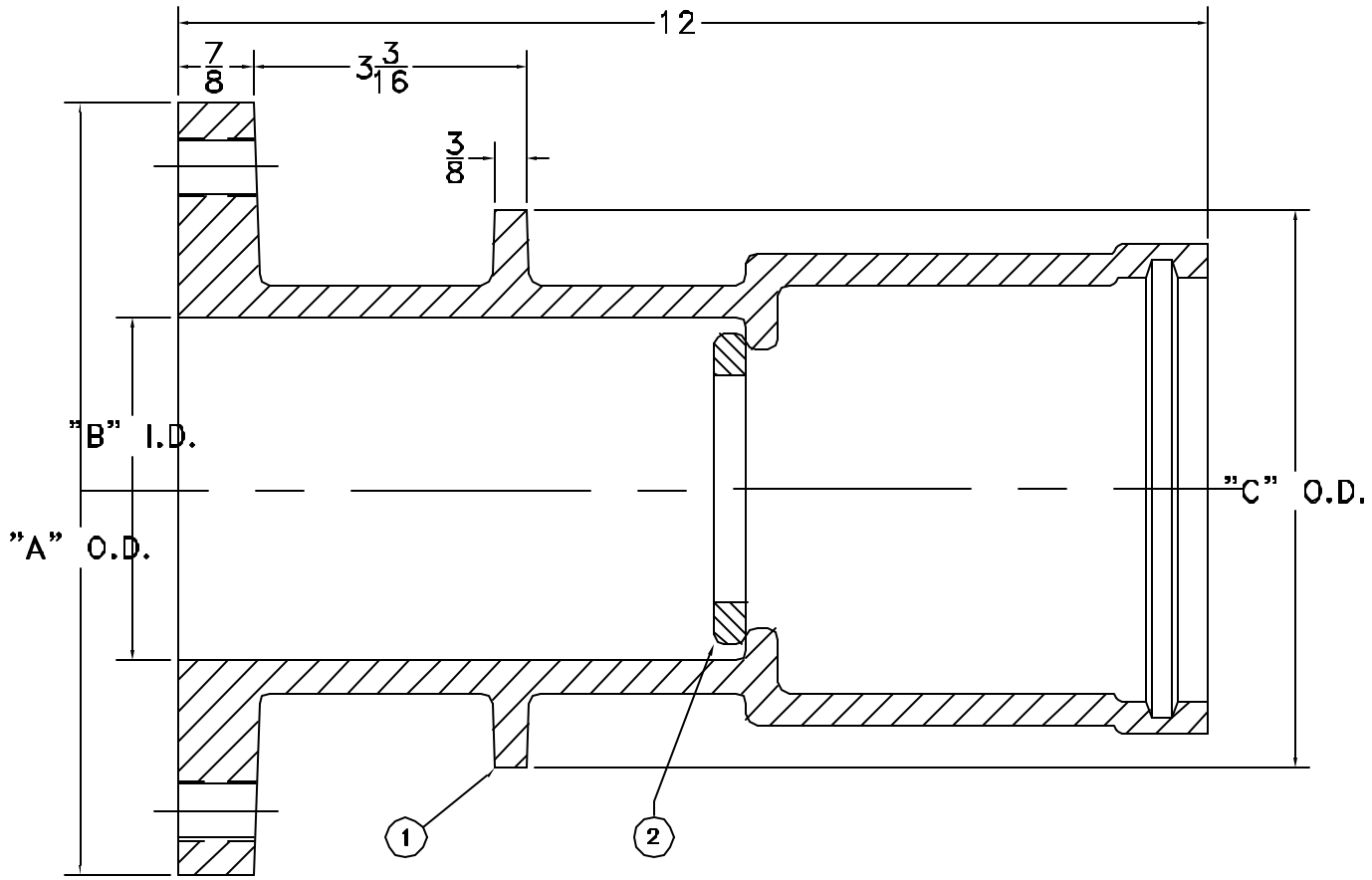


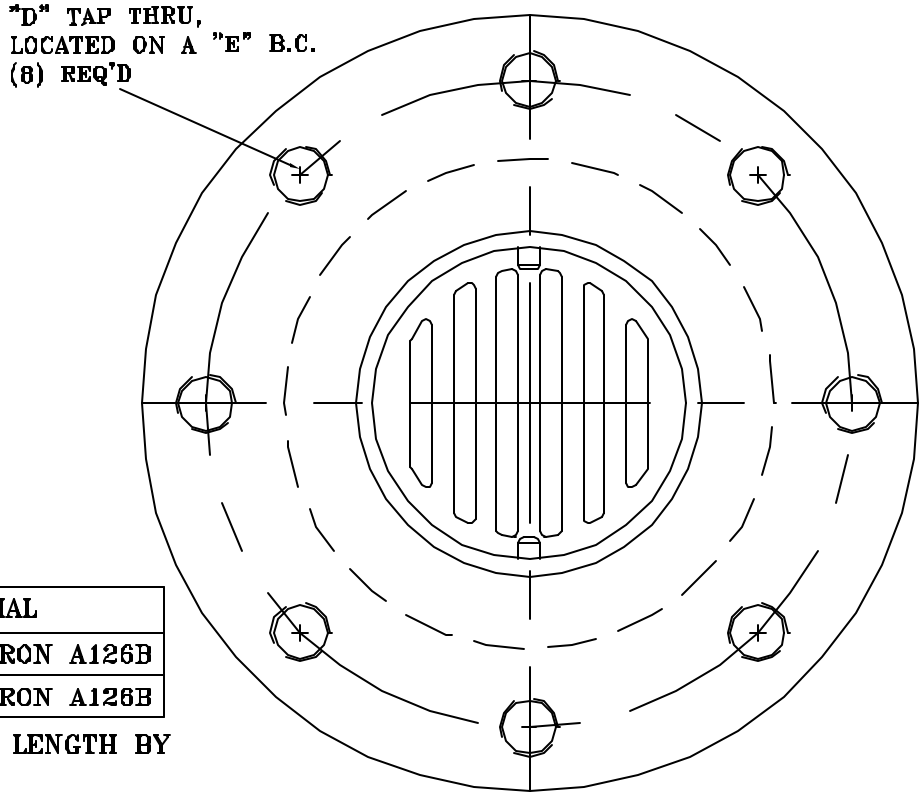
DIMENSIONS & PART NO.'s		
SIZE	4"	6"
A	9	11
B	4	6
C	155575	155577
D	177400	177426
E	¾	⅞
F	7½	9½
G	177401	177412
H	177402	177409

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PRV-W1

4" & 6" PRESSURE RELIEF VALVE
(WALL TYPE)
ASSEMBLY / MATERIAL LIST / DIMENSIONS
STYLE F-1494-T





DIMENSIONS		
SIZE	4"	6"
A	9.00	11.00
B	4.00	6.00
C	6.50	8.50
D	5/8"-11UNC	3/4"-10UNC
E	7.50	9.50

4" Weight 35 lbs.
6" Weight 47 lbs.

ITEM	DESCRIPTION	REQ'D	MATERIAL
1	WALL THIMBLE	1	CAST IRON A126B
2	GRATING	1	CAST IRON A126B

NOTE: CAN BE EXTENDED TO ANY LENGTH BY USING C900 PVC

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PRV-W2

4" PRESSURE RELIEF VALVE--(WALL TYPE)
WALL THIMBELL
ASSEMBLY / MATERIAL LIST / DIMENSIONS
STYLE F-1494-T

AWWA BUTTERFLY VALVES

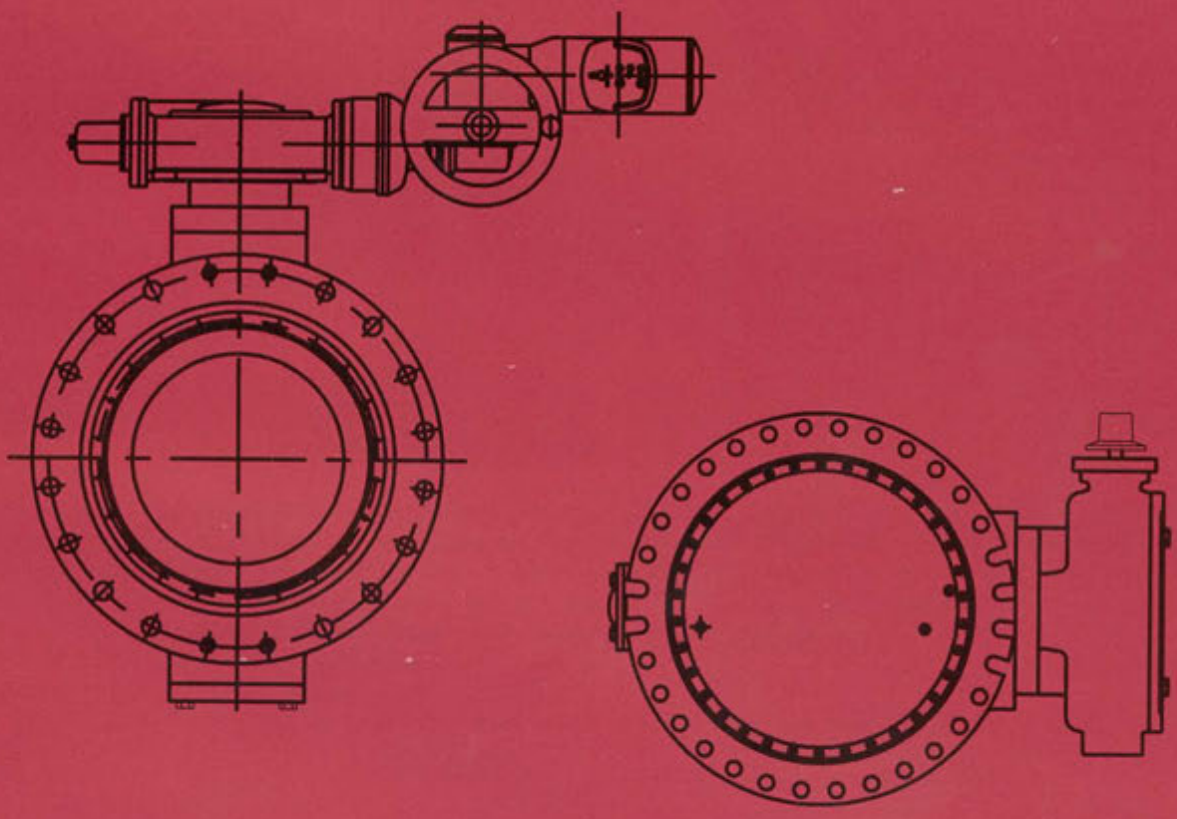
AWWA - C504-00 - CLASS 150, 200, & 250

STYLE 4500 4" - 12"

STYLE 1450 30" - 48"

FOR 54" & LARGER SIZES PLEASE CONSULATE FACTORY

THE LEADER IN UNDERGROUND AND IN PLANT APPLICATIONS



NSF APPROVED

WEBSITE: WWW.MH-VALVE.COM

American Made

American Made

M&H 4500

- AWWA Class 150-B Butterfly Valves
- Suggested Specifications: 3" Thru 48"
- Butterfly Valves with Operator
- Specifications by Body Type & Operator
- Consult Factory for valves 54" - 120"

A. GENERAL

All butterfly valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA standard C504, Rev. 2000. 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 mechanical joint or flanged per ANSI B16.1 (or as otherwise noted on plans and specs) per AWWA Standard C111. Accessories (bolts, glands and gaskets) shall be American made and supplied by the valve manufacturer.

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 with 18-8 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 18-8 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 18-8 Type 304 stainless steel self-locking fasteners. The valve seat must be easily field adjustable and replaceable without any special tools or lengthy curing time.

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, Rev. 2000 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 revisions of AWWA C504 and must be NSF 61 certified.

Crank, 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 Table 1 output torque throughout entire travel. Operators shall accept 300 lbs. pull on crank or wheel at full-open and full-closed positions without damage to valve or operator. Operators shall be of the "Traveling-Nut" type. All valves shall open left (clockwise to close).

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.

M&H AWWA

- Style 2500
- High Test Butterfly Valves
- Suggested Specifications
- (3" – 48")
- Consult Factory for Valves 54" - 120"

A. GENERAL

All Butterfly Valves shall be of the rubber-seated tight-closing type. They shall meet or exceed AWWA Standard C504, Rev. 2000, Class 250. All valves shall be M&H High Test Style 2500 Butterfly Valves, or approved equal. Written approval must be given prior to bid.

Both ends shall be mechanical joint or flanged per ANSI B16.1 (or as otherwise noted on plans and specifications) per AWWA Standard C111. Accessories (bolts, glands and gaskets) shall be American made and supplied by the valve manufacturer.

B. VALVE SHAFT

Valve shafts shall be 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 C504, Table 3. As well, all valve shafts must meet or exceed the minimum connection torque requirements set forth in AWWA C504, Section 4.5.3.2.

C. VALVE BODY & DISC

All valve bodies and discs 3"-48" shall be of high strength ductile iron to ASTM A536, Grade 65-45-12 with 18-8 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 18-8 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

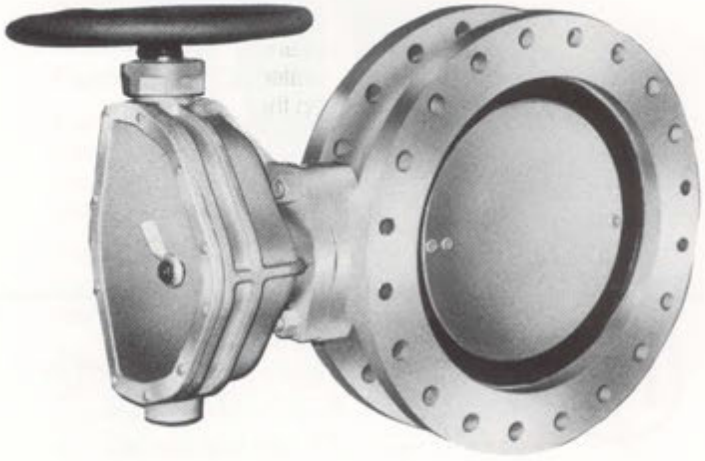
Valve shaft seals shall be O-ring type and utilize the same elastomer as specified for the valve seats and for the intended service. Valves using self-compensating split V-type packing will not be accepted. All valve shaft seals must be easily field replaceable.

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 C504, Rev. 2000 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 C504 and must be NSF 61 certified.



Options: Open-right or open-left, motor operator, cylinder operator, position indicator, extended bonnet.

Style 1450 Butterfly Valve

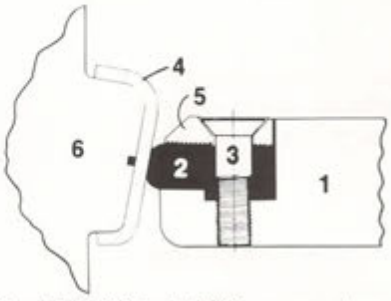
Exclusive Features

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

Non-Adjustable Bronze O-Ring Cartridge

Bearings—Generously sized, low-friction, reinforced Teflon stainless steel backed bearings provided on operator and thrust ends are self-lubricated for valve life...no maintenance is required.

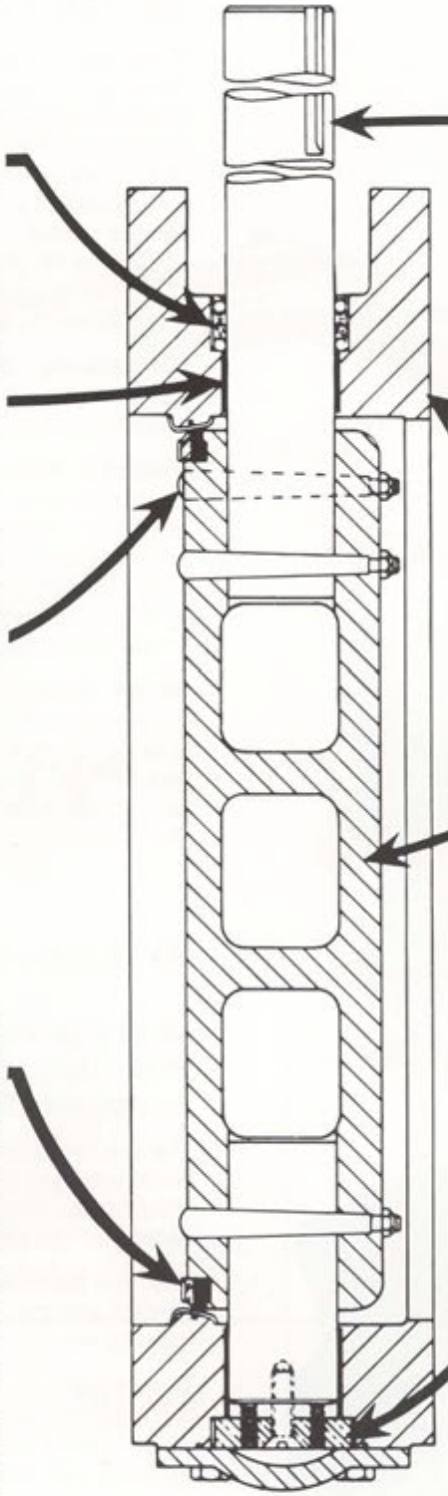
Taper Pins—For full metal to metal contact, vane to shaft connection is accomplished by stainless steel taper pins secured with stainless steel lock nuts.



The M&H Style 1450 incorporates a unique sealing system in which the seal is locked into a vane recess and is further restrained by a serrated clamp ring. Seal relaxation when the valve is in the open position is eliminated.

You are assured of uninterrupted 360° reliable and mechanically adjustable sealing as well as reduced wear and lower seating torque. Should field adjustment be required, one man with a torque wrench does the job in minutes without valve disassembly.

1—Vane; 2—360° Rubber Seat; 3—Stainless Steel Self-Locking Screw Fastener; with Nylon Sealing Sleeve; 4—Stainless Steel Body Seat Ring; 5—Stainless Steel Seat Retaining Ring; 6—Valve Body



Stainless Steel Shaft—Ruggedly constructed valve shafts of 304 Stainless Steel meet or exceed AWWA Standard C-504.

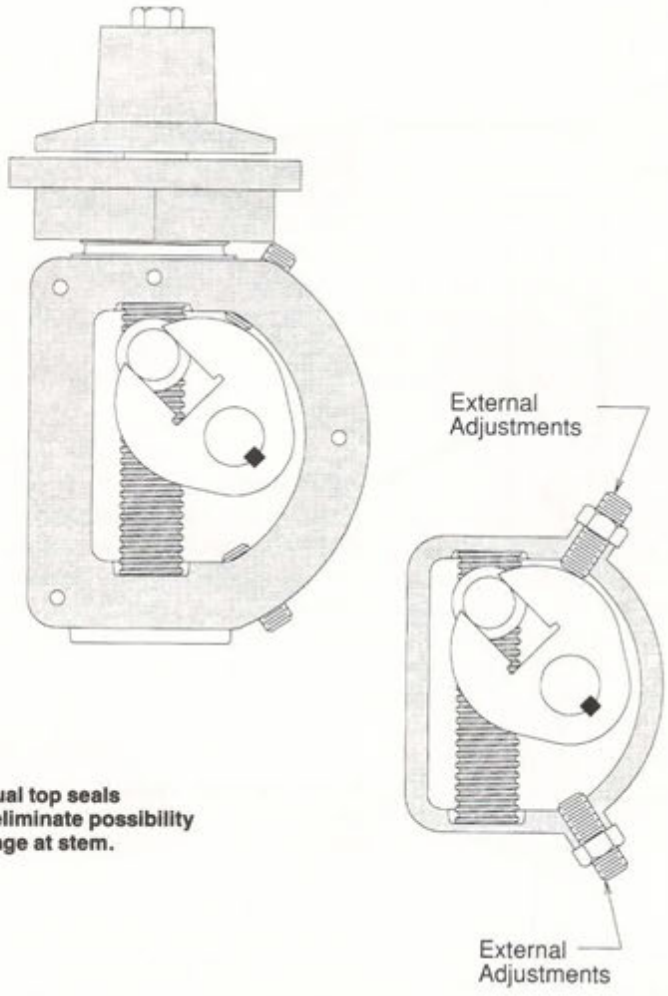
Valve Body—Heavy duty ASTM-A126 Class B Cast Iron body designed and manufactured to meet or exceed AWWA Standard C-504.

Flow Through Vane—Innovative design of Style 1450 flow-through vane provides large free flow area without sacrificing vane strength. Greater flow-through area results in less pressure drop than conventional vanes. Vane construction is of A-536 Ductile Iron to meet or exceed AWWA Standard C-504.

Adjustable Thrust Bearing—Bronze thrust bearing accurately centers vane in valve body. Accurate alignment is held in installation position. Factory adjusted for life of the valve.

M&H AWWA C504 Butterfly Valves

- Style 4500
- 4″ Thru 24″
- Traveling Nut Operator



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

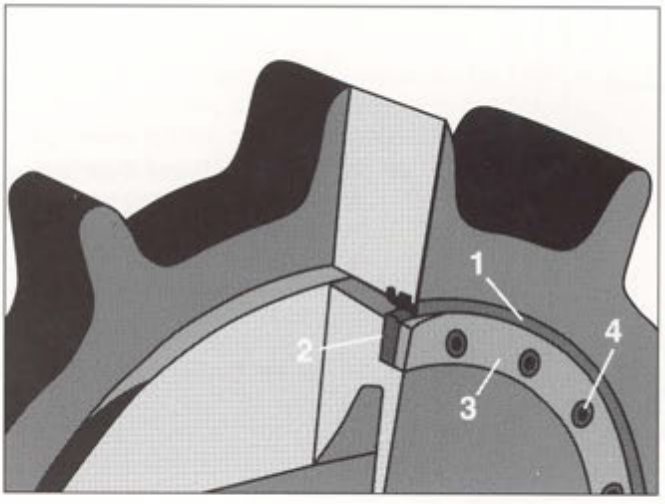
450 Foot Pounds

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. Will produce more than double the AWWA Standard C-504 (Table 1) output torque requirement through entire travel.

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.

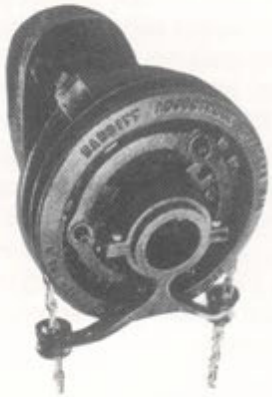
The 18-8 Stainless Steel seat (1) is made integral with the valve body for a permanent, corrosion-resistant seating area.

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.

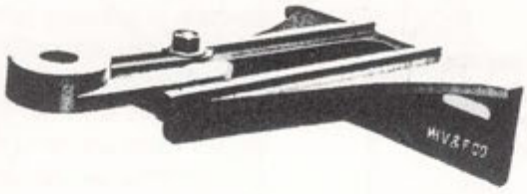
ACCESSORIES

- EPDM Seats & Seals (For HighTemp.)
- Fusion Bond Epoxy
- Extension Stem (Optional)

Available Options



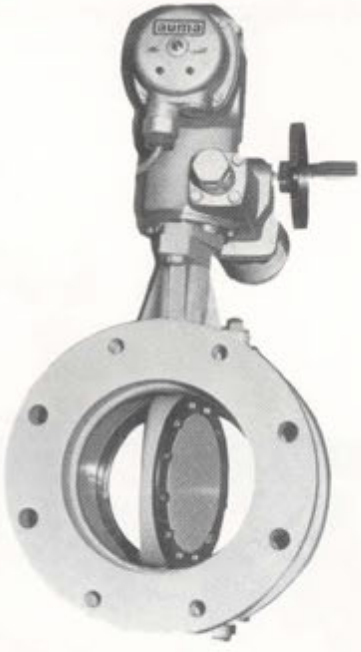
Sprocket and Chain



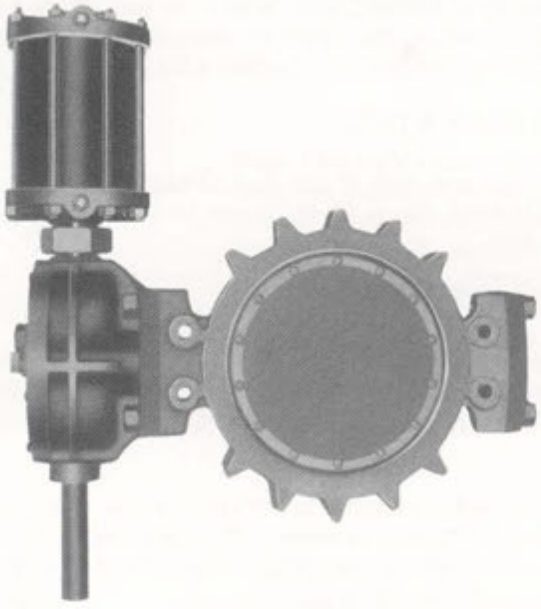
Stem Guide

Floor Stands

Indicating Non-Indicating



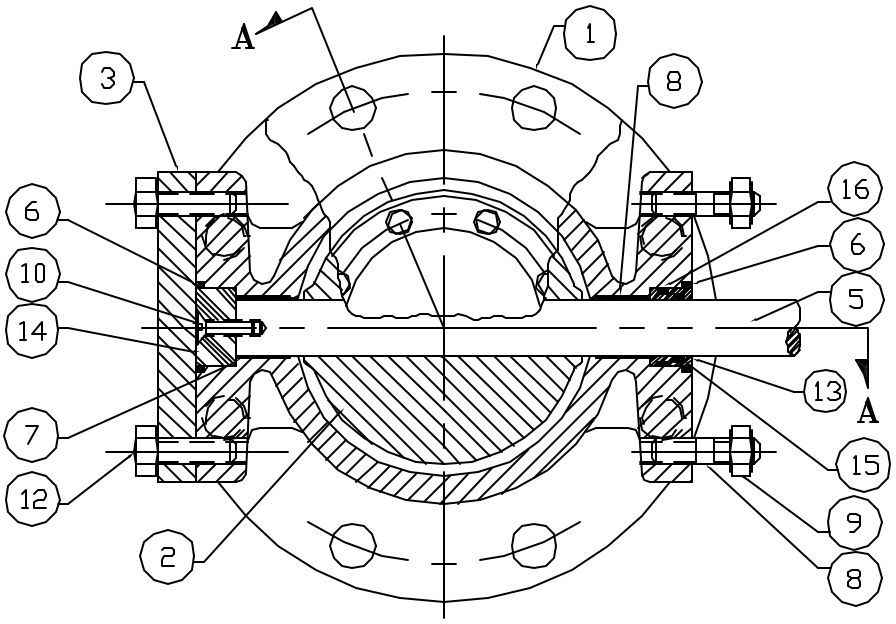
Motor Operator

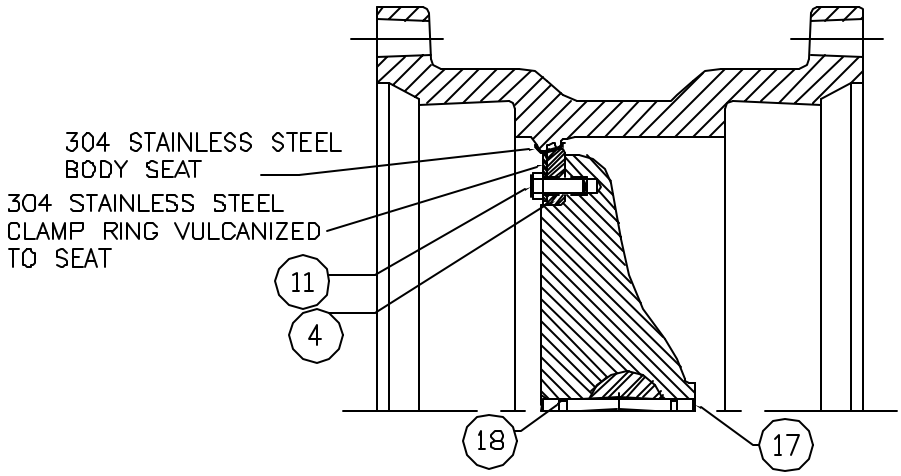


Cylinder Operator

M&H VALVE COMPANY
Sales Office & Manufacturing Facility
ANNISTON, ALABAMA 36202
A DIVISION OF McWANE, INC.
P.O. Box 2088
Phone (256) 237-3521
FAX 1-888-549-5309
www.mh-valve.com

10-02-5M





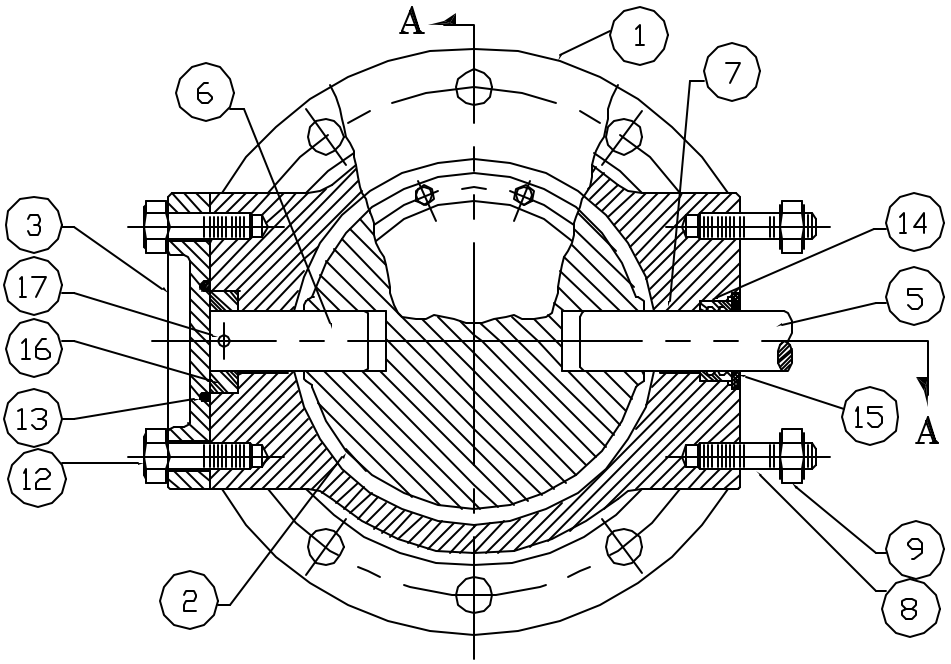
SECTION A–A

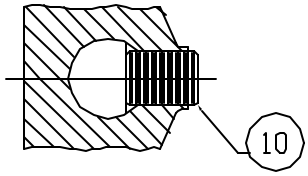
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A–126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A–48, CLASS 40
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	304 STAINLESS STEEL, ASTM A–276
6	O–RING, BODY	BUNA "N"
7	BEARING, 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

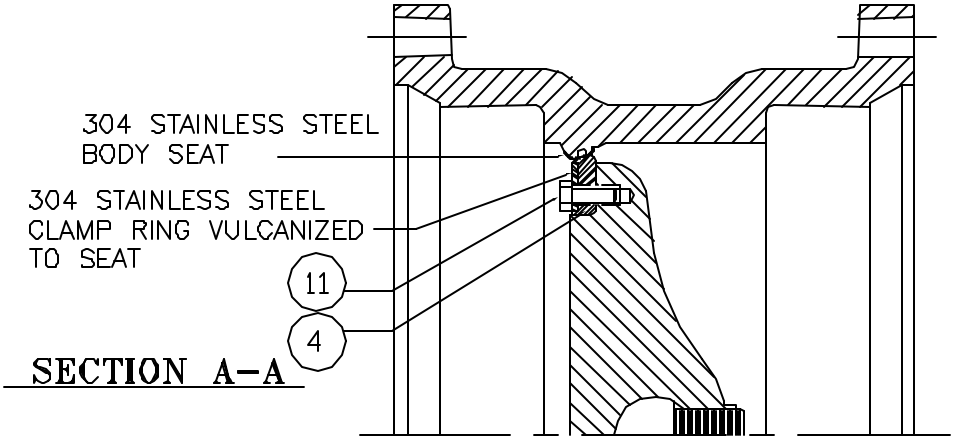
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BMJ–15–45A

4"–12" STYLE 4500 CLASS 150 BUTTERFLY VALVE SUB–ASSEMBLY / MATERIAL LIST MJ 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	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
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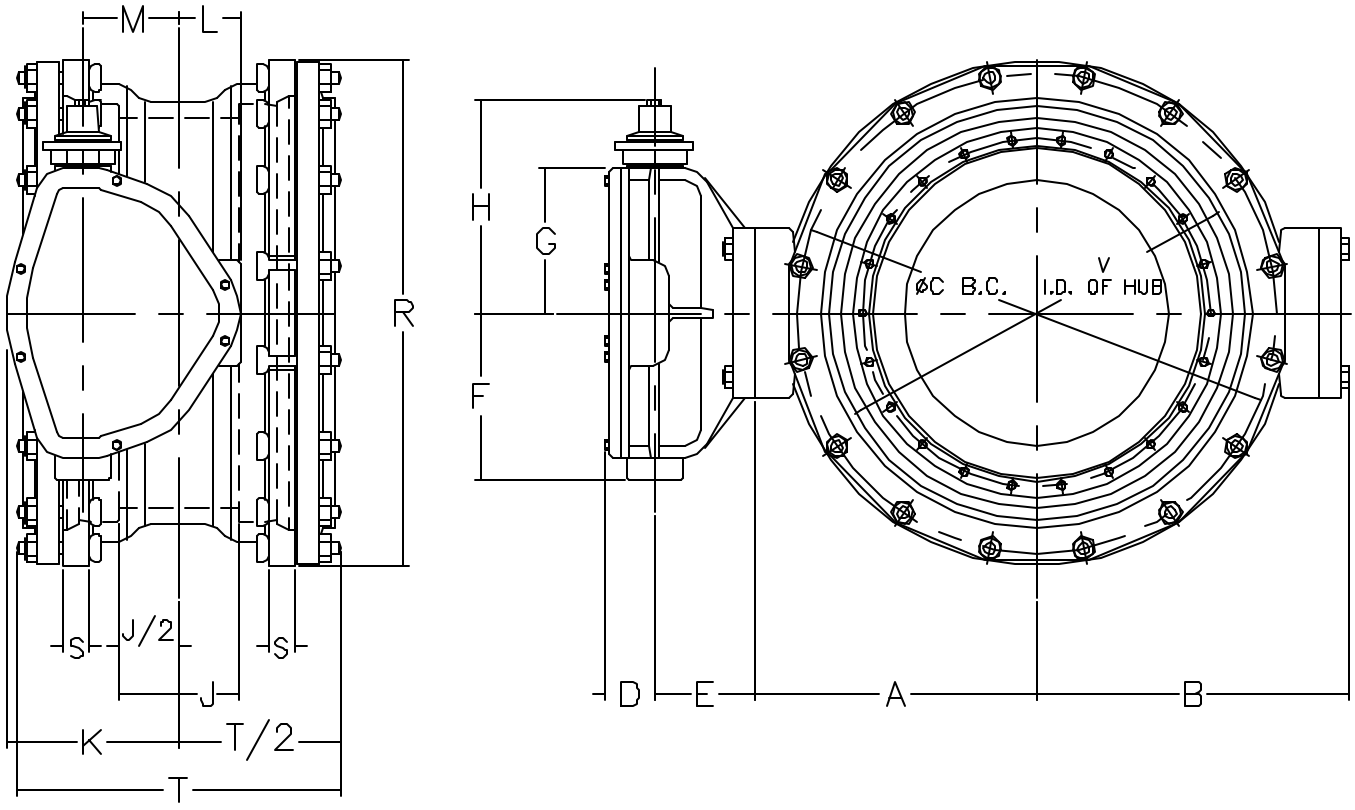
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

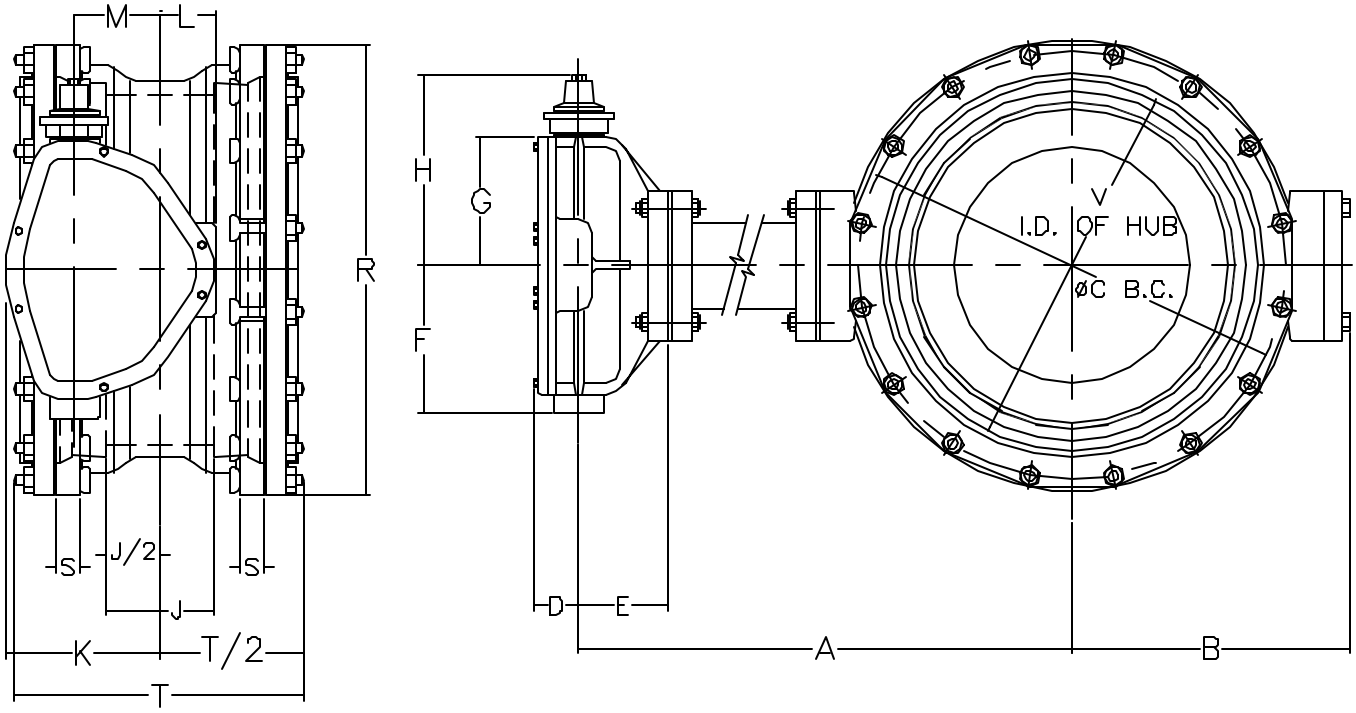
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90 +.07 -.03	80
6"	5	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00 +.07 -.03	100
8"	6	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15 +.07 -.03	150
10"	7 3/4	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20 +.07 -.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 +.07 -.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 +.08 -.07	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 +.08 -.07	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 +.08 -.07	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 +.08 -.08	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 +.08 -.08	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

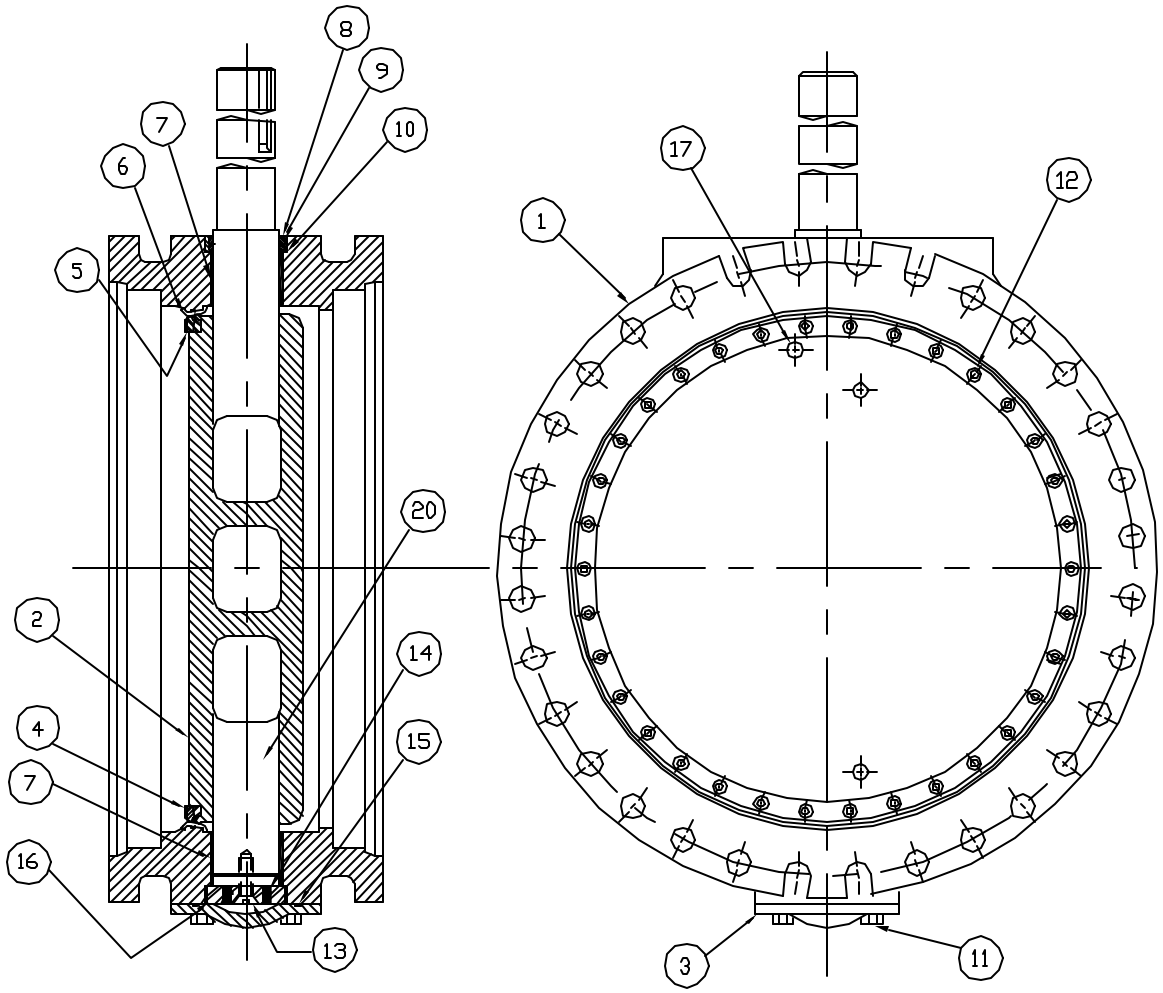
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
4"	NOTE AA	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90$^{+.07}_{-.03}$	80
6"	NOTE AA	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00$^{+.07}_{-.03}$	100
8"	NOTE AA	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15$^{+.07}_{-.03}$	150
10"	NOTE AA	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20$^{+.07}_{-.03}$	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$^{+.07}_{-.03}$	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$^{+.08}_{-.07}$	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$^{+.08}_{-.07}$	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$^{+.08}_{-.07}$	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$^{+.08}_{-.07}$	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$^{+.08}_{-.07}$	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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(4"-12"), 150(14"-16"), 180(18"-24")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

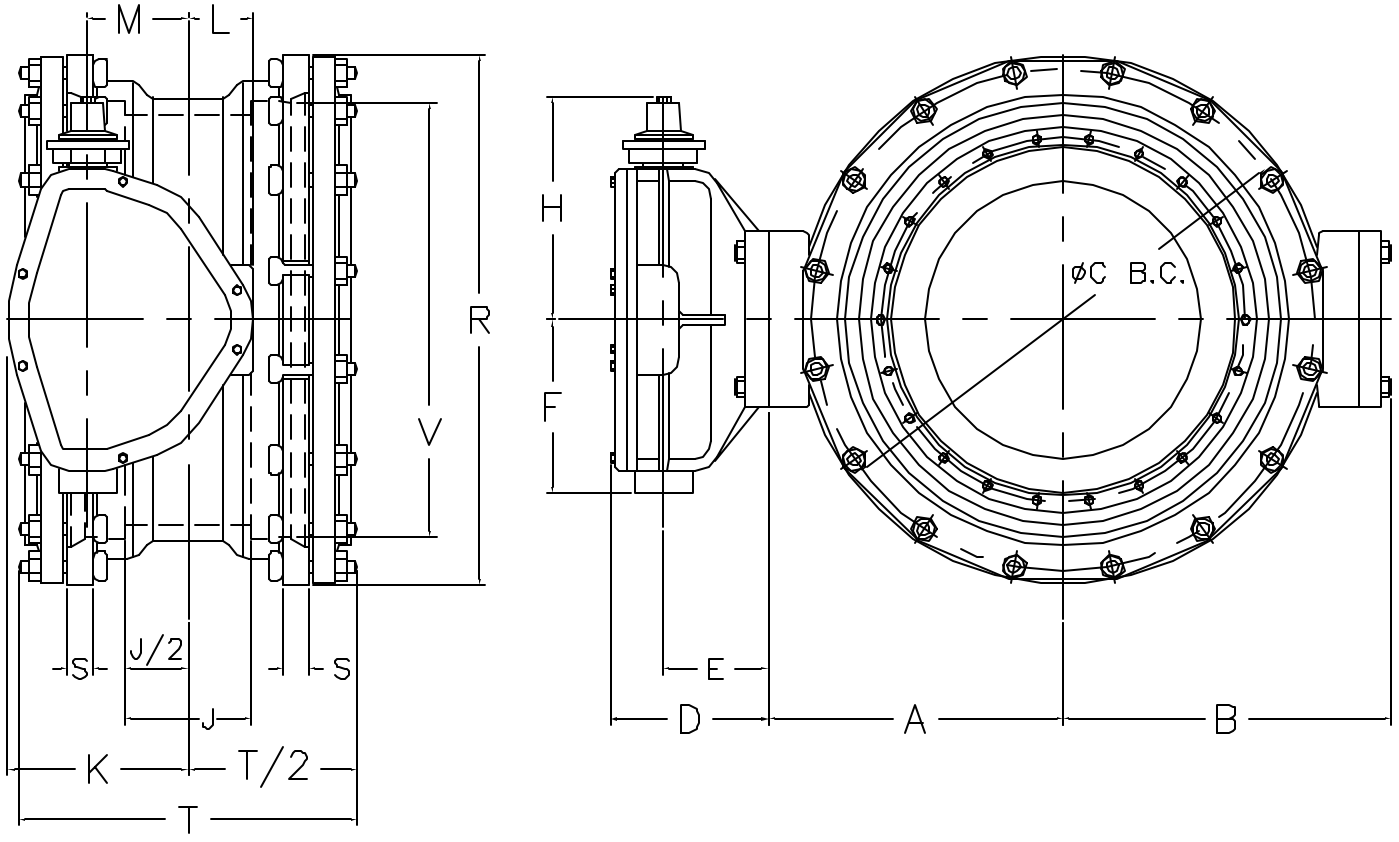
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ

DATE: 6/2/03

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

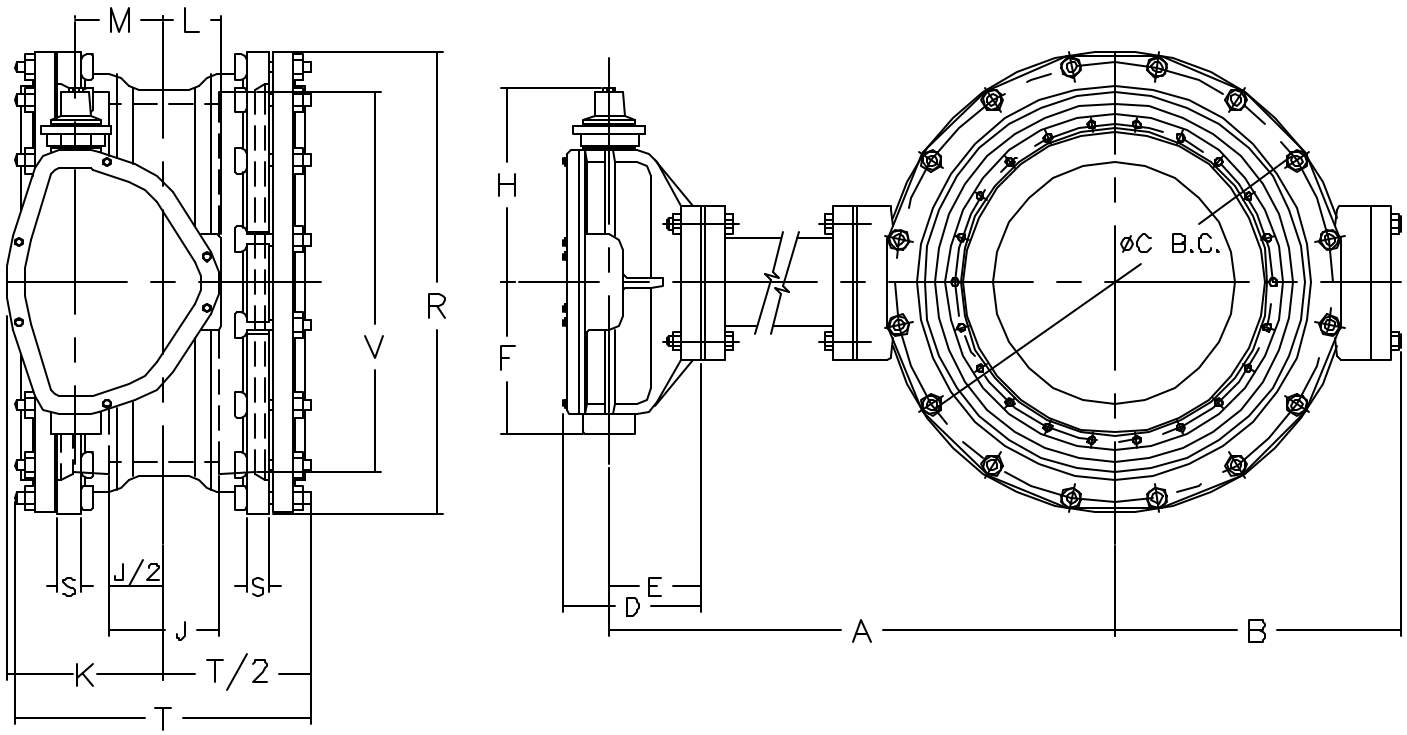
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

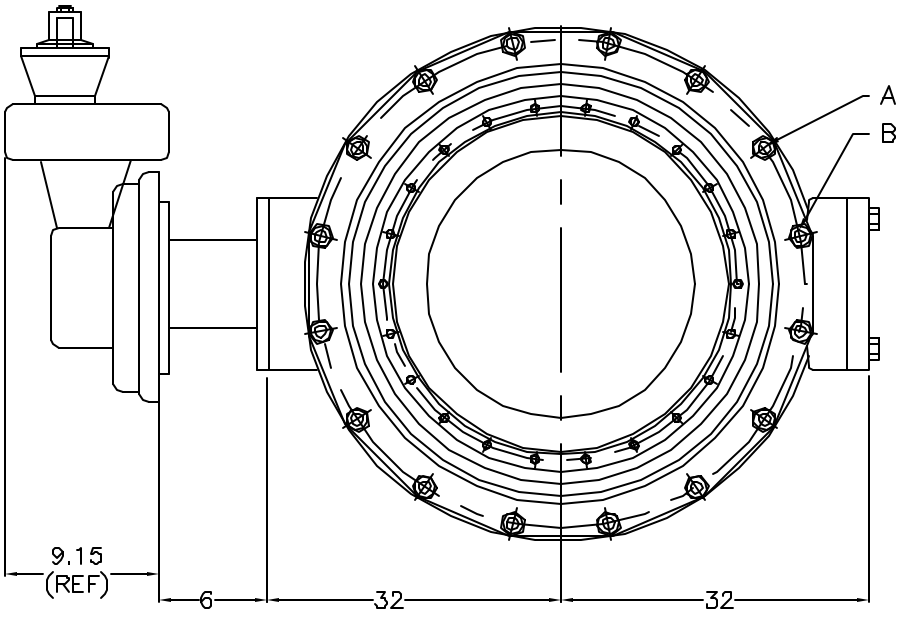
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
30"	NOTE AA	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	NOTE AA	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	NOTE AA	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

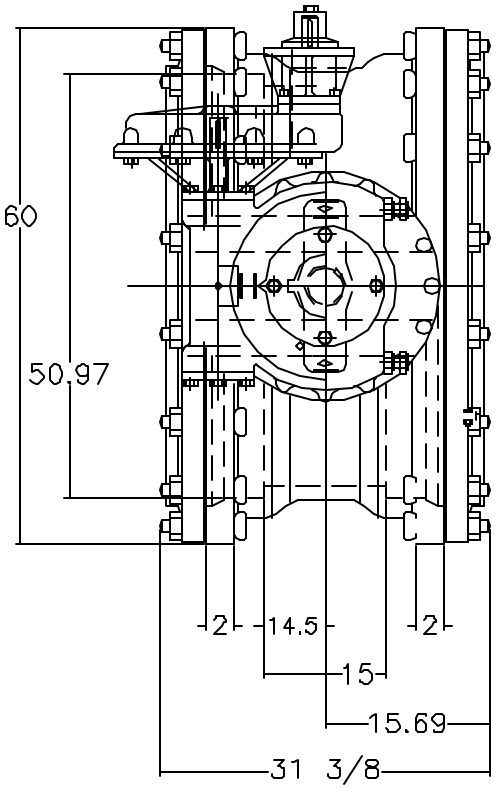
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER 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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 250(30"-42")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BMJ-15-14C

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

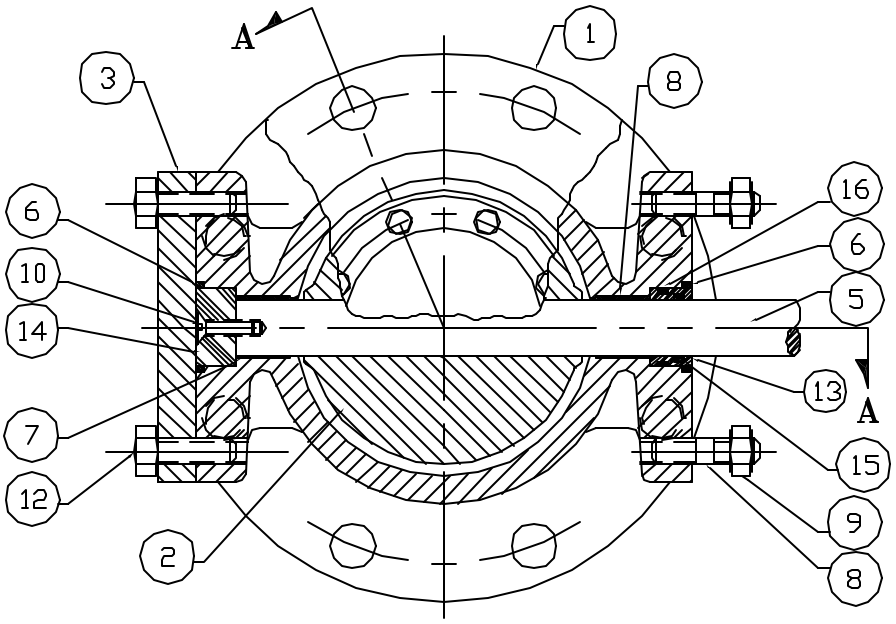


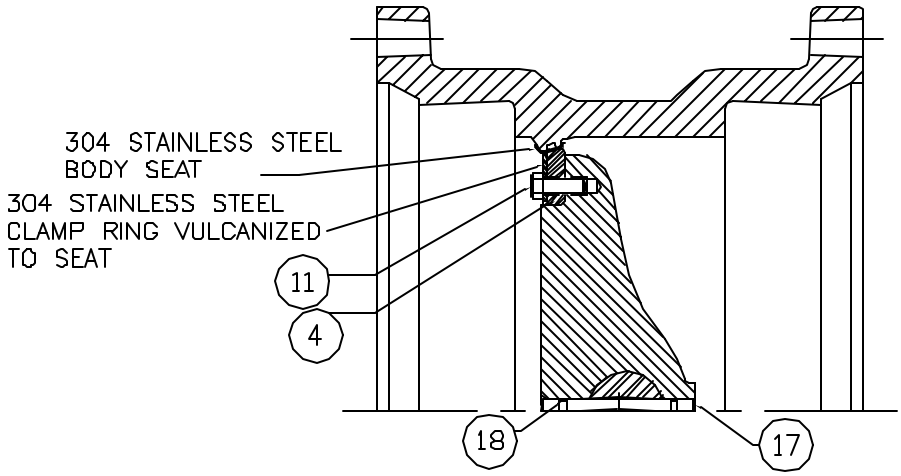


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504-B
NOTE 4: NUMBER OF TURNS TO CLOSE = 180
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 6: A = (44) 1.50" BOLTS PER FLANGE
NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.
NOTE 8: WEIGHT = 6300lbs.

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	48" STYLE 1450 CLASS 150 BUTTERFLY VALVE (ROTORK IW75 GEAR BOX) BURIED OPERATOR MJ X MJ ENDS
DATE: 6/2/03	
DWG. NO. BMJ-15-RA	





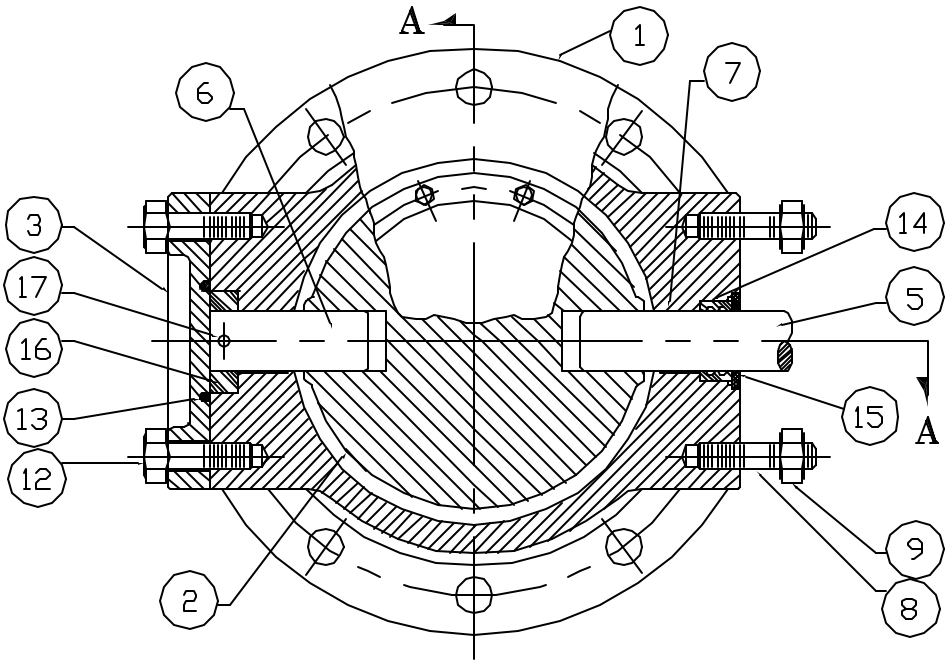
SECTION A–A

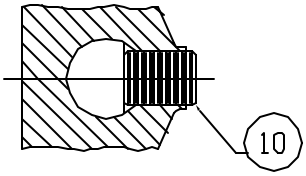
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A–536 GR. 70–50–05
2	VANE	DUCTILE IRON ASTM A–536 GR. 70–50–05
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A–564
6	O–RING, BODY	BUNA "N"
7	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

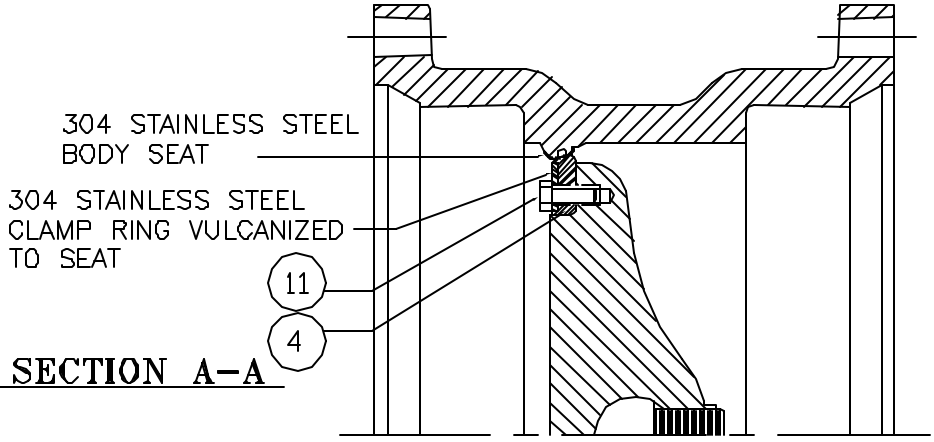
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BMJ–25–45A

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







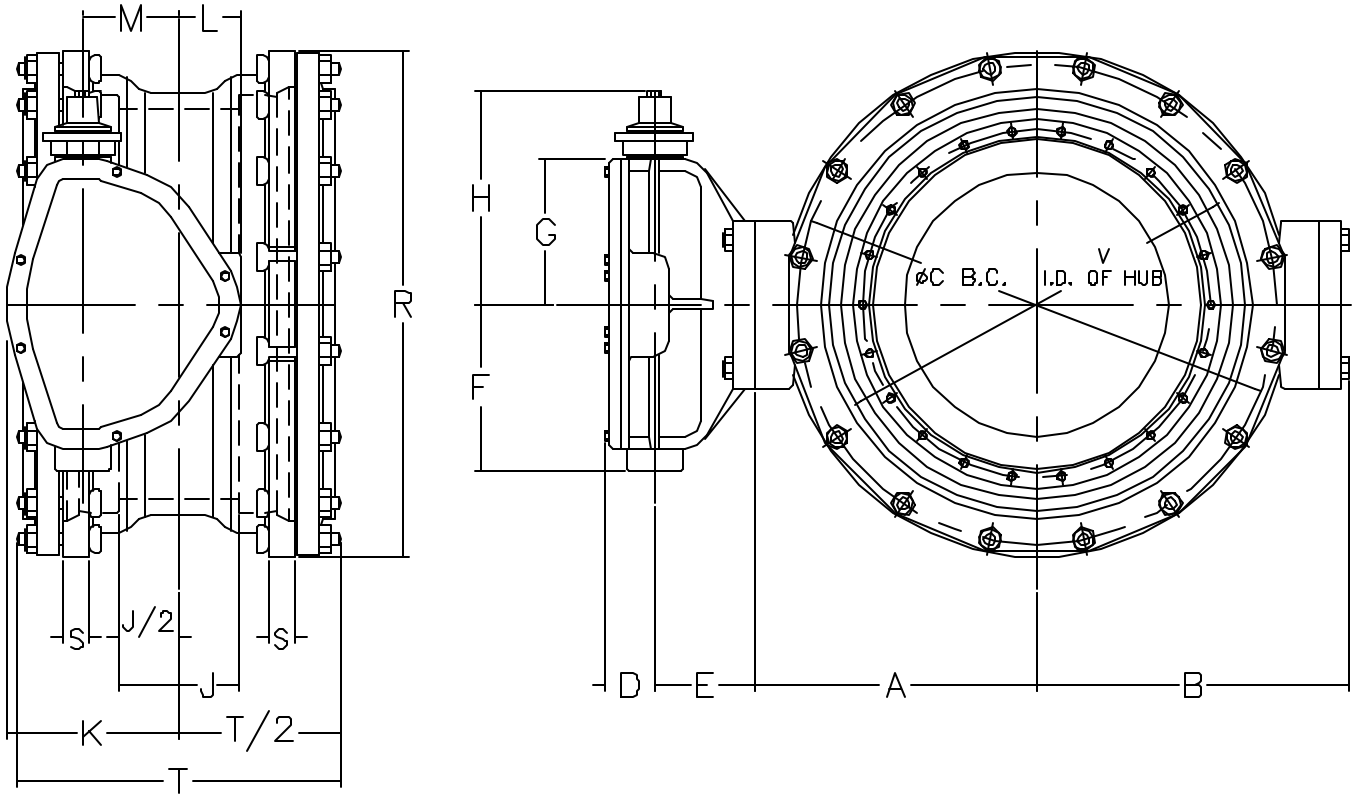
SECTION A–A

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, 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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

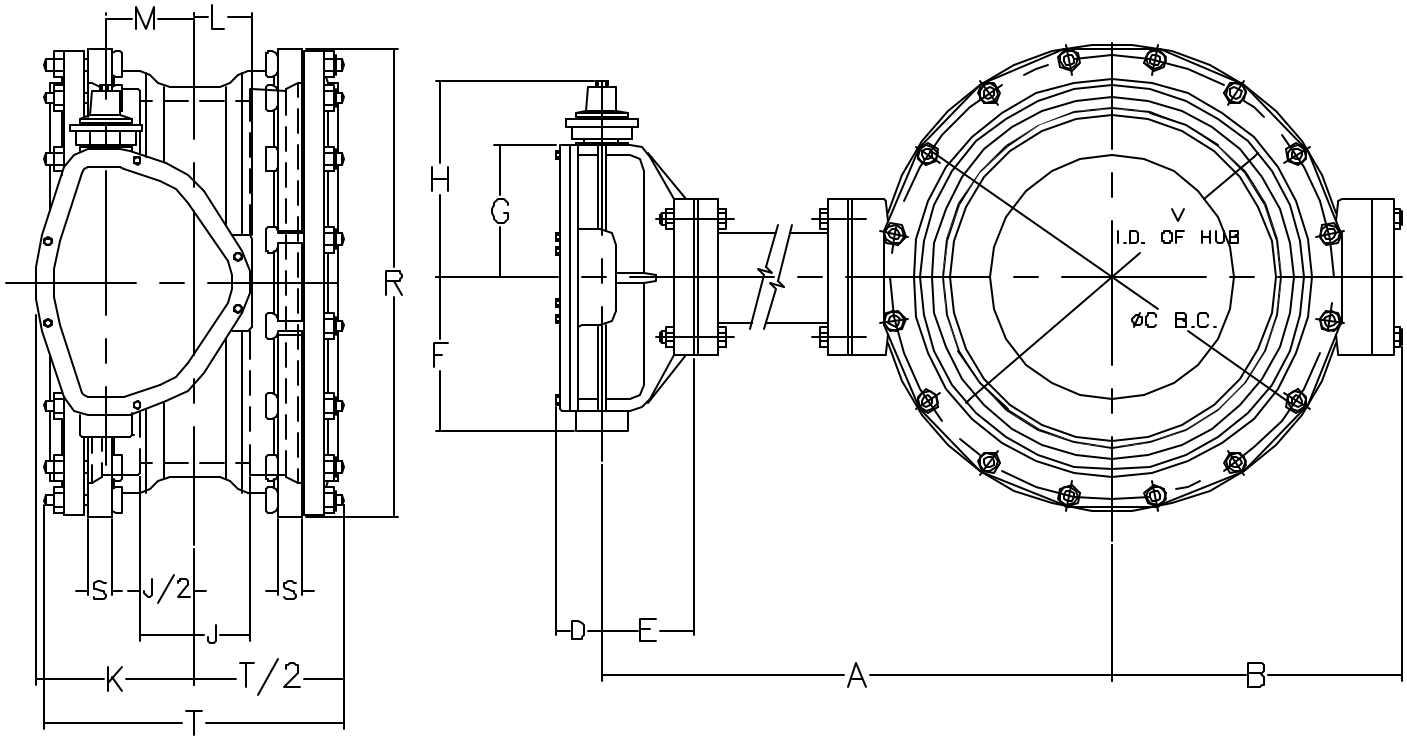
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90 +.07 -.03	80
6"	5	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00 +.07 -.03	100
8"	6	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15 +.07 -.04	150
10"	7 3/4	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20 +.07 -.05	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 +.07 -.05	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 +.06 -.07	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 +.06 -.07	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 +.06 -.07	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 +.06 -.07	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 +.06 -.07	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

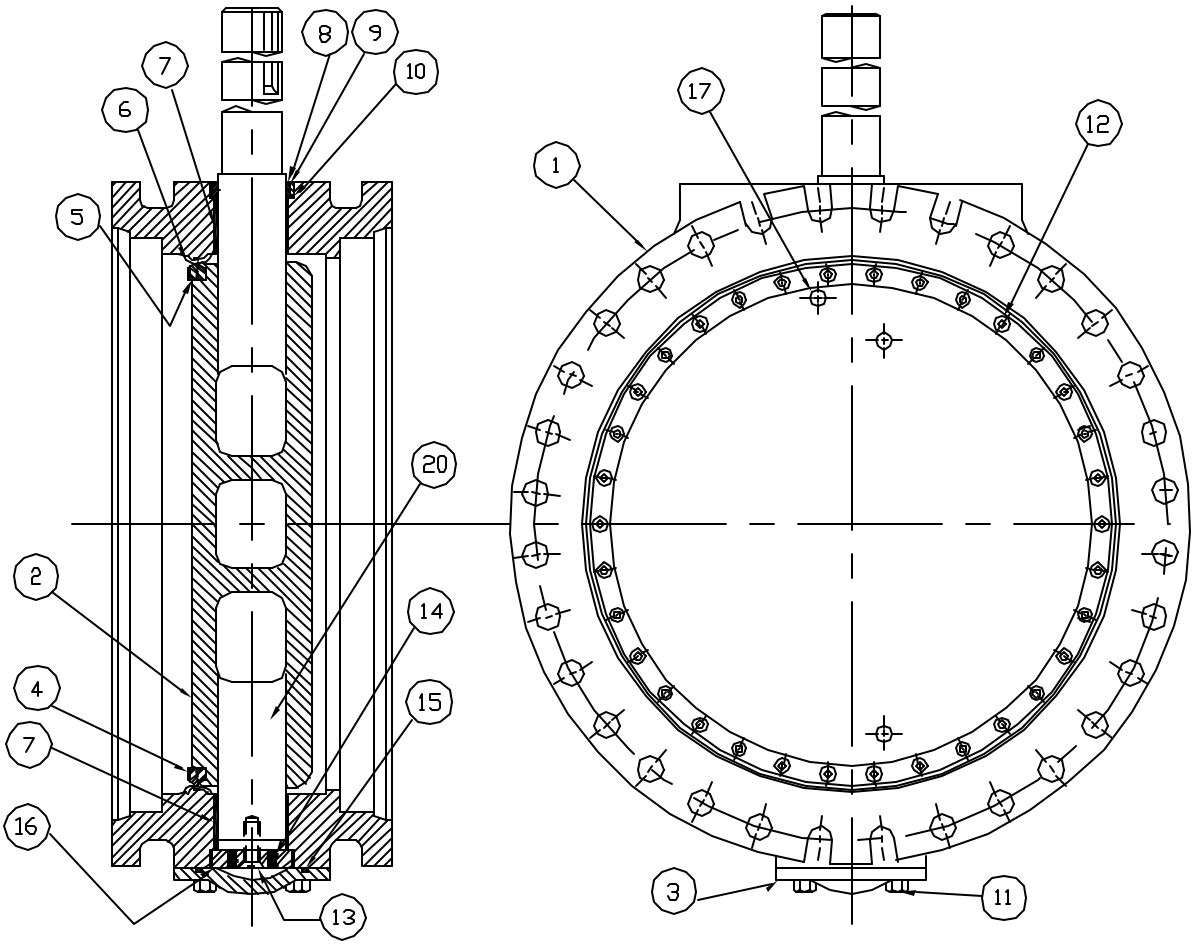
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
4"	NOTE AA	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	4.90±.03	80
6"	NOTE AA	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	7.00±.03	100
8"	NOTE AA	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	9.15±.03	150
10"	NOTE AA	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	11.20±.03	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±.03	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±.09	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±.09	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±.09	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±.09	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±.09	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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(4"-12"), 150(14"-16"), 180(18"-24")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BMJ-25-45D

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

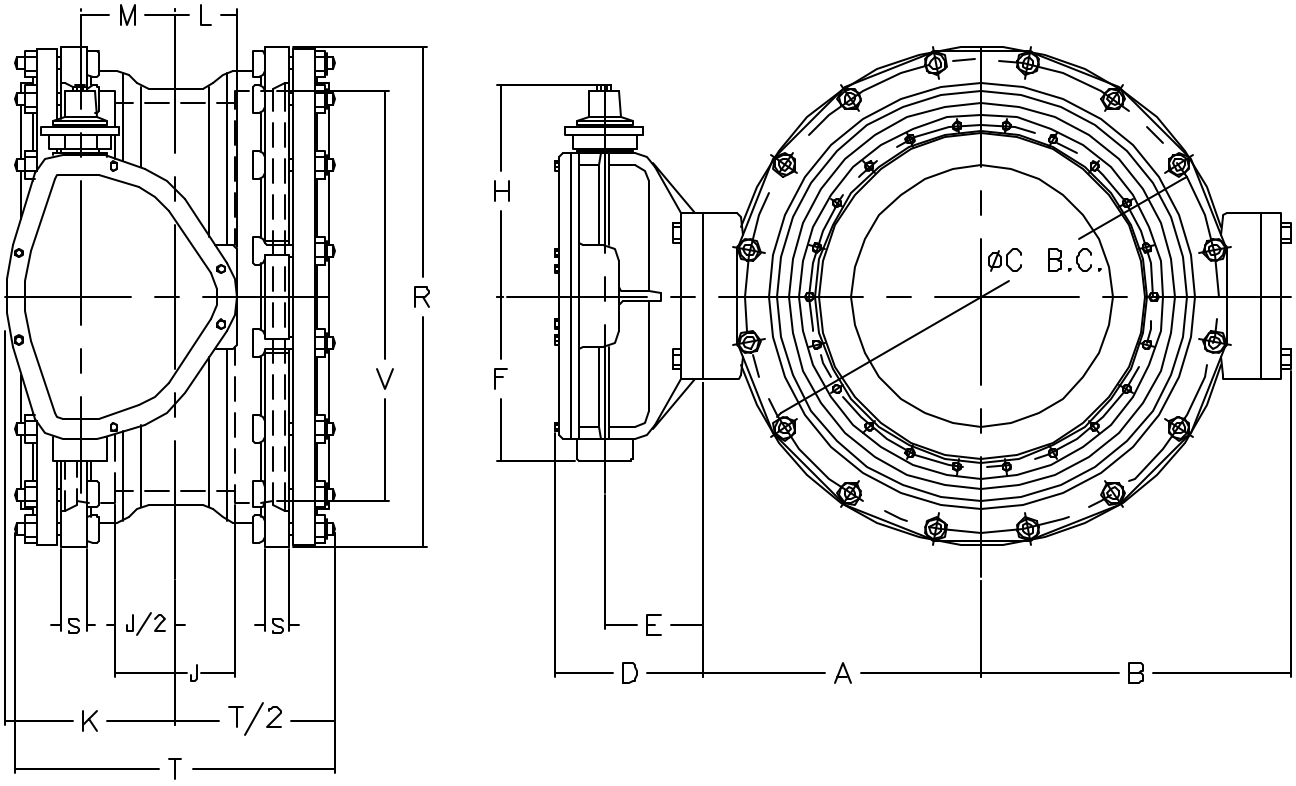


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536, GR. 70-50-05 W/304 STN. STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE (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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

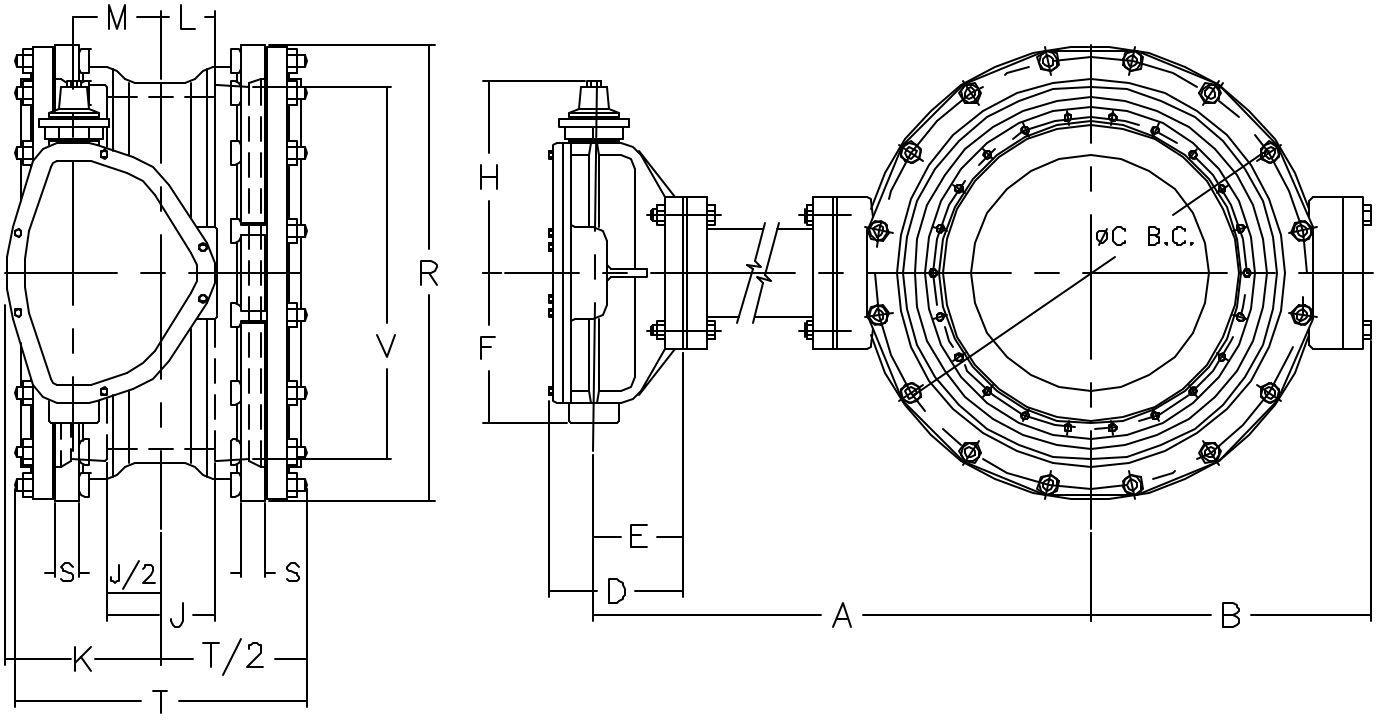
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

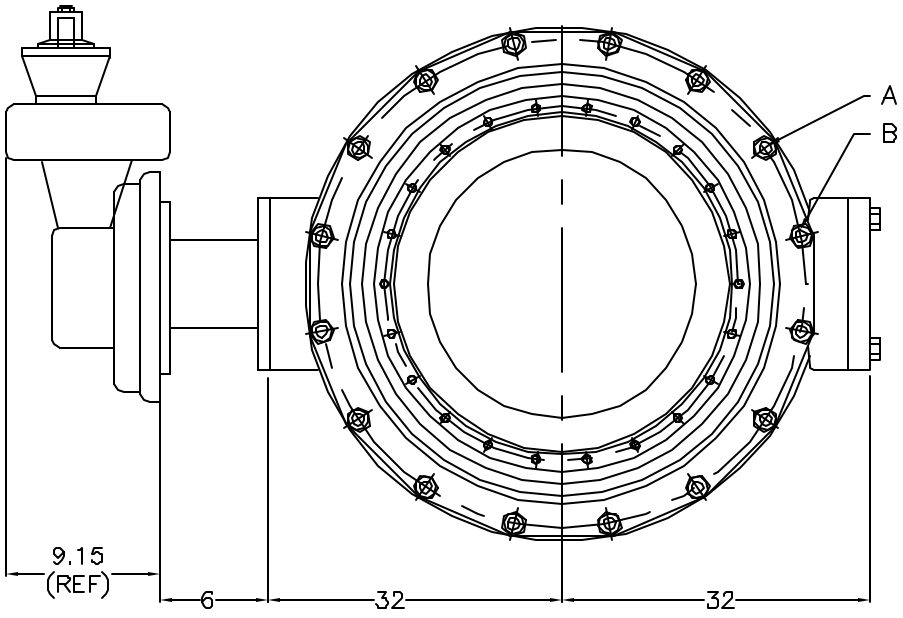
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
30"	NOTE AA	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	NOTE AA	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	NOTE AA	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

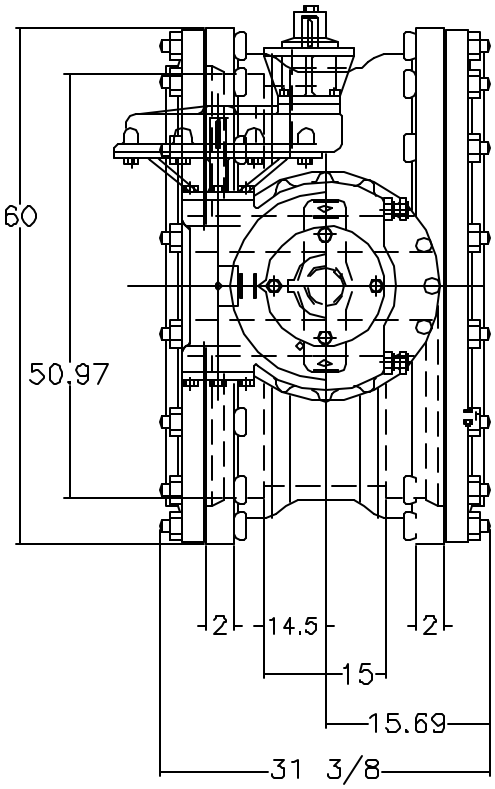
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER 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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 250(30"-42")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BMJ-25-14C

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

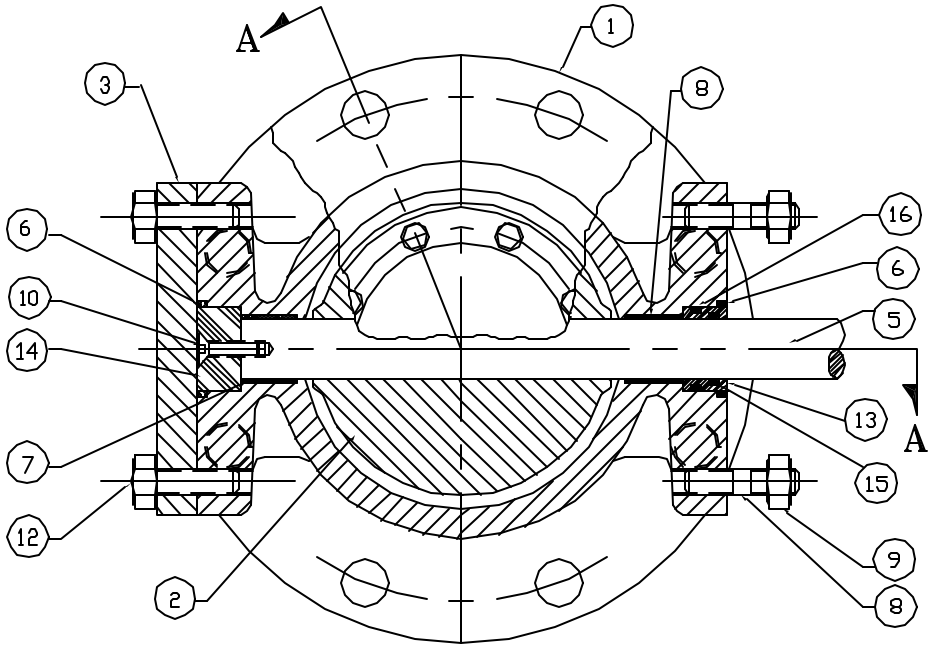


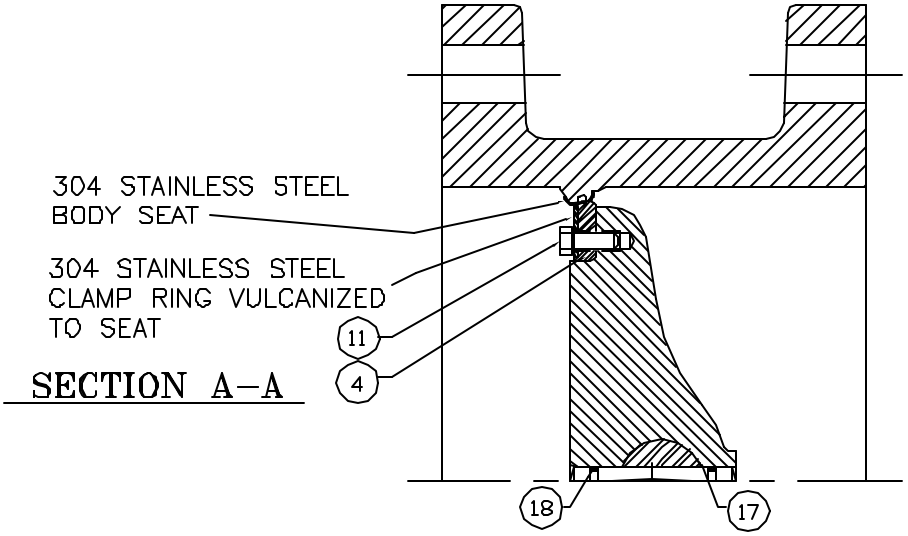


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504-B
NOTE 4: NUMBER OF TURNS TO CLOSE = 180
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 6: A = (44) 1.50" BOLTS PER FLANGE
NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.
NOTE 8: WEIGHT = 6300lbs.

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	48" STYLE 1450 CLASS 250 BUTTERFLY VALVE (ROTORK IW75 GEAR BOX) BURIED OPERATOR MJ X MJ ENDS
DATE: 6/2/03	
DWG. NO. BMJ-25-RA	





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
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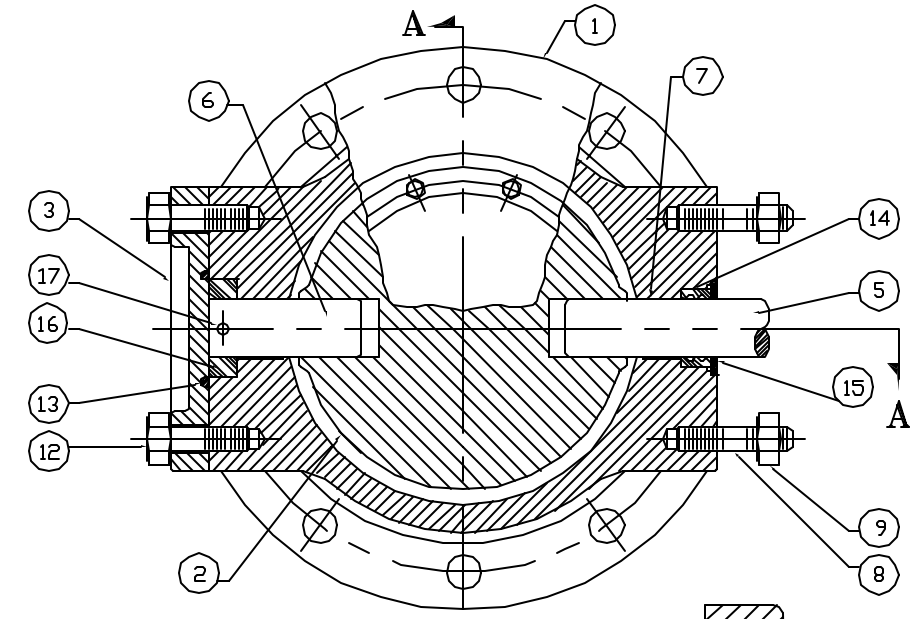
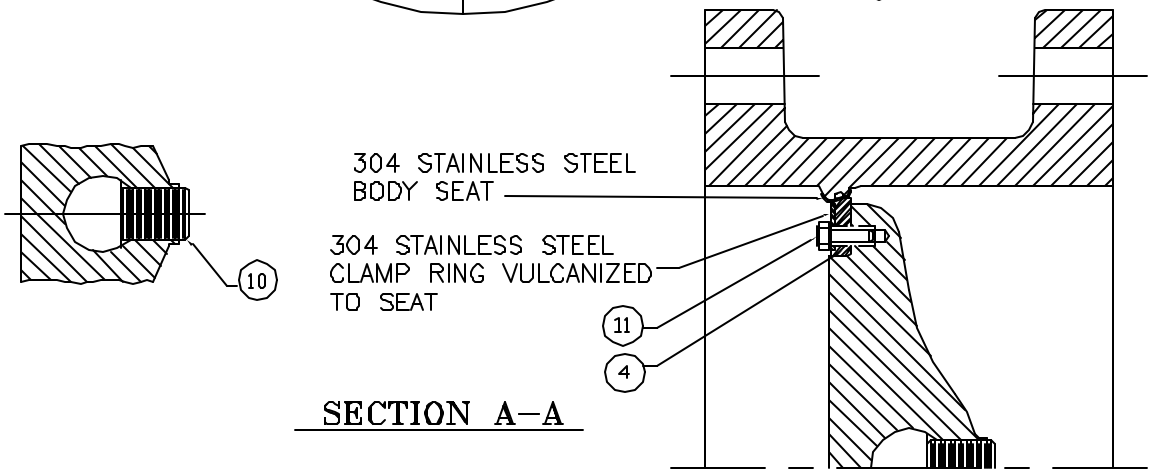
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-15-45A

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





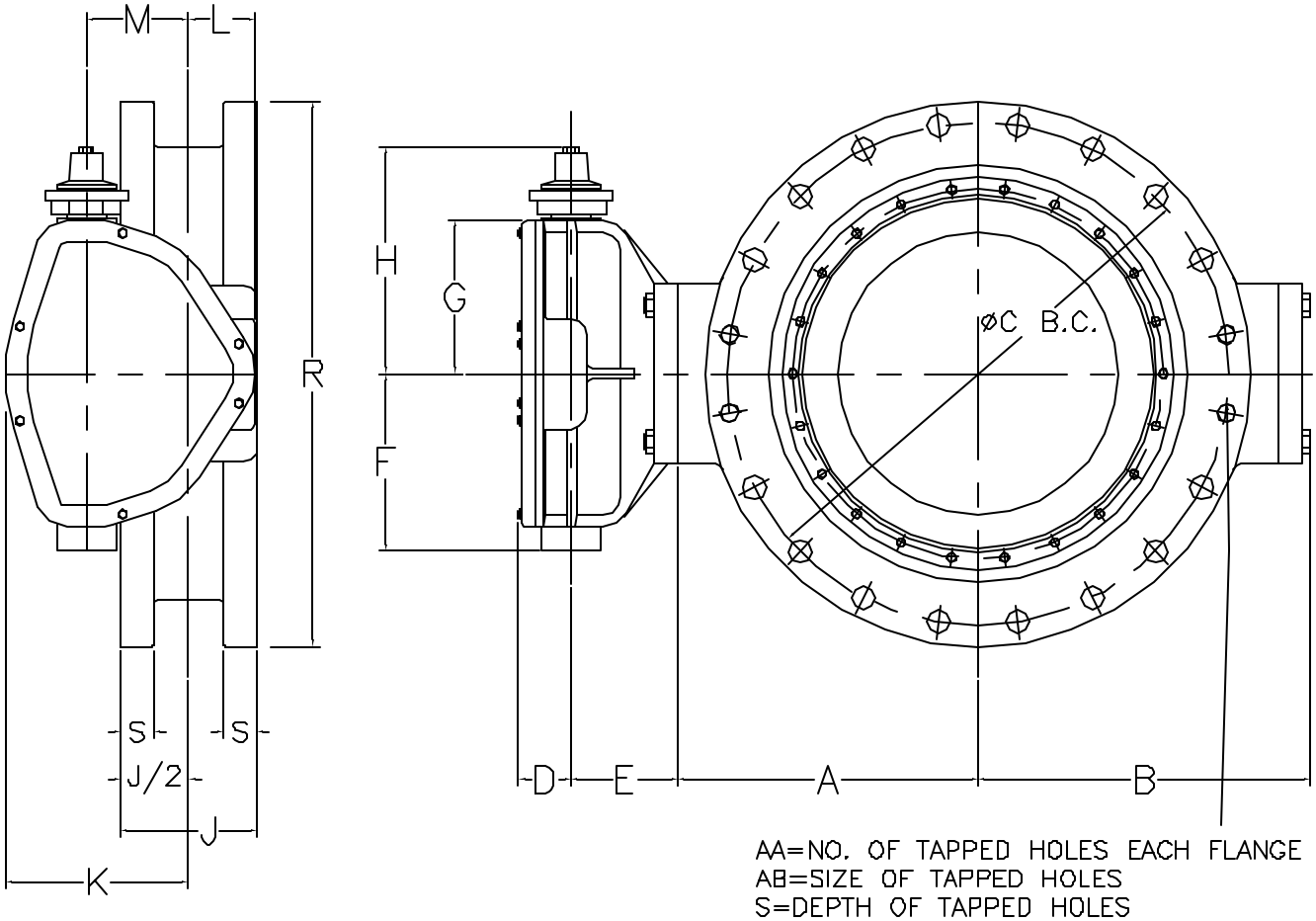
SECTION A–A

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	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE–15–45B

14" THRU 24" STYLE 4500 CLASS 150 BUTTERFLY VALVE SUB–ASSEMBLY / MATERIAL LIST 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	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

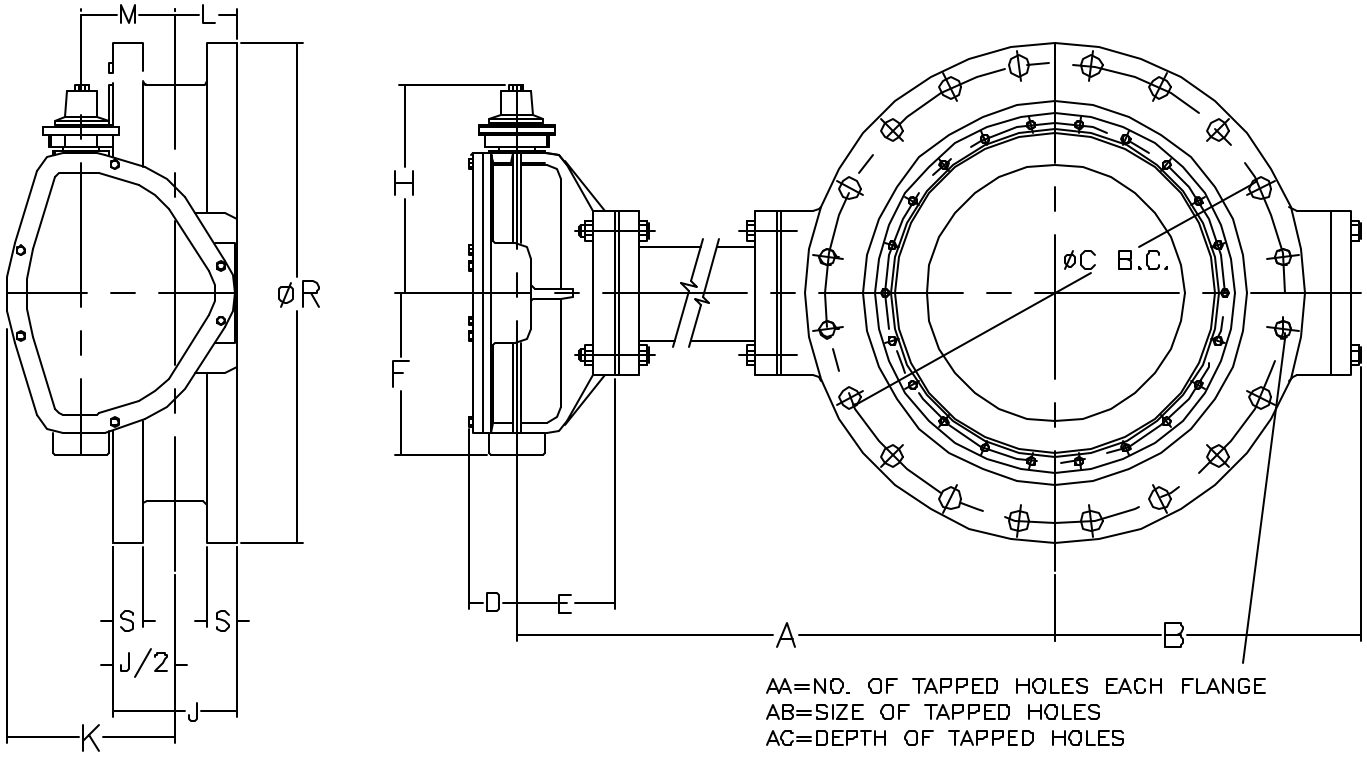
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15 /16	4	5/8-11	75
4"	4	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8-11	75
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	95
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	140
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	-	-	232
12"	9 1/2	11 3/8	17	8	12	7/8	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-15-45C

3" THRU 24" STYEL 4500 CLASS 150 BUTTERFLY VALVE BURIED 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	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

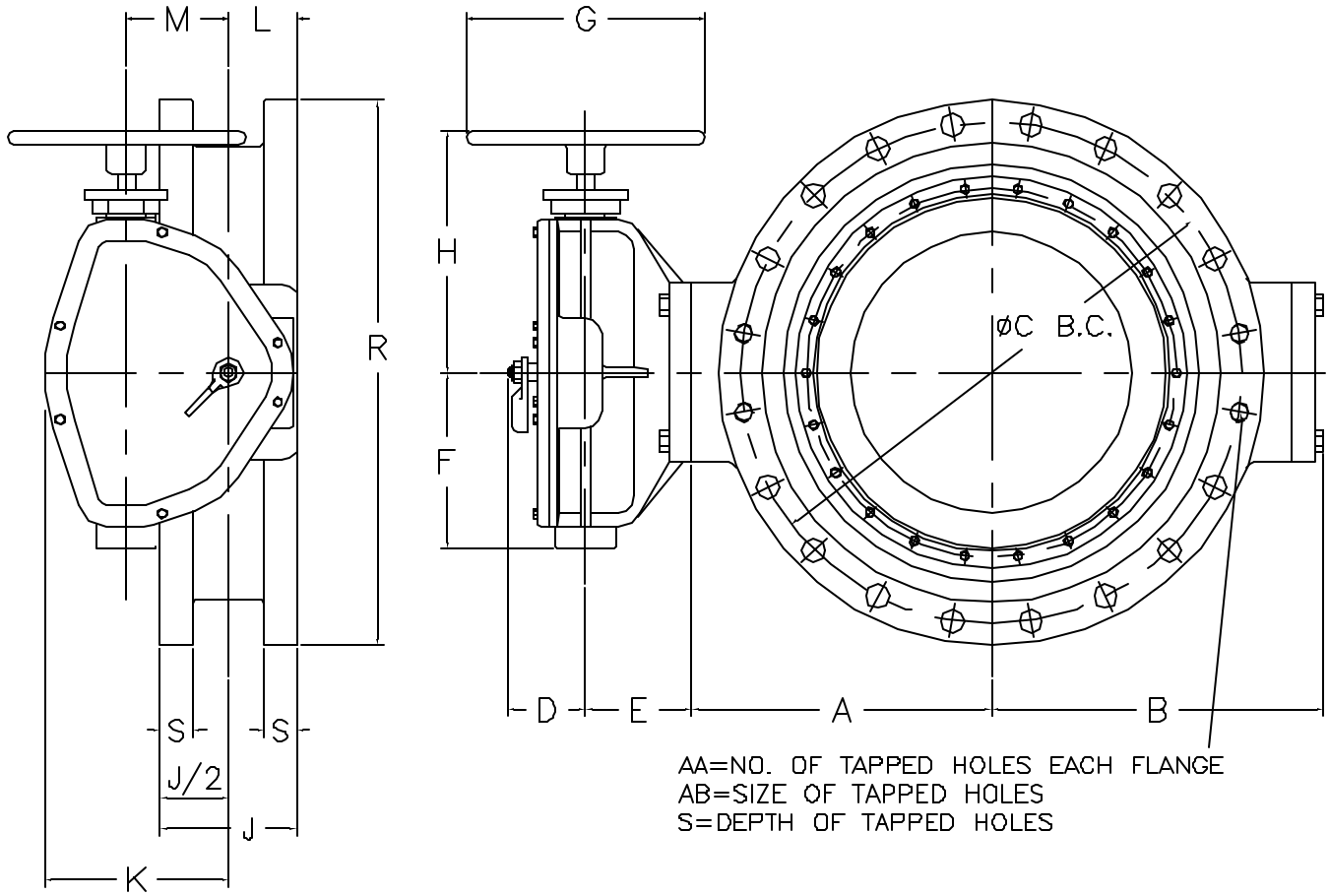
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
3"	NOTE AA	5 7/16	6	5	4	5/8	9	15 /16	4	5/8–11	80
4"	NOTE AA	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8–11	80
6"	NOTE AA	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	100
8"	NOTE AA	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	150
10"	NOTE AA	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	242
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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(3"–12"), 150(14"–16"), 180(18"–24")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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	5 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

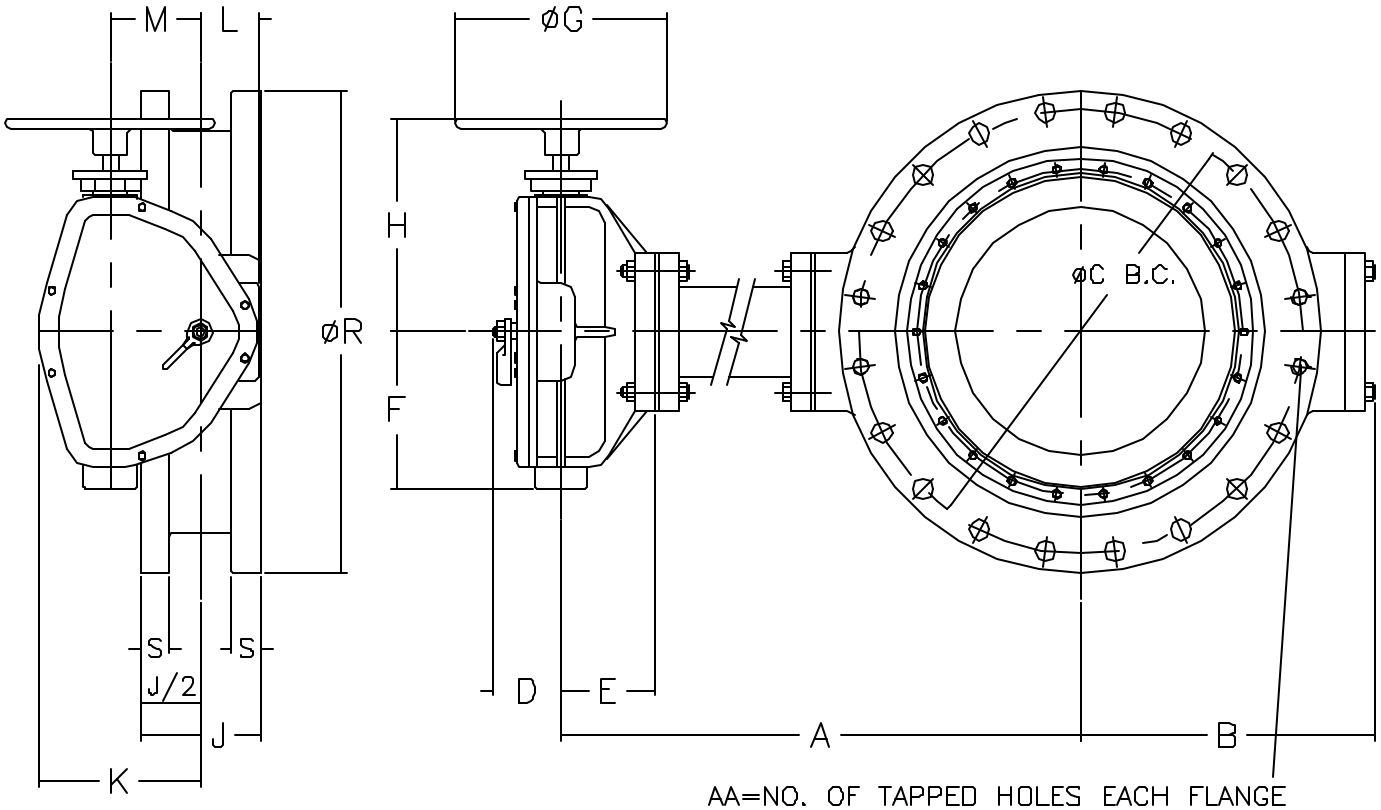
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15/16	4	5/8–11	75
4"	4	5 7/16	7 1/2	5	8	5/8	9	15/16	4	5/8–11	75
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	95
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	140
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	237
12"	9 1/2	11 3/8	17	8	12	7/8	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

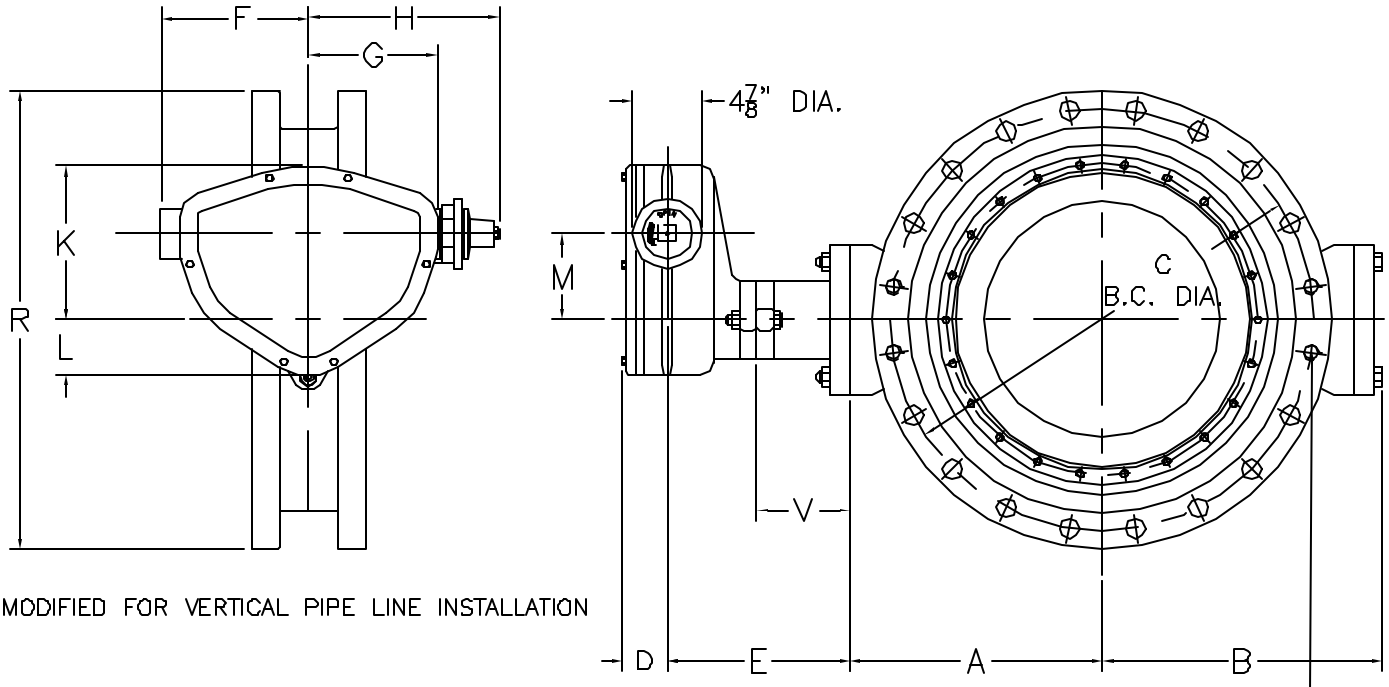
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
3"	NOTE AA	5 7/16	6	5	4	5/8	9	15 /16	4	5/8-11	80
4"	NOTE AA	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8-11	80
6"	NOTE AA	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	100
8"	NOTE AA	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	150
10"	NOTE AA	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	242
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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(3"-12"), 150(14"-16"), 180(18"-24")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

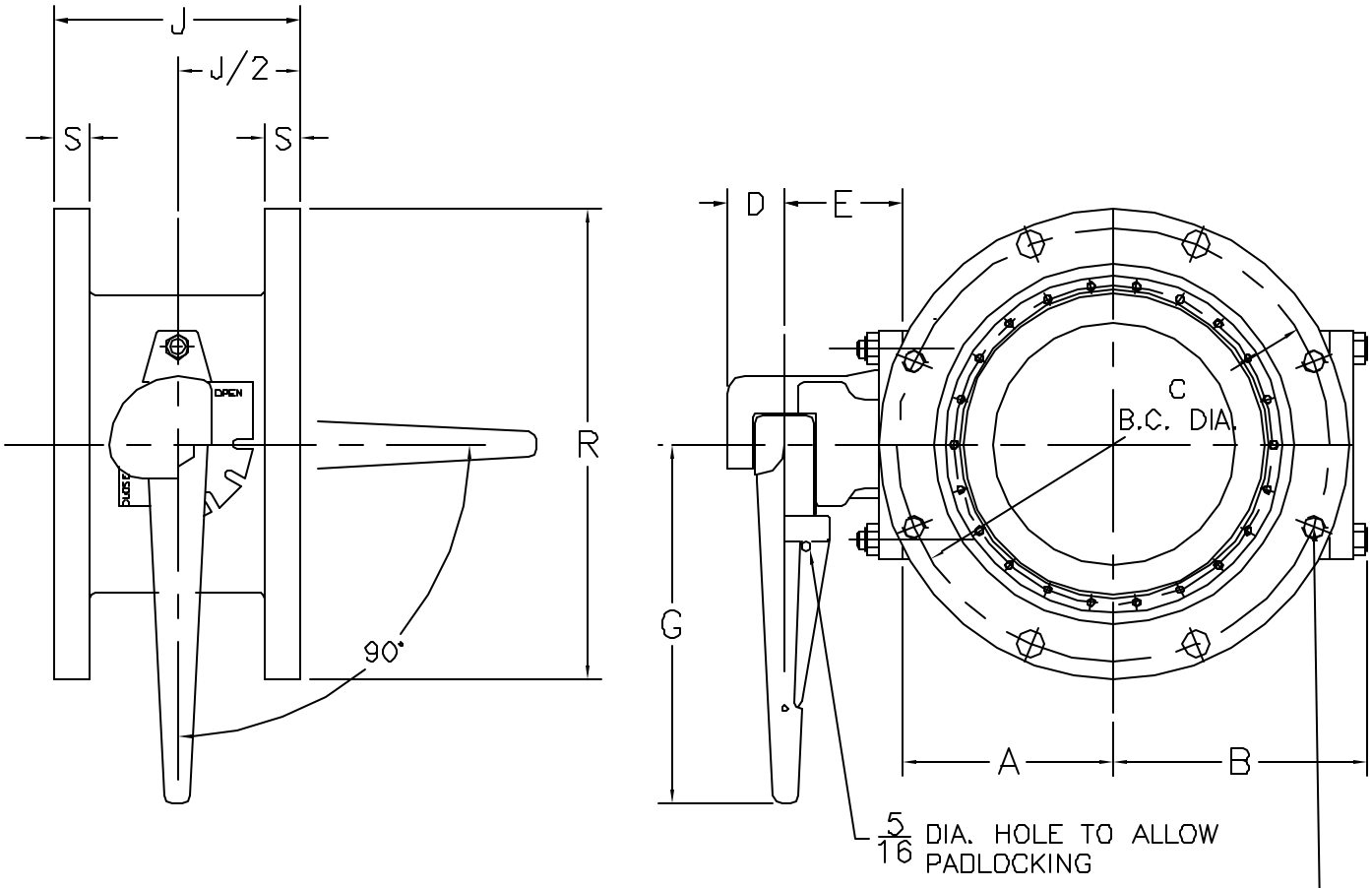
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15/16	4	5/8-11	80
4"	4	5 7/16	7 1/2	5	8	5/8	9	15/16	4	5/8-11	80
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4-10	100
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4-10	150
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	242
12"	9 1/2	11 3/8	17	8	12	7/8	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

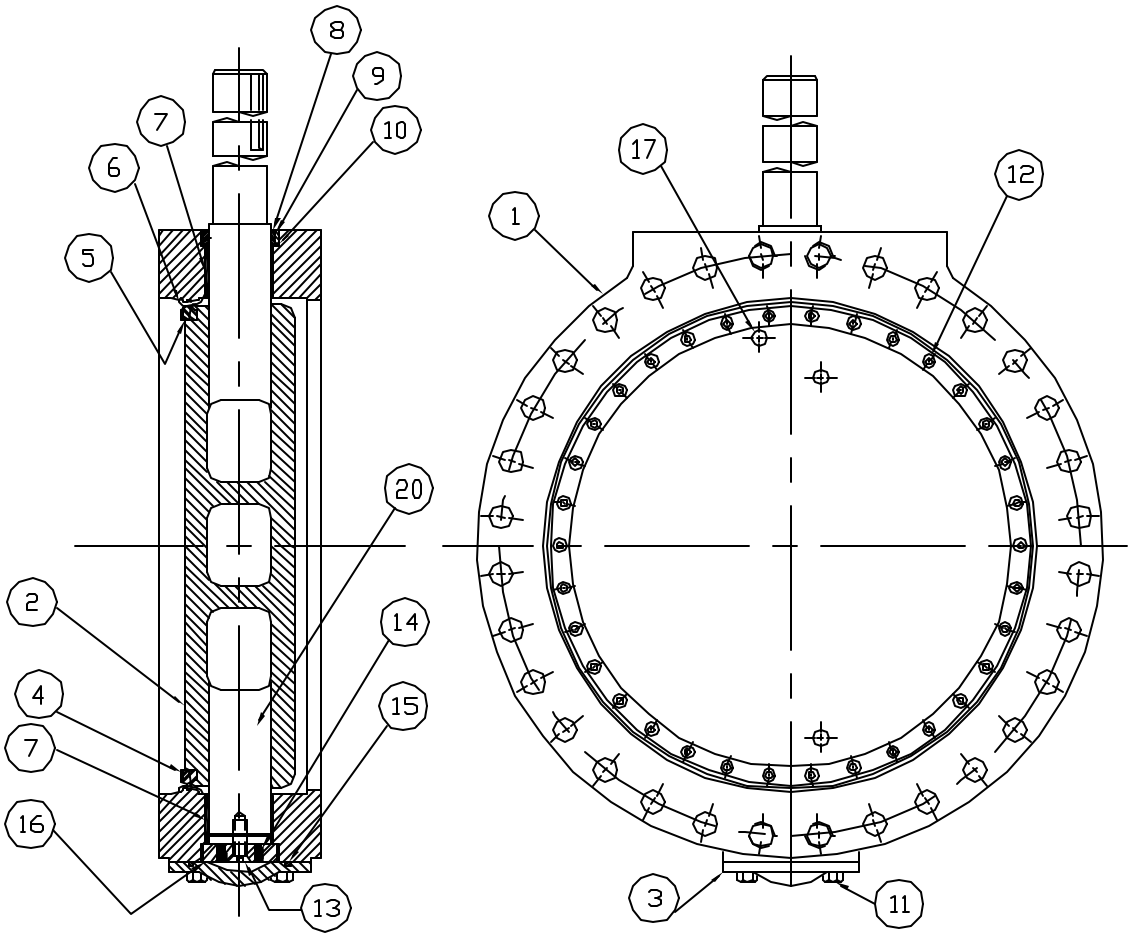
VALVE SIZE	P	Q	R	S	AA	AB	WEIGHT
4"	8	5/8	9	15/16	4	5/8-11	60
6"	8	3/4	11	1	4	3/4-10	85
8"	8	3/4	13 1/2	1 1/8	4	3/4-10	115

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-15-45H

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

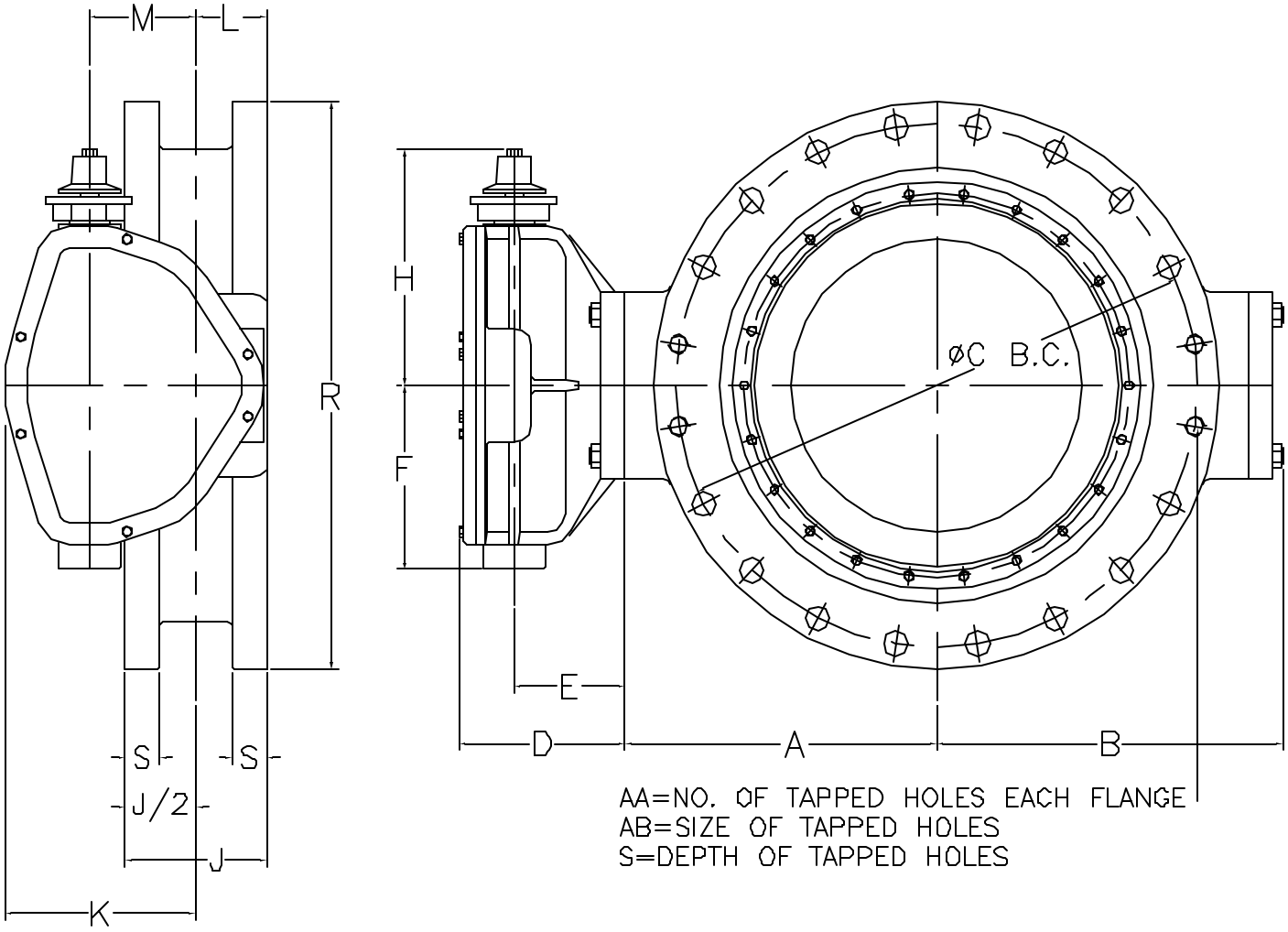


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, ASTM A-126, CL. B W/304 STAINLESS STEEL SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
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 PL	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

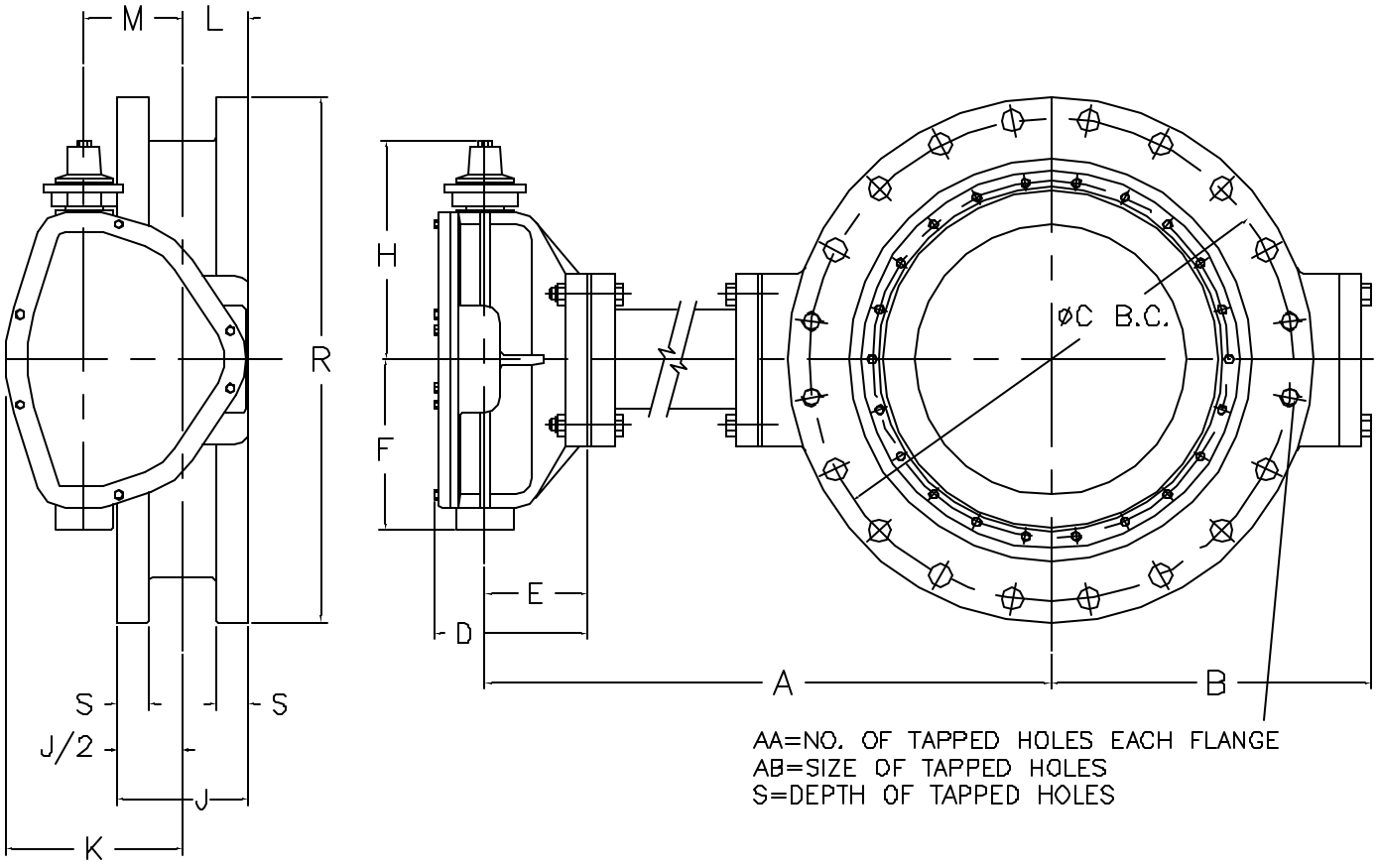
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
30"	20.625	21.250	36	12	28	1.250	38.750	2.125	4	1.250-7	1790
36"	24.250	25.187	42.750	12	32	1.500	46	2.375	4	1.500-6	2515
42"	28.250	24.875	49.500	12	36	1.500	53	2.625	4	1.500-6	4405

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

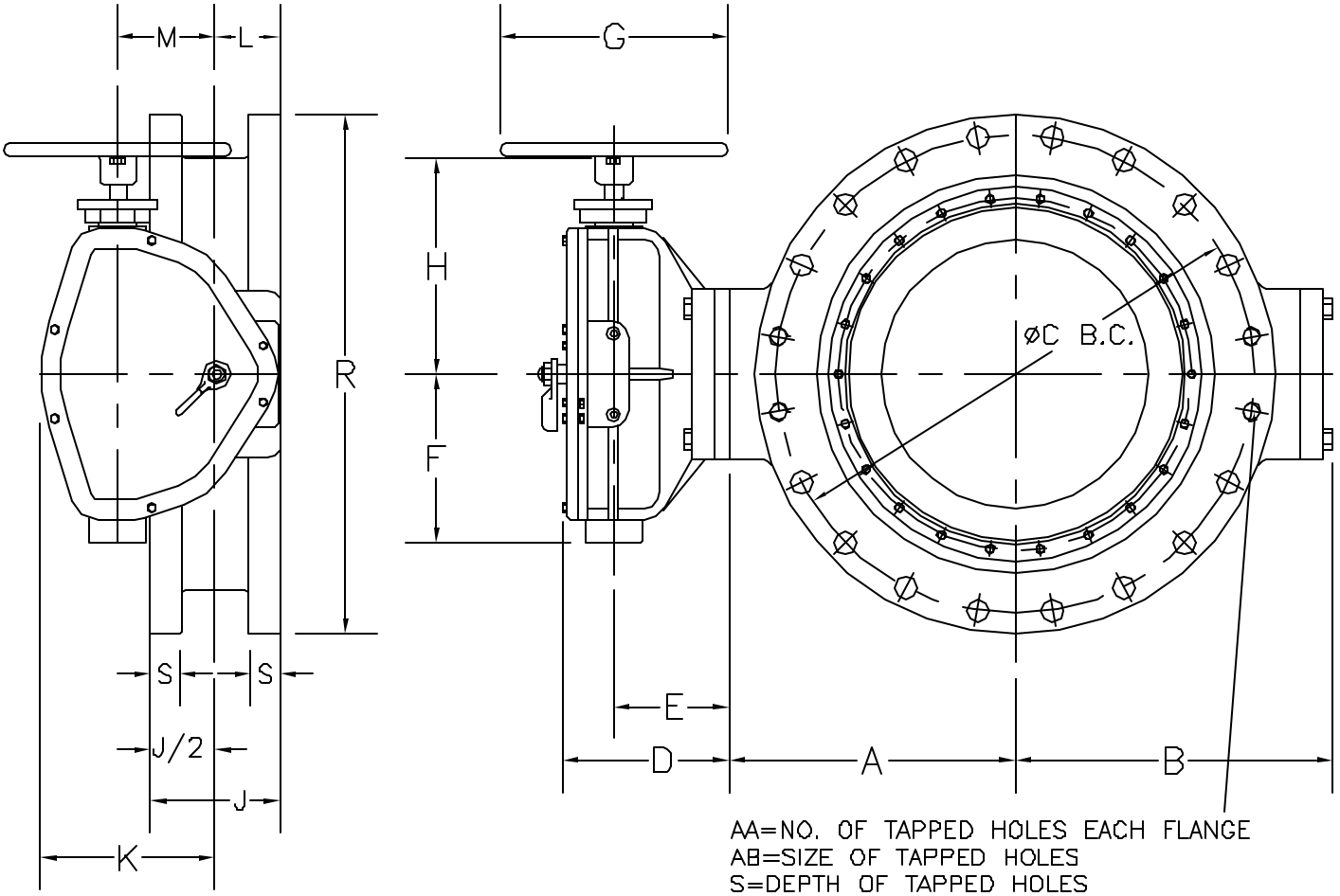
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
30"	NOTE AA	21 1/4	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	NOTE AA	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	NOTE AA	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 250(30"-42")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

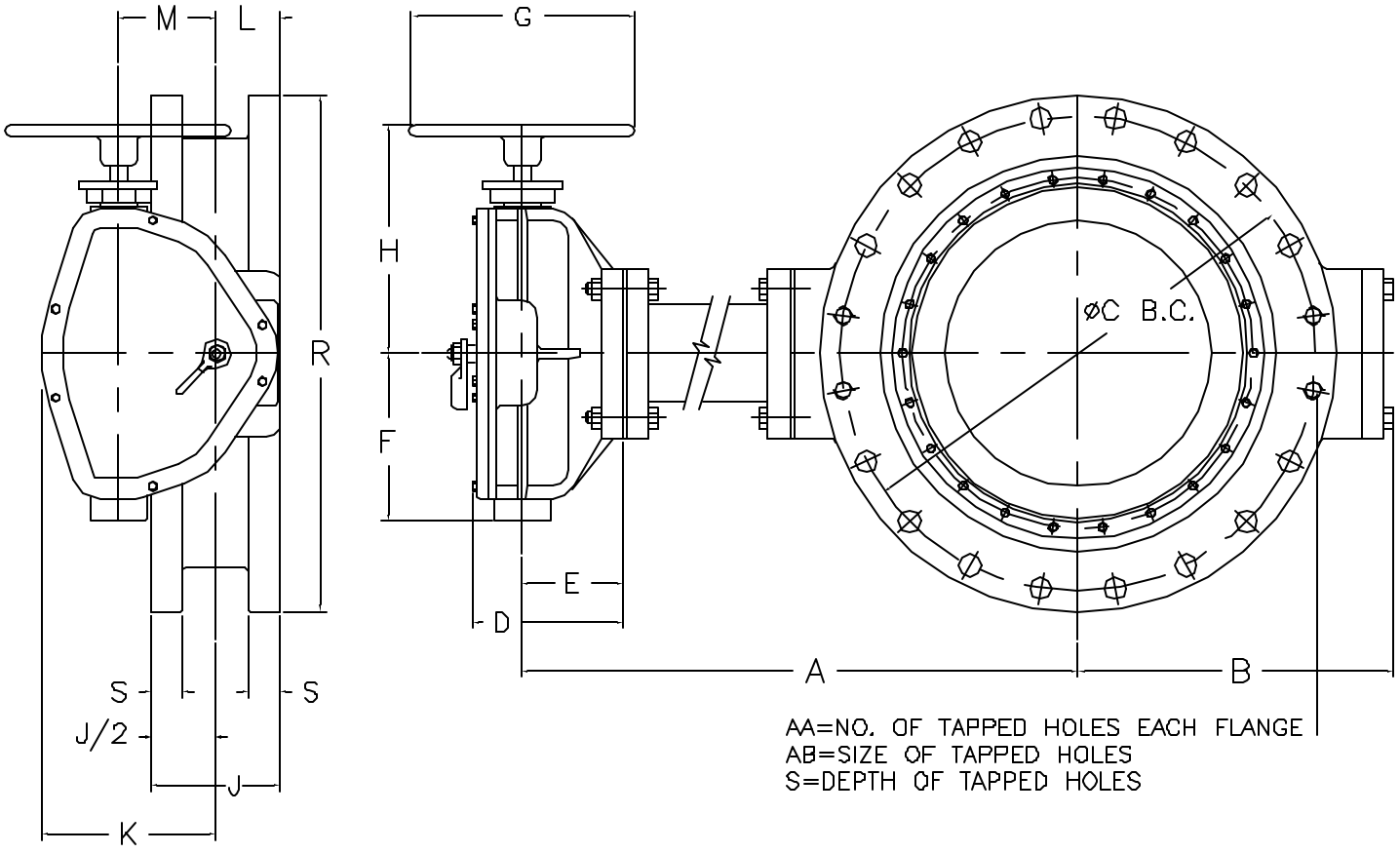
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	AB
30"	20 5/8	21 5/8	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	24 1/4	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	28 1/4	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

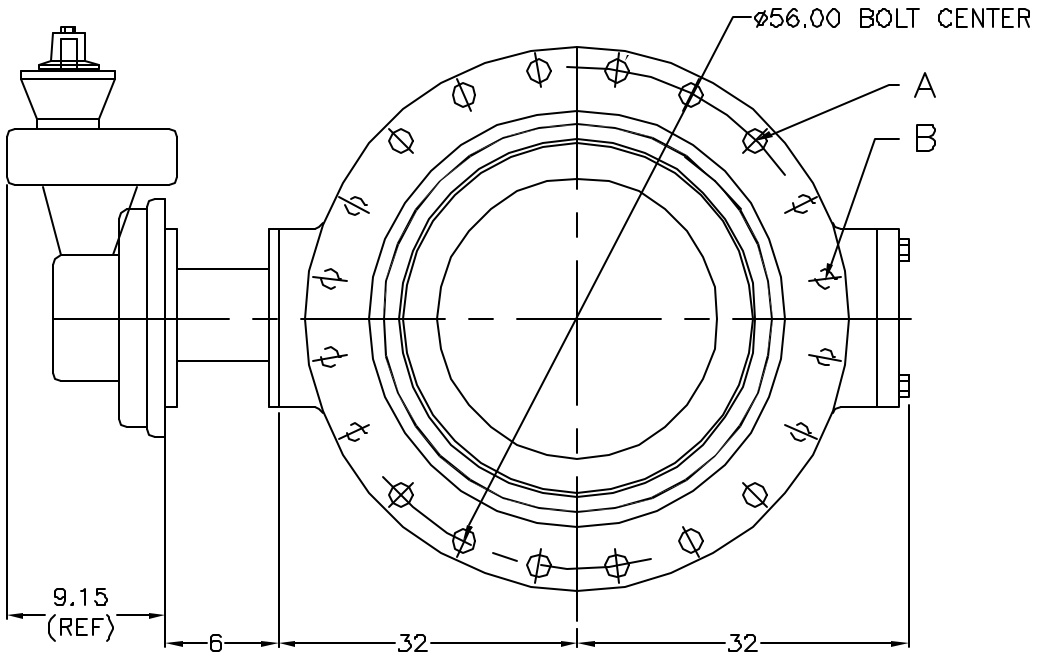
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
30"	NOTE AA	21 1/4	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	NOTE AA	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	NOTE AA	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

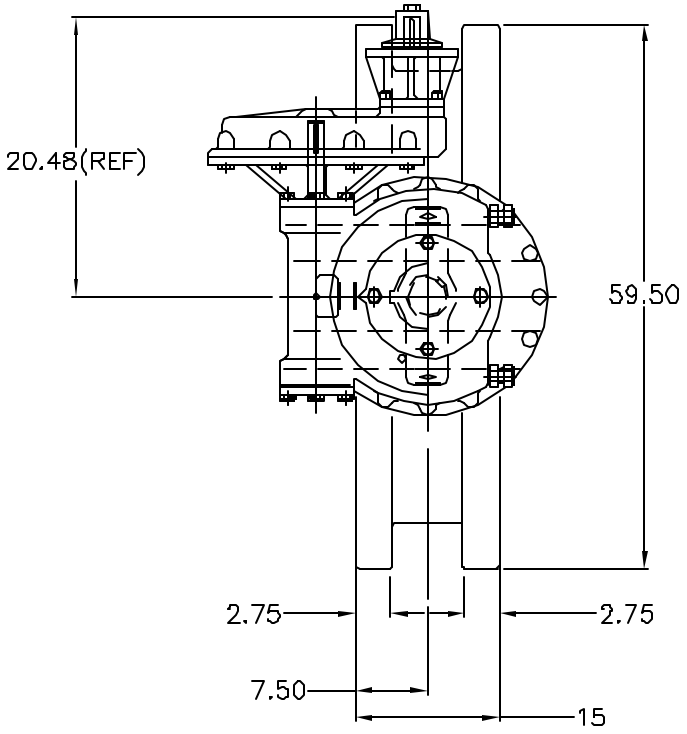
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 250(30"-42")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-15-14E

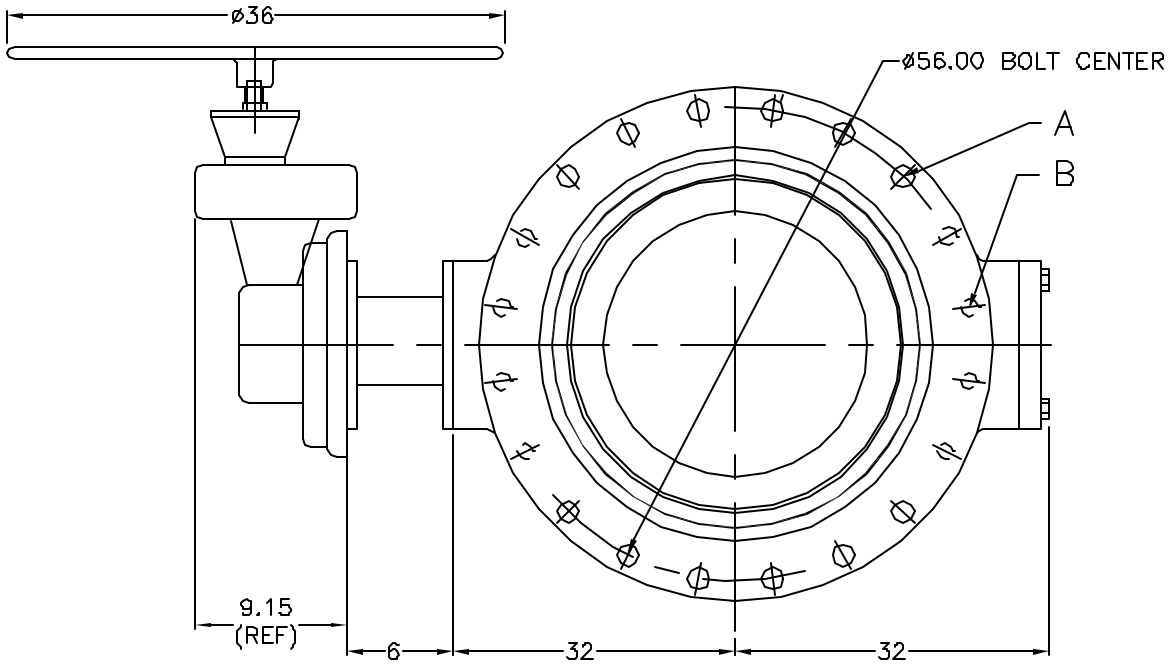
30" THRU 42" STYLE 1450 CLASS 150 BUTTERFLY VALVE WITH EXTENDED BONNET HANDWHEEL OPERATOR FLANGED ENDS

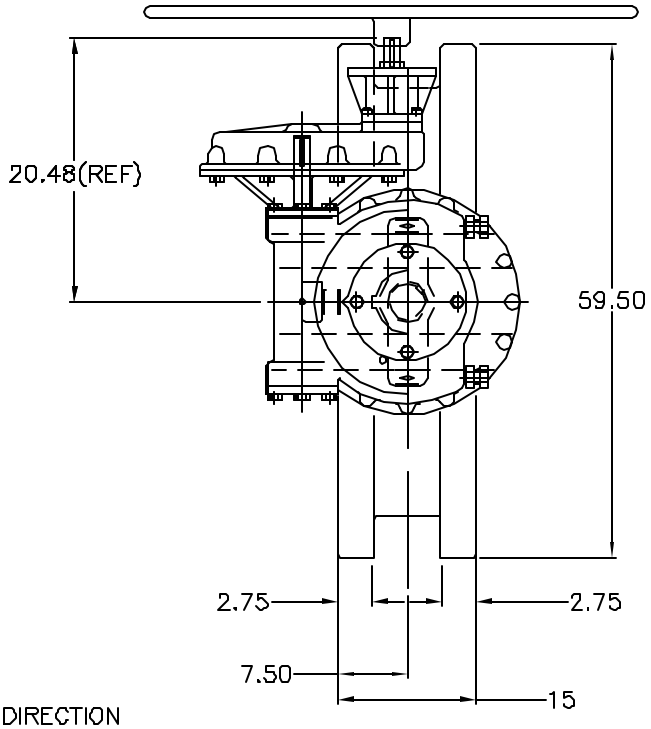




NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: NUMBER OF TURNS TO CLOSE = 180
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH 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: WEIGHT = 6300lbs.

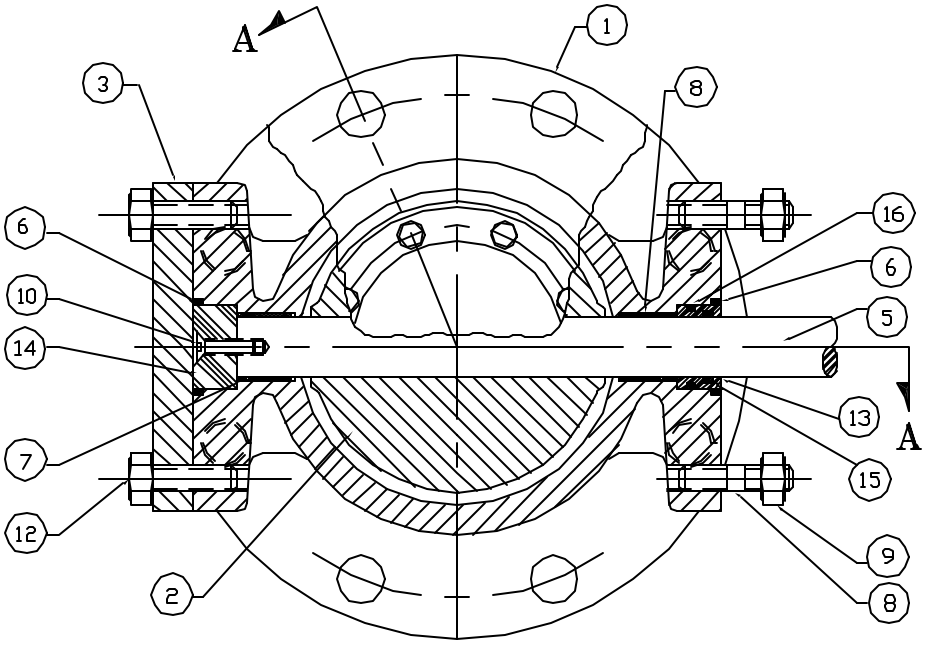
M&H VALVE COMPANY A DIVISION OF McWane, Inc. P.O. BOX 2088 ANNISTON,ALABAMA 36202	DWN: TRIJ DATE: 6/2/03 DWG. NO. BFE-15-RA	48" STYLE 1450 CLASS 150 BUTTERFLY VALVE (ROTORK IW75 GEAR BOX) HANDWHEEL OPERATOR FLANGED ENDS

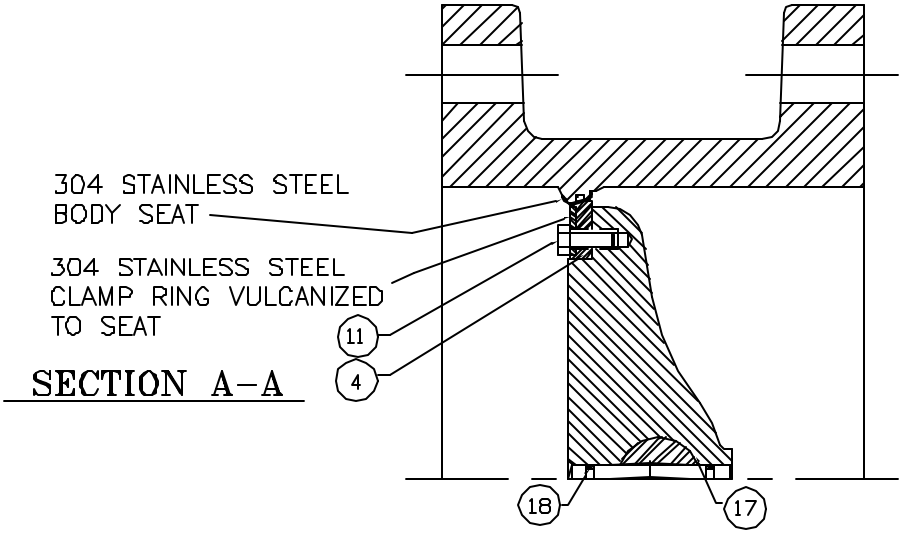




NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: NUMBER OF TURNS TO CLOSE = 180
NOTE 5: OPERATED BY 36" HANDWHEEL
NOTE 6: A = (44) 1.50" BOLTS PER FLANGE
NOTE 7: B = (8) 1.50-6 UNC TAPPED HOLES EACH FLANGED, THREADED 2.75 MIN.
NOTE 8: WEIGHT = 6300lbs.

M&H VALVE COMPANY A DIVISION OF McWane, Inc. P.O. BOX 2088 ANNISTON,ALABAMA 36202	DWN: TRIJ DATE: 6/2/03 DWG. NO. BFE-15-RB	48" STYLE 1450 CLASS 150 BUTTERFLY VALVE (ROTORK IW75 GEAR BOX) HANDWHEEL OPERATOR FLANGED ENDS





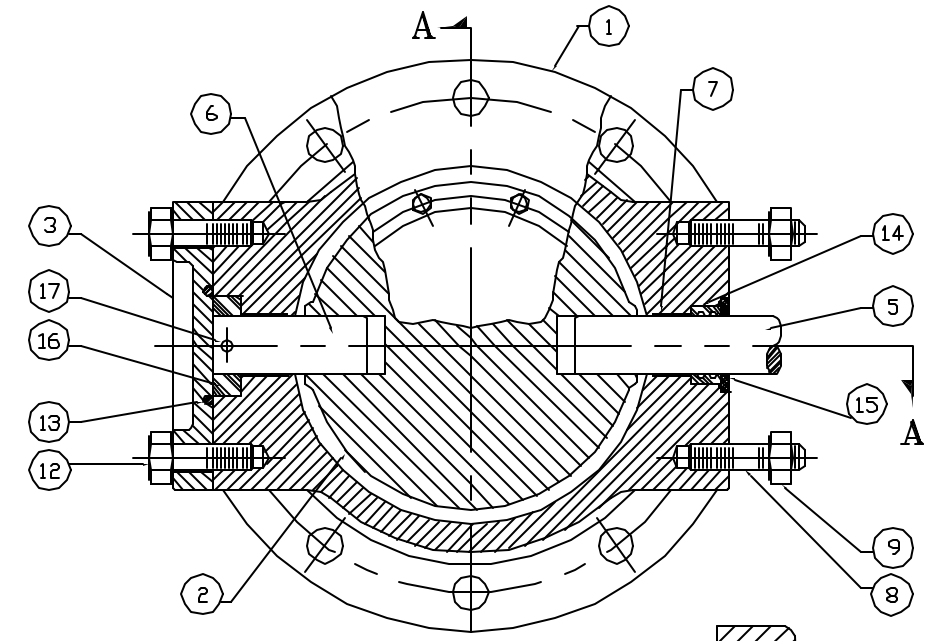
SECTION A–A

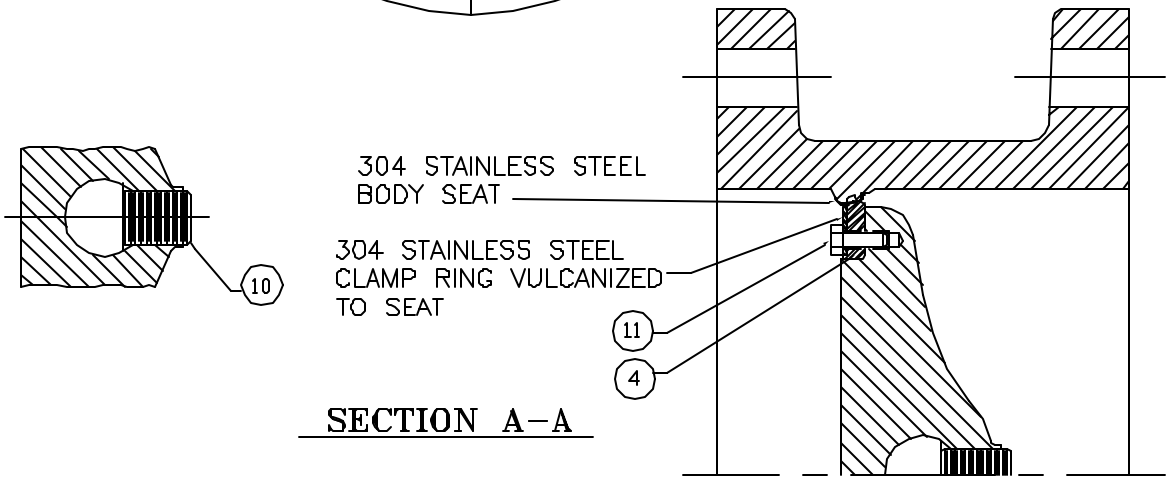
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A–536 GR. 70–50–05
2	VANE	DUCTILE IRON ASTM A–536 GR. 70–50–05
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A–564
6	O–RING, BODY	BUNA "N"
7	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE–25–45A

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





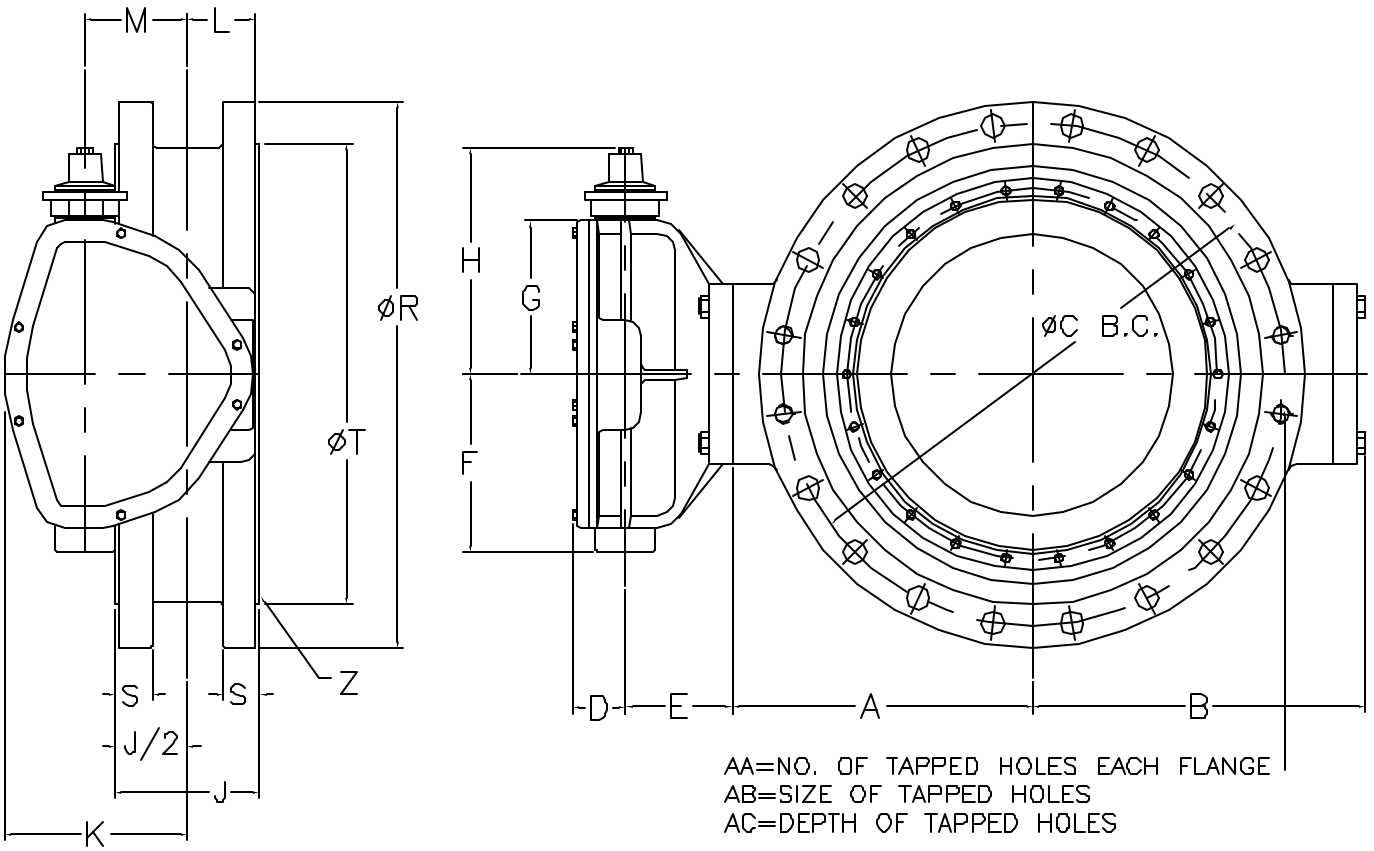
SECTION A–A

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, 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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE–25–45B

14" THRU 24" STYLE 4500 CLASS 250 BUTTERFLY VALVE SUB–ASSEMBLY / MATERIAL LIST 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"	85	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	8 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	8	72

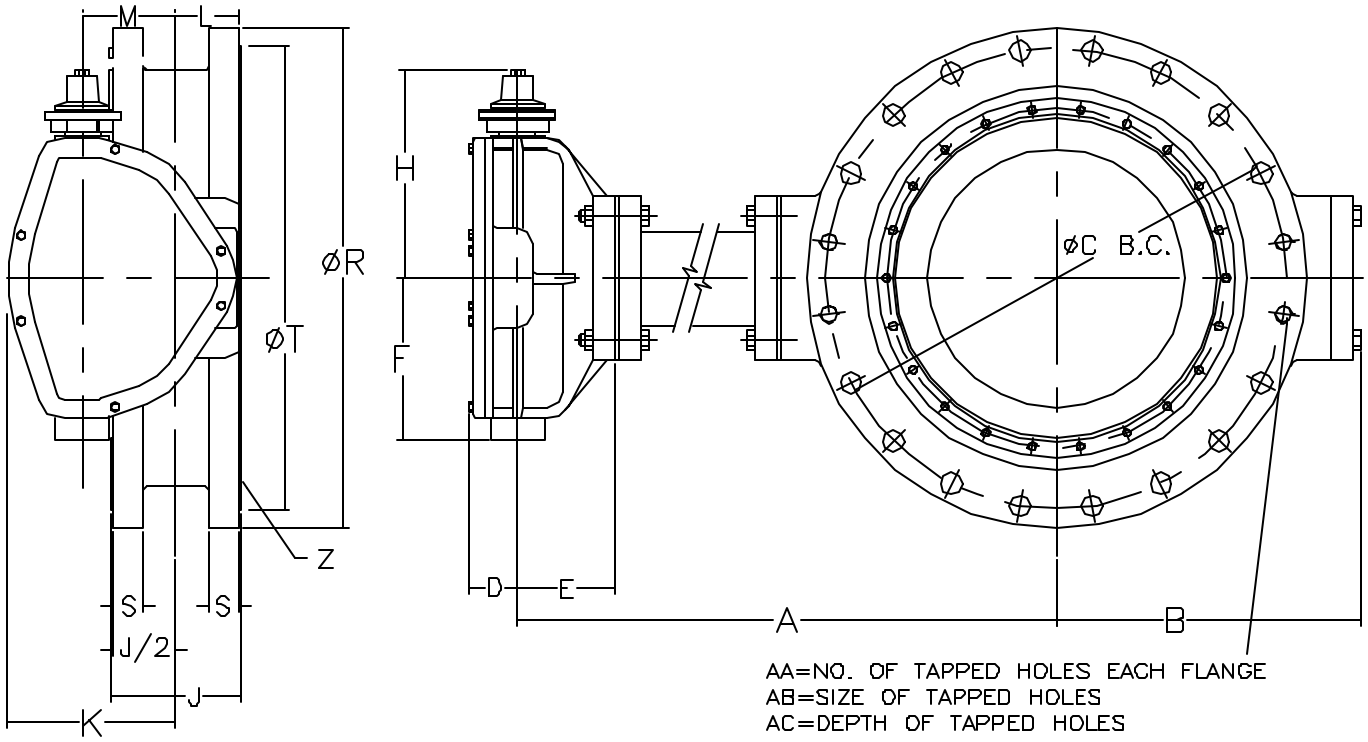
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	AC
3"	4	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1 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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-25-45C

3" THRU 24" STYLE 4500 CLASS 250 BUTTERFLY VALVE BURIED 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

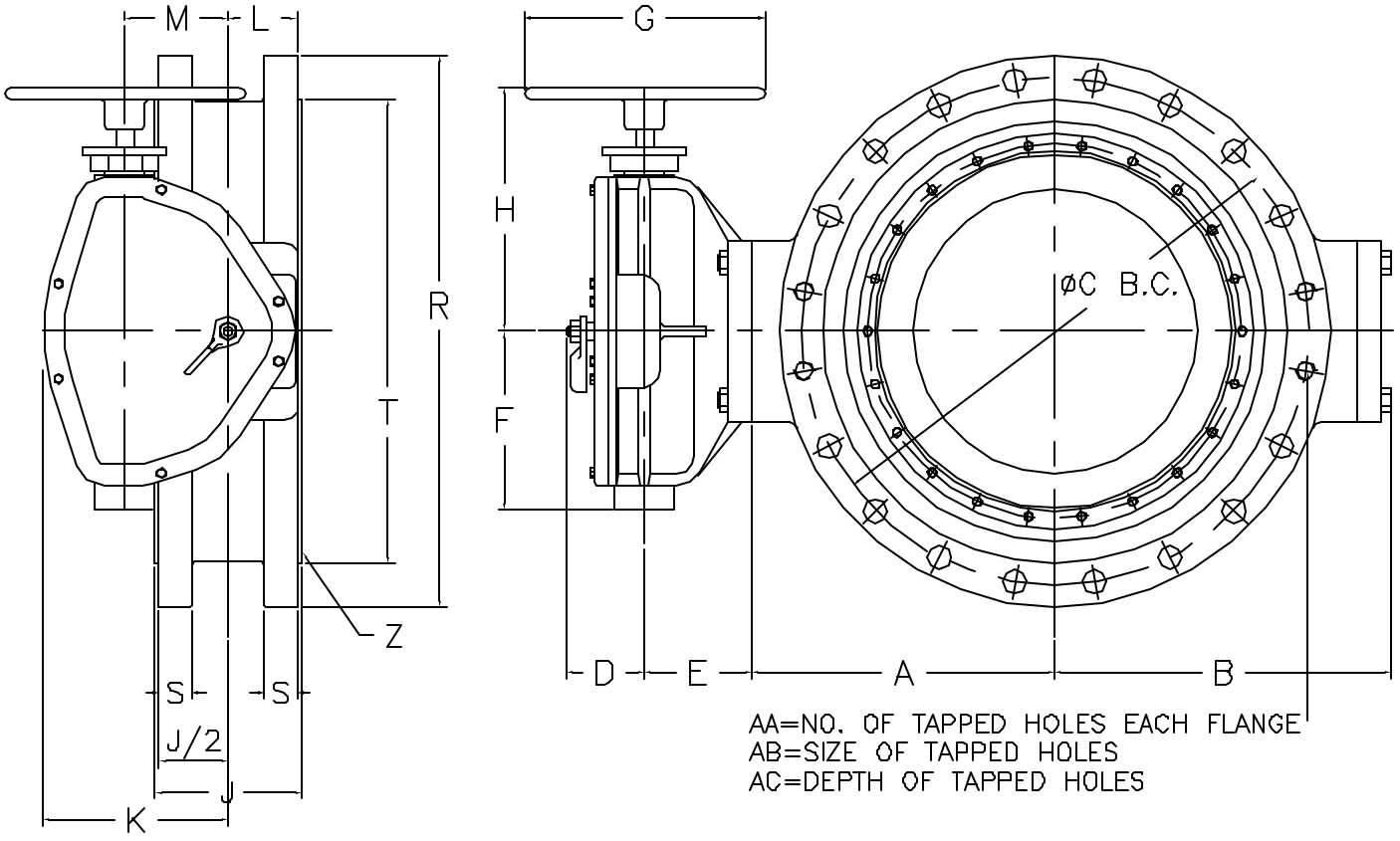
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	*WEIGHT
3"	NOTE AA	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	NOTE AA	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	NOTE AA	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	NOTE AA	7 9/16	13	6 7/8	12	7/8	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	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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(3"-12"), 150(14"-16"), 180(18"-24")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-25-45D

3" THRU 24" STYLE 4500
CLASS 250 BUTTERFLY VALVE
EXTENDED BONNET
BURIED 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"	85	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

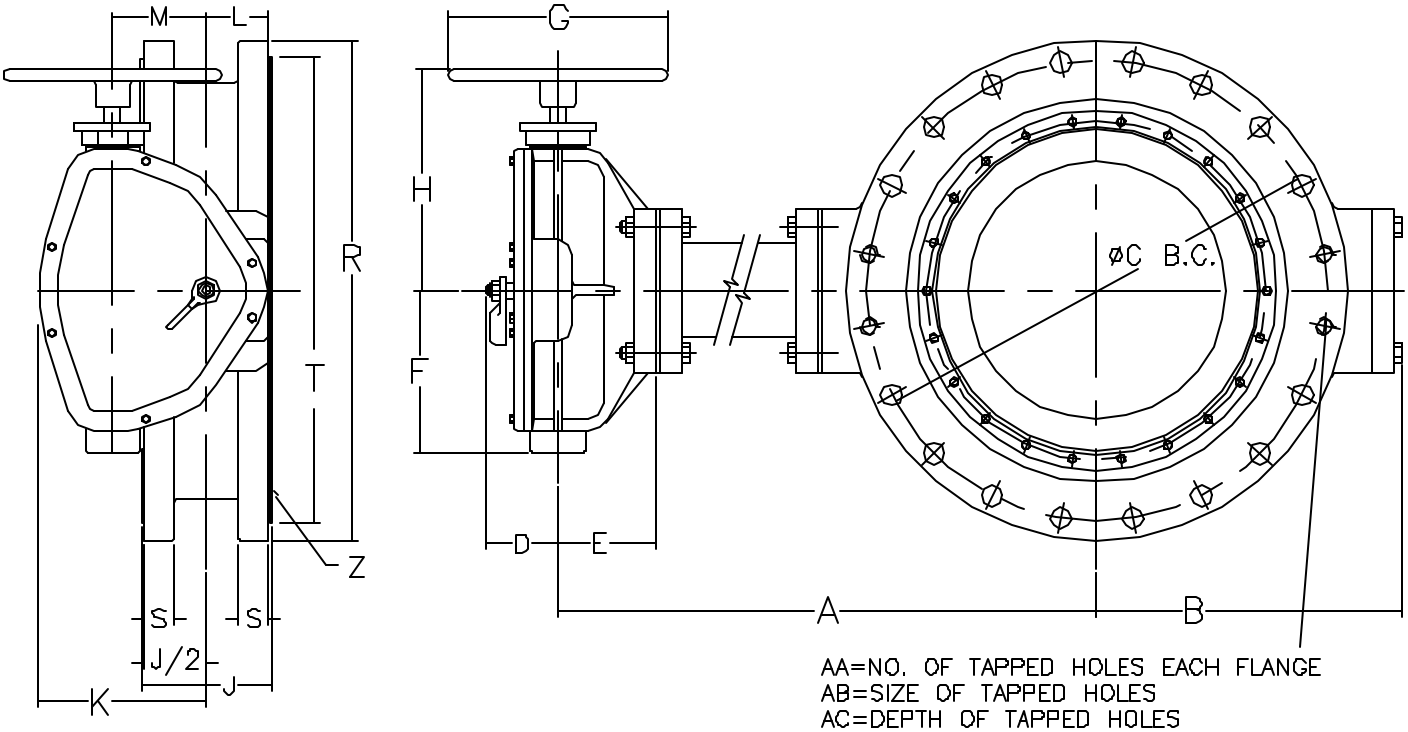
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	WEIGHT
3"	4	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

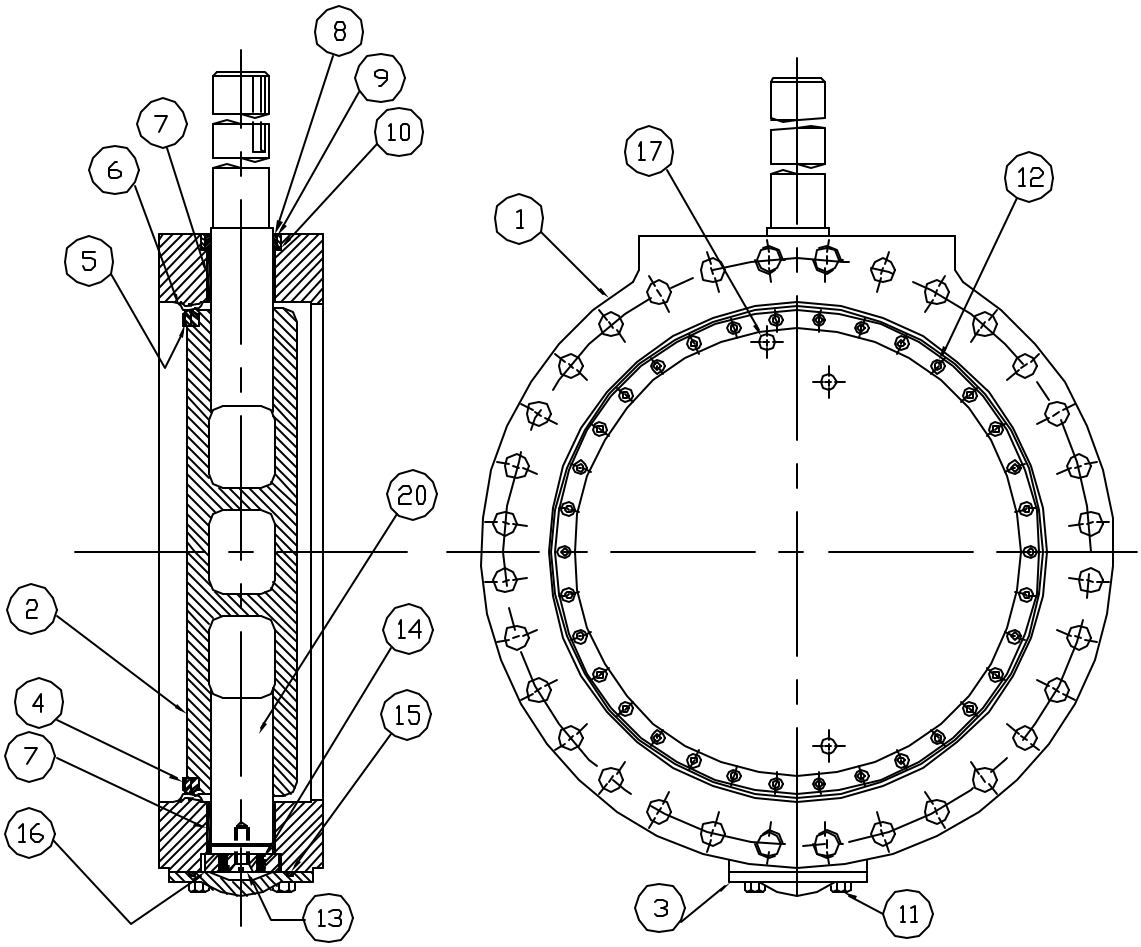
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	*WEIGHT
3"	NOTE AA	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4–10	1 3/16	85
4"	NOTE AA	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4–10	1 3/16	85
6"	NOTE AA	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4–10	1 3/8	110
8"	NOTE AA	7 9/16	13	6 7/8	12	7/8	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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(3"-12"), 150(14"-16"), 180(18"-24")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-25-45F

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

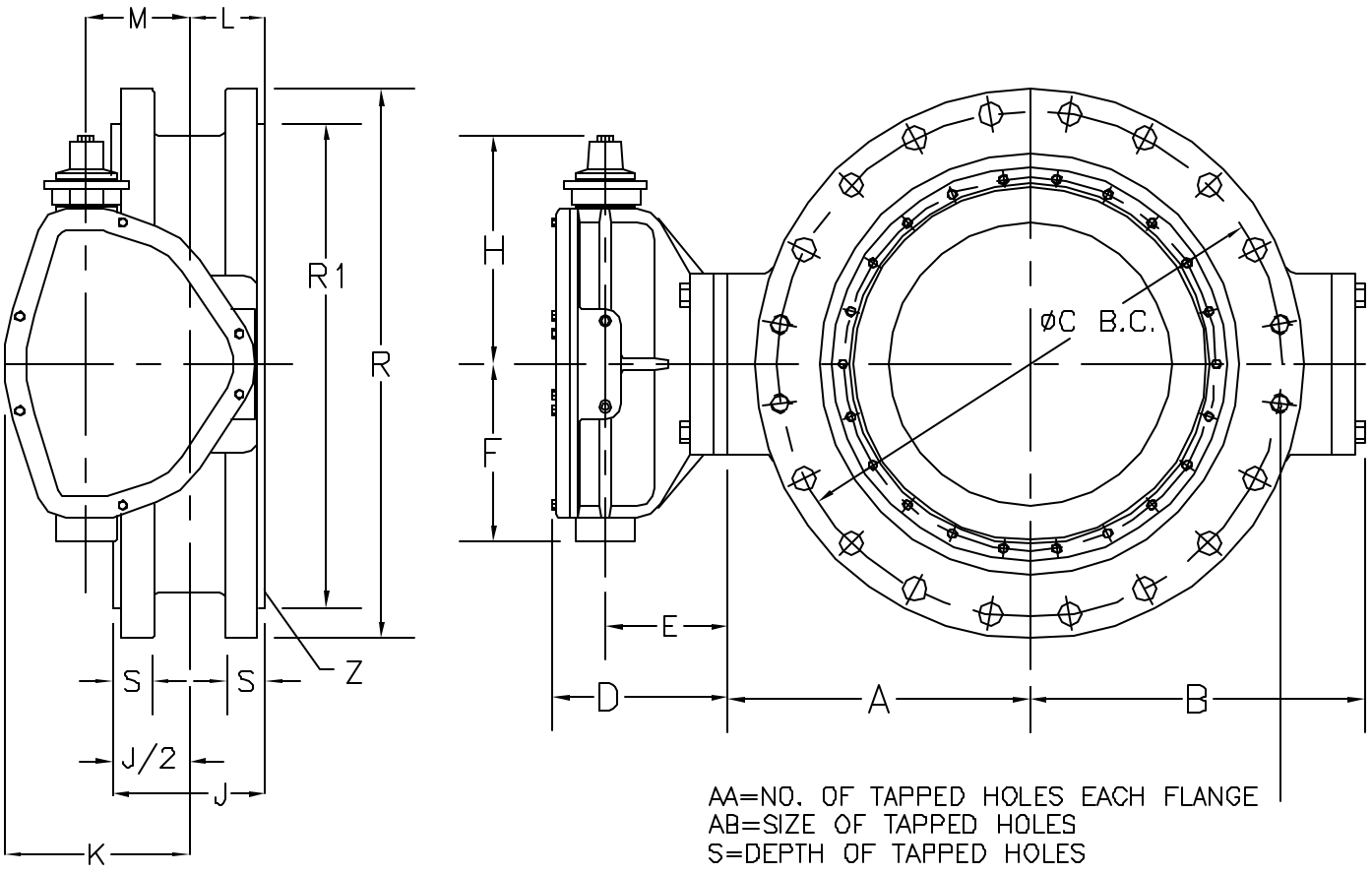


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536 GR. 70-50-05 W/304 STN.STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
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	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-25-14A

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

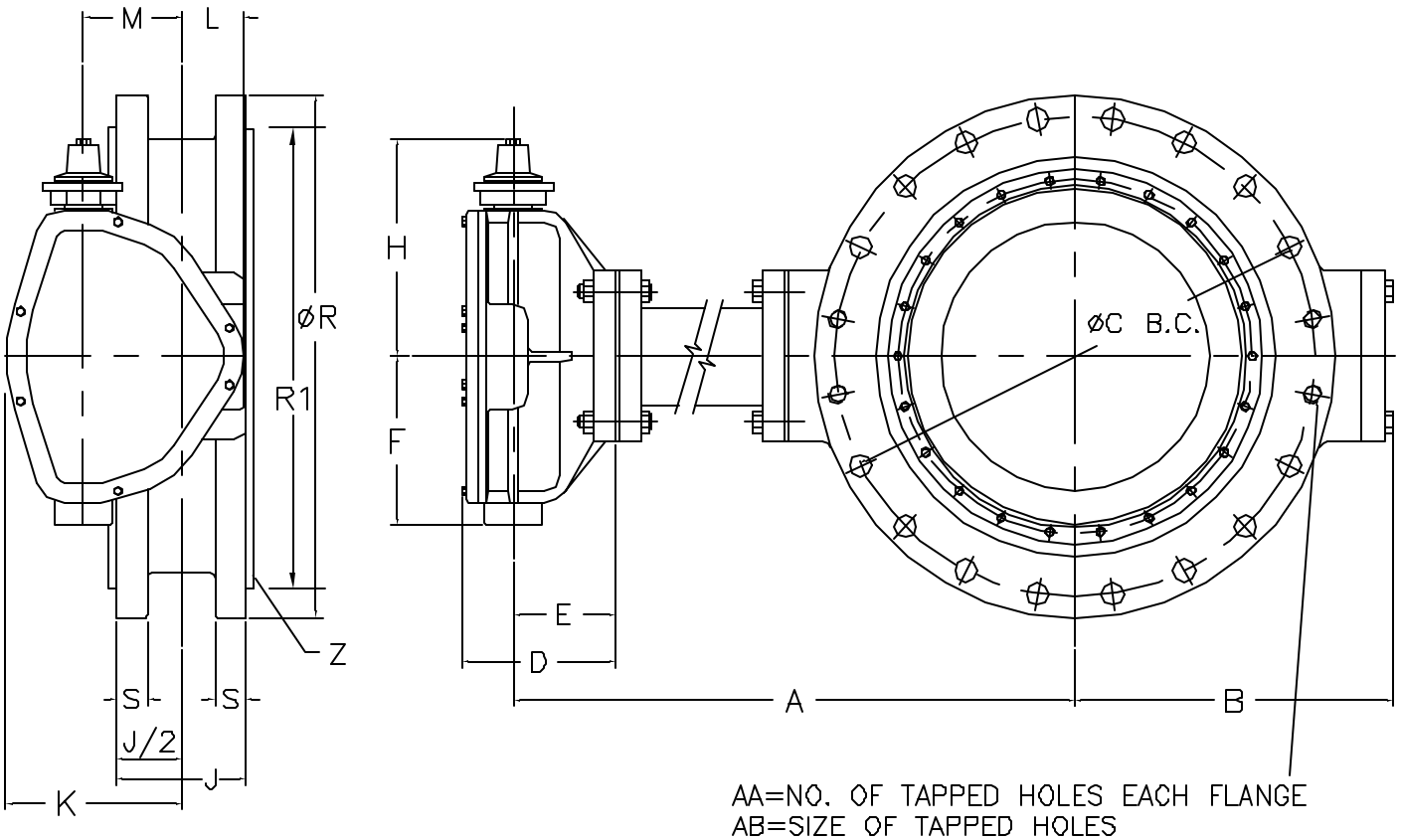
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	WEIGHT
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

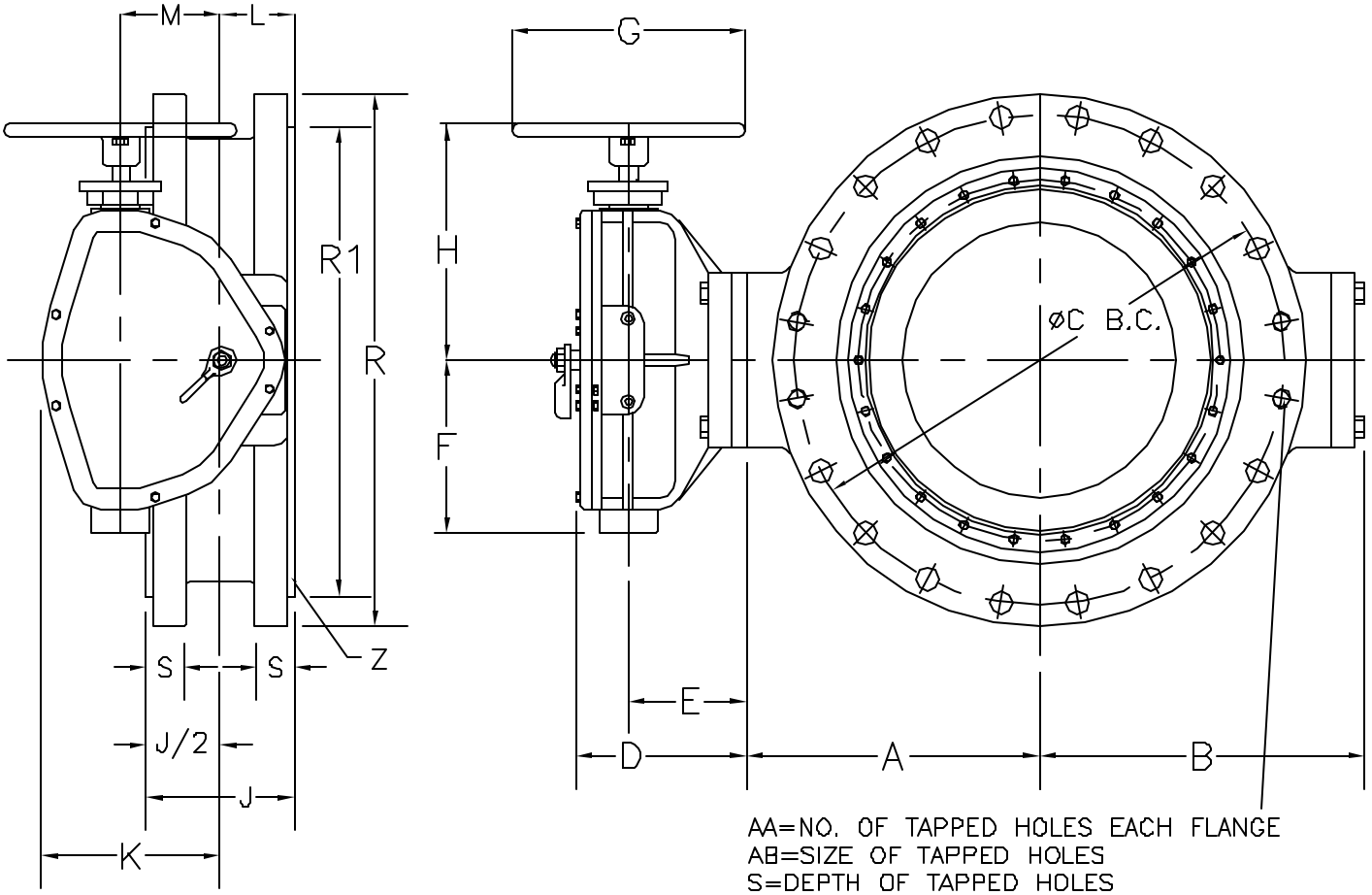
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	*WEIGHT
30"	NOTE AA	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	NOTE AA	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	NOTE AA	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 250(30"-42")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

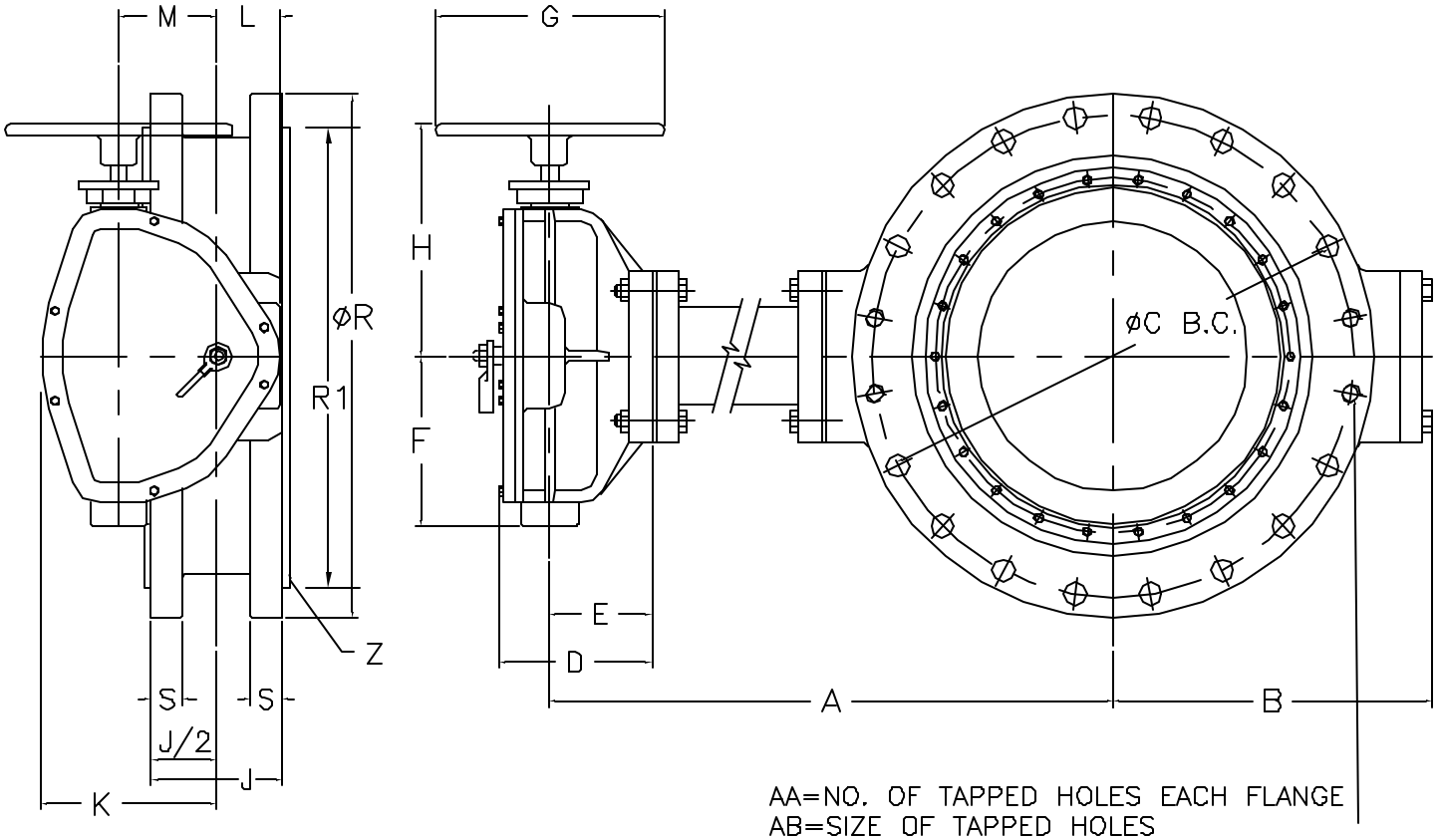
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	WEIGHT
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

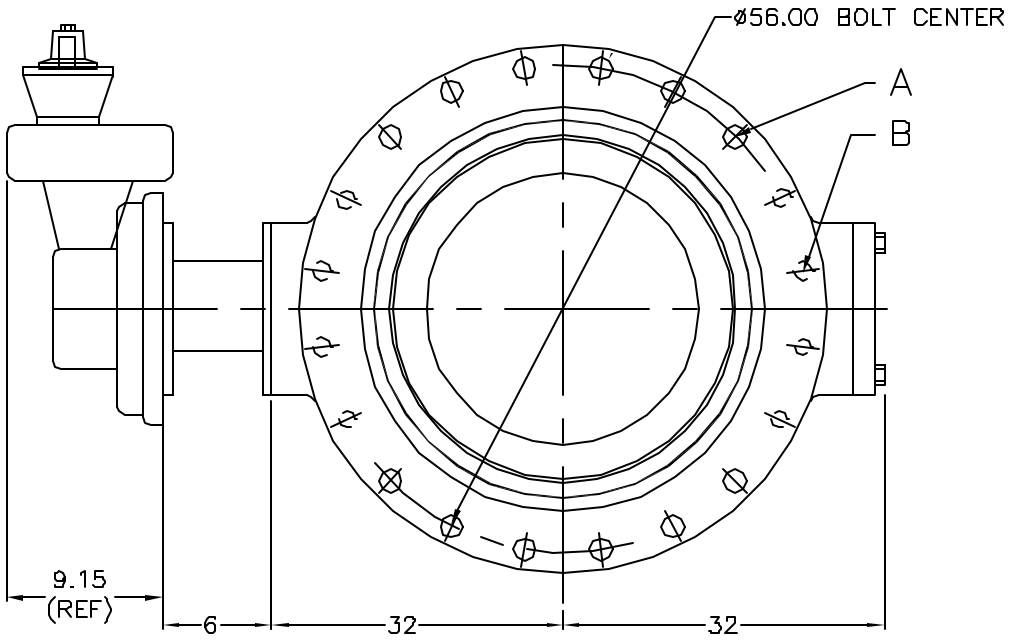
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	*WEIGHT
30"	NOTE AA	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4-5	1850
36"	NOTE AA	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2-4 1/2	2600
42"	NOTE AA	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2-4 1/2	4500

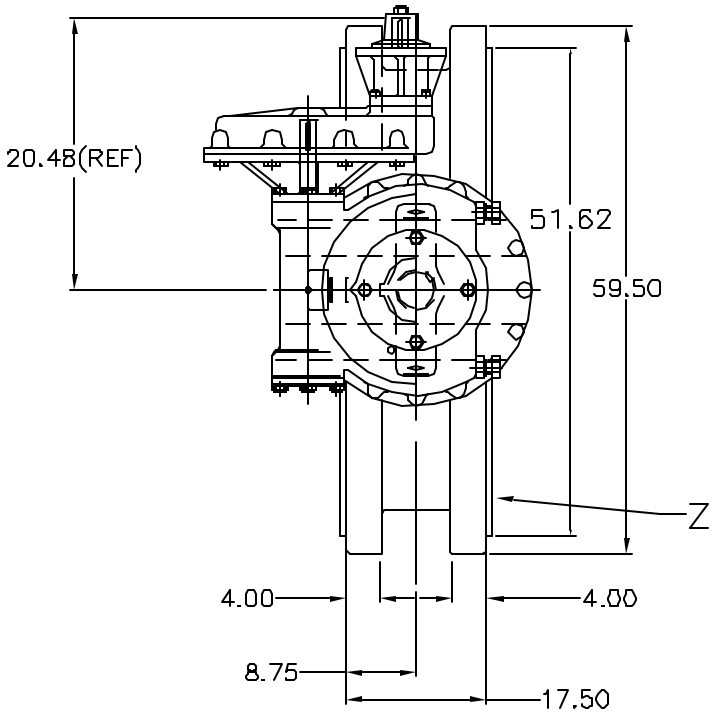
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
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: WEIGHT PER EACH FOOT OF EXTENDED BONNET 250(30"-42")

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-25-14E

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

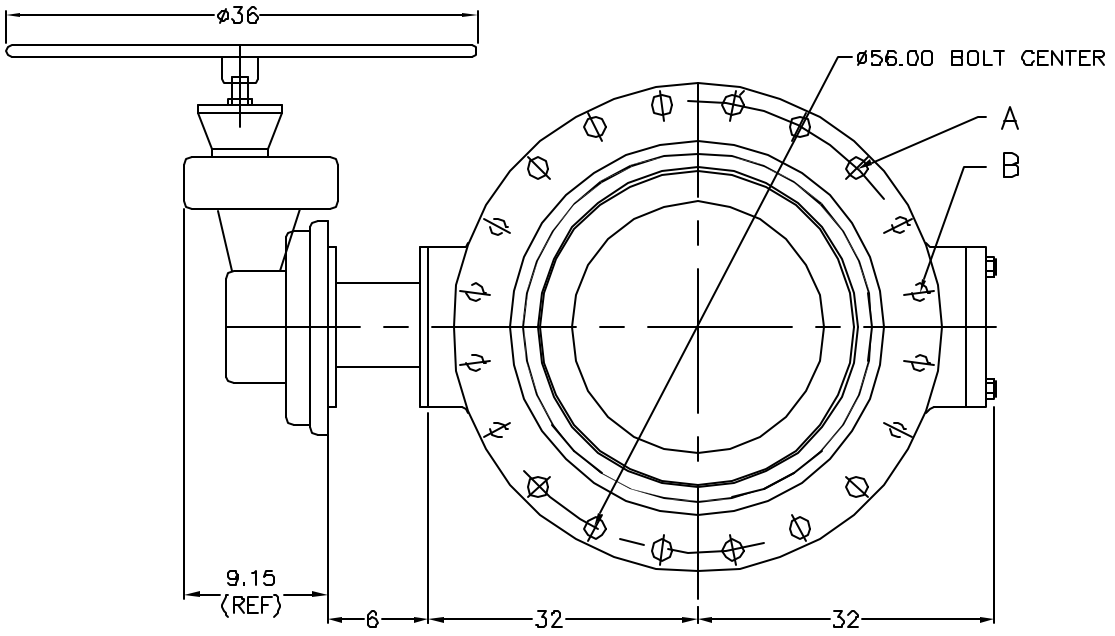


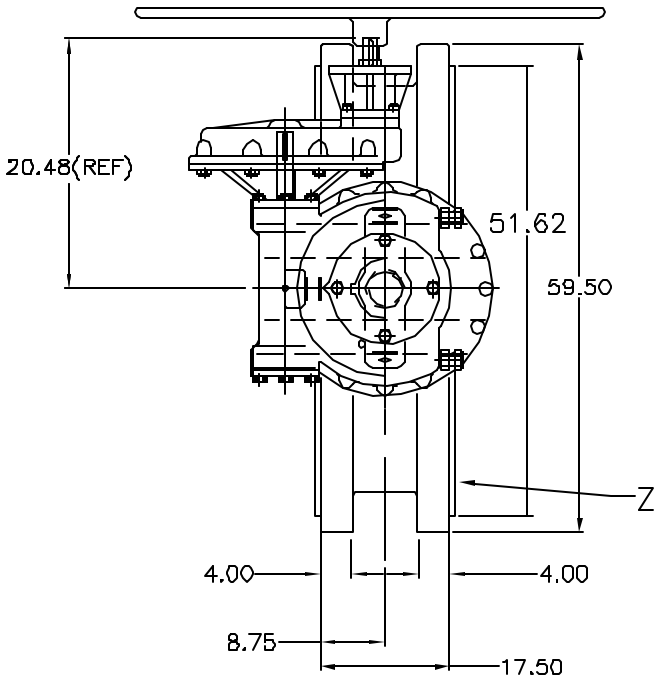


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: NUMBER OF TURNS TO CLOSE = 180
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH 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: WEIGHT = 6300lbs.

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	48" STYLE 1450 CLASS 250 BUTTERFLY VALVE (ROTORK IW75 GEAR BOX) HANDWHEEL OPERATOR FLANGED ENDS
DATE: 6/2/03	
DWG. NO. BFE-25-RA	

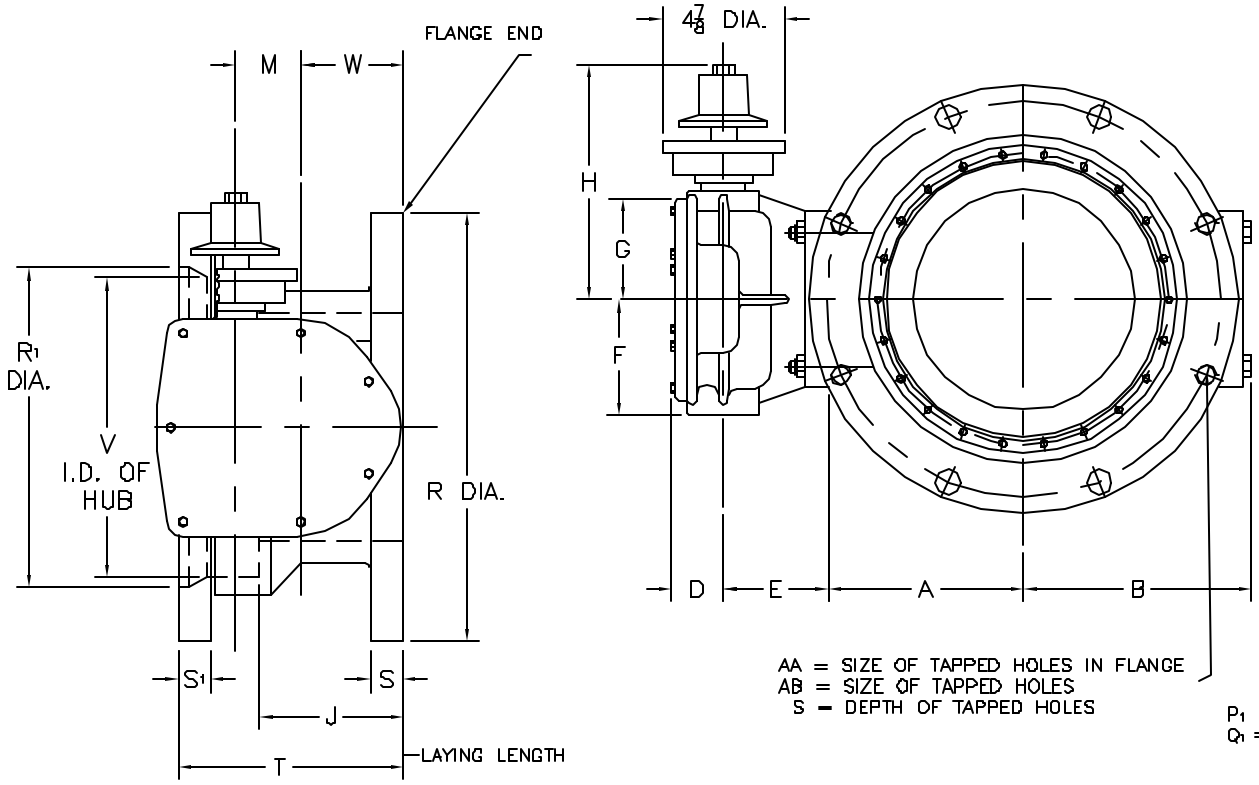


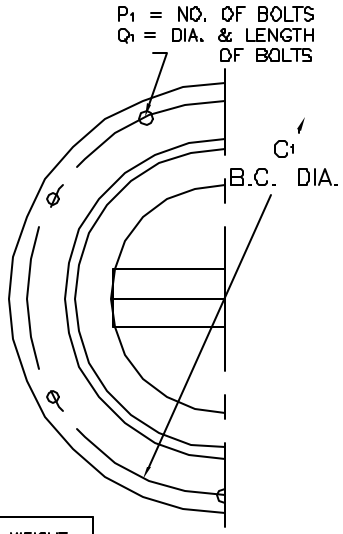


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: NUMBER OF TURNS TO CLOSE = 180
NOTE 5: OPERATED BY 36" HANDWHEEL
NOTE 6: A = (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: WEIGHT = 6300lbs.

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	48" STYLE 1450 CLASS 250 BUTTERFLY VALVE (ROTORK IW75 GEAR BOX) HANDWHEEL OPERATOR FLANGED ENDS
DATE: 6/2/03	
DWG. NO. BFE-25-RB	





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	18 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	C1	J	P	P1	Q	Q1
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	5 9/16	16	12	1	3/4 X 4 1/2

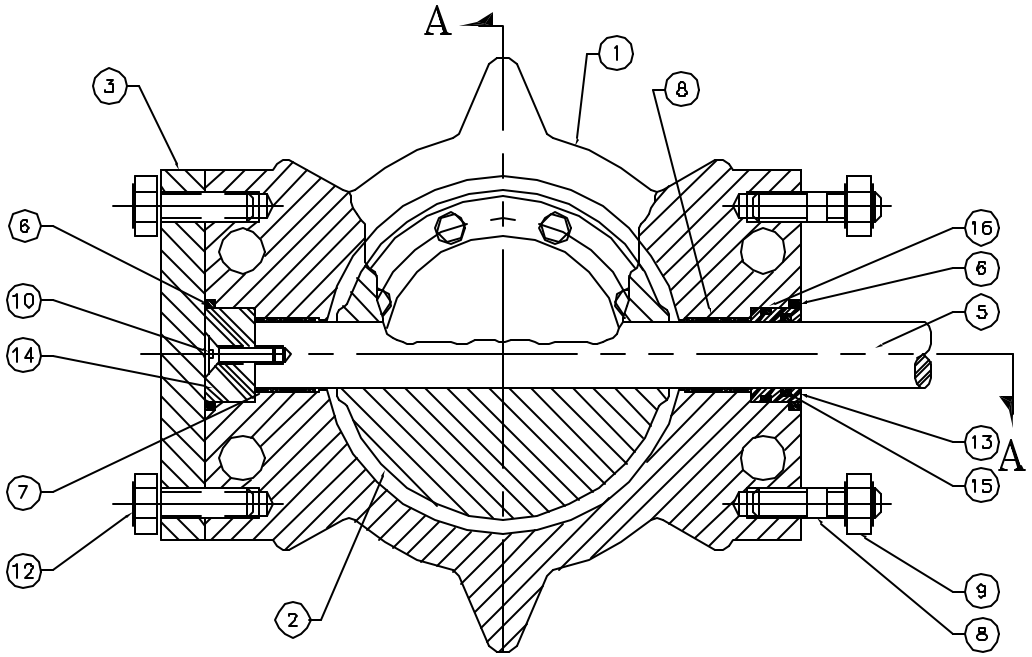
VALVE SIZE	R	R1	S	S1	T	V	W	AA	AB	WEIGHT
6"	11	11 1/8	1	1 1/16	9 11/16	$7.00^{+.07}_{-.03}$	2 1/2	4	3/4-10	90
8"	13 1/2	13 3/8	1 1/8	1 1/8	10 15/16	$9.15^{+.07}_{-.03}$	3	4	3/4-10	145
12"	19	17 15/16	1 1/4	1 1/4	12 7/16	$13.30^{+.07}_{-.03}$	4	–	–	295
16"	23 1/2	22 9/16	1 3/16	1 3/8	13 1/4	$17.54^{+.06}_{-.07}$	4	4	1-8	585

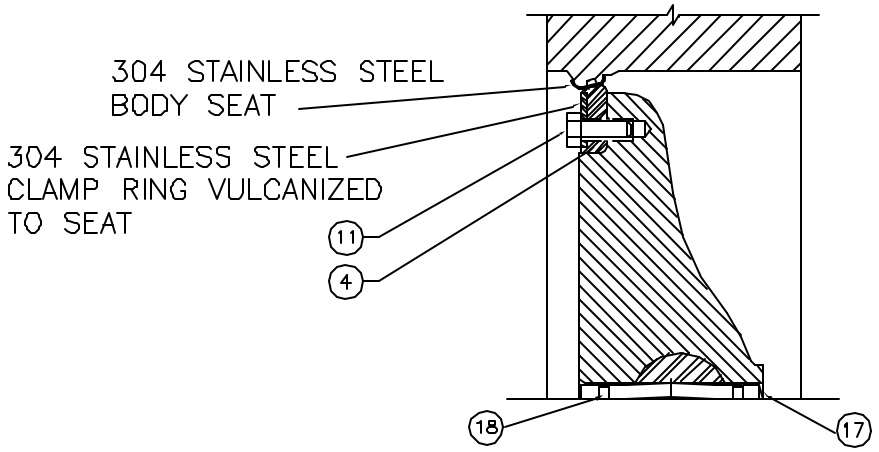
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-MJ-J1

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





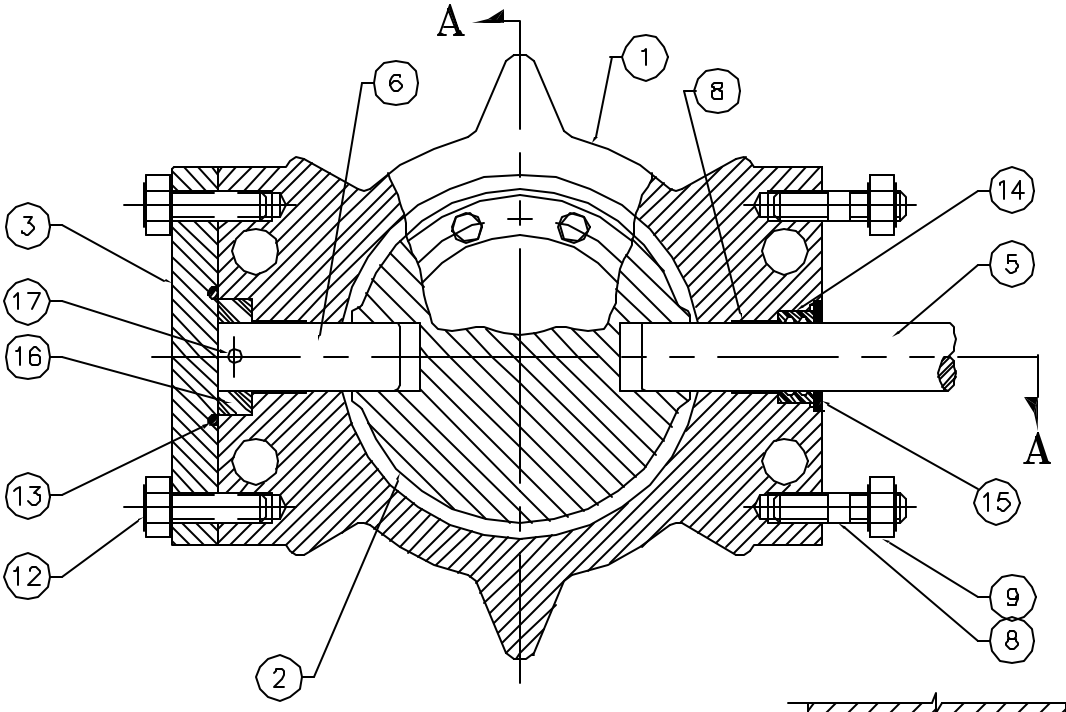
SECTION A–A

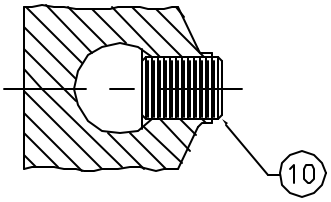
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A–126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A–48, CLASS 40
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	NATURAL RUBBER WITH INSERT
5	SHAFT	304 STAINLESS STEEL, ASTM A–276
6	O–RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY 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

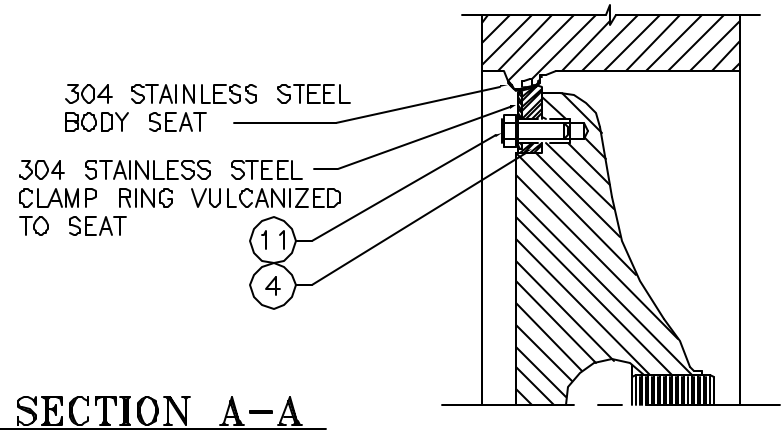
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BW–15–K1

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







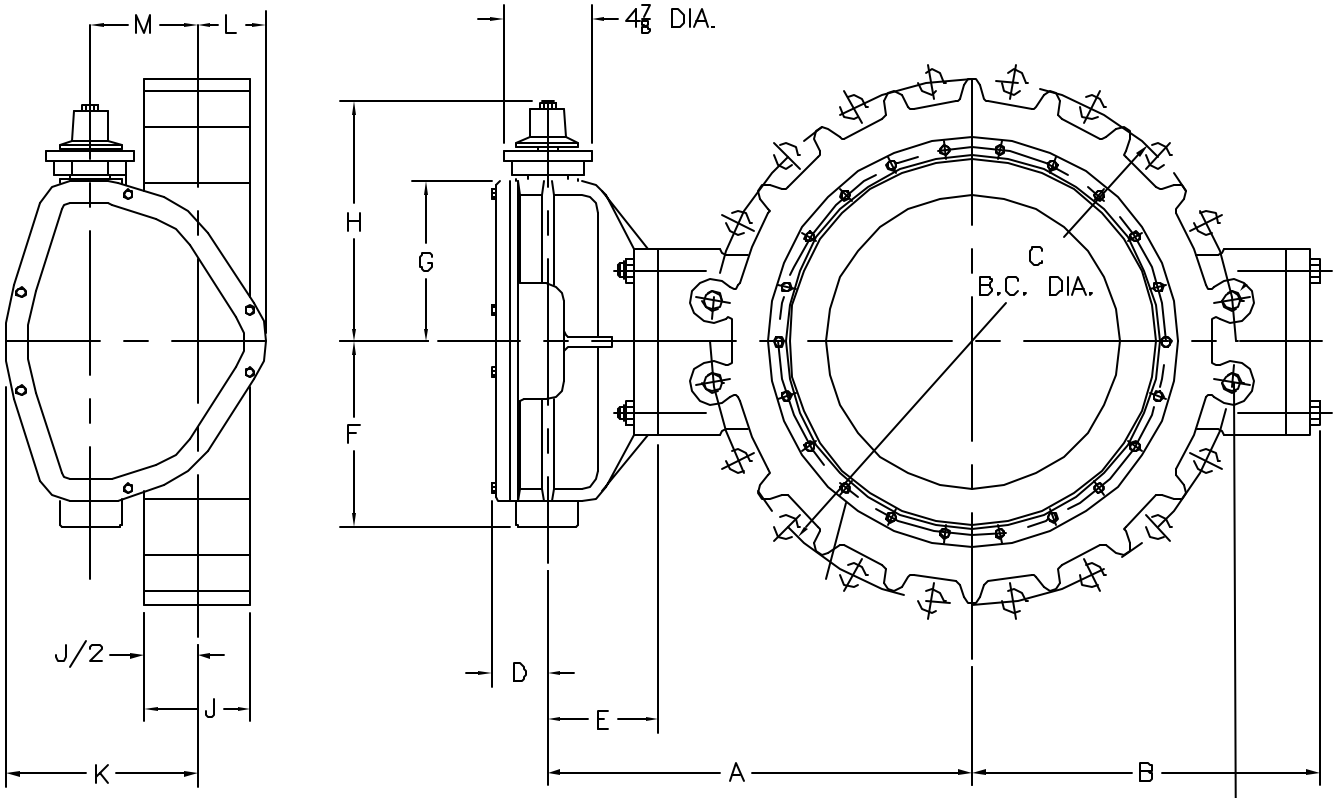
SECTION A–A

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	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 38
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BW–15–K2

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



FOR INSTALLATION BETWEEN
125# OR 150# ASA FLANGES

FOUR HOLES, "AB" DIAMETER
(18" & 20" ONLY, THESE FOUR
HOLES ARE TAPPED $1\frac{1}{8}$-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

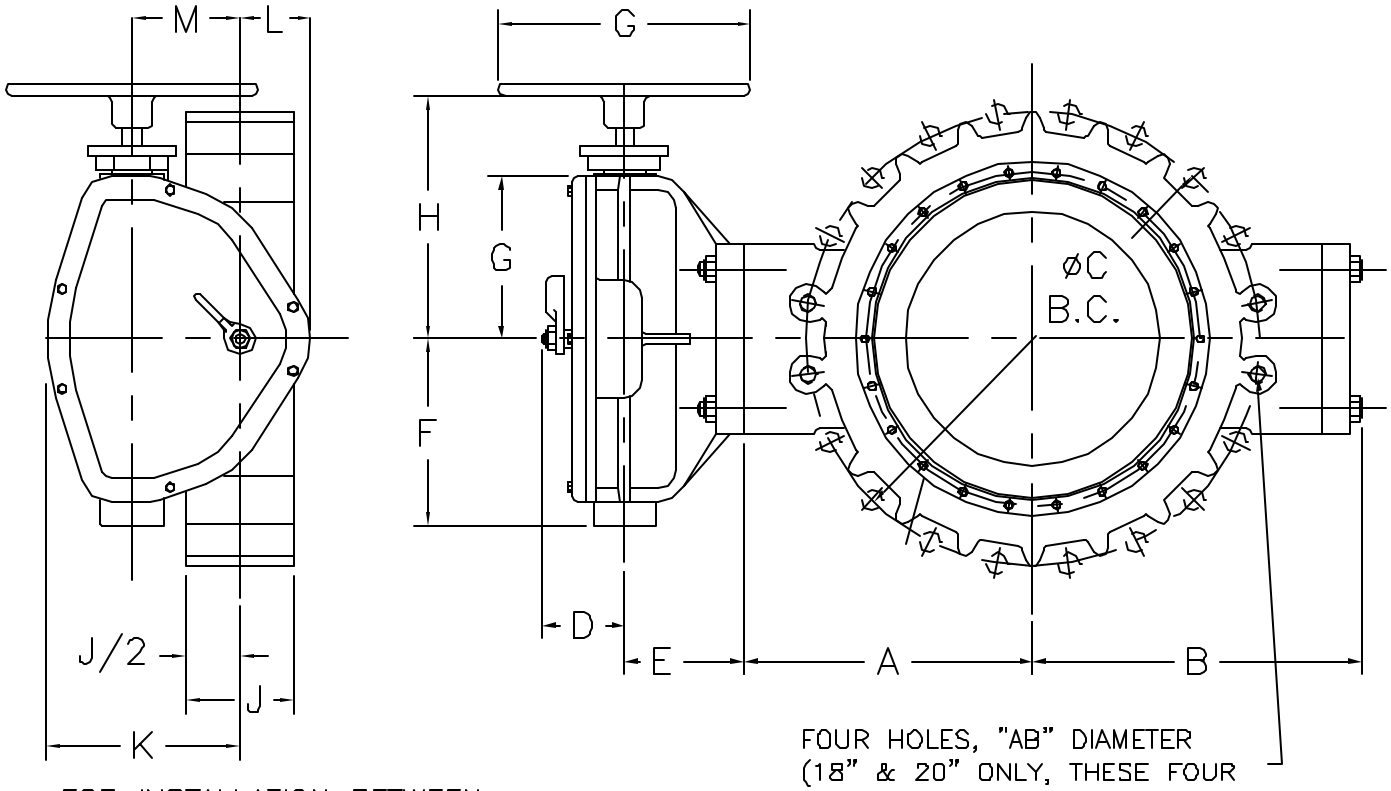
VALVE SIZE	A	B	C	J	P	Q	AB	AD	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	8	5/8	–	–	60
6"	5	6 1/2	9 1/2	2 1/2	8	3/4	–	–	70
8"	6	7 9/16	11 3/4	2 3/4	8	3/4	–	–	100
10"	7 3/4	9 5/8	14 1/4	3 1/4	12	7/8	–	–	155
12"	9 1/2	11 3/8	17	3 1/4	12	7/8	–	–	190
14"	10 7/16	12 15/16	18 3/4	4 1/2	12	1	–	–	405
16"	12 3/16	14 11/16	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

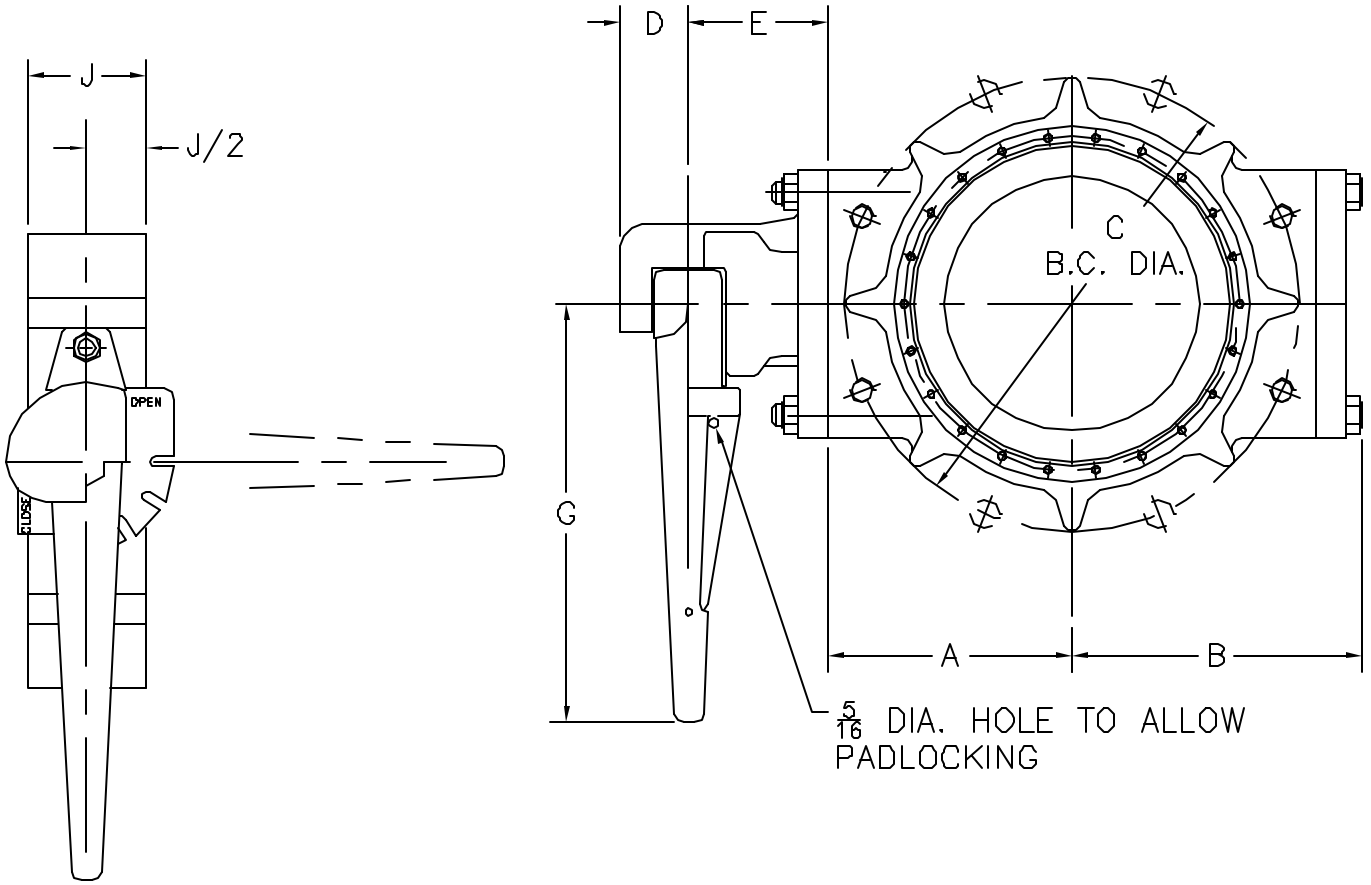
VALVE SIZE	A	B	C	J	P	Q	AB	AD	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	8	5/8	–	–	60
6"	5	6 1/2	9 1/2	2 1/2	8	3/4	–	–	70
8"	6	7 9/16	11 3/4	2 3/4	8	3/4	–	–	100
10"	7 3/4	9 5/8	14 1/4	3 1/4	12	7/8	–	–	155
12"	9 1/2	11 3/8	17	3 1/4	12	7/8	–	–	190
14"	10 7/16	12 15/16	18 3/4	4 1/2	12	1	–	–	405
16"	12 3/16	14 11/16	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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

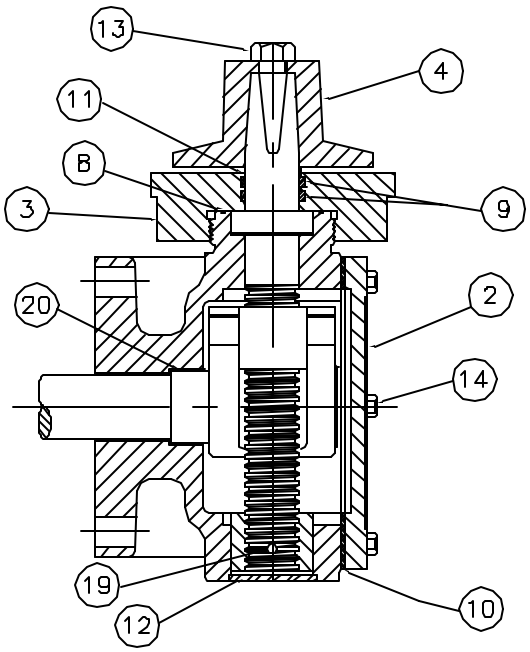
VALVE SIZE	A	B	C	D	E	G	J	P	Q	WEIGHT
4"	4	5 7/16	7 1/2	1 1/2	3 13/16	11	2 1/2	8	5/8	40
6"	5	6 1/2	9 1/2	1 1/2	3 13/16	11	2 1/2	8	3/4	55
8"	6	7 9/16	11 3/4	1 1/2	4 1/16	11	2 3/4	8	3/4	65

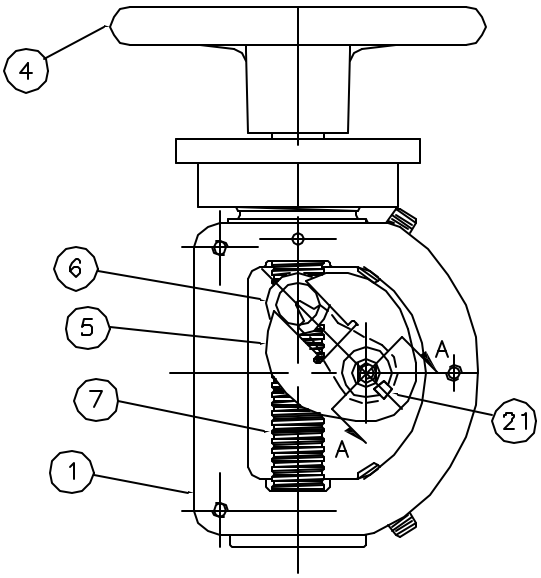
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 5: "Q" = DIAMETER OF BOLTS

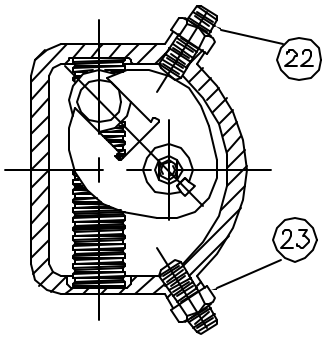
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BW-15-K5

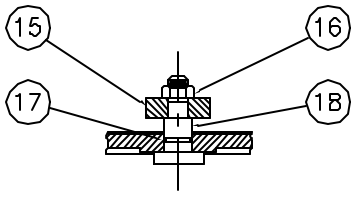
4" THRU 8" STYLE 4500 CLASS 150 BUTTERFLY VALVE LEVER OPERATOR WAFER ENDS







OPERATOR MODEL
150
510
1250
2200



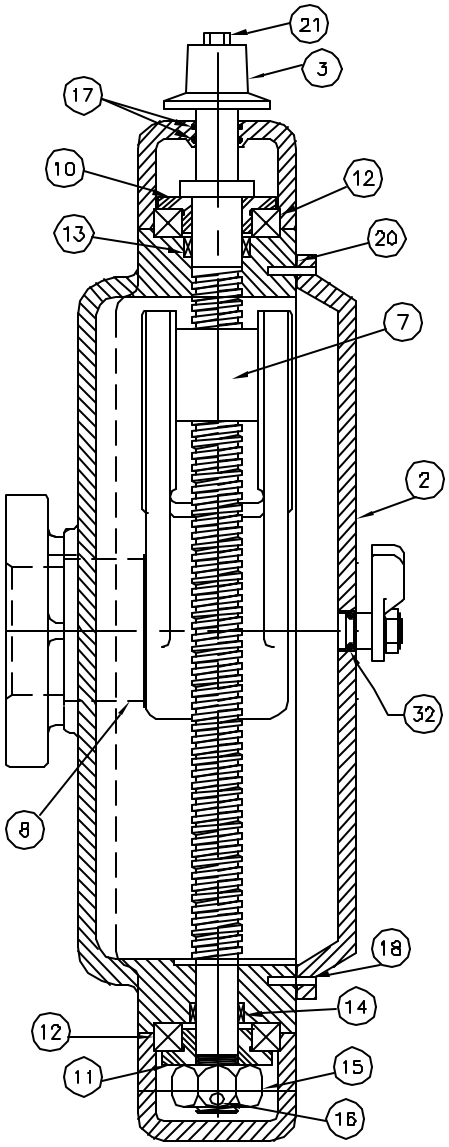
SECTION A–A FOR
HANDWHEEL OPERATORS
POSITION INDICATOR

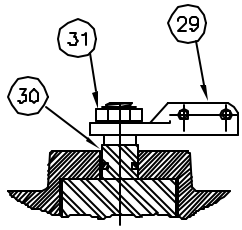
ITEM #	DESCRIPTION	MATERIAL
1	HOUSING OPERATOR	CAST IRON, A-126, CLASS B
2	COVER, HOUSING	CAST IRON, A-126, CLASS B
3	CAP, THRUST	CAST IRON, A-126, CLASS B
4	AS REQUIRED	CAST IRON, A-126, CLASS B
5	LEVER	DUCTILE IRON, A-536, GRADE 80-45-06
6	CROSSHEAD	DUCTILE IRON, A-536, GRADE 65-55-12
7	SHAFT, INPUT	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
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

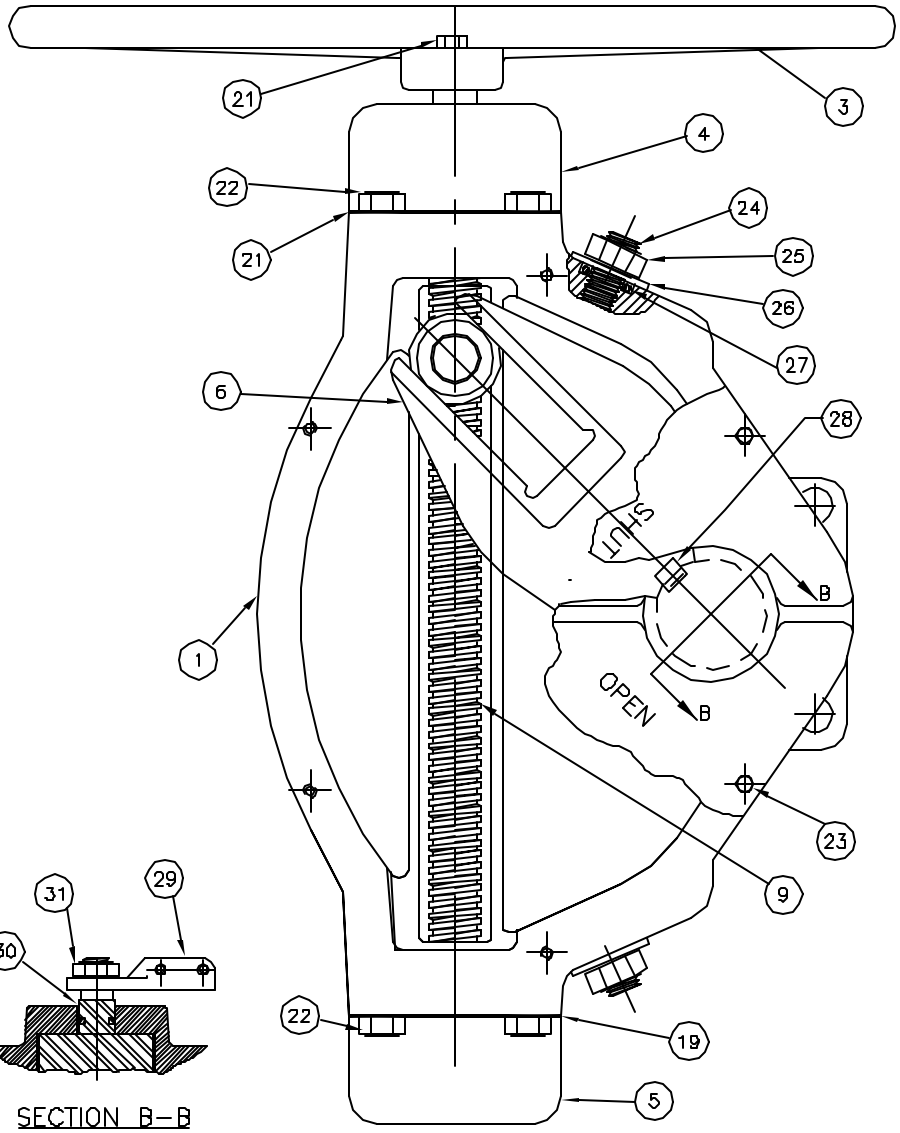
DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFV-OP-1

150 / 510 / 1250 / 2200 MANUAL OPERATOR SUB-ASSEMBLY / MATERIAL LIST





SECTION B–B



ITEM NO.	DESCRIPITION	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

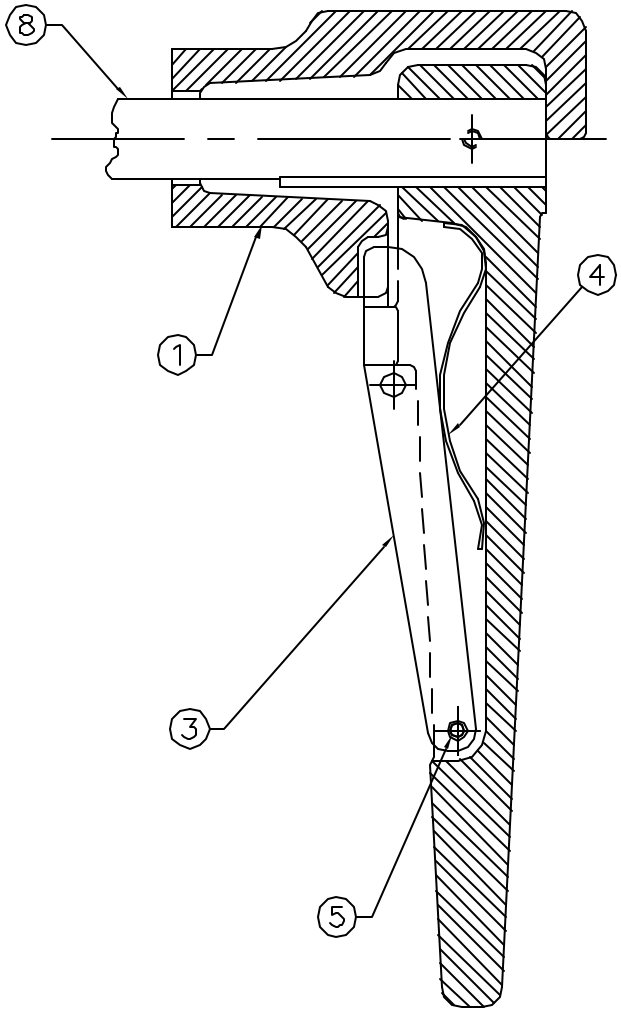
ITEM NO.	DESCRIPITION	MATERIAL	NO. REQ.
18	DOWEL PIN	STEEL, COMMERCIAL	2
19	END CAP GASKET	PERMATEX FORM-A GASKET NO. 2	2
20	COVER GASKET	PERMATEX FORM-A GASKET NO. 2	1
21	HEX HEAD CAP SCREW	COMMERCIAL STEEL	1
22	HEX HEAD CAP SCREW	COMMERCIAL STEEL	8
23	HEX HEAD CAP SCREW	COMMERCIAL STEEL	6
24	SETSCREW (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	COMERCIAL STEEL	1
*31	NUT, HEX (INDICATOR PIN)	COMMERCIAL STEEL	1
*32	O-RING (INDICATOR PIN)	BUNA "N"	1

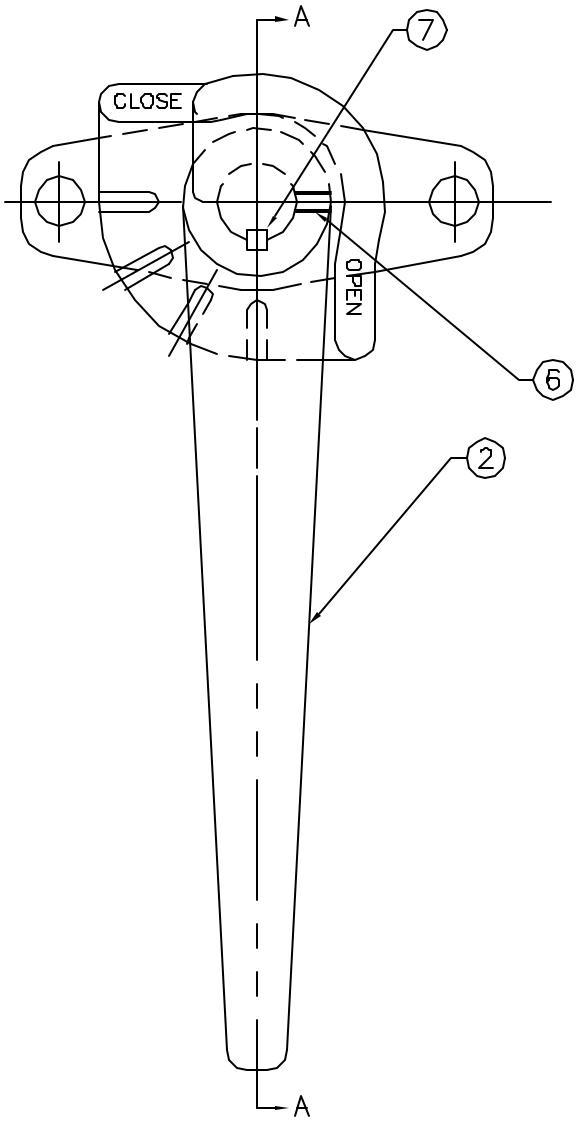
* PARTS FOR HANDWHEEL ACTUATOR WITH POSITION INDICATOR

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
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	SPRIING PIN	STEEL; CADMIUM PLATED
6	SCREW, SOCKET SET	ALLOY STEEL
7	KEY	C-1018 C.F.
8	SHAFT	STAINLESS STEEL, TYPE 304

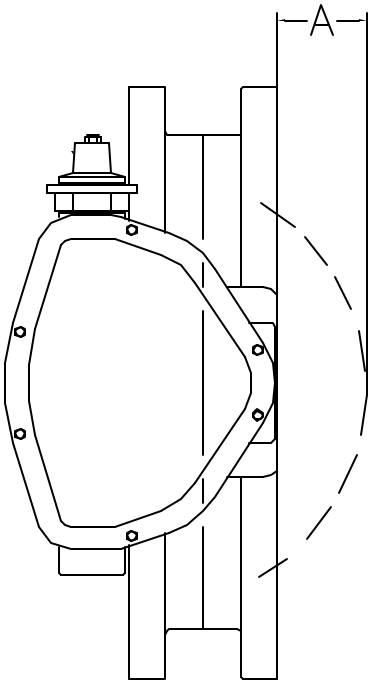
M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

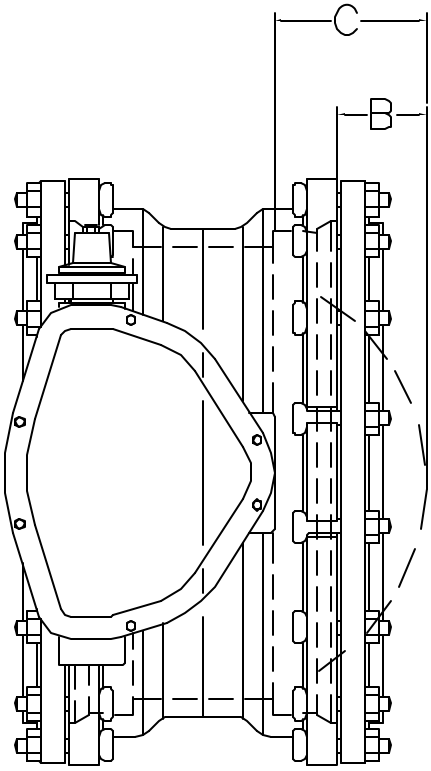
DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFV-OP-3

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

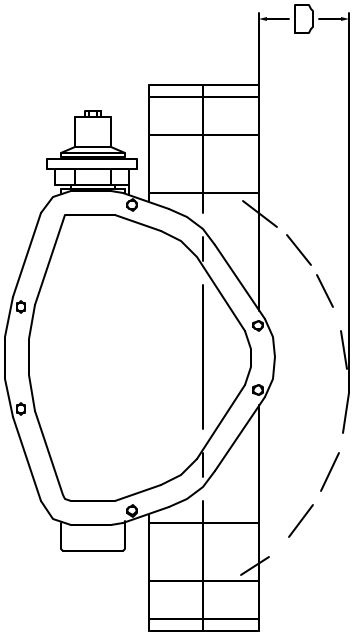
MECHANICAL JOINT ENDS

FLANGED ENDS





WAFER ENDS



VALVE SIZE	A	B	C	D
3"	0	0	0	0
4"	0	0	.88	.88
6"	.62	0	1.69	1.88
8"	1.06	.25	2.75	2.73
10"	1.12	.50	3.00	3.50
12"	2.12	1.50	4.00	2.00
14"	2.75	.56	4.06	4.50
16"	3.75	1.62	5.12	5.50
18"	4.75	2.19	5.69	5.88
20"	5.75	3.19	6.69	6.88
24"	7.75	4.50	8.00	--
30"	8.78	4.78	9.16	--
36"	11.78	7.78	12.16	--
42"	14.78	10.78	15.16	--
48"	16.28	12.28	16.66	--

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. BFE-AA

M&H BUTTERFLY VALVE
VANE / OUTSIDE BODY FLANGE
ORIENTATION (OPEN POSITION)

M&H VALVE

ACCESSORIES

Electric Motor Operator for: Gate Valves / Butterfly Valves / Plug Valves

Almost every business day, M&H is assembling and testing valves with Electric Motor operators.

Electric motor operator may be furnished on NRS and OS&Y Gate Valves, plug valves, & butterfly valves.

Motor operated valves are specified where frequent operation is necessary or where valves are located in remote, inaccessible or hazardous places.

For large valves and frequently used valves, operating costs are reduced and efficiently increased by the remote control possible with electric motor operation. In emergencies, quick operation of valves by electric motor may be extremely vital.

Electric Motor Operated Valves are used in industrial plants, power plants, water plants, sewage disposal systems and miscellaneous pipe lines. Some of their specific uses include the following:

Large Valves	Storage Tanks
Intakes	Filter Beds
Outlets	Booster Stations
Pump Discharge	

An electric motor is mounted on the valve and geared to the valve stem so that when the motor operates the valve will open or close. Adjustable limit and torque switches are arranged to stop the motor when the valve is completely opened or closed, or automatically stop the motor if there is any obstruction in the valve to prevent the gate from moving. This prevents damage both to the valve parts and to the motor and gearing. Electric equipment conforms to N.E.M.A. codes. Detailed specifications on the construction and design of motor units and controls will be furnished if desired. Motors are high torque, fully enclosed in weather-proof or explosion-proof housings.

When specified, motor shall include:

- Integral reversing starter package, which includes reversing controller, 120 volt/25 watt heater, 75 VA transformer with fused secondary & 24 point terminal strip. Available in weather-proof, explosion-proof, etc. enclosures.
- Three button – two light push button station for open, stop and close operation with red and green lights to show whether the valve is open or closed. The green light is lit when the valve is closed, the red light is lit when the valve is open. Both red and green lights remain lit when the valve gates are in any intermediate position between open and closed. Various combinations of buttons and lights are available as well as integral, surface or flush mounting in either weather-proof or explosion-proof enclosures.
- Mechanical dial position indicator available when specified for easy to read position of valve gate. Available for local remote and local/remote indication.

Motor operating units are available with auxiliary handwheels for manual operation, which do not turn during electric operation. If the electric current comes on during manual operation, the handwheel of the unit declutches automatically and thus prevents any possible injury to the operator.

M&H VALVE

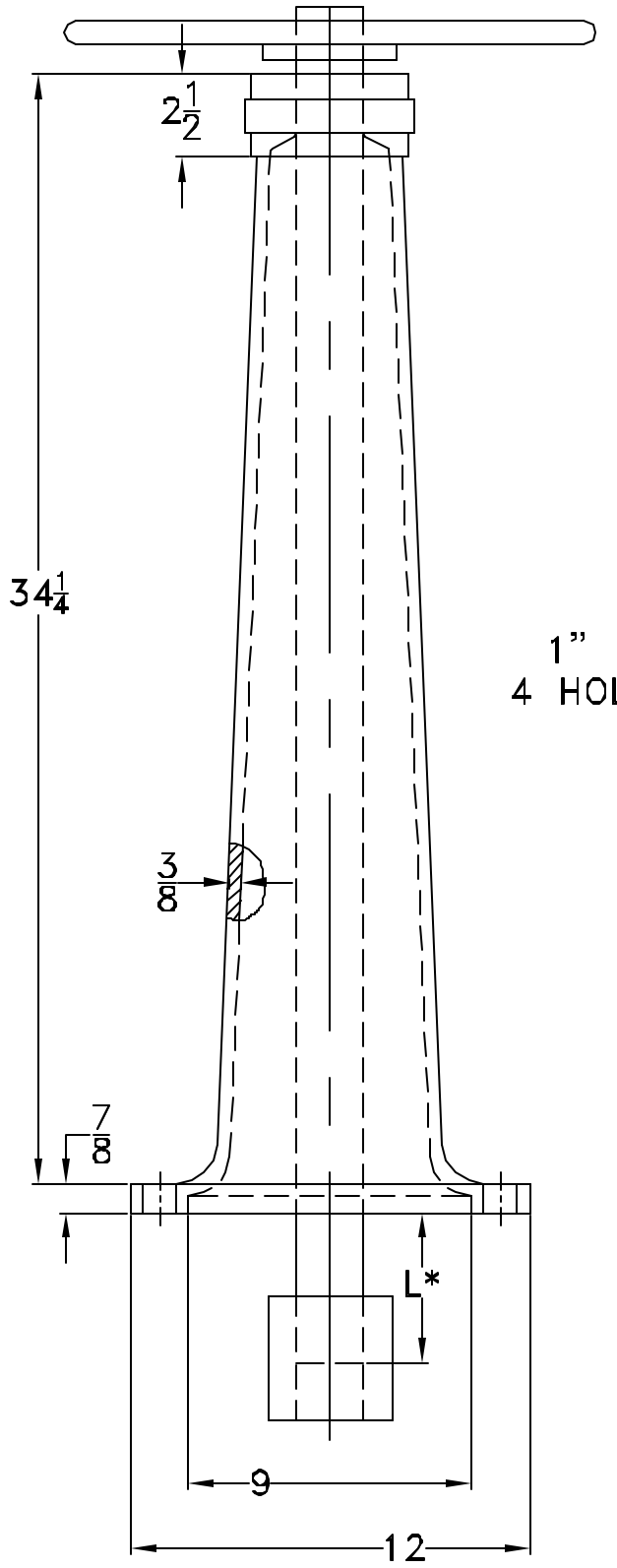
ACCESSORIES

Electric Motor Operator for: Gate Valves / Butterfly Valves / Plug Valves

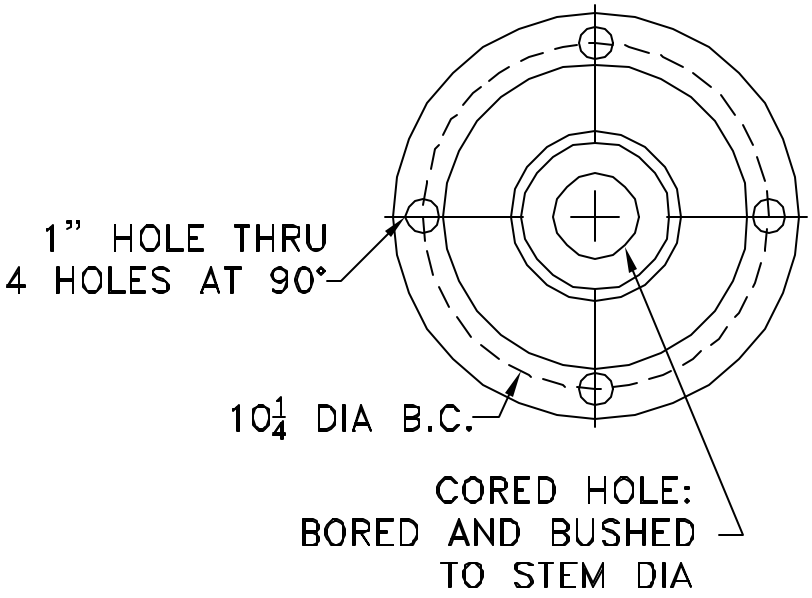
INFORMATION REQUIRED WITH ORDER

1. Valve size and quantity.
2. Type – (Double Disc or Solid Wedge) (NRS or OS&Y) (End connection – Flanged, Hub, etc.).
3. Pressure Class (AWWA or Class 250).
4. Maximum Pressure against which valve will be required to operate (Maximum Differential Pressure).
5. Current Characteristics (Voltage, Phase, Cycles, A.C. or D.C.).
6. Opening or Closing time in seconds or inches per minute (Standard is 12" per minute).
7. Service: Water, etc.
8. Frequency of service; regulating or intermittent duty.
9. Maximum temperature at location of valve control.
10. Type motor desired: Weather-proof, Explosion-proof, etc.
11. Type of Reversing Controller (NEMA-Class).
12. Type of Pushbutton Station (NEMA-Class) (Normally NEMA-1 or NEMA-4). (Flush or Surface Mounted) (Number of Push buttons or Lights – Usually 3 buttons, 2 lights).
13. Control Voltage.
14. Any special requirements such as mechanical dial position indicator, hand off automatic switch on pushbutton stations, etc.
15. Cylinder (hydraulic or pneumatic) valves can also be supplied. Complete specifications will be required with inquiry for all cylinder or motor valves.

HAND WHEEL ROTATION: OPEN LEFT



NOTES:
N* = 17"
SHOP COAT IS RUST INHIBITIVE PRIMER



The F-5500-T Floor stand is for use on non-rising stem valves. Floor stands are of high strength cast iron and may be provided with extension arms of steel, stainless steel or bronze as specified.

M&H VALVE COMPANY
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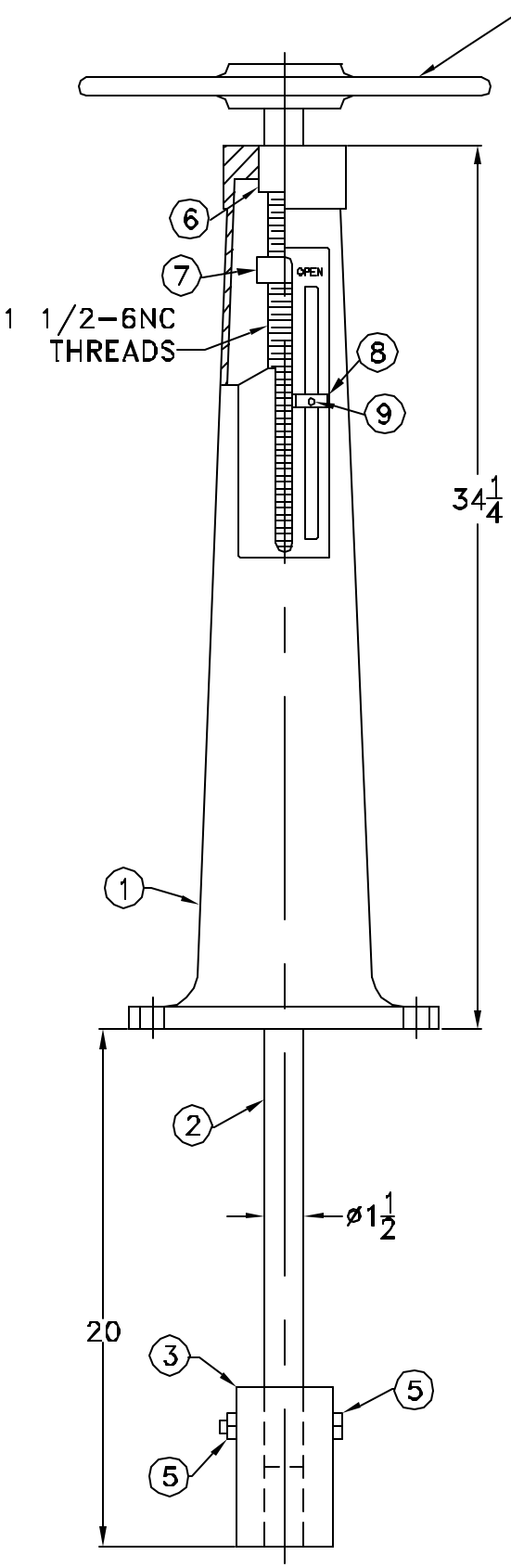
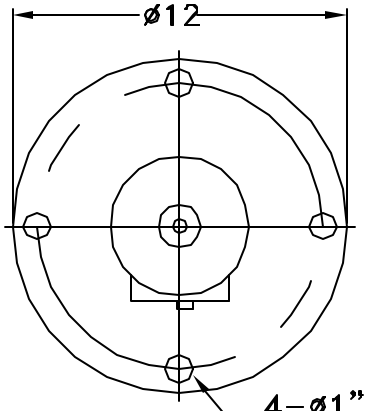
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ	FLOOR STAND
DATE: 6/2/03	STYLE F-5500-T
DWG. NO. ACFS-5500	NON-RISING / NON-INDICATING



The F-5505-T indicating floor stand is for non-rising stem valves where open/close valve indication is needed. Floor stands are of high strength cast iron and may be provided with extension stems of steel, stainless steel or bronze as specified.



NOTES:
POINTER TRAVELS 1" WITH TURNS OF HANDWHEEL

ITEM	DESCRIPTION	REQ'D	MAT'L
1	FLOOR STAND	1	C.I.
2	STEM	1	ST'L
3	COUPLING	1	C.I.
4	BOLT	1	ST'L
5	NUT	1	ST'L
6	BUSHING	1	BRZ
7	INDICATOR NUT	1	BRZ
8	CLOSED TAG	1	ALUM
9	DRIVE SCREW	1	ST'L

M&H VALVE COMPANY
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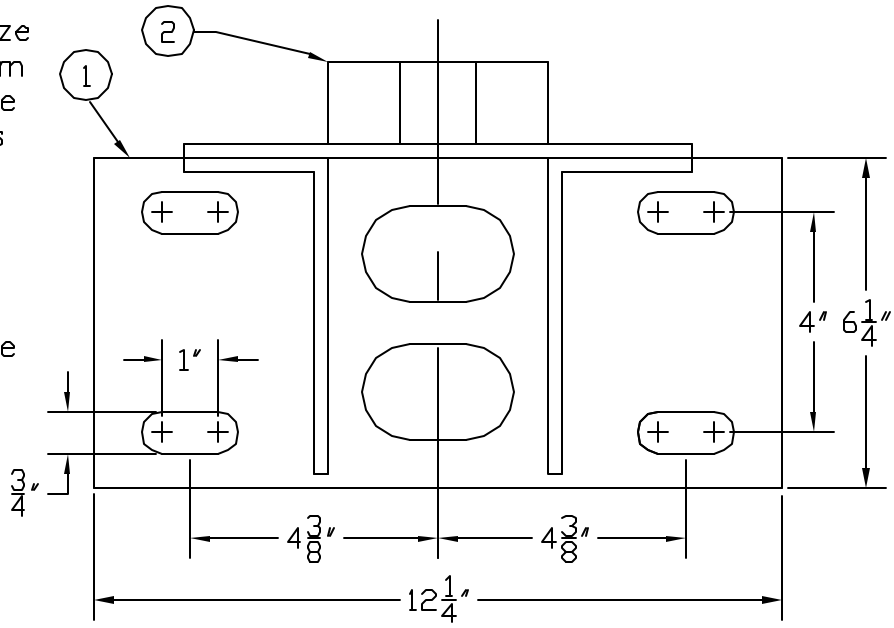
ANNISTON, ALABAMA 36202

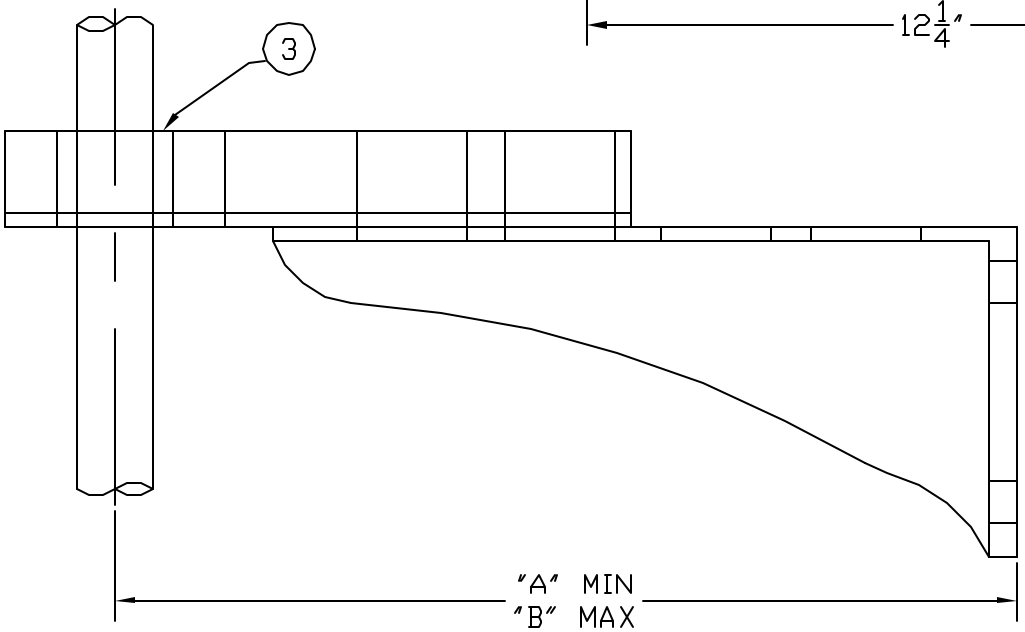
DWN: TRIJ
DATE: 6/2/03
DWG. NO. ACFS-5505

FLOOR STAND
STYLE F-5505-T
NON-RISING--INDICATING

Stem Guides are installed as wall brackets to support extension stems. They are fully adjustable and are made of high strength ductile iron. The guide is bronze bushed where the extension stem passes through. They should be installed at a height which does not permit the stem to be unsupported through a length of more than 10 feet.

Stem Guildes are available in three sizes. When ordering, state distance from center line of operating stem to face of wall, or give the size as show in table.





ITEM	DESCRIPTION	QTY.	MATERIAL
1	BRACKET	1	DUCTILE IRON 65.45.12 MIN.
2	GUIDE	1	DUCTILE IRON 65.45.12 MIN.
3	BUSHING	1	BRASS CDA 360
	ASSEMBLY BOLTS & NUTS	4 ea.	PLATED STEEL

DIMENSIONS			
SIZE	3	5	6
A	2 1/2	15	24
B	17	24	35

M&H VALVE COMPANY
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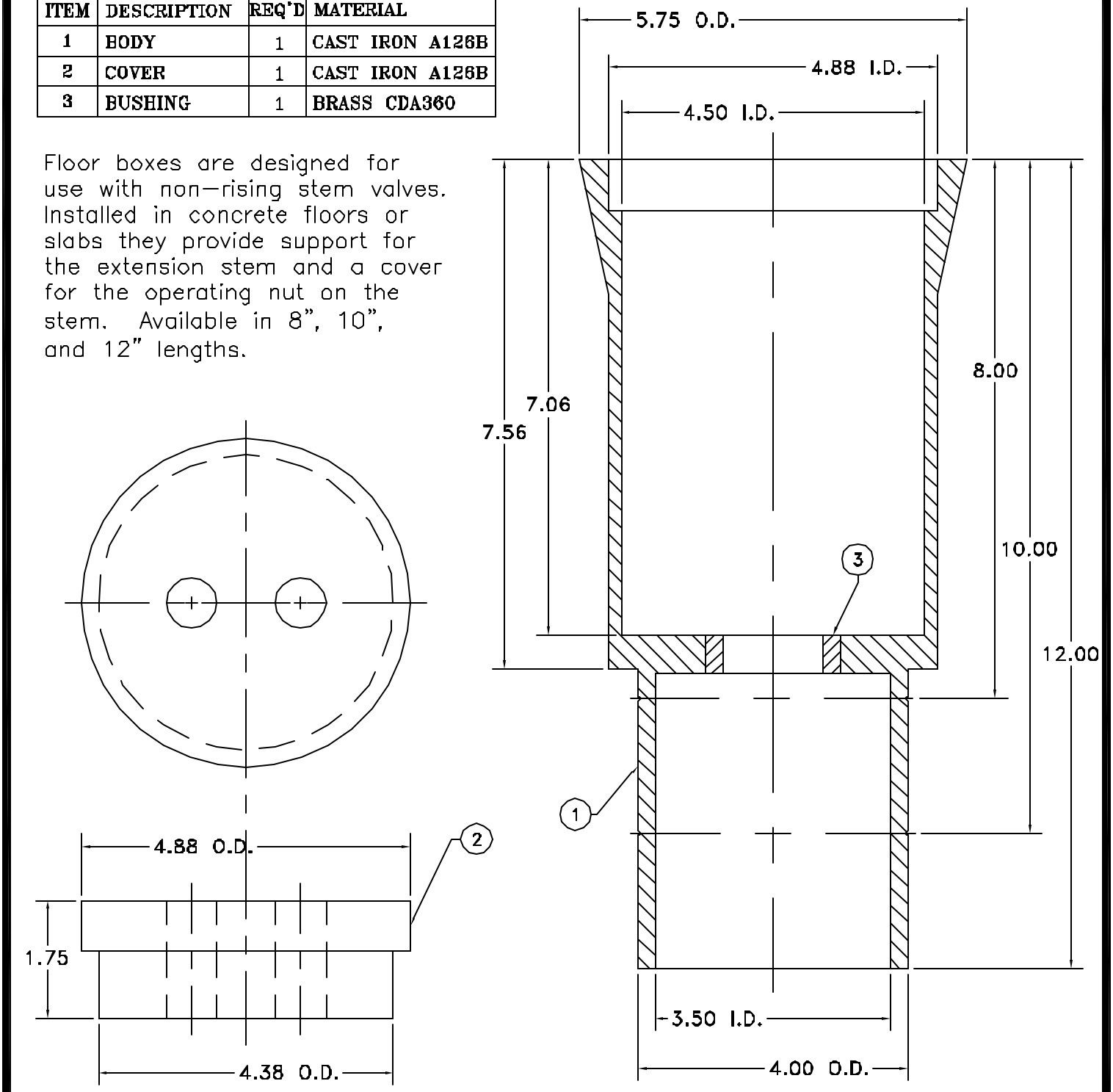
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. ACSG-5660

STEM GUIDES
STYLE F-5660-T
Size 3, 5, & 6

ITEM	DESCRIPTION	REQ'D	MATERIAL
1	BODY	1	CAST IRON A126B
2	COVER	1	CAST IRON A126B
3	BUSHING	1	BRASS CDA360

Floor boxes are designed for use with non-rising stem valves. Installed in concrete floors or slabs they provide support for the extension stem and a cover for the operating nut on the stem. Available in 8", 10", and 12" lengths.



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON, ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. ACFB-5695

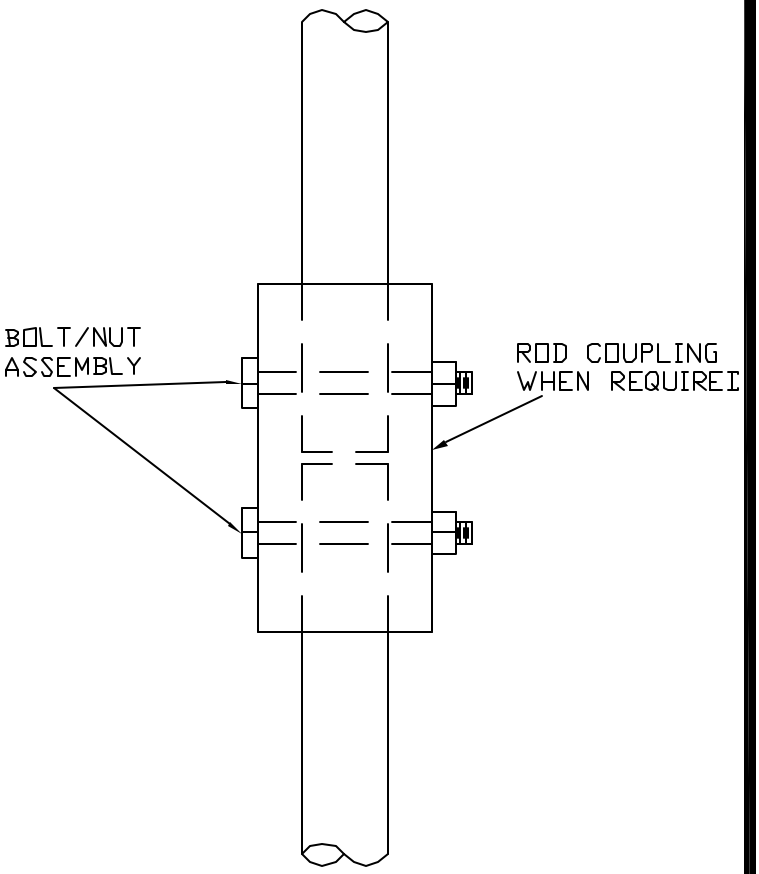
FLOOR BOX
STYLE F-5695-T

Valve extension stems are available in steel, or bronze and are porvided with a 2" square nut or handwheel as specified.

Extension stems are available for use with Mud valves, Gate Valves, Butterfly Valves, etc.

All components are jig drilled for interchangeability.

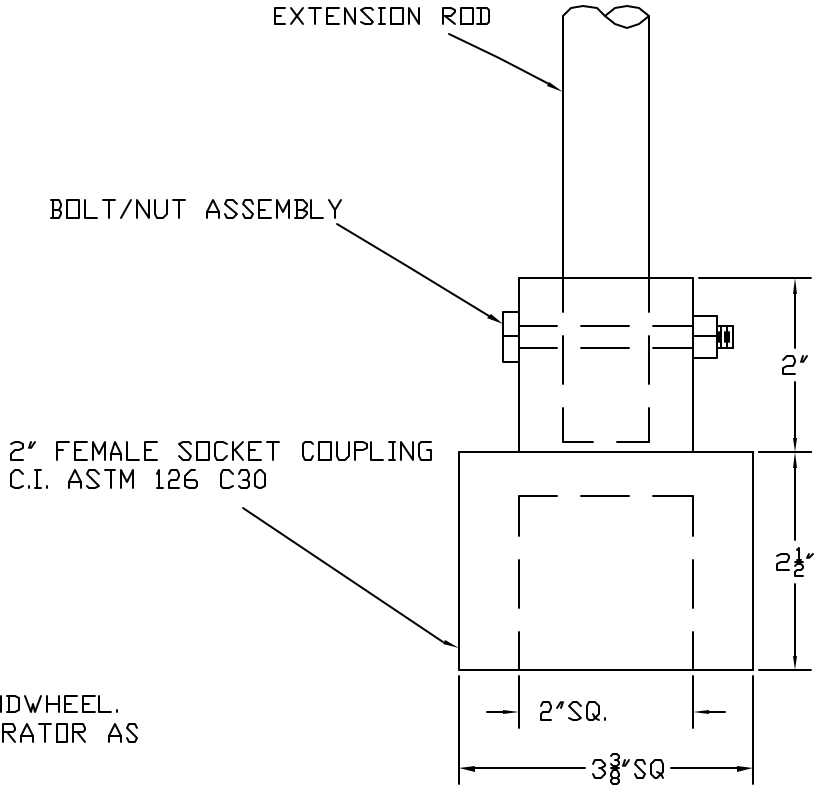
When ordering extension stem, state length and give distance from bottom face of flange to top of handwheel or nut, or to base of floor stand.



EXTENSION ROD
DIA.-_____

LENGTH-____

QTY.-_____

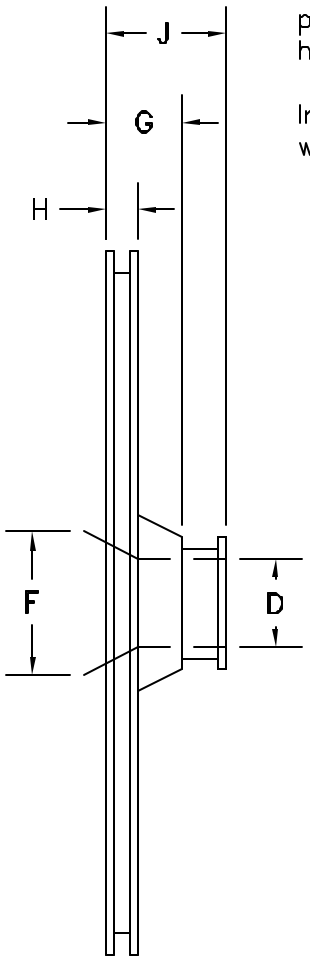


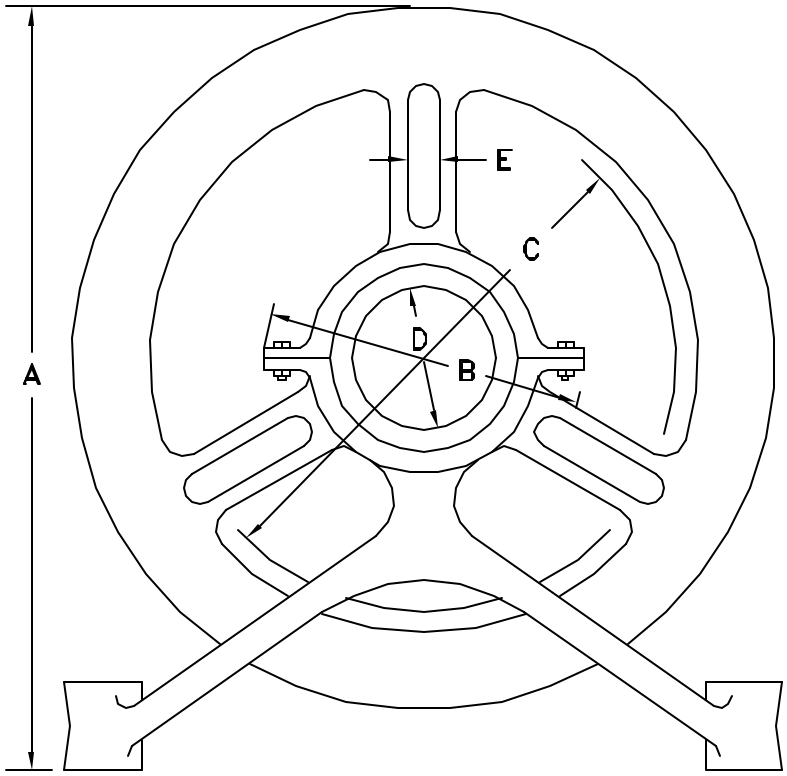
TO BE SUPPLIED WITH A HANDWHEEL.
2" SQ. NUT, FLOORSTAND OPERATOR AS REQUIRED.

M&H VALVE COMPANY A DIVISION OF McWane. Inc. P.O. BOX 2088 ANNISTON,ALABAMA 36202	DWN: TRIJ DATE: 6/2/03 DWG. NO. ACESA	EXTENSION STEM ASSEMBLY 2" SQUARE SOCKET COUPLING MATERIAL LIST / DIMENSIONS

Chain Wheels are normally used for operation of valves located overhead. They are provided with chain guides to prevent the chain from slipping off the wheel. Chains can be furnished rust proof if specified. chain Wheels are mounted directly on the handwheel, and are of approximately the same diameter.

In ordering, pleae state the distance from floor to center line of wheel, or give the exact number of feet of chain required.





Note: Furnished with Rust-Proof Lock Link Steel Chain

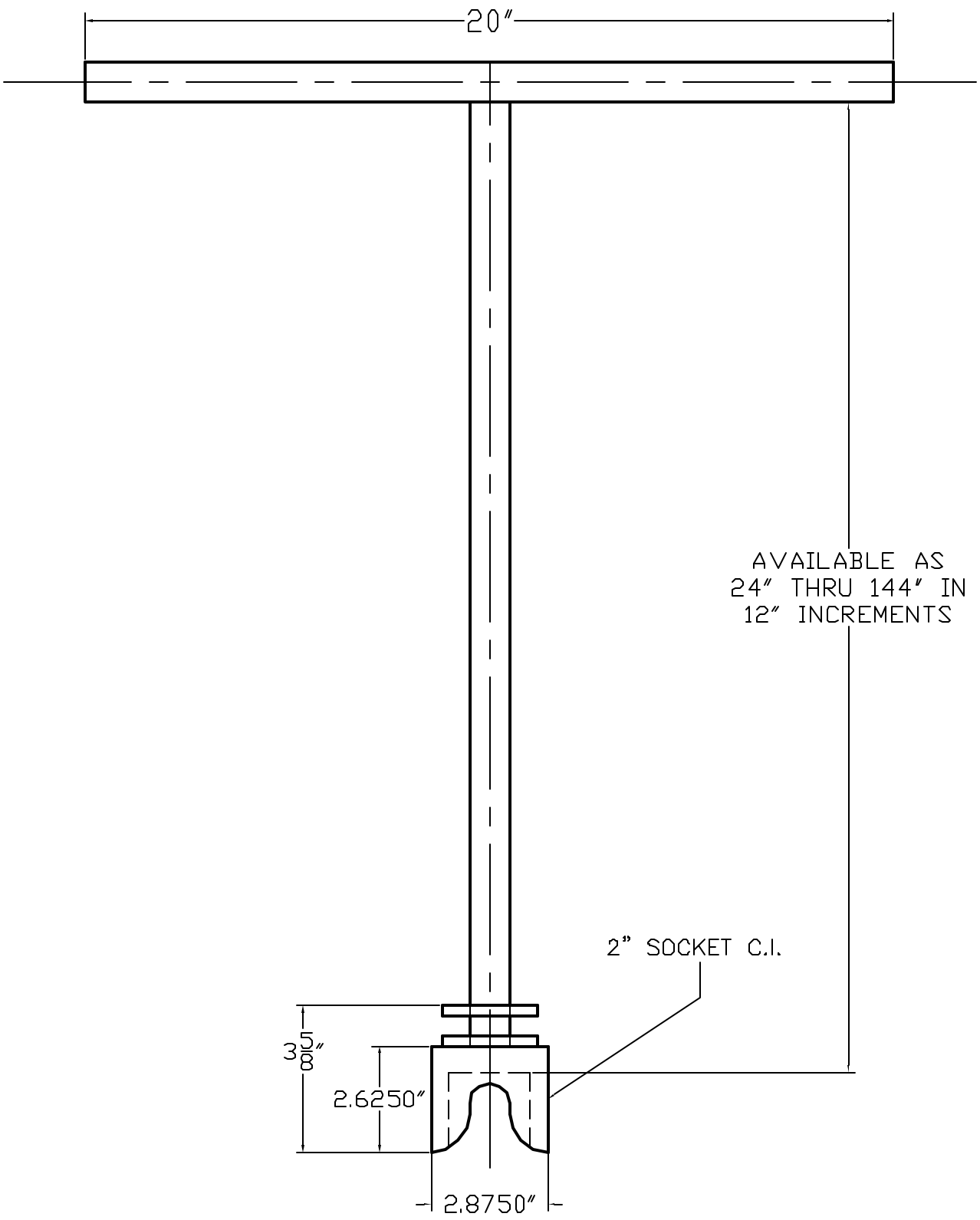
SPROCKET SIZE	1½	2	2½	3	3½	4	4½	5
A - Oveall Heigth	8	10½	12½	15½	18½	21½	25¾	30
B - Inner Bolt Circle	3½	4½	5½	8½	12	12	16	19
C - Outer Bolt Circle	5	6⅝	9¼	12⅜	15½	18	22	25½
D - Hub Opening(dia.)	1	2⅛	2⅛	2⅛	3	3	3	3
E - Slot Size(width)	⅜	⅜	7/16	7/16	7/16	⅝	⅝	⅝
F - Rear Opening	1⅞	3⅛	3½	3½	4⅞	4⅞	4¾	4¾
G - Hub Depth (shoulder to rear)	1 7/16	1⅜	1⅞	1⅞	1⅞	1⅞	1⅞	2
H - Rim Thickness	1⅛	1⅛	1¼	1¼	1¼	1½	1½	1⅝
J - Overall Depth	2⅜	2⅜	2⅝	2⅝	3⅛	3⅛	3⅛	3⅛

SPECIFICATIONS				
Size No.	Diameter of sprocket wheel in inches	Weight in lbs.	Diameter of valve wheels rim will fit	Chain weight per 100' in lbs.
1½	7½	5	6 to 7½	17½
2	9	8	7¾ to 9	17½
2½	12½	14	9¼ to 12½	30
3	15½	19	12¾ to 15½	30
3½	19	26	15¾ to 19	30
4	22	37	19¼ to 22	35
4½	26	47	22¼ to 26	35
5	30	58	26¼ to 30	35

M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ
DATE: 6/2/03
DWG. NO. ACCW-5680

CHAIN WHEEL
STYLE F-5680
GENERAL DIMENSIONS



M&H VALVE COMPANY
A DIVISION OF McWane, Inc.
P.O. BOX 2088
ANNISTON,ALABAMA 36202

DWN: TRIJ	
DATE: 6/2/03	
DWG. NO. THW1	

T-HANDLE SOCKET WRENCH

MJ FIELD LOK

PROVEN JOINT RESTRAINT TECHNOLOGY

NO LEARNING CURVE

FOR DUCTILE IRON AND PVC PIPE

CURRENTLY AVAILABLE IN SIZES 4" - 12"

FINISH FIRST.

A RESTRAINT REVOLUTION

Forget those heavy lug-type restraints and switch to the new MJ FIELD LOK® Gasket. It not only seals, but also provides the joint restraint that typically requires concrete thrust blocks or lug-type restraints outside the joint. That means you'll have fewer installation steps, with faster and easier installations.

Two primary components make up the MJ FIELD LOK Gasket. The first, an elastomeric material, does the sealing. The second, either stainless steel locking segments *(Series DI)* or a ductile iron locking ring *(Series PV)*, are the teeth that give MJ FIELD LOK its bite. Embedded in the elastomeric material, they lock in to the pipe and provide joint restraint when the pipe system is internally pressurized.

There's no learning curve either. Install it just like a standard mechanical joint gasket. The joint is automatically restrained when the MJ FIELD LOK™ Gland bolts are tightened.

- Proven joint restraint technology.
- No learning curve — installs just like a standard mechanical joint gasket and gland.
- No more need for time-consuming thrust blocks or heavy lug-type restraints.
- No loose wedges or torque-off control nuts to get lost or broken.
- Can be disassembled just like a standard mechanical joint.
- Suitable for potable water and wastewater applications.
- The state-of-the-art MJ FIELD LOK™ Gland is designed for maximum strength and easy product identification.
- MJ FIELD LOK® Gaskets are provided as part of a kit that also includes the MJ FIELD LOK™ Gland, nuts and bolts.

MJ FIELD LOK® Gasket *Series DI*

Can be used on any Pressure Class or Special Thickness Class Ductile Iron pipe up to 350 psi.
Stainless steel locking segments provide proven joint restraint technology.

MJ FIELD LOK® Gasket *Series PV*

Can be used on any thickness class of AWWA C900 PVC pipe.
Pressure rated at a 2:1 safety factor, based on the pressure rating of the pipe on which it is installed.
Ductile iron locking ring provides proven joint restraint technology.

MJ FIELD LOK™ Gland

Highly engineered to provide the strength and rigidity necessary for restrained joint applications.
Installs just like a standard mechanical joint gland.
All ductile iron components are manufactured to ASTM A536 Grade 70-50-05.

MJ FIELD LOK® Gasket Application Notes:

1. MJ FIELD LOK® Gaskets are designed to seal and restrain a centrifugally cast ductile iron or PVC pipe spigot in either a ductile iron pipe or a ductile iron fitting bell.
2. MJ FIELD LOK Gaskets are available to fit mechanical joints conforming to AWWA C110 or AWWA C153 in 4" — 12" sizes.
3. If ductile iron pipe with a lower pressure rating is used, then the lower pressure rating will apply to the MJ FIELD LOK Gasket also.
4. MJ FIELD LOK Gaskets require 90 ft-lb of bolt torque for 4" – 8" gaskets, and 120 ft-lb of bolt torque for 10" – 12" gaskets. Most common 1/2" drive air powered impact wrenches are capable of applying these torques.
5. MJ FIELD LOK Gaskets are suitable for either potable water or wastewater applications.
6. MJ FIELD LOK Gaskets are NSF approved with UL and FM certifications pending.
7. MJ FIELD LOK Gasket Series DI products are not recommended for use with cast iron pipe, plastic pipe, oversize pipe, metric pipe, or for use as a 'transition' gasket.
8. MJ FIELD LOK Gasket Series PV products are not recommended for use with cast iron pipe, ductile iron pipe, oversize pipe, metric pipe, or for use as a 'transition' gasket.
9. MJ FIELD LOK Gaskets are warranted only when used with either an MJ FIELD LOK™ Gland or an ANSI/AWWA C110/A21.10 mechanical joint gland.

MJ FIELD LOK® Gasket *Series DI*

SIZE *(Inches)*	PIPE OD	ORDER NUMBER	NO. OF SEGMENTS	PRESSURE RATING	APPROX. KIT WEIGHT
4	4.80	DI04	3	350	7.3
6	6.90	DI06	4	350	10.9
8	9.05	DI08	6	350	13.5
10	11.10	DI10	9	350	18.5
12	13.20	DI12	13	350	19.7

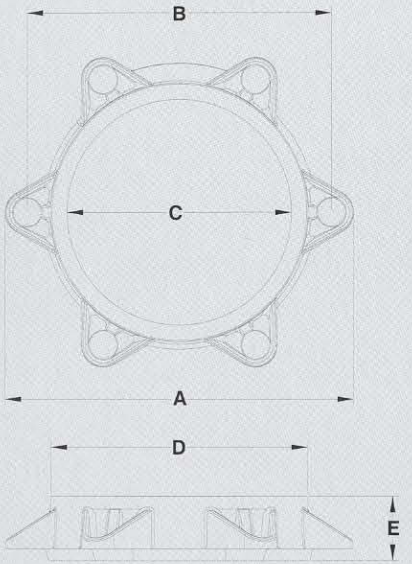
MJ FIELD LOK® Gasket *Series PV*

SIZE *(Inches)*	PIPE OD	ORDER NUMBER	PRESSURE RATING DR-18 *(psi)*	PRESSURE RATING DR-14 *(psi)*	APPROX. KIT WEIGHT
4	4.80	PV04	150	200	7.8
6	6.90	PV06	150	200	11.8
8	9.05	PV08	150	200	14.8
10	11.10	PV10	150	200	20.1
12	13.20	PV12	150	200	21.6

MJ FIELD LOK™ Gland *(See illustration at right.)*

SIZE *(Inches)*	WEIGHT *(Pounds)*	DIMENSION A *(Outside Dia.)*	B *(Bolt Hole)*	C *(Inside Dia.)*	D *(OD Lip)*	E *(Gland Height)*
4	3.3	8.88	7.50	4.90	5.92	1.75
6	5.0	10.87	9.50	7.00	8.02	2.00
8	7.2	13.13	11.75	9.15	10.17	2.25
10	10.2	15.38	14.00	11.20	12.22	2.25
12	11.0	17.63	16.25	13.30	14.32	2.25

MJ FIELD LOK™ Gland



Suggested Specifications:

Joint restraint for mechanical joint pipe and fittings shall be the MJ FIELD LOK® Gasket. The restraint system shall be completely integral to the gasket, requiring only standard mechanical joint assembly techniques. The restraining system for ductile iron shall be pressure rated to 350 psi in sizes up to and including 12". The restraining system for PVC shall be rated at a 2:1 safety factor for the pipe on which it is installed. The restraining system shall be rated in accordance with the performance requirements of ANSI/AWWA C111/A21.11 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

SPEND LESS TIME — AND MONEY — RESTRAINING MECHANICAL JOINT FITTINGS WITH THE NEW MJ FIELD LOK® GASKET.

Since the restraint is in the gasket, fewer parts means faster and easier installation than lug-type restraints.

Use the MJ FIELD LOK Gasket, available for both Ductile Iron and PVC pipelines, and Finish First.

MJ FIELD LOK

www.mjfieldlok.com

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MJ FIELD LOK® is a Registered Trademark of U.S. Pipe and Foundry Company. MJ FIELD LOK Gaskets are made exclusively by S&B Technical Products, Fort Worth, Texas.

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