Kennedy Valve
2005 Product Catalog

Section

******Please check our website www.kennedyvalve.com for any product updates and/or changes******

The Kennedy Guardian

Fire hydrants have been used in fire protection for over 100 years. A.W.W.A. C502 was developed in 1913 as a standard for the manufacture and use of dry barrel hydrants. Kennedy has established itself as a leader in the industry with manufacturing experience dating back to 1905. Many of the early hydrants are in use today.
Kennedy's most recent design is the Guardian. Based on a simple design, it is easy to install, maintain and repair. The Guardian sets a standard for quality in the industry and meets or exceeds all requirements for A.W.W.A. C502 latest revision, and is UL listed and FM approved.

Guardian Features

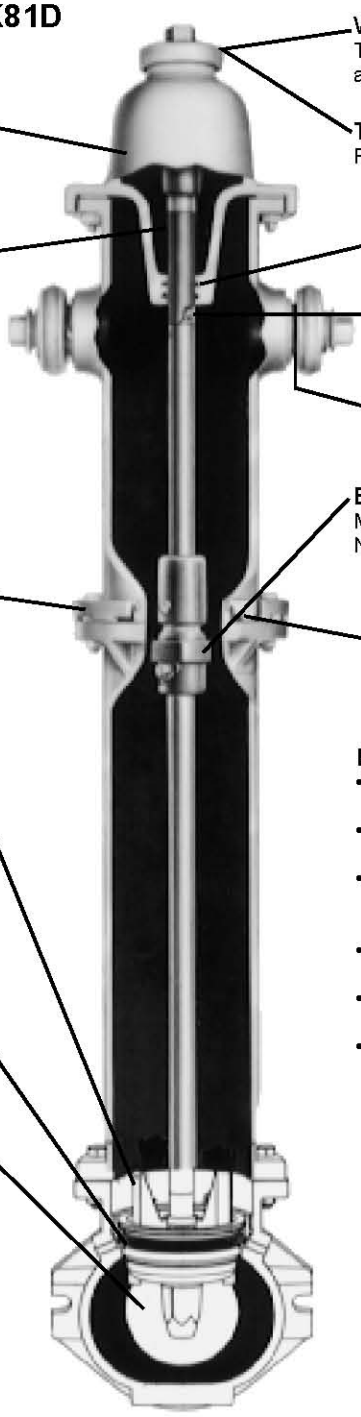
K81D Meets or exceeds requirements of A.W.W.A. C-502 and is UL listed and FM approved.

K-81A Meets or exceeds requirements of A.W.W.A. C-502.

AWWA
400 psi test pressure
200 psi working pressure

ULFM
400 psi test pressure
175 psi working pressure

Fig. K81D



Weather Shield
To protect exposed operating area from freezing rain and dirt.

Thrust Washer
For easy turning operation.

One Piece Bonnet
Newly designed for easier maintenance.

Sealed Grease Cavity
For easier operation and maintenance.

Two O-Rings
To protect operating threads from corrosion.

O-Ring
To seal between brass ferrule and stem.

Nozzle
Tamper resistant.

Breakable Coupling
Minimizes damage from traffic accident. New design makes repairs more efficient.

Traffic Flange
Full 360° adjustment. New Breaking Ring on top for easy replacement and interchangeability on all K-81 models.

O-Ring
For ease of repair and nozzle facing.

Corrosion Resistant
Bronze Drain Valve.

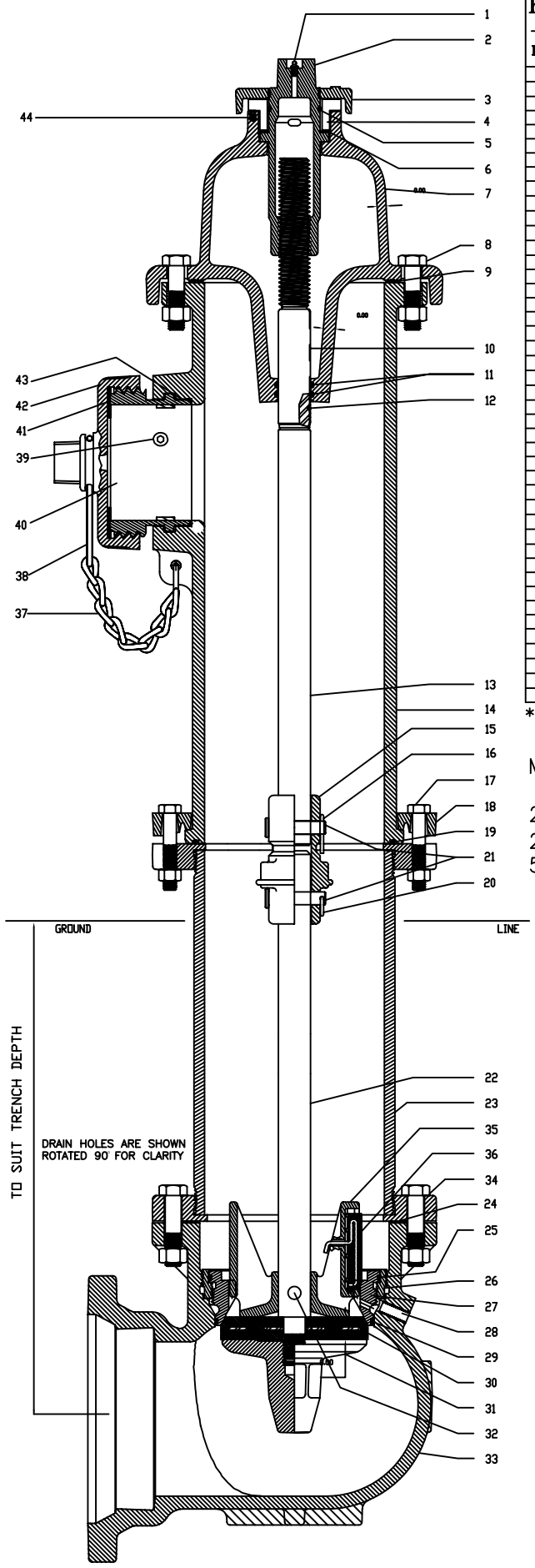
Bronze to Bronze Seating
This standard feature assures easy seat removal.

Full Cover Bottom Plate
Prevents corrosion to the lower stem threads and prevents main valve distortion. Provides a positive stop against the elbow.

Easy to install—Even easier to maintain

- **Tamper resistant** quarter turn hose and steamer nozzles. For those who know how, replacement is easy.
- **Easy to use**, short, simple, inexpensive and lightweight seat removal wrench.
- **Unique pressure-activated** drain valve assures positive shut off. The higher the pressure, the tighter the seal. Automatically compensates for wear due to usage. Does not rely on interference fit.
- **Two sizes available**, 5¼" valve opening and 4½" valve opening to best meet your needs.
- **Fully and easily lubricated** operating threads for corrosion protection and ease of operation.
- **The Guardian K-81D Hydrant** meets or exceeds all the latest provisions of AWWA, and UL 246-FM 1510 specifications (options are limited on UL/FM models)

KENNEDY GUARDIAN K81D FIRE HYDRANT (5 1/4)



ITEM#	QTY	DESCRIPTION	MATERIAL
1	1	ALEMITE FITTING	STAINLESS STEEL A276 (304)
2	1	OPERATING STEM NUT	BRONZE B584 CB4400
3	1	DIRT SHIELD	CAST IRON A126 CLASS B
4	1	STEM LOCK NUT	BRONZE B584 CB4400
5	1	O-RING	BUNA-N D20000
6	1	THRUST WASHER	NYLATRON GS
7	1	HYDRANT CAP	CAST IRON A126 CLASS B
8	6	CAP BOLTS & NUTS	ZINC PLATED STEEL
9	1	CAP GASKET	CLOTH INSERTED RUBBER D2000
10	1	STEM FERRULE	NAVAL BRASS B21-CDA 464
11	2	DOME O-RING	BUNA-N D20000
12	1	UPPER ROD O-RING	BUNA-N D20000
13	1	UPPER STEM	H.R. STEEL A588
14	1	UPPER BARREL	CAST IRON A126 CLASS B
15	1	STEM BREAKING COUPLING	CAST IRON A126 CLASS B
16	2	COTTER PIN	STAINLESS STEEL A276 (18-8)
17	8	BOLTS & NUTS	ZINC PLATED STEEL
18	2	BREAKING RING	CAST IRON A126 CLASS B
19	1	O-RING	BUNA-N D20000
20	2	BRIDGE PIN	STAINLESS STEEL A276 (18-8)
21	2	CLEVIS PIN(S)	STAINLESS STEEL A276 (18-8)
22	1	LOWER STEM	HR STEEL A588
23	1	LOWER BARREL	DUCTILE IRON ANSI 21.50, 21.51
24	1	ELBOW GASKET	CELLULOSE FIBER
25	1	UPPER O-RING	BUNA-N D20000
26	1	SEAT RING INSERT	BRONZE B584 CB4400
27	1	SEAT RING	BRONZE B584 CB4400
28	1	DRAIN TUBE	NAVAL BRASS B21-CDA 464
29	1	LOWER O-RING	BUNA-N D20000
30	1	MAIN VALVE	NEOPRENE WITH STEEL INSERT
31	1	BOTTOM PLATE	CAST IRON A126 CLASS B
32	1	DRAIN VALVE PIN	CAD PLATED STEEL
33	1	ELBOW	CAST IRON A126 CLASS B
34	8	ELBOW BOLTS & NUTS	ZINC PLATED STEEL
35	1	DRAIN VALVE	BRONZE B584 CB4400
36	1	DRAIN VALVE FACING W/INSERT	BUNA-N W/STAINLESS STEEL
37	*	NOZZLE CAP CHAIN	STEEL A108
38	1	NOZZLE CHAIN BAND	STEEL A108
39	*	PUMPER NOZZLE RETAINING SCREW	STAINLESS STEEL A276 (304)
40	1	NOZZLE	BRONZE B584 CB4400
41	1	NOZZLE CAP GASKET	RUBBER D20000 TYPE AA
42	1	NOZZLE CAP	CAST IRON A126 CLASS B
43	1	PUMPER O-RING	BUNA-N D20000
44	1	HOLD DOWN NUT SET SCREW	STAINLESS STEEL A276 (410)

* VARIES

MEETS OR EXCEEDS AWWA C502

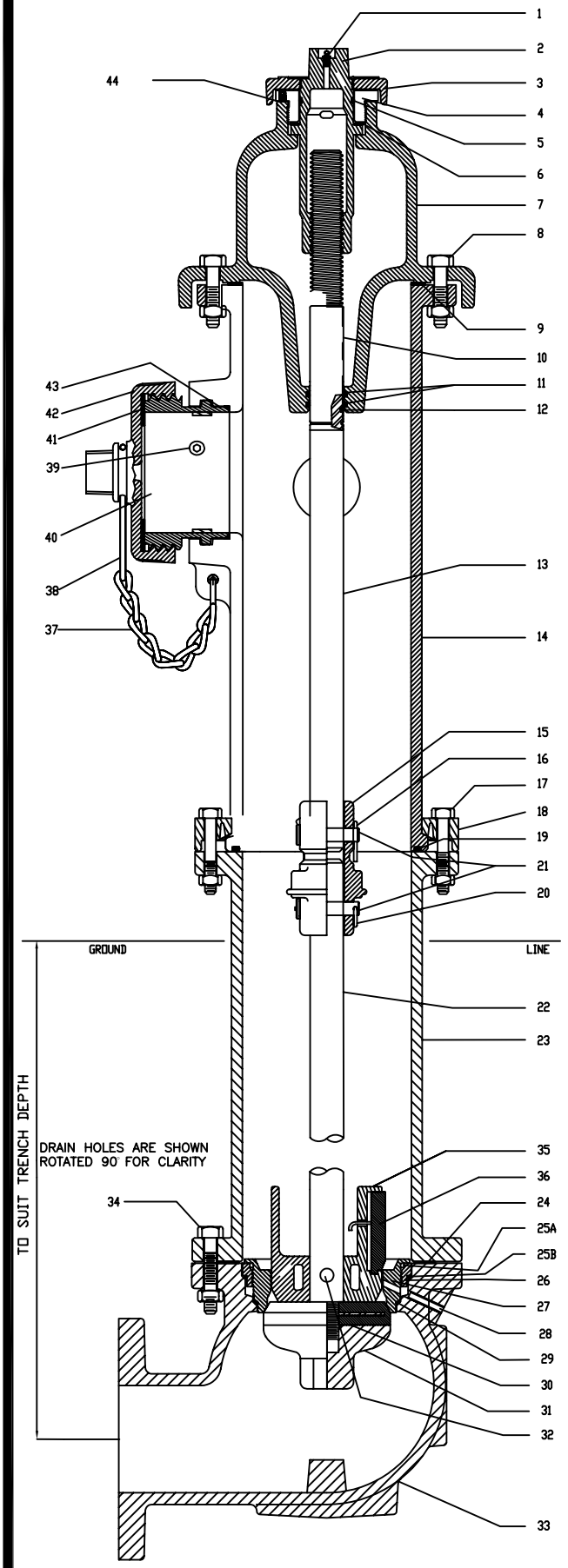
250 PSI WORKING PRESSURE AWWA
200 PSI WORKING PRESSURE UL/FM
500 PSI HYDROSTATIC TEST PRESSURE

LISTED
UL
888H

FM
APPROVED

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. FH-129



KENNEDY GUARDIAN K81D FIRE HYDRANT (4 1/2)

ITEM#	QTY	DESCRIPTION	MATERIAL
1	1	ALEMITE FITTING	STAINLESS STEEL A276 (304)
2	1	OPERATING STEM NUT	BRONZE B584 CB4400
3	1	DIRT SHIELD	CAST IRON A126 CLASS B
4	1	STEM LOCK NUT	BRONZE B584 CB4400
5	1	O-RING	BUNA-N D20000
6	1	THRUST WASHER	NYLATRON GS
7	1	HYDRANT CAP	CAST IRON A126 CLASS B
8	6	CAP BOLTS & NUTS	ZINC PLATED STEEL
9	1	CAP GASKET	CLOTH INSERTED RUBBER D2000
10	1	STEM FERRULE	NAVAL BRASS B21-CDA 464
11	2	DOME O-RING	BUNA-N D20000
12	1	UPPER ROD O-RING	BUNA-N D20000
13	1	UPPER STEM	H.R. STEEL A588
14	1	UPPER BARREL	CAST IRON A126 CLASS B
15	1	STEM BREAKING COUPLING	CAST IRON A126 CLASS B
16	2	COTTER PIN	STAINLESS STEEL A276 (18-8)
17	8	BOLTS & NUTS	ZINC PLATED STEEL
18	2	BREAKING RING	CAST IRON A126 CLASS B
19	1	O-RING	BUNA-N D20000
20	2	BRIDGE PIN	STAINLESS STEEL A276 (18-8)
21	2	CLEVIS PIN(S)	STAINLESS STEEL A276 (18-8)
22	1	LOWER STEM	HR STEEL A588
23	1	LOWER BARREL	DUCTILE IRON ANSI 21.50, 21.51
24	1	ELBOW GASKET	CELLULOSE FIBER
25	1	UPPER O-RING	BUNA-N D20000
26	1	SEAT RING INSERT	BRONZE B584 CB4400
27	1	SEAT RING	BRONZE B584 CB4400
28	1	DRAIN TUBE	NAVAL BRASS B21-CDA 464
29	1	LOWER O-RING	BUNA-N D20000
30	1	MAIN VALVE	NEOPRENE WITH STEEL INSERT
31	1	BOTTOM PLATE	CAST IRON A126 CLASS B
32	1	DRAIN VALVE PIN	CAD PLATED STEEL
33	1	ELBOW	CAST IRON A126 CLASS B
34	8	ELBOW BOLTS & NUTS	ZINC PLATED STEEL
35	1	DRAIN VALVE	BRONZE B584 CB4400
36	1	DRAIN VALVE FACING W/INSERT	BUNA-N W/STAINLESS STEEL
37	*	NOZZLE CAP CHAIN	STEEL A108
38	1	NOZZLE CHAIN BAND	STEEL A108
39	*	PUMPER NOZZLE RETAINING SCREW	STAINLESS STEEL A276 (304)
40	1	NOZZLE	BRONZE B584 CB4400
41	1	NOZZLE CAP GASKET	RUBBER D20000 TYPE AA
42	1	NOZZLE CAP	CAST IRON A126 CLASS B
43	1	PUMPER O-RING	BUNA-N D20000
44	1	HOLD DOWN NUT SET SCREW	STAINLESS STEEL A276 (410)

* VARIES

MEETS OR EXCEEDS AWWA C502

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

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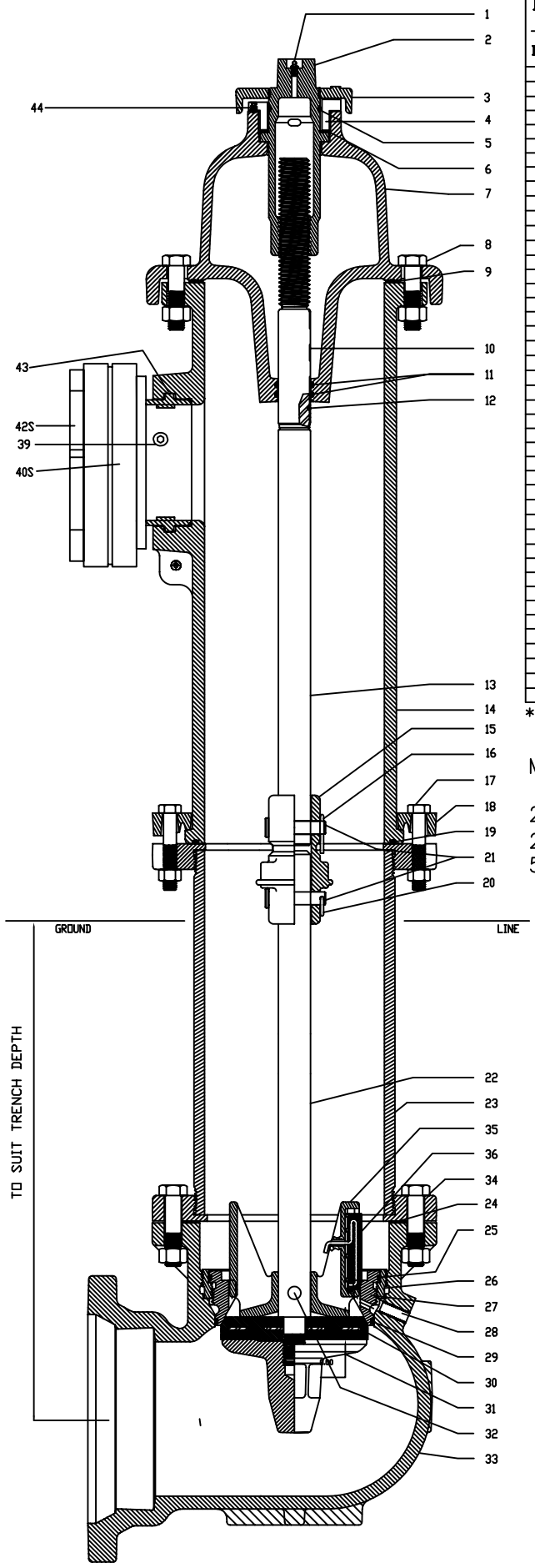

KENNEDY GUARDIAN K81D FIRE HYDRANT W/STORZ CONNECTION

ITEM#	QTY	DESCRIPTION	MATERIAL
1	1	ALEMITE FITTING	STAINLESS STEEL A276 (304)
2	1	OPERATING STEM NUT	BRONZE B584 CB4400
3	1	DIRT SHIELD	CAST IRON A126 CLASS B
4	1	STEM LOCK NUT	BRONZE B584 CB4400
5	1	O-RING	BUNA-N D20000
6	1	THRUST WASHER	NYLATRON GS
7	1	HYDRANT CAP	CAST IRON A126 CLASS B
8	6	CAP BOLTS & NUTS	ZINC PLATED STEEL
9	1	CAP GASKET	CLOTH INSERTED RUBBER D2000
10	1	STEM FERRULE	NAVAL BRASS B21-CDA 464
11	2	DOME O-RING	BUNA-N D20000
12	1	UPPER ROD O-RING	BUNA-N D20000
13	1	UPPER STEM	H.R. STEEL A588
14	1	UPPER BARREL	CAST IRON A126 CLASS B
15	2	STEM BREAKING COUPLING	CAST IRON A126 CLASS B
16	8	COTTER PIN	STAINLESS STEEL A276 (18-8)
17	2	BOLTS & NUTS	ZINC PLATED STEEL
18	1	BREAKING RING	CAST IRON A126 CLASS B
19	1	O-RING	BUNA-N D20000
20	2	BRIDGE PIN	STAINLESS STEEL A276 (18-8)
21	2	CLEVIS PIN(S)	STAINLESS STEEL A276 (18-8)
22	1	LOWER STEM	HR STEEL A588
23	1	LOWER BARREL	DUCTILE IRON ANSI 21.50, 21.51
24	1	ELBOW GASKET	CELLULOSE FIBER
25	1	UPPER O-RING	BUNA-N D20000
26	1	RETAINER RING	BRONZE B584 CB4400
27	1	SEAT RING	BRONZE B584 CB4400
28	1	DRAIN TUBE	NAVAL BRASS B21-CDA 464
29	1	LOWER O-RING	BUNA-N D20000
30	1	MAIN VALVE	NEOPRENE WITH STEEL INSERT
31	1	BOTTOM PLATE	CAST IRON A126 CLASS B
32	1	DRAIN VALVE PIN	CAD PLATED STEEL
33	1	ELBOW	CAST IRON A126 CLASS B
34	8	ELBOW BOLTS & NUTS	ZINC PLATED STEEL
35	1	DRAIN VALVE	BRONZE B584 CB4400
36	1	DRAIN VALVE FACING W/INSERT	BUNA-N W/STAINLESS STEEL
37	*	NOZZLE CAP CHAIN	STEEL A108
38	1	NOZZLE CHAIN BAND	STEEL A108
39	*	PUMPER NOZZLE RETAINING SCREW	STAINLESS STEEL A276 (304)
40S	1	STORZ CONNECTION	BRONZE & AIRCRAFT ALUMINUM
41S	1	STORZ CONNECTION	RESILIENT
42S	1	STORZ CONNECTION	AIRCRAFT ALUMINUM
43	1	PUMPER	BUNA-N D20000
44	1	HOLD DOWN NUT SET SCREW	STAINLESS STEEL A276 (410)

* VARIES

MEETS OR EXCEEDS AWWA C502

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

LISTED
UL
888H

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KENNEDY VALVE
ELMIRA, NEW YORK
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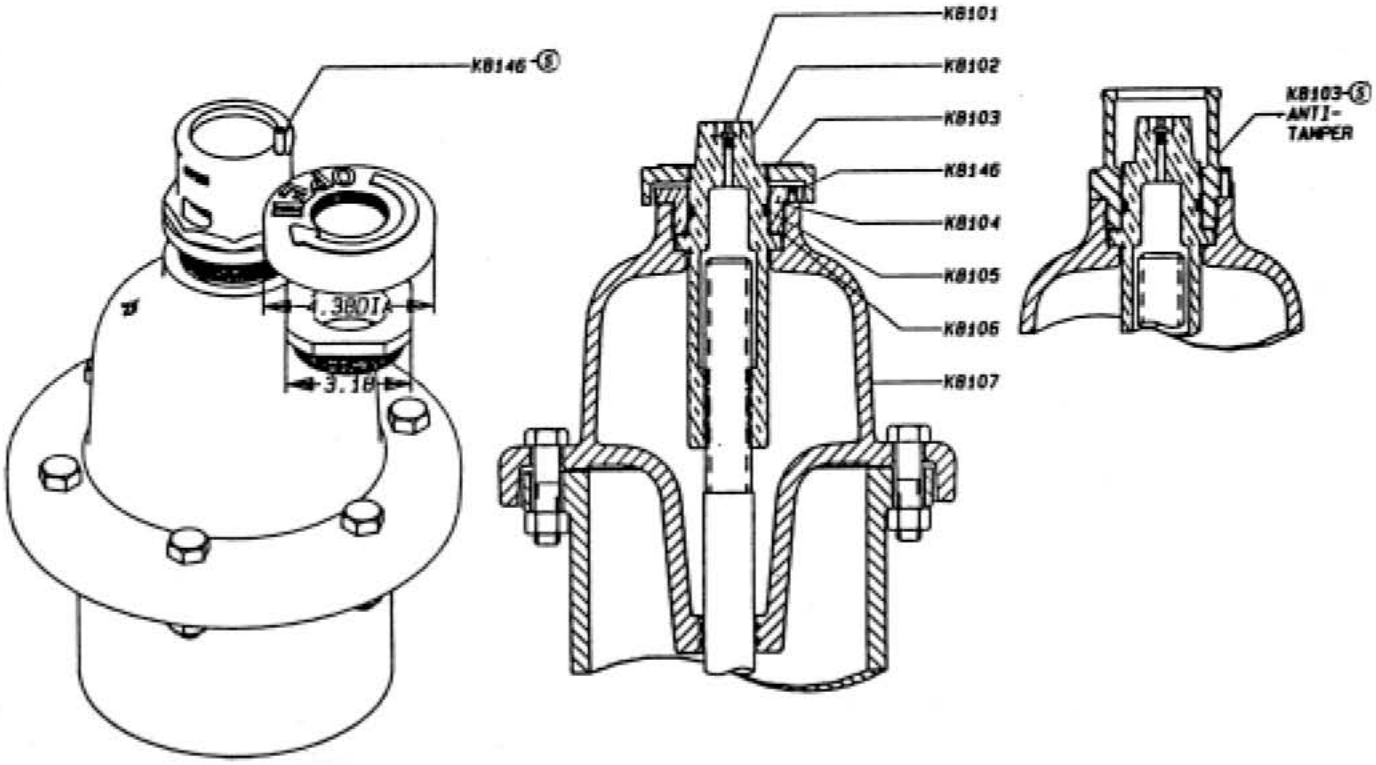
Tamper-Resistant Guardian Shield
Lock Nut



Parts List

DETAIL	PART	MATERIAL	ASTM SPEC		PART CODE
K8101	ALEMITE FITTING	STAINLESS STEEL	A276 (304)	_	4-41670P
K8102	OPERATING STEM NUT	BRONZE	B 62 (CDA 836)	_	-VARIES
K8103	DIRT SHIELD	CAST IRON	A 126 CLASS B	OPEN LEFT	3212132
				OPEN RIGHT	3212133
K8104	STEM LOCK NUT	BRONZE	B 62 (CDA 836)	-	3-185944
K8103Ⓢ	ANTI TAMPER LOCK NUT	DUCTILE IRON	A536	OPEN LEFT	3212114
				OPEN RIGHT	3212112
K8105	O-RING	BUNA-N	D 735	-	442905P
K8106	THRUST WASHER	NYLATRON GS	(TO MIL LP-410)	-	445843P
K8107	HYDRANT CAP OR DOME	CAST IRON	A 126 CLASS B	- 5 1/4"	-3185962
K8146	ALLEN HEAD SET SCREW	STAINLESS STEEL	A 276	-	4-44438P
K8146Ⓢ	ALLEN HEAD SET SCREW	STAINLESS STEEL	A 276	-	4-44449P

Instructions

1. Remove the cast iron shield, K8103. Use a large (6") pipe wrench to remove the dirt shield & a hydrant wrench to prevent the hydrant from being opened.
2. Remove the allen head, cone point set screw K8146. Use a 1/8" allen wrench.
3. Remove the stem hold down or lock nut K8104. Use a large (4") monkey or crescent wrench. Note that the hold down nut has a left hand thread & is turned clockwise to remove it.
4. Inspect the thrust bearing, K8106. If necessary replace it.
5. Inspect the anti tamper combination. Hold down nut\dirt shield K8103Ⓢ to be certain that the arrow points in the correct direction.
6. Start the anti tamper combination hold down nut\dirt shield into the dome by hand. (It may be difficult to force it over the 'O'-ring.) And then tighten it firmly. (i.e. 200 lb-ft) with the monkey wrench.
7. Replace the set screw and tighten the screw tight (i.e. 20 lb-ft).
8. If possible operate the hydrant to check the installation.

Guardian Insert

Fig. K81AW

For users of WOOD-MATHEWS HYDRANTS...

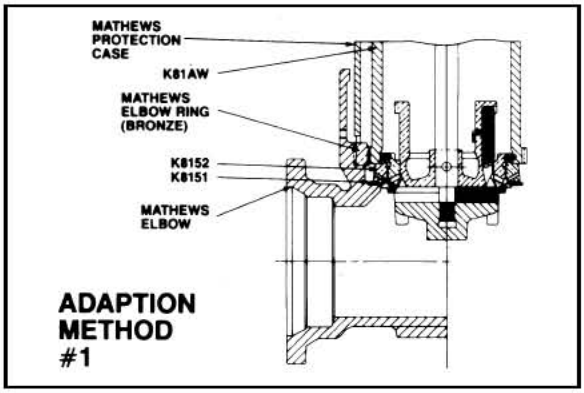
A True Guardian Insert Replacement

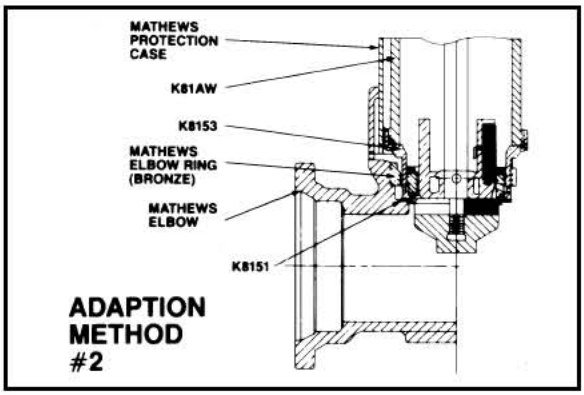
Save the cost of digging to replace that tried and true, but aging friend. Merely unscrew Mathews insert and replace it with a Guardian Insert, and for normal maintenance, never do it again.

Check these benefits:

1. All working parts are Guardian.
2. Fully maintainable through the bonnet, using light weight wrench.
3. Available to replace 4" former type and Modernized Wood-Mathews.

Additional Parts for Guardian Insert





Adaption Method Chart (Corresponds to above illustrations)

	M.V.O.		K-81AW 5¼"	4½"	4"
MATHEWS	6"	Bronze Lined	1	–	–
	6"	Regular	1	–	–
	5¼"	Bronze Lined	1	–	–
	5¼"	Regular	2	–	–
	4½"	Bronze Lined	–	1	–
	4½"	Regular	–	2	–
	4"	Regular	–	–	2

Ordering Information

Guardian Hydrant

When ordering, indicate the following:

1. Size of main valve opening.
2. Quantity and threading details of hose nozzles.
3. Threading details of steamer nozzle.
4. Size and type of inlet connection (mechanical joint, flanged, asbestos-cement, bell, or tyton).
5. Depth of bury (from bottom of pipe to ground line).
4. Size of main valve opening
6. Color (National standard yellow will be furnished unless otherwise indicated).
7. Size and shape of operating nut.
8. Direction to open.
9. Regular or Bronze Lined (for Mathews-Guardian Insert only).

Parts

When ordering parts, indicate the following:

1. Part number
2. Part description
3. Type of hydrant

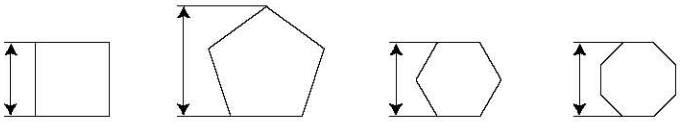
Estimated Weights

		Depth of Trench									
		2'6"	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"
Main Valve Opening	K-81A										
4½"	336	351	366	381	396	411	426	441	456	534	
5¼"	380	409	427	444	460	480	502	523	542	560	
3-way configuration with M.J. shoe less accessories											
K-81AW	4"	281	297	316	333	350	365	381	396	414	429
4½"	278	295	313	330	347	362	378	393	411	426	
5¼"	328	335	355	375	395	415	430	445	468	489	
3-way configuration											

ELBOW – We must have the size and type of connection to main.

OPERATING STEM NUT – Give direction to open (cast on cap) and size and shape of operating nut. 4-sided nut, give flat to flat dimension. 5-sided nut, give point to opposite flat dimension. 6-sided nut, give flat to flat dimension to eliminate any doubt as to where the measurement was taken.*

Note: Dual rated hydrants are UL/FM approved for 1½P and 1¼" sq. nut sizes.



SQUARE (4-Sided) **PENTAGON (5-Sided)** **HEXAGON (6-Sided)** **OCTAGON (8-Sided)**

CAP – Give direction the hydrant opens. This is indicated by an arrow cast on the cap. Indicate the direction the arrow points.

NOZZLE CAP GASKET – Indicate size of nozzle and whether hose or steamer.

NOZZLE – Give exact threading details, outside (major) diameter, pitch diameter, root (minor) diameter and exact number of threads per inch (TPI) or send in a gauge or sample in good condition.

NOZZLE CAP CHAIN –Tell us the nozzle type, hose or steamer.

NOZZLE CAP – Exact threading and nut size and shape.

UPPER BARREL – Furnish all information cast on the barrel and the number of hose and steamer connections.

STEM – Furnish the direction the hydrant opens as cast on the cap and furnish the depth of trench (distance from groundline to bottom of connecting pipe). If the stem can be measured, complete overall dimensions including diameter will help. The diameter should always be measured on the smooth (unthreaded) portion.*

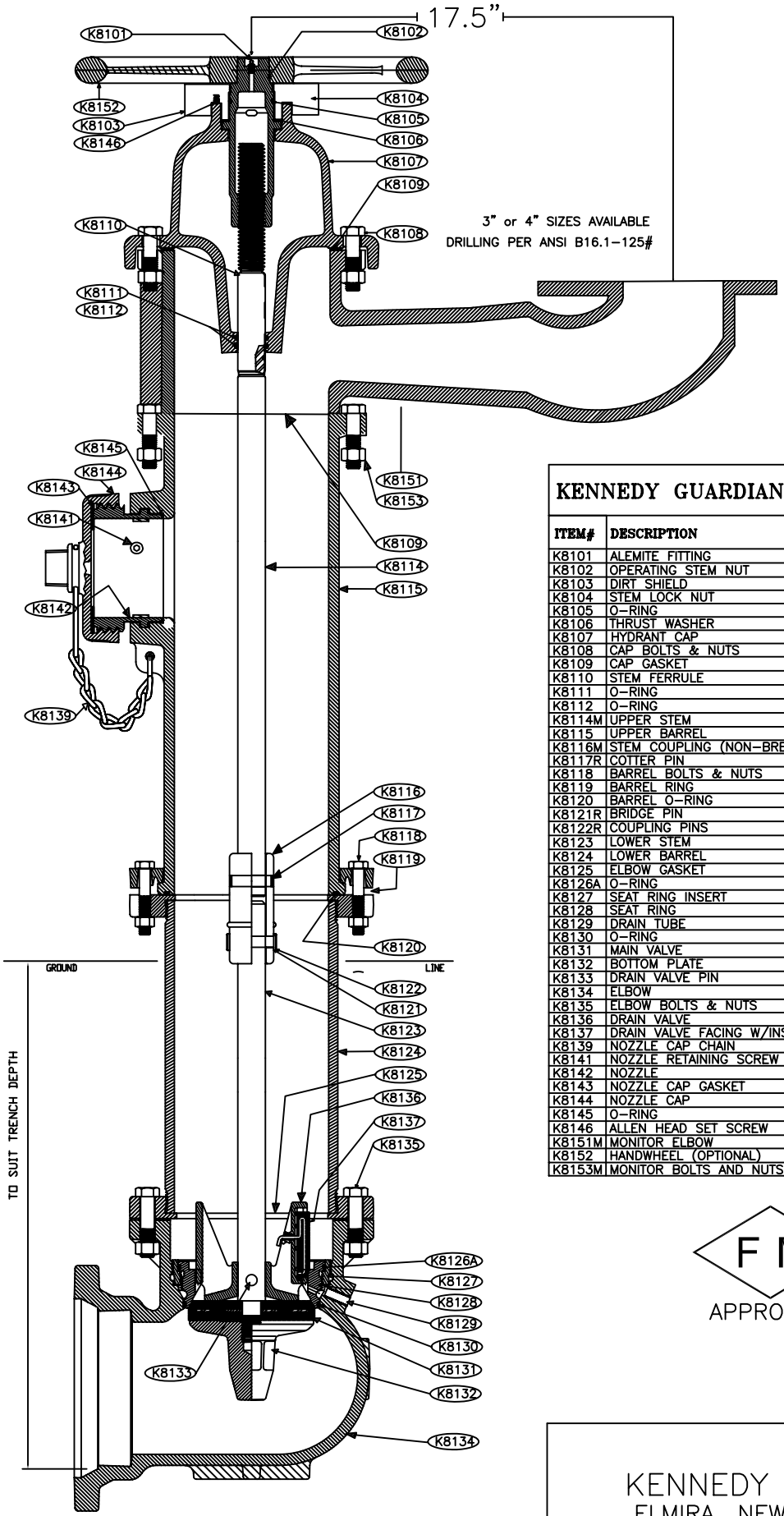
LOWER BARREL – Furnish depth of trench (distance from groundline to bottom of connecting pipe) or dimension from flange face to flange face (overall). The outside and inside diameters are also a help.

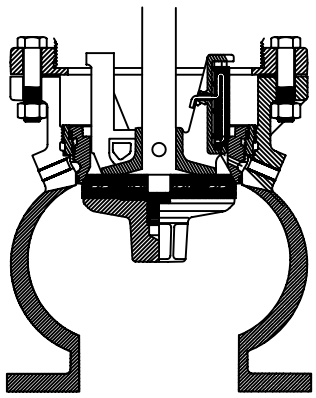
SEAT RING – As with all parts you order we must have size of main valve opening and type of hydrant. This is cast on the upper barrel.

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"	1¼"	1¼"
G. Face to start of second turn		¼"	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 3/16"	1 3/16"

Also available: Figure 109 Hose Gate Valve (2½").





STRAIGHT SHOE OPTION

KENNEDY GUARDIAN K81D MONITOR FIRE HYDRANT

ITEM#	DESCRIPTION	MATERIAL
K8101	ALEMITE FITTING	STAINLESS STEEL A276 (304)
K8102	OPERATING STEM NUT	BRONZE B584 CB4400
K8103	DIRT SHIELD	CAST IRON A126 CLASS B
K8104	STEM LOCK NUT	BRONZE B584 CB4400
K8105	O–RING	BUNA–N D20000
K8106	THRUST WASHER	NYLATRON GS MIL LP–410
K8107	HYDRANT CAP	CAST IRON A126 CLASS B
K8108	CAP BOLTS & NUTS	ZINC PLATED STEEL A307/A563
K8109	CAP GASKET	CLOTH INSERTED RUBBER D2000
K8110	STEM FERRULE	NAVAL BRASS B21–CDA 464
K8111	O–RING	BUNA–N D735
K8112	O–RING	BUNA–N D735
K8114M	UPPER STEM	H.R. STEEL A588
K8115	UPPER BARREL	CAST IRON A126 CLASS B
K8116M	STEM COUPLING (NON–BREAKING)	CAST IRON A126 CLASS B
K8117R	COTTER PIN	STAINLESS STEEL A276 (18–8)
K8118	BARREL BOLTS & NUTS	ZINC PLATED STEEL A307/A563
K8119	BARREL RING	CAST IRON A126 CLASS B
K8120	BARREL O–RING	BUNA–N D735
K8121R	BRIDGE PIN	STAINLESS STEEL A276 (18–8)
K8122R	COUPLING PINS	STAINLESS STEEL A276 (18–8)
K8123	LOWER STEM	HR STEEL A588
K8124	LOWER BARREL	DUCTILE IRON ANSI 21.50, 21.51
K8125	ELBOW GASKET	CELLULOSE FIBER FED F339477M4
K8126A	O–RING	BUNA–N D735
K8127	SEAT RING INSERT	BRONZE B584 CB4400
K8128	SEAT RING	BRONZE B584 CB4400
K8129	DRAIN TUBE	NAVAL BRASS B21–CDA 464
K8130	O–RING	BUNA–N D735
K8131	MAIN VALVE	NEOPRENE WITH STEEL INSERT UL 246 10.1
K8132	BOTTOM PLATE	CAST IRON A126 CLASS B
K8133	DRAIN VALVE PIN	CAD PLATED STEEL A108
K8134	ELBOW	CAST IRON A126 CLASS B
K8135	ELBOW BOLTS & NUTS	ZINC PLATED STEEL A307/A563
K8136	DRAIN VALVE	BRONZE B584 CB4400
K8137	DRAIN VALVE FACING W/INSERT	BUNA–N W/STAINLESS STEEL
K8139	NOZZLE CAP CHAIN	STEEL A108
K8141	NOZZLE RETAINING SCREW	STAINLESS STEEL A276 (304)
K8142	NOZZLE	BRONZE B584 CB4400
K8143	NOZZLE CAP GASKET	RUBBER D20000 TYPE AA
K8144	NOZZLE CAP	CAST IRON A126 CLASS B
K8145	O–RING	BUNA–N D735
K8146	ALLEN HEAD SET SCREW	STAINLESS STEEL A276 (410)
K8151M	MONITOR ELBOW	CAST IRON A126 CLASS B
K8152	HANDWHEEL (OPTIONAL)	CAST IRON A126 CLASS B
K8153M	MONITOR BOLTS AND NUTS	ZINC PLATED STEEL A307/A563

FM APPROVED

LISTED UL 888H

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

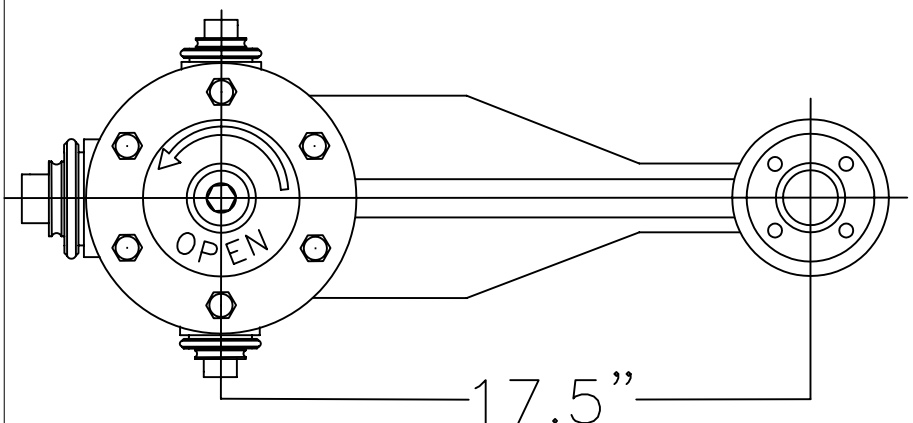
DWN: TRIJ
DATE: 7/1/05
DWG. NO. FH–129

5 1/4" K81AM Guardian Monitor Hydrant

FEATURES

1) Meets or exceeds all requirements of AWWA C–502
2) 5 1/4" main valve opening
3) Excellent flow characteristics
4) Monitor elbow can be positioned independently of the upper barrel
5) Existing hydrants can be retrofitted easily and affordably
6) Monitor elbow is available with either 3" or 4" drilling with the same large discharge orifice

APPROVALS:
3" FLANGE–UL/FM APPROVED
4" FLANGE–FM ONLY
MONITOR HYDRANT CAN BE MAINTAINED THROUGH THE HYDRANT CAP WITHOUT EXCAVATION



SHOWN: 3 WAY UPPER
1 STEAMER & 2 HOSE NOZZLES
WITH MONITOR ELBOW

OPTIONS

Upper Barrel Configurations
*1 Steamer & 2 Hose Nozzles
*2 Hose Nozzles
*2 Steamer Nozzles
*1 Steamer & 3 Hose Nozzles

Inlet Connections
*6" MJ, Flanged, push–on or Ring Tite elbows
*6" ANSI straight shoe
*6" 250 lb raised face elbow
*8" MJ or flanged elbow

2 1/2" size independent hose gate valves
*Bolt–on/Figure 109XNS
*Screw–on/Figure 109XMN

Salt Water Protection
*Fusion bonded coatings
*Stainless steel seams & fasteners

Operating Details
*Open clockwise or counter–clockwise
*Any size & shape of operating nuts
*Any nozzle outlet thread(s)

Iron Hose Gate Valves

Working pressures:

2½" Cold Water, Non-Shock 175 lbs.

- **Non-Rising Stem**
- **Bronze Mounted**
- **Rubber Seat**

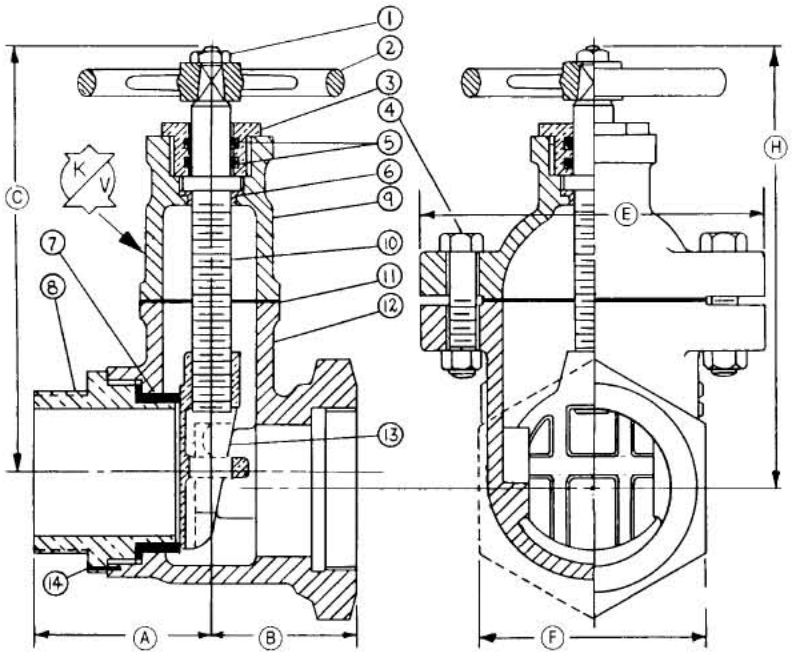
HYDROSTATIC TEST PRESSURE: 2½" — Seat & Shell — 350 psi.

FIG. 109XNS SHOWN

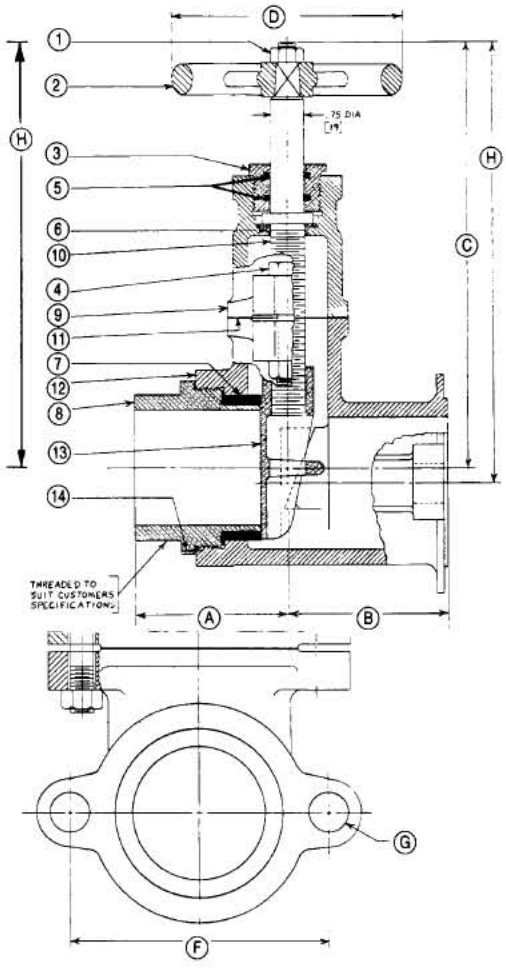
FIG. 109XMN (Screwed ends also available)

PART NO.	NAME OF PART	MATERIAL	ASTM SPEC.
1	HEX NUT	STEEL	A-108 C-1018
2	HANDWHEEL	MALL. IRON	A-47
3	STUFFING BOX	BRONZE	B-62
4	HX. HD. SCR. & NUT	STEEL	A-108 C-1018
5	"O" RINGS	SYN. RBR.	D-735
6	CAP BUSHING	BRONZE	B-135 ALLOY A
7	SEAT & GSKT. FLG.	NEOPRENE	—
8	NOZZLE	BRONZE	B-62
9	CAP	CAST IRON	A-126 GR. B
10	STEM	MANG. BRZ.	B-132 ALLOY A
11	GASKET	GARLOCK 1591	—
12	BODY	CAST IRON	A-126 GR. B
13	DISC	BRONZE	B-62
14	PIN	BRZ. ROD	B-16

109XMN



109XNS



MODEL	A	B	C	D	E	F	G	H	WT
109XNS	3 5/16"	3 1/2"	8 5/16"	4 3/8"	6 1/2"	5 5/8"	7/8"	8 5/8"	29
109XMN	3 5/16"	2 3/4"	8 5/16"	4 3/8"	6 1/2"	4 1/4"	N/A	8 5/8"	28

CAP MARKING

KV LOGO

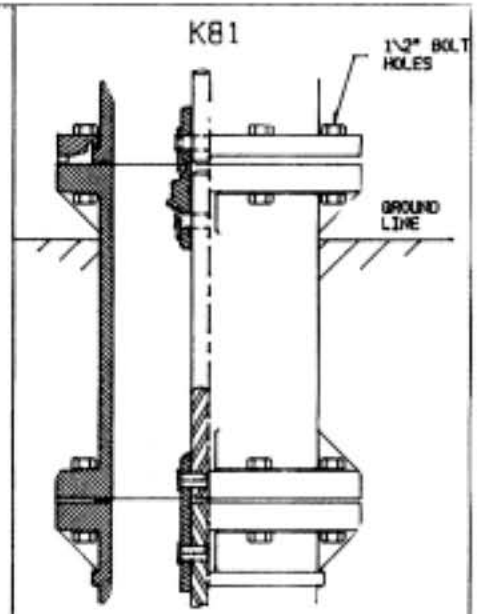
BODY MARKING

FRONT
◄FM►
175
2½
FIG. 109-X

BACK
UL
LISTED
FIRE
HOSE VALVE
885H

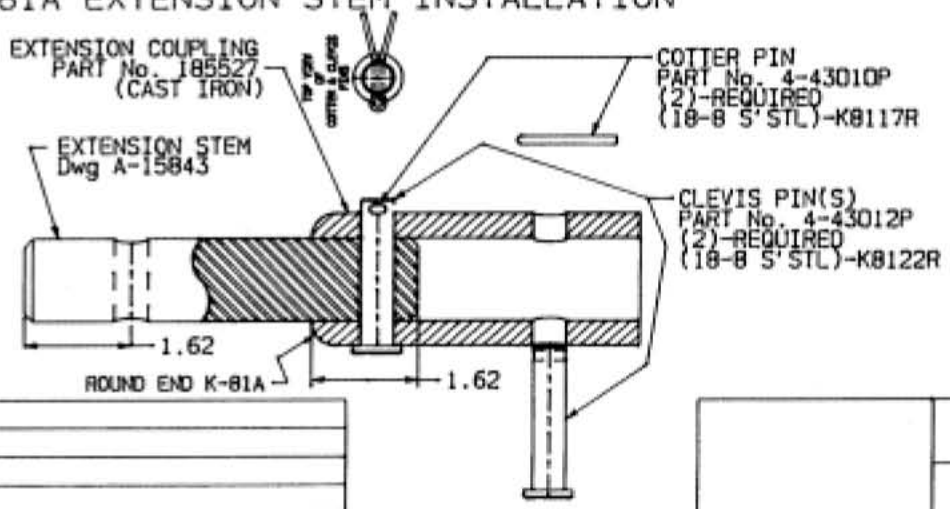
IT IS PREFERABLE TO BE ABLE TO TURN THE WATER PRESSURE ON AND OFF. IF THE WATER PRESSURE IS LOW IT IS POSSIBLE THAT THE HYDRANT WILL BE OPENED WHEN REMOVING THE UPPER

1. Make certain that the hydrant is closed. The water may remain on but see above note.
2. Remove the eight 1\2-UNC bolts & nuts that retain the breaking rings.
3. Turn the Operating Nut in the opening direction until the threaded stem disengages from the Operating Nut. (This will lift the Upper away from the flange.)
4. Lift the complete hydrant upper stand-pipe assembly and dome from the stem. Lift this assembly straight up about 12" to avoid damaging the O-Rings that seal the stem and remove the complete upper assembly.
5. Disengage the Lower Stem from the Upper Stem. Remove the Bridge Pin from the lower Clevis Pin that retains the Lower Stem to the Breaking Coupling and pull this pin out
6. Wire brush the exposed flange of the lower stand-pipe until all dirt and built up rust is removed.
7. Wire brush the end of the Lower Stem and attach the Extension Stem Coupling to the Lower Stem exactly as illustrated below.
8. Attach the Upper Stem to the Extension Stem in exactly the same way that it previously was attached to the Lower Stem.
9. Place the Gasket for the Extension Spool on the exposed flange of the Lower Stand-Pipe. Retain the gasket with grease to keep it from shifting.
10. Place the Extension Spool on the Lower Stand-Pipe and align the bolt holes.
11. Insert the bolts provided in the holes. Start the nuts provided on the bolts. Tighten the bolts wrist tight only then tighten them securely (70 ft-lb), proceeding in a side to side pattern that assures that the pressure on the gasket is uniform.
12. Carefully lift the complete upper assembly up above the Upper Stem and lower it on to the Upper Stem taking care not to cut the O-Rings in the Dome.
13. Turn the Operating Nut in the closed direction until the bottom of the Stand Pipe just touches the flange.
14. Align the hydrant and replace the breaking rings in the original position.
15. Replace the bolts in the breaking rings and close the hydrant tightly
16. Start the nuts on the bolts and tighten the bolts per step 11 except that the torque should be 40 ft-lb.



SPOOL INSTALLATION

K-81A EXTENSION STEM INSTALLATION



TOOLS REQUIRED
1. WIRE SCRATCH BRUSH
2. HAMMER
3. (2)-8"ADJUSTABLE WRENCH(S)
4. PLIERS
5. DRIFT(FOR HOLE ALIGNMENT)

NO.	Date	ECN	REVISION
-	-	-	---
-	-	-	---
-	-	-	---
-	-	-	---
-	-	-	---
3	7/98	-	Revise To show Post 1996 Clevis Pins with Cotter Pins Replace Previous Groove Pins with Hair Pin Clips
2	8/93	N/A	Add 40 -ft lbs Break Rings-Change Illustration To Remove Cast In Ground Line Seal
1	6/30	2396	CREATED K81A (ONLY) EXTENSION

NOTE:
1. ALL K81 STEMS 1.250 DIA

FILE PATH DRAFTHY
DRAWN
ISSUED 6-16-90

KENNEDY VALVE
ELMIRA, N.Y. 14901

STEM EXTENSION ASSEMBLY
K81A/D HYDRANT

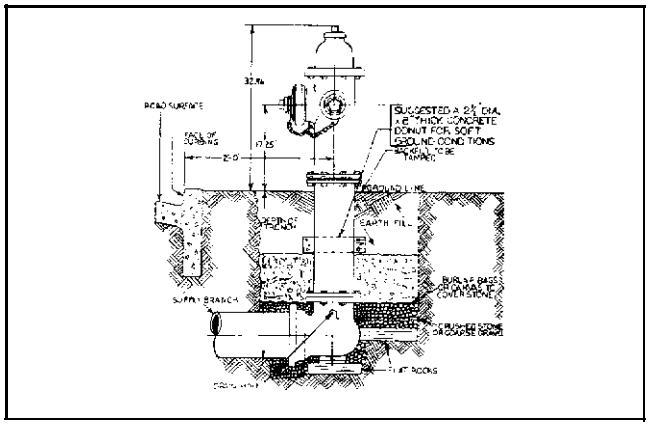
A	PART CODE # 4-00817P	DWG NO. 16143
SCALE 1"=2.00"	Dor 9/4/96	Revision 03

INSTALLATION

1. When hydrants are received from manufacturer they should be handled carefully to avoid breakage and damage to flanges. Keep hydrants closed until they are installed. Protect stored hydrants from the elements, if possible

2. Before installation of hydrants clean piping and elbow of any foreign matter.

3. Install hydrants away from the curb line a sufficient distance to avoid damage from or to overhanging vehicles. A set-back of 2 ft. from the curb line to the point on the hydrant nearest the curb is recommended. The pumper outlet nozzle should face the street. Make sure that the outlet nozzles are high enough above the ground line for hose attachment and that there are no obstructions to prevent operation,



In setting up a hydrant. the elbow should be placed on a flat stone or other solid foundation. It is good practice to brace the side of the base opposite the inlet to oppose the stress due to pressure tending to force the hydrant off the end of the lateral. Hydrants must be firmly supported underground all around the standpipe, especially where there is no concrete sidewalk to help support them. This is particularly important since the proper working of the Safety Breakable Section in severe impact depends upon unyielding support of the underground standpipe.

4. The bottom and lower part of the hydrant should be surrounded with broken stone or coarse gravel so that water released from the standpipe by the drain valves may escape quickly. The stone-filled area should contain a volume of water at least twice that held by the hydrant barrel.

5. Both drainage stone and earth fill above the stone should be tamped to give firm support to the hydrant barrel.

6. It is recommended practice to install an auxiliary or secondary gate valve in the lateral between the hydrant and the main.This permits inspection and repair of hydrant without shutting down mains. Check the hydrant and auxiliary valve for perpendicular setting.

7. After the hydrant is installed and the line as well as the hydrant have been hydrostatically tested, the hydrant should be flushed and then checked for proper drainage.

A. A nozzle cap should be removed, then the hydrant opened fully. This will flush out any dirt or sediment which may have accumulated during installation.

After the hydrant is flushed, close it, replace the nozzle cap, then open the hydrant again and inspect all joints for leaks: Close the hydrant again, remove a hose cap and/or steamer cap to test your hose thread for proper fit.

B. Before replacing the hose cap and/or steamer cap, check the inside of the hydrant for drainage. This can be accomplished by placing the palm of the hand firmly over the nozzle outlet. Drainage rate should be sufficiently rapid to create a suction.

Note:
In certain areas ground water stands at levels above that of hydrant drains. In such cases it is recommended that hydrant drains be plugged at the time of installation. If drains are plugged, hydrants in service in cold climate areas should be pumped out after usage. Mark such hydrants to indicate the need for pumping out after usage.

OPERATION

The Guardian hydrant requires a minimum of torque to be operated. It is possible to damage the hydrant by forcing it beyond the limits of the operating nut travel with excessive torque; therefore. the following steps are recommended:

1. CHECK DIRECTION OF OPENING as marked on the dirt shield.
2. TO OPEN, DO NOT FORCE THE HYDRANT IN THE OPENING DIRECTION BEYOND FULL OPEN as indicated by sudden resistance to turning. If water does not flow when the hydrant is open, it is probably due to a closed valve upstream from the hydrant.
3. WHEN USING HYDRANT, hydrant should be opened full. Partially opened hydrant may allow substantial leakage through the drain valves. This may prevent the hydrant from draining properly when it is shut down. Operation of hydrant in this manner over a period of time could also undermine the hydrant and/or the water main.
4. TO CLOSE, turn the operating nut until the valve closes off the flow. Always shut off hydrant slowly. In old water mains where corrosion has taken its toll, or even on new mains where high pressure is maintained, closing the hydrant too rapidly could cause a water hammer resulting in damage to the main.

IT IS NOT NECESSARY to OPEN or CLOSE the hydrant with great force. When closing the hydrant, the closed position will be evident by a reduction in the effort required to close it. When that position has been reached, back off the operating nut in the opening direction one-quarter turn to take the strain off the operating parts of the hydrant and to make it easier to open the hydrant when needed again.

MAINTENANCE

It is recommended the hydrant be inspected twice yearly, in the spring and fall. In extremely cold weather it is advisable to inspect hydrant after each use.

Maintenance and adjustments are easy and economical with the Guardian hydrant. All parts which are susceptible to damage or rough treatment can be reached without excavation or expensive equipment.The main valve, seat ring, drain valve, drain valve seat and the stem may all be easily withdrawn and replaced by one man.

Inspection or renewal are practical without disturbing the standpipe, pavement or mains. Inspection should cover the following points:

Physical examination noting condition of operating nut, nozzle caps and drains, and general appearance.

2. Use an Aquaphone and listen for leakage through main valve.
3. To check for leakage at seals loosen one hose cap one-half turn. Check ease of operation while fully opening hydrant. When all the air has escaped through the hose cap and the hydrant is full, re-tighten the hose cap and check for leakage at joints, packing or seals, and outlet caps.
4. Close hydrant and remove one nozzle cap. Observe drainage.
5. Open hydrant completely, flush hydrant and observe flow. Care should be taken that the water coming from hydrant will not cause any damage to surrounding area.
6. Close hydrant slowly to insure tight closure.
7. Clean and lubricate all nozzle threads. Replace caps, tighten with spanner wrench, then back off slightly so that the caps will not be excessively tight, but have sufficient frictional resistance to prevent removal by hand.
8. Lubricate stem threads through the Alemite fitting centered in the operating nut (one or two pumps with a grease gun).
9. Clean the exterior of the hydrant and repaint, if necessary.
10. Be sure any auxiliary valves are in the wide open position.
11. Keep complete records on inspection and location of all hydrants in the system.

PROBLEMS AND SOLUTIONS

Various problems which occur in the field are described below with hints on how to solve them.

Stem Binding: Rap the hydrant dome with hammer or spanner wrench. This often will unbind the stem. If stem still binding, loosen dome bolts. Stem should then operate easily. Retighten bolts evenly.

Poor Drainage: It is possible dirt or pebbles may have plugged the drain holes. Presence of water or ice standing in barrel can be checked using a plumb bob.

To correct:

1. Screw nozzle caps on tightly to prevent leakage.
2. Open hydrant slowly until you hear water entering barrel of hydrant. This will allow water to enter the hydrant with drain valve in an open position. When enough pressure builds up in the barrel any dirt or foreign objects causing the blockage should be forced out.
3. After a few minutes, resume turning the operating nut until the hydrant is fully opened.
4. Slowly shut off hydrant.
5. Remove one of the nozzle caps.
6. Observe through nozzle port to make sure water in barrel is receding. Drainage should be sufficiently rapid to create a suction if palm of hand is placed over a nozzle outlet during drainage.
7. Check again for seat leakage with the Aquaphone.

Poor Shutoff: DO NOT exert extra torque forcing hydrant to close. Trouble may be a stone lodged between the seat and the main valve. Forcing closure may damage the hydrant. Stones or other foreign objects are the usual causes of this problem. To correct this problem, remove one or both nozzle caps and open hydrant fully to flush out any foreign material.

Care should be taken that water coming from hydrant will not cause any damage to surrounding area. Attach a canvas apron if necessary, to direct the flow into the street.

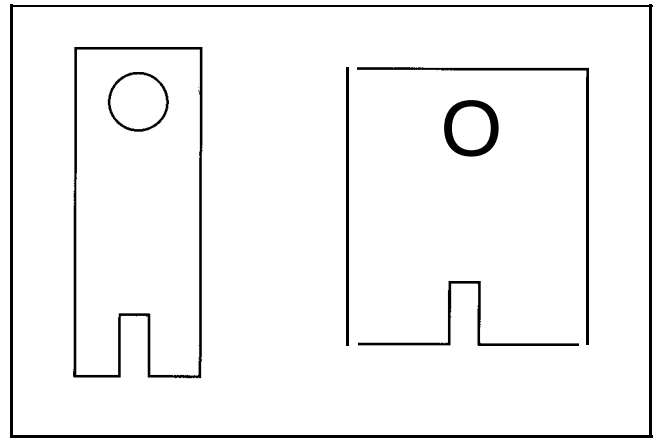
Shut off hydrant slowly until fully closed. Put your ear to nozzle opening to hear if water has stopped coming through main valve.

REMOVING NOZZLES

In 1982 most Guardian hydrants were changed from threaded (12 T.P.I.) nozzle to 1/4-turn nozzle, designed to provide easy replacement in case of damage. Both hose and steamer nozzles are 1/4-turn, left-hand thread segments, and are secured by a stainless steel retaining screw. 1/4-turn nozzles can be removed without difficulty by following these steps:

Instructions to remove 1/4-turn nozzles:

1. Remove nozzle cap (K-8144).
2. Remove nozzle retaining screw (K-8141) using a 1/4" Hex Allen Wrench and turning counter-clockwise.
3. Insert nozzle removing wrench (K-8148) into nozzle (K-8140) and engage nozzle lugs with slots in wrench.
4. Use a 1" diameter bar to turn the nozzle wrench in a **clockwise*** direction (right) 1/4-turn and remove the nozzle. Note: Nozzles are held in the upper by segments of a **left-hand** thread.
5. Remove the old nozzle "O"-Ring (K-8145).
6. inspect the nozzle seating surface in the upper barrel (K-8115) and remove any dirt or sediment.
7. Lubricate the new "O"-Ring and place into upper barrel.
8. Insert new nozzle and use nozzle wrench (K-8148) and 1" diameter bar to turn nozzle approximately 1/4-turn counter-clockwise (left). Turn nozzle so the nozzle retaining screw will clear the shoulder on the upper casting when it is inserted.



NOZZLE-REMOVING TOOLS K-8148

*Threaded nozzles are removed by turning to the left or counter-clockwise.

9. Check that the nozzle "O"-Ring is compressed evenly.
10. Lubricate the nozzle retaining screw with a Moly-Type grease and thread it into nozzle until it is flush with the nozzle I.D.
11. Inspect nozzle cap gasket (K-8143) and replace if necessary.
12. Install nozzle cap and tighten.

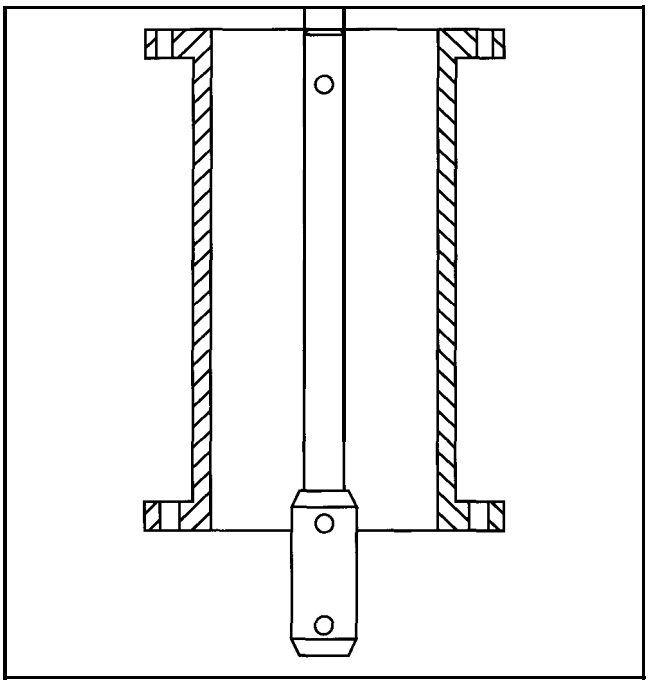
EXTENSION OF GUARDIAN HYDRANT FOR RAISE IN STREET GRADE

Height extension of the Guardian hydrant to compensate for a raise in street grade is easily accomplished through the use of the Guardian extension kit (K-8150) without any excavation of interruption of water service and without discarding any parts of the existing hydrant. Extensions are available in 6" increments from 6"- to 36"-in length.

The parts supplied with a kit consist of a barrel extension piece and an extension stem of suitable length with all necessary hardware to insert between the upper and lower hydrant sections. The upper barrel and stem sections are connected to the new parts by means of the original standpipe breaking ring and stem coupling.

The entire change can be handled by one man in less than 30 minutes. The new assembly is as rigid and operates as easily as a single piece hydrant.

If the extension increases the overall bury of the hydrant to more than 8 feet, it is strongly recommended that a “deep bury” lower stem be used to minimize chatter.

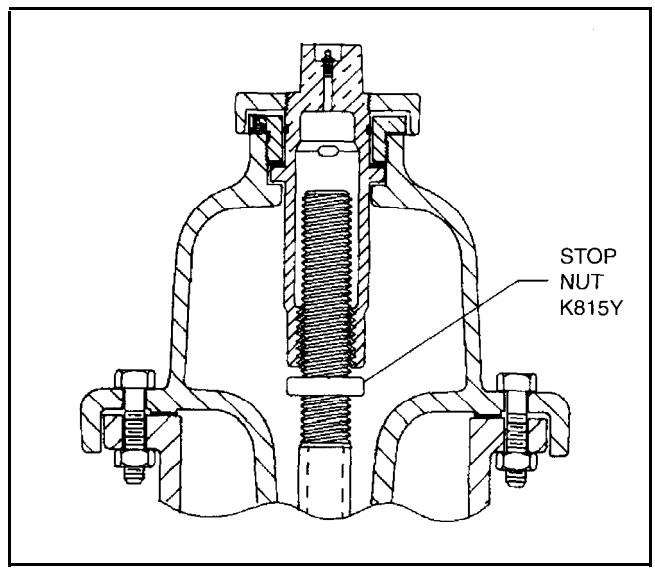


GRADE EXTENSION KIT K-8150

EXTENSION INSTRUCTIONS

For hydrants not equipped with Stop Nut on Upper Stem.
Stop Nut is furnished on all 4”- and 4-1/2”-Mathews-Guardian Inserts and on Guardian Hydrants where specifications require.
See diagram this page.

1. Remove cap bolts and nuts (K-8108).
2. Remove cap assembly by placing hydrant wrench on the operating nut (K-8102) and turning in direction to open hydrant. Assembly will walk off stem (K-8114).
3. Remove standpipe breaking ring bolts and nuts (K-8118).
4. Remove standpipe breaking rings (K-8119).
5. Lift upper barrel (K-8115) over stem (K-8114).
6. Remove Clevis Pin (K-8121R) from stainless steel lower coupling pin (K-8122R) and remove pin from the coupling (K-8116).
7. Remove upper stem section with coupling (K-8114 & K-8116).
8. Remove extension stem and coupling from kit (K-8150) and fasten stem to coupling with allen socket head coupling pin provided (K-8150 kit).
9. Place extension stem with coupling (K-8150 kit) on lower stem section (K-8123). Line up pin holes and fasten with allen socket head coupling pin provided (K-8150 kit).
10. Place fiber gasket (K-8150 kit) on lower barrel flange.
11. Place extension spool over stem and fasten with bolts and nuts provided (K-8150 kit).
12. Place upper stem section with breaking coupling (K-8114 & K-8116) on extension stem, line up pin holes, insert stainless steel lower coupling pin and fasten with Clevis Pin.
13. Check "O"-Ring (K-8120) on lower flange of upper barrel. If damaged, replace with new "O"-Ring provided (K-8150 kit).
14. Place upper barrel section (K-8115) over stem and orient nozzles in proper position.
15. Replace standpipe breaking rings (K-8119).
16. Insert bolts and nuts (K-8118) and tighten evenly to 30-35 Ft.-Lbs.



GUARDIAN WITH STOP NUT K-8154
STOP NUT REMOVAL WRENCH K-8155
AVAILABLE UPON REQUEST

17. Check gasket at hydrant cap flange. If damaged, replace with fiber gasket provided (K-8150 kit).
18. Place cap assembly (K-8107) over hydrant stem carefully so as not to damage “O”-Rings (K-8111) and turn in direction to close hydrant. Insert two cap bolts (K-8108) to align flanges and draw down until snug.
19. Replace cap bolts and nuts (K-8108) and tighten.
20. Cycle hydrant to test for leaks or binding.

DIRECTIONS FOR REPAIRING BREAKING COUPLINGS ON K-81A, K81AD, K81AW HYDRANTS

For hydrants not equipped with Stop Nut on Upper Stem. Stop Nut is furnished on all 4”- and 4-1/2”-Mathews-Guardian Inserts and on Guardian Hydrants where specifications require.
See diagram-page 5.

1. Remove broken stem breaking coupling and standpipe breaking rings.
   A. Remove the broken stem breaking coupling (Item K-8116) from the lower stem (Item K-8123) by sliding off the bridge pin (Item 8121R) and removing the lower coupling pin (Item K-8122R).

B. With a socket wrench, remove the bolts (Item K-8118) holding the broken standpipe breaking rings (Item K-8119) pieces and remove the pieces. Lay the hydrant upper on the ground.

2. Remove stem from hydrant upper.
   A. Unscrew the upper stem (Item K-8114) from the operating nut (Item K-8102) by holding the stem stationary and turning the operating nut in the direction to open.
   B. Remove broken upper stem breaking coupling (Item K-8116) by removing the cotter pin (Item K-8117R) and the upper coupling (clevis) pin (Item K-8122R). Use a 3/8" punch for drive pin in older style hydrants.
3. Install new stem coupling.
   A. Place the new stem breaking coupling (K-8149 kit) on the upper stem and secure with the upper coupling clevis and cotter pins provided (K-8149 kit). Bend cotter pin to retain assembly.
   B. Slide the upper stem and coupling assembly over the lower stem. Push in the lower coupling clevis pin and fasten with the bridge pin.
4. Remove the cap from hydrant upper.
   A. Place the hydrant upper barrel (Item K-8115) on cardboard or other clean surface.
   B. With a socket wrench, remove the bolts (Item K-8108) holding the cap (Item K-8107) to the upper barrel and remove cap.
5. Reassemble hydrant.
   A. Check the "O"-Ring (Item K-8120) on the bottom of the hydrant upper barrel. Replace if damaged (K-8149 kit).
   B. Set the hydrant upper barrel over the stem and orient the nozzles in the direction required.
   C. Place the breaking rings on the lower barrel (Item K-8124) flange and around the upper barrel. Replace the bolts in the breaking rings and finger tight.
   D. Replace the hydrant cap gasket (Item K-8109) (K-8149 Kit) and lower the cap over the stem. (Be careful not to damage the "O"-Rings (Item K-8111) in the cap.) Start the upper stem into the operating nut by turning the operating nut in the direction to close. Turn until the cap is seated on the upper barrel.
   E. Replace the cap bolts (Item K-8109) and tighten.
   F. Tighten the breaking rings bolts (Item K-8118) evenly to 30-35 Ft./Lb.

NOTE: CHECK FOR FREE OPERATION BY CYCLING THE HYDRANT FROM FULLY OPEN TO FULLY CLOSED.

DESCRIPTION: COLLISION REPAIR KIT – K81 A, K81 AD, K81 AW

5-1/4"-ITEM #1-58008
4-1/2"-ITEM #1-58007

DESCRIPTION	QUANTITY
Stem breaking coupling	
Breaking ring	2
Flange seal "O"-Ring	
Gasket hydrant cap	
Pin, bridge – 1/8 x 1-15/16"-(Lower)	
Cotter pin – 1/8 x 1-1/4"-(Upper)	
Pin, clevis – 1/2 x 2-1/4"	2
Screw hex head plated 1/2" x 2-3/4"	8
Nut finished hex plated 1/2"	8
Instruction Sheet	

PROPER TOOLS REQUIRED

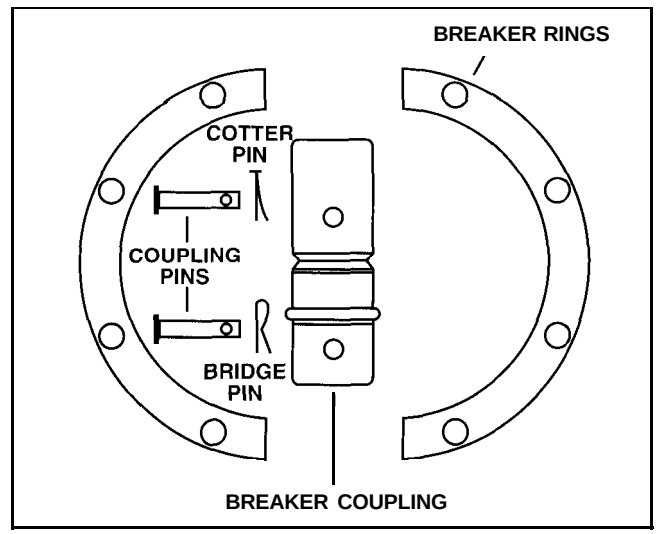
Figure 111 spanner wrench with proper sized operating nut opening
Hammer
Pliers
3/8"- or 1/2"-drive ratchet with 3/4"-socket

AND

3/4"-open or box end wrench 1

OR

3/4"-open or box end wrenches 2



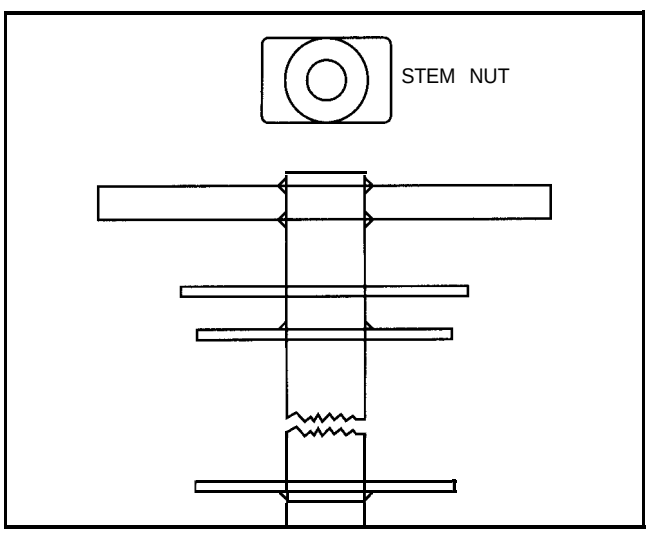
COLLISION REPAIR KIT K-8149

DIRECTIONS FOR USING HYDRANT SEAT REMOVING WRENCH ON GUARDIAN HYDRANT

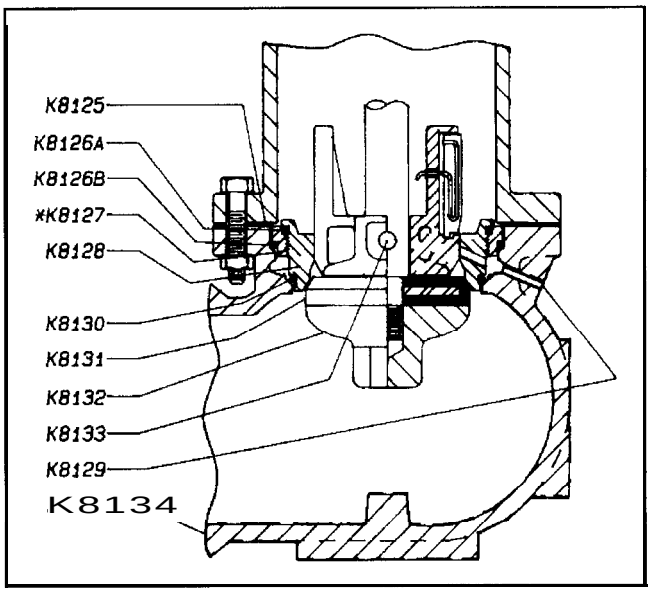
For hydrants not equipped with Stop Nut on Upper Stem. Stop Nut is furnished on all 4"- and 4-1/2"-Mathews-Guardian Inserts and on Guardian Hydrants where specifications require. See diagram-page 5.

1. Shut off Water Supply.
   A. Shut off water supply to hydrant by closing the gate valve controlling flow of water to the hydrant. Remove a nozzle cap and open the hydrant a maximum of three turns. Remember, for operator safety, remove the nozzle cap before opening the hydrant.

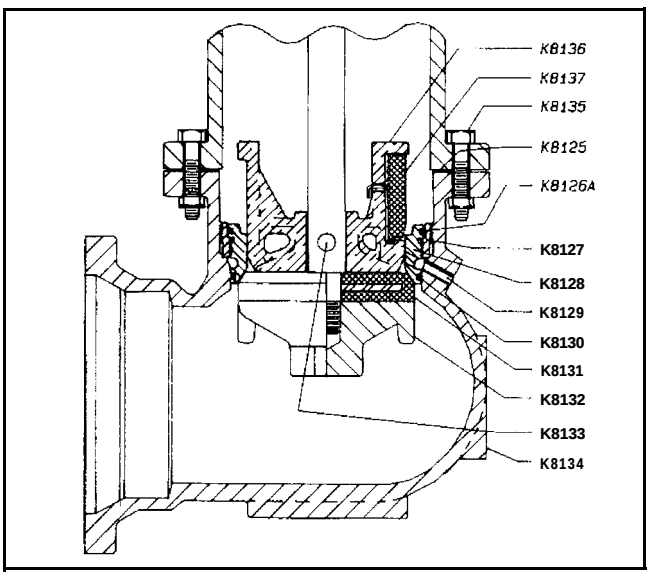
2. Removal of Hydrant Cap.
   A. With a socket wrench, take out the bolts (K-8108) holding the cap (K-8107).
   B. Turn the operating nut (K-8102) in the direction to open and hold the cap to keep it from rotating as the operating nut unscrews and lifts the cap. Turn until the operating nut walks off the stem (K-8114).
   C. Lift the cap straight up and off. Take care not to damage the "O"-Rings (K-8111) in the lower part of the cap.
3. Removal of Stem and Drain Valve Assembly
   A. Slide the seat removing wrench (K-8147) over the stem and down into the upper barrel (K-8115). Thread the seat removing stem nut (K-8147) on to the stem.
   B. Turn the wrench while tightening the nut to align it with the stem breaking coupling (K-8116). This will allow the coupling to be drawn into the wrench.
   C. Tighten the seat removing the stem nut.
   D. Lift on the wrench, to pull the drain valve (K-8136) firmly into the seat ring (K-8128) and turn the wrench counter-clockwise to unscrew the seat ring.
   E. Lift the entire drain valve and stem assembly, with the seat ring and seat removing wrench, out of the standpipe. Do not allow the seat ring to rub against the lower.
   F. Inspect to be sure "O"-Rings (K-8126A and K-8130) are not in the standpipe.
4. Inspect and Replace, if Necessary, Hydrant Components.
5. **Reassemble Hydrant.**
   A. Place the seat ring, stem and hydrant drain valve as a unit into the wrench. Check to assure "O"-Rings (K-8126A and K-8130) are in place. Engage the wrench (K-8147) on the stem breaking coupling and tighten the stem nut (K-8147).
   B. Insert this assembly into the barrel and lower carefully.
   C. Turn the wrench one full turn counter-clockwise to line up the threads to prevent cross-threading. Then turn clockwise to tighten the seat ring. Tighten to 300 Ft.-Lbs. + or 30 Ft.-Lbs.
   D. Unscrew the stem nut and remove the wrench.
   E. Lower the cap assembly onto the stem carefully so as not to damage "O"-Rings and turn the operating nut in the direction to close the hydrant, until the cap seats on the barrel, align the bolt holes in the cap and bolt to the barrel.
   F. Close the hydrant and open the gate valve controlling flow of water to the hydrant.
   G. Cycle hydrant to check for free operation. Close hydrant, wait for hydrant to drain, then reinstall nozzle cap and tighten.



SEAT REMOVING WRENCH K-8147



GUARDIAN 4 1/2"



GUARDIAN 5 1/4"
Old Style Drain Valve & Bottom Plate

KENNEDY 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. Kennedy Valve Company was at the forefront in this industry-wide movement by introducing the Style 8000, 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 Kennedy Valve to be at the forefront as a leader in modern valve design.

The Style 8000 RS gate valve embodies all of the latest valve technology for simplicity, durability and superior performance; It is available in size range 3" thru 12" and meets AWWA standards C-509. Additionally, 4" 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 Kennedy 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 complying with ANSI / AWWA C550, 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 Kennedy Valve 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 Kennedy Valve RSGV is among the lowest in operating torques of all available competitive type valves

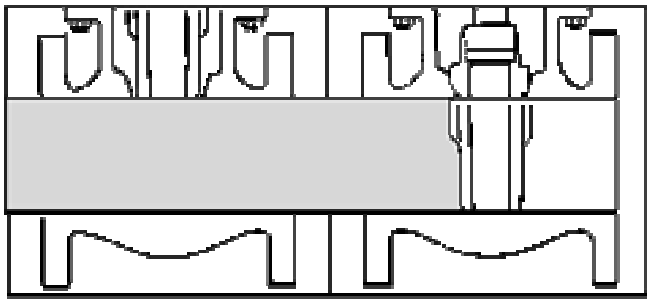
POSITIVE SEALING

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 Kennedy Valve 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 Kennedy Valve 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

KENNEDY AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

FEATURES	BENEFIT
Bubble Tight Closure at 250 psi (AWWA) 3" – 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 Kennedy Valve believes in the strong product they produce.
Body / Bonnet Epoxy Coating Inside & Out	• Unprecedented Protection Against Corrosion and abrasion

* DuPont Trademark

PERFORMANCE INFORMATION

- 3"- 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

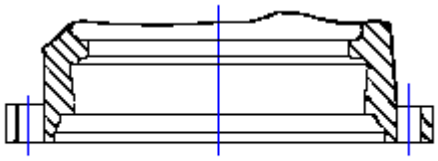
July 2005 / C509 Gate Valves

END CONNECTIONS (3”-12”)

KENNEDY AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

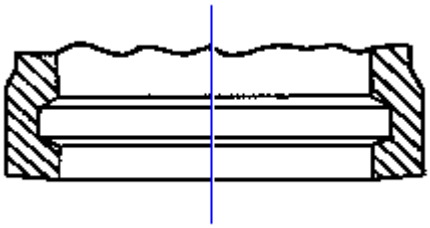
Shown at right are the principal ends available on Kennedy Gate valves. Other type ends are available upon request.

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 ends are in accordance with ANSI/ AWWA C111 / A21.11.



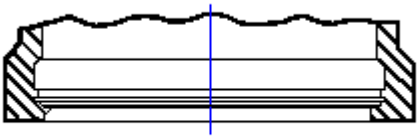
Mechanical Joint End

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



PVC End

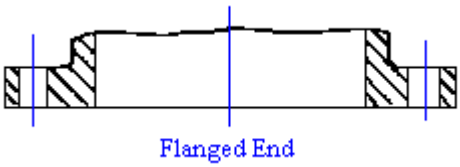
Push on ends for C900 plastic and ductile and cast iron pipe furnished with stab rubber gaskets to ANSI / AWWA C111/A21.11.



Push-On-End

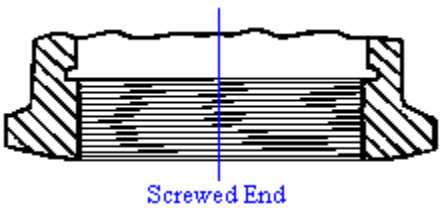
Flanged end valves are furnished with flanges made to ANSI / AWWA C110/A21.10 (ASME B16.1, Class 125) dimensions. Flanged end valves are most commonly used for filtration plants, sewage disposal plants and pump stations. Flanged valves have the advantage of quick and easy removal for repairs or replacement without disrupting the pipe line.

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.



Flanged End

Threaded / Screwed end valves are furnished for smaller pipelines for general service with iron pipe threads, in accordance with ASME B16.9, Class 125.



Screwed End

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

KENNEDY VALVE KENSEAL II
AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

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”	8571	8571-W	8071 (3”-12”)
Flanged Ends (NRS)	2”-12”	8561AN	8561A	8701A (3”-12”)
Note: 8561A is Tapped & Plugged in the “A” Position 2“ – 4” = ½ “ Tap 6” – 12” = ¾” Tap				
Flanged End X Mechanical Joint (NRS)	3”-12”	8572	8572W	8702 (3”-12”)
Push-on (For PVC / SDR) (NRS)	2”-8”	8597	8597W	8597-P (3”-8”)
Threaded (NRS)	2”-3”	8057	8057W	8057-P (3”only)
Push-on (For D.I. / C900)(NRS)	4”-12”	8901	8901HW	8901-P
Push-on X Flange (For D.I. / C900)(NRS)	4”-12”	8902	8902HW	8902-P
Flanged Ends (OS&Y)	2”-12”	8068	NA	NA
Note: 8068A is Tapped & Plugged in the “A” Position 2“ – 4” = ½ “ Tap 6” – 12” = ¾” Tap				
Tapping Valve (NRS)	4”-12”	8950	8950W	8950P
Note: Each size accommodates a full size diameter tapping cutter.				
M.J. Cutting-in valve (NRS)	4”-12”	8576	8576W	8576P

NOTES: 2” and 2 ½” are not included in AWWA C509

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 Kennedy 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

SUGGESTED SPECIFICATIONS (3”-12”) (Styles 8000 NRS: 8068 OS&Y)(1 of 2)

KENNEDY AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

General: Gate valves shall be of the resilient seated wedge type, fusion bonded epoxy coated to ANSI / 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 (4”-12”)
Gate Valve to Meet or Exceed FM – 1120 / 1130 (4”-12”)
Gate Valve to Meet or Exceed ULC – Underwriters’ of Canada
Gate Valve to Meet NSF 61
Gate Valve Wedge to Meet or Exceed The Requirement of 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 3” 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
3”-12” AWWA	250psi	250psi	500psi
4”-12” ULFM	200psi	200psi	400psi

Materials: All cast iron shall conform to ASTM-A126 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.

Stem and wedge nut shall be a copper alloy in accordance with section 4.4.5 of AWWA C509

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

Bolts for below ground valves shall be 304 stainless steel with hex heads and hex nuts.

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 / AWWA C111/A21.11.
Flanged end valves to match ANSI / AWWA C110/A21.10(ASME B16.1, Class 125)
Tapping valves through 12” shall mate all sleeves through 12” outlet regardless of manufacturer. Valves shall be furnished with tapping sleeve side to ACME B16.1 Class 125 flanged end with centering ring. Outlet side of valve shall be mechanical joint with (without) accessories to ANSI / AWWA C-111/A21.11. Push-on ends suitable for stab joints with ductile or cast iron and C900 / SDR plastic pipe.

SUGGESTED SPECIFICATIONS (3”-12”) (Styles 8000 NRS: 8068 OS&Y)(2 of 2)

Laying Lengths / Configurations: Valves not listed in ANSI, AWWA, UL, or FM have dimensions per Kennedy design as noted in catalog.

Design: Resilient Seated valves shall conform to the latest revision of AWWA Standard C-509. 3”-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 ASME B16.1 Class 125 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.

Kennedy Valve Powder Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. Kennedy Valve 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”.

Kennedy Valve 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 Kennedy Valve 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.

Kennedy Valve Powder Coating meets both the application and performance requirements of the American Water Works Association standard ANSI / AWWA 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 (3”-12”)

KENNEDY 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 UNS C84400 (Stem Nut)

In accordance with SECTION 4.4.5 of AWWA C509

Physical Properties	
Minimum tensile strength	29,000psi
Minimum yield strength	14,000psi
Minimum elongation (in 2 inches)	18%
Chemical Analysis	
*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 UNS C86700 (NRS Stem)

In accordance with SECTION 4.4.5 of AWWA C509

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 ASTM B763 UNS C99500 (NRS Stem)

In accordance with SECTION 4.4.5 of AWWA C509

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

KENNEDY AWWA 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

Note: 2” & 2 1/2” not included in AWWA C509

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

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

KENNEDY AWWA C509 RESILIENT WEDGE GATE VALVES (1993)

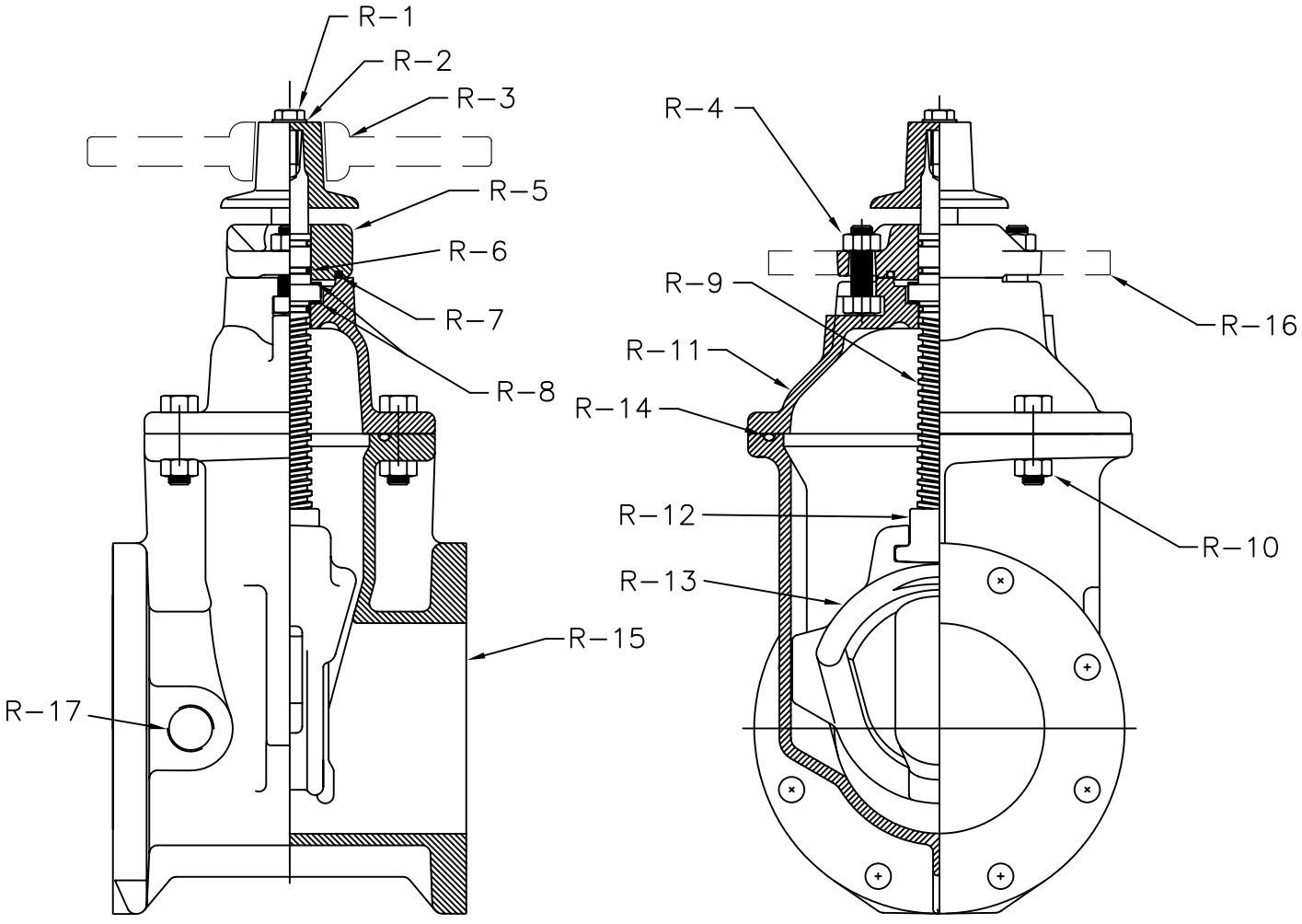
KENNEDY VALVE CO. RESILIENT SEAT GATE VALVE TEN YEAR LIMITED WARRANTY

Kennedy 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 Kennedy Valve 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 Kennedy 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 Kennedy Valve, 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 KENNEDY 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		304 STAINLESS STEEL	----------
R–2	HOLD DOWN BOLT WASHER		304 STAINLESS STEEL	----------
R–3	OPERATING NUT OR HAND WHEEL		CAST IRON	ASTM A126 CLASS B
R–4	BOLTS & NUTS(STUFFING BOX)		304 STAINLESS STEEL	----------
R–5	STUFFING BOX SEAL PLATE	2"–8"	CAST IRON	ASTM A126 CLASS B
		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		304 STAINLESS STEEL	----------
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	----------

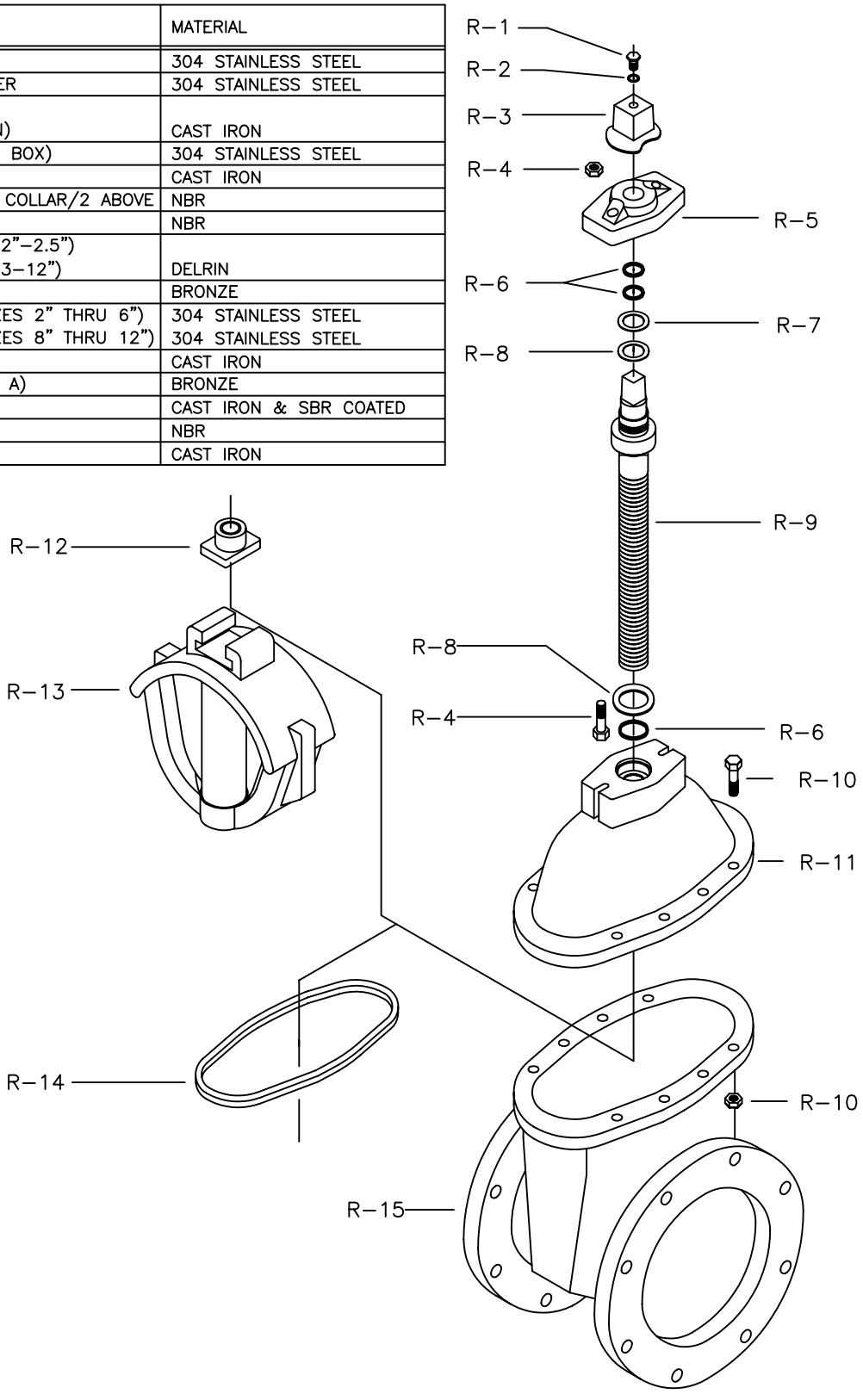


KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 4067

3" THRU 12"
RESILIENT SEAT GATE
VALVE ASSEMBLY/MATERIAL LIST
C509–NRS

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
R–1	1	HOLD DOWN HEX BOLT	304 STAINLESS STEEL
R–2	1	HOLD DOWN BOLT WASHER	304 STAINLESS STEEL
R–3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)	CAST IRON
R–4	2	BOLTS & NUTS(STUFFING BOX)	304 STAINLESS STEEL
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 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")	304 STAINLESS STEEL 304 STAINLESS STEEL
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

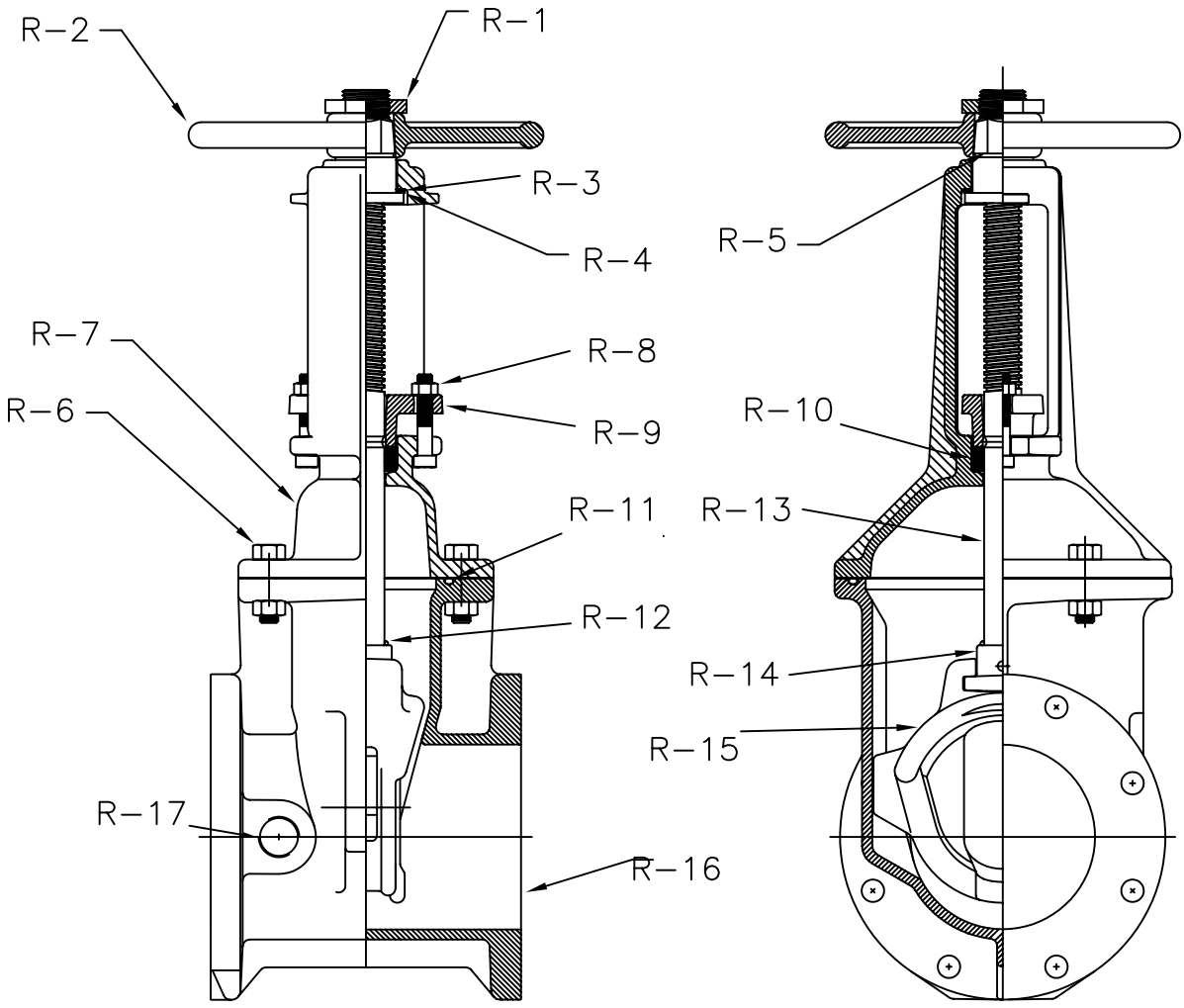


KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 4067EV

RESILIENT SEAT GATE VALVE
ASSEMBLY EXPLOSION / MATERIAL LIST
C509–NRS

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	–––––––––

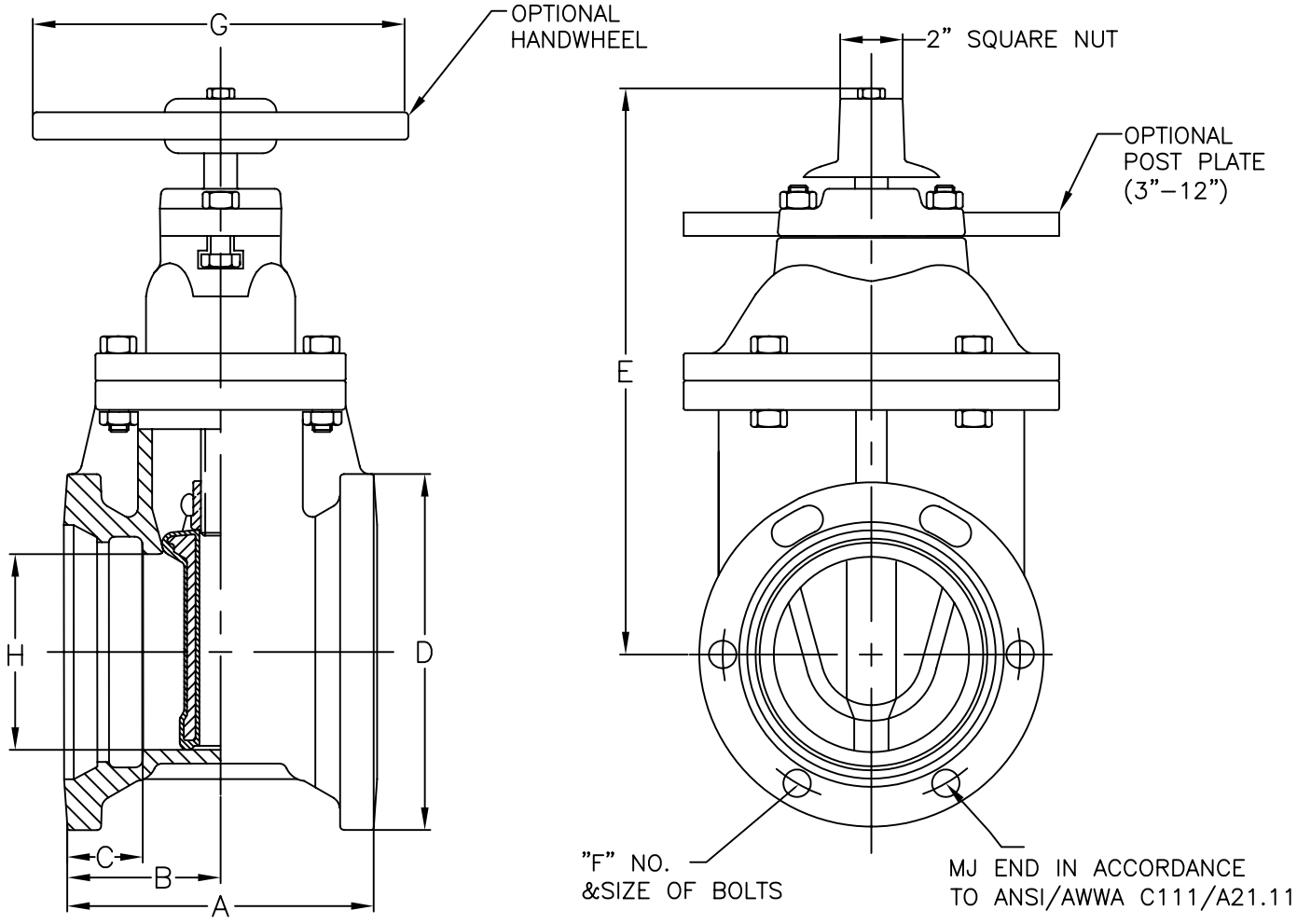


KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	3" THRU 12"
DATE: 7/1/05	RESILIENT SEAT GATE VALVE
DWG. NO. 4068	VALVE ASSEMBLY / MATERIAL LIST
	C509–OS&Y–STYLE 8068

LISTED UL 888H ® | F M APPROVED | NSF | A.W.W.A Standard C509

8571	WITH 2" SQUARE NUT
8571W	WITH HANDWHEEL
8071	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")
**2" and 2 1/2" not included in AWWA C509

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–11

3" THRU 12" RESILIENT SEAT GATE VALVE C509–STYLE 8571 MJ X MJ

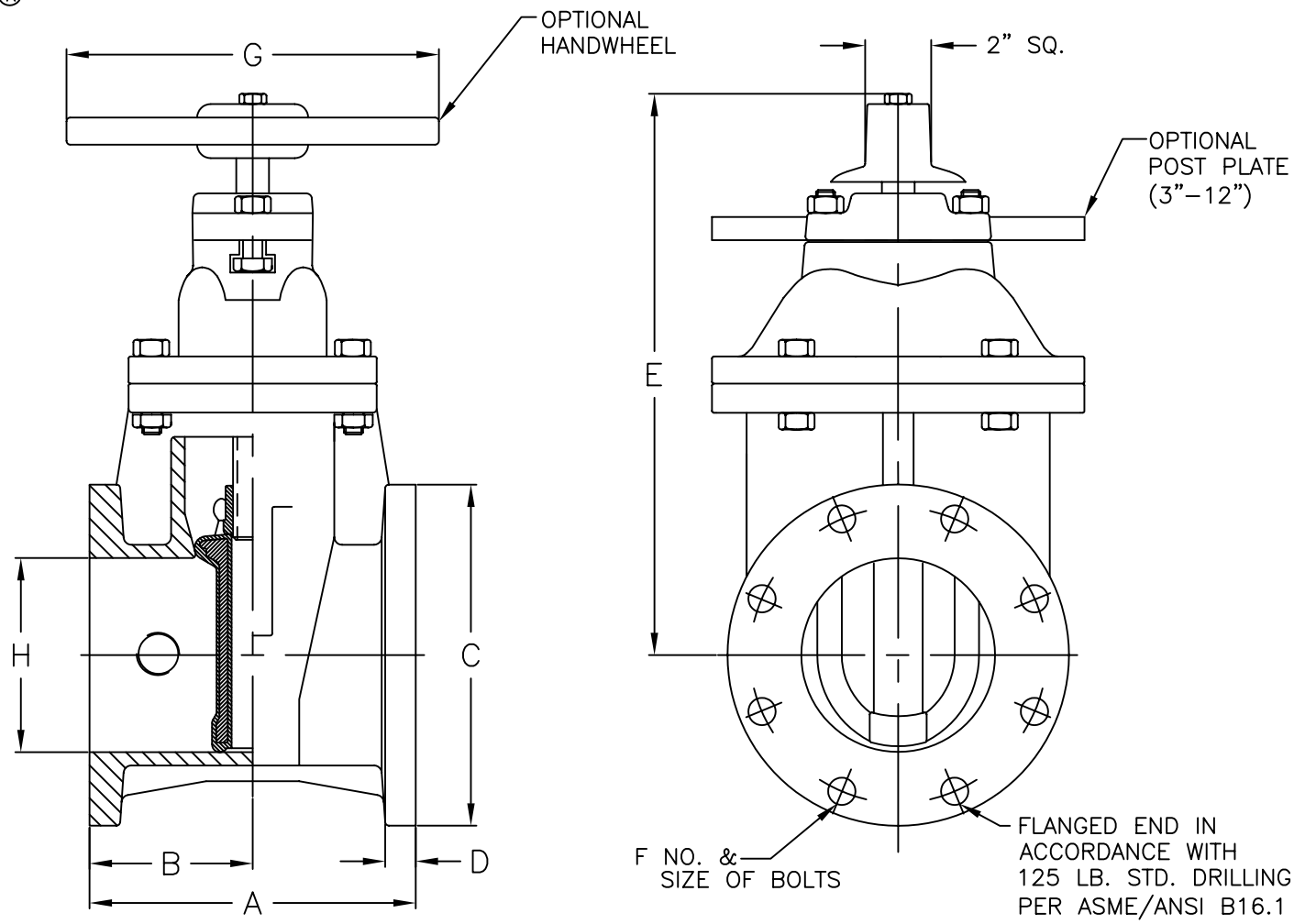
LISTED UL 888H

FM APPROVED

NSF

A.W.W.A Standard C509

8561AN	WITH 2" SQUARE NUT
8561A	WITH HANDWHEEL
8701A	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")
**2" and 2 1/2" not included in AWWA C509

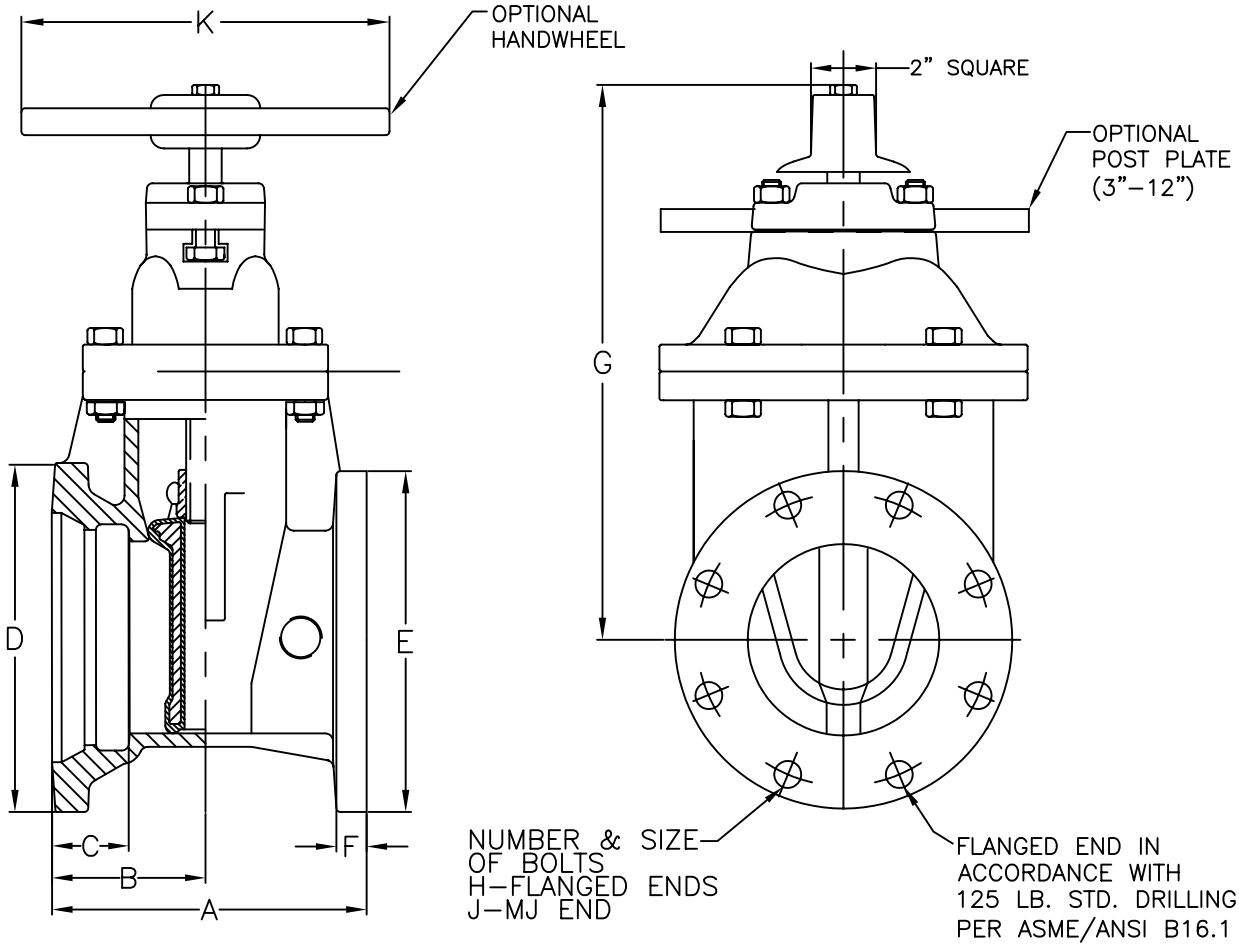
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–9

3" THRU 12" RESILIENT SEAT GATE VALVE C509–STYLE 8561AN FLANGED ENDS

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

8572	WITH 2" SQUARE NUT
8572W	WITH HANDWHEEL
8702	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")

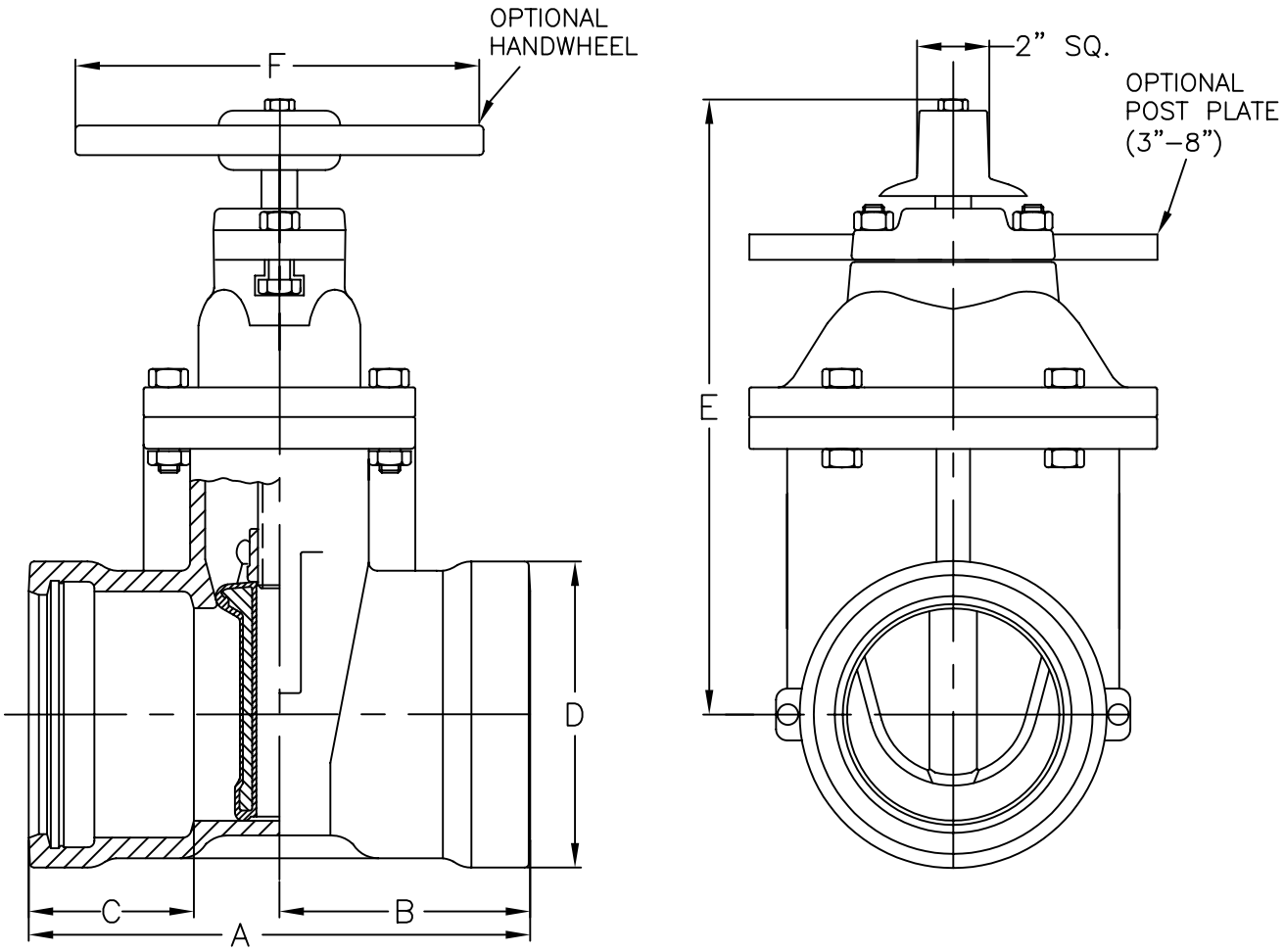
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–16

3" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 8572
FLANGED X MJ

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

8597	WITH 2" SQUARE NUT
8597W	WITH HANDWHEEL
8597P	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"),
**2" and 2 1/2" not included in AWWA C509

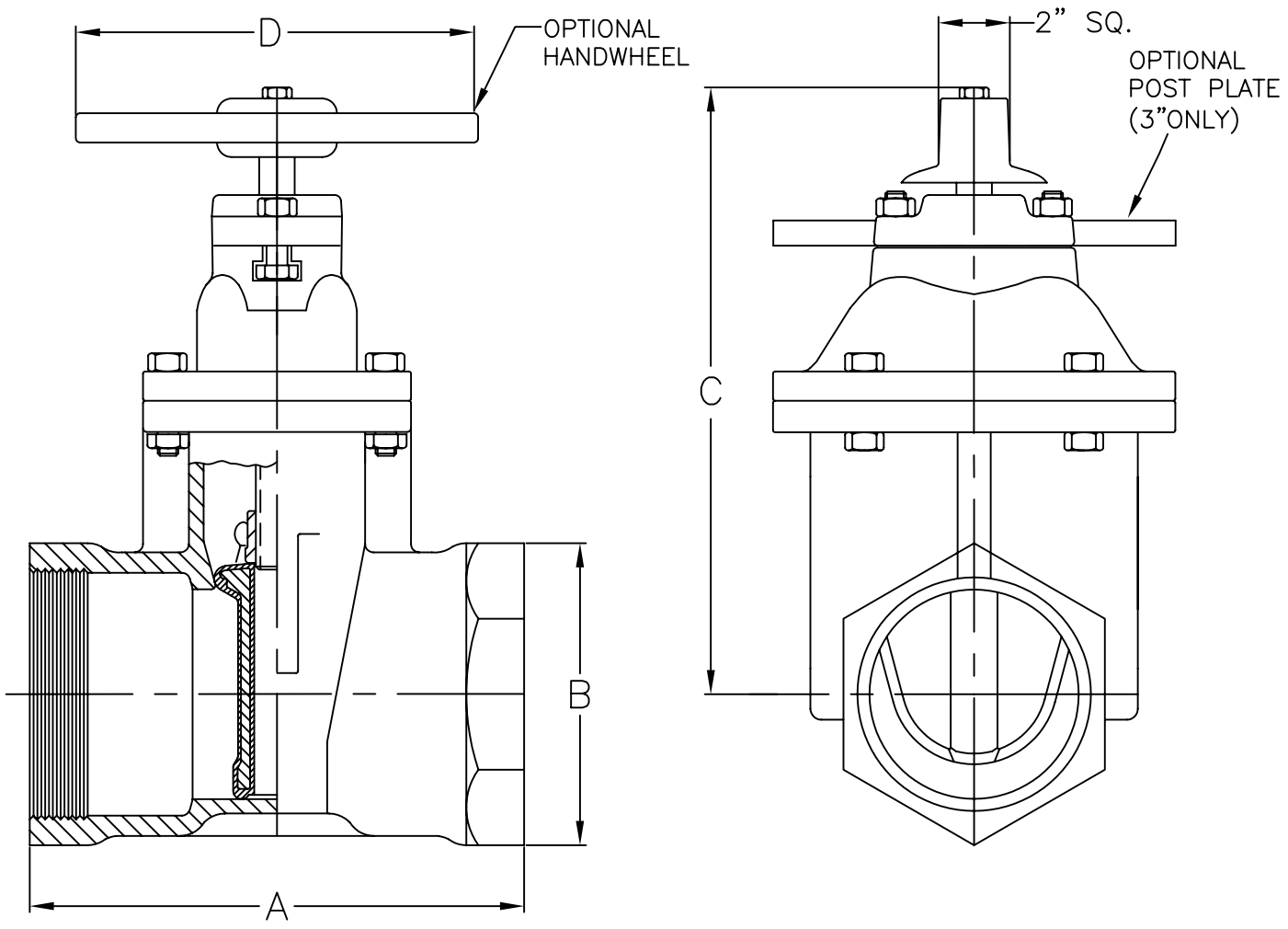
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–21

2" THRU 8"
RESILIENT SEAT GATE VALVE
C509–STYLE 8597
PUSH–ON X PUSH–ON (PVC/SDR)

LISTED UL 888H ® FM APPROVED NSF

8057	WITH 2" SQUARE NUT
8057W	WITH HANDWHEEL
8057P	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

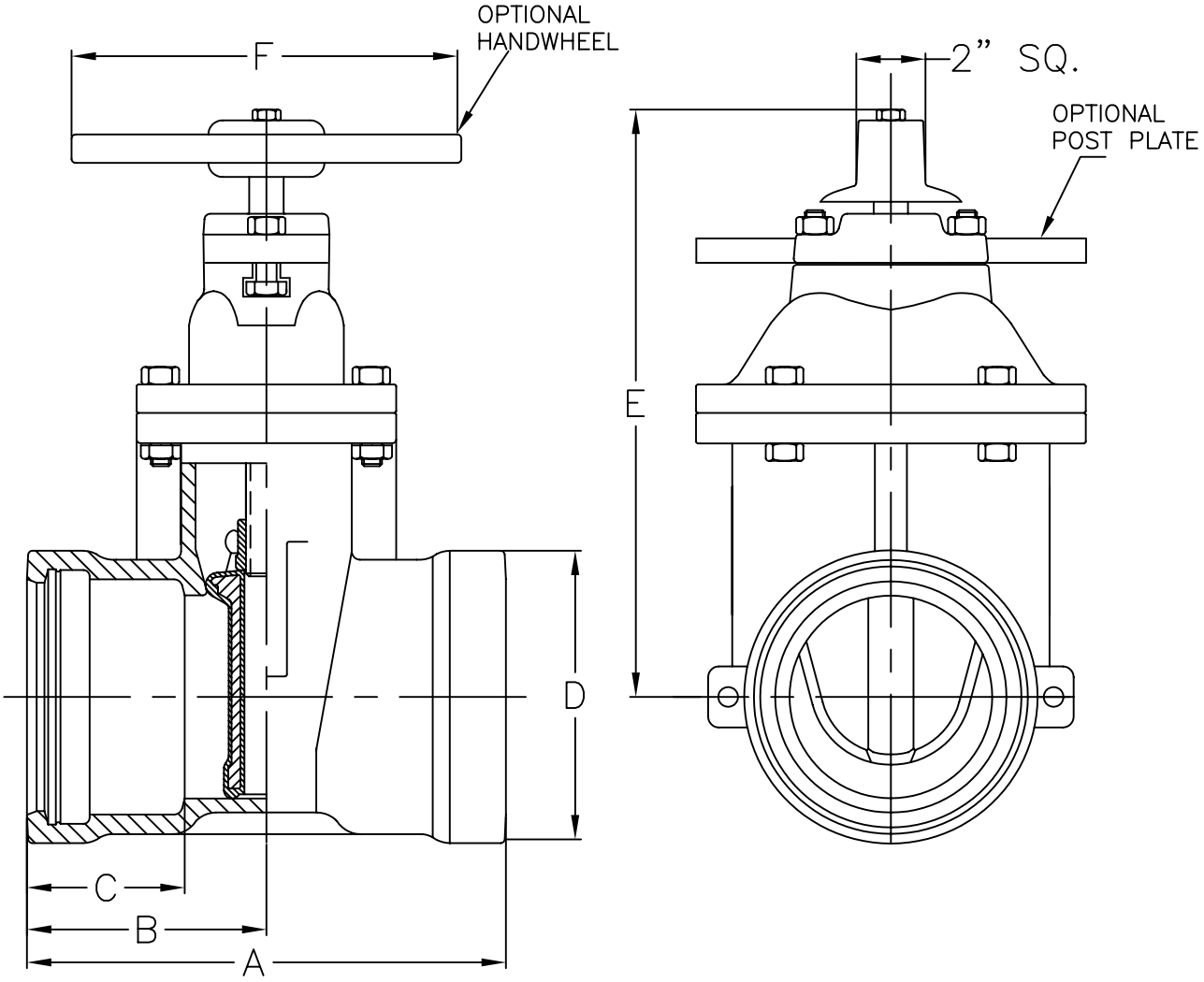
*HANDWHEEL--ADD 1# (2" – 2 1/2"), 6.5# (3")
*INDICATOR POST PLATE ADD 16# (3") ONLY
*PALLET QUANTITIES 2" NUT: 46(2 1/2"), 30(3")
*PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3")
*TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3")
**THREADED / SCREWED END VALVES NOT UNDER AWWA C509

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	2", 2 1/2", & 3" RESILIENT SEAT GATE VALVE STYLE 8057 THREADED / SCREWED ENDS
DATE: 7/1/05	
DWG. NO. SD-23	

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

8901	WITH 2" SQUARE NUT
8901HW	WITH HANDWHEEL
8901P	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")

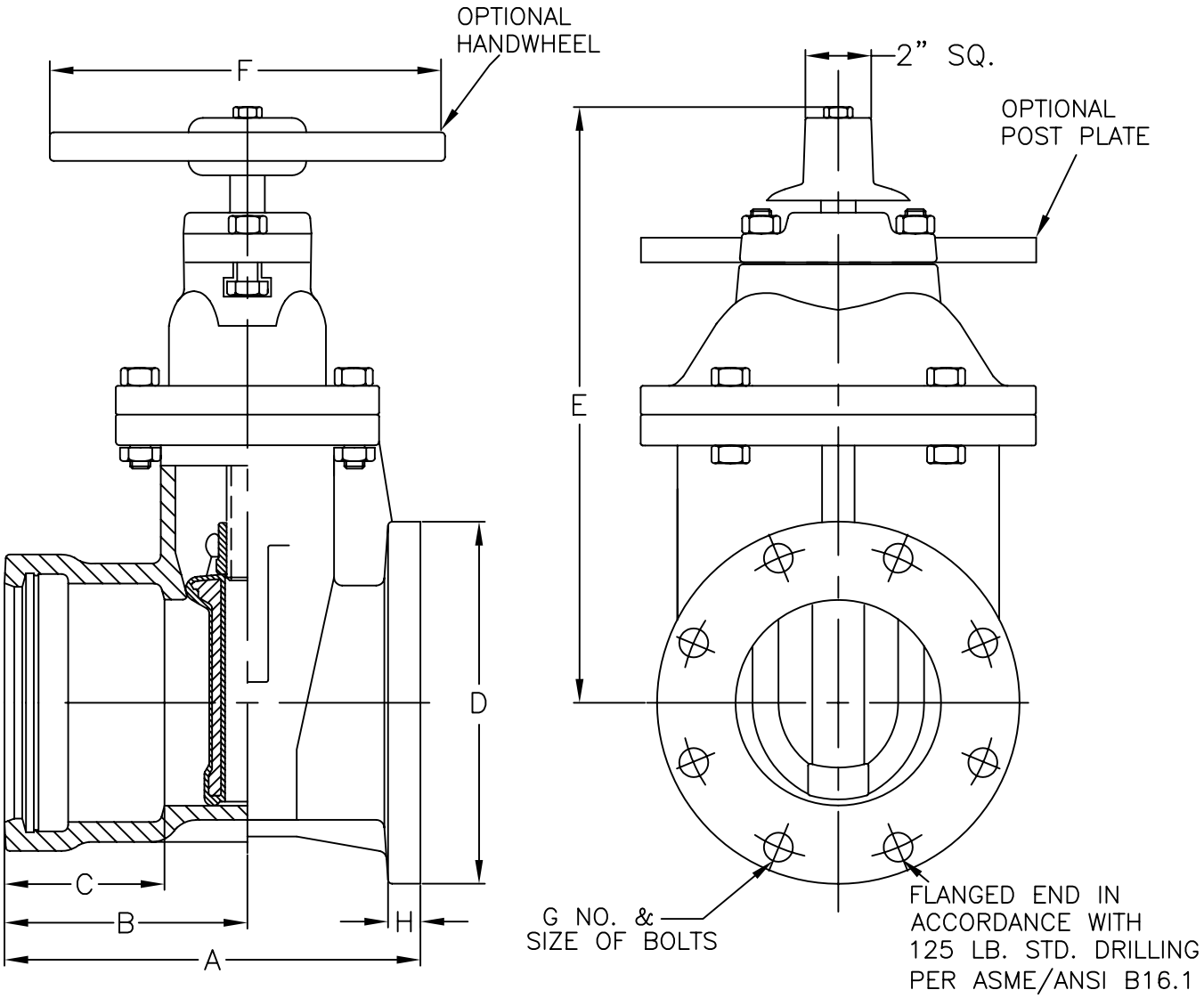
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–18

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 8901
PUSH–ON X PUSH–ON (TYTON)
(FOR DUCTILE IRON / C900 PIPE)

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

8902 WITH 2" SQUARE NUT
8902HW WITH HANDWHEEL
8902P WITH POST PLATE



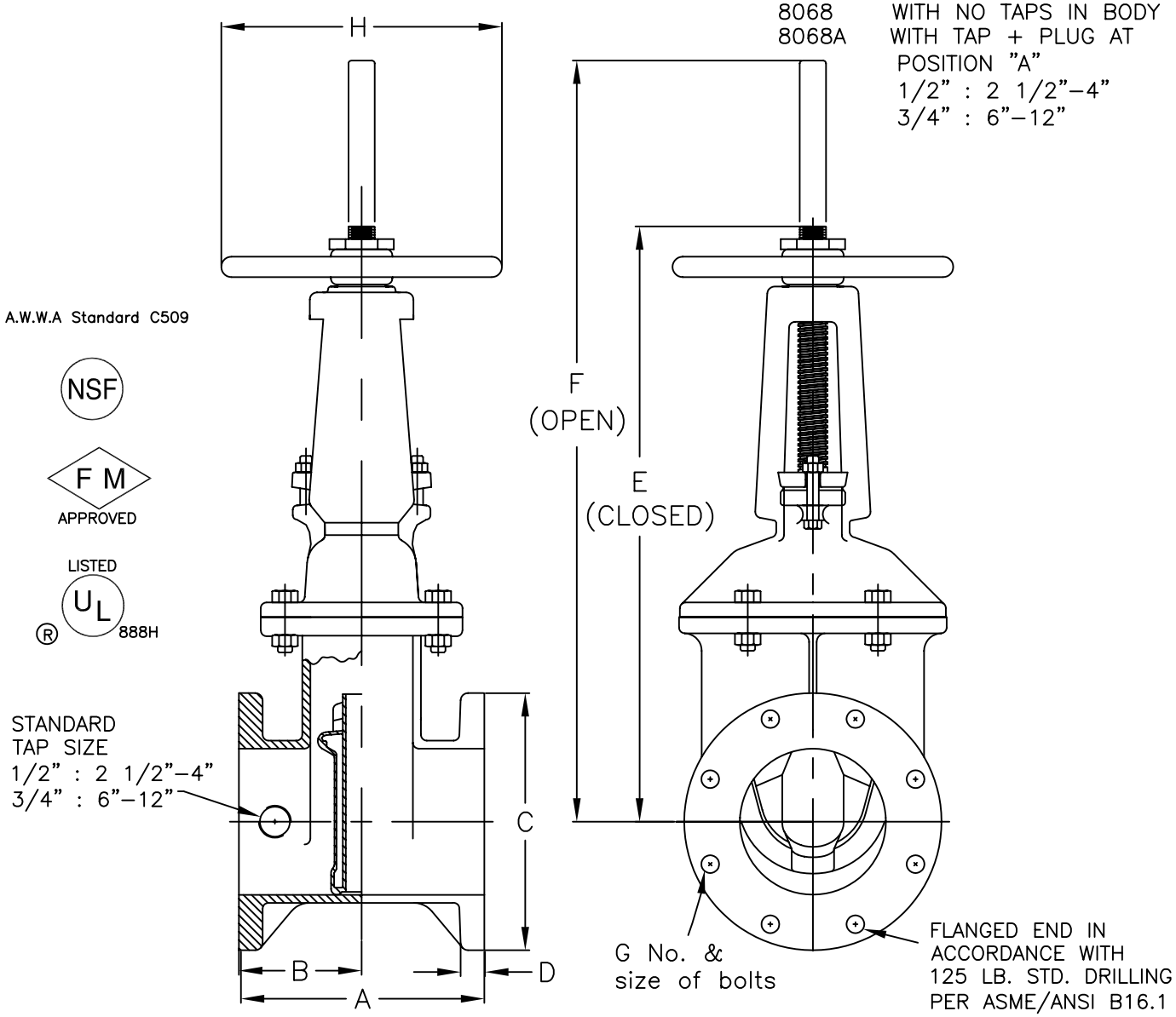
VALVE SIZE	A	B	C	D	E	F	G	H	WEIGHT 2" NUT
4	11 1/8	6 5/8	4.34	9	14 3/4	10	8–5/8	15/16	85
6	12 5/8	7 3/8	4.75	11	19	12	8–3/4	1	136
8	14 5/16	8 9/16	5.70	13 1/2	22 1/2	14	8–3/4	1 1/8	207
10	13 1/2	7	3.50	16	26 1/2	18	12–7/8	1 3/16	306
12	15	8	3.75	19	30	18	12–7/8	1 1/4	535

*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")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–19

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 8902
PUSH–ON X FLANGE (TYTON)
(FOR DUCTILE IRON / C900 PIPE)



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")
**2" and 2 1/2" not included in AWWA C509

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–39

3" THRU 12"
RESILIENT SEAT OS&Y GATE VALVE
C509–STYLE 8068
FLANGED ENDS

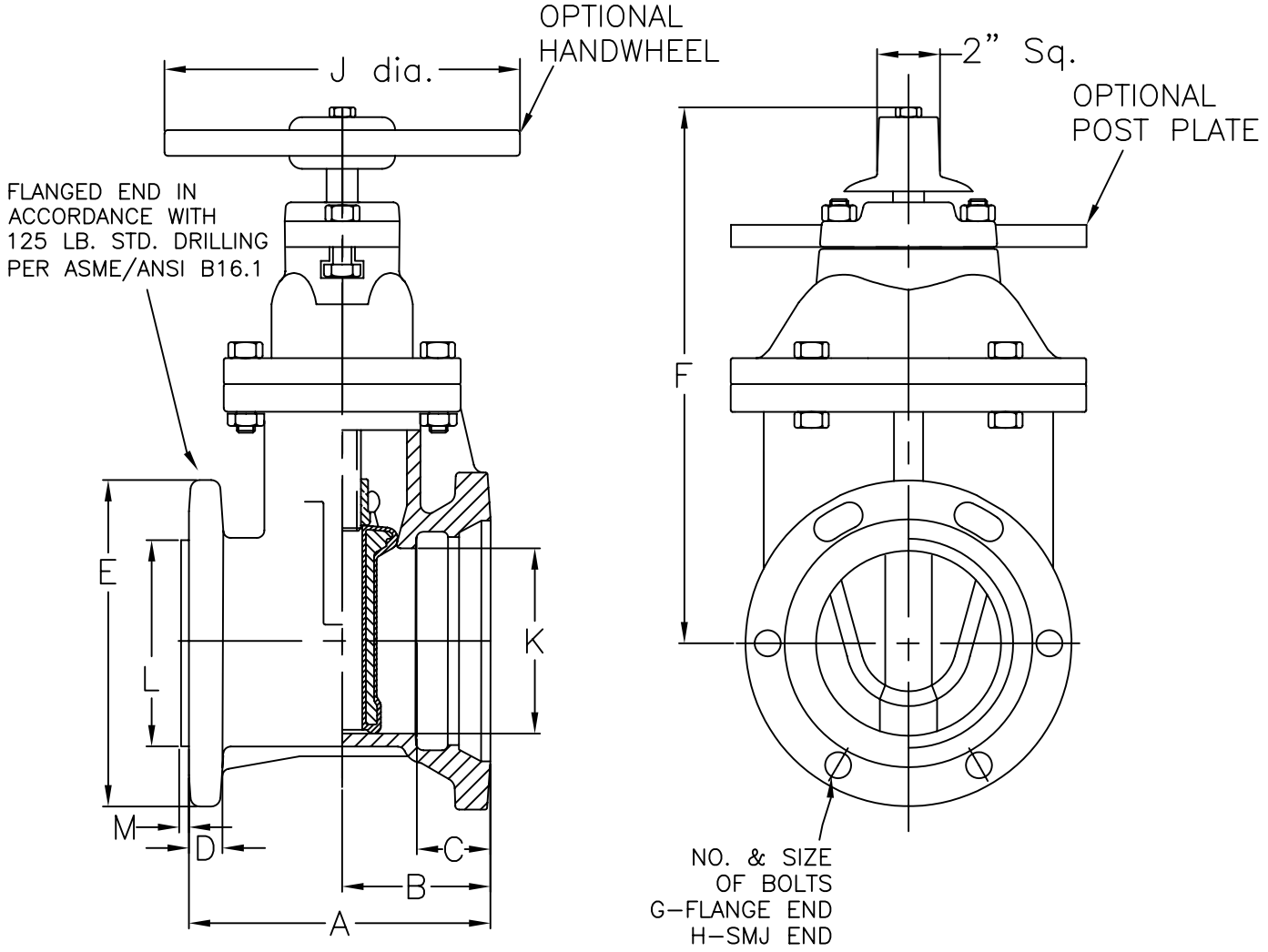
LISTED UL 888H

FM APPROVED

NSF

A.W.W.A Standard C509

8950 WITH 2" SQUARE NUT
8950W WITH HANDWHEEL
8950P 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")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

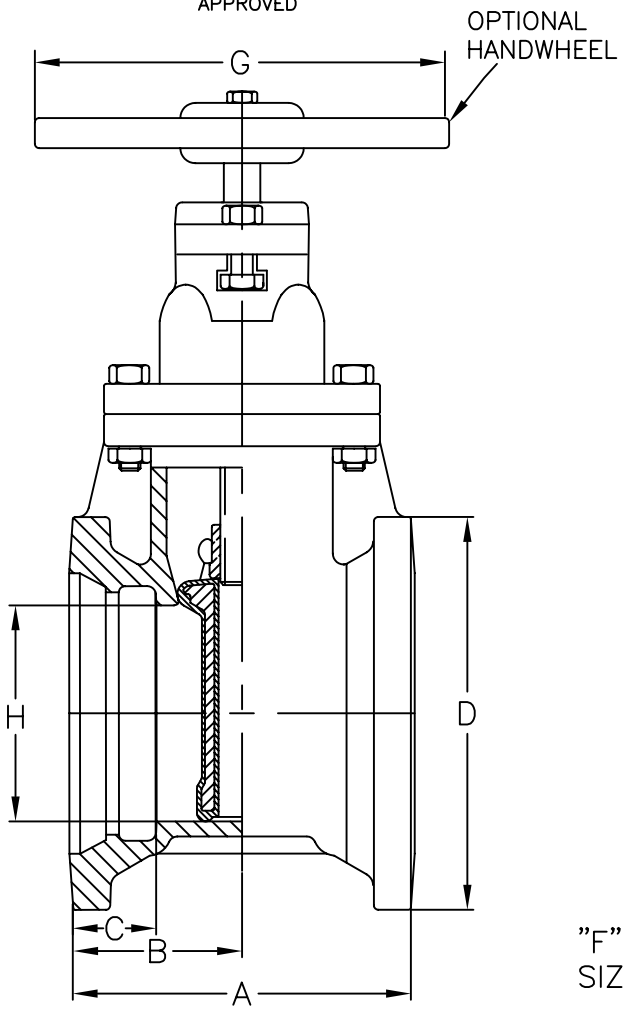
KV

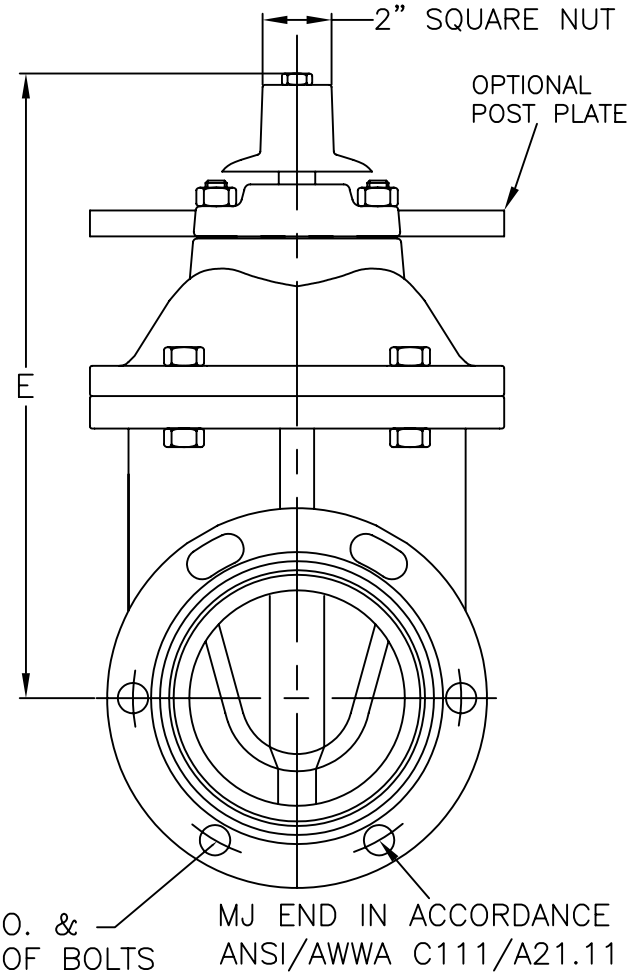
DWN: TRIJ
DATE: 7/1/05
DWG. NO. SD–17

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509–STYLE 8950
TAPPING VALVE

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

8576 WITH 2" SQUARE NUT
8576W WITH HANDWHEEL
8576P 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")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 4576

4" THRU 12"
RESILIENT SEAT GATE VALVE
C509-STYLE 8576
OVERSIZED MJ X MJ BELL
(CUTTING-IN JOINT) VALVE

KENNEDY 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. Kennedy Valve Company was at the forefront in this industry-wide movement by introducing the Style 8000, our AWWA C509 Resilient Seated Gate Valve.

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

The Kennedy Valve 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, Kennedy Valve engineering designed the Kennedy Style 7000 to be fully interchangeable with the Kennedy C509 Style 8000. Kennedy Style 7000 meets or exceeds AWWA C515 and C550. Kennedy C515 valves are listed by Underwriters Laboratories and are approved by Factory Mutual Research. With no compromise in materials or workmanship, Kennedy Style 7000 valves carry a 10 year limited warranty. . it's the clear choice of those who demand the best.

EASE OF OPERATION

The Kennedy Valve 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 Kennedy Valve RSGV is among the lowest in operating torques of all available competitive type valves

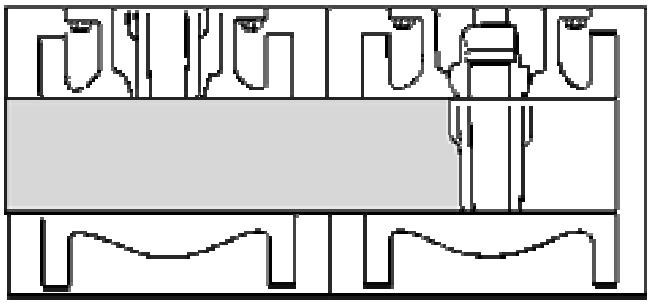
POSITIVE SEALING

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 Kennedy Valve 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 Kennedy Valve 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.



FEATURES & BENEFITS / PERFORMANCE INFORMATION

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

FEATURES	BENEFIT
Ductile Iron Body, Bonnet, Stuffing Box	• Easier handling
Bubble Tight Closure at 250 psi (AWWA) 4" – 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 Kennedy Valve believes in the strong product they produce.
Body / Bonnet Epoxy Coating Inside & Out	• Unprecedented Protection Against Corrosion and abrasion

* DuPont Trademark

PERFORMANCE INFORMATION

- 4"- 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

END CONNECTIONS (4”-12”)

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

Shown at right are the principal ends available on Kennedy 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 ends are in accordance with ANSI/ AWWA C111 / A21.11.

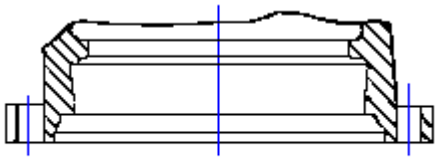
PVC Plastic end valves are furnished for use with PVC water pipe. Gaskets are furnished with valves for installation on pipe.

Push on ends for C900 plastic and ductile and cast iron pipe furnished with stab rubber gaskets to ANSI / AWWA C111/A21.11.

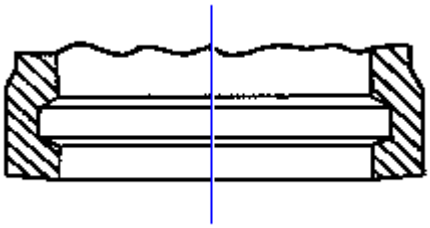
Flanged end valves are furnished with flanges made to ANSI / AWWA C110/A21.10 (ASME B16.1, Class 125) dimensions. Flanged end valves are most commonly used for filtration plants, sewage disposal plants and pump stations. Flanged valves have the advantage of quick and easy removal for repairs or replacement without disrupting the pipe line.

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.

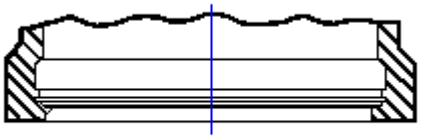
Threaded / Screwed end valves are furnished for smaller pipelines for general service with iron pipe threads, in accordance with ASME B16.9, Class 125.



Mechanical Joint End



PVC End



Push-On-End

Flanged End

Screwed End

SPECIFICATIONS / AVAILABLE CONFIGURATIONS & STYLE NUMBERS

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

Size Range	Water Working Pressure psi	Bubble Tight Seat Test psi	Hydrostatic Shell Test psi
AWWA 4" – 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

Note: 3" and below manufactured to c509 spec, but made of ductile iron.

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 Kennedy 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

SUGGESTED SPECIFICATIONS (4”-12”) (Styles 8000 NRS: 8068 OS&Y)(1 of 2)

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

General: Gate valves shall be of the resilient seated wedge type, fusion bonded epoxy coated to ANSI / 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
Gate Valve Wedge to Meet of Exceed The Requirements of 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 4” 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
4”-12” AWWA	250psi	250psi	500psi
4”-12” ULFM	200psi	200psi	400psi

Materials: All cast iron shall conform to ASTM-A126 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

Stem and wedge nut shall be a copper alloy in accordance with section 4.4.5 of AWWA C515

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

Bolts for below ground valves shall be 304 stainless steel with hex heads and hex nuts.

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

Kennedy Valve Powder Coating material is a stable, non-toxic resin consisting of 100% solids. It is impervious to and imparts no taste to potable water. Kennedy 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”.

Kennedy 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 Kennedy 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.

Kennedy Powder Coating meets both the application and performance requirements of the American Water Works Association standard ANSI / AWWA C550 entitled “Protective Interior Coatings for Valves and Hydrants”.

SUGGESTED SPECIFICATIONS (4”-12”) (Styles 8000 NRS: 8068 OS&Y)(2 of 2)

Design:	Resilient Seated valves shall conform to the latest revision of AWWA Standard C-515-99. 4”-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” 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 / AWWA C111/A21.11. Flanged end valves to match ANSI / AWWA C110/A21.10 (ASME B16.1, Class 125) Tapping valves through 12” shall mate all sleeves through 12” outlet regardless of manufacturer. Valves shall be furnished with tapping sleeve side to ASME B16.1 Class 125 flanged end with centering ring. Outlet side of valve shall be mechanical joint with (without) accessories to ANSI / AWWA C111/A21.11. 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 Kennedy design as noted in catalog.

MATERIAL SPECIFICATIONS

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

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 Analysis	
*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

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

FLOW COEFFICIENTS

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

Note: 2”, 2 ½”, 3” are C509 spec but made of ductile.

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

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

KENNEDY AWWA C515 RESILIENT WEDGE GATE VALVES (2000)

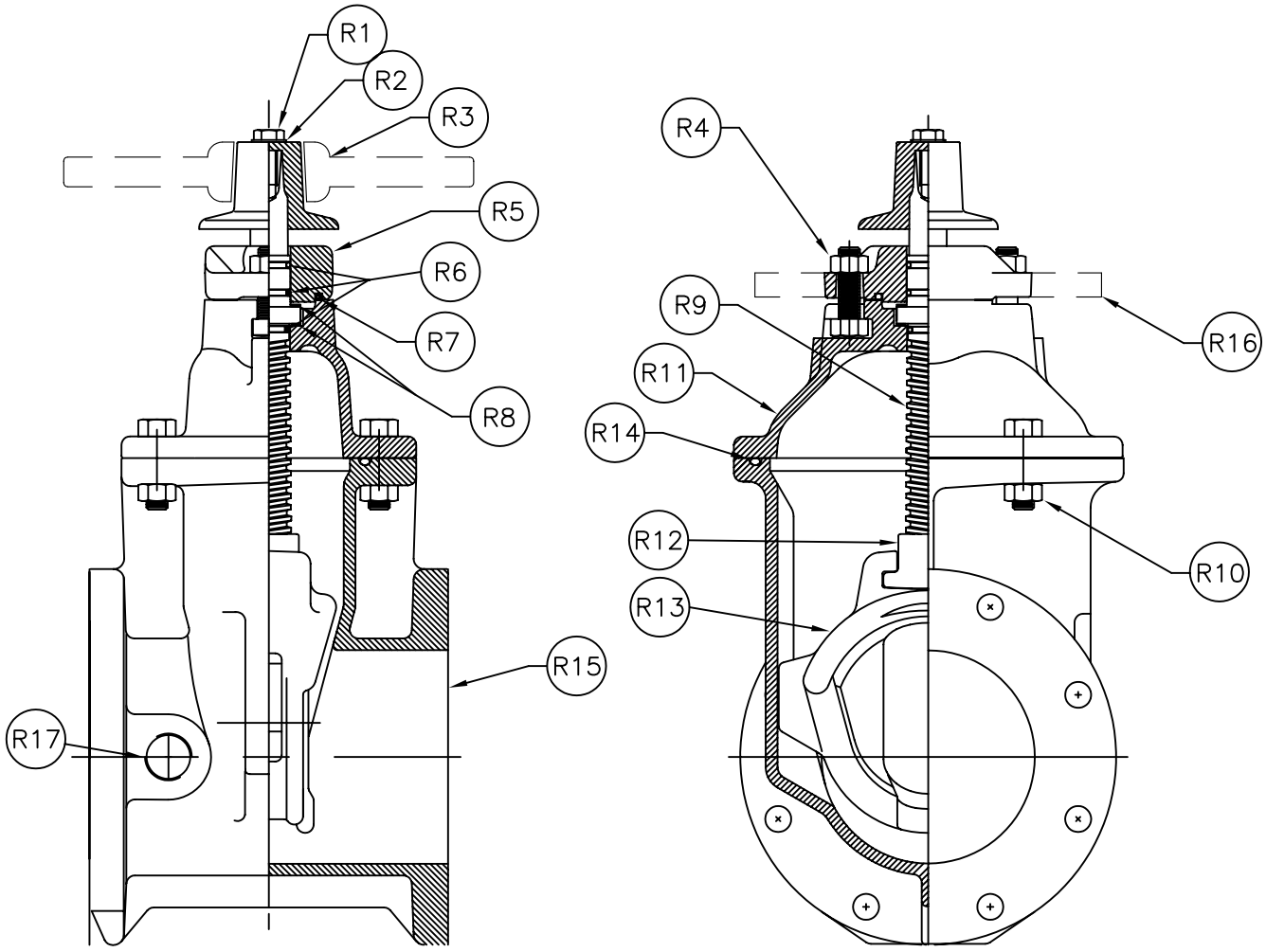
KENNEDY VALVE CO. RESILIENT SEAT GATE VALVE TEN YEAR LIMITED WARRANTY

Kennedy 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 Kennedy 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 Kennedy Valve Company part or parts fail to conform to the foregoing warranty, Kennedy 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 Kennedy, 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 KENNEDY VALVE COMPANY BE RESPONSIBLE OR LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL LOSSES, DAMAGES OR EXPENSES.

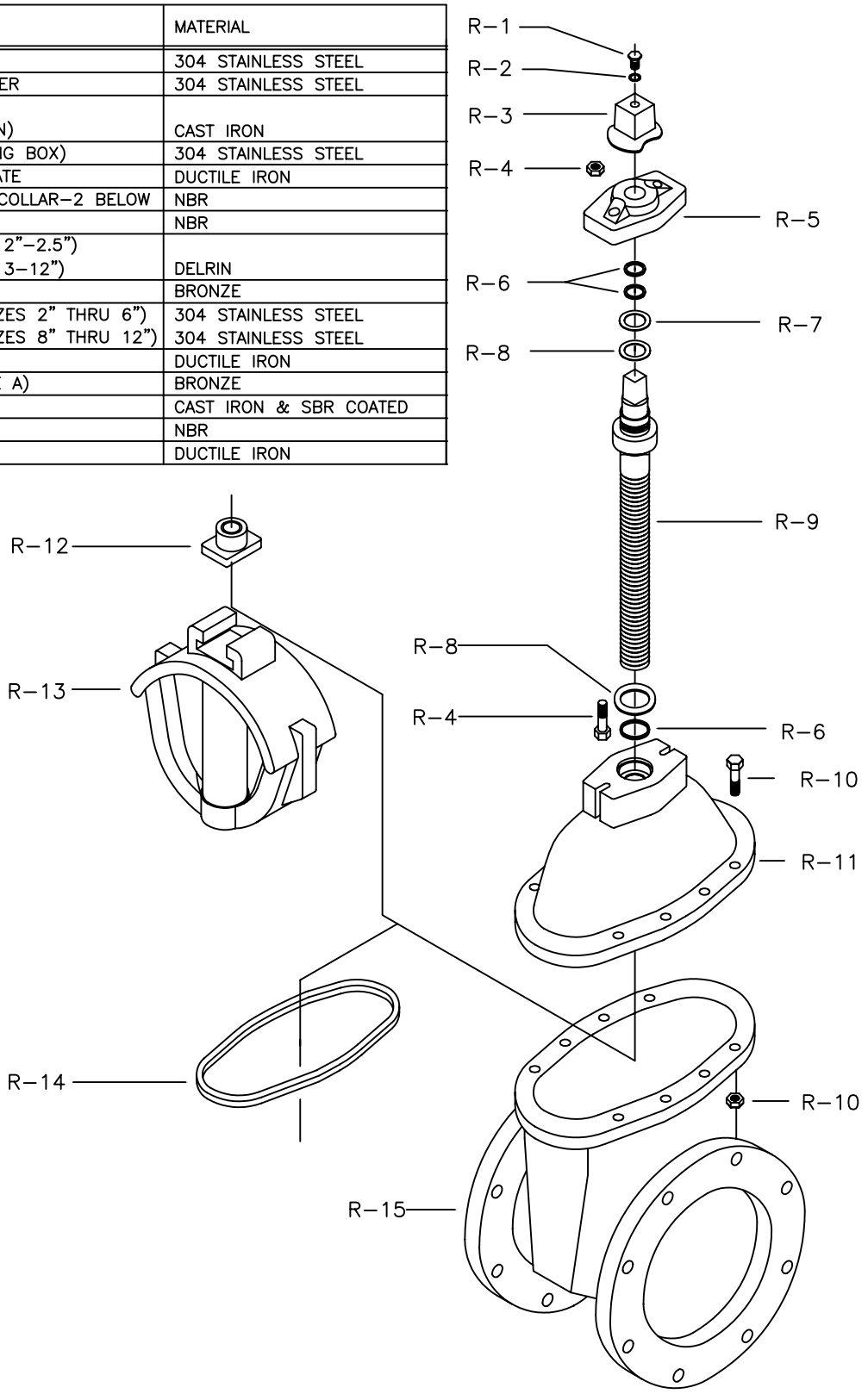
ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
R1	HOLD DOWN HEX BOLT	304 STAINLESS STEEL	----------
R2	HOLD DOWN BOLT WASHER	304 STAINLESS STEEL	----------
R3	OPERATING NUT OR HAND WHEEL	CAST IRON	ASTM A126 CLASS B
R4	BOLTS/NUTS (STUFFING BOX)	304 STAINLESS STEEL	----------
R5	STUFFING BOX/SEAL PLATE	DUCTILE IRON	ASTM A536 70-50-05
R6	O-RING (STEM) QTY=3	NBR	----------
R7	O-RING (STUFFING BOX)	NBR	----------
R8	THRUST WASHER	DELRIN	----------
R9	STEM (AWWA GRADE C)	BRONZE	ASTM B584 CDA 867
R10	HEX HEAD BOLTS & NUTS	304 STAINLESS STEEL	----------
R11	COVER/BONNET	DUCTILE IRON	ASTM A536 70-50-05
R12	STEM NUT (AWWA GRADE A)	BRONZE	ASTM A584 CDA 844
R13	WEDGE/DISC/GATE	CAST IRON & SBR COATED	ASTM A126 CLASS B
R14	O-RING (COVER)	NBR	----------
R15	BODY - ALL TYPES	DUCTILE IRON	ASTM A536 70-50-05
R16	POST PLATE	CAST IRON	ASTM A126 CLASS B
R17	PIPE PLUG (OPTIONAL)	GALVANIZED	----------



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" THRU 12"
DATE: 7/1/05	RESILIENT SEAT GATE VALVE
DWG. NO. 7000	C515-NRS-STYLE 7000
	VALVE ASSEMBLY / MATERIAL LIST

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
R–1	1	HOLD DOWN HEX BOLT	304 STAINLESS STEEL
R–2	1	HOLD DOWN BOLT WASHER	304 STAINLESS STEEL
R–3	1	SQ. OPERATING NUT OR HANDWHEEL (NOT SHOWN)	CAST IRON
R–4	2	BOLTS & NUTS (STUFFING BOX)	304 STAINLESS STEEL
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")	304 STAINLESS STEEL 304 STAINLESS STEEL
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

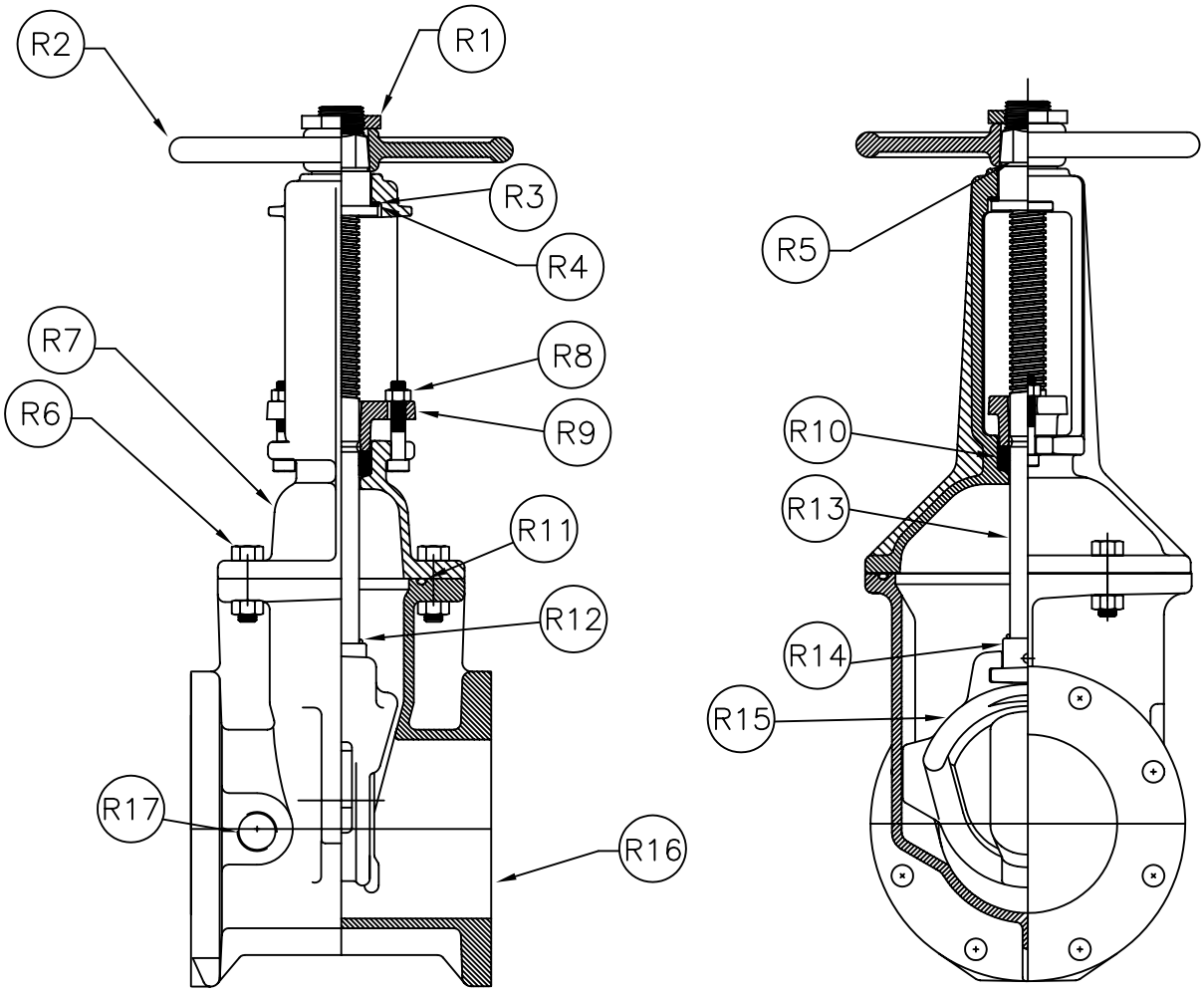


KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7000EV

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

ITEM	DESCRIPTION	MATERIAL	ASTM SPEC.
R1	HAND WHEEL HOLD DOWN NUT	BRONZE (AWWA GRADE A)	ASTM B584 CDA 844
R2	HAND WHEEL	CAST IRON	ASTM A126 CLASS B
R3	UPPER THRUST WASHER	BRONZE	ASTM B36 CDA 260
R4	LOWER THRUST WASHER	BRONZE	----------
R5	YOKE NUT	MANGANESE BRONZE	ASTM B584 CDA 862
R6	BOLTS & NUTS (COVER/YOKE)	ZINC PLATED STEEL	ASTM A307 GRADE B
R7	COVER/YOKE	DUCTILE IRON	ASTM A536 70-50-05
R8	HEX HEAD BOLTS (PACKING GLAND)	ZINC PLATED STEEL	ASTM A307 GRADE B
R8	HEX HEAD NUTS (PACKING GLAND)	BRASS	ASTM A563
R9	PACKING GLAND	DUCTILE IRON	ASTM A536 70-50-05
R10	PACKING	BRAIDED, LUBRICATED (NON-ASBESTOS) FIBER	
R11	O-RING (COVER/YOKE)	NBR	----------
R12	O-RING (STEM)	NBR	----------
R13	STEM	BRONZE	ASTM B584/B21
R14	STEM NUT	BRONZE	ASTM A584 CDA 844
R15	WEDGE	CAST IRON(SBR COATED)	ASTM A126 CL B/D2000
R16	BODY - ALL TYPES	DUCTILE IRON	ASTM A536 70-50-05
R17	PIPE PLUG (OPTIONAL)	GALVANIZED IRON	----------



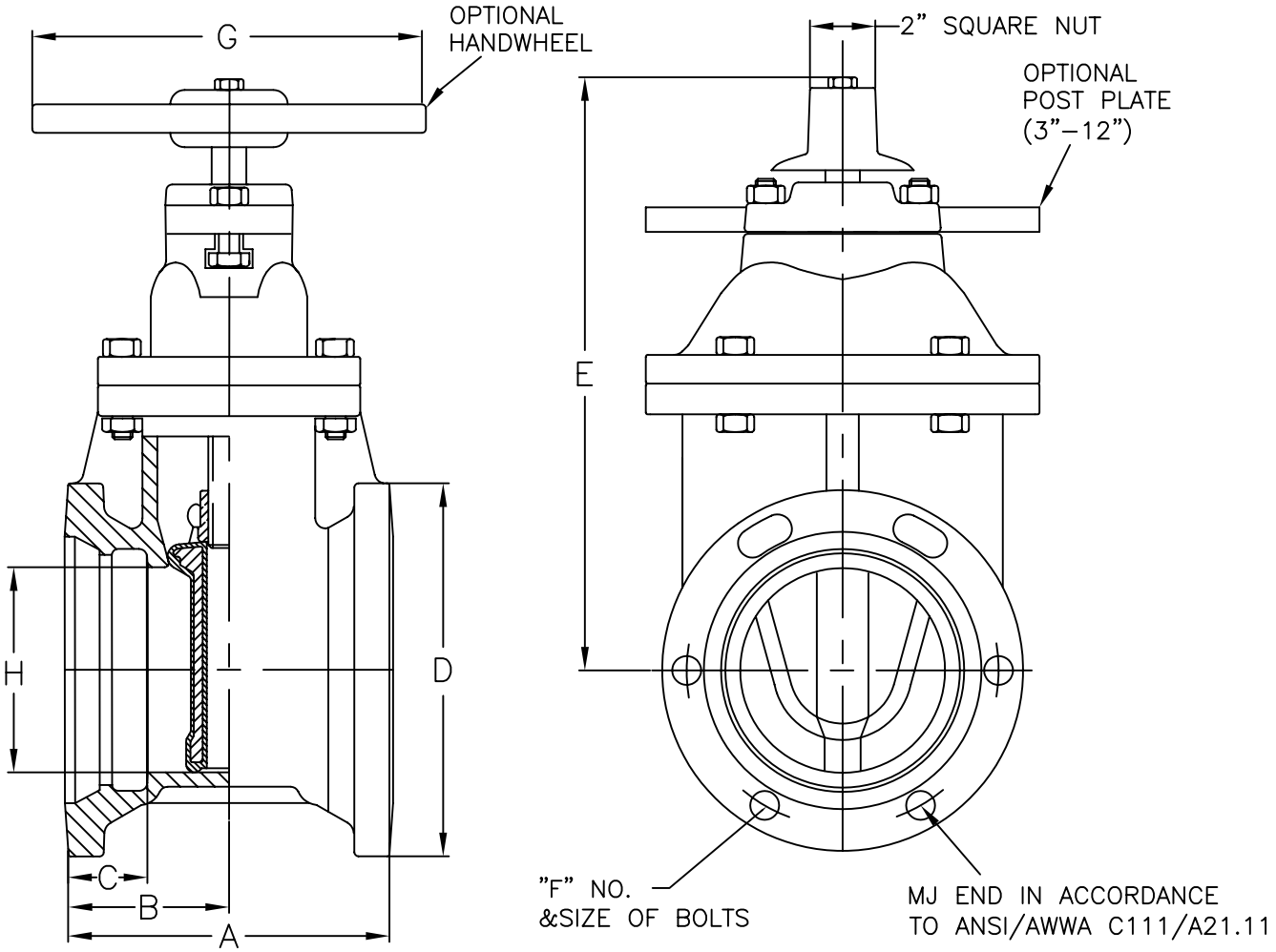
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
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")
**2" and 2 1/2" not included in AWWA C515 3" to C509 spec but ductile iron

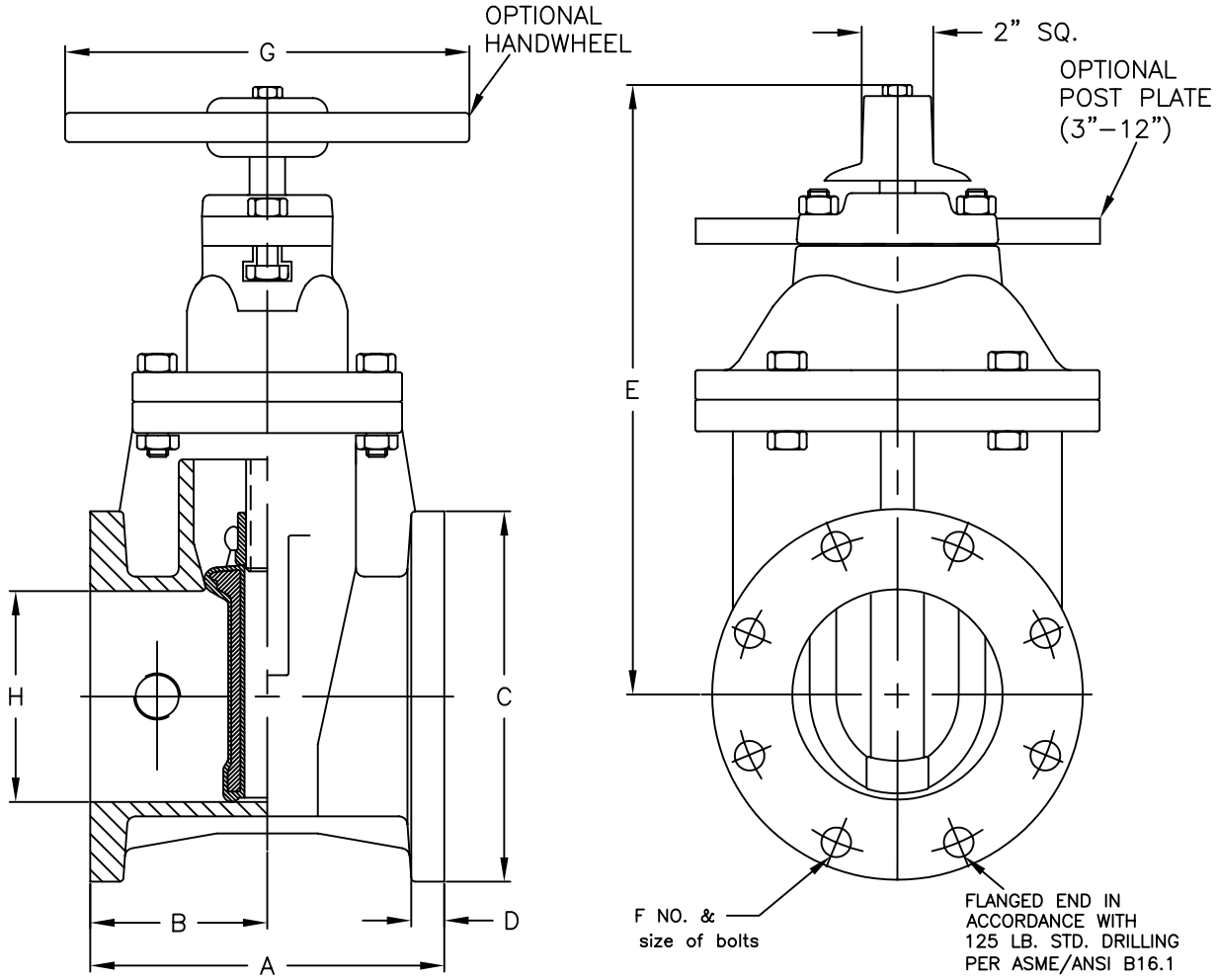
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7571

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

LISTED UL 888H APPROVED FM 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")
**2" and 2 1/2" not included in AWWA C515 3" to C509 spec but ductile iron

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7561

4" THRU 12" RESILIENT SEAT GATE VALVE C515–STYLE 7561 FLANGED ENDS

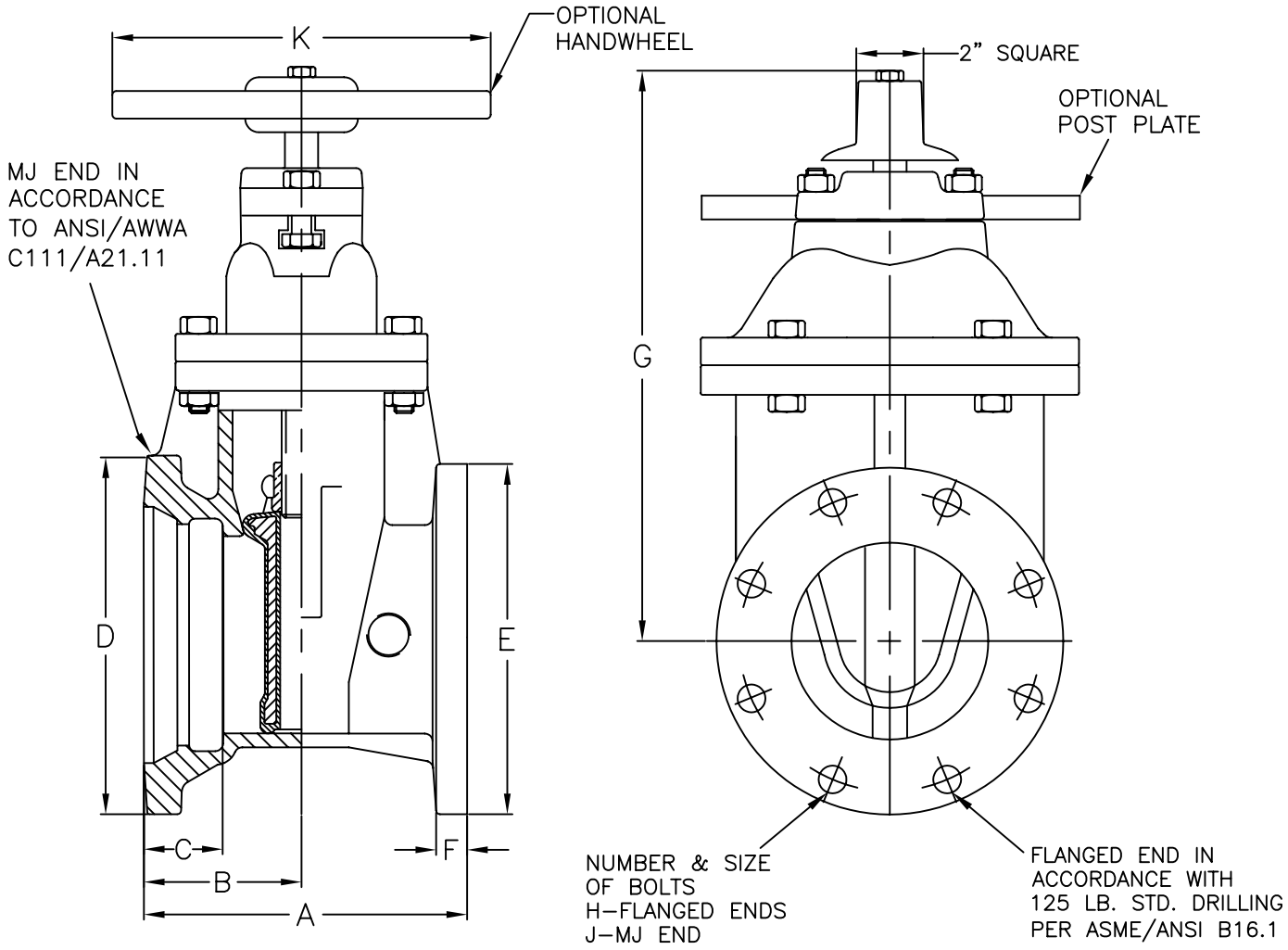
LISTED UL 888H

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")
**3" to C509 spec but ductile iron

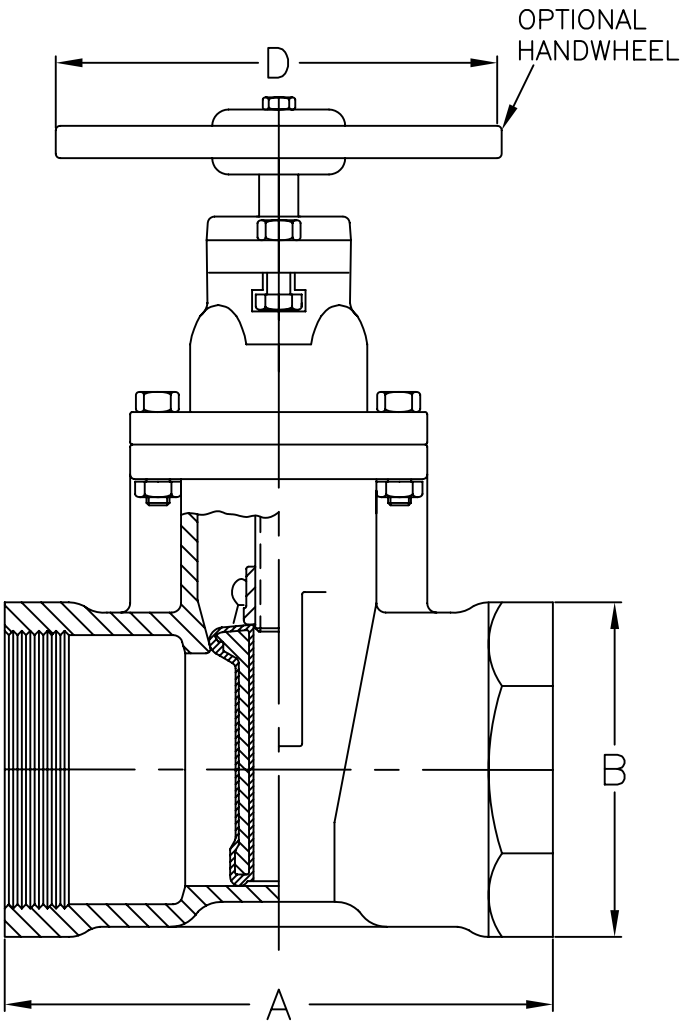
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

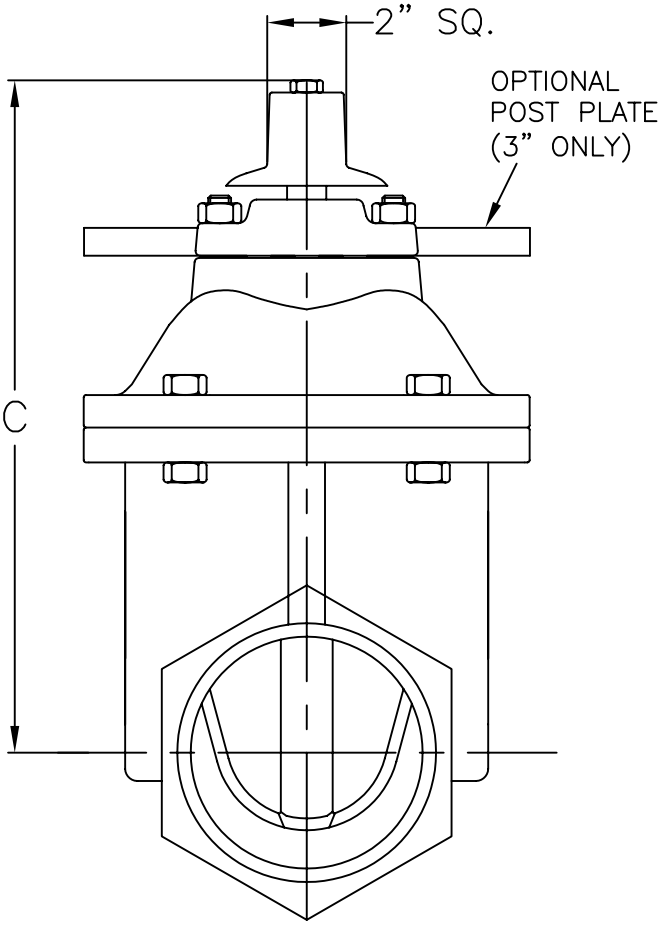
DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7572

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: Threaded End Valves are not covered under C515.
*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")

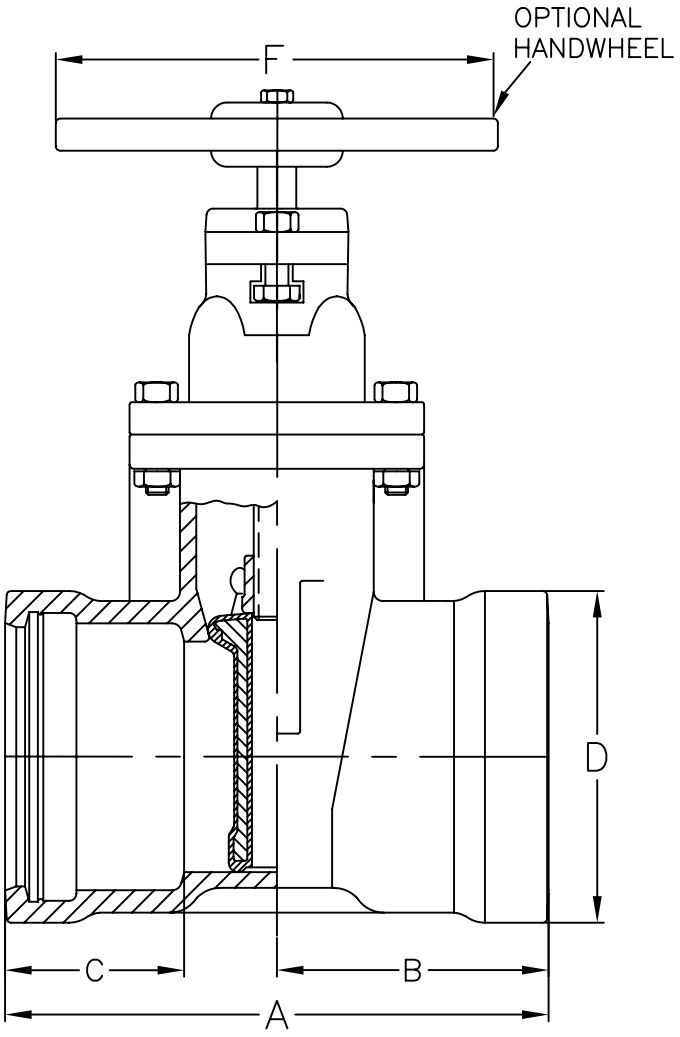
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

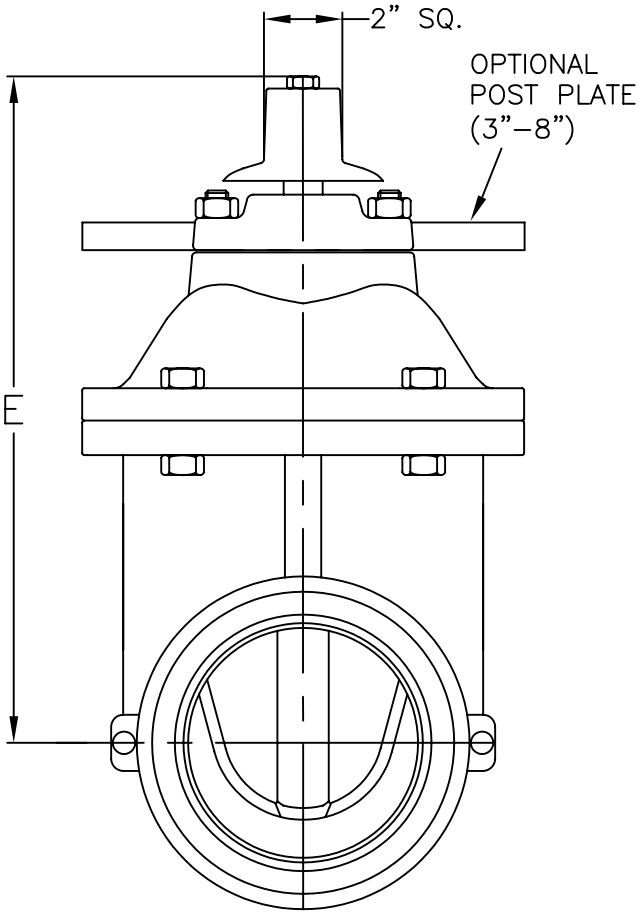
DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7057

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

LISTED UL 888H APPROVED FM 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")

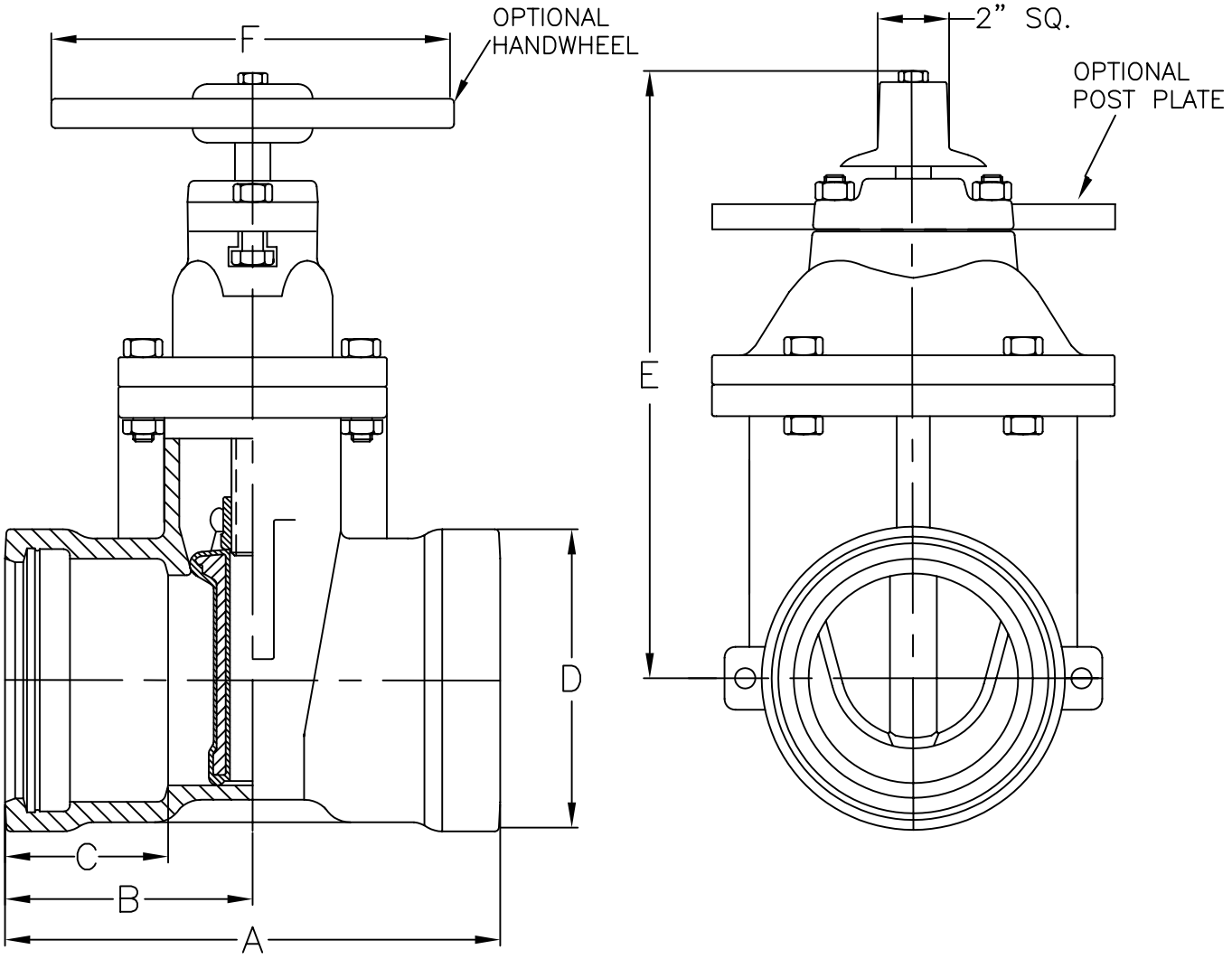
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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")

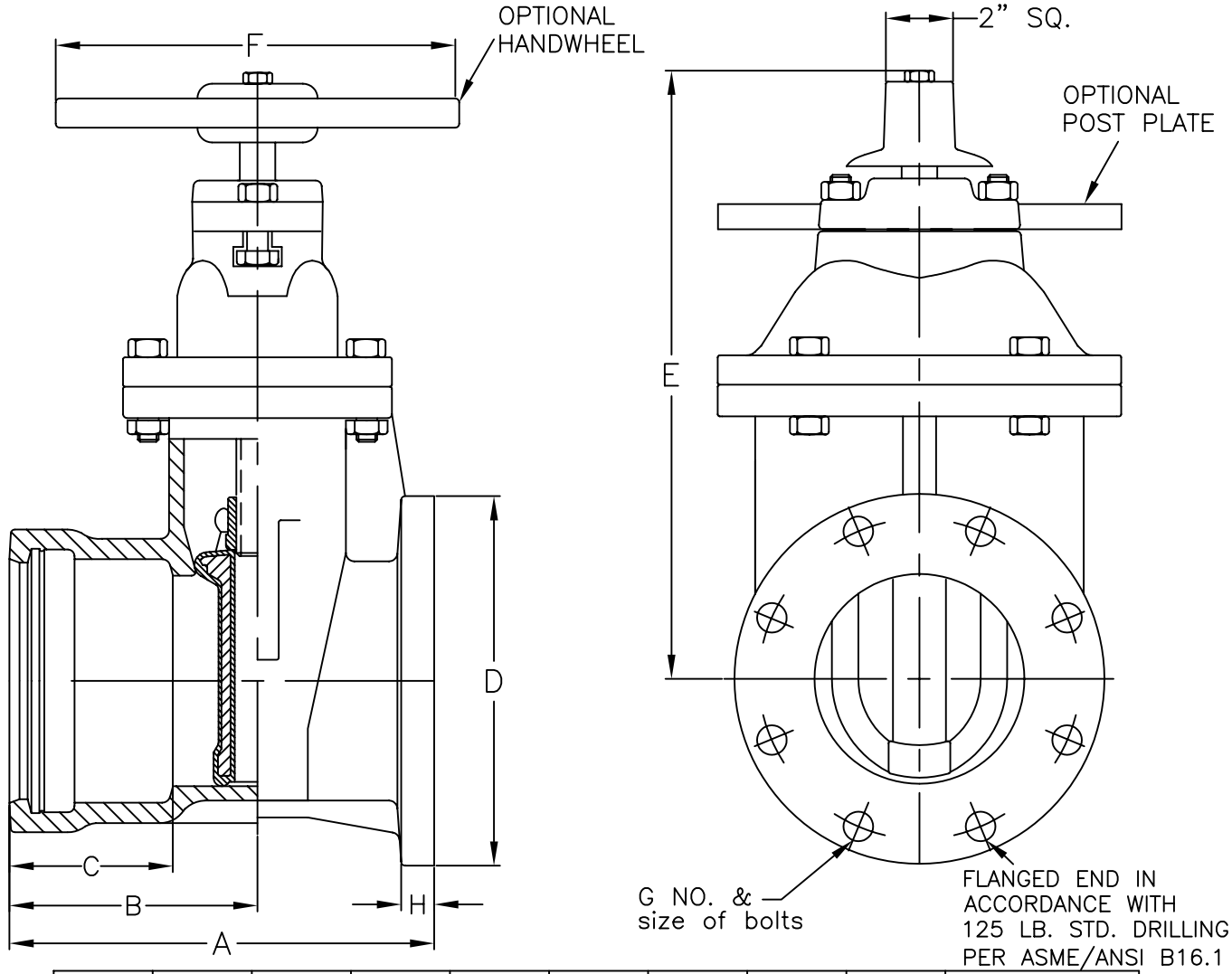
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7902

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

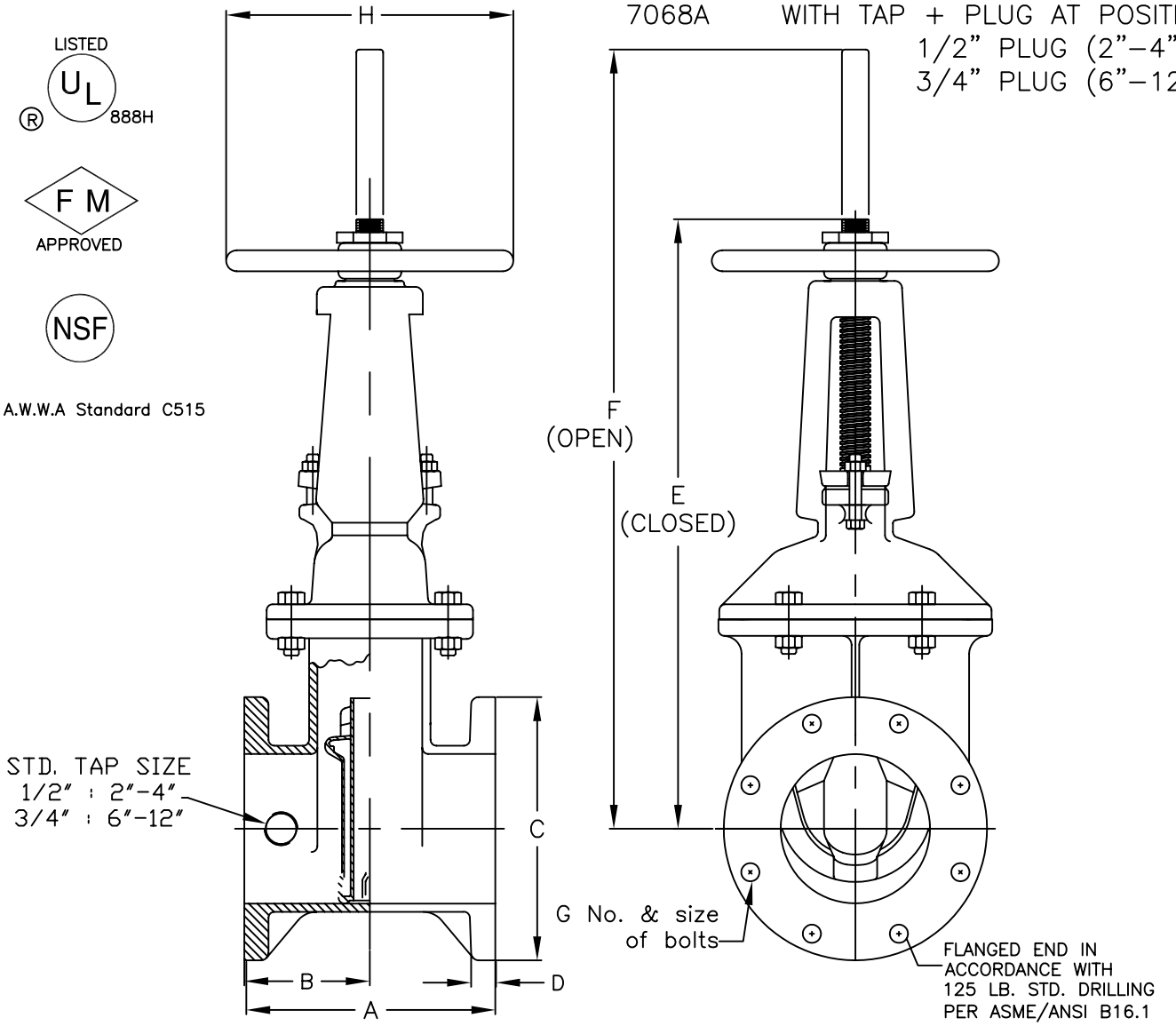
7068 WITH NO TAPS IN BODY
7068A WITH TAP + PLUG AT POSITION "A"
1/2" PLUG (2"–4")
3/4" PLUG (6"–12")

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")

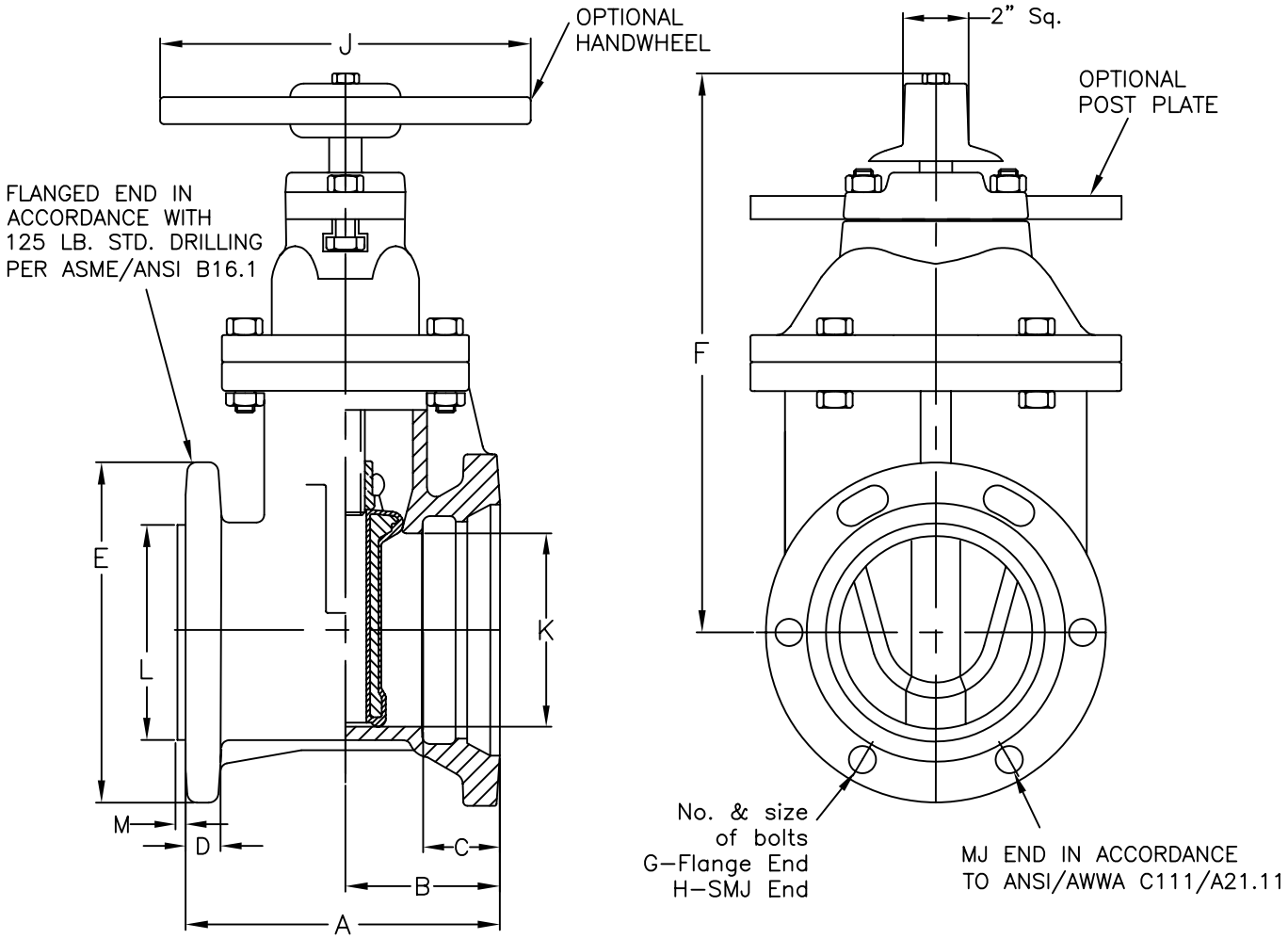
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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	WEGHT 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 AND DETAILED SPEC–––CURRENTLY NOT AVAILABLE
*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")

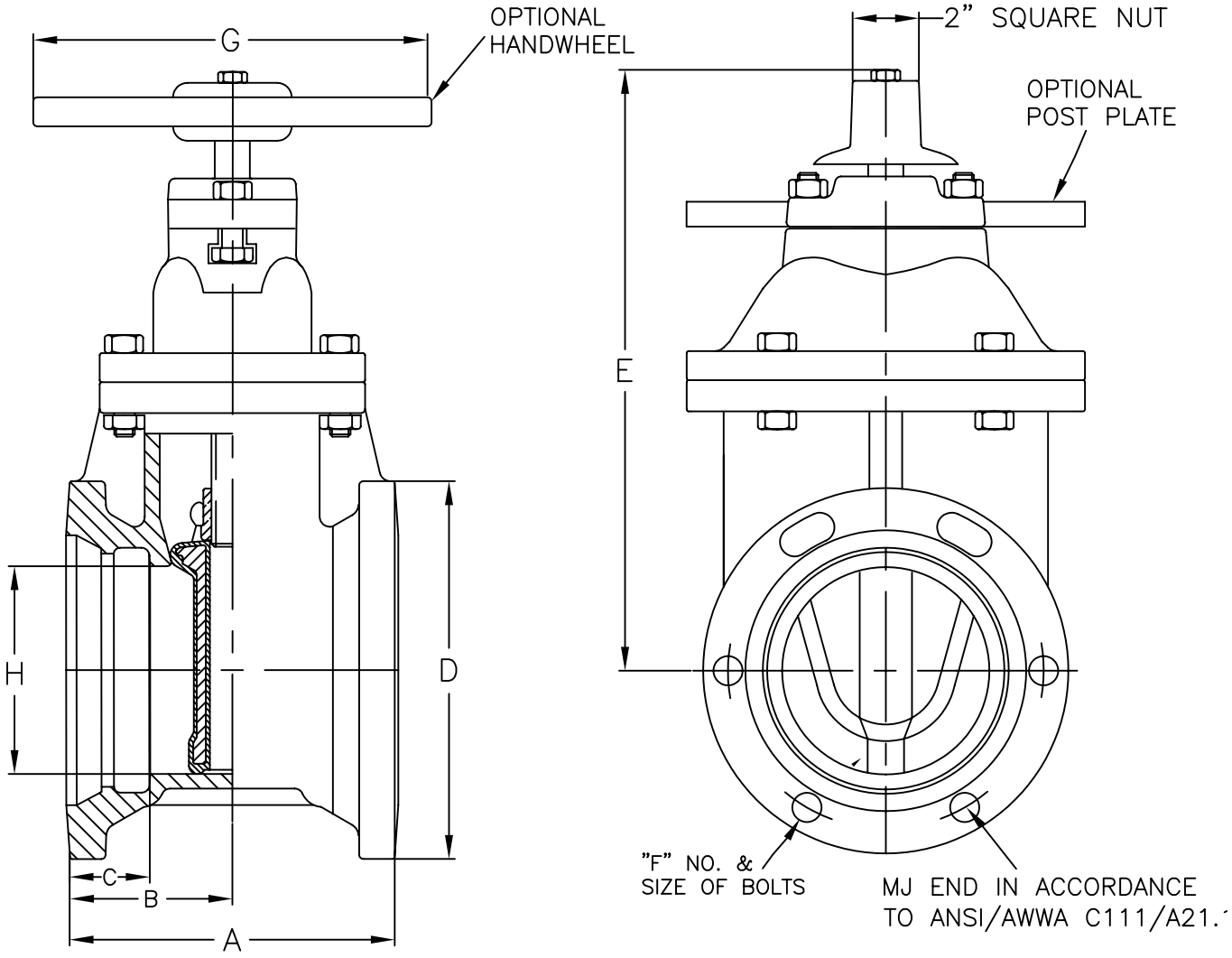
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7950

4" 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")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. 7576

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

KENNEDY 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”	8571	8571W	8071
Flanged Ends	14”-16”	8561AN	8561A	8701A
Mechanical Joint X Flange	14”-16”	8572	8572W	8702
Tapping Valve	14”-16”	8950	8950W	8950P
Push On (For Ductile Iron / C900)	16”	8901	8901HW	8901P
OS&Y	14”-16”	------	8068	------

SIZE RANGE WITH SPUR GEAR OPERATOR (NRS or OS&Y)

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 (NRS or OS&Y)

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 Kennedy 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

RECOMMENDED SPECIFICATIONS

KENNEDY AWWA LARGE 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 Kennedy Valve Company.

LIMITED WARRANTY

KENNEDY AWWA LARGE RESILIENT WEDGE GATE VALVES

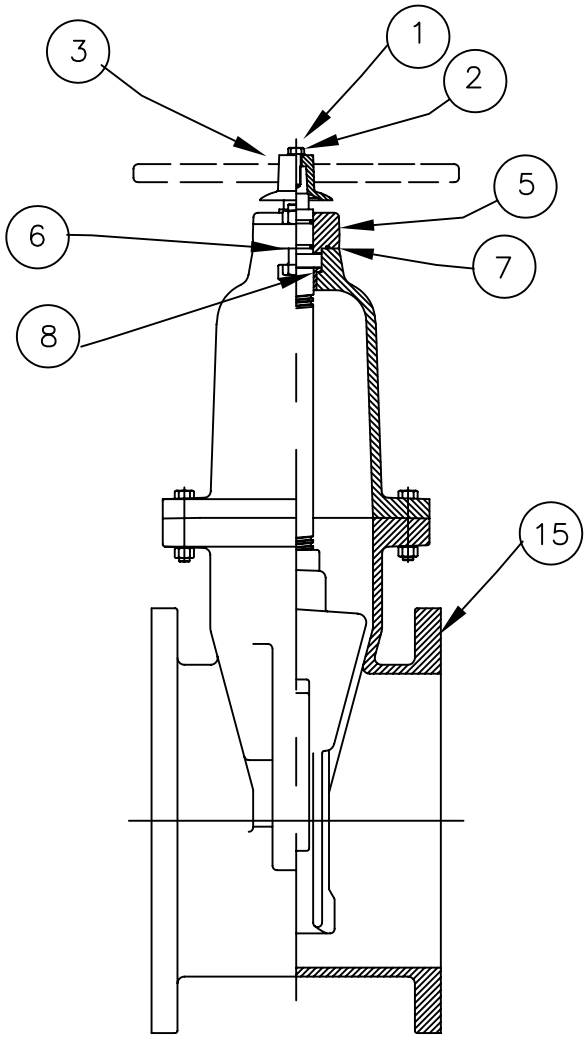
KENNEDY VALVE CO. RESILIENT SEAT GATE VALVE TEN YEAR LIMITED WARRANTY

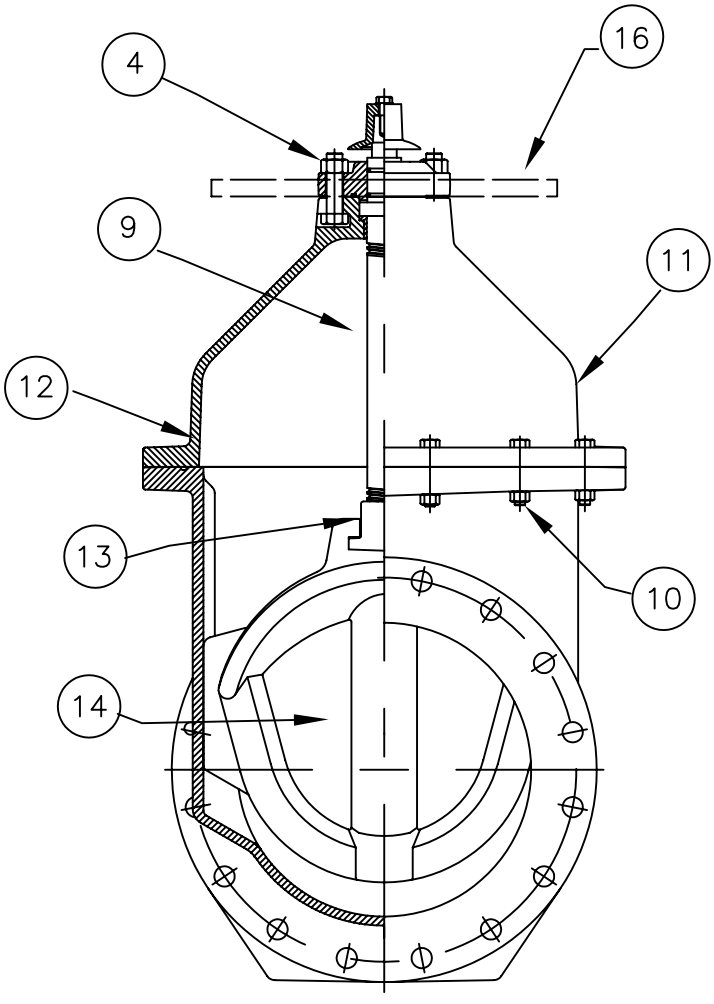
Kennedy Valve Company warrants that its R/S valves will be free from defects in material and workmanship under normal and customary use and maintenance for a period of ten (10) years from the date of purchase, provided the valve is installed and maintained according to Kennedy instruction, and applicable 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 Kennedy Valve Company part or parts fail to conform to the foregoing warranty, Kennedy 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 Kennedy, 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 KENNEDY 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	304 STAINLESS STEEL	----------
2	HOLD DOWN BOLT WASHER	304 STAINLESS STEEL	----------
3	OPERATING NUT OR HAND WHEEL	GRAY IRON	ASTM A126 Cl B
4	BOLTS / NUTS (STUFFING BOX)	304 STAINLESS STEEL	----------
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	304 STAINLESS STEEL	----------
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





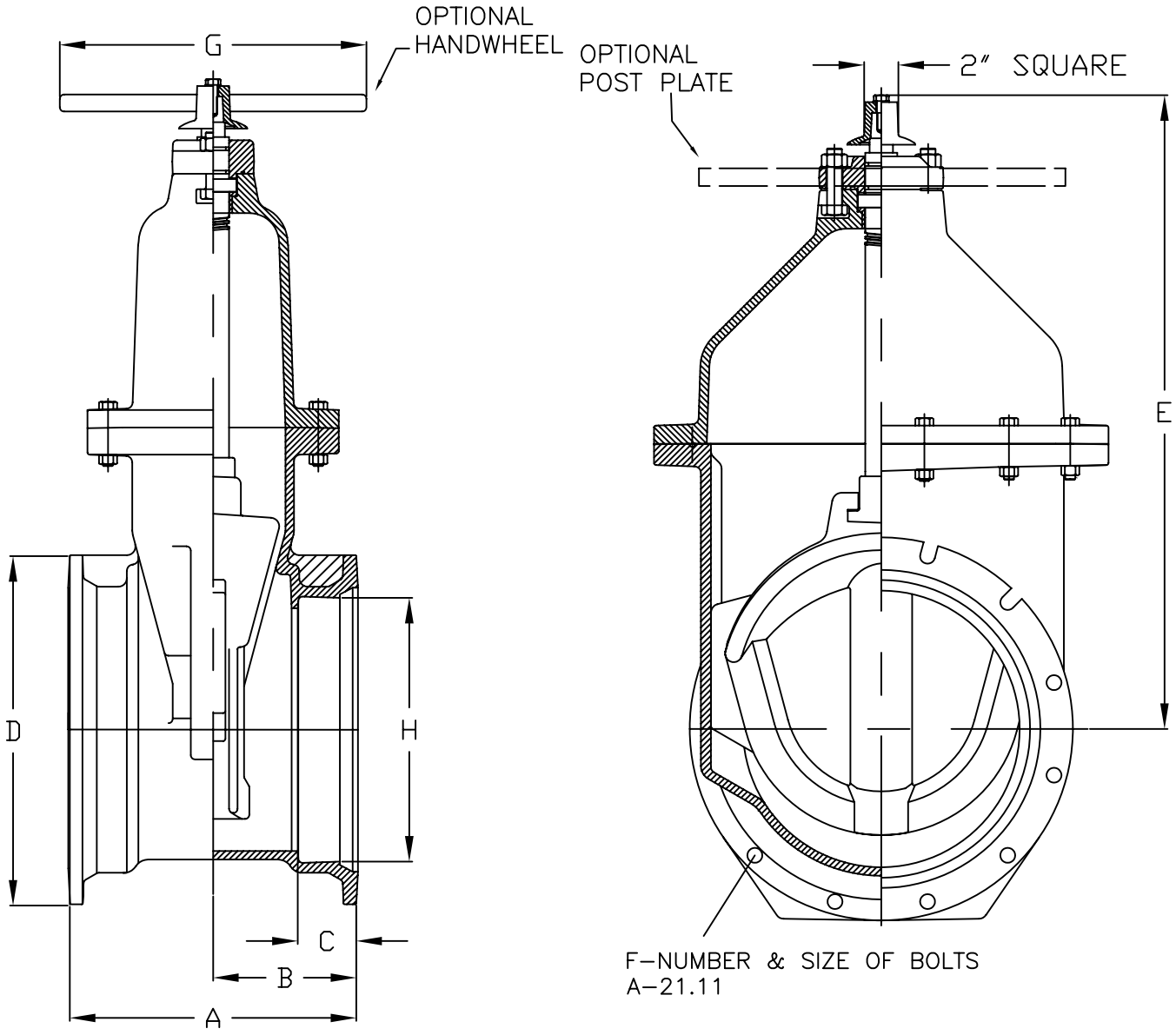
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LR-A1	

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

Complies with AWWA C515

8571 WITH 2" SQUARE NUT
8571W WITH HANDWHEEL
8071 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

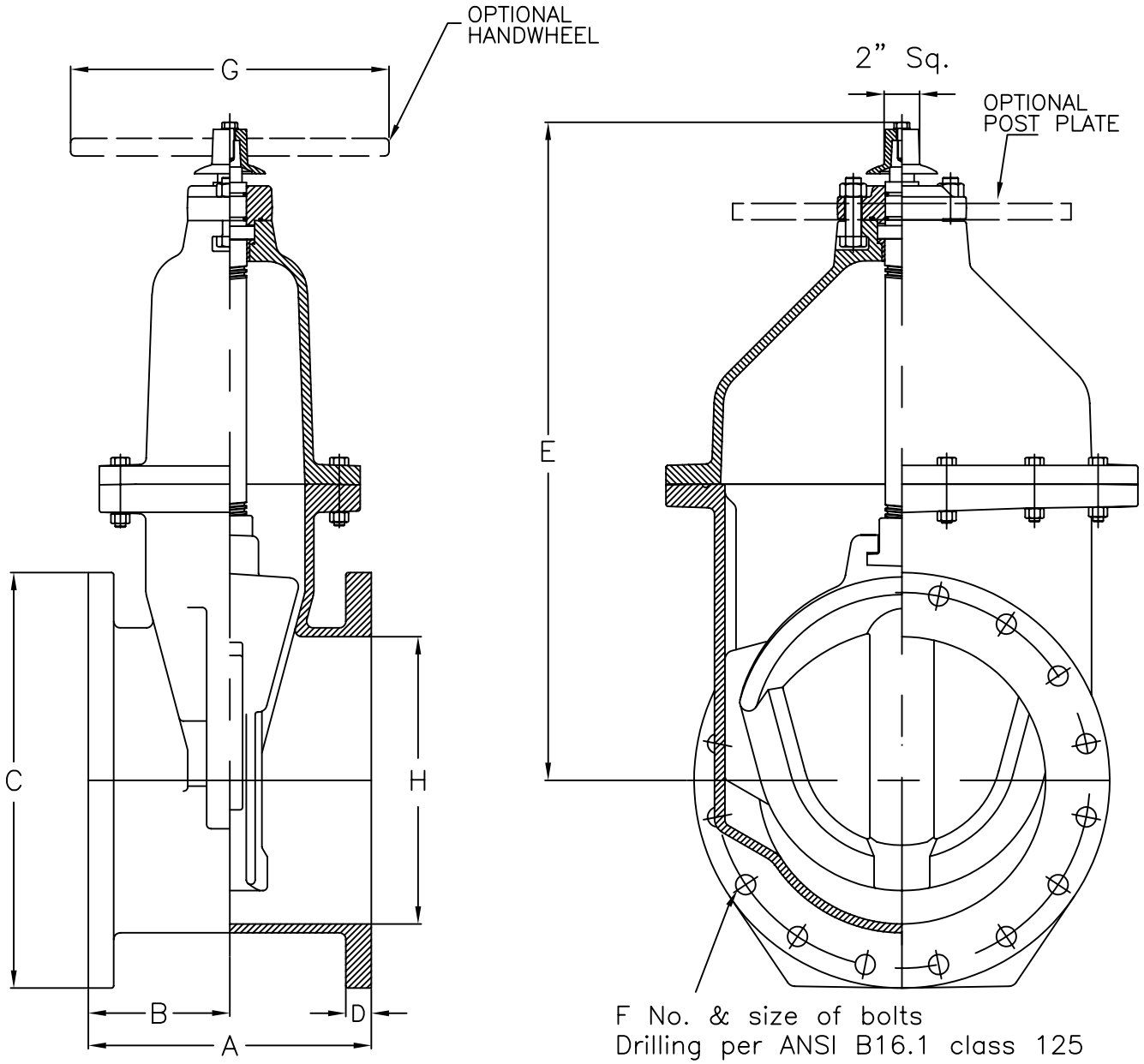
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR–A2

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

Complies with AWWA C515

8561AN WITH 2" SQUARE NUT
8561A WITH HANDWHEEL
8701A 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

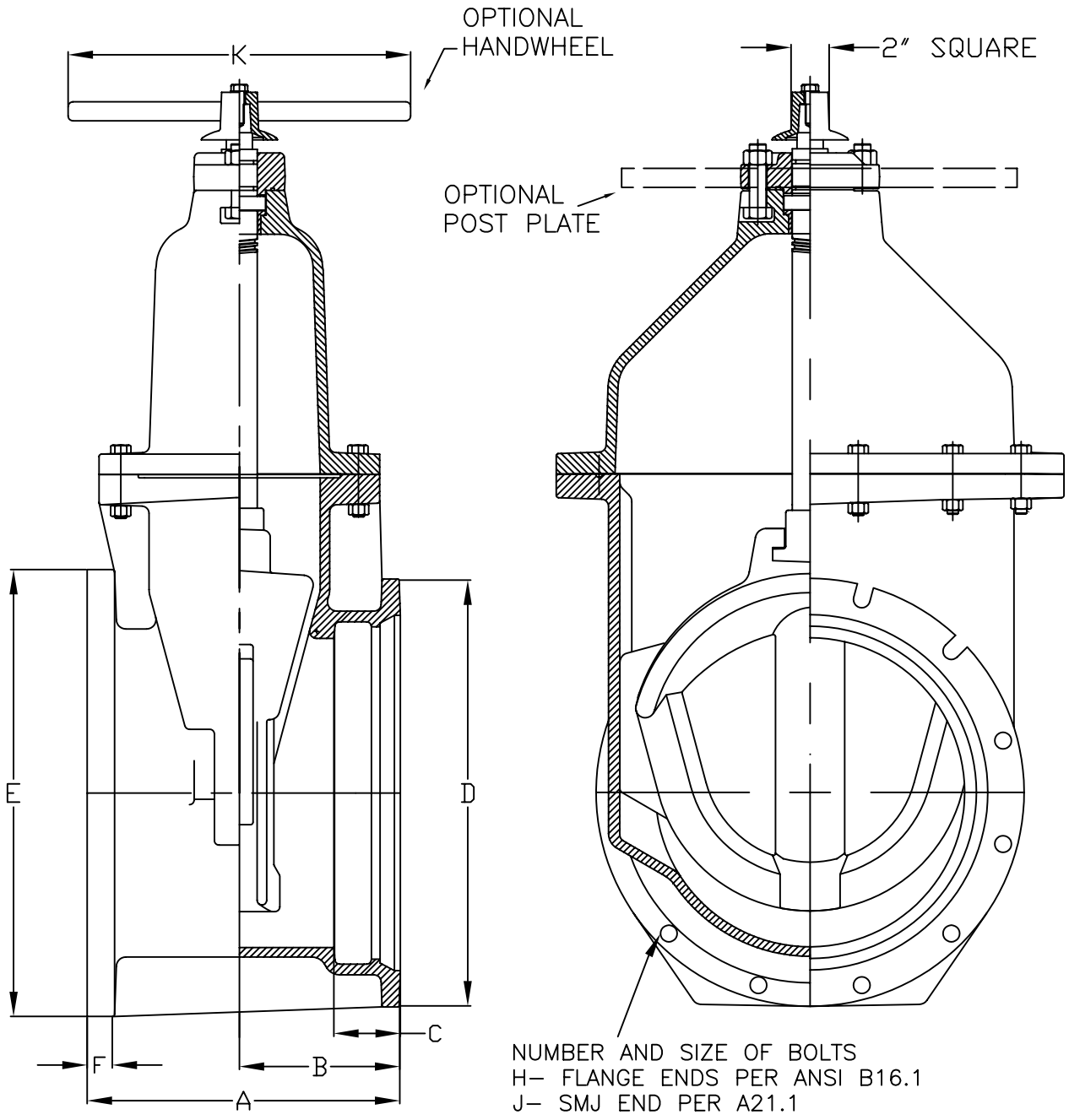
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR–A3

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

Complies with AWWA C515

8572 WITH 2" SQUARE NUT
8572W WITH HANDWHEEL
8702 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

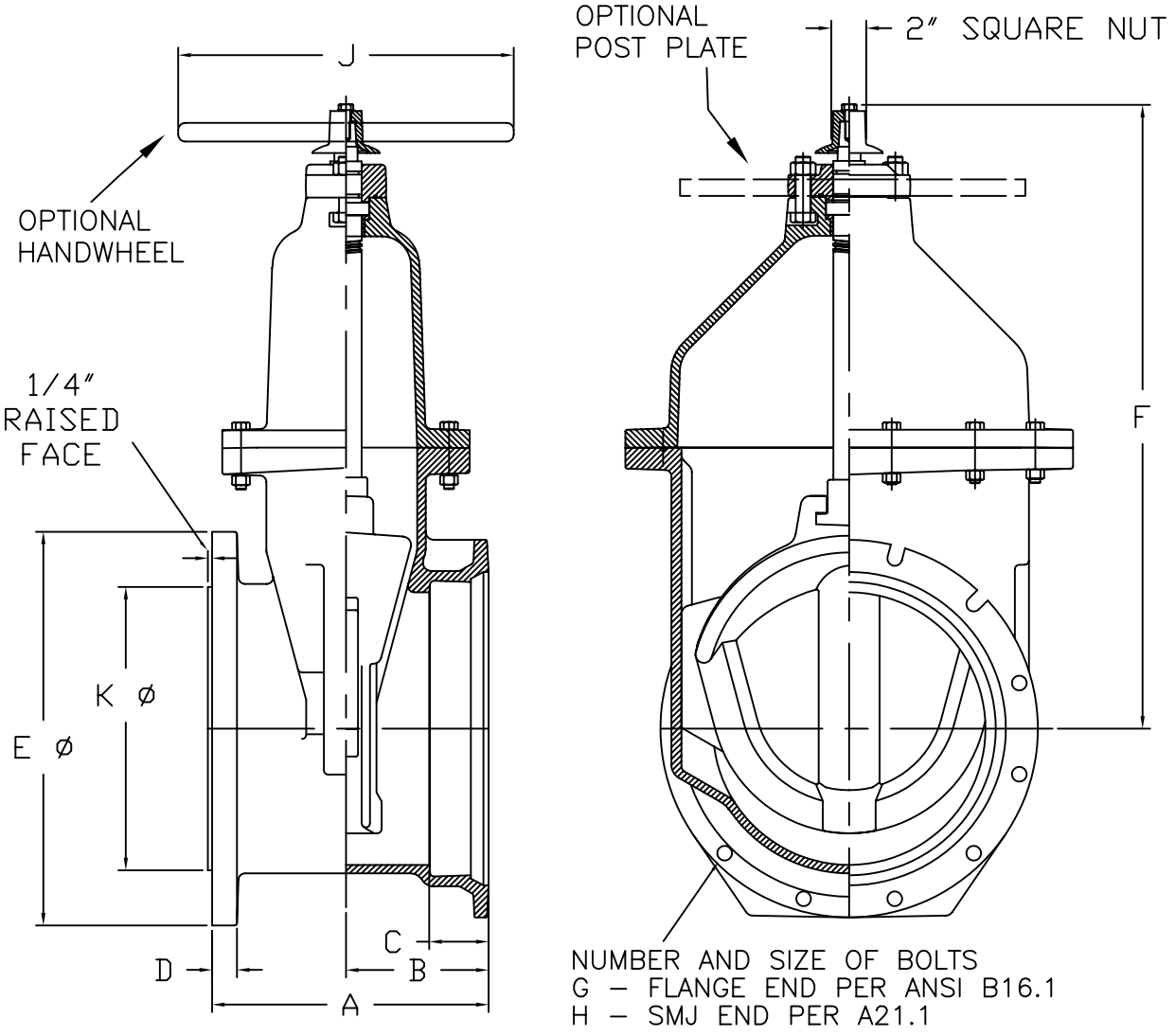
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR–A4

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

Complies with AWWA C515

8950	WITH 2" SQUARE NUT
8950W	WITH HANDWHEEL
8950P	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

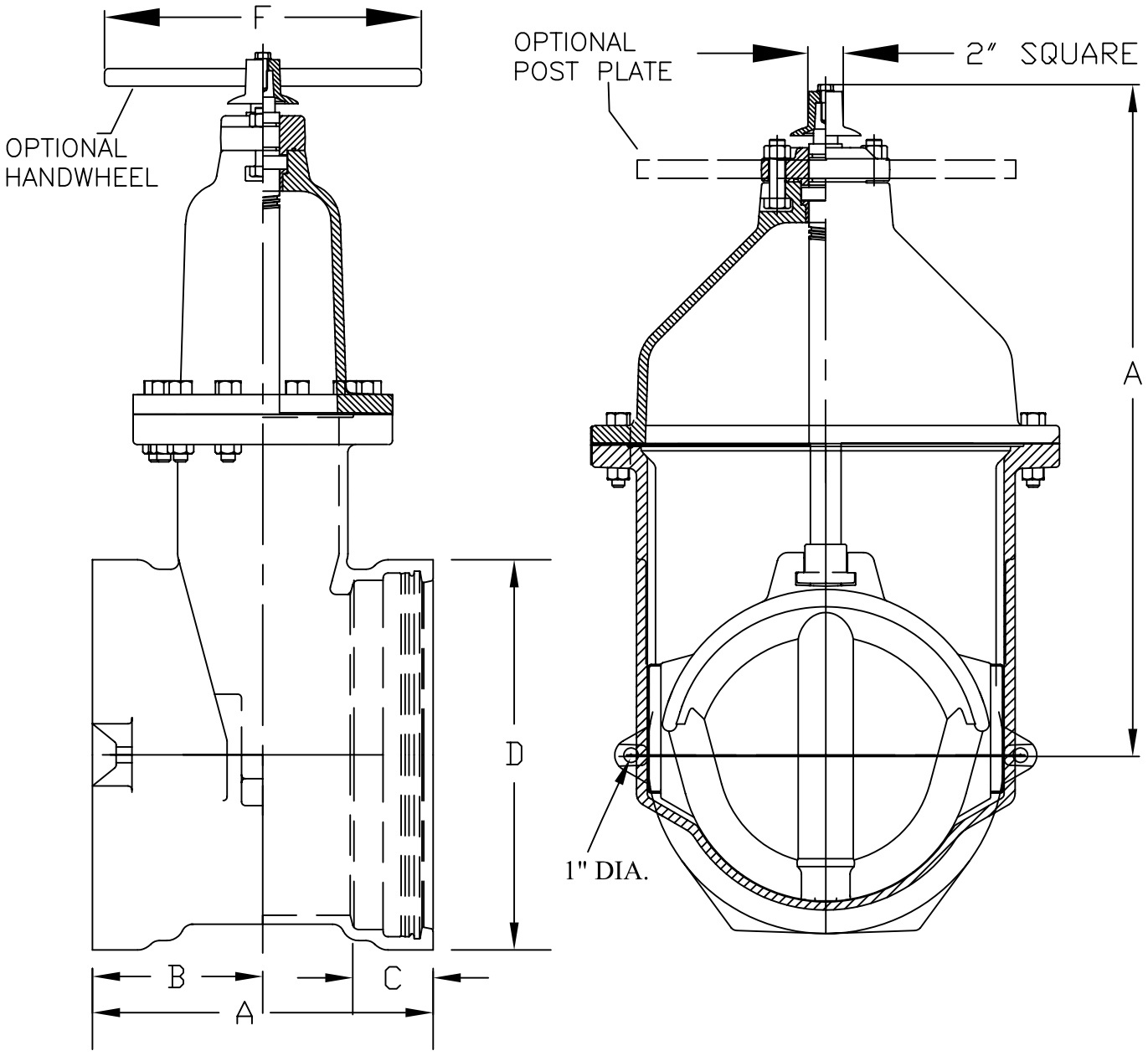
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LR–A5	

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

Complies with AWWA C515

8902 WITH 2" SQUARE NUT
8902HW WITH HANDWHEEL
8902P 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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR-A6

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

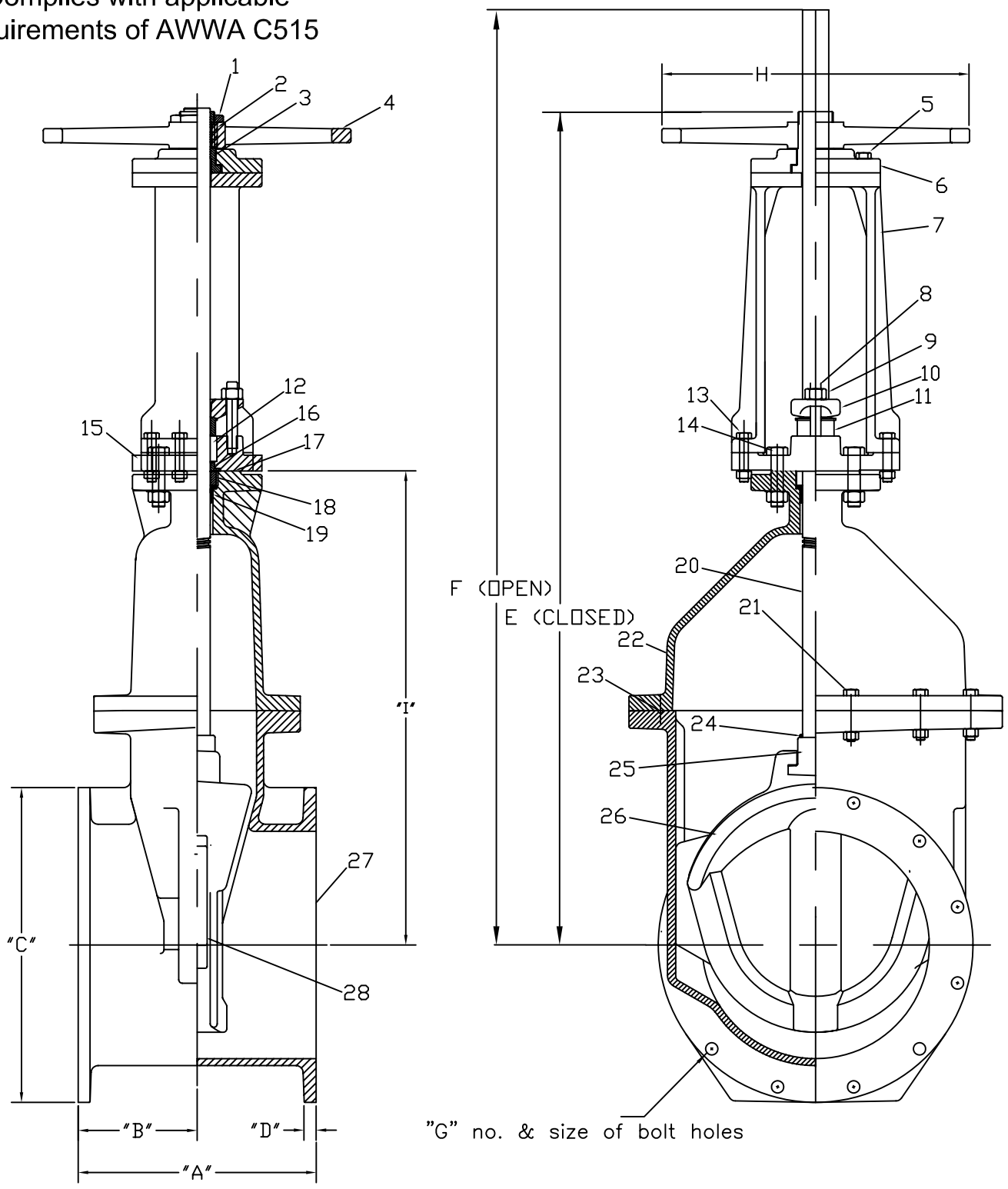
Item	Description	Material
1	Hold down Nut	Bronze ASTM B584 C83600
2	Square Key	Commercial Steel
3	Top Stem Nut	Bronze ASTM B584 C83600
4	Handwheel	Gray Iron ASTM A126 Class B
5	Hex Capscrew	304 STAINLESS STEEL
6	Adapter	Gray Iron ASTM A126 Class B
7	Yoke	Gray Iron ASTM A126 Class B
8	Stud	316 Stainless Steel
9	Hex Nut	304 STAINLESS STEEL
10	Follower	Gray Iron ASTM A126 Class B
11	Gland	Bronze ASTM B584 C83600
12	Packing	Square braided Fibre
13	Hex Capscrew & Hex Nut	304 STAINLESS STEEL
14	Hex Capscrew & Hex Nut	304 STAINLESS STEEL
15	Adapter	Gray Iron ASTM A126 Class B
16	Bushing	Bronze ASTM B584 C83600
17	Follower Gasket	Fibre
18	Cover Spacer	Bronze ASTM B584 C83600
19	Cover Bushing	Bronze ASTM B584 C83600
20	Stem & Bottom Nut	Bronze ASTM B16 Alloy 306
21	Hex Capscrew & Hex Nut	304 STAINLESS STEEL
22	Cover	Ductile Iron ASTM A536 Grade 65-45-12
23	Cover O-Ring	Buna-N
24	Stem O-Ring	Buna-N
25	Stem Nut	Bronze ASTM B584 C83600
26	Wedge	Gray Iron ASTM A126 Class B & SBR
27	Body -flanged type	Ductile Iron ASTM A536 Grade 65-45-12
28	Wedge Protector Cap	Delrin

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR-B1A

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

Complies with applicable requirements of AWWA C515



VALVE SIZE	A	B	C	D	E	F	G	H	I	WEIGHT
14	15	7 1/2	21	1 3/8	59 3/4	74 3/4	12–1	22	31 13/16	635
16	16	8	23 1/2	1 7/16	59 3/4	74 3/4	16–1	22	31 13/16	735

TURNS TO OPEN: 14" & 16"=50

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR–B1B

14" & 16"
OS&Y–RESILIENT SEAT GATE VALVE
FLANGED ENDS
MATERIAL LIST

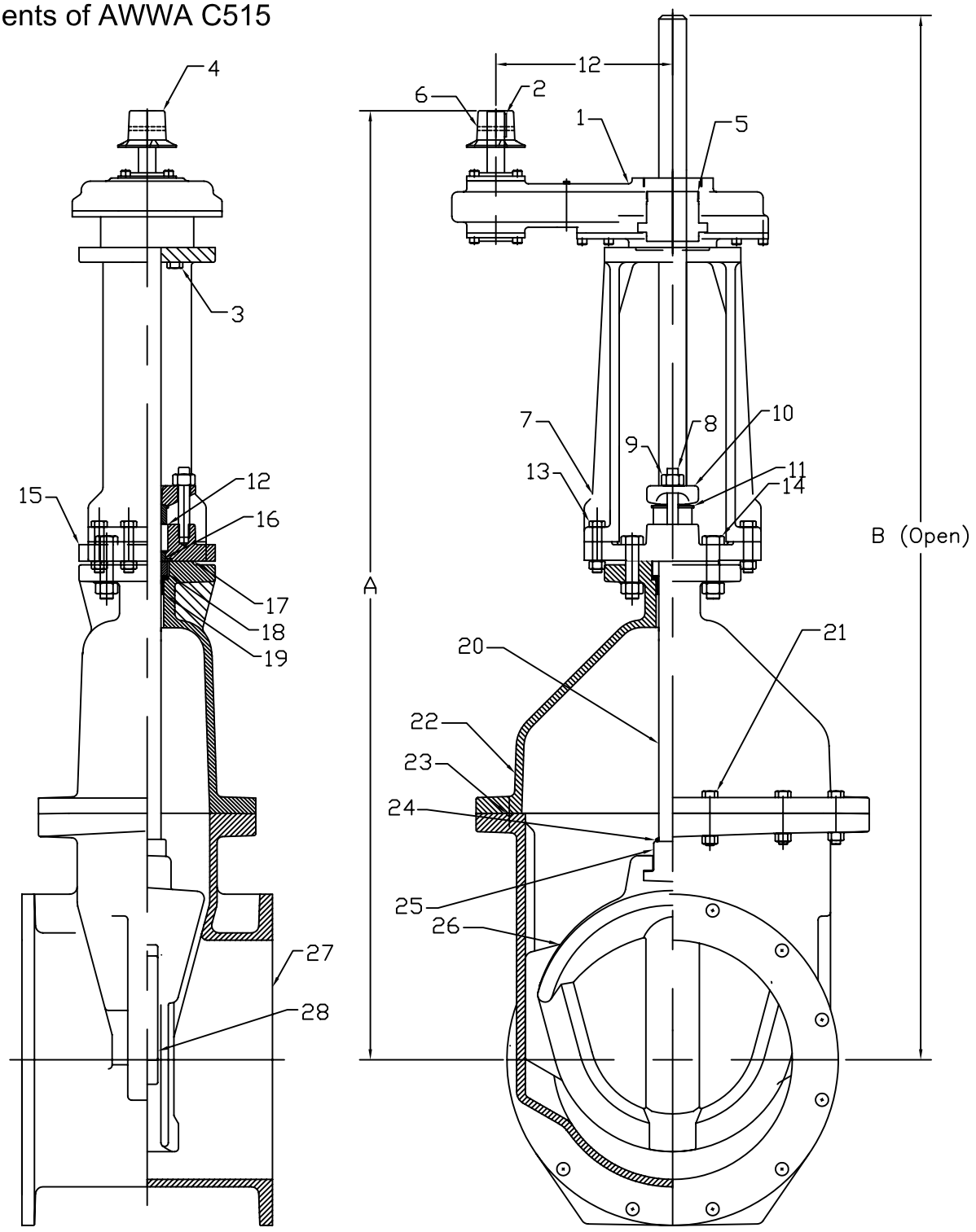
Item	Description	Material
1	Exeeco IS7	Bronze ASTM B584 C83600
2	Square Key	Commercial Steel
3	Hex Capscrew	304 Stainless Steel
4	Op Nut	Gray Iron ASTM A126 Class B
5	Output Sleeve	Aluminum Bronze ASTM B505 C95800
6	Roll Pin	Stainless Steel
7	Yoke	Gray Iron ASTM A126 Class B
8	Stud	Bronze ASTM B584 C83600
9	Hex Nut	Bronze ASTM B584 C83600
10	Follower	Gray Iron ASTM A126 Class B
11	Gland	Bronze ASTM B584 C83600
12	Packing	Square braided Fibre
13	Hex Capscrew & Hex Nut	304 Stainless Steel
14	Hex Capscrew & Hex Nut	304 Stainless Steel
15	Adapter	Gray Iron ASTM A126 Class B
16	Bushing	Bronze ASTM B584 C83600
17	Follower Gasket	Fibre
18	Cover Spacer	Bronze ASTM B584 C83600
19	Cover Bushing	Bronze ASTM B584 C83600
20	Stem & Bottom Nut	Bronze ASTM B16 Alloy 306
21	Hex Capscrew & Hex Nut	304 Stainless Steel
22	Cover	Ductile Iron ASTM A536 Grade 65-45-12
23	Cover O-Ring	Buna-N
24	Stem O-Ring	Buna-N
25	Stem Nut	Bronze ASTM B584 C83600
26	Wedge	Gray Iron ASTM A126 Class B & SBR
27	Body -flanged type	Ductile Iron ASTM A536 Grade 65-45-12
28	Wedge Protector Cap	Delrin

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR-B2A

14" THRU 24"
OS&Y-RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
FLANGED ENDS---MATERIAL LIST

Complies with applicable requirements of AWWA C515



	14″	16″	18″	20″	24″
A	64-1/2	64-1/2	74-5/8	74-5/8	83-1/2
B	76	76	90-7/8	90-7/8	103-5/8

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LR-B2B	

14" THRU 24"
OS&Y-RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
FLANGED ENDS

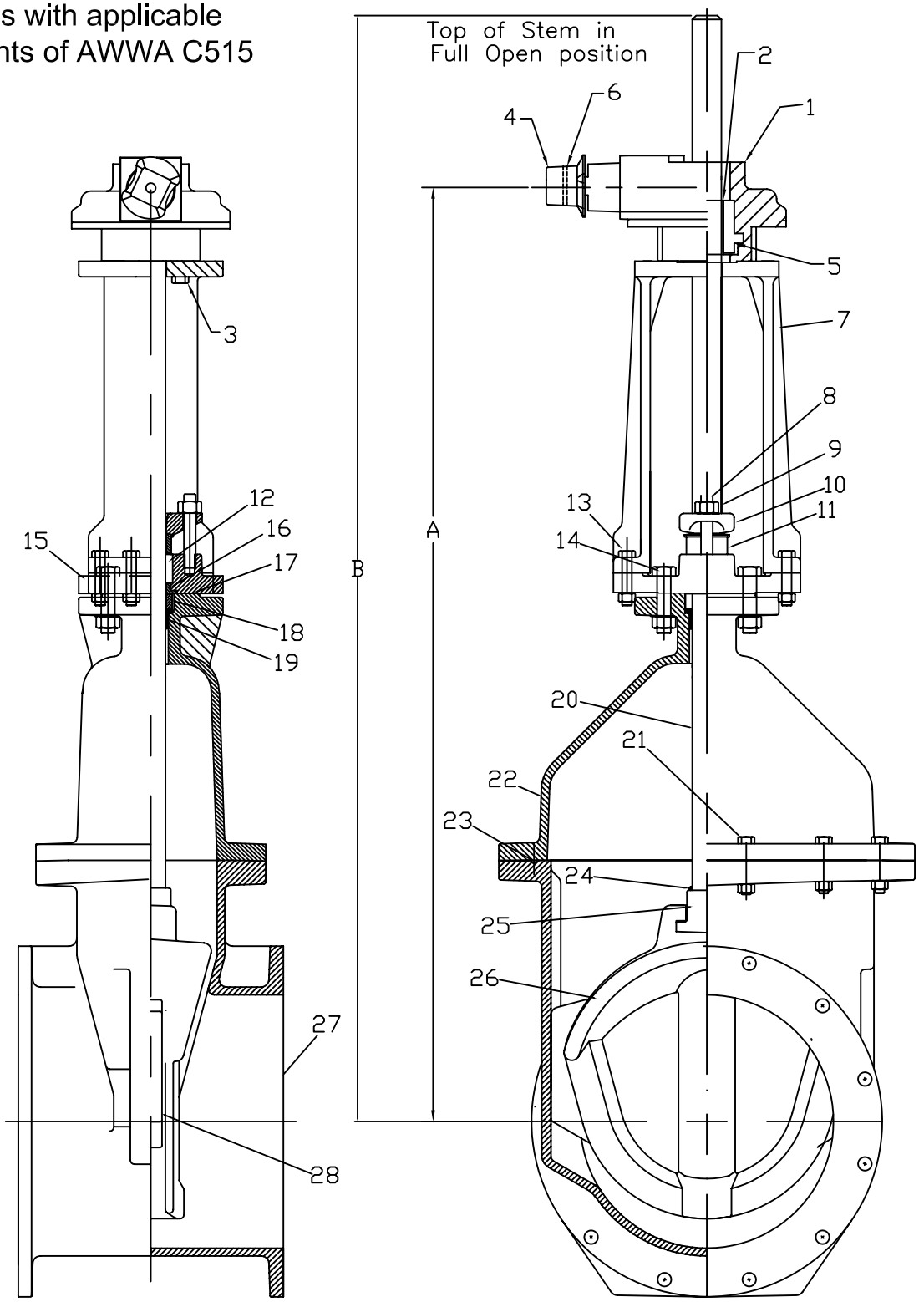
Item	Description	Material
1	Exeeco IB7	Bronze ASTM B584 C83600
2	Square Key	Commercial Steel
3	Hex Capscrew	304 Stainless Steel
4	Op Nut	Gray Iron ASTM A126 Class B
5	Output Sleeve	Aluminum Bronze ASTM B505 C95800
6	Roll Pin	Stainless Steel
7	Yoke	Gray Iron ASTM A126 Class B
8	Stud	Bronze ASTM B584 C83600
9	Hex Nut	Bronze ASTM B584 C83600
10	Follower	Gray Iron ASTM A126 Class B
11	Gland	Bronze ASTM B584 C83600
12	Packing	Square braided Fibre
13	Hex Capscrew & Hex Nut	304 Stainless Steel
14	Hex Capscrew & Hex Nut	304 Stainless Steel
15	Adapter	Gray Iron ASTM A126 Class B
16	Bushing	Bronze ASTM B584 C83600
17	Follower Gasket	Fibre
18	Cover Spacer	Bronze ASTM B584 C83600
19	Cover Bushing	Bronze ASTM B584 C83600
20	Stem & Bottom Nut	Bronze ASTM B16 Alloy 306
21	Hex Capscrew & Hex Nut	304 Stainless Steel
22	Cover	Ductile Iron ASTM A536 Grade 65-45-12
23	Cover O-Ring	Buna-N
24	Stem O-Ring	Buna-N
25	Stem Nut	Bronze ASTM B584 C83600
26	Wedge	Gray Iron ASTM A126 Class B & SBR
27	Body -flanged type	Ductile Iron ASTM A536 Grade 65-45-12
28	Wedge Protector Cap	Delrin

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR-B3A

14" THRU 24"
OS&Y-RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR)
FLANGED ENDS---MATERIAL LIST

Complies with applicable requirements of AWWA C515



	14″	16″	18″	20″	24″
A	59-7/8	59-7/8	70-1/8	70-1/8	78-7/8
B	76	76	90-7/8	90-7/8	103-5/8

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LR-B3B	

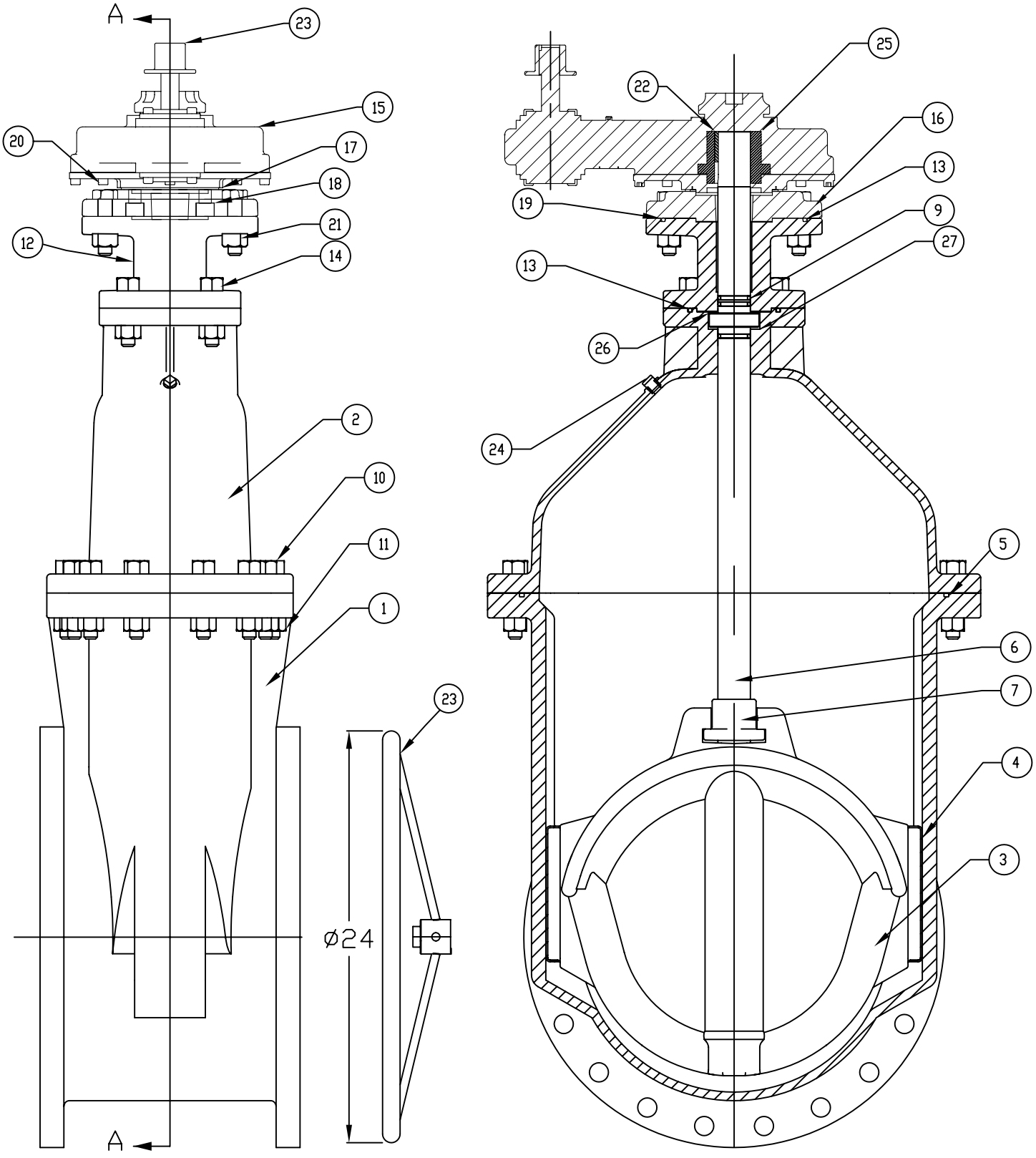
14" THRU 24"
OS&Y-RESILIENT SEAT GATE VALVE
(WITH BEVEL GEAR)
FLANGED ENDS

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	304 Stainless Steel	----------
11	Hex Nut	304 Stainless Steel	----------
12	Extension	Ductile Iron	ASTM A536 65-45-12
13	Oring	Rubber	NBR
14	Hex Head Bolt	304 Stainless 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	304 Stainless Steel	----------
21	Hex Nut	304 Stainless Steel	----------
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	----------

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR-C1A

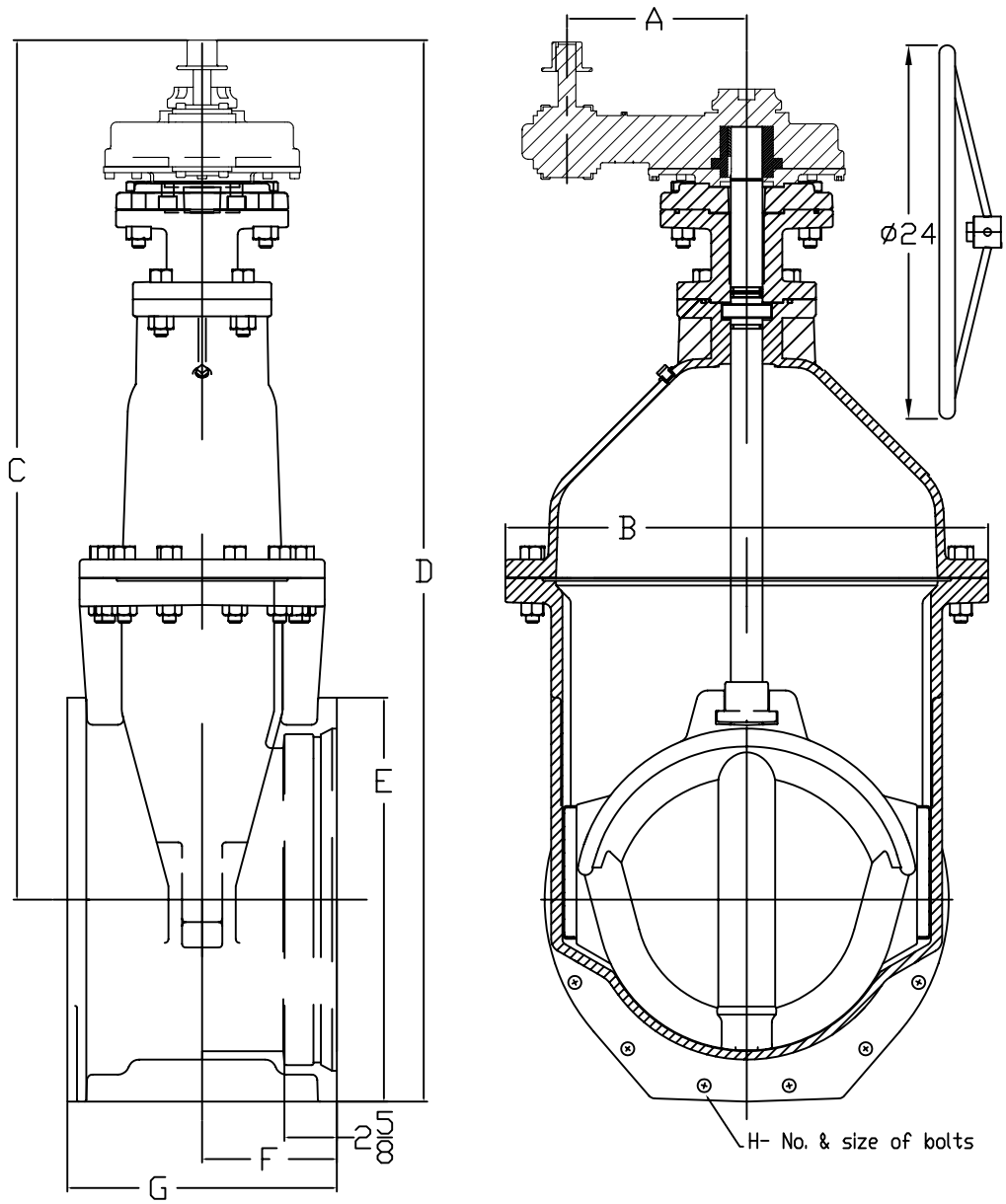
14" THRU 24"
NRS-RESILIENT SEAT GATE VALVE
WITH (SPUR GEAR)
MATERIAL LIST



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	14" THRU 24" NRS–RESILIENT SEAT GATE VALVE WITH (SPUR GEAR) VALVE ASSEMBLY
DATE: 7/1/05	
DWG. NO. LR–C1B	

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

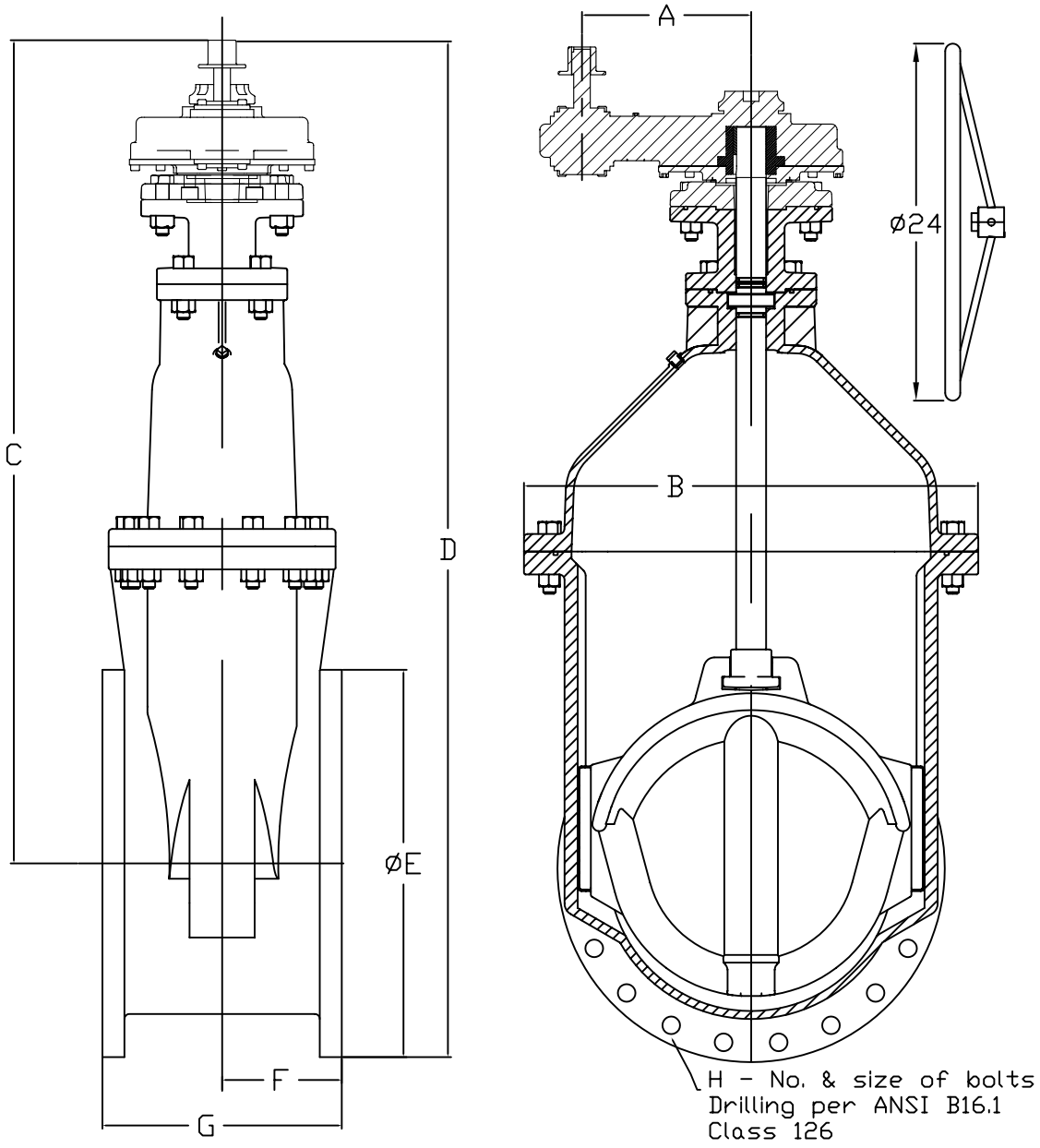
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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

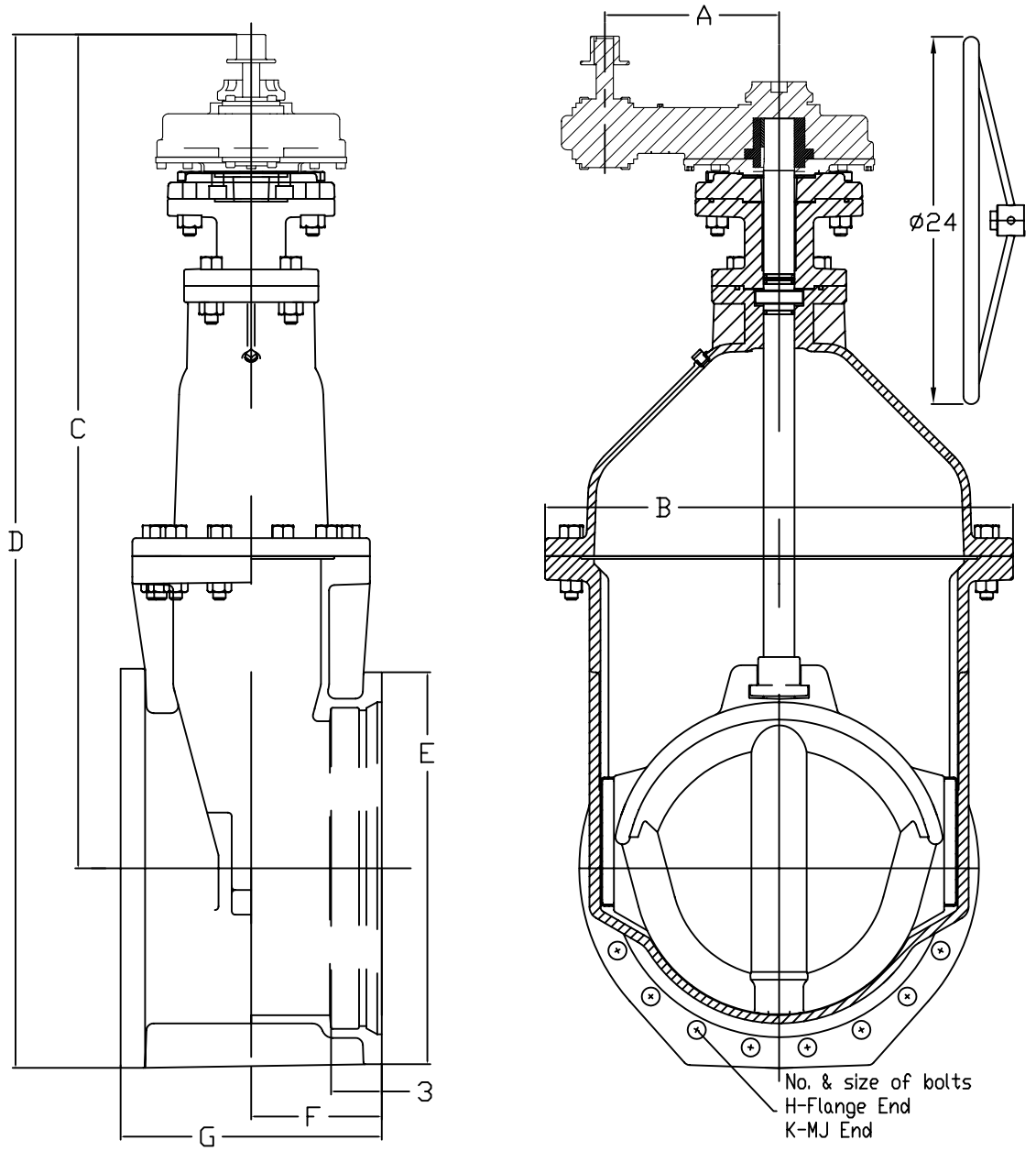
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN:	TRIJ
DATE:	7/1/05
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

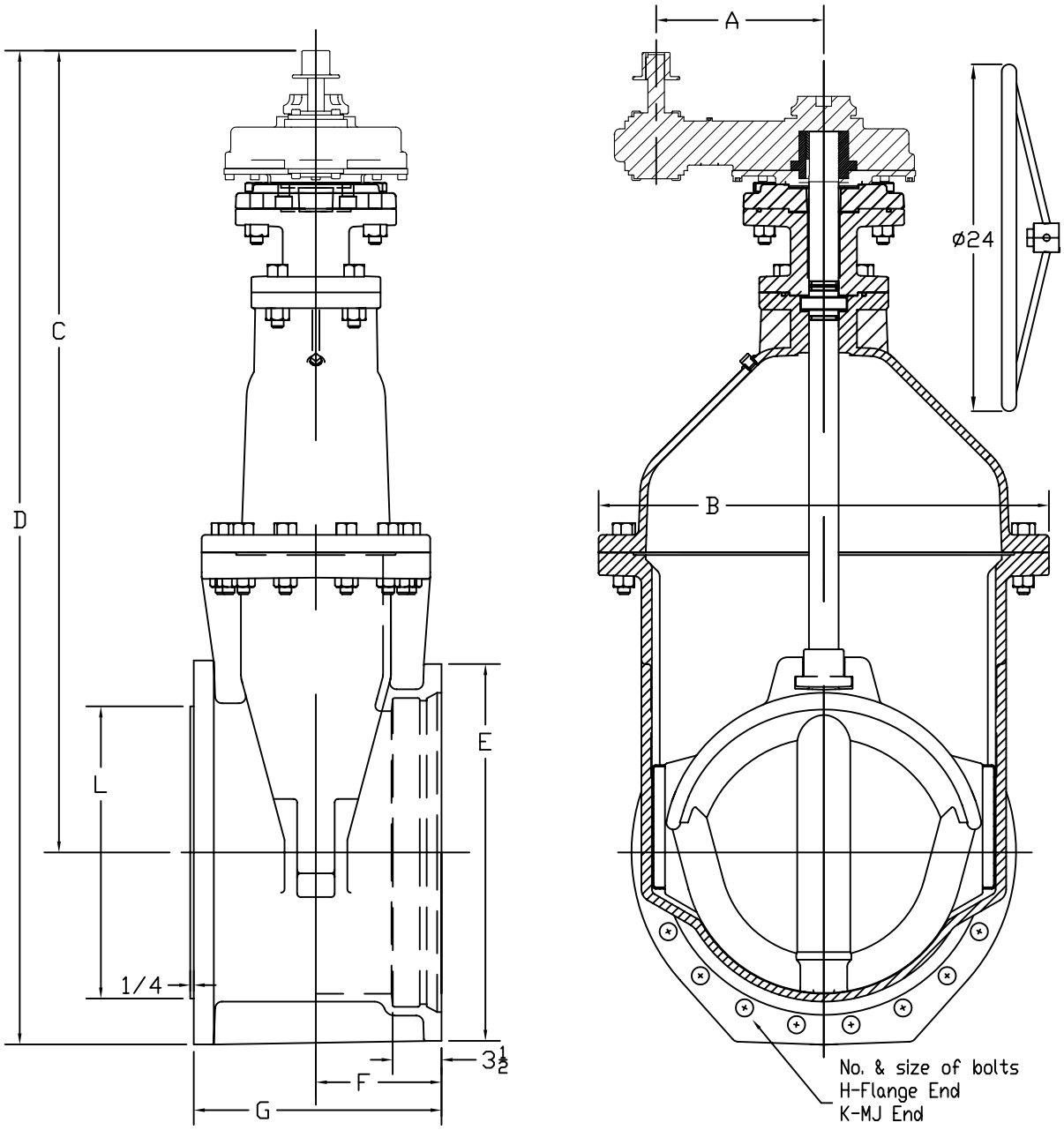
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR–C5

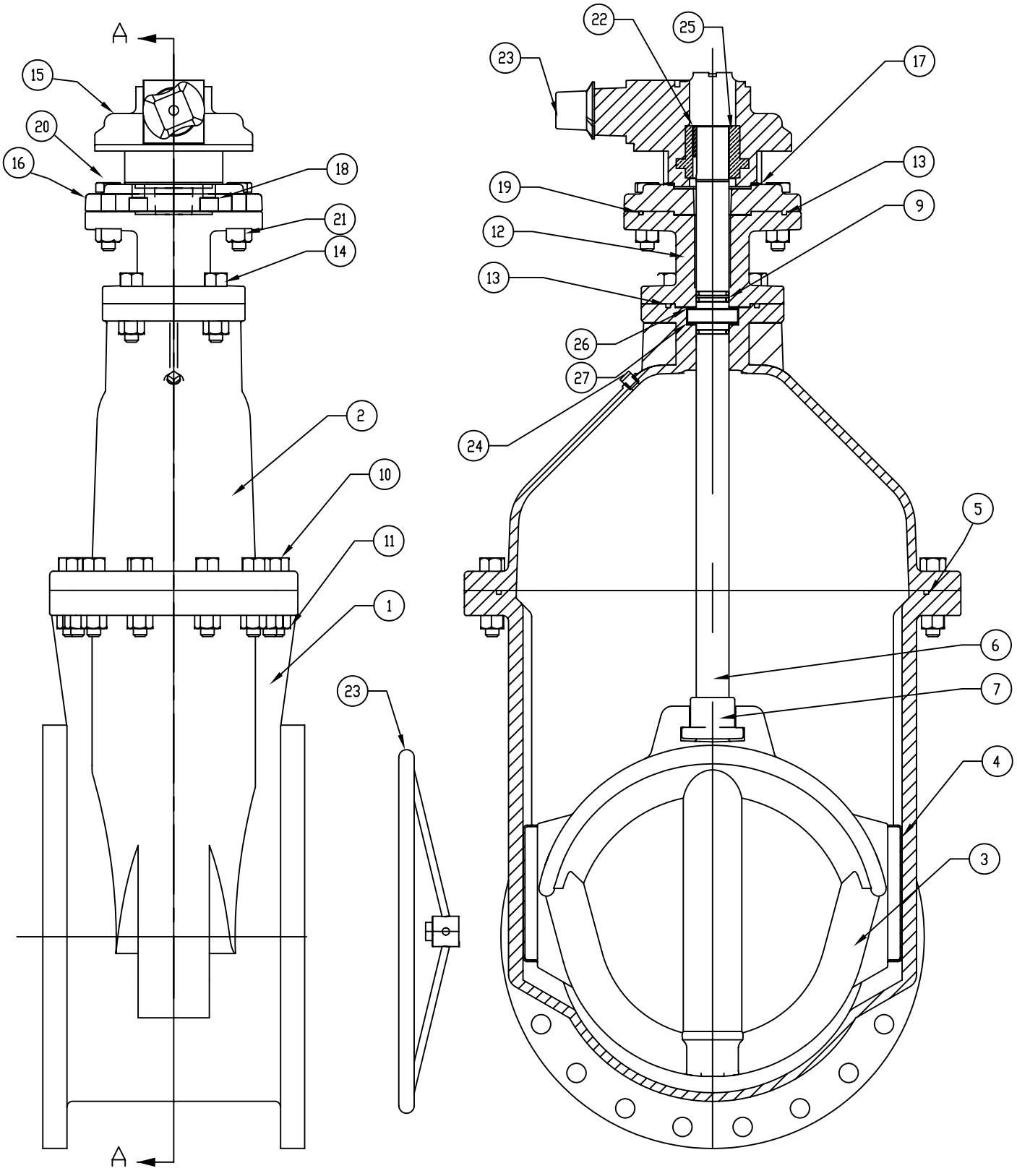
14" THRU 24"
NRS–RESILIENT SEAT GATE VALVE
(WITH SPUR GEAR)
TAPPING VALVE

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	304 Stainless Steel	----------
11	Hex Nut	304 Stainless Steel	----------
12	Extension	Ductile Iron	ASTM A536 65-45-12
13	Oring	Rubber	NBR
14	Hex Head Bolt	304 Stainless Steel	----------
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	304 Stainless Steel	----------
21	Hex Nut	304 Stainless Steel	----------
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	----------

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LR-D1A

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

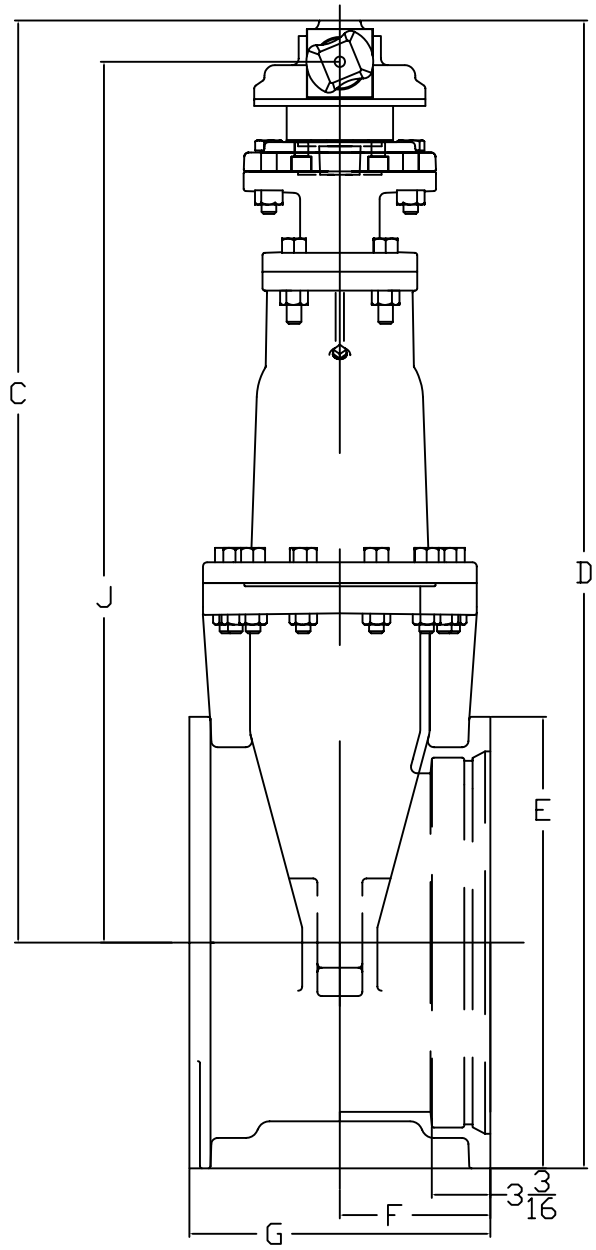


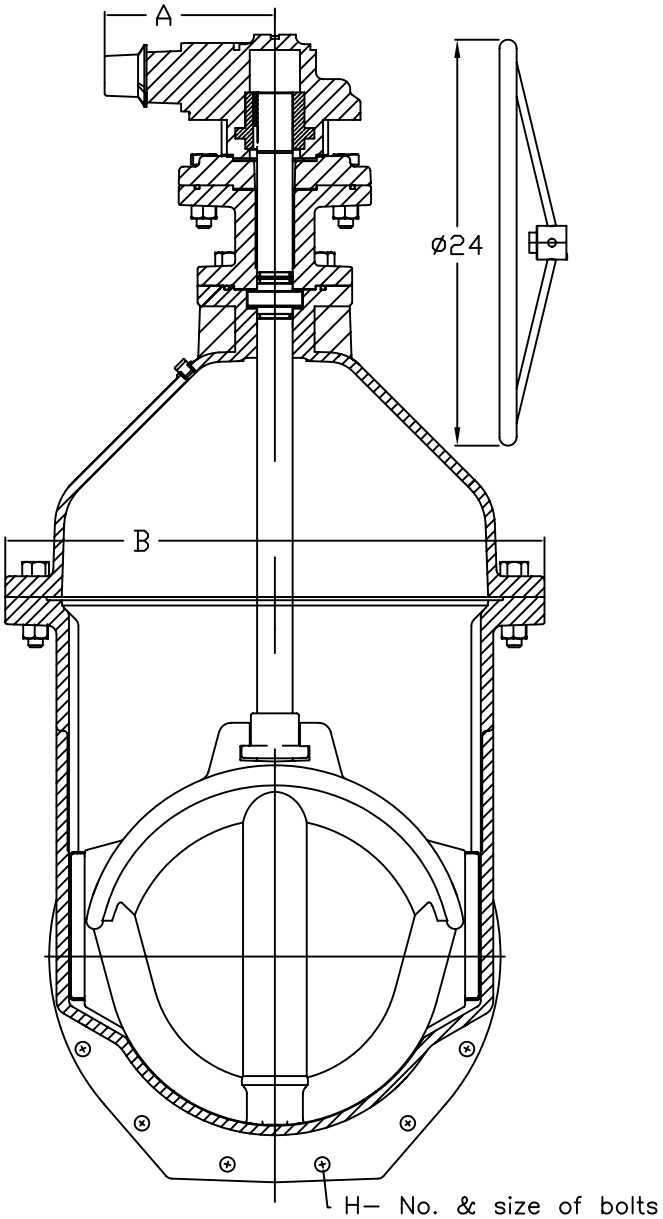
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LR-D1B	

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

Complies with AWWA C515





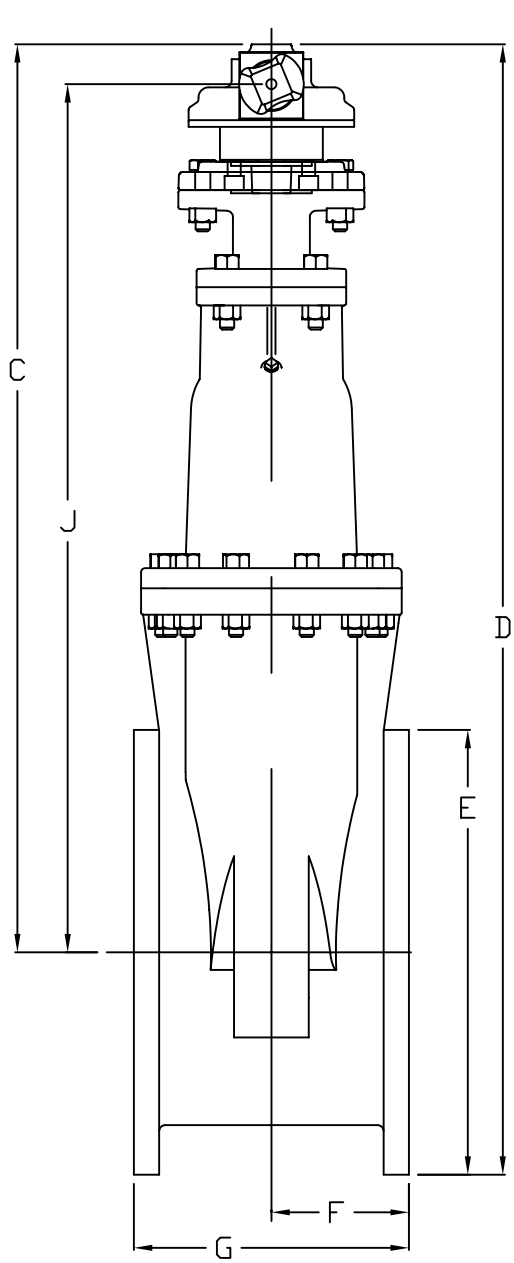
VALVE SIZE	A	B	C	D	E	F	G	H	J	WEIGHT
14	9 1/8	26 11/16	48 5/8	59	20 1/4	8 1/2	17	10–3/4	46 5/8	900
16	9 1/8	26 11/16	47 5/8	59	22 1/2	8 1/2	17	12–3/4	45 5/8	1200
18	10 1/8	32 1/4	55 3/4	68 1/4	24 3/4	9 5/32	18 3/4	12–3/4	53 3/4	2000
20	10 1/8	32 1/4	54 3/4	68 1/4	27	9 5/32	18	14–3/4	52 3/4	2130
24	10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

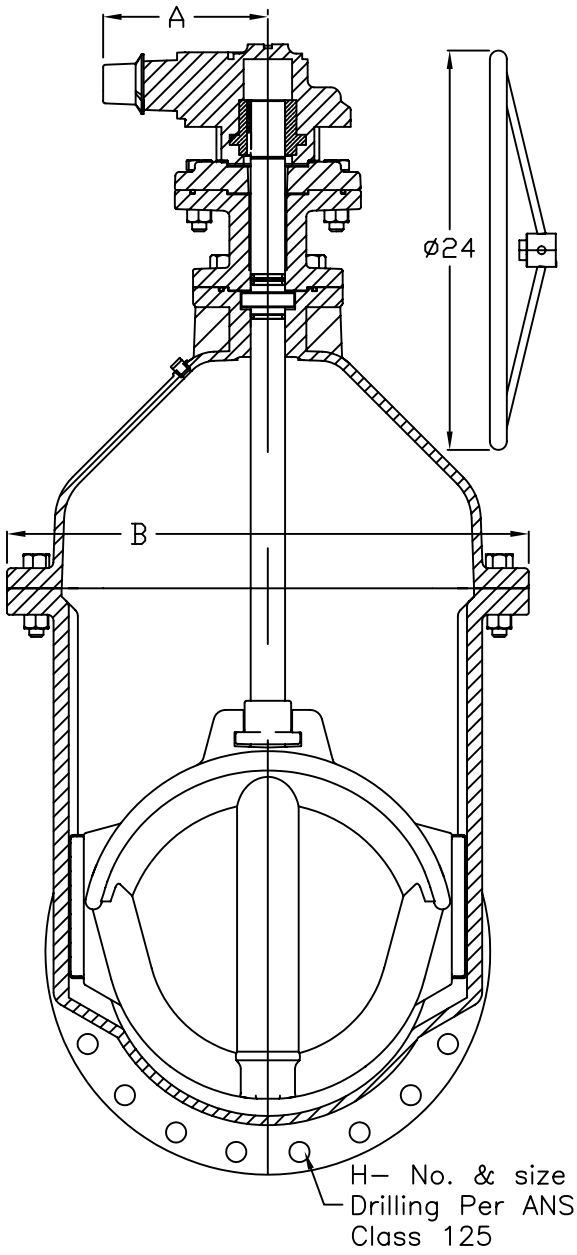
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	14" THRU 24"
DATE: 7/1/05	NRS–RESILIENT SEAT GATE VALVE
DWG. NO. LR–D2	(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

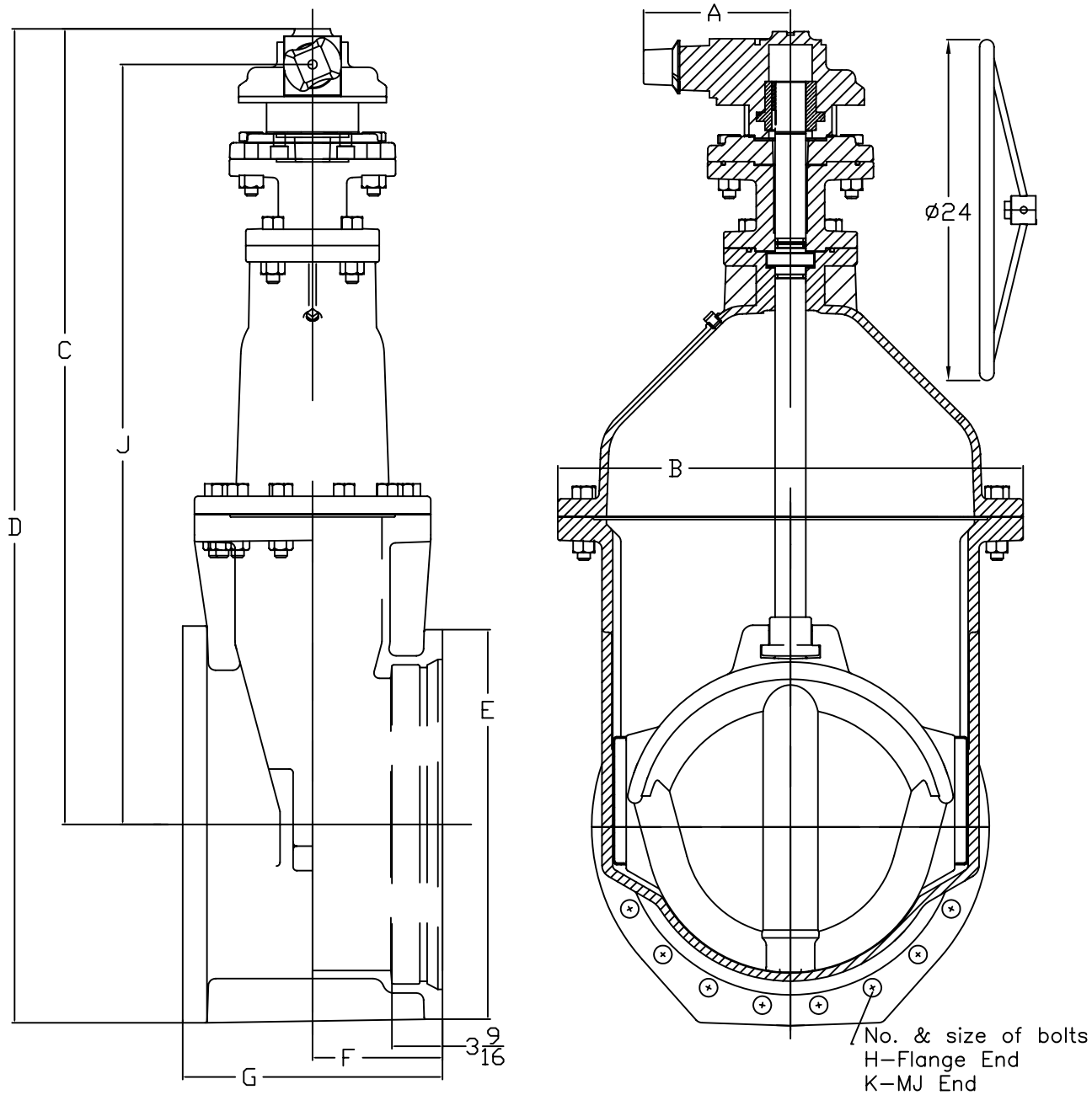
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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

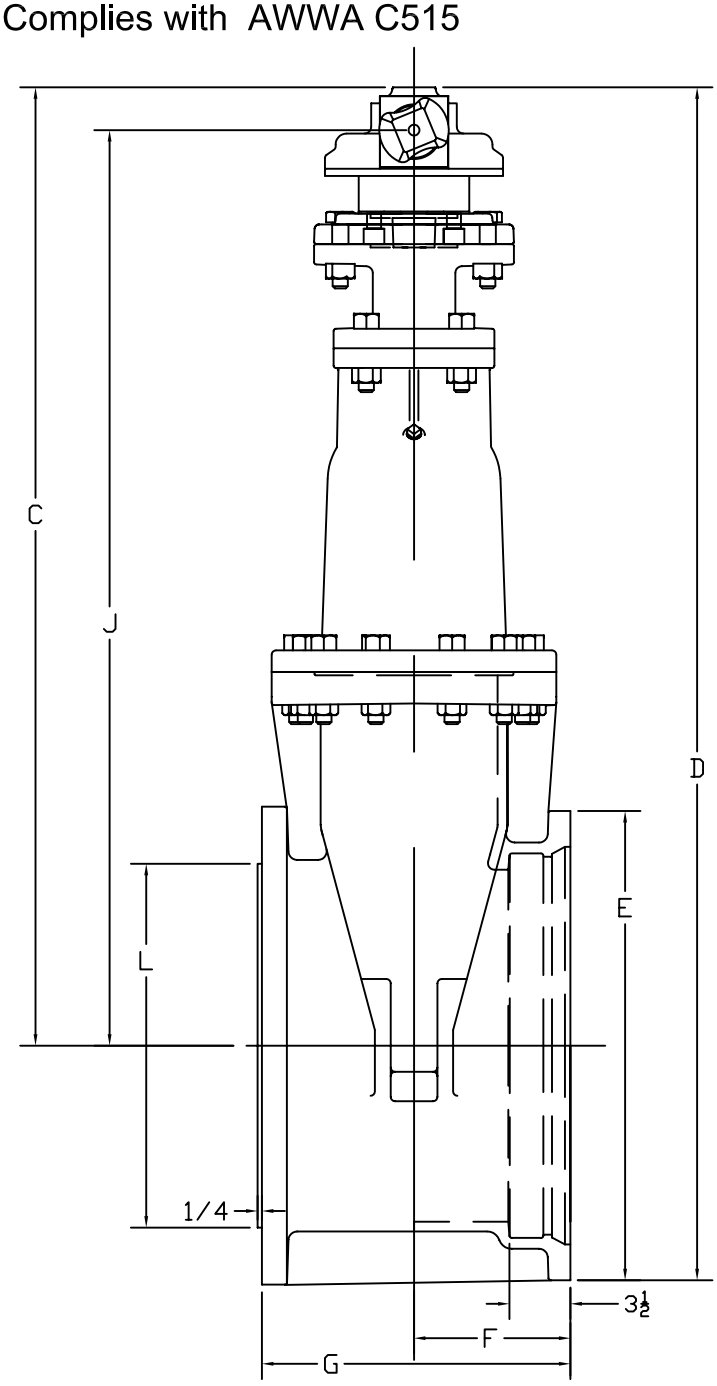
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

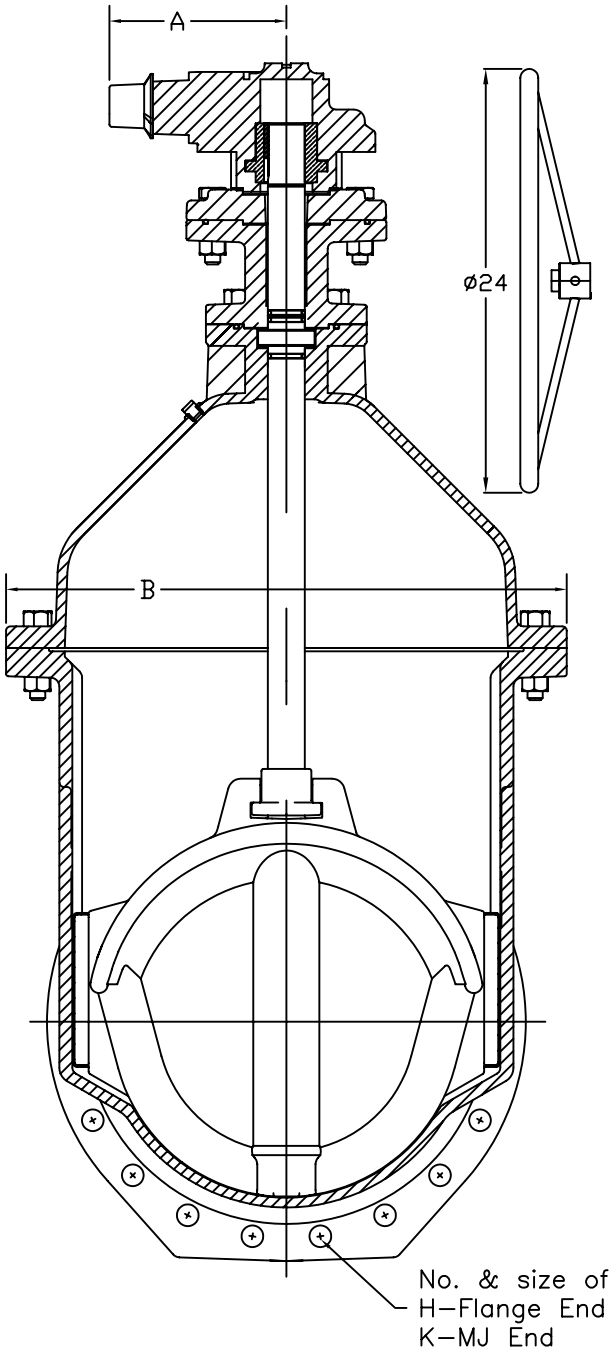
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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

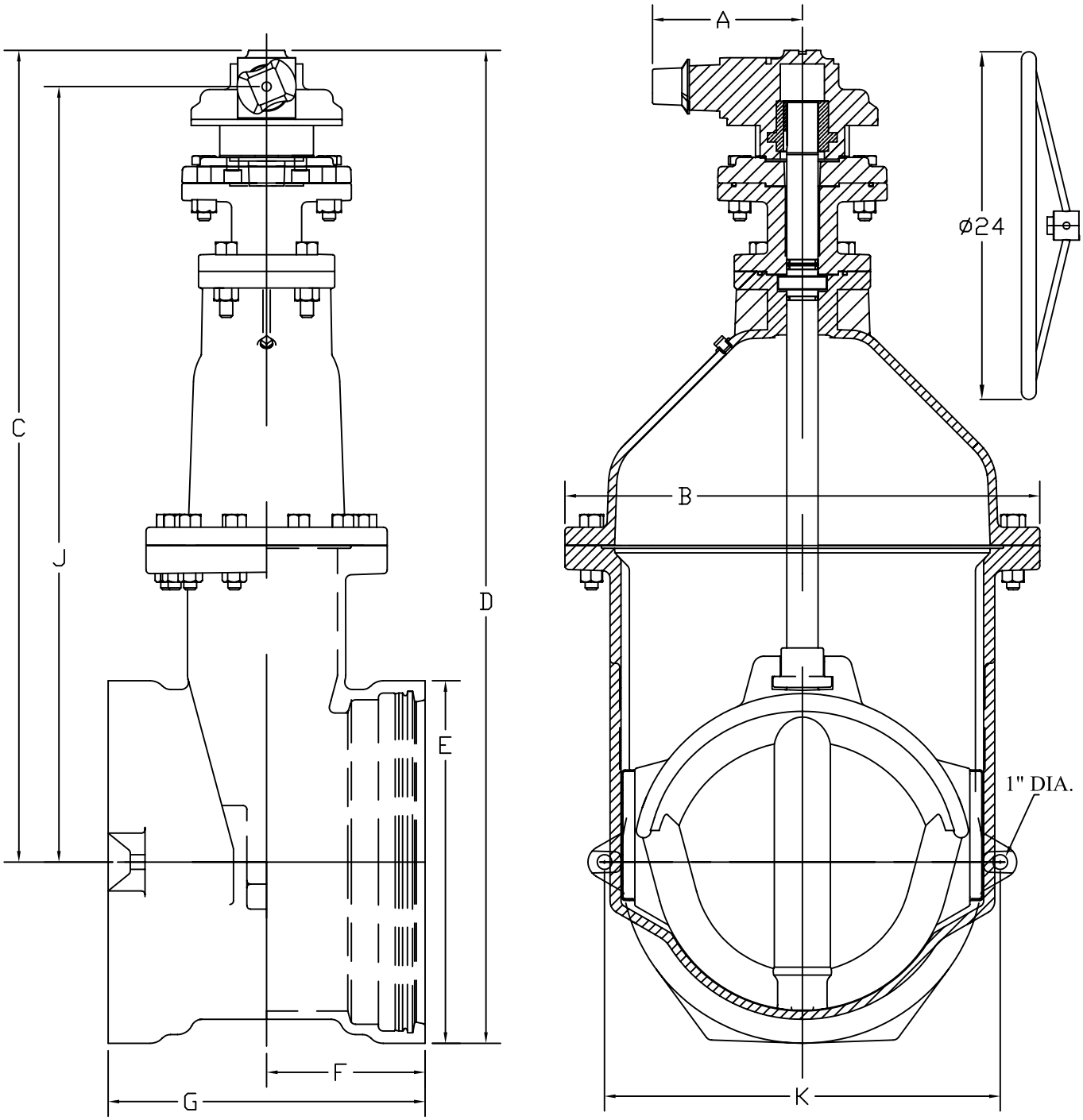
TURNS TO OPEN: 14" & 16"=100 / 18" & 20"=189 / 24"=225
OPTIONAL 24" DIAMETER HANDWHEEL

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	16" NRS RESILIENT SEAT GATE VALVE (WITH BEVEL GEAR OPERATOR) PUSH-ON x PUSH-ON (TYTON) (FOR DUCTILE IRON / C900 PIPE)
DATE: 7/1/05	
DWG. NO. LR-D6	

RECOMMENDED SPECIFICATIONS

KENNEDY AWWA C-515 RESILIENT WEDGE GATE VALVES STYLE 8000 / SIZE 30" & 36"

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.

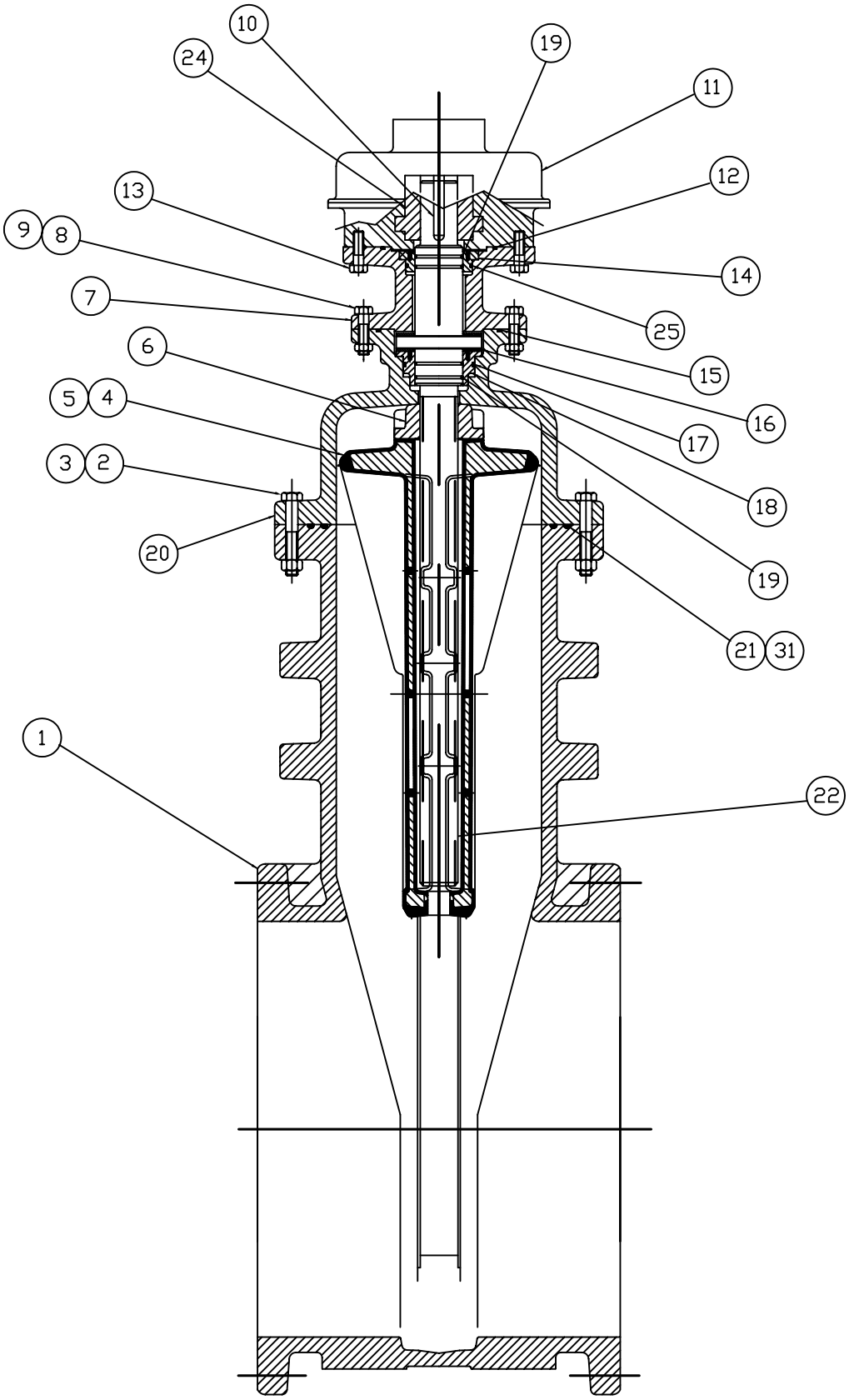
Valve stem and wedge nut shall be cast bronze meeting AWWA B584 alloy 836 brass specifications. All stems shall operate with stem nuts independent of stem. Stainless steel stems or stem nuts are not allowed. Valve stem shall have 2 (two) o-rings located above thrust collar and 2 (two) o-rings located 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.

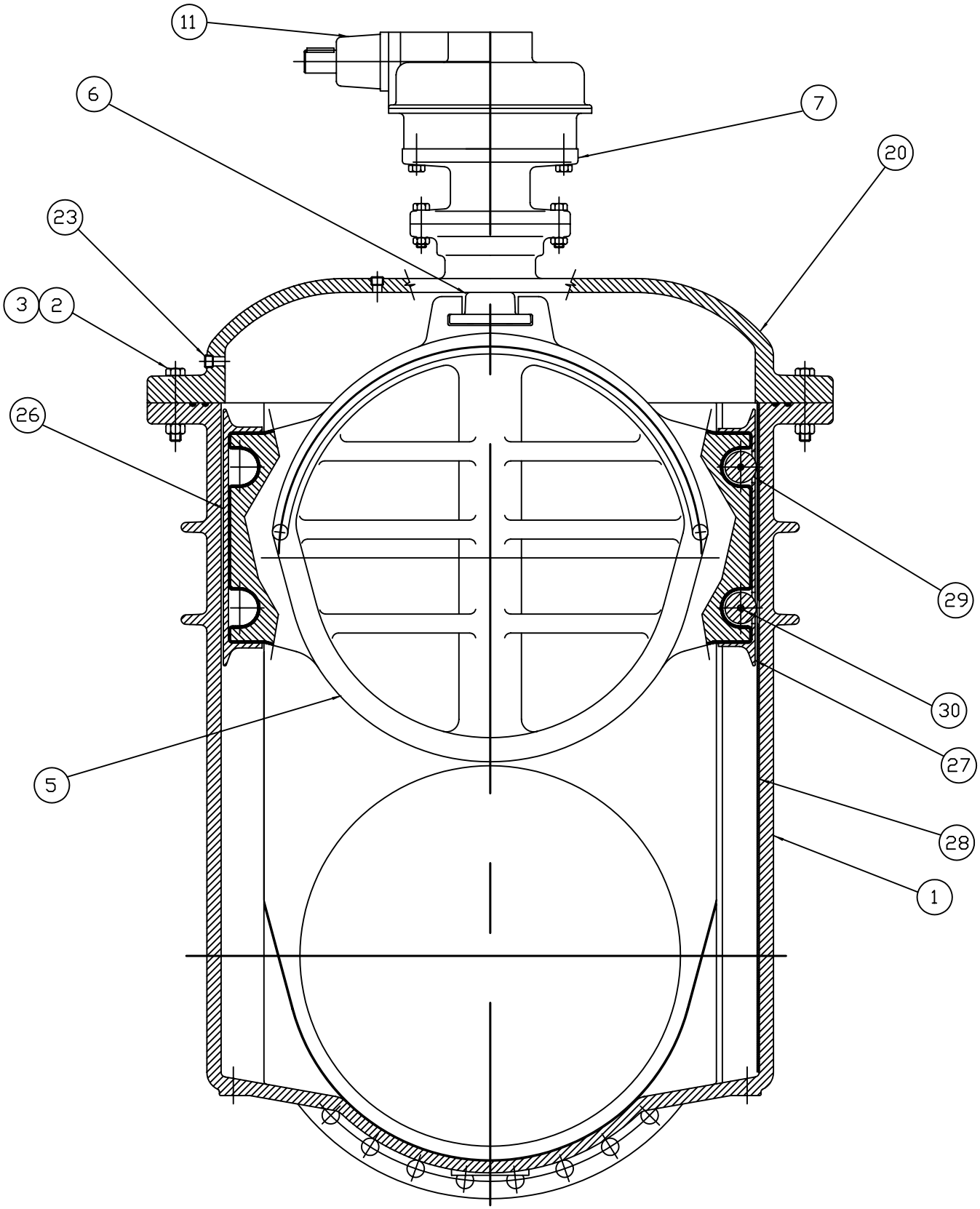
Nuts and bolts for connecting bonnet and body shall be ANSI 304 stainless steel or meet ASTM A307 requirements. Bolts may be regular square or hexagonal heads confirming to ANSI B18.2.1. Metric size socket head cap screws are not allowed.

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 Kennedy Valve Company 30&36-inch Model 8000.



KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. LRW50	30" & 36" RESILIENT SEAT GATE VALVE NRS BEVEL GEAR--ASSEMBLY I



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LRW51	

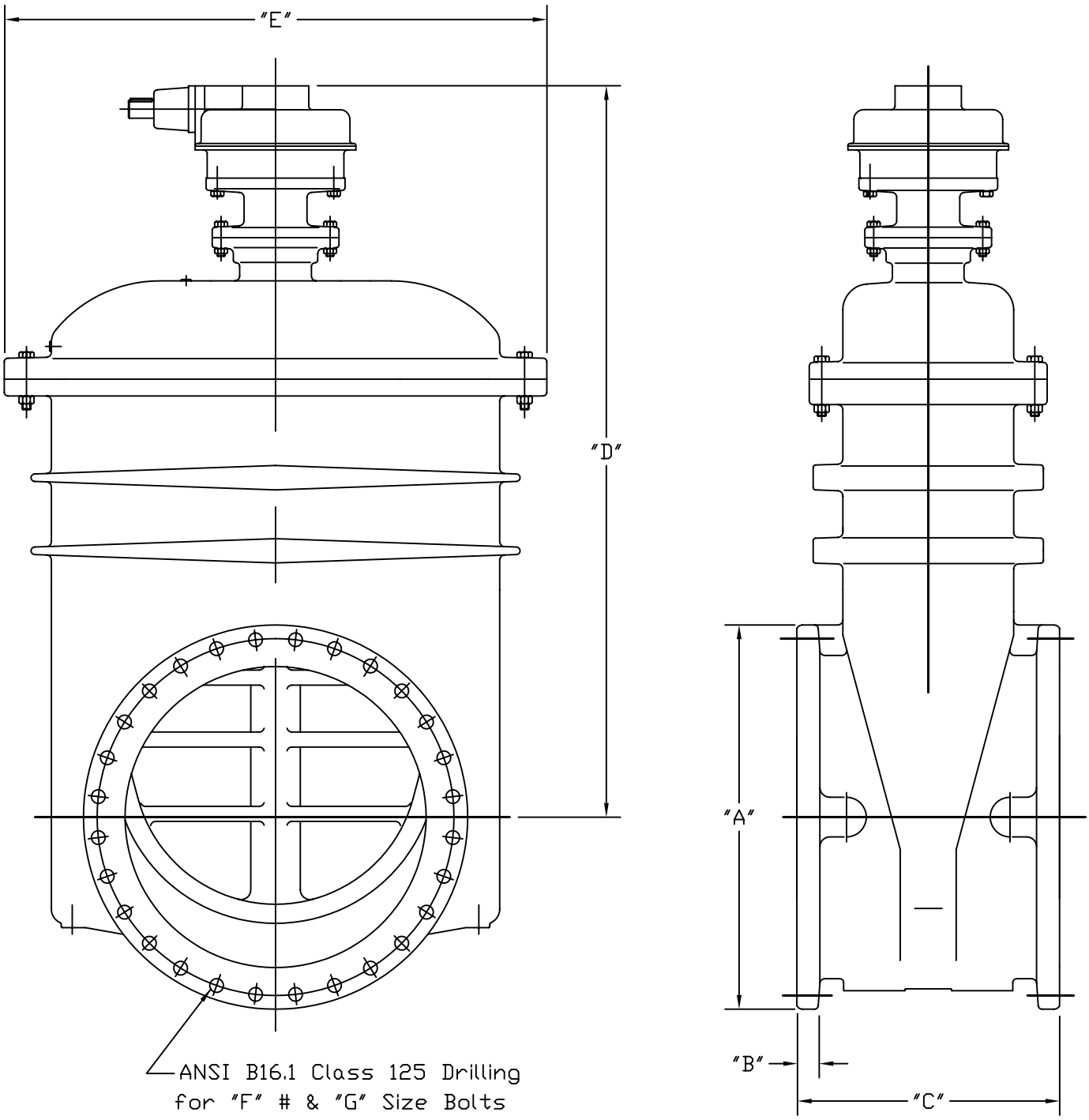
30" & 36"
RESILIENT SEAT GATE VALVE
NRS
BEVEL GEAR--ASSEMBLY II

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW52

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

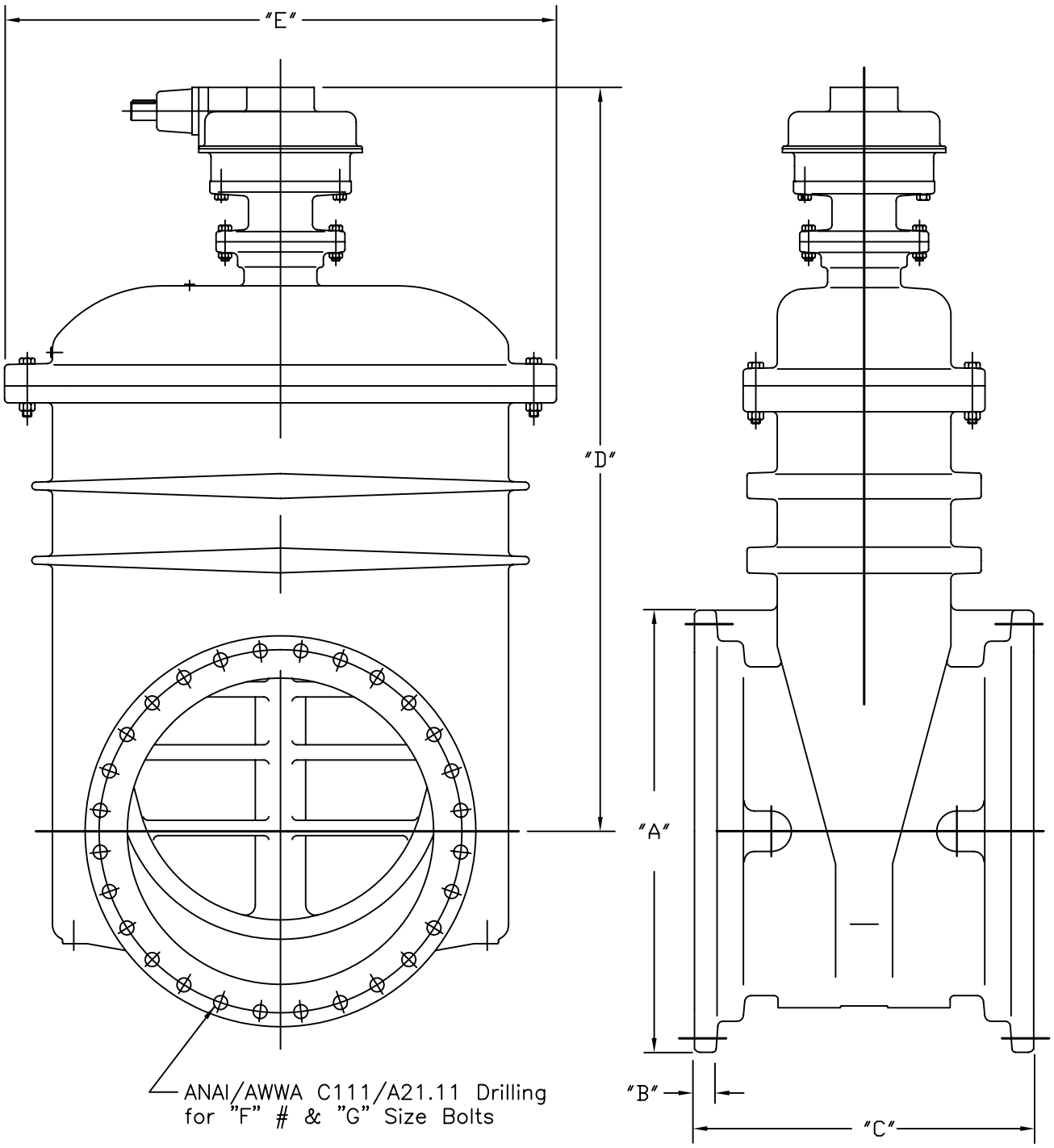


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	38-3/4	2.12	26-1/2	73-3/4	54-3/4	28	1-1/4
36"	46	2.38	30-3/4	83-7/16	58-7/8	32	1-1/2

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW53

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

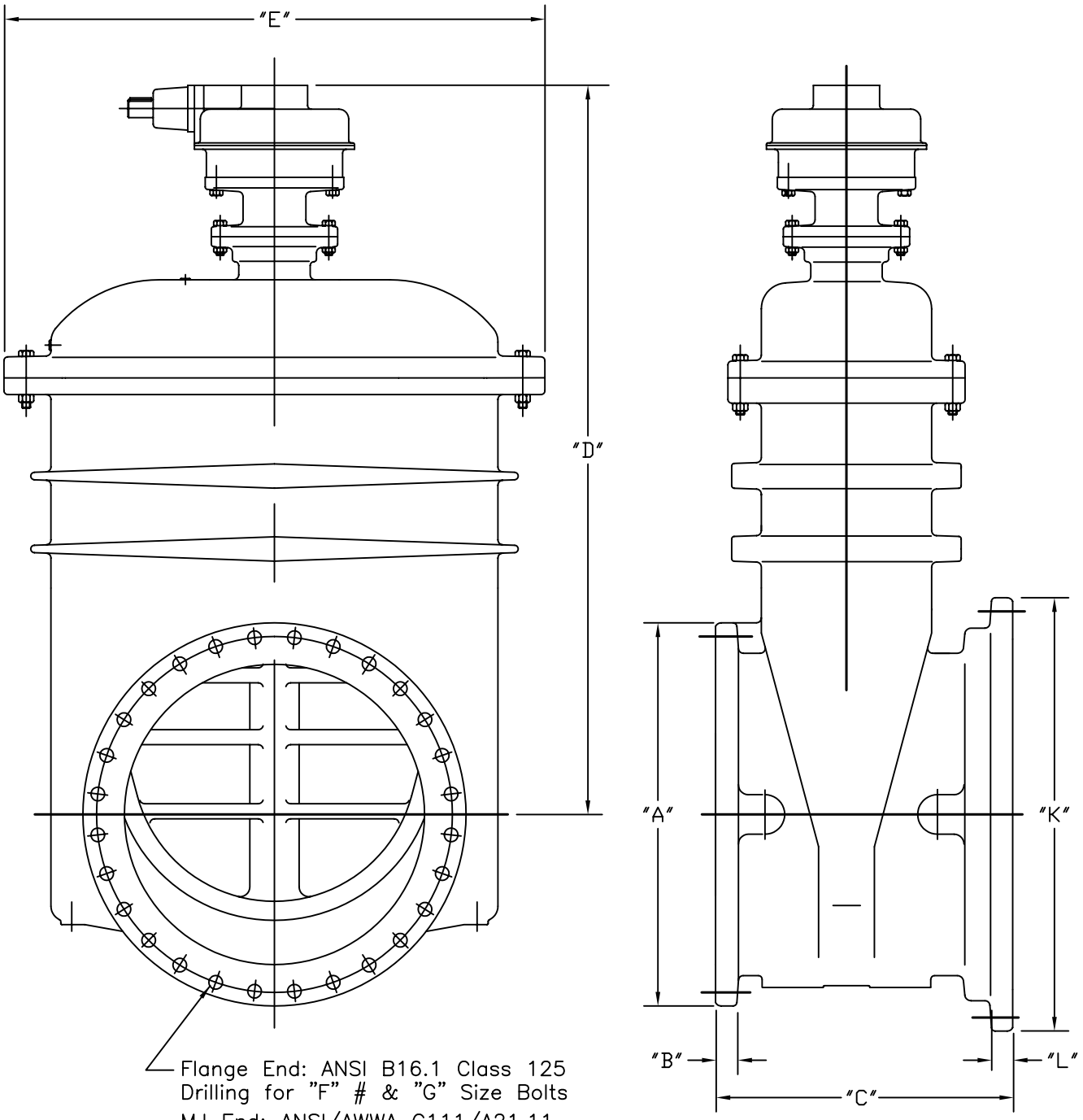


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	39-1/2	1-11/16	35-1/2	73-3/4	54-3/4	20	1"
36"	46-1/2	2	38-3/4	83-7/16	58-7/8	24	1"

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW54

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



Flange End: ANSI B16.1 Class 125
Drilling for "F" # & "G" Size Bolts

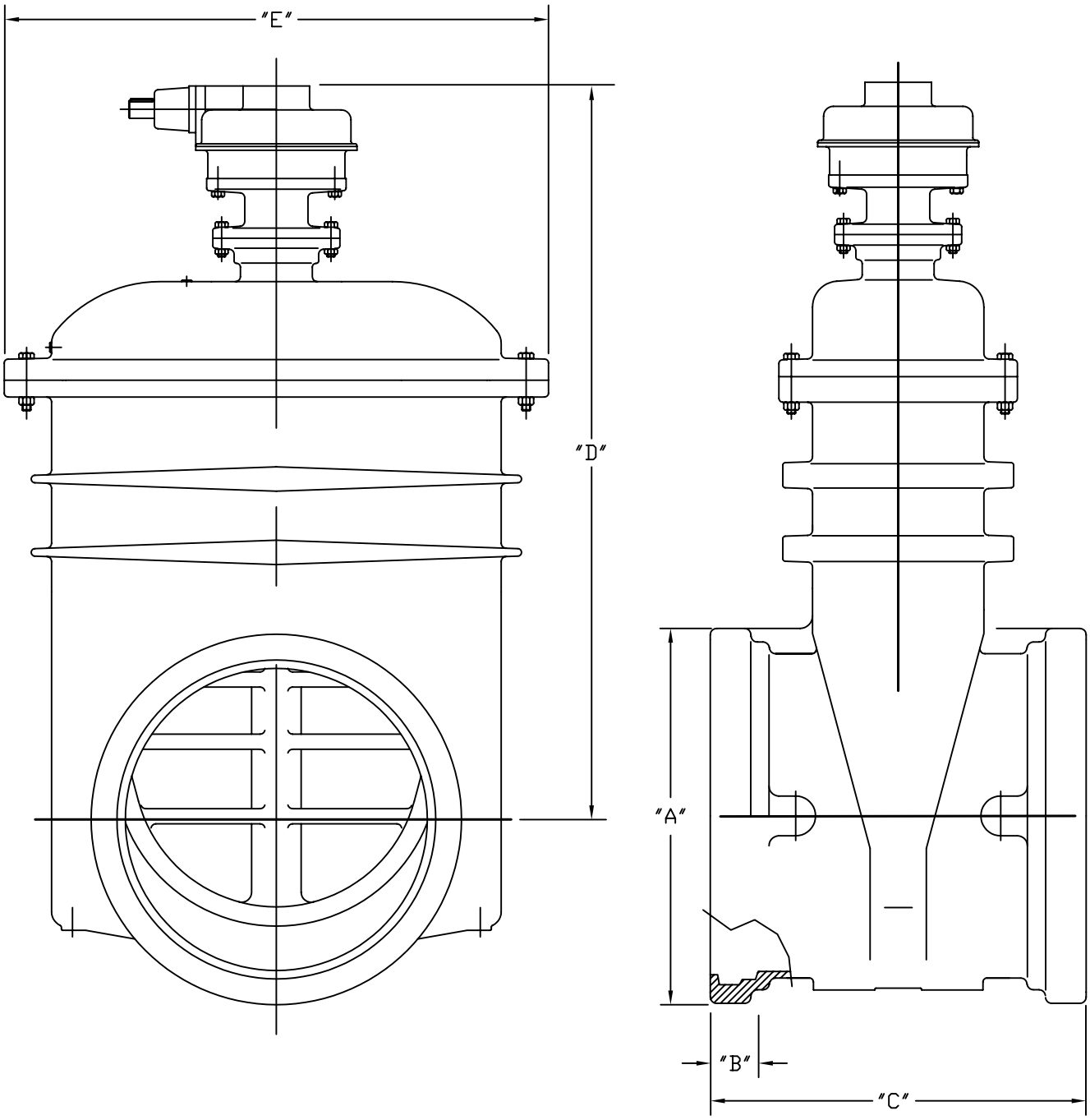
MJ End: ANSI/AWWA C111/A21.11
Drilling for "H" # & "J" Size Bolts

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW55

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

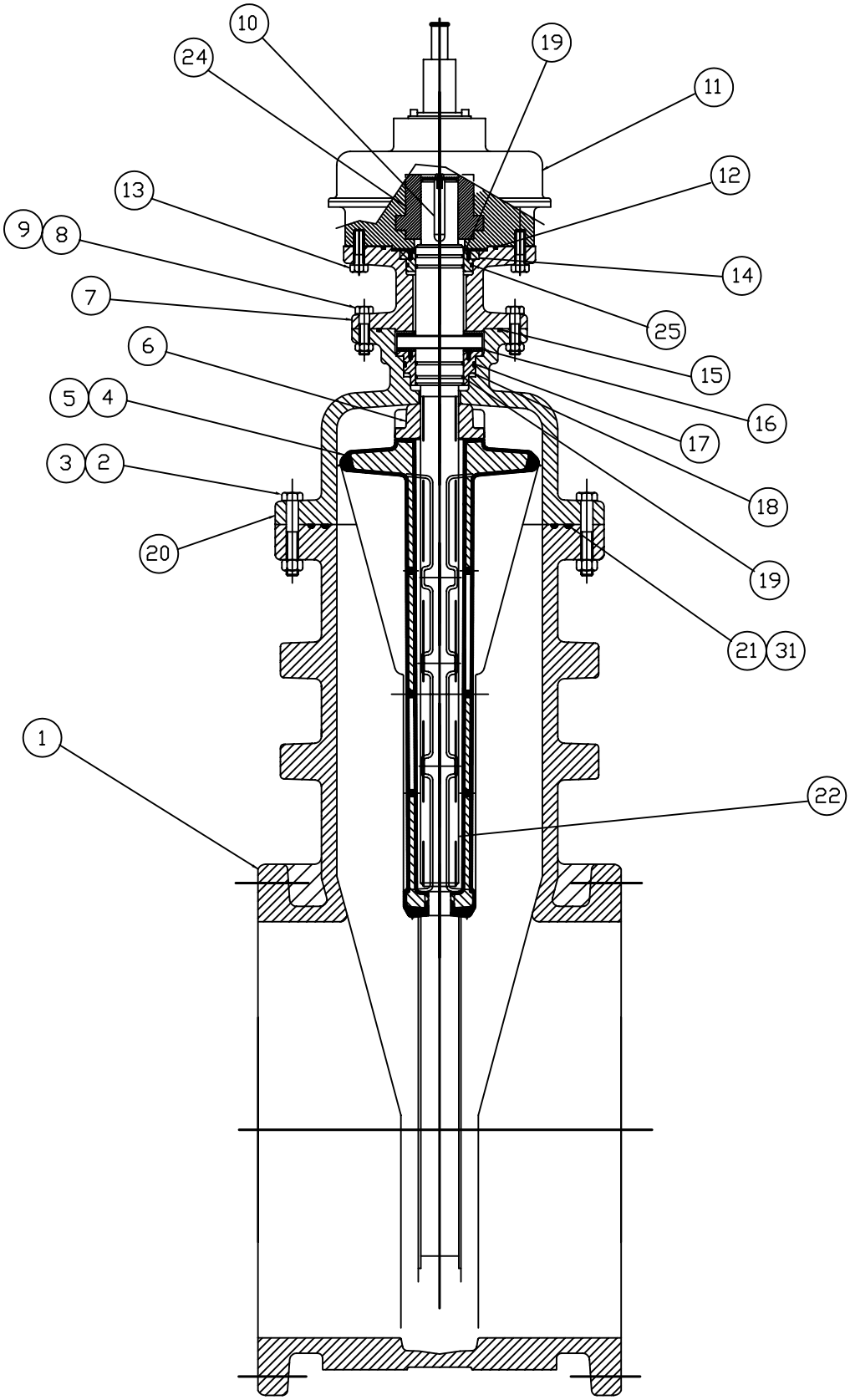


Valve Size	"A"	"B"	"C"	"D"	"E"
30"	37	6-1/4	36	73-3/4	54-3/4
36"	43-3/8	6-1/4	39	83-7/16	58-7/8

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

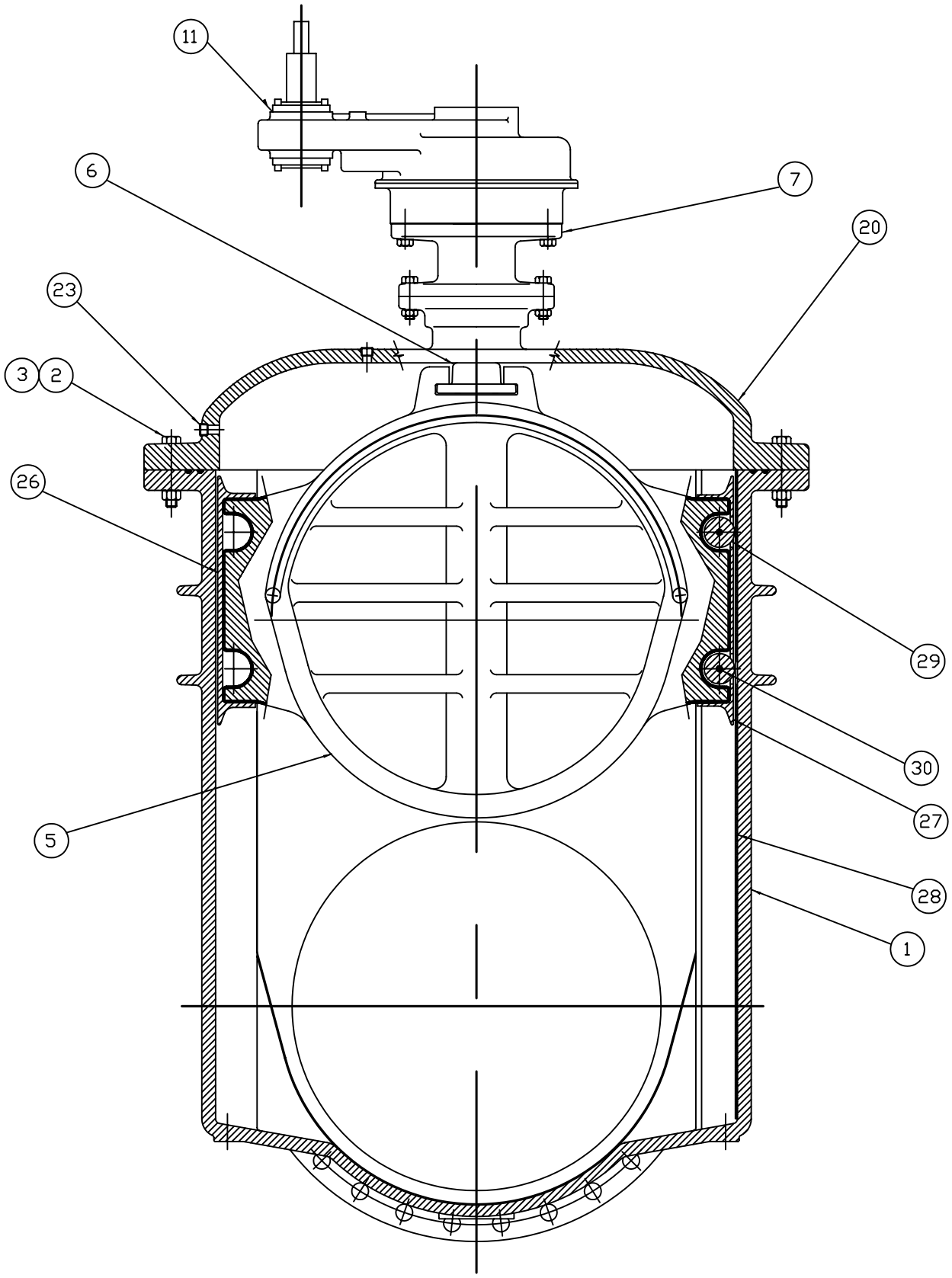
DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW56

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



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	30" & 36"
DATE: 7/1/05	RESILIENT SEAT GATE VALVE
DWG. NO. LRW57	NRS
	SPUR GEAR--ASSEMBLY I



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. LRW58	

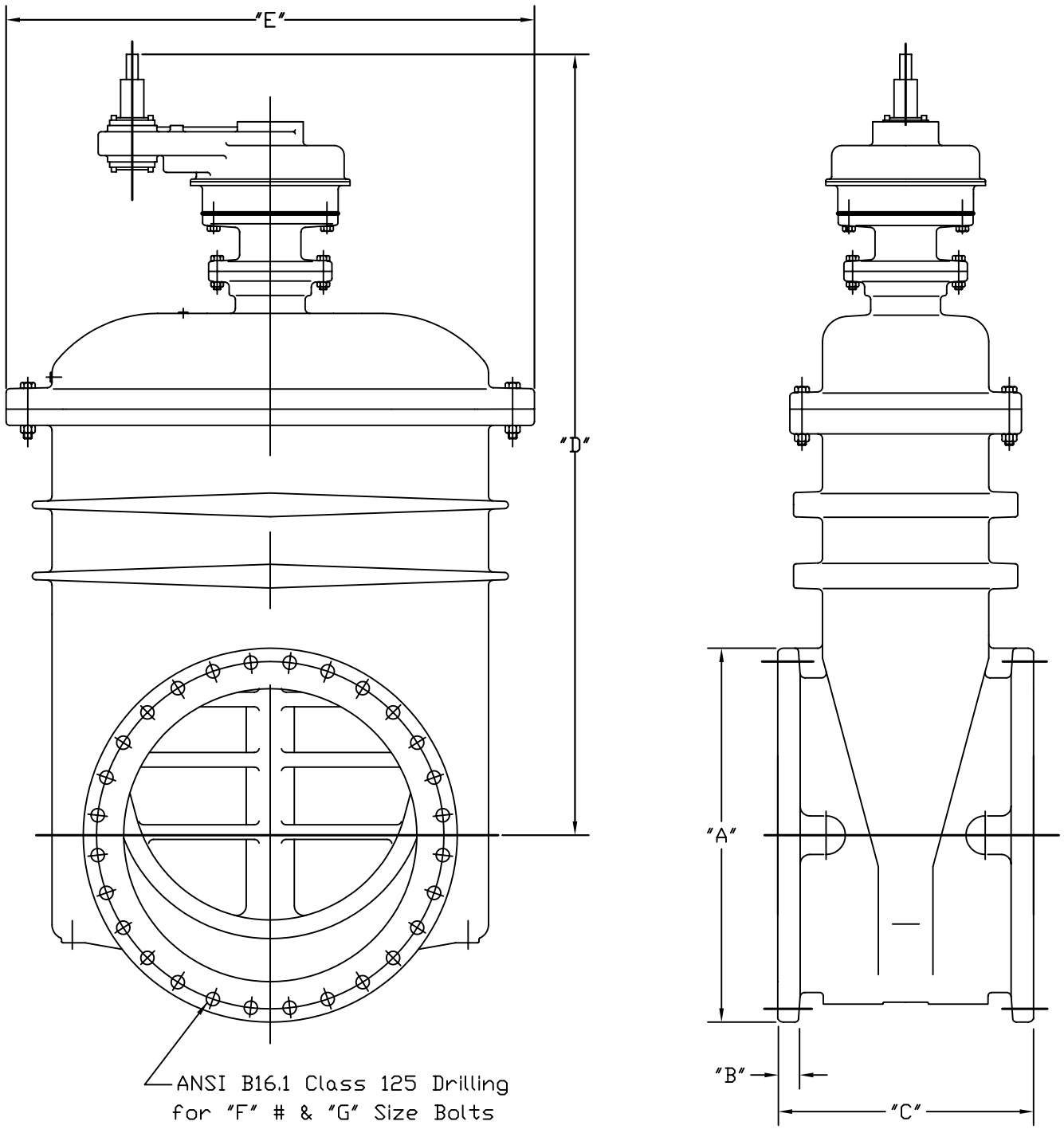
30" & 36"
RESILIENT SEAT GATE VALVE
NRS
SPUR GEAR--ASSEMBLY II

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW59

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

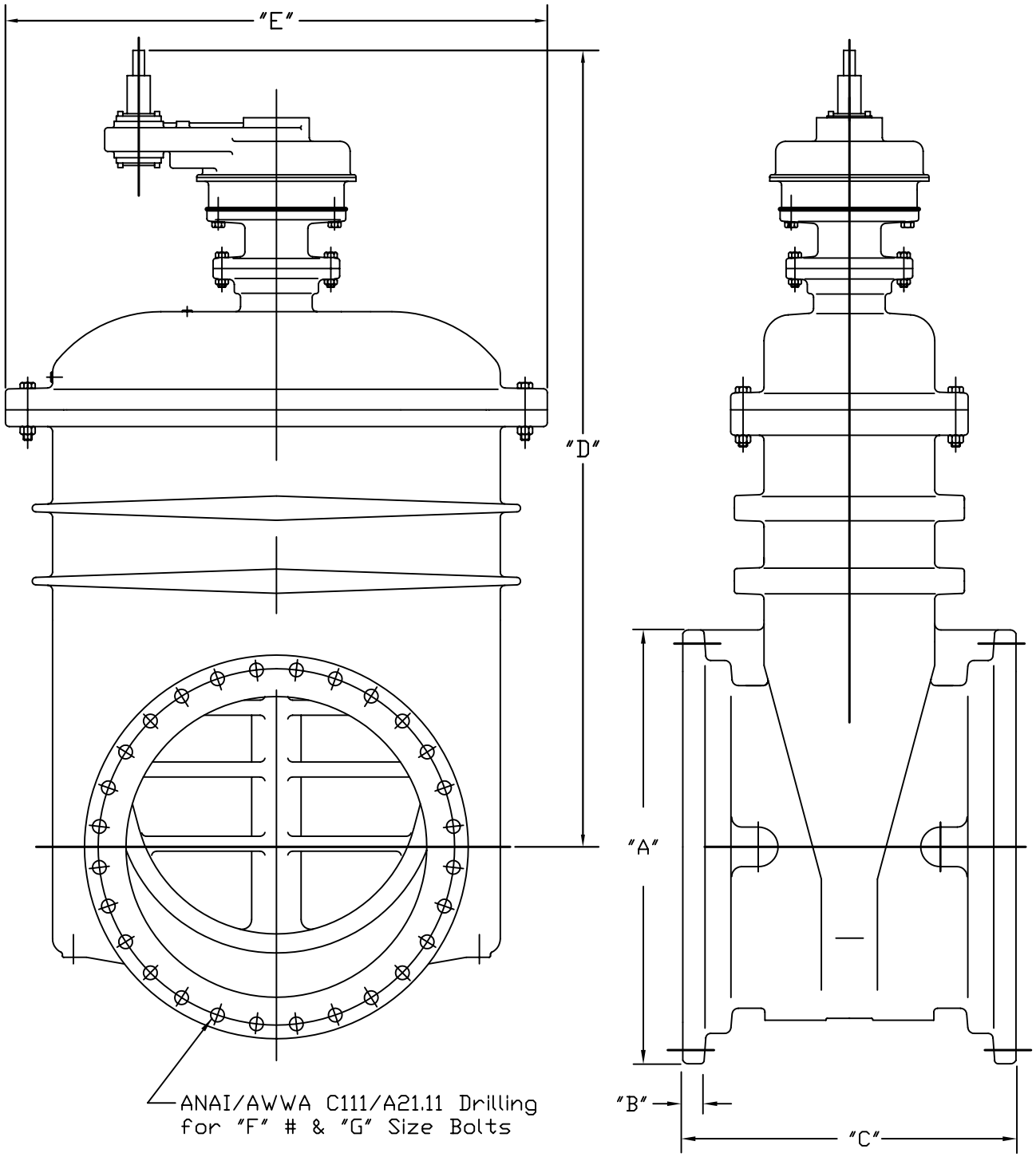


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	38-3/4	2.12	26-1/2	80-1/2	54-3/4	28	1-1/4
36"	46	2.38	30-3/4	90-3/16	58-7/8	32	1-1/2

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW60

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

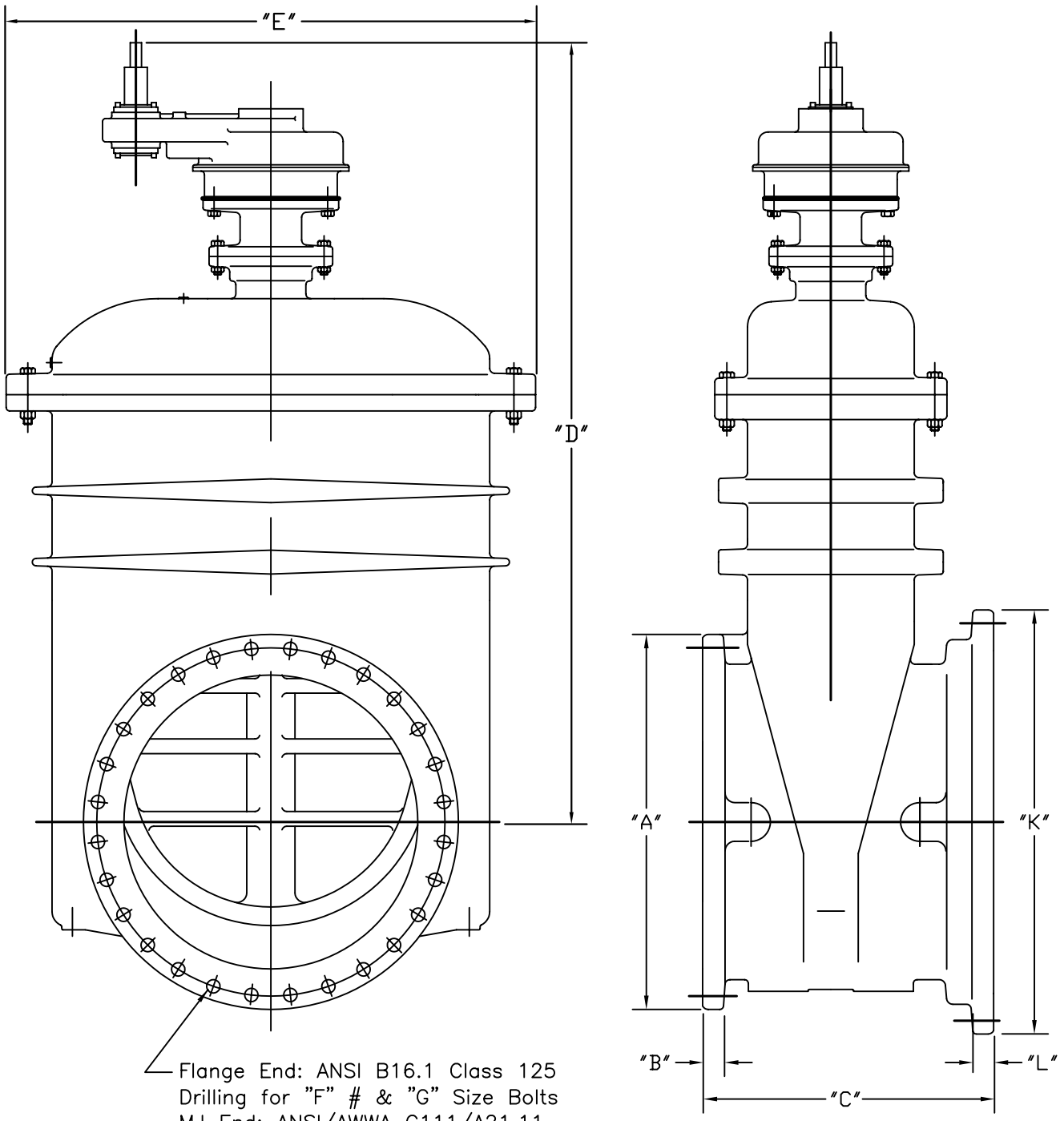


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"
30"	39-1/2	1-11/16	35-1/2	80-1/2	54-3/4	20	1"
36"	46-1/2	2	38-3/4	90-3/16	58-7/8	24	1"

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW61

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

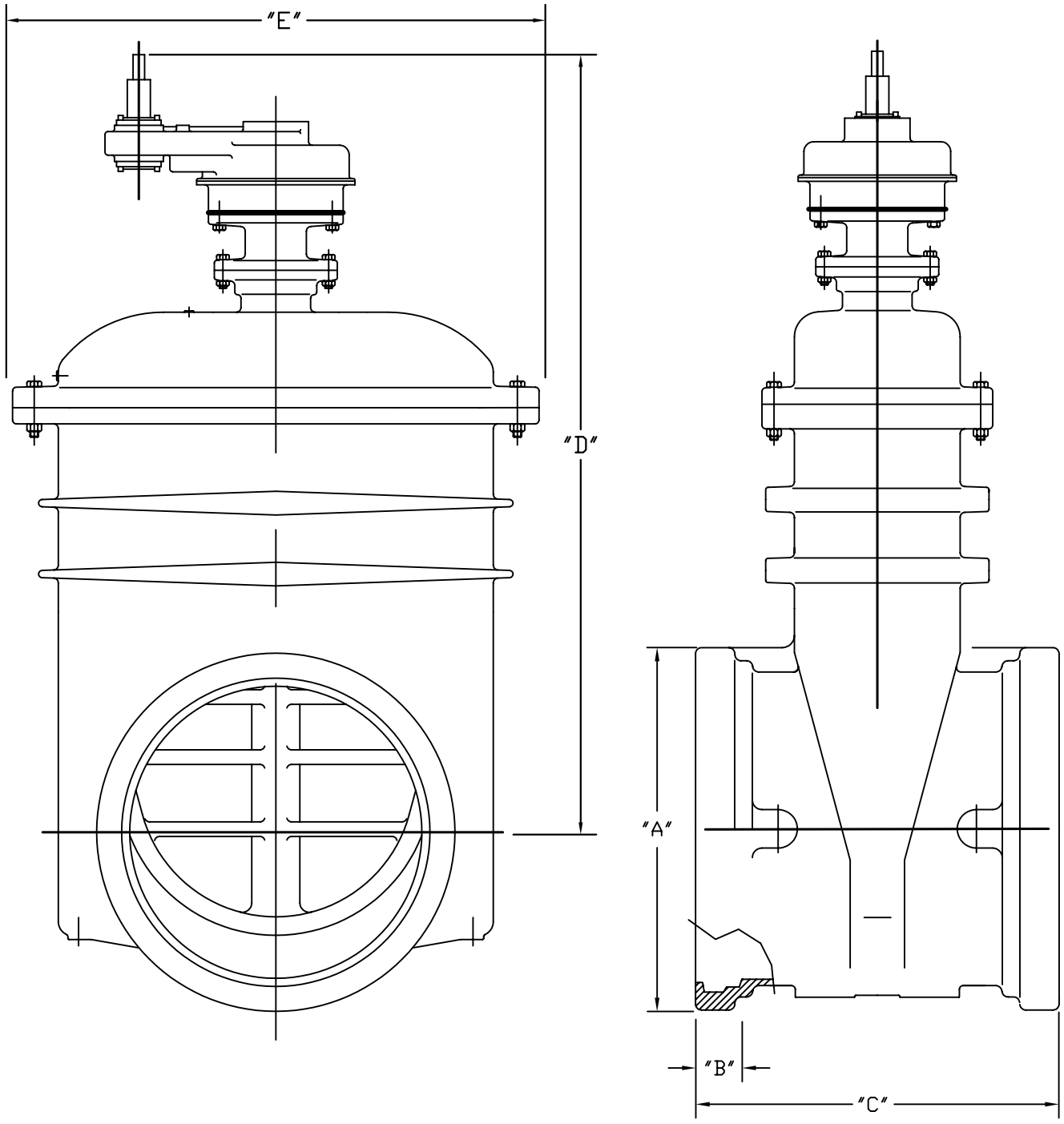


Valve Size	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"
30"	38-3/4	2.12	31	80-1/2	54-3/4	28	1-1/4	20	1"	39-1/2	2-1/8
36"	46	2.38	34-3/4	90-3/16	58-7/8	32	1-1/2	24	1"	46-1/2	2-3/8

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW62

30" & 36"
RESILIENT SEAT GATE VALVE
NRS
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. LRW63

30" & 36"
RESILIENT SEAT GATE VALVE
NRS
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).

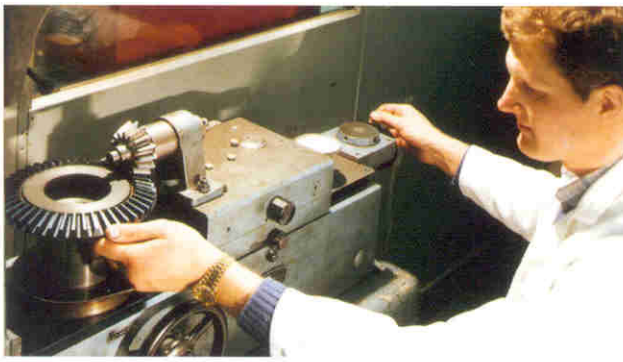
The SPUR (IS), BEVEL (IB) and MUTLI-TURN WORM (MTW) Gear Operators are for use on gate, globe, sluice and penstock valves; as well as other applications where screwed or keyed shafts are used to operate equipment.

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

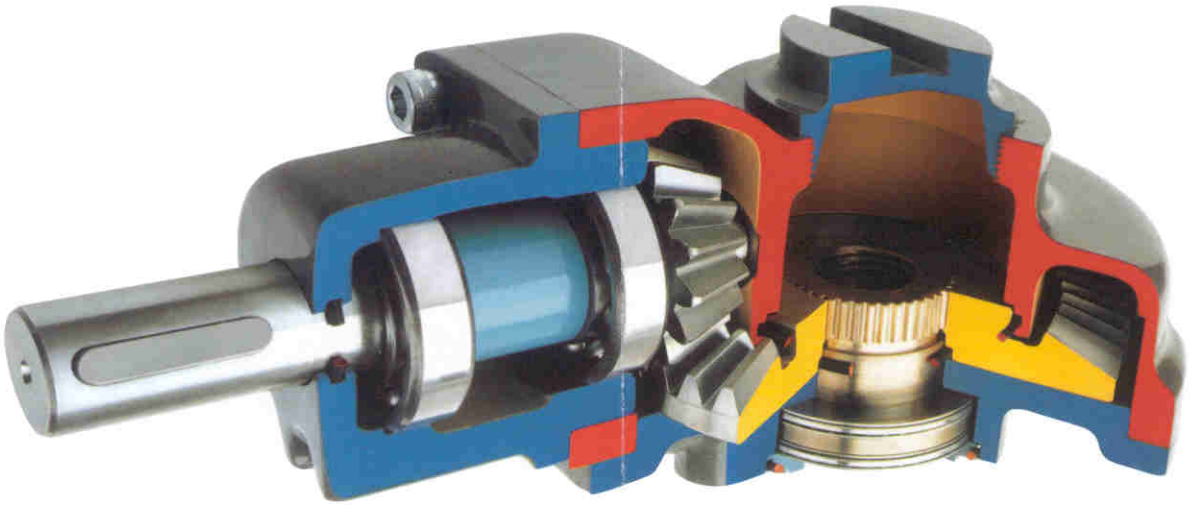


low and high temperature, submersible duty, buried service, marinised duty, AWWA specification and special indication.

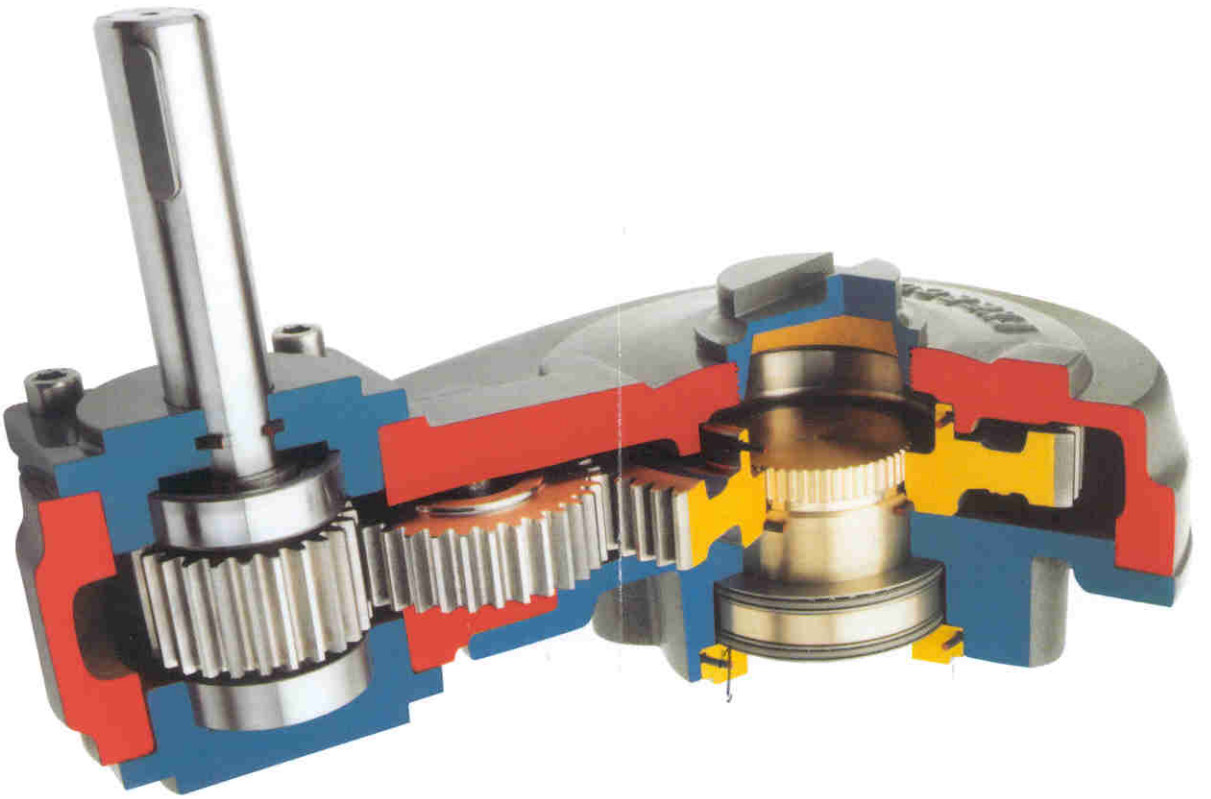
Output sleeves are made from materials compatible with valve stems and are easily removable for machining to customer requirements. A range of auxiliary input gear reducers is available to decrease operating effort *(see combinations on back page)*.

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

SPECIFICATIONS / AVAILABLE CONFIGURATIONS / STYLE NUMBERS

KENNEDY AWWA C500 STANDARD DOUBLE DISC GATE VALVES

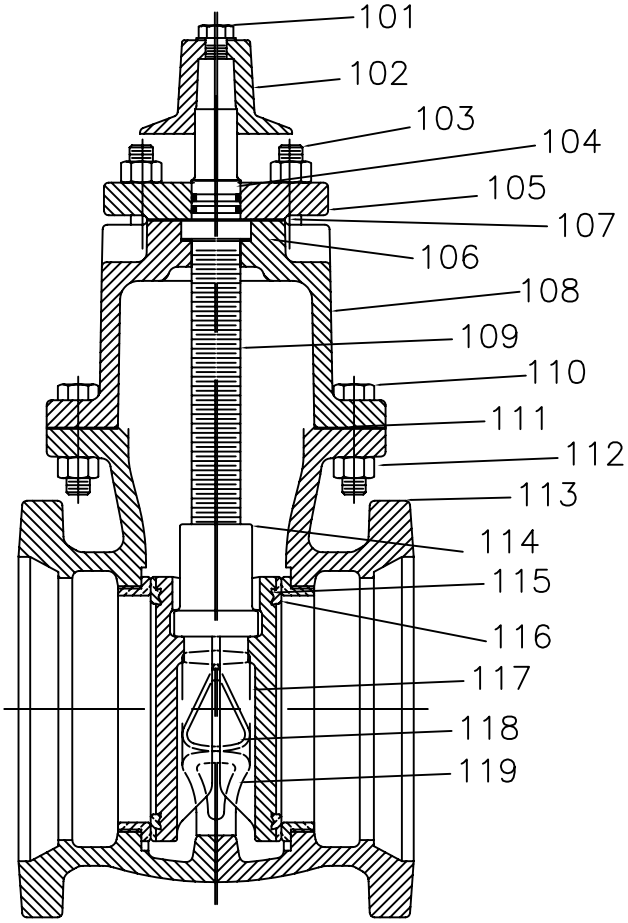
Size Range	Water Working Pressure psi	Hydrostatic Shell Test psi
2" – 12"	200	400
14" – 48"	150	300

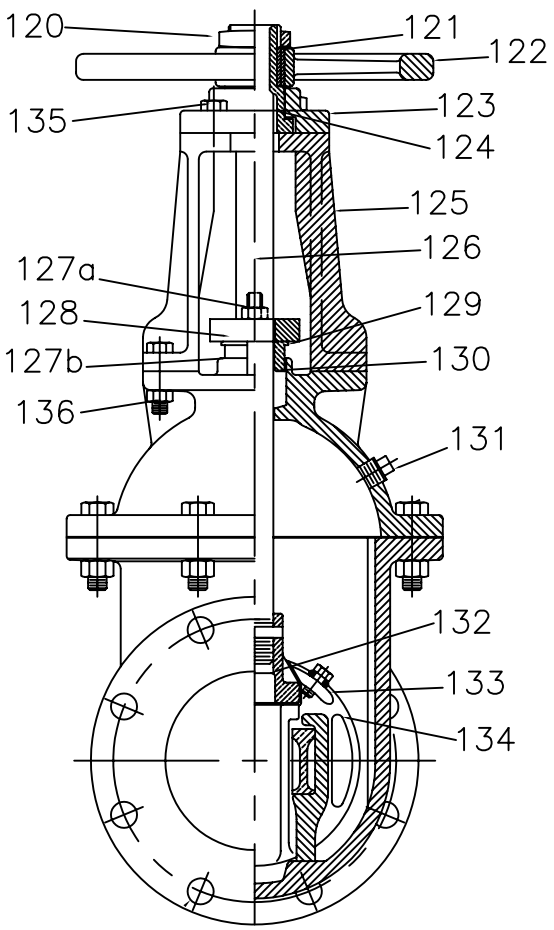
Available End Connections	**Size Range**	**Style No.**
Mechanical Joint	2"-36"	F-5065
Flanged Ends (NRS)	2"-48"	F-5070
Flanged Ends (OS&Y)	12"-36"	F-5072
Flange End X Mechanical Joint	4"-36"	F-5066
Flange End X Tyton End (For D.I. / C900)	4"-12"	F-5080
Push-on (For PVC / SDR)	2"-10"	F-5085
Tyton Ends (For D.I. / C900)	4"-12"	F-5080
Tapping Valve	3"-24"	F-5067

Accessories:

Floor stands
Limit Switches
Open Gearing
Needle & Slot (Navy) Indicators
Electric Motors
2" Square Operating Nuts
Chain wheels
"T" Handles
Stem Guides
Indicator Posts
By-pass Valves
Enclosed Gearing (Grease Case)
Barrel Indicators
Tracks, Rollers, & Scrapers for valves 14" or larger installed horizontally in line
Hand wheels
Extension Stems
Floor boxes

***Note: Call Factory for Special Applications





DET.	QTY.	DESCRIPTION	MATERIAL
101	1	CAP SCREW	18–8 STAINLESS STEEL
102	1	OPERATING NUT	CAST IRON
103		O–RING PLATE BOLTS & NUTS	STEEL
104	2	O–RINGS	RUBBER
105	1	O–RING PLATE	CAST IRON
106	1	LOW TORQUE BEARING	
107	1	STUFFING BOX GASKET	
108	1	COVER	CAST IRON
109	1	NON–RISING STEM	BRONZE
110		NECK FLANGE BOLTS	18–8 STAINLESS STEEL
111	1	NECK FLANGE GASKET	COMPOSITION
112		NECK FLANGE BOLTS NUTS	18–8 STAINLESS STEEL
113	1	BODY	CAST IRON
114	1	GATE NUT	BRONZE
115	2	GATE RING	
116	2	CASE RING	BRONZE
117	2	GATE	CAST IRON
118	2	WEDGE	BRONZE
119	2	HOOK	CAST IRON

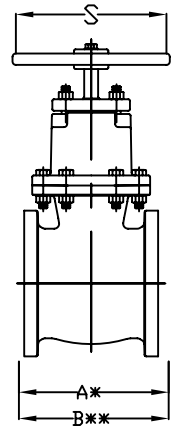
DET.	QTY.	DESCRIPTION	MATERIAL
120	1	HOLD DOWN NUT	BRONZE
121	1	HANDWHEEL KEY	STEEL
122	1	HANDWHEEL	CAST IRON
123	1	OS&Y RETAINER PLATE	CAST IRON
124	1	OS&Y STEM NUT	BRONZE
125	1	OS&Y YOKE	CAST IRON
126	1	RISING STEM	BRONZE
127A	1	FOLLOWER NUTS	BRONZE
127B	2	FOLLOWER STUDS	STEEL––RUST–PROOFED
128	2	FOLLOWER PLATE	CAST IRON
129	1	FOLLOWER GLAND	BRONZE
130	1	PACKING	ACRYLIC GRAPHITE
131	1	TEST PLUG	TEFLON–COATED STEEL
132	1	STEM NUT PIN	BRONZE
133	4	PEGS	BRONZE
134	2	STRAPS	*STAINLESS OR BRONZE
135		OS&Y CAP SCREWS	STAINLESS 10"&12" ONLY STEEL––RUST–PROOFED
136		OS&Y YOKE BOLTS & NUTS	STEEL––RUST–PROOFED

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

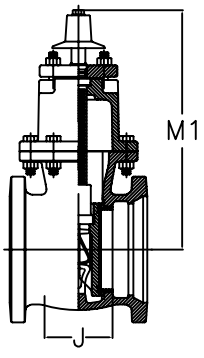
DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD2

AWWA DOUBLE DISC GATE VALVE MATERIAL LIST

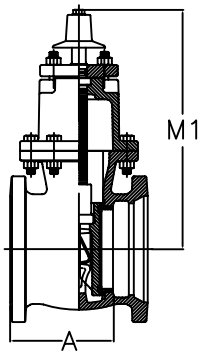
VALVE SIZE	A	B	G	J	K	M1	P	S	U	Y	Z	AA	BB	DD	GG	HH	LL	TURNS TO OPEN	DIAM. OF STEM
2	7	——	10 1/4	3 1/4	——	10 1/4	——	7 1/4	——	——	——	——	——	——	——	——	——	5	7/8
2 1/4	7 1/2	——	10 1/4	3 1/4	——	10 1/4	——	7 1/4	——	——	——	——	——	——	——	——	——	5	7/8
2 1/2	7 1/2	——	11 3/8	——	——	11 3/8	——	7 1/4	——	——	——	——	——	——	——	——	——	6	7/8
3	8	——	12 1/4	3 1/2	——	12 1/2	——	7 1/4	——	——	——	——	——	——	——	——	——	7	7/8
4	9	——	14	4 3/4	5 1/4	14	4 1/2	10	——	——	——	——	——	——	——	——	6 7/8	15	1 1/8
5	10	——	15 1/2	——	——	15 1/2	——	10	——	——	——	——	——	——	——	——	——	18	1 1/8
6	10 1/2	——	18	5 1/4	6 1/2	18	5 1/4	12	——	——	——	——	——	——	——	——	8	21	1 1/4
8	11 1/2	——	22	6 1/2	7	22	6 1/4	14	——	——	——	——	——	——	——	——	9	27	1 3/8
10	13	——	25 5/8	6 3/4	7 1/4	25 5/8	6 1/2	18	——	8	——	——	——	——	——	——	9 7/8	33	1 1/2
12	14	——	29 1/8	7	7 3/4	29 1/8	——	18	——	8	——	18	40 3/4	12	38 1/2	31 5/8	10 1/2	39	1 1/2
14	15 3/4	23	36 1/2	7 1/4	——	39 3/4	——	22	19 1/4	8	31 7/8	18	45	12	42 3/4	35 7/8	11 1/2	45	1 7/8
16	17	23	40 3/4	9 1/4	——	43 1/2	——	22	20 1/2	8	33 3/8	18	49	12	46 3/8	39 3/4	15 3/8	52	1 7/8
18	19	24	43 1/4	9 1/4	——	46	——	26	22 1/2	8	36 3/8	18	52 1/8	12	50	42 7/8	16 1/2	58	2 1/8
20	20	24	47 1/4	10	——	50	——	26	24	8	40 1/2	18	55 3/4	12	53 5/8	46 1/2	18 3/8	64	2 1/8
24	23	28 1/2	55	16	——	56 3/4	——	30	28	8	46	18	62 1/8	12	60	52 7/8	22	76	2 1/2
30	25	32 1/2	64 3/4	12 1/2	——	66 1/2	——	30	31 1/2	10	54 1/2	18	76 3/4	15 1/2	72 1/8	66	——	63	2 3/4
36	27	36	75 3/8	23 3/4	——	77 3/8	——	36	40	13 3/8	68 1/8	22	88 3/8	21 1/2	81 1/8	72 3/8	——	75	3
42	34	34	——	——	——	——	——	30	47	10	77 1/2	30	106 3/8	27	105 1/2	97	——	88	3 1/2
48	45 1/2	45 1/2	——	——	——	——	——	30	54 1/2	11 1/4	87 1/2	30	120 5/8	27	119	108	——	100	4



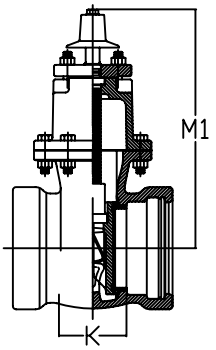
Flanged Ends



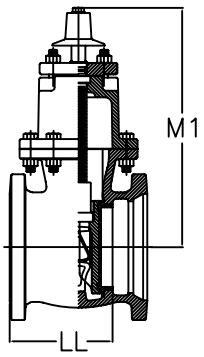
Mechanical Joint



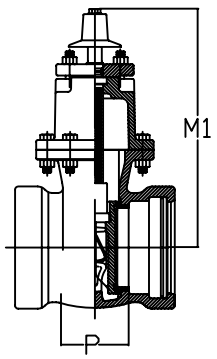
Flanged and Mechanical Joint Ends



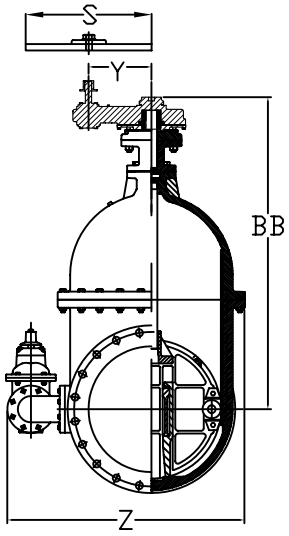
Tyton Ends For Ductile Iron Pipe

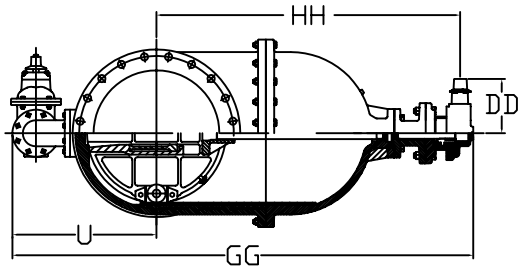


Mechanical Joint Tapping Valve



Push–On Ends For PVC Pipe





TURNS TO OPEN ARE FOR VALVES WITHOUT GEARING

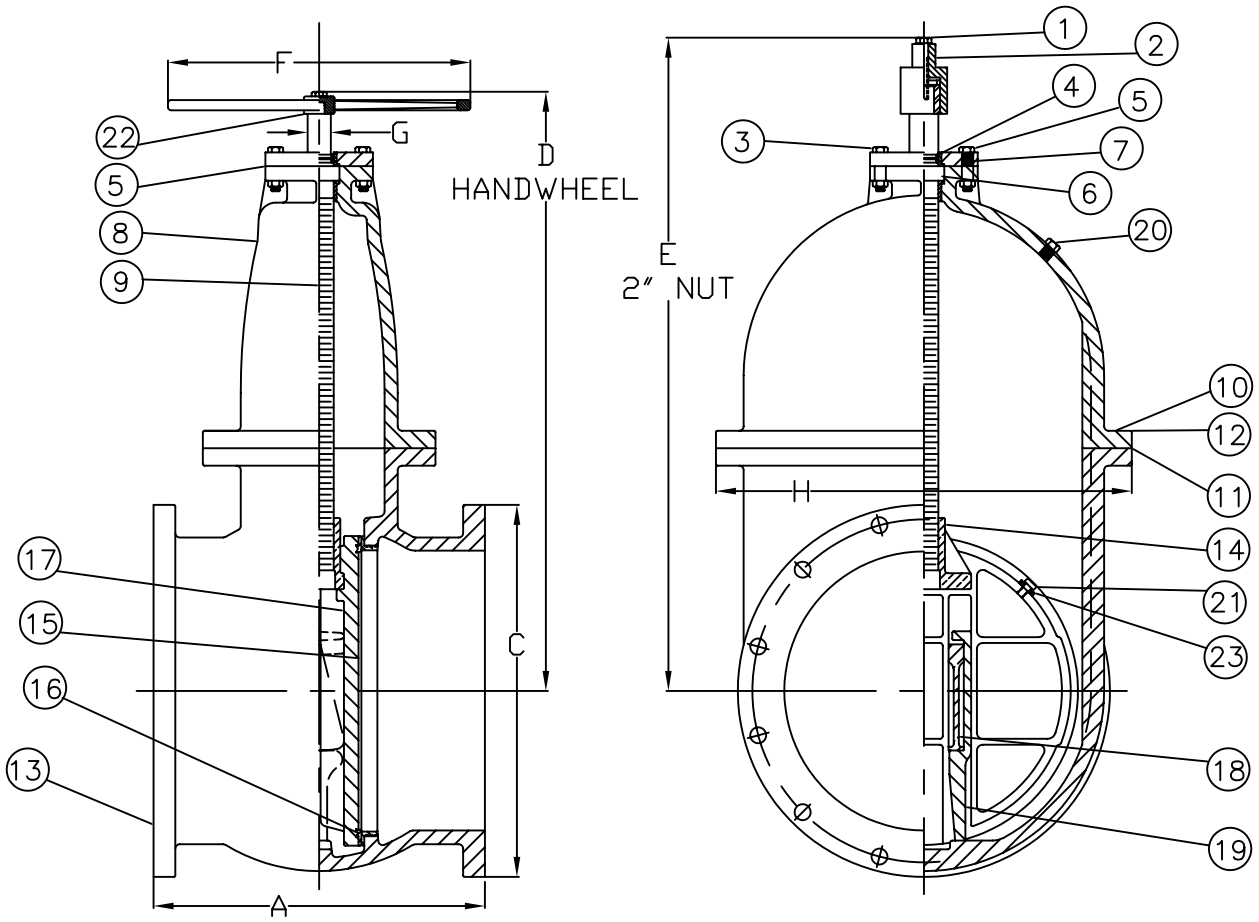
DIMENSIONS––INCHES
FLANGES ARE FACED AND DRILLED TO ANSI 125 POUND TEMPLATE, UNLESS OTHERWISE SPECIFIED

* WITHOUT BYPASS
** WITH BYPASS

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD3

M&H AWWA GATE VALVES UNDERGROUND AND PLANT PIPING SYSTEMS



DET	QTY	DESCRIPTION	MATERIAL
1	1	Capscrew	18–8 Stainless Steel
2	1	Operating Nut	Cast Iron
3		Bolts & Nuts	18–8 Stainless Steel
4	2	O–Rings	Rubber
5	1	O–Rings Plate	Cast Iron
6	1	Low Torque Bearing	Delrin 1
7	1	Stuffing Box Gasket	Composition
8	1	Cover	Cast Iron
9	1	Non–Rising Stem	Bronze
10		Neck–Flange Bolts	18–8 Stainless Steel
11	1	Neck–Flange Gaskets	Composition
12		Neck–Flange Nuts	18–8–Stainless Steel

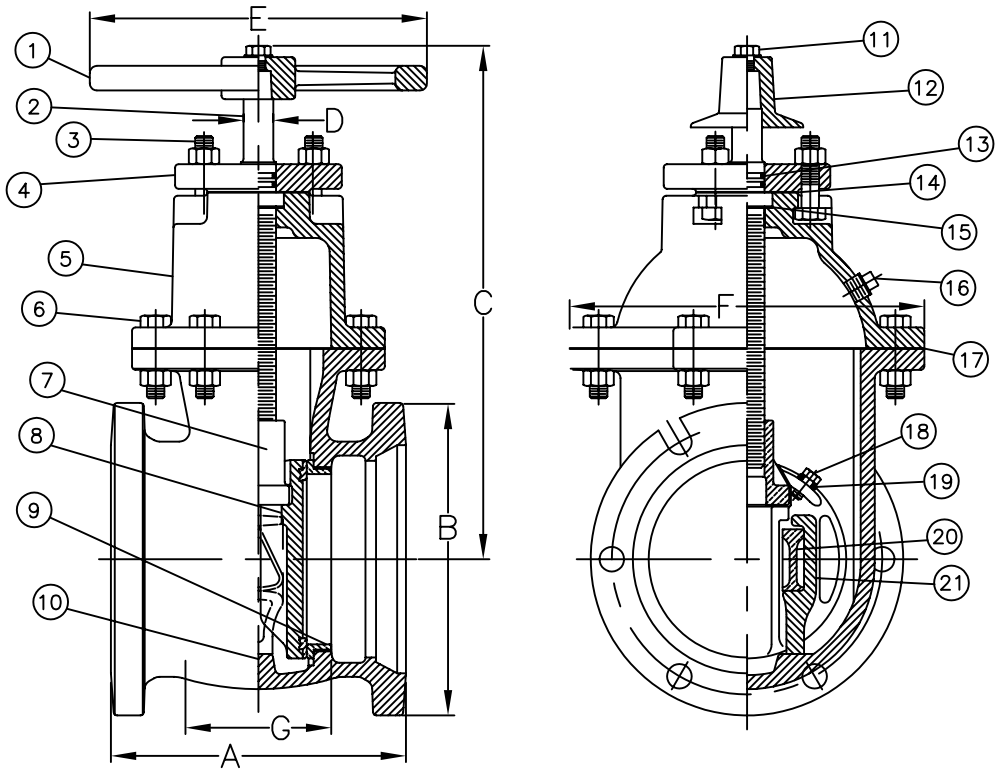
DET	QTY	DESCRIPTION	MATERIAL
13	1	Body	Cast Iron
14	1	Gate Nut	Bronze
15	2	Gate Ring	Bronze
16	2	Case Ring	Bronze
17	2	Gate	Cast Iron
18	2	Wedge	Bronze
19	2	Hook	Cast Iron
20	1	Pipe Plug	Cast Iron
21	4	Pegs–On 10", 12" & 14" Valves	Bronze
22	1	Handwheel	Cast Iron
23	2	Straps–On 10", 12" & 14" Valves	Stainless Steel

VALVE SIZE	A	B	C	D	E	F	G	H	Weight	Turns to Open
2	7	6	5	11 3/4	7/8	7 1/4	5 7/8	11 3/4	30	5
2 1/2	7 1/2	7	5 1/8	13	7/8	7 1/4	6 3/8	13	30	6
3	8	7 1/2	5 1/2	14	7/8	7 1/4	7 1/8	14	50	7
4	9	9	7	15 1/4	1 1/8	10	9	15 1/4	90	15
5	10	10	7 3/4	16 3/4	1 1/8	10	10 7/8	16 3/4	120	18
6	10 1/2	11	9	18 1/2	1 1/4	12	12 5/8	18 1/2	166	21
8	11 1/2	13 1/2	10	21 5/8	1 3/8	14	15 1/4	21 5/8	288	27
10	13	16	10 5/8	28 1/4	1 1/2	18	18 1/4	28 1/4	405	33
12	14	19	11 1/4	30 3/4	1 1/2	18	20 1/4	30 3/4	565	39

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 6/1/05
DWG. NO. DD4

2" THRU 12" FLANGED DOUBLE DISC GATE VALVE



SEQ	QUAN	DESCRIPTION	MATERIAL
1	1	Handwheel	Cast Iron
2	1	Stem	Low Zinc Bronze
3		Bolts & Nuts	18–8 Stainless
4	1	O–ring Plate	Cast Iron
5	1	Cover	Cast Iron
6		Bolts & Nuts	18–8 Stainless
7	1	Stem Nut	Bronze
8	2	Gate	Bronze
9	2	Case Ring	Bronze
10	1	Body, SMJ	Cast Iron
11	1	Capscrew & Washer	18–8 Stainless

SEQ	QUAN	DESCRIPTION	MATERIAL
12	1	Operating Nut	Cast Iron
13	2	O–rings	Rubber
14	1	Gasket, O–ring Plate	Composition
15	1	Low Torque Bearing	Delrin
16	1	Sq. Hd. Pipe Plug	Steel w/Teflon
17	1	Gasket, Neck Flange	Composition
18	4	Capscrew	Silicon Bronze
19	2	Strap	Stainless Steel
20	2	Wedge	Bronze
21	1	Hook	Bronze

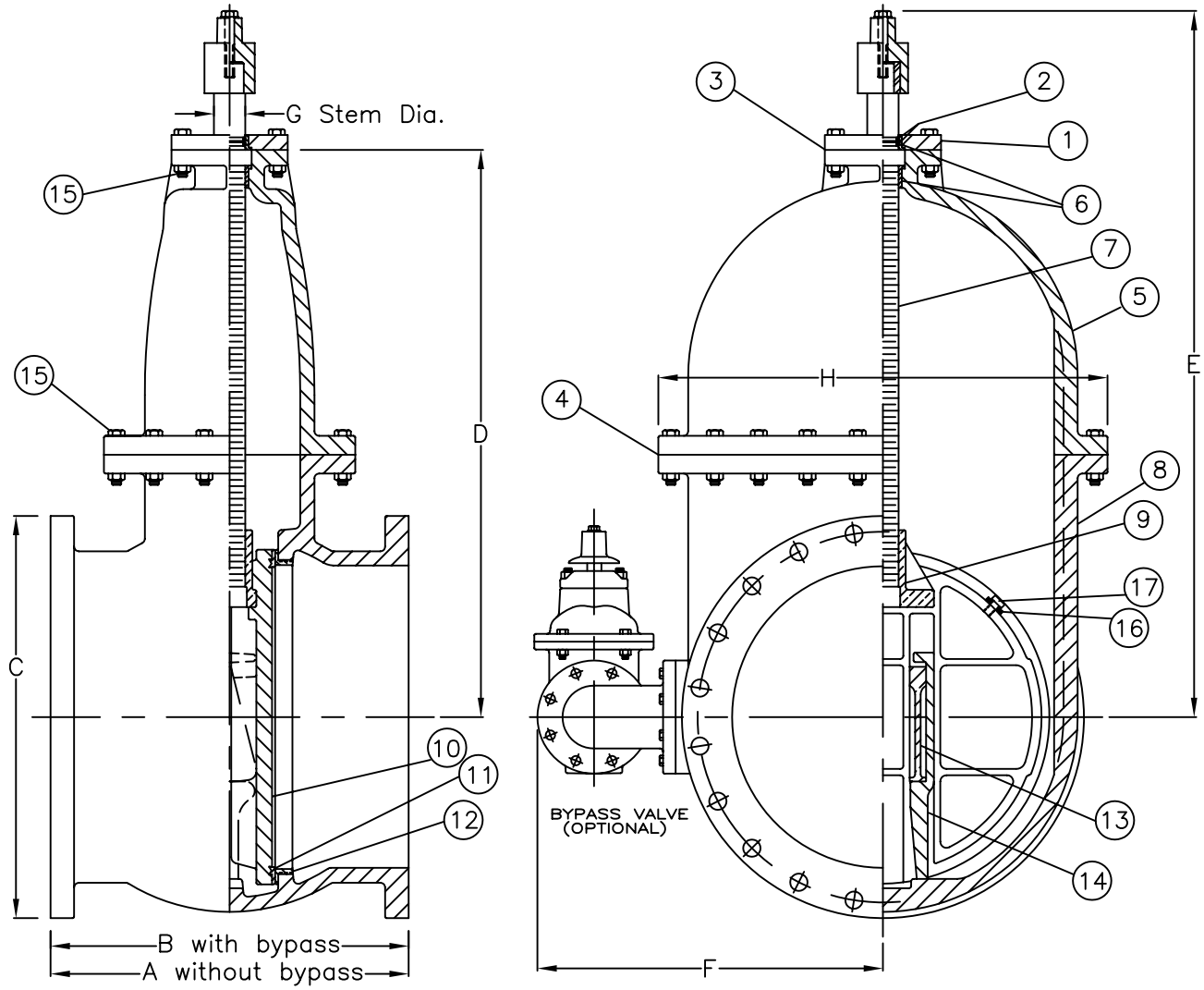
VALVE SIZE	A	B	C	D	E	F	G	Weight	Turns to Open
2	8 1/4	4 1/2	10 1/4	7/8	7 1/4	5 7/8	3 1/4	35	5
2 1/2	8 1/4	4 1/2	10 1/4	7/8	7 1/4	6 3/8	3 1/4	45	6
3	9 3/4	7 3/4	12 1/4	7/8	7 1/4	7 1/8	3 1/2	75	7
4	10 3/4	9 1/8	14	1 1/8	10	9	4 3/4	95	15
6	10 1/2A	11 1/8	18	1 1/4	12	12 5/8	5 1/4	180	21
8	12	13 3/4	22	1 3/8	14	15 1/4	6 1/2	265	27
10	12 1/2	15 3/4	25 5/8	1 1/2	18	18 1/4	6 3/4	430	33
12	13	18	29 1/8	1 1/2	18	20 1/4	7 1/2	557	39

NOTES: DELRIN BEARING, PART 16, USED ON 4"–12" ONLY
2"–3" HAS ALL BRONZE GATES, WITHOUT RINGS, HOOK AND WEDGE, ONE PIECE CAST BRONZE.
CAPSCREW, STRAP, PARTS 19,20, USED ON 10"–12" ONLY.
NOTE: MECH. JOINT ENDS MEET SPECS. A.S.A. A–21–11

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD5

2" THRU 12" MECHANICAL JOINT DOUBLE DISC GATE VALVE



DET	QTY	DESCRIPTION	MATERIAL
1	1	O-ring Plate	Cast Iron, ASTM A126 Cl. B
2	2	O-ring	Buna-N
3	1	Stuffing Box Gasket	Composition
4	1	Neck Flange Gasket	Buna-N
5	1	Cover	Cast Iron, ASTM A126 Cl. B
6	2	Bushing	Bronze, ASTM B584 Alloy 836
7	1	Stem	Bronze, ASTM B584 Alloy 867
8	1	Body	Cast Iron, ASTM A126 Cl. B
9	1	Stem Nut	Bronze, ASTM B584 Alloy 836

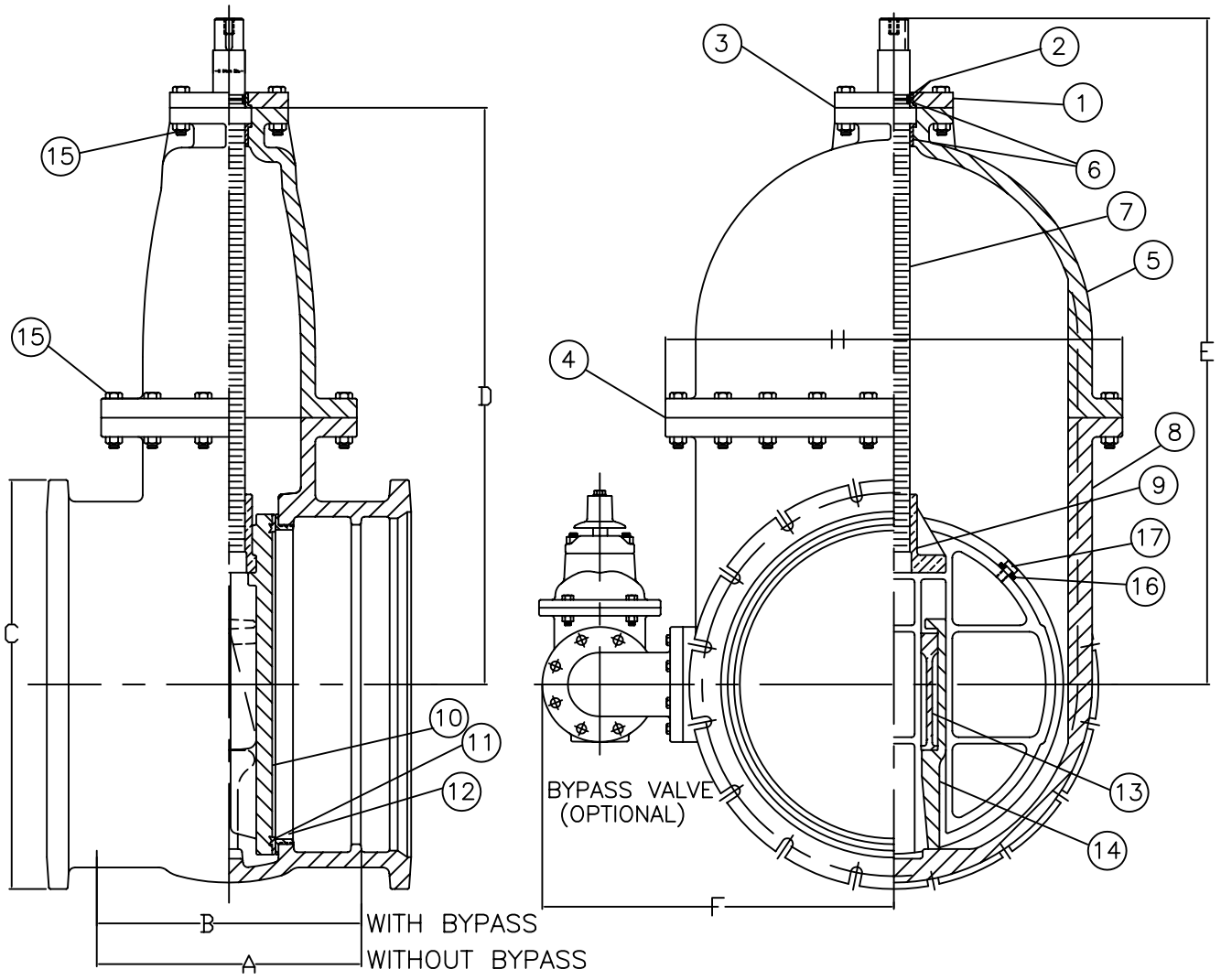
DET	QTY	DESCRIPTION	MATERIAL
10	2	Gate	Cast Iron, ASTM A126 Cl. B
11	2	Gate Ring	Bronze, ASTM B584 Alloy 836
12	2	Case Ring	Bronze, ASTM B584 Alloy 836
13	2	Wedge	Bronze, ASTM B584 Alloy 836
14	2	Hook	Cast Iron, ASTM A126 Cl. B
15		Bolts & Nuts	18-8 Stainless Steel
16	2	Strap	Bronze, ASTM B584 Alloy 836
17	4	Peg	Bronze, ASTM B584 Alloy 836

VALVE SIZE	A	B	C	D	E	F	G	H	Weight	Turns to Open
14	15 3/4	23	21	36 1/2	38 3/4	22	1 7/8	23 3/8	876	45
16	17	23	23 1/2	40 3/4	43 1/2	22	1 7/8	25 3/4	1155	52
18	19	24	25	43 1/4	46	26	2 1/8	27 3/4	1460	58
20	20	24	27 1/2	47 1/4	50	26	2 1/8	32 7/8	1980	64
24	23	28 1/2	32	55	56 3/4	30	2 1/2	35 3/4	2730	76
30	25	32 1/2	38 3/4	64 3/4	66 1/2	30	2 3/4	45 3/4	4784	63
36	27	36	46	75 3/8	77 3/8	36	3	56 1/4	5301	75

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD6

14" THRU 36" FLANGED END DOUBLE DISC GATE VALVE MATERIAL LIST / DIMENSIONS



DET	QTY	DESCRIPTION	MATERIAL
1	1	O-ring Plate	Cast Iron, ASTM A126 Cl. B
2	2	O-ring	Buna-N
3	1	Stuffing Box Gasket	Composition
4	1	Neck Flange Gasket	Buna-N
5	1	Cover	Cast Iron, ASTM A126 Cl. B
6	2	Bushing	Bronze, ASTM B584 Alloy 836
7	1	Stem	Bronze, ASTM B584 Alloy 867
8	1	Body	Cast Iron, ASTM A126 Cl. B
9	1	Stem Nut	Bronze, ASTM B584 Alloy 836

DET	QTY	DESCRIPTION	MATERIAL
10	2	Gate	Cast Iron, ASTM A126 Cl. B
11	2	Gate Ring	Bronze, ASTM B584 Alloy 836
12	2	Case Ring	Bronze, ASTM B584 Alloy 836
13	2	Wedge	Bronze, ASTM B584 Alloy 836
14	2	Hook	Cast Iron, ASTM A126 Cl. B
15		Bolts & Nuts	18-8 Stainless Steel
16	2	Strap	Bronze, ASTM B584 Alloy 836
17	4	Peg	Bronze, ASTM B584 Alloy 836

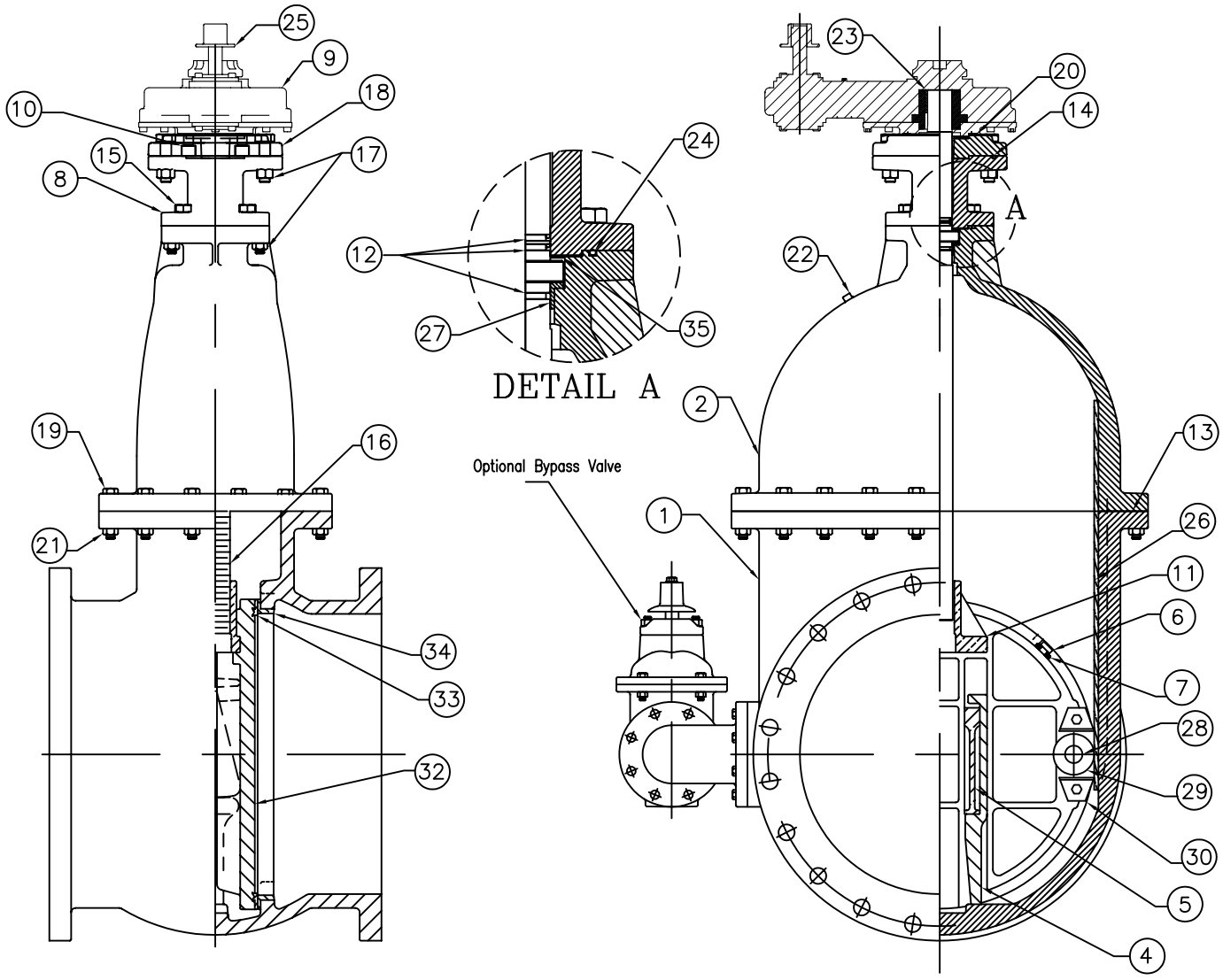
VALVE SIZE	14	16	18	20	24	30	36
A	7 1/4	9 1/8	9 1/4	10	16	12 1/2	23 3/4
B	15 1/2	13 3/4	14	16 3/4	21	20 1/4	23 3/4
C	20 1/4	22 1/2	24 3/4	27	32	39 1/8	46
D	28 1/4	32 1/4	35 3/8	39	45 3/8	55 3/4	65 1/4

VALVE SIZE	14	16	18	20	24	30	36
E	35 1/4	39 1/4	42 3/8	46	52 3/8	62 3/4	72 1/4
F	19 1/4	20 1/2	22 1/2	24	28	31 1/2	40
G	1 7/8	1 7/8	2 1/8	2 1/8	2 1/2	2 3/4	3
H	25 5/8	25 3/4	27 3/4	32 7/8	35 3/4	45 3/4	56 1/4

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD7

14" THRU 36" MECHANICAL JOINT DOUBLE DISC GATE VALVE MATERIAL LIST / DIMENSIONS



DET	QTY	DESCRIPTION	MATERIAL
1	1	Body	Gray Iron, ASTM A126 Class B
2	1	Cover	Gray Iron, ASTM A126 Class B
3	1	Cap	----------
4	2	Hook	Gray Iron, ASTM A126 Class B
5	2	Wedge	Bronze, ASTM B584 C83600
6	4	Gate Peg	Bronze, ASTM B584 C83600
7	2	Strap	Bronze, ASTM B584 C83600
8	1	Extension	Ductile Iron, ASTM A536 65-45-12
9	1	Actuator 2:1 Actuator 3:1	14"-16" Only 18"-24" Only
10	4	Socket Head Bolt	Alloy Steel
11	1	Stem Nut	Bronze, ASTM B584 C83600
12	3	Oring-Stem	NBR
13	2	Oring-Cover	NBR
14	1	Oring-Extension	NBR
15	4	Capscrew	18-8 Stainless Steel
16	1	Stem	Bronze, ASTM B584 C86700
17	8	Nut	18-8 Stainless Steel

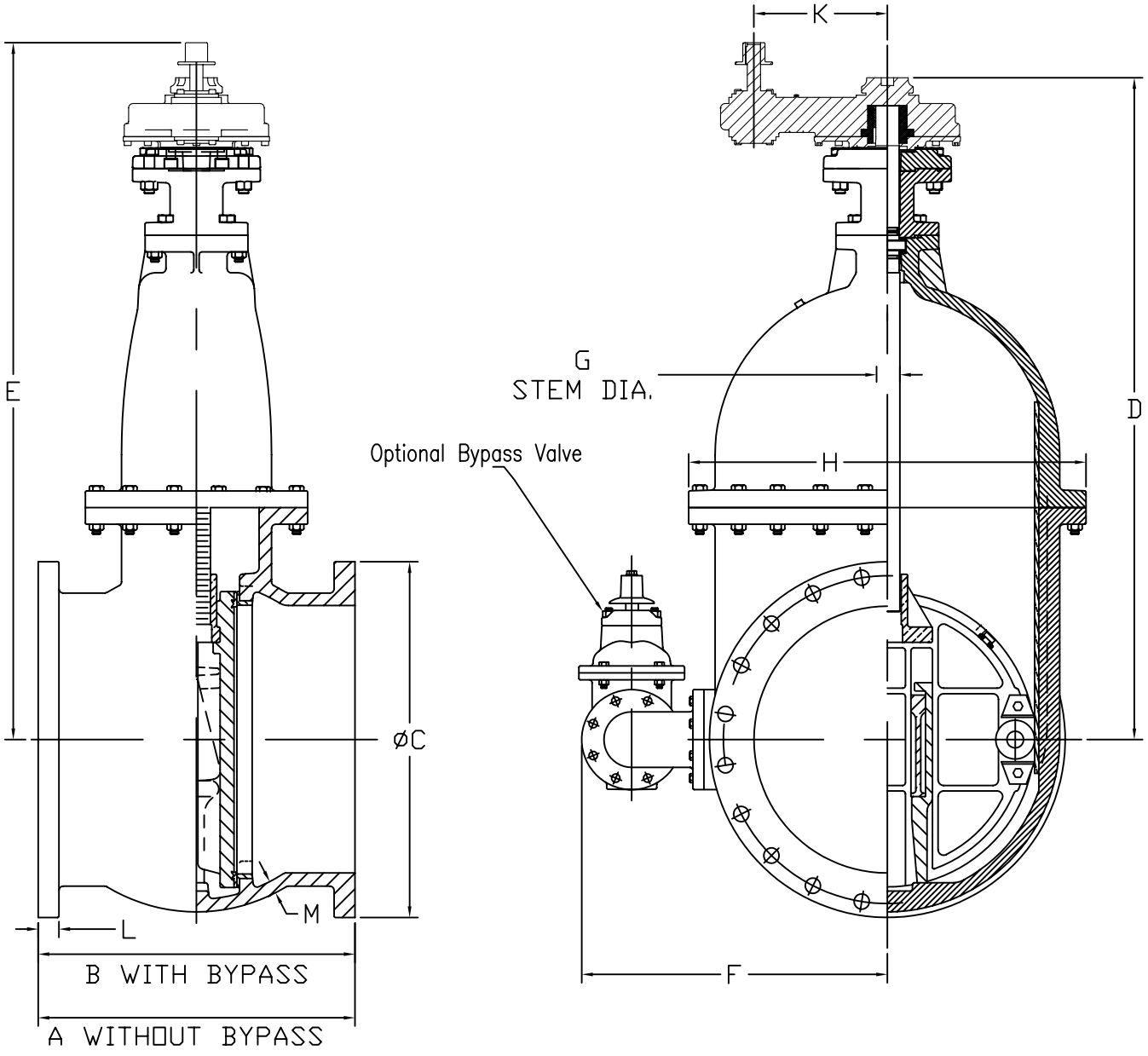
DET	QTY	DESCRIPTION	MATERIAL
18	1	Adaptor Plate	Ductile Iron, ASTM A536 65-45-12
19	*	Capscrew	18-8 Stainless Steel
20	1	Gasket-Actuator	Buna-N
21	*	Nut	18-8 Stainless Steel
22	1	Pipe Plug	18-8 Stainless Steel
23	1	Key	Steel
24	1	Oring-Cover Top	NBR
25	1	Op Nut	Ductile Iron, ASTM A536 65-45-12
26	1	Track	Bronze, ASTM B584 C83600
27	1	Bushing	Bronze, ASTM B584 C83600
28	1	Shaft	Bronze, ASTM B584 C83600
29	1	Roller	Bronze, ASTM B584 C83600
30	2	Scraper	Bronze, ASTM B584 C83600
31	1	Bushing	Bronze, ASTM B584 C83600
32	2	Gate	Gray Iron, ASTM A126 Class B
33	2	Gate Ring	Bronze, ASTM B584 C83600
34	2	Case Ring	Bronze, ASTM B584 C83600
35	1	Thrust Washer	Delrin (18"-24")

* Varies According to Size

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD8

14" THRU 24" DOUBLE DISC WITH SPUR GEAR MATERIAL LIST



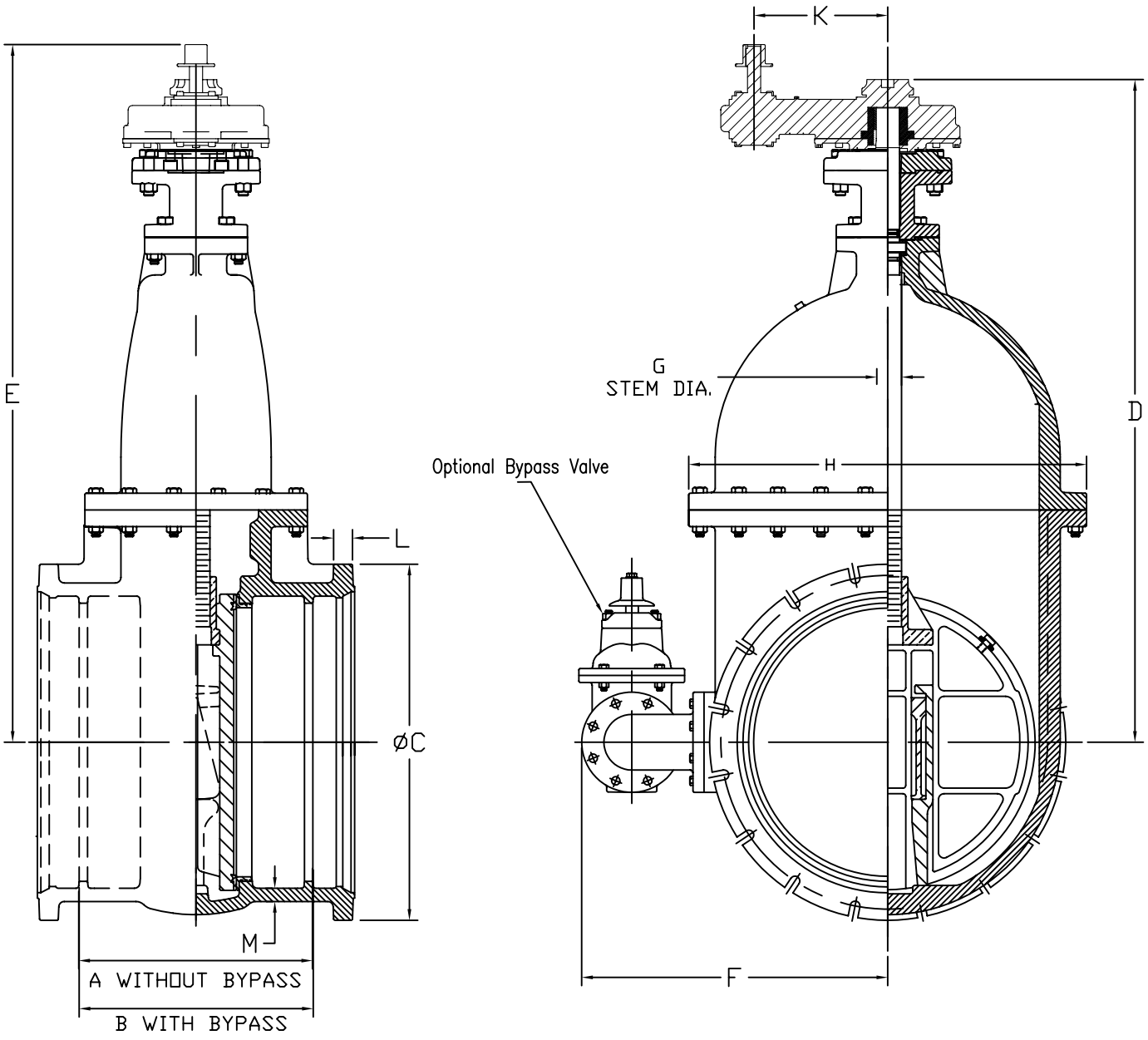
VALVE SIZE	14	16	18	20	24
A	15 3/4	17	19	20	23
B	23	23	24	24	28 1/2
C	21	23 1/2	25	27 1/2	32
D	38 3/4	42 3/4	48 7/8	52 1/2	59
E	42 1/2	46 1/2	52 1/2	56	62 1/2
F	19 1/4	20 1/2	22 1/2	24	28

VALVE SIZE	14	16	18	20	24
G	1 7/8	1 7/8	2 1/8	2 1/8	2 1/2
H	23 5/8	25 3/4	27 3/4	32 7/8	35 3/4
K	8	8	12	12	12
L	1 3/8	1 7/16	1 9/16	1 11/16	1 7/8
M	7/8	7/8	15/16	1	1 1/8
TURNS TO OPEN	90	104	174	192	228

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD9

14" THRU 24" FLANGED END DOUBLE DISC WITH SPUR GEAR DIMENSIONS



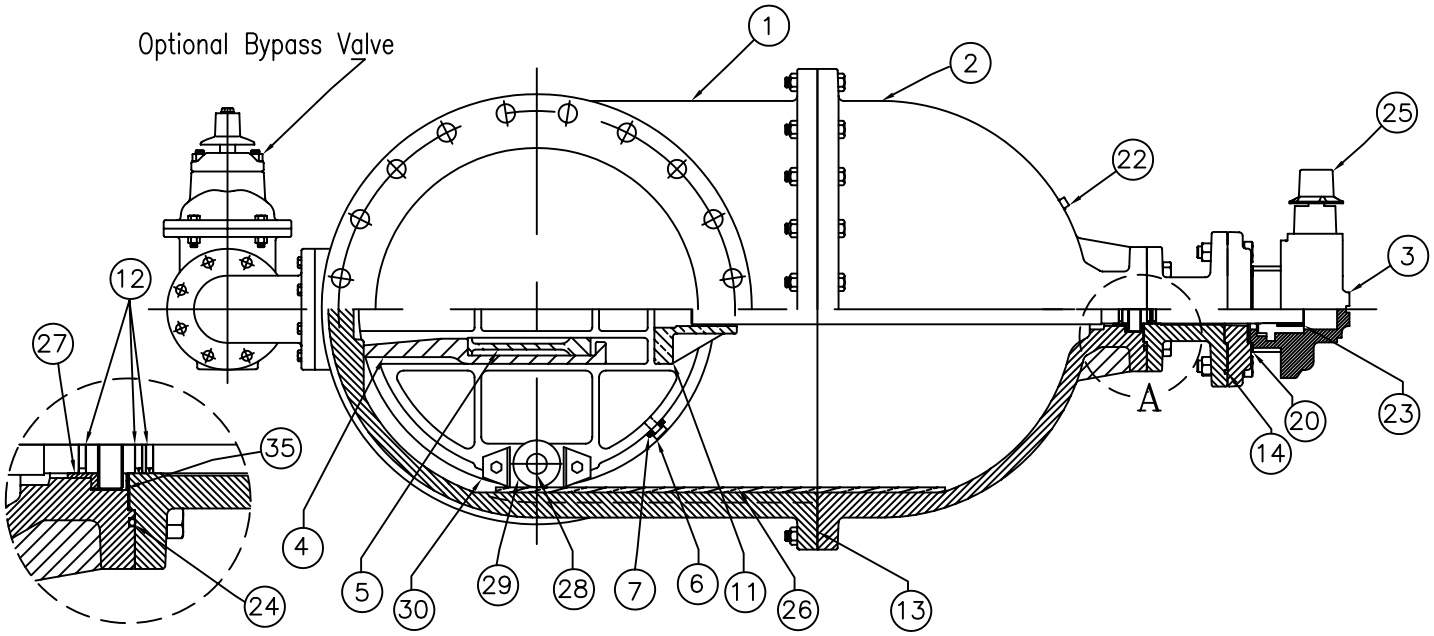
VALVE SIZE	14	16	18	20	24
A	7 1/4	9 1/8	9 1/4	10	16
B	15 1/2	13 3/4	14	16 3/4	21
C	20 1/4	22 1/2	24 3/4	27	32
D	38 3/4	42 3/4	48 7/8	52 1/2	59
E	42 1/2	46 1/2	52 1/2	56	62 1/2
F	19 1/4	20 1/2	22 1/2	24	28

VALVE SIZE	14	16	18	20	24
G	1 7/8	1 7/8	2 1/8	2 1/8	2 1/2
H	23 5/8	25 3/4	27 3/4	32 7/8	35 3/4
K	8	8	12	12	12
L	1 3/8	1 7/16	1 9/16	1 11/16	1 7/8
M	7/8	7/8	15/16	1	1 1/8
TURNS TO OPEN	90	104	174	192	228

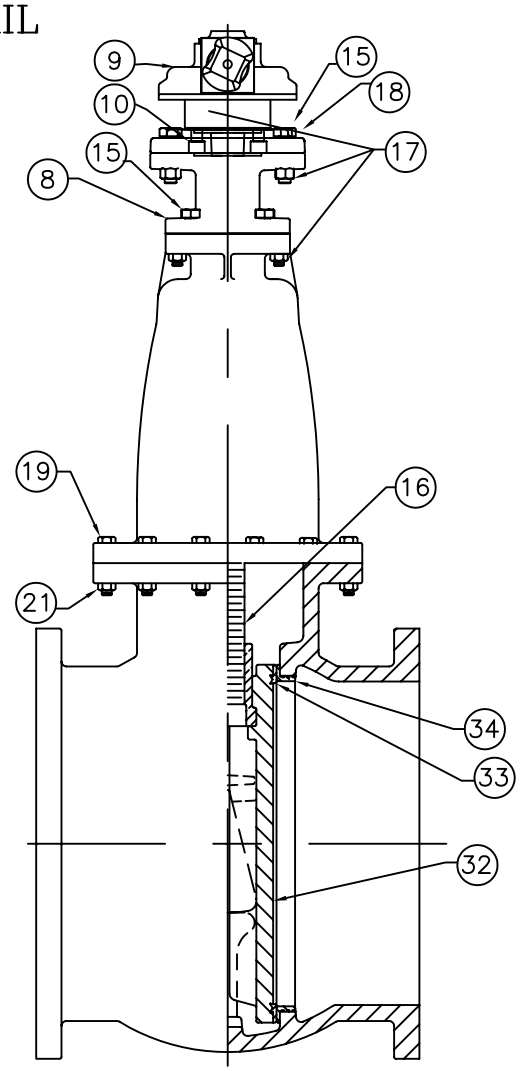
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD10

14" THRU 24" MECHANICAL JOINT DOUBLE DISC GATE VALVE WITH SPUR GEAR DIMENSIONS



DETAIL A

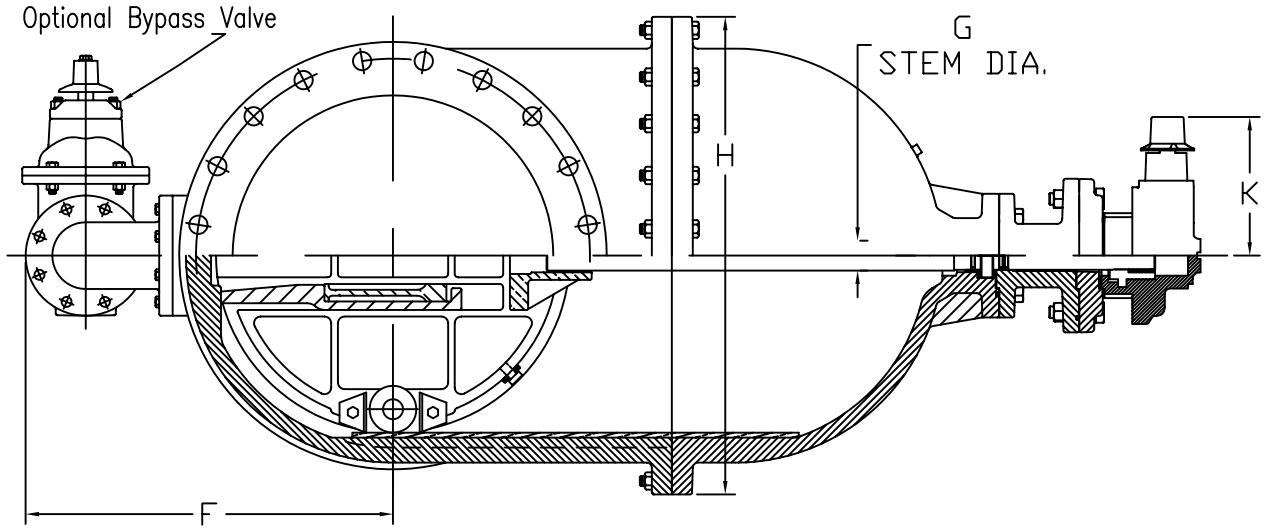


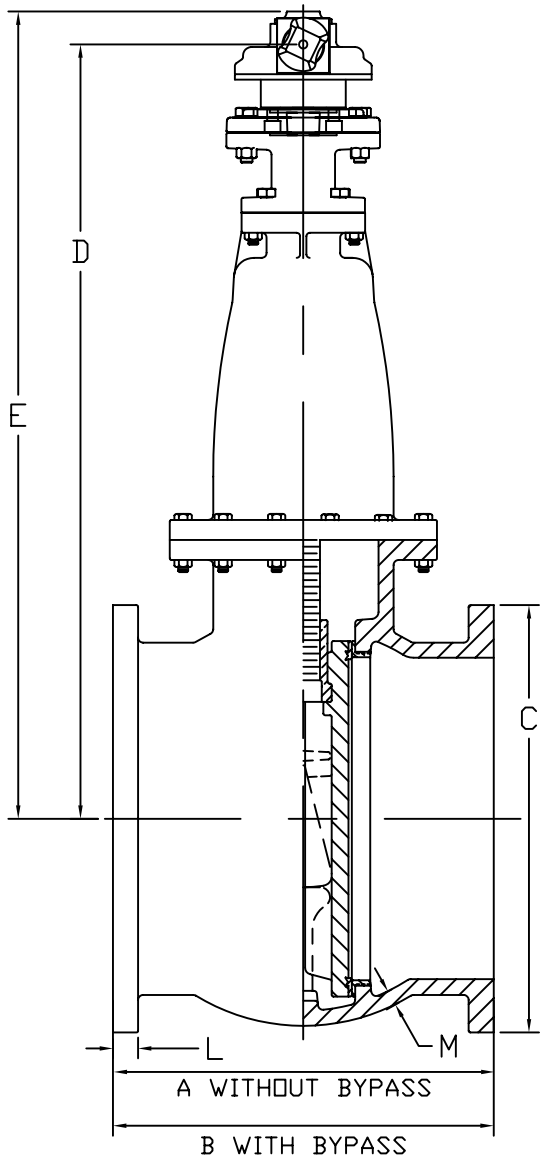
DET	QTY	DESCRIPTION	MATERIAL
1	1	Body	Gray Iron, ASTM A126 Class B
2	1	Cover	Gray Iron, ASTM A126 Class B
3	1	Cap	----------
4	2	Hook	Gray Iron, ASTM A126 Class B
5	2	Wedge	Bronze, ASTM B584 C83600
6	4	Gate Peg	Bronze, ASTM B584 C83600
7	2	Strap	Bronze, ASTM B584 C83600
8	1	Extension	Ductile Iron, ASTM A536 65-45-12
9	1	Actuator 2:1 Actuator 3:1	14"-16" Only 18"-24" Only
10	4	Socket Head Bolt	18-8 Stainless Steel
11	1	Stem Nut	Bronze, ASTM B584 C83600
12	3	Oring-Stem	NBR
13	2	Oring-Cover	NBR
14	1	Oring-Extension	NBR
15	4	Capscrew	18-8 Stainless Steel
16	1	Stem	Bronze, ASTM B584 C86700
17	8	Nut	18-8 Stainless Steel
18	1	Adaptor Plate	Ductile Iron, ASTM A536 65-45-12
19	*	Capscrew	18-8 Stainless Steel
20	1	Gasket-Actuator	Buna-N
21	*	Nut	18-8 Stainless Steel
22	1	Pipe Plug	18-8 Stainless Steel
23	1	Key	Steel
24	1	Oring-Cover Top	NBR
25	1	Op Nut	Ductile Iron, ASTM A536 65-45-12
26	1	Track	Bronze, ASTM B584 C83600
27	1	Bushing	Bronze, ASTM B584 C83600
28	1	Shaft	Bronze, ASTM B584 C83600
29	1	Roller	Bronze, ASTM B584 C83600
30	2	Scraper	Bronze, ASTM B584 C83600
31	1	Bushing	Bronze, ASTM B584 C83600
32	2	Gate	Gray Iron, ASTM A126 Class B
33	2	Gate Ring	Bronze, ASTM B584 C83600
34	2	Case Ring	Bronze, ASTM B584 C83600
35	1	Thrust Washer	Delrin (18"-24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD11

14" THRU 24" DOUBLE DISC GATE VALVE WITH BEVEL GEAR MATERIAL LIST



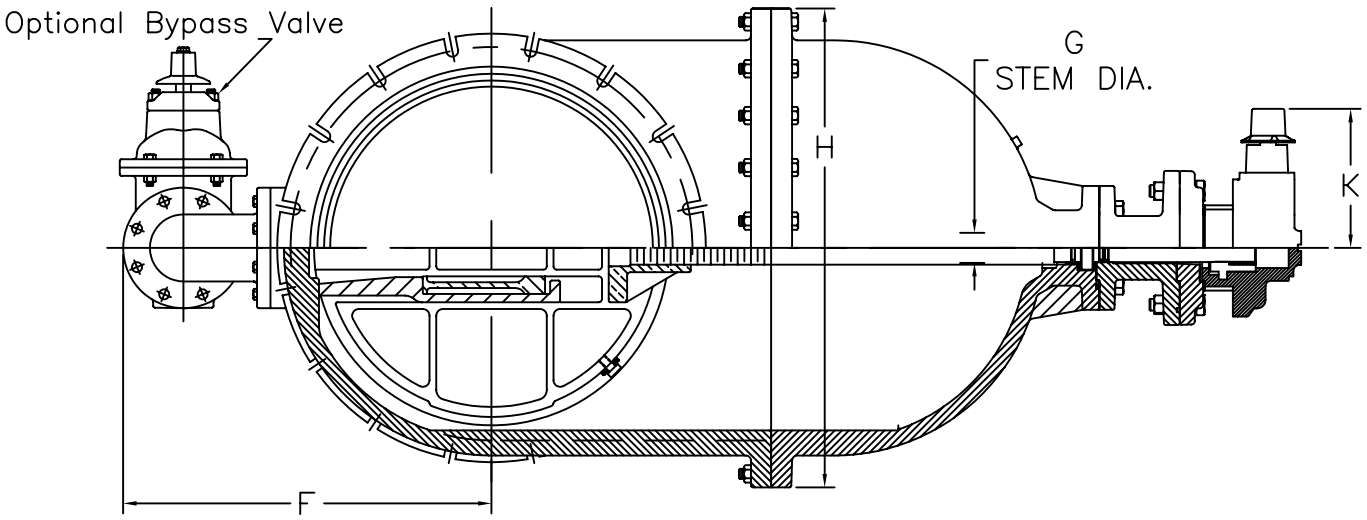


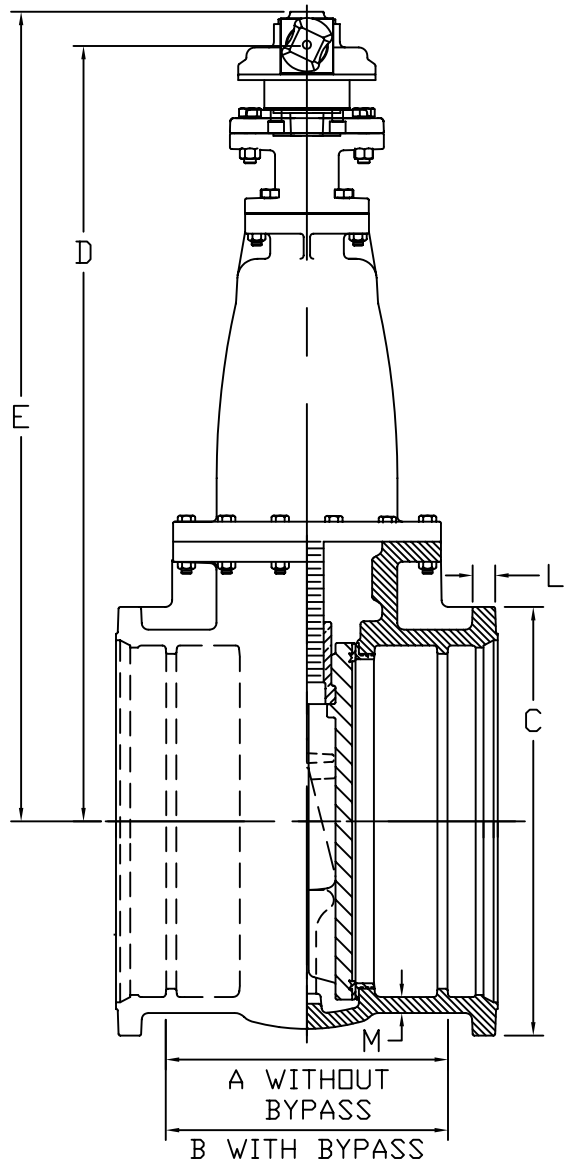
VALVE SIZE	14	16	18	20	24
A	15 3/4	17	19	20	23
B	23	23	24	24	28 1/2
C	21	23 1/2	25	27 1/2	32
D	37	41	47 7/8	51 1/2	58
E	39 1/4	43 1/4	50 3/8	54	60 1/2
F	19 1/4	20 1/2	22 1/2	24	28
G	1 7/8	1 7/8	2 1/8	2 1/8	2 1/2
H	23 5/8	25 3/4	27 3/4	32 7/8	35 3/4
K	9 1/4	9 1/4	10 1/4	10 1/4	10 1/4
L	1 3/8	1 7/16	1 9/16	1 11/16	1 7/8
M	7/8	7/8	15/16	1	1 1/8
TURNS TO OPEN	90	104	174	192	228

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD12

14" THRU 24" FLANGED END DOUBLE DISC GATE VALVE WITH BEVEL GEAR DIMENSIONS



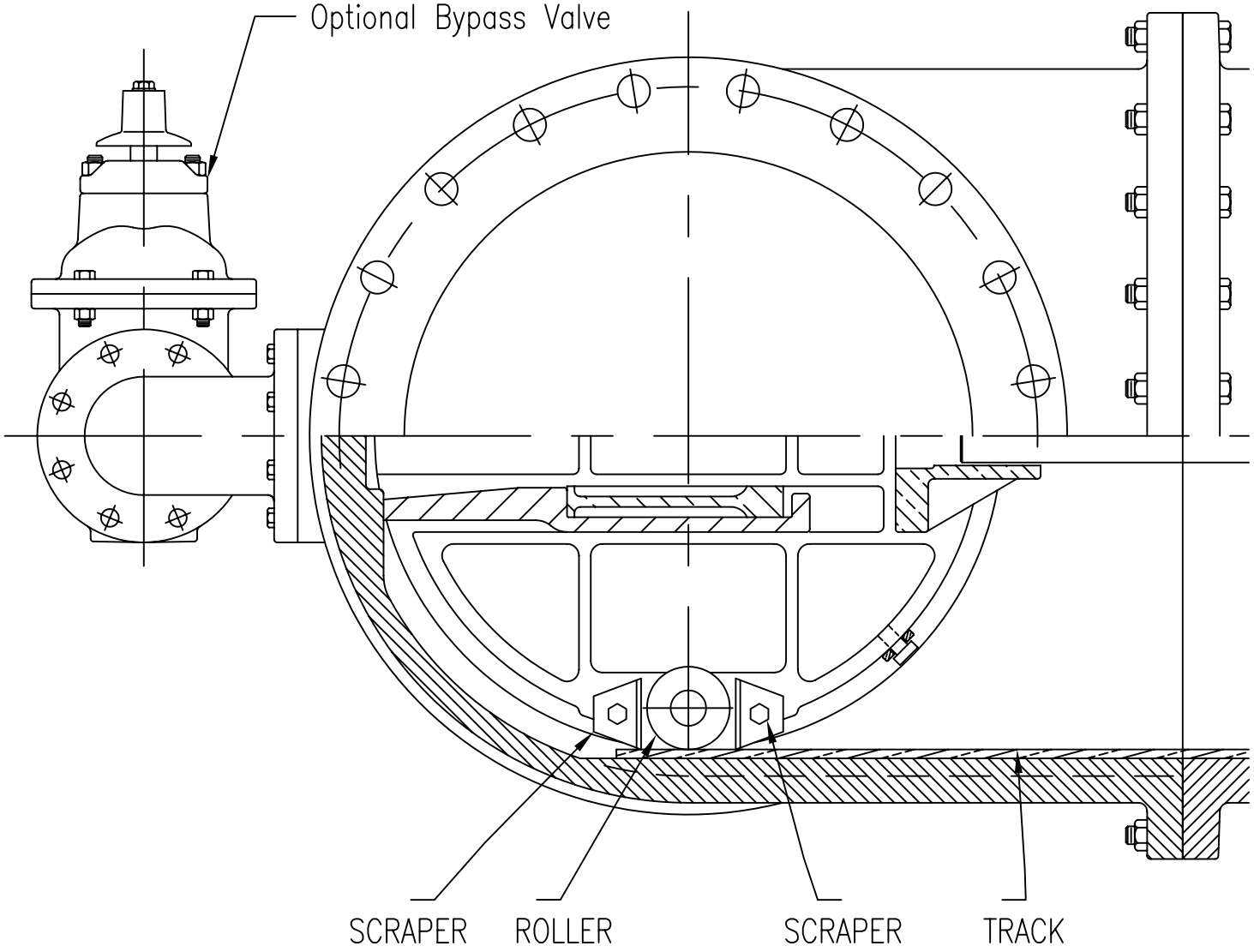


VALVE SIZE	14	16	18	20	24
A	7 1/4	9 1/8	9 1/4	10	16
B	15 1/2	13 3/4	14	16 3/4	21
C	20 1/4	22 1/2	24 3/4	27	32
D	37	41	47 7/8	51 1/2	58
E	39 1/4	43 1/4	50 3/8	54	60 1/2
F	19 1/4	20 1/2	22 1/2	24	28
G	1 7/8	1 7/8	2 1/8	2 1/8	2 1/2
H	23 5/8	25 3/4	27 3/4	32 7/8	35 3/4
K	9 1/4	9 1/4	10 1/4	10 1/4	10 1/4
L	1 5/16	1 7/16	1 7/16	1 1/2	1 5/8
M	7/8	7/8	15/16	1	1 1/8
TURNS TO OPEN	90	104	174	192	228

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD13

14" THRU 24" MECHANICAL JOINT DOUBLE DISC GATE VALVE WITH BEVEL GEAR DIMENSIONS



ROLLERS, TRACKS & SCRAPERS

Valves 14" and larger installed in a horizonal pipe line with their stems horizontal should be equipped with rollers, tracks, and scrapers, as illustrated. The rollers assist the travel of the gate assembly along tracks set into the valve body, retaining it in alignment, and promoting ease of operation, not otherwise possible. Scrapers are provided ahead of the rollers to clear the track of obstruction or foreign matter.

When required, rollers, tracks and scrapers are bronze.

KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. DD14	DOUBLE DISC GATE VALVES ROLLERS TRACKS & SCRAPERS

SPECIFICATIONS / AVAILABLE CONFIGURATIONS / STYLE NUMBERS

KENNEDY HIGH PRESSUE DOUBLE DISK GATE VALVES

Size Range	Water Working Pressure psi	Hydrostatic Shell Test psi
4" – 12"	250	500
24" – 30"	225	450

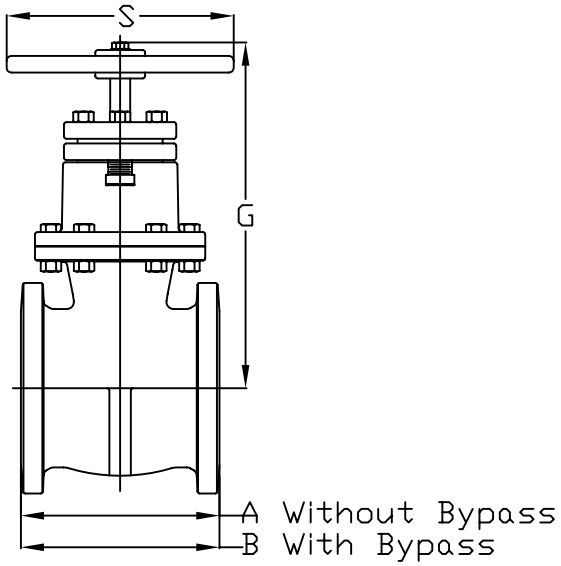
Available End Connections	**Size Range**	**Style No.**
Flanged Ends (NRS)	4"-48"	F-5300
Flanged Ends (OS&Y)	14"-48"	F-5305

***Note Flanges are faced and drilled ANSI Class 250 Standard

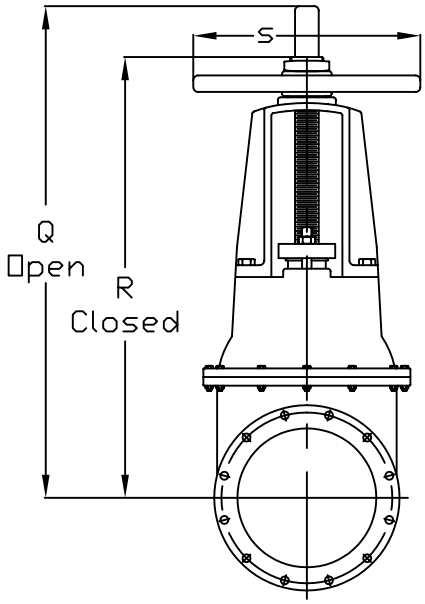
Accessories:

Floor stands
Limit Switches
Open Gearing
Needle & Slot (Navy) Indicators
Electric Motors
2" Square Operating Nuts
Chain wheels
"T" Handles
Stem Guides
Indicator Posts
By-pass Valves
Enclosed Gearing (Grease Case)
Barrel Indicators
Tracks, Rollers, & Scrapers for valves 14" or larger installed horizontally in line
Hand wheels
Extension Stems
Floor boxes

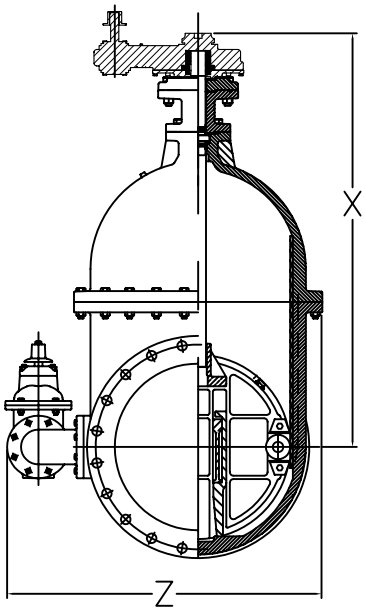
***Note: Call Factory For Special Applications



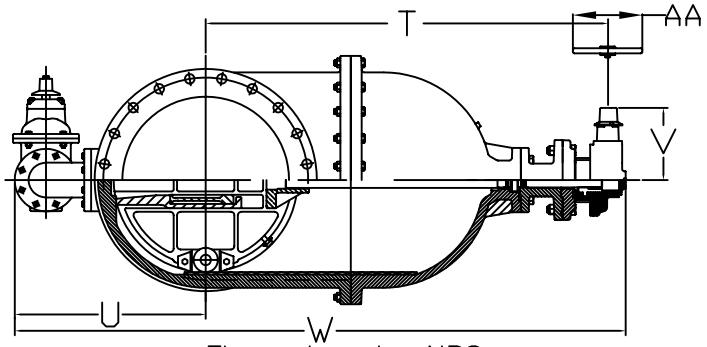
Flanged Ends, NRS



Flanged Ends, OS&Y



Flanged ends--NRS
Spur Gear with By-Pass



Flanged ends, NRS,
with Bevel Gears, with By-Pass

VALVE SIZE	A	B	G	Q	R	S	T	U	V	W	X	Y	Z	AA	Turns to Open	Diam. of Stem
4	9 5/8	——	14	24	19 3/4	10	——	——	——	——	——	——	——	——	15	1 1/8
6	11 1/2	——	18	32 1/2	25 1/2	12	——	——	——	——	——	——	——	——	21	1 1/4
8	12 1/2	——	22	40 1/2	31 1/2	14	——	——	——	——	——	——	——	——	27	1 3/8
10	14 1/2	——	25 5/8	47 1/4	36 1/4	18	——	——	——	——	——	——	——	——	33	1 1/2
12	17	——	29 1/8	58 1/4	45 3/4	18	27 5/8	——	13	——	36 1/8	8	——	18	39	1 1/2
14	17 1/2	26 1/4	36 1/4	67 3/4	52 3/4	22	33	21	13	58 1/4	41	8	33	18	45	1 7/8
16	19	27 1/2	40 1/4	74 3/4	57 3/4	26	36 7/8	22	13	64	45	8	35 1/4	18	52	2
18	21	27 1/2	43 3/8	82 1/2	63 1/2	26	39 7/8	24	13	69 3/4	48	8	38 1/2	18	58	2 1/8
20	21 1/2	28	48	90 1/4	69 1/4	30	43 3/4	24 3/4	13	74	51 3/4	8	41 1/2	18	64	2 1/4
24	26	34	54 3/8	105	79 3/4	30	52 7/8	29 1/2	17 1/2	89	60 5/8	10	47 1/4	18	51	2 1/4
30	30	34	65 3/8	128 1/4	97	36	64 1/8	33 1/2	23 3/4	105 1/2	79 1/8	13 3/8	57 1/2	22	63	3

FLANGES ARE FACED AND DRILLED TO ANSI CLASS 250 STANDARD
NOTE: 36", 42" and 48" DIMENSIONS CONTACT FACTORY

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. DD16

4" THRU 30"
EXTRA HEAVY DOUBLE DISC GATE VALVES
DIMENSIONS

KENNEDY DOUBLE DISC GATE VALVES

Description and Advantages:
Kennedy AWWA Gate Valves are designed primarily for flow control of water in underground pipe lines. They equal or exceed the requirements established by standards of the American Water Works Association and conform to Federal Specifications WW-V-58B, Type II, Class I.

Kennedy AWWA Gate Valves are specifically designed for heavy pressure service. Neck, flanges, and bell are made extra heavy to withstand pipe strain and possible shifting. Body, cover, gates, and stem are built for extra strength, with clean and simple internal construction, to assure long service and low maintenance.

Operation of the Valve:
Turning the stem releases the wedging pressure on the gates allowing them to move away from there seats before starting upward travel. Further turning of the stem raises the gates into the fully opened position.

When closing the valve, the gates move freely downward without friction, to a position opposite their seats.

As the gates approach the bottom of the valve, the iron hooks come into contact with stops which prevent further downward movement of the hooks. The bronze wedges riding on these hooks spread the gates apart and force them against their seats.

Construction:
Body: Cast iron, bronze mounted. Sturdy proportions provide protection against damage.

Stem: Manganese bronze of high tensile and torsional strength, with accurate, perfectly machined threads. Ample diameters assure smooth valve movements.

Stem Nut: Solid bronze. Independent of hooks, gates, and wedges. Stem or stem nut will not bind or spring out of line, as can happen when stem nut is attached to wedges.

Wedges: Independent, solid bronze, 2"-3" valves have integral hook and wedge. 4"-8" have independent solid bronze wedges placed loosely in iron hooks, and are free to adjust to various positions of the gates. In 10" and larger valves, each wedge has one long and one short surface. The bottom of each wedge forms a rocker bearing on the iron hooks, letting wedges adjust to varying positions of the gates in closing. The long side is used in closing the valve and the short side in opening it.

Low Torque Thrust Bearing: Valves 4"-12" are fitted below the stem collar with an exclusive Low Torque Thrust Bearing which provides high load capacity and low friction. This bearing reduces operating torque up to 50% yet seals perfectly for repacking under pressure.

Gates and Gate Rings: Gates 3" and smaller are bronze. Gates 4" and larger are high strength cast iron with bronze gate rings rolled into machined and dovetailed grooves under pressure to make gate and ring one inseparable unit. After fitting, gate rings are accurately machined.

Case rings: Bronze case rings are screwed into place and machined. They can be removed and replaced if necessary.

Packing: O-Ring packing is standard on all non-rising stem gate valves. Rising stem and geared valves are furnished with conventional packing.

Operating Nut and Handwheel: All valves except flanged valves and outside screw and yoke valves are supplied with 2" square operating nuts of high strength cast iron unless otherwise specified. Flanged valves and outside screw and yoke valves are supplied with handwheels of high strength cast iron unless otherwise specified. Direction of opening is indicated by arrow cast on operating nut skirt or on the rim of the handwheel.

Yoke: Yokes for outside screw and yoke valves are of rugged cast iron. Careful machining assures accurate stem alignment.

Accessories: Valves may be fitted with and large number of accessories: cylinders, electric motor operators, gearing, bypasses, etc.

Rollers, Tracks, and Scrapers: Recommended for 14" and larger diameter valves carry weight of the gates for valves installed in a horizontal or vertical line.

NOTE: All valves open to the left (counter clockwise) unless otherwise specified.

SAMPLE GATE VALVE SPECIFICATION

KENNEDY DOUBLE DISC GATE VALVES

Gate Valves:
Valves shall be manufactured in accordance with AWWA Standard C500-93. Valves 12" and smaller shall be designed for 200 psi water working pressure and 150 psi for valves 14"-48" inclusive. Valves shall have (M/J, Flanged or as indicated on plans) ends and shall have clear waterway equal to the full nominal diameter of the valve. Valves shall be double disc parallel seat type with (non-rising, rising) stems, opening by turning (left, right) and provided with (2" square nuts, handwheel), with arrow cast in metal to indicate direction of opening.

Manufacturer of 2-48" gate valves must have the full range of valves in both NRS and OS&Y styles.

Each manufacturer shall provide certification that they have manufactured 2"-48" valves for a minimum of ten years.

Each valve shall have manufacturer's name, pressure rating and year in which manufactured cast on body. Prior to shipment from the factory each valve shall be hydrostatically shell tested at a pressure of 400 psig in sized 12" and smaller and 300 psig in sizes 14" and larger. In addition each valve shall be hydrostatically seat tested at a pressure of 200 psig in sizes 12" and smaller and 150 psig in sizes 14" and larger. Valves shall be Kennedy AWWA valves as manufactured by the Kennedy Valve Company, Elmira, NY.

Stuffing Boxes:
Stuffing Boxes shall be "O" ring seal type with two o-rings located in stem above thrust collar in valves without gearing. Sizes 14" through 48" there shall be a bronze bushing meeting ASTM B584.

Bolts and Nuts:
Body and cover bolts and nuts shall be stainless steel.

Wedging:
Valves will be bottom wedging type with two part floating wedge contact. The wedge and hook shall be separate castings and not a one piece casting in valves 4"-36". In valves 42" and 48" the hooks and wedges shall be one piece design with the outside of the wedge area covered with a bronze shoe. No side wedging will be acceptable.

Stems:
Stems shall be in full conformance with AWWA Specs. Sizes 14"-36" bronze ASTM B584 with 80,000 tensile strength, and cast integral stem collar. 42" and 48" shall be type 304 stainless steel.

Stem Nuts:
Stem nuts shall be made of solid bronze independent of hooks, gates and wedges. No pins will be allowed to retain gates to stem nut.

Gates and Gate Rings:
Gates shall be high strength cast iron, sturdily proportioned without pockets on backs. Cam surfaces shall open to bottom. Gate rings shall be rolled into dovetailed grooves under pressure to make one inseparable unit. The gate ring face shall be machined to a smooth finish.

Case Rings:
Bronze case rings shall be screwed into place and the contact face machined to a smooth finish. Use of screws, rivets of other means of retention will not be acceptable.

Valves 14" and Larger:
Valves installed with stem horizontal shall be equipped with bronze rollers, tracks, and scrapers.

Bypasses:
Bypasses shall be provided on 16" and larger valves where indicated and mounted directly to valve body with cast iron flanged connections. Bypass valves shall be resilient seated AWWA and ULFM approved as manufactured by the Kennedy Valve Company for sizes through 36" and integral double disc type bypass valves for 42" and 48" sizes.

Gearing:
Enclosed spur or bevel gearing with extended type gear cases will be provided where indicated on plans. Side cover plates will be provided to completely enclose stem and stuffing box. Manufacturer must be able to supply open and enclosed gearing as standard.

ORDERING INFORMATION

KENNEDY DOUBLE DISC GATE VALVES

Use Figure Number wherever possible to identify product wanted
When placing orders or making inquiries, please furnish the following information. This information will enable us to answer your questions, prepare quotations, and fill your order promptly. Lack of essential information is almost sure to cause delays.

1. Quantity

2. Size

3. Working pressure: Refer to tables of pressure ratings

4. End type or types: Gate valves are furnished with many end types

4A. Flanged valves: Furnished with ANSI 125 pound Standard flanges with bolt holes straddling center lines.

4B. Mechanical Joint valves: Normally furnished with standardized mechanical joints with plain rubber gaskets. Cutting-in type mechanical joints also available for use in existing cast iron pipe lines.

5. Direction of opening: Must be specified. Open left (counterclockwise); or open right (clockwise).

6. Type of stem: State whether non-rising stem or rising stem with outside screw and yoke.

7. Installation position: Indicate position in which valve will be installed (vertically, horizontally, or otherwise).

8. Operating nut or handwheel: All flanged valves and all rising stem valves with outside screw and yoke are furnished with handwheels unless otherwise specified. Other valves are furnished with a 2-inch square operating nut unless otherwise specified.

9. Stuffing box: Whether conventional or O-ring. Unless otherwise specified, we regularly furnish NRS valves with O-ring packing; other valves are regularly furnished with conventional stuffing box packing.

10. Indicator posts and valves: State depth of trench (distance from ground line to bottom of the pipe line); size and shape of operating nut, if other than standard. For valves already in place, state whether valve is equipped with a flange for post support; if so, give flange dimensions, and distance from centerline of valve to top of flange.

11. By-pass valves: State location, whether manually operated by-pass will have handwheel or operating nut, and any special instructions necessary.

12. Parts: Always order parts by number.

SIZE RANGE
WORKING PRESSURE
AVAIALBLE END CONNECTIONS
FEATURES
APPLICATIONS

KENNEDY VALVE—HI-RISER RW OS&Y GATE VALVE

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

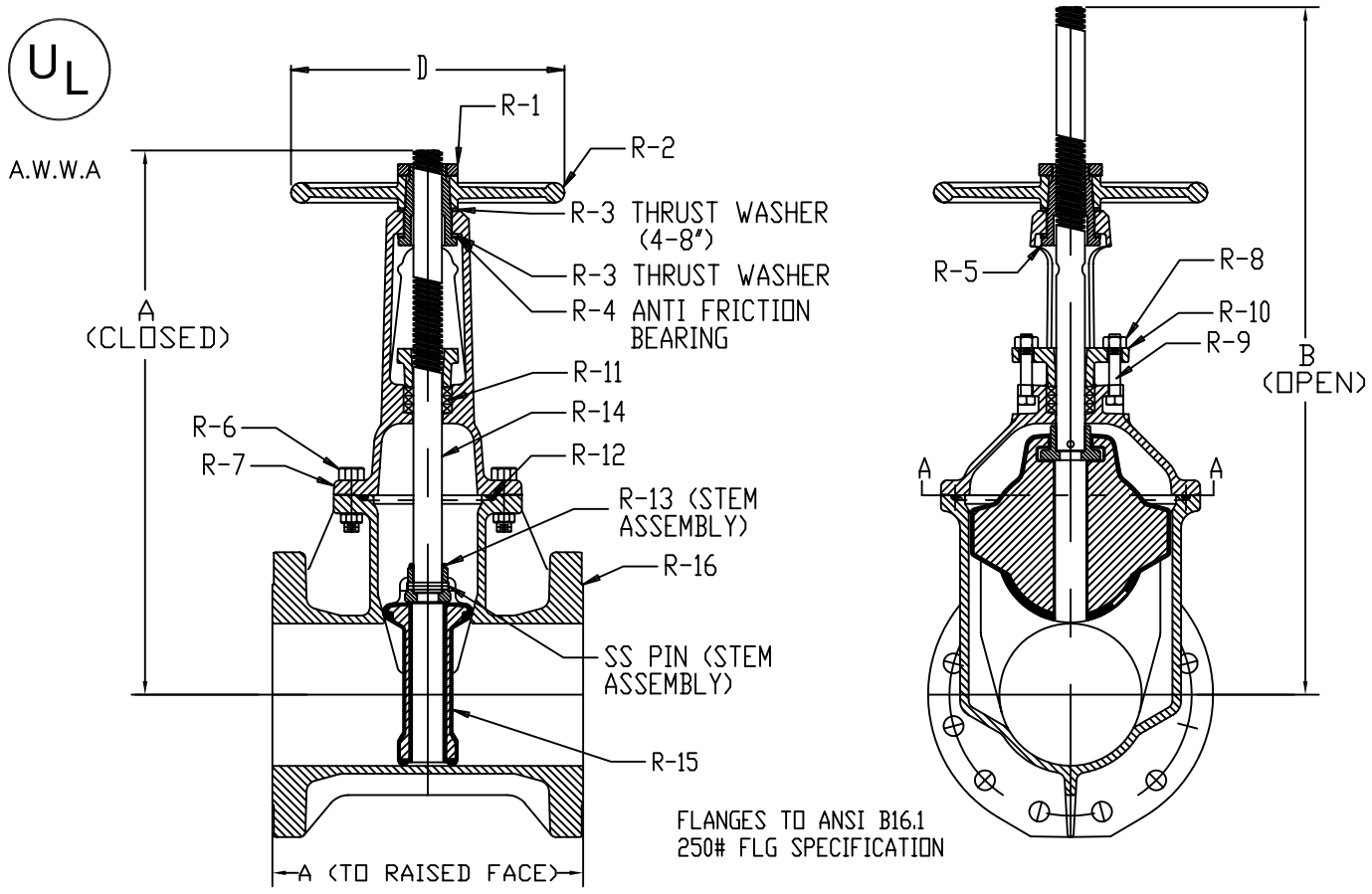
Available End Connections	**Size Range**	**Style No.**
Flanged Ends	2 ½” – 8”	7168

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

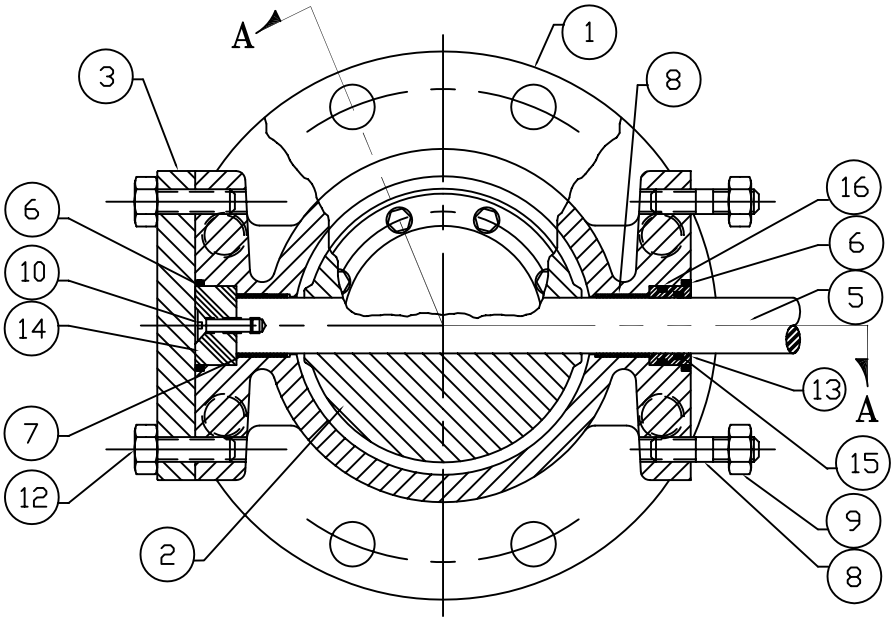
* 3" IS AVAILABLE WITH 2.5" DRILLING

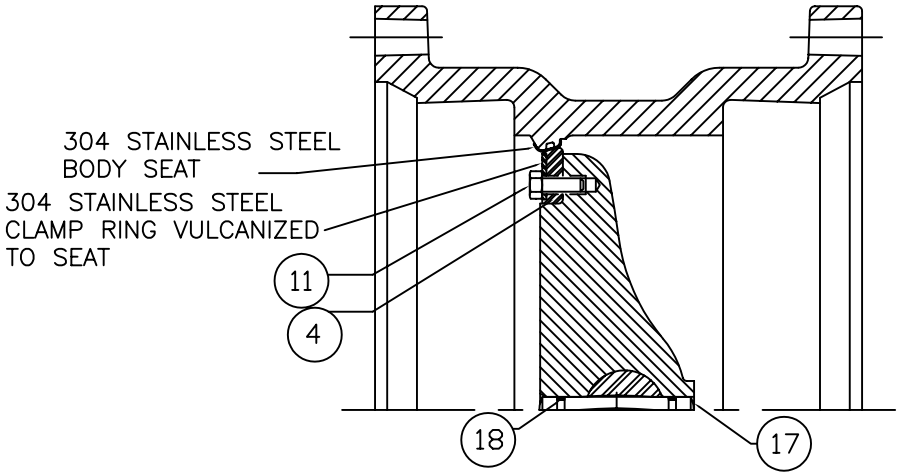
SIZE	NUMBER OF TURNS TO OPEN	APPROX. WEIGHT
2.5"/3"	10	80 LB
4"	13 1/2	115 LB
6"	19 1/2	180 LB
8"	25 1/2	275 LB

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. HRV-A1

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



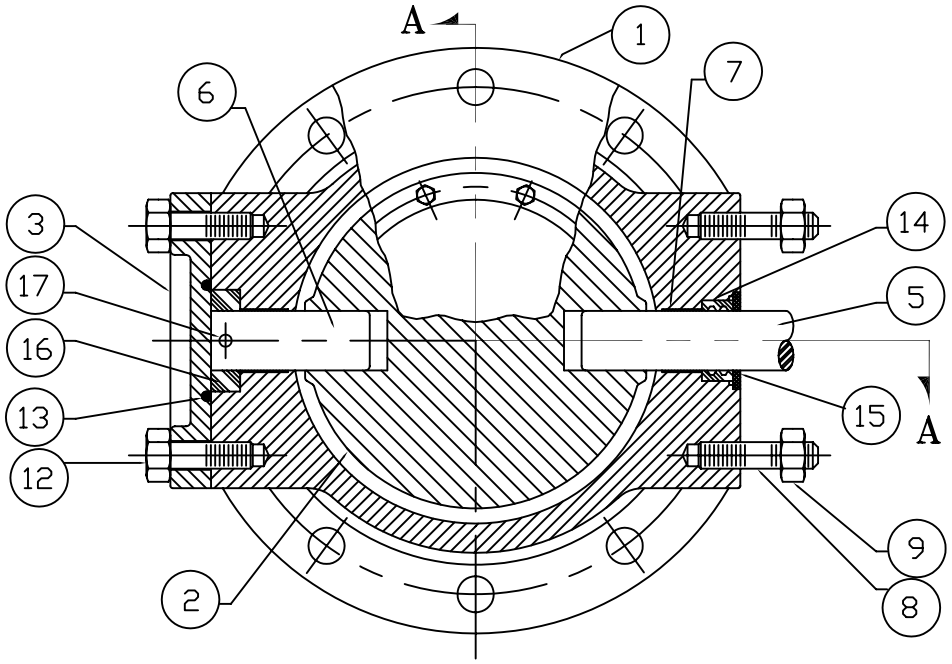


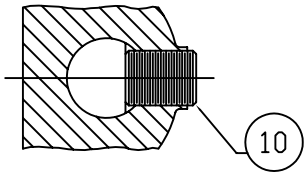
SECTION A–A

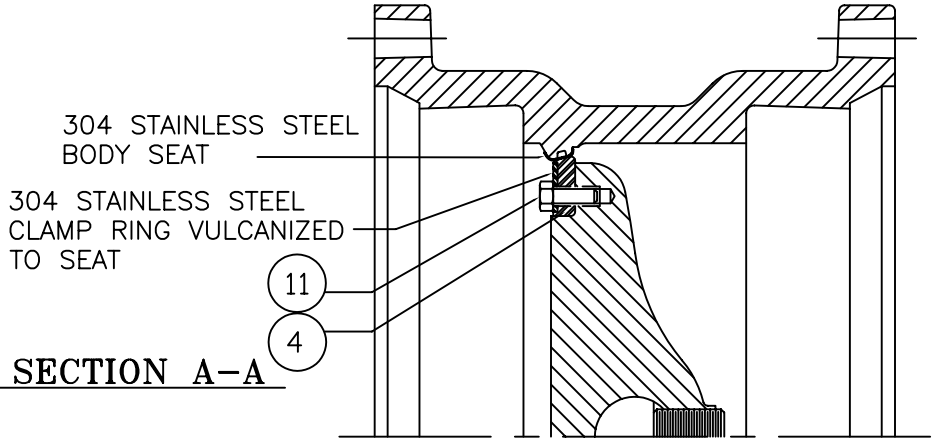
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A–126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A–48, CLASS 40
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	304 STAINLESS STEEL, ASTM A–276
6	O–RING, BODY	BUNA "N"
7	BEARING, 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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4"–12" STYLE 4500
DATE: 7/1/05	CLASS 150 BUTTERFLY VALVE
DWG. NO. BMJ–15–45A	SUB–ASSEMBLY / MATERIAL LIST
	MJ X MJ







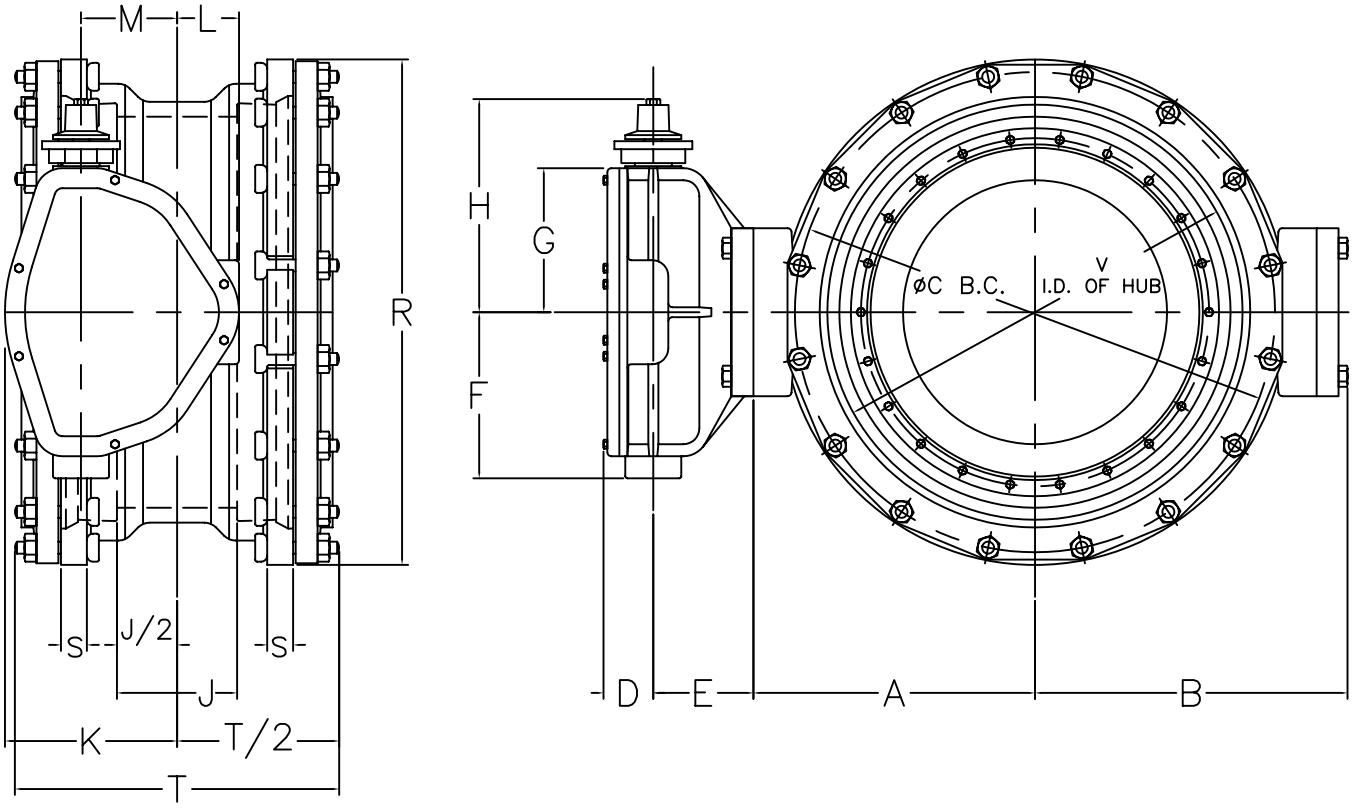
SECTION A–A

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



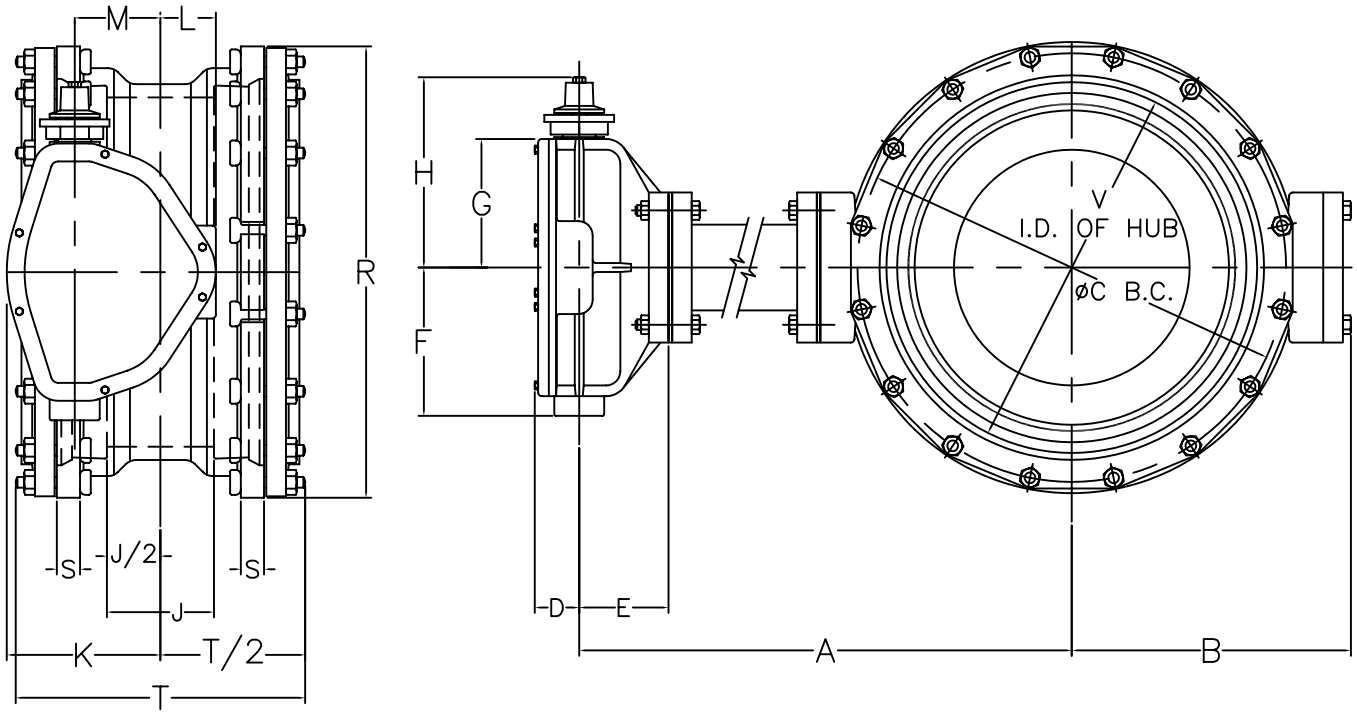
VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250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

VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	$4.90^{+.07}_{-.03}$	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	$15.44^{+.06}_{-.07}$	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: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4"-24" STYLE 4500
DATE: 7/1/05	CLASS 150 BUTTERFLY VALVE
DWG. NO. BMJ-15-45C	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

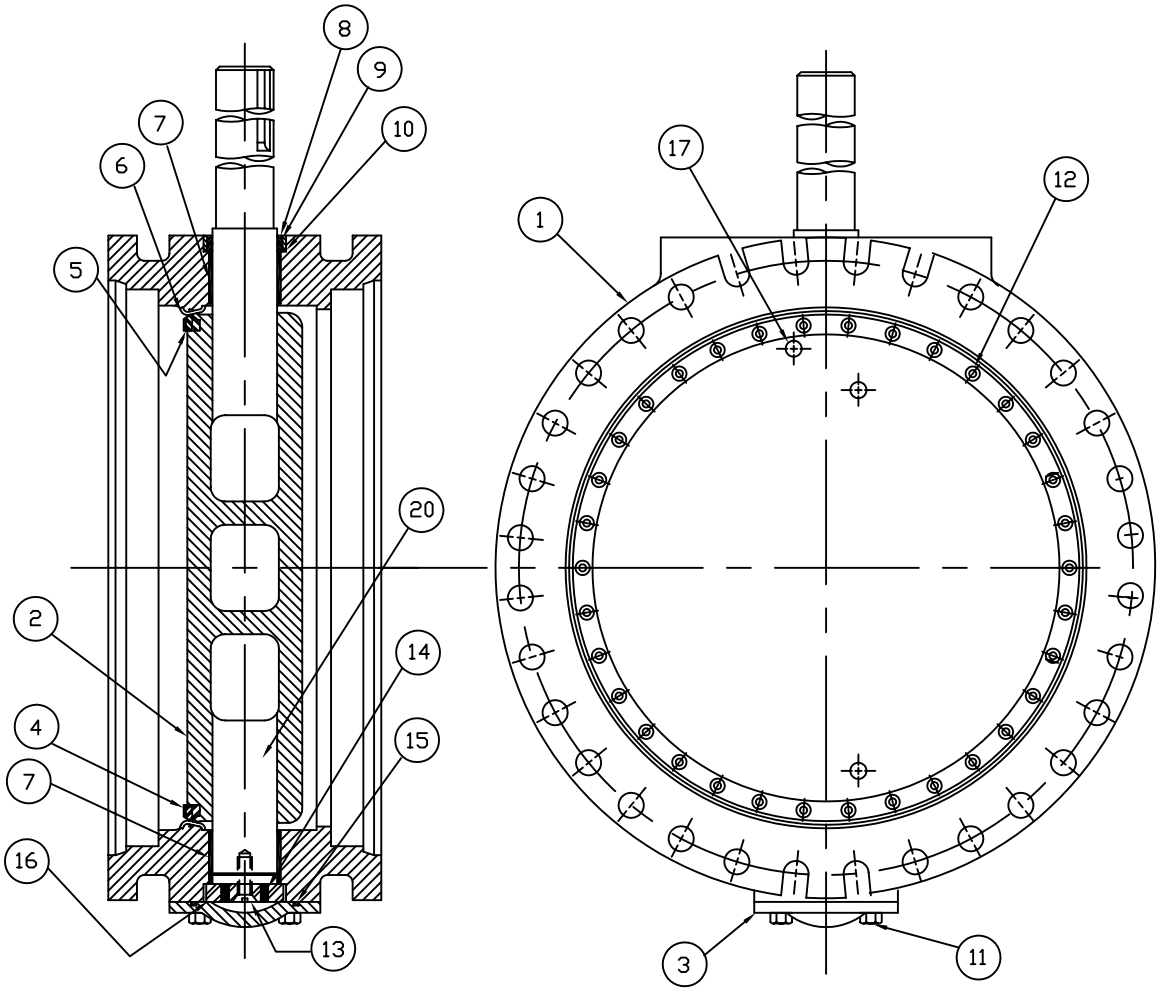
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
4"	NOTE AA	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	$4.90^{+.07}_{-.03}$	80
6"	NOTE AA	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	$7.00^{+.07}_{-.03}$	100
8"	NOTE AA	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	$9.15^{+.07}_{-.03}$	150
10"	NOTE AA	9 5/8	14	4 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	$15.44^{+.06}_{-.07}$	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	$17.54^{+.06}_{-.07}$	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	$19.64^{+.06}_{-.07}$	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	$21.74^{+.06}_{-.07}$	885
24"	NOTE AA	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	$25.94^{+.06}_{-.07}$	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: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER
NOTE 9: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(4"-12"), 150LBS(14"-16"), 180LBS(18"-24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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

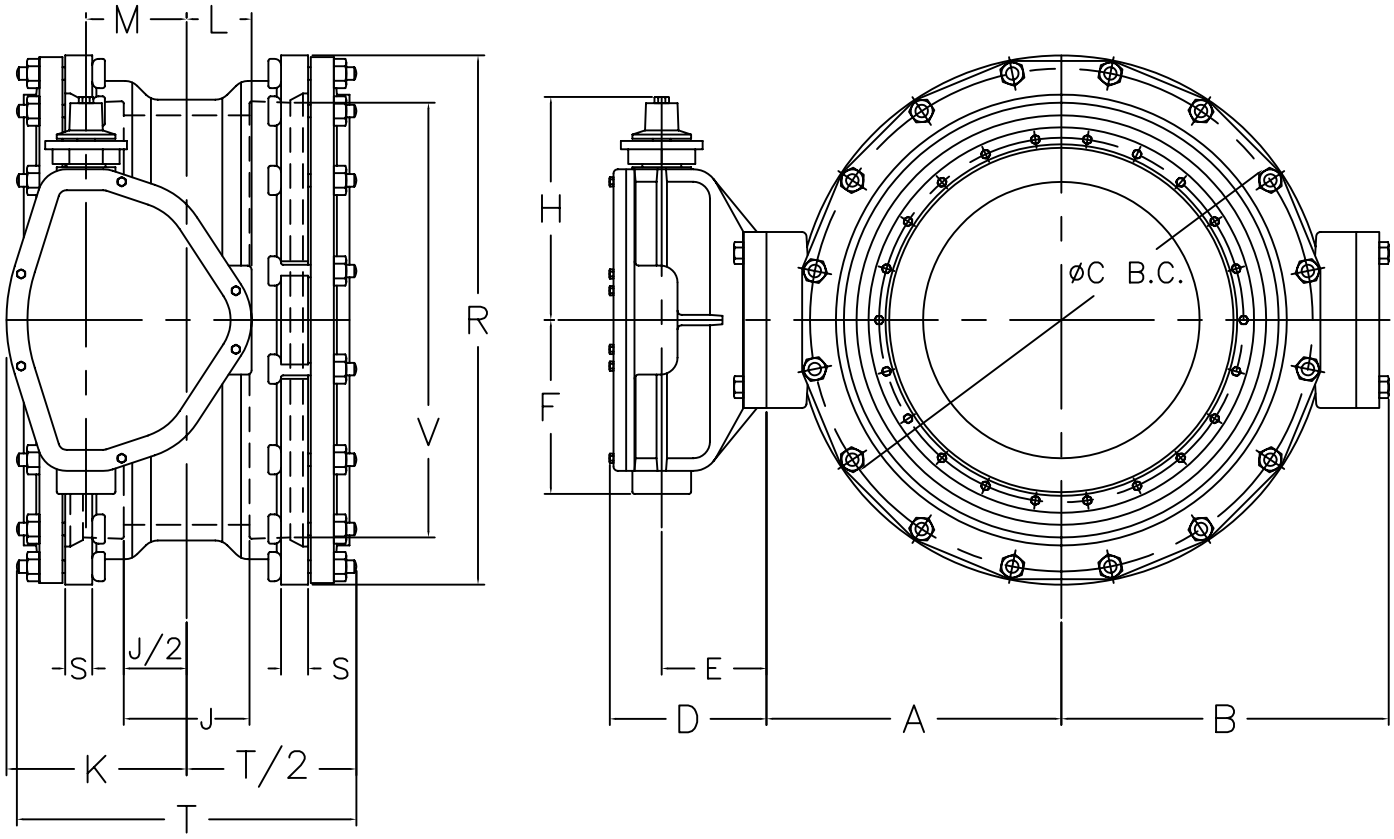


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, ASTM A-126, CL B W/304 STN. STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
8	CARTRIDGE,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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

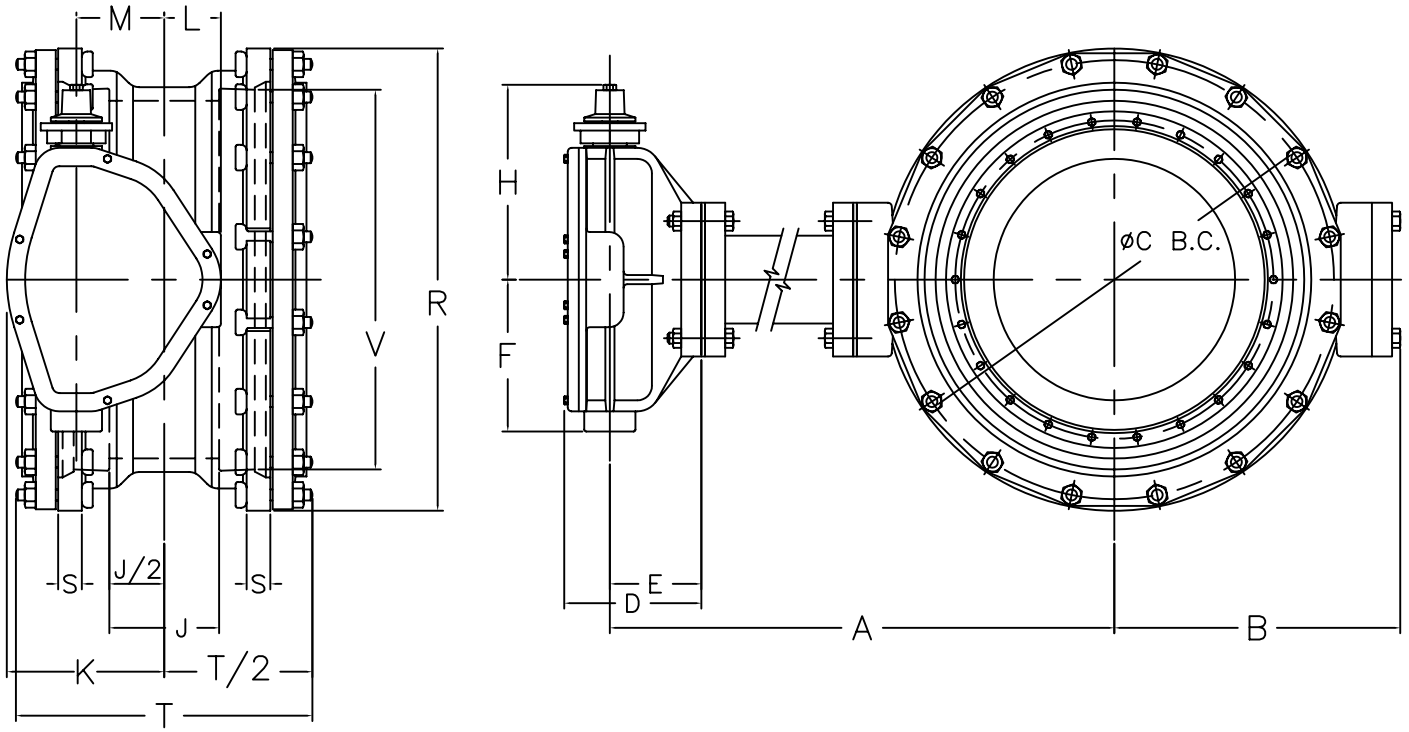
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER
NOTE 9: 2200 OPERATOR ON 30" & 36"--4350 OPERATOR ON 42" & 48"

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

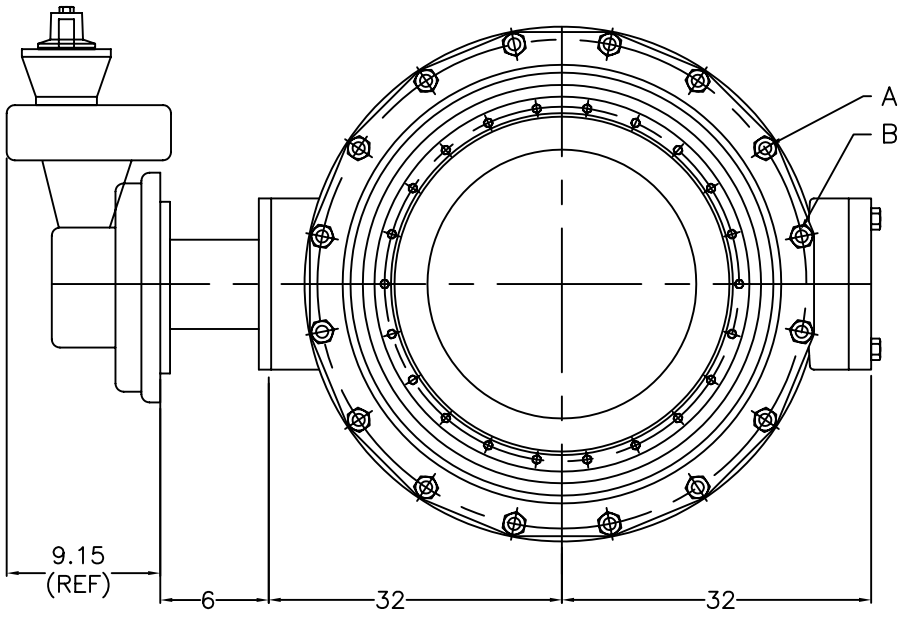
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
30"	NOTE AA	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	NOTE AA	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	NOTE AA	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

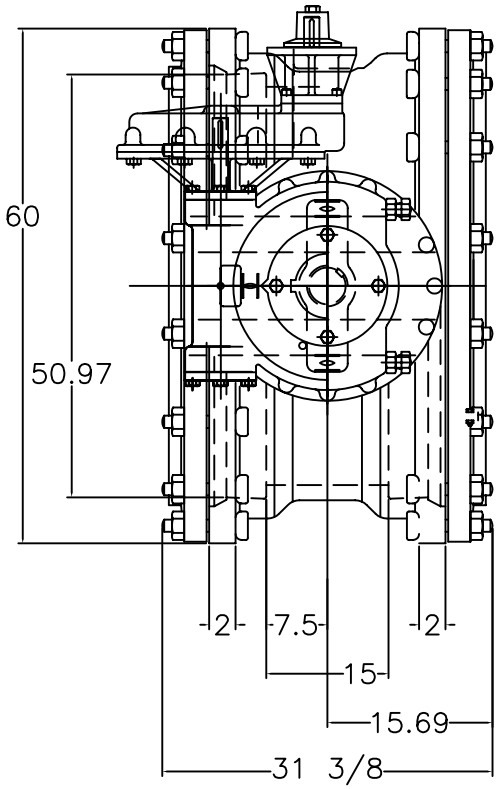
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–111 (A.N.S.I. A21–11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER
NOTE 9: 2200 OPERATOR ON 30" & 36"––4350 OPERATOR ON 42" & 48"
NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)––BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250lbs (30"–42")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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

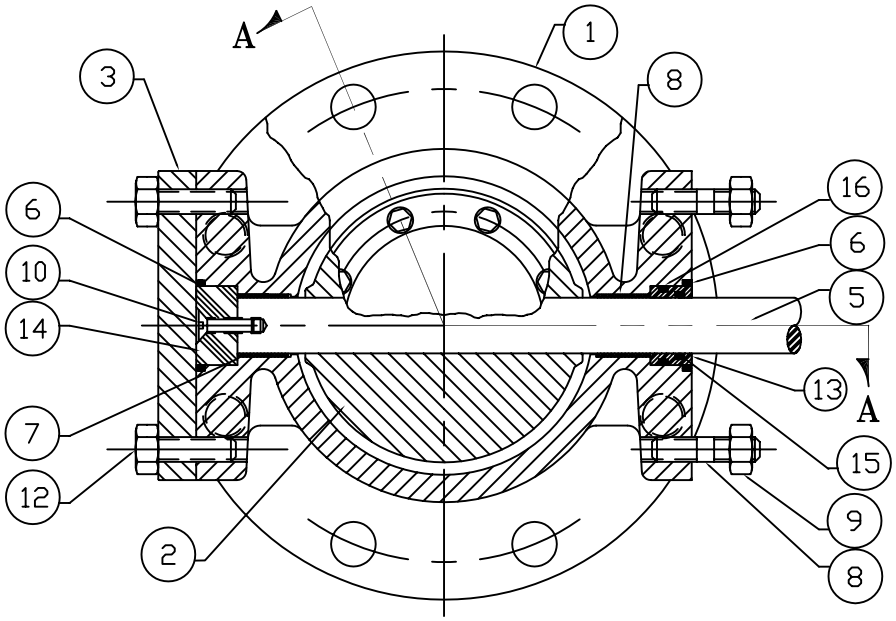


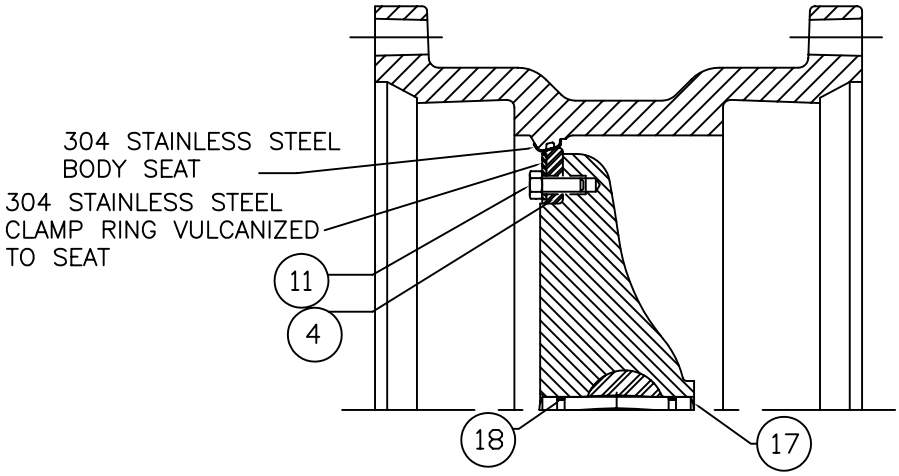


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504-B
NOTE 4: NUMBER OF TURNS TO CLOSE = 60
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 6: A = (44) 1.50" BOLTS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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	48" STYLE 1450 CLASS 150 BUTTERFLY VALVE (ROTORK IW7 GEAR BOX) BURIED OPERATOR MJ X MJ ENDS
DATE: 7/1/05	
DWG. NO. BMJ-15-RA	





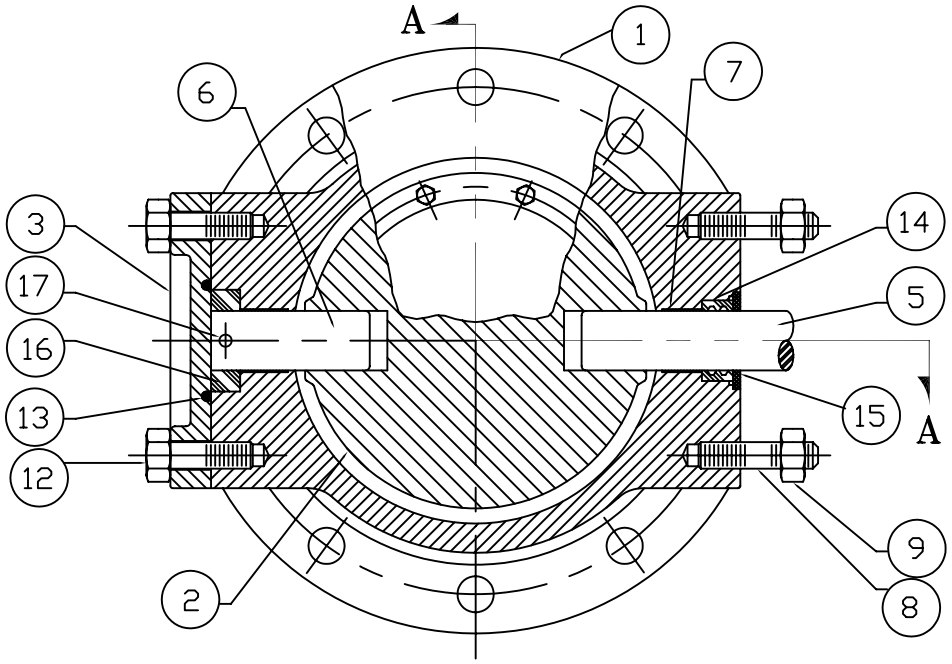
SECTION A–A

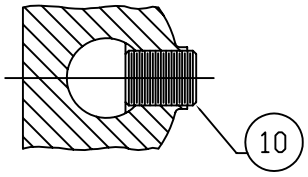
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A–536 GR. 70–50–05
2	VANE	DUCTILE IRON ASTM A–536 GR. 70–50–05
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A–564
6	O–RING, BODY	BUNA "N"
7	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

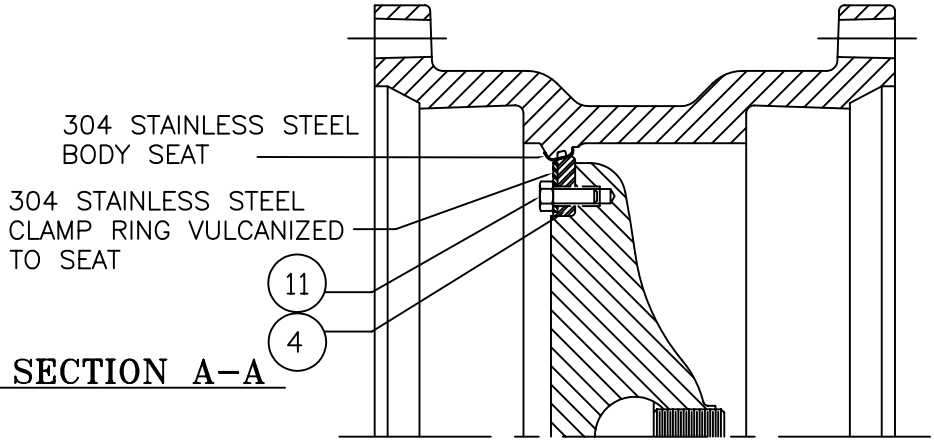
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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







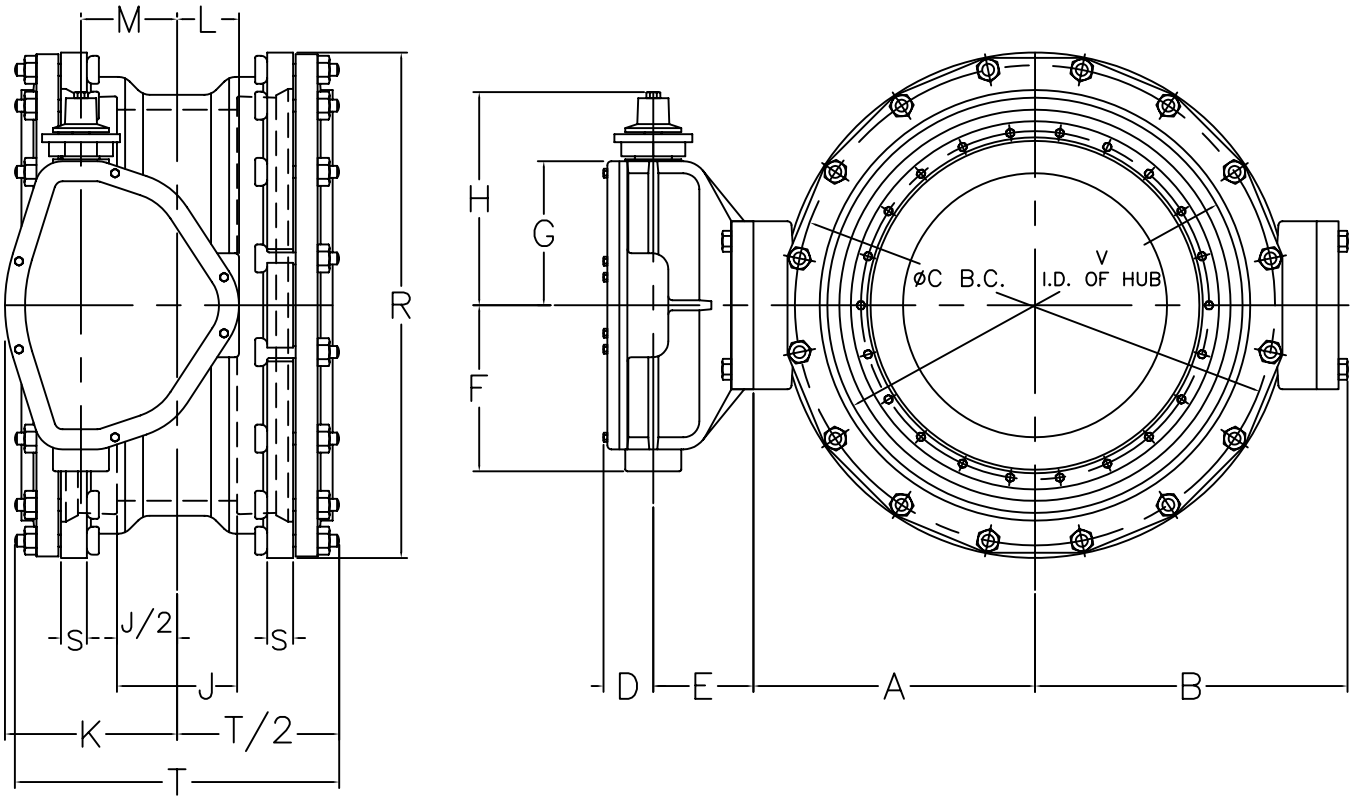
SECTION A–A

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

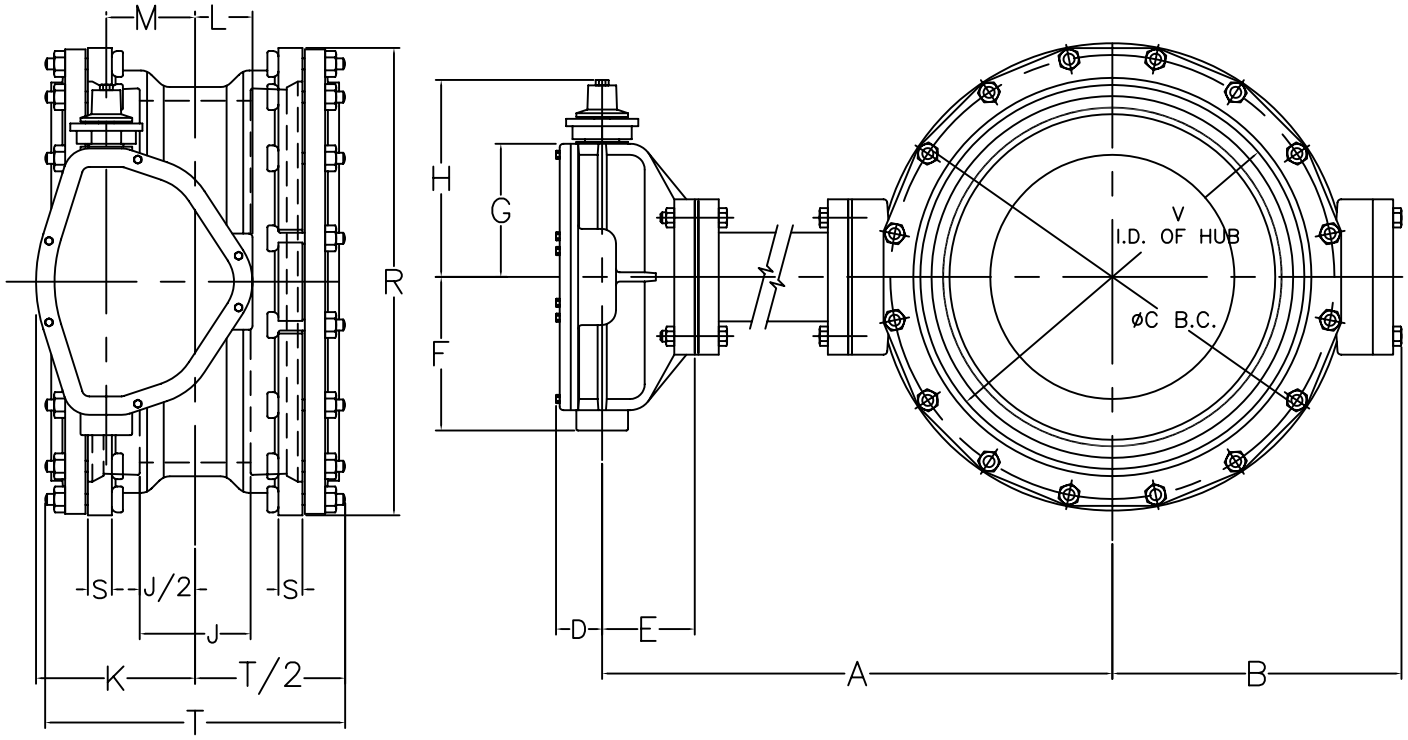
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
4"	4	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	$4.90^{+.07}_{-.03}$	80
6"	5	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	$7.00^{+.07}_{-.03}$	100
8"	6	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	$9.15^{+.07}_{-.03}$	150
10"	7 3/4	9 5/8	14	4 1/4	8	3/4x4	15 11/16	1 3/16	15 1/8	$11.20^{+.07}_{-.03}$	240
12"	9 1/2	11 3/8	16 1/4	4 1/4	8	3/4x4	17 15/16	1 1/4	16	$13.30^{+.07}_{-.03}$	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	$15.44^{+.06}_{-.07}$	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

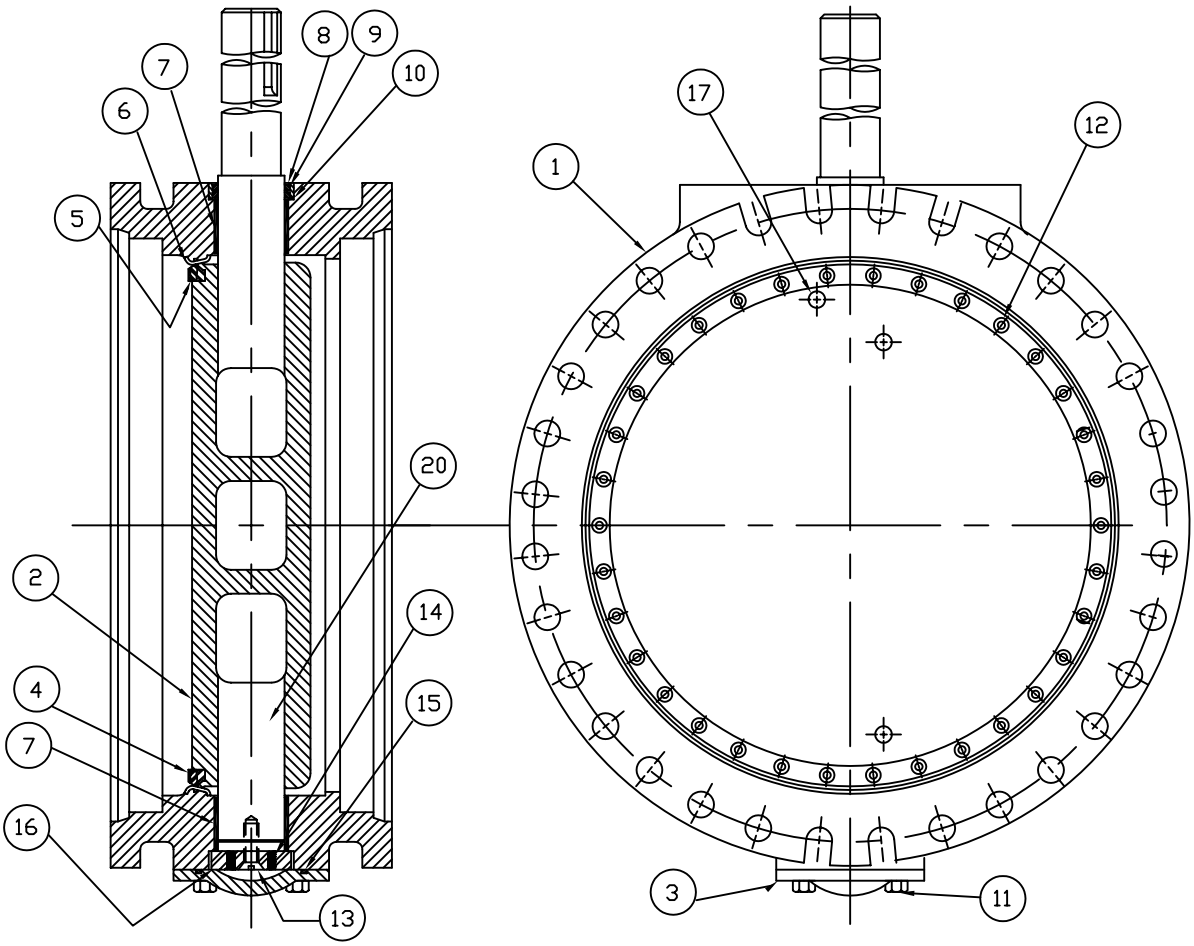
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
4"	NOTE AA	5 7/16	7 1/2	2 1/2	4	3/4x3 1/2	9 1/8	1	12 3/4	$4.90^{+.07}_{-.03}$	80
6"	NOTE AA	6 1/2	9 1/2	2 7/8	6	3/4x3 1/2	11 1/8	1 1/16	13	$7.00^{+.07}_{-.03}$	100
8"	NOTE AA	7 9/16	11 3/4	3	6	3/4x4	13 1/8	1 1/8	14	$9.15^{+.07}_{-.03}$	150
10"	NOTE AA	9 5/8	14	4 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	$15.44^{+.06}_{-.07}$	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	$17.54^{+.06}_{-.07}$	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	$19.64^{+.06}_{-.07}$	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	$21.74^{+.06}_{-.07}$	885
24"	NOTE AA	20 1/8	30	7 1/2	16	3/4x5	31 9/16	1 5/8	21 1/4	$25.94^{+.06}_{-.07}$	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
NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(4"-12"), 150LBS(14"-16"), 180LBS(18"-24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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

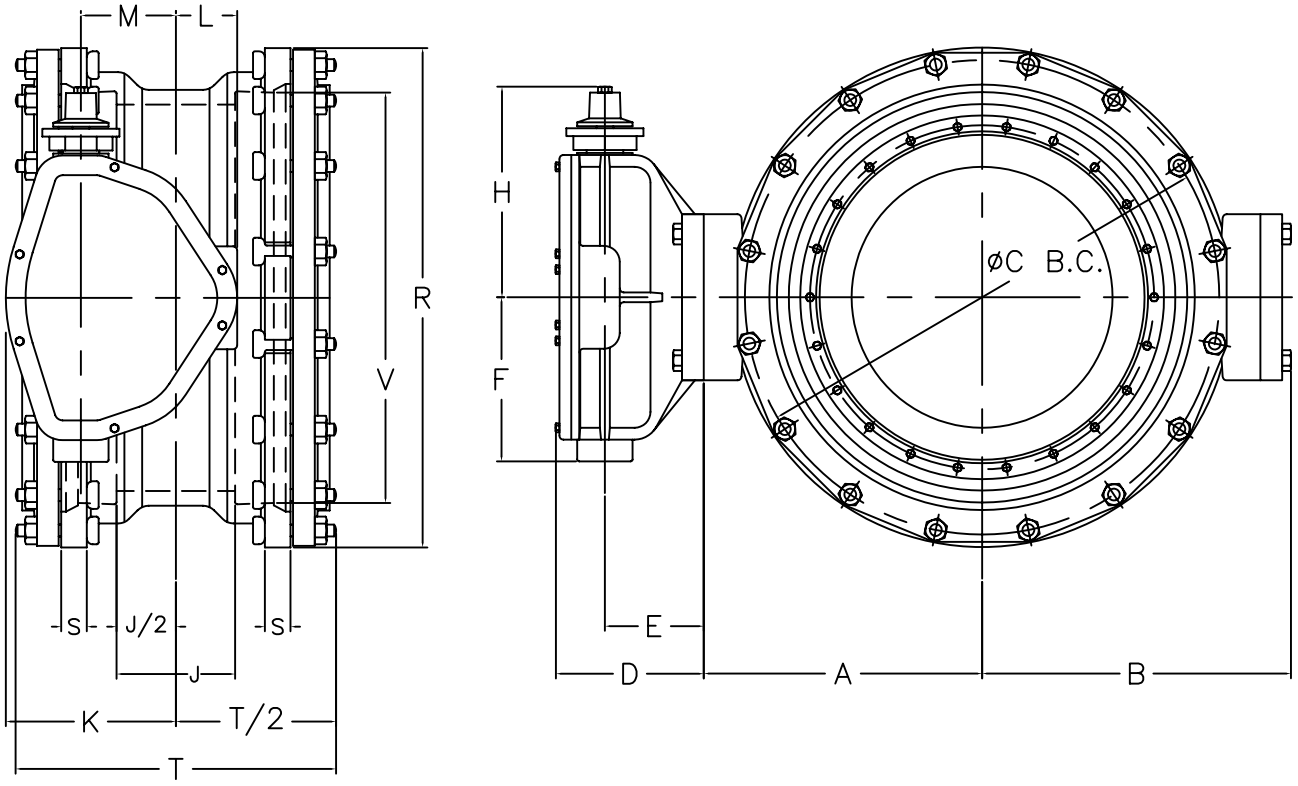


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536, GR. 70-50-05 W/304 STN. STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE (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 PL	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

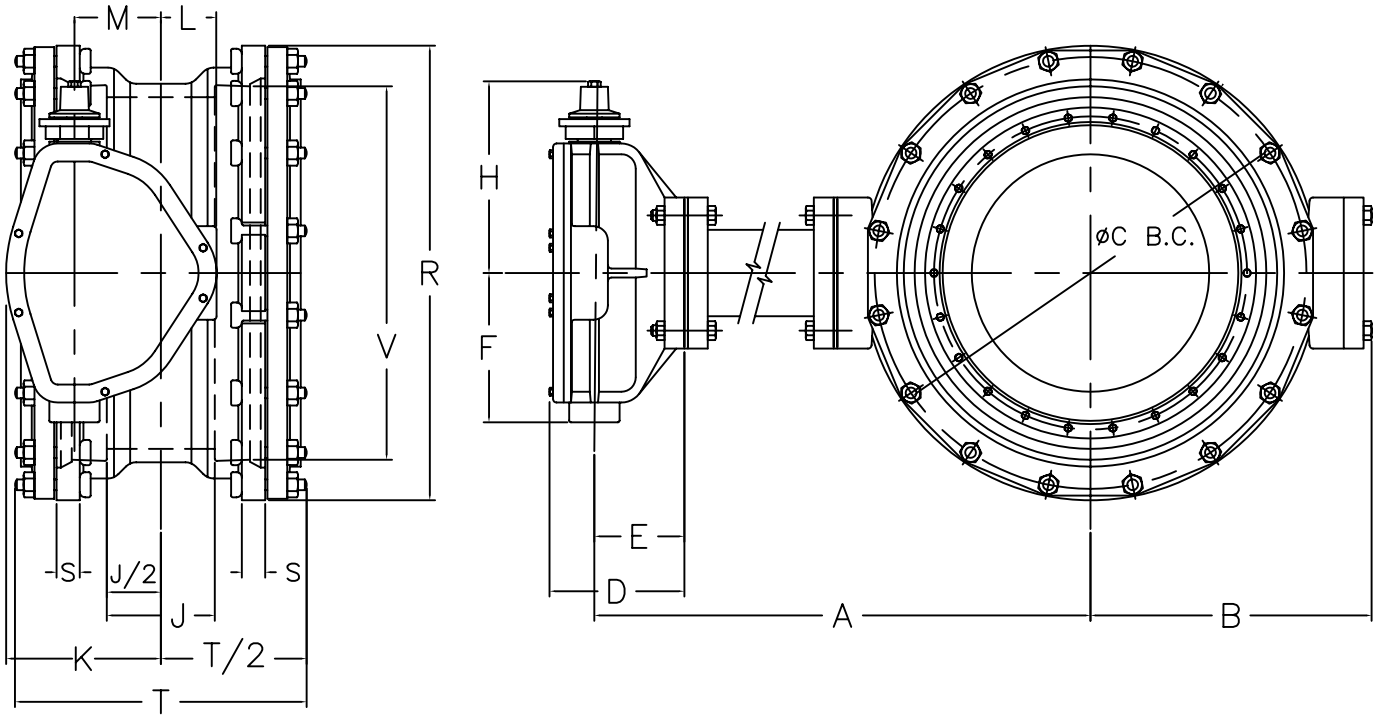
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	WEIGHT
30"	20 5/8	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	24 1/4	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	28 1/4	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 9: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

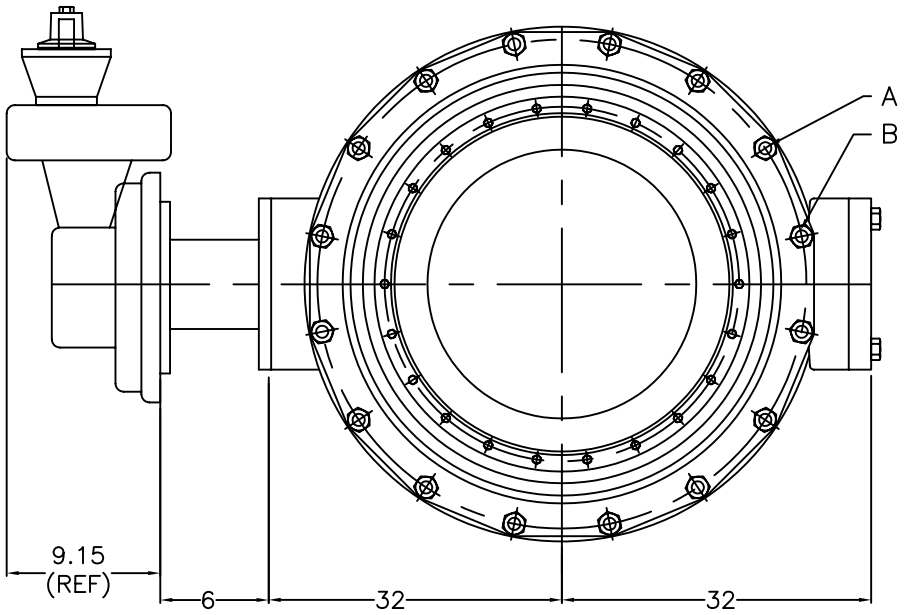
VALVE SIZE	A	B	C	J	P	Q	R	S	T	V	*WEIGHT
30"	NOTE AA	21 1/4	36 7/8	12	20	1	39 1/8	1 13/16	28 3/8	32.17	2300
36"	NOTE AA	24 7/8	43 3/4	12	24	1	46	2	28 3/8	38.47	2840
42"	NOTE AA	28 7/8	50 5/8	12	28	1 1/4	53 1/8	2	28 3/8	44.67	4405

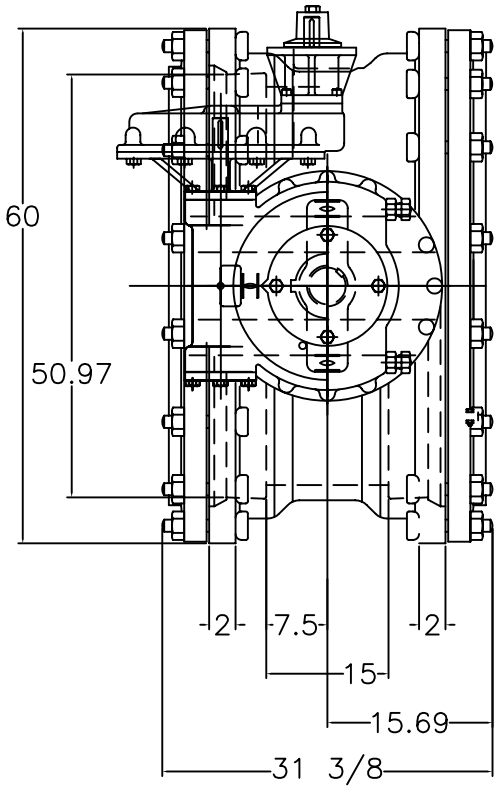
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-111 (A.N.S.I. A21-11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 9: GASKET, GLANDS, BOLTS, FOR MECHANICAL JOINT FURNISHED WITH VALVE WHEN SPECIFIED ON ORDER
NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

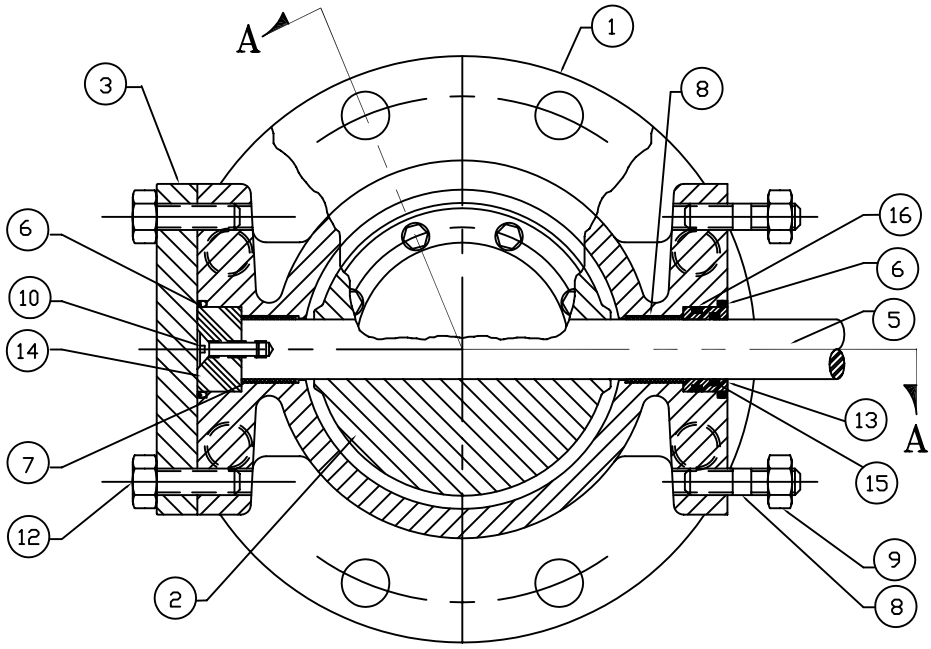
30" THRU 42" STYLE 1450 CLASS 250 BUTTERFLY VALVE WITH EXTENDED BONNET BURIED OPERATOR MJ X MJ

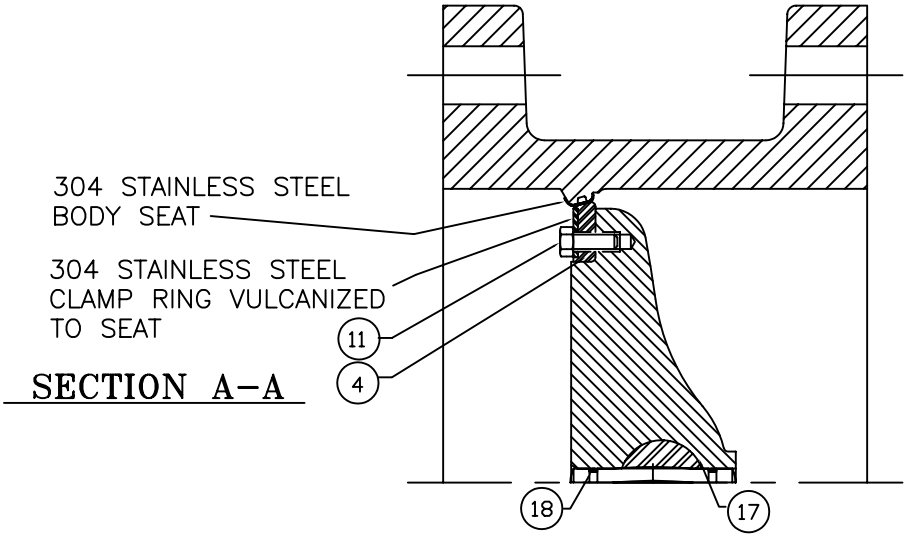




NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504-B
NOTE 4: NUMBER OF TURNS TO CLOSE = 60
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 6: A = (44) 1.50" BOLTS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

KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. BMJ-25-RA	48" STYLE 1450 CLASS 250 BUTTERFLY VALVE (ROTORK IW7 GEAR BOX) BURIED OPERATOR MJ X MJ ENDS





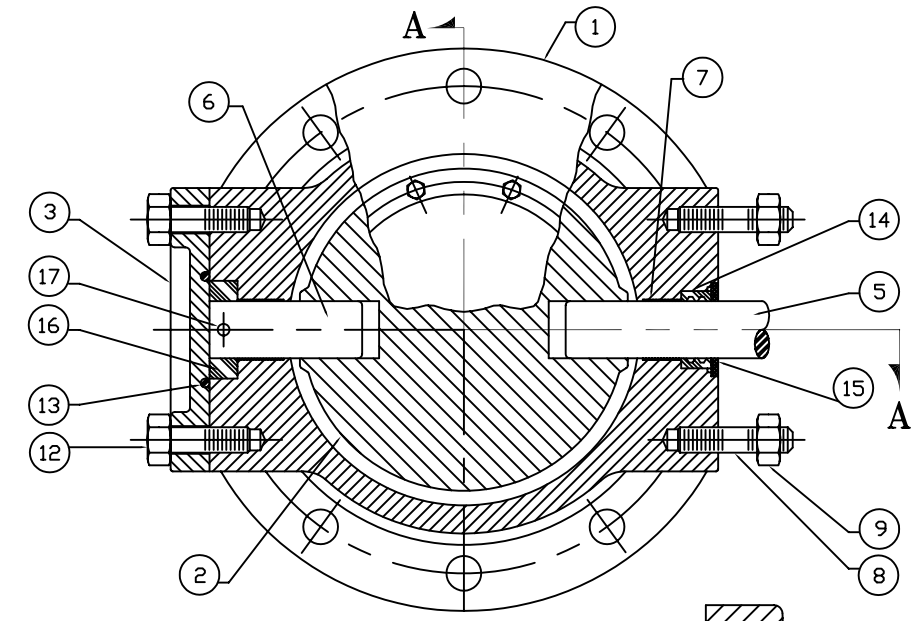
SECTION A–A

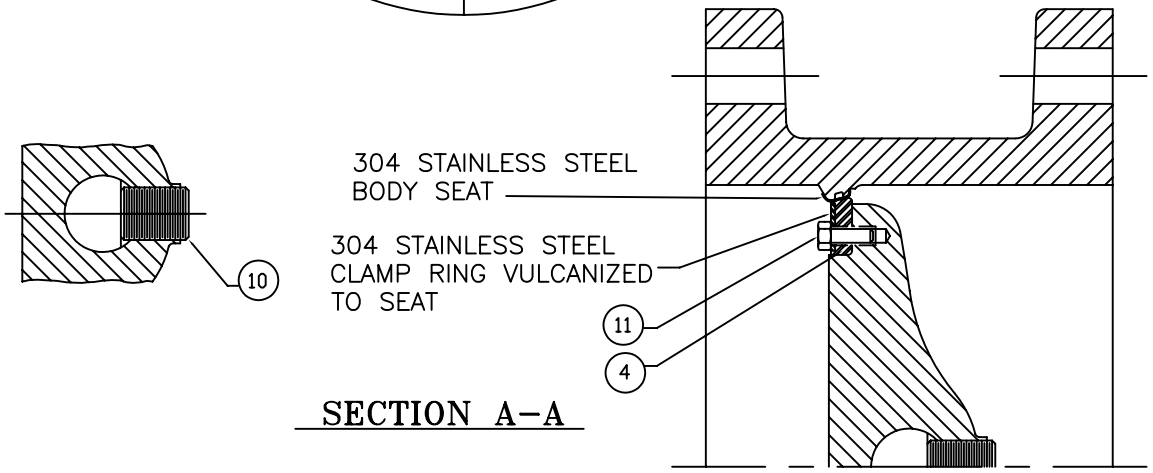
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON ASTM A–126 CLASS B WITH STN STL SEAT
2	VANE	CAST IRON ASTM A–48 CLASS 40
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S' WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 304 STN. STL. ASTM A–276
6	O–RING, BODY	BUNA "N"
7	BEARING, BODY	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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





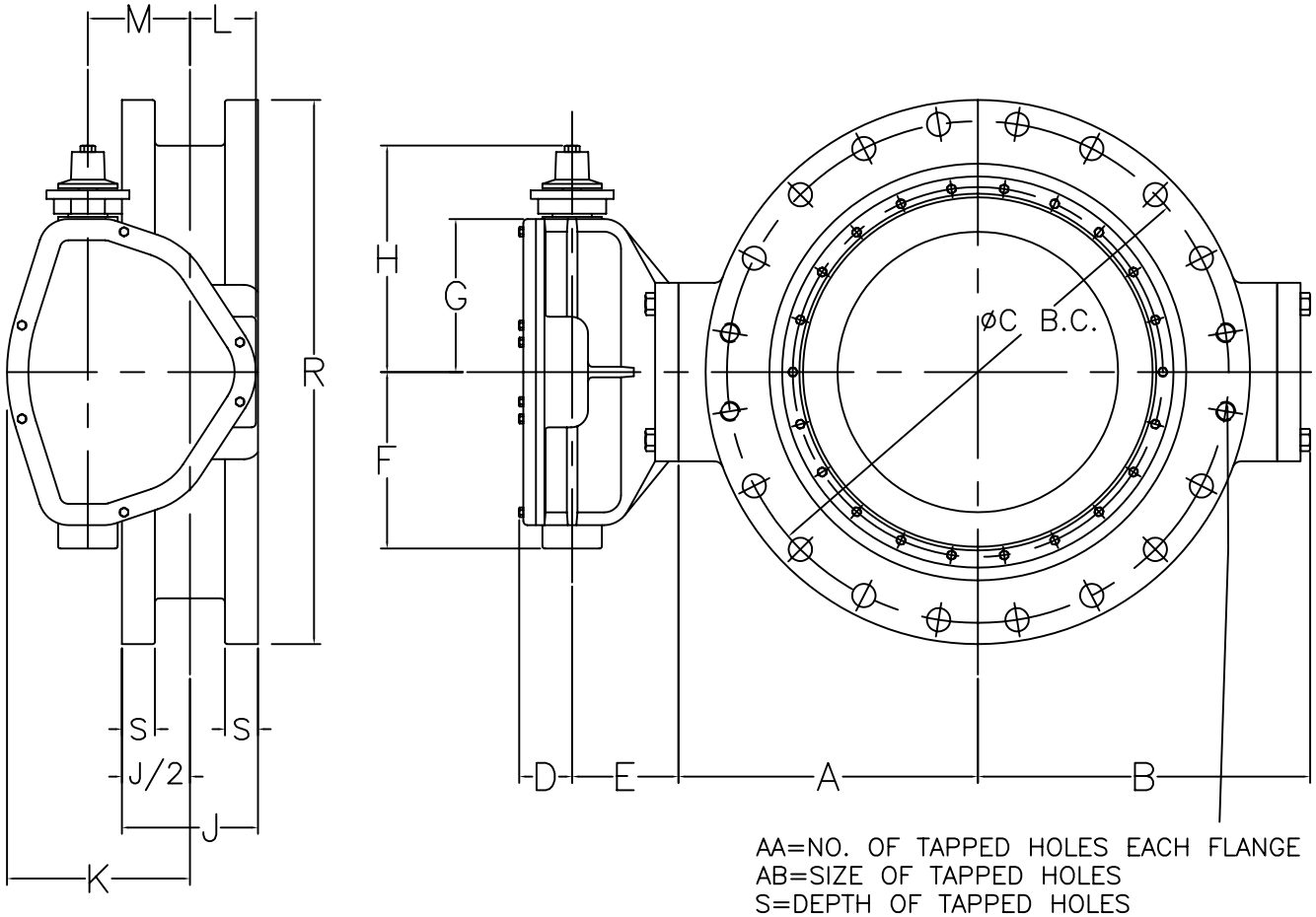
SECTION A–A

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

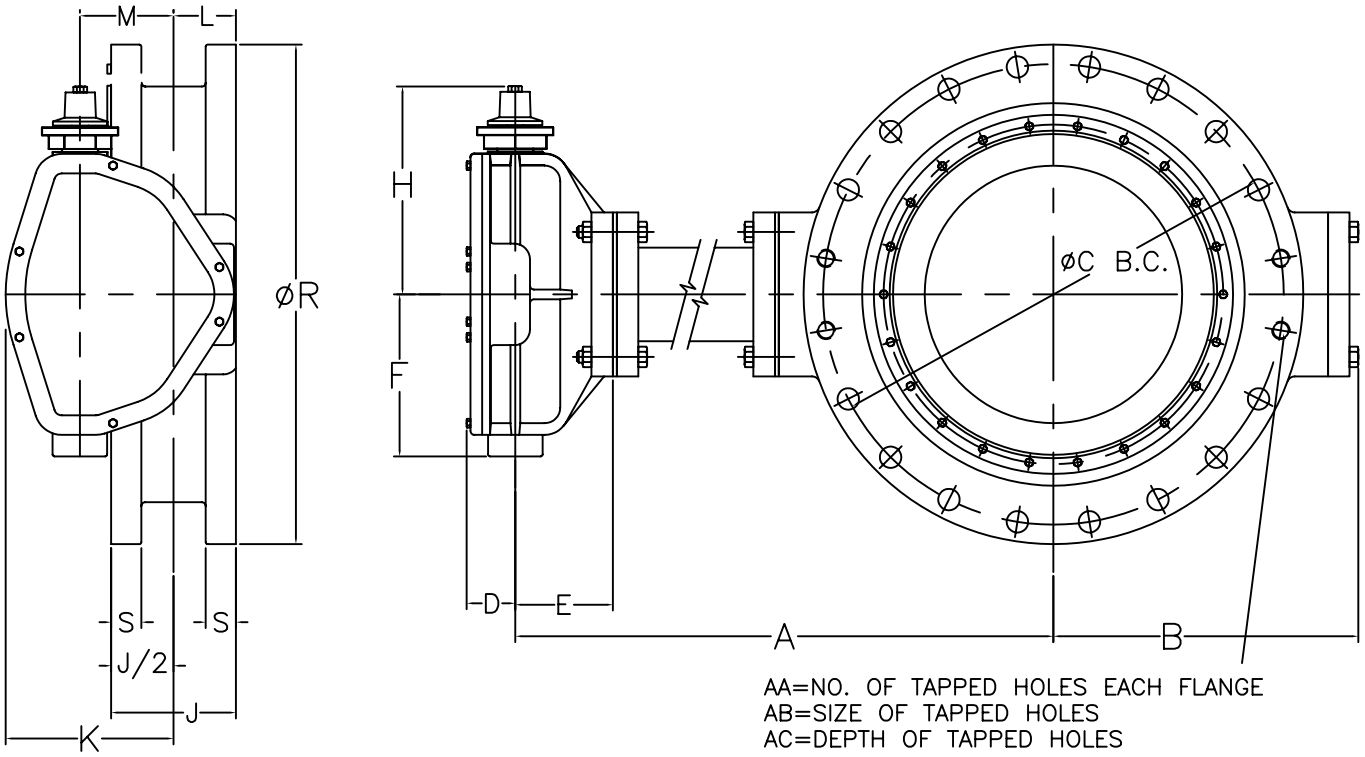
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15 /16	4	5/8–11	75
4"	4	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8–11	75
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	95
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	140
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	232
12"	9 1/2	11 3/8	17	8	12	7/8	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

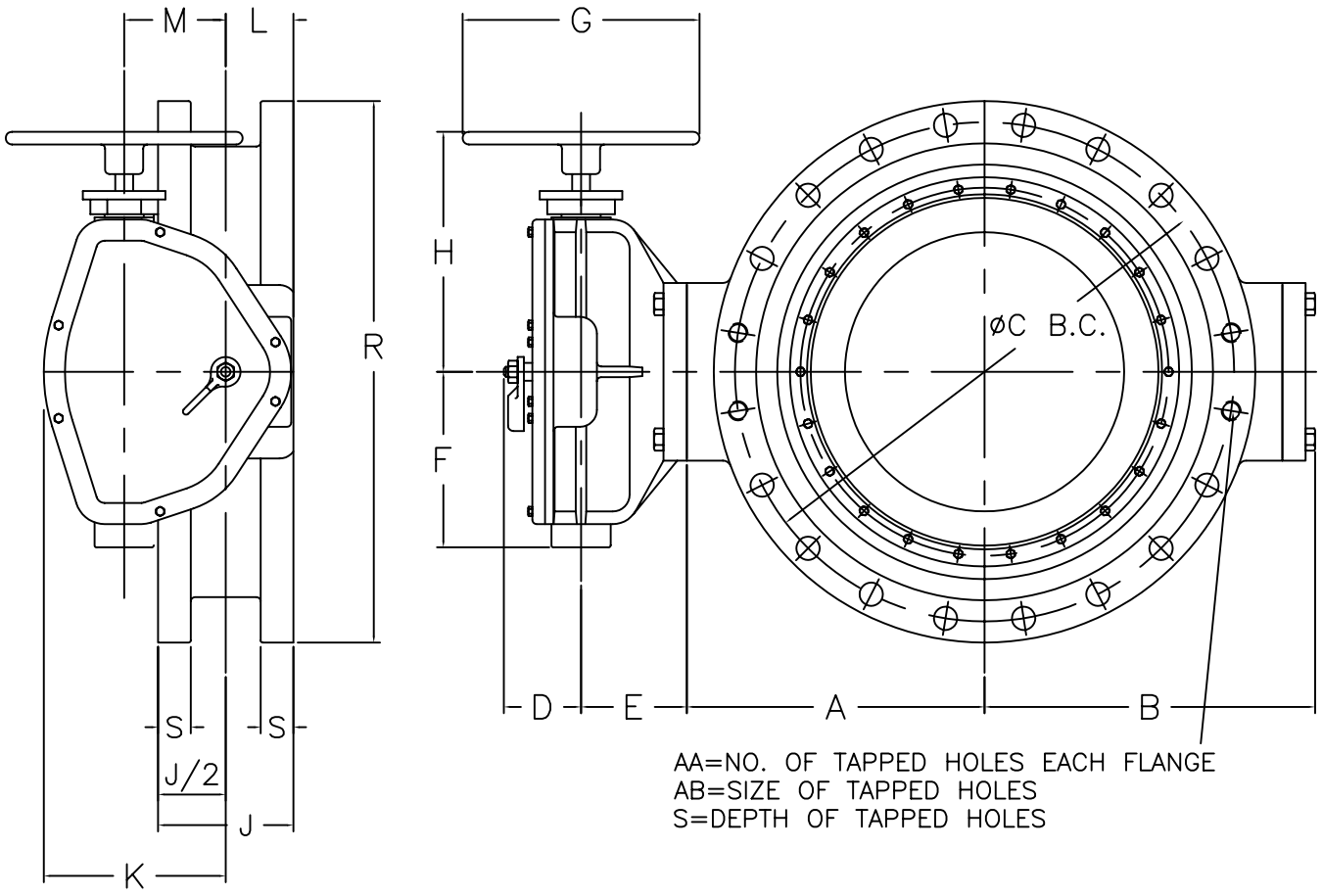
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
3"	NOTE AA	5 7/16	6	5	4	5/8	9	15 /16	4	5/8–11	80
4"	NOTE AA	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8–11	80
6"	NOTE AA	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	100
8"	NOTE AA	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	150
10"	NOTE AA	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	242
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: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(3"–12"), 150LBS(14"–16"), 180LBS(18"–24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

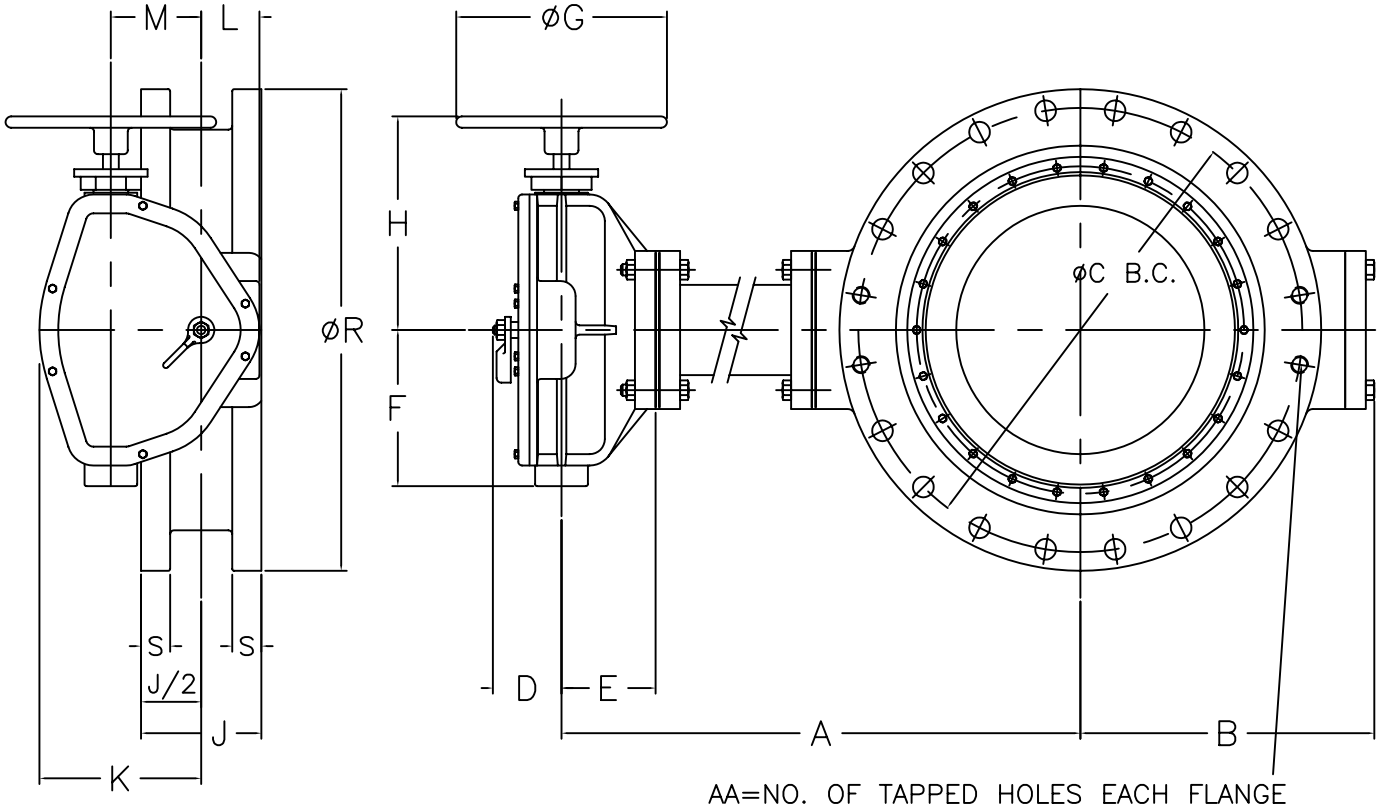
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15/16	4	5/8–11	75
4"	4	5 7/16	7 1/2	5	8	5/8	9	15/16	4	5/8–11	75
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	95
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	140
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	237
12"	9 1/2	11 3/8	17	8	12	7/8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

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

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

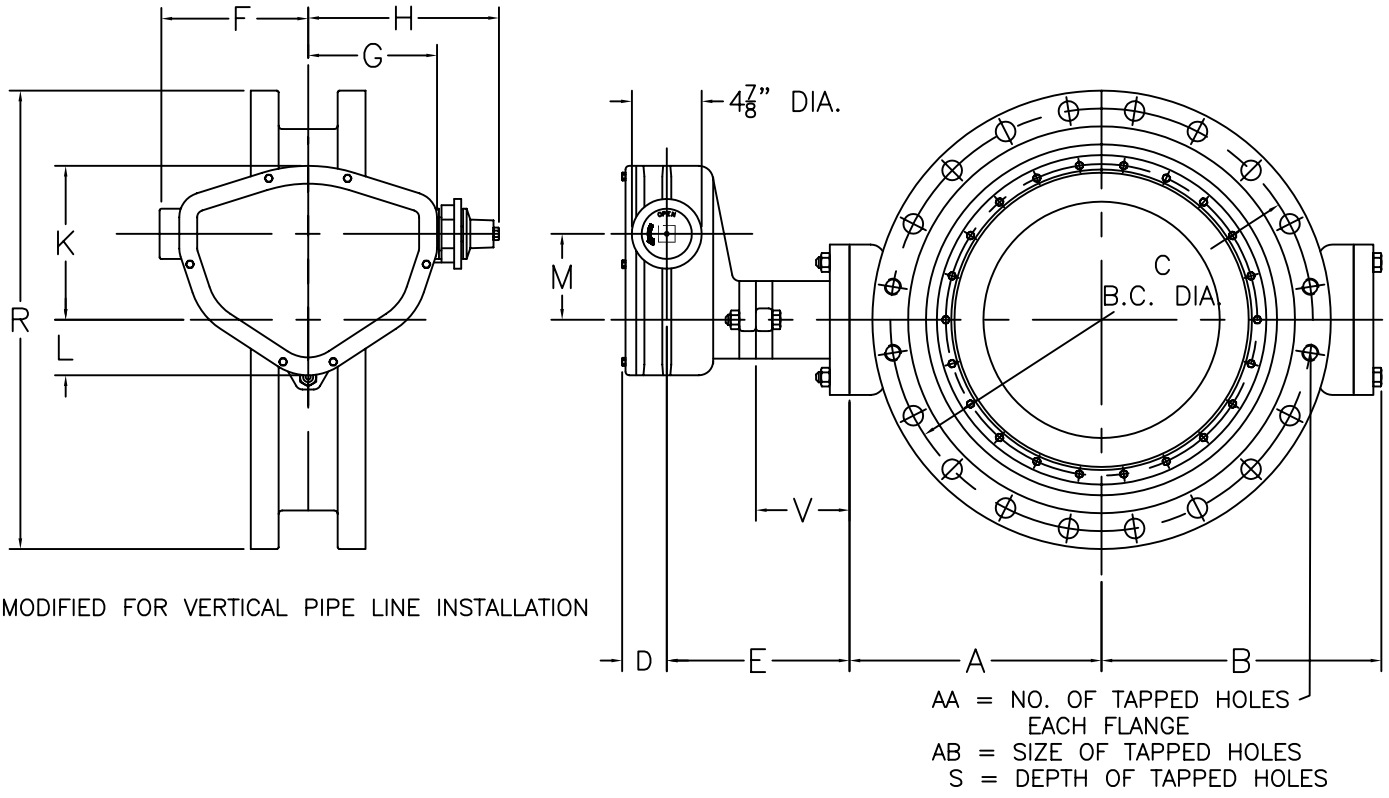
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
3"	NOTE AA	5 7/16	6	5	4	5/8	9	15 /16	4	5/8–11	80
4"	NOTE AA	5 7/16	7 1/2	5	8	5/8	9	15 /16	4	5/8–11	80
6"	NOTE AA	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	100
8"	NOTE AA	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	150
10"	NOTE AA	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	242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

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)––BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(3"–12"), 150LBS(14"–16"), 180LBS(18"–24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



MODIFIED FOR VERTICAL PIPE LINE INSTALLATION

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

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

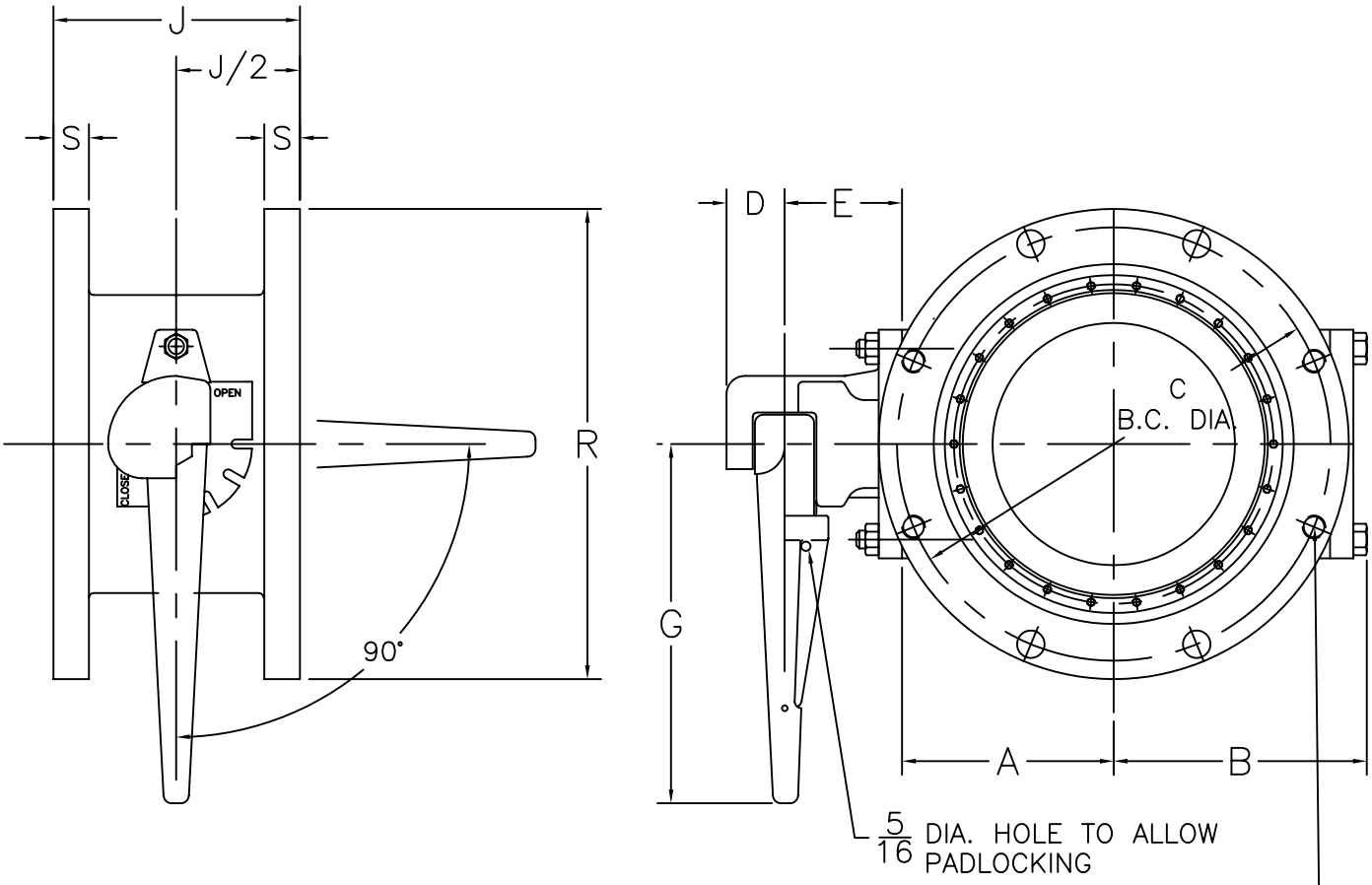
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
3"	4	5 7/16	6	5	4	5/8	9	15/16	4	5/8–11	80
4"	4	5 7/16	7 1/2	5	8	5/8	9	15/16	4	5/8–11	80
6"	5	6 1/2	9 1/2	5	8	3/4	11	1	4	3/4–10	100
8"	6	7 9/16	11 3/4	6	8	3/4	13 1/2	1 1/8	4	3/4–10	150
10"	7 3/4	9 5/8	14 1/4	8	12	7/8	16	1 3/16	–	–	242
12"	9 1/2	11 3/8	17	8	12	7/8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

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

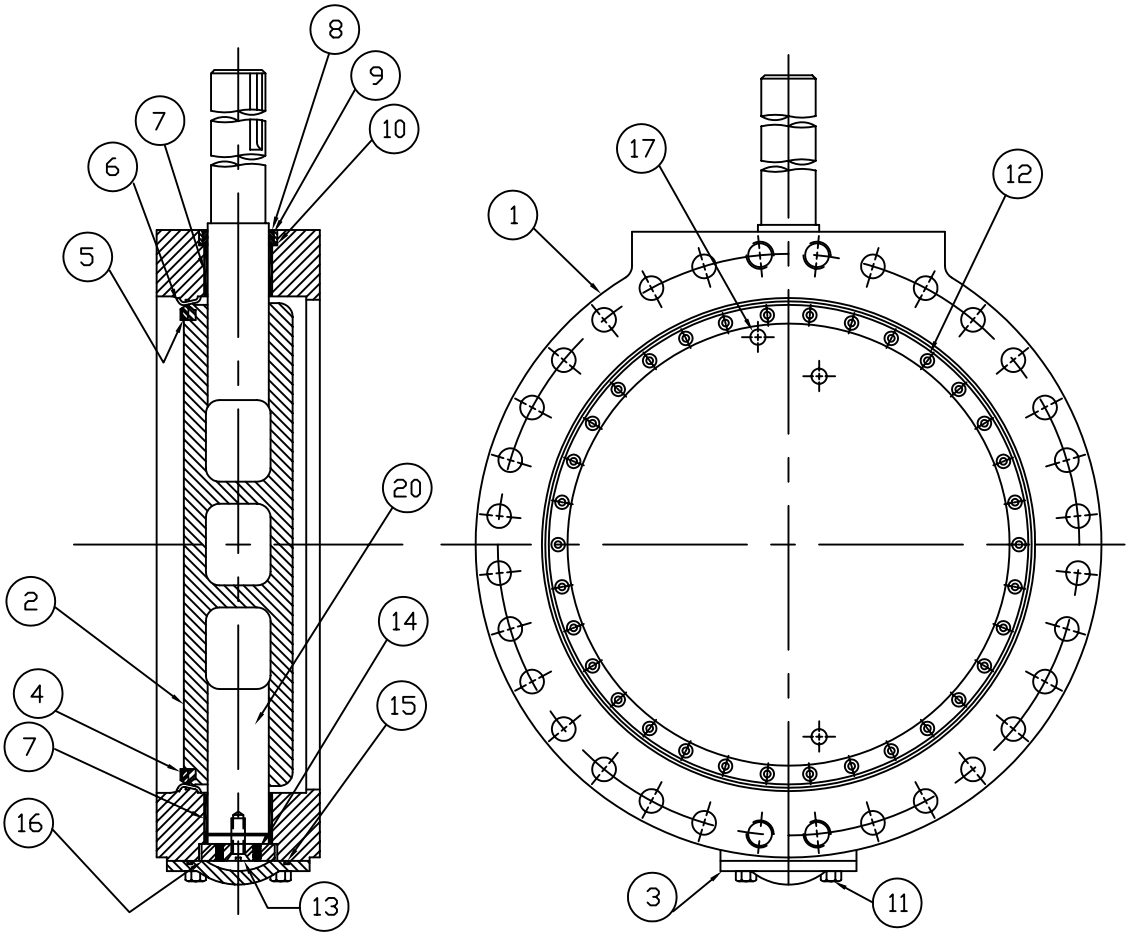
VALVE SIZE	A	B	C	D	E	G	J
4"	4	5 7/16	7 1/2	1 1/2	3 13/16	11	5
6"	5	6 1/2	9 1/2	1 1/2	3 13/16	11	5
8"	6	7 9/16	11 3/4	1 1/2	4 1/16	11	6

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

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" THRU 8" STYLE 4500
DATE: 7/1/05	CLASS 150 BUTTERFLY VALVE
DWG. NO. BFE–15–45H	LEVER OPERATOR
	FLANGED ENDS

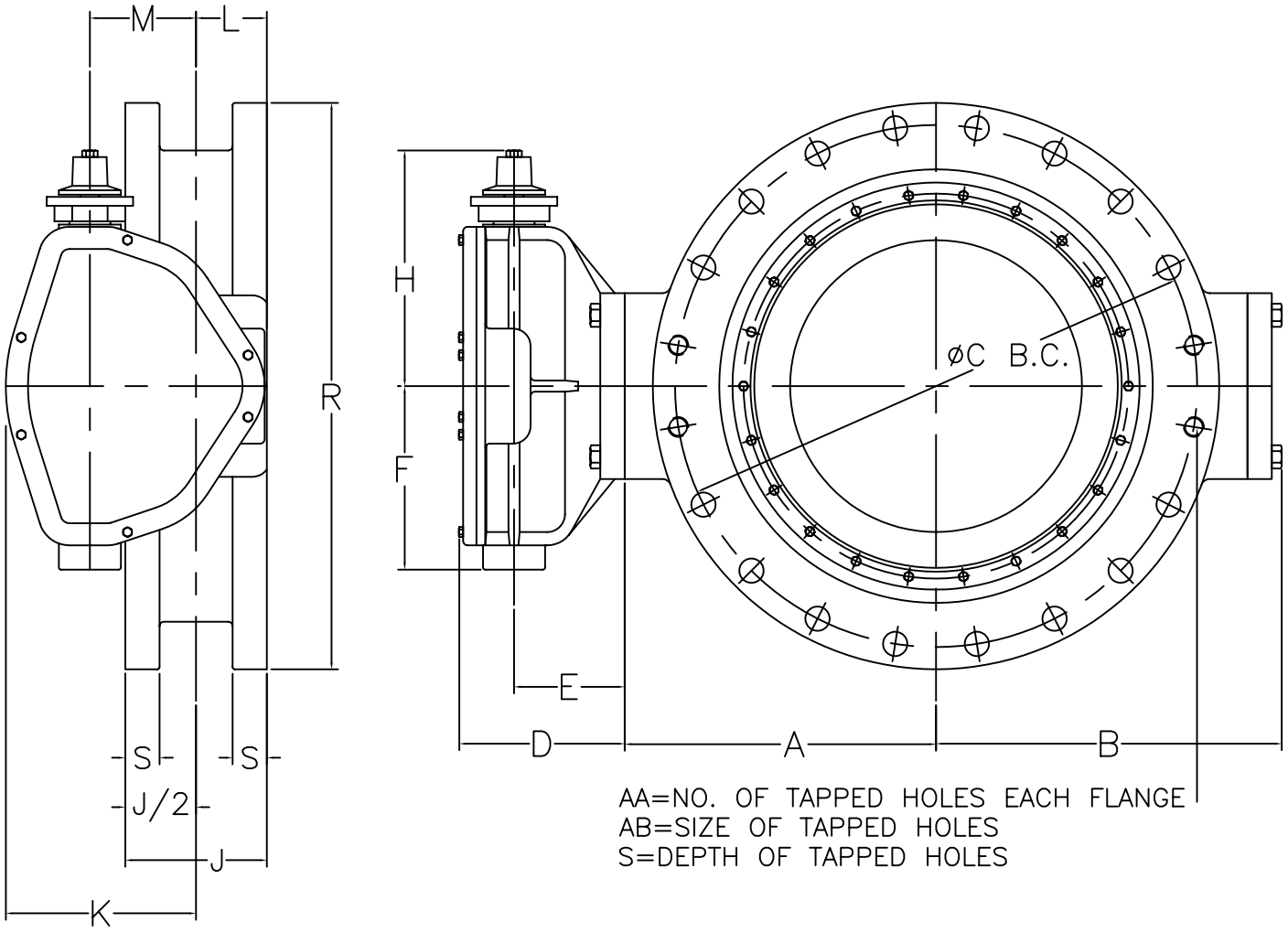


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, ASTM A-126, CL. B W/304 STAINLESS STEEL SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

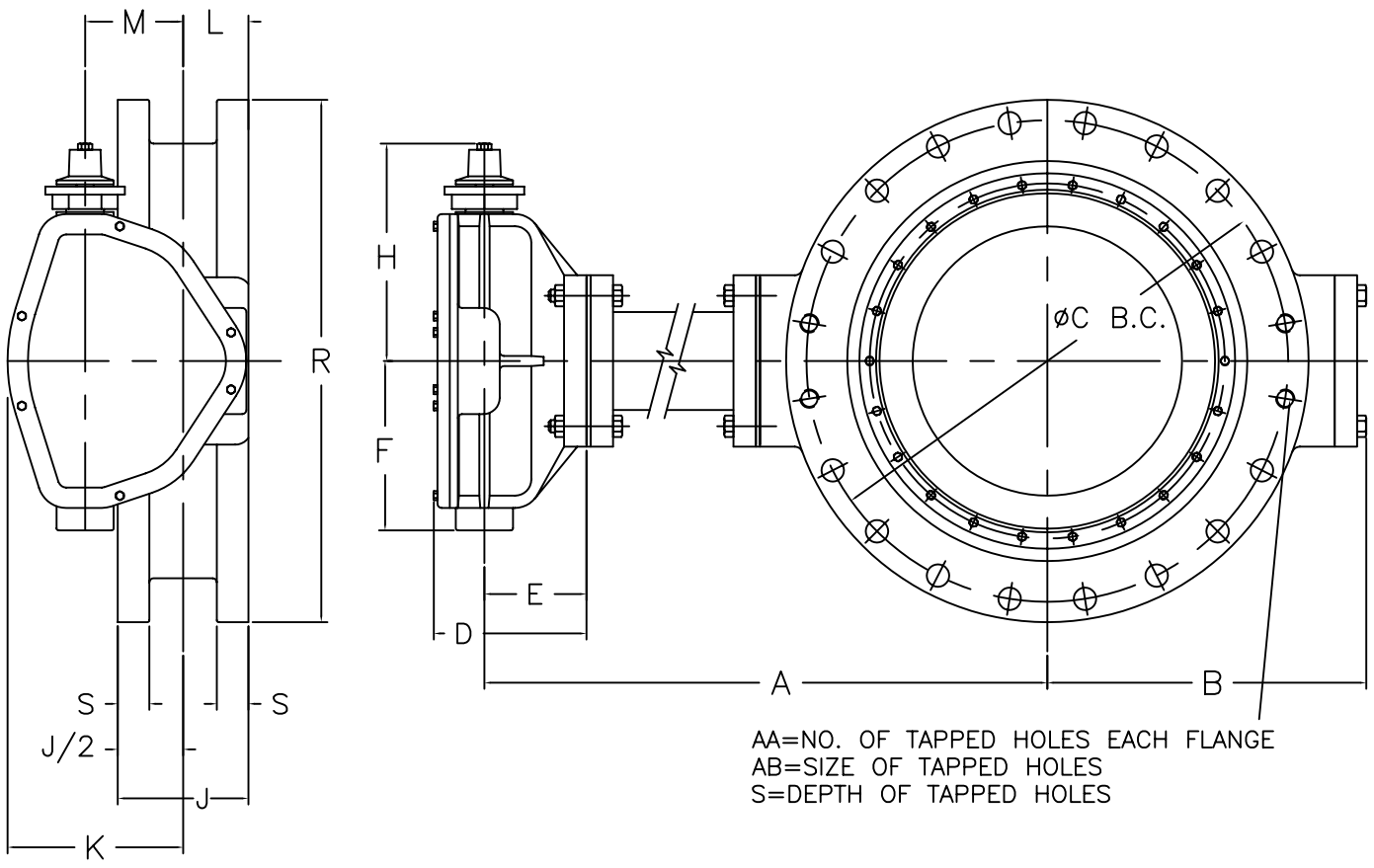
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	WEIGHT
30"	20.625	21.250	36	12	28	1.250	38.750	2.125	4	1.250–7	1790
36"	24.250	25.187	42.750	12	32	1.500	46	2.375	4	1.500–6	2515
42"	28.250	24.875	49.500	12	36	1.500	53	2.625	4	1.500–6	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

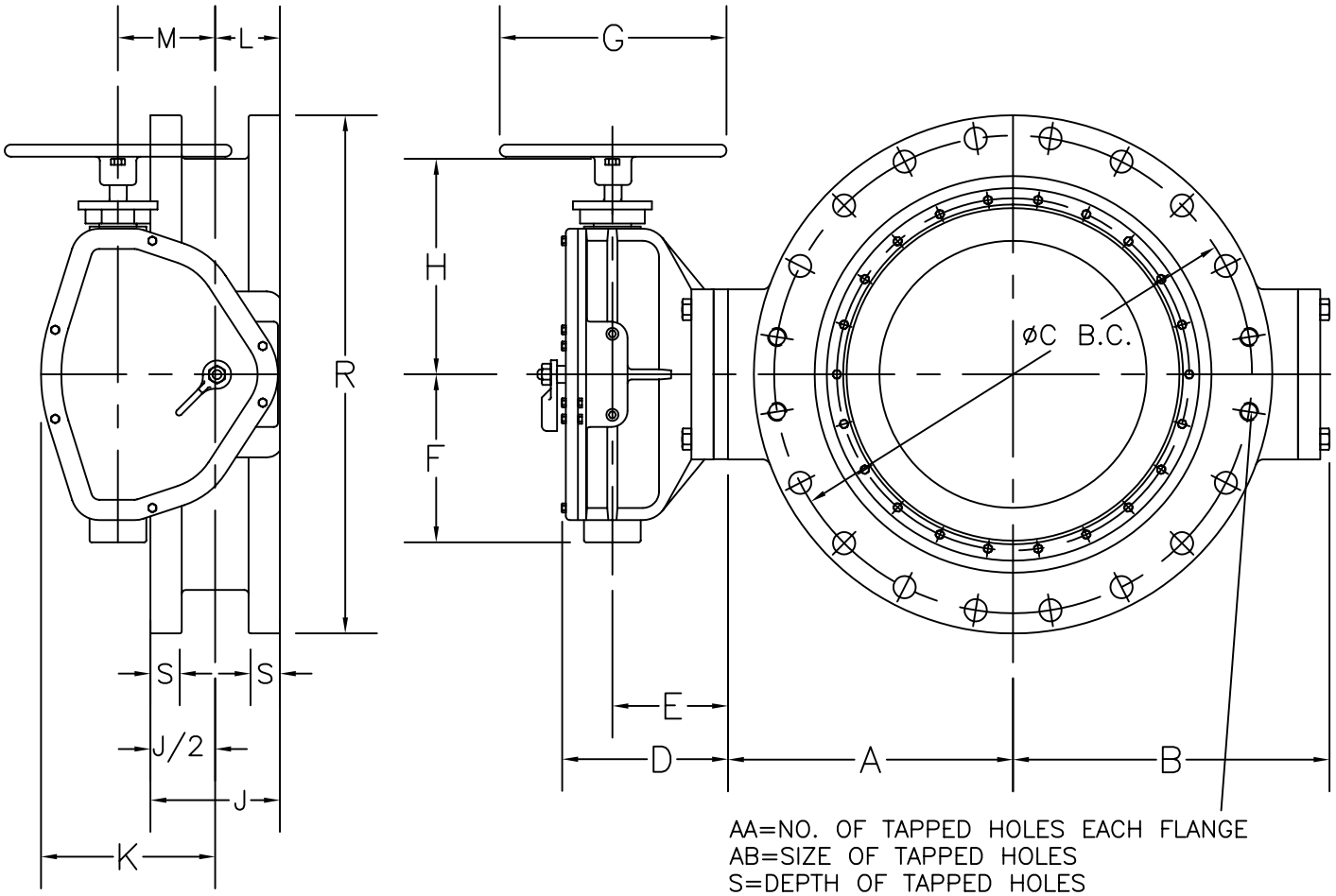
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
30"	NOTE AA	21 1/4	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	NOTE AA	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	NOTE AA	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

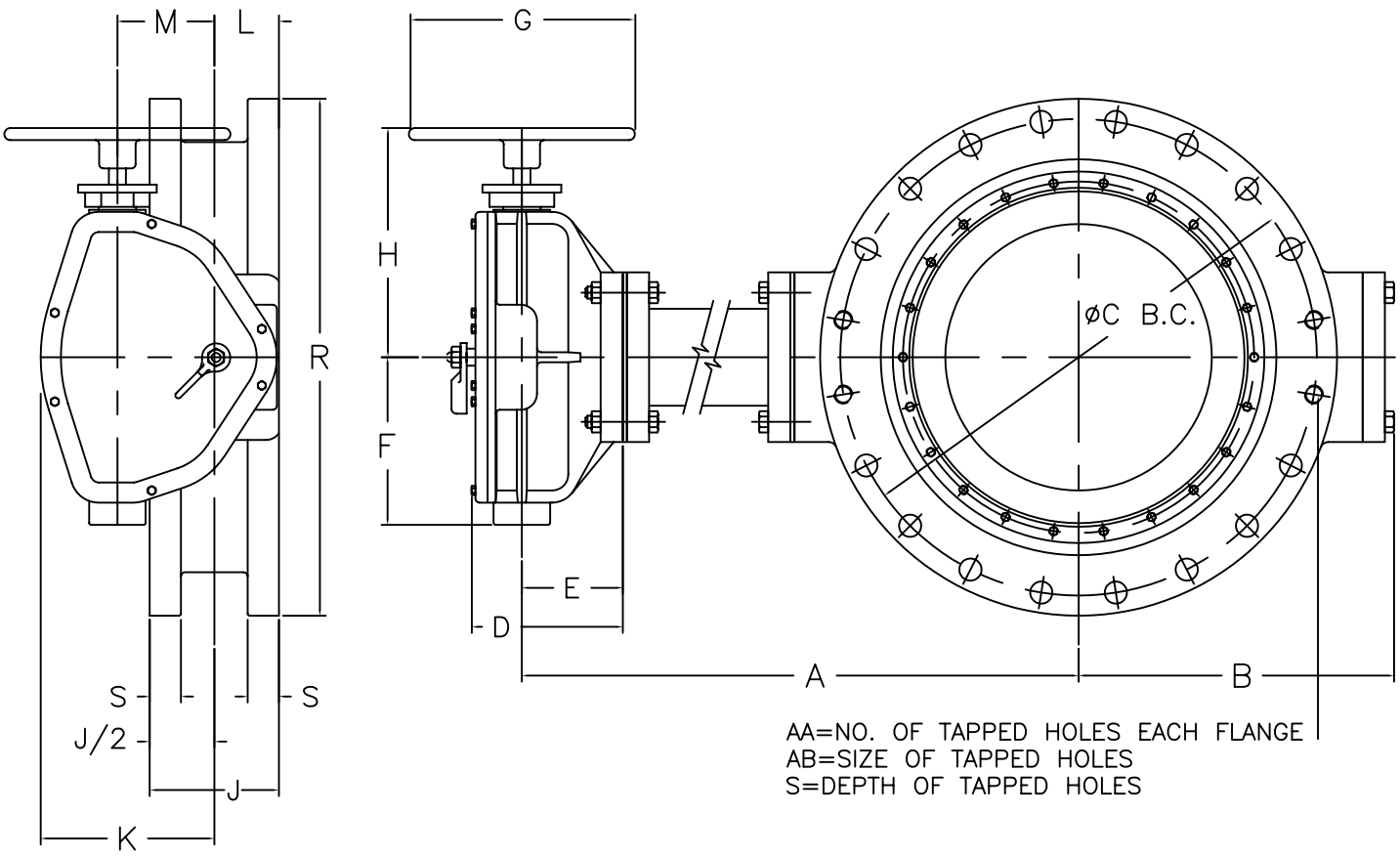
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	AB
30"	20 5/8	21 5/8	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4–7	1790
36"	24 1/4	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2–6	2515
42"	28 1/4	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2–6	4405

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

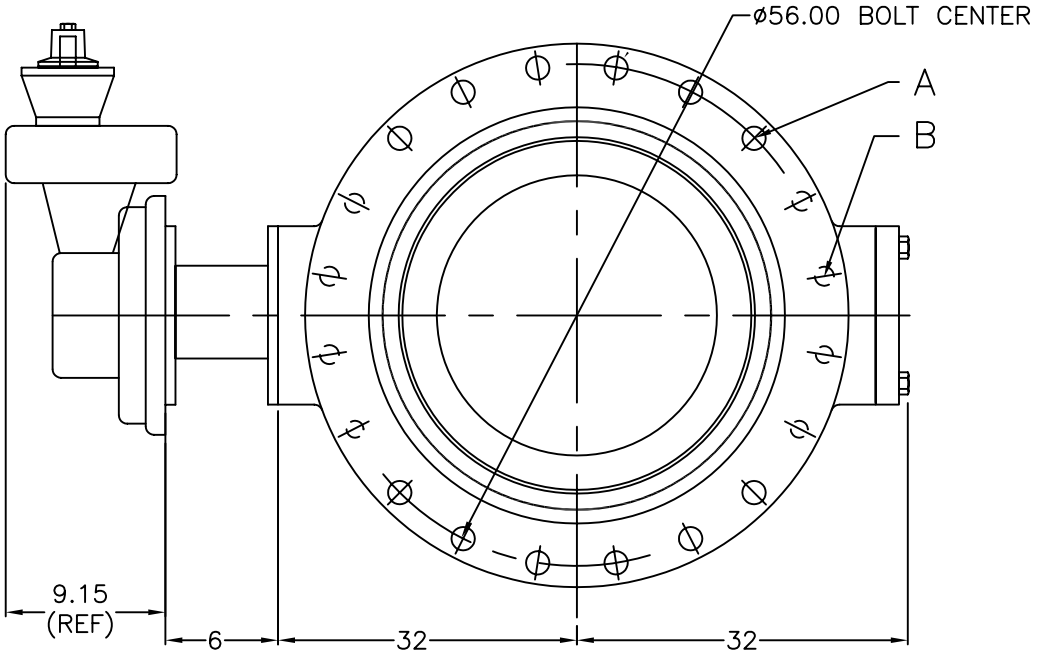
VALVE SIZE	A	B	C	J	P	Q	R	S	AA	AB	*WEIGHT
30"	NOTE AA	21 1/4	36	12	28	1 1/4	38 3/4	2 1/8	4	1 1/4-7	1790
36"	NOTE AA	25 3/16	42 3/4	12	32	1 1/2	46	2 3/8	4	1 1/2-6	2515
42"	NOTE AA	28 7/8	49 1/2	12	36	1 1/2	53	2 5/8	4	1 1/2-6	4405

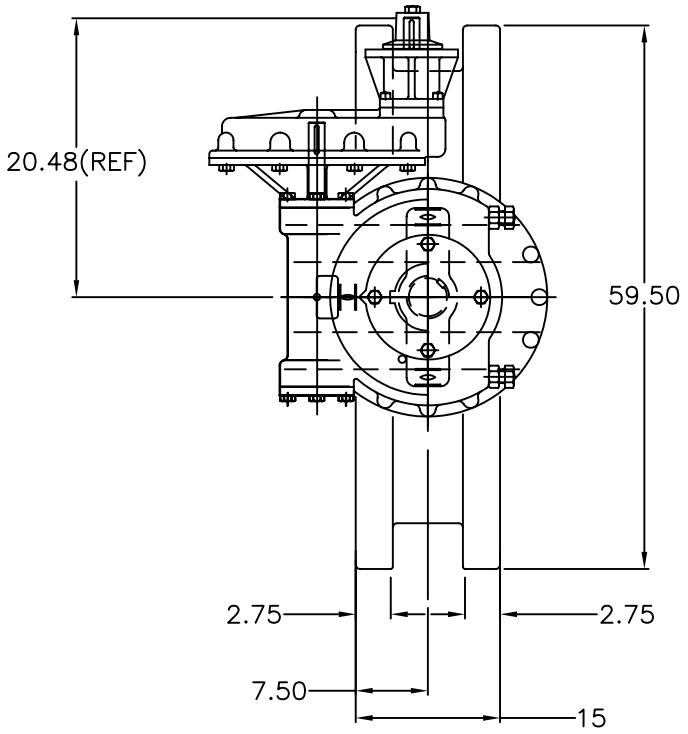
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)--BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"-42")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

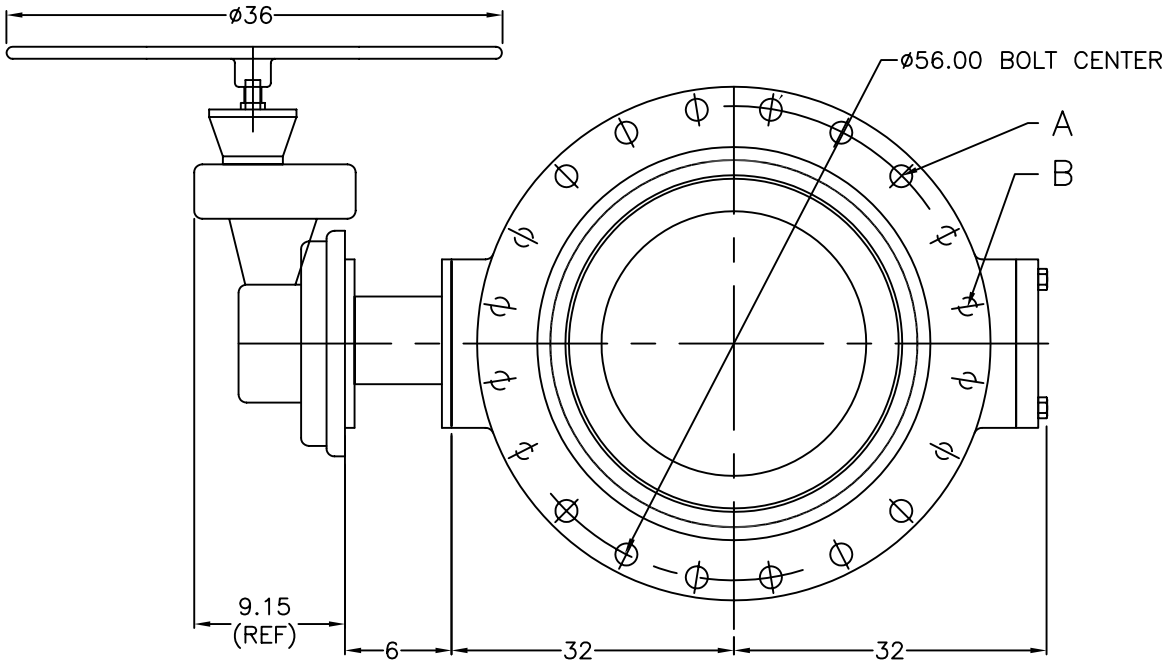
30" THRU 42" STYLE 1450 CLASS 150 BUTTERFLY VALVE WITH EXTENDED BONNET HANDWHEEL OPERATOR FLANGED ENDS

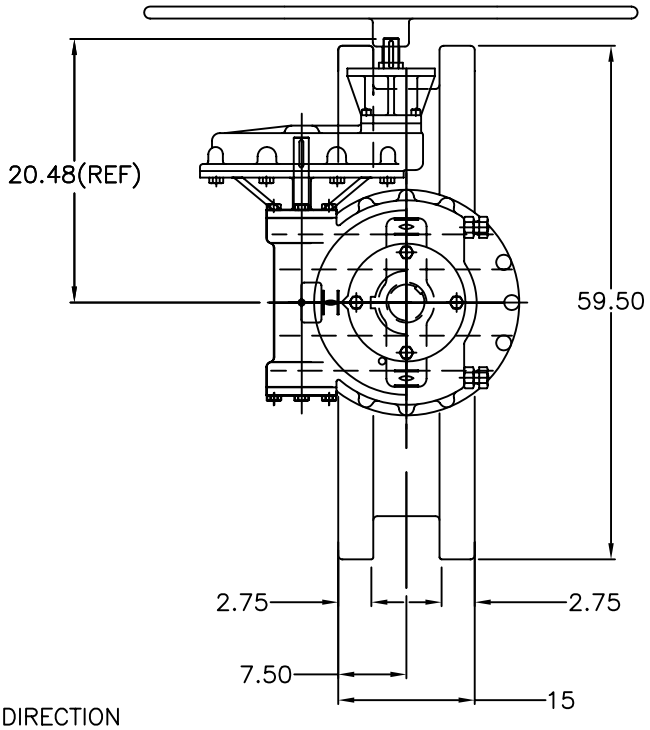




NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: NUMBER OF TURNS TO CLOSE = 60
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH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

KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. BFE–15–RA	48" STYLE 1450 CLASS 150 BUTTERFLY VALVE (ROTORK IW7 GEAR BOX) BURIED OPERATOR FLANGED ENDS

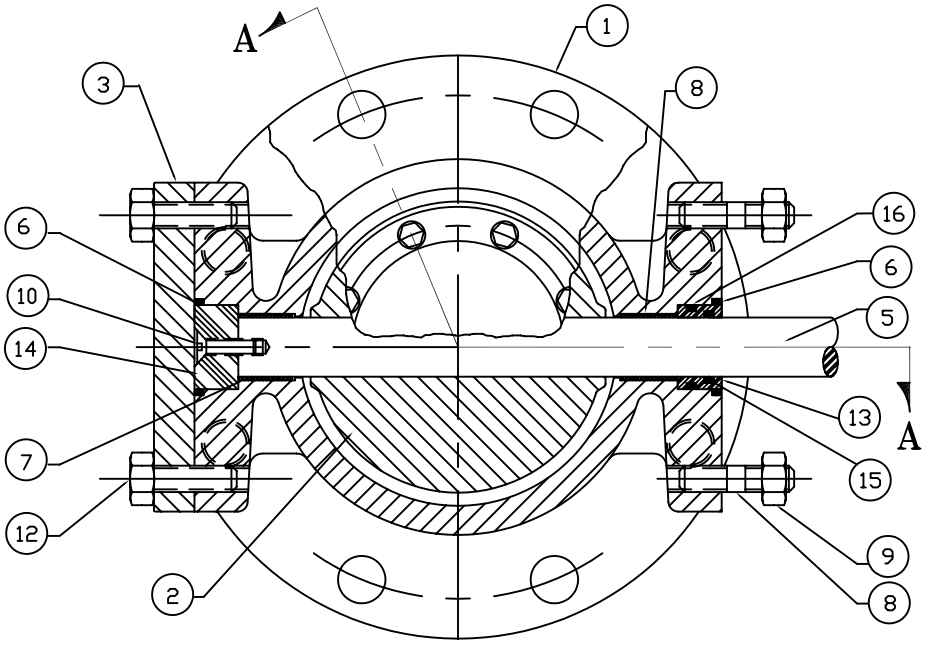


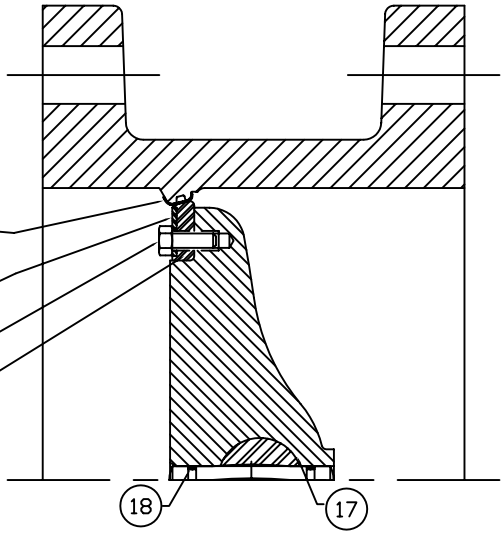


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: NUMBER OF TURNS TO CLOSE = 60
NOTE 5: OPERATED BY 36" HANDWHEEL
NOTE 6: A =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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	48" STYLE 1450
DATE: 7/1/05	CLASS 150 BUTTERFLY VALVE
DWG. NO. BFE–15–RB	(ROTORK IW7 GEAR BOX)
	HANDWHEEL OPERATOR
	FLANGED ENDS





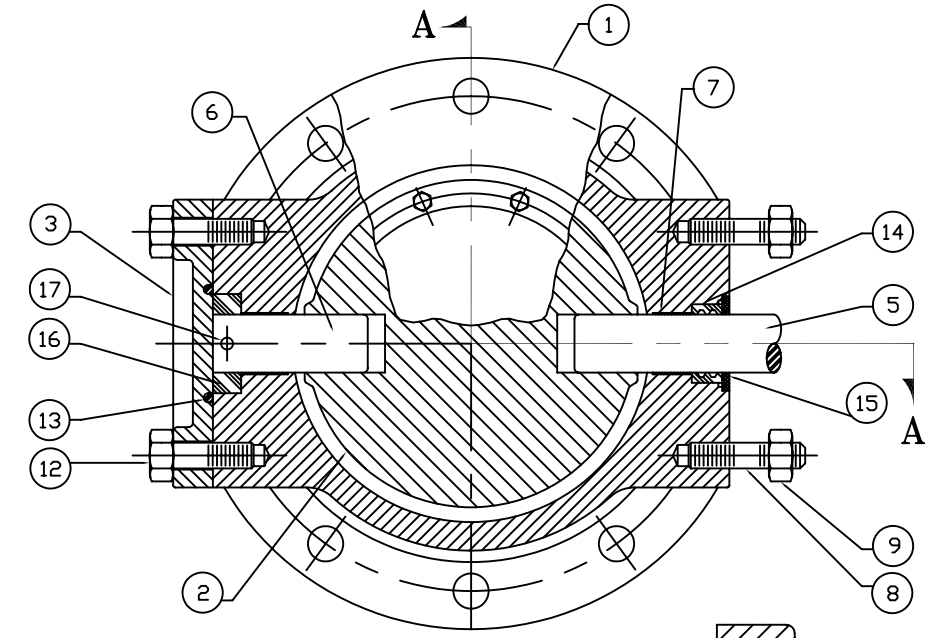
SECTION A–A

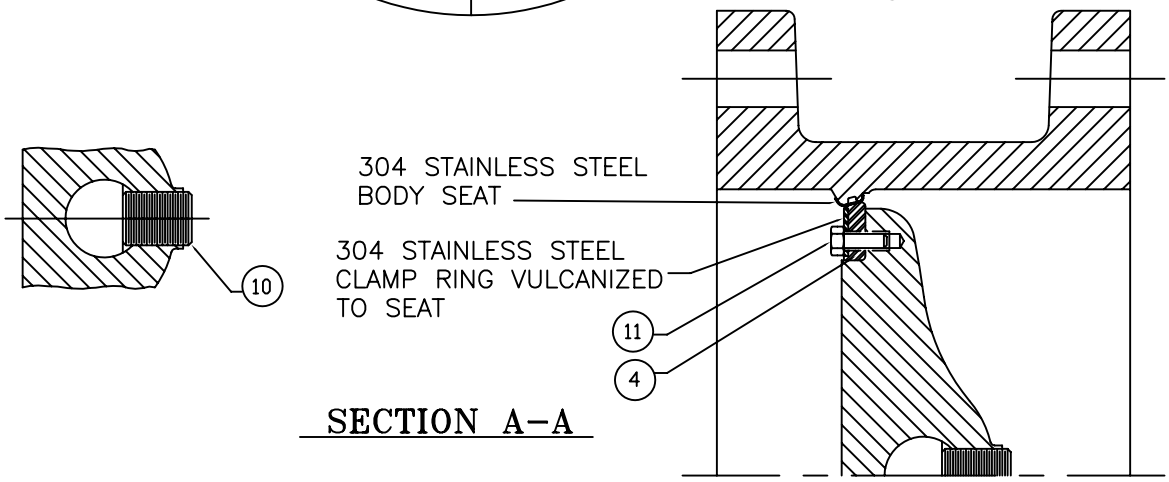
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON ASTM A–536 GR. 70–50–05
2	VANE	DUCTILE IRON ASTM A–536 GR. 70–50–05
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	BUNA "S" WITH 304 STAINLESS STEEL INSERT
5	SHAFT	TYPE 630, CONDITION H1100 STN. STL. ASTM A–564
6	O–RING, BODY	BUNA "N"
7	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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





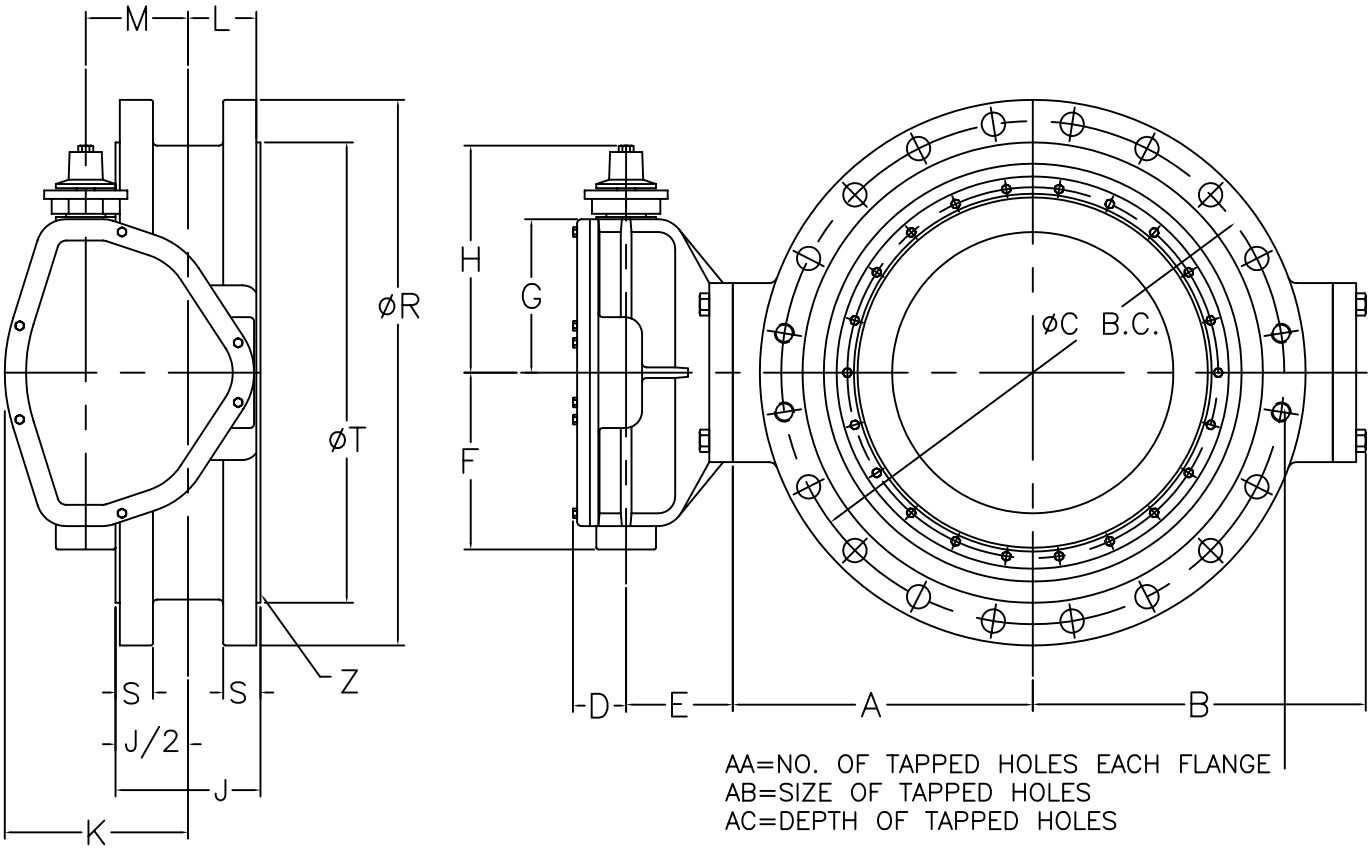
SECTION A–A

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250	3 3/16	5 3/4	8 3/8	7	12 5/16	7 7/8	3 1/4	4	48
24"	2200	3 3/16	6 1/4	10 3/8	9	14 5/16	10 3/4	3 7/8	6	72

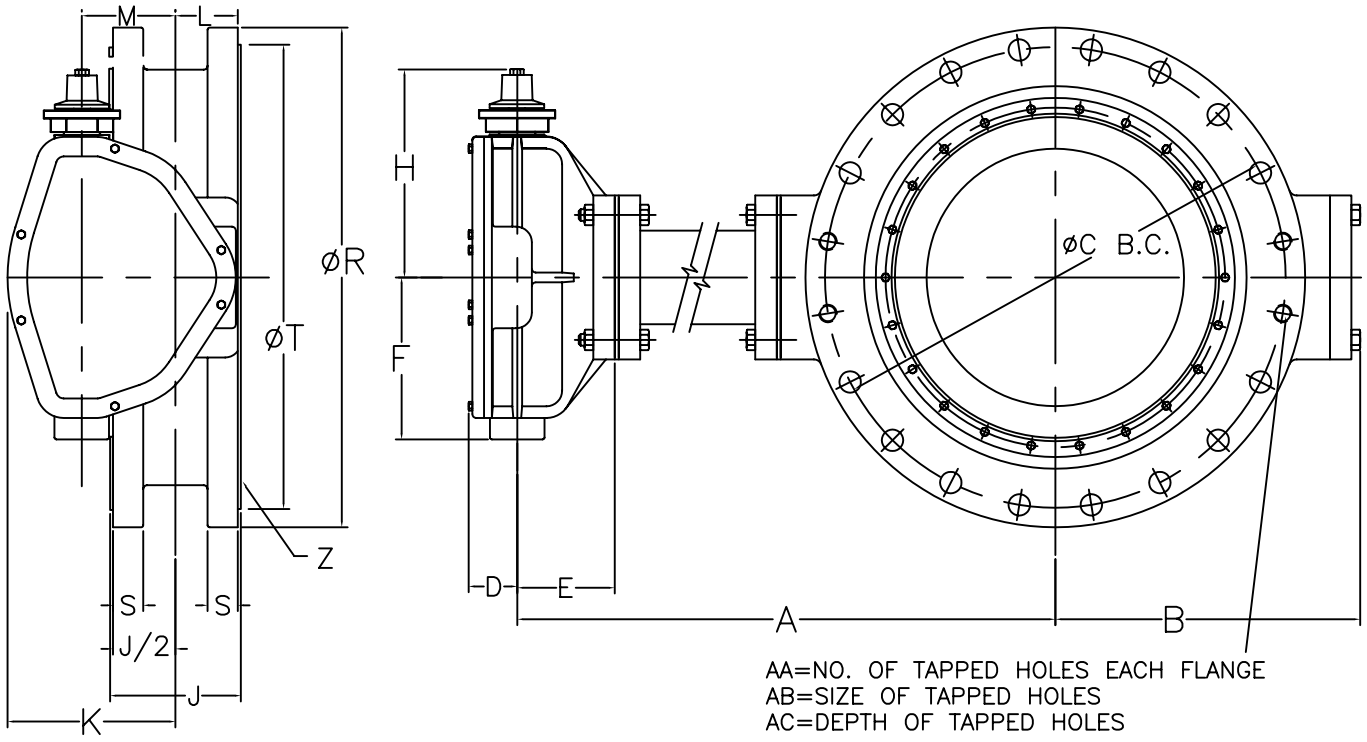
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	AC
3"	4	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4-10	1 3/16	85
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4-10	1 3/16	85
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4-10	1 3/8	110
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8-9	1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

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 9: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

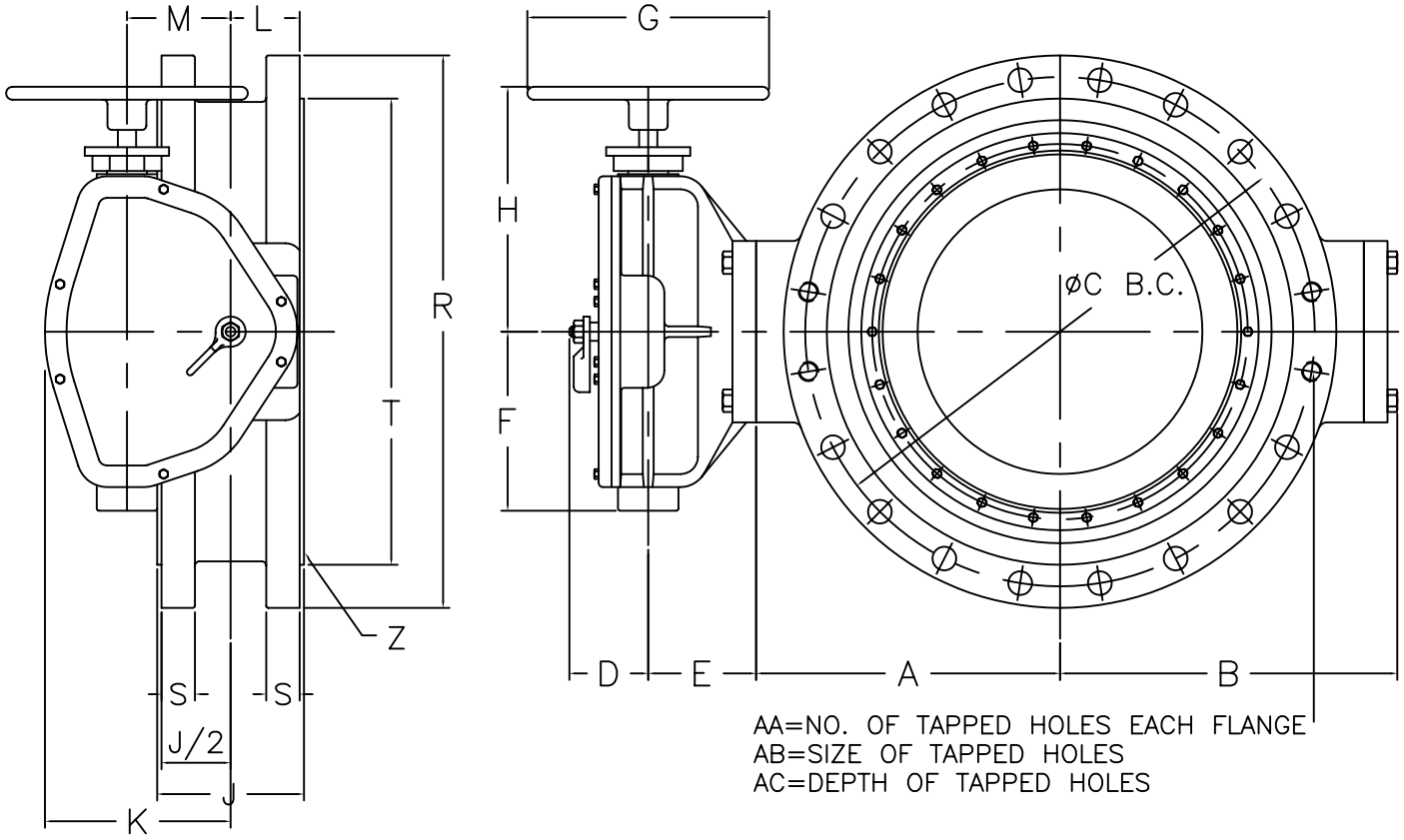
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	*WEIGHT
3"	NOTE AA	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4–10	1 3/16	85
4"	NOTE AA	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4–10	1 3/16	85
6"	NOTE AA	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4–10	1 3/8	110
8"	NOTE AA	7 9/16	13	6 7/8	12	7/8	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: APPROX. WEIGHT PER EACH FOOT OF EXTENDED BONNET 125LBS(3"–12"), 150LBS(14"–16"), 180LBS(18"–24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

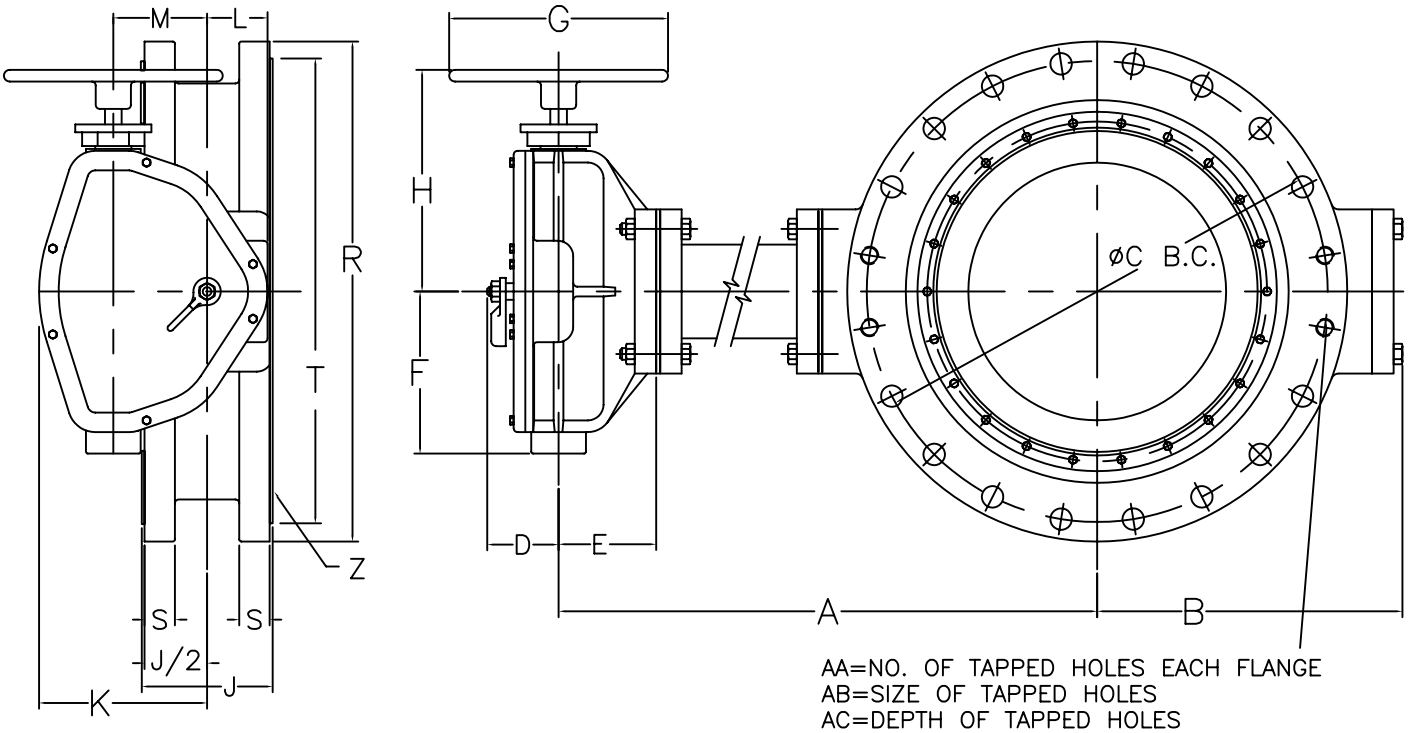
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	WEIGHT
3"	4	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4–10	1 3/16	85
4"	4	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4–10	1 3/16	85
6"	5	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4–10	1 3/8	110
8"	6	7 9/16	13	6 7/8	12	7/8	15	1 5/8	11 15/16	4	7/8–9	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)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

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

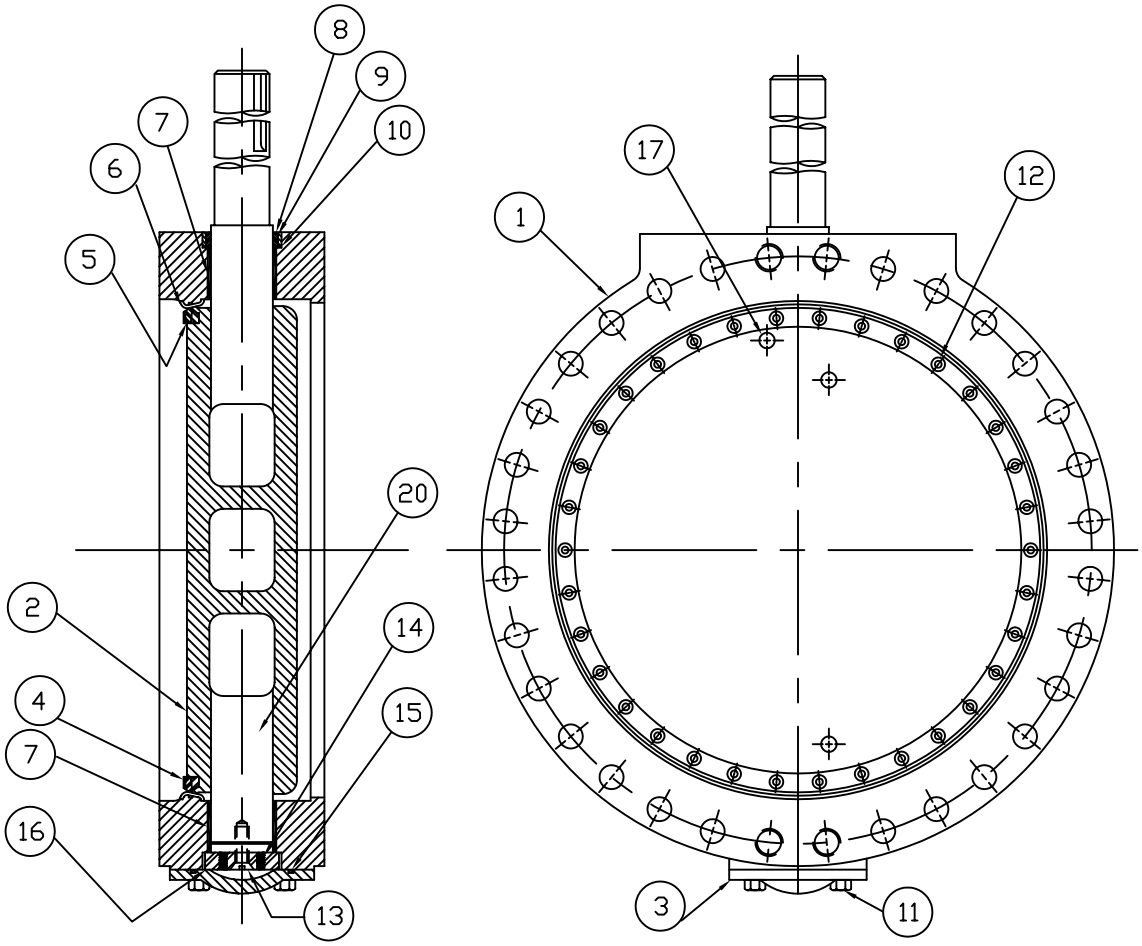
VALVE SIZE	A	B	C	J	P	Q	R	S	T	AA	AB	AC	*WEIGHT
3"	NOTE AA	5 7/16	6 5/8	5 1/2	8	3/4	10	1 1/4	5 11/16	8	3/4–10	1 3/16	85
4"	NOTE AA	5 7/16	7 7/8	5 1/2	8	3/4	10	1 1/4	6 15/16	4	3/4–10	1 3/16	85
6"	NOTE AA	6 1/2	10 5/8	5 3/4	12	3/4	12 1/2	1 7/16	9 11/16	4	3/4–10	1 3/8	110
8"	NOTE AA	7 9/16	13	6 7/8	12	7/8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

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 8: "Z" (1/16 or .0625 RAISED FACE ON EACH FLANGE)
NOTE 9: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)––BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 125(3"–12"), 150(14"–16"), 180(18"–24")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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

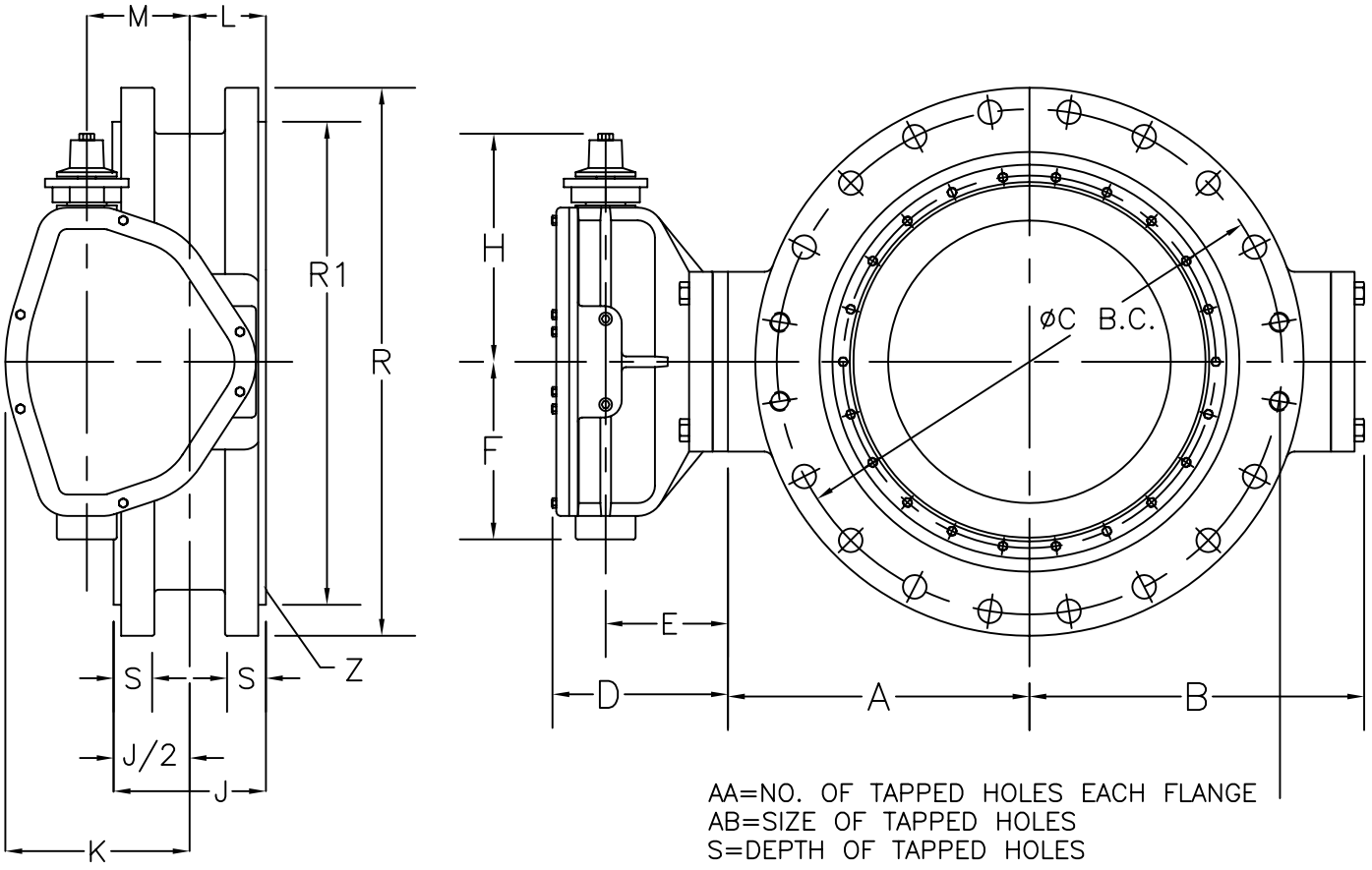


ITEM NO.	DESCRIPTION	MATERIAL
1	BODY, VALVE	DUCTILE IRON, ASTM A-536 GR. 70-50-05 W/304 STN.STL. SEAT
2	VANE	DUCTILE IRON, ASTM A-536 GR. 70-50-05
3	END COVER	CAST IRON, ASTM A-126, CL. B
4	SEAT RING, VANE	BUNA "S"
5	CLAMP RING, SEAT	304 STAINLESS STEEL
6	SEALING WASHER	NYLON
7	BUSHING, BODY	FIBERGLIDE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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

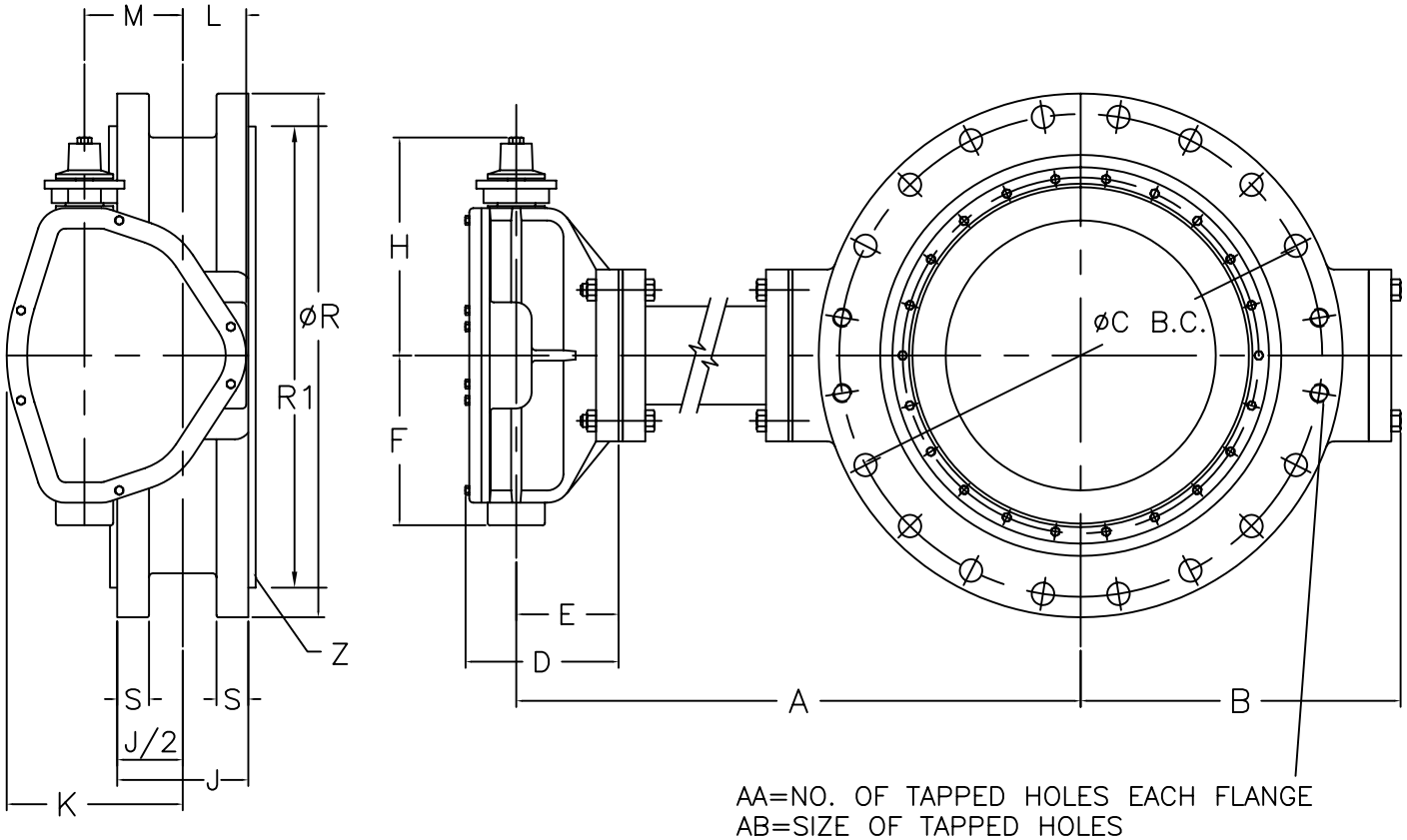
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	WEIGHT
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4–5	1850
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2–4 1/2	2600
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2–4 1/2	4500

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)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

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

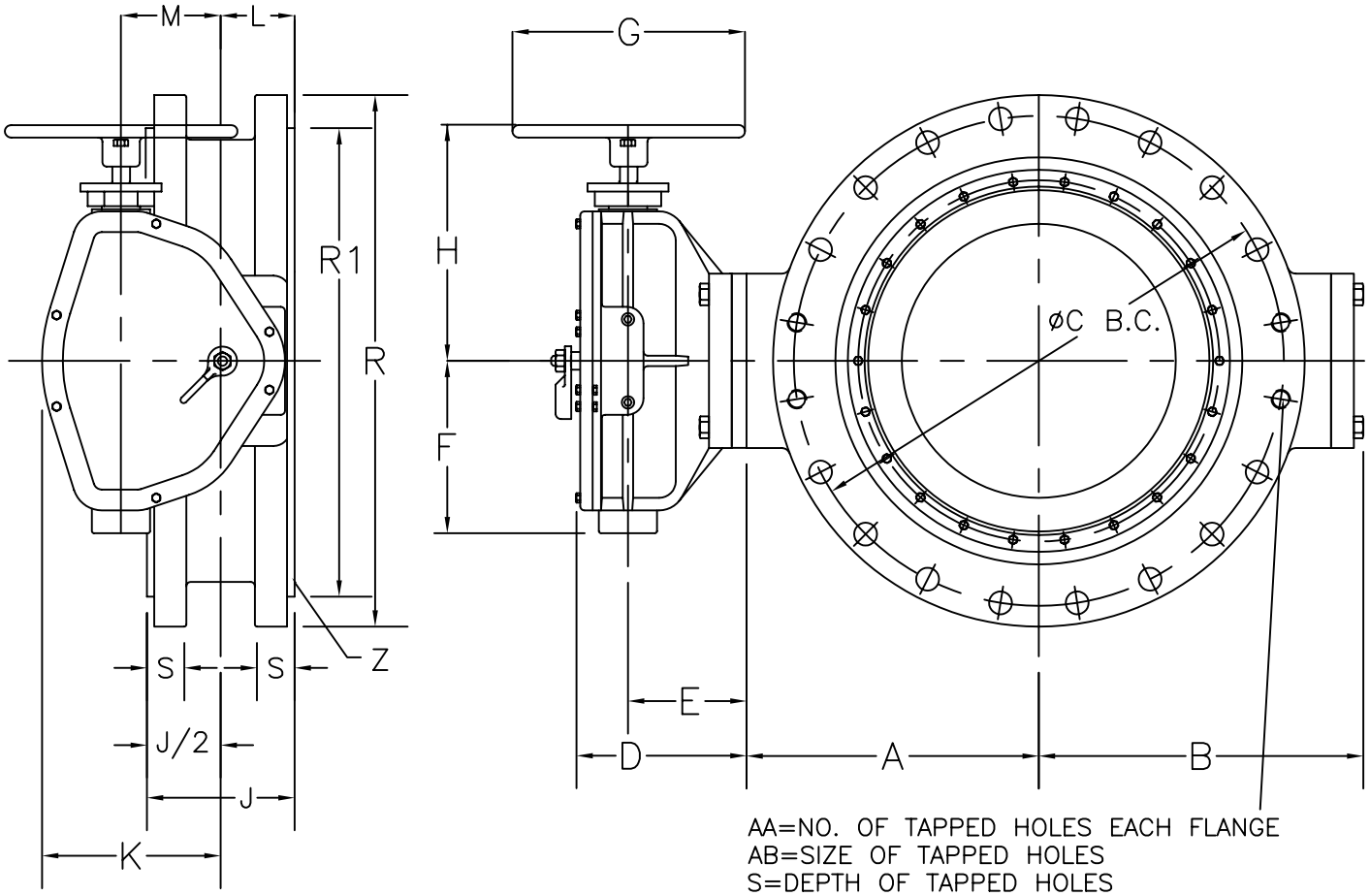
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	*WEIGHT
30"	NOTE AA	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4–5	1850
36"	NOTE AA	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2–4 1/2	2600
42"	NOTE AA	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2–4 1/2	4500

NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: OPERATED BY 2" AWWA OPERATING / WRENCH NUT
NOTE 8: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 9: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)
NOTE 10: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)––BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"–42")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

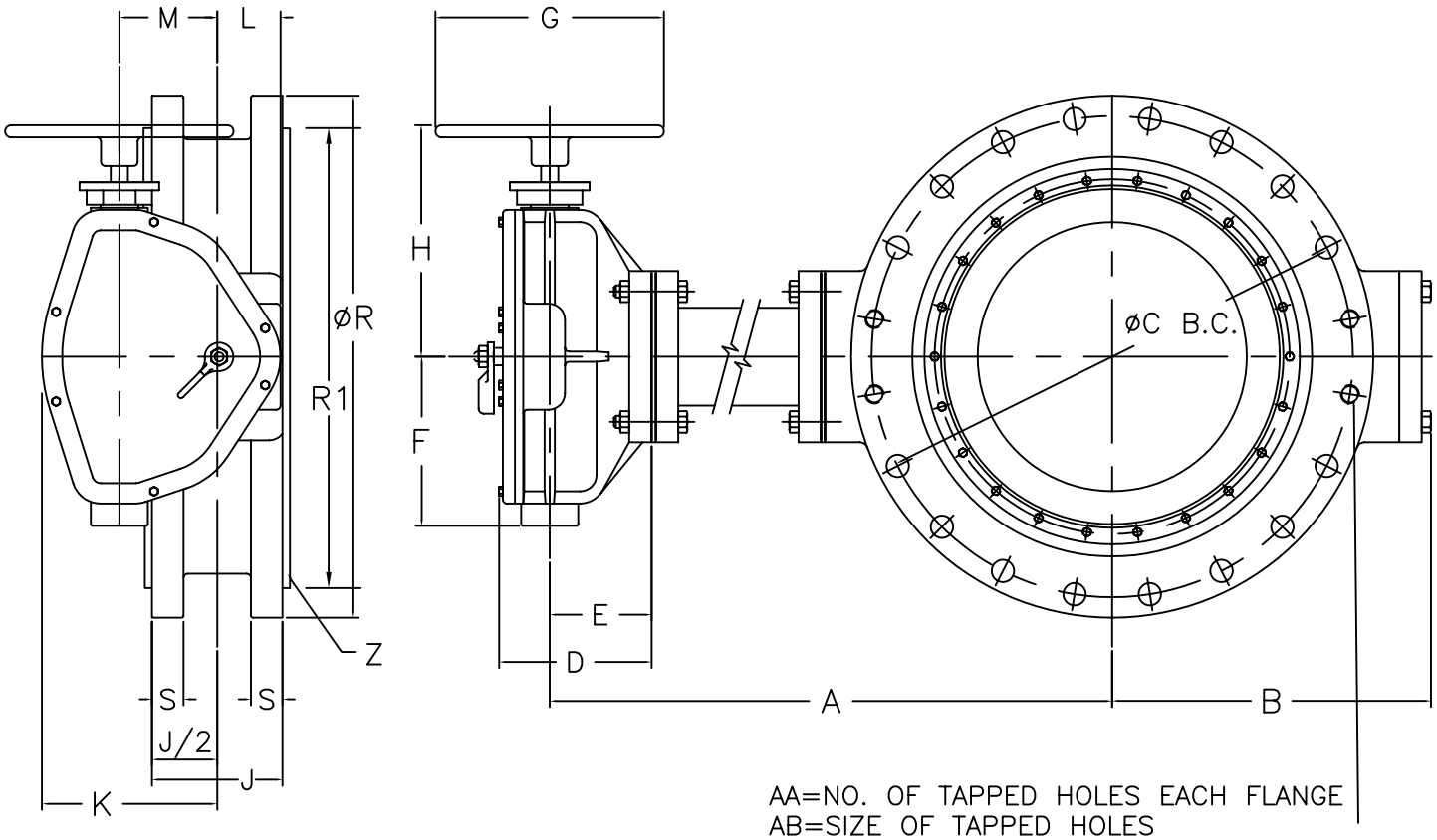
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	WEIGHT
30"	21.711	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4–5	1850
36"	25.15	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2–4 1/2	2600
42"	29.00	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2–4 1/2	4500

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: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 8: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



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

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

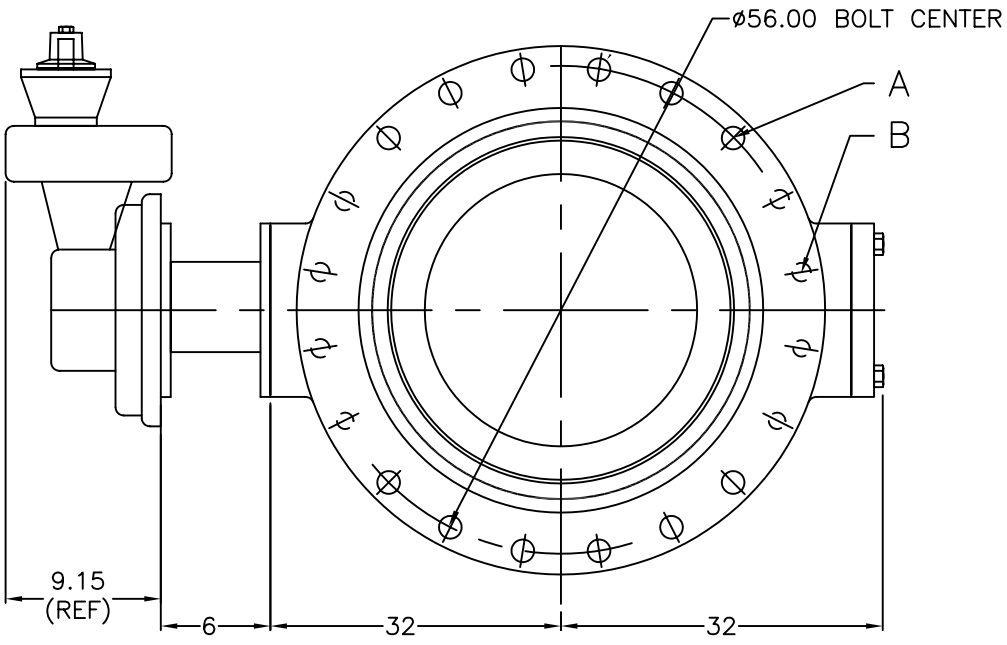
VALVE SIZE	A	B	C	J	P	Q	R	R1	S	AA	AB	*WEIGHT
30"	NOTE AA	22.711	39.250	13.750	28	1.75	43	37.187	3	4	1 3/4–5	1850
36"	NOTE AA	25.20	46	14.00	28	2.250	50	43.688	2.75	4	2–4 1/2	2600
42"	NOTE AA	29.875	52.750	14.125	28	2.250	57	50.438	3.75	8	2–4 1/2	4500

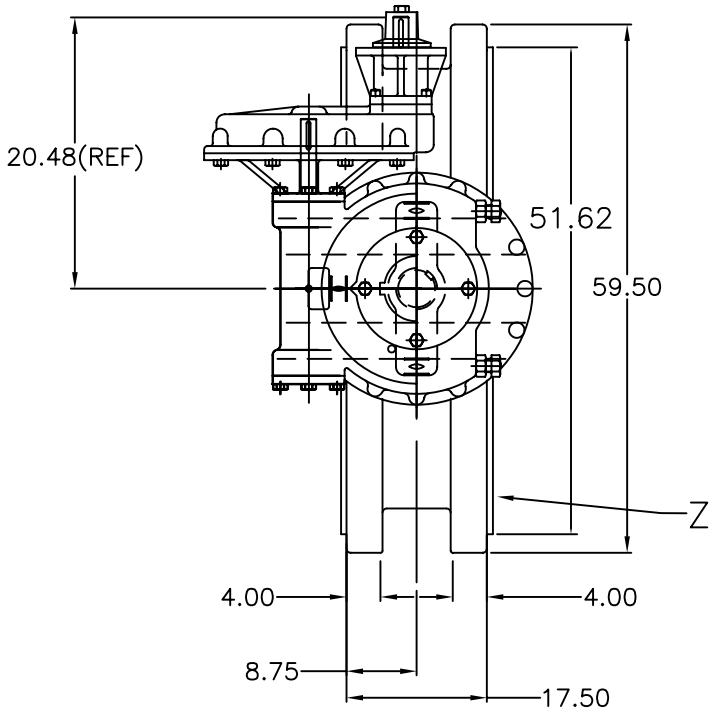
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
NOTE 5: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 6: "Q" = DIAMETER OF BOLTS
NOTE 7: RATED AND TESTED FOR 250 PSI WORKING PRESSURE
NOTE 8: "Z" = (1/16 or .0625 RAISED FACE ON EACH FLANGE)
NOTE 9: MAXIMUM LENGTH OF TORQUE TUBE (15 FEET)––BONNET SUPPORTS SHOULD BE USED ON ALL BONNETS EXCEEDING 6 FEET CENTERLINE OF VALVE TO CENTERLINE OF OPERATOR. ALL BONNET SUPPORTS SHALL BE SUPPLIED BY CUSTOMER
NOTE AA: "A" VARIES TO ENGINEER SPECIFICATIONS
*NOTE AB: APPROXIMATE WEIGHT PER EACH FOOT OF EXTENDED BONNET 250LBS(30"–42")

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

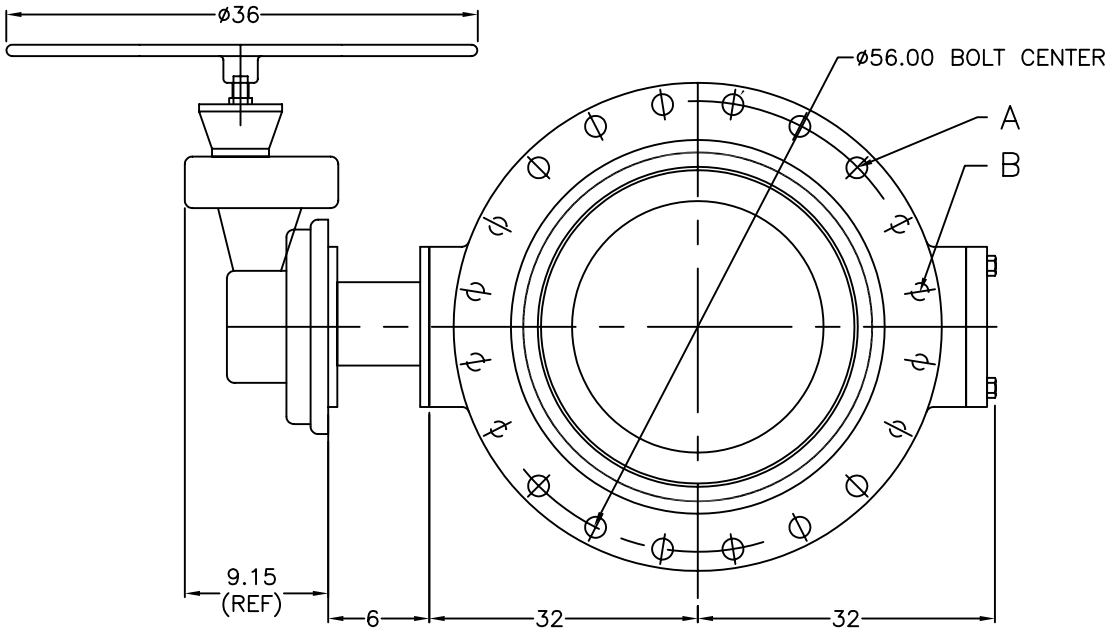
30" THRU 42" STYLE 1450
CLASS 250 BUTTERFLY VALVE
EXTENDED BONNET
HANDWHEEL OPERATOR
FLANGED ENDS

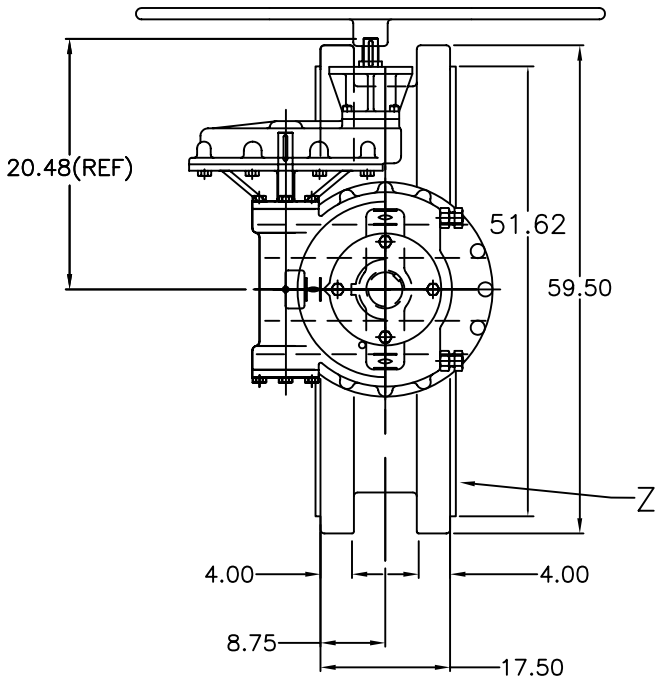




NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: NUMBER OF TURNS TO CLOSE = **60**
NOTE 5: OPERATED BY 2" AWWA OPERATING / WRENCH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

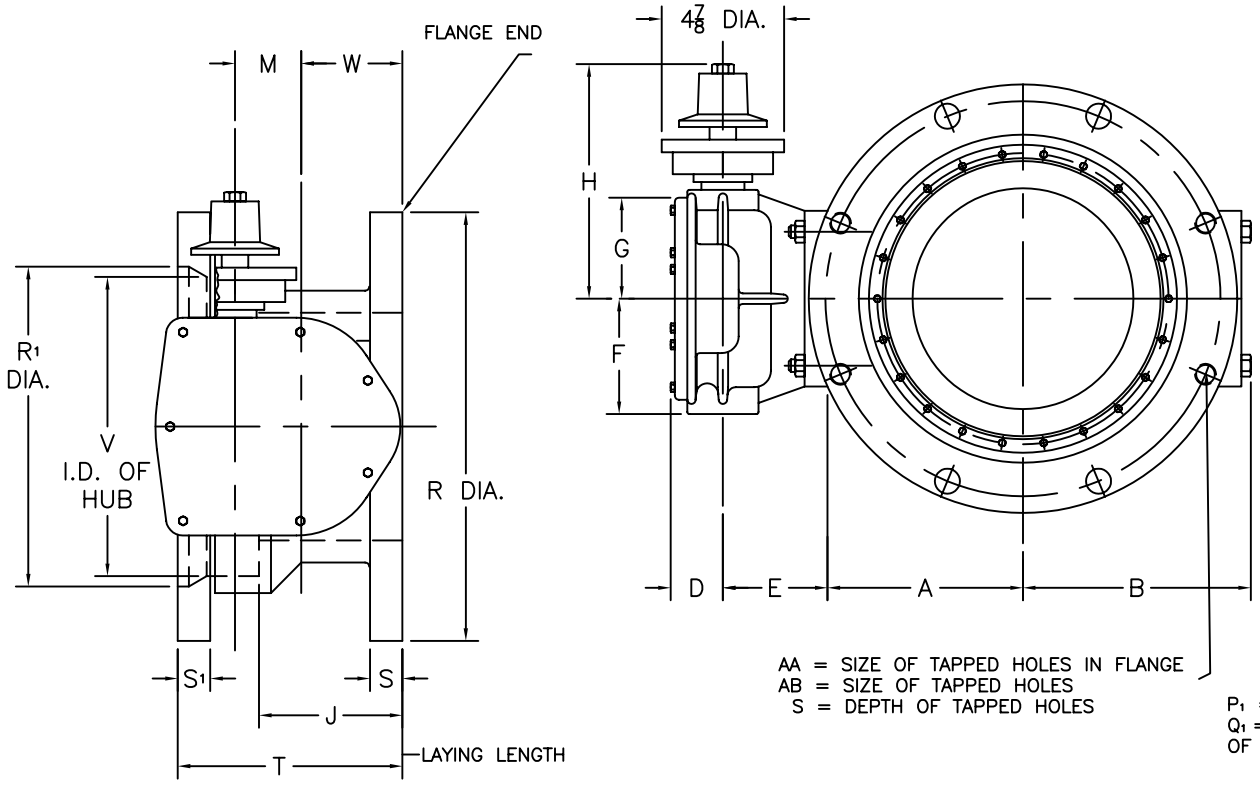
KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. BFE–25–RA	48" STYLE 1450 CLASS 250 BUTTERFLY VALVE (ROTORK IW7 GEAR BOX) BURIED OPERATOR FLANGED ENDS



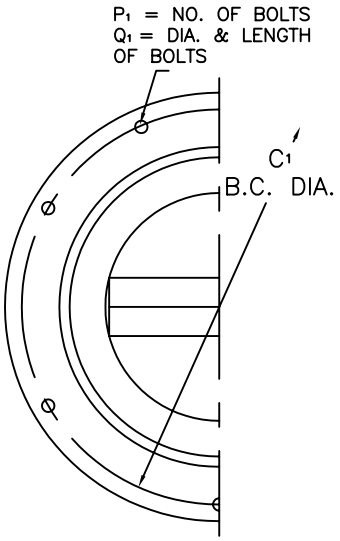


NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 250)
NOTE 4: NUMBER OF TURNS TO CLOSE = 60
NOTE 5: OPERATED BY 36" HANDWHEEL
NOTE 6: A =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

KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. BFE-25-RB	48" STYLE 1450 CLASS 250 BUTTERFLY VALVE (ROTORK IW7 GEAR BOX) HANDWHEEL OPERATOR FLANGED ENDS



AA = SIZE OF TAPPED HOLES IN FLANGE
AB = SIZE OF TAPPED HOLES
S = DEPTH OF TAPPED HOLES



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

VALVE SIZE	A	B	C	C_1	J	P	P_1	Q	Q_1
6"	5	6 1/2	9 1/2	9 1/2	4 3/16	8	6	3/4	3/4 X 3 1/2
8"	6	7 9/16	11 3/4	11 3/4	5	8	6	3/4	3/4 X 4
12"	9 1/2	11 3/8	17	16 1/4	6 5/8	12	8	7/8	3/4 X 4
16"	12 3/16	14 11/16	21 1/4	21	6 9/16	16	12	1	3/4 X 4 1/2

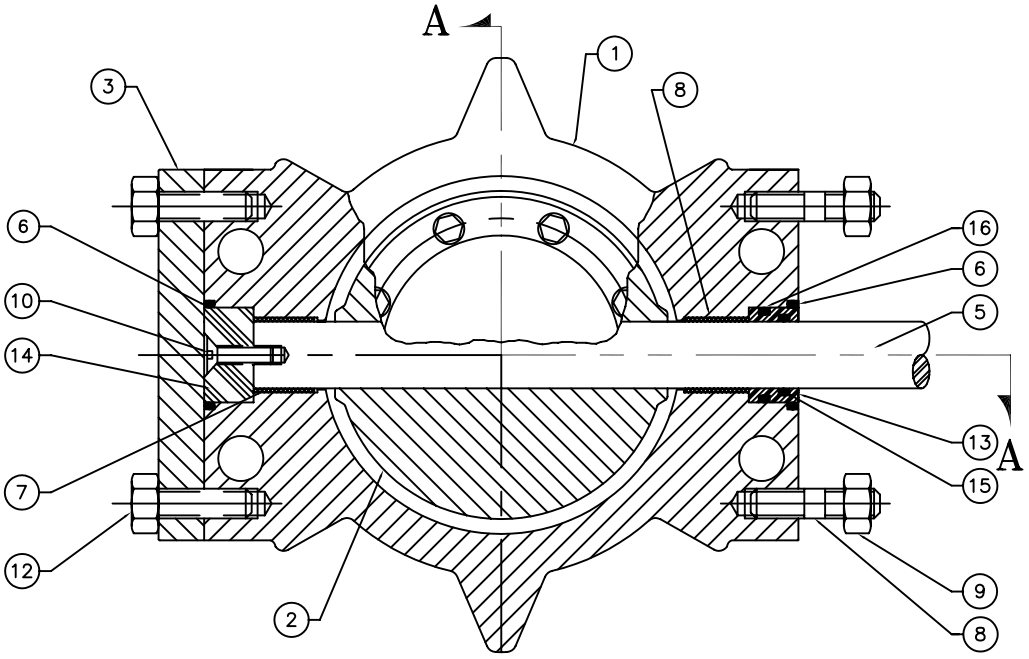
VALVE SIZE	R	R_1	S	S_1	T	V	W	AA	AB	WEIGHT
6"	11	11 1/8	1	1 1/16	9 11/16	7.00 $^{+.07}_{-.03}$	2 1/2	4	3/4–10	90
8"	13 1/2	13 3/8	1 1/8	1 1/8	10 15/16	9.15 $^{+.07}_{-.03}$	3	4	3/4–10	145
12"	19	17 15/16	1 1/4	1 1/4	12 7/16	13.30 $^{+.07}_{-.03}$	4	–	–	295
16"	23 1/2	22 9/16	1 3/16	1 3/8	13 1/4	17.54 $^{+.06}_{-.07}$	4	4	1–8	585

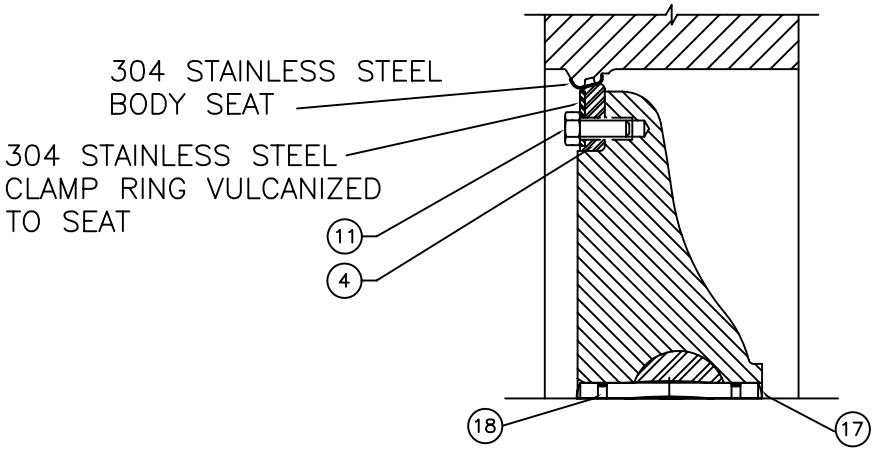
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C–504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C–504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 3: REFERENCE AWWA C–111 (A.N.S.I. A21–11)
NOTE 4: "N" = NUMBER OF TURNS TO CLOSE
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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





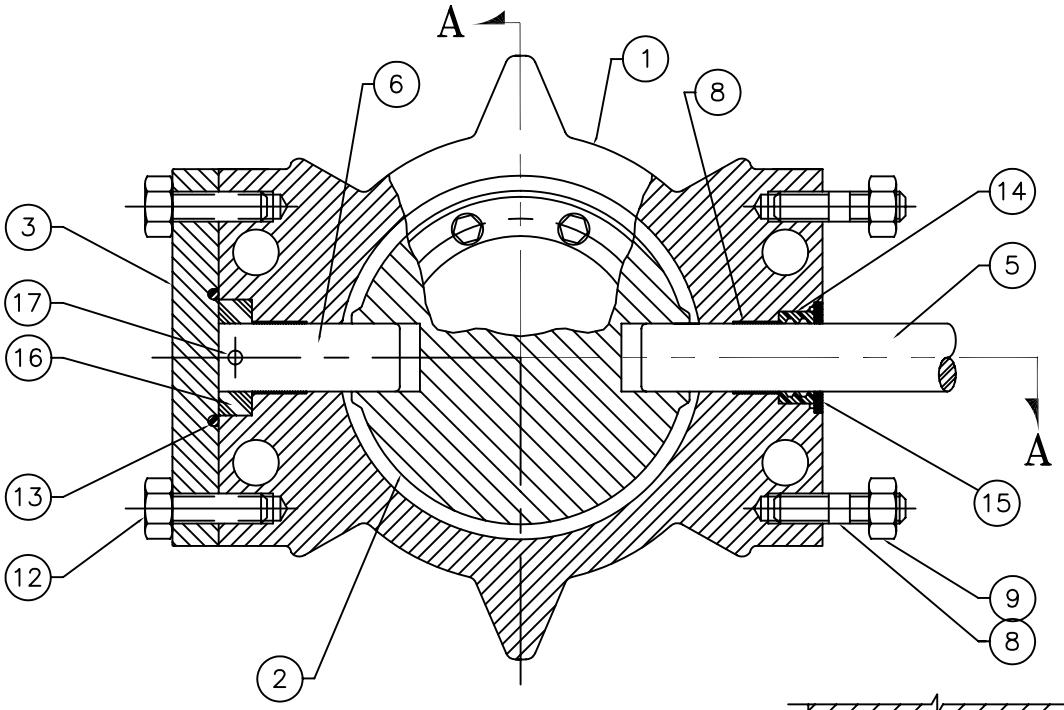
SECTION A–A

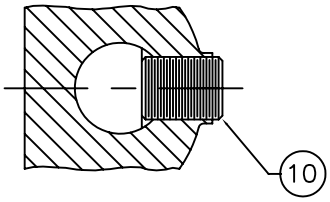
ITEM #	DESCRIPTION	MATERIAL
1	BODY, VALVE	CAST IRON, A–126, CLASS B WITH 304 STAINLESS STEEL SEAT
2	VANE	CAST IRON, A–48, CLASS 40
3	COVER, END	CAST IRON, A–126, CLASS B
4	SEAT RING, VANE	NATURAL RUBBER WITH INSERT
5	SHAFT	304 STAINLESS STEEL, ASTM A–276
6	O–RING, BODY	BUNA "N"
7	BEARING, BODY	EPOXY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

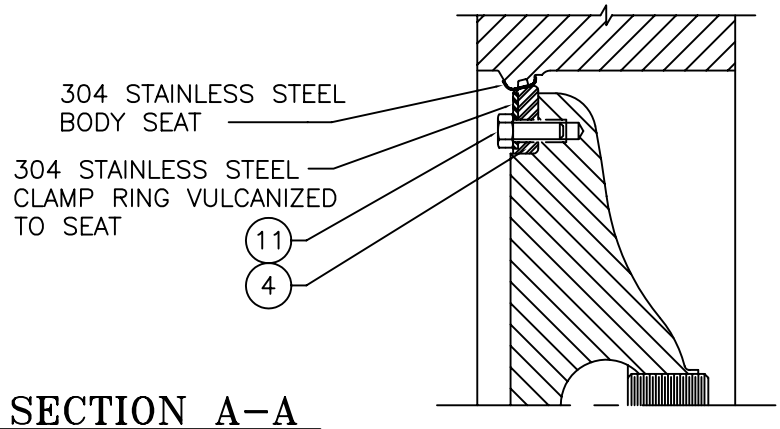
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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







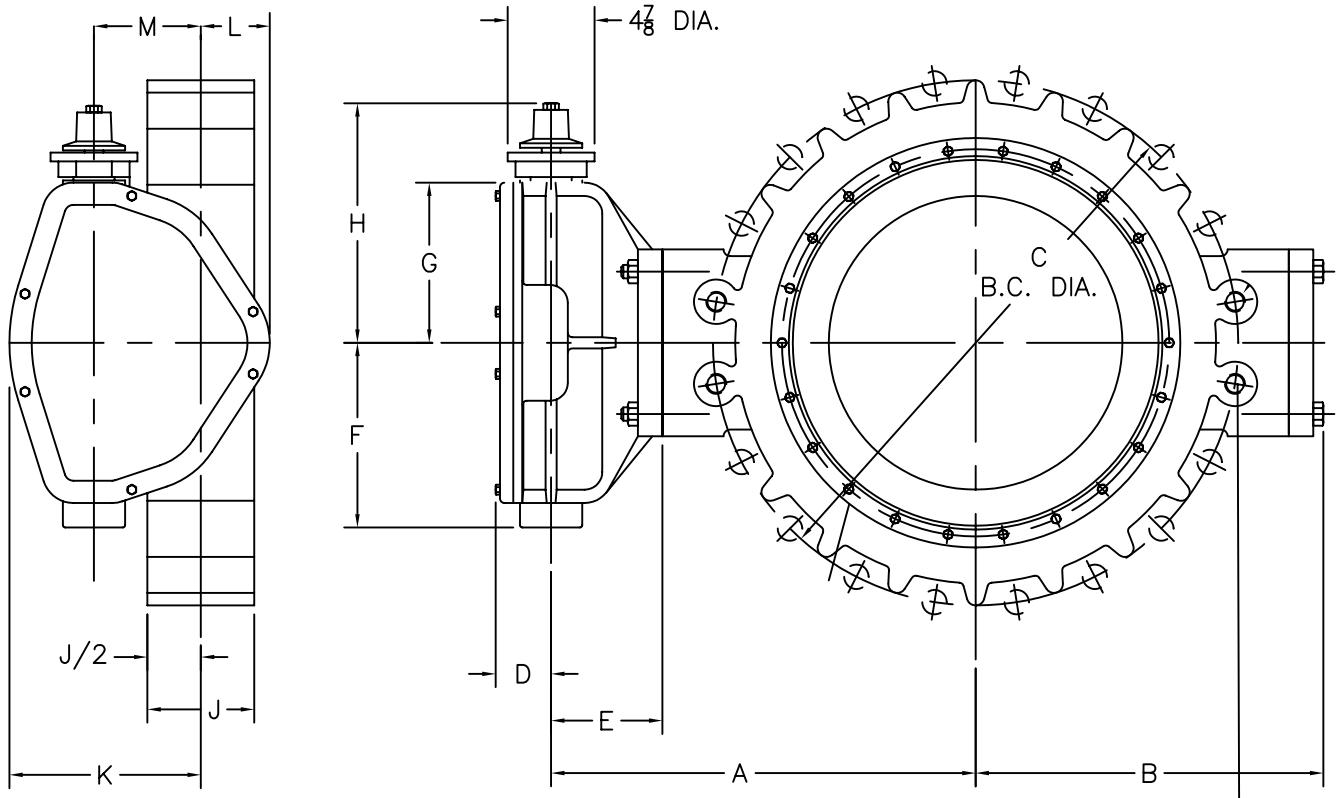
SECTION A–A

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 3B
17	ROLL PIN	STAINLESS STEEL, A.I.S.I. 420

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

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



FOR INSTALLATION BETWEEN
125# OR 150# ASA FLANGES

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

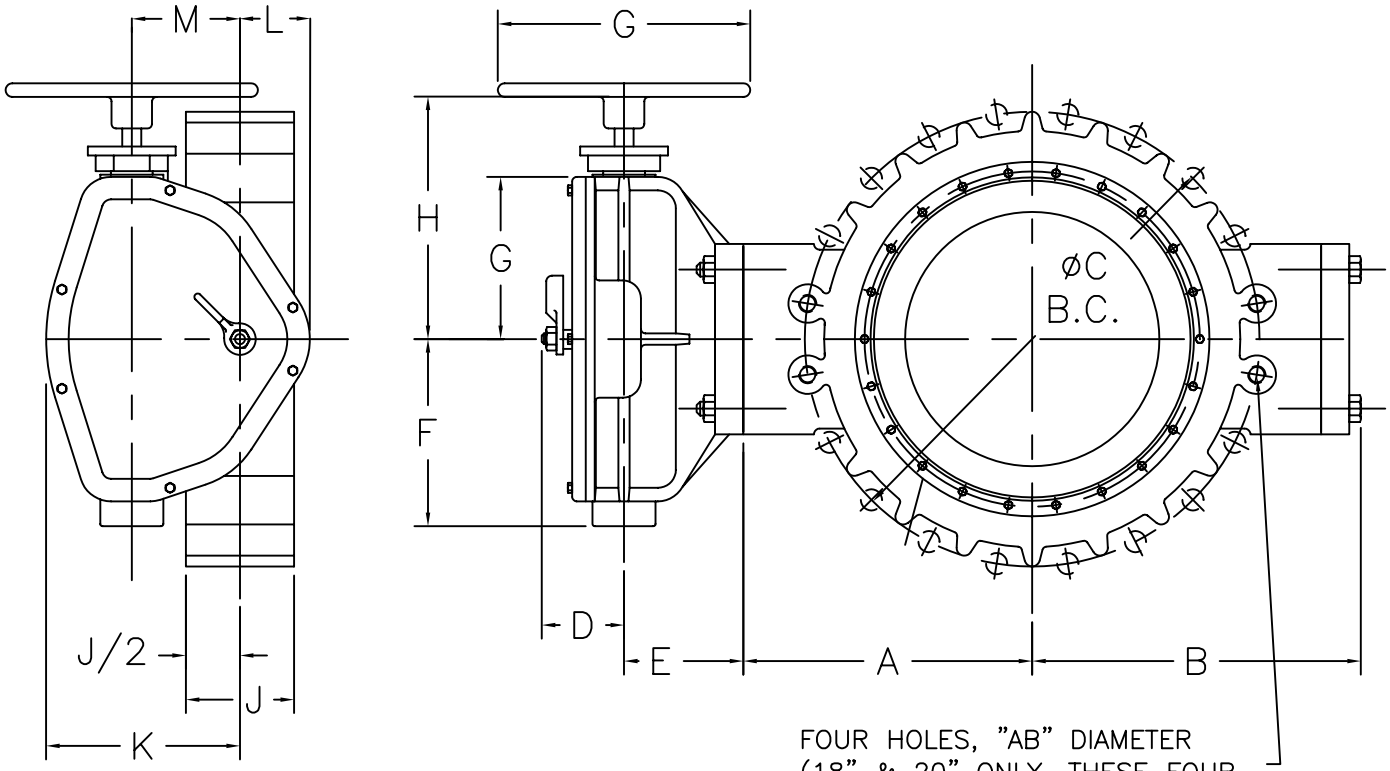
VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2	3 9/16	3 7/16	3	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	2 1/16	3 11/16	4 1/16	3 7/8	8 3/4	4 1/2	2 3/8	2	24
10" & 12"	510	2 1/4	4 1/2	5 7/16	5 3/16	10 1/16	6 1/8	2 3/4	3	36
14",16",18" & 20"	1250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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" THRU 20" STYLE 4500 CLASS 150 BUTTERFLY VALVE BURIED OPERATOR WAFER ENDS
DATE: 7/1/05	
DWG. NO. BW–15–K3	



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)

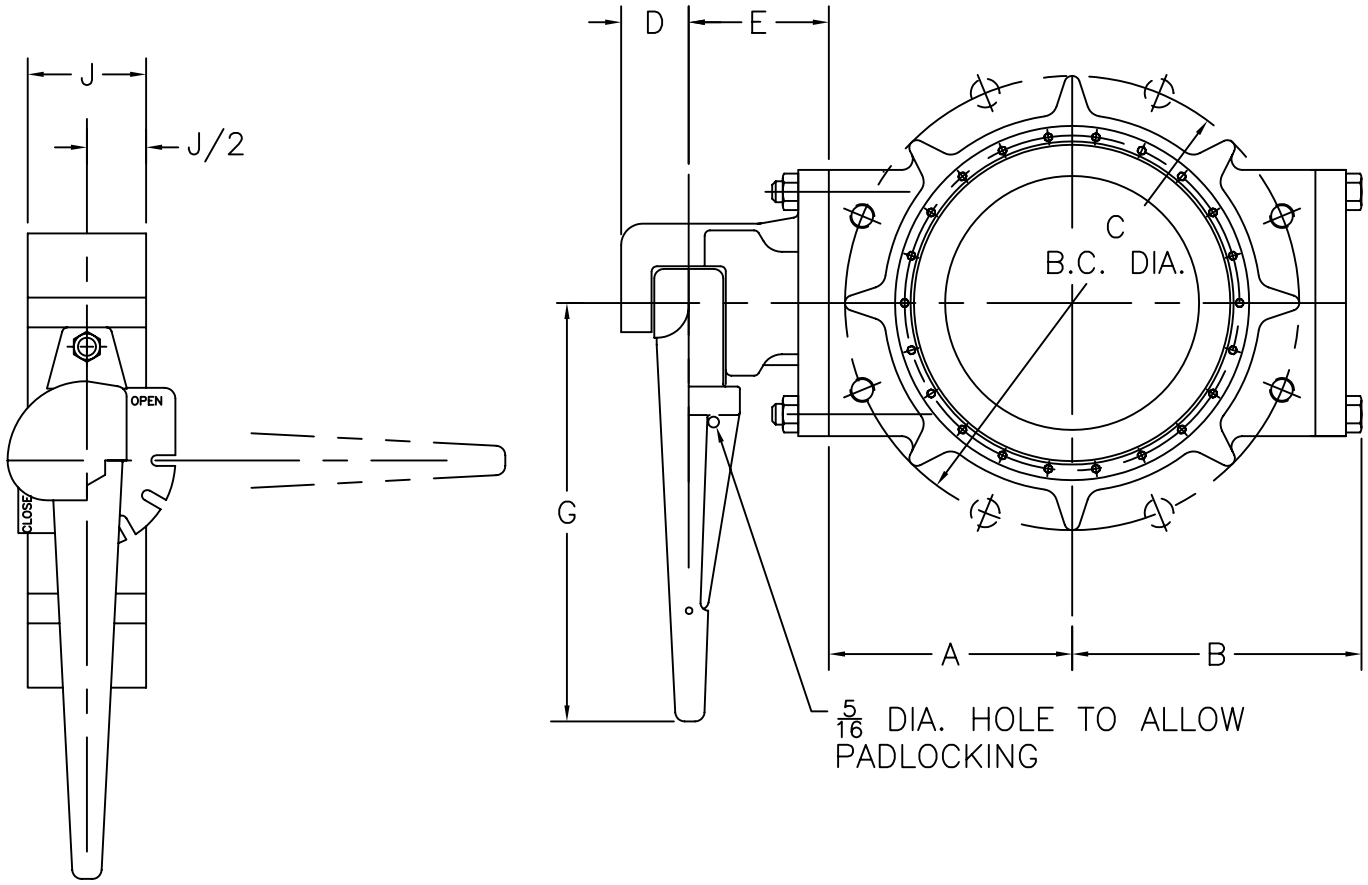
VALVE SIZE	OPERATOR MODEL	D	E	F	G	H	K	L	M	N
4"	65	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
6"	150	2 15/16	3 9/16	3 7/16	7 1/2	7 3/4	3 7/16	2 1/4	1 3/8	16 1/2
8"	250	3	3 11/16	4 1/16	14	8 7/8	4 1/2	2 3/8	2	24
10" & 12"	510	3 3/16	4 1/2	5 7/16	14	10 3/16	6 1/8	2 3/4	3	36
14",16",18"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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" THRU 20" STYLE 4500
DATE: 7/1/05	CLASS 150 BUTTERFLY VALVE
DWG. NO. BW–15–K4	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

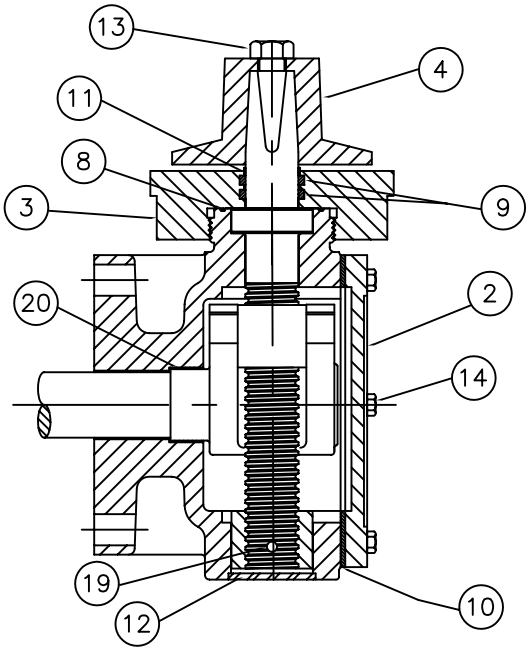
VALVE SIZE	A	B	C	D	E	G	J	P	Q	WEIGHT
4"	4	5 7/16	7 1/2	1 1/2	3 13/16	11	2 1/2	8	5/8	40
6"	5	6 1/2	9 1/2	1 1/2	3 13/16	11	2 1/2	8	3/4	55
8"	6	7 9/16	11 3/4	1 1/2	4 1/16	11	2 3/4	8	3/4	65

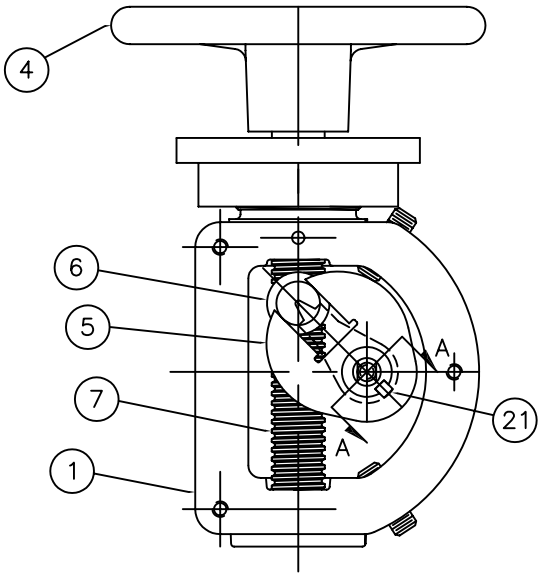
NOTE 1: FLOW MAY BE IN EITHER DIRECTION
NOTE 2: VALVE SHAFT WILL MEET OR EXCEED REQUIREMENTS OF SHAFT TABLE PER AWWA STANDARD C-504 FOR APPLICABLE CLASS.
NOTE 3: REFERENCE AWWA C-504 FLANGES & DRILLING (A.N.S.I. 125)
NOTE 4: "P" = NUMBER OF BOLTS ON EACH FLANGE
NOTE 5: "Q" = DIAMETER OF BOLTS

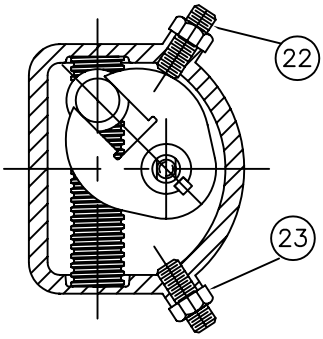
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

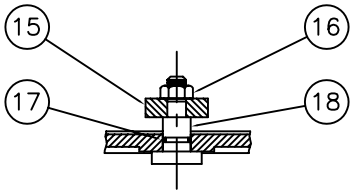
DWN: TRIJ
DATE: 7/1/05
DWG. NO. BW-15-K5

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









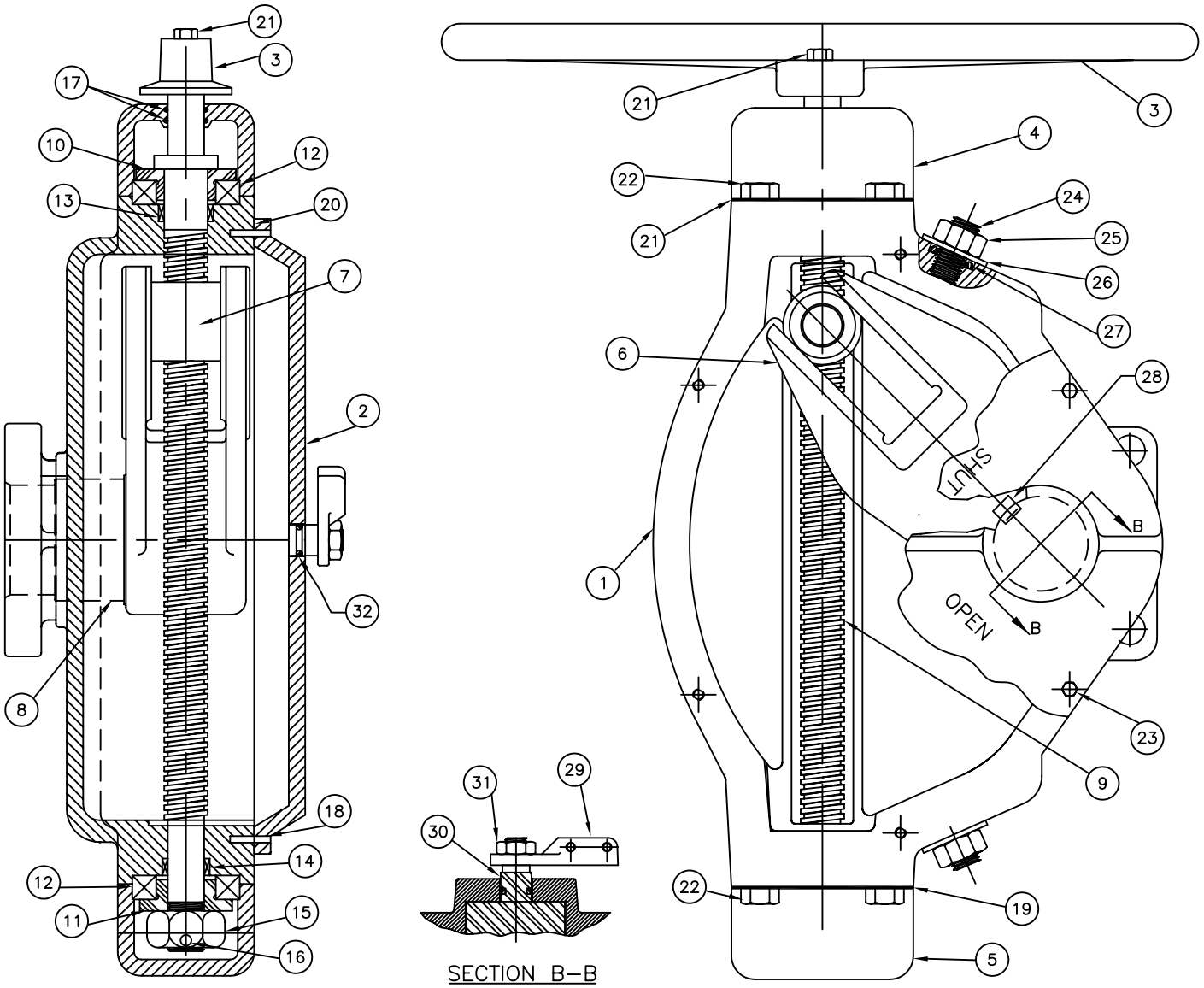
SECTION A–A FOR
HANDWHEEL OPERATORS
POSITION INDICATOR

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

1250 / 2200
MANUAL OPERATOR
SUB–ASSEMBLY / MATERIAL LIST



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

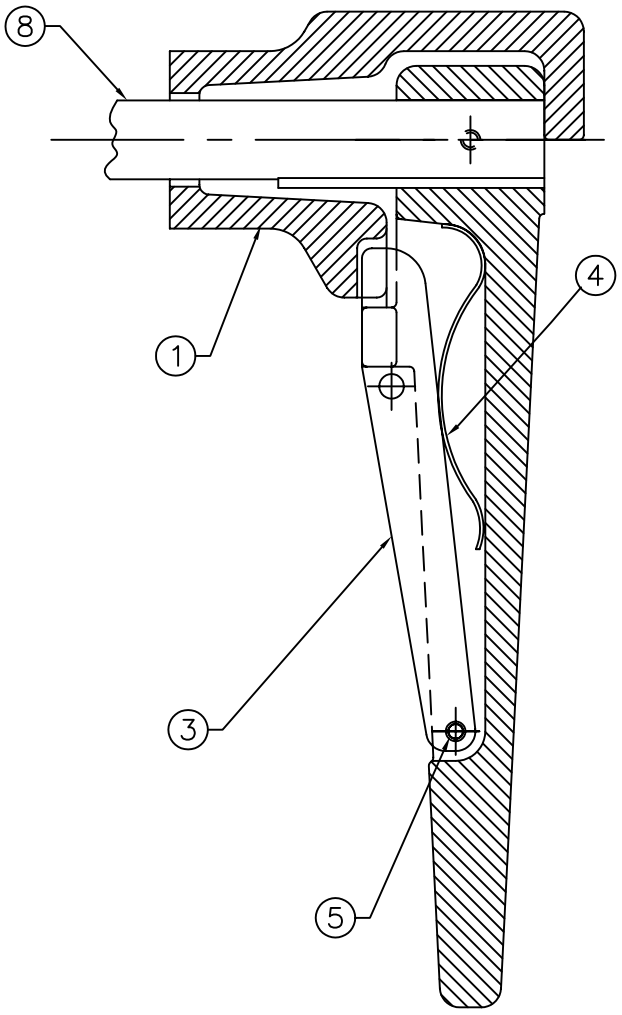
ITEM NO.	DESCRIPITION	MATERIAL	NO. REQ.
18	DOWEL PIN	STEEL, COMMERCIAL	2
19	END CAP GASKET	PERMATEX FORM–A GASKET NO. 2	2
20	COVER GASKET	PERMATEX FORM–A GASKET NO. 2	1
21	HEX HEAD CAP SCREW	COMMERCIAL STEEL	1
22	HEX HEAD CAP SCREW	COMMERCIAL STEEL	8
23	HEX HEAD CAP SCREW	COMMERCIAL STEEL	6
24	SETSCREW (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

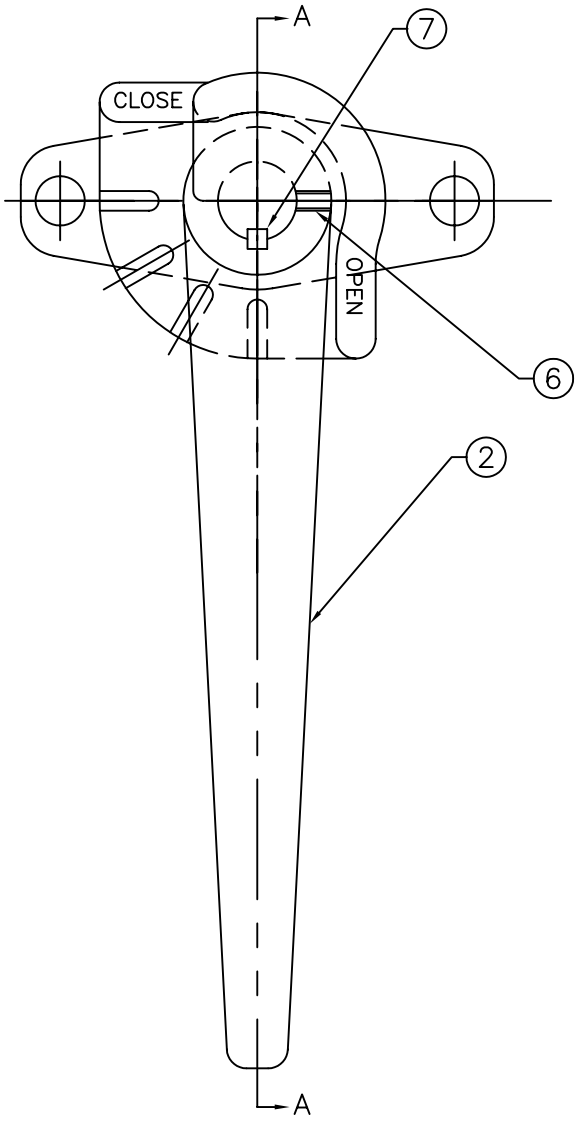
* PARTS FOR HANDWHEEL ACTUATOR WITH POSITION INDICATOR

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

SUB–ASSEMBLY / MATERIAL LIST
M&H 4350 OPERATOR





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

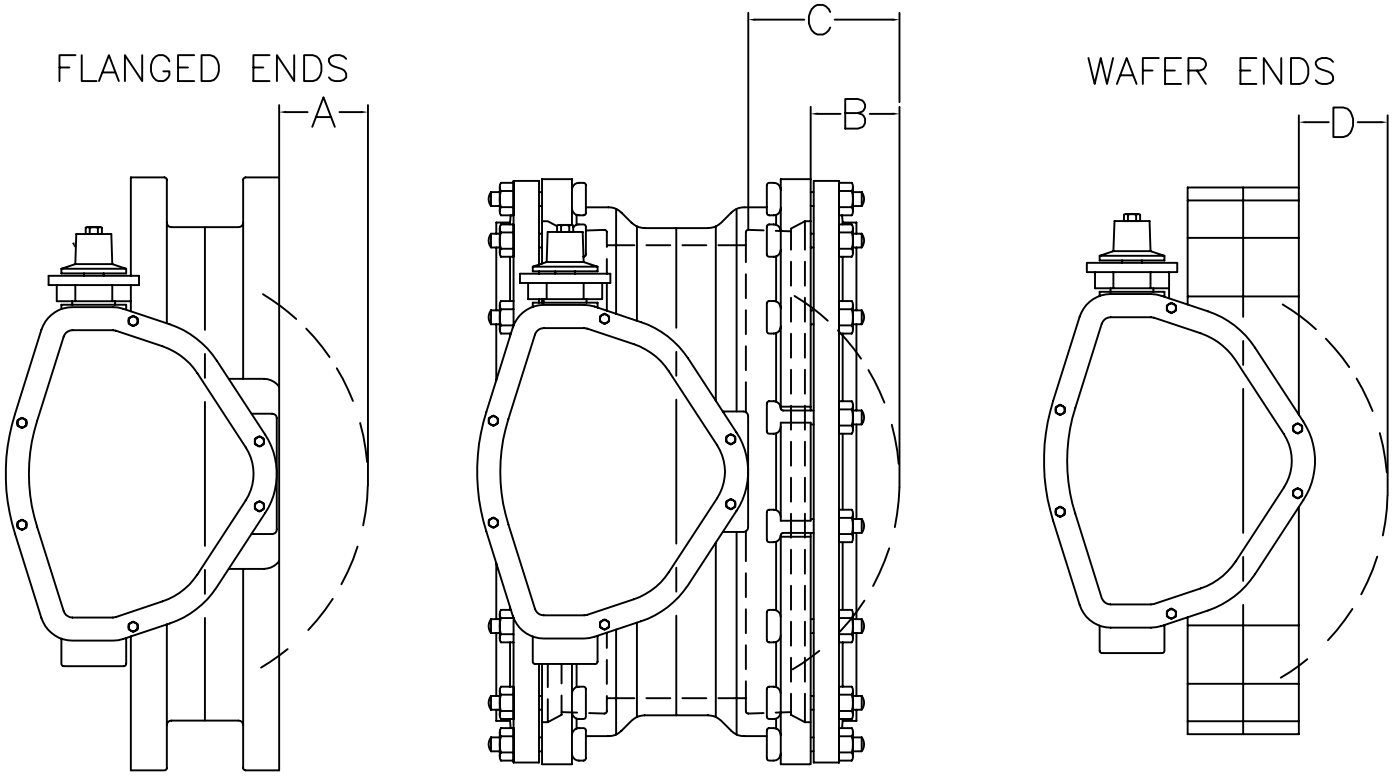
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4"–6"–8" LEVER OPERATOR SUB–ASSEMBLY / MATERIAL LIST
DATE: 7/1/05	
DWG. NO. BFV–OP–3	

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

M&H BUTTERFLY VALVE
VANE / OUTSIDE BODY FLANGE
ORIENTATION (OPEN POSITION)

KENNEDY VALVE

Figure Number 01G and 01W

UL/FM BUTTERFLY VALVES

UL 1091 Listed for Indoor or Ambient Outdoor
Service Without Direct Exposure to Precipitation
or Being Submerged

UL LISTED – FM APPROVED

Specifically designed for the Fire Protection Industry with the following features:

- Available in sizes: 2-1/2", 3", 4", 6" and 8"
- Rating: 300psi
- UL Listed FM Approved.
- Available in Groove and Wafer Ends.
- Double Seal Design for Bubble-Tight Shutoff at 300psi.
- Corrosion Resistant Fusion Bonded Body Coating.
- Easy to read, Flag Type Position Indicator.
- Low Torque Operation, High Cycle Life.
- Light Weight.
- Approved by N.Y.C. Material and Equipment Acceptance.

KENNEDY VALVE

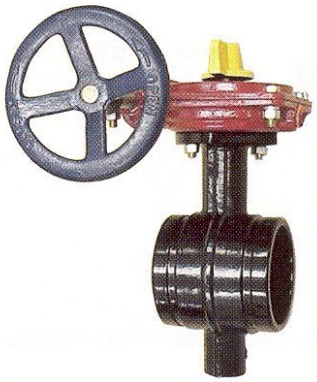
Division of McWane, Inc.
1021 E.Water St., Elmira, NY 14901 (607) 734-2211

UL LISTED

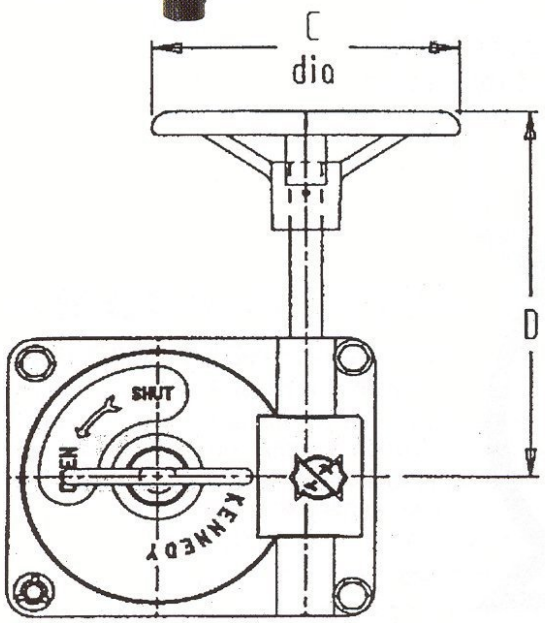
FM APPROVED

GROOVED END BUTTERFLY VALVES 2-1/2" to 8"

Figure 01G - 300psi
with Supervisory Tamper Switch

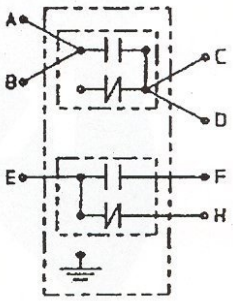


UL 1091 Listed for Indoor or Ambient Outdoor Service Without Direct Exposure to Precipitation or Being Submerged



Supervisory Tamper Switch & Auxiliary Switch

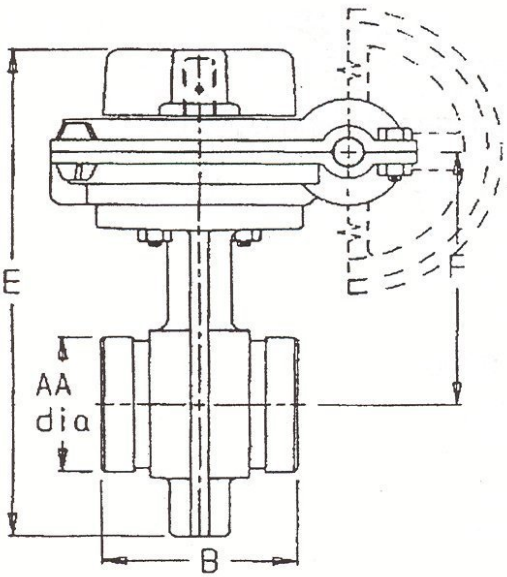
Electrical Specs, Max:
28 VDC, 120 VAC, 0.25 AMP



Tamper Switch

Auxiliary Switch

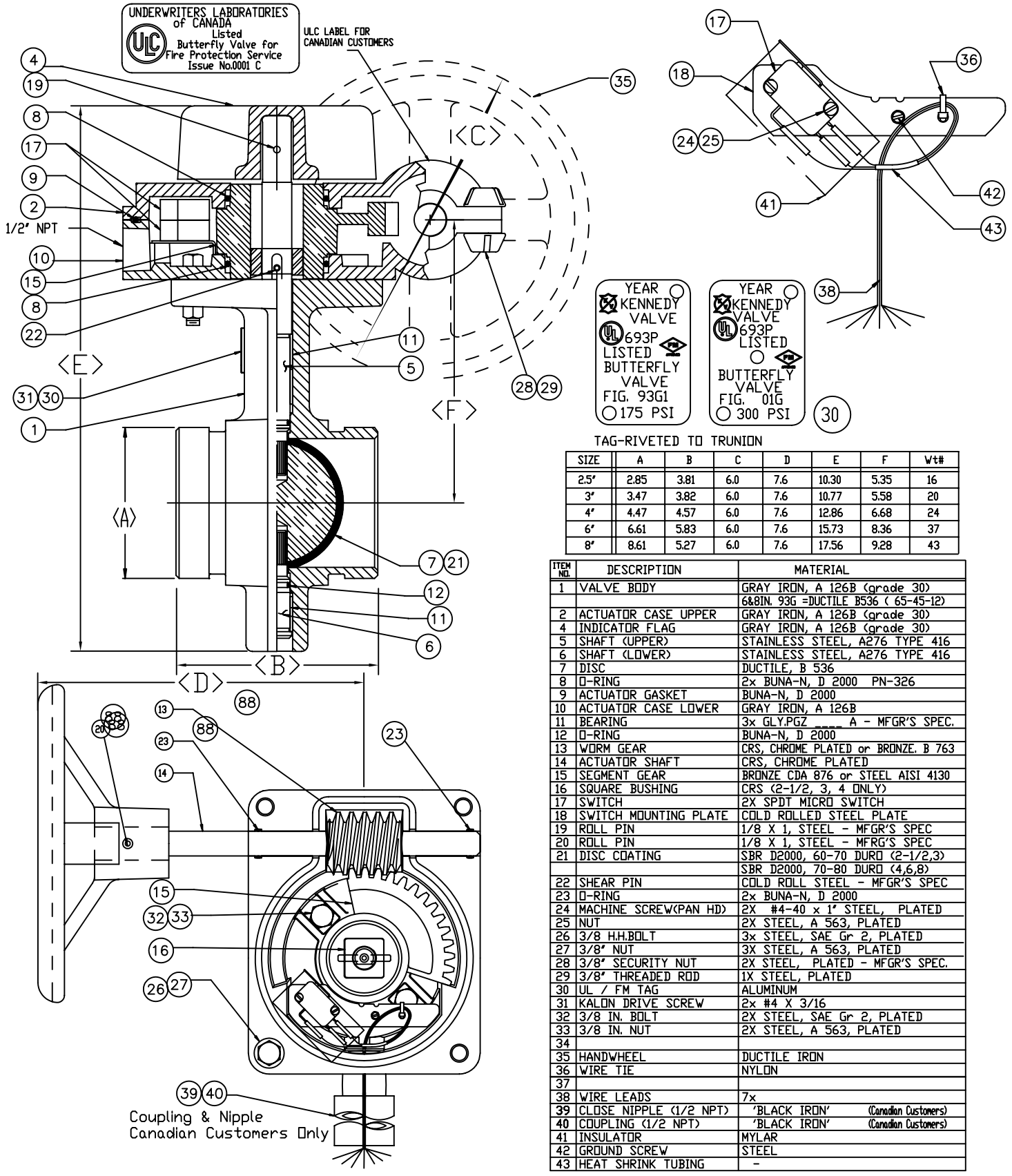
WIRE	COLOR	MODE
A	BLACK	N/O
B	BLACK	N/O
C	BLUE	COMMON
D	BLUE	COMMON
E	BLUE/WHITE	COMMON
F	BLACK/WHITE	N/O
H	RED	N/O



1. Upper & Lower Shafts: 416 Stainless Steel
2. Body Coating: Fusion Bonded Nylon 11
3. Disc Encapsulation Material: SBR

MADE IN K V USA

SIZE	AA dia	B	C	D	E	F	Wt#
2.5"	2.85	3.81	6.0	7.6	10.30	5.35	16
3"	3.47	3.82	6.0	7.6	10.77	5.58	20
4"	4.47	4.57	6.0	7.6	12.86	6.68	24
6"	6.61	5.83	6.0	7.6	15.73	8.36	37
8"	6.61	5.27	6.0	7.6	17.56	9.28	43



SIZE	A	B	C	D	E	F	Wt#
2.5"	2.85	3.81	6.0	7.6	10.30	5.35	16
3"	3.47	3.82	6.0	7.6	10.77	5.58	20
4"	4.47	4.57	6.0	7.6	12.86	6.68	24
6"	6.61	5.83	6.0	7.6	15.73	8.36	37
8"	8.61	5.27	6.0	7.6	17.56	9.28	43

ITEM NO.	DESCRIPTION	MATERIAL
1	VALVE BODY	GRAY IRON, A 126B (grade 30)
		6&8IN. 93G =DUCTILE B536 (65-45-12)
2	ACTUATOR CASE UPPER	GRAY IRON, A 126B (grade 30)
4	INDICATOR FLAG	GRAY IRON, A 126B (grade 30)
5	SHAFT (UPPER)	STAINLESS STEEL, A276 TYPE 416
6	SHAFT (LOWER)	STAINLESS STEEL, A276 TYPE 416
7	DISC	DUCTILE, B 536
8	O-RING	2x BUNA-N, D 2000 PN-326
9	ACTUATOR GASKET	BUNA-N, D 2000
10	ACTUATOR CASE LOWER	GRAY IRON, A 126B
11	BEARING	3x GLY.PGZ ____ A - MFGR'S SPEC.
12	O-RING	BUNA-N, D 2000
13	WORM GEAR	CRS, CHROME PLATED or BRONZE. B 763
14	ACTUATOR SHAFT	CRS, CHROME PLATED
15	SEGMENT GEAR	BRONZE CDA 876 or STEEL AISI 4130
16	SQUARE BUSHING	CRS (2-1/2, 3, 4 ONLY)
17	SWITCH	2X SPDT MICRO SWITCH
18	SWITCH MOUNTING PLATE	COLD ROLLED STEEL PLATE
19	ROLL PIN	1/8 X 1, STEEL - MFGR'S SPEC
20	ROLL PIN	1/8 X 1, STEEL - MFRG'S SPEC
21	DISC COATING	SBR D2000, 60-70 DURO (2-1/2,3)
		SBR D2000, 70-80 DURO (4,6,8)
22	SHEAR PIN	COLD ROLL STEEL - MFGR'S SPEC
23	O-RING	2x BUNA-N, D 2000
24	MACHINE SCREW(PAN HD)	2X #4-40 x 1" STEEL, PLATED
25	NUT	2X STEEL, A 563, PLATED
26	3/8 H.H.BOLT	3x STEEL, SAE Gr 2, PLATED
27	3/8" NUT	3X STEEL, A 563, PLATED
28	3/8" SECURITY NUT	2X STEEL, PLATED - MFGR'S SPEC.
29	3/8" THREADED ROD	1X STEEL, PLATED
30	UL / FM TAG	ALUMINUM
31	KALON DRIVE SCREW	2x #4 X 3/16
32	3/8 IN. BOLT	2X STEEL, SAE Gr 2, PLATED
33	3/8 IN. NUT	2X STEEL, A 563, PLATED
34		
35	HANDWHEEL	DUCTILE IRON
36	WIRE TIE	NYLON
37		
38	WIRE LEADS	7x
39	CLOSE NIPPLE (1/2 NPT)	'BLACK IRON' (Canadian Customers)
40	COUPLING (1/2 NPT)	'BLACK IRON' (Canadian Customers)
41	INSULATOR	MYLAR
42	GROUND SCREW	STEEL
43	HEAT SHRINK TUBING	-

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

DWN: TRIJ
DATE: 6/2/03
DWG. NO. KV-BFV-01G

KENNEDY VALVE
UL/FM GROOVED END BUTTERFLY VALVE
FIGURE 01G
VALVE ASSEMBLY / MATERIAL LIST

KENNEDY VALVE

Division of McWane, Inc.
1021 E.Water St., Elmira, NY 14901 (607) 734-2211

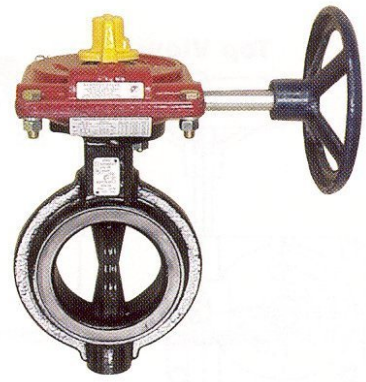
UL LISTED

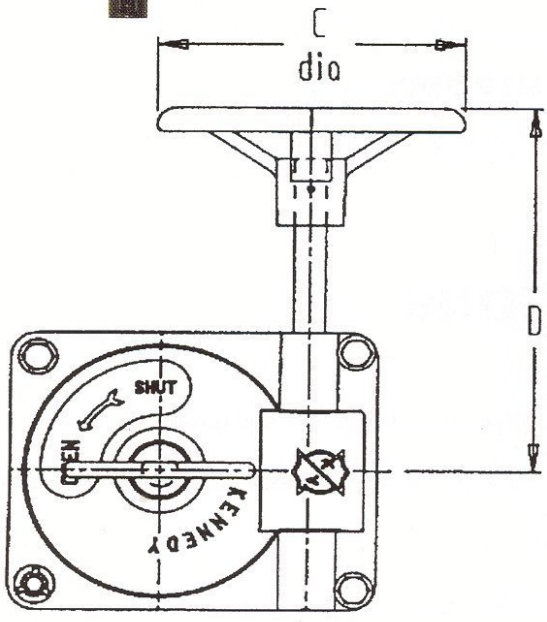
FM APPROVED

WAFER END BUTTERFLY VALVES 2-1/2" to 8"

Figure 01W - 300psi
with Supervisory Tamper Switch

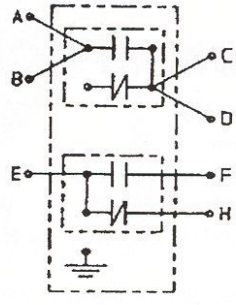
UL 1091 Listed for Indoor or Ambient Outdoor Service Without Direct Exposure to Precipitation or Being Submerged





Supervisory Tamper Switch & Auxiliary Switch

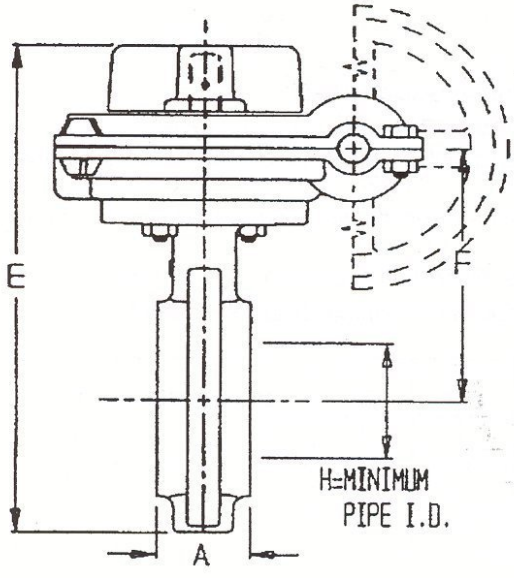
Electrical Specs, Max:
28 VDC, 120 VAC, 0.25 AMP



Tamper Switch

Auxiliary Switch

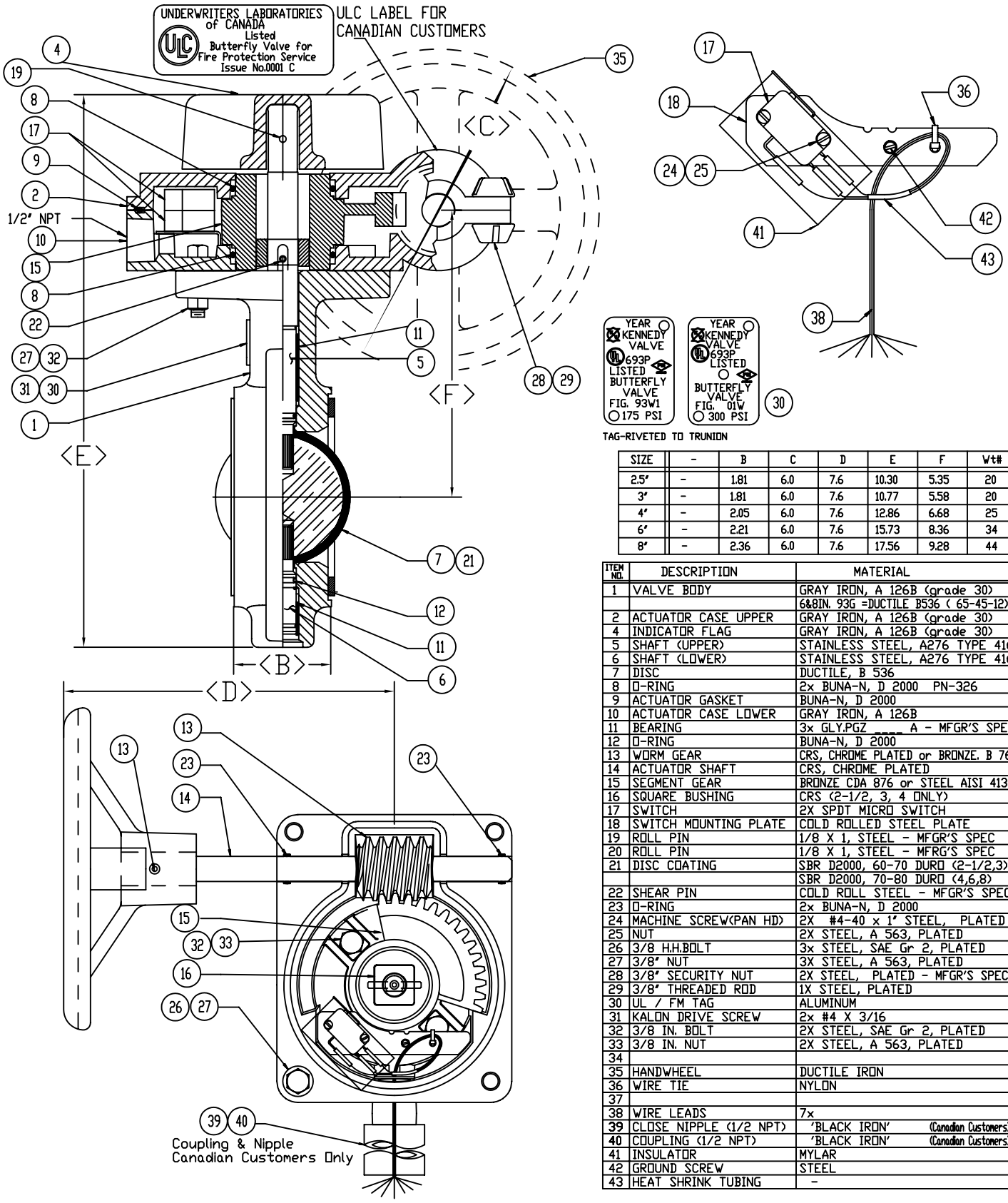
WIRE	COLOR	MODE
A	BLACK	N/O
B	BLACK	N/O
C	BLUE	COMMON
D	BLUE	COMMON
E	BLUE/WHITE	COMMON
F	BLACK/WHITE	N/O
H	RED	N/O



1. Upper & Lower Shafts: 416 Stainless Steel
2. Body Coating: Fusion Bonded Nylon 11
3. Disc Encapsulation Material: SBR

MADE IN K V USA

SIZE	A	C	D	E	F	H	Wt#
2.5"	1.81	6.0	7.6	10.30	5.35	1.72	20
3"	1.81	6.0	7.6	10.77	5.58	2.39	20
4"	2.05	6.0	7.6	12.86	6.68	3.31	25
6"	2.21	6.0	7.6	15.73	8.36	5.60	34
8"	2.36	6.0	7.6	17.56	9.28	7.49	44



TAG-RIVETED TO TRUNION

SIZE	-	B	C	D	E	F	Wt#
2.5"	-	1.81	6.0	7.6	10.30	5.35	20
3"	-	1.81	6.0	7.6	10.77	5.58	20
4"	-	2.05	6.0	7.6	12.86	6.68	25
6"	-	2.21	6.0	7.6	15.73	8.36	34
8"	-	2.36	6.0	7.6	17.56	9.28	44

ITEM NO.	DESCRIPTION	MATERIAL
1	VALVE BODY	GRAY IRON, A 126B (grade 30)
		6&8IN. 93G =DUCTILE B536 (65-45-12)
2	ACTUATOR CASE UPPER	GRAY IRON, A 126B (grade 30)
4	INDICATOR FLAG	GRAY IRON, A 126B (grade 30)
5	SHAFT (UPPER)	STAINLESS STEEL, A276 TYPE 416
6	SHAFT (LOWER)	STAINLESS STEEL, A276 TYPE 416
7	DISC	DUCTILE, B 536
8	O-RING	2x BUNA-N, D 2000 PN-326
9	ACTUATOR GASKET	BUNA-N, D 2000
10	ACTUATOR CASE LOWER	GRAY IRON, A 126B
11	BEARING	3x GLY.PGZ ____ A - MFGR'S SPEC.
12	O-RING	BUNA-N, D 2000
13	WORM GEAR	CRS, CHROME PLATED or BRONZE. B 763
14	ACTUATOR SHAFT	CRS, CHROME PLATED
15	SEGMENT GEAR	BRONZE CDA 876 or STEEL AISI 4130
16	SQUARE BUSHING	CRS (2-1/2, 3, 4 ONLY)
17	SWITCH	2X SPDT MICRO SWITCH
18	SWITCH MOUNTING PLATE	COLD ROLLED STEEL PLATE
19	ROLL PIN	1/8 X 1, STEEL - MFGR'S SPEC
20	ROLL PIN	1/8 X 1, STEEL - MFRG'S SPEC
21	DISC COATING	SBR D2000, 60-70 DURO (2-1/2,3)
		SBR D2000, 70-80 DURO (4,6,8)
22	SHEAR PIN	COLD ROLL STEEL - MFGR'S SPEC
23	O-RING	2x BUNA-N, D 2000
24	MACHINE SCREW(PAN HD)	2X #4-40 x 1" STEEL, PLATED
25	NUT	2X STEEL, A 563, PLATED
26	3/8 H.H.BOLT	3x STEEL, SAE Gr 2, PLATED
27	3/8" NUT	3X STEEL, A 563, PLATED
28	3/8" SECURITY NUT	2X STEEL, PLATED - MFGR'S SPEC.
29	3/8" THREADED ROD	1X STEEL, PLATED
30	UL / FM TAG	ALUMINUM
31	KALON DRIVE SCREW	2x #4 X 3/16
32	3/8 IN. BOLT	2X STEEL, SAE Gr 2, PLATED
33	3/8 IN. NUT	2X STEEL, A 563, PLATED
34		
35	HANDWHEEL	DUCTILE IRON
36	WIRE TIE	NYLON
37		
38	WIRE LEADS	7x
39	CLOSE NIPPLE (1/2 NPT)	'BLACK IRON' (Canadian Customers)
40	COUPLING (1/2 NPT)	'BLACK IRON' (Canadian Customers)
41	INSULATOR	MYLAR
42	GROUND SCREW	STEEL
43	HEAT SHRINK TUBING	-

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

DWN: TRIJ
DATE: 6/2/03
DWG. NO. KV-BFV-01W

KENNEDY VALVE
UL/FM WAFER END BUTTERFLY VALVE
FIGURE 01W
VALVE ASSEMBLY / MATERIAL LIST

01G / 01W – BUTTERFLY VALVE
INSTALLATION INSTRUCTIONS

Top View

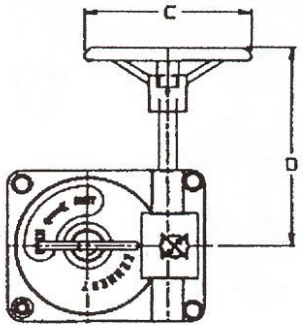


Fig 01G

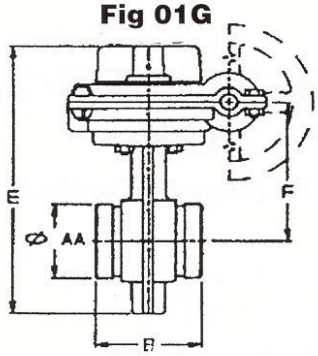
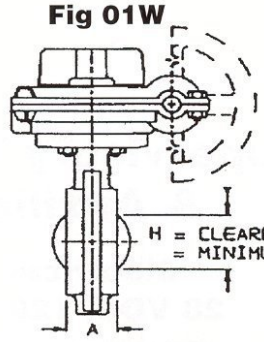


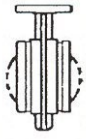
Fig 01W



1. Upper & Lower Shafts: 416 Stainless Steel
2. Body Coating: Fusion Bonded Nylon 11
3. Disc Encapsulation Material; SBR

SIZE	2.5"	3"	4"	6"	8"
A	1.81	1.81	2.05	2.21	2.36
AA	2.85	3.47	4.47	6.61	8.61
B	3.81	3.82	4.57	5.83	5.27
C	6.00	6.00	6.00	6.00	6.00
D	7.60	7.60	7.60	7.60	7.60
E	10.30	10.77	12.86	15.73	17.56
F	5.35	5.58	6.68	8.36	9.28
H	1.72	2.39	3.31	5.60	7.49
Wt.G	16	20	24	37	43
Wt.W	20	20	25	34	44

8" SIZE ONLY



PIPE CONNECTION SPECIFICATIONS

Figure 01G (Grooved End)

Pressure Rating: **Fig. 01G - 300psi**

End Connections: Mating pipe and couplings to conform to ANSI/AWWA C606 for outside, groove, and gasket dimensions. For use with cut grooves in steel pipe of schedule 40 to 160.

Installation: Valves to be installed by person(s) certified by authority having jurisdiction to install grooved end fittings in a fire protection system.

1. Place gasket over pipe or fitting to which valve is to be joined.
2. Position valve against mating pipe or fitting.
3. Slide gasket into position on valve and install coupling according to coupling manufacturer's directions.

Figure 01W (Wafer End)

Pressure Rating: **Fig. 01W - 300psi**

End Connections: For installation between two ANSI B16.1, 125 pound flanges pipe schedule 10 to 80.

See diagram and chart above for minimum inside diameter of pipe.

1. Two flanged mating pieces should be placed at a distance apart that is slightly larger than the length of the valve (dim. "B")
2. A minimum of 2 studs should be placed, through adjacent flange holes, between which the lower trunnion of the valve will be placed.
3. Place valve between flanges so that lower trunnion and larger rib section fit between adjacent studs.
4. Place remaining studs around valve and tighten alternating sides until desired torque is reached.

SIZE	2.5"	3"	4"	6"	8"
Number of studs	4	4	8	8	8
Stud Size (in)	5/8	5/8	5/8	3/4	3/4
Stud Length (in. minimum)	5.5	5.5	6.5	7	7.5
Recommended Torque (minimum)	30	30	30	40	50

Electric Motor Operator for: Gate Valves / Butterfly Valves / Plug Valves
KENNEDY VALVE

Almost every business day, Kennedy Valve 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 transformers 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.

Electric Motor Operator for: Butterfly Valves / Gate Valves / Plug Valves

KENNEDY VALVE

INFORMATION REQUIRED WITH MOTOR OPERATED VALVE ORDER:

1. Type of valve – (Butterfly Valve) (RW Gate Valve)(DD Gate Valve)(Plug Valve)
2. End connection
3. Valve size and quantity.
4. Maximum pressure against which valve will be required to operate (Maximum Differential Pressure) and flow rate in feet/sec. if available.
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. Complete specification will required with inquiry for all motor valves.

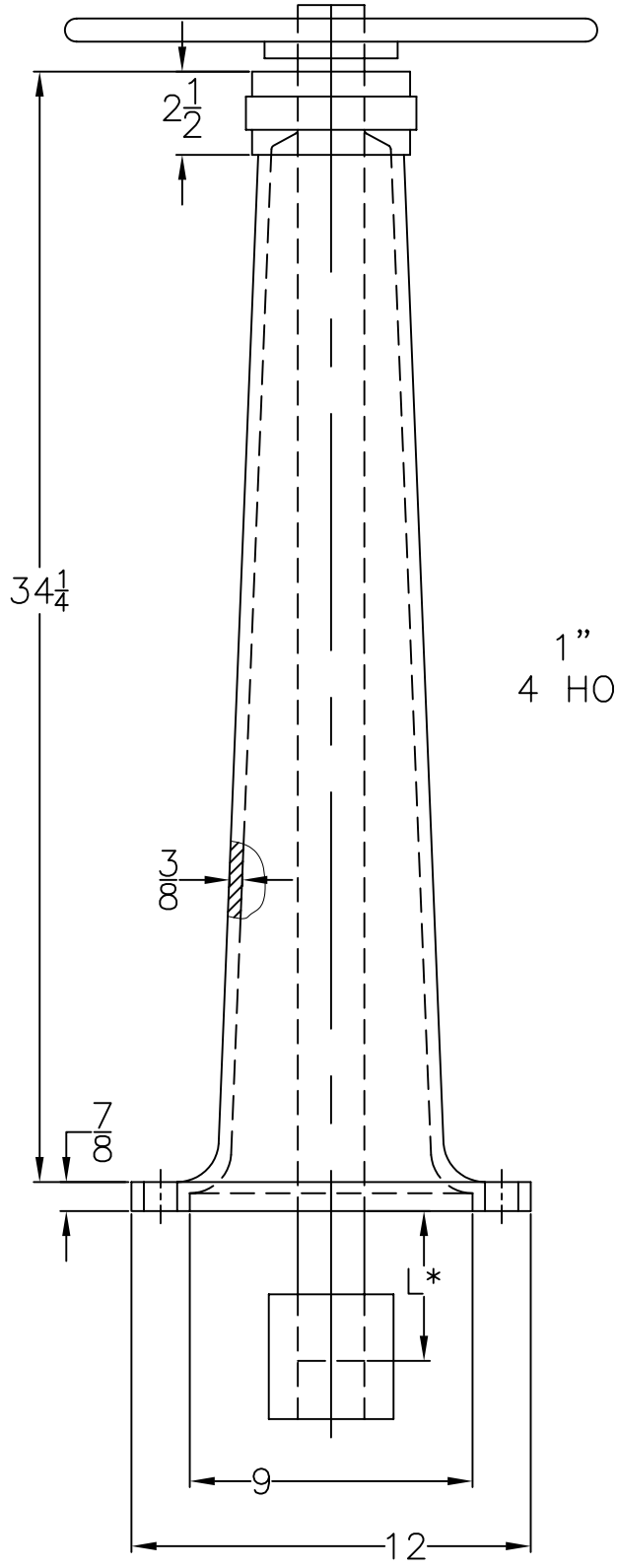
Cylinder or Hydraulic Operated Valves

KENNEDY VALVE

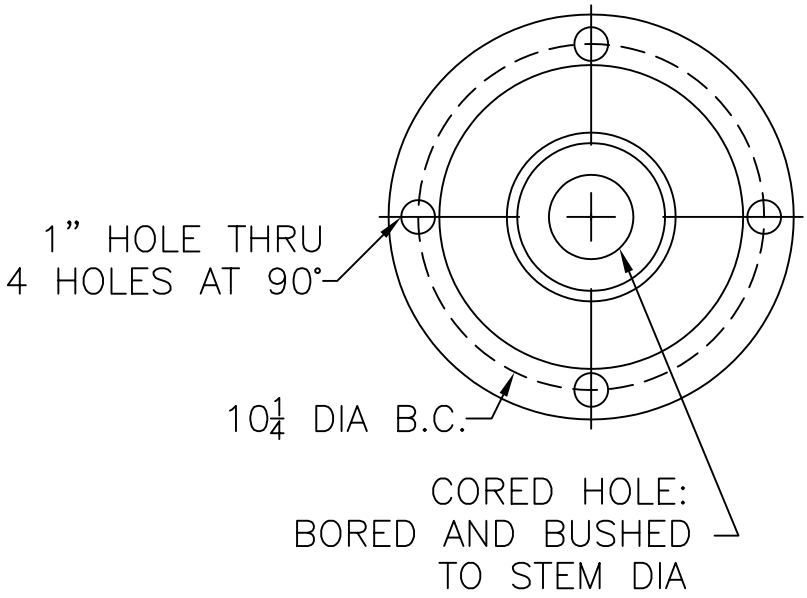
INFORMATION REQUIRED WITH CYLINDER OPERATED VALVE ORDER:

1. Type of valve – (Butterfly Valve) (Plug Valve)
2. End connection
3. Valve size and quantity.
4. Supply pressure provided.
5. If limit switches are required.
6. 2-way or 4-way solenoid – if required.
7. If speed controls are required-what type.
8. Is a positioner required.
9. Single or double acting.
10. What type of cylinder required (i.e. Ply, SS Etc).
11. Air or water pressure provided.
12. 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

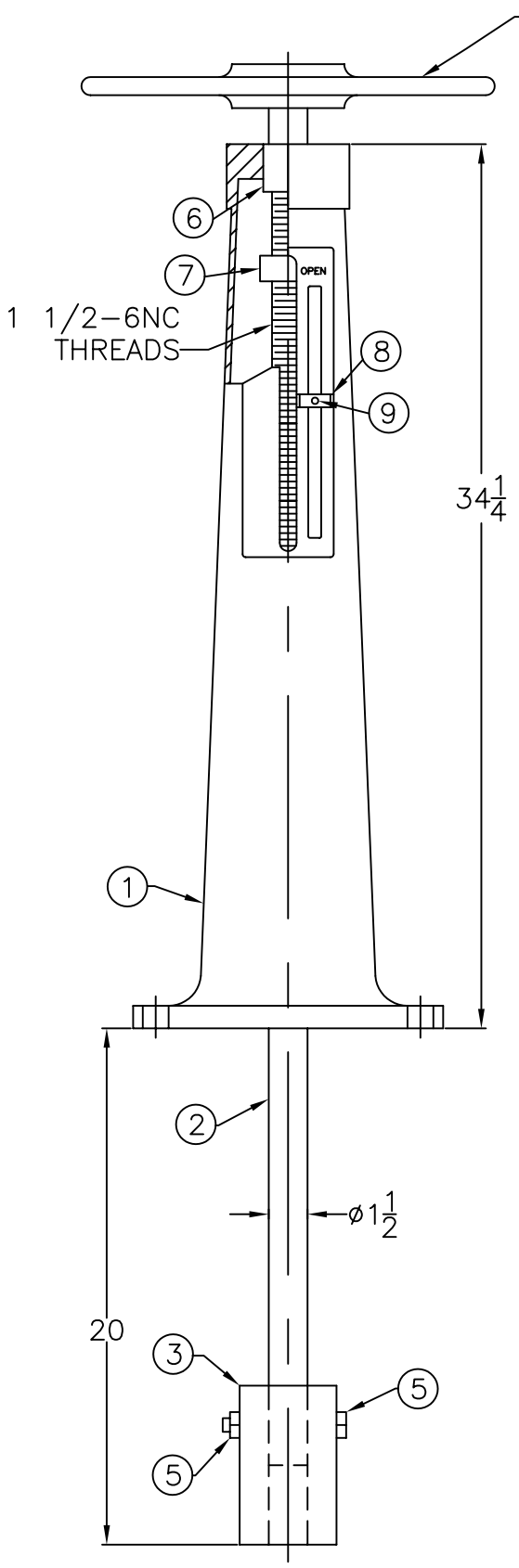


The F–5500–T Floor stand is for use on non–rising stem valves. Floor stands are of high strength cast iron and may be provided with extension arms of steel, stainless steel or bronze as specified.

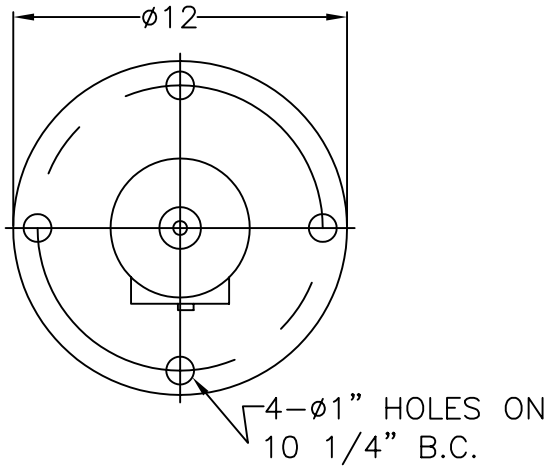
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. ACFS–5500	

FLOOR STAND
STYLE F–5500–T
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

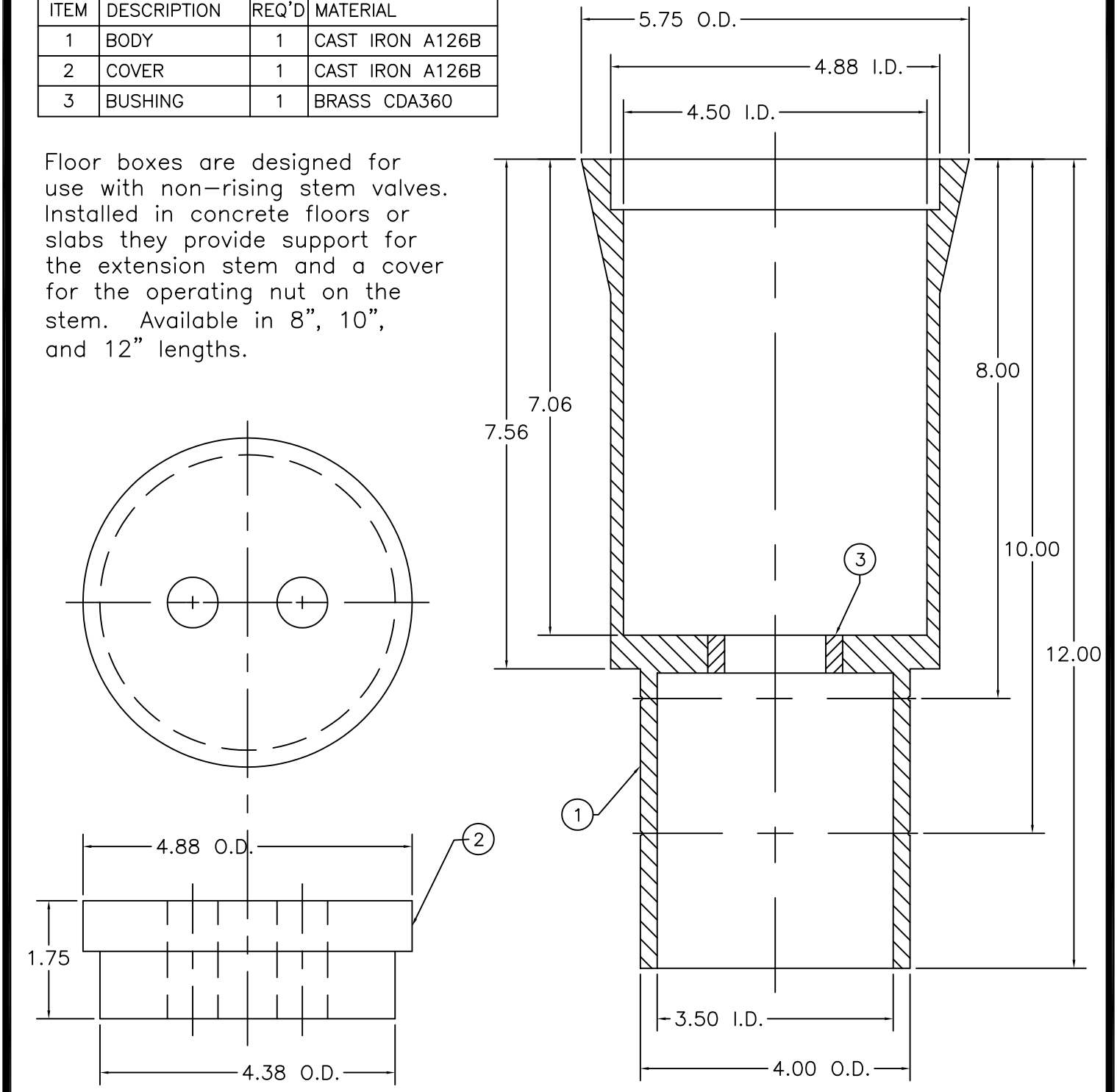
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. ACFS–5505

FLOOR STAND
STYLE F–5505–T
NON–RISING––INDICATING

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.



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	ACFB–5695

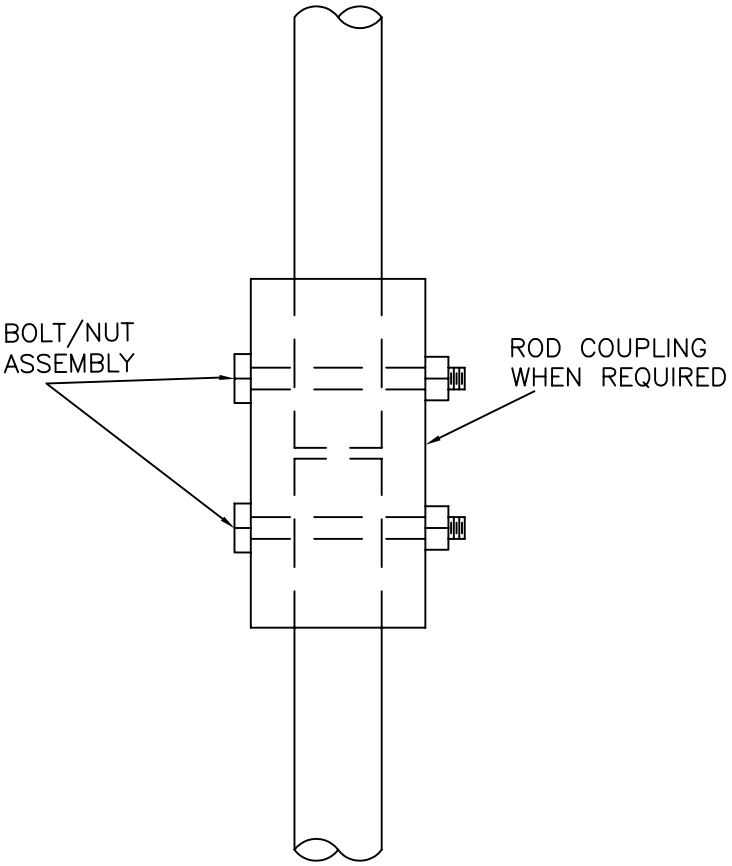
FLOOR BOX
STYLE F–5695–T

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.

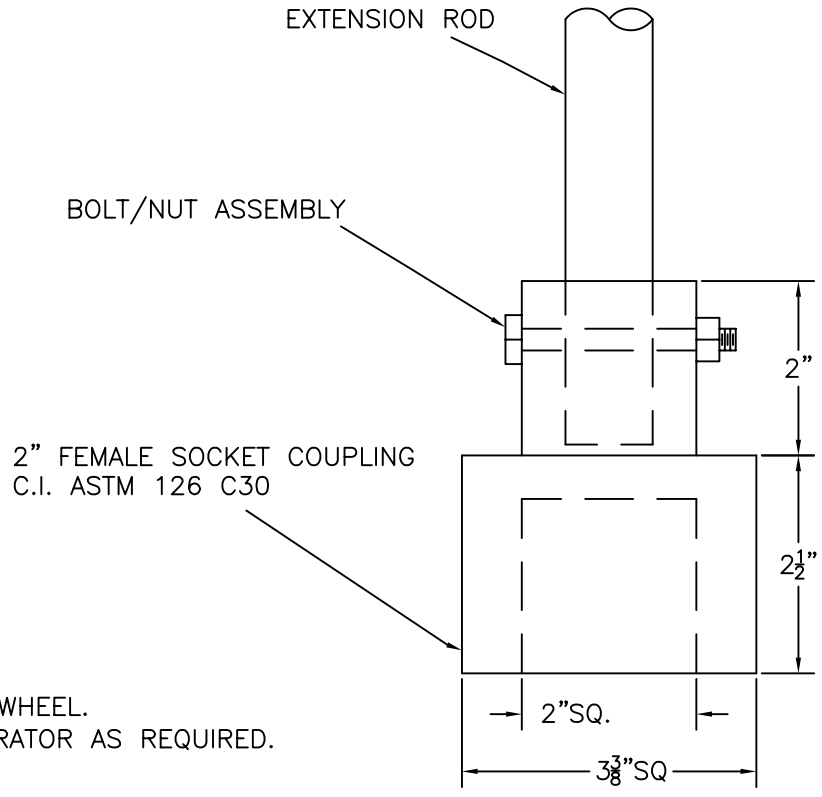
When ordering extension stem, state length and give distance from bottom face of flange to top of handwheel or nut, or to base of floor stand.



EXTENSION ROD DIA.–_____

LENGTH–____

QTY.–_____



TO BE SUPPLIED WITH A HANDWHEEL.
2" SQ. NUT, FLOORSTAND OPERATOR AS REQUIRED.

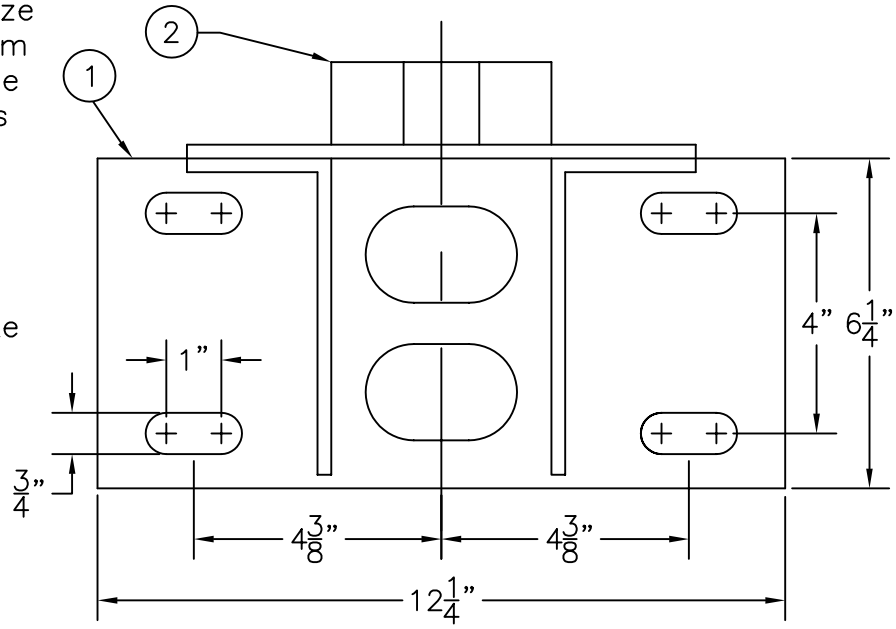
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

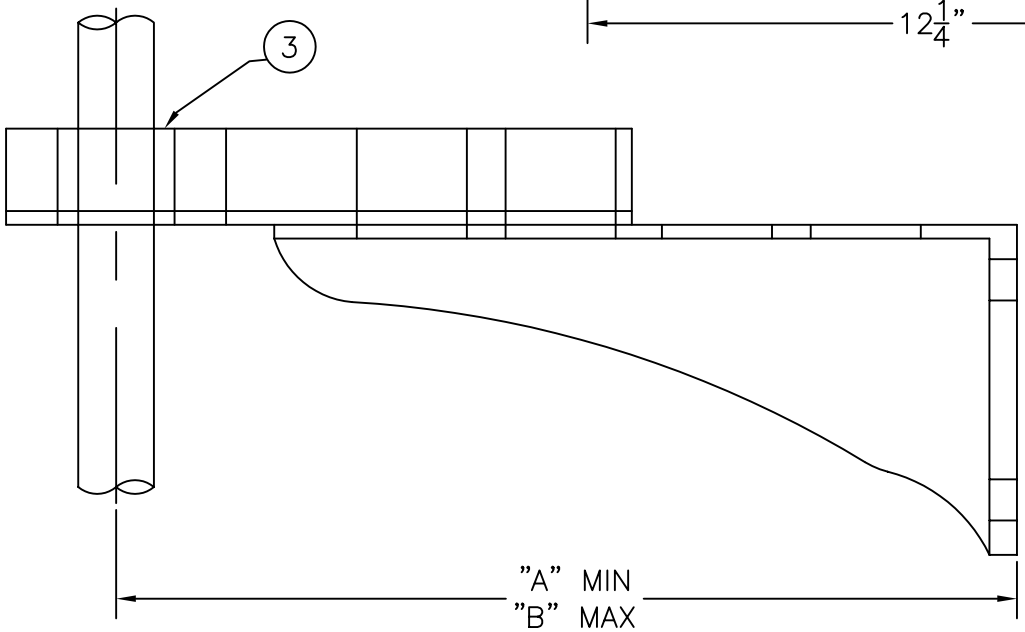
DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	ACESA

EXTENSION STEM ASSEMBLY 2" SQUARE SOCKET COUPLING MATERIAL LIST / DIMENSIONS

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.





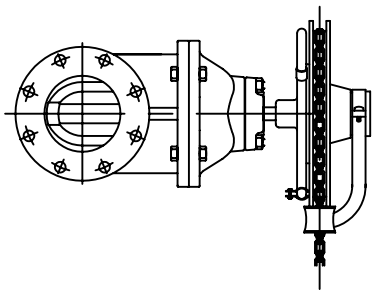
ITEM	DESCRIPTION	QTY.	MATERIAL
1	BRACKET	1	DUCTILE IRON 65.45.12 MIN.
2	GUIDE	1	DUCTILE IRON 65.45.12 MIN.
3	BUSHING	1	BRASS CDA 360
	ASSEMBLY BOLTS & NUTS	4	PLATED STEEL

DIMENSIONS			
SIZE	3	5	6
A	2 1/2	15	24
B	17	24	35

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

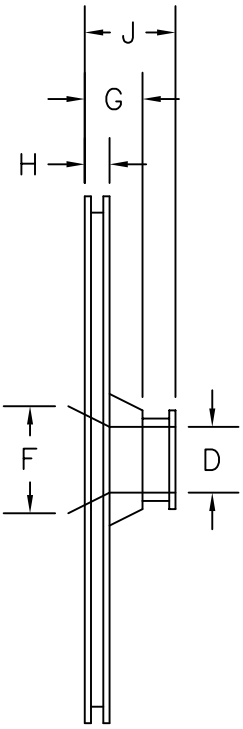
DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	ACSG-5660

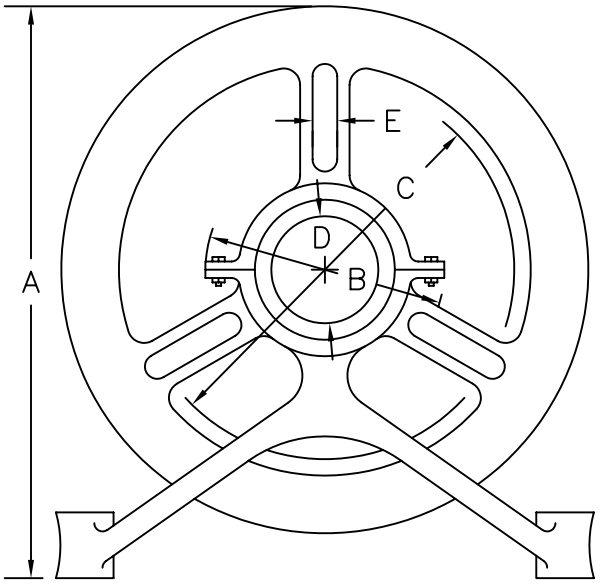
STEM GUIDES
STYLE F-5660-T
Size 3, 5, & 6



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

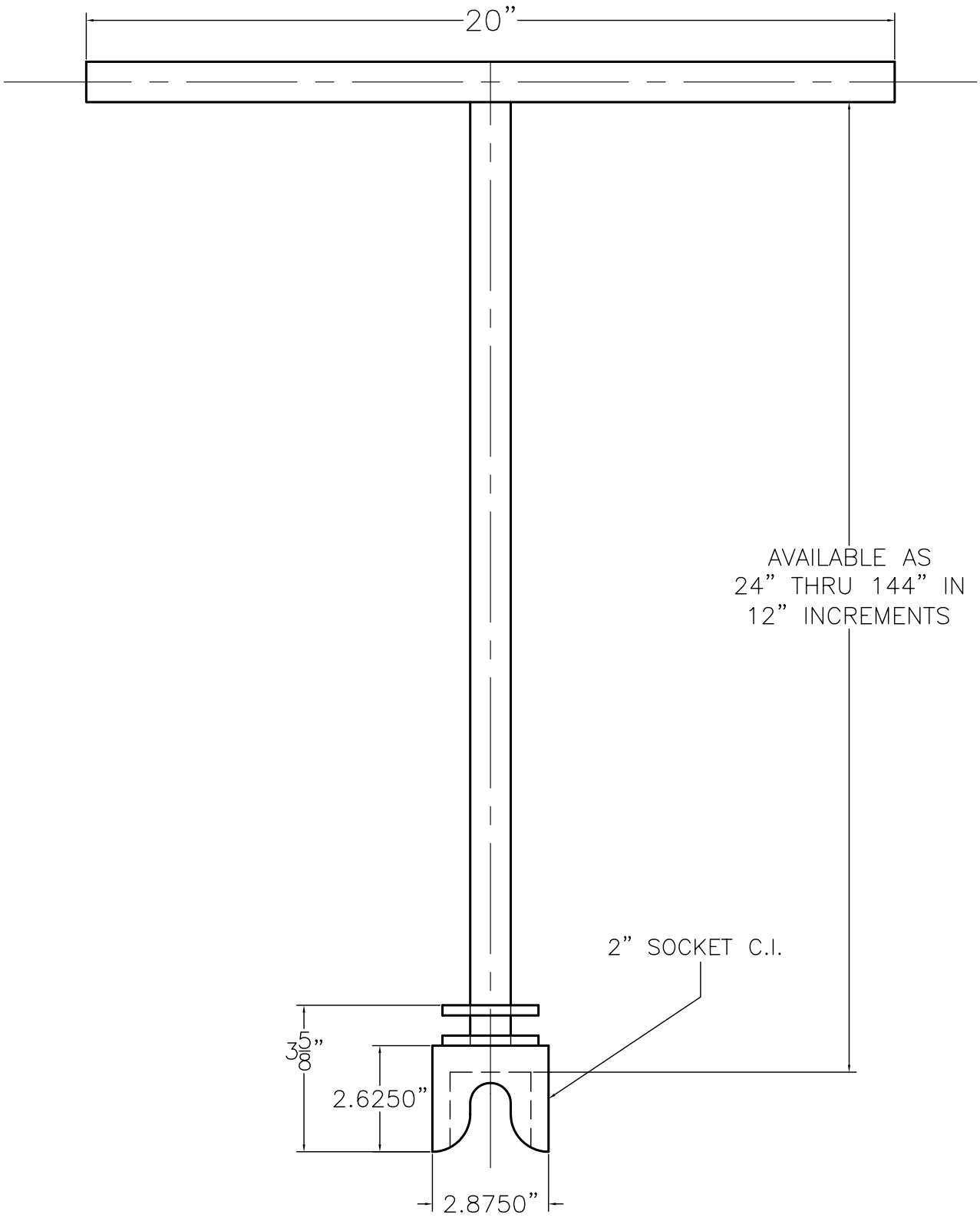
SPROCKET SIZE	1½	2	2½	3	3½	4	4½	5
A – Oveall Heigth	8	10½	12½	15½	18½	21½	25¾	30
B – Inner Bolt Circle	3½	4½	5½	8½	12	12	16	19
C – Outer Bolt Circle	5	6⅝	9¼	12⅜	15½	18	22	25½
D – Hub Opening(dia.)	1	2⅛	2⅛	2⅛	3	3	3	3
E – Slot Size(width)	⅜	⅜	7/16	7/16	7/16	⅝	⅝	⅝
F – Rear Opening	1⅞	3⅛	3½	3½	4⅞	4⅞	4¾	4¾
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	28	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. ACCW–5680

CHAIN WHEEL
STYLE F–5680
GENERAL DIMENSIONS



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	THW1

T–HANDLE SOCKET WRENCH

SUGGESTED SPECIFICATIONS---INSTALLATION INSTRUCTIONS

KENNEDY VALVE MECHANICAL JOINT TAPPING SLEEVES
STYLE 960—AB Pipe
STYLE 957—CD Pipe

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

SAMPLE SPECIFICATION

Ductile Iron Mechanical Joint Tapping Sleeves furnished by Kennedy 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.

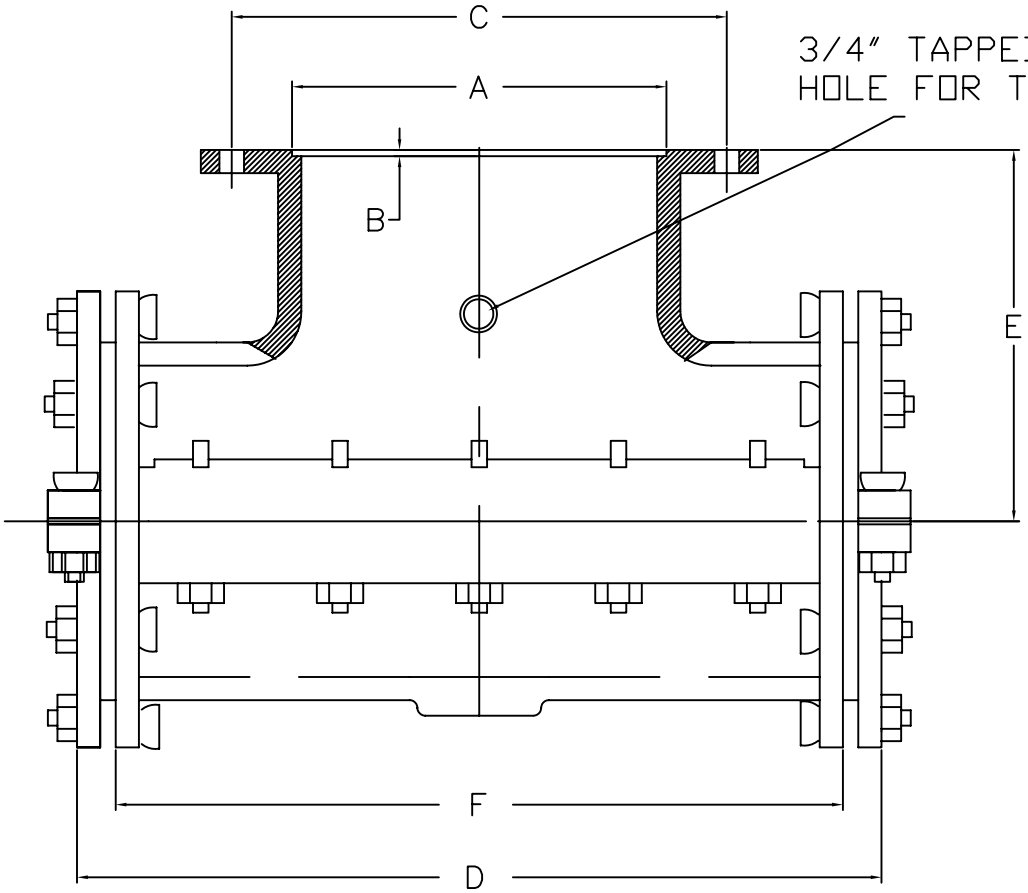
For Cast Iron or Ductile Iron Pipe

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 KENNEDY 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.

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. TS–1

MECHANICAL JOINT TAPPING SLEEVES (6" X 4") to (12" X 12")
STYLE 960–For AB Pipe
SYTLE 957–For CD Pipe

PRESSURE RATINGS
AVAILABLE CONFIGURATIONS
ACCESSORIES / OPTIONS

KENNEDY VALVE--ECCENTRIC PLUG VALVES (3”-24”)

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”	F-5412
Mechanical Joint	3”-24”	F-5413
Grooved Ends	4”-16”	F-5414
Flanged Ends “Full Port”	3”-12”	2725

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.

FEATURES AND BENEFITS

KENNEDY VALVE--ECCENTRIC PLUG VALVES (3”-24”)

1. **STEM PACKING SEALS** – Kennedy Valve utilizes Buna-N multiple “V” ring stem packing seals. This sealing system conforms to AWWA C054 and AWWA C507 standards. The Kennedy 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 Kennedy 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** – Kennedy Valve 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.

SUGGESTED SPECIFICATIONS

KENNEDY VALVE--ECCENTRIC PLUG VALVES (3”-24”)

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 Kennedy Valve F-5412 (flanged), F-5413 (mechanical joint), or F-5414 (grooved) or approved equal.

MATERIALS SPECIFICATIONS

KENNEDY VALVE--ECCENTRIC PLUG VALVES (3”-24”)

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

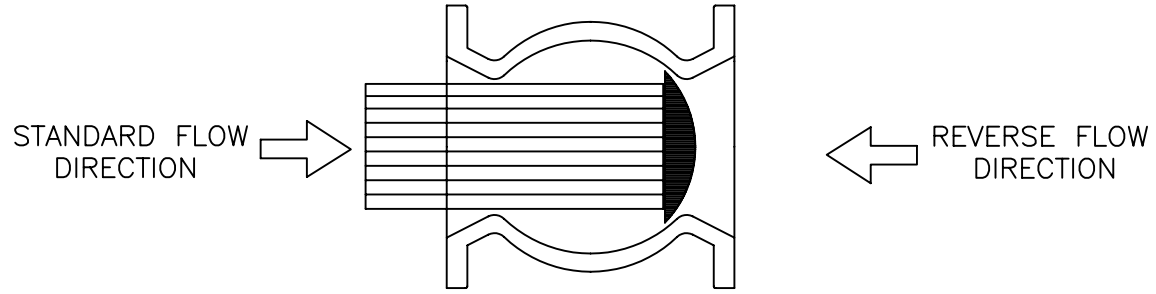
STAINLESS STEEL – 316 – ASTM A743 – Grade CF-8M

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)

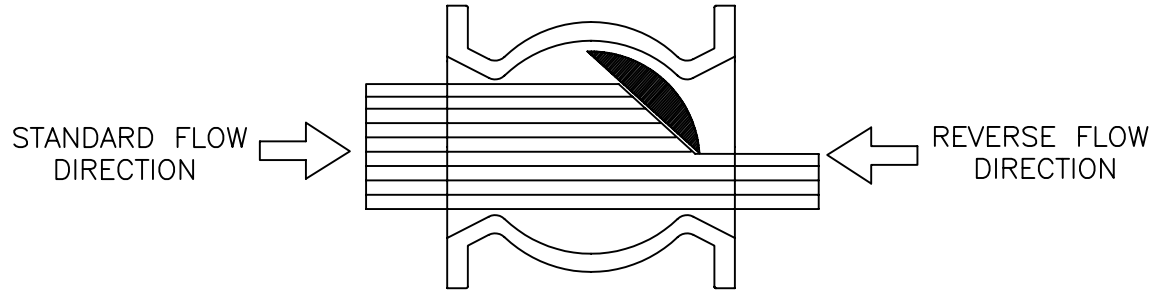
Physical and Mechanical Properties	
Tensile strength	1,475 psi
Elongation	238%
Hardness (Shore A)	70
Compression set (Method B, 22 hrs. @ 150 F.)	18.70%
Specific Gravity	1.24

CLOSED



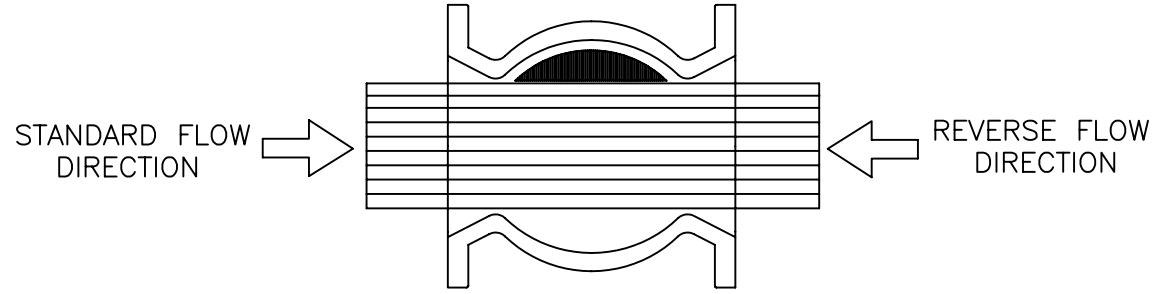
As the plug componet is rotated to valve closure, the offset condition of the plug causes the seating surface to move axially downstream into the nickel. This results in a high seating force thereby crushing trapped solids and resulting in a bubble–tight seal. The upstream pressure acting on the convex 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.

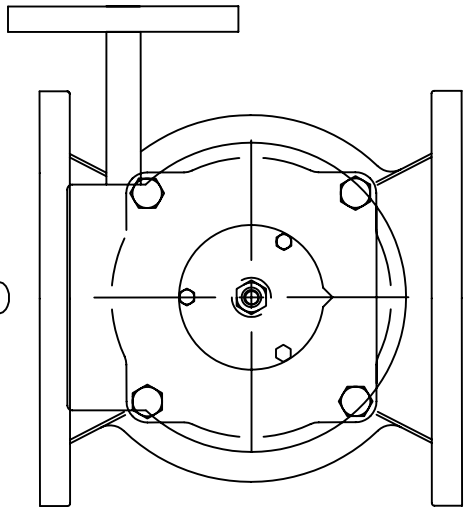
FLOW DIRECTION DESIGNATION

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.

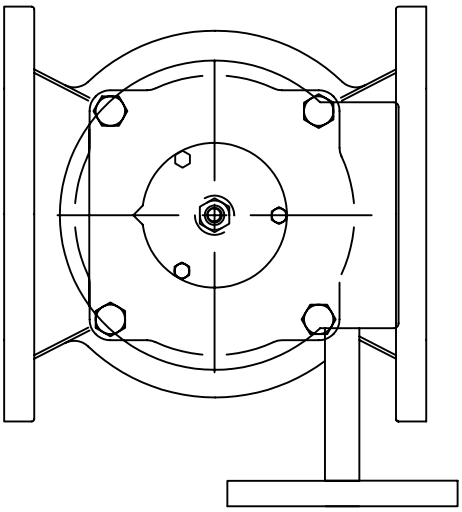
KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. PV–5	ECCENTRIC PLUG VALVE FLOW DESIGNATION

OPTIONAL MOUNTING POSITION

SEAT END



SEAT END



STANDARD MOUNTING POSITION

ACTUATOR MOUNTING POSITION AS VIEWED
FROM THE TOP OF THE VALVE

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. PV–6	

4"THRU 24"
ECCENTRIC PLUG VALVE
OPERATION ORIENTATION OPTION

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)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
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"	U1□N	U1□N	U1□N	U1□N	U1□N	U1□N
6"	U1□N	U1□N	U1□N	U1□N	U1□N	U1□N
8"	U1□N	U1□N	U1□N	U1□N	U1□N	U1□N
10"	U1□N	U1□N	U1□N	U1□N	U1□N	U1□N
12"	U1□N	U1□N	U1□N	U1□N	U1□N	U1□N
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	---

U1□N = 1KE / □ NUT BURIED SERVICE
U90N = 9KE / □ NUT BURIED SERVICE
U100N = 10KE 2.5 / □ NUT BURIED SERVICE
U160N = 16KE / □ 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	---

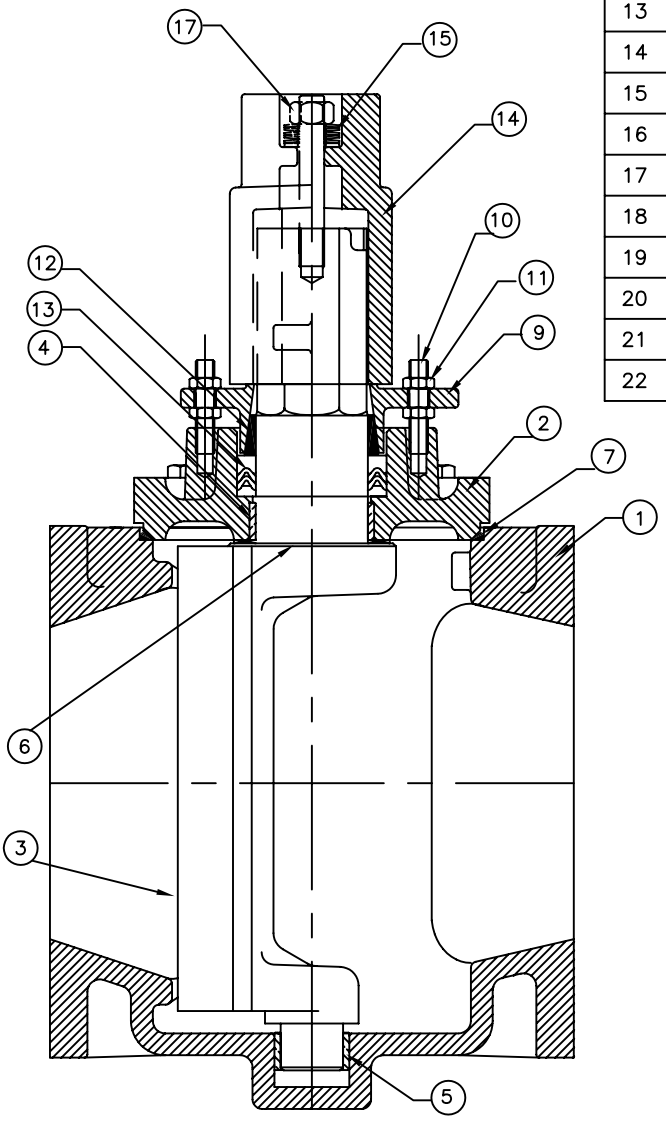
A110 = 1KE / 10" HANDWHEEL
A118 = 1KE / 18" HANDWHEEL
A924 = 9KE / 24" HANDWHEEL
A930 = 9KE / 30" HANDWHEEL
A1024 = 10KE 2.5 / 24" HANDWHEEL
A1030 = 10KE 2.5 / 30" HANDWHEEL
A1624 = 10KE 6 / 24" HANDWHEEL
A1630 = 16KE / 30" HANDWHEEL

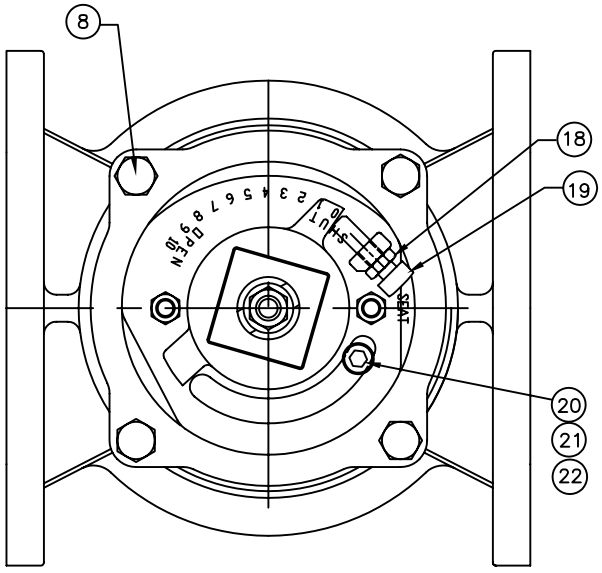
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–8

4" THRU 24" STYLE 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

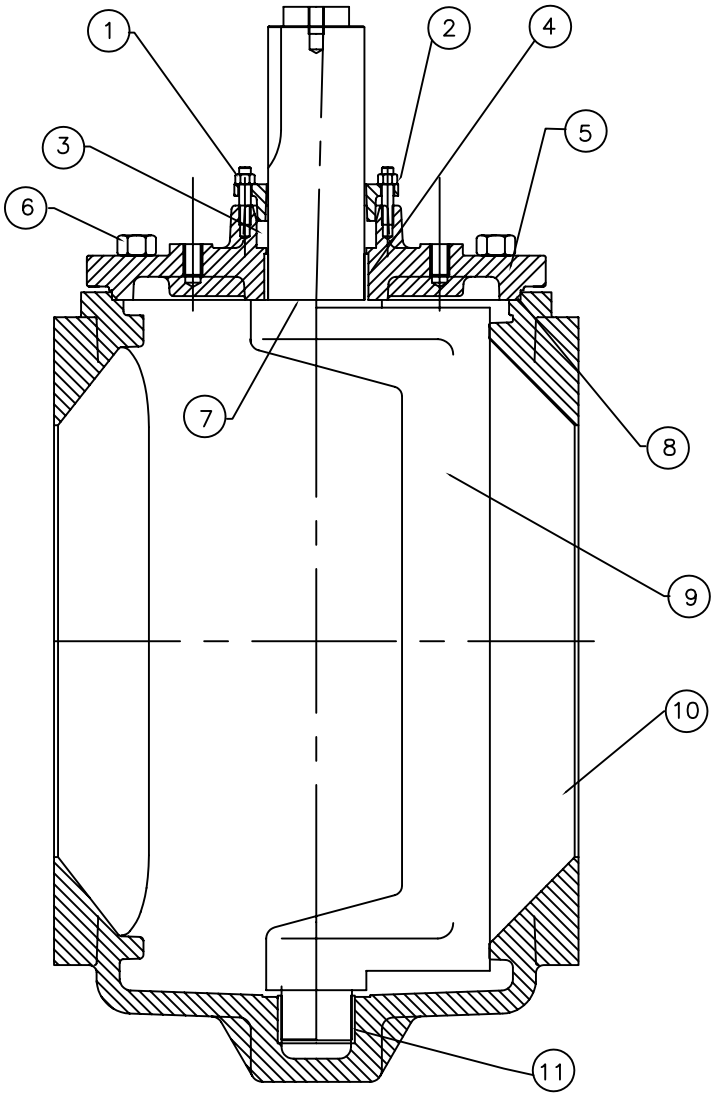




KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	PV–A1

3" THRU 8" STYLE ECCENTRIC PLUG VALVE ASSEMBLY DRAWING / MATERIAL LIST

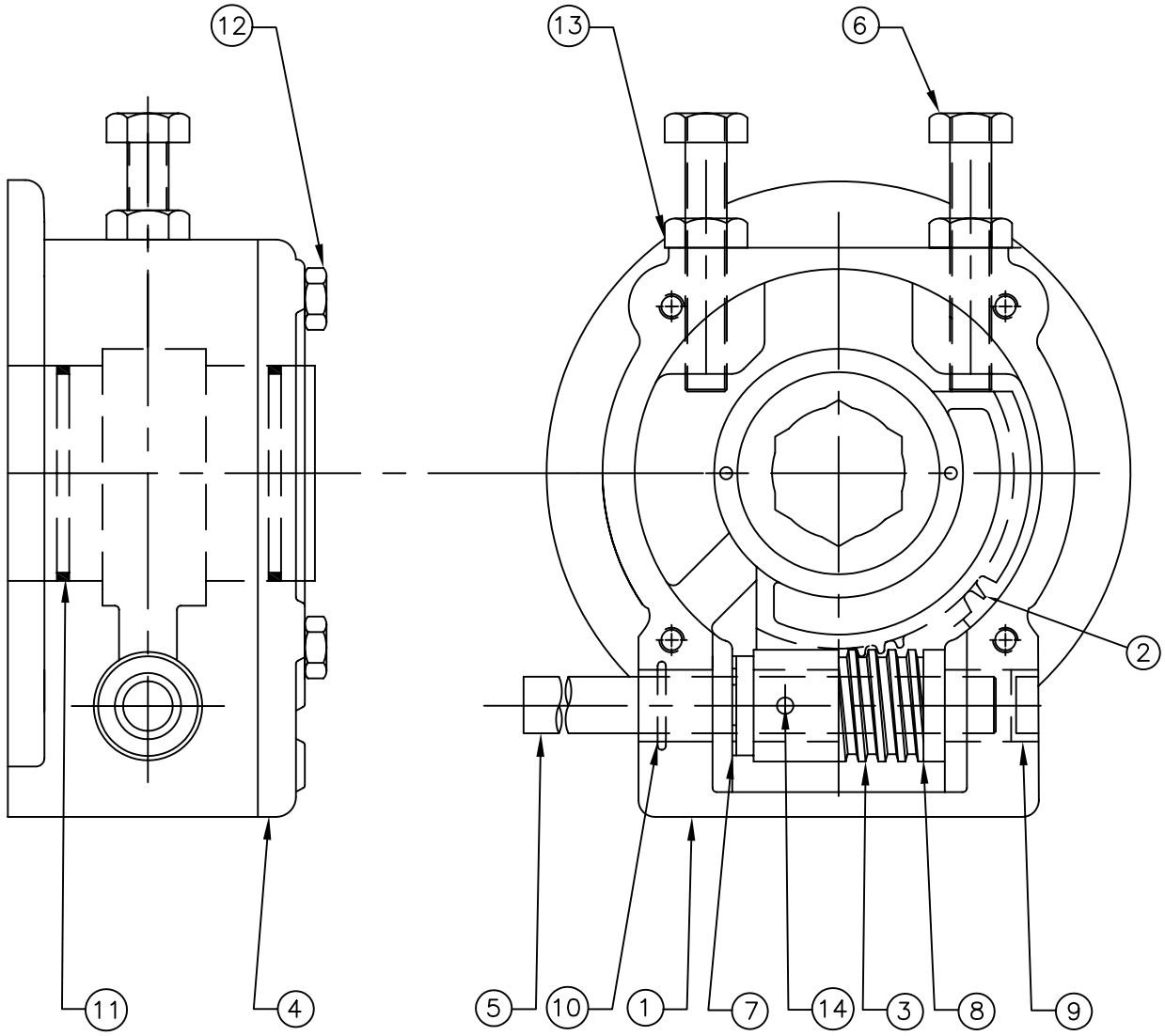


ITEM NO.	DESCRIPTION		ASTM
1	STUD & HEX NUTS	STEEL–ZINC PLATED	
2	FOLLOWER GLAND	CAST IRON	ASTM A–126 CLASS B
3	"V" RING SEALS	BUNA–N	
4	316 S S OIL IMPREGNATED SLEEVE BEARING		
5	COVER	CAST IRON	ASTM A–126 CLASS B
6	HEX HEAD CAPSCREW	STEEL–ZINC PLATED	
7	THRUST WASHER	NYLATRON	
8	COVER O–RING	BUNA–N	
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		

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A2

14" THRU 24" STYLE ECCENTRIC PLUG VALVE ASSEMBLY DRAWING / MATERIAL LIST



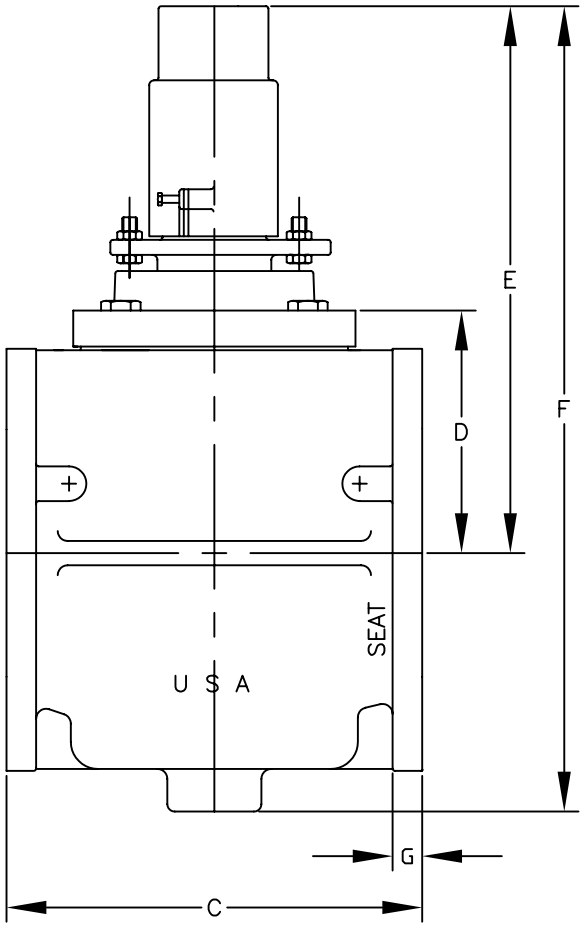
DET.	QTY.	DESCRIPTION	MATERIAL
1	1	HOUSING	CAST IRON ASTM A–126 CLASS B
2	1	DRIVE SLEEVE	MANGANESE BRONZE
3	1	WORM	AISI–11L41
4	1	COVER PLATE	CAST IRON ASTM A–126 CLASS B
5	1	WORM SHAFT	AISI–11L41
6	2	STOP SCREW	ASTM A108
7	2	SHIM	MILD STEEL
8	2	THRUST BEARING	OIL IMPREGNATED BRONZE
9	1	EXPANSION PLUG	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

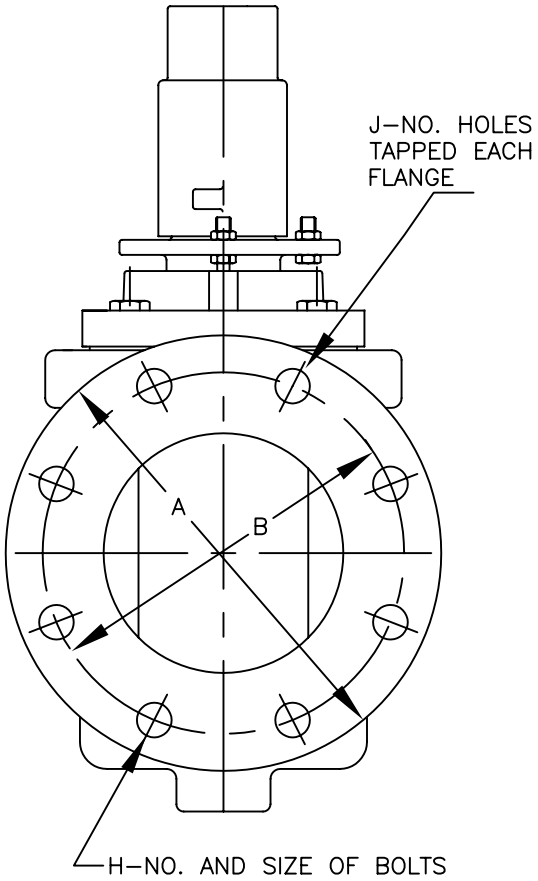
NOTE: THIS VIEW SHOWN IN THE OPEN POSITION WITH THE COVER PLATE REMOVED

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A3

3" THRU 24" SYLE
ECCENTRIC PLUG VALVE
WORM GEAR OPERATOR
ASSEMBLY DRAWING /
MATERIAL LIST



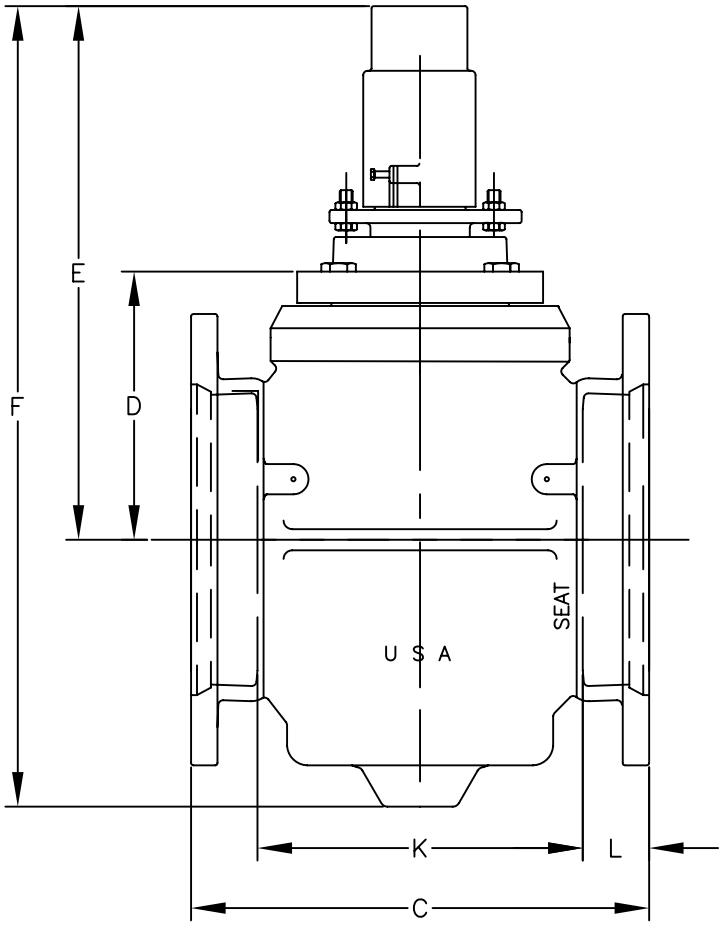


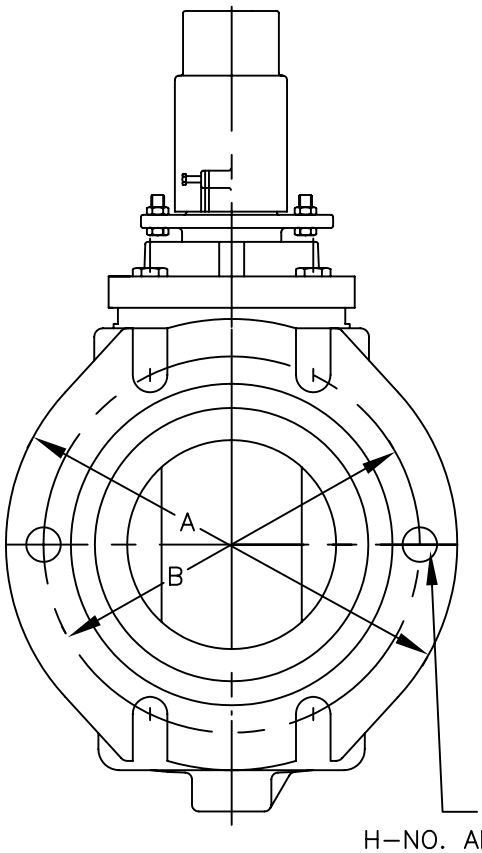
VALVE SIZE	A	B	C	D	E	F	G	H	J	WEIGHT* 2" NUT
3"	7 1/2	6	8	3 15/32	16 3/4	11	3/4	4–3/4	0	20
4"	9	7 1/2	9	4 7/16	11	16 3/8	1	8–5/8	4	68
6"	11	9	10 1/2	6 1/8	12 3/4	21	1 1/16	8–3/4	2	110
8"	13 1/2	11 3/4	11 1/2	7 5/8	14 1/4	24 1/4	1 3/16	8–3/4	4	176

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A4

3" THRU 8" STYLE F–5412 ECCENTRIC PLUG VALVE FLANGED ENDS



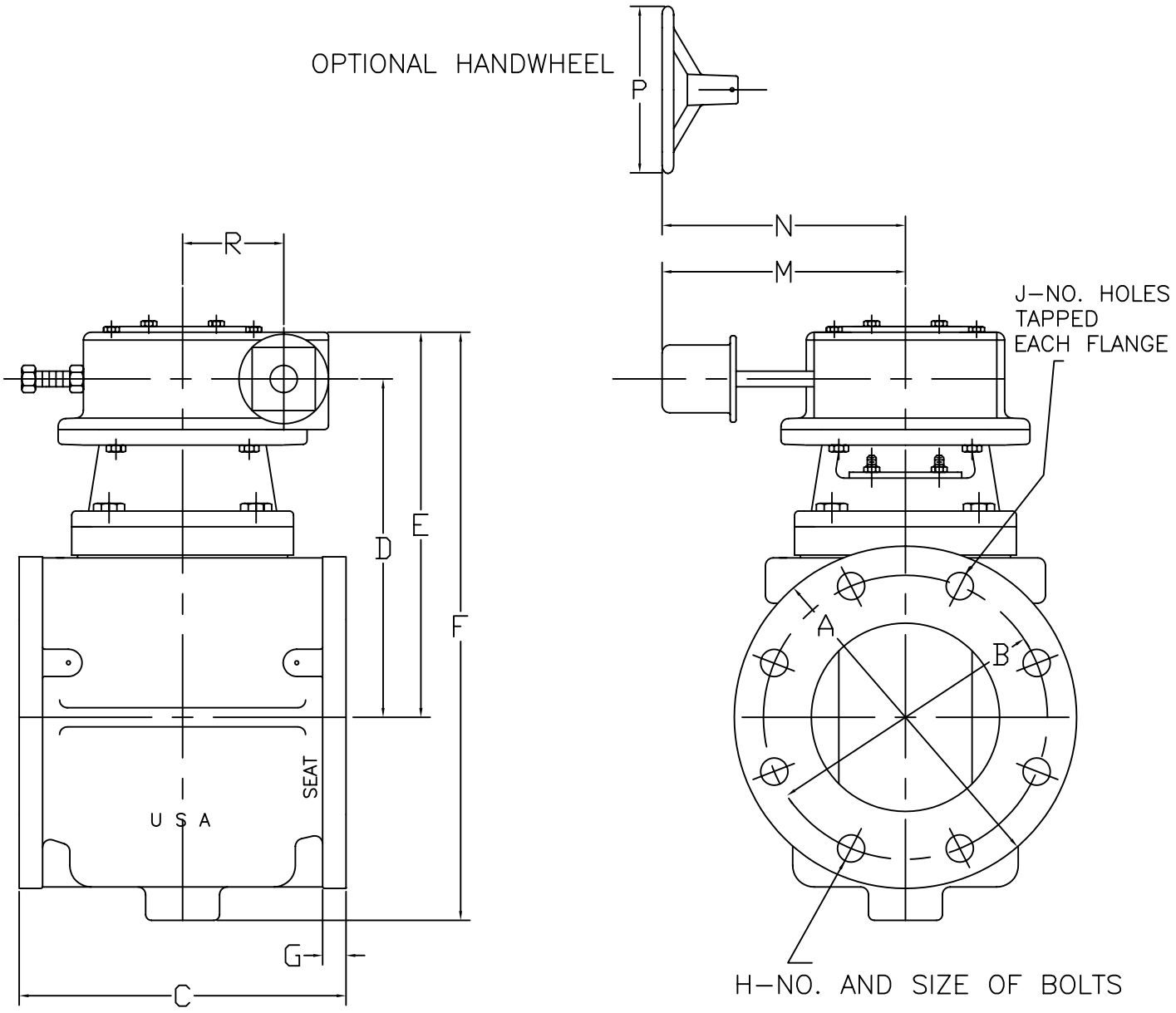


VALVE SIZE	A	B	C	D	E	F	H	K	L	WEIGHT* 2" NUT
3"	7 5/8	6 3/16	11 7/8	3 15/32	6 3/4	11	4–3/4	6 7/8	2 1/2	21
4"	9 1/8	7 1/2	12 1/4	4 7/16	11	16 3/8	4–3/4	7 1/4	2 1/2	60
6"	11 1/8	9 1/2	14 1/8	6 1/8	14 1/2	21	6–3/4	9 1/8	2 1/2	108
8"	13 3/4	11 3/4	17 1/2	7 5/8	16	24 1/4	6–3/4	12 1/2	2 1/2	195

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	PV–A5

3" THRU 8" STYLE F–5413 ECCENTRIC PLUG VALVE MJ X MJ

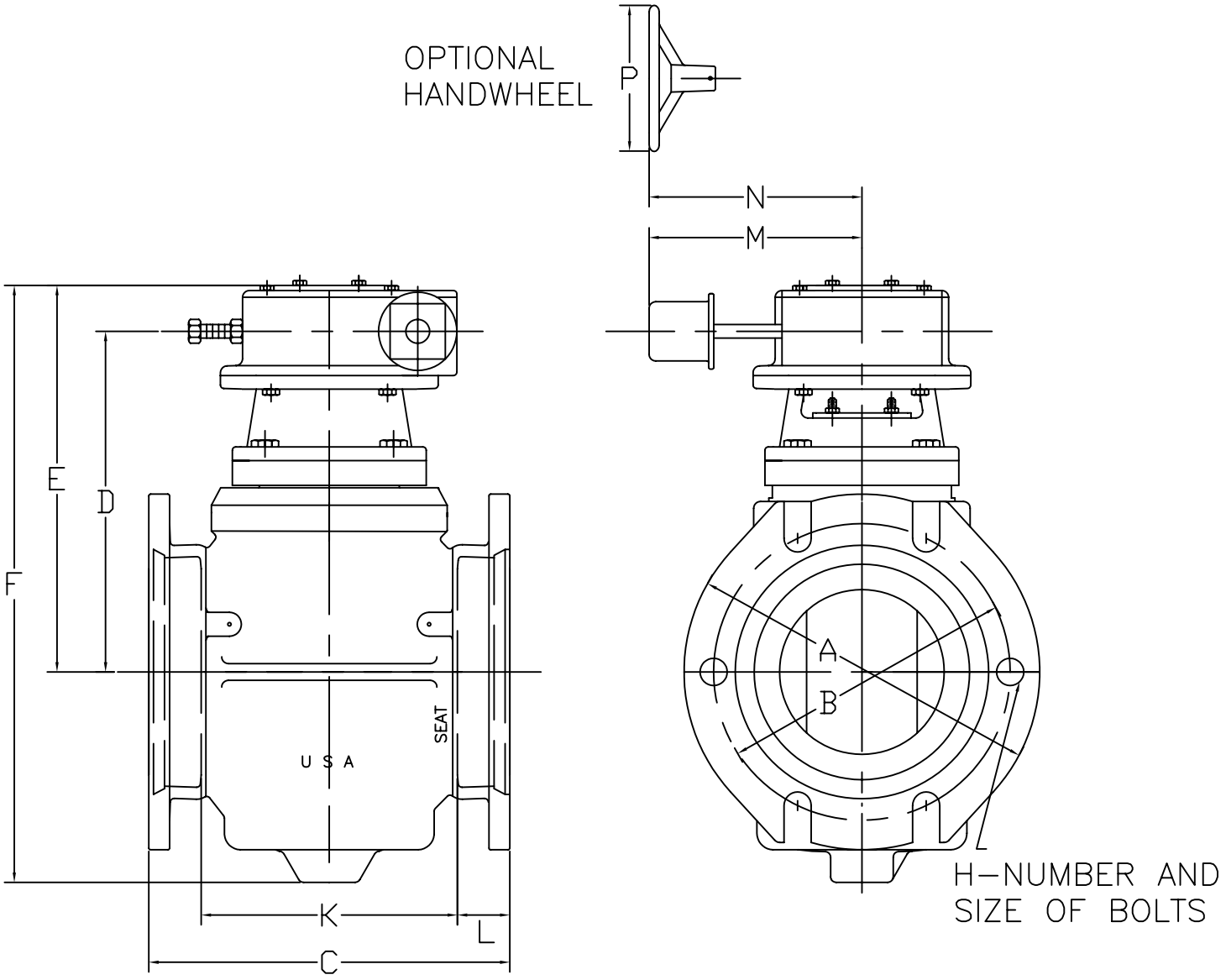


VALVE SIZE	A	B	C	D	E	F	G	H	J	M	N	P	R	WEIGHT* 2" NUT
4"	9	7 1/2	9	9 3/16	11 1/16	16 7/16	1	8–5/8	4	8	11	10"	3 1/4	108
6"	11	9 1/2	10 1/2	10 7/8	12 3/4	19 1/4	1 1/16	8–3/4	2	8	11	10"	3 1/4	150
8"	13 1/2	11 3/4	11 1/2	12 3/8	14 1/4	22 1/2	1 3/16	8–3/4	4	8	11	10"	3 1/4	218
10"	16	14 1/4	13	14 1/2	16 3/8	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. PV–A6	

4" THRU 24" STYLE F–5412 ECCENTRIC PLUG VALVE WORM GEAR OPERATOR FLANGED ENDS

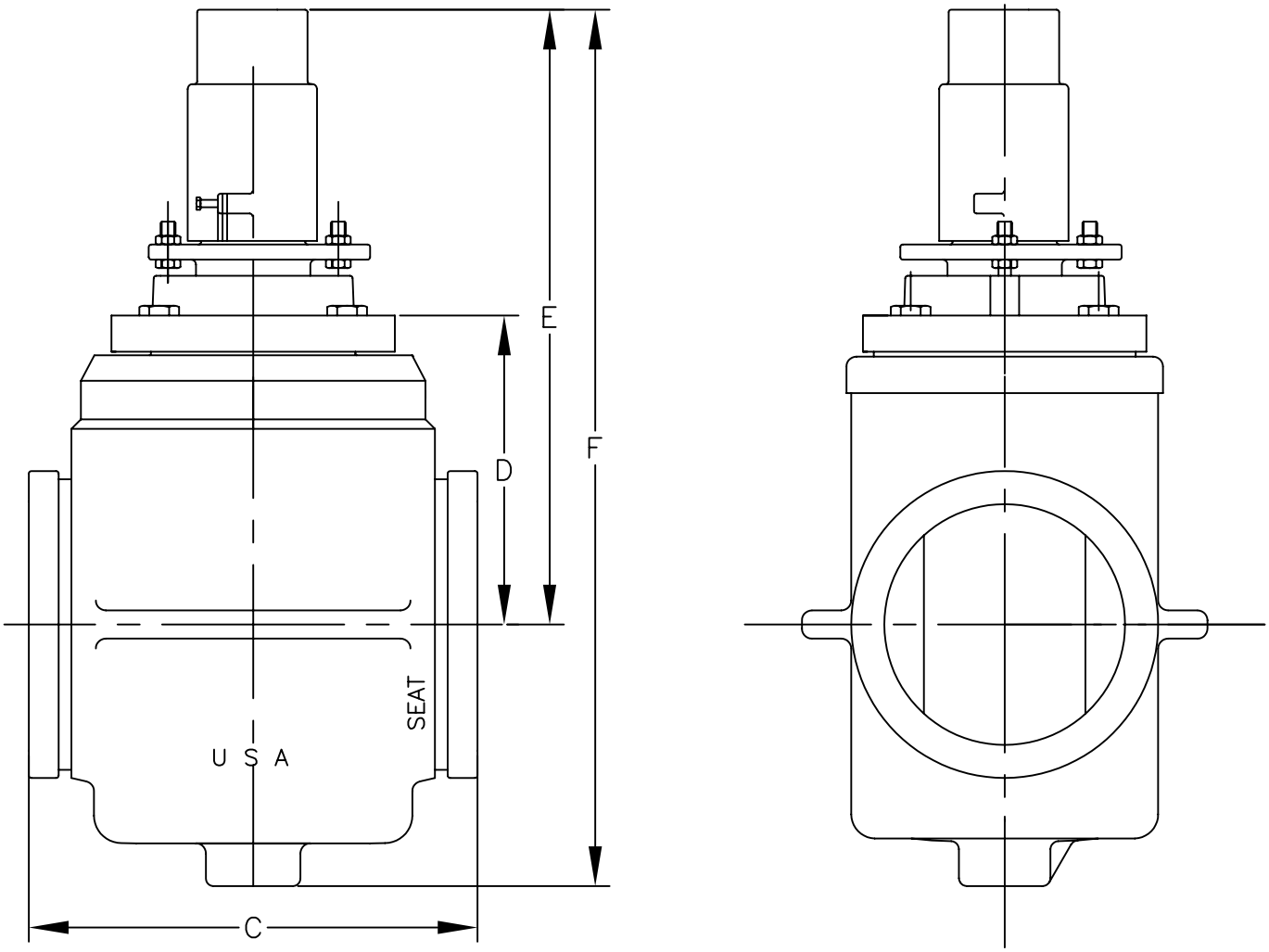


VALVE SIZE	A	B	C	D	E	F	H	K	L	M	R	WEIGHT* 2" NUT
4"	9 1/8	7 1/2	12 1/4	9 3/16	11 1/16	16 7/16	4–3/4	7 1/4	2 1/2	8	3 1/4	110
6"	11 1/8	9 1/2	14 1/8	10 7/8	12 3/4	19 1/4	6–3/4	9 1/8	2 1/2	8	3 1/4	148
8"	13 3/4	11 3/4	11 1/2	12 3/8	14 1/4	22 1/2	6–3/4	12 1/2	2 1/2	8	3 1/4	235
10"	15 3/4	14	19 3/8	14 1/2	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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A7

4" THRU 24" STYLE F–5413 ECCENTRIC PLUG VALVE WITH WORM GEAR OPERATOR MJ X MJ

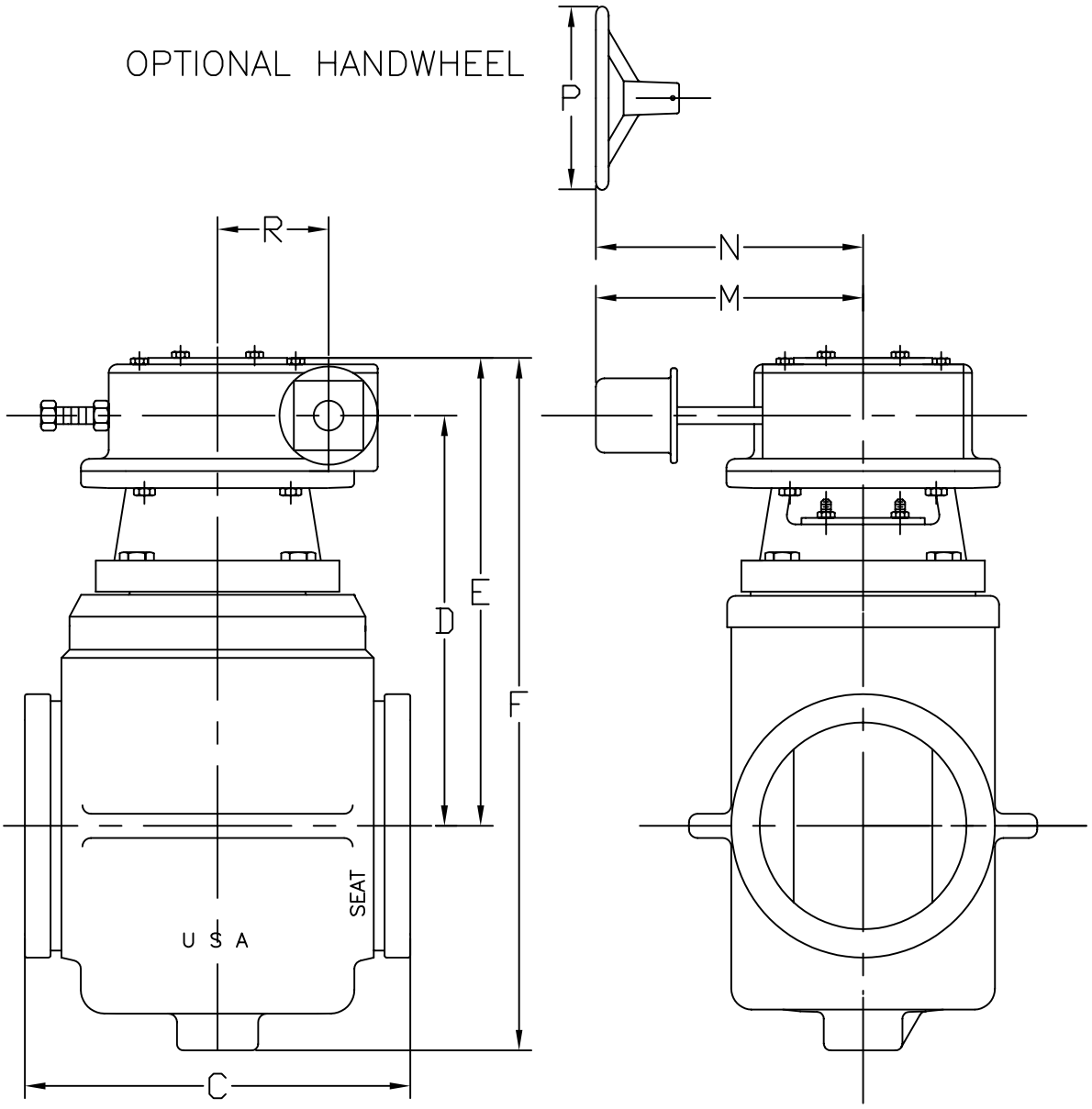


VALVE SIZE	C	D	E	F	WEIGHT* 2" NUT
3"	8	3 15/32	6 3/4	11	20
4"	9	4 7/16	11	16 3/8	56
6"	10 1/2	6 1/8	14 1/2	21	103
8"	15 1/2	7 5/8	16	24 1/4	189

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV-A8

3" THRU 8" STYLE F-5414
ECCENTRIC PLUG VALVE
GROOVED ENDS

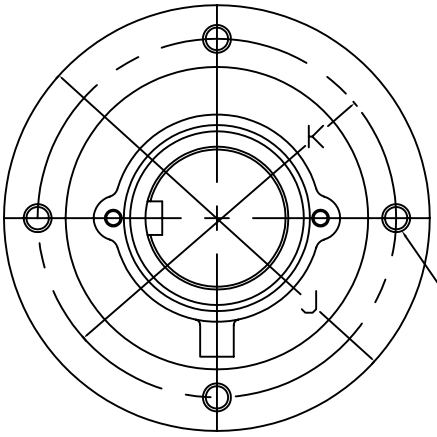


VALVE SIZE	C	D	E	F	M	N	P	R	WEIGHT* 2" NUT
4"	9	9 3/16	11 1/16	16 7/16	8	11	10"	3 1/4	107
6"	10 1/2	10 7/8	12 3/4	19 1/4	8	11	10"	3 1/4	146
8"	15 1/2	12 3/8	14 1/4	22 1/2	8	11	10"	3 1/4	230
10"	17 1/4	14 1/2	16 3/8	26 11/16	8	11–12	10"–18"	3 1/4	435
12"	18	16 1/16	17 15/16	30	8	11–12	10"–18"	3 1/4	540
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

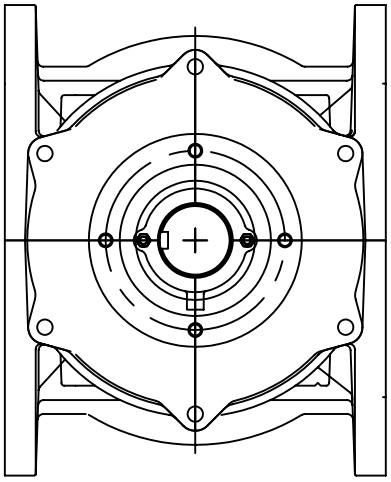
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

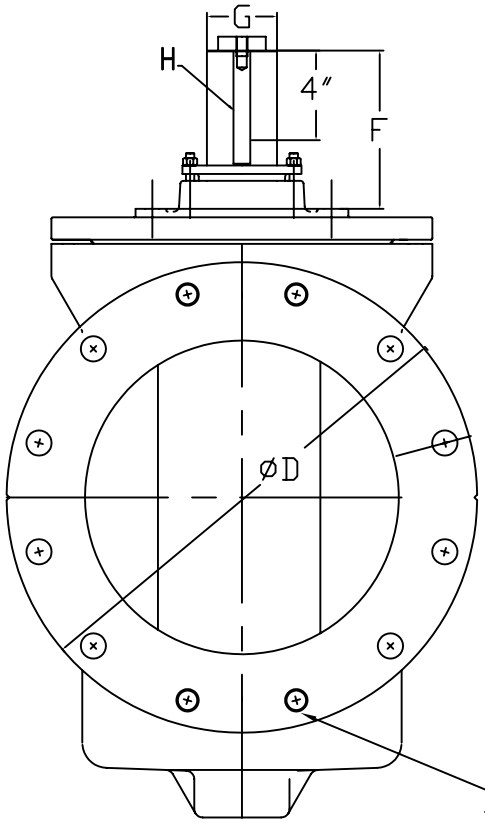
DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A9

4" THRU 16" STYLE F–5414 ECCENTRIC PLUG VALVE WITH WORM GEAR OPERATOR GROOVED ENDS

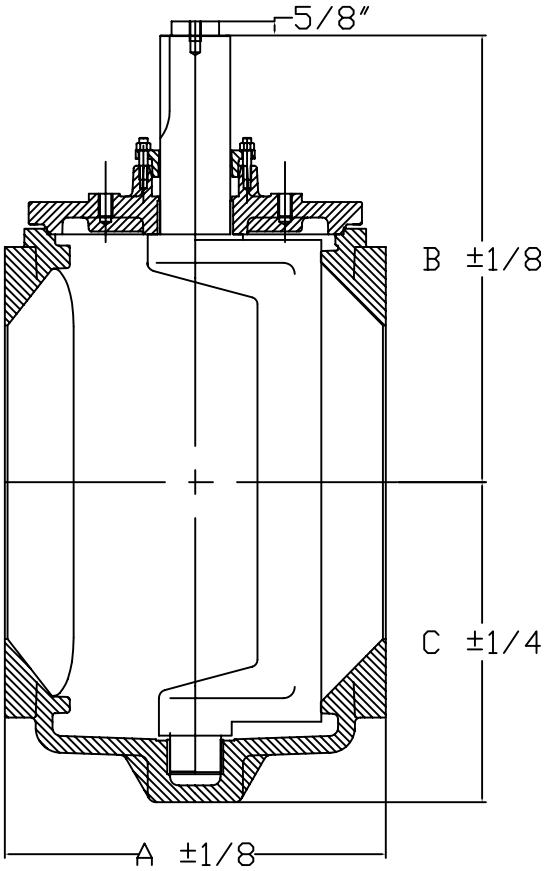


Actuator Mounting Dimensions





End Flange Dimension
Conform to ANSI B16.1



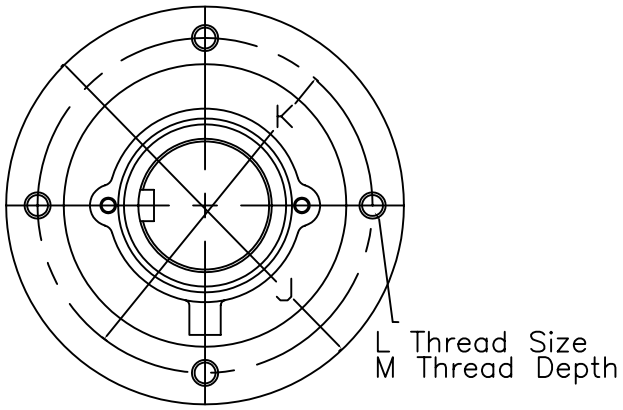
Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	*WEIGHT
14	17.00	19.69	14.31	21.00	4	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	750
16	17.75	20.88	15.75	23.50	6	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	900
18	21.50	22.94	17.18	25.00	8	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	1150
20	23.50	24.22	20.00	27.50	8	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	1420
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	2100

*NOTE: WEIGHTS INCLUDES WEIGHT OF CURRENT STANDARD OPPERATOR

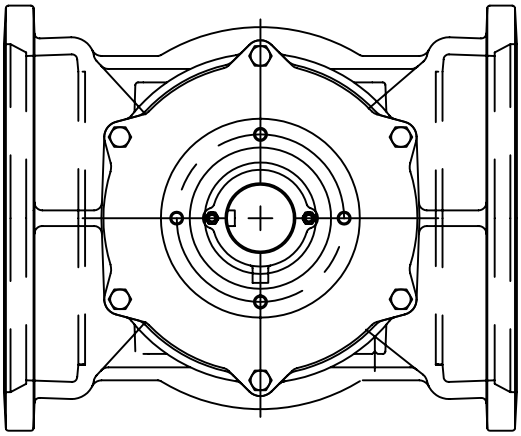
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

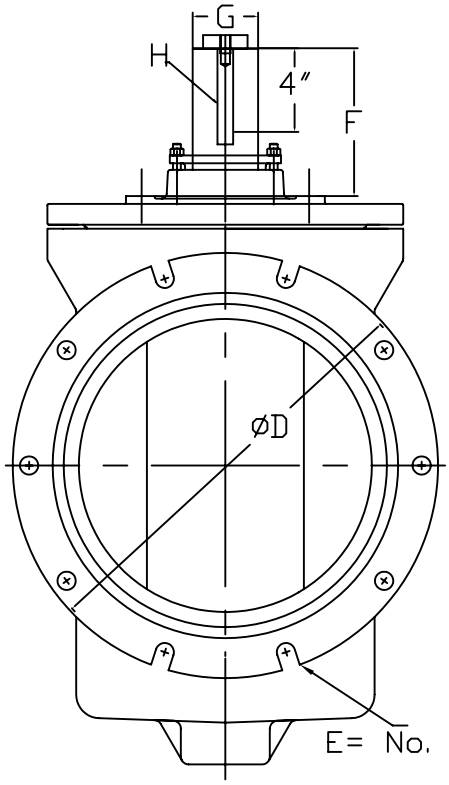
DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A10

14" THRU 24" STYLE F–5412 ECCENTRIC PLUG VALVE (BARE STEM) FLANGED ENDS

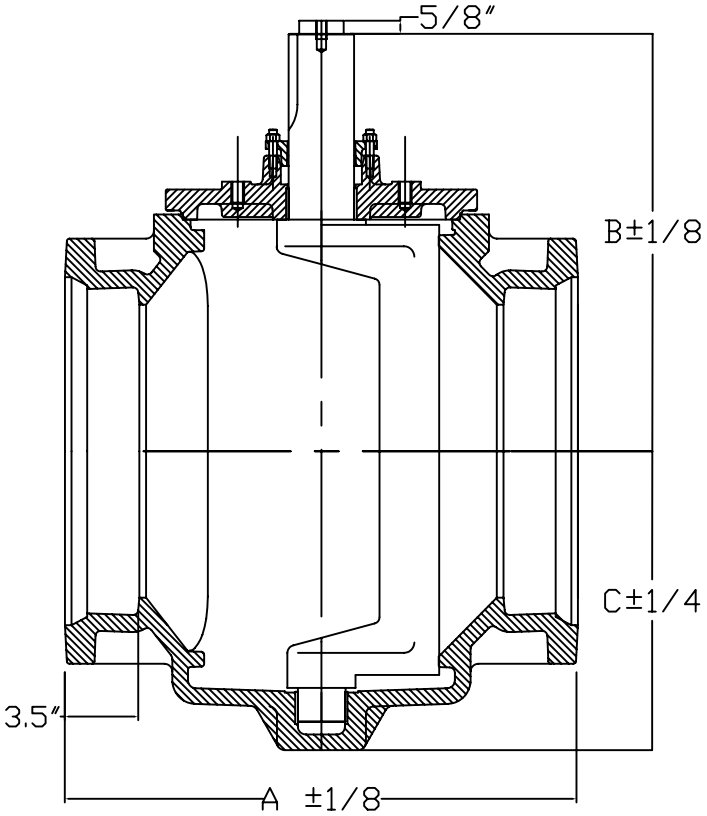


Actuator Mounting Dimensions





SMJ Flange Dimension
Conform to ANSI 21.11/AWWA C111



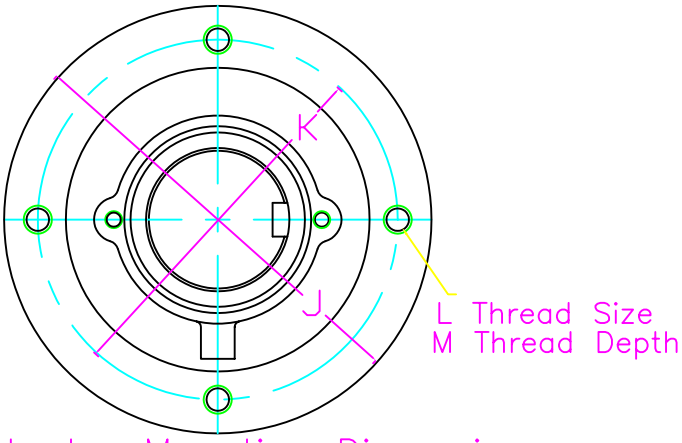
Valve Size	A	B	C	D	E	F	G	H	J	K	L	M	*WEIGHT
14	24.50	19.69	14.31	20.31	4	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	735
16	24.75	20.88	15.75	22.50	4	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	950
18	28.63	22.94	17.18	24.75	4	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	1150
20	30.75	24.22	20.00	27.00	2	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	1420
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	2100

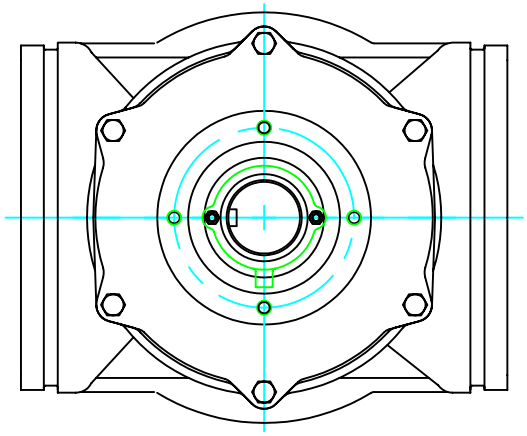
*NOTE: WEIGHTS INCLUDES WEIGHT OF CURRENT STANDARD OPPERATOR

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

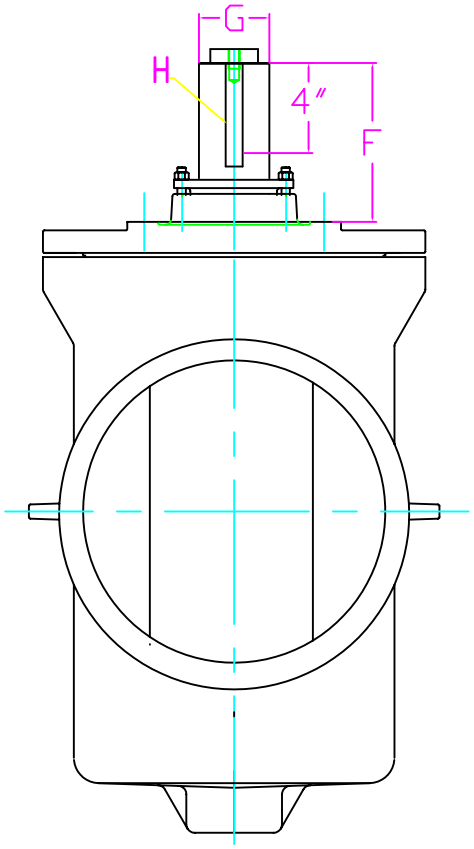
DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A11

14" THRU 24" STYLE F–5413
ECCENTRIC PLUG VALVE
(BARE STEM)
MJ X MJ ENDS

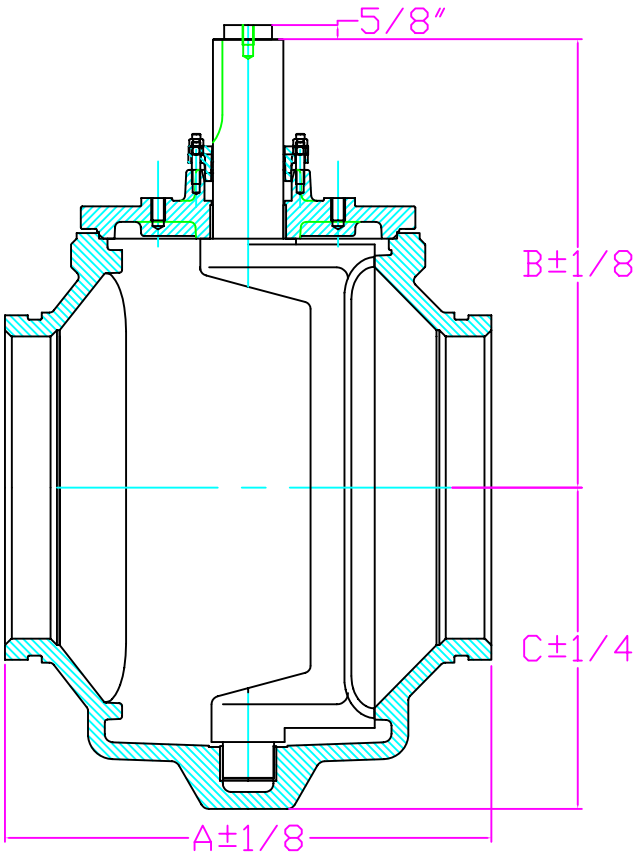




Actuator Mounting Dimensions



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	725
16	22 1/2	20.88	15.75	6.81	3.121	.75 sq	9.50	8.00	5/8–11	7/8	940

*NOTE: WEIGHTS INCLUDES WEIGHT OF CURRENT STANDARD OPPERATOR

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. PV–A12

14" THRU 16" STYLE F–5414
ECCENTRIC PLUG VALVE
(BARE STEM)
GROOVED ENDS

GENERAL

KENNEDY AWWA C508 STANDARD FLANGED CHECK VALVES

- ♦ Style 106-plain / 106LW-Lever & Weight / 106LS- Lever & Spring
- ♦ Sizes 2” Through 30”
- ♦ Water / Sewage Service

Kennedy Swing Check valves are widely specified by engineers and operating personnel. They are well proportioned and sturdily constructed - provide the ideal answer wherever check valves are needed in water and waste treatment plants.

The valve clapper swings completely clear of the waterway when the valve is full open, permitting a “full flow” through the valve equal to the nominal diameter of the pipe. The clapper operates freely and opens or closes in accordance with the direction of flow. Clappers for valves 4”and smaller are all bronze. Clappers for valves 6” and larger are cast iron, bronze-faced. Rubber faced clappers are available on all check valves 2 ½” through 30”. For optimum performance, rubber faced clappers are recommended on all check valves 14” and larger.

Three types of Kennedy Check Valves are manufactured. First, the plain swing check valve which opens by line pressure and flow, and closes by gravity under a no flow condition; the clapper is lowered when the flow drops or reverses direction. The second type is outside lever-and-weight and the third type is outside lever-and-spring. These refinements are desirable to accomplish quicker closing and to minimize slamming where conditions of rapid flow reversal are encountered.

Either lever-and-weight or outside lever-and-spring designs should be used for vertical installation. Lever-and-weight type check valves for horizontal installations require the lever arm close to parallel to the run of the pipe and the weight on the downstream side of the clapper for quick closing. For vertical installation of lever-and-weight valves, the lever arm is moved to a position parallel to the clapper seat and extending toward the bottom of the body, to assist in closing.

Either lever-and-weight or lever-and-spring check valves are adjustable. Both types require field adjustment to best meet particular operating conditions. Unless otherwise ordered, the lever-and-weight or the lever-and-spring is placed on the right hand side when facing the valve inlet. Under conditions of extreme rapid flow reversal, check valves with dual lever arms can be supplied.

Stainless steel hinge pins are featured in all sizes. O-ring packed gland is standard in 2” through 12” sizes. Lever-and-weight or lever-and-spring type check valves sizes 14” through 30” using packing are regularly supplied with hinge pin extended through bronze bushing and with outside glands and rubber faced clappers. Alemite fittings for lubrication of bronze bushing can be supplied in either design when specified.

All check valves have bosses on sides and bottom that may be tapped for draining or used for by-pass. When tapping is required, boss designation and size of tap should be stated. Built up bypasses can be furnished on check valves, sizes 14” and smaller. Larger sizes can be supplied with flange type bypasses.

Flanged end, increasing check valves are also available in plain, lever-and-spring or lever-and-weight configurations. These valves provide size reduction and eliminate requirements for special adapters or fittings. Increasing check valves are most often used on pump discharge outlets such as package lift stations.

Note: When lever-and-weight or lever-and-spring check valves are to be specified or used, we strongly recommend lever-and-spring over lever-and-weight for all 14” and larger. In addition, rubber faced clappers should be used. As stated in AWWA C508, “Conditions of water hammer, hydraulic pulsation, and excessive operating noise are results of system design rather than valve design and are beyond the scope of this standard and require special design and construction considerations.”

Note: It is generally recommended that when using Kennedy swing check valves that you locate the valve at least 5 pipe diameters down stream from any flow disturbance or obstruction (valve, pump, elbow, reducer, etc.). Turbulence close to the check valve may result in valve “chatter” resulting in premature failure of the check valve.

SPECIFICATIONS STYLE NUMBERS (2”-30”)

KENNEDY AWWA C508 STANDARD FLANGED CHECK VALVES

Size Range	Water Working Pressure psi	Seat Test Psi	Hydrostatic Shell Test psi
AWWA 2” – 12”	200	400	400
AWWA 14”-30”	150	300	300

Type / Facing Material / Options	**Size Range**	**Drawing Number**
2”-12” STANDARD CHECK		
STYLE 106		
Plain / Swing Check---Rubber Faced	2”-12”	CV-A1-PC
Plain / Swing Check---Rubber Faced—With Tapped Cover	2”-12”	CV-A1-PC
Plain / Swing Check---Bronze Faced	2”-12”	CV-A1-PC
Plain / Swing Check ---Bronze Faced—With Tapped Cover	2”-12”	CV-A1-PC
STYLE 106LW		
Lever & Weight—Rubber Faced	2”-12”	CV-A1-LW
Lever & Weight—Rubber Faced—With Limit Switch	2”-12”	CV-A1-LW
Lever & Weight—Rubber Faced—With Dual Arm	6”-12”	CV-A1-LW
Lever & Weight—Bronze Faced	2”-12”	CV-A1-LW
Lever & Weight—Bronze Faced—With Limit Switch	2”-12”	CV-A1-LW
Lever & Weight—Bronze Faced—With Dual Arm	6”-12”	CV-A1-LW
STYLE 106LS		
Lever & Spring—Rubber Faced	2”-12”	CV-A1-LS
Lever & Spring—Rubber Faced—With Limit Switch	2”-12”	CV-A1-LS
Lever & Spring—Bronze Faced	2”-12”	CV-A1-LS
Lever & Spring—Bronze Faced—With Limit Switch	2”-12”	CV-A1-LS
14”-30” STANDARD CHECK		
STYLE 106		
Plain / Swing Check---Rubber Faced	14”-30”	LCV-A1
STYLE 106LW		
Lever & Weight—Rubber Faced	14”-30”	LCV-A1
Lever & Weight—Rubber Faced—With Limit Switch	14”-30”	LCV-A1
Lever & Weight—Rubber Faced—With Dual Arm	14”-30”	LCV-A1
STYLE 106LS		
Lever & Spring—Rubber Faced	14”-30”	LCV-A1
Lever & Spring—Rubber Faced—With Limit Switch	14”-30”	LCV-A1
Lever & Spring—Rubber Faced—With Dual Arm	14”-30”	LCV-A1

NOTE: In addition to Dual Arms, Limit Switches & Tapped Cover, Kennedy also can provide check valves with special coatings and tapped bosses. See drawing CV-TB for location and sizes of tapped bosses.

SUGGESTED SPECIFICATIONS

KENNEDY AWWA C508 STANDARD FLANGED CHECK VALVES

- ♦ Style 106 plain / 106LW Lever & Weight / 106LS Lever & Spring
- ♦ Sizes 2” Through 30”
- ♦ Water / Sewage Service

GENERAL Check Valves shall be all iron body, bronze mounted, full opening swing type. Valve clapper shall swing completely clear of the waterway when valve is full open, permitting a “full flow” thru the valve equal to the nominal pipe diameter. They shall comply with AWWA Standard C-508 latest revision.

RATING Check Valves (2” through 12”) shall be rated at 175 psi water working pressure, 350 psi hydrostatic test for structural soundness. Check valves (14” through 30”) shall be rated at 150 psi water working pressure, 300 psi hydrostatic test. Seat tightness at rated working pressure shall be in accordance with values shown in AWWA Standard C-500 for gate valve and fully conform to AWWA C508.

END CONFIGURATION Check Valves shall be furnished with 125# ANSI flanged end connections.

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

Clappers shall be all Bronze for sizes through 2”-3” and cast iron, rubber faced for sizes 4” and larger. When specified, neoprene bronze facing shall be furnished in place of rubber facing. 14” and larger shall have rubber faced clapper.

Hinge pins shall be 18-8 stainless steel rotating bronze plugs.

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

DESIGN Check Valves shall be constructed to permit top entry for complete removal of internal components without removing the valve from the line.

Glands shall be O-ring (2” through 12”) and conventional packing (14” through 30”).

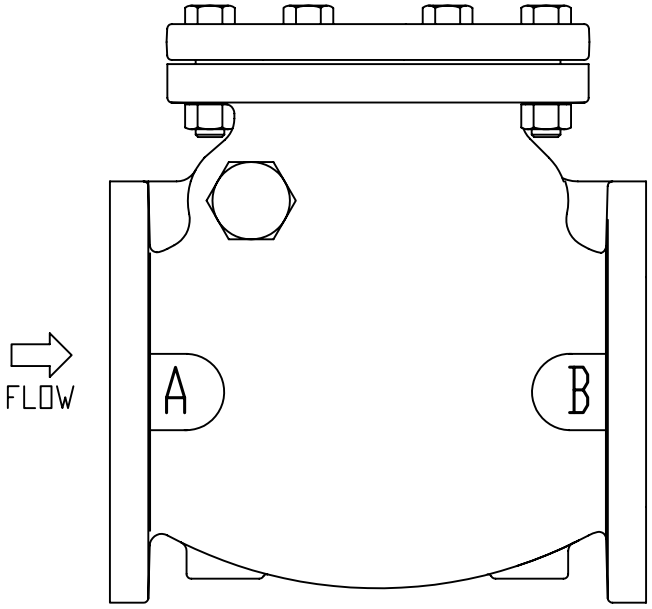
When specified, for application conditions of rapid flow reversal or vertical installation, check valve shall be equipped with adjustable outside lever & spring or lever & weight to accomplish faster closing and to minimize slamming effect.

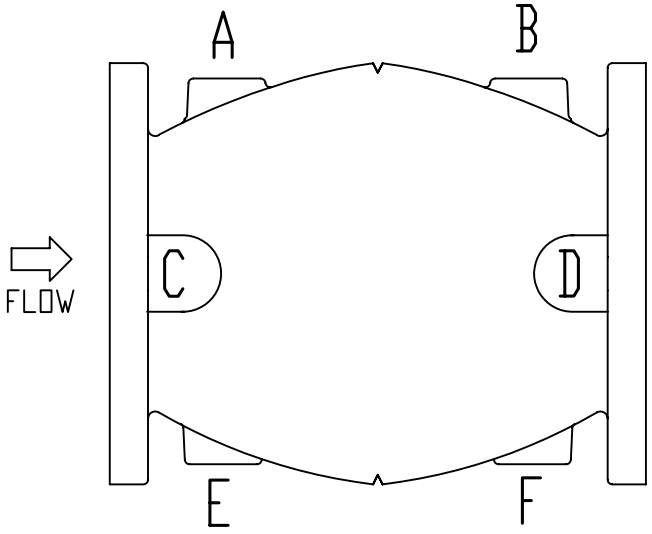
Bosses shall be provided on check valves which may be tapped for draining or used for by-pass. When tapping is required, boss designation and size of tap should be stated.

All valves 14” and larger shall have extended hinge pins for future addition of levers and springs if required. Valves shall be suitable for installation in either horizontal or vertical position. Increasing check valves shall be available in accordance with the provisions of this specification.

COATING The inside and outside of all valves, together with the working parts except bronze and machined surfaces, shall be coated in accordance with AWWA standards.

MARKINGS Markings shall be in accordance with AWWA C-508 and shall include size, working pressure, and cast arrow to indicate direction of flow, name of manufacturer, and year of manufacture.





When ordering Check Valves tapped for bypass or drain, specify exact location and size of tap using letters above for boss designation. These locations of drain and by–pass tappings conform to the Manufacturers Standardization Society Specification SP–45–1953

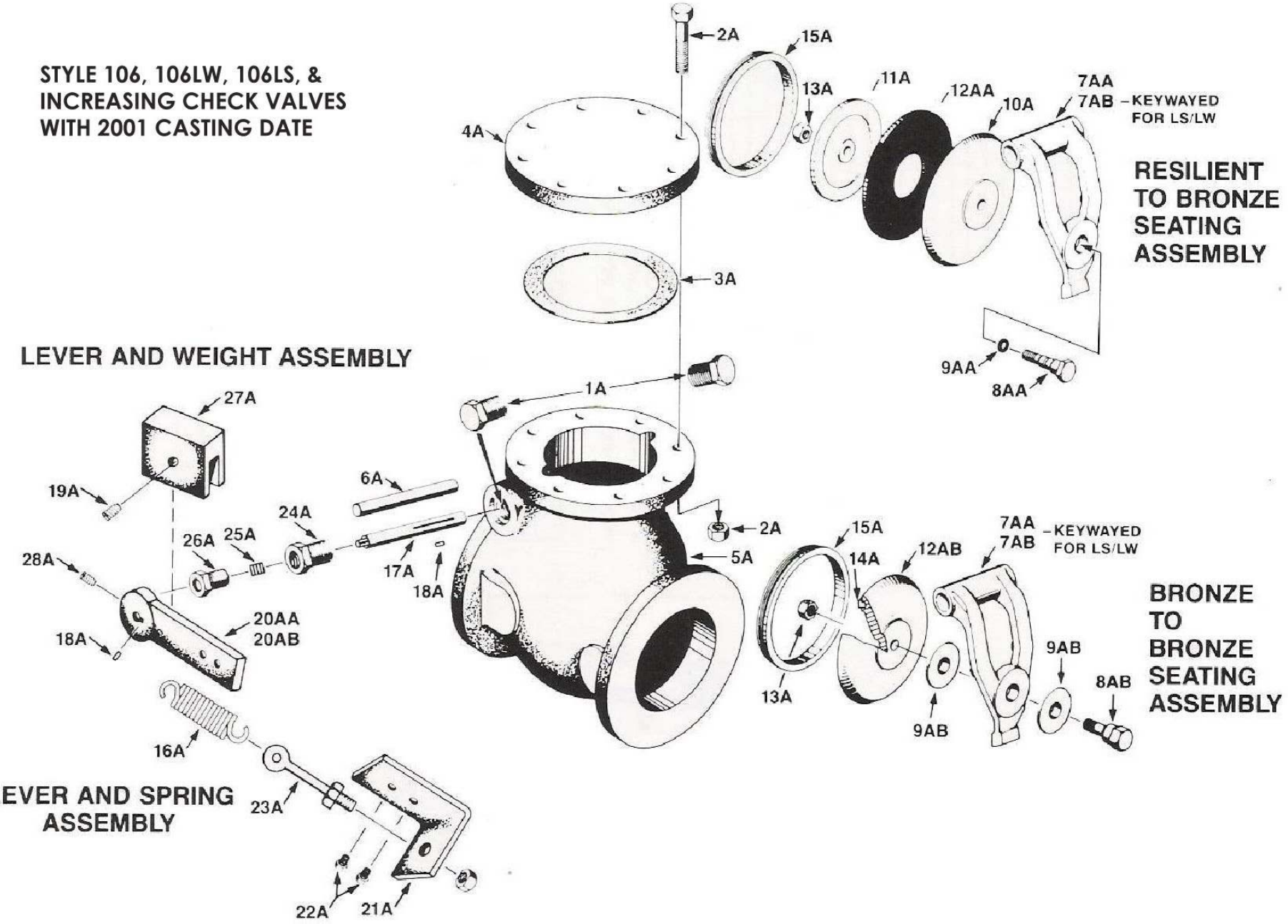
VALVE SIZE	MAXIMUM SIZE PIPE TAP
2"	3/4"
2 1/2"	3/4"
3"	3/4"
4"	1"
6"	1 1/4"
8"	2"
10"	2"
12"	2"
12"	2"

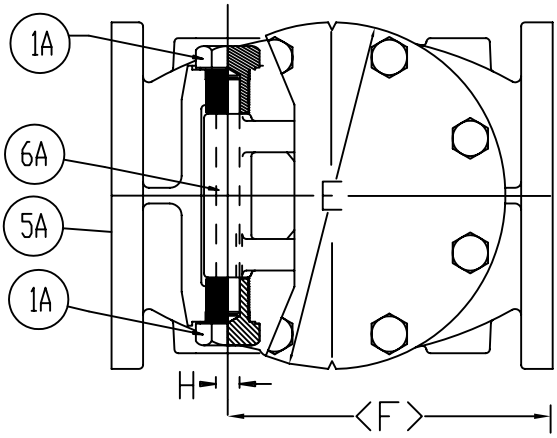
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV–TB

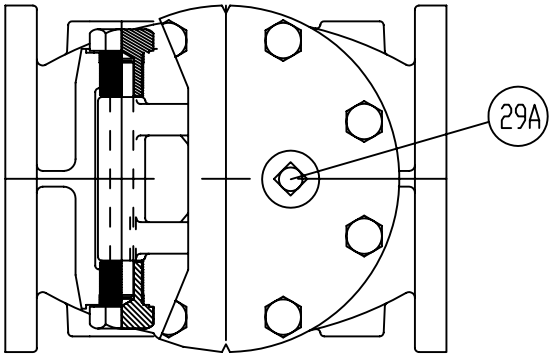
C508 CHECK VALVES
LOCATION AND DIMENSIONS OF TAPPING BOSSES

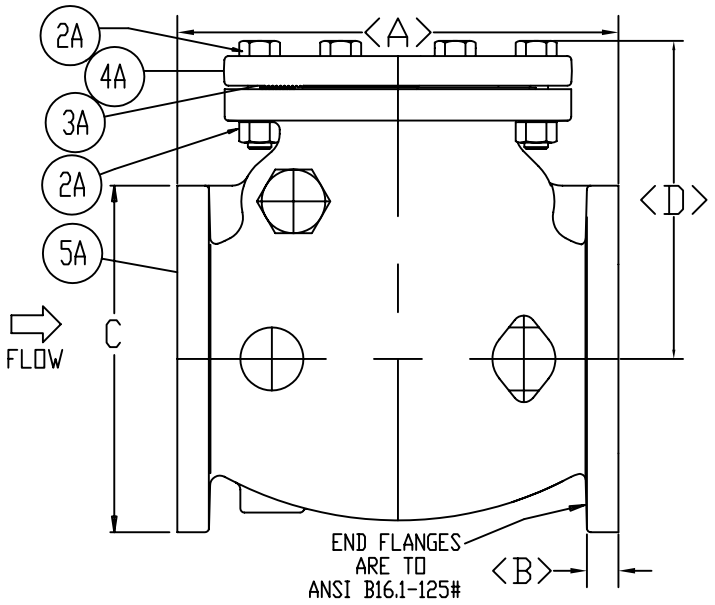
STYLE 106, 106LW, 106LS, & INCREASING CHECK VALVES WITH 2001 CASTING DATE



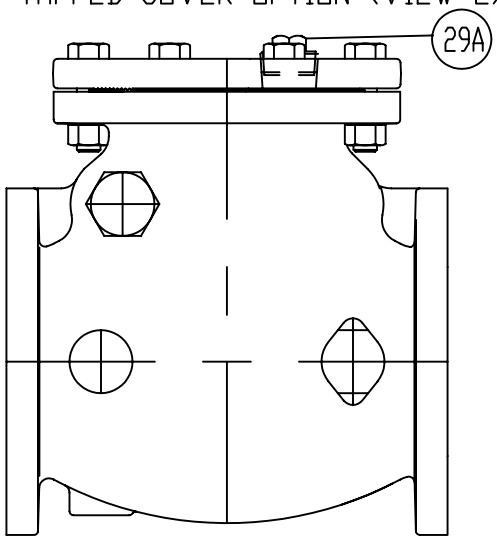


TAPPED COVER OPTION (VIEW 1)





TAPPED COVER OPTION (VIEW 2)



SIZE	A	B	C	D	E	F	H	WEIGHT
2	8	0.66	6	6	6	6	0.50	35
2 1/2	8.5	0.72	7	6.63	7	6	0.50	50
3	9.5	0.78	7.5	7.06	7.5	6	0.50	61
4	11.5	1.00	9	8.31	9	8.25	0.63	119
6	14	1.06	11	10.06	11	10.25	0.75	190
8	19.5	1.25	13.5	12.38	13.50	14.50	0.88	347
10	24.5	1.31	16	13.93	16.75	18	1.00	566
12	27.5	1.38	19	16.18	19	18	1.00	774

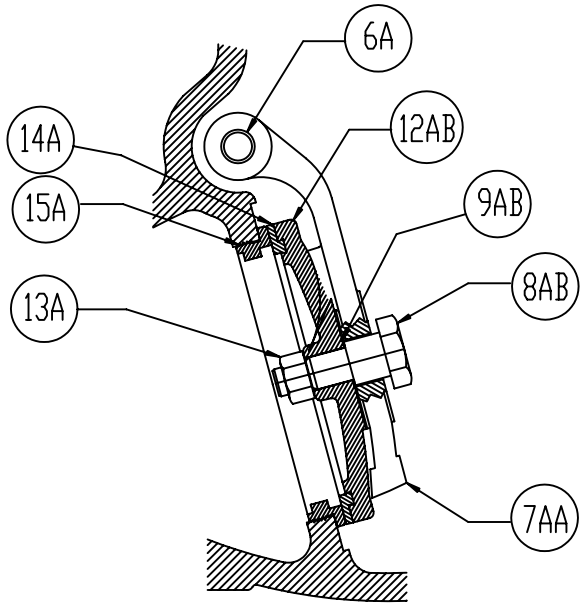
PART	QTY	DESCRIPTION	MATERIAL & ASTM SPEC.
1A	2	SIDE PLUG	BRONZE
2A	*	BOLTS&NUTS	RUSTPROOF STEEL A-307
3A	1	CAP GASKET	NON-ASBESTOS
4A	1	CAP	CI A-126 CLASS B
5A	1	BODY	CI A-126 CLASS B
6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
29A	1	TAPERED PLUG (OPTIONAL)	IRON

* VARIES ACCORDING TO SIZE

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

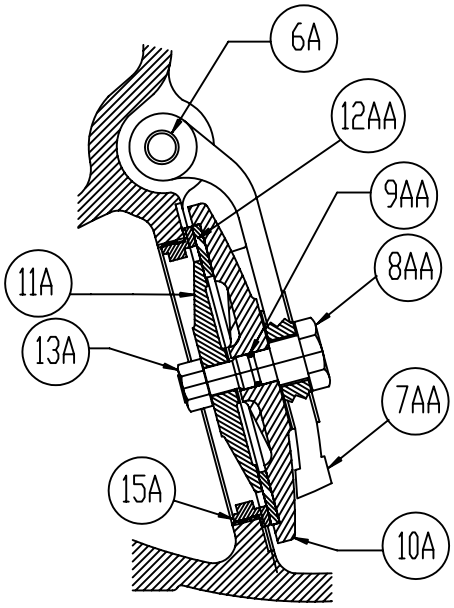
DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A1-PC

2" THRU 12"
STANDARD PLAIN / SWING CHECK
STYLE 106
(PAGE 1 of 2)



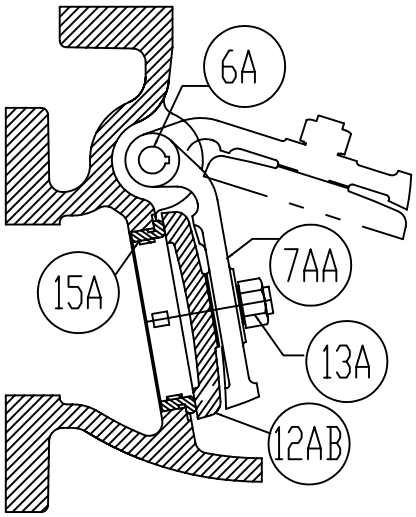
4"-12" PLAIN CHECK BRONZE SEATED DISC ASSEMBLY

6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
7AA	1	HINGE	DUCTILE IRON A-536
8AB	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AB	2	DISC BOLT WASHER (4"-8")	
12AB	1	DISC	CAST IRON A-126 CLASS B
13A	1	DISC NUT	RUST PROOF STEEL
14A	1	DISC RING	BRONZE
15A	1	SEAT RING	BRONZE



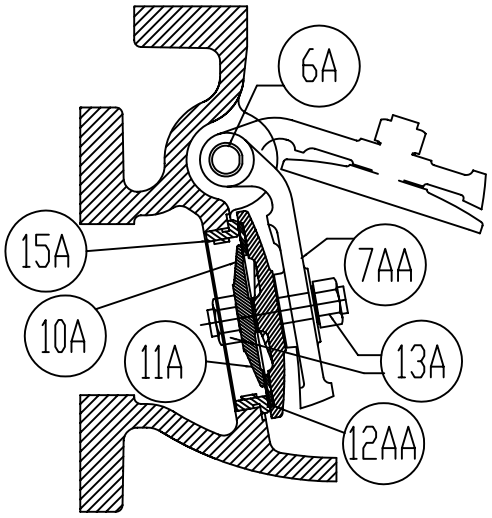
4"-12" PLAIN CHECK RESILIENT SEATED DISC ASSEMBLY

6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
7AA	1	HINGE	DUCTILE IRON A-536
8AA	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AA	1	DISC BOLT O-RING (10",12")	SYNTHETIC RUBBER
10A	1	DISC HOLDER	CAST IRON A-126 CLASS B
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	1	DISC NUT	RUST PROOF STEEL
15A	1	SEAT RING	BRONZE



2"-3" PLAIN CHECK BRONZE SEATED DISC ASSEMBLY

6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
7AA	1	HINGE	BRONZE
12AB	1	DISC (WITH INTEGRAL DISC BOLT)	BRONZE
13A	1	DISC NUT	RUSTPROOF STEEL
15A	1	SEAT RING	BRONZE



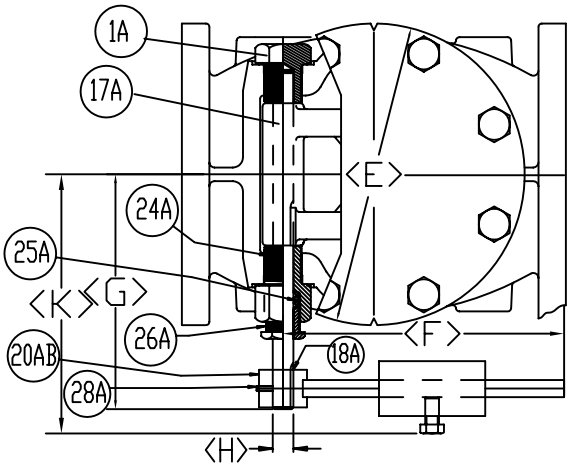
2"-3" PLAIN CHECK RESILIENT SEATED DISC ASSEMBLY

6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
7AA	1	HINGE	BRONZE
10A	1	DISC HOLDER (WITH INTEGRAL DISC BOLT)	BRONZE
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	2	DISC NUT	BRONZE
15A	1	SEAT RING	BRONZE

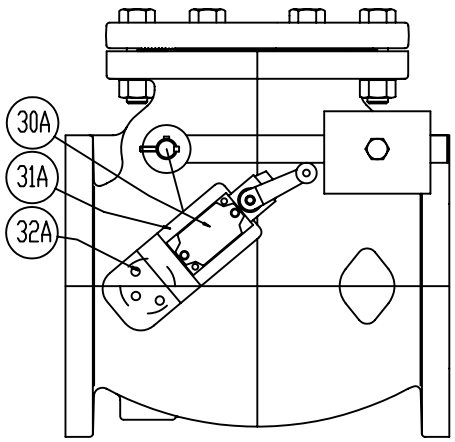
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

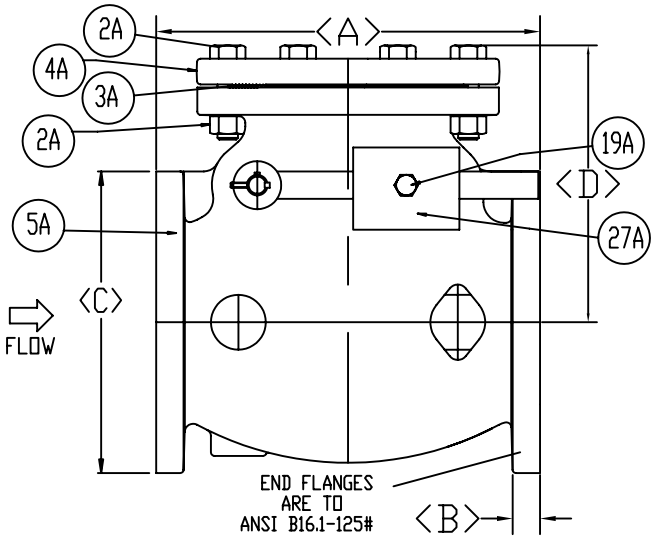
DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A2-PC

2" THRU 12"
STANDARD PLAIN / SWING CHECK
STYLE 106
(PAGE 2 of 2)



LIMIT SWITCH OPTION





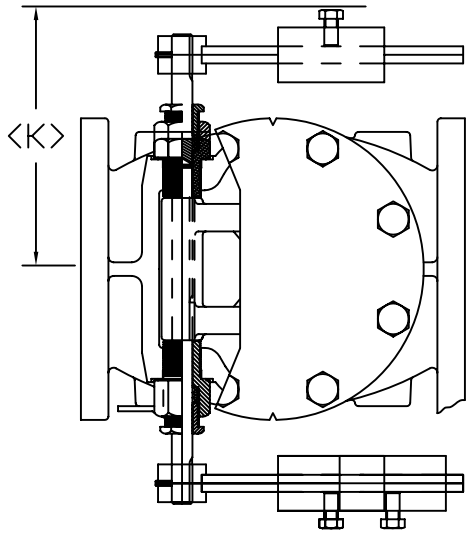
PART	QTY	DESCRIPTION	MATERIAL & ASTM SPEC.
1A	1	SIDE PLUG	BRONZE
2A	*	BOLTS&NUTS	RUSTPROOF STEEL
3A	1	CAP GASKET	NON-ASBESTOS
4A	1	CAP	CI A-126 CLASS B
5A	1	BODY	CI A-126 CLASS B
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY FOR LEVER ARM	STAINLESS STEEL A-276 (304)
19A	1	SET SCREW	STEEL
20AB	1	LEVER ARM	STEEL
24A	1	SIDE PLUG STUFFING BOX	BRONZE
25A	*	PACKING	GRAPHITE FILLED
26A	1	GLAND	BRONZE
27A	1	WEIGHT	CI A-126 CLASS B
28A	1	SET SCREW	STEEL

LIMIT SWITCH OPTION

30A	1	LIMIT SWITCH	PER ENGINEER SPEC
31A	1	BRACKET	STEEL
32A	*	MOUNTING SCREWS	ZINC PLATED STEEL

* VARIES ACCORDING TO SIZE

AUXILARY DUAL ARM OPTION



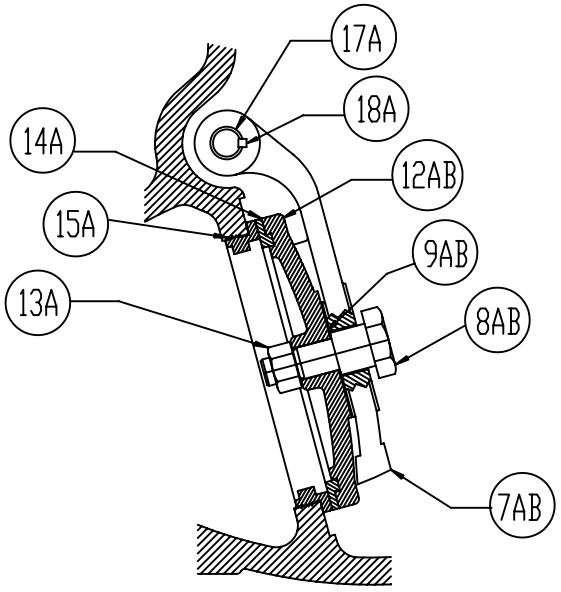
SIZE	A	B	C	D	E	F	G	H	K	WEIGHT
2	8	0.66	6	6	6	6	4.72	0.50	6.4	40
2 1/2	8.5	0.72	7	6.63	7	6	4.94	0.50	6.6	55
3	9.5	0.78	7.5	7.06	7.5	6	5.35	0.50	7.4	92
4	11.5	1.00	9	8.31	9	8.25	8.19	0.63	10.1	157
6	14	1.06	11	10.06	11	10.25	9	0.75	10.9	226
8	19.5	1.25	13.5	12.38	13.5	14.5	10.19	0.88	12.4	402
10	24.5	1.31	16	13.93	16.75	18	11.63	1.00	14.7	625
12	27.5	1.38	19	16.18	19	18	13.75	1.00	16.0	876

USE VALVE FOR VERTICAL OR HORIZONTAL FLOW
NOTE: VERTICAL FLOW MAY REQUIRE FACTORY REPOSITIONING OF LEVER ARM
NOTE: DUAL WEIGHT ARMS ONLY AVAILABLE ON 6" & HIGHER VALVES

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

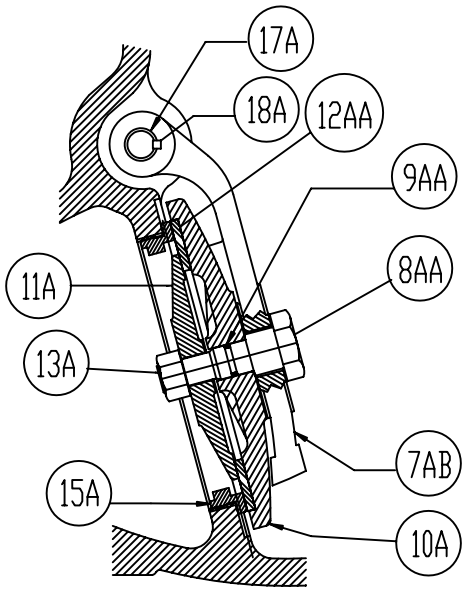
DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A1-LW

2" THRU 12"
LEVER & WEIGHT SWING CHECK
STYLE 106LW
(PAGE 1 OF 2)



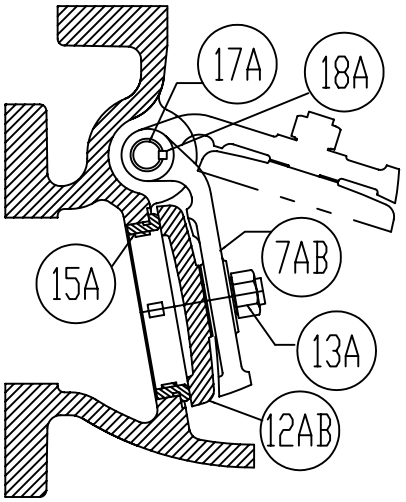
4"-12" LEVER & WEIGHT BRONZE SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AB	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AB	2	DISC BOLT WASHER (4"-8")	
12AB	1	DISC	CAST IRON A-126 CLASS B
13A	1	DISC NUT	RUST PROOF STEEL
14A	1	DISC RING	BRONZE
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



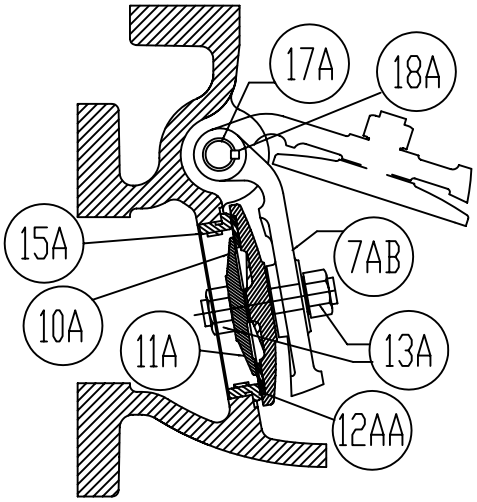
4"-12" LEVER & WEIGHT RESILIENT SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AA	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AA	1	DISC BOLT O-RING (10",12")	SYNTHETIC RUBBER
10A	1	DISC HOLDER	CAST IRON A-126 CLASS B
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	1	DISC NUT	RUST PROOF STEEL
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



2"-3" LEVER & WEIGHT BRONZE SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	BRONZE
12AB	1	DISC (WITH INTEGRAL DISC BOLT)	BRONZE
13A	1	DISC NUT	RUSTPROOF STEEL
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



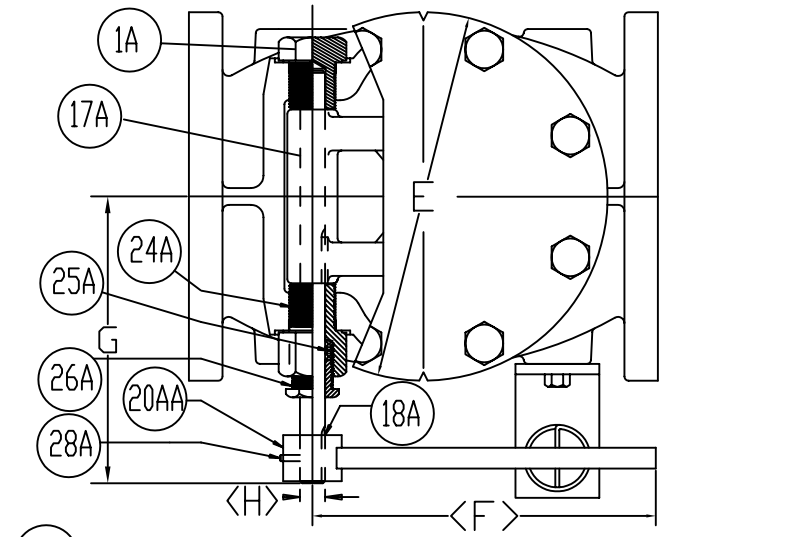
2"-3" LEVER & WEIGHT RESILIENT SEATED DISC ASSEMBLY

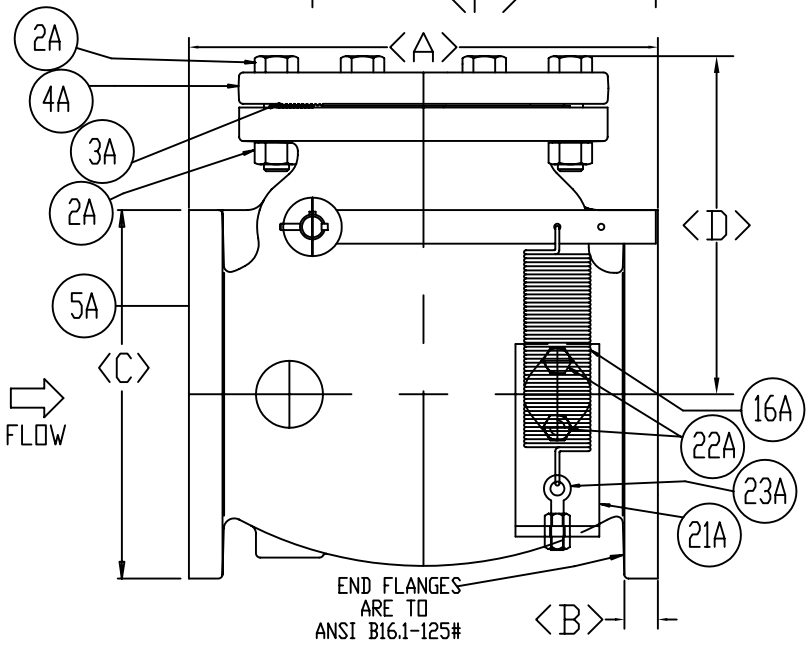
7AB	1	HINGE W/KEYWAY	BRONZE
10A	1	DISC HOLDER (WITH INTEGRAL DISC BOLT)	BRONZE
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	2	DISC NUT	BRONZE
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

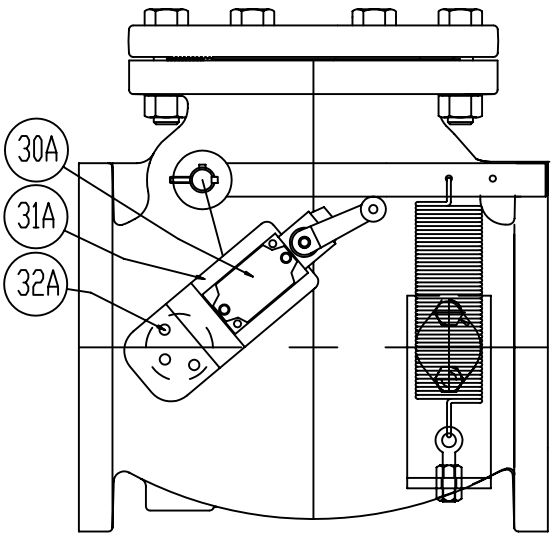
DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A2-PC

2" THRU 12"
LEVER & WEIGHT SWING CHECK
STYLE 106LW
(PAGE 2 OF 2)





LIMIT SWITCH OPTION



PART	QTY	DESCRIPTION	MATERIAL & ASTM SPEC.
1A	1	SIDE PLUG	BRONZE
2A	*	BOLTS&NUTS	RUSTPROOF STEEL
3A	1	CAP GASKET	NON-ASBESTOS
4A	1	CAP	CI A-126 CLASS B
5A	1	BODY	CI A-126 CLASS B
16A	1	SPRING	STEEL
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY FOR LEVER ARM	STAINLESS STEEL A-276 (304)
20AA	1	LEVER ARM	STEEL
21A	1	BRACKET	STEEL
22A	2	HEX HEAD BRACKET BOLTS	STEEL
23A	1	EYE BOLT W/ 2 HEX NUTS	STEEL
24A	1	SIDE PLUG STUFFING BOX	BRONZE
25A	*	PACKING	GRAPHITE FILLED
26A	1	GLAND	BRONZE
28A	1	SET SCREW	STEEL

SIZE	A	B	C	D	E	F	G	H	WEIGHT
2	8	0.66	6	6	6	6	4.72	0.50	40
2 1/2	8.5	0.72	7	6.63	7	6	4.94	0.50	54
3	9.5	0.78	7.5	7.06	7.5	6	5.35	0.50	92
4	11.5	1.00	9	8.31	9	8.25	8.19	0.63	157
6	14	1.06	11	10.06	11	10.25	9	0.75	226
8	19.5	1.25	13.5	12.38	13.5	14.50	10.19	0.88	402
10	24.5	1.31	16	13.93	16.75	18	11.63	1.00	625
12	27.5	1.38	19	16.18	19	18	13.75	1.00	876

USE VALVE FOR VERTICAL OR HORIZONTAL FLOW
NOTE: VERTICAL FLOW MAY REQUIRE FACTORY REPOSTIONING OF LEVER ARM

LIMIT SWITCH OPTION

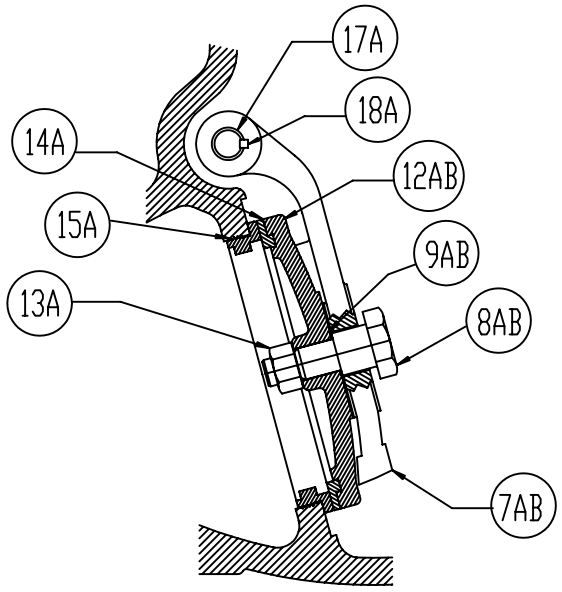
30A	1	LIMIT SWITCH	PER ENGINEER SPEC
31A	1	BRACKET	STEEL
32A	*	MOUNTING SCREWS	ZINC PLATED STEEL

* VARIES ACCORDING TO SIZE

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

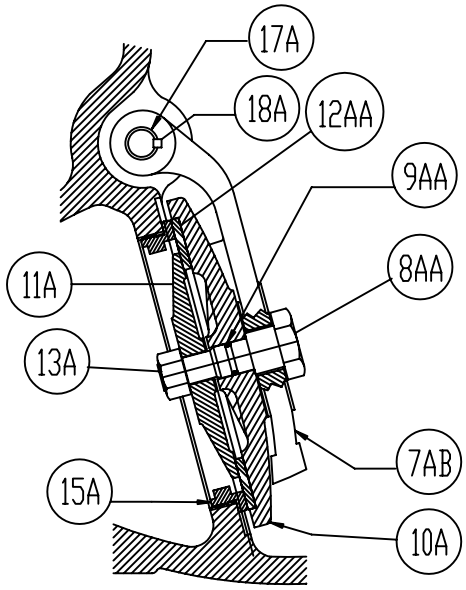
DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A1-LS

2" THRU 12"
LEVER & SPRING SWING CHECK
STYLE 106LS
(PAGE 1 OF 2)



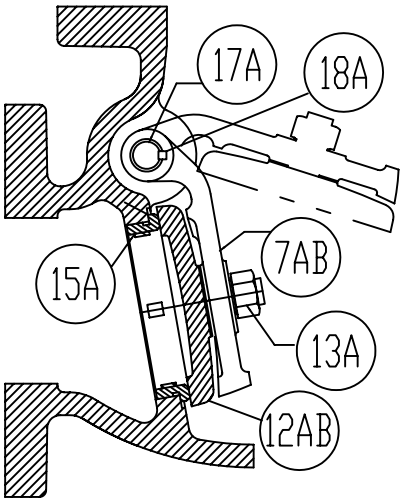
4"-12" LEVER & WEIGHT BRONZE SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AB	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AB	2	DISC BOLT WASHER (4"-8")	
12AB	1	DISC	CAST IRON A-126 CLASS B
13A	1	DISC NUT	RUST PROOF STEEL
14A	1	DISC RING	BRONZE
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



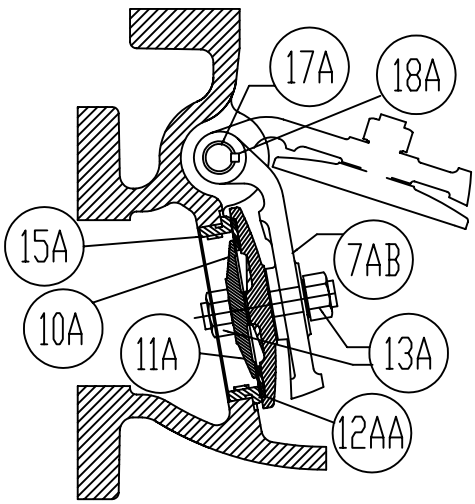
4"-12" LEVER & WEIGHT RESILIENT SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AA	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AA	1	DISC BOLT O-RING (10",12")	SYNTHETIC RUBBER
10A	1	DISC HOLDER	CAST IRON A-126 CLASS B
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	1	DISC NUT	RUST PROOF STEEL
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



2"-3" LEVER & WEIGHT BRONZE SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	BRONZE
12AB	1	DISC (WITH INTEGRAL DISC BOLT)	BRONZE
13A	1	DISC NUT	RUSTPROOF STEEL
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



2"-3" LEVER & WEIGHT RESILIENT SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	BRONZE
10A	1	DISC HOLDER (WITH INTEGRAL DISC BOLT)	BRONZE
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	2	DISC NUT	BRONZE
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A2-PC

2" THRU 12"
LEVER & SPRING SWING CHECK
STYLE 106LS
(PAGE 2 OF 2)

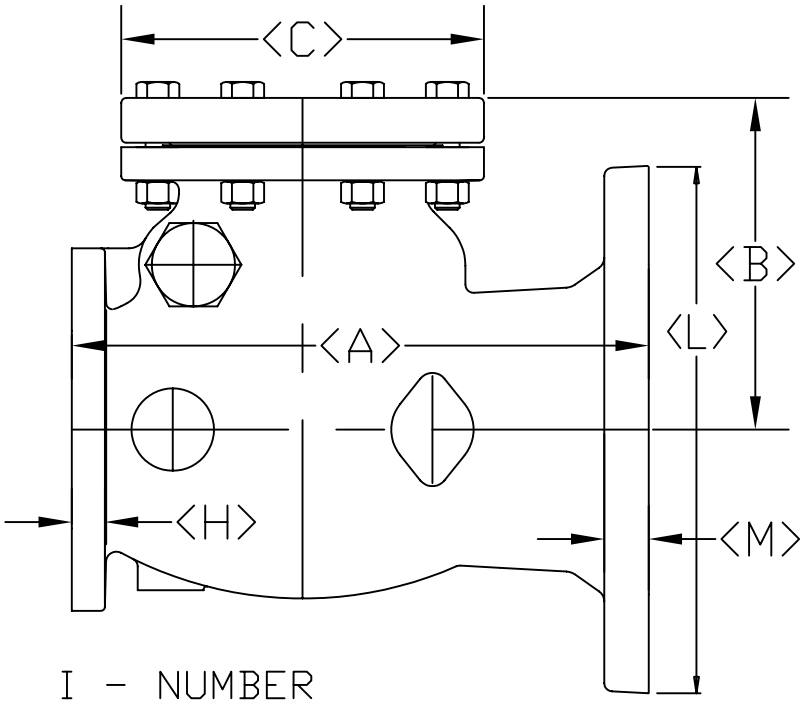
SPECIFICATIONS STYLE NUMBERS (4"x 6" to 10" x 12")

KENNEDY AWWA C508 INCREASING FLANGED CHECK VALVES

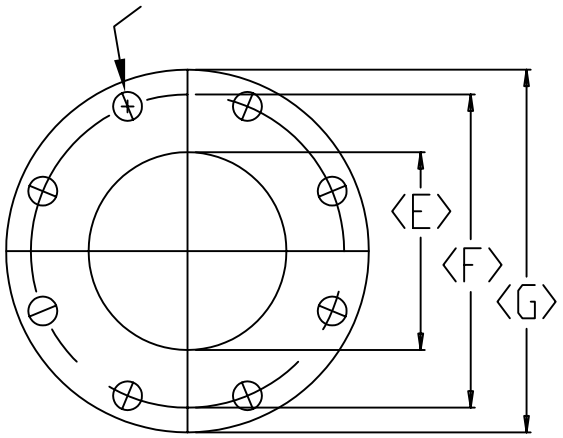
Size Range	Water Working Pressure psi	Seat Test Psi	Hydrostatic Shell Test psi
4" x 6 to 10" x 12"	200	400	400

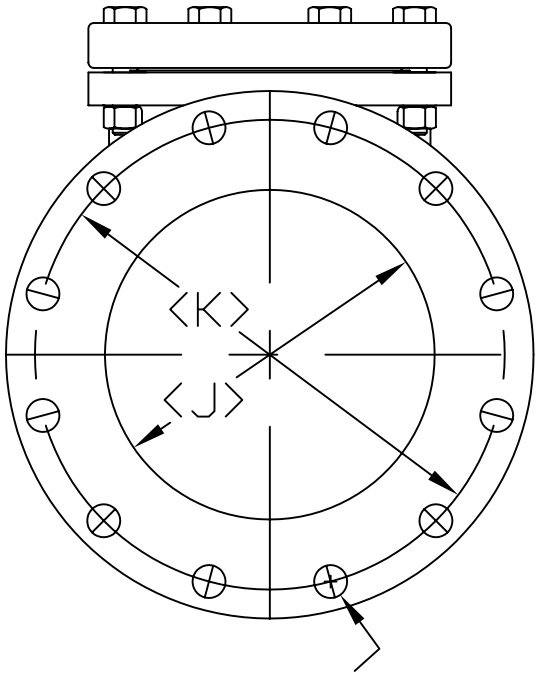
Type / Facing Material / Options	**Size Range**	**Drawing Number**
INCREASING CHECK		
STYLE 306A		
Plain / Swing Check—Rubber Faced	4" x 6" to 10"x12"	ICV-A1-PC
Plain / Swing Check—Bronze Faced	4" x 6" to 10"x12"	ICV-A1-PC
STYLE 306AW		
Lever & Weight—Rubber Faced	4" x 6" to 10"x12"	ICV-A1-LW
Lever & Weight—Bronze Faced	4" x 6" to 10"x12"	ICV-A1-LW
STYLE 306LS		
Lever & Spring—Rubber Faced	4" x 6" to 10"x12"	ICV-A1-LS
Lever & Spring—Bronze Faced	4" x 6" to 10"x12"	ICV-A1-LS

NOTE: In addition to Dual Arms, Limit Switches & Tapped Cover, Kennedy also can provide check valves with special coatings and tapped bosses. See drawing CV-TB in the "Standard Flanged Check Valve Section" for location and sizes of tapped bosses.



I - NUMBER
& SIZE OF BOLTS



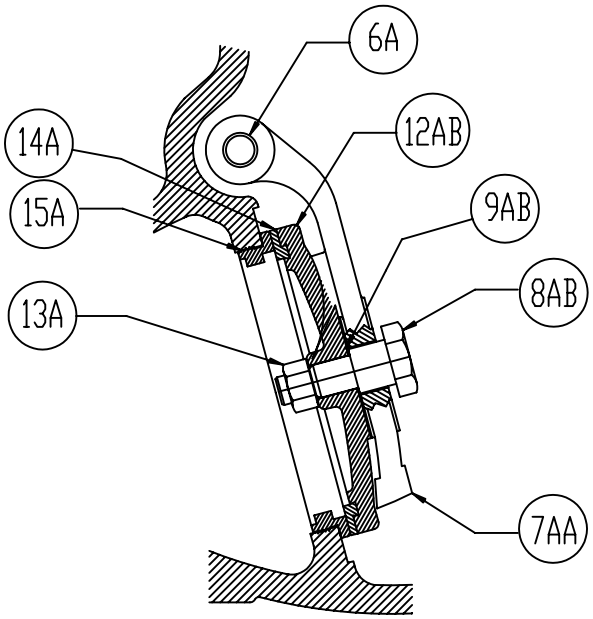


N - NUMBER
& SIZE OF BOLTS

SIZE	A	B	C	E	F	G	H	I	J	K	L	M	N	WEIGHT
4x6	13.50	8.31	9	4	7.50	9	0.94	8-0.63	6	9.50	11	1	8-0.75	124
4x8	15	8.31	9	4	7.50	9	0.94	8-0.63	8	11.75	13.50	1.13	8-0.75	143
6x8	17	10.06	11	6	9.50	11	1	8-0.75	8	11.75	13.50	1.13	8-0.75	205
6x10	17.50	10.06	11	6	9.50	11	1	8-0.75	10	14.25	16	1.19	12-0.88	215
8x10	20	12.38	13.50	8	11.75	13.50	1.13	8-0.75	10	14.25	16	1.19	12-0.88	375
8x12	21	12.38	13.50	8	11.75	13.50	1.13	8-0.75	12	17	19	1.25	12-0.88	396
10x12	22.50	13.93	16.75	10	14.25	16	1.19	12-0.88	12	17	19	1.25	12-0.88	586

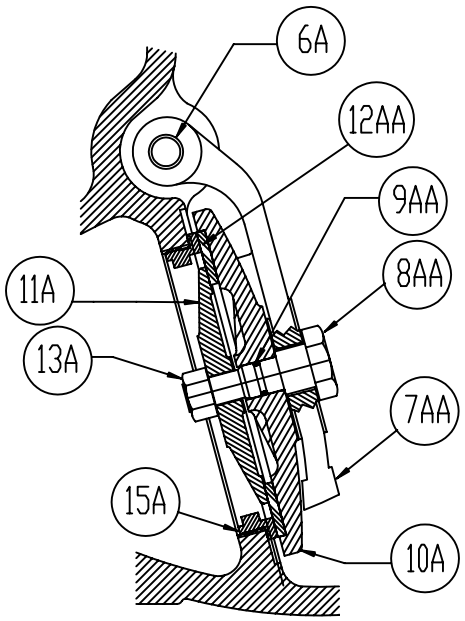
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" x 6" to 10" x 12"
DATE: 7/1/05	STYLE 306A
DWG. NO. ICV-A1-PC	INCREASING CHECK VALVE
	PLAIN / STANDARD SWING CHECK
	(PAGE 1 of 2) DIMENSIONS



4" X 6" to 10" x 12"
PLAIN CHECK BRONZE SEATED DISC ASSEMBLY

6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
7AA	1	HINGE	DUCTILE IRON A-536
8AB	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AB	2	DISC BOLT WASHER (4"-8")	
12AB	1	DISC	CAST IRON A-126 CLASS B
13A	1	DISC NUT	RUST PROOF STEEL
14A	1	DISC RING	BRONZE
15A	1	SEAT RING	BRONZE



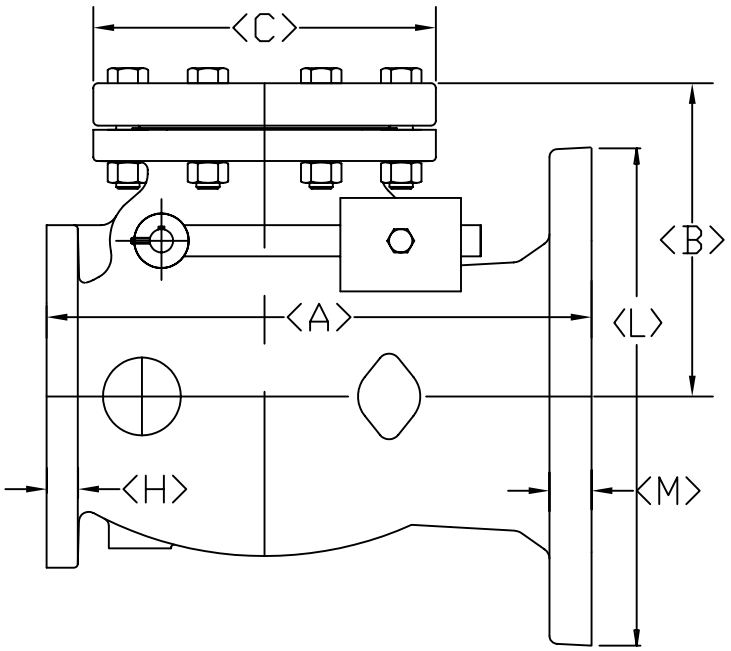
4" X 6" to 10" x 12"
PLAIN CHECK RESILIENT SEATED DISC ASSEMBLY

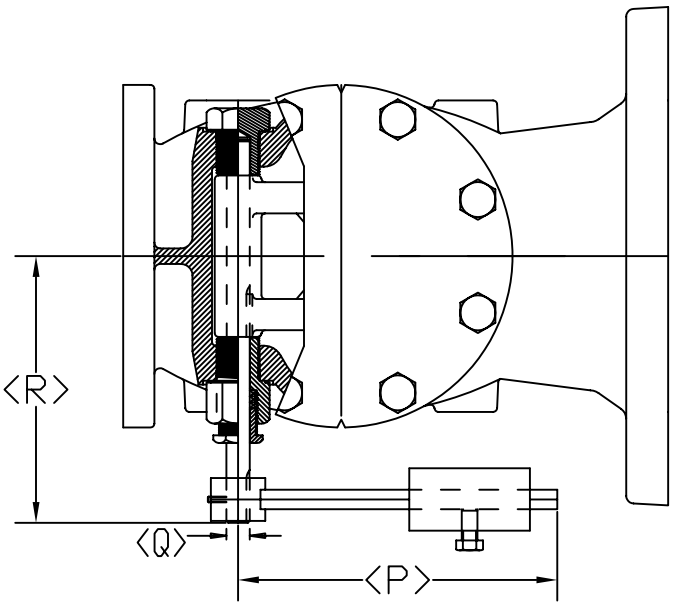
6A	1	HINGE PIN	STAINLESS STEEL A-276 (304)
7AA	1	HINGE	DUCTILE IRON A-536
8AA	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AA	1	DISC BOLT O-RING (10",12")	SYNTHETIC RUBBER
10A	1	DISC HOLDER	CAST IRON A-126 CLASS B
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	1	DISC NUT	RUST PROOF STEEL
15A	1	SEAT RING	BRONZE

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

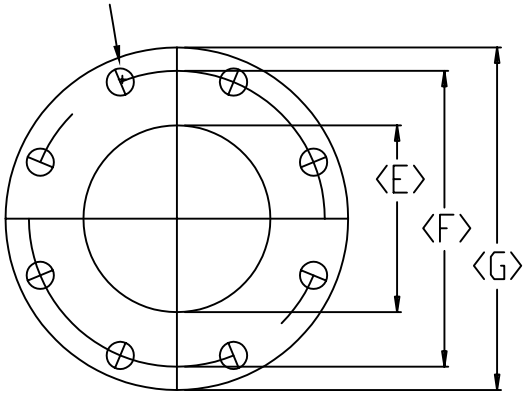
DWN: TRIJ
DATE: 7/1/05
DWG. NO. ICV-A2-PC

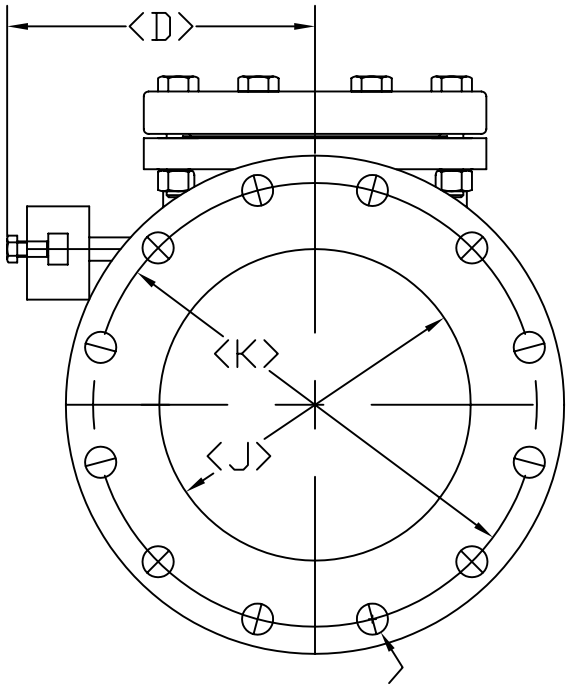
4" x 6" to 10" x 12"
STYLE 306A
INCREASING CHECK VALVE
PLAIN / STANDARD SWING CHECK
(PAGE 2 of 2) DIMENSIONS





I - NUMBER & SIZE OF BOLTS



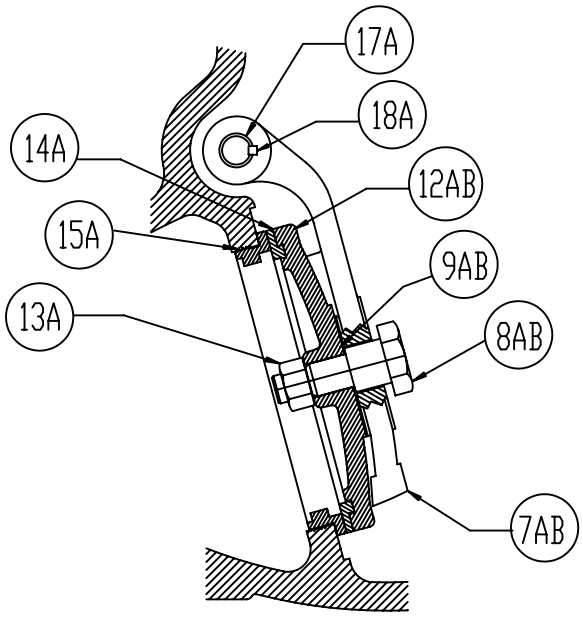


N - NUMBER & SIZE OF BOLTS

SIZE	A	B	C	D	E	F	G	H APPROX.	I	J	K	L	M	N	P	Q	R	WEIGHT
4x6	13.50	8.31	9	10.1	4	7.50	9	0.94	8-0.63	6	9.50	11	1	8-0.75	8.25	0.63	8.19	132
4x8	15	8.31	9	10.1	4	7.50	9	0.94	8-0.63	8	11.75	13.50	1.13	8-0.75	8.25	0.63	8.19	151
6x8	17	10.06	11	10.9	6	9.50	11	1	8-0.75	8	11.75	13.50	1.13	8-0.75	10.25	0.75	9.00	215
6x10	17.50	10.06	11	10.9	6	9.50	11	1	8-0.75	10	14.25	16	1.19	12-0.88	10.25	0.75	9.00	226
8x10	20	12.38	13.50	12.4	8	11.75	13.50	1.13	8-0.75	10	14.25	16	1.19	12-0.88	14.5	0.88	10.19	385
8x12	21	12.38	13.50	12.4	8	11.75	13.50	1.13	8-0.75	12	17	19	1.25	12-0.88	14.5	0.88	10.19	407
10x12	22.50	13.93	16.75	14.7	10	14.25	16	1.19	12-0.88	12	17	19	1.25	12-0.88	18	1.00	11.63	600

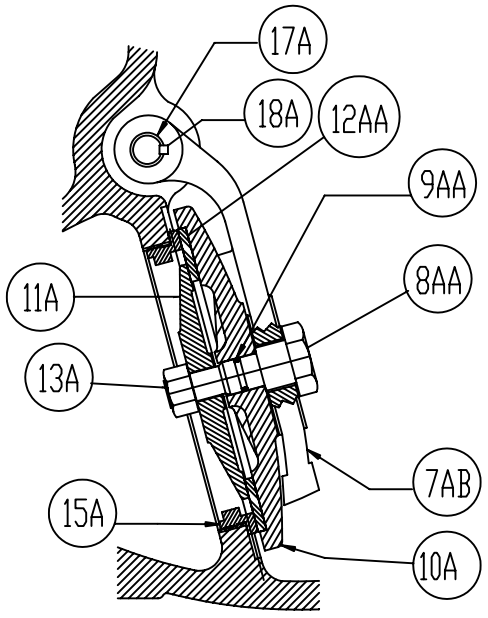
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" x 6" to 10" x 12"
DATE: 7/1/05	STYLE 306LW
DWG. NO. ICV-A1-LW	INCREASING CHECK VALVE
	LEVER & WEIGHT
	(PAGE 1 of 2) DIMENSIONS



4" X 6" to 10" x 12"
LEVER & WEIGHT BRONZE SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AB	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AB	2	DISC BOLT WASHER (4"-8")	
12AB	1	DISC	CAST IRON A-126 CLASS B
13A	1	DISC NUT	RUST PROOF STEEL
14A	1	DISC RING	BRONZE
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



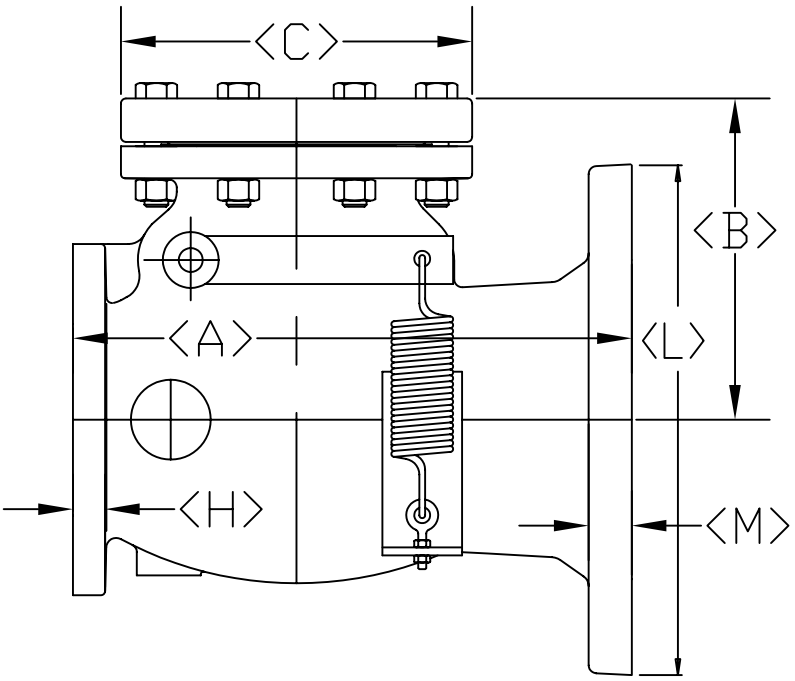
4" X 6" to 10" x 12"
LEVER & WEIGHT RESILIENT SEATED DISC ASSEMBLY

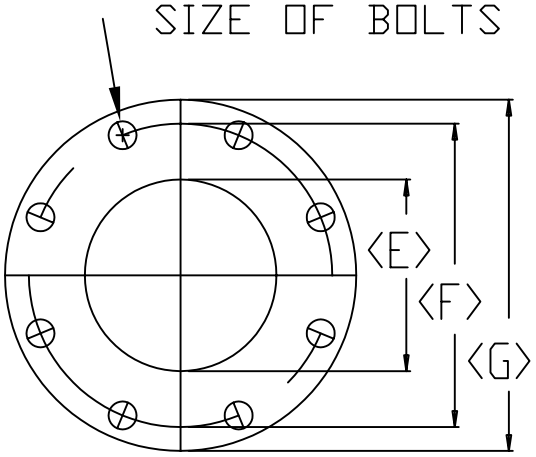
7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AA	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AA	1	DISC BOLT O-RING (10",12")	SYNTHETIC RUBBER
10A	1	DISC HOLDER	CAST IRON A-126 CLASS B
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	1	DISC NUT	RUST PROOF STEEL
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)

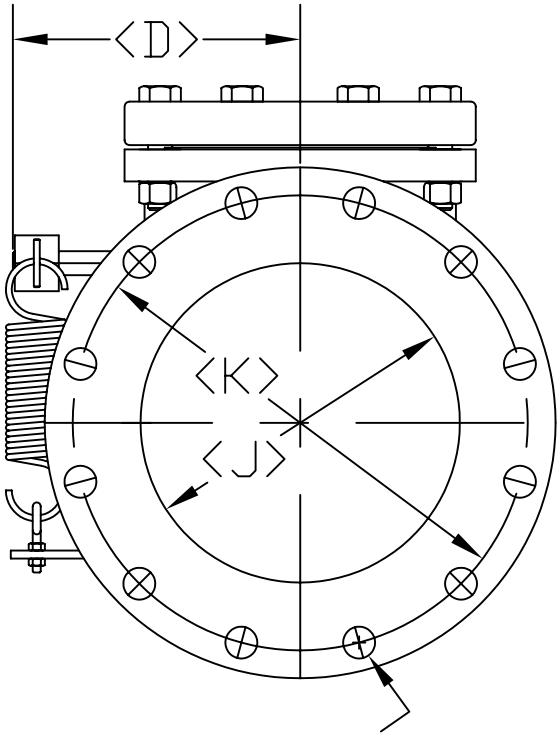
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. ICV-A2-LW

4" x 6" to 10" x 12"
STYLE 306LW
INCREASING CHECK VALVE
LEVER & WEIGHT
(PAGE 2 of 2)





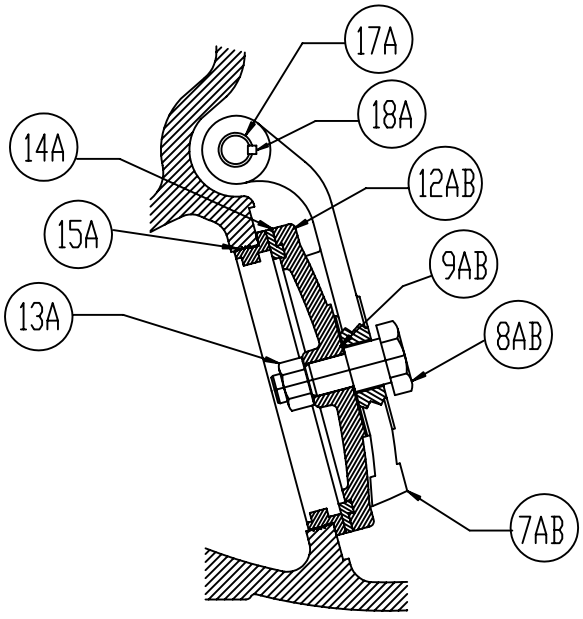


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WEIGHT
4x6	13.50	8.31	9	8.19	4	7.50	9	0.94	8-0.63	6	9.50	11	1	8-0.75	131
4x8	15	8.31	9	8.19	4	7.50	9	0.94	8-0.63	8	11.75	13.50	1.13	8-0.75	150
6x8	17	10.06	11	9	6	9.50	11	1	8-0.75	8	11.75	13.50	1.13	8-0.75	209
6x10	17.50	10.06	11	9	6	9.50	11	1	8-0.75	10	14.25	16	1.19	12-0.88	223
8x10	20	12.38	13.50	10.19	8	11.75	13.50	1.13	8-0.75	10	14.25	16	1.19	12-0.88	375
8x12	21	12.38	13.50	10.19	8	11.75	13.50	1.13	8-0.75	12	17	19	1.25	12-0.88	396
10x12	22.50	13.93	16.75	11.63	10	14.25	16	1.19	12-0.88	12	17	19	1.25	12-0.88	586

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

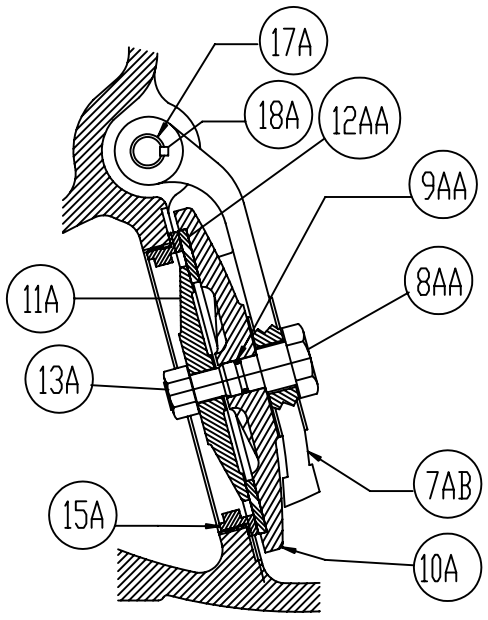
DWN: TRIJ
DATE: 7/1/05
DWG. NO. ICV-A1-LS

4" x 6" to 10" x 12"
STYLE 306LS
INCREASING CHECK VALVE
LEVER & SPRING
(PAGE 1 of 2) DIMENSIONS



4" X 6" to 10" x 12"
LEVER & SPRING BRONZE SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AB	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AB	2	DISC BOLT WASHER (4"-8")	
12AB	1	DISC	CAST IRON A-126 CLASS B
13A	1	DISC NUT	RUST PROOF STEEL
14A	1	DISC RING	BRONZE
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)



4" X 6" to 10" x 12"
LEVER & SPRING RESILIENT SEATED DISC ASSEMBLY

7AB	1	HINGE W/KEYWAY	DUCTILE IRON A-536
8AA	1	DISC BOLT	(4"-8") STEEL---(10"-12") BRONZE
9AA	1	DISC BOLT O-RING (10",12")	SYNTHETIC RUBBER
10A	1	DISC HOLDER	CAST IRON A-126 CLASS B
11A	1	DISC PLATE	BRONZE
12AA	1	DISC	SYNTHETIC RUBBER
13A	1	DISC NUT	RUST PROOF STEEL
15A	1	SEAT RING	BRONZE
17A	1	EXTENDED HINGE PIN	STAINLESS STEEL A-276 (304)
18A	2	KEY	STAINLESS STEEL A-276 (304)

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. CV-A2-LS

4" x 6" to 10" x 12"
STYLE 306LS
INCREASING CHECK VALVE
LEVER & SPRING
(PAGE 2 of 2) DIMENSIONS

SPECIFICATIONS STYLE NUMBERS (3”-30”)

KENNEDY AWWA C508 FLANGED “CUSHION” CHECK VALVES

- ♦ Style 206
- ♦ Sizes 3” Through 30”
- ♦ Water / Sewage Service

Size Range	Water Working Pressure psi	Seat Test Psi	Hydrostatic Shell Test psi
AWWA 3” – 12”	200	400	400
AWWA 14”-30”	150	300	300

Type / Facing Material / Options	**Size Range**
3”- 30” CUSHION CHECK VALVES	
STYLE 206	
Horizontal Flow—Bronze Faced	3”
Horizontal Flow—Rubber Faced	4”-12”
Horizontal Flow—Bronze Faced	4”-12”
Horizontal Flow—Rubber Faced	14”-30”
Horizontal Flow—Rubber Faced—With Limit Switch	4”-12”
Horizontal Flow—Bronze Faced—With Limit Switch	4”-12”
Vertical Flow—Rubber Faced	4”-12”
Vertical Flow—Bronze Faced	4”-12”
Vertical Flow—Rubber Faced	14”-30”

***Note Vertical Flow Cushion Check Valves are not recommended for sewer applications**
****Consult factory for proper drawing for particular application**
*****Cushion Checks have lever and weight and a pneumatic cylinder arrangement**

GENERAL

KENNEDY AWWA C508 FLANGED "CUSHION" CHECK VALVES

- ♦ Style 206
- ♦ Sizes 3" Through 30"
- ♦ Water / Sewage Service

If possible, it is preferable to eliminate water hammer. The best way to eliminate water hammer is in the design of the piping system. For most cases where water hammer exists it is preferable to reduce its effects by causing the check valve to close so quickly that the flow is not able to reverse. Kennedy Valve makes a Style 706 Wafer Check Valve that is intended as an Anti-water hammer valve. Kennedy Valve also has available lever and weight and lever and spring arrangements on the 106LW and 106LS check valve.

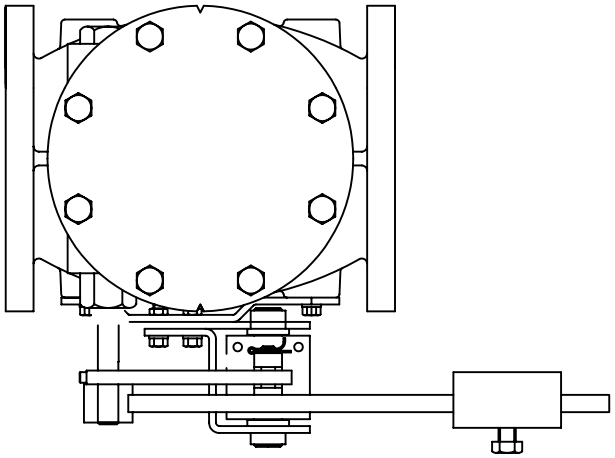
In some cases the customer may want an arrangement that retards the closing of the check valve. The customer may want such an arrangement for those cases where the water column actually has an opportunity to reverse or even separate, such as might occur when the check valve is not at the lowest elevation in the system.

For those customers, Kennedy Valve makes available the Style 206 Cushion Check Valve. The Style 206 Cushion Check Valve is a Style 106LW (lever & weight) with a pneumatic cylinder arrangement. The pneumatic cylinder has a needle valve that allows the customer to adjust the time required for the valve to close.

The Style 206 Check Valve may be ordered from the factory either as flow horizontal for flow vertical. The cylinder arrangement is available mounted on either side. Unless specified the Style 206 valve will be supplied with the cylinder on the right side (when facing the inlet) and for horizontal flow.

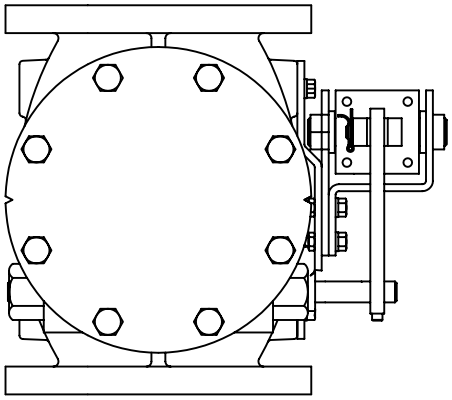
The Style 206 has internal components identical to the style 106LW except that the hinge pin is made from heat-treated, type 431 stainless steel and is unique to the Style 206.

Kennedy Swing Check valves are widely specified by engineers and operating personnel. They are well proportioned and sturdily constructed.



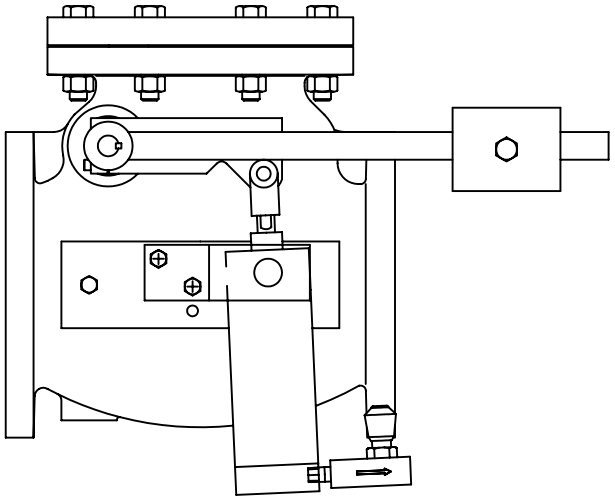
HORIZONTAL MOUNTING

FLOW



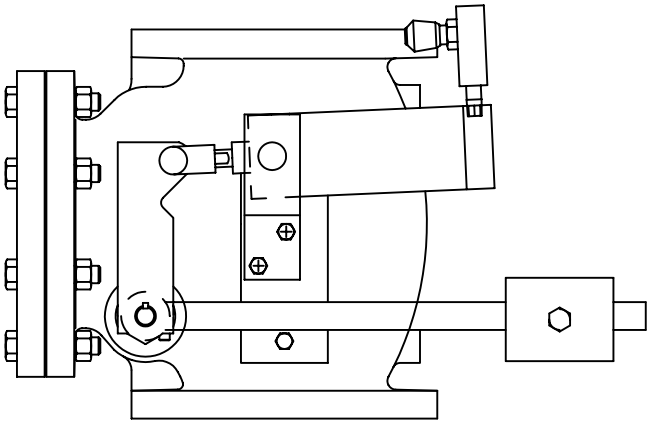
VERTICAL MOUNTING

FLOW UP



HORIZONTAL MOUNTING

FLOW



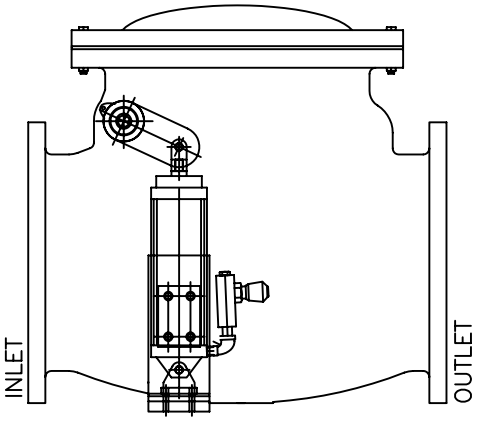
VERTICAL MOUNTING

FLOW UP

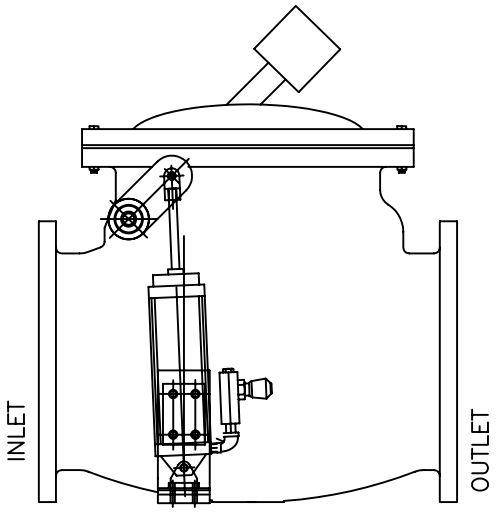
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

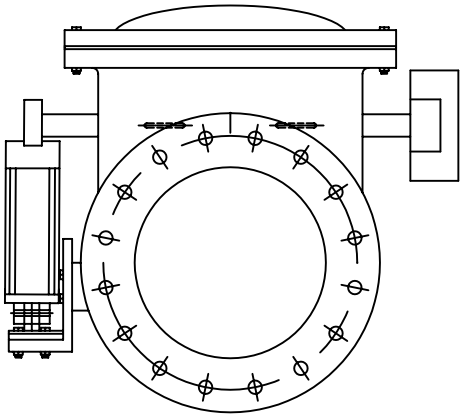
3" THRU 12"
CUSHION CHECK VALVE
STYLE 206

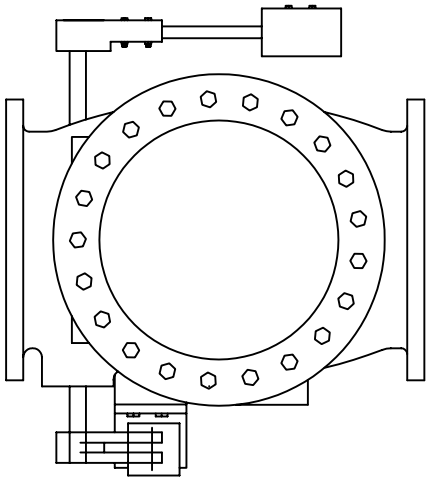


CLOSED

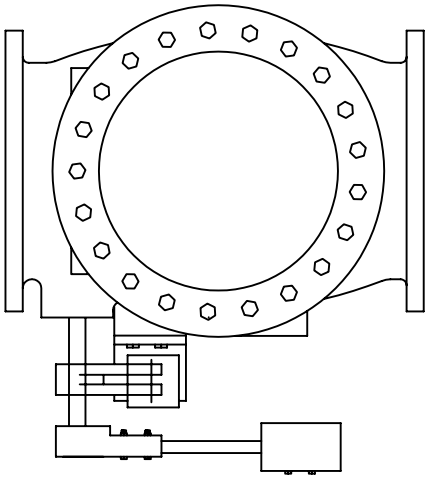


OPEN





OPTION 1



OPTION 2

NOTE: CONSULT FACTORY FOR MATERIAL AND DRAWING DETAIL

KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. CCV–4	14" THRU 30" CUSHION CHECK VALVE STYLE 206

KENNEDY VALVE-RESILIENT HINGED CHECK VALVE KEN FLEX—STYLE 506 (4”-12”)

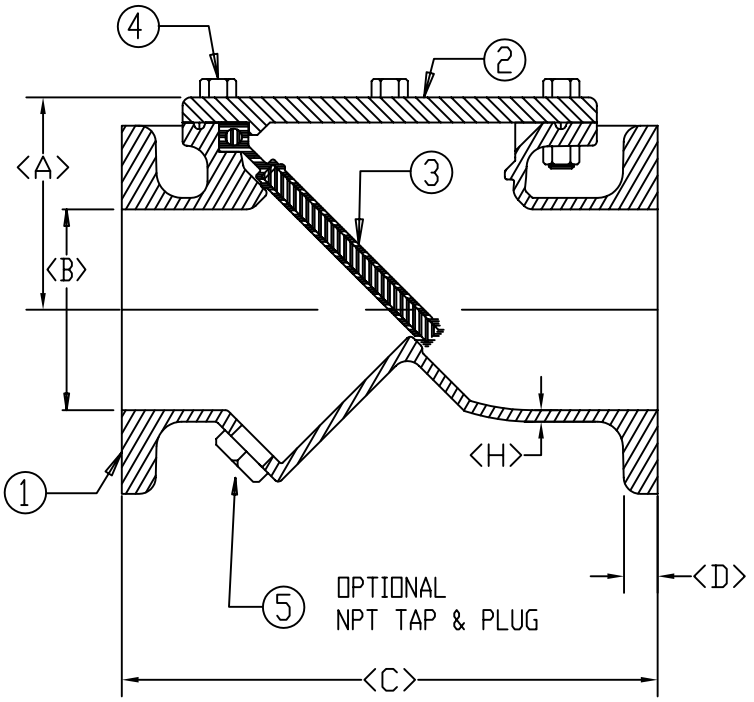
Size Range	Seat Test psi	Hydrostatic Shell Test psi
4”-12”	250	500

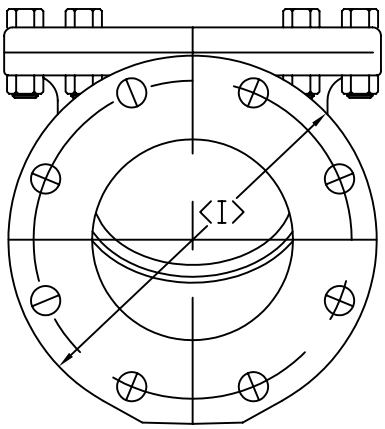
Available End Connections	Size Range	Style No.
Flanged Ends	4”-12”	506

Note: 14” and Larger contact factory for availability and spec.

Accessories / Options:
Back flush device
Tapped mounting pad – Sampling Station (Note contact factory for availability and spec.)
Tapped mounting pad – Position Indicator (Note: contact factory for availability and spec.)
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

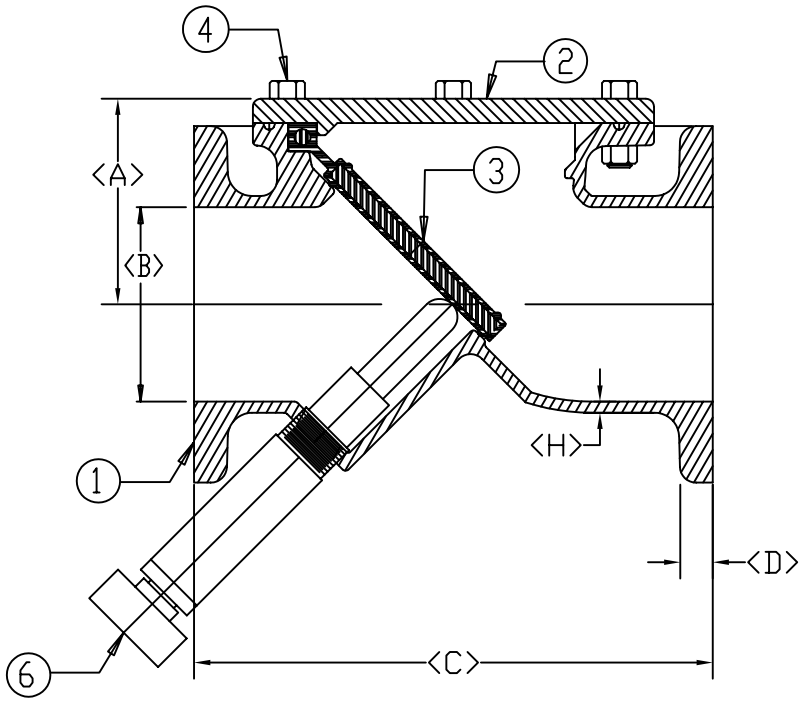
SIZE	A (approx)	ø B	C	D (nominal)	ø E	F	ø G	H (nom.)	I	WEIGHT
4	4.88	4.00	13	1.00	7.50	8	0.75	0.31	9.0	70
6	6.38	6.00	16	1.06	9.50	8	0.88	0.34	11.0	126
8	7.63	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	190
10	9.06	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	273
12	10.63	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0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

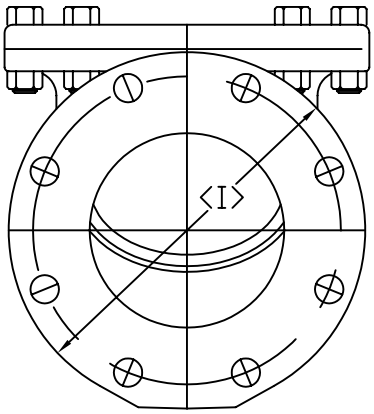
E - BOLT CIRCLE DIA. END FLANGE
F - NUMBER OF BOLTS REQ'D EACH END FLANGE
G - BOLT HOLE DIAMETER FOR END FLANGE
END FLANGES CONFORM TO ANSI B16.1

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
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

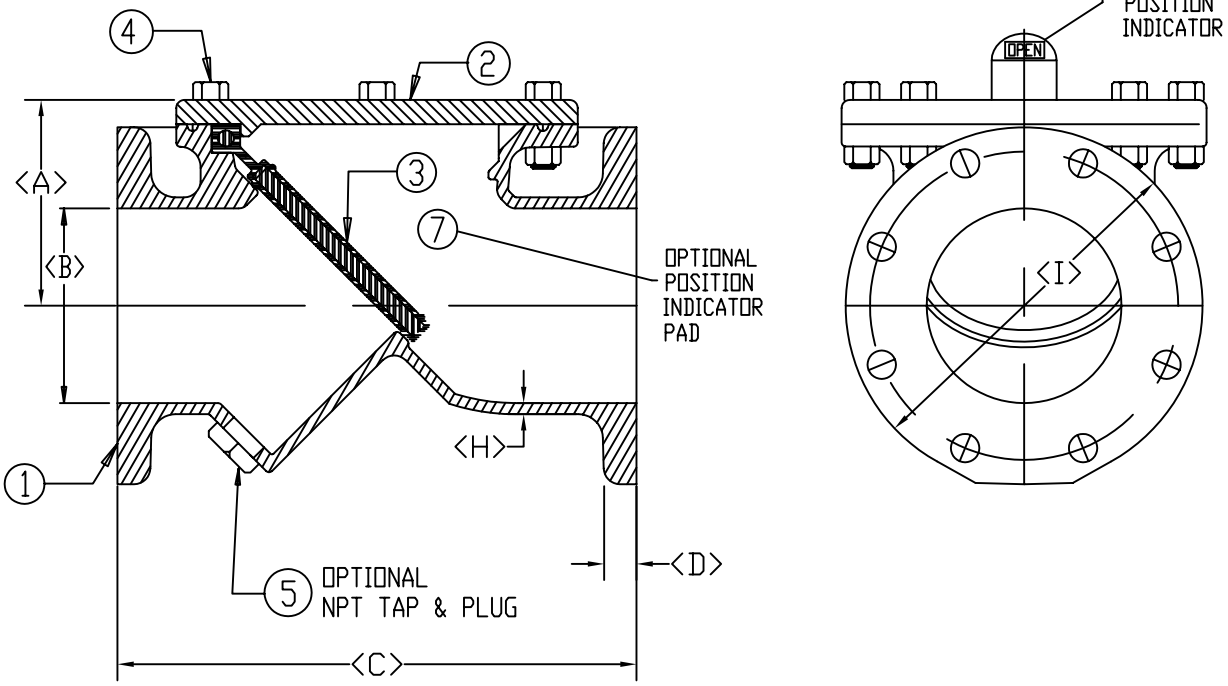
SIZE	A (approx)	ø B	C	D (nom.)	ø E	F	ø G	H (nom.)	I	WEIGHT
4	4.88	4.00	13	1.00	7.50	8	0.75	0.31	9.0	83
6	6.38	6.00	16	1.06	9.50	8	0.88	0.34	11.0	139
8	7.63	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	203
10	9.06	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	295
12	10.63	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	370

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. K506-J

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



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
7	1	POSITION INDICATOR ASSENBLY	NOTE: CONTACT FACTORY FOR DETAILS

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	73
6	6.38	6.00	16	1.06	9.50	8	0.88	0.34	11.0	129
8	7.63	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	194
10	9.06	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	277
12	10.63	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	361

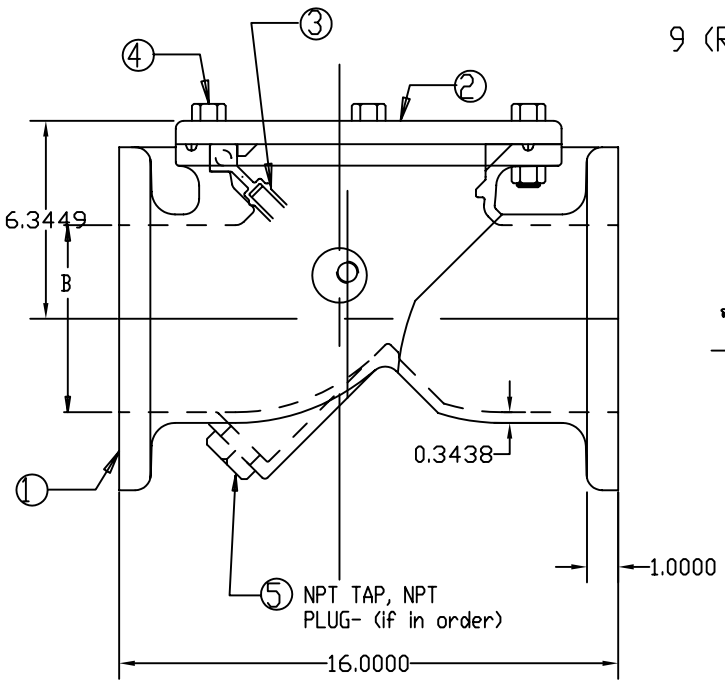
E - BOLT CIRCLE DIA. END FLANGE
F - NUMBER OF BOLTS REQ'D EACH END FLANGE
G - BOLT HOLE DIAMETER FOR END FLANGE
END FLANGES CONFORM TO ANSI B16.1

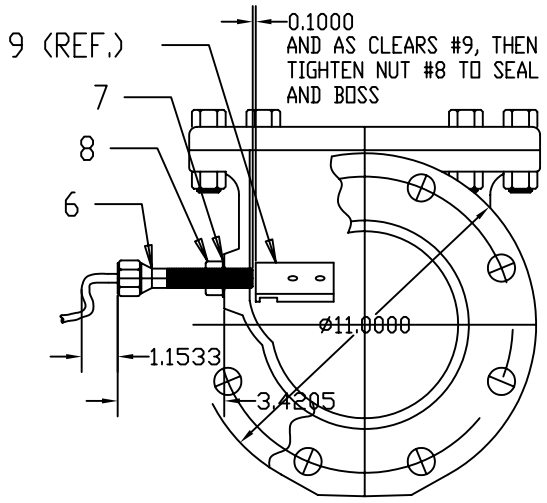
KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

4" THRU 12"
KENFLEX RESILIENT HINGED
CHECK VALVE WITH POSITION INDICATOR
STYLE 506-PI

KENFLEX RESILENT HINGED CHECK VALVE with POSITION INDICATOR





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

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, (If in order)	STEEL
6	1	LIMIT SWITCH (SPEC #1)	STAINLESS STEEL/MAGNETIC
7	1	5/8-18 UNF HEX NUT	STAINLESS STEEL
8	1	SEALING WASHER (SPEC #2)	ZINC PLATED STEEL
9	1	TARGET FOR SENSOR (NOTE #1)	PAINTED STEEL

SPECIFICATIONS

1. LIMIT SWITCH - 75-13526-B1 LEVERLESS LIMIT SWITCH BY GO SWITCH OR EQUAL. 5/8-18 UNF X 2 13/16"Lg, SINGLE POLE DOUBLE THROW, STANDARD SENSING (0.100"), 303 S.S. ENCLOSURE

2. McMaster-Carr 93783A035 OR EQUAL. 5/8" SEALING WASHER for BOLT - ZINC PLATED

NOTE

1. KV WILL MOUNT ON FLAPPER VIA THE SPECIAL ORDER SO THAT THE METAL TARGET IS FLUSH WITH THE EDGE OF THE FLAPPER. DEPICTED HERE FOR REFERENCE ONLY.

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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 6/2/03
DWG. NO. K506-PI2

4" THRU 12"
KENFLEX RESILIENT HINGED
CHECK VALVE WITH
POSITION INDICATOR
STYLE 506-PI2

KENNEDY VALVE---WAFER CHECK VALVE
FIGURE #706

SIZE RANGE	WORKING PRESSURE
4" – 8”	300 PSI Non-Shock 600 PSI Hydrostatic Seat and Shell Test

Available End Connections	Size Range	Figure No.
Wafer Ends	4” – 8”	706

Features

Short laying length.
Spring loaded for more effective control of water hammer.
Stainless steel spring.
UL / FM / ULC Approvals
Approved by N.Y.C. Board of Standards
Resilient seating.
Easy maintenance with a minimum number of parts.
Valve design uses built-in O-Ring flange seals instead of gasket end seals.
Mounts between standard ANSI B 16.1 / 125 lb. Flanges. Mounting between 250 lb. Flanges requires use of spacers.
May be installed in a vertical line with flow up or down.
Testing:

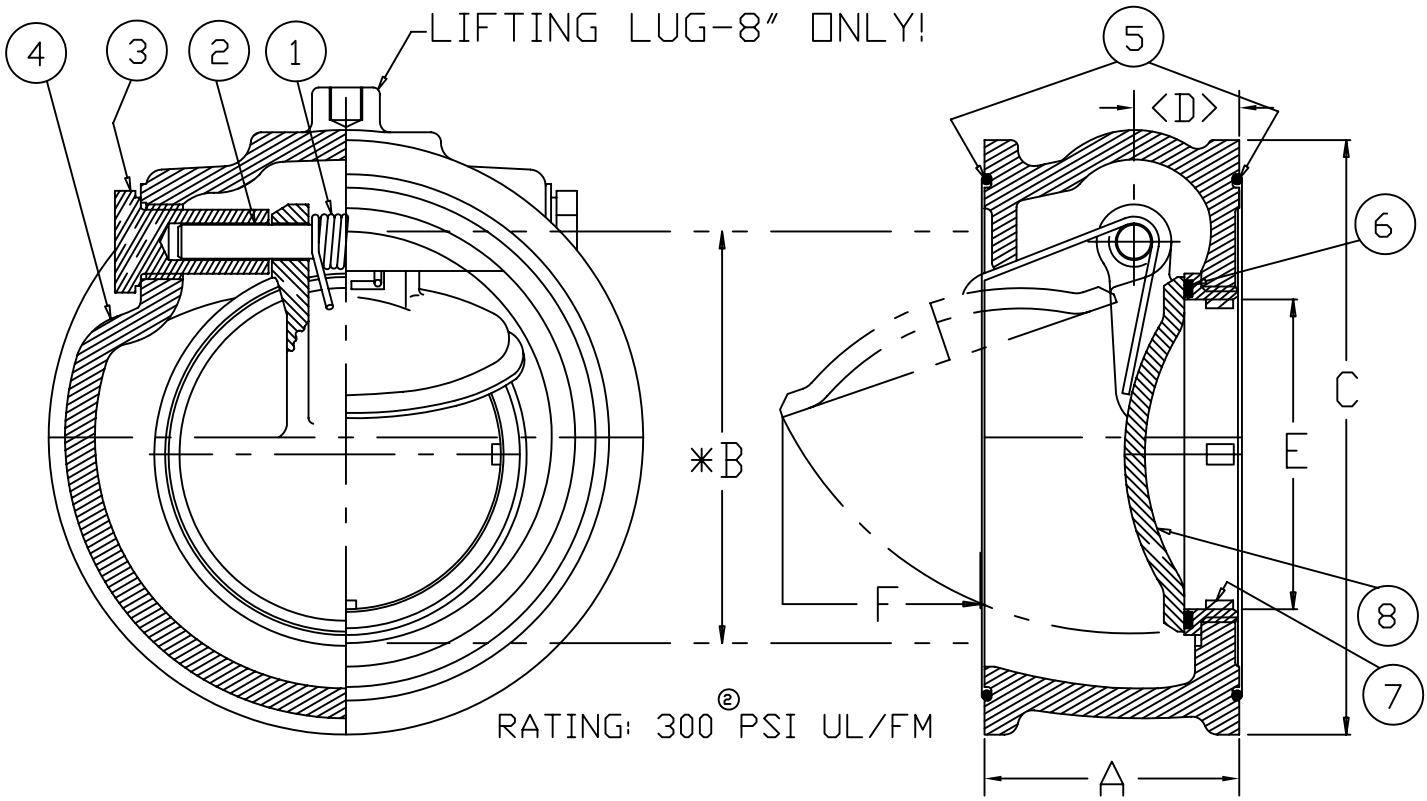
Test Pressure – Seat and Shell – 600 PSI
Working Pressure – Non-Shock – 300 PSI

LISTED

UL 888H

FM APPROVED

ULC



DET	DESCRIPTION	QTY	MATERIAL	SPEC
1	SPRING	1	STAINLESS STEEL	A.S.T.M. 313-A.I.S.I. TYPE 302
2	HINGE PIN	1	STAINLESS STEEL	A.S.T.M. A-276-A.I.S.I. 304 / 316
3	SIDE PLUG	2	BRONZE	
4	VALVE BODY	1	CAST IRON	A.S.T.M. A126 CLASS B
5	"O" RING	2	BUNA-N	A.S.T.M. D-735
6	SEAL	1	BUNA-N	U/L SPEC. #312
7	SEAT RING	1	BRONZE	A.S.T.M. B-62
8	CLAPPER	1	ALUMINUM BRONZE	A.S.T.M. B58-CDA 994 / 995

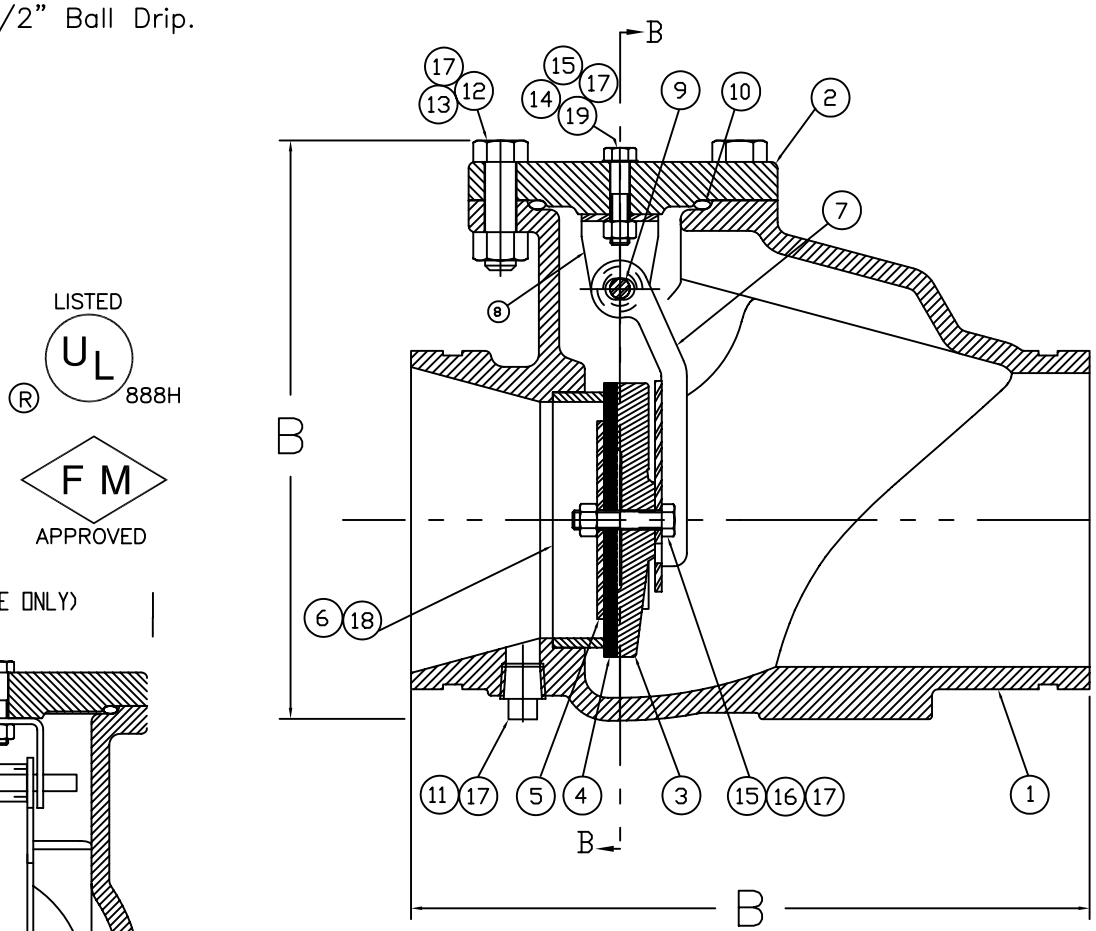
SIZE	A	ø B	ø C	D	ø E	F	G	WEIGHT
4"	3.75	4.03	6.87	1.34	3.03	1.50	2.19	15
6"	3.75	6.06	8.75	1.53	4.56	3.50	2.13	23
8"	4.25	7.98	11.00	1.92	6.00	5.50	2.50	39

KENNEDY VALVE
A DIVISION OF McWANE. Inc.
1021 EAST WATER STREET
ELMIRA, NEW YORK 14901
607-734-2211

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

4" THRU 8" FIGURE #706 WAFER CHECK VALVE ASSEMBLY DRAWING / MATERIAL LIST

The Kennedy Figure 426 Grooved End Swing Check Valve is a lightweight unit that features a top access cover for field maintenance. The valves are intended to be easily installed with approved grooved couplings. They may be installed either with the flow in a vertical position or horizontally. All valves have a 1/2" NPT connection on the inlet side for installation of a 1/2" Ball Drip.



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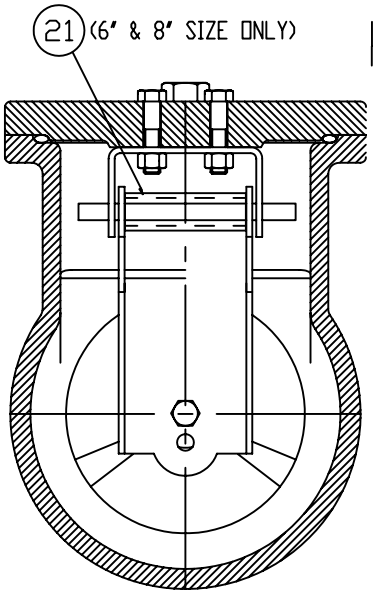
UL
888H
FM
APPROVED



SECT. B-B

DIMENSIONAL DATA

SIZE	A	B	WEIGHT
2.5"	7.22	8.625	19
3"	7.68	9.120	21
4"	8.54	9.990	29
6"	11.34	13.280	61
8"	12.86	14.500	81

ITEM NO.	QTY.	PART NAME	MATERIAL
01	01	VALVE BODY	DUCTILE IRON
02	01	COVER	DUCTILE IRON
03	01	CLAPPER	DUCTILE IRON
04	01	VALVE SEAL	SBR DURO 55-65
05	01	DISK PLATE	STAINLESS STEEL
06	01	SEAT RING	BRASS
07	01	HINGE	STAINLESS STEEL
08	01	HINGE SUPPORT	STAINLESS STEEL
09	01	HINGE PIN	STAINLESS STEEL
10	01	SEAL	SBR DURO 55-65
11	01	1/2" PIPE PLUG	STEEL
12	03	BOLT 5/8 X	STAINLESS STEEL
13	03	NUT 5/8	STAINLESS STEEL
14	02	BOLT 3/8 X	STAINLESS STEEL
15	03	NUT 3/8	STAINLESS STEEL
16	01	BOLT 3/8 X	STAINLESS STEEL
17	01	SEALANT	
18	01	SEALANT	
19	02	BOLT SEAL	
20	01	SPRING (OPTIONAL)	STAINLESS STEEL
21	01	SPACER (6" & 8" ONLY)	TYPE "K" BRASS 1/2" PIPE

KENNEDY VALVE
A DIVISION OF McWANE. Inc.
1021 EAST WATER STREET
ELMIRA, NEW YORK 14901
607-734-2211

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

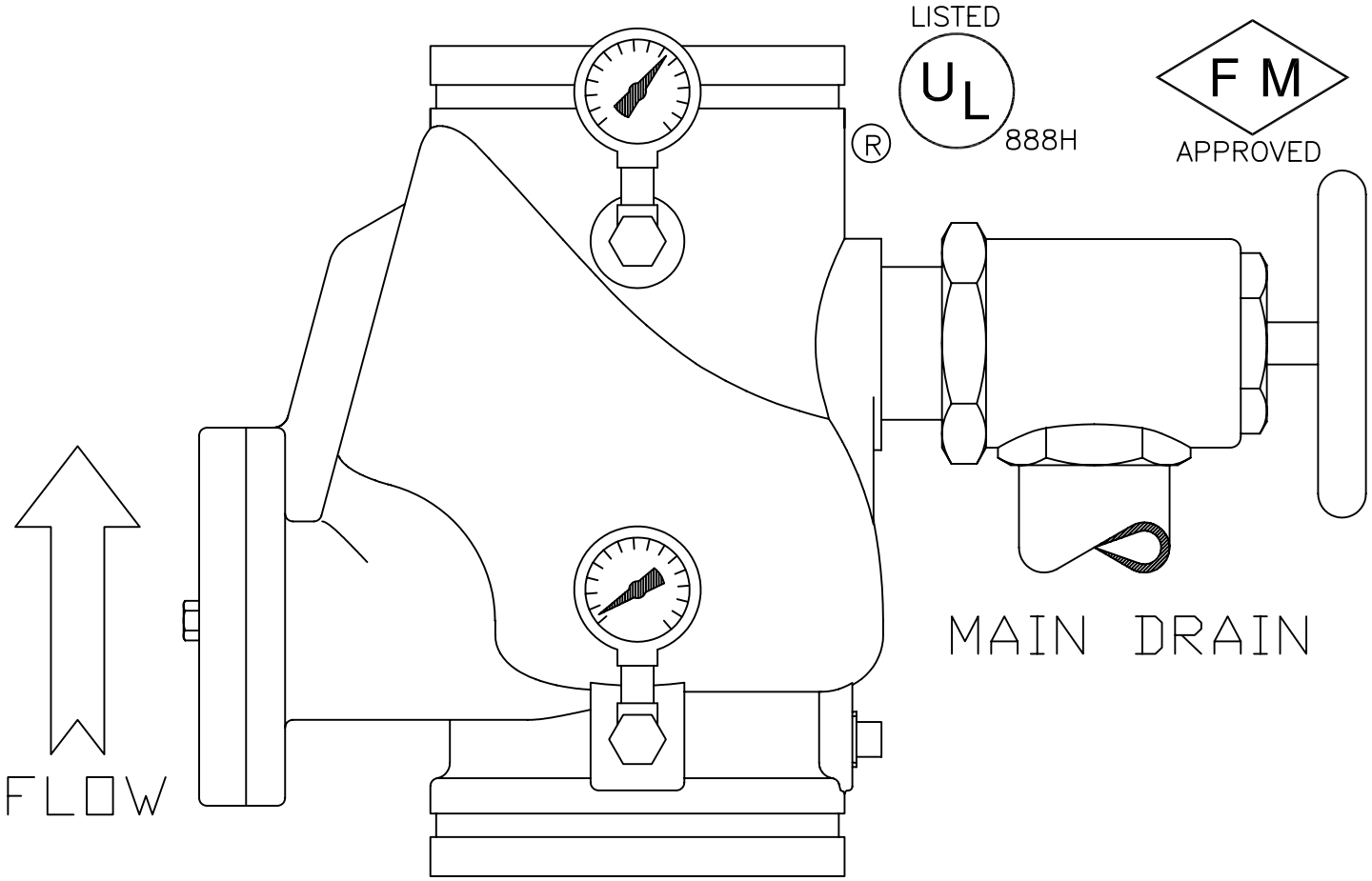
2 1/2" THRU 8" FIGURE 426 GROOVED CHECK VALVE ASSEMBLY DRAWING / MATERIAL LIST

The Kennedy Figure 426 R Grooved Check Valve may also be used as a Riser Check Valve. This valve would be a lightweight substitute for an "Alarm Valve Assembly". The valve is intended to be installed vertically in a sprinkler riser,with appropriate trim (optional purchase). Each valve is tapped 1/4" NST both above and below the clapper for pressure guages, and 1 1/4" or 1 1/2" NSP (depending on valve size) for the drain outlet.

SIZES 2 1/2"-8

UL LISTED/FM APPROVED

250 PSI WORKING PRESSURE



FEATURES:
COMPLETE SIZE RANGE 2 1/2"-8"
250 PSI RATING
EPDM DISC, DUCTILE IRON BODY & CLAPPER
304 SS CLAPPER ASSEMBLY
TOP ENTRY DESIGN

SIZE	FRICTION LOSS
2.5"	1.3 PSI @ 250 GPM
3"	1.0 PSI @ 250 GPM
4"	1.2 PSI @ 600 GPM
6"	.91 PSI @1350 GPM
8"	.70 PSI @2300 GPM

KENNEDY VALVE
A DIVISION OF McWANE. Inc.
1021 EAST WATER STREET
ELMIRA, NEW YORK 14901
607-734-2211

DWN: TRIJ
DATE: 6/2/03
DWG. NO. GRV-A2

2 1/2" THRU 8" FIGURE 426R
RISER CHECK VALVE
ASSEMBLY DRAWING / MATERIAL LIST

SIZE RANGE
WORKING PRESSURE
SUGGESTED SPECIFICATIONS

KENNEDY VALVE
PRESSURE RELIEF VALVES---"FLOOR TYPE"
STYLE F-1493

Body Length- Inches	**4" x 8"**	**6" x 8"**
Weight Complete - Pounds	**30**	**42**

WORKING PRESSURE
The valve starts to open at a head of approximately 9" of water.

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 ground water 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 Kennedy Valve (Style F-1493) or approved equal.

INSTALLATION
OPERATION
MAINTENANCE

KENNEDY VALVE
PRESSURE RELIEF VALVES---"FLOOR TYPE"
STYLE F-1493

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.

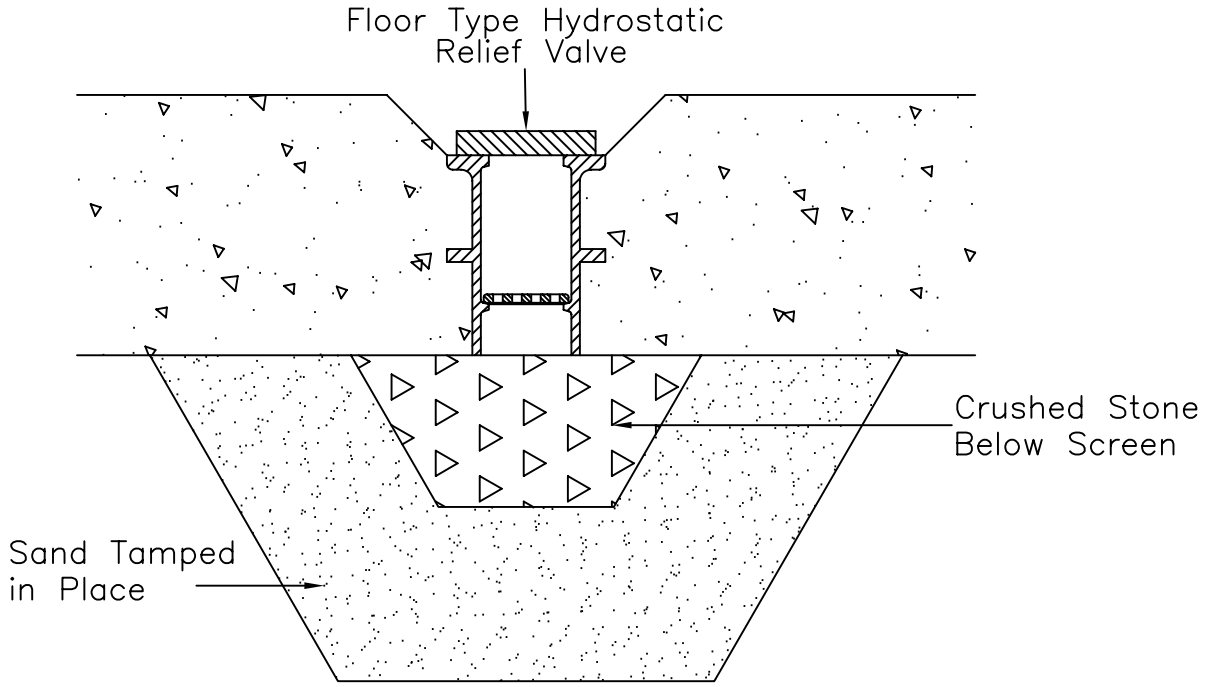
II. Operations

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

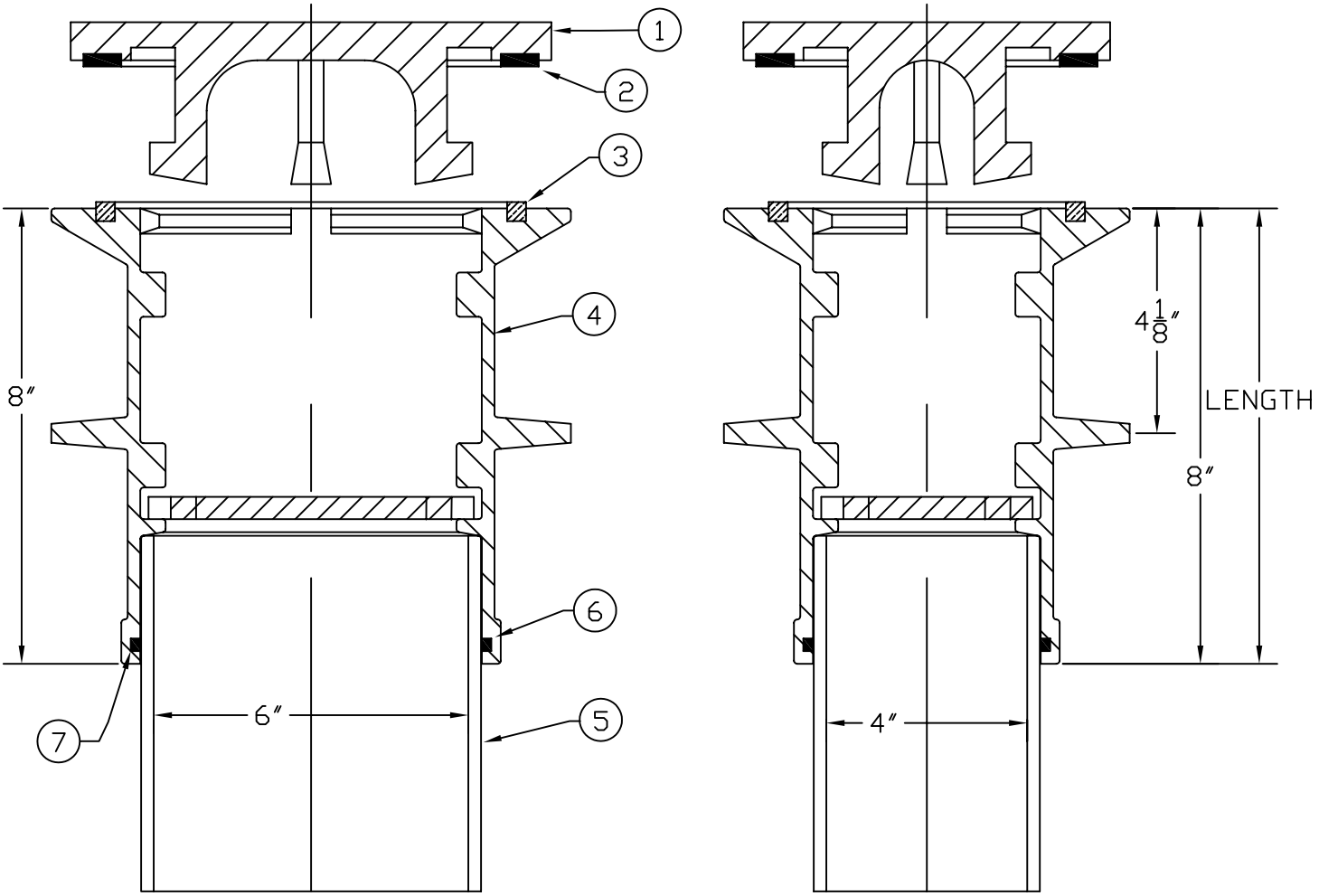
Frequency of inspection should be at least on an annual basis, or whenever valve is accessible. Remove the cover by turning it right or left and lifting out. Examine and clean seating surfaces. Remove any debris from inside of body. Remove and clean grate if necessary. Reassemble and insure proper operation 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.

KENNEDY VALVE ELMIRA, NEW YORK A DIVISION OF MCWANE INC.	DWN: TRIJ DATE: 7/1/05 DWG. NO. PRV–F	4" PRESSURE RELIEF VALVES (FLOOR TYPE) INSTALLATION DETAIL / NOTES STYLE F–1493



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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" & 6"PRESSURE RELIEF VALVES (FLOOR TYPE) MATERIAL LIST / DIMENSIONS / WEIGHTS STYLE F-1493
DATE: 7/1/05	
DWG. NO. PRV-F	

SIZE RANGE / WEIGHT
PRESSURE RATING
ACCESSORIES / OPTIONS
SUGGESTED SPECIFICATIONS

KENNEDY VALVE—PRESSURE RELIEF VALVE---WALL TYPE STYLE F-1494-T

Available End Connections	Size Range	Aprox. Weight	Size Style No.
Flanged End	4” x 12”	35 lbs.	F-1494-T
Flanged End	6” x 12”	47 lbs.	F-1494-T

Working Pressure
Valves unseat and swing open under unseating pressure to release the outfall fluid and close when pressure is relieved.

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 Kennedy Valve or approved equal.

NOTE:
The 12” long cast iron wall thimble is designed to be extended to any length by using C900 PVC pipe and field cut to desired length.

INSTALLATION
OPERATION
MAINTENANCE

KENNEDY VALVE
PRESSURE RELIEF VALVE---WALL TYPE
STYLE F-1494-T

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

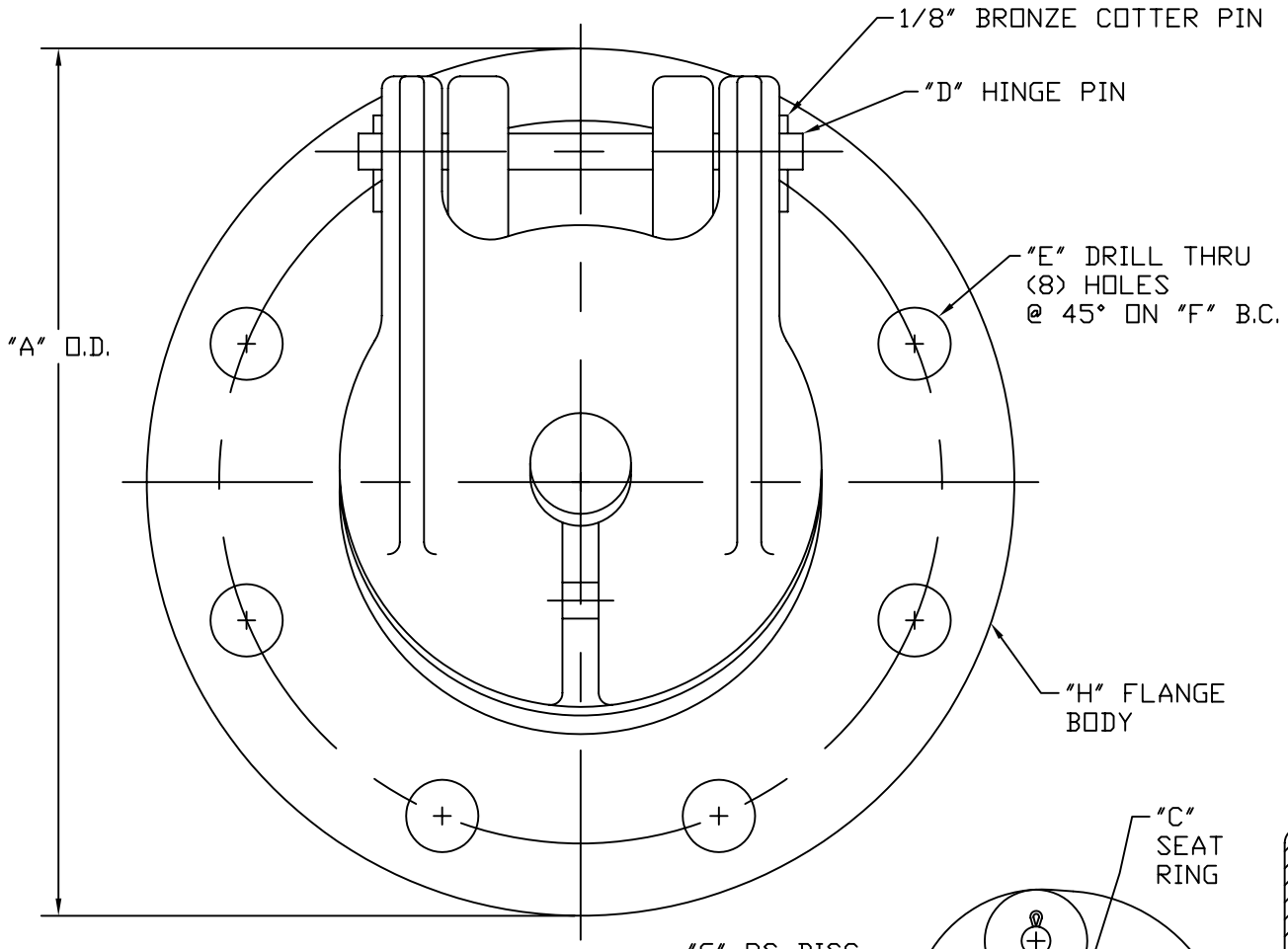
Once installed, the valve will operate as pressure conditions dictate. When outside water pressure builds up, exceeding the inside pressure, the valve will open and allow water to enter the tank to equalize pressure. When the pressure is relieved, the valve will close to prevent seepage of liquid out into the ground.

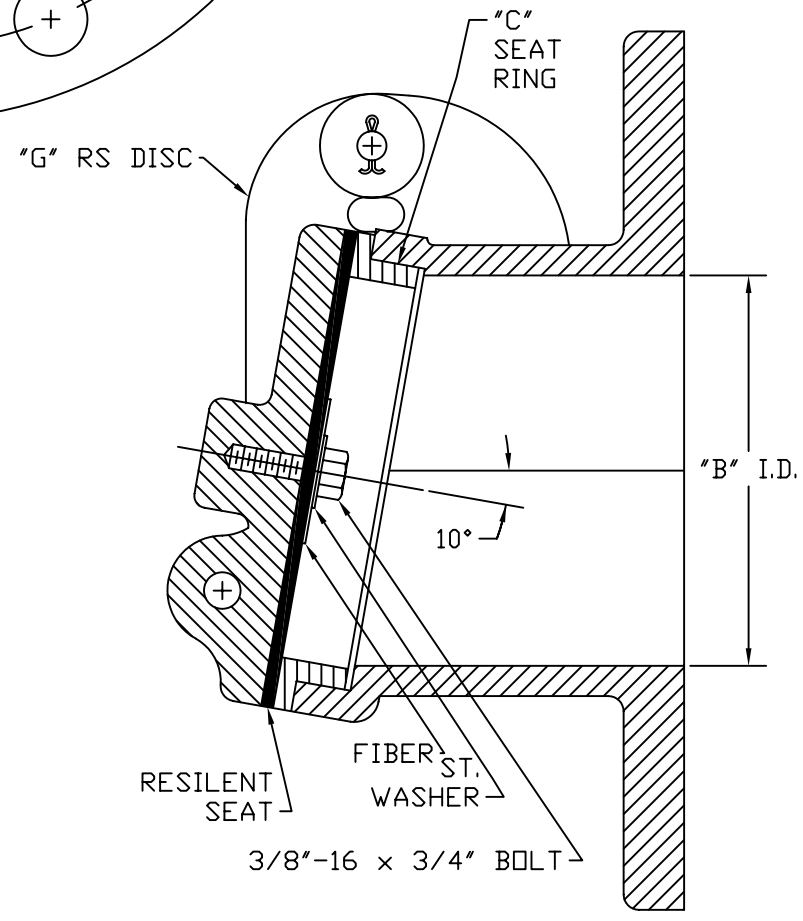
III. Maintenance

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.

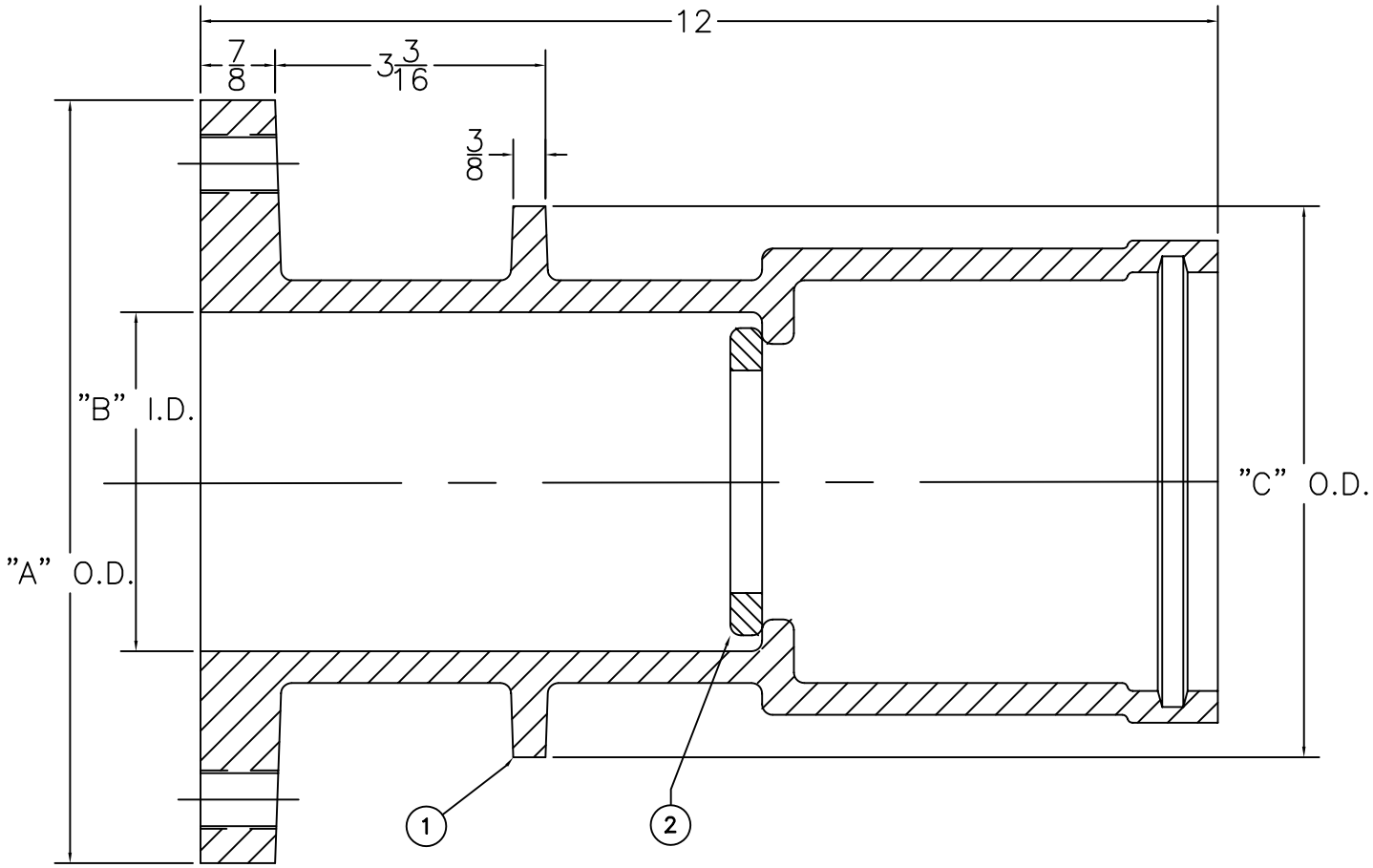




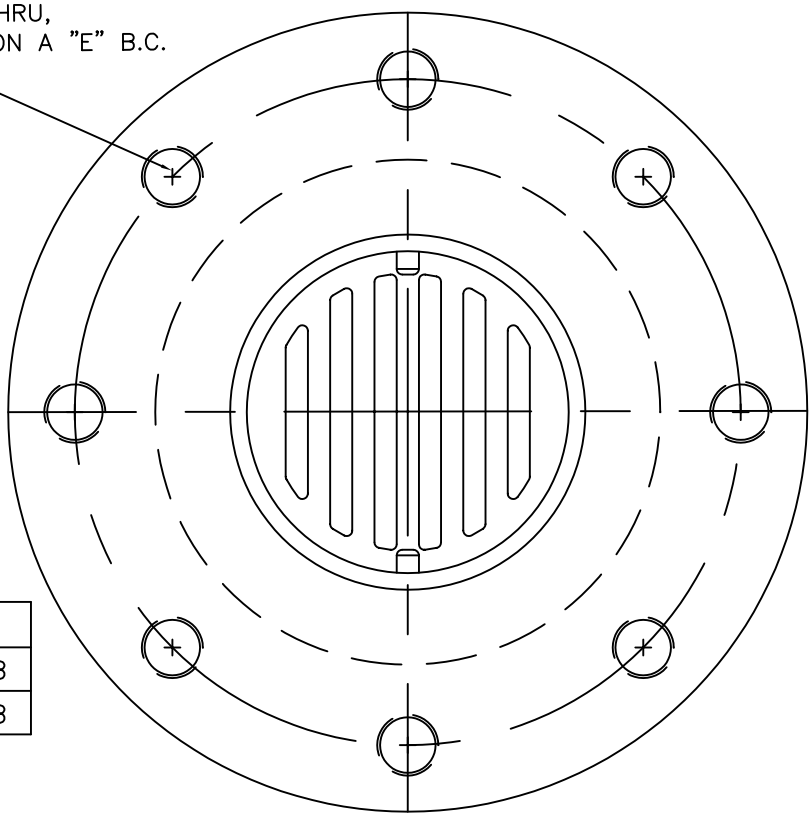
DIMENSIONS & PART NO.'s		
SIZE	4"	6"
A	9	11
B	4	6
C	155575	155577
D	177400	177426
E	¾	⅞
F	7½	9½
G	177401	177412
H	177402	177409

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" & 6" PRESSURE RELIEF VALVE (WALL TYPE) ASSEMBLY / MATERIAL LIST / DIMENSIONS STYLE F-1494-T
DATE: 7/1/05	
DWG. NO. PRV-W1	



"D" TAP THRU,
LOCATED ON A "E" B.C.
(8) REQ'D



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.

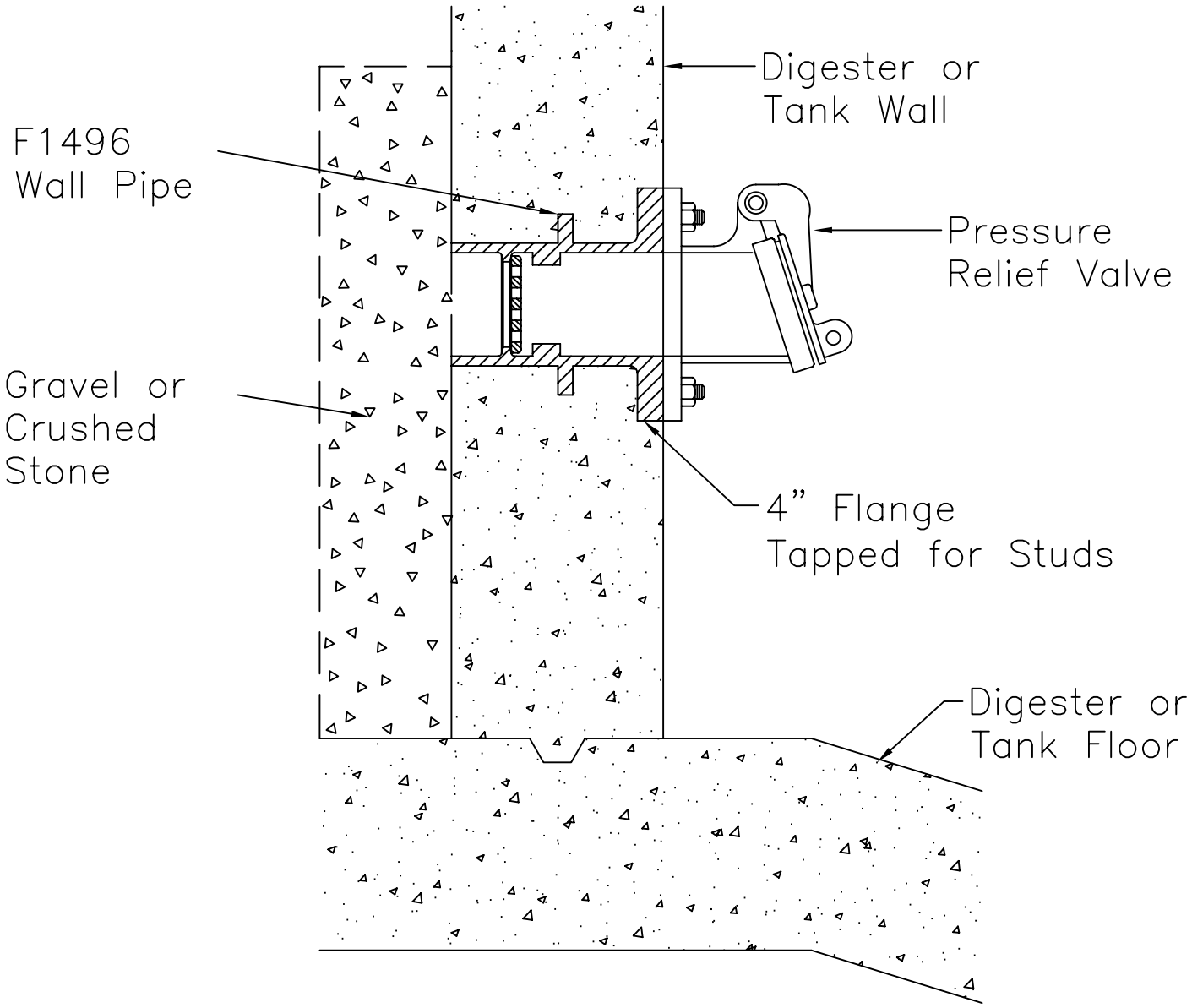
ITEM	DESCRIPTION	REQ'D	MATERIAL
1	WALL THIMBLE	1	CAST IRON A126B
2	GRATING	1	CAST IRON A126B

NOTE: CAN BE EXTENDED TO ANY LENGTH BY USING C900 PVC

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

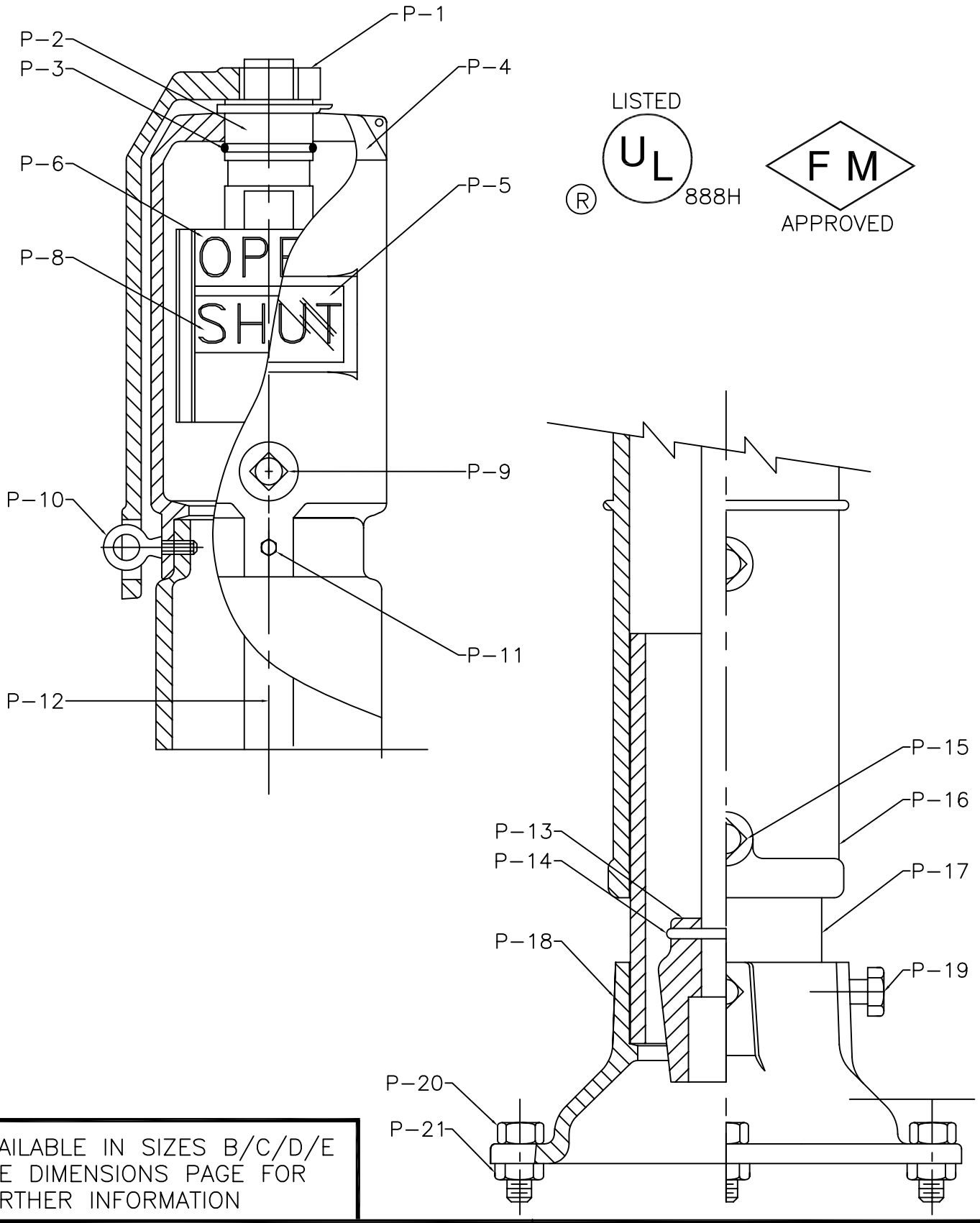
DWN: TRIJ
DATE: 7/1/05
DWG. NO. PRV–W2

4" PRESSURE RELIEF VALVE––(WALL TYPE)
WALL THIMBELL
ASSEMBLY / MATERIAL LIST / DIMENSIONS
STYLE F–1494–T



KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	4" & 6" PRESSURE RELIEF VALVE (WALL TYPE) INSTALLATION DETAIL STYLE F-1494-T
DATE: 7/1/05	
DWG. NO. PRV-W3	

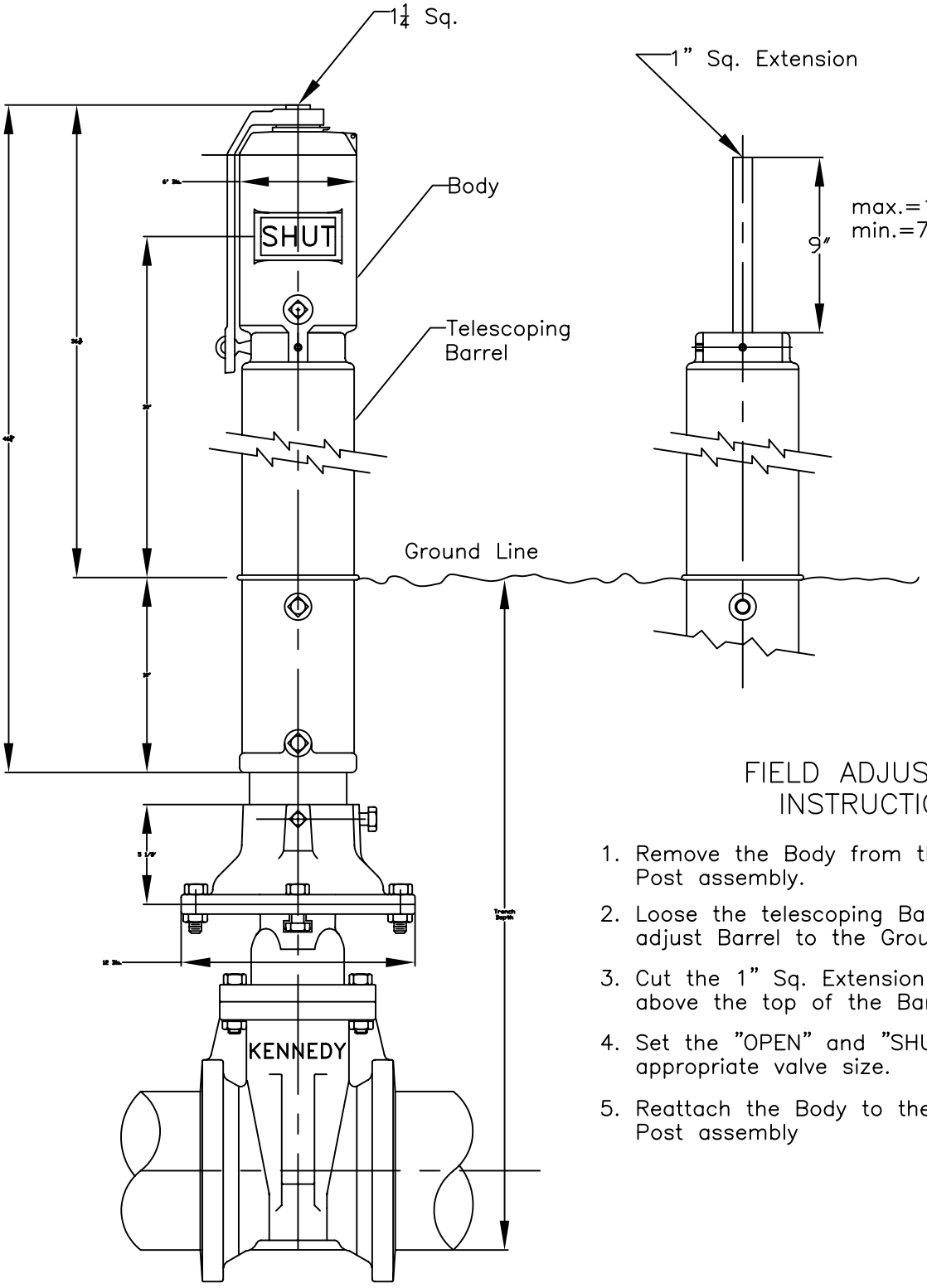


LISTED
UL
888H
FM
APPROVED

AVAILABLE IN SIZES B/C/D/E
SEE DIMENSIONS PAGE FOR
FURTHER INFORMATION

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	STYLE 2945A
DATE: 6/2/03	ADJUSTABLE INDICATOR POST
DWG. NO. PV-A1	ASSEMBLY DRAWING

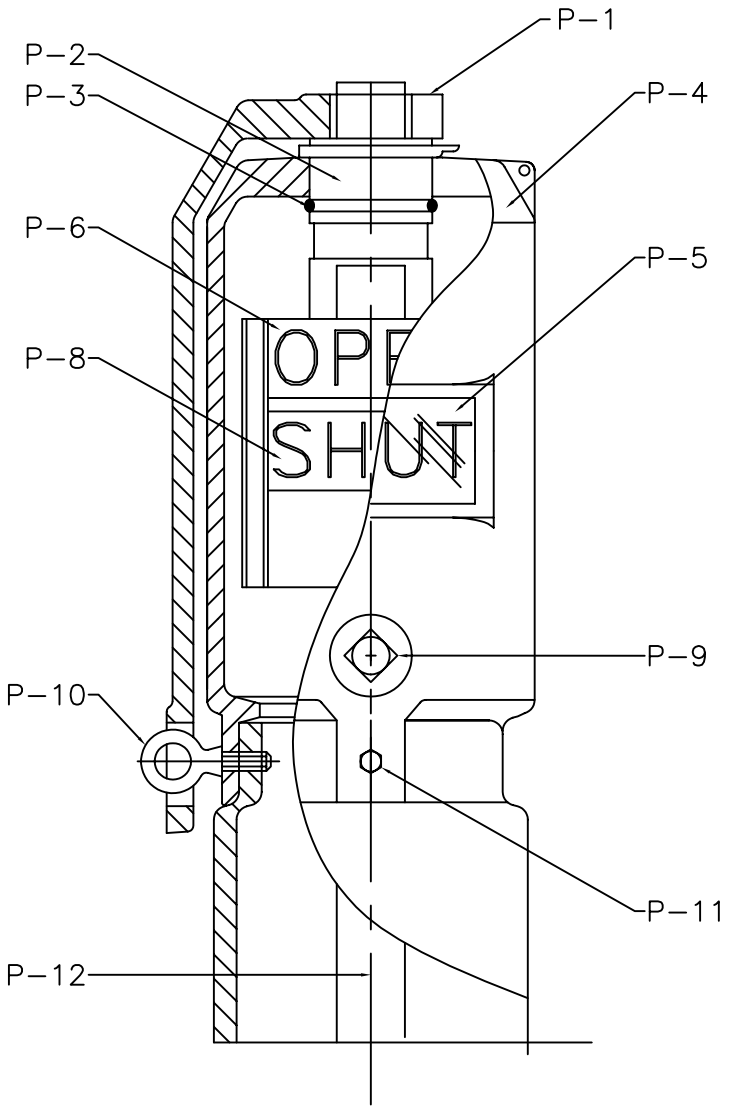


FIELD ADJUSTMENT INSTRUCTIONS

1. Remove the Body from the top of the Indicator Post assembly.
2. Loose the telescoping Barrel set screws and adjust Barrel to the Ground Line.
3. Cut the 1" Sq. Extension at a distance of 9" above the top of the Barrel end.
4. Set the "OPEN" and "SHUT" targets for the appropriate valve size.
5. Reattach the Body to the top of the Indicator Post assembly

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	INDICATOR POST STYLE 2945 A TELESCOPING BARREL UL/FM DIMENSIONS AND INSTRUCTIONS
DATE: 6/2/03	
DWG. NO. PV–A1	



LISTED
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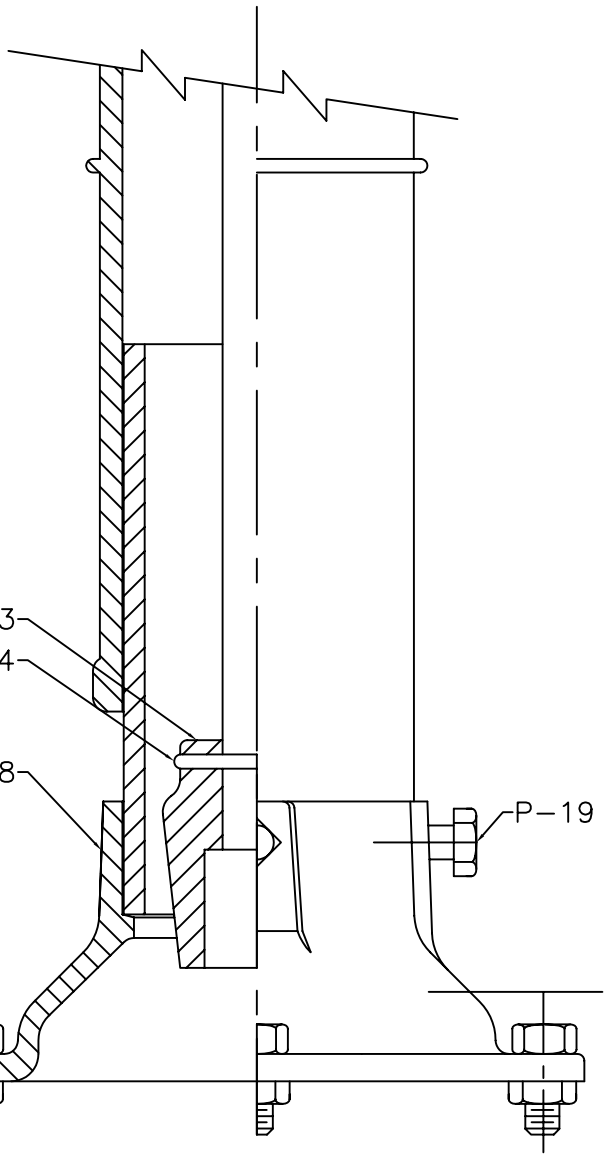
APPROVED

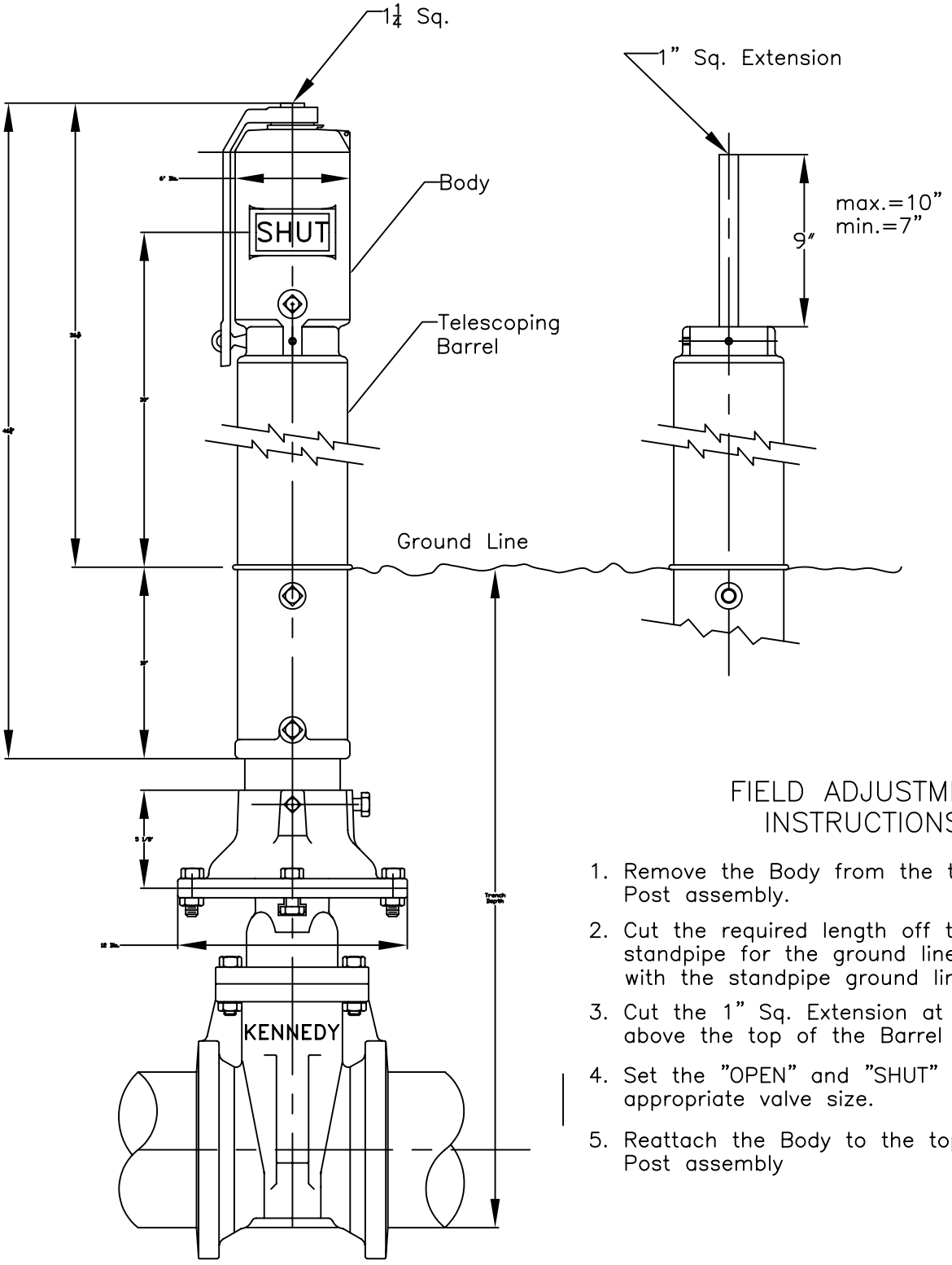


AVAILABLE IN SIZES B/C/D/E
SEE DIMENSIONS PAGE FOR
FURTHER INFORMATION

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

INDICATOR POST STYLE 2945
FIXED LENGTH ASSEMBLY
UL & FM APPROVED



FIELD ADJUSTMENT INSTRUCTIONS

1. Remove the Body from the top of the Indicator Post assembly.
2. Cut the required length off the bottom of the standpipe for the ground line to match up with the standpipe ground line mark.
3. Cut the 1" Sq. Extension at a distance of 9" above the top of the Barrel end.
4. Set the "OPEN" and "SHUT" targets for the appropriate valve size.
5. Reattach the Body to the top of the Indicator Post assembly

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 6/2/03	
DWG. NO. PV–A1	

INDICATOR POST STYLE 2945 FIXED LENGTH UL/FM DIMENSIONS AND INSTRUCTIONS

ITEM	QTY	PART NO.	DESCRIPTION	MATERIAL
P-1	1	446127P	LOCKING WRENCH	CAST IRON to ASTM A-126 B
P-2	1	3024872	OPERATING NUT	BRONZE to ASTM B584 Alloy 836
P-3	1	442639P	RETAINER O-RING #226	BUNA - N
P-4	1	3020912	TOP SECTION	CAST IRON to ASTM A-126 B
P-5	2	441980P	WINDOW GLASS	LEXAN - UV STABILIZED
P-6	2	443370P	'OPEN' TARGET	CAST ALUMINUM
P-7	2	443371P	'SHUT' TARGET	CAST ALUMINUM
P-8	1	------	TARGET CARRIER ASSEMBLY	----
	1	3005802	TARGET CARRIER NUT	BRONZE to ASTM B584 Alloy 844
	2	44347P	TARGET CARRIER PLATE	"STEEL - 1/16"" Sheet"
	4	440736P	TARGET RETAINER CLAMP	302 STAINLESS STEEL-16 Ga
	8	444171P	PAN HEAD SCREW #10-24 X 1/2"	STEEL - Zinc Plated
	4	442411P	HEX NUT #10-24	STEEL - Zinc Plated
P-9	1	443476P	PIPE PLUG 1/2" NPT	MALL. IRON
P-10	1	440254P	EYEBOLT 3/8" X 1"LG.	FORGED STEEL
P-11A	1	444303P	HEX HEAD SCREW 3/8"-16 X 1"LG	STEEL - Zinc Plated
P-11F	2	444306P	HEX HEAD SCREW 3/8"-16 X 1 1/2"LG	STEEL - Zinc Plated
P-12	1	SEE DWG	SQUARE STEM 1" SQ. STEEL	AISI M1020 HRS
P-13	1	318035P	CRANE COUPLING	CAST IRON to ASTM A-126 B
P-14	1	442190P	COTTER PIN	BRASS
P-15	2	444342P	HEX HEAD SCREW 3/4"-10	STEEL - Zinc Plated
P-16A	1	3004772	TELESCOPING BARREL (Adjust Post)	CAST IRON ASTM A-126 CL. B
P-17A	1	SEE DWG	LOWER STANDPIPE (Adjustable Post)	4"-DUCTILE IRON-Cl 52-ANSI A21.51"
P-18	1	3180402	BASE FLANGE	CAST IRON to ASTM A-126 B
P-19	3	444355P	HEX HEAD SCREW 5/8"-11	STEEL - Zinc Plated
P-20	4	444357P	HEX HEAD SCREW 5/8"-11 X 2 1/4"LG	STEEL - Zinc Plated
P-21	4	442484P	HEX NUT 5/8"-11	STEEL - Zinc Plated
P-22F	1	SEE DWG	STANDPIPE SECTION (Fixed Post)	4"-DUCTILE IRON-Cl 52-ANSI A21.51"
P-23F	1	3004762	SPACER SLEEVE (Fixed Post)	5"-DUCTILE IRON-Cl 52-ANSI A21.51"

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

STYLE 2945 A (ADJUSTABLE) &
STYLE 2945 (FIXED) PARTS LIST

TELESCOPING BARREL 2945A
MAXIMUM TRENCH DEPTH

VALVE SIZE	B SIZE		C SIZE		D SIZE		E SIZE	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
4″	31″	51″	48″	68″	66″	86″	90″	114″
6″	35″	55″	53″	73″	71″	91″	95″	119″
8″	40″	60″	58″	78″	76″	96″	100″	124″
10″	45″	65″	63″	83″	81″	101″	105″	128″
12″	49″	69″	67″	87″	85″	105″	109″	133″
14″	54″	74″	72″	92″	90″	110″	114″	138″

FIXED LENGTH POSTS 2945
MAXIMUM TRENCH DEPTH

VALVE SIZE	F Size	G Size	H Size
4″	45 1/2″	63 1/2″	87 1/2″
6″	49 1/2″	67 1/2″	91 1/2″
8″	54 1/2″	72 1/2″	96 1/2″
10″	59″	77″	101″
12″	64″	82″	106″
14″	69″	87″	111″

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 6/2/03
DWG. NO. PV–A1

INDICATOR POST STYLE 2945A & 2945 TRENCH DEPTHS FOR GATE VALVE UL & FM APPROVED

Installation – The valve should be opened to the fully open position before proceeding with the Indicator Post installation.

1. **Disassembly of the Indicator Post Unit**

   Telescoping Barrel Units

   - Remove the Top Section from the end of the barrel.
   - Loosen the two screws on the barrel and slide off the top of the standpipe.

   Fixed Length Units

   - Remove the Top Section from the end of the standpipe.

2. **Base Flange Installation:**

   - Attach the base flange along with the standpipe to the valve plate using the four 5/8" bolts and nuts provided.

3. **Grade Line Adjustments:**

   Telescoping Barrel Units

   - Lower the barrel over the standpipe until the grade line mark on the barrel is at ground line height and then tighten the two screws securely.

   Fixed Length Units

   - Cut the required length off the bottom of the standpipe so that the indicated grade line of the standpipe is at the ground line height and then secure to the base flange by tightening the two screws.

4. **Extension Rod Adjustments:**

   Lower the stem into the barrel/standpipe, placing the crane coupling over the valve operating nut.

   It is necessary that the stem engage the operating nut a minimum of 2 inches, but not more than 5 inches.

   To check for correct engagement, the end of the stem should be from 7 inches to 10 inches above the top of the standpipe (Fixed Length Units) or the top of the telescoping barrel.

5. **Target (Open and Shut) Adjustments**

Remove the target assembly from inside the body by rotating the operating nut counterclockwise.

Loosen the target retainer screws, but do not remove them.

Open Left Valves

Move the OPEN target to the top of the plate.

Note: Position of the SHUT target can be determined by the following chart:

Valve Size	4”	6”	8”	10”	12”	14”
Gate Valve “A”	1”	1 3/8”	1 3/16”	2 3/16”	2 5/8”	3”
RW Valve “A”	7/8”	1 5/16”	1 11/16”	2 1/8”	2 ½”	NA

Position the SHUT target as indicated below and tighten the retainer screws until snug. Avoid over tightening. Repeat the procedure for the other side.

Open Right Valves

The procedure is similar as for open left, but with two differences:

A: The open target is placed **below** the shut target.

B: The open target is placed at the very **bottom** of the plate.

The position of the shut target above the open target is then determined and set as described above.

Maintenance

1. Lubrication

Oil upper bearing at least once per year, adding several drops of oil in the hole located on the top of the main stem flange.

Access to lubrication hole is gained by raising the locking wrench off the main stem nut.

2. Operation

The target mechanism will travel off the threads of the operating nut in both directions should the targets or target mechanism be positioned incorrectly. Should this happen, readjust targets. If the target mechanism falls from the operating nut, it will be stopped a short distance below the window.

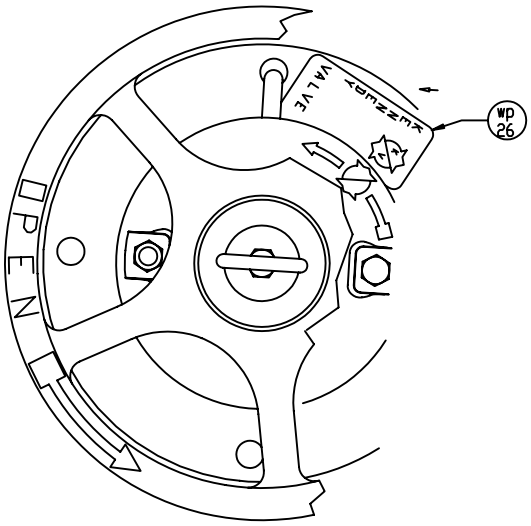
2945 (A) Vertical Indicator Post – Changing the Lower Standpipe

1. Loosen (2) ¾" – UNC Bolts (Items P-15) that retain the Telescoping Barrel (Item P-16) to the lower Standpipe (Item P-17)
2. Working in a safe manner lift off the entire top assembly (Items P-1 through P-16) from the Telescoping Barrel and Base Flange.
3. Remove the Stem (Item P-12) and Crane Coupling (Item P-13) sub-assembly.
4. Loosen the ¾" – UNC Bolts that retain the Lower Standpipe to the Base Flange.
5. Remove the existing Lower Standpipe and set the new one into the socket in the Base Flange.
6. Securely tighten the bolts that were loosened in Step 4 (50-100 ft. lbs)
7. Working safely, slide the entire top assembly over the new Lower Standpipe.
8. Tighten the (2) ¾" – UNC Bolts that retain the Telescoping Barrel to the Lower Standpipe (Item P-15) – Tighten them securely enough to safely maneuver the Post in the field.
9. Remove the Wrench (Item P-1), the 3/8" – UNC Bolt (Item 11A) and the eyebolt (Item P-10).
10. Lift the assembly of the Top Section (Item P-4), Operating Nut (Item P-2), Target Carrier Assembly (Items P-6 through P-8), etc. from the Telescoping Barrel.
11. If a longer Lower Standpipe has been installed it will be necessary to procure a longer Stem. Slip the Crane Coupling (Item P-13) over one end of the new Stem and cross drill a new, cotter pin hole through the new stem.
12. If the Lower Standpipe just installed is shorter than the one it replaced, the Stem will have to be cut.
13. Bolt the Base Flange of the sub-assembly that includes the Base Flange, Lower Standpipe and Telescoping Barrel to the flange of the valve, using the ¾" – UNC Bolts & Nuts provided by Kennedy Valve.
14. Place the square socket in the Crane Coupling on the Stem & Coupling sub-assembly over the 2" Square Nut at the top of the stem of the valve.
15. See page F-4 of the Kennedy Valve Product Catalog and follow the directions.

NOTE: Kennedy Valve does offer for sale Couplings to extend Stems.

Instructions for Extending a 2945A Post

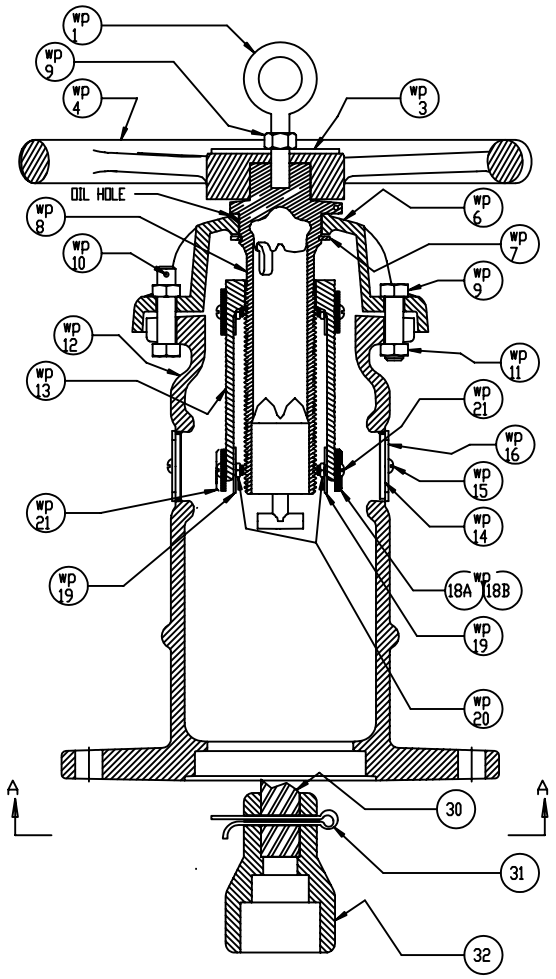
1. Loosen the two ¾” screws on top pipe section (near grade line at bottom of pipe)
2. Pull apart the upper section from the lower pipe section.
3. Place new extension coupling with new extension pipe over the existing lower pipe section.
4. Tighten screws provided on the extension pipe and lower pipe (3/4” X 1” square head screw).
5. Take existing stem and place the new extension stem with coupling on top of original stem.
6. Drill through stem and coupling (pilot holes provided on one side), then pin together with pins provided (1/4” X 3” br. cotter keys.)
7. Place stem down the inside of new extension and lower pipe assembly aligning it on the 2” square nut on valve.
8. At this time, remove top section (with operating nut assembly) from off the top of indicator post standpipe (two bolts).
9. Place complete upper section over top of stem and align with the new extension pipe.
10. Push together, adjust to desired height, and retighten the two ¾” screws in top pipe section.
11. Stem should be cut 7”-10” above the pipe.
12. Adjust open/shut plates per instructions and replace top section wit hstem nut (can also be extended at bottom end).

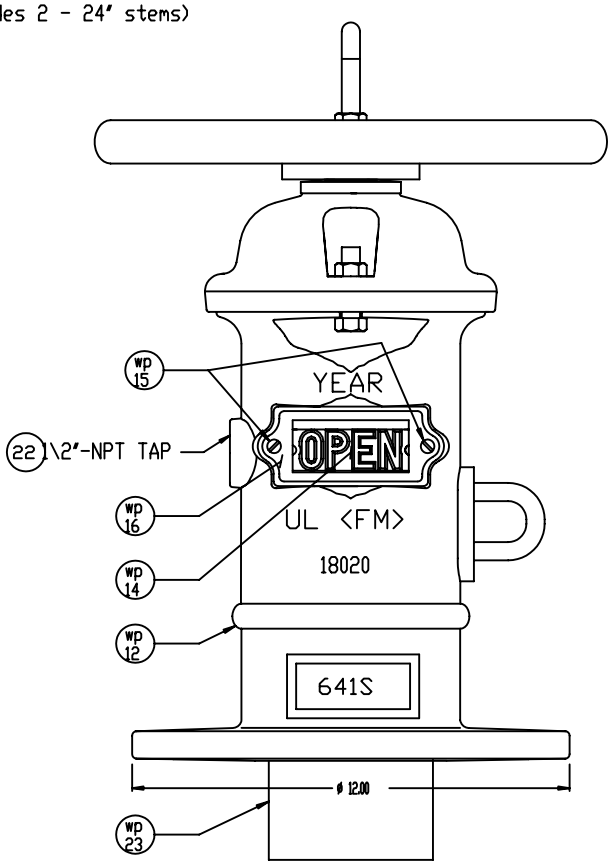


TOP VIEW

NO	ITEM	MATERIAL	QTY	SPEC	PART NUMBER
WP-1	EYE BOLT 1/2-UNC 2" LG	STL	1		440253P
WP-2	NUT 1/2-UNC PLATED	STL	1		477495P
WP-3	WASHER 5.8 O PLATED	STL	1		445834P
WP-4	HANDWHEEL-14"DIA	CI	1		446015P
WP-5	COVER	CI	1	A126-B	3180282
WP-6	RETAINER RING #5100-225	STL	1		443599P
WP-7	OPER STEM NUT	BR	1	AWWA'A'	3180165
WP-8	NUTS 1\2-UNC PLATED	RP STL	2		442482P
WP-9	BOLT 1\2-UNC x 2"	RP STL	1	A304	444419P
WP-10	BOLT 1\2-UNC x 1.75"	RP STL	1	A304	444348P
WP-11	TOP SECT.-WALL POST	CI	1	A126-B	3180203
WP-12	TARGET NUT	BR	1	AWWA'A'	3180172
WP-13	WINDOWS - FLAT	PLAST	2		441982P
WP-14	SCREWS-SELF TAP		4		444435P
WP-15	FERRULE	STL	2		441587P
WP-16	PROTECTIVE STEEL PLATES	STL	2		443344P
WP-17A	TARGET PLATE (OPEN)	ALUM	2		443348P
WP-17B	TARGET PLATE (SHUT)	ALUM	2		443350P
WP-18	CLAMPS -PLATED	STL	4		440734P
WP-19	NUTS-SQUARE	STL	8		442576P
WP-20	MACH SCREW-RD HEAD	BR	8		444432P
WP-21	PIPE PLUG-1\2 NPT	IRON	1		443476P
WP-22/23/24	PIPE-4" NPT 13" LG		1 EA.		2180912
WP-22	STEM -(ORD. BY LG)	STL	1		445312L
WP-23	COTTER PIN	BR	1		442190P
WP-24	CRANE COUPLING	CI	1		318035&
WP-25	ADJUSTMENT CARD		1		440443P
WP-26	MARKING TAG	MYLAR	1		

Figure 551 - Angle Wall Post Kit, use with 641-13 wall post
(Style 'A' includes 2 - 18" stems)
(Style 'B' includes 2 - 24" stems)





KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

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

WALL TYPE INDICATOR POST
FIG 641 ASSEMBLY & PARTS LIST

NO	ITEM	MATL	ASTM
*1	WELDLESS EYE BOLT	STL	
-			
*3	WASHER-PLATED	STL	A108
*4	HANDWHEEL-14"DIA	CI	A126B
5	COVER	CI	A126B
6	RETAINER RING #5100-225		
7	OPER STEM NUT	BR	B-62
8	NUTS 1\2-UNC PLATED	AP STL	
9	BOLT 1\2-UNC x 2"	AP STL	A304B
10	BOLT 1\2-UNC x 1.75"	AP STL	A304B
11	TOP SECTION	CI	A126B
12	TARGET NUT	BR	B-62
13	WINDOW	PLAST	
14	SCREWS-SELF TAP	STL	
15	FERRULE	STL	
16A	TARGET PLATE-OPEN	ALUM	
16B	TARGET PLATE-SHUT	ALUM	
17	CLAMPS-PLATED	STL	
18	NUTS-SQUARE	STL	
19	MACH SCREW-AD HEAD	BR	
20	PIPE PLUG-1\2 NPT	CI	
21	4" D.I. PIPE	DI	
22	4" FLOOR FLANGE	CI	A126B
23	STEM 87" STANDARD	STL	
24	WRENCH	MI	A-47
25	CRANE COUPLING	CI	A126B
26	COTTER PIN	BR	B-16

* DENOTES OPTIONAL HANDWHEEL PARTS

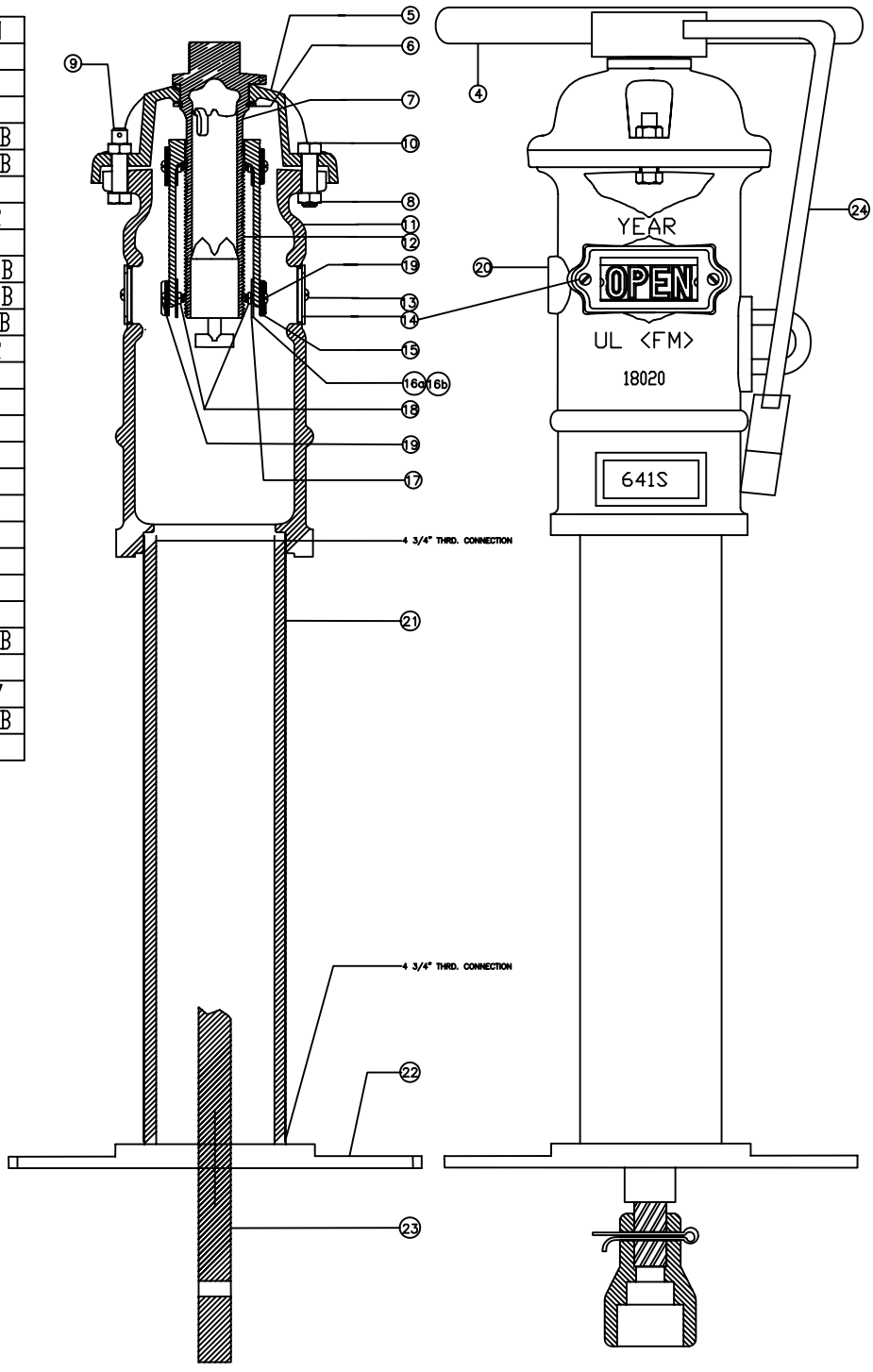


FIGURE 641-14

NON-RISING STEM APPLICATION

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	FLANGED BASE POST INDICATOR FIG 641-14 PARTS ASSEMBLY AND PARTS LIST
DATE: 6/2/03	
DWG. NO. PV-A1	

SIZE RANGE
PRESSURE RATING
SUGGESTED SPECIFICATIONS

KENNEDY VALVE—FLAP VALVES (4”-30”)
STYLE F-3012

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 Kennedy Valve or approved equal.

INSTALLATION
OPERATION
MAINTENANCE

KENNEDY VALVE—FLAP VALVES (4”-30”)
STYLE F-3012

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 properly 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.

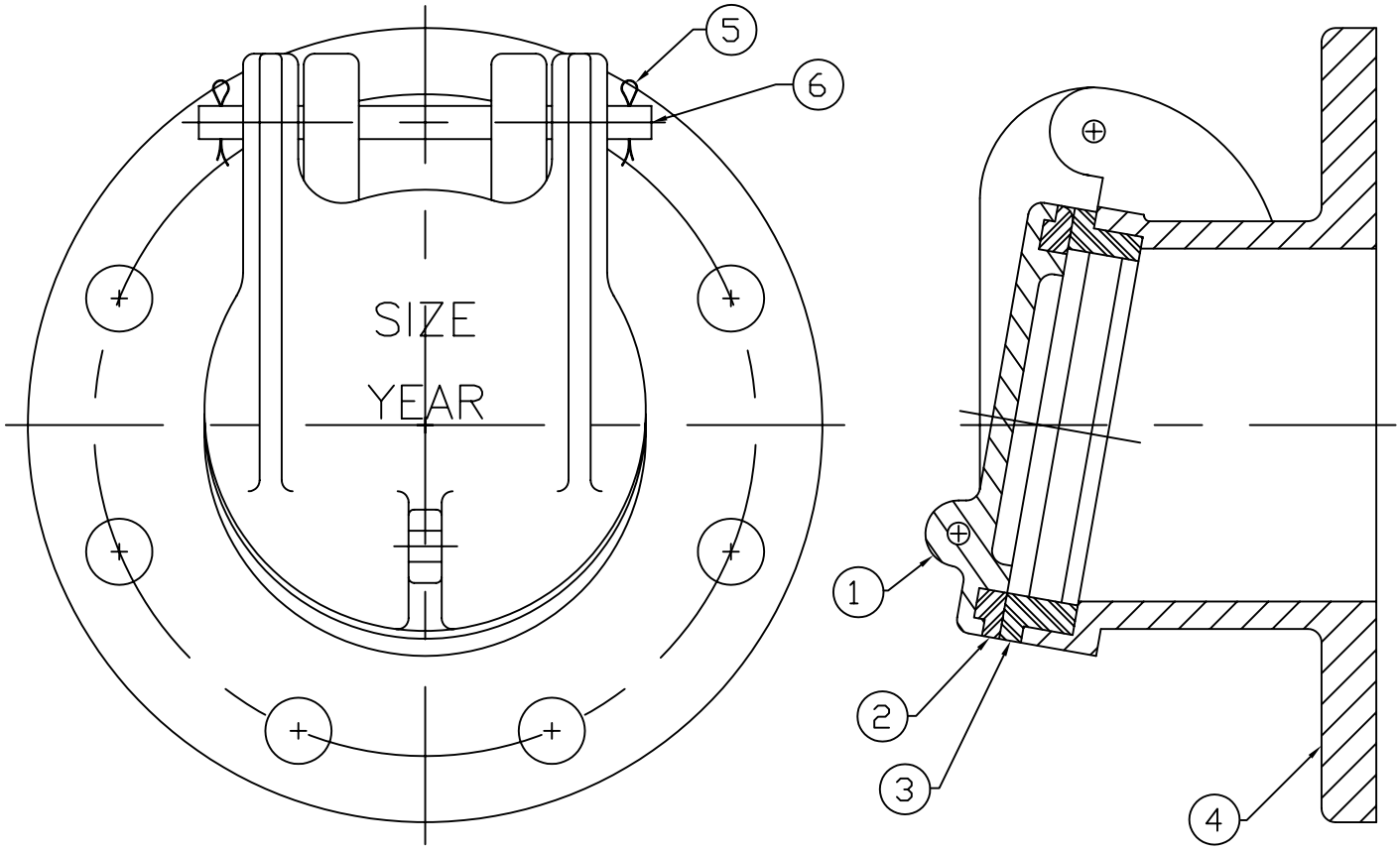
Troubleshooting:

Exercise and lubricate the hinge/shaft pin (*with suitable lubricant) at least annually to assure free operation. Check bronze 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.

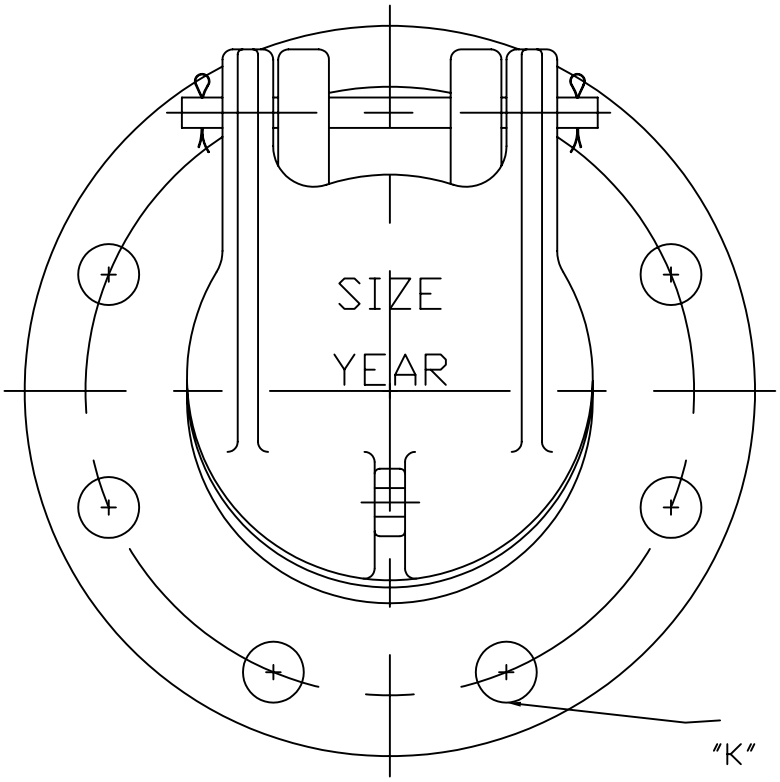


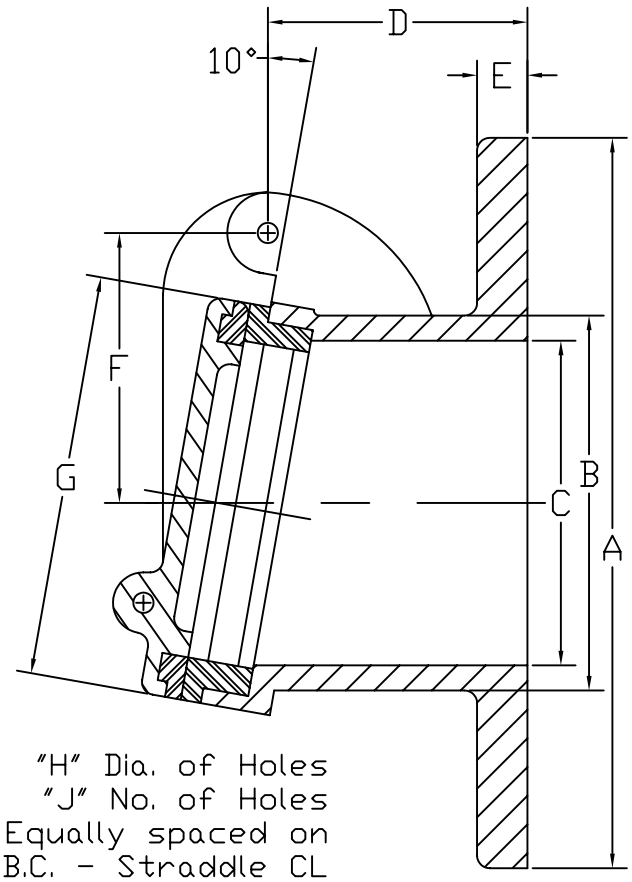
PARTS LIST			
ITEM	DESCRIPTION	REQ'D	MATERIAL
1	F/V DISC	1	CAST IRON A126 CL. B
2	DISC RING	1	BRONZE B62
3	SEAT RING	1	BRONZE B62
4	F/V BODY	1	CAST IRON A126 CL. B
5	COTTER PIN	2	BRASS CDA360
6	HINGE PIN	1	BRASS CDA360

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. FV-A1

4" THRU 30" FLAP VALVES
VALVE ASSEMBLY / MATERIAL LIST
STYLE F-3012
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN:	TRIJ
DATE:	7/1/05
DWG. NO.	FV-A2

4" THRU 30" FLAP VALVES
GENERAL DIMENSIONS
STYLE F-3012
FLANGED END

SIZE RANGE
PRESSURE RATING
ACCESSORIES / OPTIONS
SUGGESTED SPECIFICATIONS

KENNEDY VALVE—SHEAR GATES (4”-30”) STYLE F-3000

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”	F-3000

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.

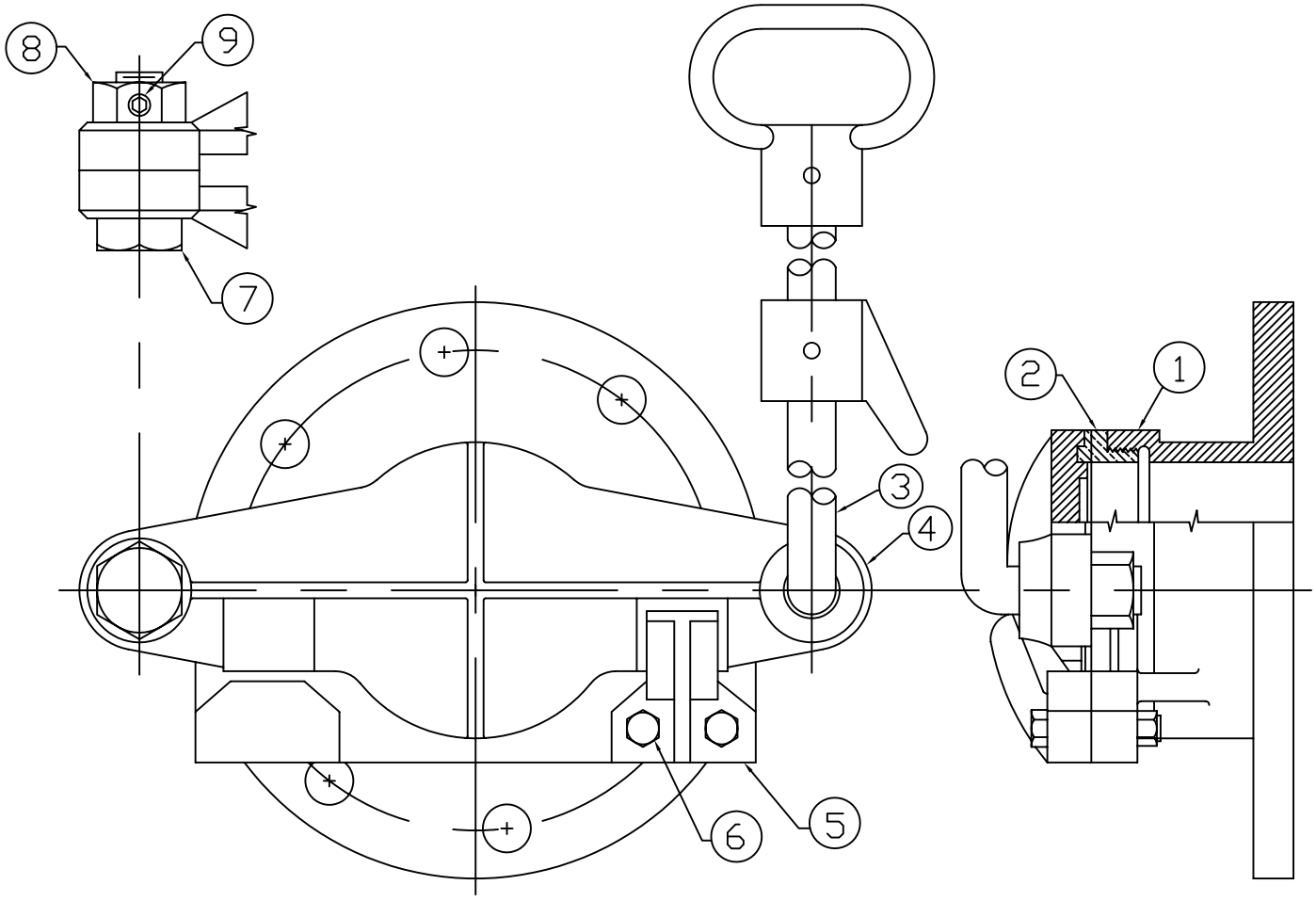
The body (frame), gate and wedges shall be of cast iron conforming to ASTM specification A-126 Class B.

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.



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

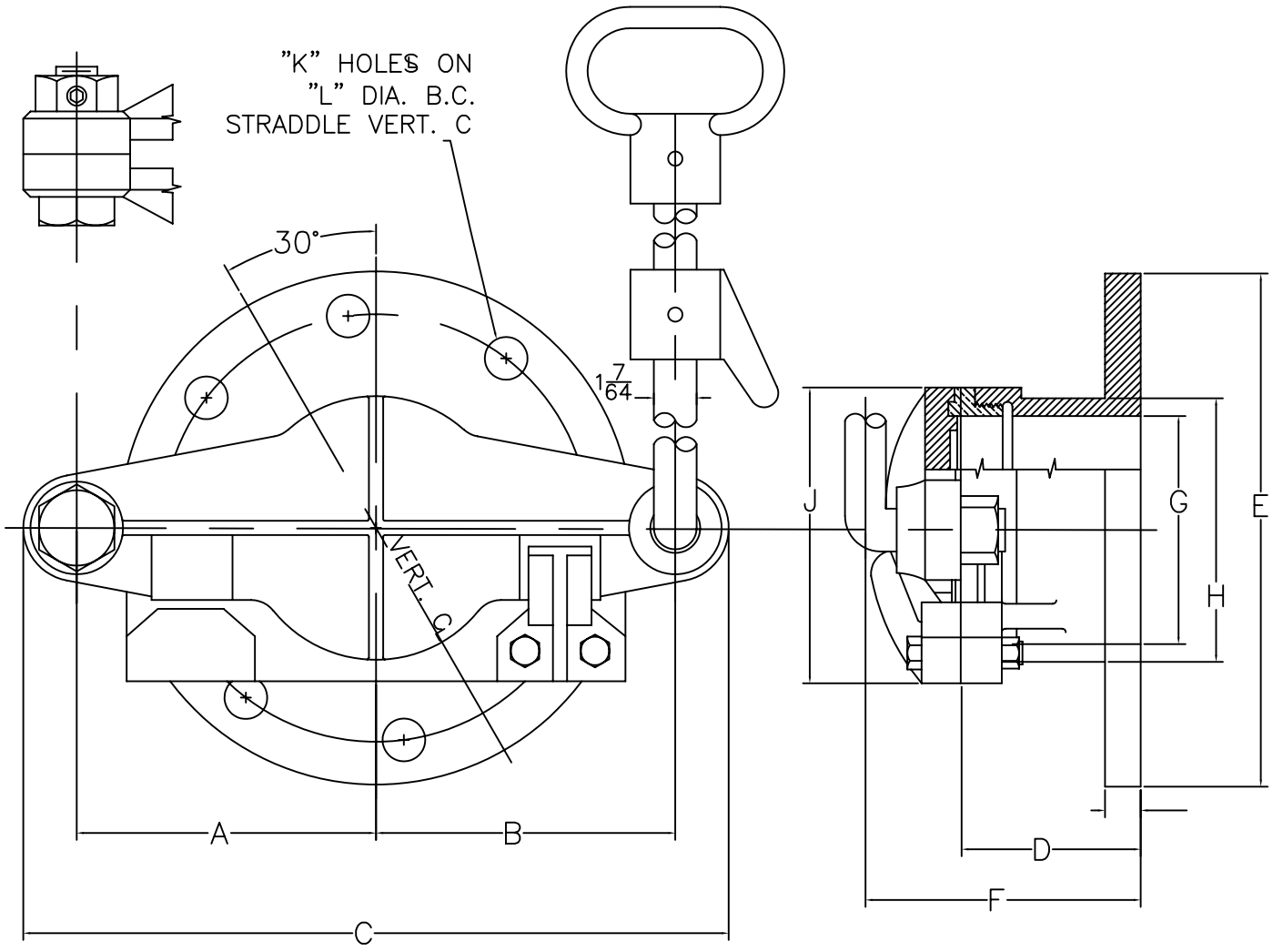
FURNISHED WITH TWO FOOT LIFT HANDLE AND CATCH

LONGER LIFT HANDLE FURNISHED WHEN SPECIFIED

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ	
DATE: 7/1/05	
DWG. NO. SGV-A1	

4" THRU 30" SHEAR GATES
VALVE ASSEMBLY / MATERIAL LIST
STYLE F-3000
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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. SGV–A2

4" THRU 30" SHEAR GATES
GENERAL DIMENSIONS
STYLE F–3000
FLANGED END

INSTALLATION
OPERATION
MAINTENANCE

KENNEDY VALVE—SHEAR GATES (4”-30”) STYLE F-3000

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.

SIZE RANGE
PRESSURE RATING
ACCESSORIES / OPTIONS
SUGGESTED SPECIFICATIONS

KENNEDY VALVE—MUD VALVES (4”-24”)

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”	F-3075
Flanged End, (Rising Stem)	4”-12”,16”, 18”	F-3085

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 or sliding stems.

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.

INSTALLATION / OPERATION / MAINTENANCE

KENNEDY VALVE—MUD VALVES (4”-24”)

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

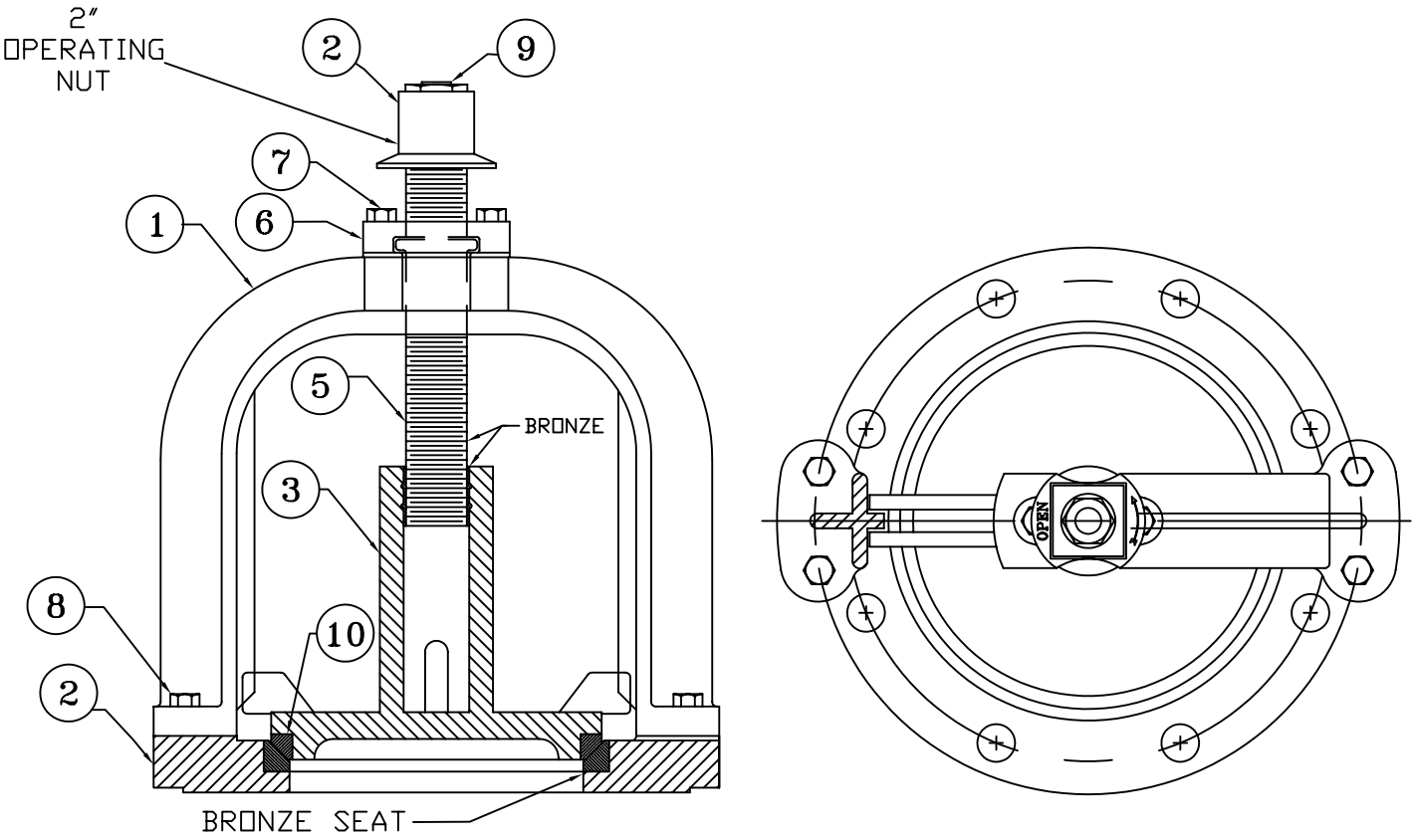
Periodic lubrication of the bronze valve operating stem is recommended using a *suitable lubricant.

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.*



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

KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

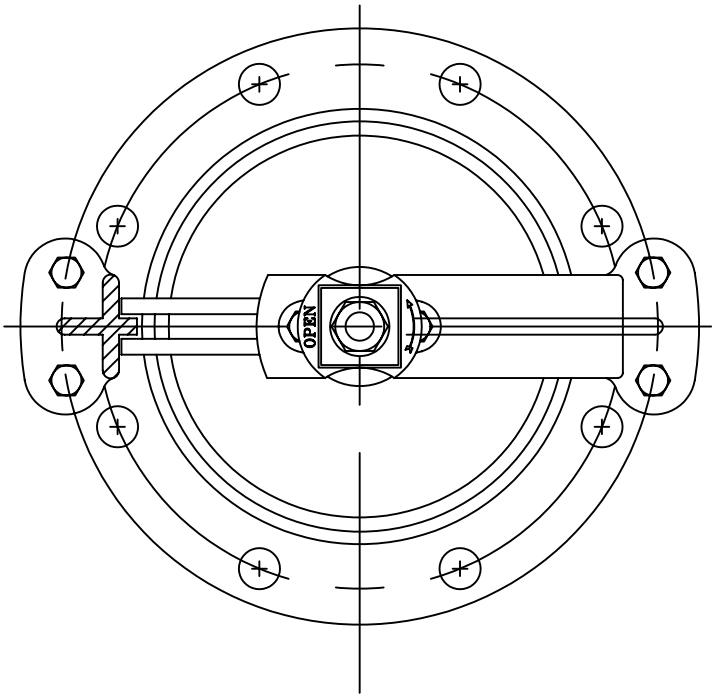
DWN: TRIJ
DATE: 7/1/05
DWG. NO. MV-A1

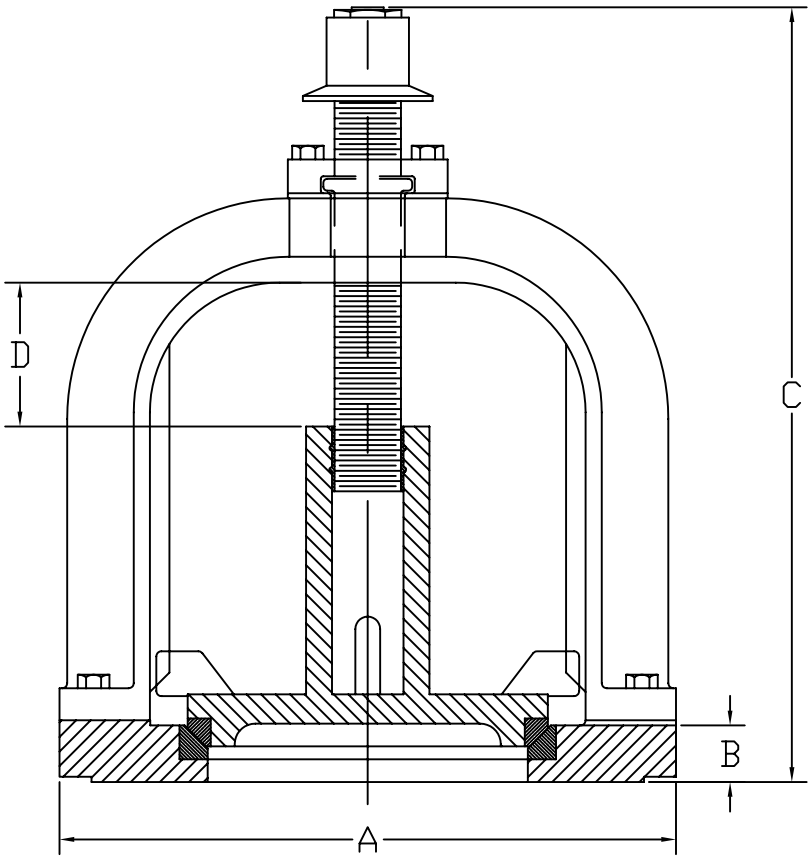
4" THRU 24" MUD VALVES
VALVE ASSEMBLY / MATERIAL LIST
FLANGED CONNECTION

NON-RISING STEM MUD VALVE				
SIZE	A	B	C	D
3"	7 1/2	3/4	11 3/8	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"				
16"	23 1/2	1 7/16	21 1/4	8 7/16
18"	25	1 9/16	23 1/16	8 7/8

14" Currently unavailable





KENNEDY VALVE
ELMIRA, NEW YORK
A DIVISION OF MCWANE INC.

DWN: TRIJ
DATE: 7/1/05
DWG. NO. MV-A2

4" THRU 24" MUD VALVES
GENERAL DIMENSIONS
FLANGED CONNECTION

BRONZE HOSE GATE VALVES

Underwriters'/Factory Mutual

Working pressures:

2½" Cold Water, Non-Shock 175 lbs.

- Non-Rising Stem
- Inside Screw
- Wedge Disc

HYDROSTATIC TEST PRESSURE: 2½" Seat & Shell – 350 psi.

Part No.	Description	Material	A.S.T.M. Spec.
1	Wheel Nut	Bronze Rod	B-16
2	Handwheel	Malleable Iron	A-47
3	Packing Nut	Bronze	B-62
4	Gland	Bronze Rod	B-16
5	Packing	Non-Asbestos Fibers	
6	Stuffing Box	Bronze	B-62
7	Bonnet	Bronze	B-62
8	Stem	Silicon Bronze	B-371 Alloy C69400
9	Body	Bronze	B-62
10	Disc	Bronze	B-62
11	Cap	Bronze	B-62
12	Gasket	Rubber	

Weights: Fig. 39 – 18.5 lbs.

Carton Quantity: 1

Direction to open and arrow cast on handwheel.

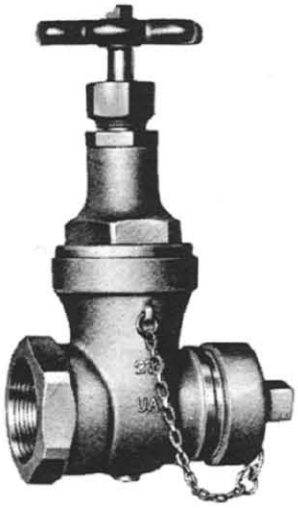
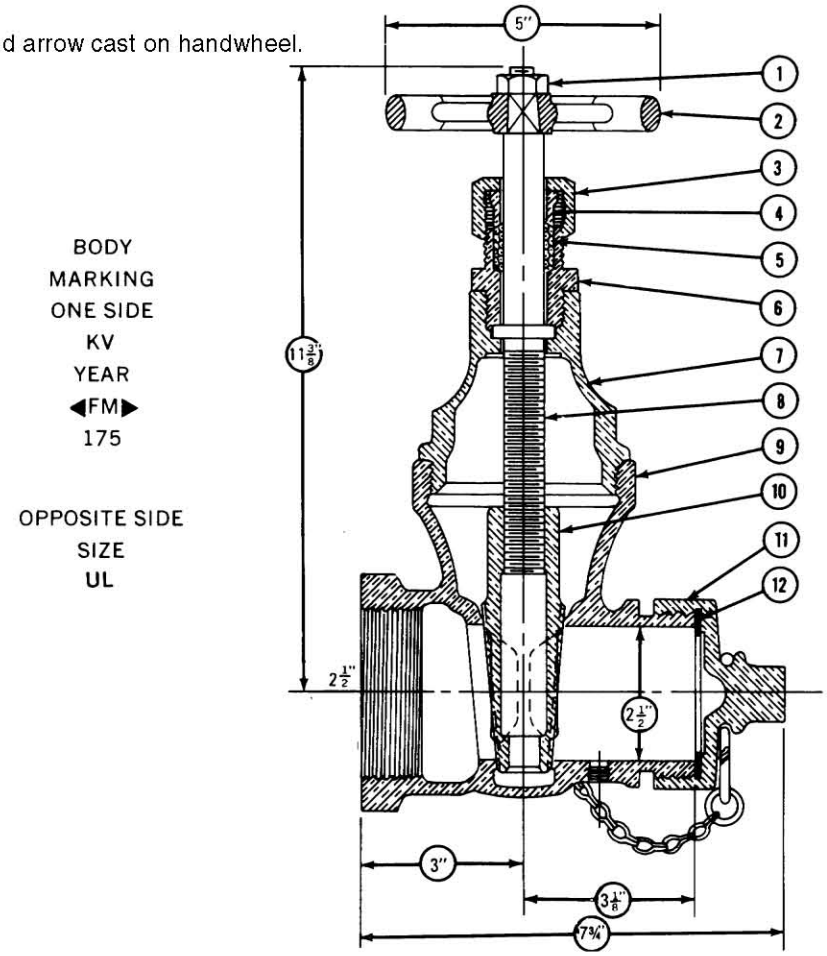


FIG. 39 NS
With Cap & Chain
NPT to A.N.F.H. (N.F.P.A.)
Hose 7.5 Threads per inch.

FIG. 39 MN – NST Hose
THD to NST Hose Thread

Available with ¼"
Petcock at bottom of
Body (Reference
FIG. 39 MNJ/39 NSJ)



BRONZE GATE VALVES

Underwriters'/Factory Mutual

Working pressures:

1/2"-2" Cold Water, Non-Shock 175 lbs.

- Outside-Screw-and-Yoke
- Wedge Disc

HYDROSTATIC TEST PRESSURE: 1/2"-2" Seat & Shell – 350 psi.

Part No.	Description	Material	A.S.T.M. Spec.
1	Set Screw	Steel	A-307
2	Handwheel	Mall. Iron	A-47
3	Yoke Bushing	Bronze	B-62
4	Gland Bolts	Steel	A-307 Zinc Pl.
5	Packing Gland	Bronze	B-62
6	Packing	Non-Asbestos Fiber	
7	Bonnet	Bronze	B-62
8	Stem	Sil. Bronze	B-371 Alloy C69400
9	Stem Collar	Sil. Bronze	B-371 Alloy A C69400
10	Wedge Pin	Bronze	B-140 Alloy C31400
11	Wedge Disc	Bronze	B-62
12	Body	Bronze	B-62

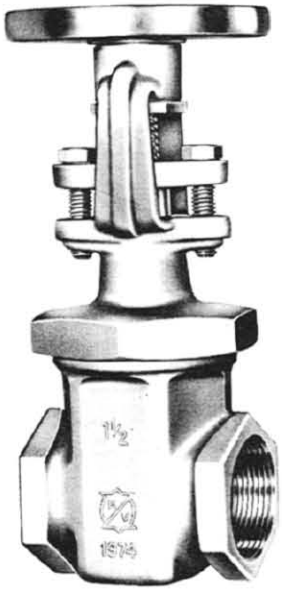
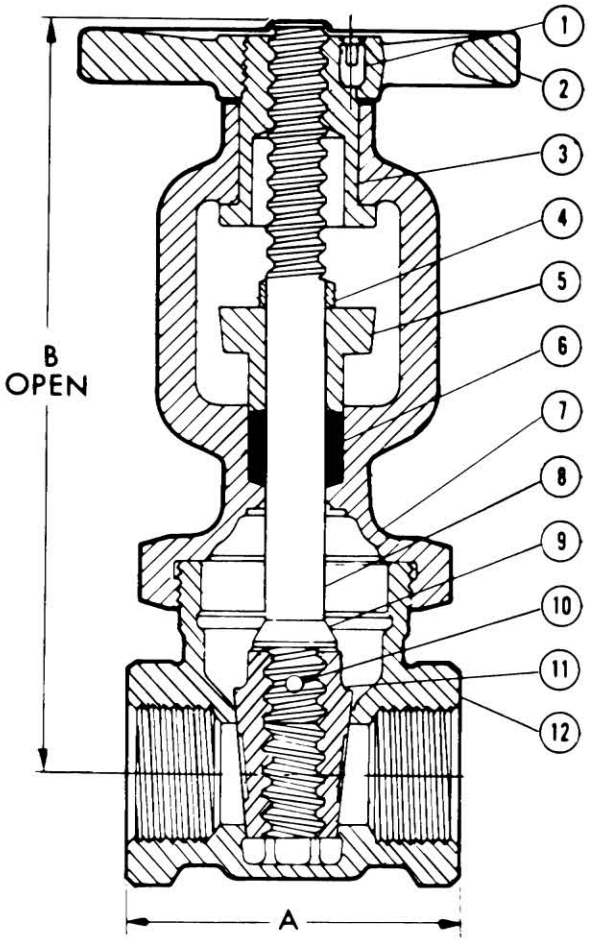


Fig. 66
Screwed Ends

SIZE	A	B
1/2	2 5/16	5 7/8
3/4	2 7/16	6 7/16
1	2 7/8	7 7/16
1 1/4	3 1/8	8 11/16
1 1/2	3 3/8	9 3/8
2	3 7/8	11 3/8

BODY MARKINGS

ONE SIDE	OPPOSITE SIDE
UL	SIZE
◀ FM ▶	KV
175W	YEAR



NET UNIT WEIGHT—POUNDS						
SIZE	1/2	3/4	1	1 1/4	1 1/2	2
WT.-LBS.	2.3	2.7	3.7	5.9	6.9	11.8
CARTON QUANTITIES	20	20	20	10	10	5

BRONZE ANGLE VALVES

Working pressures:

W.O.G. Non-Shock 175 lbs.

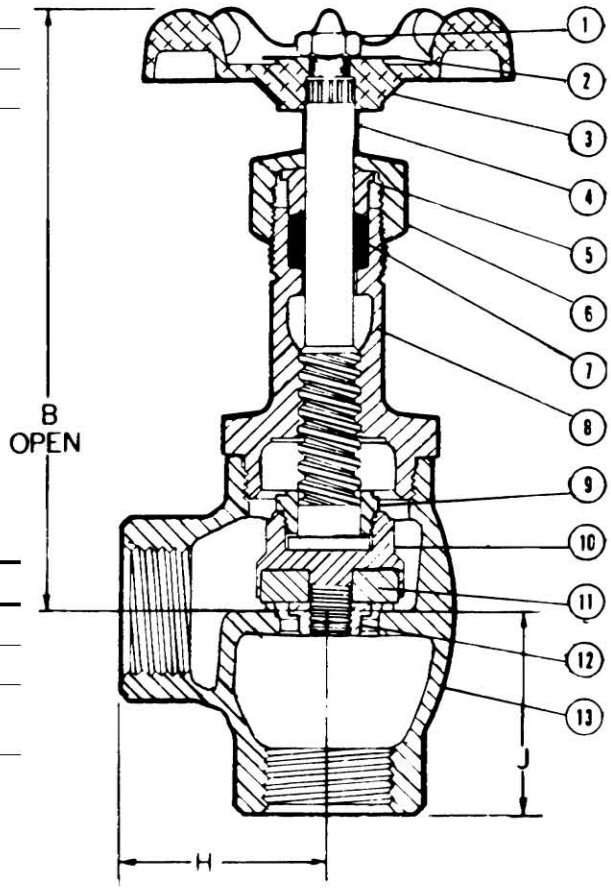
Saturated Steam 125 lbs.

- Sizes to 1/2" through 2"
- Rising Stem
- Screwed Bonnet
- Renewable Composition Soft Disc
- UL Listed (1 1/4"-2" only)

HYDROSTATIC TEST PRESSURE: Seat — 200 psi., Shell — 300 psi.

FIG. 98-SD
Angle

Part No.	Description	Material	A.S.T.M. Spec.
1	Wheel Nut	Bronze	B-16
2	Ident. Plate	Aluminum	
3	Handwheel	Aluminum	B-85 Alloy A03800
4	Stem	Sil. Bronze	B-584 Alloy C87500
5	Packing Gland	Bronze	B-62
6	Packing Nut	Bronze	B-62
7	Packing	Non-Asbestos Fibers	
8	Bonnet	Bronze	B-62
9	Disc Holder Nut	Bronze	B-62
10	Disc Holder	Bronze	B-62
11	Seat Disc	Buna N	
12	Disc Nut	Bronze	B-62
13	Body	Bronze	B-62



SIZE	B	H	J
*1/2	3 1/2	1 5/16	1 5/16
3/4	4 15/16	1 9/16	1 9/16
1	5 11/16	1 7/8	1 7/8
1 1/4	6 1/8	2 3/16	2 3/16
1 1/2	7 3/16	2 3/8	2 3/8
2	7 1/4	2 1/4	2 1/4

*Stem and Disc Holder are integral.
No Packing gland, packing only in this size.

WEIGHT—POUNDS						
SIZE	1/2	3/4	1	1 1/4	1 1/2	2
WT.-LBS.	1.0	1.5	2.6	3.4	5.2	8.2
CARTON QUANTITIES	100	100	50	20	10	10

BODY MARKINGS

ONE SIDE	OTHER SIDE
125	SIZE
SWP	YEAR
175	
WOG	
KENNEDY	

BRONZE ANGLE HOSE VALVE

Underwriters'/Factory Mutual

Working pressures:

FIG. 936

2½" Cold Water, Non-Shock 300 lbs.

- Rising Stem
- Renewable
- Composition
- Disc

HYDROSTATIC TEST PRESSURE: 2½" – Fig. 936 Seat & Shell — 600 lbs.

Part No.	Description	Material	A.S.T.M. Spec.
1	Wheel Nut	Bronze Rod	B-16
2	Handwheel	Malleable Iron	A-47
3	Packing Nut	Bronze	B-62
4	Gland	Bronze Rod	B-16
5	Packing	Non Asbestos	
6	Stem	Mang. Bronze	B-132 Alloy A
7	Bonnet	Bronze	B-62
8	Body	Bronze	B-62
9	Locking Screw	Steel	
10	Stem Lock Nut	Bronze	B-62
11	Disc Holder	Bronze	B-62
12	Disc	Comp. Rubber	
13	Disc Nut	Bronze	B-62
14	Cotter Pin	Brass	

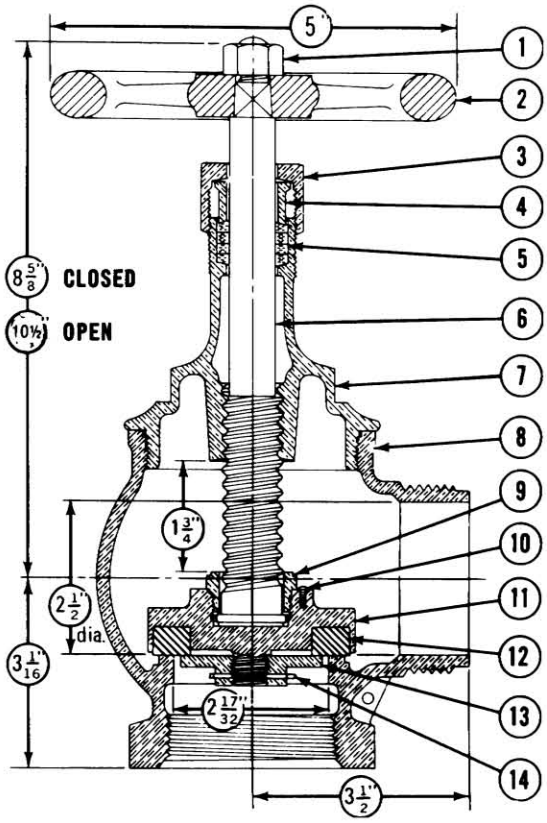
FIG. 936 Screwed With Cap and Chain

WEIGHT—POUNDS	
SIZE	2½"
WT.-LBS. With Cap	15.5
Carton Quantity	1

MARKING ON BODY

FIG. 936

ONE SIDE	OTHER SIDE
YEAR	2½
KV	◀ FM ▶
300	
UL	



BRONZE GLOBE VALVES

Working pressures:

1½"-1" W.O.G. Non-Shock 175 lbs.

1¼"-2" W.O.G. Non-Shock 200 lbs.

Saturated Steam 125 lbs.

- Sizes to ½" through 2"
- Rising Stem
- Screwed Bonnet
- Renewable Composition Soft Disc

HYDROSTATIC TEST PRESSURE: Seat — 200 psi., Shell — 300 psi.

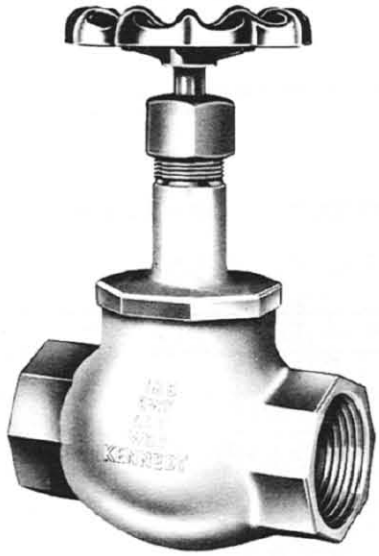
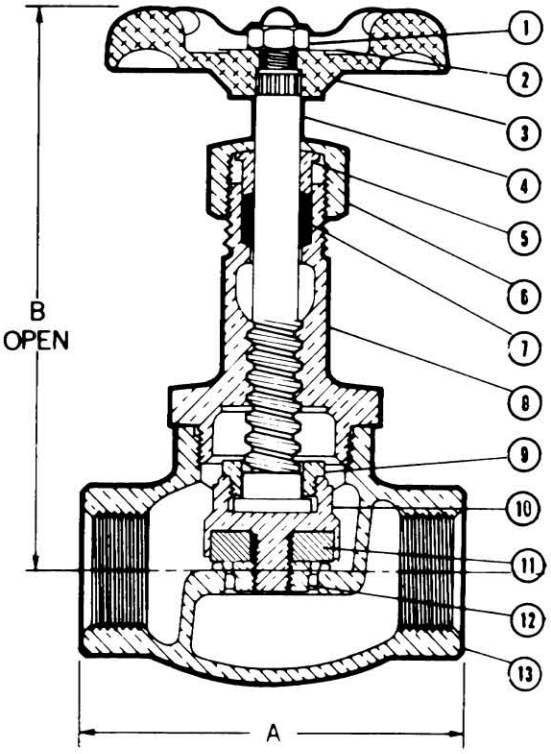


FIG. 97-SD
Globe

Part No.	Description	Material	A.S.T.M. Spec.
1	Wheel Nut	Bronze	B-16
2	Ident. Plate	Aluminum	
3	Handwheel	Aluminum	B-85 Alloy A03800
4	Stem	Sil. Bronze	B-371-62 Alloy C69400
5	Packing Gland	Bronze	B-62
6	Packing Nut	Bronze	B-62
7	Packing	Non-Asbestos Fibers	
8	Bonnet	Bronze	B-62
9	Disc Holder Nut	Bronze	B-140 or B-62
10	Disc Holder	Bronze	B-62
11	Seat Disc	Buna N	
12	Disc Nut	Bronze	B-62
13	Body	Bronze	B-62

SIZE	A	B
*½	2 9/16	3⅜
¾	3 1/16	4¾
1	3 11/16	5 11/16
1¼	4 5/16	6⅛
1½	4 11/16	7 3/16
2	5⅝	7 15/16

*Stem and Disc Holder are integral.
No Packing gland, packing only in this size.



WEIGHT—POUNDS						
SIZE	½	¾	1	1¼	1½	2
WT.—LBS.	1.0	1.5	2.6	3.4	5.2	8.2
CARTON QUANTITIES	100	100	50	10	10	6

BODY MARKINGS

ONE SIDE	OTHER SIDE
125	SIZE
SWP	YEAR
200	
WOG	
KENNEDY	

FEDERAL SPECIFICATION: WW-V-51d Class A, Type I

BRONZE SWING CHECK VALVES

Working pressures:

W.O.G. Non-Shock 200 lbs.

Saturated Steam 125 lbs.

- Sizes: 1/2" through 2"
- Renewable Composition Soft Disc
- Regrinding Type

HYDROSTATIC TEST PRESSURE: Seat — 200 psi., Shell — 300 psi.

Part No.	Description	Material	A.S.T.M. Spec.
1	Cap	Bronze	B-62
2	Body	Bronze	B-62
3	Hinge Pin	Bronze	B-140 Alloy C31400
4	Hinge	Bronze	B-62
5	Disc Holder Nut	Bronze	B-97 Alloy C65500
6	Disc Holder	Bronze	B-62
7	Disc	Buna N	
8	Disc Nut	Bronze	B-16 or B-97 C65500
9	Side Plug (Not shown)	Bronze	B-140 Alloy C32000
10	Seat Disc Washer		B-124 Alloy C65500

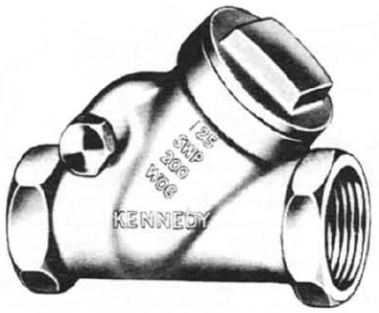
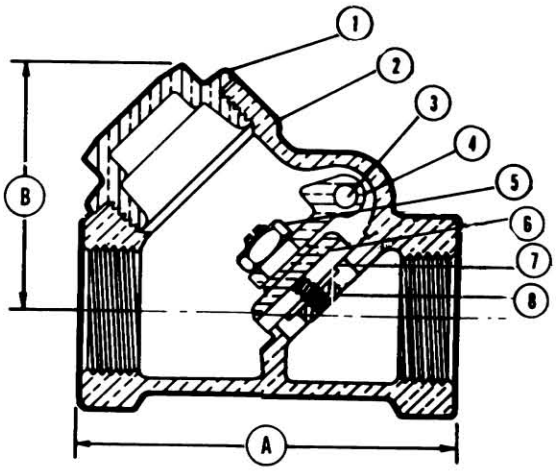


FIG. 440-SD
Swing Check Valve

SIZE	A	B
1/2	2 7/16	1 11/16
3/4	2 15/16	1 7/8
1	3 9/16	2 5/16
1 1/4	4 3/16	2 11/16
1 1/2	4 1/2	2 15/16
2	5 1/4	3 13/16



WEIGHTS—POUNDS						
SIZE	1/2	3/4	1	1 1/4	1 1/2	2
WT.–LBS.	.6	1.0	1.5	2.2	2.9	5.0
CARTON QUANTITIES	50	50	30	20	10	10

BODY MARKING

ONE SIDE	OTHER SIDE
125	SIZE
SWP	ARROW INDICATING
200	FLOW DIRECTION
WOG	
KENNEDY	

FEDERAL SPECIFICATION: WW-V-51d Class A, Type IV & MSS SP-80

BRONZE SIDE OUTLET GLOBE

3-Way Valve • Screw-in Bonnet • Integral Seat • Renewable Disc
400 lb. w.w.p. Non-Shock Cold Water

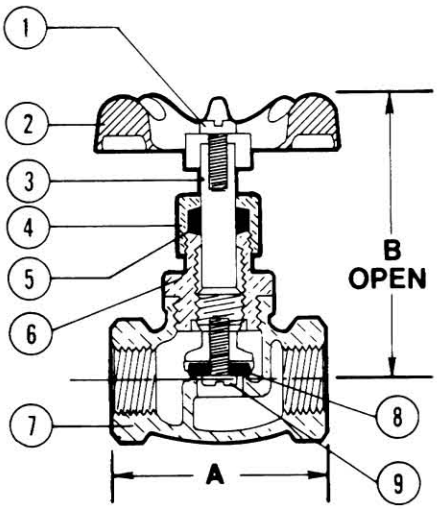


FIG. 220
NPT to NPT to NPT

MATERIAL LIST

	PART	SPECIFICATION
1.	Handwheel Screw	Stainless Steel ASTM A-276 Alloy S43000
2.	Handwheel	Aluminum ASTM B-85 Alloy A03800
3.	Stem	Bronze ASTM B-584 Alloy C84400
4.	Packing Nut	Bronze ASTM B-584 Alloy C84400
5.	Packing	Non Asbestos Fibers
6.	Bonnet	Bronze ASTM B-584 Alloy C84400
7.	Body	Bronze ASTM B-584 Alloy C84400
8.	Disc	Bona-N
9.	Disc Screw	Stainless Steel ASTM A-276 Alloy S43000

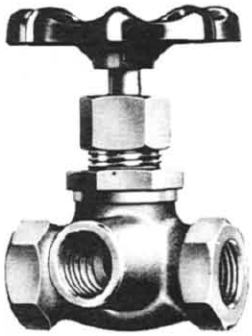
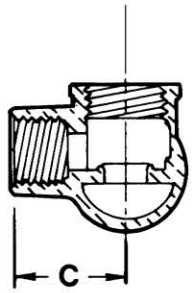


FIG. 220
threaded



DIMENSIONS—WEIGHTS—QUANTITIES

Nominal Size	Dimensions A	B	C	Approx. Net Wt.	Master Carton Quantity
1/4	1 3/4	2 9/16	15/16	.4	100

CLASS 125 BRONZE BALL

Bronze Trim • Conventional Port
Two-Piece Construction • Anti-Blowout Stem
400 w.w.p. Non-Shock Cold Water
Federal Specification: WW-V-35, Type II, Class A, Style 3

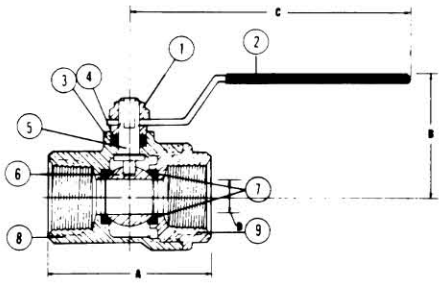


FIG. 770
NPT to NPT

MATERIAL LIST

	PART	SPECIFICATION
1.	Handle Nut	Plated Steed
2.	Handle	Zinc Plated Steel with Plastisol Grip
3.	Packing Gland	Brass ASTM B-16 Alloy 360
4.	Packing	TFE or Plastalic (Non-Asbestos)
5.	Stem	Silicon Bronze ASTM B-371 Alloy C69400
6.	Ball	Brass or ASTM B-584 Alloy C84400
7.	Seat Rings	TFE
8.	Body	Bronze ASTM B-584 Alloy C84400
9.	Body Endpiece	Bronze ASTM B-584 Alloy C84400

FIG. 770
threaded

DIMENSIONS—WEIGHTS—QUANTITIES

Nominal Size	Dimensions A	B	C	D Port	Approx. Net Wt.	Master Carton Quantity
1/2	2	1 9/16	4 7/8	3/8	.5	100
3/4	2 9/32	1 23/32	5	1/2	.7	100
1	2 7/8	2 1/16	6 1/16	3/4	1.3	50
1 1/4	3 16/32	2 5/16	6 11/32	1	1.7	25
1 1/2	3 3/4	2 13/16	8 1/16	1 1/4	2.8	10
2	4 7/16	3 1/8	8 1/2	1 1/2	4.5	10

CLASS 150 BRONZE BALL

Reinforced TFE Seats
Full Port • Chrome Plated Ball
Two-Piece Construction • Blowout Proof Stem
600 w.w.p. Non-Shock Cold Water, Oil or Gas
150 psi Saturated Steam

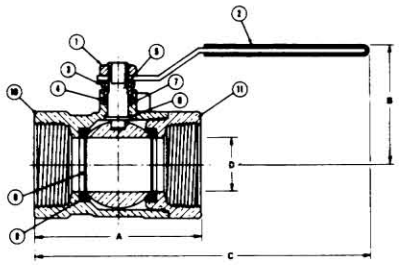


FIG. 775 NPT x NPT

Federal Specification: WW-V-35B, Type II, Class A, Style 3

MATERIAL LIST

	PART	SPECIFICATION
1.	Handle Nut	Zinc Plated Steel
2.	Handle	Zinc Plated Steel, Clear Chromate, Plastisol Coated
3.	Packing Nut	Brass ASTM B-16 Alloy 360
4.	Packing	TFE
5.	Stem	Silicon Bronze ASTM B-371 Alloy 694
6.	Thrust Washer	Reinforced TFE
7.	Ball*	Cast Red Bronze, ASTM B-584 Alloy 844 With Hard Chrome Plate
8.	Seat Ring (2)	Reinforced TFE
9.	Body	Cast Red Bronze ASTM B-584 Alloy 844 or Forging Brass ASTM B-124 Alloy 377
10.	Body End Piece	Cast Red Bronze ASTM B-584 Alloy 844 or Forging Brass ASTM B-124 Alloy 377

*Ball material on 1/4", 3/8", 1/2" and 3/4" sizes is ASTM B-16 Alloy 360 with hard chrome plate.

FIG. 775
threaded

DIMENSIONS—WEIGHTS—QUANTITIES

Size	Dim. A	Dim. B	Dim. C	Dim. D Port	Approx. Net Wt.	Box Qty.	Master Ctn. Qty.
1/2	2 7/16	1 7/8	5 3/16	1/2	.6	10	100
3/4	2 15/16	2 1/4	6 1/4	3/4	1.3	5	50
1	3 11/32	2 3/8	6 7/16	1	1.8	5	40
1 1/4	4 3/16	3	6 3/4	1 1/4	3.1	5	20
1 1/2	4 23/32	3 5/32	9 1/16	1 1/2	4.8	5	10
2	5 5/32	3 1/2	9 1/4	2	7.3	2	6