

KEN-FLEX™ RESILIENT HINGED CHECK VALVE

3" -24" AWWA C508

Full-Flow Flexible Swing Flap Design

INSTALLATION & OPERATION MANUAL

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INTRODUCTION

KEN-FLEX resilient-hinged check valves have been engineered to provide trouble-free operation for many years. This manual will provide you with the information needed to properly install, operate, and maintain the valve and to provide long service life. The valve is opened by the flow in one direction and closes automatically to prevent flow in the reverse direction.

An optional backflow actuator can be added for manual back flush operation commonly used for priming pumps, flushing lines and system testing.

Optional mechanical disc position indicators are available for instant visual verification of the disc position. This allows for limit switches and other monitoring devices to be installed.

The KEN-FLEX valve is a swing check type utilizing an angled seat and fully encapsulated, EPDM resilient disc and is capable of handling a variety of fluids including flows containing suspended solids. KEN-FLEX resilient hinged check valves are rated for 250 PSI working pressure and have ANSI 125# flange connections.

RECEIVING & STORAGE

Inspect valves upon receipt to ensure correct material, quantity, and any optional equipment has been received. Also inspect all received equipment for any damage which may have occurred during shipment. Contact the McWane Plant & Industrial sales team to report any issues with received material.

Unload all valves safely to protect both the materials and workers. Do not allow lifting lugs, slings, or chains to come into contact with the valve disc seating surface area. Use eyebolts or rods through the flange holes on large valves.

Whenever possible, check valves should be stored inside. However, when this is not possible or feasible, some outdoor protection must be provided. The valves must be stored in such a manner to protect them from weather, blowing dirt and debris. A tarp covering will minimize exterior coating damage from these elements and reduce fading or chalking due to exposure to the sun. The valves should also be placed in a location where they will not be damaged by collision from vehicles, lift trucks or falling items. Valves should be stored so that water does not stand in the body. In cold climates, if water is allowed to freeze in the valve, severe damage to the components could result. The valves are shipped in the closed position and should remain in the closed position during long term storage. Any packaging removed for inspection of the valves should be replaced prior to placing the valves into long term storage.

INSTALLATION

When installing the valve verify the direction of flow. The arrow on the bonnet indicates the direction of flow of the line media. KEN-FLEX check valves are designed for flow in either a horizontal or vertical (flow upward) environment. When using the valve in horizontal pipelines make certain to keep the bonnet in a horizontal plane to ensure shutoff.

For longest service life, it is suggested that the valve be installed five to ten pipe diameters from any turbulence producing devices such as pumps. KEN-FLEX check valves have ANSI B16.1 flat-faced 125# flanges. Standard ANSI B16.21 flanges and gaskets should be used to install the valve in the pipeline.

NOTE: It is recommended that valves be installed into piping system in accordance with AWWA M-11 to prevent any undue piping stress, deflection or bending that may affect the performance of the valve.

1. Carefully place valves into position avoiding contact or impact with other equipment or physical structures.
2. Install valves in accordance with the general arrangement drawings furnished for the order.
3. Inspect and confirm there is no foreign material within the valve prior to installation. Foreign material can damage the valve disc and seat when valve is operated.
4. Prepare pipe ends and install valves in accordance with the pipe manufacturer's instructions. Do not deflect pipe or valve joints.
5. Install the valve to minimize bending of valve connection with pipe loading. Do not use the valve to pull pipe into alignment.

MAINTENANCE

The only moving component of the KEN-FLEX check valve is the flapper disc. Should the flapper disc be damaged due to service conditions it can be easily removed and replaced with the valve in line. The valve requires no scheduled maintenance nor lubrication.

INSPECTION OF THE VALVE:

1. Line should be shut down and drained, if possible. If not, safeguards should be taken to protect maintenance personnel.
2. The bottom threaded pipe plug can be removed to drain remaining media in the valve if required.
3. Remove all fasteners on the bonnet.
4. Bonnet can now be lifted, paying special attention not to damage the cover seal O-ring
5. The flapper disc can now be removed from the valve if required.
6. Upon completion of inspection/repairs install the flapper disc in the same location.
7. Install the cover seal O-ring and return the bonnet to original position, taking care to line up bolt holes.
8. Insert and tighten the bonnet bolts.
9. Return the line to service and inspect all connections for leakage.

PARTS & SERVICE

Parts and service are available from your local representative or the factory. For availability and pricing of spare parts please contact the MPI sales team:

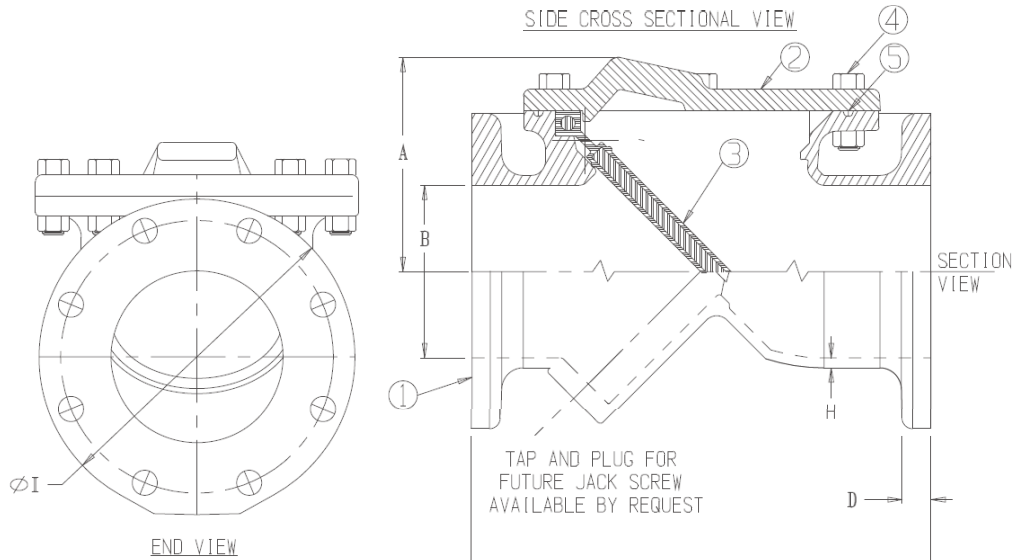
McWane Plant & Industrial
www.mcwanepi.com
Phone: 866.924.8674
Email: sales@mcwanepi.com

TROUBLESHOOTING

PROBLEM	SUGGESTED SOLUTIONS
Leakage from bottom of valve	Remove line pressure and remove plug or jack screw device. Replace any seals and reattach. Re-pressure line and recheck for leakage.
Leakage at cover for valve flanges	Tighten bolts, replace cover seals and flange gaskets.
Valve leakage when closed	Inspect flapper disc for damage and replace if needed. Contact MPI sales team for information on spare parts.
Valve does not open	Check for obstructions in valve or pipeline. Operating pressure may be less than disc cracking pressure; contact MPI sales team to discuss.

KEN-FLEX™ CHECK VALVE NO ACCESSORIES

SIZES 3" - 12" DOMESTIC



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

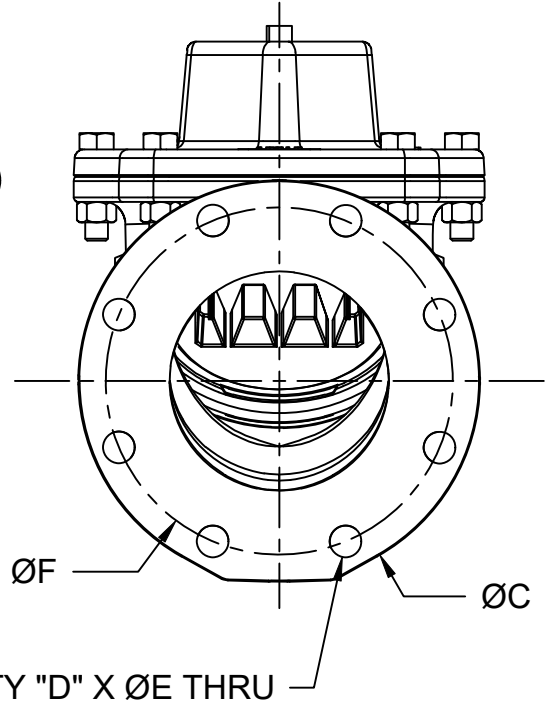
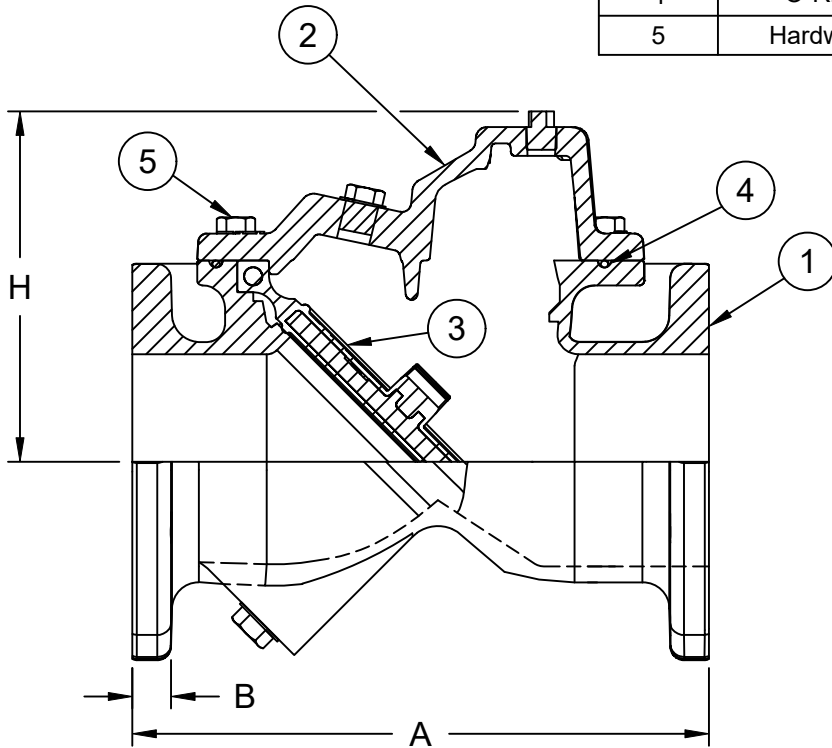
PARTS LIST			
PART No.	PART	MATERIAL	ASTM DESIGNATION
1	Body (FLG x FLG)	Ductile Iron, Coated	ASTM A536 GR 65-45-1 2
2	Cover Plate	Ductile Iron, Coated	ASTM A536 GR 65-45-1 2
3	Flapper	EPDM Flapper , Met. Insert	A536 DI/D-2000 BK 807
4	Cover Bolts & Nuts	Stainless Steel	SS 18-8 F59 3
5	O -Ring	Nutrite (Buna-N)	ASTM D200 0

DIMENSIONS									
SIZE	A (APPROX.)	ØB	C	D (NDM)	ØE	F # BOLTS	ØG	H (NDM)	I
3	5.37	4.00	13	1.00	6.00	4	X	0.31	9.0
4	5.37	4.00	13	1.00	7.50	8	0.75	0.31	9.0
6	7.45	6.00	16	1.06	9.50	8	0.88	0.34	11.0
8	8.77	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5
10	10.20	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0
12	11.61	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0

3" Valve (4) 0.62UNC-11-2B Tapped Holes (G) Straddle C.L. similar to other sizes.

KEN-FLEX™ CHECK VALVE
NO ACCESSORIES
3"-24" GLOBALLY SOURCED

BILL OF MATERIAL		
No.	PART	MATERIAL
1	Body	Ductile Iron - ASTM A536, GR 65-45-12
2	Cover Plate	Ductile Iron - ASTM A536, GR 65-45-12
3	Flapper	EPDM w/ Ductile Iron Insert
4	O-Ring	Nitrile Rubber (Buna-N)
5	Hardware	Stainless Steel - ASTM F593, 18-8



DIMENSIONS (Inches)							
SIZE	A	B	C	D	E	F	H
3	13.00	1.00	9.00	4	SEE NOTE	6.00	6.78
4	13.00	1.00	9.00	8	0.75	7.50	6.78
6	16.00	1.06	11.00	8	0.88	9.50	9.29
8	19.50	1.19	13.50	8	0.88	11.75	10.84
10	24.50	1.25	16.00	12	1.00	14.25	13.23
12	27.50	1.28	19.00	12	1.00	17.00	15.29
14	31.00	1.00	21.00	12	1.13	18.75	18.00
16	32.00	1.13	23.50	16	1.13	21.25	18.93
18	36.00	1.38	25.00	16	1.25	22.75	22.03
20	40.00	1.38	27.50	20	1.25	25.00	23.28
24	48.00	1.50	32.00	20	1.38	29.50	27.63

NOTE:

- 3" VALVE FLANGES DRILLED & TAPPED TO 3/8"-11 UNC-2B
- COLD WORKING PRESSURE - 250PSI
- HYDROSTATIC TEST PRESSURE - 500PSI

DESCRIPTION:

3"-24" 125# Flanged Ken-Flex Check Valve
 (Import)

DATE:

05/22/24

DRAWING:

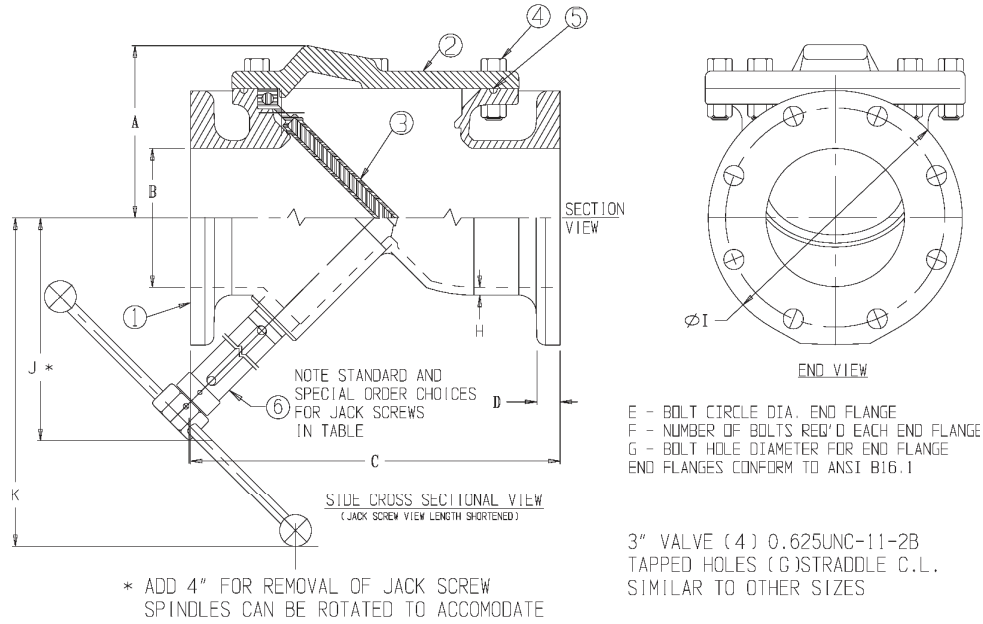
KF-SD0001-A



McWane Plant & Industrial
 1201 Vanderbilt Road
 Birmingham, AL 35234

KEN-FLEX™ CHECK VALVE WITH JACK SCREW

SIZES 3"-12" DOMESTIC



PARTS LIST			
PART No.	PART	MATERIAL	ASTM DESIGNATION
1	Body (FLG x FLG)	Ductile Iron, Coated	ASTM A536 GR 65-45-12
2	Cover Plate	Ductile Iron, Coated	ASTM A536 GR 65-45-12
3	Flapper	EPDM Flapper, Met. Insert	A536 DI/D-2000 BK 807
4	Cover Bolts & Nuts	Stainless Steel	SS 18-8 F593
5	O-Ring	Nutrilite (Buna-N)	ASTM D2000
6	Optional Jack Screws -See Note 1	Stainless Steel	N/A

NOTE 1:
 Optional Jack Screws
 4" -> 448010P (Stainless Steel)
 6"/8" -> 448106P (Stainless Steel)
 10"/12" -> 448110P (Stainless Steel)

DIMENSIONS											
SIZE	A (APPROX.)	ØB	C	D (NDM)	ØE	F	ØG	H (NDM)	I	J (APPROX.)	K (APPROX.)
3	5.37	4.00	13	1.00	6.00	4	TAP SEE ABOVE	0.31	9.0	11	15
4	5.37	4.00	13	1.00	7.50	8	0.75	0.31	9.0	11	15
6	7.45	6.00	16	1.06	9.50	8	0.88	0.34	11.0	17	21
8	8.77	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	20	24
10	10.20	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	23	28
12	11.61	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	24	29

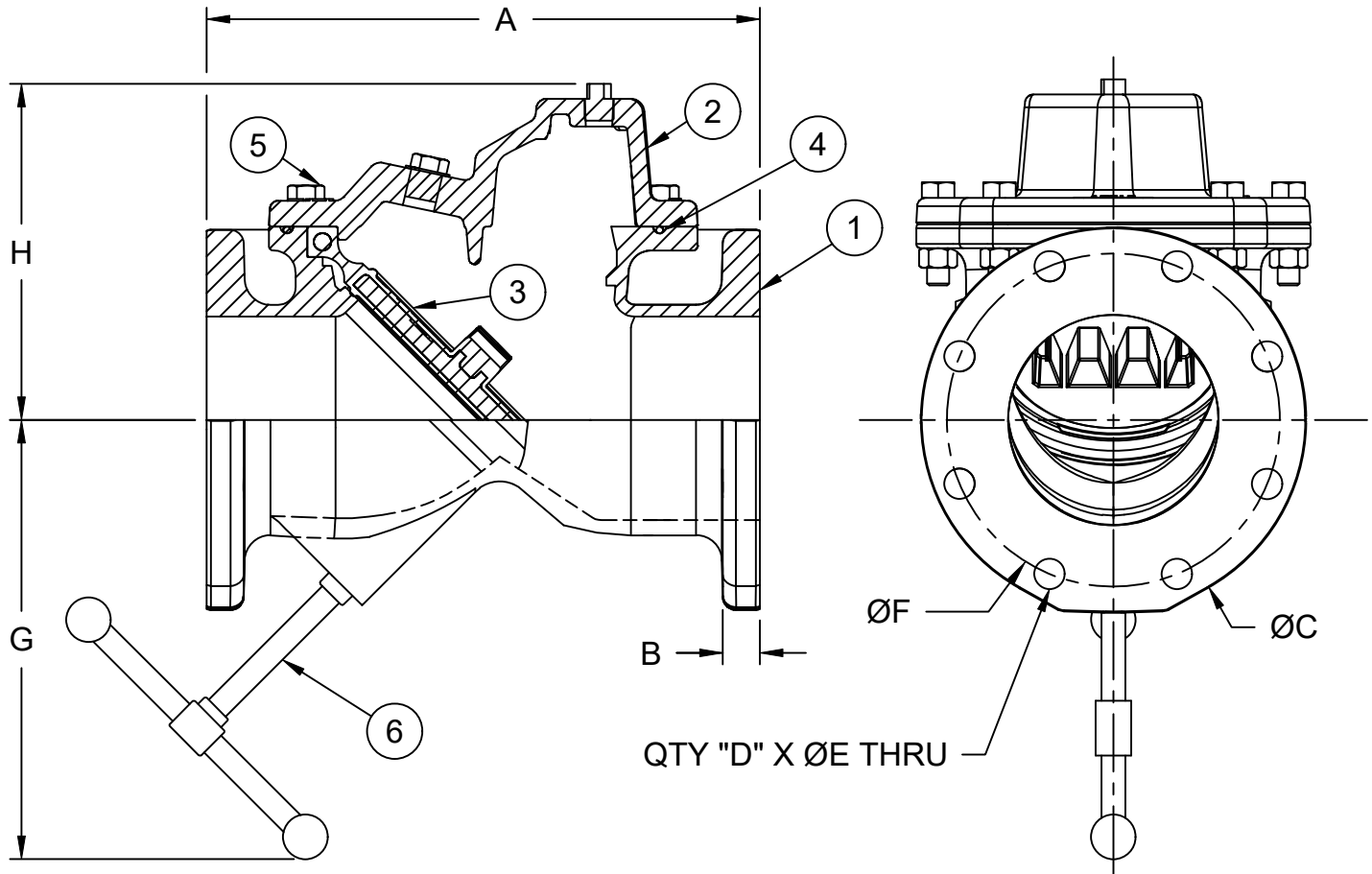
KEN-FLEX™ CHECK VALVE WITH JACK SCREW

SIZES 3" - 12"

GLOBALLY SOURCED

BILL OF MATERIAL

No.	PART	MATERIAL
1	Body	Ductile Iron - ASTM A536, GR 65-45-12
2	Cover Plate	Ductile Iron - ASTM A536, GR 65-45-12
3	Flapper	EPDM w/ Ductile Iron Insert
4	O-Ring	Nitrile Rubber (Buna-N)
5	Hardware	Stainless Steel - ASTM F593, 18-8
6	Jack Screw	Stainless Steel



DIMENSIONS (Inches)

SIZE	A	B	C	D	E	F	G	H
3	13.00	1.00	9.00	4	SEE NOTE	6.00	15.00	6.78
4	13.00	1.00	9.00	8	0.75	7.50	15.00	6.78
6	16.00	1.06	11.00	8	0.88	9.50	21.00	9.29
8	19.50	1.19	13.50	8	0.88	11.75	24.00	10.84
10	24.50	1.25	16.00	12	1.00	14.25	28.00	13.23
12	27.50	1.28	19.00	12	1.00	17.00	29.00	15.29

NOTE:

- 3" VALVE FLANGES DRILLED & TAPPED TO 5/8"-11 UNC-2B
- COLD WORKING PRESSURE - 250PSI
- HYDROSTATIC TEST PRESSURE - 500PSI

DESCRIPTION:

3"-12" 125# Flanged Ken-Flex Check Valve w/
Jack Screw (Import)

DATE:

05/22/24

DRAWING:

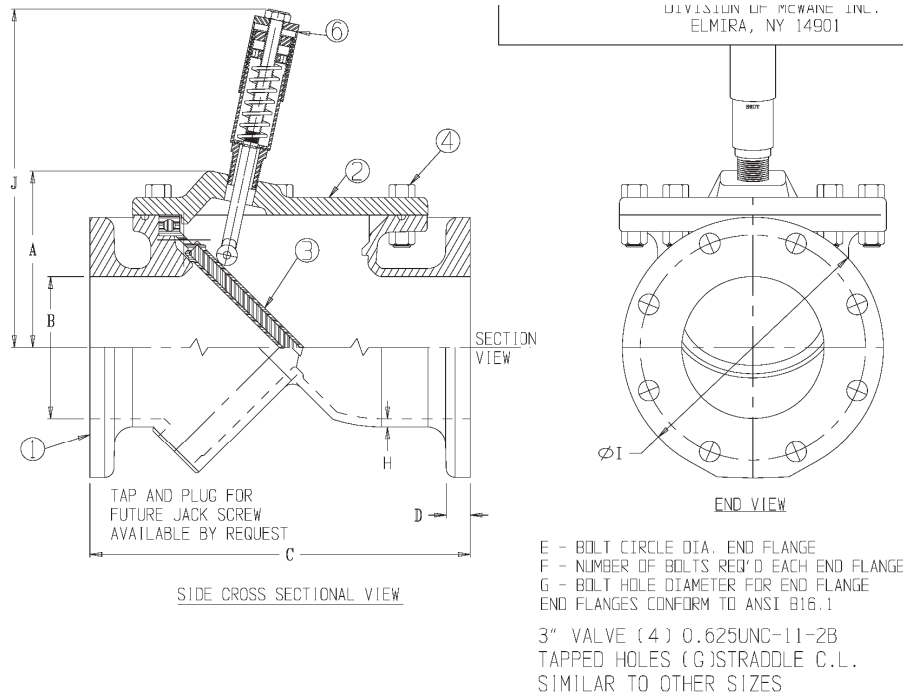
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PLANT & INDUSTRIAL

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1201 Vanderbilt Road
Birmingham, AL 35234

KEN-FLEX™ CHECK VALVE WITH POSITION INDICATOR

SIZES 3"-12" DOMESTIC

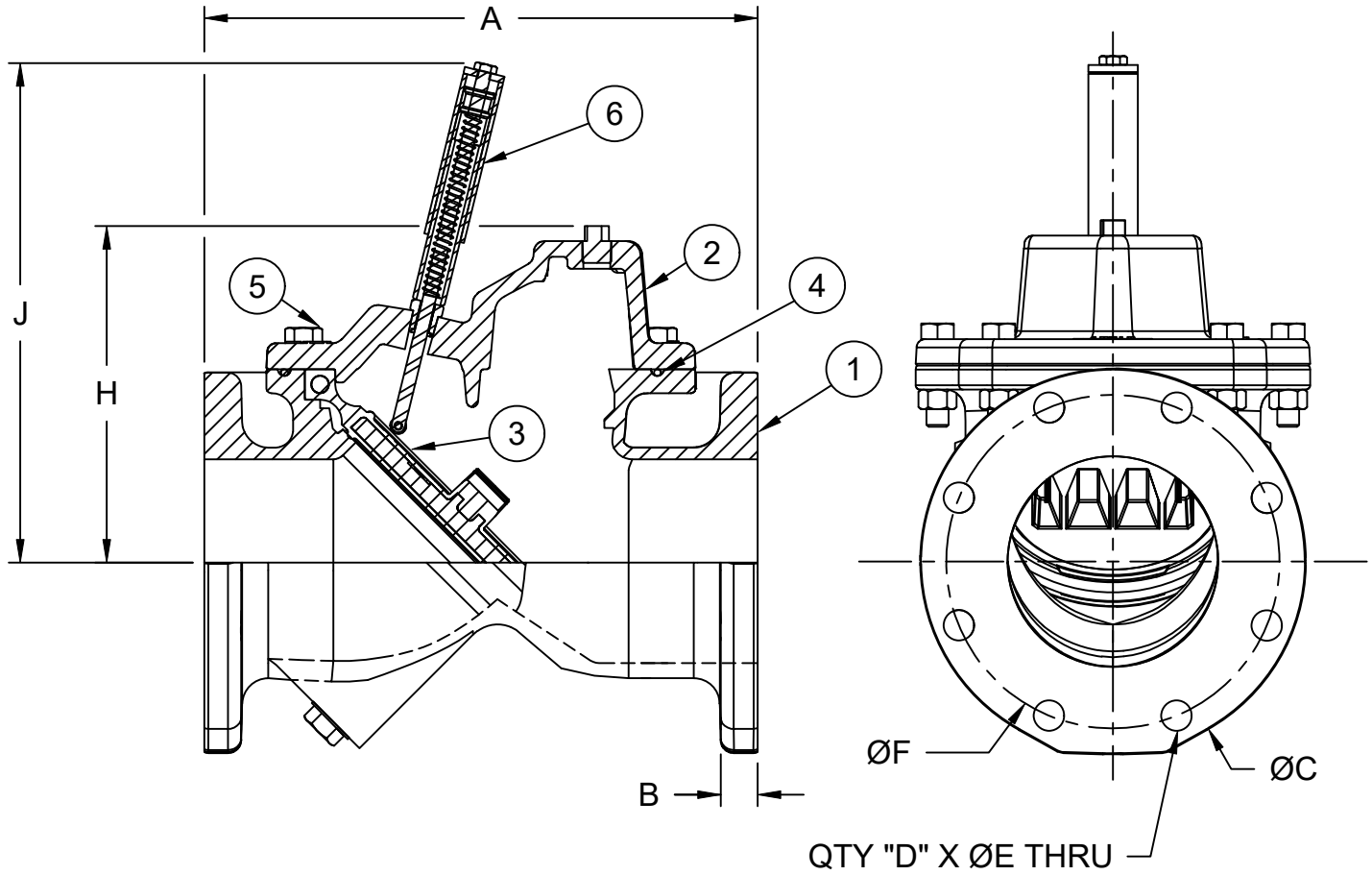


PARTS LIST			
PART No.	PART	MATERIAL	ASTM DESIGNATION
1	Body (FLG x FLG)	Ductile Iron, Coated	ASTM A536 GR 65-45-12
2	Cover Plate	Ductile Iron, Coated	ASTM A536 GR 65-45-12
3	Flapper	EPDM Flapper, Met. Insert	A536 DI/D-2000 BK 807
4	Cover Bolts & Nuts	Stainless Steel	SS 18-8 F593
5	O-Ring	Nitrile (Buna-N)	ASTM D2000
6	Position Indicator Subassembly	Stainless Steel Ext. Components	---

DIMENSIONS										
SIZE	A (APPROX.)	ØB	C	D (NDM)	ØE	F	ØG	H (NDM)	I	J (APPROX.)
3	5.37	4.00	13	1.00	6.00	4	TAP SEE ABOVE	0.31	9.0	12.21
4	5.37	4.00	13	1.00	7.50	8	0.75	0.31	9.0	12.21
6	7.45	6.00	16	1.06	9.50	8	0.88	0.34	11.0	14.28
8	8.77	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	15.61
10	10.20	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	17.04
12	11.61	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	18.45

**KEN-FLEX™ CHECK
VALVE WITH POSITION
INDICATOR**
SIZES 3" - 12"
GLOBALLY SOURCED

BILL OF MATERIAL		
No.	PART	MATERIAL
1	Body	Ductile Iron - ASTM A536, GR 65-45-12
2	Cover Plate	Ductile Iron - ASTM A536, GR 65-45-12
3	Flapper	EPDM w/ Ductile Iron Insert
4	O-Ring	Nitrile Rubber (Buna-N)
5	Hardware	Stainless Steel - ASTM F593, 18-8
6	Position Indicator	Stainless Steel



DIMENSIONS (Inches)								
SIZE	A	B	C	D	E	F	H	J
3	13.00	1.00	9.00	4	SEE NOTE	6.00	6.78	12.21
4	13.00	1.00	9.00	8	0.75	7.50	6.78	12.21
6	16.00	1.06	11.00	8	0.88	9.50	9.29	14.28
8	19.50	1.19	13.50	8	0.88	11.75	10.84	15.60
10	24.50	1.25	16.00	12	1.00	14.25	13.23	17.04
12	27.50	1.28	19.00	12	1.00	17.00	15.29	18.45

NOTE:

- 3" VALVE FLANGES DRILLED & TAPPED TO 5/8"-11 UNC-2B
- COLD WORKING PRESSURE - 250PSI
- HYDROSTATIC TEST PRESSURE - 500PSI

DESCRIPTION:

3"-12" 125# Flanged Ken-Flex Check Valve w/
Position Indicator (Import)

DATE:

05/22/24

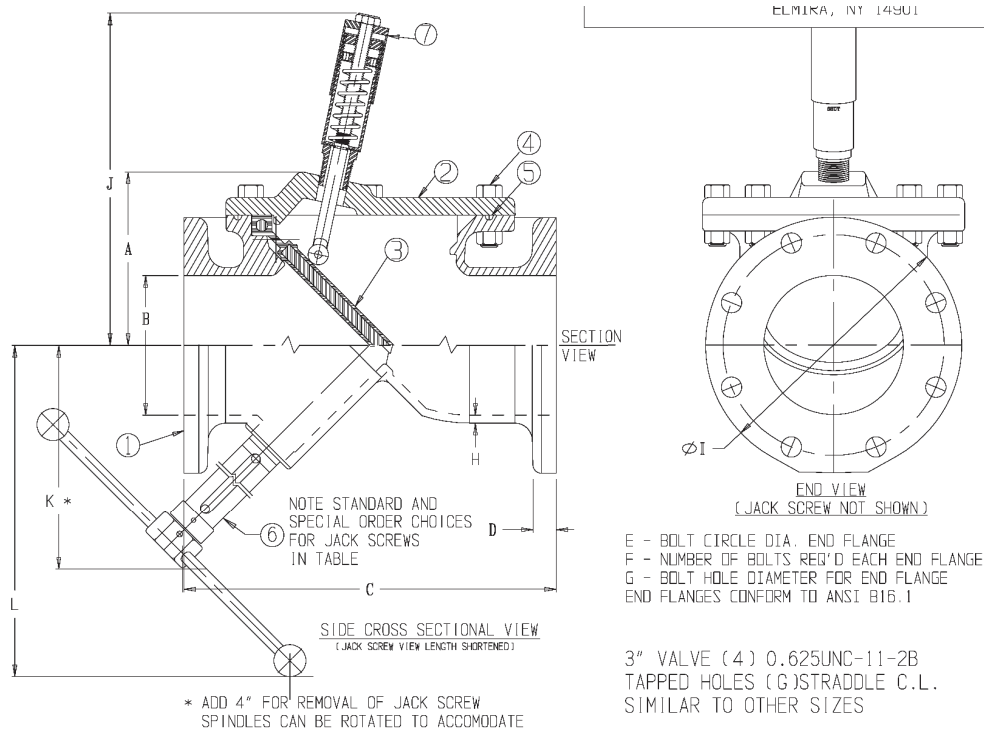
DRAWING:

KF-SD0003-A



McWane Plant & Industrial
1201 Vanderbilt Road
Birmingham, AL 35234

KEN-FLEX™ CHECK VALVE WITH POSITION INDICATOR AND JACK SCREW SIZES 3" -12" DOMESTIC



NOTE 1:
Optional Jack Screws
4" -> 448010P (Stainless Steel)
6"/8" -> 448106P (Stainless Steel)
10"/12" -> 448110P (Stainless Steel)

NOTE 2:
Optional Position Indicator

PARTS LIST			
PART No.	PART	MATERIAL	ASTM DESIGNATION
1	Body (FLG x FLG)	Ductile Iron, Coated	ASTM A536 GR 65-45-12
2	Cover Plate	Ductile Iron, Coated	ASTM A536 GR 65-45-12
3	Flapper	EPDM Flapper, Met. Insert	A536 DI/D-2000 BK 807
4	Cover Bolts & Nuts	Stainless Steel	SS 18-8 F593
5	O-Ring	Nutrilite (Buna-N)	ASTM D2000
6	Optional Jack Screws -See Note 1	Stainless Steel	N/A
7	Position Indicator Subassembly	Stainless Steel Ext. Components	---

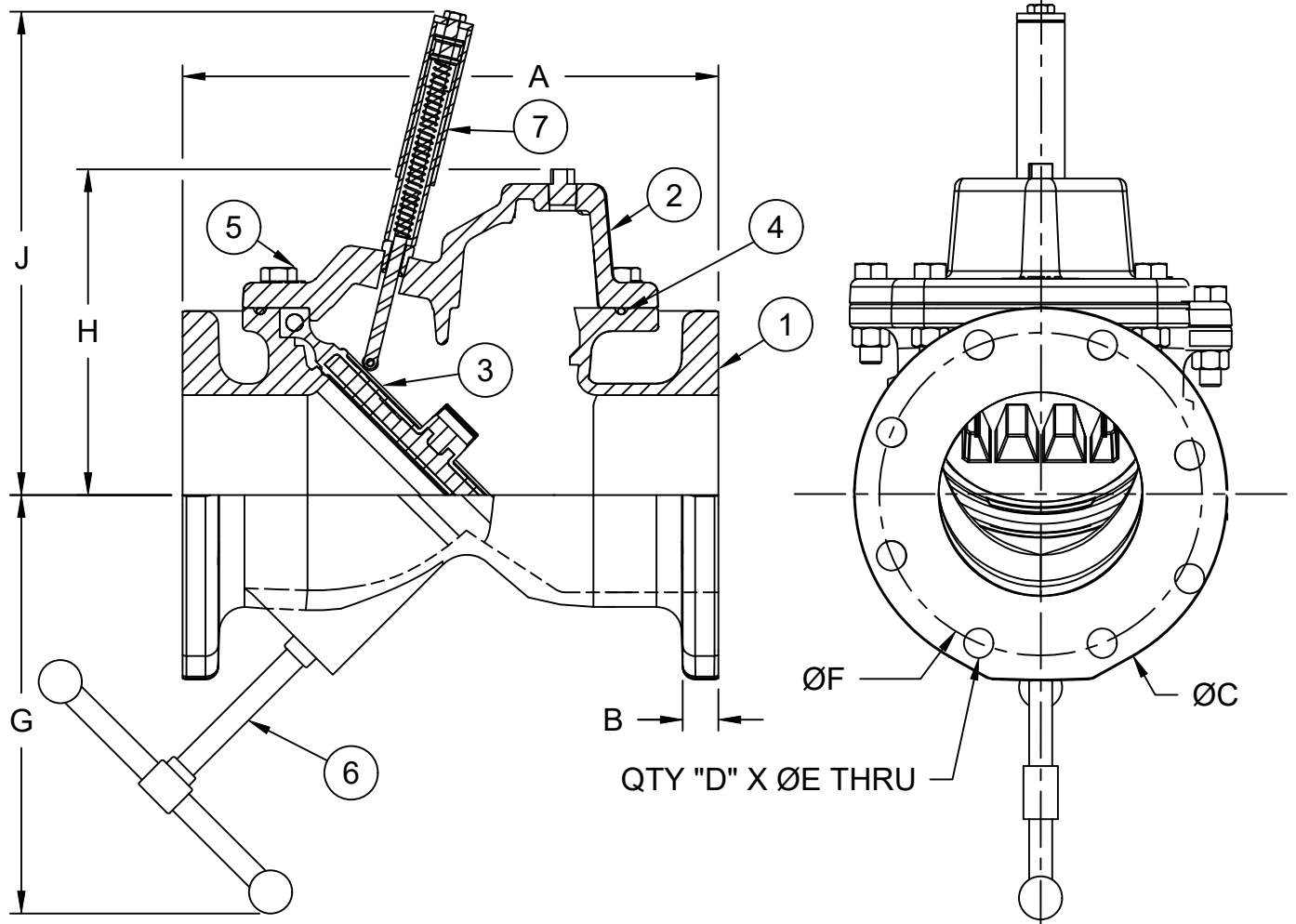
DIMENSIONS												
SIZE	A (APPROX.)	ØB	C	D (NDM)	ØE	F	ØG	H (NDM)	I	J (APPROX.)	K	L
3	5.37	4.00	13	1.00	6.00	4	TAP SEE ABOVE	0.31	9.0	12.21	11	15
4	5.37	4.00	13	1.00	7.50	8	0.75	0.31	9.0	12.21	11	15
6	7.45	6.00	16	1.06	9.50	8	0.88	0.34	11.0	14.28	17	21
8	8.77	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	15.61	20	24
10	10.20	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	17.04	23	28
12	11.61	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	18.45	24	29

KEN-FLEX™ CHECK VALVE WITH POSITION INDICATOR AND JACK SCREW

3"-12" GLOBALLY SOURCED

BILL OF MATERIAL

No.	PART	MATERIAL
1	Body	Ductile Iron - ASTM A536, GR 65-45-12
2	Cover Plate	Ductile Iron - ASTM A536, GR 65-45-12
3	Flapper	EPDM w/ Ductile Iron Insert
4	O-Ring	Nitrile Rubber (Buna-N)
5	Hardware	Stainless Steel - ASTM F593, 18-8
6	Jack Screw	Stainless Steel
7	Position Indicator	Stainless Steel



DIMENSIONS (Inches)

SIZE	A	B	C	D	E	F	G	H	J
3	13.00	1.00	9.00	4	SEE NOTE	6.00	15.00	6.78	12.21
4	13.00	1.00	9.00	8	0.75	7.50	15.00	6.78	12.21
6	16.00	1.06	11.00	8	0.88	9.50	21.00	9.29	14.28
8	19.50	1.19	13.50	8	0.88	11.75	24.00	10.84	15.60
10	24.50	1.25	16.00	12	1.00	14.25	28.00	13.23	17.04
12	27.50	1.28	19.00	12	1.00	17.00	29.00	15.29	18.45

NOTE:

1. 3" VALVE FLANGES DRILLED & TAPPED TO 5/8"-11 UNC-2B
2. COLD WORKING PRESSURE - 250PSI
3. HYDROSTATIC TEST PRESSURE - 500PSI

DESCRIPTION:

3"-12" 125# Flanged Ken-Flex Check Valve w/
Jack Screw & Position Indicator (Import)

DATE:

05/22/24

DRAWING:

KF-SD0004-A

MPI MCWANE
PLANT & INDUSTRIAL

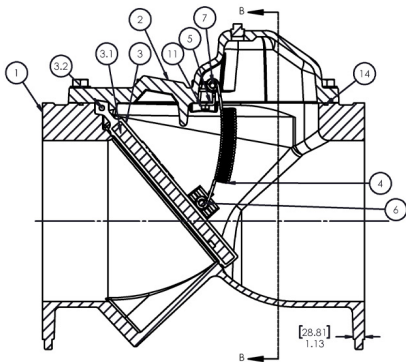
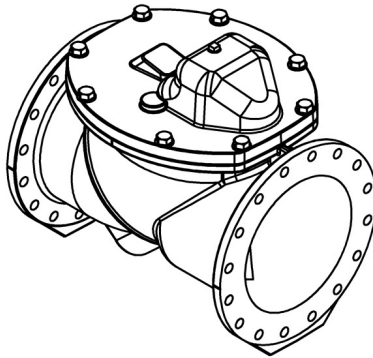
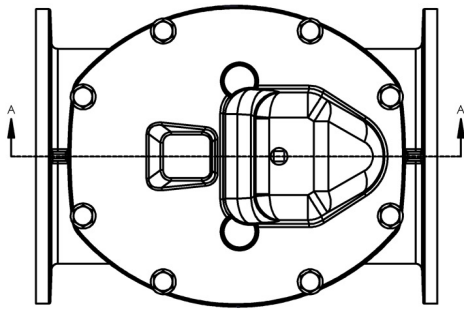
McWane Plant & Industrial
1201 Vanderbilt Road
Birmingham, AL 35234

KEN-FLEX™ CHECK VALVE WITH SPRINGS

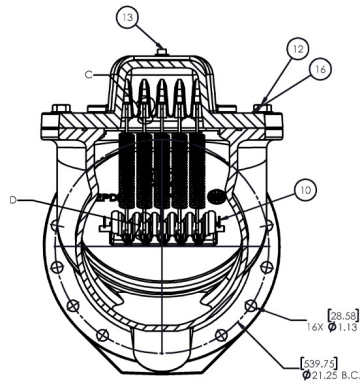
16" & 24" DOMESTIC ONLY

ITEM NO.	DRAWING	DESCRIPTION	MATERIAL	QTY.
1	81783	BODY	DUCTILE IRON	1
2	32511	COVER	DUCTILE IRON	1
3	54298	FLAPPER ASSEMBLY	EPDM RUBBER	1
3.1	32339	FLAPPER DISC	DUCTILE IRON	1
3.2	54301	KENFLEX FLAPPER PIN	AISI 1020	1
4	32475	SPRING	302 STAINLESS	5
5	32480	SPRING BRACKET - 16"	STAINLESS STEEL	1
6	54299	FLAPPER SPRING PIN	304 STAINLESS	1
7	54300	COVER SPRING PIN	AISI 304	1
8	32629	SPRING SPACER (TOP)	NYLON	10
9	32630	SPRING SPACER (BOTTOM)	NYLON	10
10	-	COTTER PIN	STAINLESS STEEL	2
11	-	HHCS - 1/2" - 13 X 5/8" LG.	STAINLESS STEEL	2
12	-	HHCS - 1" - 8 X 2 - 3/4" LG.	304SS	8
13	-	PIPE PLUG - 1" NPT	STEEL	1
14	-	O-RING, SIZE -471	-	1
15	OMIT	-	-	-
16	-	WASHER - 1"	STAINLESS STEEL	8

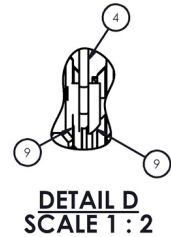
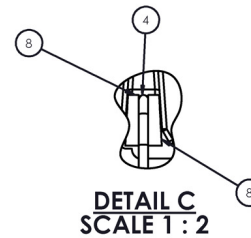
AWWA - TESTING DETAILS	
AWWA C508	250 PSI
DESCRIPTION	TEST PRESSURE
SHELL TEST	500 PSI
SEAT TEST	250 PSI



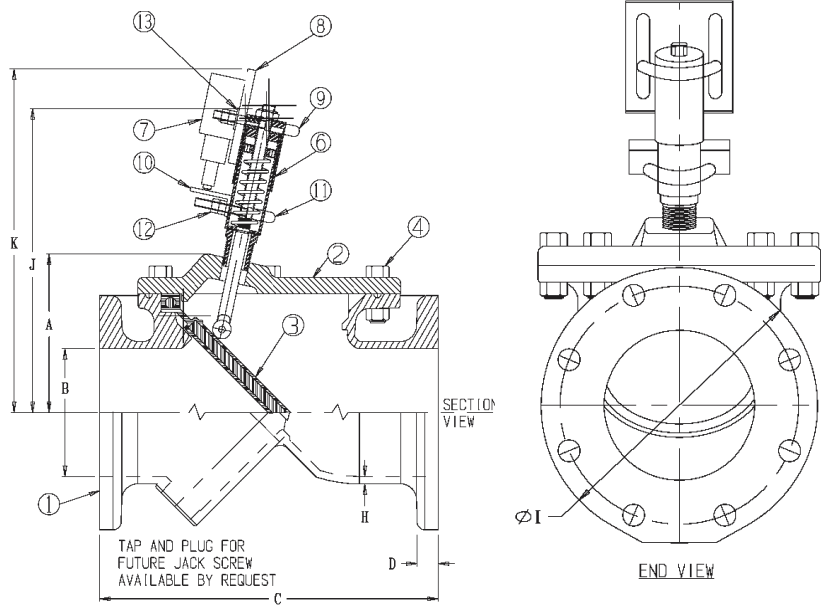
SECTION A-A



SECTION B-B



KEN-FLEX™ CHECK VALVE WITH POSITION INDICATOR AND SWITCH SIZES 3" -12" DOMESTIC



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

INSTALLATION NOTE S

1. Preferred KV installs switch, though with caution, customer is able to perform at their own risk.
2. Requires electrical service to switch (which oscillates flexible wiring / conduit / strain relief to meet all local code.
3. For further detail, drawing 55014 may be referred to.

NOTE 1:
Optional Position Indicator

PARTS LIST			
PART No.	PART	MATERIAL	ASTM DESIGNATION
1	Body (FLG x FLG)	Ductile Iron, Coated	ASTM A536 GR 65-45-12
2	Cover Plate	Ductile Iron, Coated	ASTM A536 GR 65-45-12
3	Flapper	EPDM Flapper, Met. Insert	A536 DI/D-2000 BK 807
4	Cover Bolts & Nuts	Stainless Steel	SS 18-8 F593
5	O-Ring	Nitrile (Buna-N)	ASTM D2000
6	Position Indicator Subassembly - p/n 448100P	Stainless Steel Ext. Components	----
7	A-B Rockwell 802T-BA Push Switch	Flex Cord Required	----
8	Adapter Plate	Stainless Steel 304	ASTM 276
9	Upper U-Bolt - Rubber Cushioned	McMasterr-Carr 30555T44	ASTM A193
10	Trip Angle	Stainless Steel 304 1 x 1 x 3/16	ASTM 276
11	Lower U-Bolt - Rubber Cushioned	McMasterr-Carr 30555T43	ASTM A193
12	Nuts - Add one to each side of clamp	304 SS (Some may come w/ U Bolts)	ASTM A193
13	Washers - 3/8 Diameter	Stainless Steel 304	ASTM A193

DIMENSIONS											
SIZE	A (APPROX.)	ØB	C	D (NDM)	ØE	F	ØG	H (NDM)	I	J (APPROX.)	K (APPROX.)
3	5.37	4.00	13	1.00	6.00	4	*1*	0.31	9.0	12.21	14.21
4	5.37	4.00	13	1.00	7.50	8	0.75	0.31	9.0	12.21	14.21
6	7.45	6.00	16	1.06	9.50	8	0.88	0.34	11.0	14.28	16.28
8	8.77	8.00	19.5	1.19	11.75	8	0.88	0.34	13.5	15.61	17.61
10	10.20	10.00	24.5	1.25	14.25	12	1.00	0.38	16.0	17.04	19.04
12	11.61	12.00	27.5	1.28	17.00	12	1.00	0.41	19.0	18.45	20.45

1 HOLES ARE TAPPED 0.625UNC-11-2B, STRADDLE C.L.