Doc # B-BV-500-r2

K-FLO Butterfly Valves

THE 500 SERIES:
AWWA C504 RESILIENT SEATED VALVES

• Sizes 3”-20” Available • Ideal for Municipal, Power and Industrial Installations

CRISPIN VALVE

SINCE 1905

600 FOWLER AVENUE,
BERWICK, PA 18603

(800) 247-8258
TEL. (570) 752-4524
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WELCOME TO THE
THE CRISPIN VALVE FAMILY

YOUR ACCESSIBLE, RESPONSIVE, AND CREATIVE SOLUTION PROVIDER

In 1905, Clarence Crispin invented and patented an Air Valve design, and thus Crispin Valve and the Air Valve Industry were born. Today, as a fourth-generation family-owned business, Crispin is a modern, professional company deeply rooted in the traditional values of our early beginnings. But that doesn't mean we're standing still. With our additional valve lines—including Check Valves, KFlo Butterfly and Plug Valves, and Ludlow-Rensselaer Gate Valves—Crispin products are installed throughout both hemispheres, and in almost every country around the world.

With an extensive presence in the municipal water industry, our products are also widely used by industrial, mining, chemical, energy and processing companies. Our customers include some of the world's top corporations—from Walt Disney Co. and Anheuser-Busch to Talen Energy, Xylem, Bechtel, International Paper, Black & Veatch and more. The breadth of our international experience allows us to understand and provide the flexibility that customers around the globe require.

Meanwhile, our municipal client index in the United States includes customers of every size, from major metropolitan areas to small town water systems. Among them can be counted the cities of Los Angeles, New York, Dallas, Philadelphia, New Orleans, Detroit, Tampa and thousands of others.

Regardless of where they are, we make all of our customers the same promise: no other valve company can match our commitment to customer service. We pride ourselves on being the industry's most accessible and responsive manufacturer. Regardless of the challenges presented by your valve project, we have a solution for you. And we'll partner with you every step of the way.

We look forward to putting well over a century of experience to work on your next valve project.

Darren Crispin
President/CEO
Crispin Valve

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

Crispin Valve, 600 Fowler Ave., Berwick, PA 18603 • 1-800-247-VALV
T: (570)752-4524 • F: (570) 752-4962 • WWW.CRISPINVALVE.COM • info@crispinvalve.com

500 SERIES BUTTERFLY VALVE

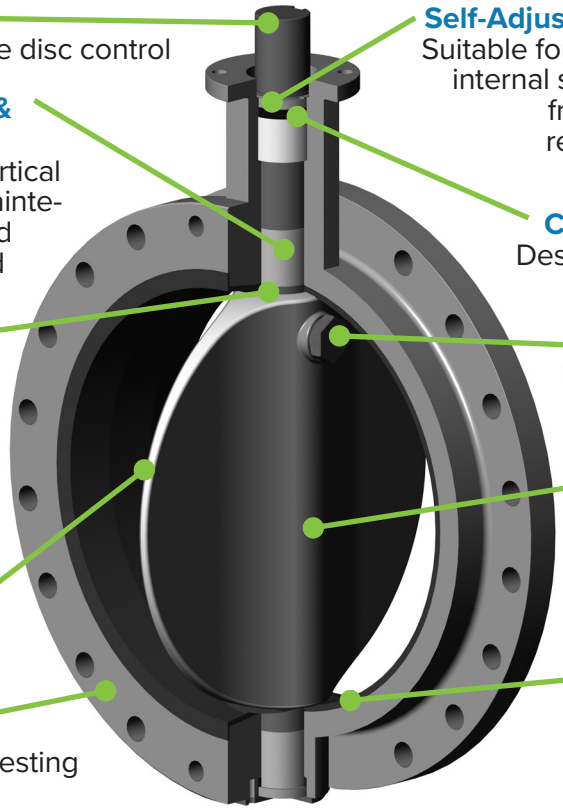
One-Piece-Thru Shaft Design
Ensures high strength and positive disc control

Permanently Lubricated Upper & Lower Bearings
Designed for horizontal and/or vertical shaft loading, the bearings are maintenance-free, providing strength and low friction for easy operation and long service life.

Primary Shaft Seals
Affected by preloaded contact between the disc hub and seat, a secondary seal is formed by the shaft diameter, which is greater than the passage hole in the resilient seat.

316 Stainless Steel Disc Edge
Designed for optimum performance and long seat life.

Rugged Ductile Iron Body
Meets or exceeds all design and testing requirements for AWWA C504



Self-Adjusting Upper & Lower Shaft Seals
Suitable for pressure or vacuum service, the internal shaft seals prevent foreign matter from entering the valve. Packing is retained by recessed independant packing retainer ring in all sizes

Corrosion-Resistant Top Bushing
Designed for a long life, the bushing absorbs actuator side thrust.

Stainless Steel Torque Plug
Ensures a positive leak-proof connection of the shaft to the disc.

Epoxy-Coated Disc, NSF 61 approved
Provides maximum strength, high flow capacity, and excellent flow control. 316 SS/ Ductile Iron Disc standard.

Vulcanized Resilient Seat
Designed so that no adjustment or maintenance is required. Bi-Directional drip tight shutoff to 200psi is optional.

An AWWA C504 Resilient Seated Butterfly Valve for all your project needs

The K-Flo 500 Series is a heavy-duty resilient seated butterfly valve line for use in municipal, power and industrial applications. Every K-Flo 500 Series valve is tested for performance, as well as seat and body leakage, and the valves meet or exceed the latest AWWA C504 standards and requirements. 500 Series valves are also available in flanged or mechanical joint configurations. Flanged ends are available on sizes 3" thru 20" while mechanical joints are available on sizes 6" thru 20."

Class 250 B Valves with AWWA C507 E & F drilling are available. Please call the factory.

500 SERIES ADVANTAGES

- **AWWA C504 Compliant 3"-20" tested at 150psi**
- **Cv's ≥ industry standards for superior performance**
- **Symmetrical disc for bi-directional service**
- **Fully rubber-lined body**
- **Multiple Actuator Options**
- **Fusion epoxy coating option on ductile iron disc**
- **Stainless steel disc edge**
- **Self adjusting packing for longer valve life**
- **Bi-directional packing prevents contamination from entering potable water supply**
- **Packing is retained by recessed independent packing retainer ring in all sizes**

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

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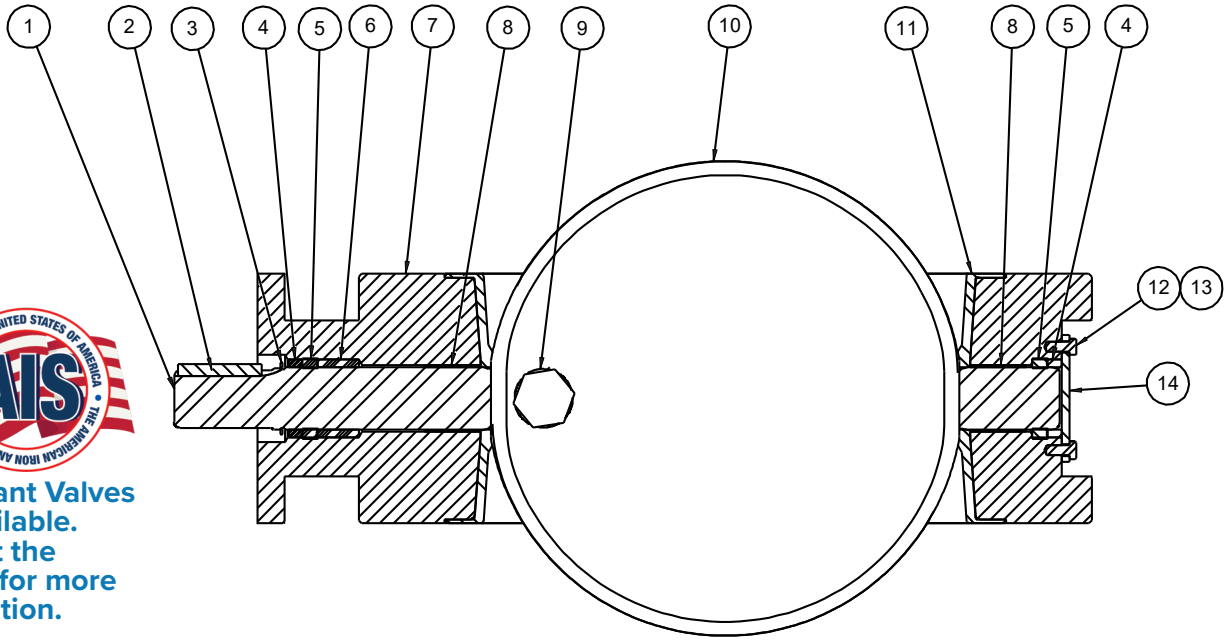
500 SERIES MATERIALS LIST



Compliant Valves are available. Contact the factory for more information.

PARTS LIST		
ITEM	DESCRIPTION	MATERIAL
1	SHAFT	304 Stainless Steel (ASTM A276)
2	KEY	Carbon Steel (ASTM A108 UNS G10180)
3	PACKING RETAINER	Zinc Plated Steel
4	SPACER	PTFE
5	PACKING	V-Type Seal EPDM (ASTM D20000)
6	BUSHING	PTFE
7	BODY	Ductile Iron (ASTM 536 Gr. 65-45-12)
8	BEARING	316 Stainless Steel TFE Fabric Lined
9	TORQUE PLUG	316 Stainless Steel (ASTM A276)
10	DISC 3" to 8" 10" to 20"	316 Stainless Steel (ASTM A351 CF8M) Ductile Iron Disc w/316 SS Disc Edge
11	SEAT ASSEMBLY	EPDM ASTM D2000
12	LOCK WASHER	18-8 Stainless Steel
13	COVER PLATE SCREW	18-8 Stainless Steel
14	COVER PLATE	Cast Iron (ASTM A126 Cl B)

500 Series Valves are certified for all NSF 61 and NSF 372 standards

500 SERIES OPTIONS

- **Cast Iron (ASTM A126 Cl B) Body**
- **316 Stainless Steel Shaft or 17-4pH SS on Class 250 valves**
- **Compliance with AIS**
- **Compliance with BAN (Buy American Act) on valve sizes 10"-20" with Traveling Nut Gears**

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

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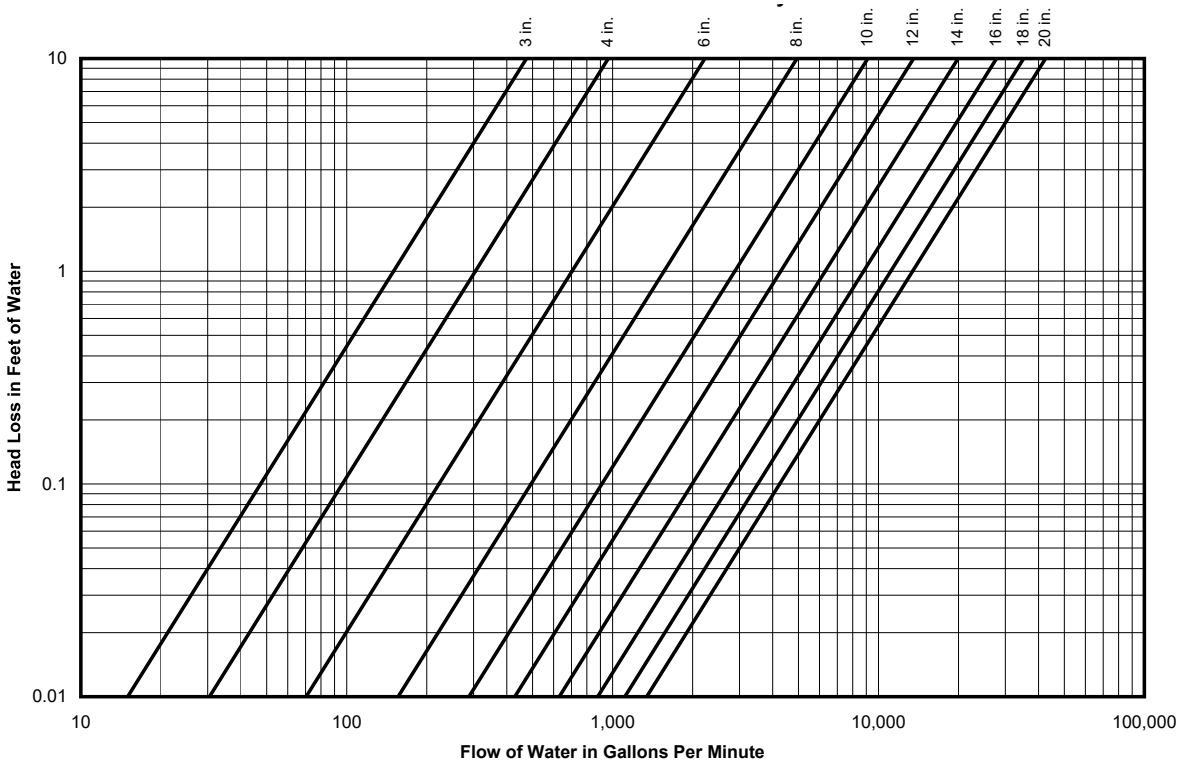
500 SERIES FLOW CHARACTERISTICS

Head Loss Chart*

*Head loss charts are for flow when valve is positioned with the seat downstream.
Maximum full-open velocity is 16 ft/sec based on nominal valve size per AWWA C504 standards.



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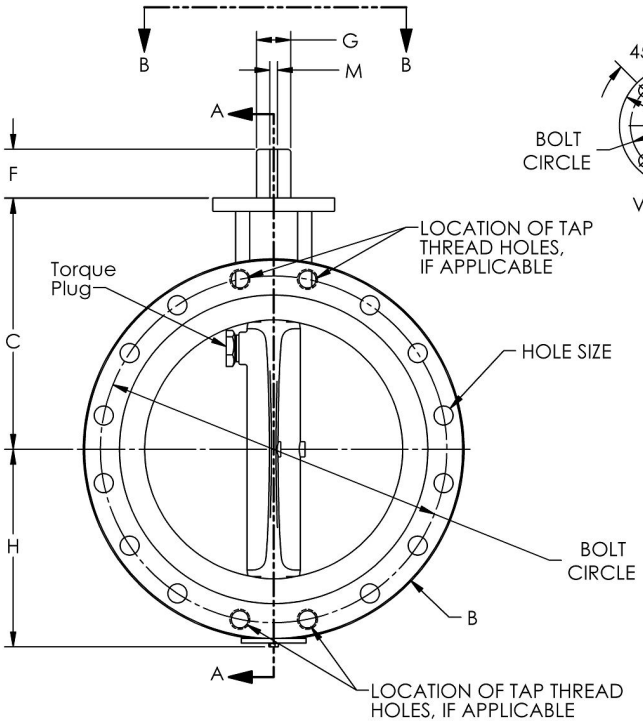
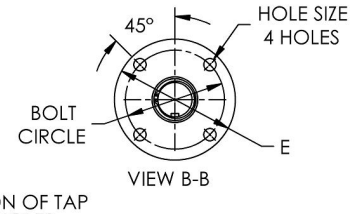
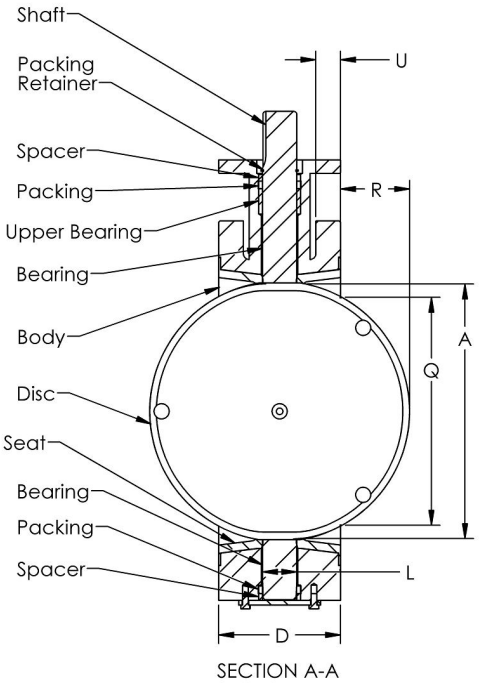
500 SERIES DIMENSIONAL DATA







K-Flo Model 504 (Flanged x Flanged*)

ALL DIMENSIONS ARE IN INCHES													TOP PLATE			FLANGE DRILLING					Bare Shaft
Size	A	B	C	D	E	F	G	H	M Key	Q**	R	U	Bolt Circle	Hole Size	ISO 5211	Bolt Circle	# of Holes	Hole Size	Tap'd Holes	Thread Size	Wt. (lbs)
3	2 3/4	7 1/2	6 5/16	5	4	1 1/2	9/16	3 3/4	1/8 sq	n/a	n/a	9/16	2.756	11/32	F 07	6	4	3/4	n/a	n/a	29
4	3 9/16	9	7 1/16	5	4	1 1/2	9/16	4 1/2	1/8 sq	n/a	n/a	5/18	2.756	11/32	F 07	7 1/2	8	3/4	n/a	n/a	48
6	5 1/2	11	8 1/16	5	6	2	1 1/8	6	1/4 sq	2 3/4	5/16	1 1/8	4.921	9/16	F 12	9 1/2	8	7/8	n/a	n/a	58
8	7 1/2	13 1/2	9 9/16	6	6	2	1 1/8	6 3/4	1/4 sq	4 7/8	13/16	1 1/8	4.921	9/16	F 12	11 3/4	8	7/8	n/a	n/a	96
10	9 5/8	16	10 13/16	8	6	2 1/2	1 3/8	8	5/16 sq	5 3/8	13/16	1 3/8	4.921	9/16	F 12	14 1/4	12	1	n/a	n/a	150
12	11 3/8	19	12 5/16	8	6	2 9/16	1 3/8	9 1/2	5/16 sq	8 3/8	1 11/16	1 1/2	4.921	9/16	F 12	17	12	1	n/a	n/a	204
14	12 15/16	21	14 1/16	8	8	2 3/8	1 5/8	10 1/2	3/8 sq	10 1/2	2 1/2	1 3/4	6.496	13/16	F 16	18 3/4	12	1 1/8	n/a	n/a	267
16	15 1/8	23 1/2	15 1/16	8	8	2 11/16	1 7/8	11 3/4	1/2x3/8	13 1/8	3 5/8	2	6.496	13/16	F 16	21 1/4	16	1 1/8	4	1"-8	354
18	16 15/16	25	16 9/16	8	8	3 3/16	2 1/4	13 1/16	1/2x3/8	15 1/16	4 9/16	2 1/4	6.496	13/16	F 16	22 3/4	16	1 1/4	4	1 1/8"x7	433
20	18 7/8	27 1/2	18 1/16	8	8	3 3/16	2 1/4	14 5/16	1/2x3/8	17 3/8	5 1/2	2 1/2	6.496	13/16	F 16	25	20	1 1/4	4	1 1/8"x7	586

* Flange drilling per ANSI B16.1 Class 125 and AWWA Class D standard

**Q = min. allowable inside pipe diameter at centered body face to protect disc sealing edge from damage when opening valve

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

K-Flo Model 506 (Mechanical Joint x Mechanical Joint*)

*ALL DIMENSIONS ARE IN INCHES

													TOP PLATE			FLANGE DRILLING			Bare Shaft
Size	A	B	C	D	E	F	G	H	M Key	Q**	R	U	Bolt Circle	Hole Size	ISO 5211	Bolt Circle	# of Holes	Hole Size	Wt. (lbs)
6	5 1/2	11 1/2	8	8 1/2	6	2 1/16	1 1/8	6	1/4 sq	4 1/2	n/a	1 1/8	4.921	9/16	F 12	9 1/2	6	7/8	80
8	7 1/2	13 3/4	9 1/2	8 5/8	6	2	1 1/8	8 7/8	1/4 sq	6 3/4	n/a	1 1/8	4.921	9/16	F 12	11 3/4	6	7/8	120
10	9 5/8	16 1/16	10 3/4	9 1/4	6	2 9/16	1 3/8	8	5/16 sq	8 3/4	3/16	1 3/8	4.921	9/16	F 12	14	8	7/8	170
12	11 3/8	18 5/16	12 1/4	9 1/4	6	2 9/16	1 3/8	9 3/16	5/16 sq	10 9/16	1 1/16	1 1/2	4.921	9/16	F 12	16 1/4	8	7/8	230
14	12 15/16	20 11/16	14	11 1/2	8	2 7/16	1 5/8	10 3/8	3/8 sq	12 13/16	3/4	1 3/4	6.496	13/16	F 16	18 3/4	10	7/8	300
16	15 1/8	22 15/16	15	12	8	3	1 7/8	11 7/16	1/2x3/8	14 5/16	1 5/8	2	6.496	13/16	F 16	21	12	7/8	390
18	16 15/16	25 1/4	16 1/2	12 1/4	8	3 3/16	2 1/4	13 1/16	1/2x3/8	16 3/16	2 3/8	2 1/4	6.496	13/16	F 16	23 1/4	12	7/8	470
20	18 7/8	27 7/16	18	12 1/2	8	3 3/16	2 1/4	14 5/16	1/2x3/8	18 1/16	3 3/16	2 1/2	6.496	13/16	F 16	25 1/4	14	7/8	630

K-Flo Model 507 250B (Flanged x Flanged***)

ALL DIMENSIONS ARE IN INCHES

													TOP PLATE			FLANGE DRILLING					Bare Shaft
Size	A	B	C	D	E	F	G	H	M Key	Q**	R	U	Bolt Circle	Hole Size	ISO 5211	Bolt Circle	# of Holes	Hole Size	Tap'd Holes	Thread Size	Wt. (lbs)
4	3 9/16	10	7	5	4	1 1/4	9/16	5 9/16	1/8 sq	n/a	n/a	1 5/16	2.756	11/32	F 07	7 7/8	8	7/8	4	3/4"x10	62
6	5 1/2	12 1/2	8 3/8	5	6	2	1 1/8	6 13/16	1/4 sq	2 3/4	5/16	1 1/2	4.921	9/16	F 12	10 5/8	12	7/8	4	3/4"x10	100
8	7 1/2	15	9 5/8	6	6	2	1 1/8	8 1/16	1/4 sq	4 7/8	13/16	1 11/16	4.921	9/16	F 12	13	12	1	4	7/8"-9	152
10	9 5/8	17 1/2	10 7/8	8	6	2 5/8	1 3/8	9 5/16	5/16 sq	5 3/8	13/16	1 15/16	4.921	9/16	F 12	15 1/4	16	1 1/8	4	1"-8	266
12	11 3/8	20 1/2	12 1/2	8	6	2 5/8	1 3/8	10 13/16	5/16 sq	8 3/8	1 11/16	2 1/16	4.921	9/16	F 12	17 3/4	16	1 1/4	4	1 1/8"x7	320
14	12 15/16	23	14	8	8	2 5/8	1 5/8	12 1/16	3/8 sq	10 1/2	2 1/2	2 3/16	6.496	13/16	F 16	20 1/4	20	1 1/4	4	1 1/8"x7	420
16	15 1/8	25 1/2	16	8	8	2 5/8	1 7/8	13 5/6	1/2x3/8	13 1/8	3 5/8	2 5/16	6.496	13/16	F 16	22 1/2	20	1 3/8	4	1 1/4"-8	527
18	16 15/16	28	17 1/4	8	8	2 1/4	2 1/4	11 11/16	1/2x3/8	15 1/16	4 9/16	2 7/16	6.496	13/16	F 16	24 3/4	24	1 1/4	4	1 1/4"x7	632
20	18 7/8	30 1/2	18 5/8	8	8	3 3/8	2 1/4	15 7/8	1/2x3/8	17 3/8	5 1/2	2 9/16	6.496	13/16	F 16	27	24	1 1/4	4	1 1/4"x7	785

* Mech. Joint dimensions conform to ANSI/AWWA C111/A21.11 *** Flange drilling per ANSI B16.1 Class 250 and AWWA Cl F Stan.
**Q = min. allowable inside pipe diameter at centered body face to protect disc sealing edge from damage when opening valve

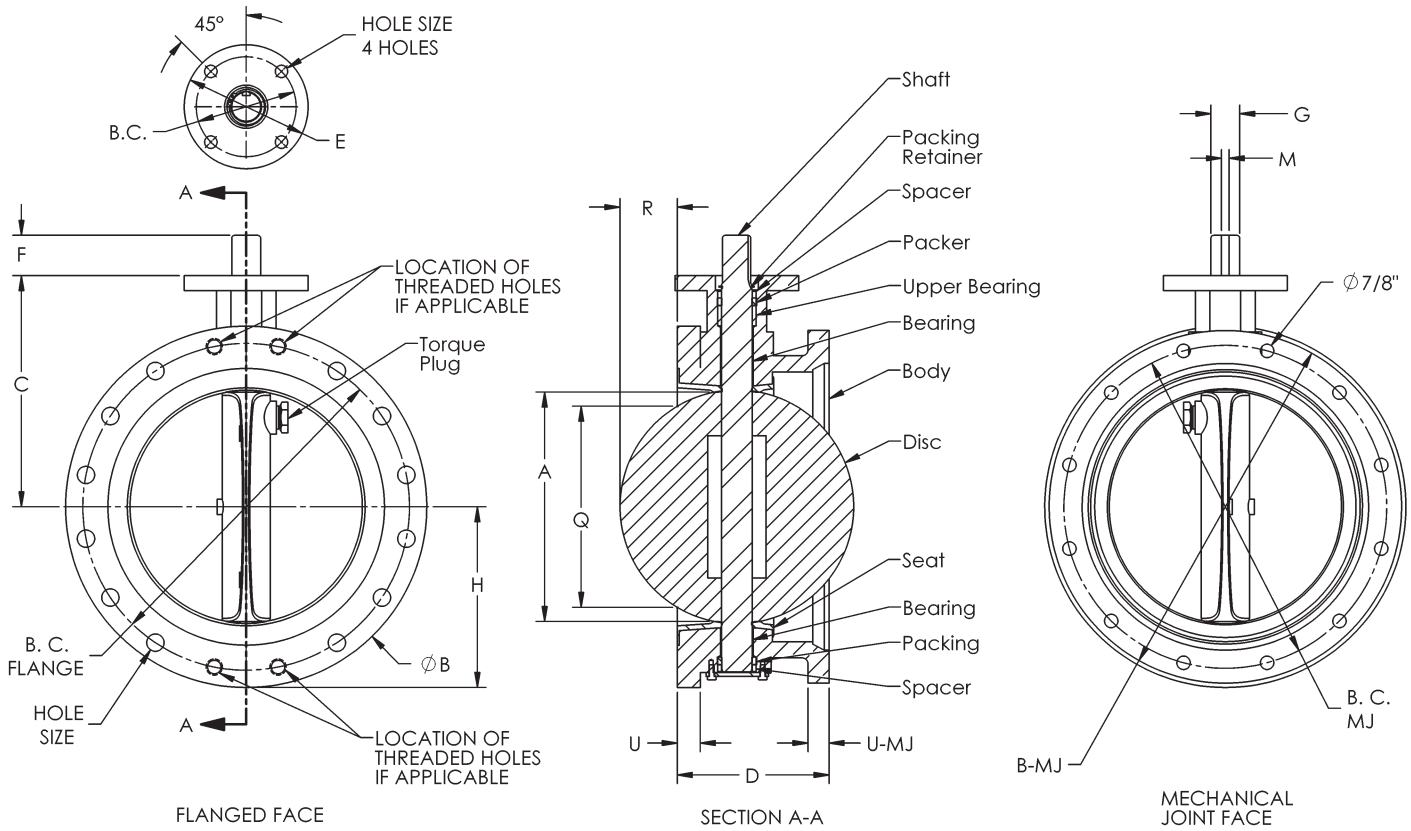
Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

K-Flo Model 509 Class (Flanged x Mechanical Joint*)

ALL DIMENSIONS ARE IN INCHES

Size	A	B	C	D	E	F	G	H	M Key	Q	R	U
6	5 1/2	11	8	6 13/16	6	2 1/16	1 1/8	6	1/4 sq	2 3/4	5/16	1 1/8
8	7 1/2	13 1/2	9 1/2	7	6	2	1 1/8	6 7/8	1/4 sq	4 7/8	13/16	1 1/8
12	11 3/8	19	12 1/4	8 1/2	6	2 9/16	1 3/8	9 1/2	5/16 sq	8 3/8	1 11/16	1 1/2
16	15 1/8	23 1/2	15	9 7/8	8	2 11/16	1 7/8	11 3/4	1/2x3/8	13 1/8	3 5/8	2

In inches	TOP PLATE			FLANGE FACE					MECHANICAL JOINT FACE			
Size	Bolt Circle	Hole Size	ISO 5211	Bolt Circle	# of Holes	Hole Size	Tap'd Holes	Thread Size	B-MJ	U-MJ	B.C. MJ	# of Holes
6	4.921	9/16	F 12	9 1/2	8	7/8	n/a	n/a	11 1/2	1	9 1/2	6
8	4.921	9/16	F 12	11 3/4	8	7/8	n/a	n/a	13 3/4	1 1/8	11 3/4	6
12	4.921	9/16	F 12	17	12	1	n/a	n/a	18 5/16	1 1/4	16 1/4	8
16	6.496	13/16	F 16	21 1/4	16	1 1/8	4	1"-8	22 15/16	1 3/8	21	12



* Flange drilling per ANSI B16.1 Class 125 and AWWA Cl D; Mechanical Joint dimensions conform to ANSI/AWWA C111/A21.11

**Q = min. allowable inside pipe diameter at centered body face to protect disc sealing edge from damage when opening valve

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500 SERIES CAVITATION GUIDE

Avoiding Cavitation In Your Valve Line

When a fluid passes a valve's point of minimum area (known as the vena contracta) the fluid velocity increases and the pressure drops. If the speed through the valve is high enough, the pressure in the liquid may drop to a level where the fluid starts to bubble or flash. The pressure recovers sufficiently and the bubbles collapse upon themselves in a phenomenon known as cavitation. This collapse can be violent in the low-pressure, turbulent, flow-separation regions inside valves, and its resulting energy release can cause significant noise and vibration. In addition, these bubble "implosions" can have shock waves up to 100,000 psi, and if they contact a solid surface like the valve's interior, pitting will occur.

Cavitation's intensity and its effects on a system can vary. At its least offensive, it produces a slight crackling sound that doesn't harm the valve or system. At its most destructive, it can cause noise levels exceeding 100 dB, a level that can damage hearing. In addition, vibrations from cavitation can cause significant erosion within the valve body, as well as damage to the system's mechanical integrity, leading to seat leakage and valve failure.

The intensity of cavitation varies with valve type, size, operating pressure and details of the piping installation. If one knows a valve's flow and pressure conditions, it's possible to predict its potential cavitation intensity, and thereby reduce or eliminate the effects. In order to compare the cavitation performance of similiar valves, the comparison should be based upon a flow coefficient, known as Cv. The formula for determining a valve's Cv is shown at top right.

Mathematical Formula for Cv

The flow characteristic of given valve is defined by the valve's Cv value. Cv is defined as the maximum flow (expressed in gallons per minute, or gpm) of water at 60 degrees F, which produces a 1 psi pressure drop across the valve.

For Water: $Cv=Q/\sqrt{\blacktriangle P}$ where Q= flow rate in gpm
and ▲ P= pressure drop across valve in psi

For Fluids other than water:
$Cv=Q/\sqrt{\blacktriangle P/G}$ where G=specific gravity of the fluid (water=1.0)
and ▲ P= pressure drop across valve in psi

For example, if the valve must pass water at a flow rate of 300gpm, and the maximum allowable pressure drop is 3psi, the Cv of the valve must be equal to or greater than 173.2.
$Cv=300gpm/\sqrt{3psi} = 173.2$

500 Series Cv Values at Varying Degrees Open

Degs. Open	Valve Size									
	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"
5	2	3	7	16	23	35	51	71	90	115
10	3	6	14	32	47	70	103	144	182	231
15	6	13	29	64	96	142	209	292	369	468
20	10	21	48	107	160	237	349	486	615	780
25	16	32	74	164	243	362	532	742	938	1189
30	22	45	105	232	346	514	755	1054	1333	1690
35	30	61	141	313	465	692	1017	1419	1795	2276
40	41	83	191	424	630	937	1377	1921	2431	3082
45	53	108	249	553	822	1222	1796	2506	3170	4019
50	74	150	345	766	1075	1599	2350	3278	4147	5258
55	95	192	444	984	1395	2074	3048	4252	5380	6820
60	117	238	548	1216	1802	2681	3940	5496	6953	8814
65	142	287	663	1472	2323	3454	5076	7082	8959	11358
70	169	344	794	1761	3002	4464	6560	9152	11579	14678
75	195	395	911	2022	3719	5532	8129	11341	14348	18189
80	212	430	992	2201	4158	6184	9089	12679	16041	20336
85	224	454	1047	2324	4318	6422	9438	13166	16657	21116
90	228	463	1069	2372	4380	6515	9574	13356	16898	21421

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

500 SERIES ACTUATION OPTIONS

Traveling Nut Actuator: Standard on Sizes 3"-20" and Field Replaceable

The TNA Series Traveling Nut Actuator is the standard manual operator on all K-Flo 500 Series Butterfly Valves. Manufactured to exceed AWWA C504 specifications, the TNA offers rugged construction and clear design benefits, including the variable torque curve generated through the operation stroke. Differing from a worm gear's constant torque production, the TNA Series allows the valve to open and close at slower speeds, reducing the potential for line surge from faster valve operation.

The TNA Series also features four standard 90-degree key locations to choose from when connecting the actuator to the valve. This provides orientation flexibility should the need arise to re-position the actuator because of space confinements. Fully grease packed, the TNA Series is available in both Above-Ground (with integral position indicator) and Buried Service configurations. In addition, all mounting bolts are exterior to the gear box, ensuring ease of gear replacement in the field.

HOUSING/COVER
Cast Iron ASTM A126

STEM (INPUT SHAFT)
4140 Steel ASTM 434

CROSSHEAD
4140 Steel ASTM 434

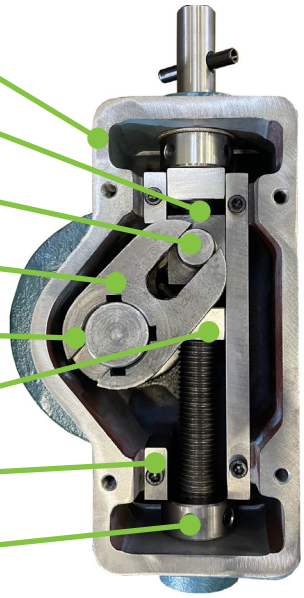
YOKE
Ductile Iron ASTM A536

KEY
4140 Steel ASTM 434

SQUARE NUT/STOP
4140 Steel ASTM 434

GUIDE RAIL
4140 Steel ASTM 434

SHAFT COLLAR
4140 Steel ASTM 434



Crispin TNA Actuators are designed for a max input torque of 450 ft lbs to the input shaft.

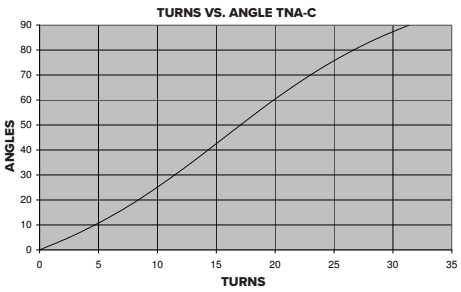
TNA SERIES ADVANTAGES

- **Four standard 90 degree key locations to choose from**
- **Accessible exterior bolting makes field access easy**
- **Above Ground and Buried Service Configurations**

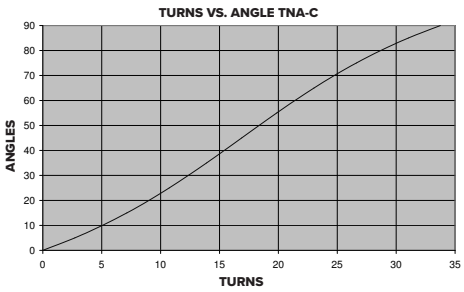
TNA ACTUATOR SIZING AND CHARACTERISTICS

As a butterfly valve disc approaches the closed position, the TNA causes the disc travel to slow down in relation to the turning of the operating nut or handwheel, reducing the effects of water hammer caused by sudden valve closure. There are three TNA actuators standard based on valve sizes.

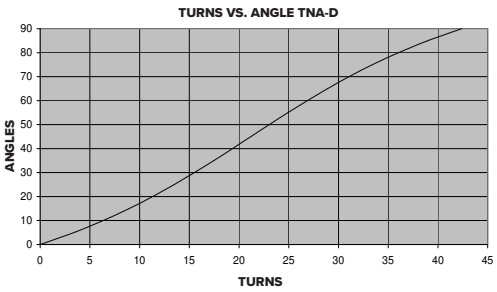
SIZES 3"-4"=TNA B (28 TURNS)



SIZES 6"-12"=TNA C (32.5 TURNS)



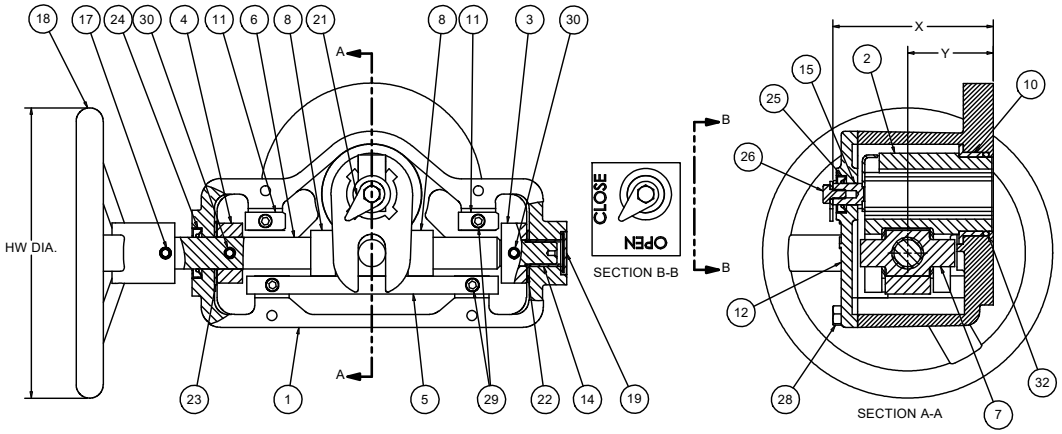
SIZES 14"-20"=TNA D (42 TURNS)

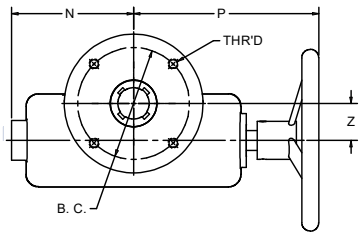


Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

500 SERIES TNA ACTUATION

Above Ground Service: TNA Operator with Handwheel





SIZE: INCHES	OPERATOR DIMENSIONS					MOUNTING DIMENSIONS		
Model	N	P	X	Y	Z	HW DIA.	B.C.	THR'D
TNA-B	4.528	7.563	4.164	2.000	1.563	8"	2.756	5/16"-18 UNC X .50 DP
TNA-C	5.203	8.125	4.694	2.363	1.625	8"	4.921	7/16"-14 UNC X .50 DP
TNA-D	7.289	10.438	5.24	3.075	3.500	16"	6.496	3/4"-10 UNC X .91 DP

PARTS LIST

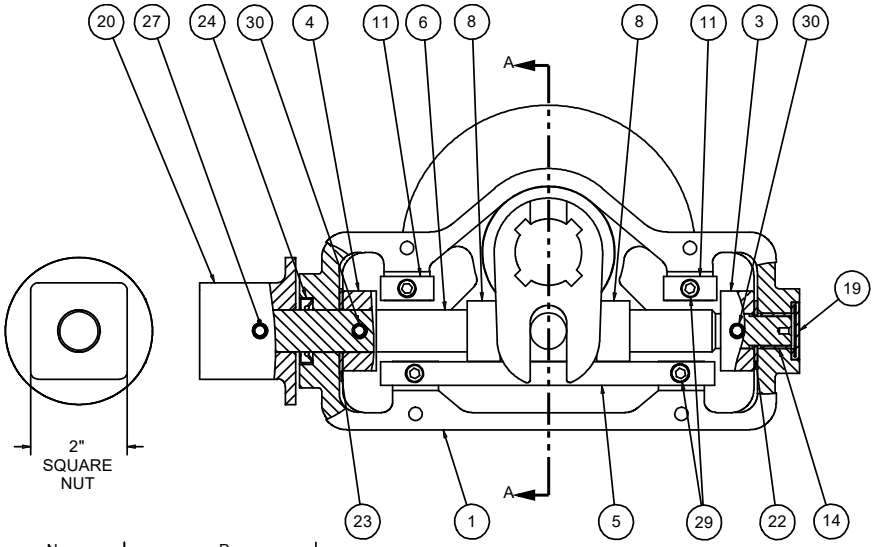
ITEM	DESCRIPTION	MATERIAL
1	HOUSING	Cast Iron (ASTM A126 Cl B)
2	YOKE	Ductile Iron (ASTM 536 Gr 80-55-06)
3	IDLER COLLAR	4140 Steel (ASTM A434 Cl BC)
4	INPUT COLLAR	4140 Steel (ASTM A434 Cl BC)
5	OUTER GUIDE	4140 Steel (ASTM A29)
6	STEM	4140 Steel (ASTM A434 Cl BC)
7	CROSSHEAD	Ductile Iron (ASTM 536 Gr 80-55-06)
8	STOP NUT	4140 Steel (ASTM A434 Cl BC)
10	YOKE BEARING	Bronze (SAE 841)
11	INNER GUIDE BLOCK	4140 Steel (ASTM A29)
12	COVER	Cast Iron (ASTM A126 Cl B)
14	STEM BEARING	Bronze (SAE 841)
15	POINTER DRIVER	Carbon Steel (ASTM A36)

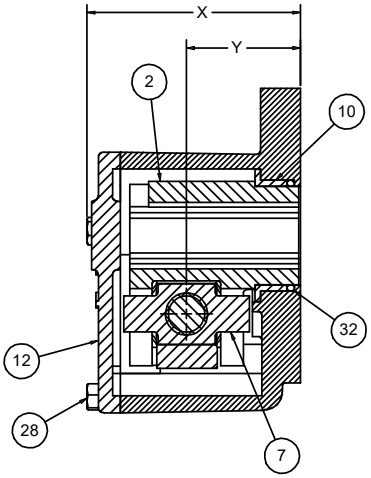
ITEM	DESCRIPTION	MATERIAL
17	HW ROLL PINS	High Carbon Steel (ASME 18.8.2)
18	HANDWHEEL	Cast Iron (ASTM A126 Cl B)
19	TUCK PLATE	Buna-N/Steel
21	POINTER	Carbon Steel (ASTM A36)
22	SHIM	Steel (C1008-C1010)
23	SHIM	Steel (C1008-C1010)
24	STEM OIL SEAL	Buna-N
25	POINTER SHAFT SEAL	Buna-N
26	POINTER SCREW	Steel (DIN933 Cl 8.8)
28	COVER SCREWS	Steel (DIN933 Cl 8.8)
29	GUIDE BAR/ BLK SCREWS	Steel (DIN933 Cl 8.8)
30	COLLAR ROLL PINS	High Carbon Steel (ASME 18.8.2)
32	O-RING	Buna-N 30x3.55

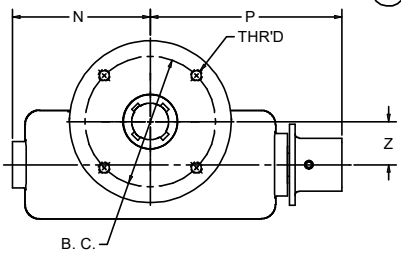
Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

500 SERIES TNA ACTUATION

Below Ground Service: TNA Operator with 2" Square Nut







SIZE: INCHES	OPERATOR DIMENSIONS						MOUNTING DIMENSIONS
Model	N	P	X	Y	Z	B.C.	THR'D
TNA-B	4.528	6.605	3.832	2.000	1.563	2.756	5/16"-18 UNC X .50 DP
TNA-C	5.203	7.229	4.426	2.363	1.625	4.921	7/16"-14 UNC X .50 DP
TNA-D	7.289	9.242	5.24	3.075	3.500	6.496	3/4"-10 UNC X .91 DP

PARTS LIST

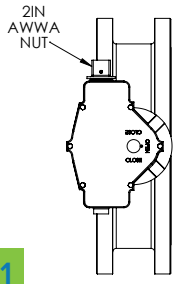
ITEM	DESCRIPTION	MATERIAL
1	HOUSING	Cast Iron (ASTM A126 Cl B)
2	YOKE	Ductile Iron (ASTM 536 Gr 80-55-06)
3	IDLER COLLAR	4140 Steel (ASTM A434 Cl BC)
4	INPUT COLLAR	4140 Steel (ASTM A434 Cl BC)
5	OUTER GUIDE	4140 Steel (ASTM A29)
6	STEM	4140 Steel (ASTM A434 Cl BC)
7	CROSSHEAD	Ductile Iron (ASTM 536 Gr 80-55-06)
8	STOP NUT	4140 Steel (ASTM A434 Cl BC)
10	YOKE BEARING	Bronze (SAE 841)
11	INNER GUIDE BLOCK	4140 Steel (ASTM A29)
12	COVER	Cast Iron (ASTM A126 Cl B)

ITEM	DESCRIPTION	MATERIAL
14	STEM BEARING	Bronze (SAE 841)
19	TUCK PLATE	Buna-N/Steel
20	2" SQUARE NUT	Cast Iron (ASTM A126 Cl B)
22	SHIM	Steel (C1008-C1010)
23	SHIM	Steel (C1008-C1010)
24	STEM OIL SEAL	Buna-N
27	2" NUT ROLL PINS	High Carbon Steel (ASME 18.8.2)
28	COVER SCREWS	Steel (DIN933 Cl 8.8)
29	GUIDE BAR/BLK SCREWS	Steel (DIN933 Cl 8.8)
30	COLLAR RING PINS	Steel (ISO 8734)
32	O-RING	Buna-N, 51.5x3.55

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

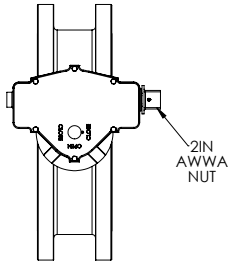
500 SERIES ACTUATION OPTIONS

Additional Options and Extensions



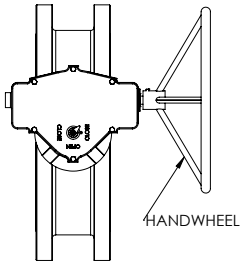
A1

STANDARD NUT ORIENTATION



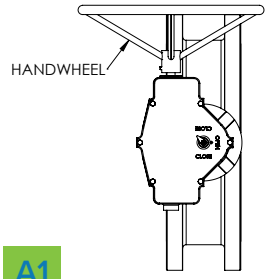
A2

OPTIONAL NUT ORIENTATION



A2

OPTIONAL HANDWHEEL ORIENTATION



A1

STANDARD HANDWHEEL ORIENTATION

We work with all major actuator manufacturers, and can mount any type—manual, electric or pneumatic—that our customers specify. Popular options are listed below, but we invite you to call the factory with any additional requests or questions that you may have.

MANUAL ACTUATION OPTIONS

Above Ground Manual Actuators

- Sizes 3-8": Lever Actuators w/ten position selector plate.
- All sizes: Wheel and Chainwheel Gear Actuators, standard w/dial position indicators.

Buried & Submerged Service Gear Actuators

- All sizes: Standard w/sealed gear housing and a 2" AWWA nut. For gears continuously submerged at depths ≥ 10 ft, indicate specs to ensure a gear for intended service.

POWER ACTUATION OPTIONS

Cylinder Actuators

- All sizes: Pneumatic or Hydraulic options available. Also available: Double Acting Operators or Spring Return for failure mode (fail open or fail close); On/Off Modulating Service.

Electric Actuators (EMO)

- All sizes: Several configurations for service conditions available. Control options for On/Off or Modulating Service.

EXTENSION OPTIONS

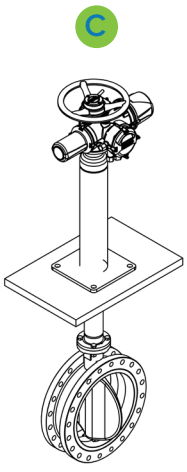
A. 2" Drive Nut w/Extension Stem

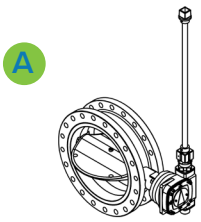
B. TNA w/Extension Stem & Indicating Floor Stand

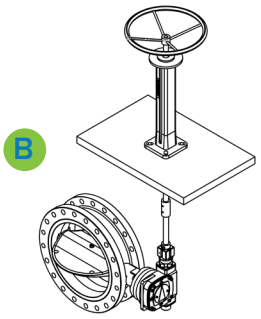
C. EMO w/Extended Bonnet & Non-Indicating Floor Stand

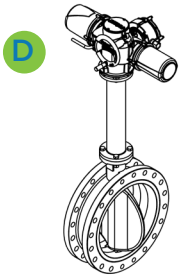
D. EMO w/Extended Bonnet

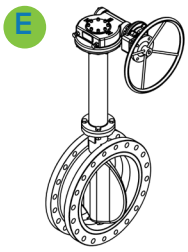
E. TNA w/Extended Bonnet











Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

K-FLO BUTTERFLY VALVES
500 Series AWWA C504 Specification

GENERAL

All butterfly valves shall be of the tight-closing, rubber-seated type, conforming to the design standards of ANSI/AWWA C504's latest revision, except where noted herein. Valves shall be bubble-tight at the rated pressure in either direction, and shall be suitable for throttling service and/or operation after long periods of inactivity. Maximum operating non-shock shut-off pressure and maximum operating non-shock line pressure is 150psi. Each valve shall be performance and leak tested as specified in AWWA C504 revised as follows: In addition to the testing requirements of AWWA C504, each butterfly valve will be thoroughly cleaned and opened at least three (3) times prior to testing. The manufacturer shall certify that the butterfly valves are capable of operating in continuous duty service under the specified pressures and flow conditions.

BODIES

Butterfly valves shall be Class 150B unless otherwise indicated and of the flanged short body design. The valve bodies shall be constructed of Cast Iron (ASTM A-126 Cl B), or Ductile Iron (ASTM A536 Gr 65-45-12) in accordance with ANSI B16.1 for flanged drilling, or ANSI/AWWA C111/A21.11 for mechanical joints. Flanges shall conform to AWWA Class D standards.

DISC

Discs for valve sizes 3"-20" shall be of the concentric design. Valve discs shall be constructed of 316 stainless steel for sizes 3"-8" and epoxy coated ductile iron ASTM A536 for sizes 10"-20." Valve disc shall have a 316 stainless steel seating edge, and shall seat at 90 degrees to the access of the pipe. The valve disc shall require no torque to hold it in the closed position.

SEATS

For valve sizes 3"-20", the resilient seat shall be Buna-N or EPDM rubber and be simultaneously bonded and vulcanized to the body of the valve. All interior surfaces in contact with water, excluding stainless steel and disc, shall be completely rubber lined. Seats for shall be designed so that they will require no internal adjustment or maintenance to seat against a pressure differential of 150 psi on either side of the valve. Field replaceable or adjustable seats in sizes 3"-20" shall not be considered. Valves with seat designs that are located on the disc will not be acceptable.

BEARINGS

All bearings shall be of the self-lubricating, corrosion-resistant sleeve type. Bearings shall be designed for horizontal and/or vertical shaft loading. The valve assembly shall be furnished with a factory set two-way thrust bearing designed to center the valve disc in the valve seat at all times.

SHAFTS

Valves 3"-20" shall have a one piece through shaft constructed of stainless steel ASTM A-276 grade 304, corresponding to the requirements of AWWA C504's latest revision. The shaft shall be fastened to the disc by means of a torque plug providing a positive leak proof connection of the shaft to the disc. The use of taper pins for the shaft/disc connection allowing for potential leak paths across the disc will not be considered.

Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

K-FLO BUTTERFLY VALVES
500 Series AWWA C504 Specification

SHAFT PACKING

Shaft packing shall be of the V-type, self-adjusting type and suitable for pressure and vacuum service. The packing shall be self-compensating type. Stuffing boxes for pull down packing shall not be considered.

COATINGS

The interior of the valves in sizes 3"-20" shall be completely rubber lined. The valve disc shall either be entirely 316 Stainless Steel or be ductile iron with epoxy coating from an AWWA/NSF coating system. The lining material shall be in compliance with ANSI/NSF Standard 61 for contact with potable water. The disc coating shall be in compliance with ANSI/NSF Standard 61 for contact with potable water. The disc coating material shall be "Pota-Pox" as manufactured by Tnemec, or equal, and shall be applied in a minimum of two coats, at 4-5 mils per coat; the total dry thickness shall be 8-10 mils. The exterior surfaces shall be cleaned and sandblasted. Coating shall be applied in accordance with Manufacturer's instructions. Surface face cleanliness shall be inspected and any contaminants on the surface shall be removed prior to the coating operations. The coating material shall be "Pota-Pox" as manufactured by Tnemec, or equal, and shall be applied in a minimum of two coats, at 4-5 mils per coat; the total dry thickness shall be 8-10 mils.

VALVE IDENTIFICATION

All valves shall have the name or symbol of the Manufacturer, the nominal size, date of manufacture, and the working pressure for which they are designed, cast, stamped, or permanently marked on the body.

SITE COMMISSIONING

The Valve Vendor or Manufacturer shall provide the services of a factory trained and authorized Manufacturer's Representative for a sufficient period of time as required to insure proper adjustment, installation, and operation of the valve. Pre-installation shall be required prior to the delivery of the valves to the selected installers.

EXPERIENCE AND REQUIREMENTS

The Manufacturer shall have had a successful experience in manufacturing tight closing Buna N or other acceptable synthetic rubber-seated butterfly valves for this type service in the size indicated. The Manufacturer shall have at least 10 years experience in the manufacture of valves. All butterfly valves of the same type shall be the product of one manufacturer. All materials used shall be new, of high grade, and with properties best suited to the working environment.

ACCEPTABLE MANUFACTURERS

The valve shall be Crispin/K-Flo 500 Series for 3"-20" sizes, as manufactured by Crispin-Multiplex Manufacturing Co., Berwick, PA.

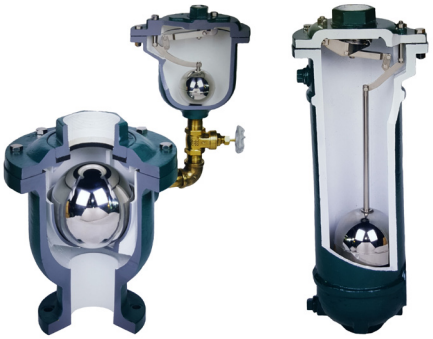
Valves that are compliant with American Iron & Steel Act Requirements are available. Please contact the factory.

PRINTED IN THE USA

ALSO AVAILABLE FROM CRISPIN VALVE:

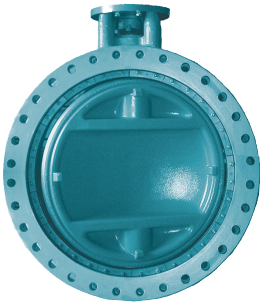
PLUG VALVES

Full Port: 14”-48”
Round Port: 2 1/2-12”
Standard Port: 14”-48”



AIR VALVES

Potable Water Valves: 1/2”-24”
Sewer Valves: 2”-10”



BUTTERFLY VALVES

Resilient Seat: 3”-20”
Mechanical Seat: 24”-168”
Epoxy Retained Seat: 24”-72”

LR GATE VALVES

Double Disc: 3”-108”
Resilient Wedge: 3”-24”

CHECK VALVES

Rubber Flapper: 2”-48”
Swing Check: 2”-48”
Tilting Disc: 3”-72”

CRISPIN VALVE

600 FOWLER AVENUE,
BERWICK, PA 18603

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FAX (570) 752-4962

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