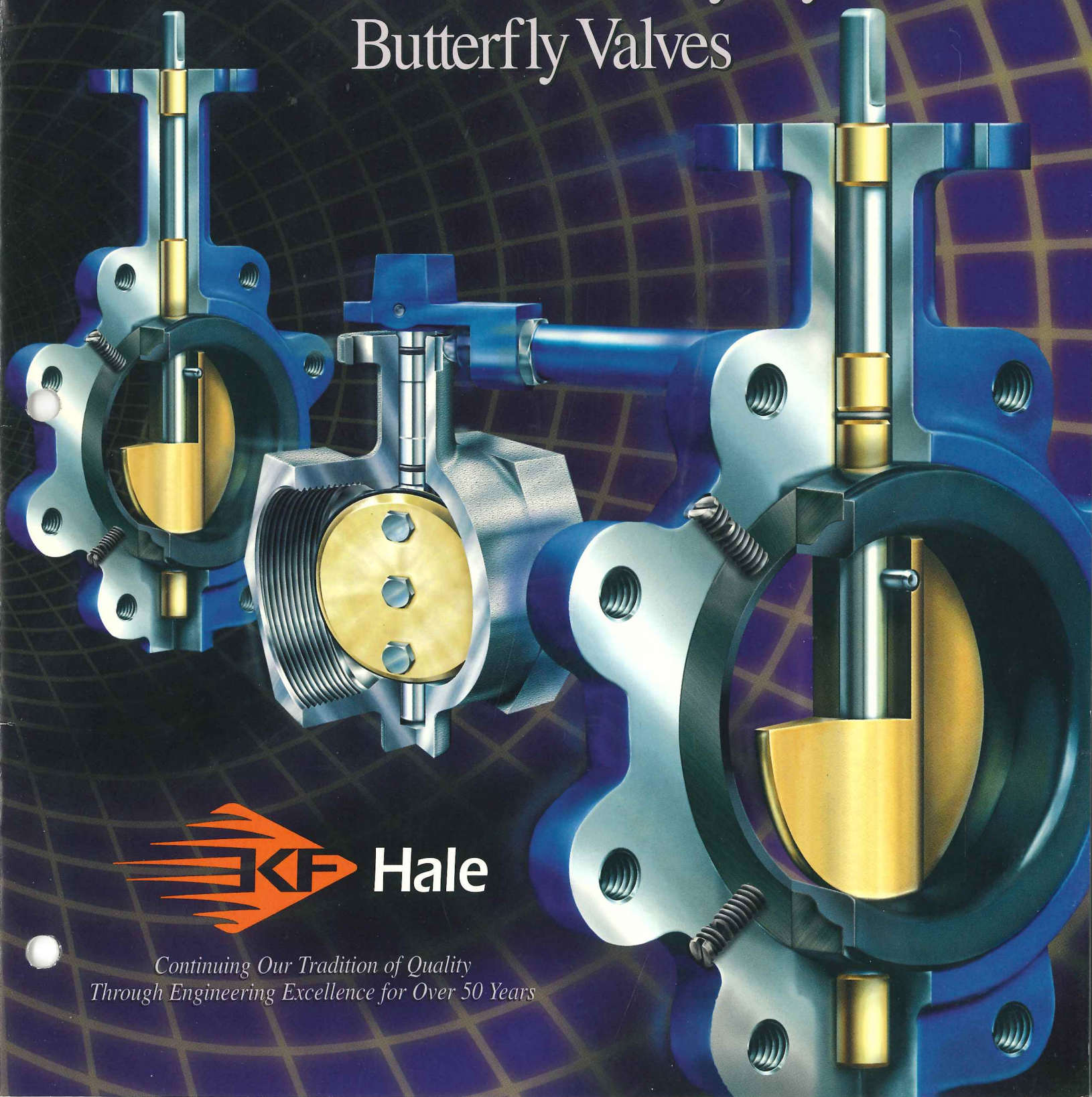


KF Hale Series BG & BD Resilient Seat Lug and Wafer Style, and Series 2200 Body Style Butterfly Valves



Hale

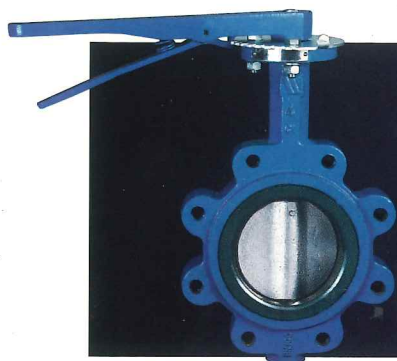
*Continuing Our Tradition of Quality
Through Engineering Excellence for Over 50 Years*

Since 1946, *Hale Oil field Products* has been a leader in serving the oil field and related industries with butterfly valves and accessories. **Innovative** designs and quality workmanship have been KF Hale's benchmark for *Success.*

As part of the Watts Industrial Valve family, and now incorporated into the **KF Industries** extensive product offering, KF Hale continues to lead the competition by offering a complete butterfly valve solution to the Oil & Gas, Trucking, and Fabrication industries worldwide. KF Hale continues to be a leader in competitive butterfly valves in wafer, lug, or body style designs. As an ISO 9001 company, KF Industries continues the tradition of *quality*. KF Hale customers have come to rely on for over 50 years.



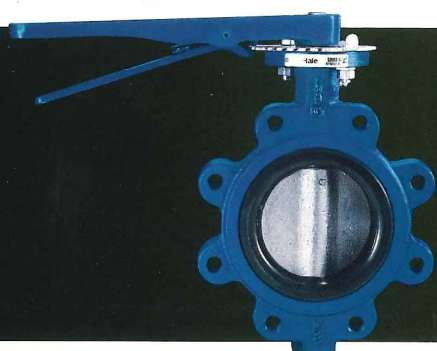
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Series BG Resilient Seat Butterfly Valve

The Series BG resilient seated butterfly valve is available in sizes 2" thru 24", wafer or lug style body design. These Butterfly Valves were designed to meet the stringent requirements for HVAC, Oil & Gas, and Industrial applications, or wherever positive shut-off is required for liquids, gases and slurries.

Incorporating 200 psi pressure rating for 2" thru 12" and 150 psi pressure rating for 14" thru 24"*, the Series BG is constructed of a Cast Iron Body, Ductile Iron Disc and 416 Stainless Steel Shaft; optional materials are available to meet your specific application needs. The Series BG Butterfly Valve is rated bubble-tight in vacuum service to one inch of Mercury Absolute (29 inches of Mercury Vacuum).

The Series BG Lug Style Butterfly Valves are suitable for *Dead End Service* at maximum pressure ratings by securing the phenolic backed seat with four screws that anchor the seat to the body. The phenolic back prevents the seat from collapsing or dislodging and is easily replaced in the field. Available seat materials include Buna N, Viton A®, and EPDM. In addition to the above features, the Series BG mounting pad design can easily accommodate a gear operator, electric or pneumatic actuator.

The BG butterfly valves are designed and manufactured for use with ANSI 125 or 150 Class flanges and to comply with API 609 (except for the 16"-20" face-to-face dimension). All valves are seat-tested at 110% of rated pressure. Compliant to Coast Guard 46CFR Subpart 56.20 Category B.

Nameplate

Nameplate is permanently attached to body providing disc, seat, and shaft material specifications for quick reference.

Pinned Disc

Disc is attached to shaft by pins which minimizes flow turbulence, resulting in higher CV ratings.

Dead End Service

All BG Lug Style Valves are suitable for Bi-Directional Dead End Service at full rated pressure

Disc

Disc edge is machined and polished 360° to assure leak-proof positive shut-off while minimizing operating torque.

Phenolic Backed Seat

Provides additional support making it non-collapsible. Secured between body and flange making seat replacement simple and fast. No flange gaskets are needed. 360° sealing protects components from media and provides primary shaft seal. Available in EPDM, Viton® and Buna N.

Mounting Pad

Designed for easy adaptation of pneumatic or electric actuators, gear operators and handles.

Body

Available in Full Lug and Wafer style. For use between ANSI 125 and 150 flanges. Face-to-Face dimensions of 2"-14" valves comply with API 609 and MSS SP67. Valves are designed to accommodate 2" of insulation. Standard material is ASTM A126 Cast Iron.

PTFE Bushings (2" - 12")

Stem design utilizes Fiberglass reinforced bushings to provide maximum stem support, centralized alignment of the stem, and reduced operating torque.

Bronze Bushings (14" - 24")

Shaft design utilizes Bronze bushings which provides for maximum shaft support and centralized alignment of one-piece shaft.

Shaft Seal

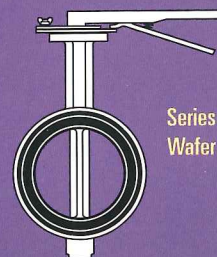
The bi-directional shaft seal prevents external contamination of stem area while providing back-up for the primary shaft seal formed by the disc/seat interface.

One-Piece Shaft

The one-piece shaft design delivers positive disc-to-seat location while offering maximum strength. 416 Stainless Steel is standard with Aluminum Bronze, Ductile Iron, and 14"-24" Stainless Steel discs. 316 Stainless Steel shaft is standard with Stainless Steel disc. (2"-12" only).



Series BG-03
Lug Style

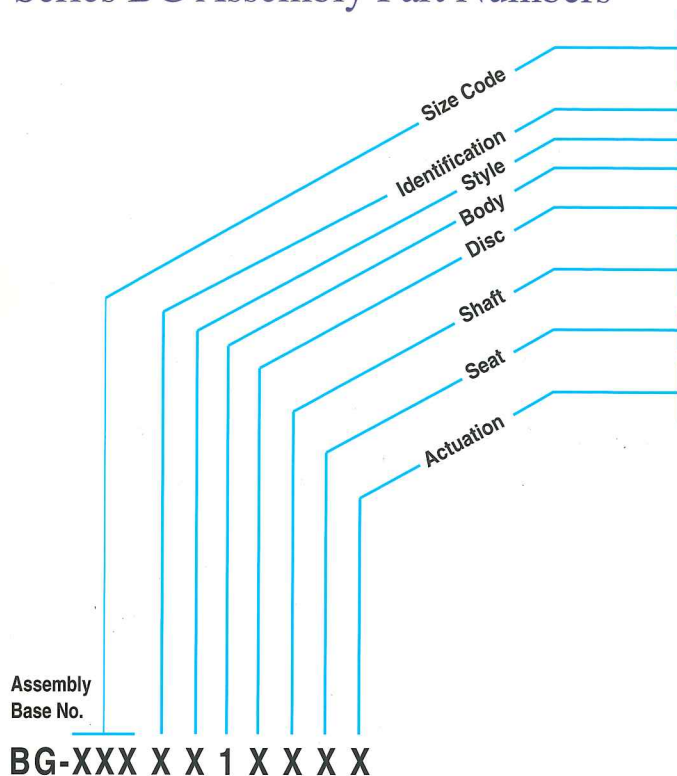


Series BG-04
Wafer Style



*Consult factory for larger sizes.

Series BG Assembly Part Numbers



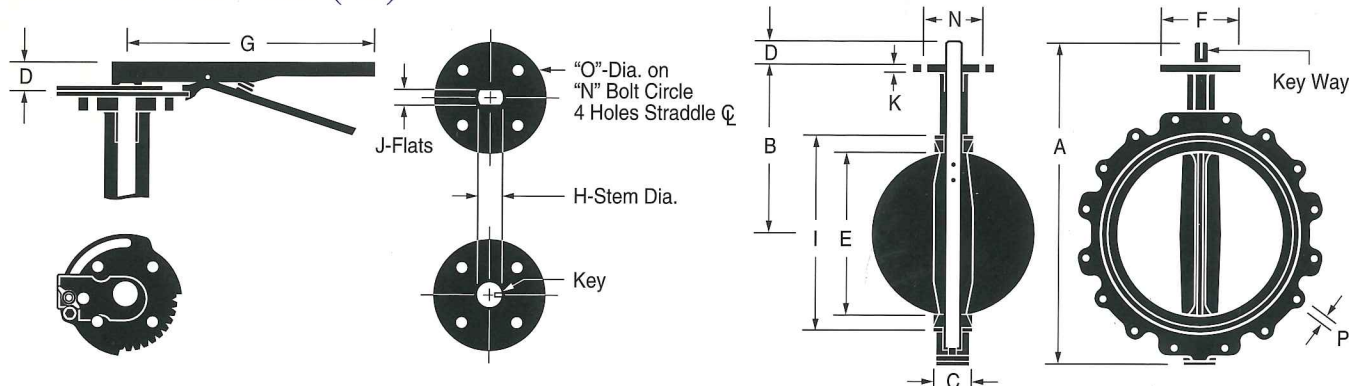
- | | | | |
|--------------|-----------|-----------|-----------|
| 020 • 2" | 050 • 5" | 120 • 12" | 220 • 20" |
| 025 • 2 1/2" | 060 • 6" | 140 • 14" | 240 • 24" |
| 030 • 3" | 080 • 8" | 160 • 16" | |
| 040 • 4" | 100 • 10" | 180 • 18" | |
- 0 • KF
 - 3 • Full Lug
 - 4 • Wafer Style
 - 1 • Cast Iron (A126)
 - 1 • Ductile Iron w/ENP
 - 2 • Aluminum Bronze
 - 3 • 316 Stainless Steel
 - 1 • 416 Stainless Steel (Std. w/Ductile Disc, Alum. Bronze Disc, and 14"-24" 316 SS Disc)
 - 2 • 316 Stainless Steel (STD w/ 2"-12" 316 SS Disc)
 - 1 • EPDM**
 - 2 • Buna N
 - 3 • Viton GF® (2" thru 12" only)
 - 5 • Viton A®
 - 3 • Gear Operator w/Handwheel
 - 4 • Buried Service Gear Oper. w/2" Sq. Nut
 - 5 • Standard Handle (10-position locking)*
 - 6 • Infinite Throttling*
 - 9 • Less Handle
 - A • For Actuation

*We recommend handle only be used thru 8" valve size for liquid or rated pressure service.
 10"-12" valves with handles should only be used on gas and low pressure applications.
 **NOTE: Do not use EPDM when hydrocarbons are present.

Part Name	Materials
Body	Cast Iron ASTM-A126 Cl. B.
Disc	Ductile Iron w/ENP ASTM A536 65-45-12, Aluminum Bronze ASTM B148 C954, Stainless Steel ASTM A351 CF8M
Shaft	416 Stainless Steel ASTM A582, 316 Stainless Steel* (2"-12" only) ASTM A276
Shaft Bearings	Fiberglass Reinforced PTFE (2" - 12") Lubrized Bronze (14" - 24")
Seat	EPDM** (-10°F to +225°F), Buna N (-10°F to +180°F) Viton A® (-10°F to +275°F)

*For 316 Stainless Steel Disc Models. **Note: Do not use EPDM when hydrocarbons are present.

Dimensional Data (in.)



Size (in.)	A	B	C*	D	Disc Chord Length at Face E	F	G	Stem Dia. H	I	Stem Flats J	Pad Thickness K	Mounting Flange Bolt Circle N	Hole Dia. O	Bolt Circle	No. Holes	Bolt P	Key Way
2	10.75	6.34	1.66	1.26	1.26	3.03	10.5	.50	3.94	.349	0.50	2.25	.264	4.75	4	5/8"-11 UNC x 1 1/4"	-
2 1/2	11.65	6.89	1.76	1.26	1.83	3.03	10.5	.50	4.72	.349	0.50	2.25	.264	5.5	4	5/8"-11 UNC x 1 1/2"	-
3	12.12	7.13	1.78	1.26	2.54	3.03	10.5	.50	5.00	.349	0.60	2.25	.264	6.00	4	5/8"-11 UNC x 1 1/2"	-
4	13.62	7.87	2.05	1.26	3.56	3.62	10.5	.625	6.14	.437	0.50	2.75	.406	7.50	8	5/8"-11 UNC x 1 3/4"	-
5	14.65	8.39	2.14	1.26	4.36	3.62	10.5	.75	7.48	.500	0.50	2.75	.406	8.5	8	3/4"-10 UNC x 1 3/4"	-
6	15.63	8.9	2.19	1.26	5.72	3.62	10.5	.75	8.35	.500	0.60	2.75	.406	9.5	8	3/4"-10 UNC x 2"	-
8	18.90	10.24	2.39	1.77	7.61	4.53	14	.875	10.55	.625	0.60	3.50	.562	11.75	8	3/4"-10 UNC x 2"	-
10	21.26	11.5	2.58	1.77	9.52	4.53	14	1.12	12.80	.812	0.70	3.5	.562	14.25	12	7/8"-9 UNC x 2 1/4"	-
12	24.57	13.27	3.03	1.77	11.48	5.51	14	1.25	15.87	-	0.80	4.25	.562	17.00	12	7/8"-9 UNC x 2 1/2"	.25 x 1.00**
14	26.77	14.49	3.01	1.77	12.79	5.51	-	1.25	17.17	-	0.80	4.25	.562	18.75	12	1"-8 UNC x 2 3/4"	.25 x 1.00**
16	29.94	15.75	3.41	2.02	14.98	7.76	-	1.30	19.21	-	0.80	6.25	.811	21.25	16	1"-8 UNC x 2 3/4"	.31 x 1.57
18	31.55	16.61	4.16	2.02	16.86	7.76	-	1.50	21.22	-	0.80	6.25	.811	22.75	16	1 1/8"-7 UNC x 3 1/2"	.37 x 1.81
20	35.65	18.90	5.19	2.53	18.64	7.76	-	1.62	23.35	-	1.00	6.25	.811	25.00	20	1 1/8"-7 UNC x 4"	.37 x 1.81
24	42.97	22.13	5.98	2.76	22.55	10.87	-	2.00	32.13	-	1.00	8.50	.874	29.50	20	1 1/4"-7 UNC x 4 3/4"	.50 x 2.36

*Installed: Approximately 1/8" wider when relaxed. **Woodruff Key

Series BD Resilient Seat Butterfly Valve

The Series BD resilient seated butterfly valve is available in sizes 2" thru 10", wafer or lug style body design. These Butterfly Valves were also designed to meet the stringent requirements for Oil & Gas, and Industrial applications, or wherever positive shut-off is required for liquids, gases and slurries.

Incorporating 200 psi pressure rating for 2" thru 10", the Series BD is constructed of a Ductile Iron (A536) Body, Ductile Iron Disc and 416 Stainless Steel Shaft; optional materials are available to meet your specific application needs. The Series BD Butterfly Valve is rated bubble-tight in vacuum service to one inch of Mercury Absolute (29 inches of Mercury Vacuum).

Like the Series BG, the Series BD Lug Style Butterfly Valve is also suitable for *Dead End Service* at maximum pressure

ratings by securing the phenolic backed seat with four screws that anchor the seat to the body. The phenolic back prevents the seat from collapsing or dislodging and is easily replaced in the field. Standard seat materials include Buna N, Viton A®, and EPDM. An additional feature includes a mounting pad design that easily accommodates a gear operator, electric or pneumatic actuator. Grease zerk in stem allows for easy lubrication which helps to extend the life of the valve.

The Series BD butterfly valves are designed and manufactured for use with ANSI 125 or 150 Class flanges and to comply with API 609. All valves are seat-tested at 110% of rated pressure.

Compliant to Coast Guard 46 CFR Subpart 56.20 Category B.

Body

Available in Full Lug and Wafer style. For use between ANSI 125 and 150 flanges. Face-to-Face dimensions comply with API 609 and MSS SP67. Standard material is ASTM A536 Ductile Iron.

Pinned Disc

Disc is attached to shaft by pins which minimizes flow turbulence, resulting in higher CV ratings.

Dead End Service

All BD Lug Style Valves are suitable for Bi-directional Dead End Service at full rated pressure.

Disc

Disc edge is machined and polished 360° to assure leak-proof positive shut-off while minimizing operating torque.

Phenolic Backed Seat

Provides additional support making it non-collapsible. Secured between body and flange making seat replacement simple and fast. No flange gaskets are needed. 360° sealing protects components from media and provides primary shaft seal. Available in Viton GF® and Buna N.

Mounting Pad

Designed for easy adaptation of pneumatic or electric actuators, gear operators and handles.

Nameplate

Nameplate is permanently attached to body providing disc, seat, and shaft material specifications for quick reference.

PTFE Bushings

Stem design utilizes Fiberglass reinforced bushings to provide maximum stem support, centralized alignment of the stem, and reduced operating torque.

Shaft Seal

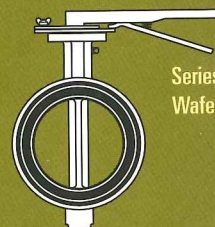
The bi-directional shaft seal prevents external contamination of stem area while providing back-up for the primary shaft seal formed by the disc/seat interface.

One-Piece Shaft

The one-piece shaft design delivers positive disc-to-seat location while offering maximum strength. 416 Stainless Steel is standard with Aluminum Bronze and Ductile Iron discs. 316 Stainless Steel shaft is standard with Stainless Steel disc.



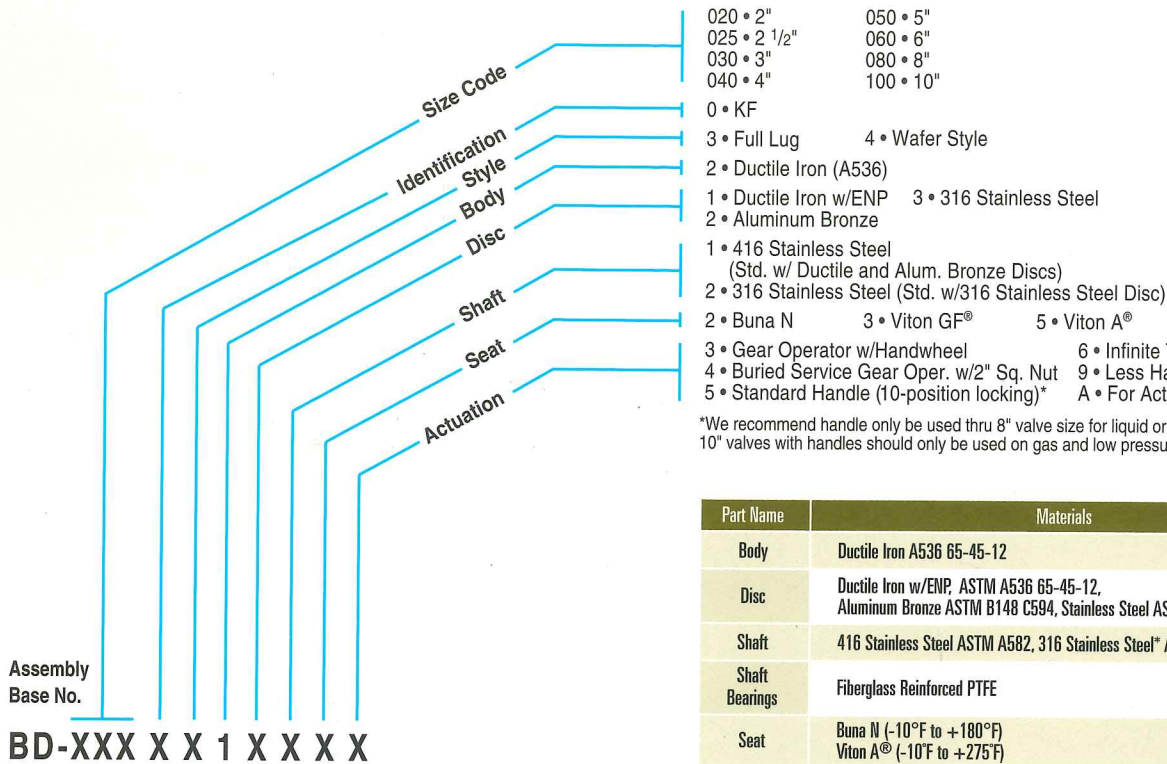
Series BD-03
Lug Style



Series BD-04
Wafer Style



Series BD Assembly Part Numbers

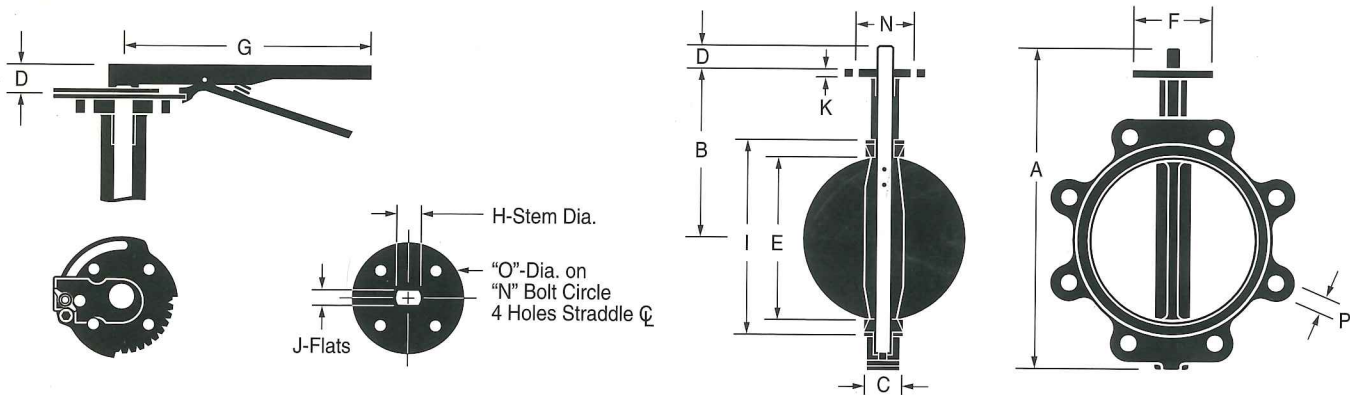


*We recommend handle only be used thru 8" valve size for liquid or rated pressure service. 10" valves with handles should only be used on gas and low pressure applications.

Part Name	Materials
Body	Ductile Iron A536 65-45-12
Disc	Ductile Iron w/ENP, ASTM A536 65-45-12, Aluminum Bronze ASTM B148 C594, Stainless Steel ASTM A251 CF8M
Shaft	416 Stainless Steel ASTM A582, 316 Stainless Steel* ASTM A276
Shaft Bearings	Fiberglass Reinforced PTFE
Seat	Buna N (-10°F to +180°F) Viton A® (-10°F to +275°F)

*For 316 Stainless Steel Disc Models.

Dimensional Data (in.)



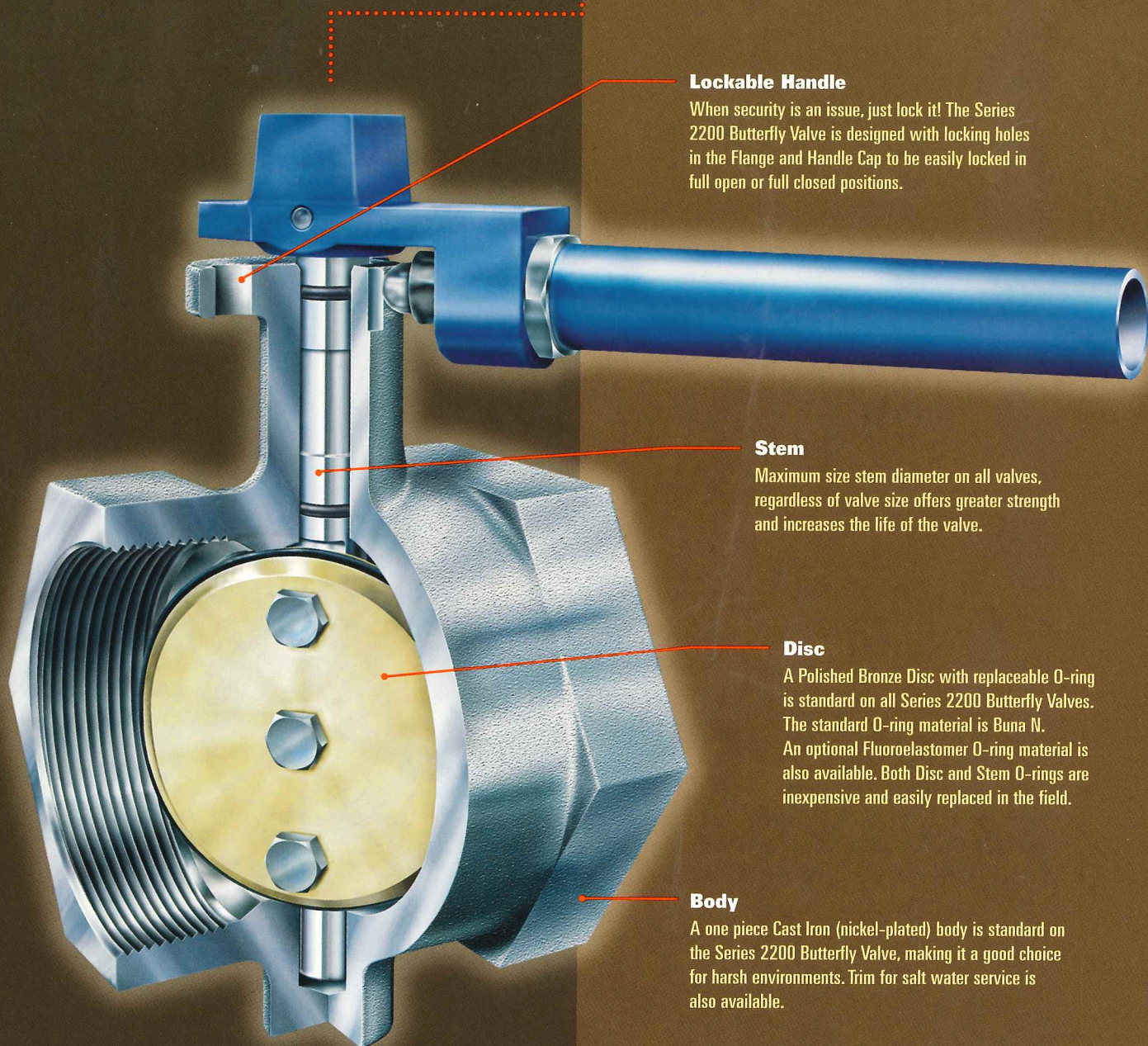
Size (in.)	A	B	C	D	Disc Chord Length at Face E	F	G	Stem Dia. H	I	Stem Flats J	Pad Thickness K	Mounting Flange Bolt Circle N	Hole Dia. O	Bolt Circle	No. Holes	Tapped Lug Data Bolt P
2	8.44	3.94	1.66	1.26	1.26	3.03	10 1/2	.50	3.94	.35	.47	2.25	.26	4.75	4	5/8"-11 UNC x 1 1/4"
2 1/2	9.21	4.44	1.76	1.26	1.83	3.03	10 1/2	.50	4.72	.35	.51	2.25	.26	5.5	4	5/8"-11 UNC x 1 1/2"
3	9.88	4.88	1.78	1.26	2.54	3.03	10 1/2	.50	5.00	.35	.55	2.25	.26	6.00	4	5/8"-11 UNC x 1 1/2"
4	11.73	5.98	2.05	1.26	3.56	3.62	10 1/2	.62	6.14	.44	.55	2.75	.41	7.50	8	5/8"-11 UNC x 1 3/4"
5	12.24	5.98	2.14	1.26	4.36	3.62	10 1/2	.75	7.28	.50	.55	2.75	.41	8.50	8	3/4"-10 UNC x 1 3/4"
6	13.23	6.50	2.20	1.26	5.72	3.62	10 1/2	.75	8.35	.50	.55	2.75	.41	9.50	8	3/4"-10 UNC x 2"
8	16.73	8.07	2.39	1.77	7.61	4.53	14	.87	10.55	.63	.55	3.50	.56	11.75	8	3/4"-10 UNC x 2"
10	19.72	9.96	2.58	1.77	9.52	4.53	14	1.12	13.43	.81	.55	3.50	.56	14.25	12	7/8"-9 UNC x 2 1/4"

Series 2200 Body-Style Butterfly Valve

The Series 2200 Body Style Butterfly Valve is the most cost effective control valve for threaded pipe applications. The 2200 Butterfly Valve is suitable for a wide range of applications and allows for smooth operation in varying temperatures and harsh environments.

The 2200 Butterfly Valve features a one piece body-style design which is nickel plated for corrosion resistance and rated

at 200# WOG at maximum working pressure. Superior stem strength provides for extra durability and longer life. Standard padlock capability offers security when you need it. Corrosion trim available for salt water service. Repair kits for the 2200 Butterfly Valves are inexpensive and readily available, making the 2200 Series an excellent choice for tank batteries, hook-ups, and storage tanks.



Lockable Handle

When security is an issue, just lock it! The Series 2200 Butterfly Valve is designed with locking holes in the Flange and Handle Cap to be easily locked in full open or full closed positions.

Stem

Maximum size stem diameter on all valves, regardless of valve size offers greater strength and increases the life of the valve.

Disc

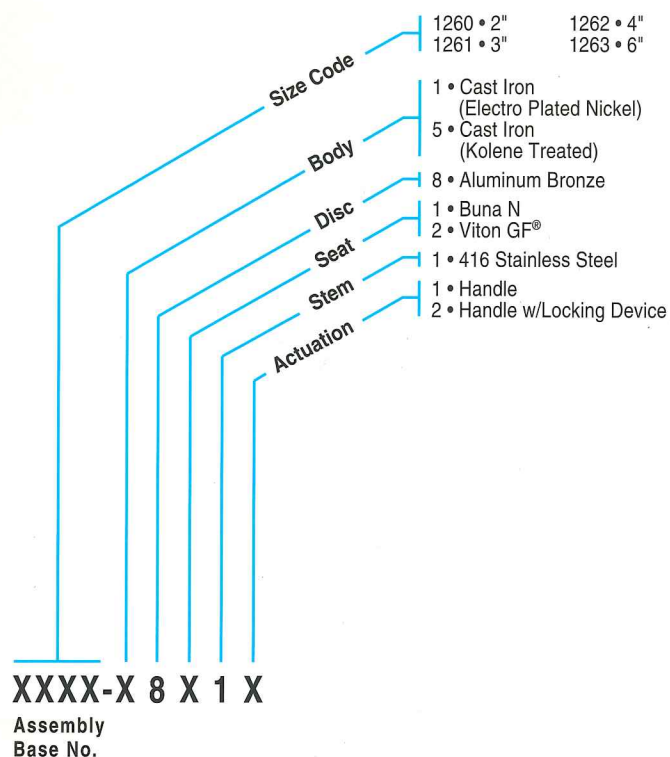
A Polished Bronze Disc with replaceable O-ring is standard on all Series 2200 Butterfly Valves. The standard O-ring material is Buna N. An optional Fluoroelastomer O-ring material is also available. Both Disc and Stem O-rings are inexpensive and easily replaced in the field.

Body

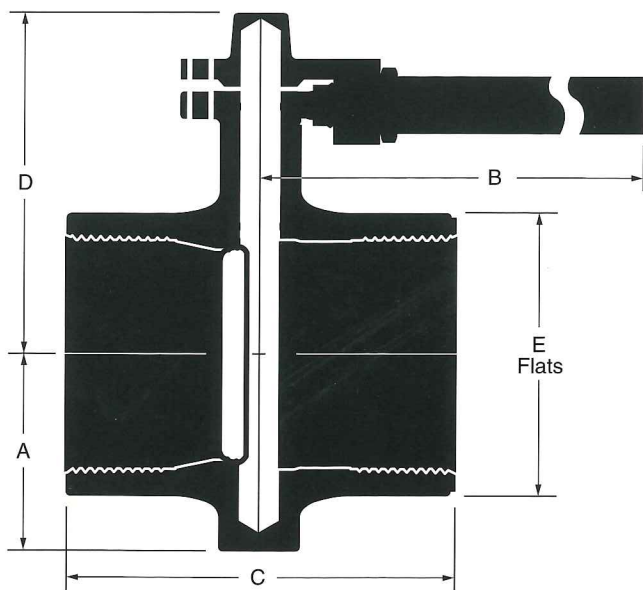
A one piece Cast Iron (nickel-plated) body is standard on the Series 2200 Butterfly Valve, making it a good choice for harsh environments. Trim for salt water service is also available.



Series 2200 Assembly Part Numbers

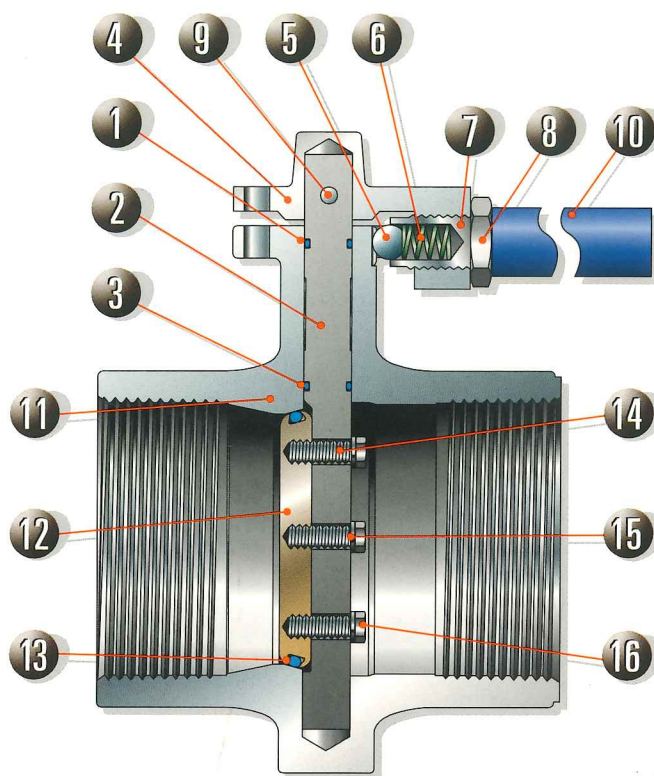


Dimensional Data (in.)



Size (in.)	Weight (lbs.)	A	B	C	D	E
2	7.7	2 3/16	8	4 1/4	4 3/4	3
3	11	2 3/4	8	4 7/8	6 1/16	4 1/16
4	18	3 11/16	8	5 1/8	6 3/8	5 5/16
6	42	4 3/4	13	7	9 5/8	7 3/4

Material Specification & Part Identification



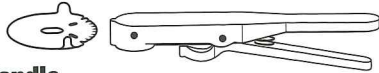
Part No.	Part Name	Material
1	Stem O-Ring	Buna N or Viton GF® Elastomer
2	Stem	416 Stainless Steel
3	Stem O-Ring	Buna N Elastomer
4	Handle	Ductile Iron
5	Handle Ball	Steel
6	Handle Spring	302 Stainless Steel
7	Handle Stub	Steel
8	Handle Lock Nut	Steel, Zinc Plated
9	Handle Pin	Steel, Zinc Plated
10	Handle Extension	Steel Pipe
11	Body	Cast Iron, Nickel Plated
12	Disc	Aluminum Bronze B148 C954
13	Disc O-Ring	Buna N Elastomer/Fluoroelastomer
14*	Disc Stud	18-8 Stainless Steel
15	Disc Lock Washer	18-8 Stainless Steel
16	Disc Lock Nut	18-8 Stainless Steel

*Bolt used instead of stud and nut on some sizes. Disc Stud Seal required on 3", and 4" sizes.

Series BG & BD Methods of Operation

Actuation

We can provide easy and cost effective automation with a variety of pneumatic and electric actuators. Consult factory for more information.

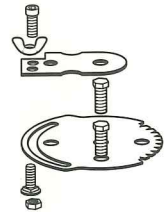


Standard Handle

Size (in.)	Model No.	Part No.
2-3	HDL-1	3921-020011
4	HDL-2	3921-040011
5 & 6	HDL-3	3921-050011
8	HDL-4	3921-080011
10	HDL-5	3921-100011
12	HDL-6*	3921-122011

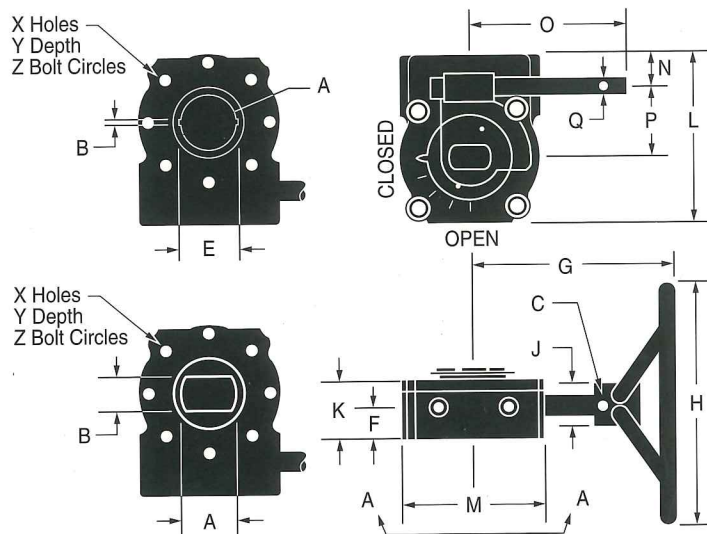
Throttle/Lock Handle

Infinite position with memory stop and locking device.



Size (in.)	Model No.	Part No.
2-3	THDL-1	3921-020021
4	THDL-2	3921-040021
5 & 6	THDL-3	3921-050021
8	THDL-4	3921-080021
10	THDL-5	3921-100021
12	THDL-6	3921-122021

Gear Operators Dimensional Data (in.)



Material Specification

Part Name	Material
Case	Gray Iron
O-Ring (2), Seg. Gear	Buna N
Worm Pin	Steel
Worm Gear	Steel
Segment Gear	Ductile Iron
Bolting	Steel
Indicator	Steel
Input Shaft	Steel
Cover	Gray Iron
Cover Gasket	Paper
Hand Wheel	Gray Iron
Handwheel Pin (Solid)	Steel

NOTE: Buried Service and additional options are available upon request.

Model No.	Part No.	Application Size (in.)	Weight (lbs.)	Ratio*	A	B	C	E	F	G	H	J	K
GA1-M4	0897021	2-3	10	24:1	.510	.353/.356	5/32	—	1 7/16	6 3/8	6	1 3/8	2 11/16
GA2-M4	0897022	4	10	24:1	.632	.439/.442	5/32	—	1 7/16	6 3/8	6	1 3/8	2 11/16
GA3-M4	0897023	5 & 6	10	24:1	.757	.502/.505	5/32	—	1 7/16	6 3/8	6	1 3/8	2 11/16
GA4-M4	0897024	8	27 1/2	30:1	.880	.628/.631	3/16	—	1 3/4	9 3/8	12	1 3/4	2 29/32
GA5-M4	0897025	10	27 1/2	30:1	1.128	.813/.816	3/16	—	1 3/4	9 3/8	12	1 3/4	2 29/32
GA6-M4	0897026	12 & 14	33	50:1	1.250/1.255	.251/.253	3/16	1.484	2	9 3/8	12	1 3/4	2 61/64
GA7-M4	0897027	16	70 1/2	80:1	1.305/1.310	.314/.318	3/8	1.598	2 1/2	9 5/8	16	1 3/4	4 11/64
GA8-M4	0897028	18	70 1/2	80:1	1.497/1.502	.376/.380	3/8	1.838	2 1/2	9 5/8	16	1 3/4	4 11/64
GA9-M4	0897029	20	70 1/2	80:1	1.621/1.626	.376/.380	3/8	1.968	2 1/2	9 5/8	16	1 3/4	4 11/64
GA10-M4	0897030	24	80	80:1	—	—	—	—	2	13	24	—	4.5
Model No.	Part No.	Application Size (in.)	Weight (lbs.)	Ratio*	L	M	N	O	P	Q	V	Y	Z
GA1-M4	0897021	2-3	10	24:1	5	4 9/64	1 1/32	6 1/16	2 5/8	.622	1/4-20	5/8	2 1/4
GA2-M4	0897022	4	10	24:1	5	4 9/64	1 1/32	11 1/2	2 5/8	.622	3/8-16	5/8	2 3/4
GA3-M4	0897023	5 & 6	10	24:1	5	4 9/64	1 1/32	11 1/2	2 5/8	.622	3/8-16	5/8	2 3/4
GA4-M4	0897024	8	27 1/2	30:1	631/32	6 7/32	1 15/32	11 9/16	2 5/8	.748	1/2-13	7/8	3 1/2
GA5-M4	0897025	10	27 1/2	30:1	631/32	6 7/32	1 15/32	11 9/16	2 5/8	.748	1/2-13	7/8	3 1/2
GA6-M4	0897026	12 & 14	33	50:1	751/64	6 3/8	1 1/2	12	3	.748	1/2-13	7/8	4 1/4
GA7-M4	0897027	16	70 1/2	80:1	11 27/64	9 17/32	1 37/64	10	4 3/8	.984	3/4-10	1 1/8	6 1/4
GA8-M4	0897028	18	70 1/2	80:1	11 27/64	9 17/32	1 37/64	10	4 3/8	.984	3/4-10	1 1/8	6 1/4
GA9-M4	0897029	20	70 1/2	80:1	11 27/64	9 17/32	1 37/64	10	4 3/8	.984	3/4-10	1 1/8	6 1/4
GA10-M4	0897030	24	80	80:1	12.6	9.1	—	—	—	—	—	—	—

Series BG & BD Engineering Data

Flow Coefficient (C_v) & Operating Torque

Size (in.)	Seating Torque* (Normal Conditions)		C _v Rating (Full Open)
	Wet	Dry	
2	134	214	115
2 1/2	152	289	196
3	204	387	302
4	352	644	600
5	548	959	1,022
6	907	1,542	1,579
8	1,697	2,919	3,136
10	2,857	4,857	5,340
12	4,338	7,071	8,250
14	4,870	7,305	11,917
16	6,685	10,027	16,388
18	8,958	13,437	21,705
20	11,950	17,925	27,908
24	18,680	28,020	43,116

Normal is defined as ≤ 200 psi shut-off or line pressure and ≤ 16 fps flow rate. With a flow rate greater than 16 fps the customer must consider both Dynamic Torque and Downstream pipe erosion (due to cavitation). Please consult factory for your application requirements.

Operating torque

* Seating torques are based on new, clean operating conditions at full rated pressure. No safety factor is included. The actual torque may exceed these when the temperature approaches the material limit, there is mild disc corrosion, there are minor chemical affects (such as swelling) to the elastomer, or the valve is not cycled every day. When any of these conditions exist, please consult the factory.

Method of calculating flow

Liquid Flow

$$Q_L = C_v \sqrt{\frac{\Delta P}{g}}$$

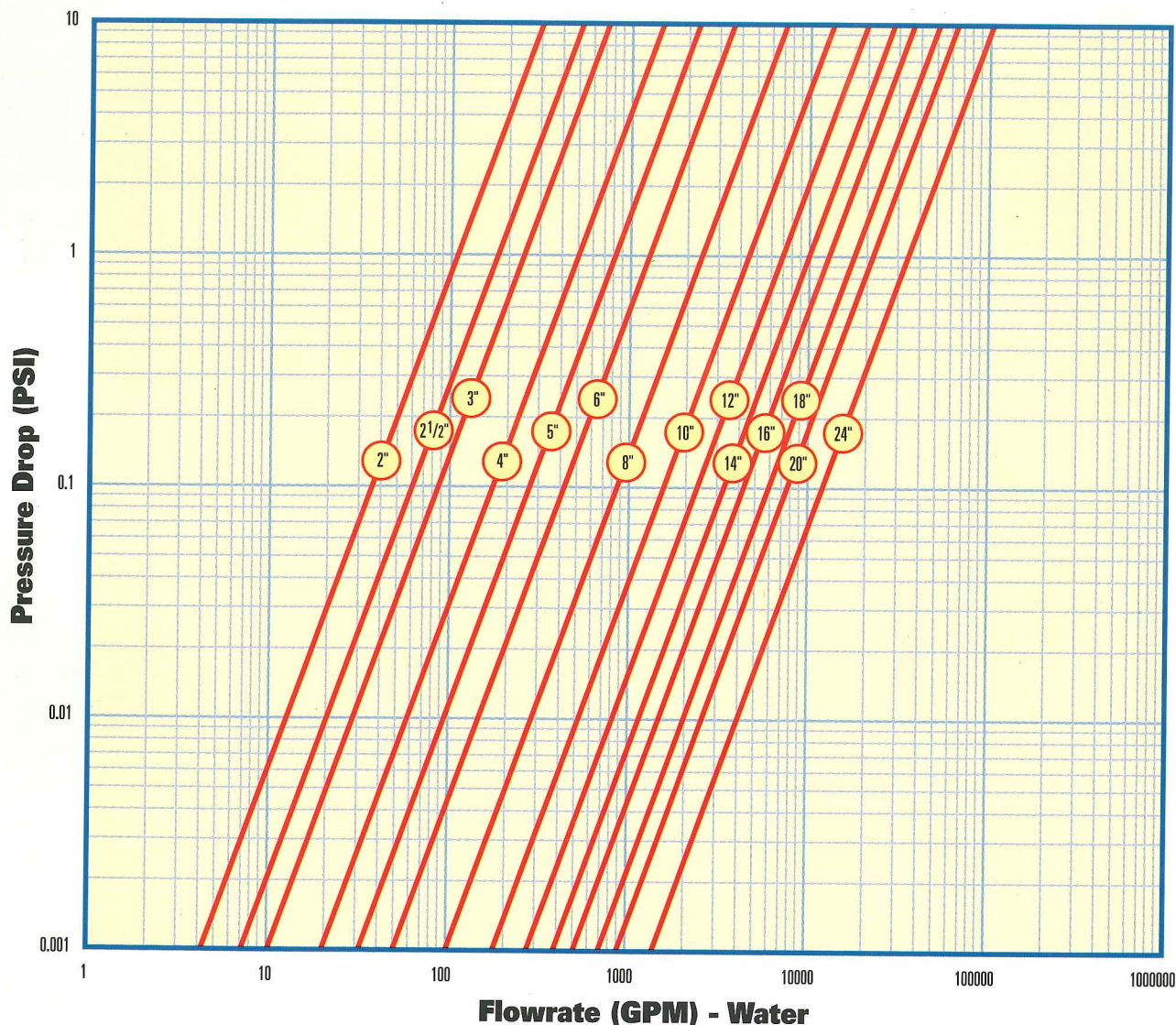
Q_L = flow rate of liquid (gal./min.)
 ΔP = differential pressure across the valve (psi)
 g = specific gravity of liquid: water = 1.000

Gas Flow

For non-critical flow ($\frac{\Delta P}{P_2} < 1.0$)

$$Q_g = 61 C_v \sqrt{\frac{P_2 \Delta P}{g}}$$

Q_g = flow rate of gas (CFH at STP)
 P₂ = outlet pressure (psia)
 g = specific gravity of gas: air = 1.000



Series 2200 Engineering Data

Flow Coefficient (C_v) & Operating Torque

Size (in.)	Operating Torque (in.-lbs.) at Line Working Pressure, PSI					C _v Rating
	50	75	100	125	150	
2	20	25	30	32	35	120
3	55	65	75	85	95	270
4	100	125	145	160	175	520
6	250	305	355	400	435	1300

*C_v (valve flow coefficient) is the number of gallons of 60°F water per minute which will move through a given restriction with a pressure drop of one (1) PSI.

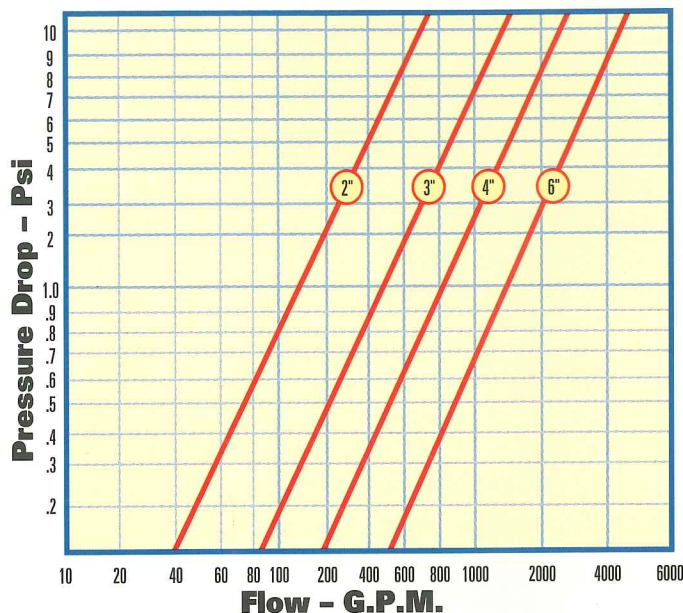
The KF Hale Tradition of Excellence Continues On

KF Hale's determination to provide top quality oil field products has always been of paramount importance in their mission to better serve their customers. Ongoing improvements in the



Pressure Drop Chart (Water at 60°)

Operating Temperature Range: -10°F to 200°F
(continuous operation)



Engineering and Manufacturing Techniques, as well as Quality Control Systems used at KF Industries help to insure that you'll receive the best product, and Customer Service anywhere.



Continuing Our Tradition of Quality Through Engineering Excellence for Over 50 Years

Houston Division

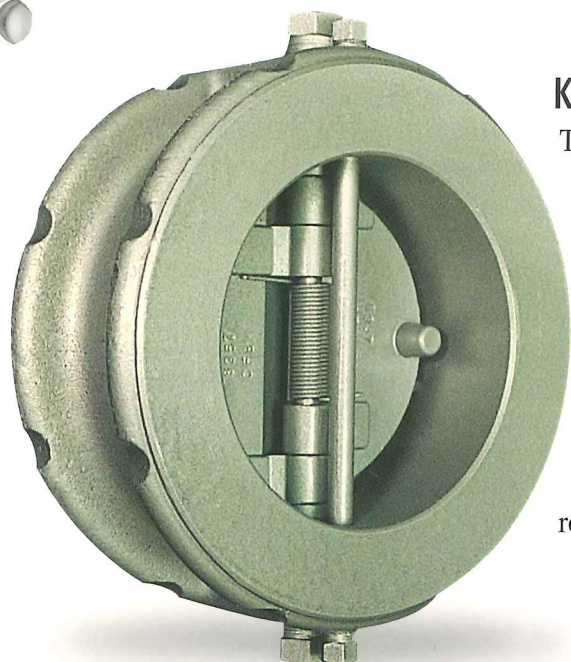
10105 West Gulf Bank Road • Houston, TX 77040 • Telephone: (713) 466-6656 • Fax: (713) 466-7741

KF Industries, Inc. World Headquarters

1500 S.E. 89th Street • P.O. Box 95249 • Oklahoma City, OK 73143-5249 • Telephone: (405) 631-1533 • Fax: (405) 631-5034

Visit the KF Valve Central Web Site at <http://www.kfvalves.com>

Check Valves



KF Series DD Dual Wafer Check Valves

The short face to face design means lighter weight, economical cost, easy installation and maintenance. The spring loaded dual disc prevents leakage in all positions. Replaceable radial thrust bearings reduce body wear and integral cast shock bumpers reduce leverage stress in the disc hinge and pin. Metal-to-metal contact allows the seat to seal in the event of seat destruction. This valve was specifically designed to eliminate the possibility of seat wear caused by friction at the heel of the dual discs. Firesafe resilient seats are standard on all ANSI class 150 thru 2500 valves. Available in sizes 2"-48", ANSI class 150 thru 2500. Various materials of construction are available to meet your service requirements. Disc position sensors, bleed valves, pressure equalization devices and corrosion resistant coatings are optionally available.

KF Hale Butterfly Valves

KF Hale Series BG, BGD and H7000 Butterfly Valves

The Series BG, BGD and H7000 are Phenolic Backed Resilient Seated Butterfly Valves and designed for HVAC, Oil & Gas, and Industrial applications. All Lug Butterfly



Valves are rated for *Dead End Service* at maximum rated pressures. Wafer and Lug Style designs are available. The BG is offered in 2" through 14" at 200 psi, and 16" through 42" at 150 psi pressure ratings. The H7000 is offered in 2" through 12" at a 285 psi pressure rating. The

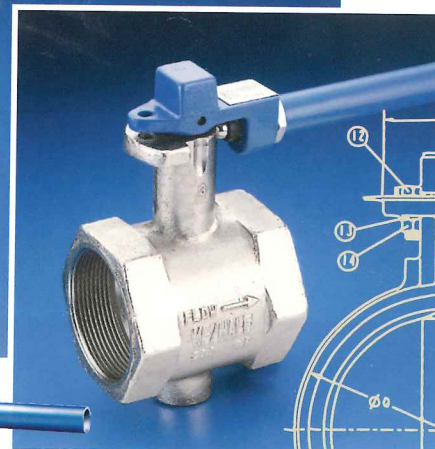
BGD is offered in 14" through 24" at a 150 psi pressure rating. Optional materials are available to suit your specific applications, and the mounting pad easily accommodates a gear operator, or actuator. Manufactured for use with ANSI 125 or 150 Class flanges, and complies with API 609*.

*Except for the BG 16"-20" face-to-face dimension.



KF Hale Series 2200 Butterfly Valves

The Series 2200 is an excellent choice for tank batteries, hook-ups, and storage tanks. Featuring a one piece threaded body Nickel plated



for corrosion resistance and rated at 200# WOG at maximum working pressure. Corrosion trim available. Available in 2", 3", 4", and 6" sizes.