



# ***Durco Big Max BX2001 Valve Product Catalog***

ASME Class 150 and 300 Valves



***Experience In Motion***



## ***Durco BX2001***

### ***Performance Plus Economy Equals Total Value***

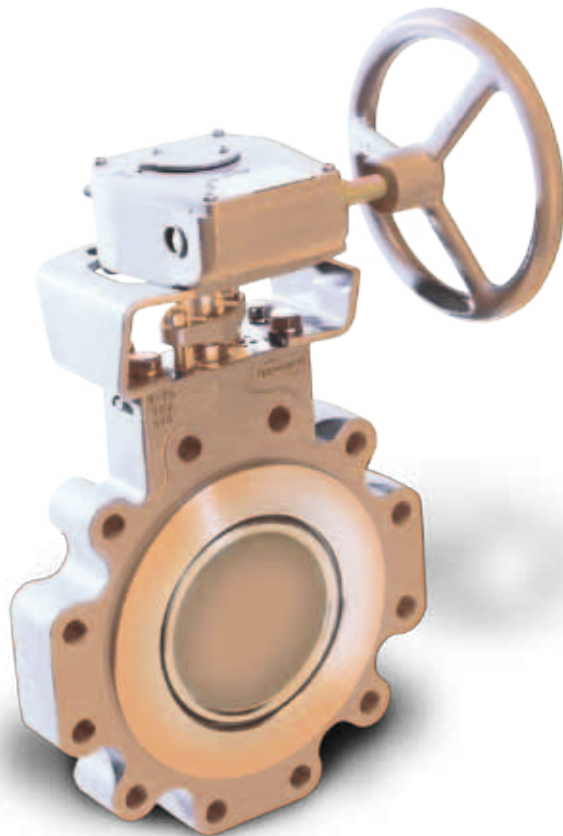
The Big Max BX2001 high performance valve is a superior quality, ASME Class 150 and 300 valve available in standard PFA and optional UHMWPE, fire sealed, Apex™ and TriFlex® metal seated versions. Offered in 2 in (50 mm) through 36 in (900 mm) sizes and in both wafer and lug body designs, all are available with a wide variety of packing options to meet your routine or most rigid service requirements.

#### **Total Quality**

The BX2001 effectively contains fugitive process media emissions regulated by the federal Clean Air Act, including chlorine, hydrofluoric acid and anhydrous HCl. Ideal choice for precise throttling control or on-off service with lighter weight piping systems and less expensive, energy efficient actuators.

#### **Superior Features**

- Primary stem seal plus two optional secondary seals provide triple leak protection.
- Retainer is locked in the valve body by a unique lock or fasteners, depending on size.
- Adjustable, live-loaded packing option is available.
- Self-adjusting, self-contained, constant preload stem seal option may be specified.
- Low profile disc increases capacity and provides better flow control.
- Wide range of optional materials include: D20, DMM, DC2, DC3, DNI and DINC.



### **World Class Valve Performance**

- All castings meet rigid ASTM standards.
- All BX2001 valves comply with ASME B16.34, ASME B16.5, ASME B16.10, MSS SP68, MSS SP61, API 598, API 607, API 609 and ISO 5752.
- All PFA seated valves and optional UHMWPE seated valves are tested in accordance with ASME B16.34 and MSS SP61. No through or external leaks are allowed, thereby exceeding the shut-off requirements of ASME/FCI 70-2 for all classes.
- All Apex and TriFlex metal seated valves are tested to ASME/FCI 70-2 Class IV and VI, respectively, leakage rates.
- All valves available in ASME Class 150 and 300; DIN PN 10, -16, -20, -25 and -40 drilling.

## BX2001 Valves

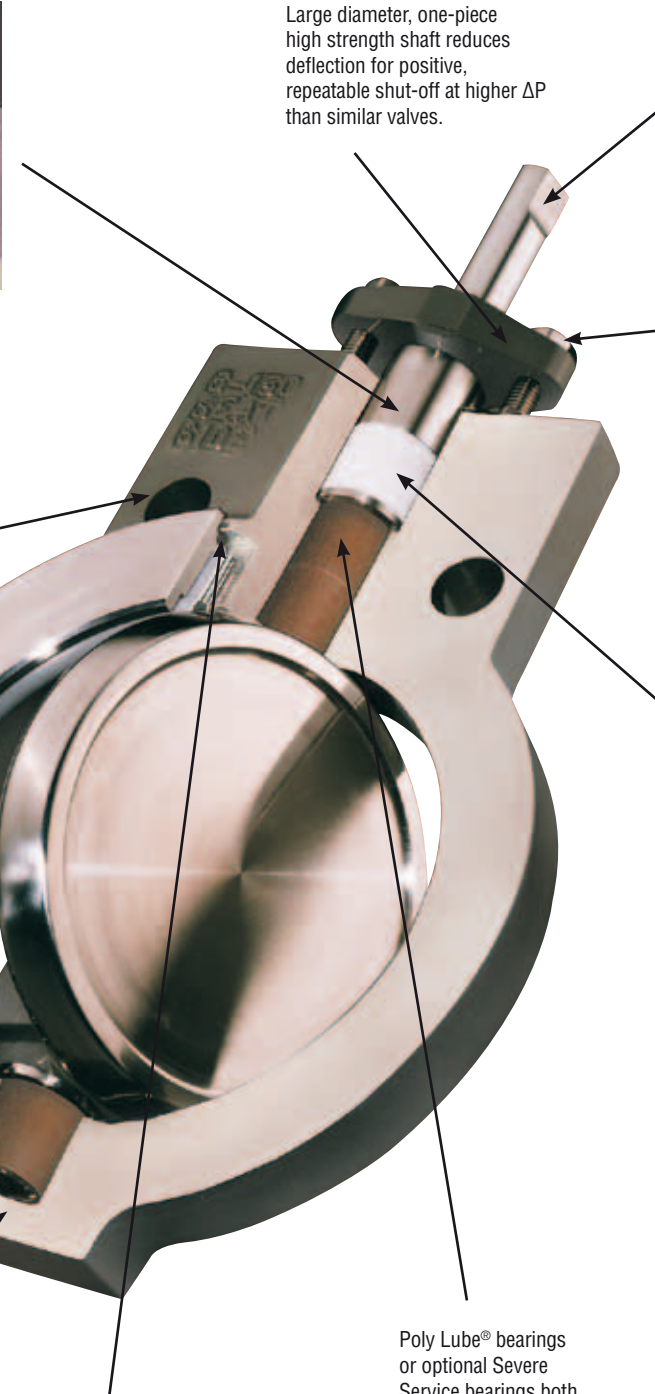


Blow-out proof stem design complies with API 609 criteria to guard against catastrophic leakage and stem blow-out in the event of shaft failure.

Positioning holes on wafer body allow easy installation and proper alignment between flanges.

Integral cast overtravel disc stop is designed into the casting, not welded in place as an afterthought.

Blind bottom shaft hole eliminates potential leak point.



Large diameter, one-piece high strength shaft reduces deflection for positive, repeatable shut-off at higher  $\Delta P$  than similar valves.

Flats or "double D" on shaft provide positive indication of valve position and simplified adaption to automatic actuation.

Independent packing set adjustment prevents stem seal emissions.

Wide choice of packing materials including adjustable and self-adjusting live-loaded with leak detection port or purge fittings for lethal, toxic or sub zero services.

- Compact construction allows installation in tight spaces.

- Economical, simplified field repair due to minimum parts, interchangeable disc and shaft, and simple assembly procedures.

- All carbon steel bodies electrostatic epoxy coated for enhanced corrosion protection.

360° O-ring squarely and securely locks retainer ring into valve body. Full coverage retainer ring allows complete compatibility with all gaskets and no interruption in the sealing surface.

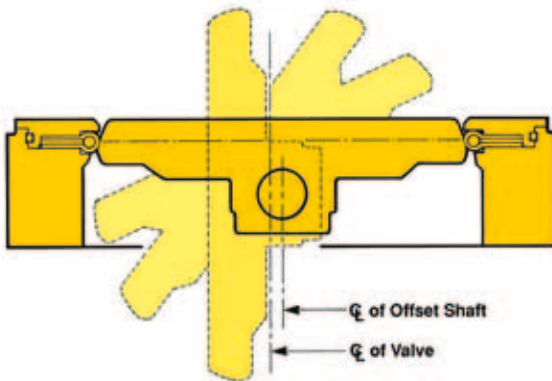
Poly Lube® bearings or optional Severe Service bearings both offer low torque and high cycle life.



Unique, high strength Gibb pin positively locks valve shaft to the disc. Gibb pin is used on 2 in (50 mm) through 12 in (300 mm) sizes.



PFA/Viton® A energized seat provides positive, bidirectional shut-off with long cycle life on low pressure and vacuum, and high  $\Delta P$  services. (See page 6 for more information about seating.) Viton is a registered trademark of The DuPont Company.



The BX2001's double offset disc creates an eccentric seating action which eliminates seat wear, reduces torque and allows disc to "cam" into seat for tight shut-off.



### Severe Service Bearings

The special PTFE resin is pressure molded onto a perforated 316 SS sheet. The perforations lock the PTFE onto the 316 SS making a unified bearing that exhibits high corrosion resistance with unparalleled cycle life. This process results in a PTFE/SS bearing where high radial and lateral loads will not deform the PTFE and strip it from its stainless steel backing. Particularly suited for environments detrimental to glass fibers or epoxies.



### Poly Lube® Bearings

A patented fiberglass weaving/winding process results in a seamless filament-wound fiberglass. Fluoropolymer superfilaments with tensile strengths 20 times greater than PTFE resins are integrated into the bearing and chemically bonded with a proprietary epoxy. A low friction coefficient and high load-carrying capacity are the natural benefits of this bearing. Flowserve tested to 400°F (204°C).

## BX2001 Seat Design Options

Flowserve offers a wide variety of seat design options to most cost-effectively suit your service requirements.



UHMWPE seat

### UHMWPE Seats

*For Abrasive Services*

BX valves with ultra high molecular weight polyethylene (UHMWPE) seats provide long-lasting performance in erosive/abrasive services. UHMWPE seats are rated for services to 200°F (93°C).



Primary seat before fire



Metal seat after fire

### Fire Sealed Valves

The fire sealed version BX2001 meets API 607 Requirements. If a fire destroys the PFA/Viton O-ring energized primary seat, the Inconel X750 metal backup seat activates to provide positive sealing.



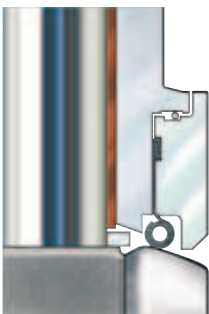
-20°F (-6°C) to 400°F (205°C)



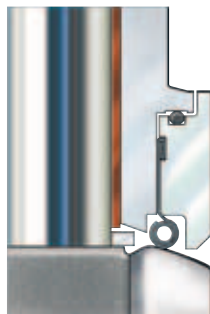
400°F (205°C) to 600°F (315°C)

### Apex Metal Seated Valves

Inconel® seat assures Class IV shut-off and abrasion resistance. Grafoil® gaskets provide secondary sealing. Viton ring locks retainer ring into valve body on designs to 400°F (205°C); Inconel lock wire >400°F (>205°C) to 600°F (315°C).



-20°F (-6°C) to 400°F (205°C)



+ 400°F (205°C) high temperature

### TriFlex Metal Seated Valves

TriFlex seat design utilizes the sleeve and coil action of three individual Inconel springs. The metal seat plus the energizing force of process fluid pressure provide outstanding shutoff service assuring Class VI compliance. These highly resilient springs also offer excellent corrosion and abrasion resistance for extended service life to 1000°F (538°C).

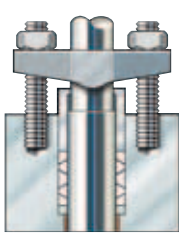
*Grafoil is a registered trademark of Union Carbide Corporation.*

*Inconel is a registered trademark of the International Nickel Co., Inc.*

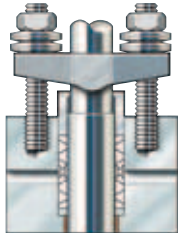
## BX2001 Stuffing Box Packing Options

### ASME Class 150 and 300 Valves

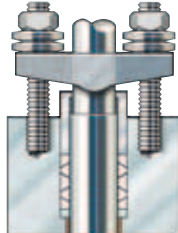
#### Soft Seated Valves



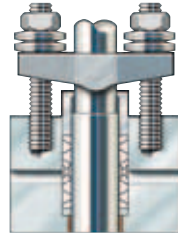
Standard, single PTFE cup and cone



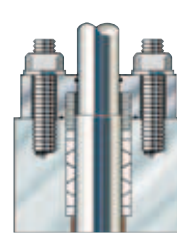
Double PTFE cup and cone with lantern ring



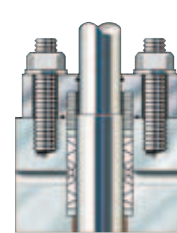
Live loaded, single PTFE cup and cone (adjustable)



Live loaded, double PTFE cup and cone with lantern ring (purge ports are an additional option)

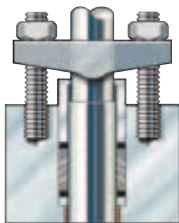


Triple seal, single PTFE cup and cone (self-adjusting/self-contained). 2 in (50 mm) – 12 in (300 mm) ASME Class150 only

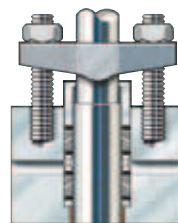


Triple seal, double PTFE cup and cone (self-adjusting/self-contained) with lantern ring. 2 in (50 mm) – 12 in (300 mm) ASME Class150 only (purge ports are an additional option)

#### Fire Sealed Valves



Standard, single Grafoil



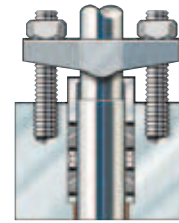
Optional double Grafoil with lantern ring (purge ports are an option)

Shaft packing and gaskets are made of Grafoil to prevent both through and external leakage. Shaft packing performance is enhanced by the Durco rocker arm adjuster.

**NOTES:** The use of lug body style is recommended for fire sealed valves. The use of Belleville washers is not recommended with preformed pure graphite packing rings.

#### TriFlex and Apex BX2 Metal Seat Valves

- To 400°F (205°C) standard, single PTFE cup and cone (adjustable). Optional live loading available
- To 400°F (205°C) double PTFE cup and cone with lantern ring (adjustable). Optional live loading available



- To 600°F (315°C) (TriFlex to 1000°F [538°C]) standard, single Grafoil packing set
- To 600°F (315°C) (TriFlex to 1000°F [538°C]) double Grafoil with lantern ring

**NOTE:** All lantern ring packings on this page are illustrated with two optional 1/8 in (3 mm) NPT purge connections. One 1/8 in (3 mm) bleed or injection port is also available.

## Durco BX2 Apex Metal Seated Valves

### Provide Class IV Shut-Off To 600°F (315°C)



The Apex BX2 design to 600°F (315°C) features single Grafoil packing, hard chrome plated 316 SS bearings and an Inconel lock wire on the retainer ring.

Durco's Apex metal seats are all about high performance economy in abrasive, dirty and/or high temperature applications. These HPBV Big Max valves bridge the performance gap between standard soft seated BX2 Pressure Class 150 and 300 and the critical service requirements of TriFlex metal seated valves with Class VI shut-off capability.

#### Economy and performance

Apex Pressure Class 150 and 300 valves are offered in two models:

- To 400°F (205°C)
- To 600°F (315°C)

#### Apex metal seated valves offer all the benefits of Big Max HPBVs plus more.

- Meets ASME/FCI 70-2 Class IV leakage rate criteria
- Bi-directional seating
- Blow-out proof stem to API 609
- Easy seat replacement
- Offered in 2 in (50 mm) thru 36 in (900 mm) sizes
- Inherently fire-safe by design (>400°F [205°C])
- Exceptional cycling performance
- Reasonable seating/unseating torque

## Durco BX2 TriFlex Class VI Metal Seated Valves

### For High Temperature Services To 1000°F (538°C)



The TriFlex BX2 design to 400°F (205°C) features single PTFE cup and cone packing, PTFE/ fiberglass bearings and an Inconel lock ring.

#### Three models offered

TriFlex Pressure Class 150 and 300 valves may be specified in a choice of four models:

- Standard to 400°F (205°C)
- Intermediate to 600°F (315°C)
- High temperature to 800°F (427°C)
- Modified high temperature to 1000°F (538°C)

#### Exceptional service life

TriFlex provides extended service life because of carefully selected high performance seat materials and the eccentric disc action of CF-8M (316 SS) hardened electro-nickel coated discs. Abrasive wear is greatly reduced.

#### Testing

Every valve is tested in accordance with ASME/FCI 70-2 specification to assure Class VI compliance.

#### Metal-to-metal sealing

TriFlex utilizes the sleeve and coil action of three individual springs plus the energizing force of process fluid pressure to provide outstanding Cl.VI shut-off service. These highly resilient springs also offer excellent corrosion and abrasion resistance for extended service life.

#### Additional design and materials notes

- TriFlex BX2 metal seats for services to 800°F (425°C)
  - Hard chrome plated 316 SS bearings
  - Single Grafoil packing
  - Type XM-19 SS shaft, thrust bearing and washer
- TriFlex BX2 valves for services to 1000°F (538°C)
  - Special bill of materials. Consult factory



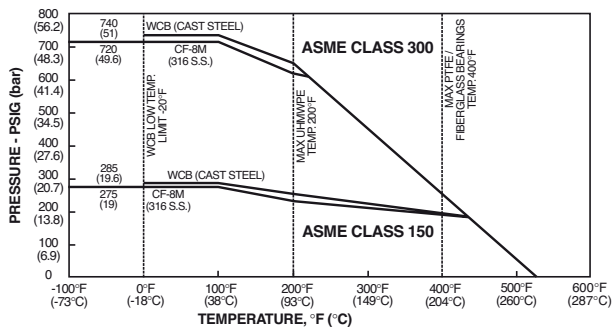
# BX2001 Technical Data

## ASME Class 150 and 300 Valves

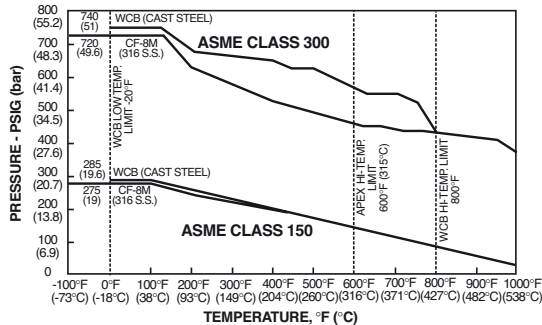
Standard Big Max valves with PTFE packing and PFA or UHMWPE seats are rated for Vacuum Service to .02 mm Hg absolute pressure or 20 microns at ambient temperature. For vacuum services beyond this, please consult your Flowserve Sales Representative.

### Pressure/Temperature Ratings<sup>1, 2</sup>

#### PFA, UHMWPE and Fire-Sealed Seats<sup>1, 2</sup>



#### Apex and TriFlex<sup>3</sup> Metal Seats<sup>2</sup>



<sup>†</sup> Values given are in accordance with ASME B16.34, 1998 Edition. For materials of construction or temperatures other than those listed, consult the factory as the pressure-temperature ratings may vary.

- 1 BX2L4/BX2L9 valves rated to 150 psi with retainer ring unsupported.
- 2 BX2L1/BX2L3 designs are not rated for end-of-line service unless retainer ring is supported by a mating flange. For services requiring end-of-line with retainer ring unsupported, specify BX2L4 or BX2L9 design.
- 3 Must be installed with seat upstream.

Note: For applications using non-metallic, lap joint flanges or non-standard light weight (<Schedule 40) piping, consult Flowserve.

### Seat Recommended Service Temperatures for Best Performance

PFA/Viton	-10°F (-23°C)/550°F (288°C)
PFA/Silicone	-100°F (-73°C)/550°F (288°C)
PFA/Inconel	-100°F (-73°C)/550°F (288°C)
Inconel Apex	-100°F (-73°C)/600°F (315°C)
Inconel TriFlex	-100°F (-73°C)/1000°F (538°C)

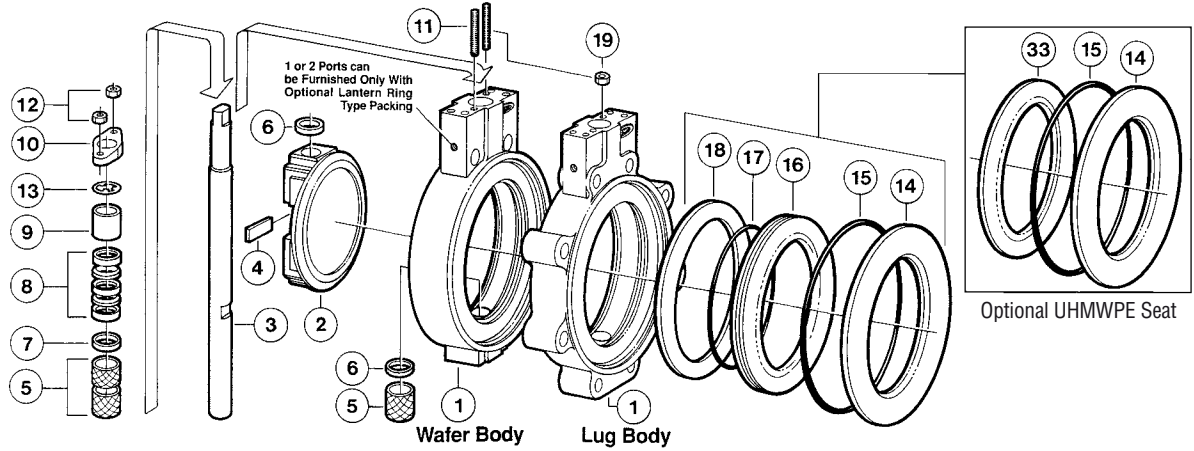
### Valve Standards\* Applicable to the BX2001

Specification	Title
ASME B16.10	Valves – face-to-face dimensions
ASME B16.34	Valves – flanged and butt-welding end
ASME B16.5	Pipe flanges and flanged fittings
ASME/FCI 70-2	American National standard for control valve seat leakage
MSS SP68	High Pressure – offset seat butterfly valves
ISO 5752	Metal valves for use in flanged pipe systems – face-to-face & center-to-face dimensions
API 609	Butterfly valves, lug-type and wafer-type
MSS SP61	Pressure Testing
API 607	Fire Test procedures and leakage requirements
NACE MR-01-75	Flowserve Corporation can furnish valves to this specification with modifications to our standard bill of materials.
United States Coast Guard	Flowserve Corporation is listed with The U.S. Department of Transportation, United States Coast Guard as an acceptable manufacturer of valves and has received an affidavit listing for valves.
P.E.D 97/23/EC ISO 9001 Certified	European pressure equipment directive The Cookeville valve operation is ISO 9001

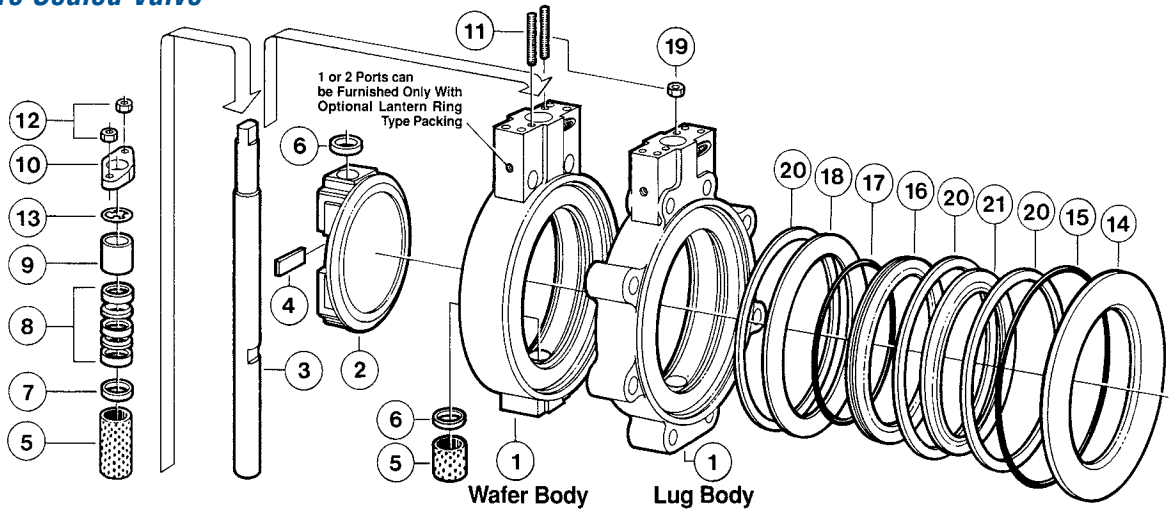
\*Other specifications may apply and those listed may be only partially applicable. Each should be evaluated on a case by case basis. Contact Flowserve with your particular requirements.

## 2 in (50 mm) through 12 in (300 mm)

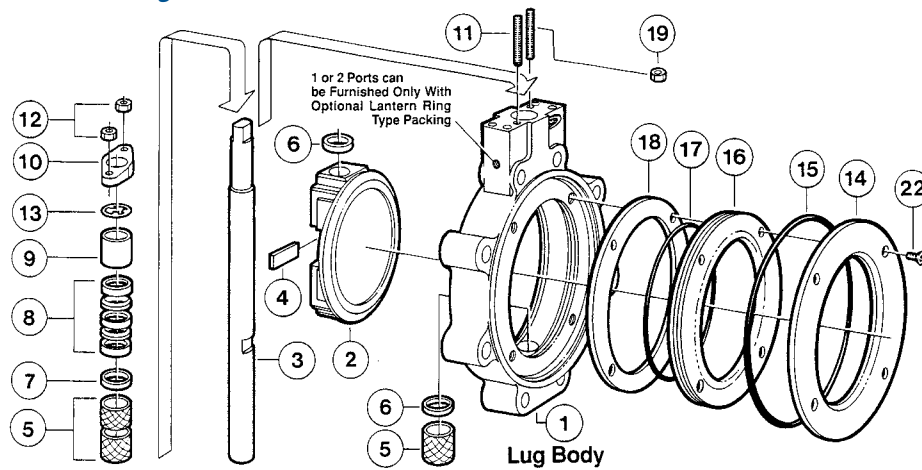
### Standard Valve



### Fire Sealed Valve



### End of Line Lug Valve



## 2 in (50 mm) through 12 in (300 mm)

### Parts List – Standard, Fire Sealed and End of Line Lug Valves

Item No.	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF-8M
2	Disc	ASTM A351 Gr. CF-8M	ASTM A351 Gr. CF-8M
3	Shaft	ASTM A564 Type 630 17-4 SS	ASTM A564 Type 630 17-4 SS
4	Pin	ASTM A564 Type 630 17-4 SS	ASTM A564 Type 630 17-4 SS
5	Bearing	PTFE/Fiberglass (nPTFE/316 SS)	PTFE/Fiberglass (nPTFE/316 SS)
6	Thrust Bearing	ASTM A564 Type 630 17-4 SS	ASTM A564 Type 630 17-4 SS
7	Thrust Washer	1018 Steel	316 SS
• 8	Packing Set	PTFE Cup and Cone (nGrafoil)	PTFE Cup and Cone (nGrafoil)
9	Gland	303 SS	303 SS
10	Adjuster	ASTM A351 Gr. CD4MCu	ASTM A351 Gr. CD4MCu
11	Stud-Adjuster	B8M3 (nGr. B-7)	B8M3 (nGr. B-7)
12	Nut-Adjuster	Gr. 8 (nGr. 2H)	Gr. 8 (nGr. 2H)
13	Ground Spring	302 SS	302 SS
14	Retainer Ring	ASTM A516 Gr. 70 Carbon Steel	ASTM A240 Type 316 SS
• 15	Lock Ring	Viton A*	Viton A
• 16	Seat	PFA	PFA
• 17	Seat Energizer	Viton A*	Viton A
18	Seat Ring	1020 Steel	ASTM A240 Type 316 SS
19	Jam Nut	300 Series SS	300 Series SS
• 20	Gasket-Fire Seal	■ Grafoil **	■ Grafoil
• 21	Seat-Fire Seal	■ Inconel X750	■ Inconel X750
22	Capscrew	Chrome Steel	Chrome Steel
• 33	Seat	UHMWPE	UHMWPE

Note: 2 in (50 mm) through 8 in (200 mm) have 2 upper and 1 lower bearing, 10 in (250 mm) and 12 in (300 mm) have 3 upper and 2 lower bearings as standard. All Fire Sealed have 1 upper and 1 lower bearing.

\* Registered trademark of DuPont Company.

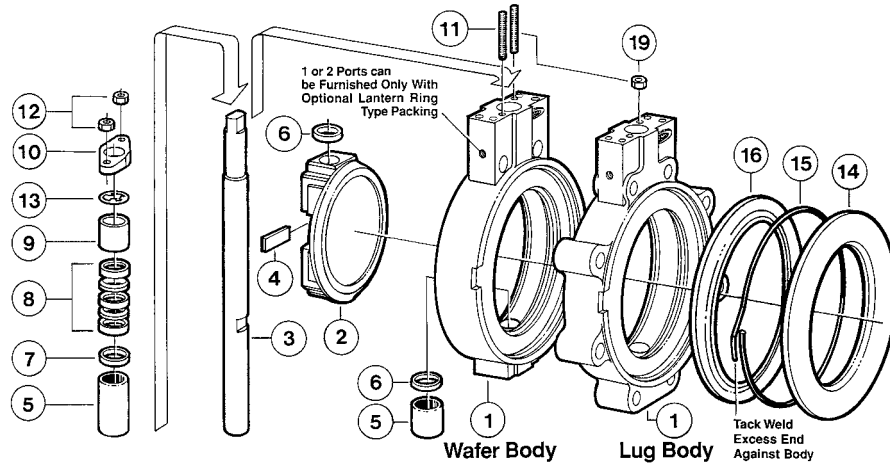
\*\* Registered trademark of Union Carbide.

■ Materials for Fire Sealed valves only.

• Recommended spare parts.

## BX2001 2 in (50 mm) through 12 in (300 mm)

### TriFlex Valve



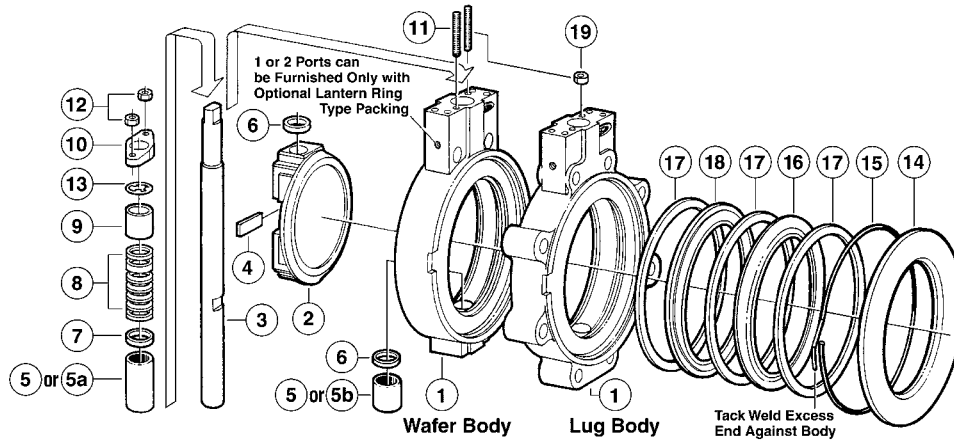
### Parts List – TriFlex Valve

Item No.	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF-8M
2	Disc	ASTM A351 Gr. CF-8M (ENC)	ASTM A351 Gr. CF-8M (ENC)
3	Shaft	ASTM A564 Type 630 17-4 SS to 600°F	ASTM A564 Type 630 17-4 SS to 600°F
		ASTM A479 Type XM19 SS - 601 to 1000°F	ASTM A479 Type XM19 SS - 601 To 1000°F
4	Pin	ASTM A564 Type 630 17-4 SS to 600°F	ASTM A564 Type 630 17-4 SS to 600°F
		ASTM A479 Type XM19 SS - 601 to 1000°F	ASTM A479 Type XM19 SS - 601 to 1000°F
5	Bearing	PTFE/Fiberglass - to 400°F	PTFE/Fiberglass - to 400°F
		316 SS Chrome Plated - 400 to 1000°F	316 SS Chrome Plated - 400 to 1000°F
6	Thrust Bearing	ASTM Type 630 17-4 SS to 600°F	ASTM Type 630 17-4 SS to 600°F
		ASTM A479 Type XM19 SS - 601 to 1000°F	ASTM A479 Type XM19 SS - 601 to 1000°F
7	Thrust Washer	1018 Steel to 600°F	316 SS to 600°F
		ASTM A479 Type XM19 SS - 601 to 1000°F	ASTM A479 Type XM19 SS - 601 to 1000°F
• 8	Packing Set	PTFE Cup and Cone to 400°F	PTFE Cup and Cone to 400°F
		Grafoil - 400 to 1000°F	Grafoil - 400 to 1000°F
9	Gland	303 SS	303 SS
10	Adjuster	ASTM A351 Gr. CD4MCu	ASTM A351 Gr. CD4MCu
11	Stud-Adjuster	Gr. B-7	Gr. B-7
12	Nut-Adjuster	Gr. 2H	Gr. 2H
13	Ground Spring	302 SS	302 SS
14	Retainer Ring	ASTM A516 Gr. 70 Carbon Steel	ASTM A240 Type 316 SS
15	Lock Ring Retainer	Inconel	Inconel
• 16	Seat	Inconel X750 Std. - Others as specified	Inconel X750 Std. - Others as specified
19	Jam Nut	300 Series SS	300 Series SS
22	Capscrew	Chrome Steel	Chrome Steel

• Recommended spare parts.

## BX2001 2 in (50 mm) through 12 in (300 mm)

### Apex Valve



### Parts List – Apex Valve

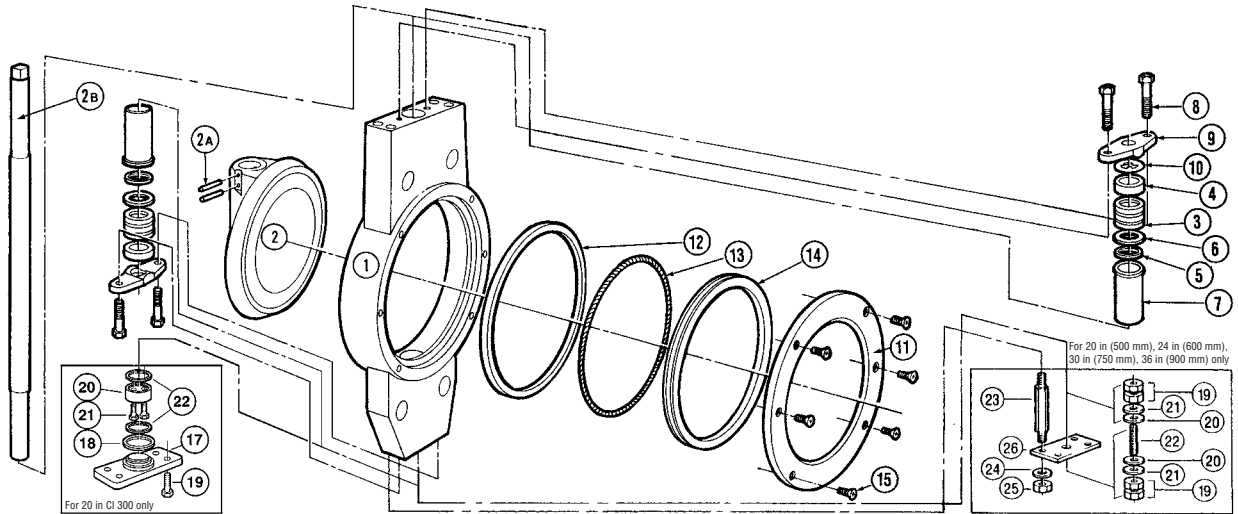
Item No.	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF-8M
2	Disc	ASTM A351 Gr. CF-8M (ENC)	ASTM A351 Gr. CF-8M (ENC)
3	Shaft	ASTM A564 Type 630 17-4 SS	ASTM A564 Type 630 17-4 SS
4	Pin	ASTM A564 Type 630 17-4 SS	ASTM A564 Type 630 17-4 SS
5	Bearing	PTFE/Fiberglass to 400°F	PTFE/Fiberglass to 400°F
5a	Bearing	316 SS Chrome Plated 400 to 600°F	316 SS Chrome Plated 400 to 600°F
5b	Bearing	316 SS Chrome Plated 400 to 600°F	316 SS Chrome Plated 400 to 600°F
6	Thrust Bearing	ASTM Type 630 17-4 SS	ASTM Type 630 17-4 SS
7	Thrust Washer	1018 Steel	316 SS
• 8	Packing Set	PTFE Cup and Cone to 400°F	PTFE Cup and Cone to 400°F
		Grafoil - 400 to 600°F	Grafoil - 400 to 600°F
9	Gland	303 SS	303 SS
10	Adjuster	ASTM A351 Gr. CD4MCu	ASTM A351 Gr. CD4MCu
11	Stud-Adjuster	Gr. B-7	Gr. B-7
12	Nut-Adjuster	Gr. 2H	Gr. 2H
13	Ground Spring	302 SS	302 SS
14	Retainer Ring	ASTM A516 Gr. 70 Carbon Steel	ASTM A240 Type 316 SS
• 15	Lock Ring	Inconel	Inconel
• 16	Seat	Inconel X750 - Others as specified	Inconel X750 - Others as specified
• 17	Gasket	Grafoil	Grafoil
• 18	Seat Gasket	Grafoil	Grafoil
19	Jam Nut	300 Series SS	300 Series SS

Note: 2 in (50 mm) through 8 in (200 mm) have 2 upper and 1 lower bearing, 10 in (250 mm) and 12 in (300 mm) have 3 upper and 2 lower bearings as standard. All Fire Sealed have 1 upper and 1 lower bearing.

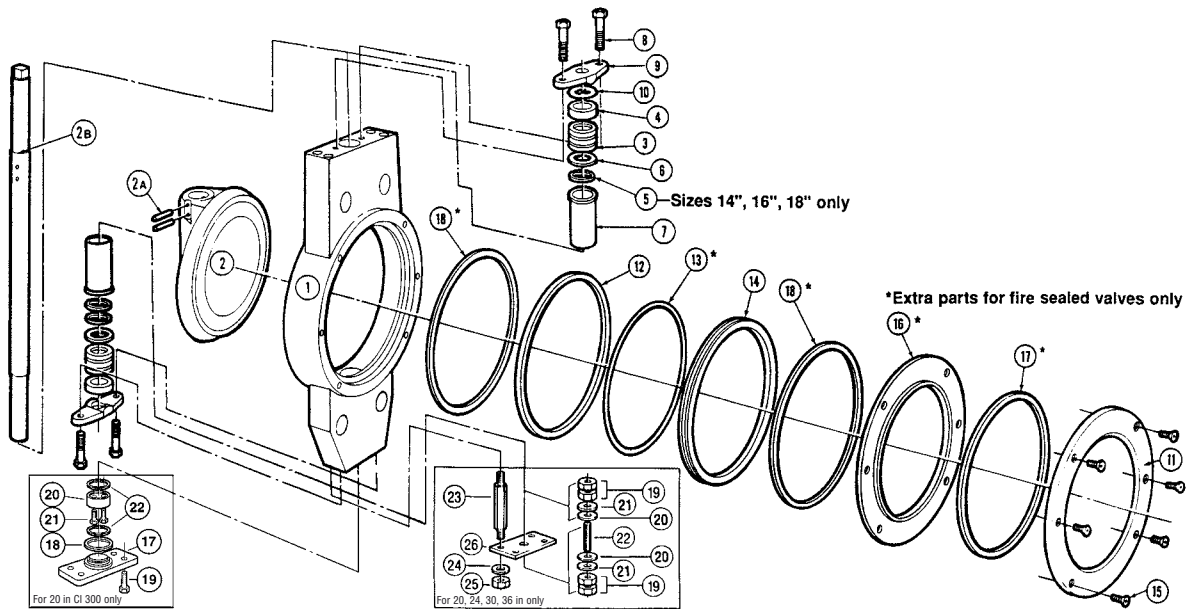
• Recommended spare parts

**14 in (350 mm) through 36 in (900 mm)**

**Standard Valve**

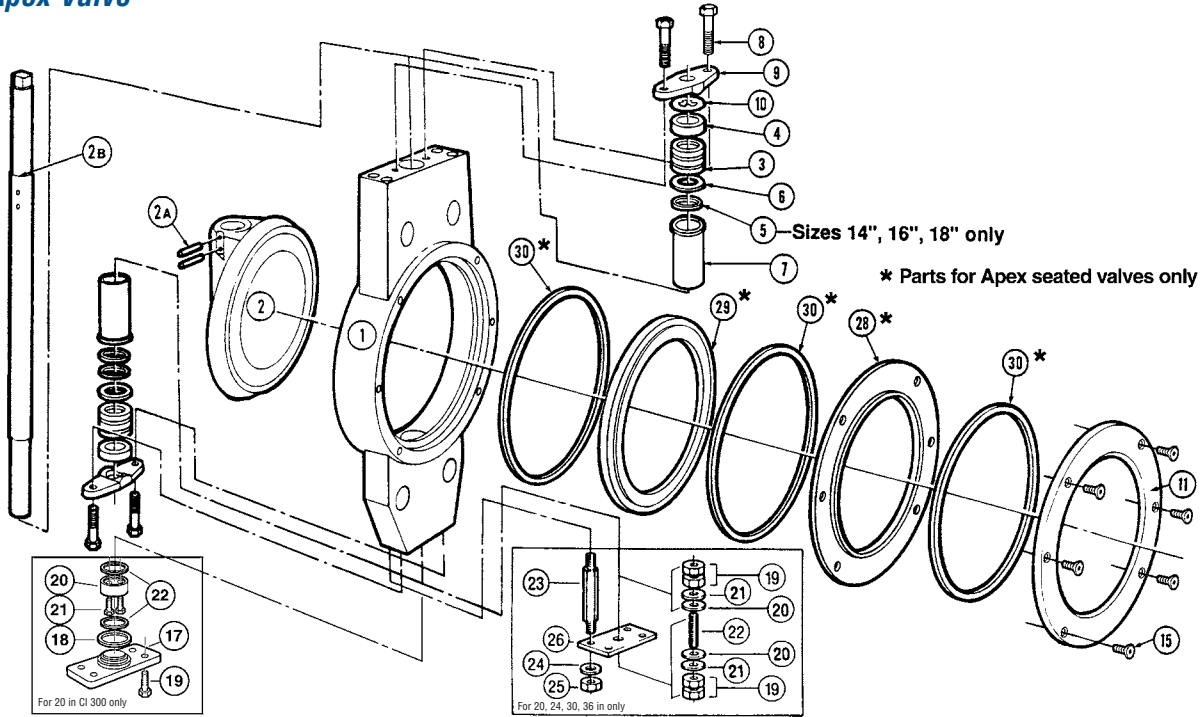


**Fire Sealed Valve**



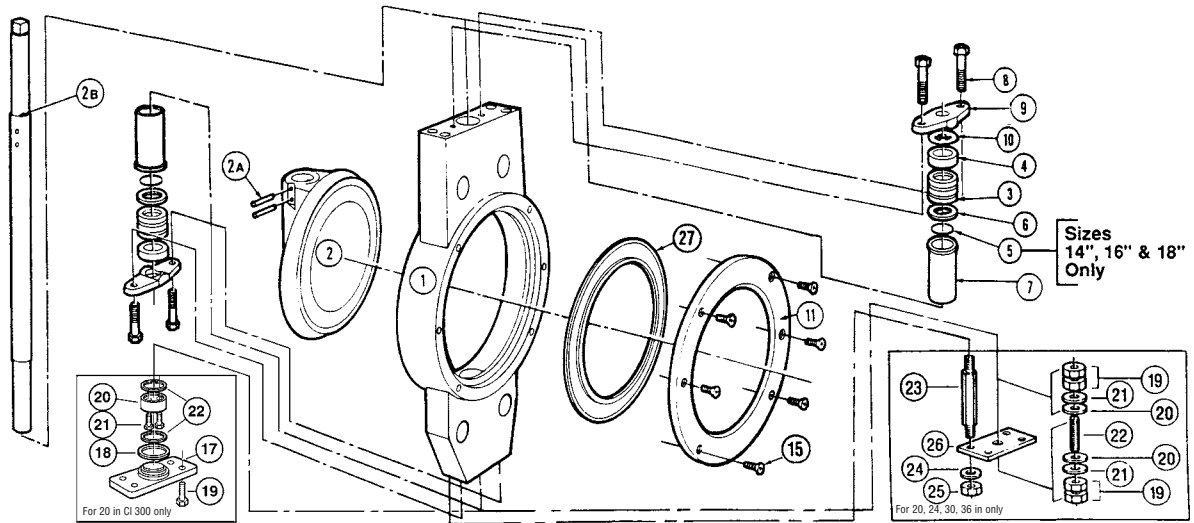
# 14 in (350 mm) through 36 in (900 mm)

## Apex Valve



## 14 in (350 mm) through 36 in (900 mm)

### TriFlex Valve



### Parts List – 20 in (500 mm) Class 300

Item No.	Description	Material
17	Bottom Cap	ASTM A516 Gr. 70 or ASTM A240 UNS S31600
18	Bottom Cap Gasket	TFM Fluoropolymer Gr. 1600
19	Bottom Cap Fastener	ASTM A193 Gr. B8M2 or B8M3
20	Bearing Cap	Type 316 SS
21	Bearing Cap Fastener	ASTM A193 Gr. B8M2 or B8M3
22	Thrust Bearing	TFM Fluoropolymer Gr. 1600



## 14 in (350 mm) through 36 in (900 mm)

### Parts List – Standard Valve, Fire Sealed Valve, TriFlex Valve, Apex Seated Valve

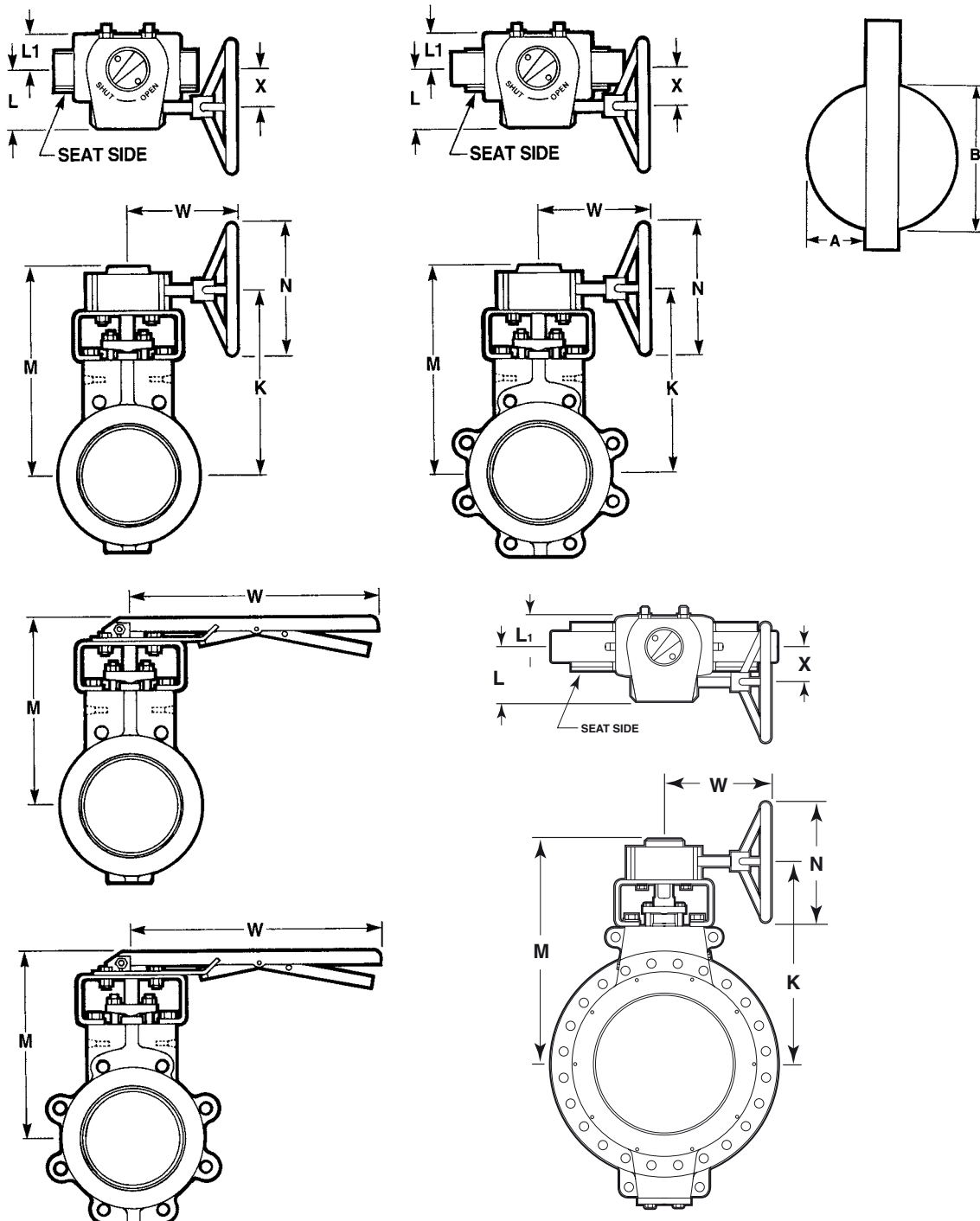
Item No.	Description	Carbon Steel	Stainless Steel
1	Body	ASTM A216 Gr. WCB	ASTM A351 Gr. CF8M
2	Disc	ASTM A351 Gr. CF8M	ASTM A351 Gr. CF8M
2A	Taper Pins	ASTM A276 Type 316 Condition B/S ◆ ASTM A276 Type 316 Condition B/S - To 600°F Monel K-500 - 600-800°F	
2B	Shaft	ASTM A564 UNS S17400 Type 630 ◆ For services above 600°F, shaft material will be ASTM A479 Type XM-19	
• 3	Packing Set	PTFE (■ Grafoil**) ◆ PTFE - To 400°F or Grafoil** - 400-1000°F	
4	Packing Gland	300 Series Stainless Steel	300 Series Stainless Steel
5	Thrust Washer (14 in (350 mm), 16 in (400 mm), 18 in (450 mm) only)	PTFE ◆ PTFE - To 400°F or Grafoil** - 400-800°F	
6	Packing Washer	Carbon Steel	316 Stainless Steel
7	Bearing Assembly	PTFE/Fiberglass (■ PTFE/316 SS) ◆ PTFE/Fiberglass - To 400°F or 316 SS - Chrome Plated - 400-1000°F	
8	Adjuster Fastener	ASTM A193 Gr. B8 (■ Gr. B7) ◆ ASTM A193 Gr. B8 - To 400°F or ASTM A193 Gr. B7 - 400-1000°F	
9	Packing Adjuster	ASTM A351 Gr. CD4M-Cu	ASTM A351 Gr. CD4M-Cu
10	Grounding Spring	300 Series Stainless Steel	300 Series Stainless Steel
11	Retainer Ring	ASTM A516 Gr. 70	ASTM A240 UNS S31600 Type 316
12	Seat Ring	Carbon Steel	ASTM A240 UNS S31600 Type 316
• 13	Seat Energizer	Viton A*	Viton A*
• 14	Seat	PFA	PFA
• 15	Retainer Fastener	300 Series Stainless Steel	300 Series Stainless Steel
• 16	Fire-Sealed Seat	■ Inconel X750	■ Inconel X750
• 17	Retainer Gasket	■ Grafoil**	■ Grafoil**
• 18	Seat Gaske	■ Grafoil**	■ Grafoil**
19	Jamb Nut	300 Series Stainless Steel	300 Series Stainless Steel
20	Thrust Bearing	PTFE	PTFE
21	Thrust Washer	300 Series Stainless Steel	300 Series Stainless Steel
22	Adjustment Stud	Carbon Steel - Zinc Plated	304 Stainless Steel
23	Support Stud	Carbon Steel - Zinc Plated	304 Stainless Steel
24	Lock Washer	Carbon Steel	300 Series Stainless Steel
25	Nut	Carbon Steel	ASTM A194 Gr. 8
26	Thrust Plate	Carbon Steel - Zinc Plated	304 Stainless Steel
• 27	TriFlex Seat	◆ Inconel X750 Std. – Others As specified	◆ Inconel X750 Std. – Others As specified
• 28	Apex Seat	▲ Inconel X750 Std. – Others as specified	▲ Inconel X750 Std. – Others as specified
29	Seat Ring	▲ Carbon Steel	▲ ASTM A240 UNS S31600 Type 316
• 30	Retainer/Seat Gaskets	▲ Grafoil**	▲ Grafoil**

■ Materials for Fire Sealed valves only ◆ Materials for TriFlex valves only ▲ Materials for Apex Seat valves only

• Recommended spare parts \* Registered trademark of DuPont Company \*\* Registered trademark of Union Carbide

## BX2001 Dimensions for Valves with Actuators

The Durco Big Max BX2001 valve is designed for installation between ASME B16.5 Class 150 and 300 flanges as well as DIN, PN10, PN16, PN20, PN25 and PN40. All styles of metallic flanges\* are permissible if clearance is provided for the swing of the disc. Install the valve with the disc in the closed position. Valve should be centered between flanges in order that the disc does not hit the flange/pipe when the valve is opened.



\* Lap joint and light weight piping systems (<Schedule 40) consult Flowserve.

## Dimensions for Valves with Actuators

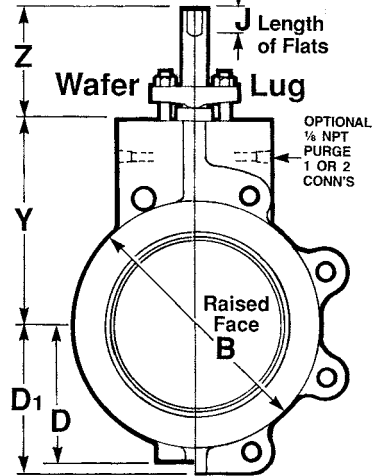
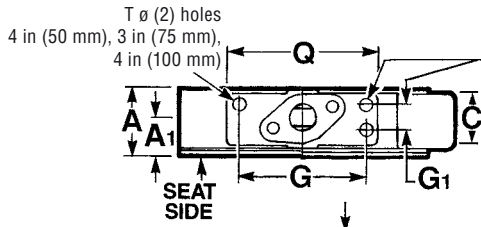
inches / mm

Size	Disc Projection		Gear							Gear Type	Lever	
	A	B	K	L	L1	M	N	W	X		M	W
2	3/8	1 1/4	7/8	3 1/8	1 1/8	8 1/16	8	5 1/4	1 1/16	HF-MX30	8 1/16	14
50	10	32	200	79	41	227	203	133	49		205	355
2	3/8	1 1/4	7/8	3 1/8	1 1/8	8 1/16	8	5 1/4	1 1/16	HF-MX30	8 1/16	14
50	10	32	200	79	41	227	203	133	49		205	355
3	1 1/16	2 7/16	8 3/8	3 1/8	1 1/8	9 1/16	8	5 1/4	1 1/16	HF-MX30	8 1/16	14
80	17	62	219	79	41	246	203	133	49		224	355
3	1 1/16	2 7/16	8 3/8	3 1/8	1 1/8	9 1/16	8	5 1/4	1 1/16	HF-MX30	8 1/16	14
80	17	62	219	79	41	246	203	133	49		224	355
4	1 1/8	3 3/8	9 3/8	3 3/8	1 1/8	10 9/16	8	5 1/4	1 1/16	HF-MX30	9 3/16	14
100	29	92	232	79	41	259	203	133	49		236	355
4	1 1/8	3 3/8	9 3/8	3 3/8	1 1/8	10 9/16	8	5 1/4	1 1/16	HF-MX30	9 3/16	14
100	29	92	232	79	41	259	203	133	49		236	355
5	1 1/2	4 1/2	10 3/4	3 3/4	2 1/2	12 1/4	8	6 3/4	2 3/4	HF-MZ30	11 1/16	14
125	38	114	273	92	64	311	203	171	60		290	355
6	2 1/16	5 9/16	11 1/4	3 3/8	2 1/2	12 3/4	8	6 3/4	2 3/4	HF-MZ30	11 1/16	14
150	52	141	286	92	64	324	203	171	60		290	355
6	2 1/16	5 9/16	11 1/4	3 3/8	2 1/2	12 3/4	8	6 3/4	2 3/4	HF-MZ30	11 1/16	14
150	52	141	286	92	64	324	203	171	60		290	355
8	2 3/8	7	12 1/2	4 3/8	2 1/2	14 3/4	12	8 1/4	2 3/4	HF-MV	13 1/8	13 3/4
200	67	178	327	111	64	375	305	210	67		333	349
8	2 3/8	7	13 3/8	4 3/8	2 1/2	15 1/4	12	8 1/4	2 3/4	HF-MV	Not Available	
200	67	178	340	111	64	387	305	210	67		Not Available	
10	3 3/8	9 3/8	14 3/4	4 3/8	2 1/2	16 1/2	12	8 1/4	2 3/4	HF-MV	Not Available	
250	92	237	371	111	64	419	305	210	67		Not Available	
10	3 3/8	9 3/8	15 1/2	4 3/8	2 1/2	17 1/2	12	8 1/4	2 3/4	HF-MV	Not Available	
250	92	237	394	111	64	441	305	210	67		Not Available	
12	4 1/2	11 3/4	16 1/4	5	2 1/2	18 1/2	12	9 3/4	3 1/2	HF-MY40	Not Available	
300	114	289	408	127	64	460	305	248	77		Not Available	
12	4 1/2	10 3/4	16 1/2	5	2 1/2	19	12	9 3/4	3 1/2	HF-MY40	Not Available	
300	114	273	429	127	64	483	305	248	77		Not Available	
14	5	12 5/16	17 1/2	6 3/8	3 1/2	19 3/4	18	10 1/16	4 3/8	MB-60	Not Available	
350	127	323	448	168	89	502	457	259	111		Not Available	
14	4 1/2	12 1/2	22 1/16	6 3/8	3 1/2	26 1/16	18	13 1/16	1 9/16	HSMBF/S3	Not Available	
350	105	310	576	168	89	662	457	354	33		Not Available	
16	5 3/32	14 5/16	19 1/16	7 3/8	3 1/2	22 1/16	18	12 3/16	5 3/8	MC-60	Not Available	
400	147	373	503	194	89	560	457	310	137		Not Available	
16	4 3/16	14 3/16	24 1/4	7 3/8	3 1/2	28 1/4	18	15 1/16	2 1/16	HFMBF/S3	Not Available	
400	122	358	632	194	89	718	457	395	52		Not Available	
18	6 3/8	16 3/8	21 1/2	7 3/8	3 1/2	23 3/4	18	12 3/16	5 3/8	MC-60	Not Available	
450	162	420	545	194	89	603	457	310	137		Not Available	
18	5 1/2	15 1/2	28	7 1/16	4 3/8	30 1/16	24	17 3/16	5 7/16	MD/55	Not Available	
450	136	402	711	195	111	773	610	437	138		Not Available	
20	7 5/16	18 1/2	22 1/4	7 3/8	3 1/2	25 5/16	18	12 3/16	5 3/8	MC-60	Not Available	
500	180	469	581	194	89	649	457	310	137		Not Available	
20	6 1/4	17 1/4	24 3/8	9 1/8	4 3/8	28 3/4	18	15 3/4	2 3/8	MDF/S3	Not Available	
500	159	438	626	232	111	714	457	400	60		Not Available	
24	8 1/16	22 3/16	26 1/16	9 1/8	4 3/8	29 7/16	18	15 3/4	2 3/8	MDF/S3	Not Available	
600	211	561	662	232	111	748	457	400	60		Not Available	
30	11	28 3/8	31 1/4	9 1/8	4 3/8	34 3/8	18	16 1/2	2 1/16	MGF/S3	Not Available	
750	279	721	794	240	121	879	457	418	68		Not Available	
36	13 1/16	34 3/8	40 1/4	9 1/8	4 3/8	43 3/8	24	17 3/16	2 1/16	HFMGF/S5 FOR 195 PSIG ΔP	Not Available	
900	346	873	1022	240	121	1108	610	450	68		Not Available	
36	13 1/16	34 3/8	40 1/4	9 1/8	4 3/8	47 3/8	24	20 1/2	6	HFMGF/S5 FOR 285 PSIG ΔP	Not Available	
900	346	873	1022	240	121	1108	610	450	68		Not Available	

ASME Class 150  ASME Class 300

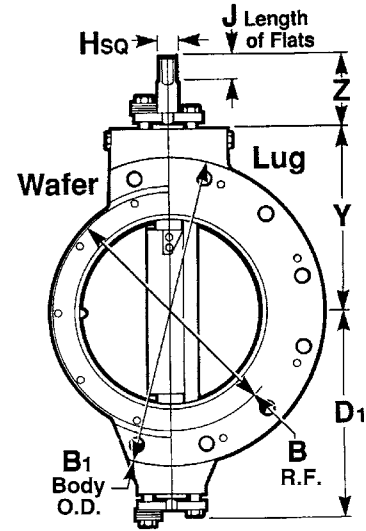
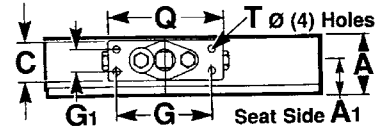
All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.

## Dimensions for Wafer and Lug Valves

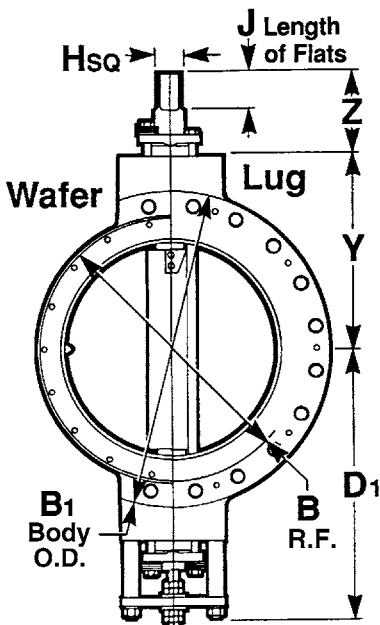
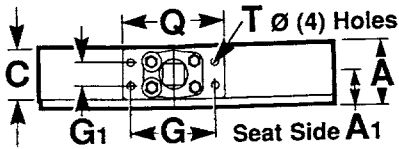
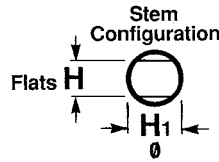


2 in (50 mm) – 12 in (300 mm)

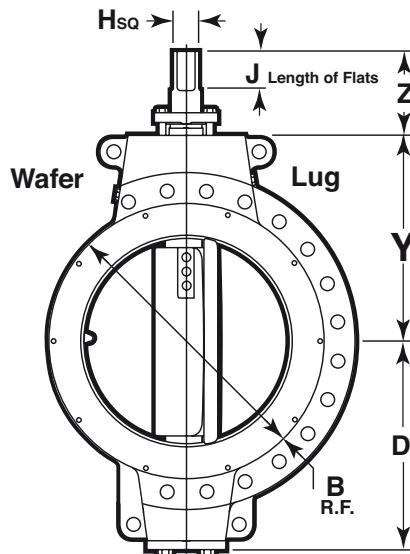
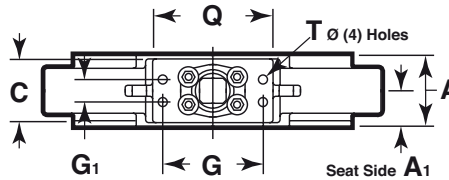
T  $\varnothing$  (4) holes, 6 in (150 mm),  
8 in (200 mm), 10 in (250 mm),  
12 in (300 mm)



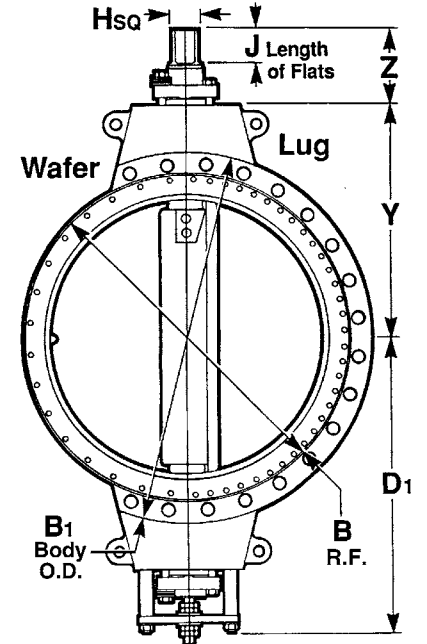
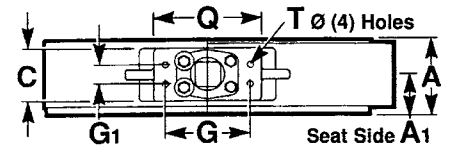
14 in (350 mm) – 18 in (450 mm)



20 in (500 mm) – 24 in (600 mm)



20 in (500 mm) Class 300



30 in (750 mm) – 36 in (900 mm)

## Dimensions Common to BX2 Wafer and Lug Valves

inches / mm

Size	A	A1	B	C	D	D1	G	G1	H	H1	J	Q	T	Y	Z	Shaft Ø
2	1¾	1⅞	3⅞	1⅞	2½	2½	3⅞	⅞	.440 .438	.589 .584	1⅞	4½	½-13	4¾	2⅞	⅞
50	44	27	98	35	64	64	920	16	11.17 11.13	14.96 14.83	17	114	¾ DP	121	68	16
2	1¾	1⅞	3⅞	1⅞	2⅝	2⅝	3⅞	⅞	.440 .438	.589 .584	1⅞	4½	½-13	4¾	2⅞	⅞
50	44	27	98	35	67	75	920	16	11.17 11.13	14.96 14.83	17	114	¾ DP	121	68	16
3	1⅞	1⅞	5	1⅞	3⅞	3⅞	3⅞	⅞	.440 .438	.589 .584	1⅞	4½	½-13	5½	2⅞	⅞
80	48	29	127	36	79	79	92	16	11.17 11.13	14.96 14.83	17	114	¾ DP	140	68	16
3	1⅞	1⅞	5	1⅞	3⅞	3⅞	3⅞	⅞	.440 .438	.589 .584	1⅞	4½	½-13	5½	2⅞	⅞
80	49	29	127	36	86	97	92	16	11.18 11.13	14.96 14.83	21	114	¾ DP	140	68	16
4	2⅞	1⅞	6⅞	1½	3⅞	4⅝	3⅞	⅞	.440 .438	.589 .584	1⅞	4½	½-13	6	2⅞	⅞
100	54	32	157	38	92	107	92	16	11.17 11.13	14.96 14.83	17	114	¾ DP	152	68	16
4	2⅞	1⅞	6⅞	1½	3⅞	4⅝	3⅞	⅞	.440 .438	.589 .584	1⅞	4½	½-13	6	2⅞	⅞
100	57	32	157	38	86	112	92	16	11.17 11.13	14.96 14.83	21	114	¾ DP	152	68	16
5	2¼	1⅞	7⅞	2⅞	4⅞	4⅞	4¼	1⅞	.623 .621	.812 .807	1⅞	5¼	½-13	6½	3⅞	⅞
125	57	33	186	75	106	106	108	29	15.82 15.77	20.62 20.50	17	133	¾ DP	165	97	22
6	2¼	1⅞	8½	1⅞	4⅞	5⅝	4¼	1⅞	.623 .621	.812 .807	1⅞	5¼	½-13	7	3⅞	⅞
150	57	33	216	47	119	131	108	29	15.82 15.77	20.62 20.50	17	133	¾ DP	178	97	22
6	2⅞	1⅞	8½	1⅞	5⅞	5⅞	4¼	1⅞	.623 .621	.812 .807	1⅞	5¼	½-13	7	3⅞	⅞
150	60	33	216	47	137	149	108	29	15.82 15.77	20.62 20.50	21	133	¾ DP	178	97	22
8	2⅞	1⅞	10⅞	2	6	6⅞	4¼	1⅞	.748 .746	1.057 1.052	1⅞	6	½-13	8¼	4¼	1⅝
200	62	35	270	51	152	160	108	29	19.00 18.95	26.85 26.72	29	152	¾ DP	210	108	28
8	2⅞	1⅞	10⅞	2	6⅞	7⅝	4¼	1⅞	.748 .746	1.057 1.052	1⅞	6	½-13	8¼	4½	1⅝
200	74	35	270	51	172	182	108	29	19.00 18.95	26.85 26.72	29	152	¾ DP	222	108	28
10	2⅞	1⅞	12¾	2⅞	7¾	7¾	5¼	1⅞	.873 .871	1.339 1.334	1⅞	6½	¾-11	10	4¼	1⅞
250	75	43	324	60	197	197	133	32	22.17 22.12	34.01 33.88	29	165	¾ DP	254	108	35
10	3⅞	1⅞	12¾	2½	8½	8½	5¼	1⅞	.873 .871	1.339 1.334	1⅞	6½	¾-11	10⅞	4¼	1½
250	85	45	324	64	216	216	133	32	22.17 22.12	34.01 33.88	29	165	¾ DP	276	108	38
12	3⅞	1⅞	15	2⅞	9	9¼	5¼	1¼	.997 .995	1.500 1.495	1½	7	¾-11	11½	4¾	15/8
300	84	49	381	60	229	235	133	32	25.32 25.27	38.10 37.97	38	178	¾ DP	292	121	41
12	3⅞	2⅞	15	2¾	10	10	6	1½	.997 .995	1.500 1.495	1½	7½	¾-11	12¼	4¾	1¾
300	94	51	381	70	254	254	152	38	25.32 25.27	38.10 37.97	38	191	¾ DP	311	121	45
14	3¾	2⅞	16¼	2¾	14	14	6⅞	1½	1.124 1.122	1.874 1.872	1½	8	½-13	12½	4⅞	1¾
350	95	58	413	70		356	168	38	28.549 28.498		38	203	¾ DP	317	124	44
14	4¾	2⅞	17⅞	4⅞	19⅞	7	2½	1.421 1.416			1¾	8½	¾-11	15⅞	7½	21/8
350	121	60	448	111		486	178	64	36.093 35.966		44	216	1¼ DP	391	191	54
16	4⅞	2⅞	18½	3⅞	15⅞	7	1½	1.248 1.246			2⅞	9	½-13	14⅞	6	2
400	105	61	470	81		403	178	38	31.699 31.648		54	228	¾ DP	360	152	51
16	5⅞	2⅞	19⅞	5	20¾	7	2½	1.686 1.684			2⅞	8¾	¾-11	17⅞	8⅞	2½
400	137	67	505	127		527	178	64	42.824 42.774		59	222	1¼ DP	441	213	64
18	4⅞	2⅞	21	3⅞	17⅞	7	1½	1.248 1.246			2⅞	9	½-13	15⅞	6⅞	2¼
450	118	64	533	78		454	178	38	31.699 31.648		60	228	¾ DP	404	155	57
18	6	3	22¾	55/8		23⅞	7	2½	1.874 1.872		2⅞	85/8	¾-11	20	8⅞	2¾
450	152	76	568	143		599	178	64	47.599 47.548		73	219	1¼ DP	508	219	70
20	5⅞	2⅞	23	4⅞	24⅞	7½	2	1.874 1.872			2¾	9	¾-10	16¾	7⅞	2½
500	130	71	584	111		617	191	51	47.599 47.548		70	228	1 DP	425	181	64
20	6⅞	3⅞	27	6⅞	19	8⅞	2	2.250 2.248			3⅞	107/8	¾-10	18⅞	7⅞	3
500	162	82	686	168		483	224	51	57.150 57.099		78	276	1 DP	467	189	76
24	6⅞	3⅞	27¼	5⅞	27½	8⅞	2	2.250 2.248			3⅞	107/8	¾-10	19¾	7⅞	3
600	157	80	692	130		698	224	51	57.150 57.099		79	276	1 DP	501	189	76
30	7½	4	33¾	5½	32¼	8⅞	2	2.624 2.622			3	11¼	¾-10	24¼	7¾	3½
750	191	102	857	139		819	224	51	66.649 66.598		76	285	1 DP	616	197	89
36	8⅞	4⅞	40¼	6¼	41½	9½	4	2.906 2.904			5	11½	¾-10	30¼	12¼	4
900	205	107	1022	158		1054	241	102	73.812 73.762		127	292	1 DP	768	311	102

ASME Class 150 □ ASME Class 300

All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.

## BX2001 Flange Drilling Specifications Fastener Thread Sizes

Due to the hydrodynamic torque encountered with butterfly valves, safe operating practices dictate that manual gear operators, pneumatic actuators or electric actuators be used when these differential pressures are exceeded.

Wafer Style – Class 150 and 300 Drilling				Lug Style – Class 150 and 300 Drilling			
Size in (mm)	No. of Holes	Hole Size Inch	B.C. in (mm)	No. of Fasteners	Thread Size Inch	B.C. in (mm)	B1 in (mm)
2 (50)	4	3/4	4 3/4 (121)	4	5/8-11	4 3/4 (121)	6 (152)
2 (50)	2	3/4	5 (127)	8	5/8-11	5 (127)	6 1/4 (154)
3 (80)	2	3/4	6 (152)	4	5/8-11	6 (152)	7 1/2 (191)
3 (80)	2	7/8	6 5/8 (168)	8	3/4-10	6 5/8 (168)	8 1/8 (206)
4 (100)	2	3/4	7 1/2 (191)	8	5/8-11	7 1/2 (191)	9 (229)
4 (100)	2	7/8	7 7/8 (200)	8	3/4-10	7 7/8 (200)	9 5/8 (238)
6 (150)	2	7/8	9 1/2 (241)	8	3/4-10	9 1/2 (241)	11 (279)
6 (150)	2	7/8	10 5/8 (270)	12	3/4-10	10 5/8 (270)	12 1/8 (308)
8 (200)	2	7/8	11 3/4 (298)	8	3/4-10	11 3/4 (298)	13 1/2 (343)
8 (200)	2	1	13 (330)	12	7/8-9	13 (330)	14 3/4 (315)
10 (250)	2	1	14 1/4 (362)	12	7/8-9	14 1/4 (362)	16 (406)
10 (250)	4***	1-8	15 1/4 (387)	16	1-8	15 1/4 (387)	17 1/4 (438)
12 (300)	2	1	17 (432)	12	7/8-9	17 (432)	19 (483)
12 (300)	4***	1 1/8-8	17 3/4 (451)	16	1 1/8-8	17 3/4 (451)	20 1/4 (514)
14 (350)	4	1 1/16	18 3/4 (476)	12	1-8	18 3/4 (476)	21 (533)
14 (350)	8*	1 1/8-8	20 1/4 (514)	20*	1 1/8-8	20 1/4 (514)	23 (584)
16 (400)	4	1 1/16	21 1/4 (540)	16	1-8	21 1/4 (540)	23 1/2 (597)
16 (400)	8*	1 1/4-8	22 1/2 (572)	20*	1 1/4-8	22 1/2 (572)	25 1/2 (648)
18 (450)	4	1 1/16	22 3/4 (578)	16	1 1/8-8	22 3/4 (578)	25 (635)
18 (450)	8*	1 1/4-8	24 3/4 (628)	24*	1 1/4-8	24 3/4 (628)	28 (711)
20 (500)	8*	1 1/8-8	25 (635)	20*	1 1/8-8	25 (635)	27 1/2 (699)
20 (500)	10*	1 1/4-8	27 (686)	24*	1 1/4-8	27 (686)	30 (762)
24 (600)	8*	1 1/4-8	29 1/2 (749)	20*	1 1/4-8	29 1/2 (749)	32 (813)
30 (750)	16*	1 1/4-8	36 (914)	28**	1 1/4-8	36 (914)	38 3/4 (984)
36 (900)	16**	1 1/2-8	42 3/4 (1086)	32**	1 1/2-8	42 3/4 (1086)	46 (1168)

■ ASME Class 150 □ ASME Class 300

All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.

\* The two fastener holes on either side of the shaft, top and bottom, are tapped blind holes (both sides).

\*\* Four fastener holes, two on either side of the shaft top and bottom, are tapped blind holes, both sides.

\*\*\* The two fastener holes on either side of the shaft, top and bottom, are tapped through.

### Maximum Differential Pressures

Valve Size in (mm)	Max ΔP – Valve 90° open†
3 (80)	34 PSIG (2.3 bar)
4 (100)	16 PSIG (1.1 bar)
6 (150)	7 PSIG (.5 bar)
8 (200)	5 PSIG (.3 bar)

† Based on a 120 pound maximum force on wrench. See MSS SP91 for further clarification.

Big Max high performance butterfly valves meet the following flange specifications:

ASME B16.5: 2 in (50 mm) – 24 in (600 mm)

MSS SP44: 30 in (750 mm) & 36 in (900 mm)

ASME B16.47 (Series A): 30 in (750 mm) & 36 in (900 mm)

## BX2001 Valve and Operator Weights

### BX Manual Operator Weights

Valve Size in (mm)	Locking Lever	Gear
2 (50)	6 lbs (2.7 kg)	11 lbs (5 kg)
2 (50)	6 lbs (2.7 kg)	11 lbs (5 kg)
3 (80)	6 lbs (2.7 kg)	11 lbs (5 kg)
3 (80)	6 lbs (2.7 kg)	11 lbs (5 kg)
4 (100)	6 lbs (2.7 kg)	11 lbs (5 kg)
4 (100)	6 lbs (2.7 kg)	11 lbs (5 kg)
6 (150)	6 lbs (2.7 kg)	11 lbs (5 kg)
6 (150)	6 lbs (2.7 kg)	11 lbs (5 kg)
8 (200)	20 lbs (9.1 kg)	28 lbs (12.7 kg)
8 (200)	20 lbs (9.1 kg)	28 lbs (12.7 kg)
10 (250)	N/A	28 lbs (12.7 kg)
10 (250)	N/A	28 lbs (12.7 kg)
12 (300)	N/A	31 lbs (14 kg)
12 (300)	N/A	31 lbs (14 kg)
14 (350)	N/A	64 lbs (29.0 kg)
14 (350)	N/A	94 lbs (42.6 kg)
16 (400)	N/A	76 lbs (34.5 kg)
16 (400)	N/A	108 lbs (49.0 kg)
18 (450)	N/A	76 lbs (34.5 kg)
18 (450)	N/A	125 lbs (56.7 kg)
20 (500)	N/A	76 lbs (34.5 kg)
20 (500)	N/A	101 lbs (45.8 kg)
24 (600)	N/A	101 lbs (45.8 kg)
30 (750)	N/A	156 lbs (70.8 kg)
36 (900)	N/A	HFM GF/S5 156 lbs (70.8 kg)
		HFM GF/D9 224 lbs (101.6 kg)

### BX Valve Weights\*

Valve Size in (mm)	BX2W	BX2L
2 (50)	12 lbs (5.4 kg)	12 lbs (5.4 kg)
2 (50)	10 lbs (4.5 kg)	14 lbs (6.4 kg)
3 (80)	16 lbs (7.3 kg)	18 lbs (8.2 kg)
3 (80)	15 lbs (6.8 kg)	21 lbs (9.5 kg)
4 (100)	20 lbs (9.1 kg)	26 lbs (11.8 kg)
4 (100)	20 lbs (9.1 kg)	27 lbs (12.2 kg)
5 (125)	30 lbs (13.5 kg)	35 lbs (15.8 kg)
6 (150)	35 lbs (15.9 kg)	40 lbs (18.1 kg)
6 (150)	36 lbs (16.3 kg)	52 lbs (23.6 kg)
8 (200)	58 lbs (26.3 kg)	68 lbs (30.8 kg)
8 (200)	63 lbs (28.6 kg)	90 lbs (40.8 kg)
10 (250)	86 lbs (39 kg)	104 lbs (47.1 kg)
10 (250)	106 lbs (48 kg)	146 lbs (66 kg)
12 (300)	125 lbs (56.7 kg)	160 lbs (72.6 kg)
12 (300)	161 lbs (73 kg)	230 lbs (104 kg)
14 (350)	250 lbs (113.4 kg)	300 lbs (136 kg)
14 (350)	345 lbs (157 kg)	636 lbs (289 kg)
16 (400)	325 lbs (147.4 kg)	400 lbs (181.4 kg)
16 (400)	480 lbs (218 kg)	900 lbs (408 kg)
18 (450)	400 lbs (181.4 kg)	500 lbs (226.8 kg)
18 (450)	685 lbs (311 kg)	1170 lbs (530.7 kg)
20 (500)	467 lbs (211.8 kg)	624 lbs (283 kg)
20 (500)	650 lbs (295 kg)	950 lbs (432 kg)
24 (600)	665 lbs (301.6 kg)	880 lbs (399 kg)
30 (750)	1050 lbs (476.3 kg)	1425 lbs (646.4 kg)
36 (900)	2162 lbs (980.7 kg)	2748 lbs (1246.5 kg)

■ ASME Class 150 □ ASME Class 300

All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.

## Automax<sup>®</sup> Actuators, Controls and Accessories



BX2001 lug style valve with Automax Super Nova rack and pinion actuator and UltraSwitch



For precise throttling control or simple on-off operation of Big Max valves the best choice is Automax actuators, controls and accessories.

### SuperNova<sup>™</sup> Pneumatic Rack & Pinion Actuators

Material choices include hard anodized aluminum, epoxy filled composite and stainless steel. Available in torque ranges from 25 in-lb (3 Nm) to 58,000 in-lb (6554 Nm).

### Heavy-Duty Rotary Actuators

Scotch-Yoke type provide torques from 3,000 in-lb (339 Nm) to 500,000 in-lb (56,500 Nm). Designed for maximum performance and cycle life.

### Centura<sup>®</sup> Electric Rotary Actuators

Precise on-off and modulating control, they are available in metallic and non-metallic housings with torque ranges from 225 in-lb (25 Nm) to 3,500 in-lb (396 Nm). Hazardous and non-hazardous applications.

### XL90<sup>™</sup> High Performance Positioner

Analog positioner with two-stage relay for fast, sensitive response characteristics. Pneumatic or electrical control signals. Optional position feedback limit switches, 4-20mA position feedback transmitter, and UltraDome visual position indicator.

### Logix<sup>™</sup> Digital Positioner

Combines fast 16-bit microprocessor and two-stage electronic relay with HART<sup>™</sup> protocol for compatibility with smart instrument systems. Quick-Cal<sup>™</sup> function for automatic, push-button calibration. Proprietary software for positioner communication via computer provides a variety of configurations, diagnostics, custom characterizations and other functions.

### Accessories

- Auto Brakits<sup>™</sup> mounting kits
- Flow controls, NAMUR accessories, lockouts, gear overrides
- SureGrip<sup>™</sup> valve couplings



BX2001 wafer style valve with Automax Super Nova rack and pinion actuator and Apex 5000 modular positioning system



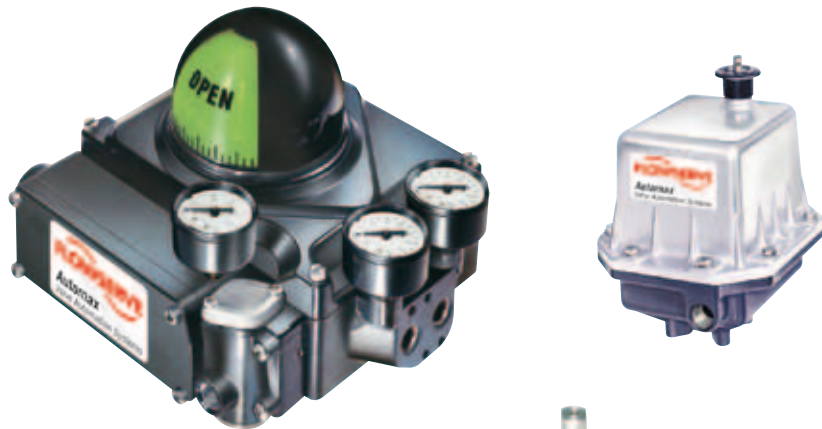
### **UltraSwitch® GL / XL / PL Series Rotary Position Indicators**

Compact and economical packages for both visual and remote electrical indication of valve position. Die cast aluminum or non-metallic versions with UL and CSA ratings. Housings suitable for NEMA 4, 4X, 7 & 9 applications.



### **Aviator™ Rotary Position Indicator**

Internal pilot solenoid coil provides a truly integrated package for both visual and electrical position indication as well as air supply control.

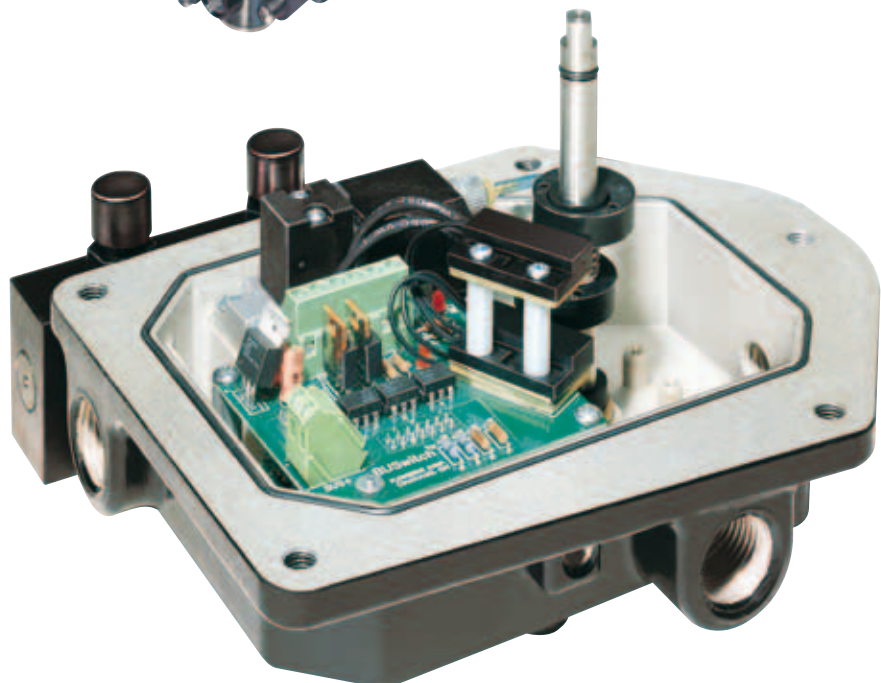


### **APEX™ Modular Positioner**

Precise valve positioning with advanced features. Die cast aluminum and non-metallic versions. Modular manifold base for pneumatic or electrical control signals. UL, C-UL, CENELEC & SAA.

### **BUSwitch™ Valve Control and Monitoring System**

Digital rotary position indicator. Control and monitoring of automated on-off quarter-turn valves. FOUNDATION® Fieldbus and Profibus-DP protocols.



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## Selection, Installation, Operation and Maintenance

Although Flowserve can, and often does, provide general guidelines, it is obviously not possible to provide application specific data and warnings for all conceivable applications. The purchaser/end user must therefore assume the ultimate responsibility for the proper selection, installation, operation and maintenance of the products. Read the appropriate IOM available from Cookeville, TN 38501 before installing, operating or repairing any valve. The purchaser/end user should train its employees and/or contractors in the safe use of the Flowserve products in connection with the purchaser's manufacturing processes.

## Design Changes

In order to follow Flowserve's commitment to continuous improvement, we reserve the right to change product and performance specifications without notice.



BX2001 lug style valve with Automax SuperNova® rack and pinion actuator and Logix® digital positioner.

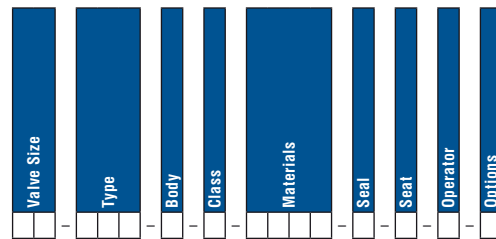
## Materials Selection Chart

DS	ASTM A216 Gr. WCB (CAST STEEL)
D2	ASTM A351 Gr. CF8 (304 S.S.)
D4	ASTM A351 Gr. CF8M (316 S.S.)
D4L	ASTM A351 Gr. CF3M (316L S.S.)
D20	ASTM A351 Gr. CN-7M (DURIMET 20)
CK3M	ASTM A351 Gr. CK-3MCuN (254 SMO)*
DINC	ASTM A494 Gr. CY-40 (INCONEL 600)**
DMM	ASTM A494 Gr. M35-1 (MONEL 400)**
DNI	ASTM A494 Gr. CZ-100 (NICKEL 200)
DC2	ASTM A494 Gr. N-7M (CHLORIMET 2)
DC3	ASTM A494 Gr. CW-6M (CHLORIMET 3)
Ti	ASTM B367 Gr. C-3 (TITANIUM)
CD	ASTM A351 Gr. CD4MCu (Durcomet100)

\* Registered trademark of Avesta AB

\*\*Registered trademark of International Nickel Co. Inc.

# How to Specify BX2001 Valves



2 in (50 mm)	2	14 in (350 mm)	14
3 in (80 mm)	3	16 in (400 mm)	16
4 in (100 mm)	4	18 in (450 mm)	18
5 in (125 mm)	5	20 in (500 mm)	20
6 in (150 mm)	6	24 in (600 mm)	24
8 in (200 mm)	8	30 in (750 mm)	30
10 in (250 mm)	10	36 in (900 mm)	36
12 in (300 mm)	12		

Big Max 2001		BX2	
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Lug		L	
Wafer		W	

ASME 150 Bidirectional		1	
DIN PN10		2	
ASME 150 End of Line Lug		4	
DIN PN16		5	
DIN PN20		7	
ASME 300 Bidirectional		3	
ASME 300 End of Line Lug		9	
DIN PN25		0	
DIN PN40		8	

D4* ■	1	DC3	6
DS* ■	8	Ti	7
D4L	L	D2	9
D20	2	DINC	N
DMM	3	CK3M	K
DNI	4	CD4MCu	0
DC2	5		

D4* ■	1	DC3	6
D4L	L	Ti	7
D20	2	D2	9
DMM	3	DINC	N
DNI	4	CK3M	K
DC2	5	CD4MCu	0

17-4SS*	1	Ti	7
316SS	S	N50A	R
C20H	2	▲ N50 TriFlex +601°F	T
K Monel 500	3	Ferrallium 255	F
Nickel	4	254 SMO	K
Hastelloy B	5	Inconel 625	N
Hastelloy C276	6		

PTFE/Fiberglass	A	Titanium/PTFE	L
Hastelloy B/PTFE	B	Inconel/PTFE	N
C20/PTFE	C	316SS/PTFE ■	S
Hastelloy C/PTFE	H	Monel/PTFE	M
Inconel X750, APEX or TriFlex +400°F	I	Nickel/PTFE	4
		316 HCP (TriFlex* or APEX +400°F)	T

TriFlex/Apex to 400°F	T
TriFlex/Apex 401°F to 600°F	H
TriFlex 601°F to 800°F	R
TriFlex 801°F to 1000°F	Y
Single 1/8" NPT Bleed/Inj. Port <sup>1</sup>	B
Two 1/8" NPT Purge Ports <sup>1</sup>	P
Bearing Lube (1/8" NPT Port)	L
CL2 Cleaned	C
O2 Cleaned ★	O
Special Cleaning ★	S
N.A.C.E. Trim (includes R shaft)	N
Steam Jacket	J
Steam Traced Disc	D
Special Fasteners	F
Inconel 718 Bellevilles (6 pt) ▼	I
None	Z
Special Non-Standard	X

Locking Lever 2-8 in	0
Enclosed Gear	1
Pad Lockable Gear	2
Bare Stem	9

PFA/Viton Energizer*	V
PFA/Silicone Energizer	R
PFA/Inconel Energizer	M
Fire Seal PFA/Inconel	Z
Inconel TriFlex ◆	N
316/Inconel TriFlex	S
Inconel APEX Class IV	A
Copper/Inconel TriFlex	C
Monel TriFlex	K
UHMWPE (2" - 12")	U
Nickel/Inconel TriFlex	4

Single PTFE Cup & Cone*	1
Double PTFE Cup & Cone	2
Live Loaded Single Cup & Cone*	3
Live Loaded Double Cup & Cone**	4
Triple Seal Single PTFE Cup & Cone (Self-Adjusting)	7
Triple Seal Double PTFE Cup & Cone (Self-Adjusting)	8
Single Grafoil ■ ▼	9
Double Grafoil ▼	0

\* Standard PFA Seat - All other materials considered optional.

\*\* 17-7 S.S. Belleville Washers included.

★ Customer specification must be given.

● For use with Shaft Seals 3 & 4 only (17-7 Bellevilles Standard).

■ Standard Fire Sealed.

◆ Standard TriFlex Seat - All other materials considered optional.

▼ Grafoil Packing is NOT recommended with Belleville Washers.

▲ ASTM A479 Xn19 Standard Triflex +601°F (315°C)

<sup>1</sup> Per Packing Gland



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