

CRANE CENTERLINE

Resilient Seated Butterfly Valves

SERIES 200 • SERIES 225



Series 200 Butterfly Valves

- Sizes DN50 to 750 (NPS2 to 30).
- Available in wafer or lugged wafer body style.
- Wafer body features four alignment holes.
- Pressure ratings for tight shut-off at temperatures up to the maximum limit of the seat material:
DN50 to 300 (NPS2 to 12) - 16 bar (232 lbf/in²)
DN350 to 750 (NPS14 to 30) - 10 bar (150 lbf/in²)
- Ideal for on-off or throttling services.
- Available with levers DN50 to 300 (NPS2 to 12), manual gear operators DN50 to 750 (NPS2 to 30), and electric or pneumatic actuators, DN50 to 750 (NPS2 to 30).
- Operator can be mounted parallel or perpendicular to pipeline.
- Designed to comply with MSS SP-67 and API 609. Valves generally conform to BS 5155 and prEN593.
- Compatible with BS 4504 and ANSI 125/150 flanges.
- Valves NPS2 to 20 meet the intent and have passed the AWWA C-504-87 Section 5 proof of design tests.
- Phenolic backed seat is blow-out proof and is easily field replaceable.
- Three bushing design gives shaft support and isolates shaft from body.

Series 225 Butterfly Valves

The Series 225 features the same proven design features as the Series 200, but is rated to 20 bar (285 lbf/in²). These heavy duty butterfly valves are designed for the hostile operating conditions and high pressures encountered in many piping systems today. With the fully-lined body isolated from the flow stream, the use of expensive alloys is reduced to the disks and taper pins. The Series 225 valves provide an excellent cost-effective alternative for ANSI Class 150 rated valves.

- Sizes DN50 to 600 (NPS2 to 24).
- Pressure rating: 20 bar (285 lbf/in²) at 38°C (100°F). Pressure/temperature rating above 38°C (100°F) corresponds to ANSI B16.5 Class 150 for steel flanges.
- Available in wafer (DN50 to 300 or NPS2 to 12) or lugged body style (DN50 to 600 or NPS2 to 24).
- Wafer body features four alignment holes.
- Ideal for on-off or throttling services.
- Available with levers (DN50 to 150 or NPS2 to 6), manual gear operators, electric actuators and pneumatic actuators (all sizes).
- Compatible with BS 4504 and ANSI 125/150 flanges.

Product availability

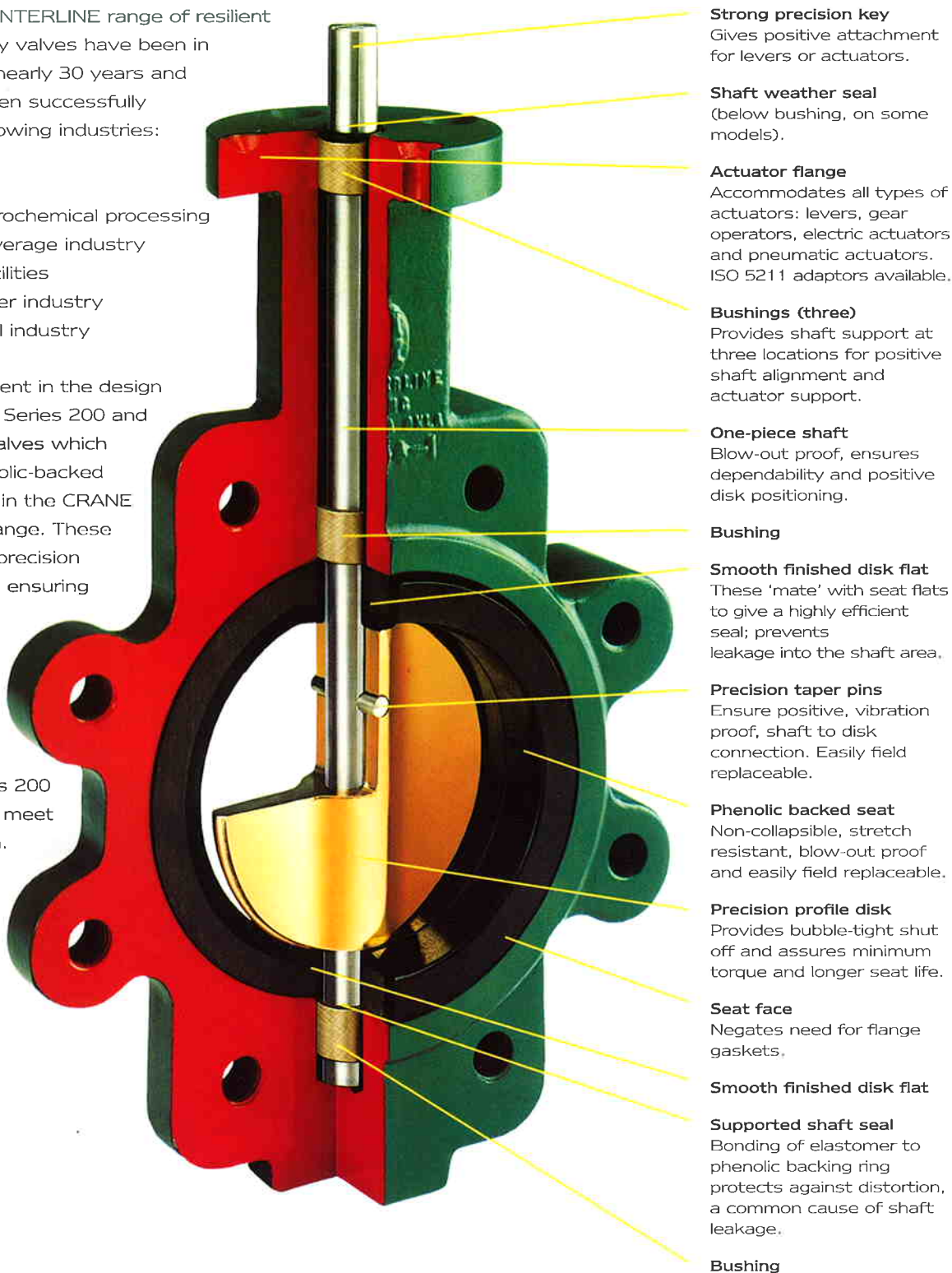
The Series 200 and 225 CRANE CENTERLINE ranges are regularly available in wafer and lugged body styles with Buna N (nitrile) and EPDM body liners/seats and with lever, gearbox or actuator operation for most general applications. Details on inside back cover. For more specific applications a wide range of alternative materials is available for the body, body liner/seat, disk and shaft
– see table on page 7.

Performance Features

The CRANE CENTERLINE range of resilient seated butterfly valves have been in production for nearly 30 years and valves have been successfully used in the following industries:

- HVAC
- Chemical/petrochemical processing
- Food and beverage industry
- Power and utilities
- Pulp and paper industry
- Other general industry

Quality is apparent in the design features of the Series 200 and 225 butterfly valves which utilize the phenolic-backed seat pioneered in the CRANE CENTERLINE range. These valves feature precision machined parts ensuring years of dependable operation. With many body/trim combinations, there is a Series 200 or 225 valve to meet your application.



Strong precision key

Gives positive attachment for levers or actuators.

Shaft weather seal

(below bushing, on some models).

Actuator flange

Accommodates all types of actuators: levers, gear operators, electric actuators and pneumatic actuators. ISO 5211 adaptors available.

Bushings (three)

Provides shaft support at three locations for positive shaft alignment and actuator support.

One-piece shaft

Blow-out proof, ensures dependability and positive disk positioning.

Bushing

Smooth finished disk flat

These 'mate' with seat flats to give a highly efficient seal; prevents leakage into the shaft area.

Precision taper pins

Ensure positive, vibration proof, shaft to disk connection. Easily field replaceable.

Phenolic backed seat

Non-collapsible, stretch resistant, blow-out proof and easily field replaceable.

Precision profile disk

Provides bubble-tight shut off and assures minimum torque and longer seat life.

Seat face

Negates need for flange gaskets.

Smooth finished disk flat

Supported shaft seal

Bonding of elastomer to phenolic backing ring protects against distortion, a common cause of shaft leakage.

Bushing

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FLUID SYSTEMS

Design Features

Lugged wafer type

Mounting flange

- The mounting flange is designed so that the ease of fitting any actuator is guaranteed. At request, with adaptor flange to ISO 5211.

Shaft bushings

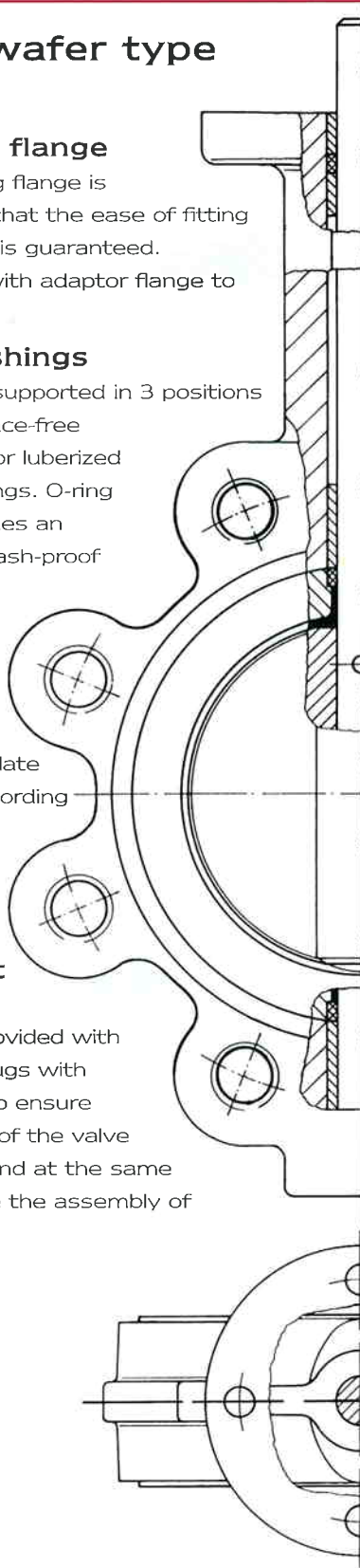
- The shaft is supported in 3 positions by maintenance-free PTFE/Teflon or luberized bronze bushings. O-ring sealing provides an additional splash-proof sealing from the outside.

Body neck

- Long neck to accommodate insulation according to heating facilities regulations.

Flange alignment

- Wafer type valves are provided with 4 alignment lugs with drilled holes to ensure concentricity of the valve and flanges and at the same time facilitate the assembly of the valve.



Wafer type

Body liner/seat

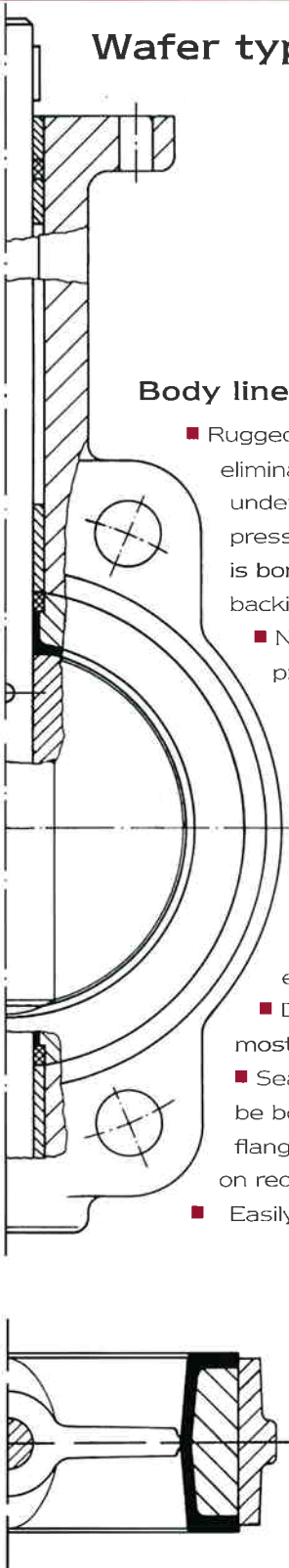
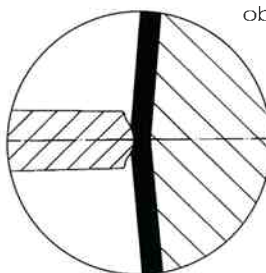
- Rugged phenol-resin backing ring eliminates seat distortion even under maximum working pressure. The elastomeric seat is bonded to the phenolic backing ring.
- Non-collapsible blow-out proof seat.
- Bi-directional line flow.
- Seat serves as its own flange gasket.
- Dry-back seat for maximum corrosion resistance.
- Line fluid is isolated from valve body, shaft and external parts.
- Different elastomers to suit most service conditions.
- Seat design permits valve to be bolted between weld-neck flanges, special end-of-line type on request.
- Easily field replaceable.



Disk edge profile

The advantages of the disk are in its smooth contoured edges and streamlined flow design with obstructions held to a minimum.

The smooth precision surface ensures a bubble tight shut-off against the seat. The design substantially lowers the closing torque of the valve and increases the life of the disk and seat.

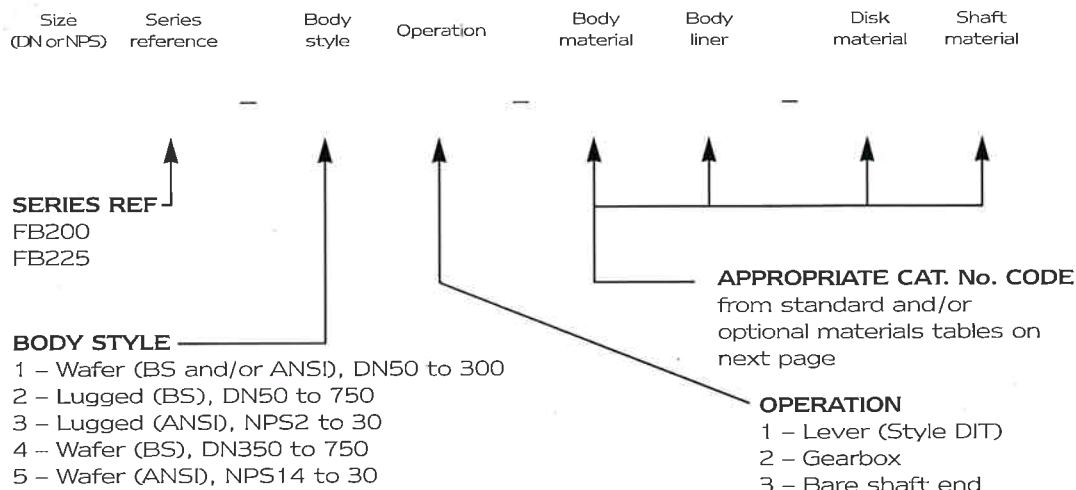


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FLUID SYSTEMS

Catalogue numbering system for Crane Centerline valves

In order to simplify the identification, selection and ordering of Series 200, and 225 butterfly valves, a new catalogue numbering system has been introduced which utilises code numbers to identify the various features and materials available.



EXAMPLES

Valve with standard materials:

DN50 FB200-11-11-11 is a size DN50 Series 200 wafer style valve suitable for BS 4504 PN10/16 and ANSI 125/150 flanges, with lever operation, cast iron body, Buna N (nitrile) body liner/seat, ductile (SG) iron disk and 416 S/S shaft.

Valve with standard/optional materials:

DN300/NPS12 FB225-32-23-22 is a size DN300/NPS12 Series 225 lugged wafer style valve suitable for ANSI Class 125/150 flanges, with gearbox operation, ductile (SG) iron body, Viton body liner/seat, aluminium bronze disk and 316 S/S shaft.

Body styles and flange suitability

Body			Series	Suitable for mounting to flanges											
Cat. No. Code	Style			BS 4504						ANSI		BS 10			
				PN10			PN16			PN 25	125/150		Tab D	Tab E	Tab F
				DN50 to DN150	DN200 to DN300	DN350 & larger	DN50 to DN150	DN200 to DN300	DN350 & larger		NPS2 to NPS12	NPS14 & larger			
1	Wafer		200	●	●		●	●		●		○	○		
4						●									
5										●					
1			225	○	○		○	○		○	●		○	○	○
2	Lugged Wafer	BS4504	200	●	○	●	●	●							
			225	○	○	○	○	○	○	○					
3		ANSI	200								●	●			
			225									●	●		

● Standard valve suitable ○ Refer to Crane Fluid Systems for suitability

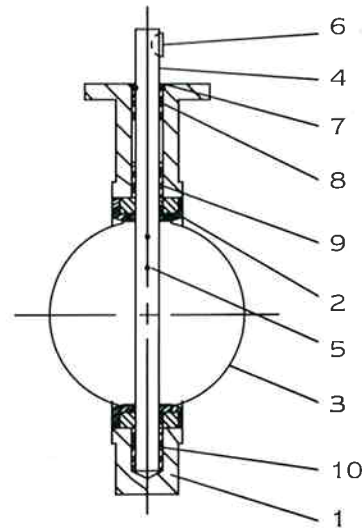
Wafer and lugged style valves are designed to fit without gaskets between flanges according to the table. Lugged style valves have body lugs drilled and tapped metric to suit BS 4504 flanges or UNC to suit ANSI flanges.

Note: When lugged style valves are required for end of line (dead end) service, please specify on the enquiry and/or order.

Materials

Standard materials

Materials of construction of valves regularly available are given in the table right.



Item	Description		Series	Material	Cat. No. Code
1	Body	Wafer	200	Cast iron	1
			225	Ductile (SG) iron	2
		Lugged	200	Cast iron	1
			225	Ductile (SG) iron	2
2	Body liner/seat		200 225	Buna N (nitrile)	1
				EPDM	2
3	Disk			Ductile (SG) iron ♦	1
4	Shaft			416 stainless steel	1
5 ♠	Taper pins			316 stainless steel	—
6	Key			Carbon steel	—
7 ♠	O-ring			Buna N (nitrile)	—
8, 9 & 10	Shaft bushings			PTFE or luberized bronze	—

♦ ENP plated on sizes DN50 to 300 (NPS2 to 12); zinc rich corrosion retardant coating on DN350-750 (NPS14 to 30)

♣ Recommended spares.

Material specifications (typical)

Item	Material	ASTM
1	Cast iron	A126 Class B
1 & 3	Ductile (SG) iron	A536 65-45-12
3	316 stainless steel	A351 Gr. CF8M
3	Aluminium bronze	B148 C95300
3	Monel	A494 M30C or M35-2
4	416 stainless steel	A532 Type 416
4	316 stainless steel	A276 Type 316
4	Monel	B164 UNS-N04405
4	17-4PH stainless steel	A564 Type 630 (H1150)

Seat temperature rating

Material	Temperature	
	°C	°F
Buna N (nitrile)	-12 to 82	+10 to 180
Abrasion resistant Buna N (nitrile)	-12 to 82	+10 to 180
Neoprene	-7 to 93	+20 to 200
EPDM	-35 to 130	-30 to 266
EPDM, potable water	-35 to 110	-30 to 225
Hypalon	-18 to 135	0 to 275
Viton, low temperature	-12 to 135	+10 to 275
Viton, high temperature	-12 to 200	+10 to 400
PTFE over Buna N	+5 to 120	+40 to 250

CRANE CENTERLINE Valve Material Selection Guide available on request.

Optional materials

Materials of construction which are available as options to suit customers' special requirements are given in the table below.

Item	Description		Material		Availability		Cat. No.
					200	225	Code
1	Body	Wafer	Ductile (SG) iron		●		2
			Cast iron	Epoxy coated	●		3
			Ductile iron		●	●	4
		Lugged	Ductile (SG) iron		●		2
			Cast iron	Epoxy coated	●		3
			Ductile iron		●	●	4
2	Body liner/seat		Low temp Viton		●	●	3
			High temp Viton		● ♡	● ♡	4
			Hypalon		●	●	5
			Abrasion resist Buna N		●	●	6
			Black neoprene		● ♡	●	7
			White neoprene		●		8
			EPDM, potable water		● ♡		9
			PTFE over Buna N		● ♡		A
3	Disk		Aluminium bronze		●	●	2
			316 stainless steel		●	●	3
			Monel		●	●	4
4	Shaft		316 stainless steel		●	● ♣	2
			Monel		●	●	3
			17-4PH stainless steel			● ♡	4
5	Taper pins		Monel ♣		●	●	—

♣ Sizes DN350 to 600 (NPS14 to 24) only

♥ Sizes DN50 to 300 (NPS2 to 12) only

♣ Normally supplied only with valves having Monel disk and shaft

SERIES 200

Size range DN50 to 750 (NPS2 to 30)

Body styles Wafer and lugged wafer.

Pressure and temperature ratings

Nominal ratings:

Sizes DN50 to 300 (NPS2 to 12) - PN16 and Class 125

Sizes DN350 to 750 (NPS14 to 30) - PN10 and Class 125

Maximum working pressure:

Sizes DN50 to 300 (NPS2 to 12)

-16 bar (232 lbf/in²)

Sizes DN350 to 750 (NPS14 to 30)

-10 bar (150 lbf/in²)

Temperature range:

-35 to 200°C (-30 to 400°F) depending on selected body/liner seat. When used on dry services, gases, etc., the maximum temperature for Buna N (nitrile) and EPDM body liner/seats is 60°C (140°F) and 100°C (212°F) respectively.

End connections

Valves are suitable for use with flanges conforming to BS 4504 PN10 or PN16, BS 1560 Classes 125 and 150, ANSI B16.1 Class 125 and ANSI B16.5 Class 150.

Suitability for use with BS 10 and other flanges on request.

Operation

Lever, gearbox, pneumatic or electric actuators or bare shaft end can be supplied.

Dead end service

When lugged style valves are required for end of line (dead end) service, please specify on the enquiry and/or order.

Undercut disk

Sizes DN 200 to 750 (NPS8 to 30) valves can be provided with the disk edge profile undercut in order to reduce the operating torque and enable smaller actuators to be used (see page 13).

These valves are limited to a maximum differential pressure of 5.2 bar (75lbf/in²). Please specify 'with undercut disk' on the enquiry and/or order.

Materials

Item	Description	Material	Optional Materials
1	Body	Cast iron	Ductile (SG) iron
2	Disk	Ductile (SG) iron ♦	Aluminium bronze 316 stainless steel Monel
3 ♣	Body liner/seat	Buna N (nitrile) or EPDM	Low temp Viton High temp Viton ♥ Hypalon Abrasion resistant Buna N Black neoprene ♥ White neoprene EPDM, potable water grade ♥ PTFE over Buna N ♥
4	Shaft	416 stainless steel	316 stainless steel Monel
5 ♣	Taper pins	316 stainless steel	Monel ♦
6	Key	Carbon steel	None
7 ♣	O-ring	Buna N (nitrile)	None
8, 9 & 10	Bushings	PTFE (DN50 - 100) Luberized bronze (DN125 & above)	None

♦ ENP plated on sizes DN50 to 300 (NPS2 to 12), zinc rich corrosion retardant coating on DN350 to 750 (NPS14 to 30).

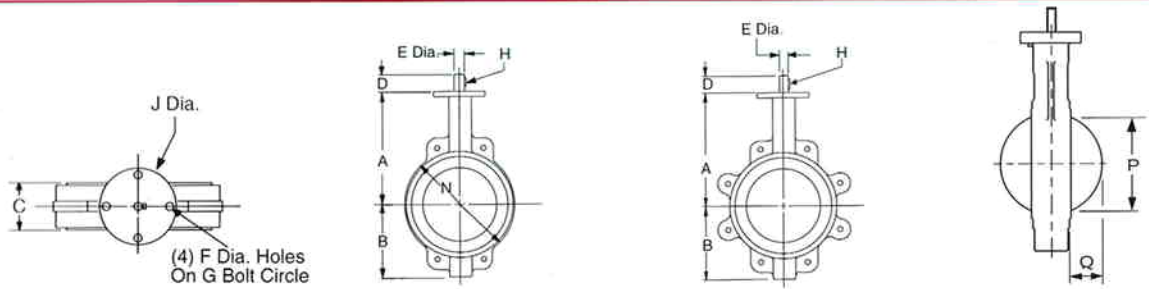
♦ Normally supplied only with valves having Monel disk and shaft.

♣ Recommended spares.

♥ Sizes DN50 to 300 (NPS2 to 12) only.

CRANE CENTERLINE Valve Material Selection Guide available on request.

Dimensions



Nom. size			A	B	C	D	E	F	G	H	J	N	P	Q
DN	NPS													
50	2	in. mm	6 ³ / ₈ 162	3 ¹ / ₄ 83	1.69 43	1 ¹ / ₄ 31.8	1 ¹ / ₂ 12.7	17 ¹ / ₆₄ 6.7	2 ¹ / ₄ 57.2	No.3	3 ¹ / ₄ 82.6	4 102	1 ¹ / ₄ 32	1 ¹ / ₄ 6
65	2 1/2	in. mm	6 ⁷ / ₈ 175	3 ³ / ₄ 95	1.81 46	1 ¹ / ₄ 31.8	1 ¹ / ₂ 12.7	17 ¹ / ₆₄ 6.7	2 ¹ / ₄ 57.2	No.3	3 ¹ / ₄ 82.6	4 ³ / ₄ 121	1 ⁷ / ₈ 47	3 ³ / ₈ 10
80	3	in. mm	7 ¹ / ₈ 181	4 102	1.81 46	1 ¹ / ₄ 31.8	1 ¹ / ₂ 12.7	17 ¹ / ₆₄ 6.7	2 ¹ / ₄ 57.2	No.3	3 ¹ / ₄ 82.6	5 ¹ / ₈ 130	2 ¹ / ₂ 64	5 ⁵ / ₈ 17
100	4	in. mm	7 ⁷ / ₈ 200	4 ⁷ / ₈ 12	2.06 52	1 ¹ / ₄ 31.8	5 ⁵ / ₈ 15.9	13 ³ / ₃₂ 10.3	2 ³ / ₄ 69.8	No.9	3 ⁷ / ₈ 98.4	6 ³ / ₄ 171	3 ¹ / ₂ 90	1 26
125	5	in. mm	8 ³ / ₈ 213	5 ³ / ₈ 137	2.22 56	1 ¹ / ₄ 31.8	3 ³ / ₄ 19.0	13 ³ / ₃₂ 10.3	2 ³ / ₄ 69.8	No.9	3 ⁷ / ₈ 98.4	7 ³ / ₄ 19.7	4 ³ / ₈ 111	1 ³ / ₈ 35
150	6	in. mm	8 ⁷ / ₈ 225	5 ⁷ / ₈ 149	2.22 56	1 ¹ / ₄ 31.8	3 ³ / ₄ 19.0	13 ³ / ₃₂ 10.3	2 ³ / ₄ 69.8	No.9	3 ⁷ / ₈ 98.4	8 ⁵ / ₈ 219	5 ³ / ₄ 146	2 50
200	8	in. mm	10 ¹ / ₄ 260	7 ¹ / ₈ 181	2.38 60	1 ³ / ₄ 44.4	7 ⁷ / ₈ 22.2	9 ¹ / ₁₆ 14.3	3 ¹ / ₂ 88.9	No.9	4 ³ / ₄ 120.6	10 ⁹ / ₁₆ 268	7 ⁵ / ₈ 193	2 ³ / ₄ 71
250	10	in. mm	11 ¹ / ₂ 292	8 ¹ / ₄ 210	2.69 68	1 ³ / ₄ 44.4	1 ¹ / ₈ 28.6	9 ¹ / ₁₆ 14.3	3 ¹ / ₂ 88.9	No.15	5 127.0	13 ¹ / ₁₆ 332	9 ¹ / ₂ 241	3 ⁵ / ₈ 92
300	12	in. mm	13 ¹ / ₄ 337	9 ³ / ₄ 248	3.06 78	1 ³ / ₄ 44.4	1 ¹ / ₄ 31.8	9 ¹ / ₁₆ 14.3	4 ¹ / ₄ 108.0	No.15	6 152.4	16 406	11 ¹ / ₂ 291	4 ¹ / ₂ 112
350	14	in. mm	14 ¹ / ₂ 368	11 279	3.06 78	1 ³ / ₄ 44.4	1 ¹ / ₄ 31.8	9 ¹ / ₁₆ 14.3	4 ¹ / ₄ 108.0	No.15	5 ³ / ₄ 146.0	17 ¹ / ₈ 435	12 ³ / ₄ 325	5 129
400	16	in. mm	15 ³ / ₄ 400	12 305	3.44 87	2 50.8	1 ⁵ / ₁₆ 33.3	13 ¹ / ₁₆ 20.6	6 ¹ / ₄ 158.8	5/16 sq.	8 ¹ / ₈ 206.4	20 508	15 380	6 152
450	18	in. mm	16 ⁵ / ₈ 422	14 ³ / ₈ 365	4.19 106	2 50.8	1 ¹ / ₂ 38.1	13 ¹ / ₁₆ 20.6	6 ¹ / ₄ 158.8	3/8 sq.	8 203.2	21 ³ / ₈ 543	16 ¹ / ₈ 429	6 ⁵ / ₈ 168
500	20	in. mm	18 ⁷ / ₈ 479	14 ⁵ / ₈ 371	5.19 132	2 ¹ / ₂ 63.5	1 ⁵ / ₈ 41.3	13 ¹ / ₁₆ 20.6	6 ¹ / ₄ 158.8	3/8 sq.	8 203.2	23 ⁵ / ₁₆ 592	18 ⁵ / ₈ 474	7 ¹ / ₈ 181
600	24	in. mm	22 ¹ / ₈ 562	18 457	6.00 152	2 ³ / ₄ 69.8	2 50.8	7 ⁷ / ₈ 22.2	8 ¹ / ₂ 215.9	1/2 sq.	11 ¹ / ₄ 285.8	27 ⁷ / ₈ 708	22 ³ / ₈ 568	8 ³ / ₈ 212
750	30	in. mm	25 ¹ / ₂ 648	24 ¹ / ₄ 616	6.63 168	3 ¹ / ₄ 82.6	2 ¹ / ₂ 63.5	7 ⁷ / ₈ 22.2	8 ¹ / ₂ 215.9	5/8 sq.	11 ¹ / ₄ 285.8	34 ³ / ₈ 873	28 ⁵ / ₈ 726	11 ³ / ₈ 289

Dimension C is given for the installed condition (i.e. with the seat liner compressed) - free length exceeds this dimension by approx. 2 to 4mm depending on valve size.
Dimension H for sizes DN50 to 350 (NPS2 to 14) relates to standard Woodruff key sizes.

K_V values – valve sizing coefficients (m³/h at 1 bar ΔP)

Nom. size		K _V at disk opening								
DN	NPS	10°	20°	30°	40°	50°	60°	70°	80°	90° ✚
50	2	0.05	2.6	6.1	13	23	38	61	91	100
65	2 1/2	0.09	5.2	10	22	39	65	103	154	170
80	3	0.17	7.8	16	34	61	100	158	238	261
100	4	0.26	15	31	68	120	199	315	472	519
125	5	0.43	25	53	115	205	339	536	804	884
150	6	0.69	39	82	177	317	523	829	1243	1366
200	8	1.7	77	163	353	629	1040	1646	2469	2713
250	10	2.6	131	277	600	1070	1771	2803	4203	4619
300	12	3.5	202	428	927	1653	2735	4329	6494	7136
350	14	5.2	292	618	1340	2388	3951	6254	9380	10308
400	16	6.9	401	850	1842	3284	5434	8600	12900	14176
450	18	9.5	532	1126	2441	4349	7197	11390	17085	18775
500	20	12	684	1448	3138	5592	9254	14645	21968	24140
600	24	19	1057	2238	4848	8640	14297	22623	33939	37295
750	30	32	1799	3811	8256	14714	24347	38531	57798	63513

✚ 90° = fully open. For C_v in gallons/min at 1lb/in² pressure drop, multiply K_V by 0.963 for UK gpm, or multiply K_V by 1.156 for US gpm.

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FLUID SYSTEMS

SERIES 225

Size range DN50 to 600 (NPS2 to 24)

Body styles

Wafer: sizes DN50 to 300 (NPS2 TO 12)

Lugged wafer: sizes DN50 to 600 (NPS2 to 24)

Pressure and temperature ratings

Nominal ratings: Class 150 and Class 125

Maximum working pressure:

20 bar (285 lbf/in²) at 38°C (100°F)

Temperature range: -35 to 200°C (-30 to 400°F) depending on the selected body liner/seat.

When used on dry services, gases, etc., the maximum temperature for Buna N (nitrile) and EPDM body liner/seats is 60°C (140°F) and 100°C (212°F) respectively.

End connections

Valves are suitable for use with flanges conforming to BS 1560 Classes 125 and 150, ANSI B16.1 Class 125 and ANSI B16.5 Class 150. Suitability for use with BS 4504, BS 10 and other flanges on request.

Operation

Lever, gearbox, pneumatic or electric actuator or bare shaft end can be supplied.

Dead end service

When lugged style valves are required for end of line (dead end) service, please specify on enquiries and/or order.

Materials

Item	Description	Material	Optional Materials
1	Body	Ductile (SG) iron	None
2	Disk	Ductile (SG) iron ♦	Aluminium bronze 316 stainless steel Monel
3 ♣	Body liner/seat	Buna N (nitrile) or EPDM	Neoprene Hypalon Abrasion resistant Buna N (nitrile) Viton - low temperature Viton - high temperature ▼
4	Shaft	416 stainless steel	DN50 to 300 (NPS2 to 12): 17-4 PH stainless steel Monel DN350 to 600 (NPS14 to 24): 316 stainless steel Monel
5 ♣	Taper pins	316 stainless steel	Monel
6	Key	Carbon steel	None
7 ♣	O-Ring	Buna N (nitrile)	None
8, 9 & 10	Bushings	PTFE	None

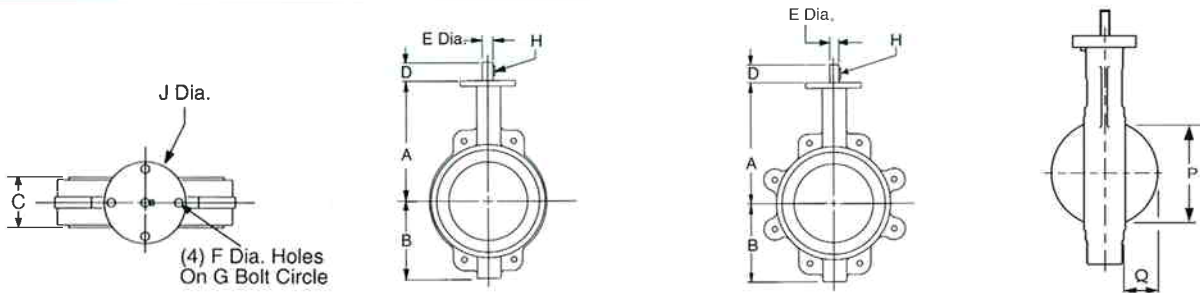
♦ ENP plated on DN50 to 300 (NPS2 to 12); zinc rich corrosion retardant coating on DN350 to 600 (NPS14 to 24).

♣ Recommended spares.

▼ Sizes DN50 to 300 (NPS2 to 12) only.

CRANE CENTERLINE Valve Material Selection Guide available upon request.

Dimensions



Nom. size			A	B	C	D	E	F	G	H	J	P	Q
DN	NPS												
50	2	in.	6 ³ / ₈	3 ¹ / ₄	1.69	1 ¹ / ₄	1 ¹ / ₂	17/64	2 ¹ / ₄	No.3	3 ¹ / ₄	1 ¹ / ₄	1 ¹ / ₄
		mm	162	83	43	31.8	12.7	6.8	57.2		82.6	32	6
65	2 ¹ / ₂	in.	6 ⁷ / ₈	3 ³ / ₄	1.81	1 ¹ / ₄	1 ¹ / ₂	17/64	2 ¹ / ₄	No.3	3 ¹ / ₄	1 ⁷ / ₈	3 ³ / ₈
		mm	175	95	46	31.8	12.7	6.8	57.2		82.6	47	10
80	3	in.	7 ¹ / ₈	4	1.81	1 ¹ / ₄	1 ¹ / ₂	17/64	2 ¹ / ₄	No.3	3 ¹ / ₄	2 ¹ / ₂	5 ⁵ / ₈
		mm	181	102	46	31.8	12.7	6.8	57.2		82.6	64	17
100	4	in.	7 ⁷ / ₈	4 ¹ / ₈	2.06	1 ¹ / ₄	5 ⁵ / ₈	13/32	2 ³ / ₄	No.9	3 ⁷ / ₈	3 ¹ / ₂	1
		mm	200	124	52	31.8	15.9	10.3	69.8		98.4	90	26
125	5	in.	8 ³ / ₈	5 ³ / ₈	2.22	1 ¹ / ₄	3 ³ / ₄	13/32	2 ³ / ₄	No.9	3 ⁷ / ₈	4 ³ / ₈	1 ³ / ₈
		mm	213	137	56	31.8	15.9	10.3	69.8		98.4	111	35
150	6	in.	8 ⁷ / ₈	5 ⁷ / ₈	2.22	1 ¹ / ₄	3 ³ / ₄	13/32	2 ³ / ₄	No.9	3 ⁷ / ₈	5 ³ / ₄	2
		mm	225	149	56	31.8	15.9	10.3	69.8		98.4	146	50
200	8	in.	10 ¹ / ₄	7 ³ / ₄	2.38	1 ³ / ₄	7 ⁷ / ₈	9/16	3 ¹ / ₂	No.9	4 ³ / ₄	7 ⁵ / ₈	2 ³ / ₄
		mm	260	197	60	44.4	22.2	14.3	88.9		120.6	193	71
250	10	in.	11 ¹ / ₂	8 ¹ / ₄	2.69	1 ³ / ₄	1 ¹ / ₈	9/16	3 ¹ / ₂	No.15	5	9 ¹ / ₂	3 ⁵ / ₈
		mm	292	210	68	44.4	28.6	14.3	88.9		127.0	241	92
300	12	in.	13 ¹ / ₄	9 ³ / ₄	3.06	1 ³ / ₄	1 ¹ / ₄	9/16	4 ¹ / ₄	No.15	6	11 ¹ / ₂	4 ¹ / ₂
		mm	337	248	78	44.4	31.8	14.3	108.0		152.4	291	112
350	14	in.	14 ¹ / ₂	11	3.06	1 ³ / ₄	1 ¹ / ₄	9/16	4 ¹ / ₄	No.15	5 ¹ / ₂	12 ³ / ₄	5
		mm	368	279	78	44.4	31.8	14.3	108.0		139.7	325	129
400	16	in.	15 ³ / ₄	12	3.44	2	1 ⁵ / ₁₆	13/16	6 ¹ / ₄	5/16 sq.	8 ¹ / ₈	15	6
		mm	400	305	87	50.8	33.3	20.6	158.8		206.4	380	152
450	18	in.	16 ⁵ / ₈	15	4.19	2	1 ⁵ / ₈	13/16	6 ¹ / ₄	3/8 sq.	8	16 ⁷ / ₈	6 ⁵ / ₈
		mm	422	381	106	50.8	41.3	20.6	158.8		203.2	429	168
500	20	in.	18 ⁷ / ₈	15 ¹ / ₄	5.00	2 ¹ / ₂	1 ⁵ / ₈	13/16	6 ¹ / ₄	3/8 sq.	8	18 ⁵ / ₈	7 ¹ / ₈
		mm	479	387	127	63.5	41.3	20.6	158.8		203.2	474	181
600	24	in.	22 ¹ / ₈	18	6.06	2 ³ / ₄	3	7/8	8 ¹ / ₂	3/4 sq.	11 ¹ / ₄	22 ³ / ₈	8 ³ / ₈
		mm	562	457	154	69.8	76.2	22.2	215.9		285.8	568	212

Dimension C is given for the installed condition (i.e. with the seat liner compressed) - free length exceeds this dimension by approx 2 to 4mm depending on the valve size.

Dimension H for sizes DN 50 to 350 (NPS2 to 14) relates to standard Woodruff key sizes.

K_V values – valve sizing coefficients (m³/h at 1 bar ΔP)

Nom. size		K _V at disk opening								
DN	NPS	10°	20°	30°	40°	50°	60°	70°	80°	90° ✦
50	2	0.05	2.6	6.1	13	23	38	61	91	100
65	2 ¹ / ₂	0.09	5.2	10	22	39	65	103	154	170
80	3	0.17	7.8	16	34	61	100	158	238	261
100	4	0.26	15	31	68	120	199	315	472	519
125	5	0.43	25	53	115	205	339	536	804	884
150	6	0.69	29	81	132	222	365	611	998	1142
200	8	1.7	48	133	217	365	599	1002	1637	1873
250	10	2.6	75	206	333	566	928	1552	2535	2900
300	12	3.5	132	361	589	990	1625	2718	4439	5079
350	14	5.2	158	432	706	1187	1948	3257	5320	6087
400	16	6.9	234	640	1045	1757	2883	4821	7875	9010
450	18	9.5	275	750	1226	2060	3381	5653	9235	10566
500	20	12	359	980	1601	2692	4418	7385	12065	13804
600	24	19	470	1282	2094	3520	5776	9658	15778	18052

✦ 90° = fully open. For C_v in gallons/min at 1 lbf/in² pressure drop, multiply K_V by 0.963 for UK gpm, or multiply K_V by 1.156 for US gpm.

CRANE

FLUID SYSTEMS

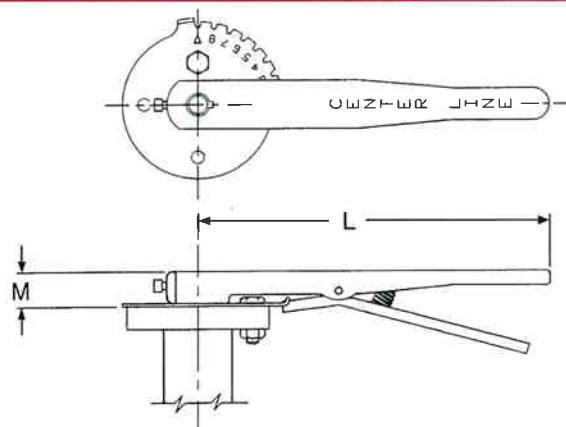
Operation

CRANE CENTERLINE butterfly valves, Series 200 and 225, can be supplied for operation by lever, gearbox/handwheel, pneumatic or electric actuator or with bare shaft for fitting of customers' own operating mechanism.

Levers The style DIT lever comprises a ductile (SG) iron lever and trigger release handle with carbon steel return spring. The indicator plate is in cadmium plated carbon steel and mounts directly on the valve top mounting flange.

A keyed connection to the shaft is provided. Levers are available for valves sizes DN50 to 300 (NPS2 to 12) but it is recommended that gear actuators are used on sizes DN200 to 300 (NPS8 to 12).

Style DIT: The valve can be mechanically set in any of 10 positions from fully closed to fully open. Standard lever for valves sizes DN50 to 300 (NPS2 to 12).



Nom. size		Bore in/mm	L in/mm	M in/mm	Weight lbs/kg
DN	NPS				
50 to 80	2 to 3	1/2 12.70	10 1/2 267	1 1/4 32	2 0.9
100	4	5/8 15.88			
125 & 150	5 & 6	3/4 19.05			
200	8	7/8 22.22	14 356	1 1/2 38	4 1.8
250	10	1 1/8 28.58			
300	12	1 1/4 31.75			

Gearboxes The style DG gearbox is available for all valves sizes DN50 to 750 (NPS2 to 30). For manual operation gearboxes must be used on DN350 (NPS14) and larger and are recommended for sizes DN200 to 300 (NPS8 to 12). All units have cast iron housing, steel input shaft and worm gear and ductile (SG) iron output gear segment; enclosure is weatherproof and units are normally provided with handwheel.

Adjustable end of travel stops are standard and factory set when the gearbox is factory mounted. Full details including dimensions and weights are available on request.

Actuators The complete range of Crane TROJAN pneumatic and electric valve actuators can be provided on CRANE CENTERLINE butterfly valves. Full details and selection charts are available on request.

Bare shaft CRANE CENTERLINE valves can be supplied with bare shaft end to allow customers to fit their own operators. Mounting brackets to provide ISO 5211 mounting flange can be supplied. Details on request.



Valve seating torques (Nm❖)

Nom. size		Series 200	Series 200	Series 200	Series 225	Series 200
		Standard disk				Undercut disk
		Maximum differential pressure – ΔP				
DN	NPS	10 bar 150 lbf/in ²	13.8 bar 200 lbf/in ²	16 bar 232 lbf/in ²	20 bar 285 lbf/in ²	5.2 bar 75 lbf/in ²
50	2	–	13	14	20	–
65	2½	–	21	22	28	–
80	3	–	28	29	37	–
100	4	–	44	47	58	–
125	5	–	94	100	91	–
150	6	–	141	151	136	–
200	8	–	282	298	211	127
250	10	–	514	544	363	154
300	12	–	784	820	553	278
350	14	855	–	–	734	497
400	16	1146	–	–	1552	667
450	18	1616	–	–	1970	938
500	20	2174	–	–	2076	1254
600	24	3423	–	–	4200	1977
750	30	5318	–	–	–	3085

All torque values shown are for valves with standard shaft bushings (see pages 8, 10 and 12) and are for 'wet' (water and other non-lubricating media) on-off service. For 'dry' service (non-lubricating, dry gas media), multiply values by 1.15. For 'lubed' service (clean, non-abrasive media), multiply values by 0.85. When sizing actuators for single valve applications, multiply the above torques by 1.25. Under certain conditions, hydrodynamic torque can meet or exceed seating and unseating torques. When designing valve systems hydrodynamic torque must be considered to help ensure correct selection of actuation.

❖ For torques in lbf/in multiply above torques by 8.85.

Valve weights

Nom. size		Series 200		Series 225	
DN	NPS	Wafer	Lugged	Wafer	Lugged
50	2	6 2.7	7 3.2	6 2.7	9 4.1
65	2½	7 3.2	8 3.6	7 3.2	13 5.9
80	3	10 4.5	14 6.4	10 4.5	14 6.4
100	4	13 5.9	26 11.8	13 5.9	19 8.6
125	5	18 8.2	28 12.7	18 8.2	22 10.0
150	6	20 9.1	31 14.1	21 9.5	31 14.1
200	8	32 14.5	49 22.2	34 15.4	49 22.2
250	10	42 19.1	72 32.7	45 20.4	72 32.7
300	12	70 31.8	105 47.6	74 33.6	105 47.6
350	14	95 43.1	155 70.3	–	178 80.7
400	16	117 53.1	195 88.5	–	224 102
450	18	165 74.8	230 104	–	265 120
500	20	275 125	396 180	–	455 206
600	24	440 200	610 277	–	702 318
750	30	740 336	1050 476	–	–

Weights are for valves with bare shaft and are given in lbs and kg respectively. Weights of levers and gearboxes are available on request.

CRANE

FLUID SYSTEMS

Crane Fluid Systems butterfly valves summary

In addition to the CRANE CENTERLINE valves featured in this catalogue, the full Crane Fluid Systems range of butterfly valves includes the following:

GEM – Wafer type

Cat No.	Size		Operation	Liner	End connection
	DN	NPS			
F611	50 to 300	2 to 12	Trigger lever	Nitrile	BS & ANSI
F612	50 to 600	2 to 24	Gearbox/handwheel	Nitrile	BS & ANSI
F621	50 to 300	2 to 12	Trigger lever	EPDM	BS & ANSI
F622	50 to 300	2 to 12	Gearbox/handwheel	EPDM	BS & ANSI

GEM – Lugged wafer type

Cat No.	Size		Operation	Liner	End connection
	DN	NPS			
F614	50 to 300	2 to 12	Trigger lever	Nitrile	BS 4504
F615	50 to 600	2 to 24	Gearbox/handwheel	Nitrile	BS 4504
F617	50 to 300	2 to 12	Trigger lever	Nitrile	ANSI
F618	50 to 600	2 to 24	Gearbox/handwheel	Nitrile	ANSI
F624	50 to 300	2 to 12	Trigger lever	EPDM	BS 4504
F625	50 to 300	2 to 12	Gearbox/handwheel	EPDM	BS 4504

CHALLENGER – Semi lugged type

Cat No.	Size		Operation	Liner	End connection
	DN	NPS			
F714	50 to 250	2 to 10	Lever	EPDM	BS 4504
F715	50 to 300	2 to 12	Gearbox/handwheel	EPDM	BS 4504
F717	50 to 250	2 to 10	Lever	EPDM	ANSI
F718	50 to 250	2 to 10	Gearbox/handwheel	EPDM	ANSI

Standard Configuration

The following are considered standard configurations.

Series FB 200 valves

FB200	XX-11-11	Buna-N liner, Ductile Iron Disk
FB200	XX-12-11	EPDM liner, Ductile Iron Disk
FB200	XX-11-21	Buna-N liner, Aluminium Bronze Disk
FB200	XX-12-21	EPDM liner, Aluminium Bronze Disk
FB200	XX-12-32	Buna-N liner, Stainless Steel Disk
FB200	XX-12-32	EPDM liner, Stainless Steel Disk
FB200	XX-19-21*	Potable water EPDM (WRC approved), Aluminium Bronze Disk

*Not available in ANSI lugged body.

Series FB 225 valves

FB225	XX-21-21	Buna-N liner, Aluminium Bronze Disk
FB225	XX-22-21	EPDM liner, Aluminium Bronze Disk
FB225	XX-21-32	Buna-N liner, Stainless Steel Disk
FB225	XX-22-32	EPDM liner, Stainless Steel Disk

NOTE: XX denotes body style and operation as defined in the Catalogue Numbering system on Page 6.

For other liner and disk combinations please refer to Crane Fluid Systems for availability.

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