

XOMOX[®]

brands you trust.



XLB - Lined Ball Valves
Including Fully Automated Packages

CRANE[®]

Crane ChemPharma & Energy

www.cranechempharma.com

XLB Lined Ball Valve Lower Torque - Smaller Actuators

Lower torque

smaller actuators, reduced costs,
space and weight saving

Actuator mounting

fully compliant with ISO 5211
allowing use of standardized
mounting kits

Compact design

allows installation in space
restricted areas in parallel
piping systems

Valve pressure classes

EN PN16 and ASME Class 150 JIS
10kg

Ductile iron body

standard valve body is
constructed of ductile iron.
ASTM A395 / 60-40-18
EN 1563 / JS 1049

Size range

1/2" / DN15 through 6" / DN150 Full Port
1 1/2" through 8" Standard Port
Other sizes available up to 12" / DN300

Temperature range

ASME: -20°F (-29°C) to 400°F (204°C)
EN: -10°C (14°F) to 204°C (400°F)
Above data is for ductile iron lined
valves, see pressure temperature ratings
for extended temperature capabilities
with alternative materials

All wetted components

fully lined with
permeation resistant PFA
material as a barrier to corrosion.

PVDF and Anti-static PFA also
available see page 14



XLB Lined Ball Valve SX Stem Sealing Technology

When valves are closed under pressure, the ball is able to float with line pressure and pressurize the downstream seat to further enhance the in-line seal. However, the stem will tend to tilt and can side load

conventional packing, leading to potential wear and eventual leakage. The SX seal in the XLB valve moves in conjunction with the spherical portion of the stem, maintaining a constant seal.

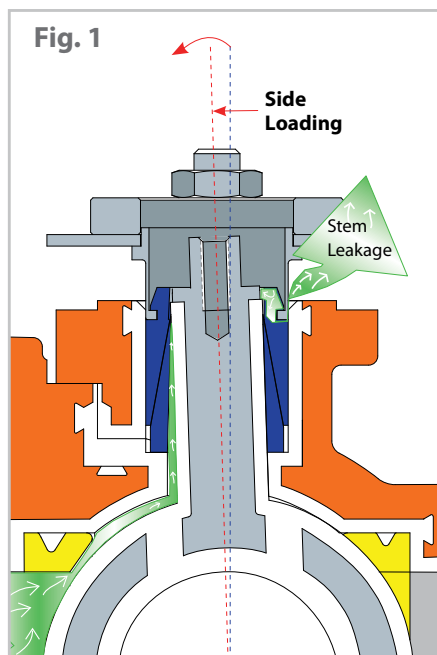


Fig.1:

In a conventional valve, moderate stem side loading can lead to significant emissions issues.

Other situations where side loading can occur during valve actuation include heavy manual operation, actuation loads, and misalignment, and abusive contact.

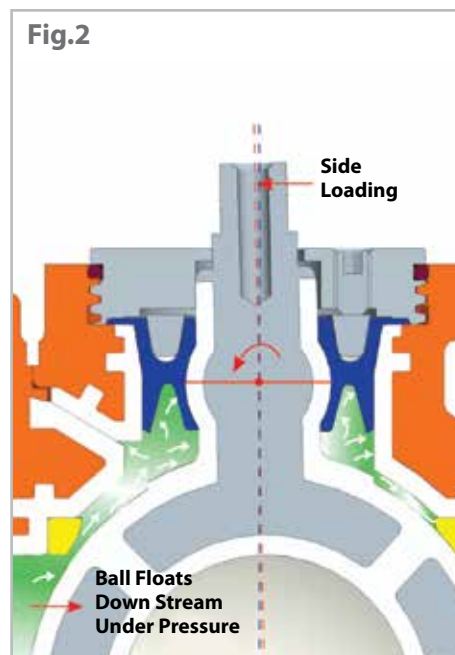


Fig.2:

The XLB valve's pressure assisted SX seal stays in constant contact with stem spherical seal surface to significantly reduce the chance of atmospheric leakage.

Anti blow-out integral ball and stem
Retains positive control and minimizes the danger of stem/ball failures due to liner damage at wear points.



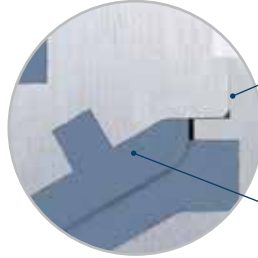
Locked in fluoroplastic liner
resists shrinkage and collapse, and permits vacuum applications.

XLB Lined Ball Valve Dynamic Body Joint Design

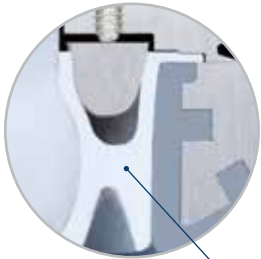
Stainless steel lever latching device minimizes possibility of accidental operation. Locking capability as standard. Made of stainless steel material ideal for corrosive environments.



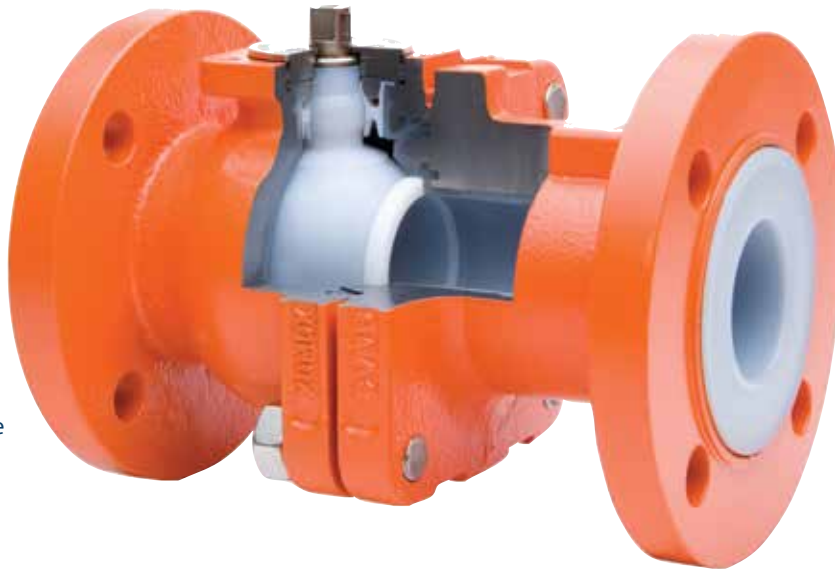
Metal-to-metal contact at the body joint ensures that no parts of the lining can be crushed or deformed because of forces within the piping system.



Wide conical plastic connection designed to maintain total seal even under extreme thermal cycling.



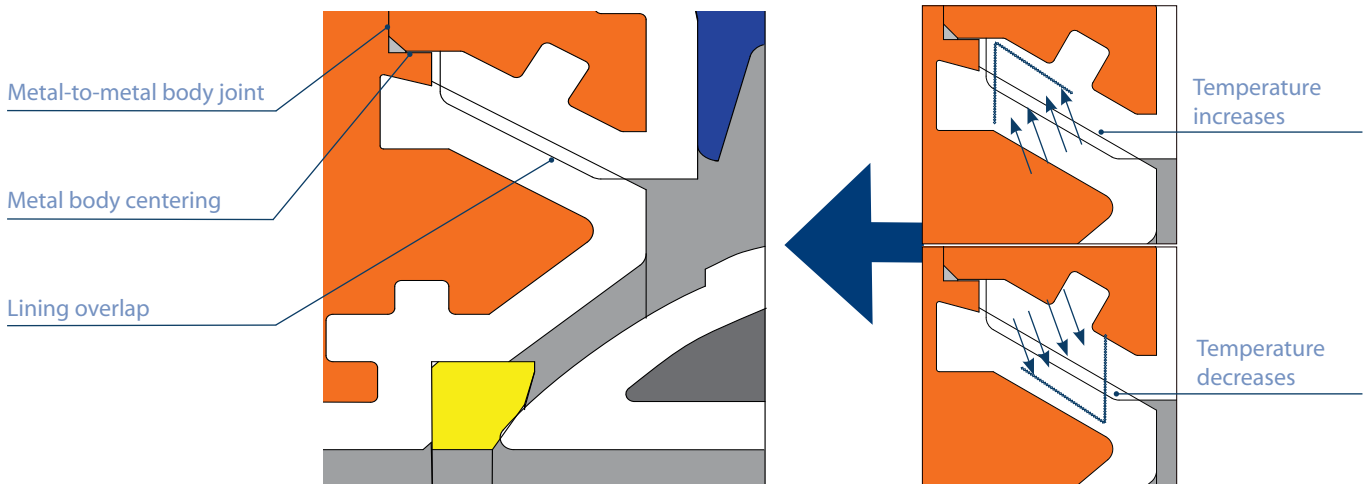
Atmospheric seal innovative "pressure assisted" SX seal device provides the highest protection against fugitive emissions.



Chemically modified PTFE (CMP) seats provide greater pressure stability at higher temperatures than conventional PTFE.

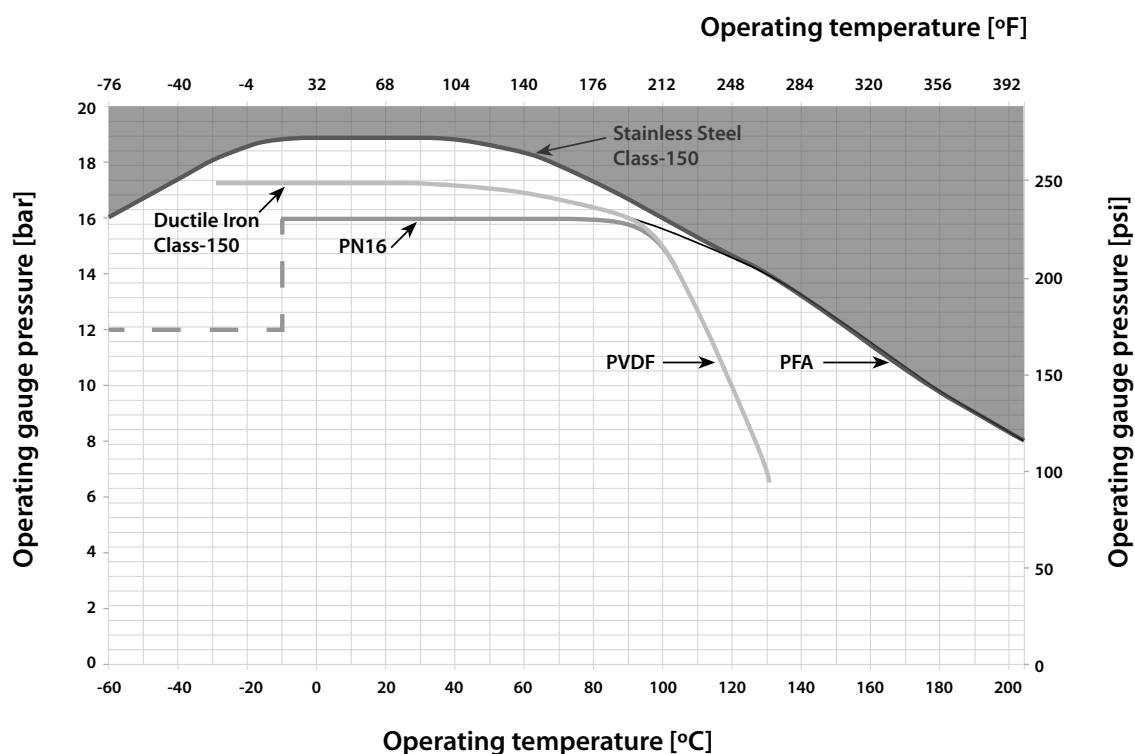
XLB dynamic body joint design retains pressure boundary during thermal cycles

The body assembly has metal-to-metal connection that offers resistance against forces that may be created in the pipework. This feature is designed to alleviate deformation and damage to the lining, even under pressure induced stresses. Also, the body joint sealing is provided with taper lining overlap, which is especially effective under high internal pressure and temperature variations.

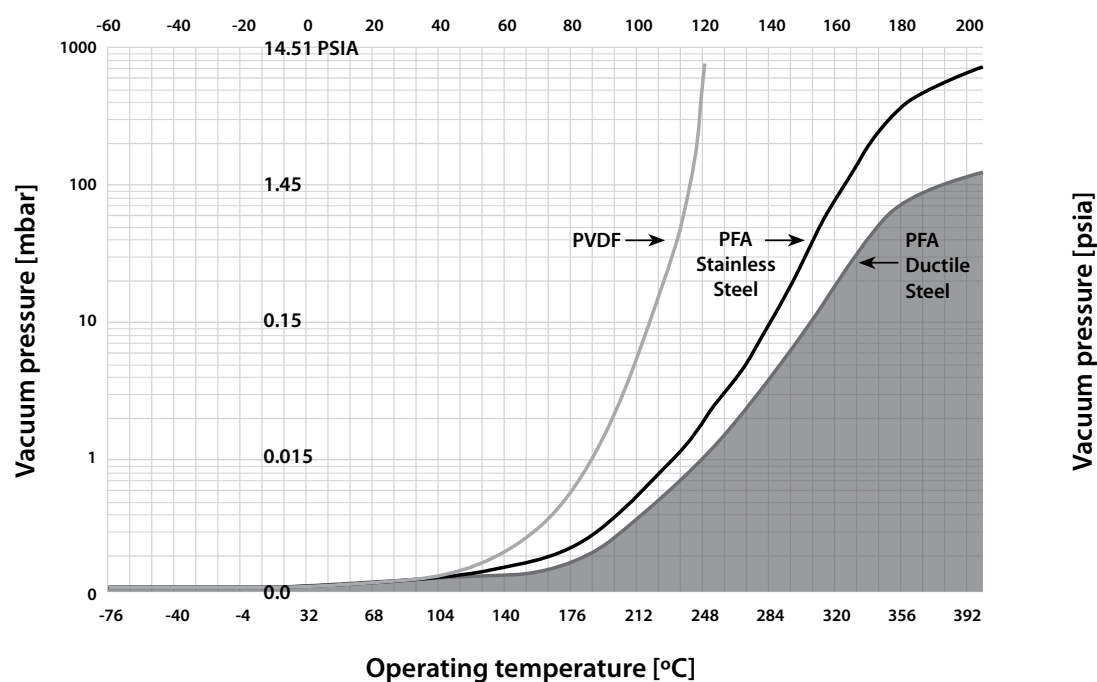


XLB Lined Ball Valve Performance Parameters

XLB Pressure / Temperature Diagram



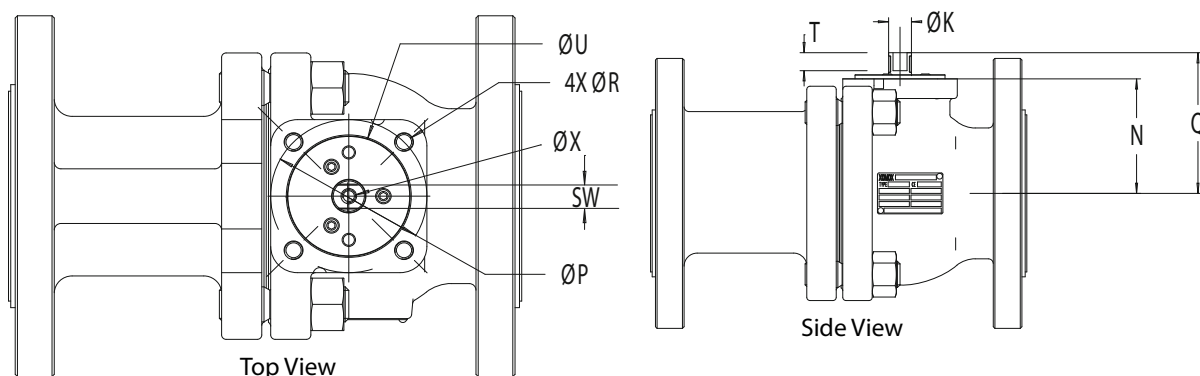
XLB Vacuum pressure / Temperature Diagram



XLB Lined Ball Valve Actuation Information

Operating torques (max. break-away torque)

Full Port Size		Standard Port Size		ΔP up to 5 bar	ΔP up to 70 psi	ΔP up to 10 bar	ΔP up to 145 psi	ΔP up to 17.6 bar	ΔP up to 250 psi
DN	in	DN	in	Nm at 20°C	in/lb at 70°F	Nm at 20°C	in/lb at 70°F	Nm at 20°C	in/lb at 70°F
15	1/2"	-	-	8	71	8	71	9	80
20	3/4"	-	-	8	71	8	71	9	80
25	1"	40	1 1/2"	8	71	8	71	9	80
32	1 1/4"	-	-	12	106	13	115	20	177
40	1 1/2"	50	2"	12	106	13	115	20	177
50	2"	80	3"	19	168	20	177	25	221
50/65	2 1/2"	-	-	19	168	20	177	25	221
80	3"	100	4"	35	310	55	487	70	620
100	4"	150	6"	77	682	90	797	100	885
150	6"	200	8"	154	1363	190	1682	260	2301



Actuator mounting dimensions

Full Port Size		Standard Port Size		ISO 5211	U	4XR	P	SW	T	K	X	N	Q	MAST*
DN	in	DN	in											
15	1/2"	-	-	F05	35	M6	50	9	9	9	M6	48	62	83
20	3/4"	-	-	F05	35	M6	50	9	9	9	M6	48	62	83
25	1"	40	1 1/2"	F05	35	M6	50	9	9	9	M6	48	62	83
32	1 1/4"	-	-	F07	55	M8	70	11	11	14	M6	62	78	143
40	1 1/2"	50	2"	F07	55	M8	70	11	11	14	M6	62	78	143
50	2"	80	3"	F07	55	M8	70	11	11	14	M6	70	86	143
50/65	2 1/2"	-	-	F07	55	M8	70	11	11	14	M6	70	86	143
80	3"	100	4"	F10	70	M10	102	17	17	22	M8	100	122	542
100	4"	150	6"	F10	70	M10	102	17	17	22	M8	126	148	542
150	6"	200	8"	F12	85	M12	125	22	22	28	M8	155	182	1147

*Maximum Allowable Stem Torque

XLB Lined Ball Valve Flow Characteristics

Flow Characteristics Full Port Valves

K_V [m³/h] - f (DN, Angle of aperture)

$C = 1.156K_V$

Angle of aperture		9°	18°	27°	36°	45°	54°	63°	72°	81°	90°
Angle of aperture %		10	20	30	40	50	60	70	80	90	100
DN	in										
15	1/2"	0.05	0.14	0.29	0.45	0.83	1.2	2.1	3	6.2	11
20	3/4"	0.21	0.47	1	1.52	2.55	3.57	5.84	8.1	17.3	31
25	1"	0.34	0.76	1.6	2.45	4.1	5.75	9.4	13	28	50
32*	1 1/4"	0.73	1.58	3.43	5.18	8.56	11.25	18.3	24.4	59.9	61.8
40	1 1/2"	1.12	2.45	5.28	8.11	13.8	19.4	35.2	51	104	184
50	2"	1.32	2.87	6.17	9.46	16	22.6	44.3	66	142	255
65**	2 1/2"	1.07	2.27	4.81	7.19	12.16	16.98	33.1	48.9	105.8	186.2
80	3"	2.86	7.61	15.7	23.8	38.15	52.5	100	149	321	578
100	4"	7	17	36	55	87	121	244	367	791	1427
150	6"	18	49	100	152	243	334	505.4	769	1652	2976

* with ball/stem DN40

** with ball/stem DN50

$F_L, K_T Z_Y = f$ (Angle of aperture)

Angle of aperture	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°
Rated Travel	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Recovery factor F_L	0.91	0.91	0.9	0.88	0.85	0.8	0.74	0.67	0.57	0.28
Valve characteristic Z_Y	0.52	0.52	0.51	0.49	0.47	0.43	0.38	0.33	0.26	0.09
Pressure differential ratio K_T	0.7	0.7	0.68	0.65	0.61	0.54	0.46	0.38	0.27	0.07

Flow Characteristics Standard Port Valves

K_V [m³/h] - f (DN, Angle of aperture)

$C = 1.156K_V$

Angle of aperture		9°	18°	27°	36°	45°	54°	63°	72°	81°	90°
Angle of aperture %		10	20	30	40	50	60	70	80	90	100
DN	in										
40	1 1/2"	0.26	0.57	1.24	1.9	3.23	4.54	8.25	11.95	24.36	43.1
50	2"	0.85	1.84	3.96	6.08	10.28	14.52	28.46	42.39	91.21	163.79
80	3"	0.85	2.27	4.68	7.1	11.38	15.66	29.83	44.45	95.75	172.41
100	4"	2.36	6.3	13.03	19.76	31.71	43.71	88.28	132.85	286.69	517.24
150	6"	3.76	10.12	20.85	31.62	50.63	69.64	146.34	222.58	478.56	862.07
200	8"	12.72	20	40.4	61.32	98.4	135	257.1	431.3	930.8	1671

$F_L, K_T Z_Y = f$ (Angle of aperture)

Angle of aperture	9°	18°	27°	36°	45°	54°	63°	72°	81°	90°
Rated Travel	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Recovery factor F_L	---	0.95	0.94	0.92	0.89	0.87	0.85	0.8	0.7	0.65
Valve characteristic Z_Y	---	0.51	0.49	0.47	0.43	0.38	0.33	0.26	0.09	0.05
Pressure differential ratio K_T	---	0.64	0.64	0.72	0.79	0.61	0.51	0.37	0.24	0.16

Full Port

Standard Port

XLB Lined Ball Valve

Features

Patented SX Seal

- SX seal in the XLB valve moves in conjunction with the spherical portion of the stem, maintaining a constant seal

All wetted components

- fully lined with permeation resistant PFA material as a barrier to corrosion

Compact design

- allows installation in space restricted areas

Lower torque

- smaller actuators, reduced costs, and weight saving

Actuator mounting

- fully compliant with ISO 5211 allowing use of standardized mounting kits

Size Range

½"/DN15 through 6"/DN150 Full Port

1½" through 8" Standard Port

Other sizes available up to 12"/DN300

Temperature Range*

ASME: -20°F (-29°C) to 400°F (204°C)

EN: -10°C (14°F) to 204°C (400°F)

Pressure Class

EN PN16 and ASME Class 150

JIS 10kg

*Temperature data is for ductile iron lined valves,

see pressure temperature ratings for extended

temperature capabilities with alternative materials

Control Applications

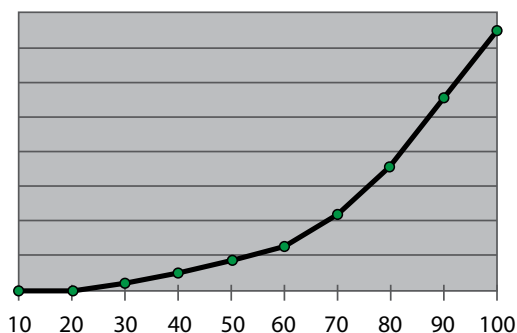
Characterized seat V port option available for control applications

All sizes of XLB 12A full port and XLB42A standard port can be provided with this modification

Available for manual control or as complete control valve packages with pneumatic or electric actuation

One piece ball and stem design of XLB provides more positive rotational control than 2-piece designs

Typical Flow Characteristic
Cv by % Open



Fully Automated Package



Westlock Controls

Westlock Controls has a global reputation providing innovative solutions for networking, monitoring, and controlling process valves. Westlock's focus on technology and supplying reliable products manufactured to the highest industry standards makes Westlock a preferred choice with the world's leading process companies and a trusted partner developing even better solutions for the future.

- Solutions available for controlling and ON/OFF applications.
- Variety of configurations to ensure that the product will last in even the most hazardous environments.
- Westlock Controls products are used in all industrial area classifications from hazardous, including Explosionproof and Intrinsically Safe, to non-hazardous for full weather protection or sanitary installations.
- Advanced networking solutions making it easy to connect and monitor valves.

Available Products:

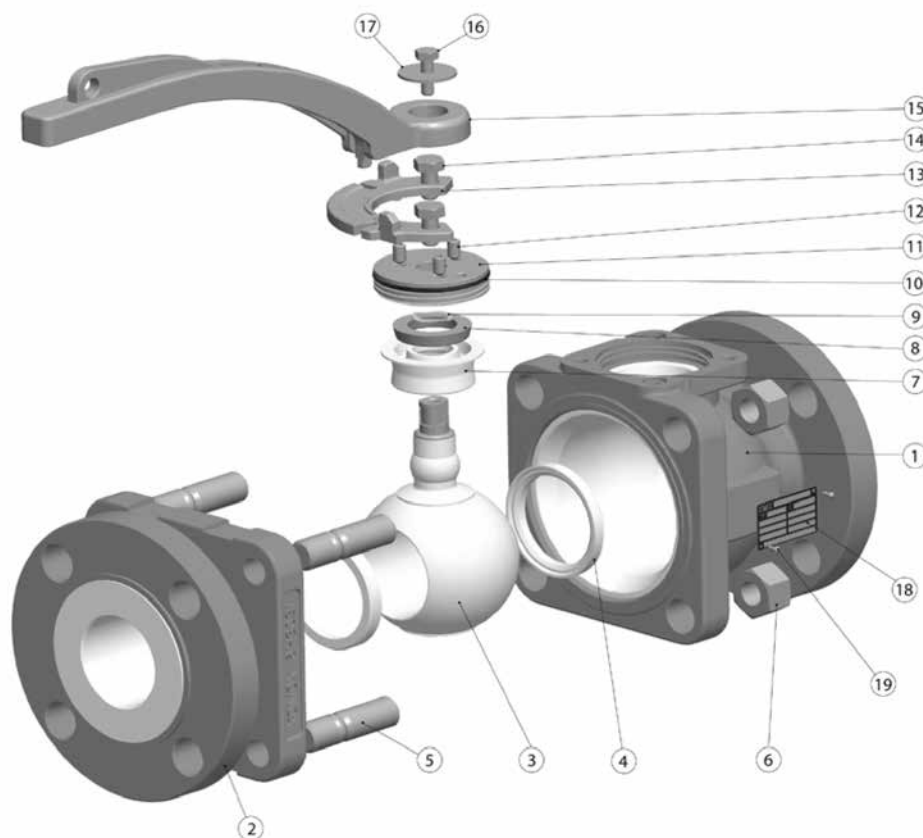
- AccuTrak Position Monitors and Sensors
- Quantum Control Monitors
- ICoT 5000 and 6000 Series Positioners
- K20 Positioners
- Intellis Network Control Monitors
- Falcon Integral Solenoid Valves

Please contact XOMOX for more information or visit www.westlockcontrols.com for brochures and technical details on Westlock products.

XRP Features:

- Patented pressure balanced shaft prevent axial forces from acting on the bearings resulting in a low wear for a long lifetime
- Self lubricating via graphite filled Teflon sliding rings ensure low friction and longevity
- Available for 90° and 180° turn applications
- Available in double acting and spring return for failsafe applications
- Single point adjustment for both the CW and CCW directions

XLB Lined Ball Valve Standard Materials of Construction

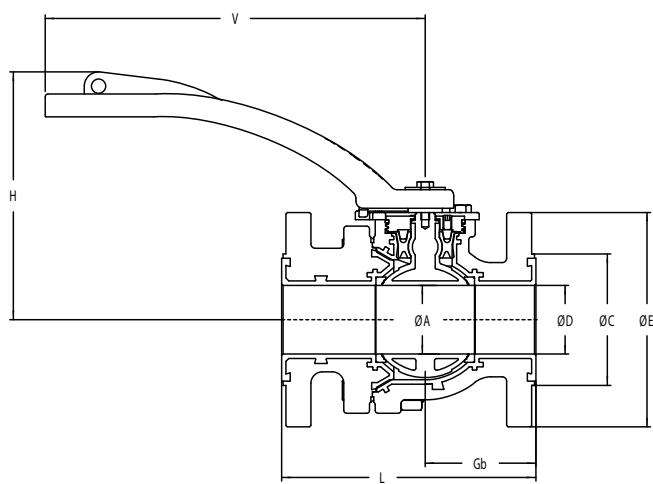


Item	Quantity	Part	Material
1	1	Body	Ductile Iron 1049/ASTM A395 60-40 28, PFA, PFA-AS, PVDF Lined
2	1	Flange	Ductile Iron 1049/ASTM A395 60-40 28, PFA, PFA-AS, PVDF Lined
3	1	Integral Ball/Stem	1.4470 / ASTM A995 gr 4A, PFA Teflon® Lined
4	2	Seat	Chemically Modified PTFE (CMP)
5	4/6/8	stud	1.4541 / AISI 321 St/Steel
6	4/6/8	Nut	1.4310 Stainless Steel
7	1	SX Seal	FKM
8	1	Wedge Ring	1.4541 / AISI 321 St/Steel
9	1	Antistatic spring	1.4310 Stainless Steel
10	1	Cover Seal	Stainless Steel
11	1	Cover	Stainless Steel
12	3	Set screw	Stainless Steel
13	1	Stop plate	Stainless Steel
14	2	crew	Stainless Steel
15	1	Lever	Stainless Steel
16	1	Screw	Stainless Steel
17	1	Washer	Stainless Steel
18	1	Tag	Stainless Steel
19	2	Tag pin	Stainless Steel

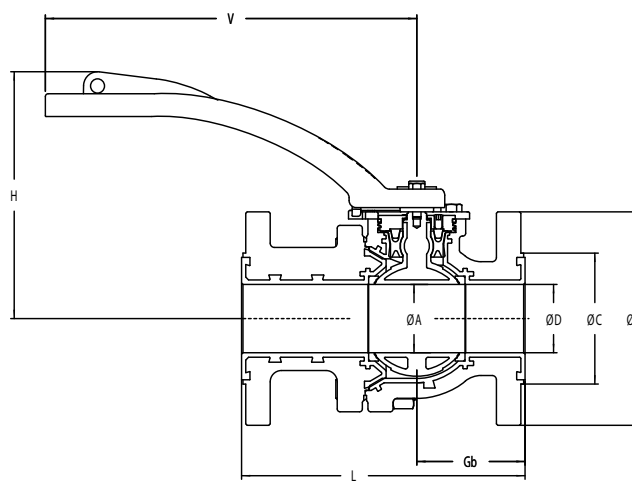
XLB Lined Ball Valve Full Port ASME Dimensions

XOMOX Fully Lined Ball Valve Full Port
Flange Connection ASME B16.5 – Class 150
Face-to-Face Dimension ASME B16.10

XLB 12A - Short Pattern



XLB 13A - Long Pattern



Dimensions in inches/mm

Size	A		C		D		E		L - 12A		L - 13A		Gb		H		V		Weight		ISO 5211
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
1/2"	0.91	23	1.38	35	0.59	15	3.5	89	5.12	130	5.12	130	2.05	52	5.63	143	6.69	170	8.6	3.9	F05
3/4"	0.91	23	1.69	43	0.79	20	3.88	98	5.91	150	5.91	150	2.05	52	5.63	143	6.69	170	9.5	4.3	F05
1"	0.91	23	2.01	51	0.91	23	4.25	108	5	127	6.00	152.3	2.01	51	5.63	143	6.69	170	10.3	4.7	F05
1 1/2"	1.46	37	2.87	73	1.46	37	5	127	6.5	165	7.01	178	2.64	67	6.42	163	10.47	266	20	9	F07
2"	1.85	47	3.62	92	1.85	47	6	152	7	178	7.99	203	2.95	75	6.73	171	10.47	266	26	11.6	F07
3"	2.95	75	5	127	2.95	75	7.5	191	8	203	9.49	241	3.39	86	9.06	230	13.78	350	51	23	F10
4"	3.82	97	6.18	157	3.82	97	9	229	9	229	11.50	292	3.86	98	10.12	257	13.78	350	81	37	F10
6"	5.71	145	8.5	216	5.71	145	11	279	10.5	267	14.02	356	4.65	118	11.26	286	13.78	350	130	59	F12

*1/2" and 3/4" valves are XLB 13 Long Pattern Valve

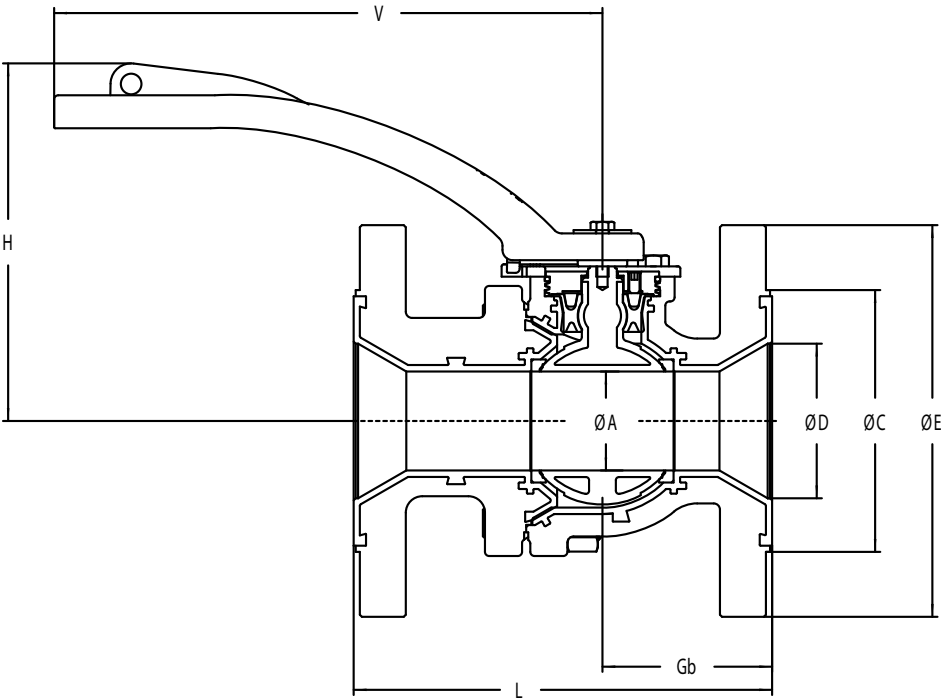
*Flange holes on 1/2" and 3/4" valves are threaded UNC 1/2"-13

Flow Coefficient									
Size	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	
Cv [USgpm]	12.6	35	57	213	295	670	1650	4780	
Kv [m³/h]	10.9	31	49	184	255	580	1427	4135	

XLB Lined Ball Valve Standard Port ASME Dimensions

XLB 42A

XOMOX Fully Lined Ball Valve Standard Port
 Flange Connection ASME B16.5 - Class 150
 Face-to-Face Dimension ASME B16.10



Dimensions in inches/mm

Size	A		C		D		E		L - 12A		L - 13A		Gb		H		V		Weight		ISO 5211
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
1"*	0.91	23	2.01	51	0.91	23	4.25	108	5	127	2.01	51	5.63	143	6.69	170	10.3	4.7	F05	3.9	F05
1 ½"	0.91	23	2.87	73	1.57	40	5	127	6.5	165	2.24	56	6.42	143	6.69	170	13	6	F05	4.3	F05
2"	1.46	37	3.62	92	1.97	50	6	152	7	178	2.95	75	6.73	163	10.47	266	23	10.5	F07	4.7	F05
3"	1.85	47	5	127	3.15	80	7.5	191	8	204	3.23	82	6.73	171	10.47	266	35	16	F07	9	F07
4"	2.95	75	6.18	157	3.94	100	9	229	9	228	3.82	98	9.06	230	13.78	350	64	29	F10	11.6	F07
6"	3.82	97	8.5	216	5.91	150	11	279	10.5	267	3.9	109	10.12	257	13.78	350	97	44	F10	23	F10

*1" valve is XLB Full Port

Flow Coefficient						
Size	1"	1 ½"	2"	3"	4"	6"
Cv [USgpm]	57	50	190	199	598	996
Kv [m³/h]	49	43	164	172	517	862

XLB Lined Ball Valve How to Specify

Lined Ball Valves How to Specify

Fully Automated Package

2" XLB 2 1 A 1 P6 28 P16 A C S090 2

Size & Figure No.

Flange Standard

ASME Class 150	1
EN PN16	2
JIS 10kg	3
ASME Class 150 (Reduced Port)	4

Face to Face

ASME 816.10 Short Pattern	2
Long Pattern	3
EN	4

Packaging Options

Adjustable	A
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Body

Ductile Iron	1
Stainless Steel	6
Other	X

Liner Material

PFA	P6
PFA (Ant-static)	P6AS
PVDF	P9

Positioner

ICoT	1
Quantum	2
AccuTrak	3
Other	X

Actuator Type & Model No.

Spring Return XRP	S
Double Acting XRP	D
Matryx Vane	M
Other	X

Service

Chlorine	C
Oxygen	O
General Service	Blank
Other	X

Operations

Locking Lever	L
Gear Operator	G
Locking Gear	GX
Actuator	A
Oval Handle	O
No Operator	N

Seat and SX Seal

CMP*	P16
CMP* (Anti-static)	P16AS
UHMWPE	P8

Ball

Standard Ball Duplex	28
Stainless Steel Lined	
Other	X

*CMP = Chemically Modified PTFE

XLB Lined Ball Valve Applications and Options

XLB valves offer economical solutions for the vast majority of chemical applications while maintaining the highest possible degree of performance in terms of in-line leakage and fugitive emissions.

They are commonly used within the following industries:

- Chlor-Alkali
- Industrial Inorganic Chemicals
- Metal and Mining
- Nitrogen and Phosphatic Fertilizers
- Petroleum Refining
- Pharmaceutical

Within these industries, XLB valves have superior performance in the following applications

- Chlorine
- Benzene
- Bromine
- Sulfuric Acid
- Nitric Acid
- Hydrochloric Acid
- Phosphoric Acid
- Sea Water

Material and Liner Options



Low Temperature Carbon Steel Body

- All full port configurations available
- Low service temperatures below -20°F/-29°C
- Extremely cold environments below -20°F/-29°C



Antistatic-PFA Lining

- All sizes and configurations available
- Applications that cause potential electrostatic
- Complies with ATEX, European Directive 94/9/EC



PVDF-Lining

- All sizes and configurations available
- Halogen applications
- Service temperatures limited to 130°C/266°F



Stainless Steel Body

- Full Port XLB valves available in Stainless Steel
- EN 1.4408
- ASTM CF8M
- Maximizes cleanliness and minimizes areas where contamination could occur

Other Ball Valve Designs



Glass Pipe Design

- DN25-DN50 with and without flanges available
- Compact design adapted to the needs of glass piping systems
- Low weight and break torques



Bottom Discharge Valve

- DN25 (1")-DN150 (6") available
- Tank connection flanges through DN 250 (10")
- Allow efficient discharge of corrosive fluids from liquid tanks.



Compact Ball Valve

- DN25 (1")-DN80 (3") available
- All stainless steel construction
- Available with combined EN and ASME flange connections for maximum flexibility



Sampling Ball Valve

- DN 25 (1")-DN150(6") available
- Available in PFA or PVDF lining
- 180° rotation
- Options available to take samples directly from nozzle or with a threaded glass bottle

XLB Lined Ball Valve Fully Automated Packages

Crane ChemPharma & Energy can offer all components of an automated valve from our wide product portfolio.

WESTLOCK
CONTROLS

XRP/Matryx

XOMOX®



XOMOX®

Crane ChemPharma & Energy

XOMOX® Headquarters

4444 Cooper Road,

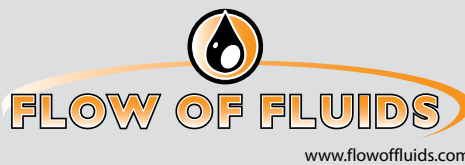
Cincinnati, OH 45242, U.S.A.

Tel.: (513) 745-6000

Fax: (513) 745-6086

www.cranecpe.com

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