

# XOMOX<sup>®</sup>

**brands you trust.**

## TECHNICAL DATA SHEET XLB - Lined Ball Valves

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**CRANE**<sup>®</sup>

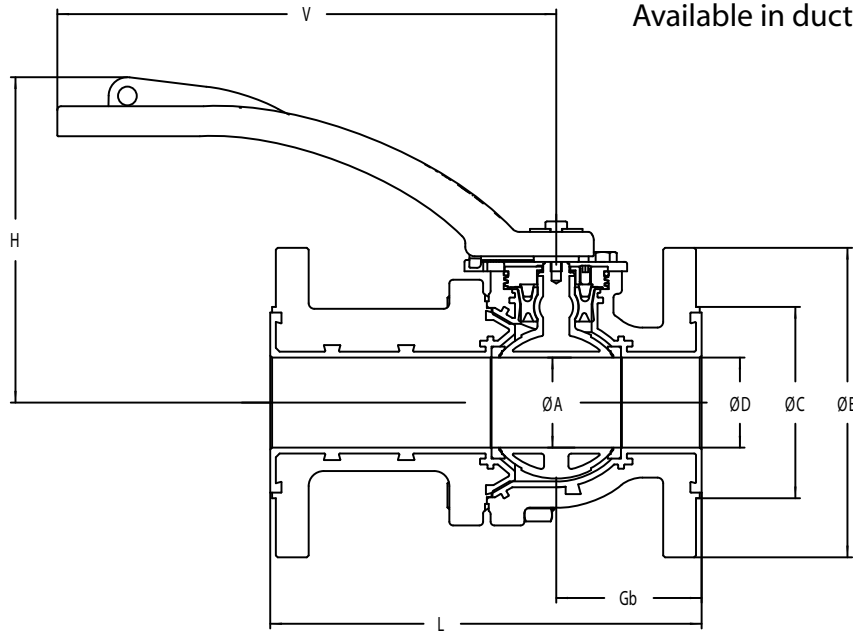
ChemPharma Flow Solutions

[www.cranepharmaceutical.com](http://www.cranepharmaceutical.com)

## XLB Lined Ball Valve EN Dimensions

### XLB 24A

CRANE ChemPharma, XOMOX<sup>®</sup>  
 Fully Lined Ball Valve Full Port  
 Flange Connection EN 1092-2 PN16  
 Face-to-Face Dimension acc. to EN 558  
 (Table 2, Row1) (Former R201)  
 Available in ductile iron and stainless steel



### Dimensions in mm

DN	A	C	D	E	L	Gb	H	V	Weight	ISO 5211
									kg	
15	23	45	15	95	130	52	140	170	4.2	F05
20	23	58	20	105	150	52	140	170	4.7	F05
25	23	68	23	115	160	51	140	170	5.7	F05
32	37	78	32	140	180	70	183	266	9.2	F07
40	37	88	37	150	200	67	183	266	11	F07
50	47	102	47	165	230	75	191	266	13.5	F07
65/50*	47	122	62	185	290	78	191	266	17	F07
80	75	138	75	200	310	86	216	350	29	F10
100	97	158	97	220	350	98	242	350	42	F10
150	145	212	145	285	480	118	271	350	77	F12

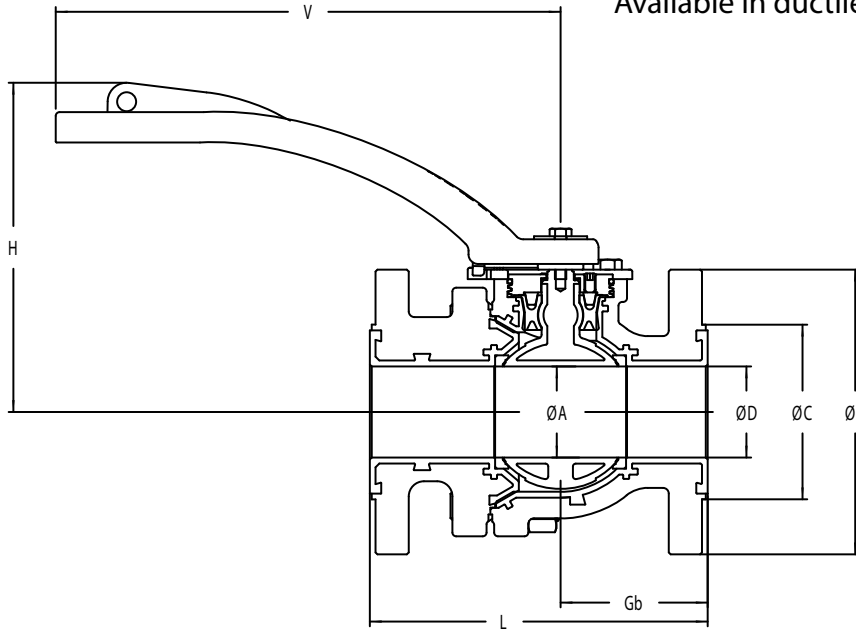
\* DN 65 is standard port valve

Flow coefficient										
DN	15	20	25	32	40	50	65 - 50	80	100	150
C <sub>v</sub>	12.6	35	57	72	213	295	215	670	1650	3440
K <sub>v</sub> [m <sup>3</sup> /h]	10.9	31	49	62	184	255	186	580	1427	2976

# XLB Lined Ball Valve ASME Dimensions

## XLB 12A

CRANE ChemPharma, XOMOX®  
 Fully Lined Ball Valve Full Port  
 Flange Connection ASME B16.5 - Class 150  
 Face-to-Face Dimension ASME B16.10 (Former 911)  
 Available in ductile iron and stainless steel



### Dimensions in inches/mm

Size	A		C		D		E		L		Gb		H		V		Weight		ISO 5211
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg	
1/2"*	0.91	23	1.38	35	0.59	15	3.50	89	5.12	130	2.05	52	5.51	140	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	2.05	52	5.51	140	6.69	170	9.5	4.3	F05
1"	0.91	23	2.01	51	0.91	23	4.25	108	5.00	127	2.01	51	5.51	140	6.69	170	10.3	4.7	F05
1 1/2"	1.46	37	2.87	73	1.46	37	5.00	127	6.50	165	2.64	67	7.20	183	10.47	266	20	9	F07
2"	1.85	47	3.62	92	1.85	47	6.00	152	7.00	178	2.95	75	7.52	191	10.47	266	26	11.6	F07
3"	2.95	75	5.00	127	2.95	75	7.50	191	8.00	203	3.39	86	8.50	216	13.78	350	51	23	F10
4"	3.82	97	6.18	157	3.82	97	9.00	229	9.00	229	3.86	98	9.53	242	13.78	350	81	37	F10
6"	5.71	145	8.50	216	5.71	145	11.00	279	10.50	267	4.65	118	10.67	271	13.78	350	130	59	F12

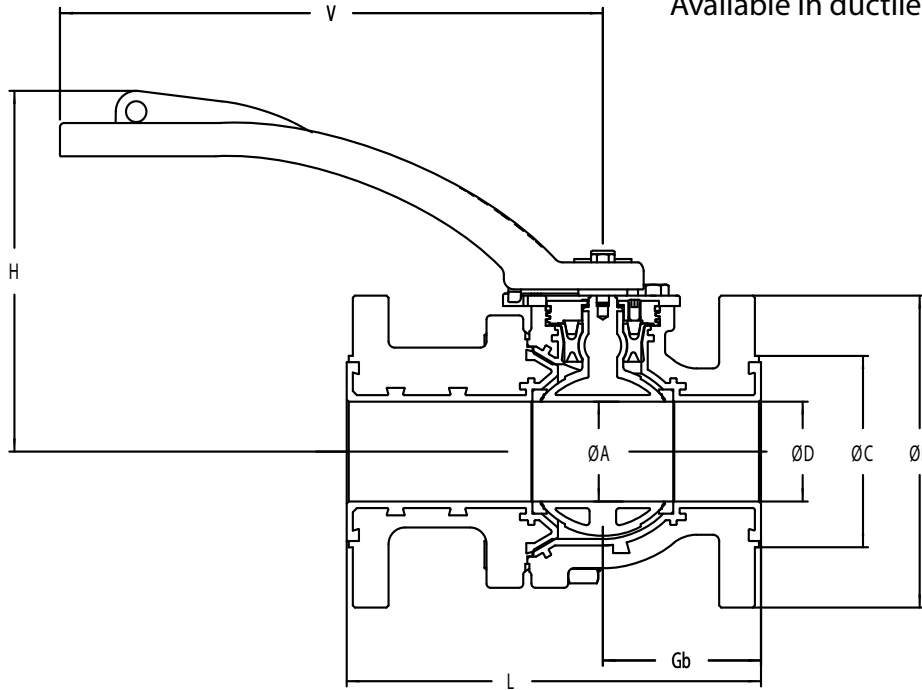
\* Ductile iron 1/2" and 3/4" valves are XLB 13 long pattern valve  
 \* Contact CRANE ChemPharma Sales Office for dimensions of 1/2" and 3/4" stainless steel valves  
 \* Flange holes on 1/2" and 3/4" valves are threaded UNC 1/2"-13

Flow coefficient								
Size	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"
Cv	12.6	35	57	213	295	670	1650	3440
Kv [m³/h]	10.9	31	49	184	255	580	1427	2976

# XLB Lined Ball Valve ASME Dimensions

## XLB 13A

CRANE, ChemPharma, XOMOX®  
 Fully Lined Ball Valve Full Port  
 Flange Connection ASME B16.5 - Class 150  
 Face-to-Face Dimension Long Pattern (former R202)  
 Available in ductile iron only



### Dimensions in inches/mm

Size	A		C		D		E		L		Gb		H		V		Weight		ISO 5211
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg	
1/2**	0.91	23	1.38	35	0.59	15	3.50	89	5.12	130	2.05	52	5.51	140	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	2.05	52	5.51	140	6.69	170	9.5	4.3	F05
1"	0.91	23	2.01	51	0.91	23	4.25	108	6.00	152.3	2.01	51	5.51	140	6.69	170	11	5	F05
1 1/2"	1.46	37	2.87	73	1.46	37	5.00	127	7.01	178	2.64	67	7.20	183	10.47	266	20	9	F07
2"	1.85	47	3.62	92	1.85	47	6.00	152	7.99	203	2.95	75	7.52	191	10.47	266	26	12	F07
3"	2.95	75	5.00	127	2.95	75	7.50	191	9.49	241	3.39	86	8.50	216	10.47	350	55	25	F10
4"	3.82	97	6.18	157	3.82	97	9.00	229	11.50	292	3.86	98	9.53	242	13.78	350	86	39	F10
6"	5.71	145	8.50	216	5.71	145	11.00	279	14.02	356	4.65	118	10.67	271	13.78	350	147	67	F12

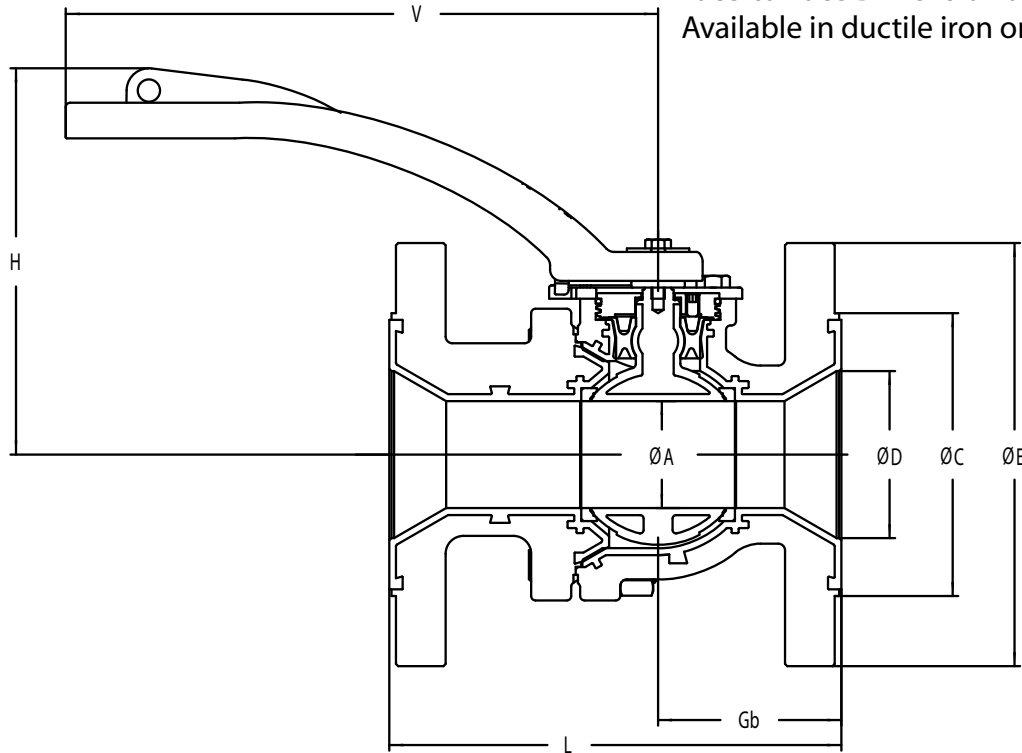
\* Flange holes on 1/2" and 3/4" valves are threaded UNC 1/2"-13

Flow coefficient									
Size	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	
Cv	12.6	35.0	57	213	295	670	1650	3440	
Kv [m³/h]	10.9	31.0	49	184	255	580	1427	2976	

# XLB Lined Ball Valve ASME Dimensions

## XLB 42A

CRANE ChemPharma, XOMOX®  
 Fully Lined Ball Valve Standard Port  
 Flange Connection ASME B16.5 - Class 150  
 Face-to-Face Dimension acc. ASME B16.10 (former 944)  
 Available in ductile iron only



### Dimensions in inches/mm

Size	A		C		D		E		L		Gb		H		V		Weight		ISO 5211
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	Kg	
1"*	0.91	23	2.01	51	0.91	23	4.25	108	5.00	127	2.01	51	5.51	140	6.69	170	10.3	4.7	F05
1 ½"	0.91	23	2.87	73	1.57	40	5.00	127	6.50	165	2.24	56	5.51	140	6.69	170	13	6	F05
2"	1.46	37	3.62	92	1.97	50	6.00	152	7.00	178	2.95	75	7.20	183	10.47	266	23	10.5	F07
3"	1.85	47	5.00	127	3.15	80	7.50	191	8.00	204	3.23	82	7.52	191	10.47	266	35	16	F07
4"	2.95	75	6.18	157	3.94	100	9.00	229	9.00	228	3.82	98	8.50	216	13.78	350	64	29	F10
6"	3.82	97	8.50	216	5.91	150	11.00	279	10.50	267	3.90	109	9.53	242	13.78	350	97	44	F10
8"	5.71	145	10.63	270	7.79	198	13.50	343	11.49	292	5.12	130	10.67	271	13.78	350	163	74	F12

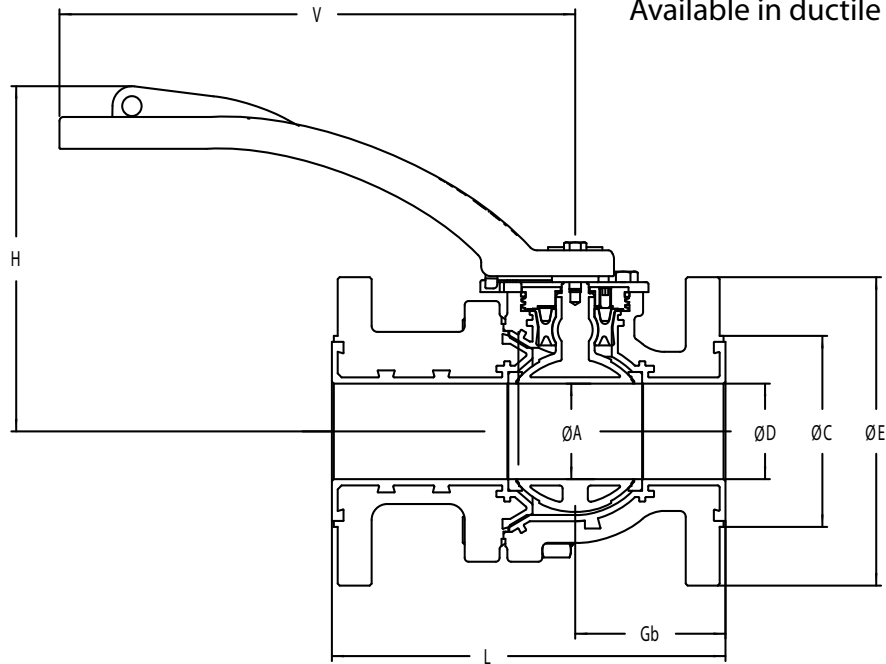
\* 1" valve is XLB 12 Full Port valve

Flow coefficient							
Size	1"	1 ½"	2"	3"	4"	6"	8"
Cv	57	50	190	199	598	996	1832
Kv [m³/h]	49	43	164	172	517	862	1671

## XLB Lined Ball Valve JIS Dimensions

### XLB 35A

CRANE ChemPharma, XOMOX<sup>®</sup>  
 Fully Lined Ball Valve Full Port  
 Flange Connection JIS B2210 for 10kg  
 Face-to-Face Long Pattern (former R203)  
 Available in ductile iron only



### Dimensions in mm

DN	A	C	D	E	L	Gb	H	V	Weight	ISO 5211
									kg	
15	23	52	15	95	130	52	140	170	4.3	F05
20	23	58	20	100	150	52	140	170	4.5	F05
25	23	70	23	125	160	51	140	170	6	F05
32	37	78	32	140	180	70	183	266	9.2	F07
40	37	85	37	140	200	67	183	266	10.5	F07
50	47	100	47	155	203	75	191	266	12	F07
65/50	47	120	62	175	290	78	191	266	16	F07
80	75	130	75	185	310	86	216	350	27	F10
100	97	155	97	210	350	98	242	350	39	F10
150	145	215	145	280	356	118	271	350	68	F12

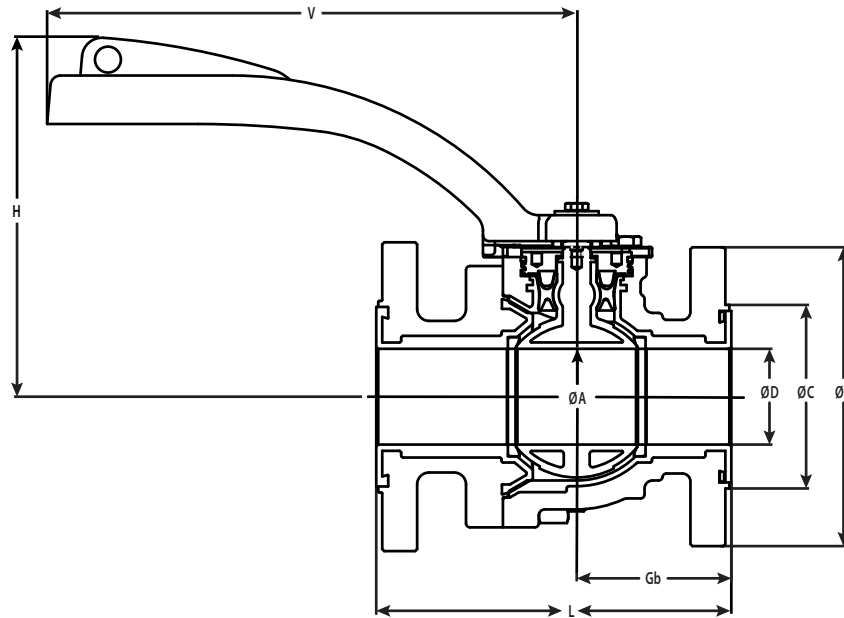
\* DN 65 is standard port valve

Flow coefficient										
DN	15	20	25	32	40	50	65 - 50	80	100	150
C <sub>v</sub>	12.6	35	57	72	213	295	295	670	1650	3440
K <sub>v</sub> [m <sup>3</sup> /h]	10.9	31	49	62	184	255	255	580	1427	2976

# XLB Lined Ball Valve JIS Dimensions

## XLB 32A

CRANE ChemPharma, XOMOX®  
 Fully Lined Ball Valve Full Port  
 Flange Connection JIS B2210 for 10kg  
 Face-to-Face ASME B16.10  
 Available in stainless steel only



### Dimensions in mm

DN	A	C	D	E	L	Gb	H	V	Weight	ISO 5211
									kg	
15	23	52	15	95	108	52	140	170	4.3	F05
20	23	58	20	100	117	52	140	170	4.5	F05
25	23	67	23	125	127	51	140	170	4.7	F05
40	37	81	37	140	165	67	183	266	9	F07
50	47	96	47	155	178	75	191	266	12	F07
80	75	126	75	185	203	86	216	350	23	F10
100	97	151	97	210	229	98	242	350	37	F10
150	145	216	145	280	267	118	271	350	59	F12

\* DN 65 is standard port valve

Flow coefficient								
DN	15	20	25	40	50	80	100	150
C <sub>v</sub>	12.6	35	57	213	295	670	1650	3440
K <sub>v</sub> [m <sup>3</sup> /h]	10.9	31	49	184	255	580	1427	2976

# XLB Lined Ball Valve Flow Characteristics

## Flow Characteristics Full Port Valves $K_V [m^3/h] = f(DN, \text{Angle of aperture})$

$C_V = 1.156K_V$

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	½	0.05	0.14	0.29	0.45	0.83	1.2	2.1	3	6.2	11
20	¾	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*	1¼	0.73	1.58	3.43	5.18	8.56	11.25	18.3	24.4	59.9	61.8
40	1½	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**	2½	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

## $F_L, K_T Z_Y, = f(\text{Angle of aperture})$

\* with ball/stem DN40

\*\* with ball/stem DN50

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 $K_V [m^3/h] = f(DN, \text{Angle of aperture})$

$C_V = 1.156K_V$

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	1½	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

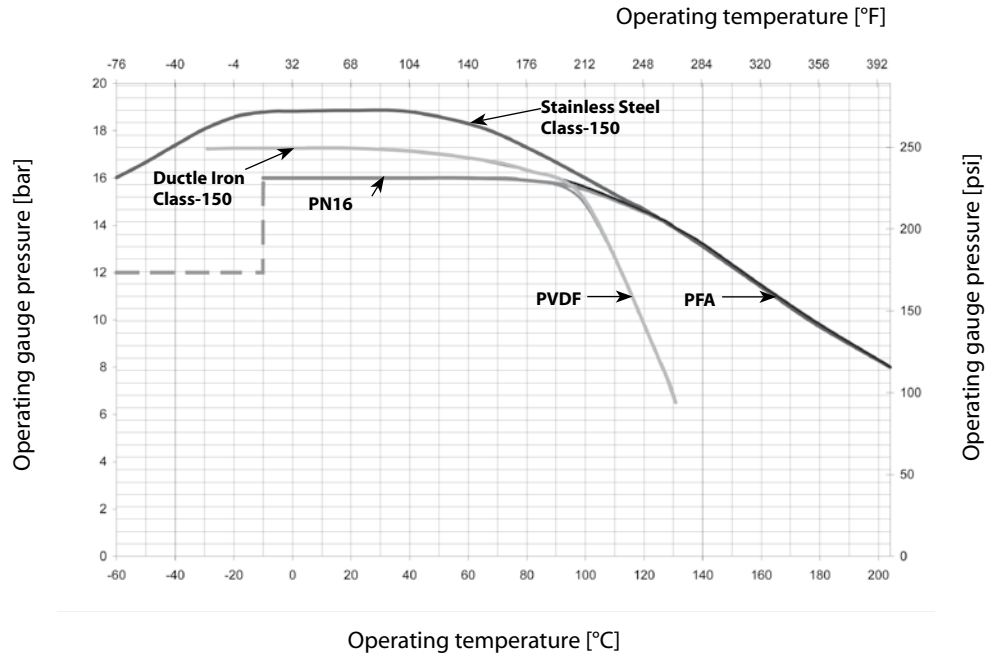
## $F_L, K_T Z_Y, = f(\text{Angle of aperture})$

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

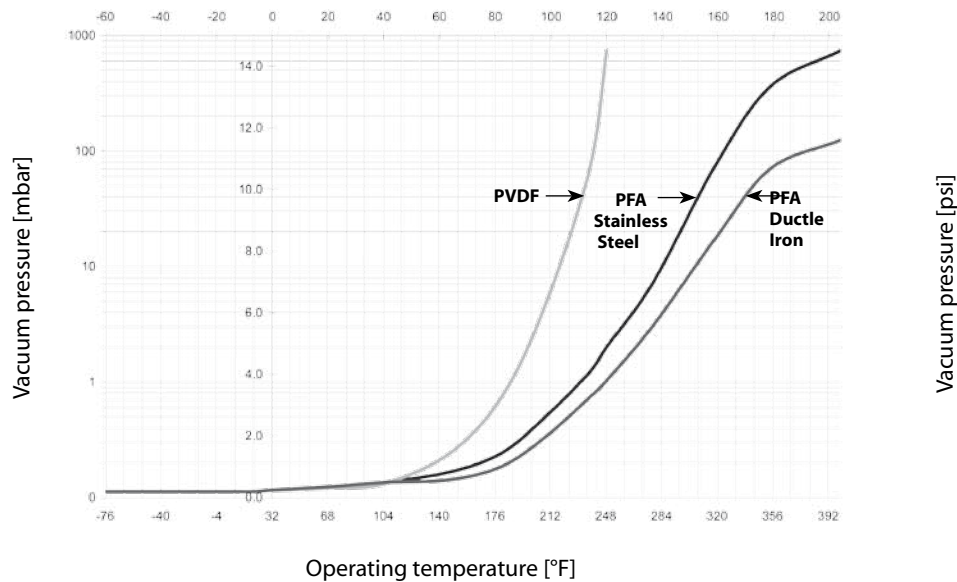


# XLB Lined Ball Valve Pressure/Vacuum Temperature Rating

## XLB Pressure/Temperature Diagram



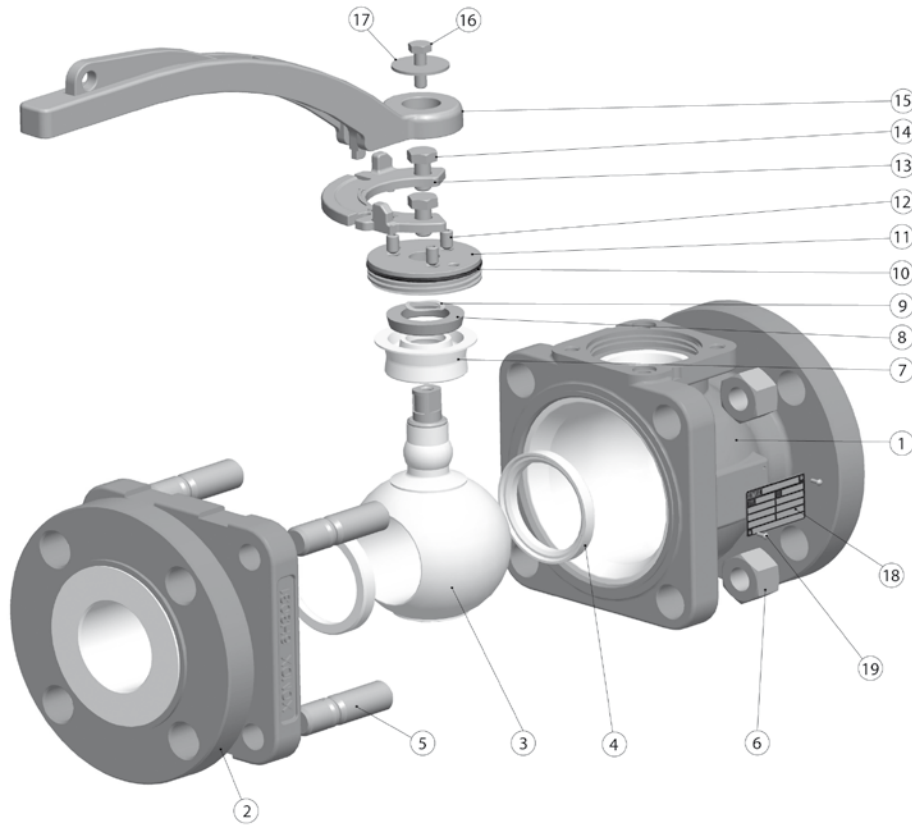
## XLB Vacuum/Temperature Diagram



**Notes**

- 1) Body material (EN-JS 1049 / 60-40-18) meets the requirements of both EN 1563 and ASTM A395
- 2) Minimum temperature for ductile iron material (60-40-18) according to ASME B16.42 is -20° F (-29° C)
- 3) Minimum temperature for EN-JS 1049 is -10° C (-14° F)
- 4) For valves with ductile iron bodies maximum cold working gauge pressure for JIS 10Kg is 10 bar (145 psig) for EN PN16 is 16 bar (232 psig) and ASME Class 150 is 250 psig (17.2 bar). For valves with stainless steel bodies, ASME Class 150 is 278 psig (19.2 bar).
- 5) Contact your CRANE ChemPharma Flow Solutions™ sales office for applications outside the relevant pressure and temperature limits of the design code in question (dash line)

## XLB Lined Ball Valve Standard Materials of Construction



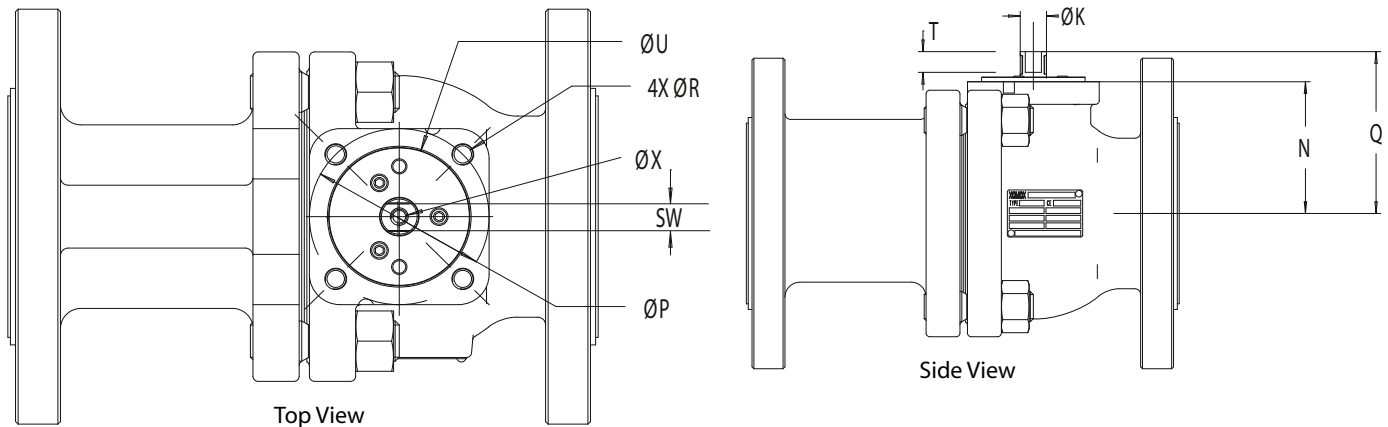
Item	Quantity	Part	Material
1	1	Body	Ductile Iron EN-JS 1049/ASTM A395 60-40-18, PFA, PFA-AS, PVDF Lined
2	1	Flange	Ductile Iron EN-JS 1049/ASTM A395 60-40-18, PFA, PFA-AS, PVDF Lined
3	1	Integral Ball/Stem	1.4470 / ASTM A995 gr 4A, PFA Teflon <sup>®</sup> Lined
4	2	Seat	Chemically Modified PTFE (CMP)
5	4/6/8	Stud	EN and JIS Valves: A4-70, ASME Valves: A193 Grade B7
6	4/6/8	Nut	EN and JIS Valves: A4-70, ASME Valves: A194 Grade 2H
7	1	SX Seal	Chemically Modified PTFE (CMP)
8	1	Wedge Ring	1.4541 / AISI 321 St/Steel
9	1	Antistatic spring	17-7 PH Stainless Steel
10	1	Cover Seal	FKM
11	1	Cover	1.4541 / AISI 321 St/Steel
12	3	Set screw	1.4301 / AISI 304 St/Steel
13	1	Stop plate	Stainless Steel
14	2	Screw	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

Note: See page 12 for other body and liner material options.

# XLB Lined Ball Valve Operating Torques

## Operating torques (max. break-away torque)

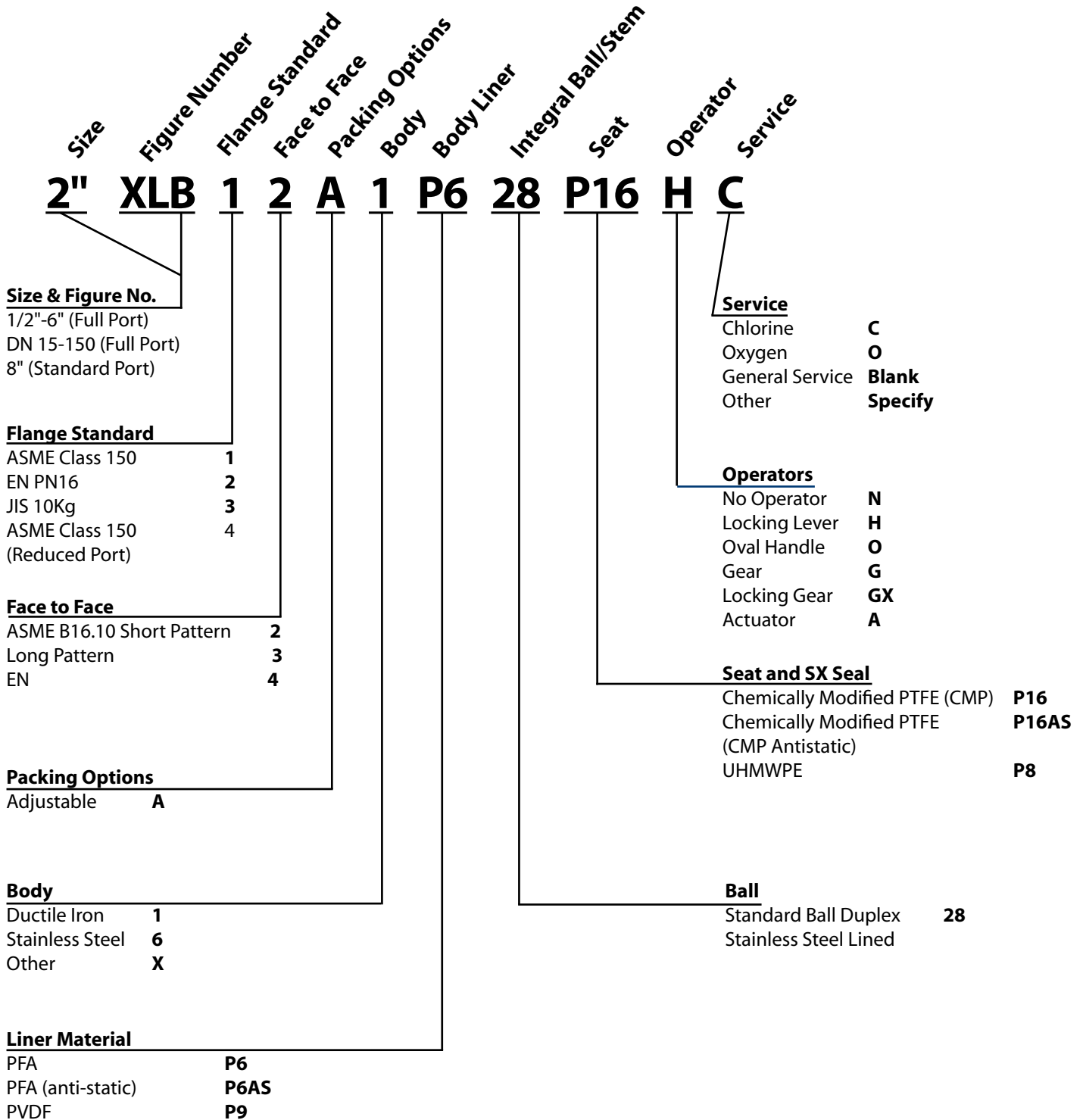
Full Port Size		Standard Port Size		$\Delta P$ up to 5 bar	$\Delta P$ up to 70 psi	$\Delta P$ up to 10 bar	$\Delta P$ up to 145 psi	$\Delta P$ up to 17.6 bar	$\Delta P$ up to 250 psi
DN	in	DN	in	Nm at 20°C	in/lb at 70°F	Nm at 20°C	in/lb at 70°F	Nm at 20°C	in/lb at 70°F
15	1/2"	-	-	8	71	8	71	9	80
20	3/4"	-	-	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
DN	in	DN	in										
15	1/2"	-	-	F05	35	M6	50	9	9	9	M6	48	62
20	3/4"	-	-	F05	35	M6	50	9	9	9	M6	48	62
25	1"	40	1 1/2"	F05	35	M6	50	9	9	9	M6	48	62
32	1 1/4"	-	-	F07	55	M8	70	11	11	14	M6	62	78
40	1 1/2"	50	2"	F07	55	M8	70	11	11	14	M6	62	78
50	2"	80	3"	F07	55	M8	70	11	11	14	M6	70	86
65	2 1/2"	-	-	F07	55	M8	70	11	11	14	M6	70	86
80	3"	100	4"	F10	70	M10	102	17	17	22	M8	100	122
100	4"	150	6"	F10	70	M10	102	17	17	22	M8	126	148
150	6"	200	8"	F12	85	M12	125	22	22	28	M8	155	182

## XLB Lined Ball Valve How To Specify



# XOMOX®

CRANE ChemPharma Flow Solutions™

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CRANE ChemPharma Flow Solutions Include: Pipe - Valves - Fitting - Actuators - Pumps



CP-XOMOX-XLB-TB-EN-TO-3/11

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