

FLANGED BALL VALVES ANSI CLASS 150 & 300

FULL BORE:

**1/2" – 12" (DN 15 – 300) SERIES 9000
14" – 24" (DN 350 – 600) AND LARGER
SERIES 6000**

The JAMESBURY® polymeric-seated flanged ball valves offer a patented flexible-lip seat design that provides positive bi-directional shut-off for a variety of applications in industries ranging from chemical and petrochemical to refining, pulp and paper, and power.

Polymeric-seated flanged ball valves are available in sizes 1/2" – 24" (DN 15 – 600) in both full-bore and standard-bore designs that fully conform to ASME B16.34 requirements.

A choice of body, trim, and seat materials is available to suit an extensive range of applications. As an option, valves can be prepared for special services, such as chlorine, oxygen, high-vacuum, hydrogen peroxide or NACE.

FIRE-TITE® Valves

Standard body and trim materials for FIRE-TITE valves are carbon steel with 316 stainless steel trim and all 316 stainless steel. Seat material options are PTFE (T) and XTREME® (X) for applications involving chemicals, petrochemicals, acids, caustics, and steam. PFA (B) seats are available to resist the effects of polymerizing monomers such as butadiene and styrene.

Non FIRE-TITE Valves

Non FIRE-TITE valves are available with UHMW (U) polyethylene and Peek® (L) seats.

CE Marked

CE marked and documented valves 9180, 9380, 6180 and 6380 which meet the European Pressure Equipment Directive (PED) 97/23/EC are available in ANSI Class 150/300. CE marked products also meet the requirements of BS 5351, including static grounding. Operating torques, construction options and valve dimensions are exactly the same as the standard ANSI 150/300 offering (see page 18 for ordering instructions).



FEATURES AND BENEFITS

- XTREME seat provides longer life, expanded performance boundaries, and greater value.
- Polymeric flexible lip-seat design offers tight shut-off in either direction and extended cycle life with minimum maintenance.
- FIRE-TITE version with non-metallic seats meets API 607, Edition 4, and BS6755-Part 2 requirements.
- Superior control characteristics, coupled with tight shut-off capabilities, make these valves ideal for a variety of on-off and control applications.
- API 608 compliance to serve refineries and related chemical and petrochemical industries.
- NACE MR0103 compliance available.
- Meets 23 standard and 7 optional industry standards and specifications. For details (see page 19).

NEW FEATURES AND BENEFITS

For 1/2" – 1-1/2" (DN 15 – 40) Series 9000

- New stem seal system is live loaded and engineered to assure long sealing life - patent pending.
- ISO 5211 Bonnet for global conformity.
- New stainless steel linkage for VPVL, ERV, ER and EU actuators has a guided coupling to align topworks during assembly and eliminate side load stress on stem seals for long life, clean environment and reduced maintenance.

Single-Source Responsibility

- Valves, actuators and accessories may be purchased completely mounted from one source.

SPECIFICATIONS

Flow Data

The table at right provides flow coefficients for JAMESBURY valves covered in this bulletin. C_v values represent the flow of water at +60°F through the valve in U.S. gallons per minute at a pressure drop of 1 psi. The metric equivalent, K_v , is the flow of water at 16°C through the valve in cubic meters per hour at a pressure drop of 1 kg/cm². To convert C_v to K_v , multiply by 0.8569.

Valve Size		C_v
Inches	DN	Full Bore
1/2	15	9
3/4	20	50
1	25	100
1-1/2	40	270
2	50	490
3	80	1160
4	100	2200
6	150	5100
8	200	9300
10	250	15,200
12	300	22,400
14	350	27,000
16	400	37,000
18	450	47,000
20	500	60,000

Valve Body Ratings

These are the maximum working pressure ratings of the valve body only. The seat ratings, shown on the next page, determine the practical temperature and pressure limitations according to actual service conditions. Test pressures are recommended pressures for hydrostatic test with ball half open.

Temp °F	Maximum Working Pressure, psi					
	Class 150				Class 300	
	Carbon steel*	316 Stainless steel*	Alloy 20*	Monel®	Carbon steel*	316 Stainless steel*
-20 to 100	285	275	230	230	740	720
200	260	235	200	200	675	620
300	230	215	190	190	655	560
400	200	195	190	185	635	515
500	170	170	170	170	600	480
Test Pressure	450	425	350	350	1125	1100

Temp °C	Maximum Working Pressure, bar					
	Class 150				Class 300	
	Carbon steel*	316 Stainless steel*	Alloy 20*	Monel	Carbon steel*	316 Stainless steel*
-29 to 38	19.6	19.0	15.9	15.9	51.1	49.6
100	17.7	16.2	13.5	13.5	46.6	42.2
150	15.8	14.8	13.1	13.1	45.1	38.5
200	13.8	13.7	13.1	13.1	43.8	35.7
250	11.7	11.7	11.7	11.7	41.9	33.4
Test Pressure	30	29	24	24	77	75

* In accordance with ANSI B16.34

Valve Seat Ratings

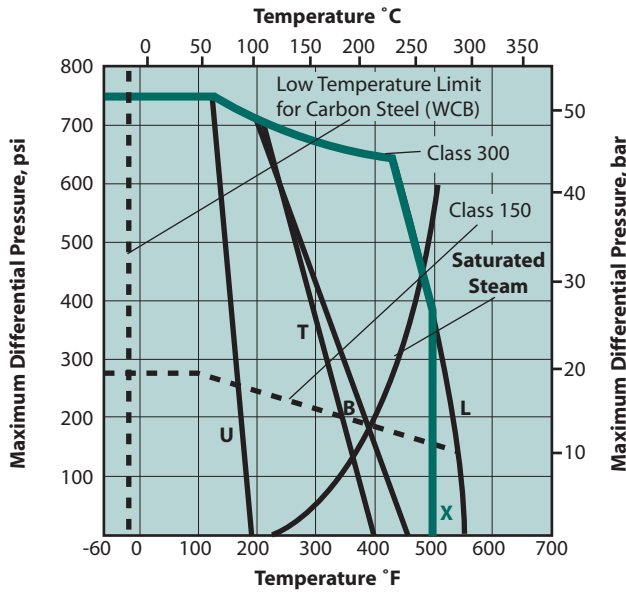
Seat ratings, indicated by solid lines in the charts on the next page, are based on differential pressure with the valve ball in the fully closed position and refer to seats only. The dotted lines indicate maximum working pressures for *WCB carbon steel* valve bodies. (Maximum working pressures of other body materials are shown in the tables above.) The combination of dotted and solid lines indicates the maximum valve rating at specific pressure and temperature conditions. Valves with PTFE, XTREME, PEEK®, PFA, and UHMW polyethylene seats can be used in service to -60°F (-51°C) provided that the valve body material is suitable for such a temperature. Carbon steel valves are rated to -20°F (-29°C).

On saturated steam service, stainless steel trim is recommended at all pressures and is required above 200 psi (14 bar). See Bulletin B150-1. Peek seats require 17-4 PH stainless steel stems. For more application information on seat materials, refer to Bulletin T140-1.

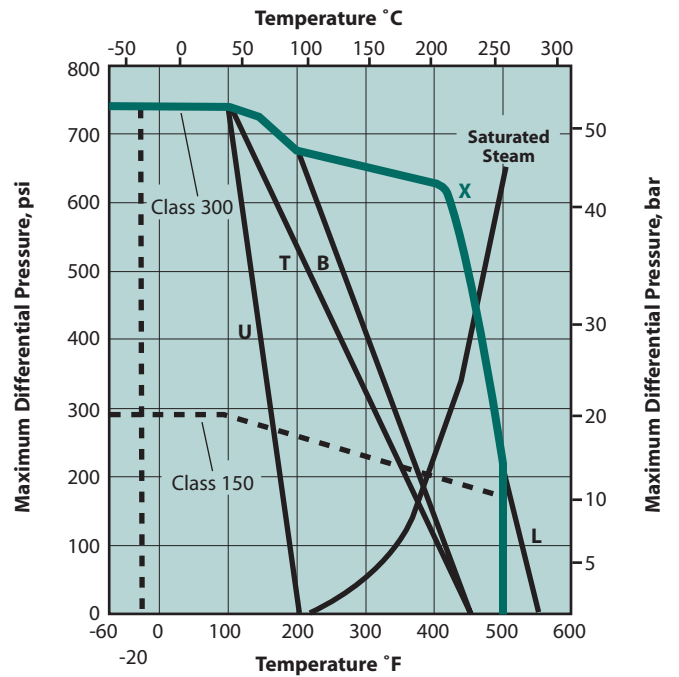
XTREME Performance and Value

XTREME seats provide longer life, expanded performance boundaries, and the greatest possible value. XTREME is a unique material that resulted from a technological breakthrough in our polymer research lab. The material is a fluoro-polymer-based blend proprietary to JAMESBURY that provides superior quarter-turn performance.

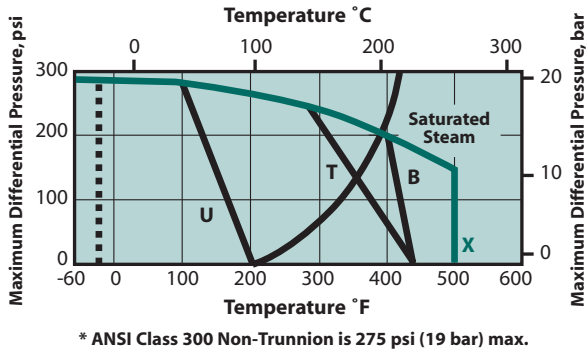
1/2" – 1-1/2" (DN 15 – 40) Full Bore



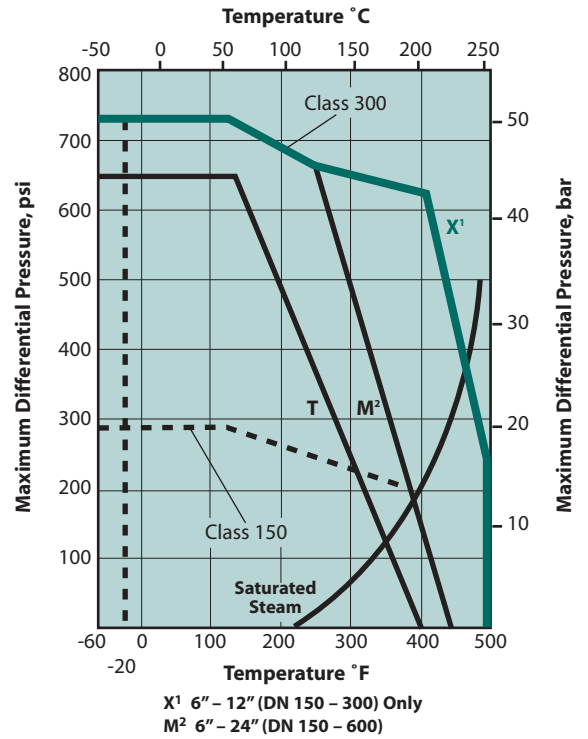
2" – 4" (DN 50 – 100) Full Bore



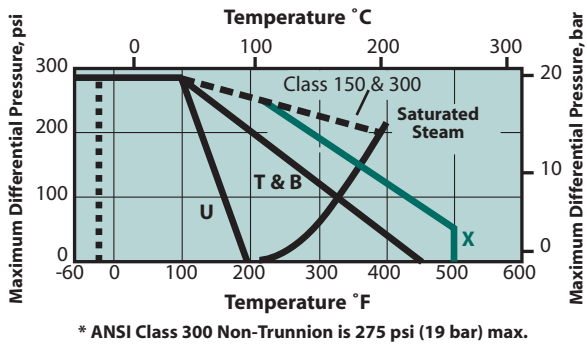
6" (DN 150) Full Bore Non-Trunnion



**Trunnion Valves
6" – 24" (DN 150 – 600) Full Bore**



8" (DN 200) Full Bore Non-Trunnion



NOTE 1: For series 9000

NOTE 2: For series 6000

LEGEND:

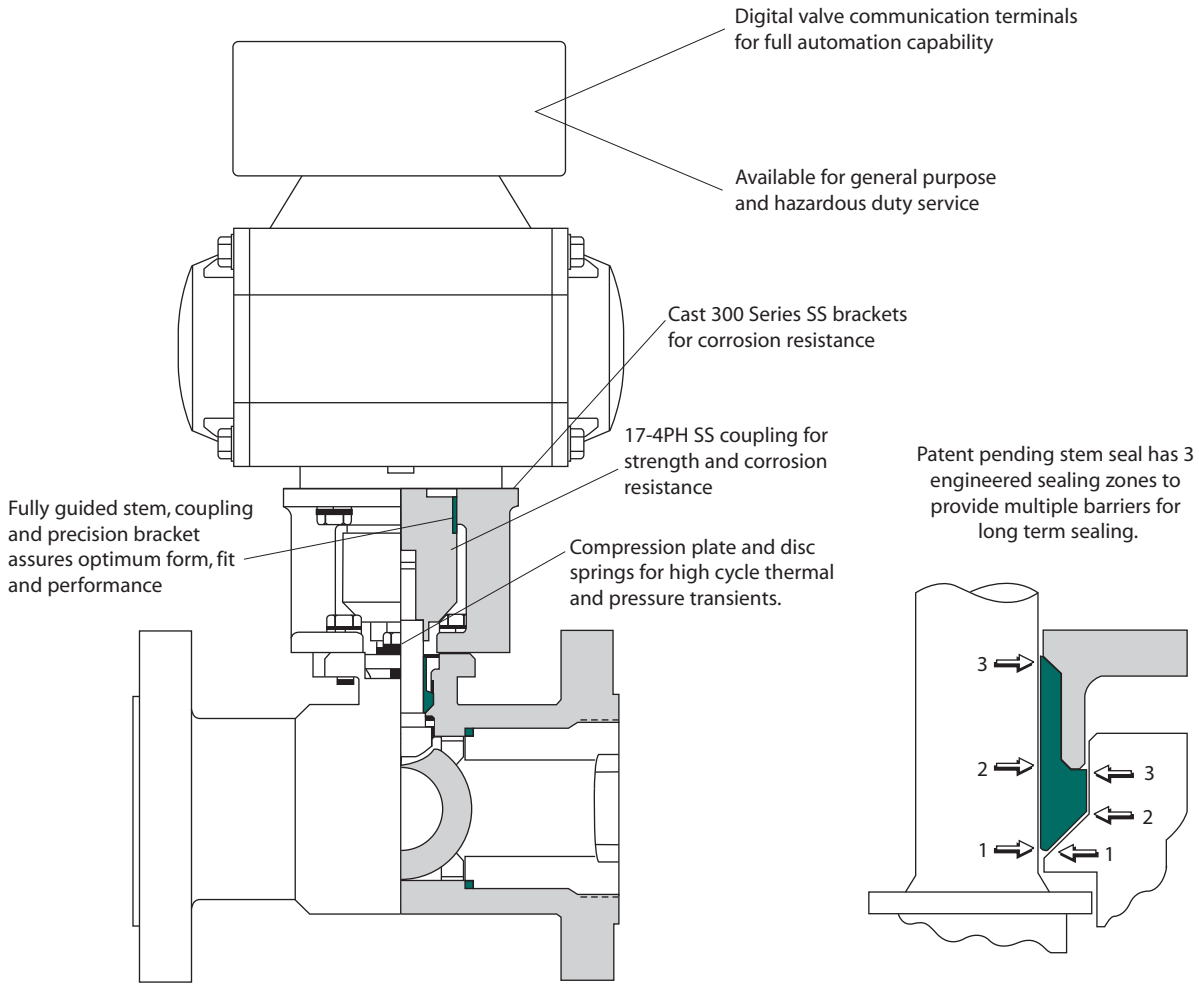
T = PTFE
L = Peek

M = Filled PTFE
U = UHMW

B = PFA
X = XTREME

**JAMESBURY 'The Ultimate Process Automation Package'
for VPVL Pneumatic Actuators, V-Series and ADC-Series Electric Actuators**

For 1/2" – 1-1/2" (DN 15 – 40) Full Port Series 9000



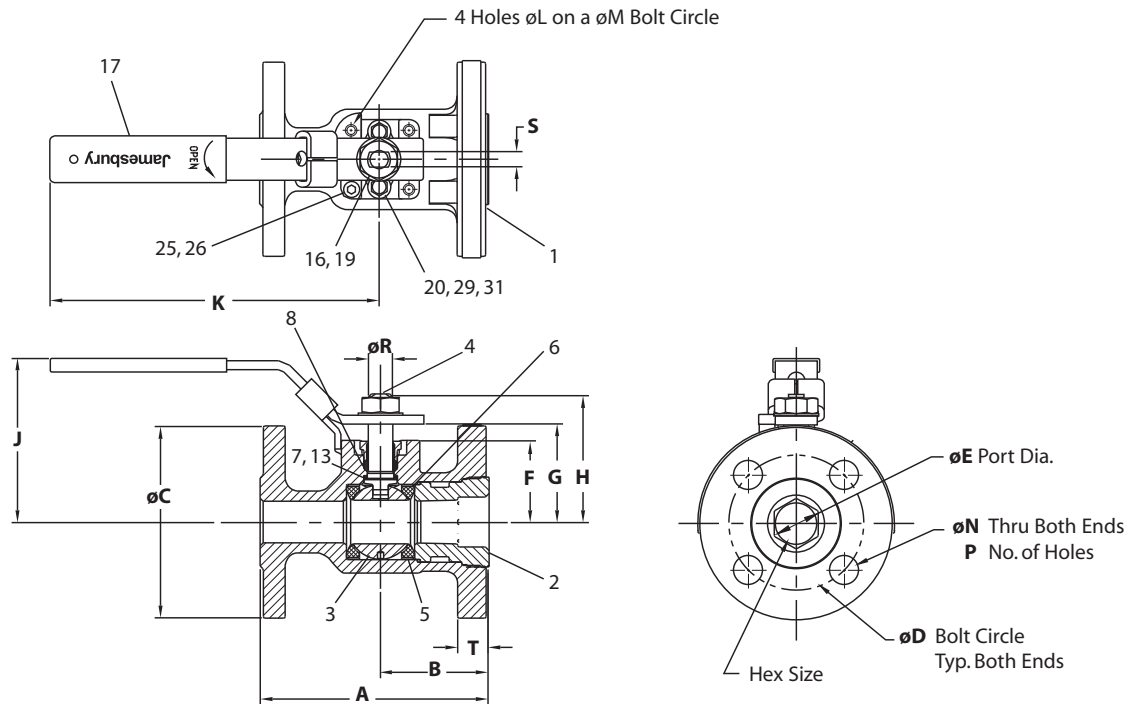
Automation Performance and Value

Valves combined with JAMESBURY actuators, network capable valve monitors and communication devices offer a total value and performance package. Available with pneumatic VALV-POWR® VPVL actuators, V-Series, ADC-Series, LCU-Series and LCR-Series electric actuators

and with STONEL® QUARTZ®, ECLIPSE®, and HAWKEYE® digital monitors or VCTs, the packages have a wide range of applications. Visit our website at: www.metso.com/automation.

DIMENSIONS

1/2" – 1-1/2" (DN 15 – 40) Series 9150 ANSI Class150 and Series 9300 ANSI Class 300 Valves



Valve Size inches	Series 9150 ANSI Class 150 Approximate Dimensions - inches																Hex Size	ISO Bonnet	Approx Weight lb	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S				T
1/2	4.25	1.94	3.50	2.38	0.50	1.06	1.33	1.63	3.38	5.00	M5	1.42	0.62	4	0.31	0.18	0.50	0.50	F03	3.5
3/4	4.63	2.19	3.88	2.75	0.88	1.65	2.04	2.58	3.69	6.50	M5	1.65	0.62	4	0.31	0.31	0.63	0.88	F04	10
1	5.00	2.19	4.25	3.12	1.00	1.78	2.17	2.71	3.94	6.50	M5	1.65	0.62	4	0.50	0.31	0.63	1.00	F04	13
1-1/2	6.50	2.64	5.00	3.88	1.50	2.26	2.78	3.49	4.46	8.00	M6	1.97	0.62	4	0.62	0.37	0.69	1.50	F05	17

Valve Size DN	Series 9150 ANSI Class 150 Approximate Dimensions - mm																Hex Size	ISO Bonnet	Approx Weight kg	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S				T
15	108	49	89	60	13	27	34	41	86	127	M5	36	16	4	8	5	13	13	F03	1.6
20	118	56	99	70	22	42	52	66	94	165	M5	42	16	4	8	8	16	22	F04	4.5
25	127	56	108	79	25	45	55	69	100	165	M5	42	16	4	13	8	16	25	F04	5.9
40	165	67	127	99	38	57	71	89	113	203	M6	50	16	4	16	9	18	38	F05	7.7

Valve Size inches	Series 9300 ANSI Class 300 Approximate Dimensions - inches																Hex Size	ISO Bonnet	Approx Weight lb	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S				T
1/2	5.50	1.94	3.75	2.62	0.50	1.06	1.33	1.63	3.38	5.00	M5	1.42	0.62	4	0.31	0.18	0.56	0.50	F03	6
3/4	6.00	2.19	4.63	3.25	0.88	1.65	2.04	2.58	3.69	6.50	M5	1.65	0.75	4	0.50	0.31	0.63	0.88	F04	13
1	6.50	2.19	4.88	3.50	1.00	1.78	2.17	2.71	3.94	6.50	M5	1.65	0.75	4	0.50	0.31	0.69	1.00	F04	17
1-1/2	7.50	2.64	6.13	4.50	1.50	2.26	2.78	3.49	4.46	8.00	M6	1.97	0.88	4	0.62	0.37	0.81	1.50	F05	22

Valve Size DN	Series 9300 ANSI Class 300 Approximate Dimensions - mm																Hex Size	ISO Bonnet	Approx Weight kg	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S				T
15	140	49	95	67	13	27	34	41	86	127	M5	36	16	4	8	5	14	13	F03	2.7
20	152	56	118	83	22	42	52	66	94	165	M5	42	19	4	13	8	16	22	F04	5.9
25	165	56	124	89	25	45	55	69	100	165	M5	42	19	4	13	8	18	25	F04	7.7
40	190	67	156	114	38	57	71	89	113	203	M6	50	22	4	16	9	21	38	F05	10.0

BILLS OF MATERIALS AND PARTS LIST			
FIRE-TITE 1/2" – 1-1/2" (DN 15 – 40) Full Bore Series 9000 Valves			
Part No.	Part Name	Body Material	
		Carbon Steel (22)	316 Stainless Steel (36)
1	Body	Carbon steel ASTM A216 Type WCB	316 Stainless steel ASTM A351 Type CF8M
2	Insert	Carbon steel ASTM A216 Type WCB	316L Stainless steel ASTM A351 Type CF3M
3	Ball	316 Stainless steel +	
4	Stem	316 Stainless steel +	
5	Seat	PTFE, XTREME, PFA, as specified	
6	Body Seal	TFM	
7	Secondary Stem Seal	Graphite	
8	Primary Stem Seal	PTFE, TFM (XTREME seated valves), UHMWPE (w/UHMWPE seats)	
13	Stem Bearing	Filled PTFE	
16	Hex Nut	Carbon steel (zinc plated)	300 Series Stainless steel
17	Handle	Carbon steel (zinc plated)	300 Series Stainless steel
19	Lockwasher	Carbon steel (zinc plated)	300 Series Stainless steel
20	Compression Plate ³	316 Stainless steel	
25	Socket Cap Screw	300 Series Stainless steel	
26	Handle Stop Spacer	300 Series Stainless steel	
29	Hex Cap Screw ³	300 Series Stainless steel	
31	Disc Springs	Inconel	
Non FIRE-TITE 1/2" – 1-1/2" (DN 15 – 40) Full Bore Series 9000 Valves			
Part No.	Part Name	Body Material	
		Carbon Steel (22)	316 Stainless Steel (36)
1	Body	Carbon steel ASTM A216 Type WCB	316 Stainless steel ASTM A351 Type CF8M
2	Insert	Carbon steel ASTM A216 Type WCB	316L Stainless steel ASTM A351 Type CF3M
3	Ball	316 Stainless steel +	
4	Stem	316 Stainless steel + or 17-4 PH Stainless steel ²	
5	Seat	PTFE, Peek #, UHMWPE, as specified	
6	Body Seal	TFM, UHMWPE (w/UHMWPE seats), Graphite (w/Peek seats)	
8	Primary Stem Seal	TFM (w/XTREME seats), PTFE (w/PTFE seats), Graphite (w/Peek seats), UHMWPE (w/UHMWPE seats)	
10	Stem Guide	Peek (Peek seated valves)	
16	Hex Nut	316 Stainless steel	
17	Handle	Carbon steel (zinc plated)	300 Series Stainless steel
19	Lockwasher	300 Series Stainless steel	
20	Compression Plate ³	316 Stainless steel	
24	Stem Bearing	Filled PTFE (Peek when Peek seated), UHMWPE (w/UHMWPE seats)	
25	Socket Cap Screw	300 Series Stainless steel	
26	Handle Stop Spacer	300 Series Stainless steel	
29	Hex Cap Screw ³	300 Series Stainless steel	
31	Disc Springs	Inconel	
# Requires 17-4 PH stem			

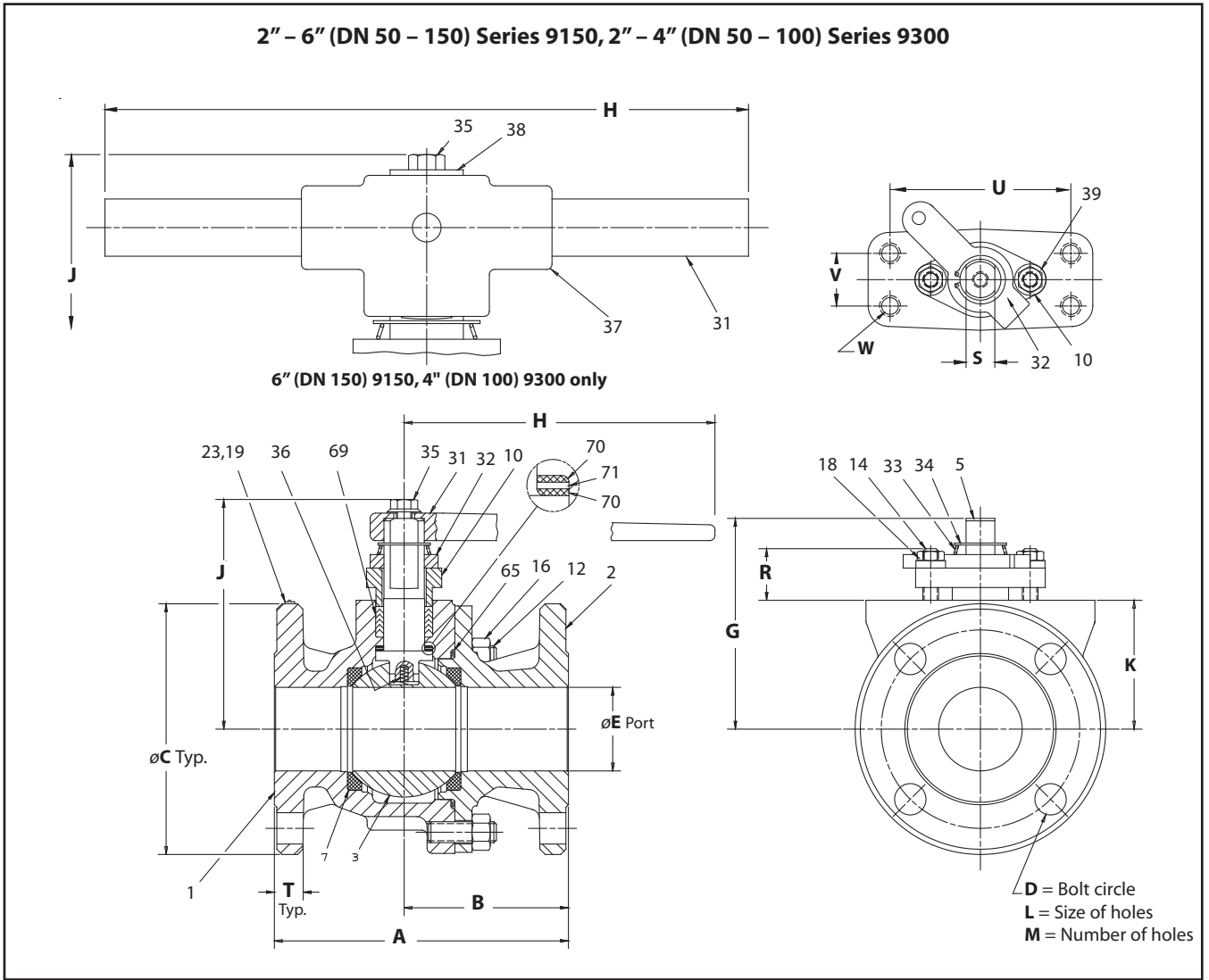
Note 1: When investment castings are used, chemical and physical properties are determined from a master heat in accordance with ANSI B16.34-1996 Sect. 5.1.2.

Note 2: 17-4 PH stems required with Peek seats.

Note 3: When trim is Monel or Hastelloy C, compression plate and hex cap screws are Monel.

+ Furnished with valves for NACE MR0103 service.

DIMENSIONS



Valve Size inches	Series 9150 ANSI Class 150 Approximate Dimensions - inches																Weight lb		
	A	B	C	D	E	G	H	J	K	L	M	N	R	S	T	U		V	W
2	7.00	3.89	6.00	4.75	2.00	5.05	14.00	5.50	3.09	0.75	4	0.97	1.24	0.69	0.69	4.33	1.26	1/2-13	29
3	8.00	4.09	7.50	6.00	3.00	5.87	14.00	6.32	3.90	0.75	4	0.97	1.24	0.69	0.81	4.33	1.26	1/2-13	49
4	9.00	4.48	9.00	7.50	4.00	8.32	19.94	8.78	5.51	0.75	8	1.36	1.78	0.97	1.00	5.10	1.26	1/2-13	89
6	15.50	8.25	11.00	9.50	6.00	10.70	30.00	11.65	7.28	0.88	8	1.75	1.78	1.25	1.06	6.30	1.58	5/8-11	244

Valve Size DN	Series 9150 ANSI Class 150 Approximate Dimensions - mm																Weight kg		
	A	B	C	D	E	G	H	J	K	L	M	N	R	S	T	U		V	W*
50	178	99	152	121	50	128	356	140	78	19	4	25	31	18	18	110	32	1/2-13	13
80	203	104	191	152	76	149	356	161	99	19	4	25	31	18	21	110	32	1/2-13	22
100	229	114	229	191	102	211	506	223	140	19	8	35	45	25	25	130	32	1/2-13	40
150	394	216	279	241	152	272	762	296	185	22	8	44	45	32	27	160	40	5/8-11	110

* Screw-thread dimensions are in inches

Valve Size inches	Series 9300 ANSI Class 300 Approximate Dimensions - inches																		Weight lb
	A	B	C	D	E	G	H	J	K	L	M	N	R	S	T	U	V	W	
2	8.50	4.99	6.50	5.00	2.00	5.05	14.00	5.50	3.09	0.75	8	0.97	1.24	0.69	0.94	4.33	1.26	1/2-13	37
3	11.12	6.41	8.25	6.63	3.00	7.50	19.94	7.95	4.69	0.88	8	1.36	1.78	0.97	1.18	5.10	1.26	1/2-13	77
4	12.00	6.59	10.00	7.88	4.00	9.08	30.00	10.03	5.66	0.88	8	1.75	1.78	1.25	1.31	6.30	1.58	5/8-11	136

Valve Size DN	Series 9300 ANSI Class 300 Approximate Dimensions - mm																		Weight kg
	A	B	C	D	E	G	H	J	K	L	M	N	R	S	T	U	V	W*	
50	216	127	165	127	51	128	356	140	78	19	8	25	31	18	24	110	32	1/2-13	17
80	282	163	210	168	76	191	506	202	119	22	8	35	44	25	30	130	32	1/2-13	35
100	305	167	254	200	102	231	762	255	144	22	8	44	44	32	33	160	40	5/8-11	62

* Screw-thread dimensions are in inches

BILLS OF MATERIALS AND PARTS LIST			
2" - 6" (DN 50 - 150) Series 9150, 2" - 4" (DN 50 - 100) Series 9300			
Part No.	Part Name	Body Material	
		Carbon Steel	316 Stainless Steel
1	Body	Carbon steel ASTM A216 Type WCB	316 Stainless steel ASTM A351 Type CF8M
2	Body Cap	Carbon steel ASTM A216 Type WCB	316 Stainless steel ASTM A351 Type CF8M
3	Ball	+316 Stainless steel, Monel ¹ , Hastelloy C ¹ - as specified	
5	Stem ³	+316 Stainless steel, Monel ¹ , Hastelloy C ¹ , 17-4 PH Stainless steel - as specified	
7	Seat	XTREME, PTFE, PFA, Peek ^{3,4} , UHMW Polyethylene - as specified	
10	Compression Plate ¹	Stainless steel Monel ¹	
12	Body Stud	ASTM A193 Gr. B7; +Gr B7M; B8, B8C, B8T or B8M	
14	Bonnet Stud	ASTM A193 Gr. B7; +Gr B7M; B8, B8C, B8T or B8M	
16	Body Stud Nut	ASTM A194 Gr. 2H; +Gr 2HM; Gr 8B, 8CB, 8MB, 8TB, 8FB	
18	Bonnet Stud Nut	ASTM A194 Gr. 2H; +Gr 2HM; Gr 8B, 8CB, 8MB, 8TB, 8FB	
19	Identification Tag	Stainless steel	
23	Rivet	Stainless steel	
31	Handle	Ductile iron ² or carbon steel	
32	Indicator Stop	Carbon steel	
33	Spring	Stainless steel	
34	Retaining Ring	Stainless steel	
35	Handle Screw	Carbon steel	
36	Grounding Spring	Inconel	
37	"T" Handle Adapter ²	Ductile iron	
38	Flat Washer ²	Carbon steel	
39	Stop Bushing ¹	316 Stainless steel	
65	Body Gasket ¹	Spiral wound PTFE/316 Stainless steel ¹	
69	Packing	PTFE, molecularly enhanced PTFE (XTREME-seated valves)	
70	Stem Bearing	Filled PTFE	
71	Secondary Stem Seal	Graphite	

Note 1: Compression plate, body gasket, and stop bushing are Monel for valves with Monel or Hastelloy C trim.

Note 2: 6" (DN 150) Series 9150, 8" (DN 200) Series 7150, & 4" (DN 100) Series 9300 only.

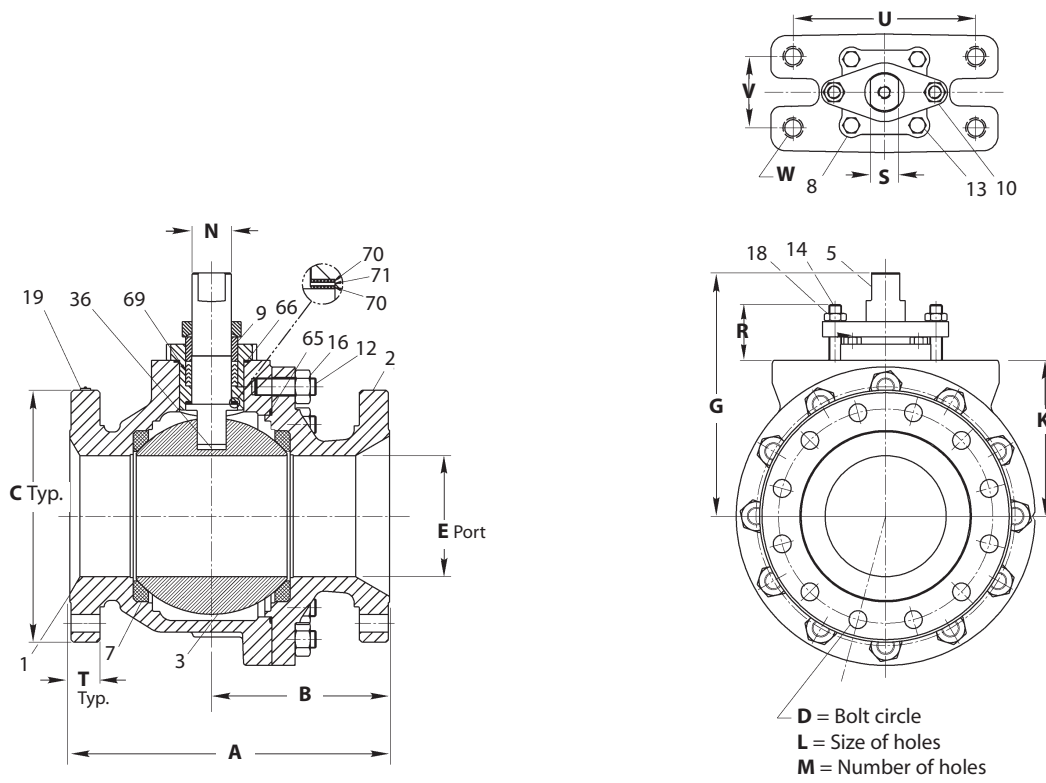
Note 3: 17-4 PH stems are required with Peek seats.

Note 4: Not available 6" (DN 150) 9150

+ Furnished with valves for NACE MR0103 service.

DIMENSIONS

8" (DN 200) Series 9150, 6" & 8" (DN 150 & 200) Series 9300 (Non-Trunnion)



8" 9300 also available in long version (930L) with 19.750 face-to-face dimension.

Valve Size inches	Series 9150 ANSI Class 150 Approximate Dimensions - inches															Weight lb	
	A	B	C	D	E	G	K	L	M	N	R	S	T	U	V		W
8	18.00	8.97	13.50	11.75	8.00	15.60	10.22	0.88	8	2.54	2.88	1.82	1.18	9.06	3.54	1-8	300

Valve Size DN	Series 9150 ANSI Class 150 Approximate Dimensions - mm															Weight kg	
	A	B	C	D	E	G	K	L	M	N	R	S	T	U	V		W*
200	457	228	343	298	203	396	260	22	8	65	76	46	30	230	90	1-8	136

Valve Size inches	Series 9300 & 930L ANSI Class 300 Approximate Dimensions - inches															Weight lb	
	A	B	C	D	E	G	K	L	M	N*	R	S	T	U	V		W
6	15.88	8.84	12.50	10.63	6.00	12.07	7.74	0.88	12	1.95	2.76	1.39	1.50	9.06	3.54	1-8	327
8	16.50	8.22	15.00	13.00	8.00	15.60	10.22	1.00	12	2.54	2.88	1.82	1.64	9.06	3.54	1-8	560

Valve Size DN	Series 9300 & 930L ANSI Class 300 Approximate Dimensions - mm															Weight kg	
	A	B	C	D	E	G	K	L	M	N*	R	S	T	U	V		W*
150	403	225	318	270	152	307	197	22	12	50	70	35	38	230	90	1-8	149
200	419	209	381	336	203	396	260	25	12	65	73	46	42	230	90	1-8	255

* Screw-thread dimensions are in inches

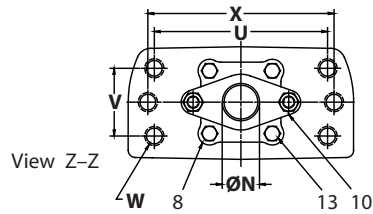
BILLS OF MATERIALS AND PARTS LIST			
8" (DN 200) Series 9150, 6" & 8" (DN 150 & 200) Series 9300 & 930L (Non-Trunnion)			
Part No.	Part Name	Body Material	
		Carbon Steel	316 Stainless Steel
1	Body	Carbon steel ASTM A216 Gr WCB	316 Stainless steel ASTM A351 Gr CF8M
2	Body Cap	Carbon steel ASTM A216 Gr WCB	316 Stainless steel ASTM A351 Gr CF8M
3	Ball	+316 Stainless steel, Alloy 20, Monel ¹ , Hastelloy C ¹ - as specified	
5	Stem	+316 Stainless steel, Monel ¹ , Hastelloy C ¹ , 17-4 PH - as specified	
7	Seat	XTREME, PTFE	
8	Stem Retainer	Carbon steel	Stainless steel
9	Gland Follower ¹	Carbon steel, Stainless steel, Monel ¹	
10	Compression Plate ¹	Stainless steel, Monel	
12	Body Stud	ASTM A193 Gr B7; +Gr B7M; Gr B8, B8C, B8T or B8M	
13	Stem Retainer Cap Screw	ASTM A193 Gr B7; +Gr B7M; Gr B8, B8C, B8T or B8M	
14	Stud	ASTM A193 Gr B7; +Gr B7M; Gr B8, B8C, B8T or B8M	
16	Nut	ASTM A194 Gr 24; +Gr 2HM; Gr 8B, 8CB, 8MB, 8TB, 8FB	
18	Nut	ASTM A194 Gr 2H; +Gr 2HM; Gr 8B, 8CB, 8MB, 8TB, 8FB	
19	Identification Tag	Stainless steel	
36	Grounding Spring	Inconel	
37	Caution Tag	PTFE	
65	Body Gasket ¹	Spiral Wound PTFE / 316 Stainless steel ¹	
66	Stem Retainer ¹	Spiral Wound PTFE / 316 Stainless steel ¹	
69	Packing	PTFE, molecularly enhanced PTFE (XTREME-seated valves)	
70	Stem Bearing	PTFE	
71	Secondary Stem Seal	Graphite	

Note 1: Compression plate, body gasket, stem retainer, and gland follower are Monel for valves with Monel or Hastelloy C trim.

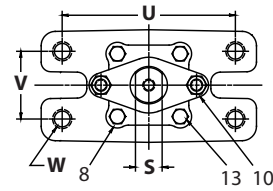
+ Furnished with valves for NACE MR0103 service.

DIMENSIONS

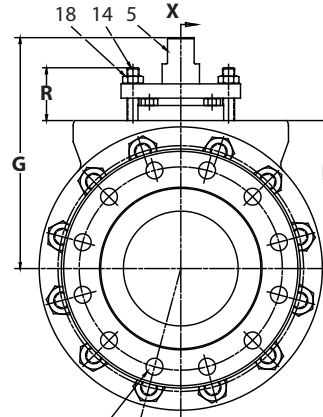
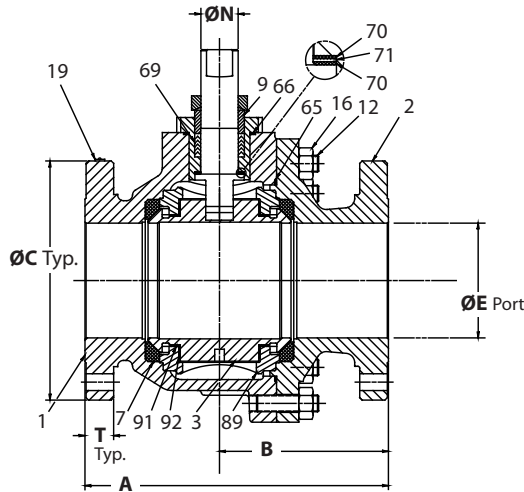
8", 10", & 12" (DN 200, 250, 300) Series 9150, 6", 8", 10" & 12" (DN 150, 200, 250, 300) Series 9300 (Trunnion)



10" & 12" (DN 250 & 300) Class 150 & 300



8" (DN 250) Class 150
6" & 8" (DN 150 & 200) Class 300



D = Bolt circle
L = Size of holes
M = Number of holes

8" 9300 also available in long version (930L) with 19.750 face-to-face dimension.

Valve Size inches	Series 9150 ANSI Class 150 Approximate Dimensions – inches																Weight lb	
	A	B	C	D	E	G	K	L	M	N	R	S	T	U	V	W		X
8	18.00	8.97	13.50	11.75	8.00	15.60	10.22	0.88	8	2.54	2.88	1.82	1.18	9.06	3.54	1-8	N/A	300
10	21.00	10.90	16.00	14.25	10.00	23.39	11.82	1.00	12	2.76	3.38	N/A	1.19	12.10	4.72	1¼-7	12.99	710
12	24.00	11.96	19.00	17.00	12.00	25.11	13.44	1.00	12	3.00	3.63	N/A	1.25	12.10	4.72	1¼-7	12.99	1089

Valve Size DN	Series 9150 ANSI Class 150 Approximate Dimensions – mm																Weight kg	
	A	B	C	D	E	G	K	L	M	N	R	S	T	U	V	W*		X
200	457	228	343	298	203	370	260	22	8	65	76	35	30	230	90	1-8	N/A	136
250	533	276	406	362	254	594	300	25	12	70	86	N/A	30	307	120	1¼-7	330	322
300	610	304	483	432	305	638	341	25	12	76	92	N/A	32	307	120	1¼-7	330	494

Valve Size inches	Series 9300/930L ANSI Class 300 Approximate Dimensions – inches																Weight lb	
	A	B	C	D	E	G	K	L	M	N	R	S	T	U	V	W		X
6	15.88	8.84	12.50	10.63	6.00	12.07	7.74	0.88	12	1.95	2.76	1.39	1.50	9.06	3.54	1-8	N/A	310
8	16.50	8.26	15.00	13.00	8.00	15.60	10.22	1.00	12	2.54	3.00	1.82	1.64	9.06	3.54	1-8	N/A	560
10	22.38	12.19	17.50	15.25	10.00	23.39	11.82	1.13	16	2.75	3.38	2.75	1.88	12.10	4.72	1¼-7	12.99	968
12	25.50	14.02	20.50	17.75	12.00	25.11	13.44	1.25	16	3.00	3.63	3.00	2.00	12.10	4.72	1¼-7	12.99	1496

Valve Size DN	Series 9300/930L ANSI Class 300 Approximate Dimensions – mm																Weight kg	
	A	B	C	D	E	G	K	L	M	N	R	S	T	U	V	W*		X
150	403	225	318	270	152	307	197	22	12	50	70	35	38	230	90	1-8	N/A	141
200	419	210	381	336	203	396	260	25	12	65	76	46	42	230	90	1-8	N/A	255
250	568	310	445	387	254	594	300	29	16	70	86	70	48	307	120	1¼-7	330	439
300	648	356	521	451	305	638	341	32	16	76	92	76	51	307	120	1¼-7	330	679

* Screw-thread dimensions are in inches

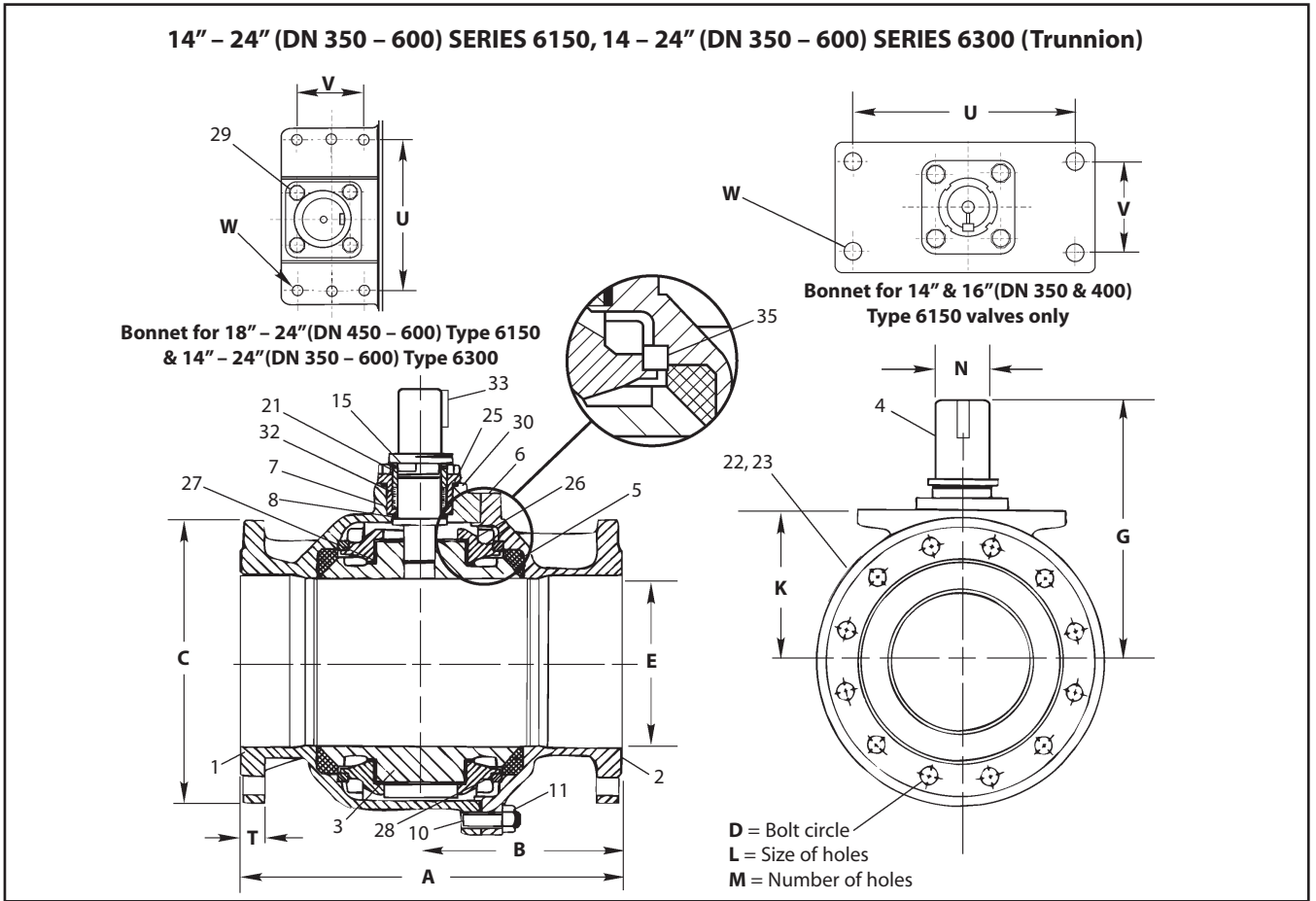
BILLS OF MATERIALS AND PARTS LIST			
Series 9150, 6" – 12" (DN 150 – 300) Series 9300 (Trunnion)			
Part No.	Part Name	Body Material	
		Carbon Steel (22) All Series	316 Stainless Steel (36) All Series
1	Body	Carbon steel ASTM A216 Gr WCB	316 Stainless steel ASTM A351 Gr CF8M
2	Body Cap	Carbon steel ASTM A216 Gr WCB	316 Stainless steel ASTM A351 Gr CF8M
3	Ball	+316 Stainless steel, Alloy 20, Monel ¹ , Hastelloy C ¹ - as specified	
5	Stem	+316 Stainless steel, Monel ¹ , Hastelloy C ¹ , 17-4 PH - as specified	
7	Seat	XTREME, PTFE - as specified	
8	Stem Retainer	Carbon steel ASTM A216 Gr WCB	Stainless steel ASTM A351 Gr CF8M
9	Gland Follower ¹	Carbon Steel, Stainless steel, Monel ¹	
10	Compression Plate ¹	Stainless steel, Monel ¹	
12	Body Stud	ASTM A193 Gr B7; +Gr B7M; Gr <u>B8</u> , <u>B8C</u> , <u>B8T</u> or <u>B8M</u>	
13	Stem Retainer Bolt	ASTM A193 Gr B7; +Gr B7M; Gr <u>B8</u> , <u>B8C</u> , <u>B8T</u> or <u>B8M</u>	
14	Stud	ASTM A193 Gr B7; +Gr B7M; Gr <u>B8</u> , <u>B8C</u> , <u>B8T</u> or <u>B8M</u>	
16	Nut	ASTM A194 Gr 24; +Gr 2HM; Gr <u>8B</u> , <u>8CB</u> , <u>8MB</u> , <u>8TB</u> , <u>8FB</u>	
18	Nut	ASTM A194 Gr 2H; +Gr 2HM; Gr <u>8B</u> , <u>8CB</u> , <u>8MB</u> , <u>8TB</u> , <u>8FB</u>	
19	Identification Tag	Stainless steel	
23	Rivet	Stainless steel	
36	Grounding Spring ²	Inconel	
65	Body Gasket ¹	Spiral Wound PTFE / 316 Stainless steel ¹	
66	Stem Retainer Seal ¹	Spiral Wound PTFE / 316 Stainless steel ¹	
69	Packing	PTFE, molecularly enhanced PTFE (XTREME-seated valves)	
70	Stem Bearing	Filled PTFE	
71	Secondary Stem Seal	Graphite	
89	Trunnion	Carbon Steel	Stainless steel
91	Bearing Spacer	Filled PTFE	
92	Trunnion Bearing	316 Stainless steel	

Note 1: Compression plate, body gasket, stem retainer gasket, and gland follower are Monel for valves with Monel or Hastelloy C trim.

Note 2: For grounding valves only.

+ Furnished with valves for NACE MR0103.

DIMENSIONS



Valve Size inches	Series 6150 ANSI Class 150 Approximate Dimensions – inches													Weight lb	
	A	B	C	D	E	G	K	L	M	N	T	U	V		W
14	27.00	14.25	21.00	18.75	13.25	20.38	13.88	1.13	12	3.00	1.50	11.13	3.25	3/4-10	1470
16	30.00	16.50	23.50	21.25	15.25	21.75	15.25	1.13	16	3.00	1.56	11.13	5.30	3/4-10	1900
18	34.00	18.00	25.00	22.75	17.25	22.38	17.38	1.25	16	3.50	1.56	13.00	7.00	3/4-10	2800
20	36.00	19.38	27.50	25.00	19.25	24.75	18.25	1.25	20	3.50	1.69	15.00	7.00	3/4-10	3500
24	42.00	21.06	32.00	29.50	23.25	29.97	20.00	1.38	20	3.75	1.88	15.00	7.00	7/8-9	on application

Valve Size DN	Series 6150 ANSI Class 150 Approximate Dimensions – mm													Weight kg	
	A	B	C	D	E	G	K	L	M	N	T	U	V		W*
350	686	362	533	476	337	518	353	29	12	76	38	254	83	3/4-10	667
400	762	419	597	540	387	552	387	29	16	76	40	283	135	3/4-10	862
450	864	457	635	578	438	568	441	32	16	89	40	330	178	3/4-10	1270
500	914	492	699	635	489	629	464	32	20	89	43	330	178	3/4-10	1588
600	1067	535	813	749	590	761	508	35	20	95	48	381	178	7/8-9	on application

Valve Size inches	Series 6300 ANSI Class 300 Approximate Dimensions – inches													Weight lb	
	A	B	C	D	E	G	K	L	M	N	T	U	V		W
14	30.00	17.25	23.00	20.25	13.25	20.50	14.00	1.25	20	3.50	2.13	13.00	7	3/4-10	2000
16	33.00	17.63	25.50	22.50	15.25	22.00	15.19	1.38	20	3.50	2.25	13.00	7	3/4-10	2480
18	36.00	19.28	28.00	24.00	17.25	25.56	15.13	1.38	24	3.50	2.38	15.00	7	7/8-9	3400
20	39.00	20.38	30.50	27.00	19.25	27.38	16.81	1.38	24	3.50	2.50	15.00	7	7/8-9	4800
24	45.00	22.50	36.00	32.00	23.25	30.97	21.06	1.63	24	3.75	2.75	15.00	7	7/8-9	on application

Valve Size DN	Series 6300 ANSI Class 300 Approximate Dimensions – mm													Weight kg	
	A	B	C	D	E	G	K	L	M	N	T	U	V		W*
350	762	438	584	514	336	521	356	32	20	89	54	330	178	3/4-10	907
400	838	448	648	572	387	559	386	35	20	89	57	330	178	3/4-10	1125
450	914	490	711	610	438	649	384	35	24	89	60	381	178	7/8-9	1542
500	991	518	775	686	489	695	427	35	24	89	64	381	178	7/8-9	2177
600	1143	572	914	813	590	787	535	41	24	95	70	381	178	7/8-9	on application

* Screw-thread dimensions are in inches

BILLS OF MATERIALS AND PARTS LIST			
14" – 24" (DN 350 – 600) Series 6150, 14" – 24" (DN 350 – 600) Series 6300 Full-Bore Valves			
Part No.	Part Name	Body Material	
		Carbon Steel (22) All Series	316 Stainless Steel (36)
1	Body	Carbon steel ASTM A216 Type WCB	316 stainless steel ASTM A351 Type CF8M
2	Body Cap	Carbon steel ASTM A216 Type WCB	316 stainless steel ASTM A351 Type CF8M
3	Ball	Alloy 20, +316 Stainless steel, Monel ¹ , Hastelloy C ¹ - as specified	
4	Stem	Alloy 20, +316 Stainless steel, Monel ¹ , Hastelloy C ¹ -as specified	
5	Seat	PTFE or filled PTFE	
6	Body Seal ¹	Spiral wound PTFE/316 Stainless steel ¹	
7	Secondary Stem Seal	Graphite	
8	Stem Bearing	Filled PTFE	
10	Body Stud	ASTM A193 Gr. B7; +Gr. B7M; or Gr. <u>B8</u> , <u>B8C</u> , <u>B8T</u> or <u>B8M</u>	
11	Nut	ASTM A194 Gr. 2H; Gr. 2HM; or Gr. <u>8B</u> , <u>8CB</u> , <u>8MB</u> , <u>8TB</u> , or <u>8FB</u>	
15	Stem Nut	Carbon steel	
21	Compression Ring ¹	Stainless steel	
22	Identification Tag	Stainless steel	
23	Drive Screw	Stainless steel	
25	Stem Retainer Seal	Graphite	
26	Trunnion Plate	Carbon steel Type WCB	316 Stainless steel Type CF8M
27	Trunnion Bearing	316 Stainless steel backed glass-filled PTFE	
28	Bearing Spacer	Filled PTFE	
29	Hex.Hd. Cap Screw	ASTM A193 Gr. B7; +Gr. B7M	
30	Stem Retainer	Carbon steel Type WCB	316 Stainless steel Type CF8M
32	Upper Stem Seal	PTFE	
33	Key ²	Carbon steel	
35	Trunnion Ring ³	Carbon steel	Stainless steel

Note 1: Compression ring, body seal, and gland follower are Monel for valves with Monel or Hastelloy C trim.

Note 2: Not used in 12" (DN 300) Series 6150 valves.

Note 3: Not used in 14" & 16" (DN 350 & 400) Series 6300 valves. + Furnished with valves for NACE MR0103.

ACTUATORS

Metso offers a full line of integrally designed actuators for automated systems or for easier control of inaccessible or remote valves. Pneumatic actuators that include double-acting and spring-return piston, vane, and rack and pinion units, spring-diaphragm types, and electric actuators are available for all valves. Electric actuators are available with both watertight and hazardous location enclosures. For

further information on actuators for Series 4000 valves, see the following:

Type

Spring-Diaphragm Actuators
 VPVL Mod B Actuators
 V Series electric actuators
 ADC Series electric actuators

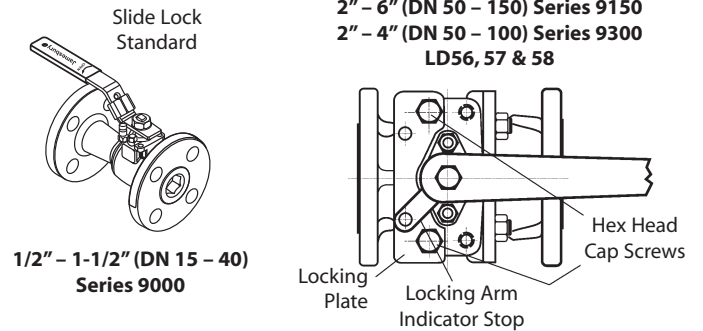
Bulletin

A110-4
 A111-3
 A200-1
 A201-1

ACCESSORIES

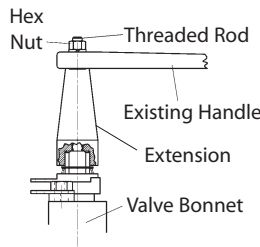
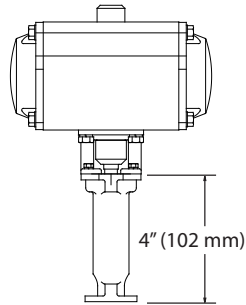
Locking Devices

When safety measures are necessary, a reliable locking plate is available to allow the valve to be padlocked in either the open or closed position. Proper figure numbers are shown in the Accessory Table below.



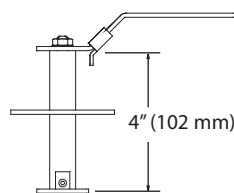
**Bonnet/Stem Extensions
SE-084, 085 & 086**

4" (102 mm) bonnet/stem extensions are available for applications that require insulated pipe, particularly useful for automated products, extensions can also be used to prevent interference between actuators and companion pipelines and equipment. They are ideal as extension that require locking lever or locking oval handle capability. Stainless steel construction offers the option of using the extension to complement the carbon steel stem extension (SE-093, 094 & 095) offering.



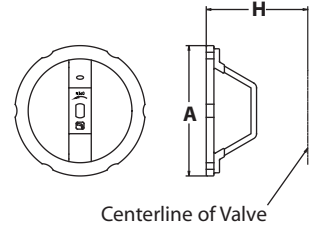
**Stem Extensions
SE-093, 094 & 095**

A standard 4" (102 mm) stem extension is offered for Series 9000 valves (1/2 - 1-1/2" (DN15 - 40)) for improved accessibility, particularly when used in insulated pipelines. Stem extension kits can be ordered factory-mounted or shipped separately for field mounting



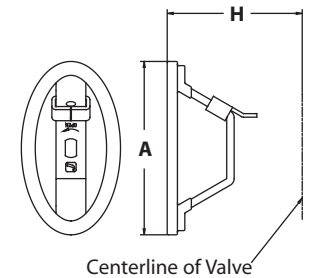
Round Handles

Series 9000 ball valves have optional round handles available. To order handles separately, specify the part number shown in the accessories table below.



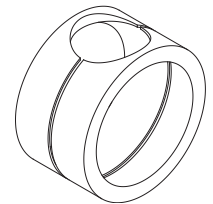
**Oval handles
with slide-lock**

Optional oval handle saves space and may be padlocked to retain the valve in the open or closed position.



Cavity Fillers

Cavity fillers are available in 9000 series full bore valves. The fillers are PTFE and used for sanitary applications and in processes where cross contamination is a concern. Food processing, pharmaceuticals, cosmetics, paints, solvents, finishes and dyes are typical applications where fillers are employed.



Accessory Table – inches (DN)									
Valve Size Full Bore	Locking Device	Stem Ext.	Bonnet/ Stem Ext.	Locking Oval	Round	Round/Oval Handle		Allowable Max. Torque FT•LBS (N•m)	
						Dimension A	Dimension H	Round	Oval
1/2" (15)	Standard Equipment	SE-093	SE-096	112-0108-30	112-0105-30	4.00 (101.6)	2.96 (75.2)	9 (12)	9 (12)
3/4" (20)		SE-093	SE-096	112-0109-30	112-0106-30	4.50 (114.3)	3.70 (94.0)	18 (24)	18 (24)
1" (25)		SE-094	SE-097	112-0109-30	112-0106-30	4.50 (114.3)	3.83 (97.3)	18 (24)	18 (24)
1-1/4" (30)		SE-095	SE-098	112-0110-30	112-0107-30	5.75 (146.0)	4.75 (120.7)	25 (34)	25 (34)
1-1/2" (40)		SE-095	SE-098	112-0110-30	112-0107-30	5.75 (146.0)	4.94 (125.5)	25 (34)	25 (34)
2" (50)	LD56	SE-60							
3" (80) 9150	LD56	SE-60							
3" (80) 9300	LD57	SE-61							
4" (100) 9150	LD57	SE-61							
4" (100) 9300	LD58	SE-62							
6" (150) 9150	LD58	SE-62							
						NA			

* For valves with PEEK(L) seats that require stem extensions use bonnet/stem extension SE-096, 097 or 098.

VALVE TORQUE DATA

Use these torque charts as a guide for actuator selection. Additional requirements may be imposed by media characteristics, trim, and frequency of valve operation. For clean lubricating fluid service, required torque for PTFE (T), XTREME (X) and filled PTFE (M) seated valves only may be reduced 20% when the valve is equipped with corrosion resistant trim. For difficult services such as slurries and semi-solids, and for oxygen, increase values by 50%. If in doubt, err on the side of safety by using a larger actuator than would normally be selected.

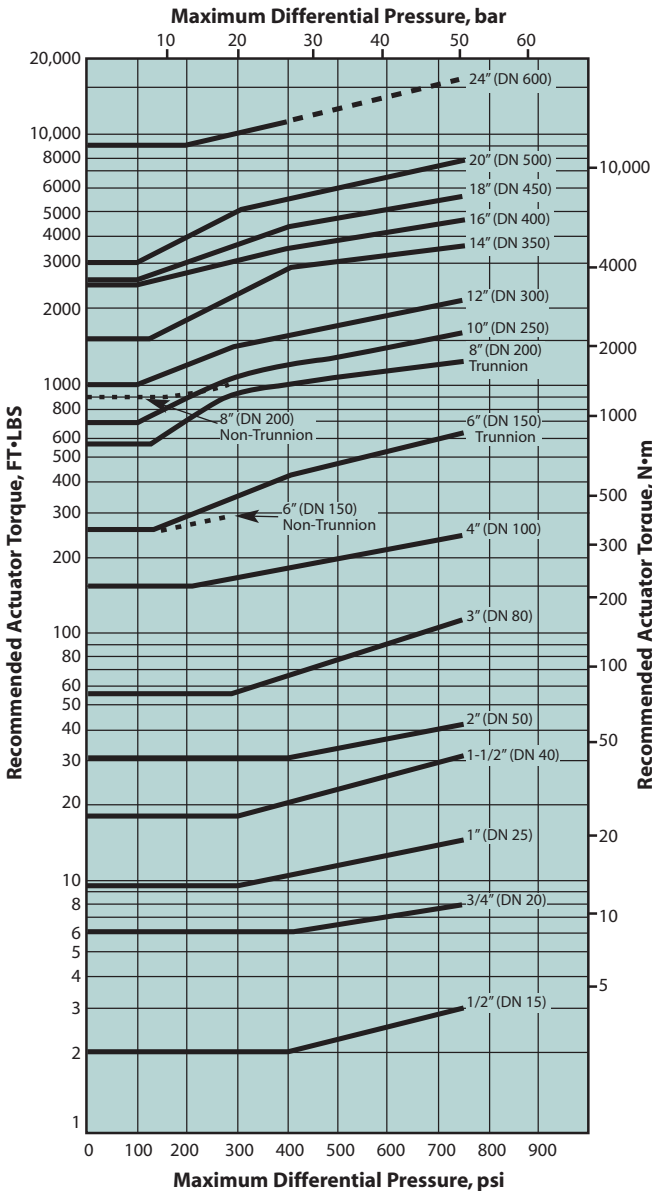
Valves with E-PAK® require an increase in operating torque. Refer to Bulletin B115-4 for additional information.

Torque output values and actuator selection tables for the different types of JAMESBURY actuators are contained in the bulletins listed below.

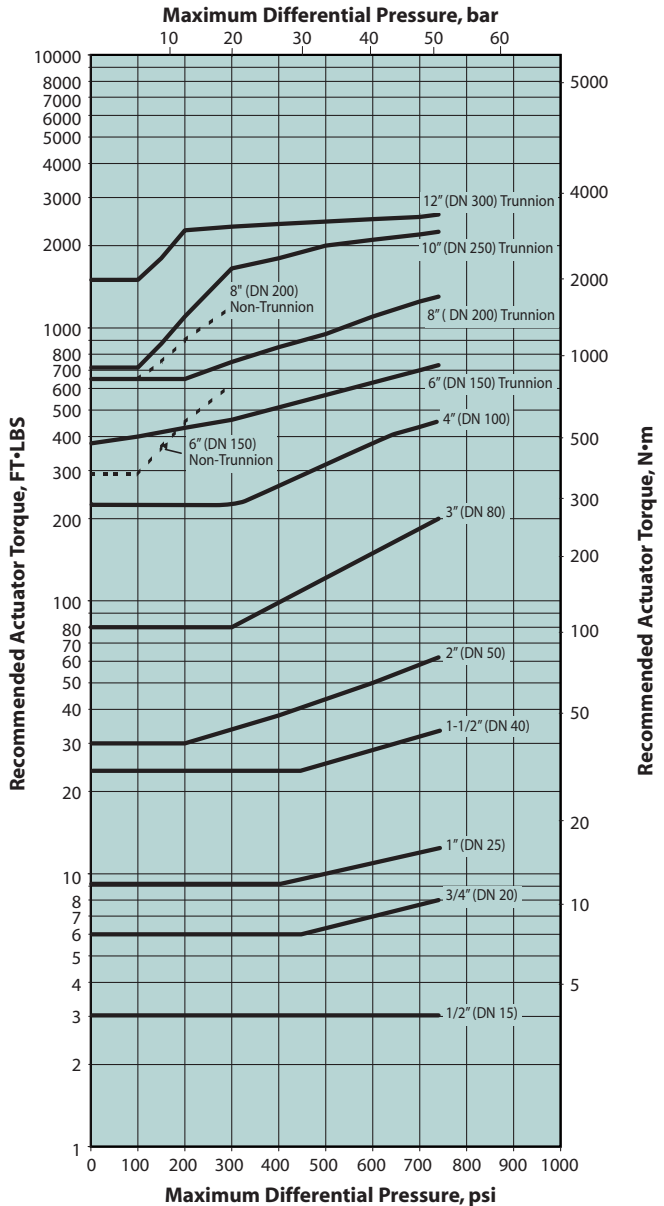
Manual Gear Actuators	A100-1
B-Series Piston Actuators	6B20
QUADRA-POWR® X Spring Diaphragm	
Rotary Actuators	A110-4
VALV-POWR® Series VPVL	A111-3
VPVL Stainless Steel	A111-4
V-Series Electric Actuators	A200-1
ADC-Series Electric Actuators	A201-1
LCU-Series Electric Actuators	A202-1
LCR-Series Electric Actuators	A203-1

ANSI Class 150 and 300 Valve Torque Data

PTFE (T) Seated Valves



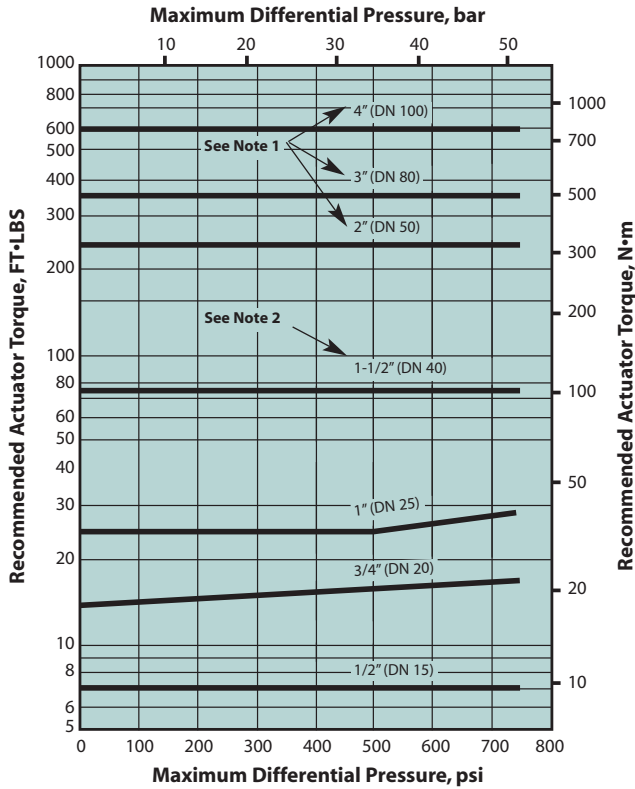
XTREME (X) Seated Valves 1/2" – 12" (DN 15 – 300)



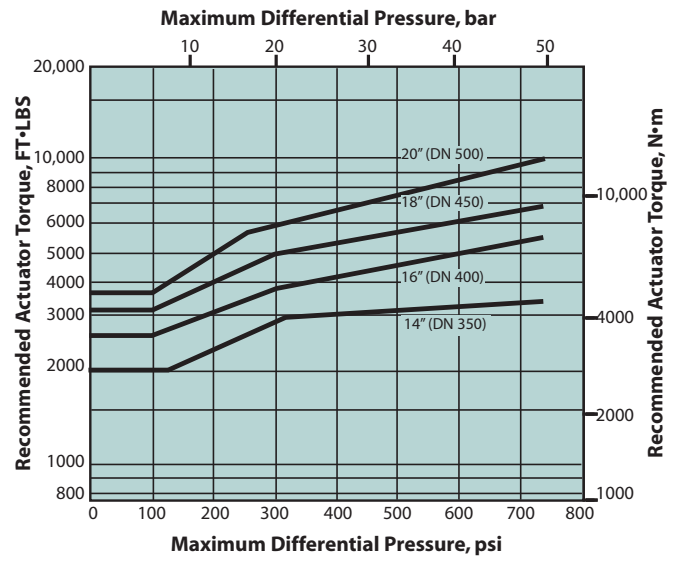
VALVE TORQUE DATA

ANSI Class 150 and 300 Valves

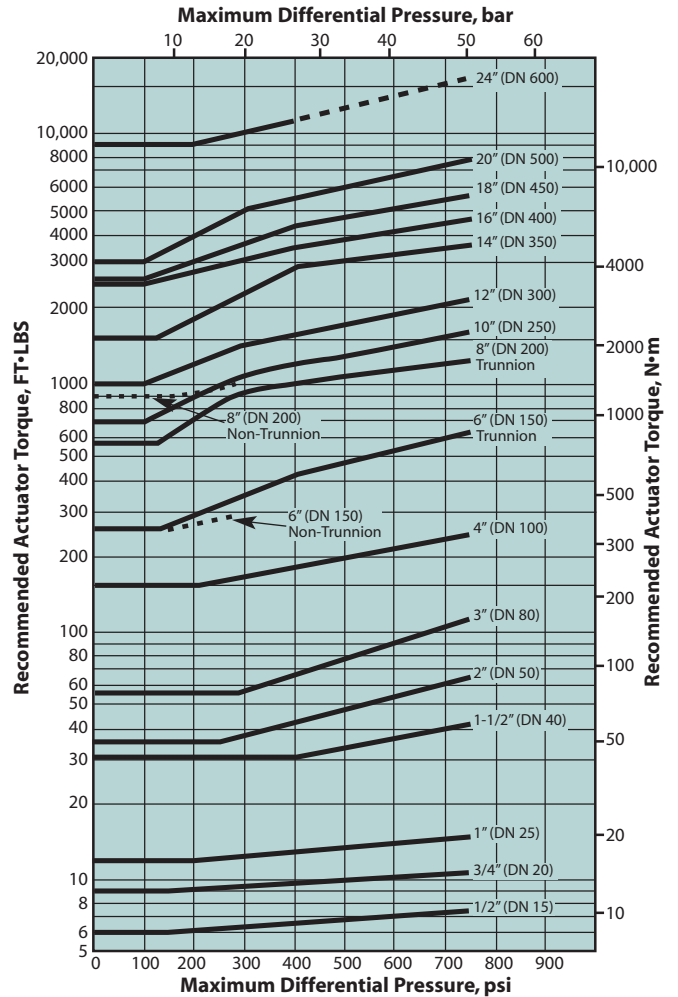
Peek (L) Seated Valves 1/2" – 6" (DN 15 – 150)



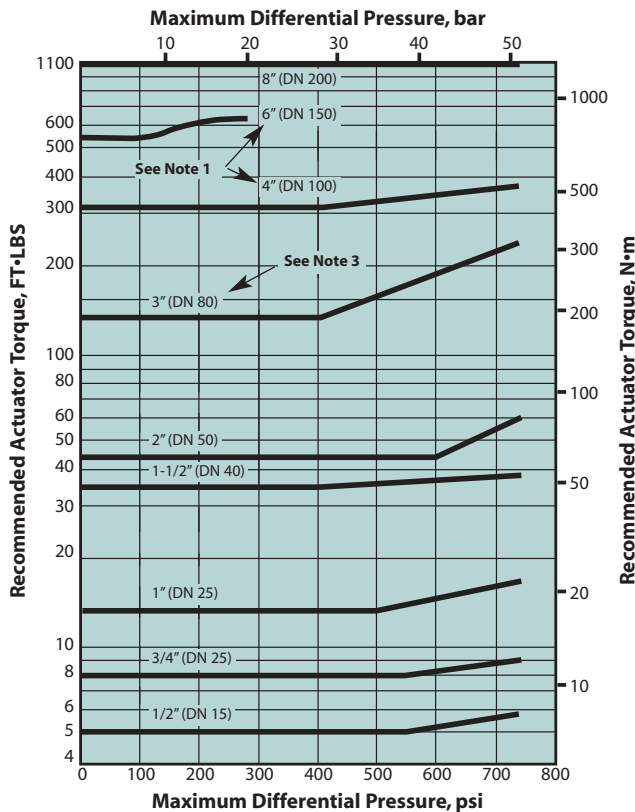
Filled PTFE (M) Seated Valves



UHMW Polyethylene (U) Seated Valves



PFA (B) Seated Valves 1/2" – 8" (DN 15 – 200)



- Note 1:** Actuator is required;
- Note 2:** Actuator is required for difficult service;
- Note 3:** Actuator is required for difficult service and pressure greater than 500 psi.

HOW TO ORDER

EXAMPLE: A 2" ANSI Class 300 short design valve (9150) in FIRE-TITE design (3) with raised-face flanges (31), carbon steel body (22), and 316 stainless steel trim (36), with XTREME seats (XTZ) and molecularly enhanced PTFE stem seals is written: 2" 9150-31-2236XTZ1.

1	2	3	4	5	6	7	8
2"	9150	-	31	22	36	XTZ	1

1	Size		
1/2" to 24"	1/2" (DN 15)	4" (DN 100)	14" (DN 350)
	3/4" (DN 20)	6" (DN 150)	16" (DN 400)
	1" (DN 25)	8" (DN 200)	18" (DN 450)
	1-1/2" (DN 40)	10" (DN 250)	20" (DN 500)
	2" (DN 50)	12" (DN 300)	24" (DN 600)
	3" (DN 80)		

2	Valve Series & Style	Size Range
9150	Full Bore Class 150	1/2" – 12" (DN 15 – 300)
9180	Full Bore Class 150*	1/2" – 12" (DN 15 – 300)
9300	Full Bore Class 300	1/2" – 12" (DN 15 – 300)
930L	Full Bore Class 300 B16.10 long F-F	8" (DN 200)
9380	Full Bore Class 300*	1/2" – 12" (DN 15 – 300)
938L	Full Bore Class 300 B16.10 long F-F	8" (DN 200)
6150	Full Bore Class 150	14" – 24" (DN 350 – 600)
6180	Full Bore Class 150*	14" – 24" (DN 350 – 600)
6300	Full Bore Class 300	14" – 24" (DN 350 – 600)
6380	Full Bore Class 300*	14" – 24" (DN 350 – 600)

* Metric units on nameplate. Valves larger than 1" (DN 25) are CE marked. Includes static grounding per BS 5351.

3	Special Construction
—	Standard (no entry)
C	Chlorine
N	NACE MR0103
O	Oxygen
DT	125 RMS Flange Finish
Q	PTFE Cavity Filler
STG	Grounded 9000 Series
STGR	Grounded 6000 Series
V	High Vacuum
VC	High Vacuum Certified
DBB	Double Block and Bleed (See Bulletin B151-1)

4	End Connection Construction	Size Range
11	Raised Face Non-FIRE-TITE Non-Trunnion	1/2 – 8" (DN 15 – 200) Full Bore
31	Raised Face FIRE-TITE Non-Trunnion	1/2 – 8" (DN 15 – 200) Full Bore
71	Raised Face FIRE-TITE Trunnion	8 – 24" (DN 200 – 600) Class 150 Full Bore 6 – 24" (DN 150 – 600) Class 300 Full Bore

5	Body Material*	Size Range
22	Carbon Steel (WCB)	All
35	Alloy 20 (CN7M)	Optional in all sizes
36	Stainless Steel (CF8M)	All
71	Monel	Optional in all sizes

* Other materials available on application

6	Ball & Stem Materials*	Size Range
35	Alloy 20	3/4 – 8" (DN 20 – 200) Full Bore
36	316 Stainless Steel	All
71	Monel	Optional
73	Hastelloy	Optional in all sizes
HB	316 SS, 17-4 PH	Required for seat & seal code LGG
00	Same as body	All (Carbon steel not available)

* Other materials available on application

7	Seat / Body Seal / Stem Seal Material*	Size Range
XTZ	XTREME/PTFE ² /TFM	1/2 – 12" (DN 15 – 300) Full Bore
TTT	PTFE/PTFE ² /PTFE ²	All
MTT	Filled PTFE/PTFE/PTFE	14 – 24" (DN 350 – 600) Full Bore
BTT	PFA/PTFE ² /PTFE ²	1/2 – 6" (DN 20 – 150) Full Bore
LGG ^{†3}	Peek/Graphite/Graphite	1/2 – 4" (DN 20 – 100) Full Bore
UUU ¹	UHMW/UHMW/UHMW	1/2 – 8" (DN 15 – 250) Full Bore
MBT ¹	Barrier-filled PTFE	3 – 10" (DN 80 – 250) Full Bore
ZTT	TFM/PTFE ² /PTFE ²	1/2" – 10" (DN 15 – 250) Full Bore

* Use first two letters only for Series 6000 valves

† Requires 17-4PH Stem

1 Non-FIRE-TITE only

2 TFM on sizes 1-1/2" (DN 40) and smaller

3 Not a self relieving seat design

8	Bolts	Nuts	Application
1*	ASTM A193 Gr B7	ASTM A194 Gr 2H	Carbon Steel Monel
2	ASTM A193 Gr B8, B8C, B8M or B8T (Class 2)	ASTM A194 Gr 8B, 8CB, 8MB, 8TB, or 8FB	316 St. Stl. Alloy 20
5**4	ASTM A193 Gr B7M	ASTM A194 Gr 2HM	NACE
4**	Monel		Monel NACE All Cl2

Bolts and nuts for 1-1/2" (DN40) and smaller valves apply to bonnet hardware only. For 2" (DN50) and larger bolts and nuts pertain to bonnet hardware and body and cap fasteners.

* Stainless bolting standard for 1-1/2" and smaller

** Required for compliance to NACE MR0103-2003 2" and larger.

4 1-1/2" (DN 40) and smaller use Monel bonnet hardware for NACE MR0103-203 compatibility.

STANDARDS AND SPECIFICATIONS

The Company

ISO 9001 – 2000 ANSI/150/ASQ Q9001 – 2000
Pressure Equipment Directive 97/23/EC

Available Standards

API 598	American Petroleum Institute - Valve Inspection and testing
API 607 Edition 4	American Petroleum Institute - Fire Test for Soft Seated Valves (Division of refining)
API 608	Metal Ball Valves Used in On-Off Service that have Buttwelded or Flanged Ends for Size 1/2 – 1-1/2" (DN 15 – 40) NPS
ANSI/ASME B16.10	American National Standard - Face-to-Face and End-to-End Dimensions of Ferrous Valves
ANSI/ASME B16.5	American National Standard - Steel Pipe Flanges and Flanged Fittings
ANSI/ASME B16.34	American National Standard - Steel Valves - Flanged and Buttwelded End
ANSI/ASME B31.1	American National Standard - Power Piping
ANSI/ASME B31.3	American National Standard - Chemical Plant and Petroleum Refinery Piping
ANSI/FCI 70-2-1991	American National Standard - For Control Valve Seat Leakage
BS 2080:1989	British Standards Institute - Specification for Face-to-Face Dimensions of Flanged and Buttwelded Steel Valves
BS 6755-2:1987	Testing of Valves. Specification for Fire Type-Testing Requirements
ISO 15848-1	Industrial Valves - Fugitive Emissions - Measurement, Test & Qualification Procedures
ISO 5752:1982	International Standard for Organization Metal Valves for use in Flanged Piping Systems
ISA 75.02	Valve Sizing Coefficient Cv, Piping Geometry Factor Fp and Pressure Drop Limitation XT
ISA 575.19	Hydrostatic Testing of Control Valves
ISO 5211	Dimensions for Attachment of Actuators/Gear Boxes to Valves (ISO Mounting)
MSS SP-25	Manufacturers Standardization Society - Standard Marking System for Valves
MSS-SP-55	Manufacturers Standardization Society - Quality Standards for Steel Castings
MSS-SP-6-1996	Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
MSS-SP-44-1996	Steel Pipe Line Flanges
MSS-SP-61-1992	Pressure Testing of Steel Valves
MSS SP-72-1992	Flanged or Butt and Weld End Ball Valves Having Full or Reduced Bores for General Liquid and Gas Service
MSS SP-96-1996	Terminology for Valves and Fittings
BS 5351	Steel Ball Valves for the Petroleum, Petrochemical and Allied Industries
97 / 23 / EC	European Pressure Equipment Directive
MSS SP-53-1995 (R-1990)	Quality Standard For Steel Castings and Forgings for Valves, Flanges and Fittings and Other Piping Components-Magnetic Particle Examination Method
MSS SP-93-1987 (R-1992)	Quality Standard For Steel Castings and Forgings for Valves, Flanges and Fittings and Other Piping Components-Liquid Penetrant Method
NACE Standard MR0103	National Association of Corrosion Engineers-Engineers - Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments
Factory Mutual (FM)	Figure 1052 Gas and Oil Shutoff Valves.
Underwriter Laboratory (UL)	Categories MHKZ, YQAR, YRBX, YRPV, YSDT.

Subject to change without prior notice.

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