

MS Series Ball Valves

Bubble-tight performance suitable for all high-pressure conditions, including severe service

Features

- Full port and bi-directional capabilities
- Floating ball design
- Pressures up to 6,000 psi
- Bubble-tight performance
- NPT, MS tube or clamp-type connections
- Line sizes from 1/2" through 3"
- Cryogenic models available
- Flight-weight models available

Specifications

- Operating Pressure 0 to 6,000 psi (up to 2")
0 to 3,600 psi (2½ and 3")
- Proof Pressure 1.5 x design
- Burst Pressure 4 x design
- C_v 9 to 322 (see table page 4)
- Temperature -65°F to +550°F
-420° to 150°F Cryogenic
- Leakage Bubble-tight



Materials of Construction

- Body 316 Stainless steel
- Trim 316 Stainless steel
- Seat PCTFE, Vespel®, Delrin® or PEEK™
- Seals Viton®, Buna-N®, Ethylene Propylene, Chemraz® or Kalrez®
- Operators Lever, manual gear, pneumatic double acting actuator, pneumatic spring return actuator (fail open or fail closed)

Vespel® is a registered trademark of Dupont Dow Elastomers
Delrin® is a registered trademark of DuPont Dow Elastomers
PEEK™ is a trademark of Vitrex PLC
Viton® is a registered trademark of DuPont Dow Elastomers
Buna-N® is a registered trademark of E. I du Pont de Nemours & Company
Chemraz® is a registered trademark of Greene, Tweed & Company
Kalrez® is a registered trademark of Dupont Dow Elastomers

Applications

Rocket engine test stands • High pressure pipelines

Aerospace ground support • Process installations • Main isolation



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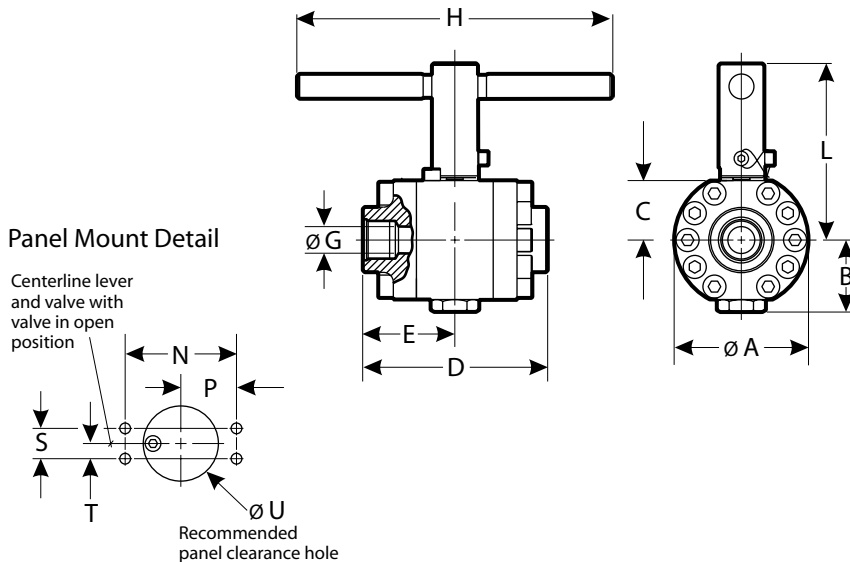
MS Series Ball Valves

Dimensions by Connector Type

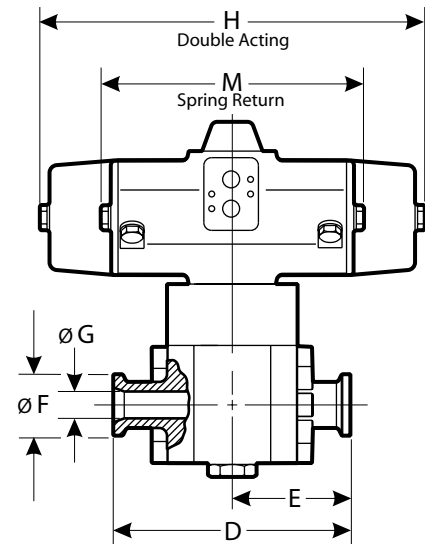
Line Size	Tube or Pipe Ends					
	Ø A ±0.03	B ±0.06	C ±0.03	D ±0.06	E ±0.03	Ø G ±0.010
08	3.00	1.50	1.25	3.51	1.76	0.438
12	3.50	1.83	1.56	4.25	2.13	0.625
16	4.25	2.35	1.94	5.00	2.50	0.875
24	6.00	3.16	2.65	8.00	4.00	1.312
32	7.75	4.01	3.38	11.00	5.50	1.689
40	7.75	3.69	3.69	13.00	6.50	2.125
48	9.50	4.39	4.53	16.00	8.00	2.625

Line Size	G-CON® Hub End				
	Seal Ring	Clamp Size	Ø A ±0.03	B ±0.06	C ±0.03
08	G05	C-01	3.00	1.50	1.25
12	G05	C-01	3.50	1.83	1.56
16	G05	C-01	4.25	2.35	1.94
	G07	C-01	4.25	2.35	1.94
24	G11	C-1.5	6.00	3.16	2.65
	G14	C-1.5	6.00	3.16	2.65
32	G14	C-02	7.75	4.01	3.38
	G20	C-02	7.75	4.01	3.38
40	G20	C-03	7.75	3.69	3.69
48	G25	C-03	9.50	4.39	4.53
	G27	C-03	9.50	4.39	4.53

Lever Operator with Pipe or Tube End Connection



Actuator Operator with G-CON Hub End Connection



G-CON® is a registered trademark of Reflange, Inc.

Dimensions by Actuation Type

Line Size	Lever Operator							Conn. Type
	H	L	N ±0.060	P ±0.090	S ±0.030	T ±0.015	Ø U ±0.03	
08	6.00	3.94	1.812	0.906	0.625	0.312	1.25	all
12	8.00	3.78	2.250	1.125	0.654	0.327	1.25	all
16	12.00	5.21	3.376	1.688	0.875	0.437	1.75	all
24	14.00	7.55	4.000	2.000	1.200	0.600	2.25	Gxx/Fxx
	14.00	6.96	4.000	2.000	1.200	0.600	2.25	P/T

Double Acting Pneumatic Actuator					
Line Size	J	K	L	M	Conn. Type
08	3.38	2.05	7.07	6.50	all
12	4.01	2.34	8.09	8.73	all
16	4.76	2.74	9.10	11.54	all
24	4.25	3.46	12.19	11.93	all
32	7.52	3.78	14.25	13.03	all
40	8.82	4.25	15.74	15.24	all
48	**	4.65	21.76	18.82	all

** Exact overall width depends on travel stop setting

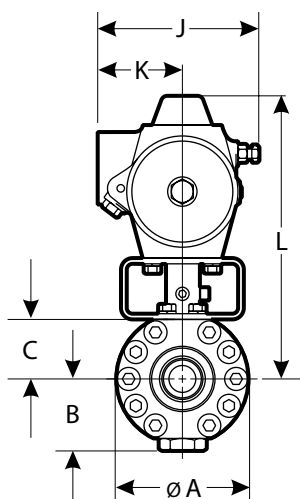
Actuation types and end connections are available in a wide array of combinations and line sizes. See table on page 4 for details.

CON® Hubs

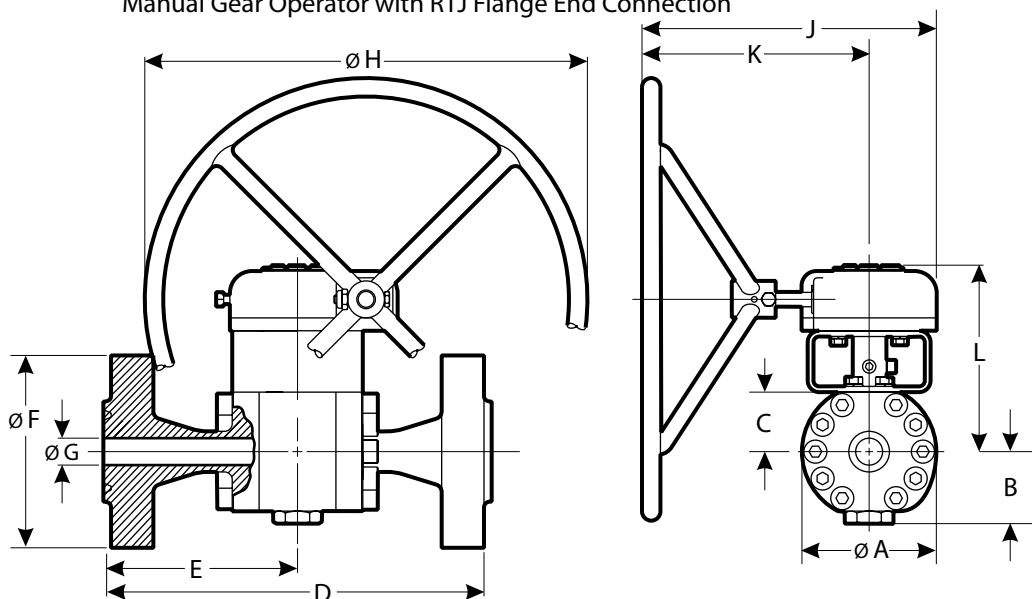
	C	D	E	Ø F	Ø G
06	±0.03	±0.06	±0.03	±0.005	±0.010
50	1.25	5.75	2.87	2.000	0.438
83	1.56	6.25	3.13	2.000	0.625
85	1.94	7.74	3.87	2.000	0.599
35	1.94	7.74	3.87	2.000	0.815
16	2.65	9.74	4.87	3.125	1.100
16	2.65	9.74	4.87	3.125	1.100
01	3.38	12.50	6.25	3.625	1.503
01	3.38	12.50	6.25	3.625	1.689
59	3.69	14.24	7.12	5.000	2.125
39	4.53	16.25	8.13	5.000	2.625
39	4.53	16.25	8.13	5.000	2.625

Line Size	RTJ Flanges									
	Ø A	B	C	D ±0.06		E ±0.03		Ø F ±0.01		Ø G ±0.010
	±0.03	±0.06	±0.03	F15	F25	F15	F25	F15	F25	F15 F25
12	3.50	1.83	1.56	9.25	10.00	4.63	5.00	5.13	5.50	0.625 0.625
16	4.25	2.35	1.94	11.37	12.62	5.96	6.31	5.88	6.25	0.815 0.815
24	6.00	3.16	2.65	13.25	15.50	6.63	7.75	7.00	8.00	1.100 1.100
32	7.75	4.01	3.38	17.00	19.00	8.50	9.50	8.50	9.25	1.689 1.503
40	7.75	3.69	3.69	19.00	N/A	9.50	N/A	9.63	N/A	2.125 2.125
48	9.50	4.39	4.53	22.00	26.00	11.00	13.00	10.50	12.00	2.625 2.625

b End Connection



Manual Gear Operator with RTJ Flange End Connection



Spring Return Pneumatic Actuator					
Line Size	H	J	K	L	Conn. Type
08	8.73	4.01	2.34	7.78	all
12	11.54	4.76	2.74	8.72	all
16	13.11	6.81	3.38	10.69	all
24	22.20	7.52	3.78	13.53	Gxx/Fxx
	25.20	8.82	4.25	14.71	P/T
32	30.94	**	4.65	20.61	all
40	30.94	**	4.65	20.94	all
48	33.90	**	6.12	25.52	all

** Exact overall width depends on travel stop setting

Manual Gear				
Line Size	Ø H	J	K	L
	±0.25	±0.25	±0.25	±0.25
12	14.00	10.72	8.34	6.20
16	14.00	10.72	8.34	6.58
24	14.00	10.72	8.34	8.30
32	18.00	12.25	9.37	9.41
40	18.00	12.25	9.37	9.72
48	30.00	18.49	15.37	11.77

4 MS Series Ball Valves

Ordering Information

	MS	M	-	K	V	16	T	-	1
MODEL NUMBER									
Blank = 316 Stainless steel M = Monel®									
BODY MATERIAL									
- = General Service X = High level precision cleaning									
CLEANING									
K = PCTFE -65°F to +350°F* V = Vespel® -65°F to +550°F D = Delrin® -40°F to +180°F P = PEEK® -65°F to +350°F									
SEAT/GUIDE BUSHING									
V = Viton® -20°F to +350°F B = Buna-N® -40°F to +250°F R = Ethylene Propylene (EPR) -65°F to +250°F C = Chemraz® -20°F to +450°F K = Kalraz® -20°F to +550°F									
SEAL									
08 = 1/2" 12 = 3/4" 16 = 1" 24 = 1 1/2" 32 = 2" 40 = 2 1/2" 48 = 3"									
LINE SIZE									
T = MS33649 female tube G = G-CON® Hub (e.g. G07) P = NPT female F15 = 1500# RTJ flange F25 = 2500# RTJ flange									
I/O PORT TYPE									
Blank = Lever** 1 = Manual gear operator 2 = Pneumatic, double acting 3 = Pneumatic, spring return (fail closed) 4 = Pneumatic, spring return (fail open)									
ACTUATION DEVICE									

*PCTFE available on 1 1/2" and 2" up to 5000 psi.

**To 1 1/2". Gear operator standard for 2" and above.

For Oxygen service, cryogenic or flight-weight models, contact factory.

(***Bold Italic Type indicates standard options***)



3/4" MS with
Lever Operator

2" Flightweight MS with
Spring Return Actuator



1 1/2" MS with
G-CON ends and
Pneumatic Actuator



1 1/2" MS with G-CON ends
and Manual Gear Operator

Availability of Connection Type and Operator by Line Size

Line Size	Connection Type					Operator				
	Tube	Pipe	G-CON®	1500# RTJ	2500# RTJ	Lever	Manual Gear	Pneumatic Actuator		
								Double Acting	Spring Retn Fail Close	Spring Retn Fail Open
08	●	●	●			●		●	●	●
12	●	●	●	●	●	●	●	●	●	●
16	●	●	●	●	●	●	●	●	●	●
24	●	●	●	●	●	●	●	●	●	●
32	●	●	●	●	●		●	●	●	●
40	●	●	●	●	●		●	●	●	●
48	●	●	●	●	●		●	●	●	●

Approximate Cv by Line Size

Line Size	Cv
08	9
12	18
16	31
24	57
32	133
40	211
48	322



U.S. Para Plate • 2301 Wardlow Circle • Corona, California 92880

Tel: 951-270-6200 • Fax: 951-270-6201 • www.usparaplate.com