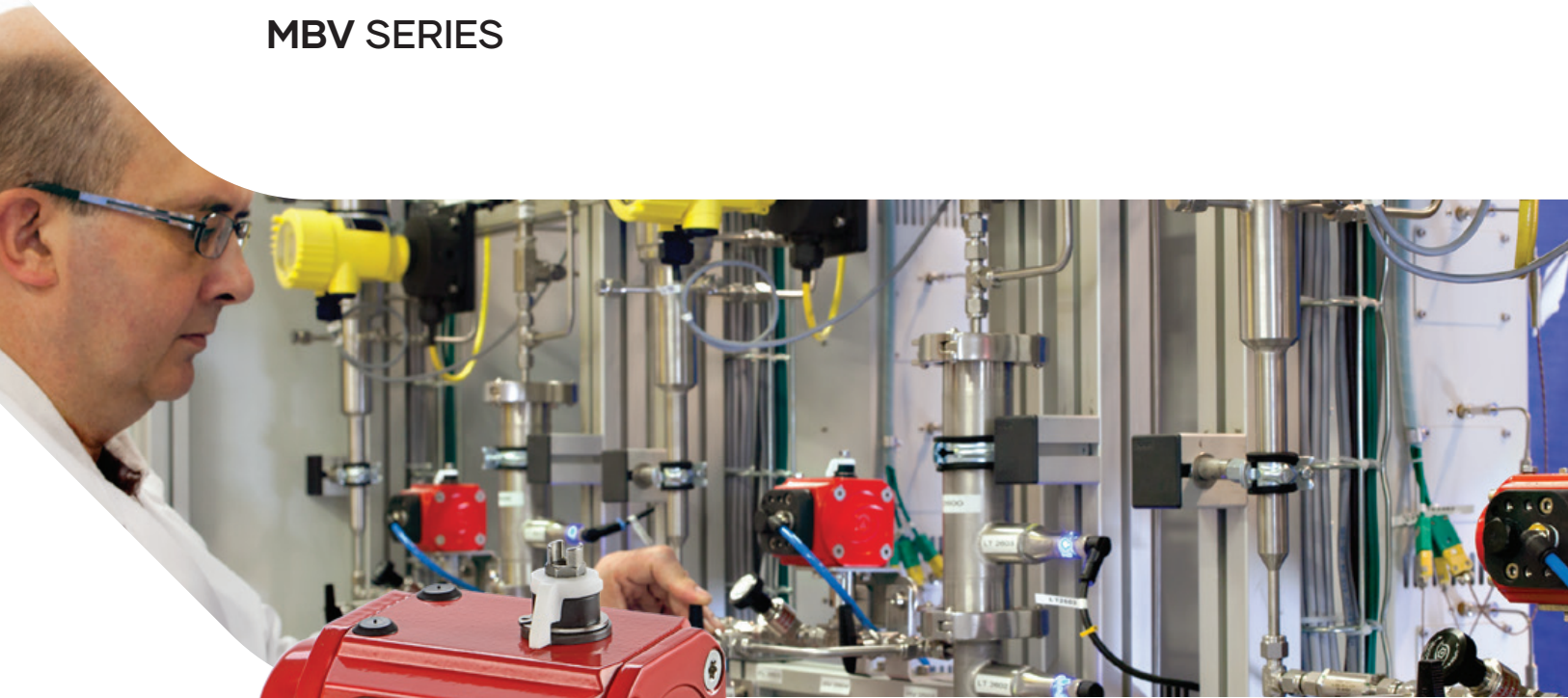


METERING BALL VALVES

MBV SERIES



METERING BALL VALVE (MBV) SERIES

FEATURES

- On/Off and Metering service
- PFA Encapsulated Ball Stem design
- Panel Mounting as standard
- MAWP 2000 psi (137 Barg)
- MAWT 300°F (150°C)
- End Connections: LET-LOK 1/16", 1/8", 1/4", 3/8";
- FNPT 1/8"; MNPT 1/8"; Male Face Seal 1/4"
- 1°, 3° and 5° Stem Taper for required flow control
- Stem with Stopper shoulder for long life service

GENERAL

The Shut-off Metering Ball Valve Series provides the highest degree of precision metering for moderate pressure applications. This series features innovative and unique shut-off capability and allows full control of the process from complete shut-off to extra fine regulation. A choice of three precision stem tapers enables metering at flow capacities as low as CV= 0.001 with up to 11 handle turns. This valve is the ultimate solution for precision flow control.

MATERIAL OF CONSTRUCTION

No.	Component	Qty.	Material
1	Handle Set Screw ⁽¹⁾	1	18-8 Stainless Steel
2	Flow Fixing Screw	1	18-8 Stainless Steel
3	Handle	1	St.St. ASTM A-276
4	Bonnet Nut	1	St.St. ASTM A-276
5	Bonnet	1	St.St. ASTM A-276
6	O-Ring	1	Fluorocarbon FKM
7	*Stem	1	St.St. 174PH/A564
8	*O-Ring	2	Fluorocarbon FKM
9	*Body	1	St.St. ASTM A-182
10	Panel Nut	1	St.St. ASTM A-276
11	*Ball Stem assembly	1	St.St. ASTM A-276 + PFA
12	Set Screw	1	St.St.304
13	Handle	1	Nylon + Glass Fiber
	Lubricants		Silicone based and PTFE

* Wetted parts ⁽¹⁾Warning: Handle Set Screw is factory calibrated and should not be adjusted in order to defend the F and X stem from being harmed

Ball valve handle provides rapid shut off while keeping the metering flow presetting.

Encapsulated ball stem design has virtually no dead space to minimize system contamination.

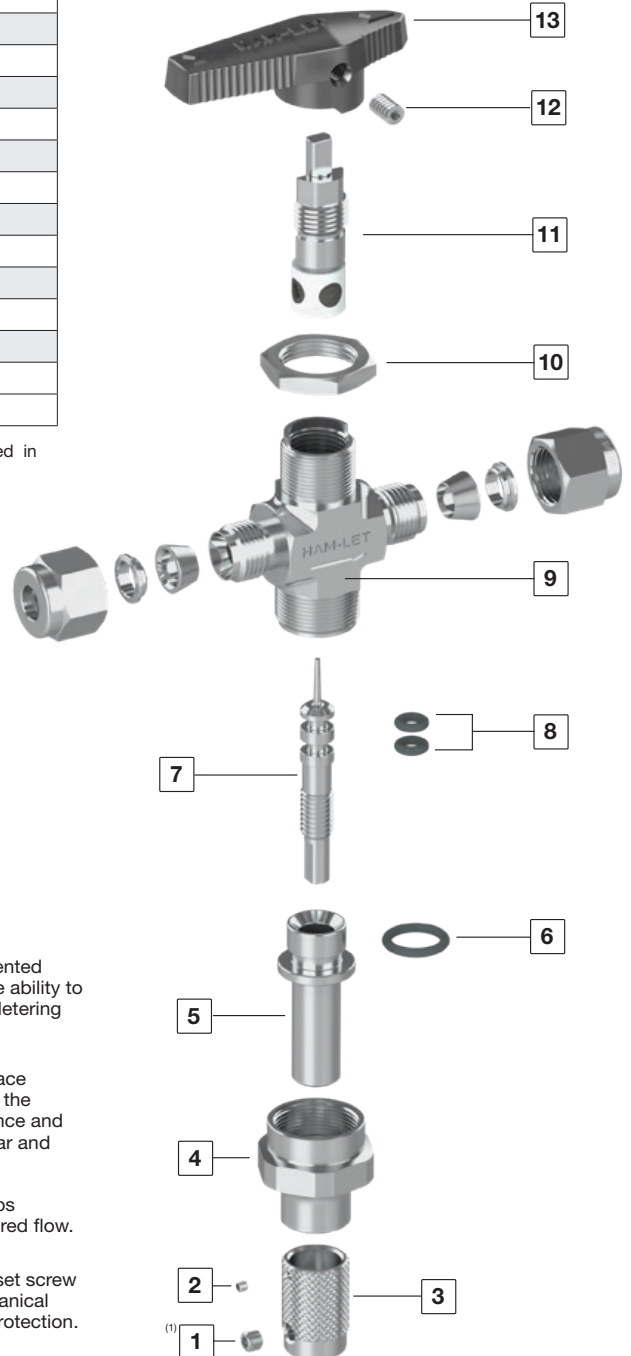
Double O-ring sealing ensures perfect repeatable leak tight operation.

Innovative and Patented flow path provide the ability to combine the Ball-Metering design.

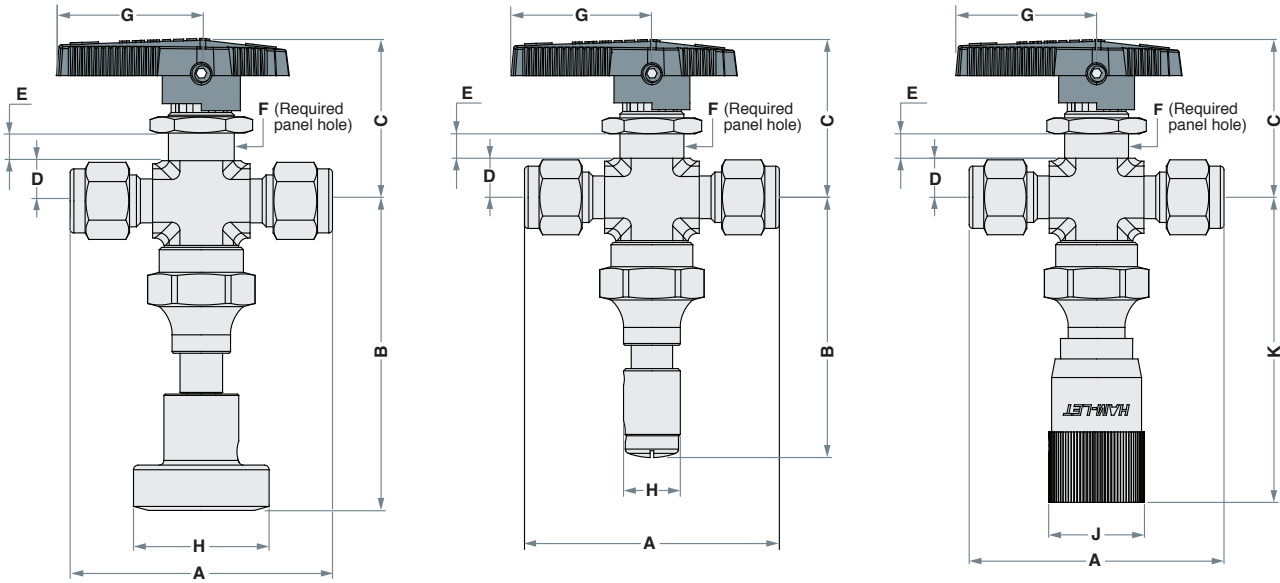
Stem diffusion surface hardening provides the best galling resistance and protection from wear and corrosion.

Lock set screw helps determine the required flow.

Factory calibrated set screw provides the 'mechanical stop' for stem tip protection.



METERING BALL VALVE DIMENSIONS



Basic Ordering Number	Stem Taper Angle	Orifice		Cv	End Connections	A		B		C		D		E		F		G		H		J		K	
		mm	in			mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
MBV-H	5°	3.3	0.13	0.13 max	1/8" LET-LOK®	54.6	2.15	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					1/4" LET-LOK	56.1	2.21	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					3MM LET-LOK	54.6	2.15	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					6MM LET-LOK®	56.1	2.21	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					1/8" Female NPT	41.4	1.63	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					1/4" Male Face Seal	54.1	2.13	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					3/8" LET-LOK®	64.92	2.55	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
					1/8" Male NPT	41.8	1.64	65.7	2.59	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	29	1.14	21.1	0.83	72	2.83
MBV-F	3°	1.4	0.055	0.03 max	1/8" LET-LOK®	54.6	2.15	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/4" LET-LOK®	56.1	2.21	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					3MM LET-LOK®	54.6	2.15	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					6MM LET-LOK®	56.1	2.21	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/8" Female NPT	41.4	1.63	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/4" Male Face Seal	54.1	2.13	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					3/8" LET-LOK®	64.92	2.55	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/8" Male NPT	41.8	1.64	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
MBV-X	1°	0.8	0.03	0.004 max	1/8" LET-LOK®	54.6	2.15	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/4" LET-LOK®	56.1	2.21	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					3MM LET-LOK®	54.6	2.15	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					6MM LET-LOK®	56.1	2.21	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/8" Female NPT	41.4	1.63	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/4" Male Face Seal	54.1	2.13	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					3/8" LET-LOK®	64.92	2.55	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83
					1/8" Male NPT	41.8	1.64	60	2.36	34.8	1.37	8.6	0.34	5.9	0.23	15.1	0.59	31	1.22	12.5	0.49	21.1	0.83	72	2.83

Dimensions are for reference only and are subject to change.

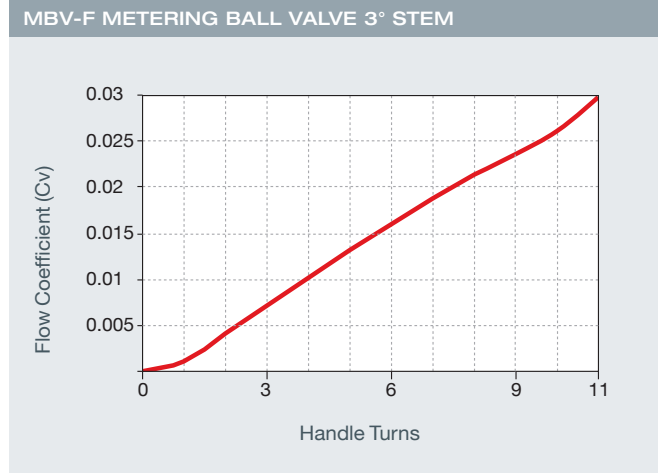
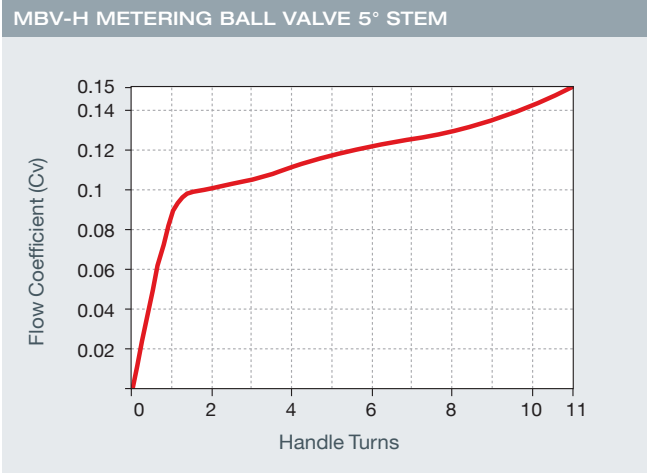
TESTING

The H, F and X Series metering ball valve designs have been tested for proof and burst.
 Every MBV - H, F & X metering valve is factory tested with Nitrogen at 1000 psig (69 bar) for leakage through the seat.
 No detectable leakage is allowed during shell test.

FLOW SETTING

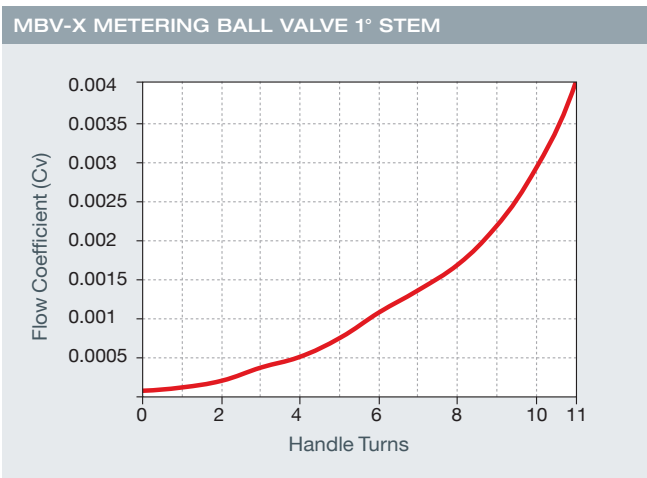
MBV-H series metering valve is tested for bubble tight shut-off at 100 psig (6.8 bar) differential pressure.
MBV-F series metering valve handle dead stop is set at 4 to 10 std cm³/min with 5 psig (0.34 bar) inlet pressure.
MBV-X series metering valve handle dead stop is set at 4 to 10 std cm³/min with 15 psig (1.0 bar) inlet pressure.

FLOW DATA AT 70°F (20°C)

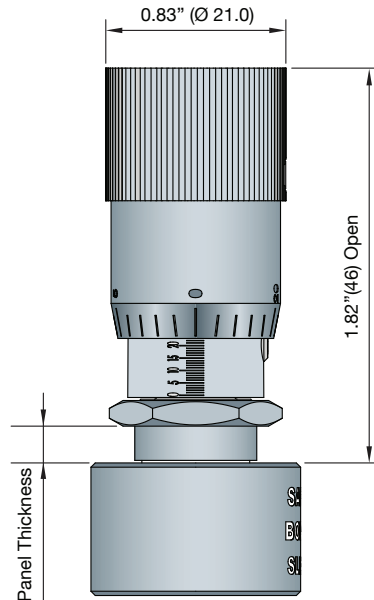


	Pressure Drop to Atmosphere psi (bar)	Water Flow U.S gal/min (L/min)	Air Flow std ft ³ / min (std L / min)
Maximum Flow Coefficient (Cv) 0.15	10 (0.68)	0.47 (1.7)	1.6 (45.3)
	50 (3.4)	1.0 (3.7)	4.5 (127)
	100 (6.8)	1.5 (5.6)	7.9 (223)

	Pressure Drop to Atmosphere psi (bar)	Water Flow U.S gal/min (L/min)	Air Flow std ft ³ / min (std L / min)
Maximum Flow Coefficient (Cv) 0.15	10 (0.68)	0.09 (0.34)	0.33 (9.3)
	50 (3.4)	0.21 (0.79)	0.9 (25.4)
	100 (6.8)	0.3 (1.1)	1.5 (42.4)



	Pressure Drop to Atmosphere psi (bar)	Water Flow U.S gal/min (L/min)	Air Flow std ft ³ / min (std L / min)
Maximum Flow Coefficient (Cv) 0.15	10 (0.68)	0.01 (0.03)	0.04 (1.1)
	50 (3.4)	0.02 (0.07)	0.1 (2.8)
	100 (6.8)	0.04 (0.15)	0.2 (5.5)



CLEANING & PACKAGING

Every MBV series Metering ball valve is cleaned in accordance with Standard Cleaning and Packaging (procedure 8184). Oxygen Clean & Lubricant-Free Cleaning and packaging, in accordance with Special Cleaning and Packaging (procedure 8185), is available as an option.

- ⚠ Lubricant-Free cleaned valves have significantly higher actuation torque.
- ⚠ HAM-LET Ball Valves are designed for operation in the fully closed or fully open position.
- ⚠ Initial packing adjustment is recommended after installation and prior to start-up



TECHNICAL DATA

Series	Pressure - Temperature Ratings			Orifice		Shut-off Service	Angle
	O-ring Material*	Temperature Rating °F (°C)	Pressure psig (bar)	inch	mm		
H	Buna N	-10 to 300 (-23 to 149)	2000 (137)	0.13	3.3	Yes	5°
	Ethylene Propylene	-10 to 300 (-23 to 149)					
F	Fluorocarbon FKM	-15 to 300 (-26 to 149)	2000 (137)	0.055	1.4	Yes	3°
	Perfluor	-0 to 300 (-18 to 149)					
X	Polychloroprene (CR)	-10 to 250 (-23 to 121)	2000 (137)	0.03	0.8	Yes	1°

Fluorocarbon FKM is a standard O-ring for MBV-H, F, X

METERING HANDLE OPTIONS

Vernier Handle



Optional for H, F & X

Round Aluminum Handle*



Standard for H

* Black is Standard. Colored Handles are available upon request, see "Ordering Information"

Metal Slotted Handle



Standard for F. Optional for H.

Metal Slotted Handle



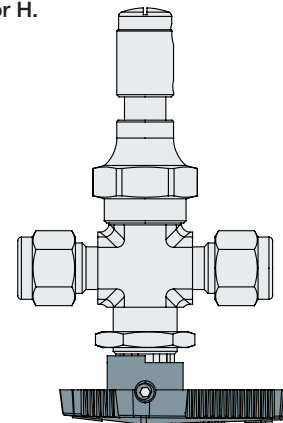
Standard for X.

BALL HANDLE OPTIONS

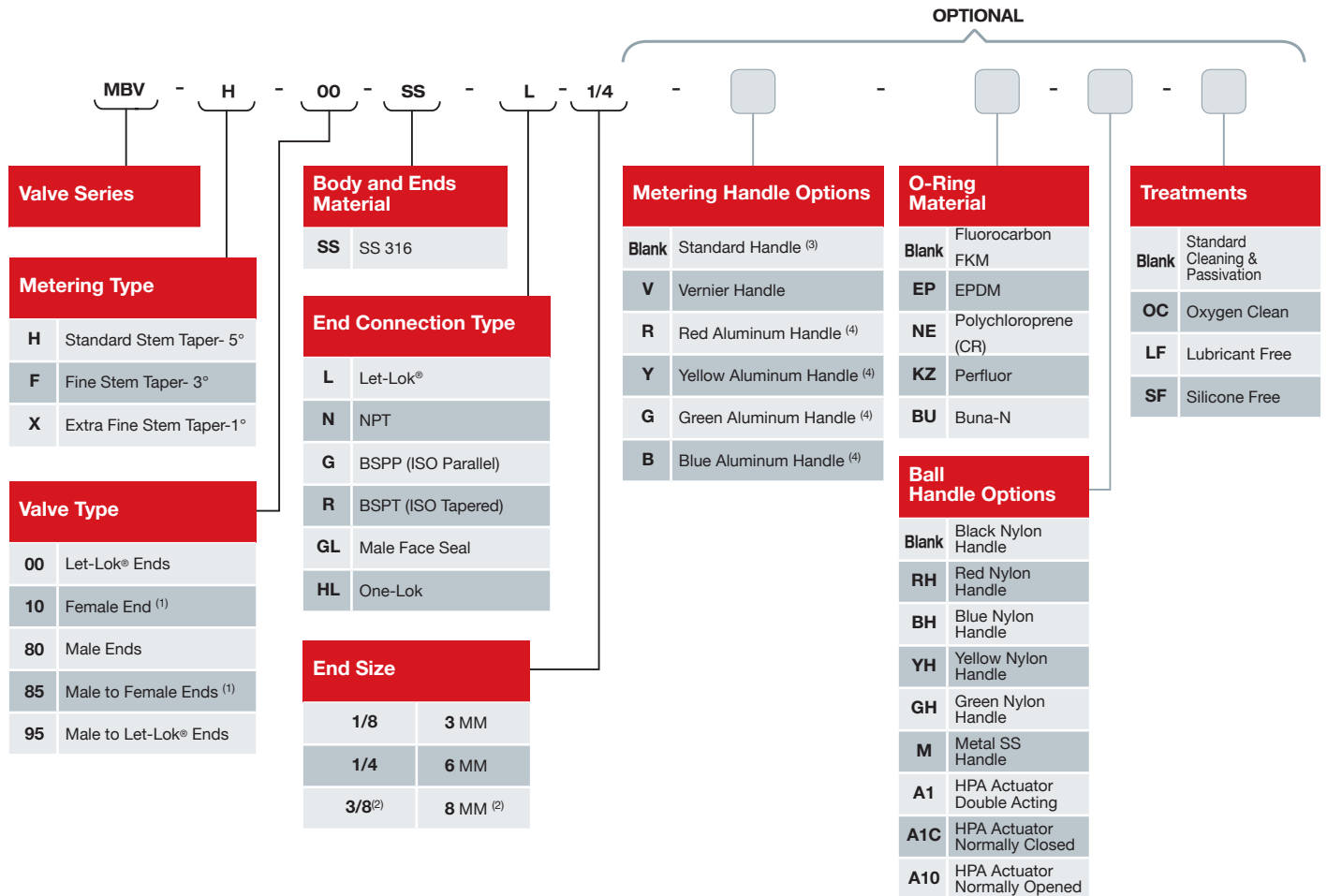


MANUAL OPERATION

- S - Black Handle*
 - B - Blue Handle
 - R - Red Handle
 - G - Green Handle
 - Y - Yellow Handle
 - M - Metal Handle
- * Black Nylon handle is standard.



METERING BALL VALVE ORDERING INFORMATION



(1) Female threaded end connections available up to size 1/8"

(2) 3/8" and 8MM size available only for Let-Lok and One-Lok end connections types.

(3) Black Aluminum Handle is standard for H type metering ball valve.

Metal slotted handle is standard for F & X type metering ball valve.

(4) Colored Aluminum handles available for H type metering ball valves only.

Warning!

The system designer and user have the sole responsibility for selecting products suitable for their special application requirements, ensuring their safe and trouble-free installation, operation, and maintenance. Application details, material compatibility and product ratings should all be considered for each selected product. Improper selection, installation or use of products can cause property damage or personal injury.

MBV | 2020_Rev00