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MILWAUKEE VALVE

APPLICATION & SPECIFICATION MANUAL
FOR COMMERCIAL AND INDUSTRIAL PRODUCTS

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Milwaukee Valve Company
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REVISION	DESCRIPTION	PAGE NUMBER
1	<p>Added GGSCS2 to Fire Protection application section</p> <p>Added F-2882-MRW, F-2882-MRWSQ, and F-2885-MRW to Potable Water application section</p> <p>Added HP1LSS421* and HP3LSS421* to Potable Water application section</p> <p>Added UPGG245E and UPGG345E to Potable Water application section</p> <p>Added F-2882-MRW, F-2882-MRWSQ, and F-2885-MRW to Potable Water valve specifications</p> <p>Added ML133E/233E/333E and CL123E/223E/323E to Potable Water valve specifications</p> <p>Added UPGG245E and UPGG345E to Potable Water valve specifications</p> <p>Added HP1LCS4212 and HP1LCS42113 to Medium Pressure Steam valve specifications</p> <p>Added Valve Specifications for Fire Sprinkler and Standpipe Systems</p>	<p>7</p> <p>7</p> <p>10</p> <p>10</p> <p>16</p> <p>17</p> <p>17</p> <p>24</p> <p>25</p>
2	<p>Updated HL123E/223E/323E with new part numbers HL133E/233E/333E.</p> <p>Fixed HL133E/233E/333E with correct DI Body design note.</p> <p>Updated BA-480 SWP to 250 psig.</p> <p>Updated 2" and smaller BA-480 SWP to 250 psig</p> <p>Corrected HP1LCS421*, HP3LCS421*, & HP1WCS421* size ranges.</p> <p>Updated Formatting</p> <p>Created separate Cover Page</p> <p>Created separate Table of Contents page</p>	<p>7</p> <p>7</p> <p>8</p> <p>11</p> <p>16</p> <p>All Pages</p> <p>All Pages</p> <p>All Pages</p>

MECHANICAL SYSTEMS & PIPING – UP TO 4”

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
105	GATE	125	200	NRS-TB	NPT	1/4” – 4”	Solid Wedge
148	GATE	125	200	RS-TB	NPT	1/4” – 4”	Solid Wedge
1152	GATE	125	200	RS-UB	NPT	1/4” – 3”	Solid Wedge
115	GATE	125	200	NRS-TB	SE – Solder Ends	3/8” – 4”	Solid Wedge
149	GATE	125	200	RS-TB	SE – Solder Ends	3/8” – 4”	Solid Wedge
105 P2	GATE	200 psig @ 250° F		NRS-TB	Press x Press	1/2” – 2”	Solid Wedge
148 P2	GATE	200 psig @ 250° F		RS-TB	Press x Press	1/2” – 2”	Solid Wedge
1152 P2	GATE	200 psig @ 250° F		RS-UB	Press x Press	1/2” – 2”	Solid Wedge
1140	GATE	150	300	NRS-TB	NPT	1/4” – 4”	Solid Wedge
1141	GATE	150	300	NRS-UB	NPT	1/4” – 2”	Solid Wedge
1150	GATE	150	300	RS-TB	NPT	1/4” – 4”	Solid Wedge
1151	GATE	150	300	RS-UB	NPT	1/4” – 3”	Solid Wedge
1169	GATE	150	300	RS-UB	SE – Solder Ends	3/8” – 3”	Solid Wedge
1141 P2	GATE	200 psig @ 250° F		NRS-UB	Press x Press	1/2” – 2”	Solid Wedge
502	GLOBE	125	200	RS-TB	NPT	1/8” – 3”	Bronze Disc
1502	GLOBE	125	200	RS-TB	SE – Solder Ends	3/8” – 2”	Bronze Disc
502 P2	GLOBE	200 psig @ 250° F		RS-TB	Press x Press	1/2” – 2”	Bronze Disc
590T	GLOBE	150	300	RS-UB	NPT	1/8” – 3”	PTFE Disc, Bronze Seat
1590T	GLOBE	150	300	RS-UB	SE – Solder Ends	1/2” – 3”	PTFE Disc, Bronze Seat
591A	GLOBE	150	300	RS-UB	NPT	1/4” – 2”	SS Disc & Seat Ring
590T P2	GLOBE	200 psig @ 250° F		RS-UB	Press x Press	1/2” – 2”	PTFE Disc, Bronze Seat
600	GLOBE	200	400	RS-TB	NPT	1/8” – 3/4”	Needle Disc, Bronze Seat
504	ANGLE	125	200	RS-TB	NPT	1/4” – 2-1/2”	Bronze Disc
595T	ANGLE	150	300	RS-UB	NPT	1/4” – 2”	PTFE Disc, Bronze Seat

MECHANICAL SYSTEMS & PIPING – UP TO 4”

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
509	CHECK	125	200	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc (2" - 3")
509T	CHECK	125	200	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
1509	CHECK	125	200	Horizontal Swing	SE – Solder Ends	3/8" – 3"	Bronze Disc (2" - 3")
1509T	CHECK	125	200	Horizontal Swing	SE – Solder Ends	3/8" – 3"	PTFE Disc
548T/B	CHECK		250	Vertical Lift	NPT	3/8" – 2"	TFE (T) or Buna (B) w/Spring
509Y	CHECK	125	200	Y-Pattern	NPT	1/4" – 3"	Bronze Disc (1/4" - 3/8")
510T	CHECK	150	300	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
1548T/B	CHECK		250	Vertical Lift	SE – Solder Ends	3/8" – 2"	TFE (T) or Buna (B) w/Spring
1510T	CHECK	150	300	Horizontal Swing	SE – Solder Ends	1/2" – 2"	PTFE Disc
515	CHECK	150	300	Horizontal Swing	NPT	1/4" – 2"	Bronze Disc
515Y	CHECK	150	300	Y-Pattern	NPT	1/4" – 3"	Bronze or Brass Disc, Bronze Seat
1515	CHECK	150	300	Horizontal Swing	SE – Solder Ends	1/2" – 2"	Bronze Disc
507	CHECK	300	600	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc, Y-Pattern
508	CHECK	200	400	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc, Y-Pattern
509 P2	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	Bronze Disc (2")
509T P2	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	PTFE Disc, Bronze Seat
548T/B P2	CHECK	200 psig @ 250° F		Vertical Lift	Press x Press	1/2" – 2"	TFE (T) or Buna (B) w/Spring
509Y P2	CHECK	200 psig @ 250° F		Y-Pattern	Press x Press	1/2" – 2"	Bronze Disc (2")

PLUMBING SYSTEMS & COMMERCIAL PIPING – UP TO 4”

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
BA-100*	BALL	150	600	STD Port	NPT	1/4" – 3"	Bronze Body
BA-400*	BALL	150	600	Full Port	NPT	1/4" – 2"	Bronze Body
BA-475B*	BALL		600	Full Port	NPT	1/4" – 4"	Brass Body, CSA/UL/FM
BA-200	BALL	150	400	STD Port	NPT	1/4" – 4"	Brass Body
BA-300*	BALL	150	600	Full Port	NPT	1/4" – 3"	3 Piece Bronze Body
BA-150*	BALL	150	600	STD Port	SE – Solder Ends	3/8" – 3"	Bronze Body
BA-450*	BALL	150	600	Full Port	SE – Solder Ends	3/8" – 2"	Bronze Body
BA-485B*	BALL		600	Full Port	SE – Solder Ends	1/2" – 4"	Brass Body
BA-250	BALL	150	400	STD Port	SE – Solder Ends	3/8" – 3"	Brass Body
BA-350*	BALL	150	600	Full Port	SE – Solder Ends	3/8" – 3"	3 Piece Bronze Body
BA-100 P2*	BALL	200 psig @ 250° F		STD Port	Press x Press	1/2" – 3"	Bronze Body
BA-400 P2*	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Bronze Body
BA-300 P2*	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	3 Piece Bronze Body

**Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)*

PLUMBING SYSTEMS & COMMERCIAL PIPING – 2” AND LARGER

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
F-2882	GATE	125	200	NRS	Flanged	2" – 24"	Iron Body, Bronze Trim
F-2885	GATE	125	200	OS&Y	Flanged	2" – 24"	Iron Body, Bronze Trim
F-2882-M26	GATE	125	200	NRS	Flanged	2" – 24"	Iron Body, Iron Trim
F-2885-M26	GATE	125	200	OS&Y	Flanged	2" – 12"	Iron Body, Iron Trim
F-2894	GATE	250	500	OS&Y	Flanged	2" – 12"	Iron Body, Bronze Trim
F-2981	GLOBE	125	200	OS&Y	Flanged	2" – 10"	Iron Body, Bronze Trim
F-2974	CHECK	125	200	Horizontal Swing	Flanged	2" – 24"	Iron Body, Bronze Trim
F-2974M26	CHECK	125	200	Horizontal Swing	Flanged	2" – 24"	Iron Body, Iron Trim
1400	CHECK	200 psig @ 150° F		Silent	Wafer	2" – 10"	Spring Loaded
1800	CHECK	200 psig @ 150° F		Silent (Globe)	Flanged	2-1/2" – 42"	Spring Loaded
CL123E/223E/323E	BFV		200 psi (2"-12")	Lug	Flanged	2" – 24"	CI Body – AB Disc – EPDM Liner

PLUMBING SYSTEMS & COMMERCIAL PIPING – 2” AND LARGER
Continued

CW123E/223E/323E	BFV		200 psi (2"-12")	Wafer	Flanged	2" – 24"	CI Body – AB Disc – EPDM Liner
ML122E/222E/322E	BFV		200 psi (2"-12")	Lug	Flanged	2" – 48"	CI Body – DI Disc – EPDM Liner
MW122E/222E/322E	BFV		200 psi (2"-12")	Wafer	Flanged	2" – 48"	CI Body – DI Disc – EPDM Liner
ML124E/224E/324E	BFV		200 psi (2"-12")	Lug	Flanged	2" – 48"	CI Body – SS Disc – EPDM Liner
MW124E/224E/324E	BFV		200 psi (2"-12")	Wafer	Flanged	2" – 48"	CI Body – SS Disc – EPDM Liner
HL133/E/233E/333E	BFV		250 psi (2"-12")	Lug	Flanged	2" – 24"	DI Body – AB Disc – EPDM Liner

Butterfly Valves Actuated 2"-12"

CLA23E	BFV Air Actuated		200	Lug	Flanged	2" – 12"	CI Body – AB Disc – EPDM Liner Air/Air w/120VAC Solenoid
CLB23E	BFV Air Actuated		200	Lug	Flanged	2" – 12"	CI Body – AB Disc – EPDM Liner Spring Return w/120VAC Solenoid
CLC23E	BFV 120V Actuated		200	Lug	Flanged	2" – 12"	CI Body – AB Disc – EPDM Liner 120VAC Electric Actuator

PLUMBING SYSTEMS & COMMERCIAL PIPING – UP TO 4” – SPECIALTY VALVES

Hose End Ball Valves

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
BA-100H*	BALL		600	Full Port	NPT x Hose	1/2" & 3/4"	Hose End + Cap
BA-150H*	BALL		600	Full Port	SE – Solder End x Hose	1/2" & 3/4"	Hose End + Cap
BA-100H P1*	BALL	200 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Hose End + Cap
BA-480BH*	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Hose End + Cap
BA-480SH*	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Hose End + Cap, SS Ball & Stem

Male x Female Threaded Ends

BA-100M*	BALL	150	600	STD Port	M x FNPT	1/4" – 2"	Male x Female NPT Ends
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Exhaust Port – Air Service Valves

BA-100E*	BALL		125 psig	STD Port	NPT	1/2" – 2"	Exhaust Port
BA-100ELD*	BALL		125 psig	STD Port	NPT	1/4" – 2"	Exhaust Port w/Locking Handle

**Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)*

Butterball® Valves

BB2-100	BFV		175 psig	BFV	NPT	1/4" – 2"	CSA/UL + SS Trim
BB2-350	BFV		175 psig	BFV	SE – Solder Ends	1/4" – 2"	SS Trim, Viton Seat

Gas Ball Valves

BA-475B*	BALL		600	Full Port	NPT	1/4" – 4"	Brass Body, CSA/UL/FM
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Medical Gas Systems

BA-350TE*	BALL	150	600	Full Port	SE – Solder Ends	1/2" – 3"	Extended Tube Ends
BA-350STE*	BALL	150	600	Full Port	SE – Solder Ends	1/2" – 3"	Extended Tube Ends, SS Trim

Fire Protection Valves

118-FP	GATE		175 psig	OS&Y	NPT	1" – 2"	UL/FM
F-2885-FP	GATE		175 psig	OS&Y	Flanged	2-1/2" – 8"	UL/FM

PLUMBING SYSTEMS & COMMERCIAL PIPING – UP TO 4” – SPECIALTY VALVES
Fire Protection Valves - Continued

F-2974-FP	CHECK		175 psig	Swing	Flanged	2-1/2” – 8”	UL/FM
BB-SC100	BFV		175 psig	Slo-Close w/o Tamper Switch	NPT	1” – 2-1/2”	UL/FM
BB-SCS02	BFV		175 psig	Slo-Close w/ Tamper Switch	NPT	1” – 2-1/2”	UL/FM
GGSCS2	BFV		300 psig	Grooved Mechanical w/ Supervisory Switches	Grooved	2-1/2” – 10”	UL/FM

PLUMBING SYSTEMS & COMMERCIAL PIPING
Lead Free Hot/Cold Domestic (Potable) Water Service

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
UP105	GATE		300	NRS-TB	NPT	1/4” – 2”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP148	GATE		300	RS-TB	NPT	1/4” – 2”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP115	GATE		300	NRS-TB	SE – Solder Ends	3/8” – 2”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP149	GATE		300	RS-TB	SE – Solder Ends	3/8” – 2”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP105 P2	GATE	200 psig @ 250° F		NRS-TB	Press x Press	1/2” – 2”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP148 P2	GATE	200 psig @ 250° F		RS-TB	Press x Press	1/2” – 2”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
F-2885-M26	GATE	125	200	OS&Y	Flanged	2” – 12”	Meets ANSI/NSF 372 Iron Body, Iron Trim
F-2882-MRW	GATE		300 psig (2”-12”)	NRS	Flanged	2” – 16”	Meets ANSI/NSF 61-8 & 372 Iron Body, Resilient Wedge
F-2882-MRWSQ	GATE		300 psig (2”-12”)	NRS	Flanged	2” – 16”	Meets ANSI/NSF 61-8 & 372 Iron Body, Resilient Wedge Square Operating Nut
F-2885-MRW	GATE		300 psig (2½” - 12”)	OS&Y	Flanged	2-1/2” – 16”	Meets ANSI/NSF 61-8 & 372 Iron Body, Resilient Wedge

PLUMBING SYSTEMS & COMMERCIAL PIPING							
Lead Free Hot/Cold Domestic (Potable) Water Service – Continued							
UP502	GLOBE		300	RS-TB	NPT	1/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP1502	GLOBE		300	RS-TB	SE – Solder Ends	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP502 P2	GLOBE	200 psig @ 250° F		RS-TB	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP509	CHECK		300	Horizontal Swing	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP969	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UP1509	CHECK		300	Horizontal Swing	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
1400	CHECK	200 psig @ 150° F		Silent	Wafer	2" – 10"	Meets ANSI/NSF 372 Spring Loaded
1800	CHECK	200 psig @ 150° F		Silent (Globe)	Flanged	2-1/2" – 42"	Meets ANSI/NSF 372 Spring Loaded
UP548T	CHECK		250	Vertical Lift	NPT	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP1548T	CHECK		250	Vertical Lift	SE – Solder Ends	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP509 P2	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UP548T P2	CHECK	200 psig @ 250° F		Vertical Lift	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
F-2974M26	CHECK	125	200	Swing	Flanged	2" – 24"	Meets ANSI/NSF 372 Iron Body, Iron Trim
UPBA100*	BALL		600	STD Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA100S*	BALL		600	STD Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA475B*	BALL		600	Full Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA485B*	BALL		600	Full Port	SE – Solder Ends	1/2" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA400*	BALL		600	Full Port	NPT	1/4" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA400S*	BALL		600	Full Port	NPT	1/4" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body

PLUMBING SYSTEMS & COMMERCIAL PIPING							
Lead Free Hot/Cold Domestic (Potable) Water Service – Continued							
MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
UPBA300*	BALL		600	Full Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA300S*	BALL		600	Full Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA150*	BALL		600	STD Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA150S*	BALL		600	STD Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA450*	BALL		600	Full Port	SE – Solder Ends	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA450S*	BALL		600	Full Port	SE – Solder Ends	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA480B*	BALL	1/2" – 2" 250 psig @ 250° F 2 1/2" – 4" 200 psig @ 250° F		Full Port	Press x Press	1/2" – 4"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA480BH*	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA480SH*	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA100 P2*	BALL	200 psig @ 250° F		STD Port	Press x Press	1/2" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA100S P2*	BALL	200 psig @ 250° F		STD Port	Press x Press	1/2" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA400 P2*	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA400S P2*	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA300 P2*	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA300S P2*	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
UPBA490B*	BALL	200 psig @ 250° F		Full Port	Press x FNPT	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA490S*	BALL	200 psig @ 250° F		Full Port	Press x FNPT	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
UPBA350*	BALL		600	Full Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body

PLUMBING SYSTEMS & COMMERCIAL PIPING
Lead Free Hot/Cold Domestic (Potable) Water Service - Continued

**Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)*

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
UPBA350S*	BALL		600	Full Port	SE – Solder Ends	3/8” – 3”	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
CL123E/223E/323E*	BFV		200 psi (2-12”)	Lug	Flanged	2” – 24”	Meets ANSI/NSF 61-8 & 372 CI Body – AB Disc – EPDM Liner
ML133E/233E/333E*	BFV		200 psi (2-12”)	Lug	Flanged	2” – 24”	Meets ANSI/NSF 61-8 & 372 DI Body – AB Disc – EPDM Liner
HP1LSS421*	HPBV	CL 150		Lug	Flanged	2-1/2” – 24”	Meets ANSI/NSF 61-8 & 372 SS Body & Disc – RPTFE Seat
HP3LSS421*	HPBV	CL 300		Lug	Flanged	2-1/2” – 16”	Meets ANSI/NSF 61-8 & 372 SS Body & Disc – RPTFE Seat
UPGG245E	BFV		300 psi	Grooved Mechanical	Grooved	2” – 8”	Meets ANSI/NSF 61-8 & 372 Lever Operator
UPGG345E	BFV		300 psi	Grooved Mechanical	Grooved	2” – 10”	Meets ANSI/NSF 61-8 & 372 Gear Operator

**Available in Bare Stem, Lever Handle, and Gear Operator*

STEAM SYSTEM PIPING
Steam Piping, Condensate, Mechanical

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
1152	GATE	125	200	RS-UB	NPT	1/4" – 3"	Solid Wedge
1151	GATE	150	300	RS-UB	NPT	1/4" – 3"	Solid Wedge
1141	GATE	150	300	NRS-UB	NPT	1/4" – 2"	Solid Wedge
1153	GATE	200	400	RS-UB	NPT	1/4" – 3"	Solid Bronze Wedge
1156	GATE	200	400	RS-UB	NPT	1/4" – 2"	Cu-Ni Seat
1174	GATE	200	400	RS-UB	NPT	1/4" – 3"	SS Seat
1176	GATE	200	400	NRS-UB	NPT	1/4" – 2"	SS Seat
1182	GATE	300	1000	RS-UB	NPT	1/4" – 2"	Cu-Ni Seat
1184	GATE	300	1000	RS-UB	NPT	1/4" – 3"	SS Seat
1186	GATE	300	1000	NRS-UB	NPT	1/4" – 2"	SS Seat
590T	GLOBE	150	300	RS-UB	NPT	1/8" – 3"	PTFE Disc, Bronze Seat
591A	GLOBE	150	300	RS-UB	NPT	1/4" – 2"	SS Disc & Seat Ring
570	GLOBE	200	400	RS-UB	NPT	1/8" – 3"	Bronze Disc & Seat Ring
592A	GLOBE	200	400	RS-UB	NPT	1/4" – 2"	SS Disc & Seat Ring
600	GLOBE	200	400	RS-TB	NPT	1/8" – 3/4"	Needle Disc, Bronze Seat
572	GLOBE	300	1000	RS-UB	NPT	1/4" – 2"	Bronze Disc & Seat Ring
593A	GLOBE	300	1000	RS-UB	NPT	1/4" – 2"	SS Disc & Seat Ring
595T	ANGLE	150	300	UB	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
582	ANGLE	300	600	UB	NPT	1/4" – 2"	Bronze Disc & Seat Ring
509	CHECK	125	200	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc (2-3")
509T	CHECK	125	200	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
510T	CHECK	150	300	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
508	CHECK	200	400	Horizontal Swing	NPT	1/4" – 3"	Y-Pattern, Bronze Disc
507	CHECK	300	600	Horizontal Swing	NPT	1/4" – 3"	Y-Pattern, Bronze Disc

STEAM SYSTEM PIPING
Steam Piping, Condensate, Mechanical - Continued

MV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
BA-100S*	BALL	150	600	STD Port	NPT	1/4" – 3"	SS Trim
20BS0R-02	BALL	150	600	STD Port	NPT	1/4" – 2"	SS Trim, V-Ring Packing
20BS0R-03	BALL	250	600	STD Port	NPT	1/4" – 2"	SS Trim, V-Ring Packing
20SS0RN1	BALL	150	2000	STD Port	NPT	1/4" – 2"	All SS, V-Ring Packing
20SS0R03	BALL	250	2000	STD Port	NPT	1/4" – 2"	All SS, V-Ring Packing
20CS0RN1	BALL	150	2000	STD Port	NPT	1/4" – 2"	SS Trim, V-Ring Packing
20CS0R03	BALL	250	2000	STD Port	NPT	1/4" – 2"	SS Trim, V-Ring Packing
BA-300S*	BALL	150	600	Full Port	NPT	1/4" – 3"	SS Trim
30BS0F02	BALL	150	600	Full Port	NPT	1/4" – 2"	SS Trim, V-Ring Packing
BA-260	BALL	150	1000	Full Port	NPT	1/4" – 3"	All SS, V-Ring Packing
30SS0F02	BALL	150	1000	Full Port	NPT	1/4" – 2"	3 Pc SS Body, SS Ball, V-Ring Pkg
30SS0F03	BALL	250	1000	Full Port	NPT	1/4" – 2"	3 Pc SS Body, SS Ball, V-Ring Pkg
30CS0F02	BALL	150	1000	Full Port	NPT	1/4" – 2"	3 Pc SS Body, SS Ball, V-Ring Pkg
30CS0F03	BALL	250	1000	Full Port	NPT	1/4" – 2"	3 Pc SS Body, SS Ball, V-Ring Pkg
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>							
F-2882	GATE	125	200	NRS	Flanged	2" – 24"	Iron Body, Bronze Trim
F-2885	GATE	125	200	OS&Y	Flanged	2" – 24"	Iron Body, Bronze Trim
F-2894	GATE	250	500	OS&Y	Flanged	2" – 12"	Iron Body, Bronze Trim
F-2882-M26	GATE	125	200	NRS	Flanged	2" – 24"	Iron Body, Iron Trim
F-2885-M26	GATE	125	200	OS&Y	Flanged	2" – 12"	Iron Body, Iron Trim
1550CB2	GATE	CL 150		OS&Y	Flanged	2" – 24"	Cast Steel Body
1552CB2	GATE	CL 150		OS&Y	B/W	2" – 24"	Cast Steel Body
3050CB2	GATE	CL 300		OS&Y	Flanged	2" – 24"	Cast Steel Body
3052CB2	GATE	CL 300		OS&Y	B/W	2" – 24"	Cast Steel Body
6050CB2	GATE	CL 600		OS&Y	Flanged	2" – 12"	Cast Steel Body
6052CB2	GATE	CL 600		OS&Y	B/W	2" – 12"	Cast Steel Body

STEAM SYSTEM PIPING
Steam Piping, Condensate, Mechanical - Continued

F-2981	GLOBE	125	200	OS&Y	Flanged	2" – 10"	Iron Body, Bronze Trim
1560CB2	GLOBE	CL 150		OS&Y	Flanged	2" – 8"	Cast Steel Body
1562CB2	GLOBE	CL 150		OS&Y	B/W	2" – 8"	Cast Steel Body
3060CB2	GLOBE	CL 300		OS&Y	Flanged	2" – 8"	Cast Steel Body
3062CB2	GLOBE	CL 300		OS&Y	B/W	2" – 8"	Cast Steel Body
F-2974	CHECK	125	200	Horizontal Swing	Flanged	2" – 24"	Iron Body, Bronze Trim
F-2974M26	CHECK	125	200	Horizontal Swing	Flanged	2" – 24"	Iron Body, Iron Trim
1570CB2	CHECK	CL 150		Horizontal Swing	Flanged	2" – 24"	Cast Steel Body
1572CB2	CHECK	CL 150		Horizontal Swing	B/W	2" – 12"	Cast Steel Body
3070CB2	CHECK	CL 300		Horizontal Swing	Flanged	2" – 12"	Cast Steel Body
3072CB2	CHECK	CL 300		Horizontal Swing	B/W	2" – 12"	Cast Steel Body
6070CB2	CHECK	CL 600		Horizontal Swing	Flanged	2" – 12"	Cast Steel Body
6072CB2	CHECK	CL 600		Horizontal Swing	B/W	2" – 12"	Cast Steel Body
F90SS150	BALL	CL 150		STD Port	Flanged	1/2" – 6"	All SS, V-Ring Packing
F90CS150	BALL	CL 150		STD Port	Flanged	1/2" – 6"	CS Body, SS Ball, V-Ring Packing
F201SSN2	BALL	CL 150		Full Port	Flanged	1" – 12"	All SS, Fire Safe
F201CSN2	BALL	CL 150		Full Port	Flanged	1" – 12"	CS Body, SS Ball, Fire Safe
F90SS300	BALL	CL 300		STD Port	Flanged	1/2" – 6"	All SS, V-Ring Packing

STEAM SYSTEM PIPING
Steam Piping, Condensate, Mechanical - Continued

F90CS300	BALL	CL 300		STD Port	Flanged	1/2" – 6"	CS Body, SS Ball, V-Ring Packing
F203SSN2	BALL	CL 300		Full Port	Flanged	1" – 12"	All SS, Fire Safe
F203CSN2	BALL	CL 300		Full Port	Flanged	1" – 12"	CS Body, SS Ball, Fire Safe
HP1LCS421*	HPBV	CL 150		Lug	Flanged	2-1/2" – 48"	RPTFE Seat, Lever/Gear
HP3LCS421*	HPBV	CL 300		Lug	Flanged	2-1/2" – 24"	RPTFE Seat, Lever/Gear
HP1WCS421*	HPBV	CL 150		Wafer	Flanged	3" – 18"	RPTFE Seat, Lever/Gear
HP3WCS421*	HPBV	CL 300		Wafer	Flanged	3" – 16"	RPTFE Seat, Lever/Gear
<i>*Available in Bare Stem, Lever Handle, and Gear Operator</i>							

KEY:				
AB = Aluminum Bronze	B = Buna	B/W = Butt-Weld	CI = Cast Iron	
CLASS = SWP rating/WOG rating OR ANSI/ASME Class		CP = Chrome Plated	CS = Cast Steel	
DI = Ductile Iron	NPT = Threaded	NRS = Non-Rising Stem	OS&Y = Outside Screw & Yoke	
RS = Rising Stem	SS = Stainless Steel	T = TFE / PTFE	TB = Threaded Bonnet	UB = Union Bonnet

VALVE SPECIFICATIONS FOR PLUMBING SYSTEMS
15400 VALVES – PLUMBING

1.	GATE VALVES – UP TO 4”
	Gate valves shall be class 125 SWP, 200 WOG, rising stem, threaded bonnet, solid wedge, malleable iron handwheel. Body and bonnet shall be of ASTM B62 cast bronze, non-asbestos packing, MSS SP-80. MV #148 (Threaded) MV #149 (Solder)
2.	GATE VALVES – 2” & LARGER
	Gate valves shall be class 125 SWP, 200 WOG, rising stem, OS&Y, bolted bonnet. Body and bonnet shall be of ASTM A 126 class B cast iron, flanged ends, bronze trim, non-asbestos packing, MSS SP-70. MV #F-2885 (Flanged)
3.	GLOBE VALVES – UP TO 3”
	Globe valves shall be class 125 SWP, 200 WOG, threaded bonnet. Body and bonnet shall be of ASTM B62 cast bronze, bronze disc and seat, malleable iron handwheel, non-asbestos packing, MSS SP-80. MV #502 (Threaded) MV #1502 (Solder)
4.	GLOBE VALVES – 2” & LARGER
	Globe valves shall be class 125 SWP, 200 WOG, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, non-asbestos packing, MSS SP-85. MV #F-2981 (Flanged)
5.	CHECK VALVES – UP TO 3”
	Check valves shall be class 125 SWP, 200 WOG, horizontal swing check. Body and cap shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, MSS SP-80. MV #509T (Threaded) MV #1509T (Solder)
6.	CHECK VALVES – 2” & LARGER
	Check valves shall be class 125 SWP, 200 WOG, horizontal swing check. Body and cap shall be of ASTM A126 cast iron, bronze trim, bolted cap, flanged ends, MSS SP-71. MV #F-2974 (Flanged)
7.	SPRING LIFT CHECK VALVES – UP TO 2”
	Check valves shall be class 250 psi minimum, bronze body, in-line spring lift check, PTFE or Buna disc, integral bronze seat. MV #548T (Threaded) MV #1548T (Solder)

VALVE SPECIFICATIONS FOR PLUMBING SYSTEMS

15400 VALVES – PLUMBING - Continued

8.	SILENT CHECK VALVES – 2” & LARGER
	Silent check valves shall be 200 psig @ 150° F, body shall be of ASTM A126 class B cast iron, center guided, SS spring and screws, SS disc and seat, MSS SP-125. MV #1400 (Wafer Body) MV #1800 (Globe Body)
9.	BALL VALVES – UP TO 3”
	Ball valves shall be class 150 SWP, 600 WOG, 2-piece body style, STD port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, bronze body of ASTM B584, blow-out proof stem, lever handle, MSS SP-110. MV #BA100* (Threaded) MV #BA150* (Solder)
9A.	BALL VALVES – UP TO 2” (Alternate to standard port)
	Ball valves shall be class 150 SWP, 600 WOG, 2-piece body style, full port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, bronze body of ASTM B584, blow-out proof stem, lever handle, MSS SP-110. MV #BA400* (Threaded) MV #BA450* (Solder)
10.	BALL VALVES – UP TO 3” (Press End)
	Ball valves with press connections where copper press piping systems are allowed shall be brass body in accordance with ASTM B283 Alloy C37700, fully annealed. Ball shall be chrome plated brass in full port design. Valve must mate with standard copper tubing (K or L) conforming to ASTM B88, assembled by tooling recommended by the copper press fitting manufacturer. The ball valve must have factory installed O-rings furnished in EPDM material of type and size compliant with the copper press fittings. The ball valve must be designed to MSS SP-110 applicable standards. MV #BA480B* (Press) MV #BA490B* (Press x Threaded)

**Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)*

INSTALLATION NOTES:

A.	Provide stem extensions for ball valves being installed on insulated lines.
B.	Provide memory stops for all valves to be used for balancing.
C.	Install all gate, globe, and ball valves with stems within 45° of the upright vertical position.
D.	Install butterfly valves with stem positioned horizontally so that the handle points down when closed and in the direction of flow when in the open position.
E.	Adjust all packing nuts after installation.
F.	Provide lever handles for 6” and smaller butterfly valves.
G.	Provide gear operator for 8” and larger butterfly valves.
H.	Provide chain wheel operators for valves installed 7 feet or more above floor level.

VALVE SPECIFICATIONS FOR PLUMBING / POTABLE WATER SYSTEMS

1.	GATE VALVES – UP TO 2”
	Gate valves shall be 300 WOG, rising stem, threaded bonnet, solid wedge, malleable iron handwheel, all wetted parts shall be “low lead” bronze, non-asbestos packing, designed to standard set forth by MSS SP-80. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UP148 (Threaded) MV #UP149 (Solder)
2.	GATE VALVES – 2” – 16”
	Gate valves shall be 300 psi (2”-12”) and 250 psi (14”-16”), non-rising stem, resilient wedge, bolted bonnet. Body and bonnet shall be of ASTM A536 ductile iron, flanged ends, MSS SP-70. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #F-2882-MRW (Flanged) MV #F-2882-MRWSQ (Flanged, with square operating nut)
3.	GATE VALVES -2-1/2” – 16”
	Gate valves shall be 300 psi (2-1/2”-12”) and 250psi (14”-16”), rising stem, resilient wedge, OS&Y, bolted bonnet. Body and bonnet shall be of ASTM A536 ductile iron, epoxy coated interior/exterior, flanged ends, MSS SP-70. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #F-2885-MRW (Flanged) MV #F-2885-MRWB (Flanged, without tapped side boss)
4.	GLOBE VALVES – UP TO 2”
	Globe valves shall be 300 WOG, threaded bonnet, all wetted parts shall be “low lead” bronze, non-asbestos packing, designed to standard set forth by MSS SP-80. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UP502 (Threaded) MV #UP1502 (Solder)
5.	CHECK VALVES – UP TO 3”
	Check valves shall be 300 WOG, horizontal swing check. Body and cap shall be “low lead” bronze, bronze disc, integral bronze seat, MSS SP-80. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UP509 (Threaded) MV #UP1509 (Solder)
6.	SPRING LIFT CHECK VALVE – UP TO 2”
	Check valves shall be 250 WOG minimum, “low lead” bronze body, in-line spring lift check, PTFE disc, integral bronze seat. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UP548T (Threaded) MV #UP1548T (Solder)
7.	BALL VALVES – UP TO 2” (STANDARD PORT)
	Ball valves shall be 600 WOG, 2-piece body style, STD port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, “low lead” bronze body, blow-out proof stem, lever handle, MSS SP-110. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UPBA100* (Threaded) MV #UPBA150* (Solder)

VALVES SPECIFICATIONS FOR PLUMBING / POTABLE WATER SYSTEMS – Continued

8.	BALL VALVES – UP TO 2” (FULL PORT)
	Ball valves shall be 600 WOG, 2-piece body style, full port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, “low lead” bronze body, blow-out proof stem, lever handle, MSS SP-110. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UPBA400* (Threaded) MV #UPBA450* (Solder)
9.	BALL VALVES – UP TO 3” (FULL PORT); 3 PIECE DESIGN
	Ball valves shall be 600 WOG, 3-piece body style, full port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, “low lead” bronze body, blow-out proof stem, lever handle, MSS SP-110. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UPBA300 (Threaded) MV #UPBA350 (Solder)
10.	BALL VALVES – UP TO 3” (FULL PORT); BRASS BODY
	Ball valves shall be 600 WOG, 2-piece body style, full port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, “low lead” brass body, blow-out proof stem, lever handle, MSS SP-110. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UPBA475B (Threaded) MV #UPBA485B* (Solder)
11.	BUTTERFLY VALVES – 2”-24”
	Butterfly valves shall be 200 WOG (2”-12”) and 150 WOG (14”-24”), full lug body of ASTM A536 ductile iron, aluminum bronze disc, 416 SS stems, 2-piece stem design, field replaceable hard phenolic backed EPDM liner, non-metallic stem journal, blow-out proof stem, extended neck body style, MSS SP-67. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #ML133E/CL123E (Bare Stem) MV #ML233E/CL223E (Lever) MV #ML333E/CL323E (Gear Operator)
12.	GROOVED END BUTTERFLY VALVES – 2” – 10”
	Polyamide coated ductile iron grooved end butterfly valves shall be 300 psi, ductile iron elastomer encapsulated disc, grooved mechanical style, 416 SS stem, extended neck body style, MSS SP-67. Certified to ANSI/NSF 61-8 and ANSI/NSF 372. MV #UPGG-245E (Lever) MV #UPGG-345E (Gear Operator)

VALVE SPECIFICATIONS FOR MECHANICAL SYSTEMS
15100 VALVES – MECHANICAL

1.	GATE VALVES – UP TO 3”
	Gate valves shall be class 150 SWP, 300 WOG, rising stem, union bonnet, solid wedge, malleable iron handwheel. Body, bonnet, and union nut shall be of ASTM B62 cast bronze, non-asbestos packing, MSS SP-80. MV #1151 (Threaded)
2.	GATE VALVES – 2” & LARGER
	Gate valves shall be class 125 SWP, 200 WOG, rising stem, OS&Y, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, non-asbestos packing, MSS SP-70. MV #F-2885 (Flanged)
3.	GLOBE VALVES – UP TO 3”
	Globe valves shall be class 150 SWP, 300 WOG, union bonnet. Body, bonnet and union nut shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, malleable iron handwheel, non-asbestos packing, MSS SP-80. MV #590T (Threaded)
4.	GLOBE VALVES – 2” & LARGER
	Globe valves shall be class 125 SWP, 200 WOG, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, non-asbestos packing, MSS SP-85. MV #F-2981 (Flanged)
5.	CHECK VALVES – UP TO 2”
	Check valves shall be class 150 SWP, 300 WOG, horizontal swing check. Body and cap shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, MSS SP-80. MV #510T (Threaded)
6.	CHECK VALVES – 2” & LARGER
	Check valves shall be class 125 SWP, 200 WOG, horizontal swing check. Body and cap shall be of ASTM A126 cast iron, bronze trim, bolted cap, flanged ends, MSS SP-71. MV #F-2974 (Flanged)
7.	SILENT CHECK VALVES – 2” & LARGER
	Silent check valves shall be rated 200 psig @ 150° F. Body shall be of ASTM A126 class B cast iron, center guided, SS spring and screws, SS disc, SS seat, MSS SP-125. MV #1400 (Wafer Body) MV #1800 (Globe Body)

VALVE SPECIFICATIONS FOR MECHANICAL SYSTEMS
15100 VALVES – MECHANICAL - Continued

8.	BALL VALVES – UP TO 3”
	Ball valves shall be class 150 SWP, 600 WOG, 2-piece body style, STD port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, bronze body of ASTM B584, blow-out proof stem, lever handle, MSS SP-110. MV #BA100* (Threaded) MV #BA150* (Solder)
8A.	BALL VALVES – UP TO 2” (Alternate to standard port)
	Ball valves shall be class 150 SWP, 600 WOG, 2-piece body style, full port, CP solid brass tunneled ball, reinforced PTFE seat, hex gland follower, bronze body of ASTM B584, blow-out proof stem, lever handle, MSS SP-110. MV #BA400* (Threaded) MV #BA450* (Solder)
9.	BUTTERFLY VALVES – 2” & LARGER
	Butterfly valves shall be 200 WOG (2”-12”) or 150 WOG (14” & larger), full lug body of ASTM A536 ductile iron, aluminum bronze disc, 416 SS stems, 2-piece stem design, field replaceable hard phenolic backed EPDM liner, non-metallic stem journal, blow-out proof stem, extended neck body style, MSS SP-67. MV #ML133E (Bare Stem) MV #ML233E (Lever) MV #ML333E (Gear Operator)
10.	BUTTERFLY VALVES ACTUATED – 2” – 12”
	Butterfly valves shall be 200 WOG, full lug body of ASTM A126 class B cast iron, aluminum bronze disc, 2-piece stem with replaceable hard phenolic EPDM liner, non-metallic stem journal, blow-out proof stem, extended neck body style, MSS SP-67. Actuated by pneumatic or electric. MV #CLA23E (Air Actuated) MV #CLB23E (Spring Return Actuated) MV #CLC23E (120 VAC Electric Actuated)
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>	
INSTALLATION NOTES:	
A.	Provide stem extensions for ball valves being installed on insulated lines.
B.	Provide memory stops for all valves to be used for balancing.
C.	Install all gate, globe, and ball valves with stems within 45° of the upright vertical position.
D.	Install butterfly valves with stem positioned horizontally so that the handle points down when closed and in the direction of flow when in the open position.
E.	Adjust all packing nuts after installation.
F.	Provide lever handles for 6” and smaller butterfly valves.
G.	Provide gear operator for 8” and larger butterfly valves.
H.	Provide chain wheel operators for valves installed 7 feet or more above floor level.

VALVE SPECIFICATIONS FOR LOW PRESSURE STEAM
15100 VALVES – LP STEAM – UNDER 15 LBS.

1.	GATE VALVES – UP TO 3”
	Gate valves shall be class 150 SWP, 300 WOG, rising stem, union bonnet, solid wedge, malleable iron handwheel. Body, bonnet, and union nut shall be of ASTM B62 cast bronze, non-asbestos packing, MSS SP-80. MV #1151 (Threaded)
2.	GATE VALVES – 2” & LARGER
	Gate valves shall be class 125 SWP, 200 WOG, rising stem, OS&Y, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, MSS SP-70. MV #F-2885 (Flanged)
3.	GLOBE VALVES – UP TO 3”
	Globe valves shall be class 150 SWP, 300 WOG, union bonnet. Body, bonnet, and union nut shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, malleable iron handwheel, non-asbestos packing, MSS SP-80. MV #590T (Threaded)
4.	GLOBE VALVES – 2” & LARGER
	Globe valves shall be class 125 SWP, 200 WOG, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, MSS SP-85. MV #F-2981 (Flanged)
5.	CHECK VALVES – UP TO 2”
	Check valves shall be class 150 SWP, 300 WOG, horizontal swing check. Body and cap shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, MSS SP-80. MV #510T (Threaded)
6.	CHECK VALVES – 2” & LARGER
	Check valves shall be class 125 SWP, 200 WOG, horizontal swing check. Body and cap shall be of ASTM A126 cast iron, bronze trim, bolted cap, flanged ends, MSS SP-71. MV #F-2974 (Flanged)
7.	BALL VALVES – UP TO 3”
	Ball valves shall be 150 SWP, 600 WOG, 2-piece body style, STD port, SS solid tunneled ball, SS stem, reinforced PTFE seat, bronze body of ASTM B584, hex gland follower, blow-out proof stem, lever handle, MSS SP-110. MV #BA100S* (Threaded)

**VALVE SPECIFICATIONS FOR LOW PRESSURE STEAM
15100 VALVES – LP STEAM – UNDER 15 LBS. - Continued**

7A.	BALL VALVES – UP TO 2” (Alternate to standard port)
	Ball valves shall be 150 SWP, 600 WOG, 2-piece body style, full port, SS solid tunneled ball, reinforced PTFE seat, hex gland follower, bronze body of ASTM B584, blow-out proof stem, lever handle, MSS SP-110. MV #BA400S* (Threaded)
8.	HIGH PERFORMANCE BUTTERFLY VALVES – 2-1/2” & LARGER
	Butterfly valves shall be double off-set design, class 150, 285 psi @ 100° F, full lug body suitable for bi-directional dead-end service at full rate of pressure. Body material of ASTM A216 Gr WCB, CF8M-316 SS disc, 17-4 PH 1-piece stem, replaceable RPTFE seat, adjustable packing gland with PTFE V-ring packing. Sizes 2-1/2” – 6” 10 position lever operated, 8” and above gear operator with handwheel. Valves meet MSS SP-68 and API 609 Category B. MV #HP1LCS4212 (Lever) MV #HP1LCS4213 (Gear)
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>	
INSTALLATION NOTES:	
A.	Provide stem extensions for ball valves being installed on insulated lines.
B.	Provide memory stops for all valves to be used for balancing.
C.	Install all gate, globe, and ball valves with stems within 45° of the upright vertical position.
D.	Install butterfly valves with stem positioned horizontally so that the handle points down when closed and in the direction of flow when in the open position.
E.	Adjust all packing nuts after installation.
F.	Provide lever handles for 6” and smaller butterfly valves.
G.	Provide gear operator for 8” and larger butterfly valves.
H.	Provide chain wheel operators for valves installed 7 feet or more above floor level.

**VALVE SPECIFICATIONS FOR MEDIUM PRESSURE STEAM
15100 VALVES – MEDIUM PRESSURE STEAM – 16-25 LBS.**

NOTE TO ENGINEER: This specification is designed to allow nearly a 2 to 1 safety factor between valve rating and system pressure. At your discretion, the low-pressure steam valve specification may be used; however, the safety factor is greatly reduced.

1.	GATE VALVES – UP TO 3”
	Gate valves shall be class 200 SWP, 400 WOG, rising stem, union bonnet, solid wedge, malleable iron handwheel. Body, bonnet, and union nut shall be of ASTM B61 cast bronze, SS seat rings, non-asbestos packing, MSS SP-80. MV #1174 (Threaded)
2.	GATE VALVES – 2” & LARGER
	Gate valves shall be class 125 SWP, 200 WOG, rising stem, OS&Y, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, non-asbestos packing, MSS SP-70. MV #F-2885 (Flanged)
2A.	GATE VALVES – 2” & LARGER – ALTERNATE
	Gate valves shall be class 250 SWP, 500 WOG, rising stem, OS&Y, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, non-asbestos packing, MSS SP-70. MV #F-2894 (Flanged)
2B.	GATE VALVES – 2” & LARGER – ALTERNATE
	Gate valves shall be class 150 cast carbon steel. Body and bonnet shall be of ASTM A216 grade WCB, wedge shall be of WCB with 13% chrome facing, flanged ends, API 598 & 600. MV #1550CB2 (Flanged)
3.	GLOBE VALVES – UP TO 2”
	Globe valves shall be class 200 SWP, 400 WOG, union bonnet. Body, bonnet, and union nut shall be of ASTM B61 cast bronze, SS disc and seat ring, malleable iron handwheel, non-asbestos packing, MSS SP-80. MV #592A (Threaded)
4.	GLOBE VALVES – 2” & LARGER
	Globe valves shall be class 125 SWP, 200 WOG, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, MSS SP-85. MV #F-2981 (Flanged)

**VALVE SPECIFICATIONS FOR MEDIUM PRESSURE STEAM
15100 VALVES – MEDIUM PRESSURE STEAM – 16-25 LBS.**

4A.	GLOBE VALVES – 2-1/2” & LARGER – ALTERNATE
	Globe valves shall be class 250 SWP, 500 WOG, bolted bonnet. Body and bonnet shall be of ASTM A126 class B cast iron, flanged ends, bronze trim, MSS SP-85. MV #F-2983 (Flanged)
4B.	GLOBE VALVES – 2” & LARGER – ALTERNATE
	Globe valves shall be class 150 cast carbon steel, bolted bonnet. Body and bonnet shall be of ASTM A126 grade WCB, disc shall have 13% chrome facing, flanged ends, API 598. MV #1560CB2 (Flanged)
5.	CHECK VALVES – UP TO 3”
	Check valves shall be class 200 SWP, 400 WOG, Y-pattern, bronze regrindable disc. Body and cap shall be of ASTM B61 cast bronze, SS hinge pin, bronze seat, MSS SP-80. MV #508 (Threaded)
6.	CHECK VALVES – 2” & LARGER
	Check valves shall be class 125 SWP, 200 WOG, horizontal swing check. Body and cap shall be of ASTM A126 class B cast iron, bronze trim, bolted cap, flanged ends, MSS SP-71. MV #F-2974 (Flanged)
6A.	CHECK VALVES – 2-1/2” & LARGER – ALTERNATE
	Check valves shall be class 250 SWP, 500 WOG, horizontal swing check. Body and cap shall be of ASTM A126 class B cast iron, bronze trim, bolted cap, flanged ends, MSS SP-71. MV #F-2970 (Flanged)
6B.	CHECK VALVES – 2” & LARGER – ALTERNATE
	Check valves shall be class 150 cast carbon steel. Body and cap shall be of ASTM A216 grade WCB, disc shall have 13% chrome facing, flanged ends, API 598. MV #1570CB2 (Flanged)
7.	BALL VALVES – UP TO 3”
	Ball valves shall be class 150 SWP, 600 WOG, 2-piece body style, STD port, SS solid tunneled ball with vent, SS stem, reinforced PTFE seat, hex gland follower, bronze body of ASTM B584, blow-out proof stem, lever handle, MSS SP-110. MV #BA100S* (Threaded)

**VALVE SPECIFICATIONS FOR MEDIUM PRESSURE STEAM
15100 VALVES – MEDIUM PRESSURE STEAM – 16-25 LBS. - Continued**

7A.	BALL VALVES – UP TO 2” – ALTERNATE
	Ball valves shall be class 150 SWP, 600 WOG, 2-piece body style, STD port, SS solid tunneled ball with vent, reinforced PTFE seat – cantilever style, V-ring packing, hex gland follower, bronze body of ASTM B584 with actuator mounting pads (drilled & tapped), blow-out proof SS stem, lever handle, MSS SP-110. MV #20BSOR-02 (Threaded)
7B.	BALL VALVES – UP TO 3” – ALTERNATE
	Ball valves shall be class 150 SWP, 1000 WOG, 2-piece body style, full port, SS solid tunneled ball with vent, reinforced PTFE seat and V-ring packing, hex gland follower, CF8M SS body, blow-out proof SS stem, lever handle, MSS SP-110. MV #BA260 (Threaded)
8.	HIGH PERFORMANCE BUTTERFLY VALVES – 2-1/2” & LARGER
	Butterfly valves shall be double off-set design, class 150, 285 psi @ 100° F, full lug body suitable for bi-directional dead-end service at full rate of pressure. Body material of ASTM A216 Gr WCB, CF8M-316 SS disc, 17-4 PH 1-piece stem, replaceable RPTFE seat, adjustable packing gland with PTFE V-ring packing. Sizes 2-1/2” – 6” 10 position lever operated, 8” and above gear operator with handwheel. Valves meet MSS SP-68 and API 609 Category B. MV #HP1LCS4212 (Lever) MV #HP1LCS4213 (Gear)
INSTALLATION NOTES:	
A.	Provide stem extensions for ball valves being installed on insulated lines.
B.	Provide memory stops for all valves to be used for balancing.
C.	Install all gate, globe, and ball valves with stems within 45° of the upright vertical position.
D.	Install butterfly valves with stem positioned horizontally so that the handle points down when closed and in the direction of flow when in the open position.
E.	Adjust all packing nuts after installation.
F.	Provide lever handles for 6” and smaller butterfly valves.
G.	Provide gear operator for 8” and larger butterfly valves.
H.	Provide chain wheel operators for valves installed 7 feet or more above floor level.

VALVE SPECIFICATIONS FOR FIRE SPRINKLER AND STANDPIPE SYSTEMS
21 1000 VALVES – SYSTEM AND MISCELLANEOUS

1.	BALL VALVES; TRIM AND DRAIN – UP TO 2”
	Ball valves shall be 2-piece copper alloy body with chrome plated brass ball, 600 psig minimum CWP, blowout-proof stem, threaded ends. UL 258 (up to 1-1/4”) and FM 1140 (up to 2”) approved. MV #BA-475B (Threaded) MV #UPBA-475B (Low lead, threaded)
2.	BUTTERFLY VALVES; QUICK OPENING – UP TO 2”
	Butterfly valves shall be 2-piece copper alloy body ASTM B584, Type 304 SS disc, Viton seal, 175 psig minimum CWP, threaded ends. FM 1140 approved. MV #BB2-FP
3.	GATE VALVES; BRONZE OS&Y – UP TO 2”
	Gate valves shall be 175 psig minimum CWP, rising stem, OS&Y. Body shall be of bronze ASTM B584, solid wedge disc, threaded ends. UL 262 and FM 1120 approved. MV #118-FP
3A.	GATE VALVES; IRON OS&Y – 2-1/2” - 8”
	Gate valves shall be 175 psig minimum CWP, rising stem, OS&Y. Body shall be ASTM A126 Class B cast iron, solid wedge disc, threaded ends. UL 262 and FM 1120 approved. MV #2885-FP
4.	BUTTERFLY VALVES; DUCTILE IRON, INDICATING TYPE 2-1/2” – 10”
	Butterfly valves shall have approval rating of 175 psi WWP or greater. Valve to have weatherproof gear operator rated for indoor/outdoor use with handwheel and raised position indicator and two internal supervisory switches. Bodies to be from cast ductile iron ASTM A-395 or A-536 and stems to be 400 series stainless steel. Valves shall be I.P.S. grooved. UL 1091 and FM 1112 approved and designed to meet MSS SP-67. MV #GG-SCS2
4A.	BUTTERFLY VALVES; BRONZE, INDICATING TYPE 1” - 2-1/2”
	Butterfly valves shall have approval rating of 175 psi WWP or greater. Valve to have weatherproof gear operator rated for indoor/outdoor use with handwheel and raised position indicator and two internal supervisory switches. Bodies to be from ASTM B584 bronze, Type 304 SS disc, EPDM seal. Valves shall be FNPT or I.P.S. grooved. UL 1091 and FM 1112 approved. MV #BB-SCS (Threaded) MV #BBV-SCS (Grooved)

MISCELLANEOUS VALVES

MV #P900 (1" – 3")

Quick opening gate valve shall be class 150 SWP, 300 WOG, spring loaded lever handle, malleable iron lever handle, double disc. Bronze body, cap and disc, gland packed, threaded cap, non-asbestos packing, threaded ends.

MV #P901 (1/2" – 4")

Quick opening gate valves shall be class 150 SWP, 300 WOG, manual lever handle, malleable iron lever handle, double disc. Bronze body, cap and disc, gland packed, threaded cap, non-asbestos packing, threaded ends.

MV #P902 (3/4" – 1-1/4")

Quick opening gate valve shall be 150 WOG, spring loaded lever handle, malleable iron lever handle. Bronze body, cap and discs, Buna-N O-ring stem backing, threaded ends.

MV #504 (1/4" – 2-1/2")

Angle valves shall be class 125 SWP, 200 WOG, threaded bonnet, malleable iron handwheel. Body and bonnet shall be of ASTM B62 cast bronze, bronze disc and integral bronze seat, gland packed, non-asbestos packing, threaded ends, MSS SP-80.

MV #595T (1/4" – 2")

Angle valve shall be class 150 SWP, 300 WOG, union bonnet, malleable iron handwheel. Body, bonnet and union nut shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, non-asbestos packing, threaded ends, MSS SP-80.

MV #592A (1/4" – 2")

Globe valve shall be class 200 SWP, 400 WOG, union bonnet, malleable iron handwheel. Body, bonnet and union nut shall be of ASTM B61 bronze, SS disc, integral bronze seat, non-asbestos packing, threaded ends, MSS SP-80.

MV #582 (1/4" – 2")

Angle valve shall be class 300 SWP, 600 WOG, union bonnet, malleable iron handwheel. Body, bonnet and union nut shall be of ASTM B61 bronze, bronze disc, integral bronze seat, non-asbestos packing, threaded ends, MSS SP-80.

MV #591A (1/4" – 2")

Globe valve shall be class 150 SWP, 300 WOG, union bonnet. Body, bonnet and union nut shall be of ASTM B62 cast bronze, disc and seat ring shall be of ASTM A276 SS, malleable iron handwheel, non-asbestos packing, MSS SP-80.

MV #570 (1/8" – 3")

Globe valve shall be class 200 SWP, 400 WOG, union bonnet. Body, bonnet, and union nut shall be of ASTM B61 bronze, bronze disc, integral bronze seat, malleable iron handwheel, non-asbestos packing, MSS SP-80.

MISCELLANEOUS VALVES - Continued

MV #572 (1/4" – 2")	
	Globe valve shall be class 300 SWP, 1000 WOG, union bonnet, malleable iron handwheel. Body, bonnet and union nut shall be of ASTM B61 bronze, bronze disc, integral bronze seat, non-asbestos packing, MSS SP-80.
MV #600 (1/8" – 3/4")	
	Needle valve shall be class 200 SWP, 400 WOG, threaded bonnet, bronze body and bonnet, needle type disc/stem, non-asbestos packing, gland packed, MSS SP-80.
MV #509/1509 (1/4" – 3")	
	Check valves shall be class 125 SWP, 200 WOG, horizontal swing check. Body and cap shall be of ASTM B62 cast bronze, brass/bronze disc, SS pin, integral bronze seat, threaded or solder ends, MSS SP-80.
MV #510T / 1510T (1/4" – 2")	
	Check valves shall be class 150 SWP, 300 WOG, horizontal swing check. Body and cap shall be of ASTM B62 cast bronze, PTFE disc, integral bronze seat, SS pin, threaded or solder ends, MSS SP-80.
MV #508 (507) (1/4" – 3")	
	Check valve shall be class 200 SWP (300 SWP), 400 WOG (600 WOG), Y-pattern check, bronze regrindable disc, integral bronze seat, body and cap shall be of ASTM B61 bronze, SS hinge pin, MSS SP-80.
MV #1800 (2-1/2" – 42")	
	Non-slam check valves shall be globe style, ASTM A126 class B cast iron body, SS disc and seat, SS spring and screws, center guided, rated for 200 psig @ 150° F.
MV #8800 (2" – 20")	
	Non-slam check valves shall be wafer style, ASTM A126 class B cast iron body with EPDM seat, SS double disc, SS spring and screws, center guided, rated for 200 psig @ 150° F.