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APPLICATION AND SPECIFICATION MANUAL FOR COMMERCIAL AND INDUSTRIAL PRODUCTS

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REVISION	DESCRIPTION	PAGE NUMBER
1	Added GGSCS2 to Fire Protection application section Added HP1LSS421* and HP3LSS421* to Potable Water application section Added UPGG245E and UPGG345E to Potable Water application section Added 6211-00/6211-01/6211-03 and 5211-00/5211-01/5211-03 to Potable Water valve specifications Added UPGG245E and UPGG345E to Potable Water valve specifications Added HP1LCS4212 and HP1LCS42113 to Medium Pressure Steam valve specifications Added Valve Specifications for Fire Sprinkler and Standpipe Systems	6 9 10 16 16 23 24
2	Updated hyperlinks to new Hammond Valve website	3 through 12
3	Updated BA-480 SWP to 250 psig. Updated 2" and smaller BA-480 SWP to 250 psig. Updated BA-480 SWP to 250 psig. Corrected HP1LCS421*, HP3LCS421*, & HP1WCS421* size ranges. Updated Formatting Created separate Cover Page Created separate Table of Contents page	8 10 11 14 All Pages All Pages All Pages

MECHANICAL SYSTEMS & PIPING – UP TO 4”							
HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
<u>IB645</u>	GATE	125	200	NRS-TB	NPT	1/4” – 4”	Solid Wedge
<u>IB640</u>	GATE	125	200	RS-TB	NPT	1/4” – 4”	Solid Wedge
<u>IB617</u>	GATE	125	200	RS-UB	NPT	1/4” – 3”	Solid Wedge
<u>IB647</u>	GATE	125	200	NRS-TB	SE – Solder Ends	3/8” – 4”	Solid Wedge
<u>IB635</u>	GATE	125	200	RS-TB	SE – Solder Ends	3/8” – 4”	Solid Wedge
<u>IB645 P2</u>	GATE	200 psig @ 250° F		NRS-TB	Press x Press	1/2” – 2”	Solid Wedge
<u>IB640 P2</u>	GATE	200 psig @ 250° F		RS-TB	Press x Press	1/2” – 2”	Solid Wedge
<u>IB617 P2</u>	GATE	200 psig @ 250° F		RS-UB	Press x Press	1/2” – 2”	Solid Wedge
<u>IB646</u>	GATE	150	300	NRS-TB	NPT	1/4” – 4”	Solid Wedge
<u>IB638</u>	GATE	150	300	NRS-UB	NPT	1/4” – 2”	Solid Wedge
<u>IB641</u>	GATE	150	300	RS-TB	NPT	1/4” – 4”	Solid Wedge
<u>IB629</u>	GATE	150	300	RS-UB	NPT	1/4” – 3”	Solid Wedge
<u>IB648</u>	GATE	150	300	RS-UB	SE – Solder Ends	3/8” – 3”	Solid Wedge
<u>IB638 P2</u>	GATE	200 psig @ 250° F		NRS-UB	Press x Press	1/2” – 2”	Solid Wedge
<u>IB440</u>	GLOBE	125	200	RS-TB	NPT	1/8” – 3”	Bronze Disc
<u>IB418</u>	GLOBE	125	200	RS-TB	SE – Solder Ends	3/8” – 2”	Bronze Disc
<u>IB440 P2</u>	GLOBE	200 psig @ 250° F		RS-TB	Press x Press	1/2” – 2”	Bronze Disc
<u>IB413T</u>	GLOBE	150	300	RS-UB	NPT	1/8” – 3”	PTFE Disc, Bronze Seat
<u>IB423</u>	GLOBE	150	300	RS-UB	SE – Solder Ends	1/2” – 3”	PTFE Disc, Bronze Seat
<u>IB434</u>	GLOBE	200	400	RS-UB	NPT	1/4” – 2”	SS Disc & Seat Ring
<u>IB413T P2</u>	GLOBE	200 psig @ 250° F		RS-UB	Press x Press	1/2” – 2”	PTFE Disc, Bronze Seat
<u>IB415</u>	GLOBE	200	400	RS-TB	NPT	1/8” – 3/4”	Needle Disc, Bronze Seat
<u>IB463</u>	ANGLE	125	200	RS-TB	NPT	1/4” – 2-1/2”	Bronze Disc
<u>IB454T</u>	ANGLE	150	300	RS-UB	NPT	1/4” – 2”	PTFE Disc, Bronze Seat

MECHANICAL SYSTEMS & PIPING – UP TO 4”- Continued							
HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
IB904	CHECK	125	200	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc (2" - 3")
IB940	CHECK	125	200	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
IB912	CHECK	125	200	Horizontal Swing	SE – Solder Ends	3/8" – 3"	Bronze Disc (2" - 3")
509Y	CHECK	125	200	Y-Pattern	NPT	1/4" – 3"	Bronze Disc (1/4" - 3/8")
IB946	CHECK	150	300	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
IB945	CHECK	150	300	Horizontal Swing	SE – Solder Ends	1/2" – 2"	PTFE Disc
515Y	CHECK	150	300	Y-Pattern	NPT	1/4" – 3"	Bronze Disc
IB949	CHECK	300	600	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc, Y-Pattern
IB944	CHECK	200	400	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc, Y-Pattern
IB904 P2	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	Bronze Disc (2")
IB940 P2	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	PTFE Disc, Bronze Seat
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”							
HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
<u>8501*</u>	BALL	150	600	STD Port	NPT	1/4" – 3"	Bronze Body
<u>8301A*</u>	BALL	150	600	Full Port	NPT	1/4" – 2"	Bronze Body
<u>8901*</u>	BALL		600	Full Port	NPT	1/4" – 4"	Brass Body, CSA/UL/FM
<u>8201</u>	BALL	150	400	STD Port	NPT	1/4" – 4"	Brass Body
<u>8604*</u>	BALL	150	600	Full Port	NPT	1/4" – 3"	3 Piece Bronze Body
<u>8511*</u>	BALL	150	600	STD Port	SE – Solder Ends	3/8" – 3"	Bronze Body
<u>8311A*</u>	BALL	150	600	Full Port	SE – Solder Ends	3/8" – 2"	Bronze Body
<u>8911*</u>	BALL		600	Full Port	SE – Solder Ends	1/2" – 4"	Brass Body
<u>8211</u>	BALL	150	400	STD Port	SE – Solder Ends	3/8" – 3"	Brass Body
<u>8614*</u>	BALL	150	600	Full Port	SE – Solder Ends	3/8" – 3"	3 Piece Bronze Body
<u>8501 P2*</u>	BALL	200 psig @ 250° F		STD Port	Press x Press	1/2" – 3"	Bronze Body
<u>8301A P2*</u>	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Bronze Body
<u>8604 P2*</u>	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	3 Piece Bronze Body
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>							

PLUMBING SYSTEMS & COMMERCIAL PIPING – 2” AND LARGER							
HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
IR1138-HI	GATE	125	200	NRS	Flanged	2” – 12”	Iron Body, Bronze Trim
IR1140-HI	GATE	125	200	OS&Y	Flanged	2” – 12”	Iron Body, Bronze Trim
IR1144-HI	GATE	125	200	NRS	Flanged	2” – 12”	Iron Body, Iron Trim
IR1146-HI	GATE	125	200	OS&Y	Flanged	2” – 12”	Iron Body, Iron Trim
IR330-HI	GATE	250	500	OS&Y	Flanged	2” – 12”	Iron Body, Bronze Trim
IR116-HI	GLOBE	125	200	OS&Y	Flanged	2” – 10”	Iron Body, Bronze Trim
IR1124-HI	CHECK	125	200	Horizontal Swing	Flanged	2” – 12”	Iron Body, Bronze Trim
IR1126-HI	CHECK	125	200	Horizontal Swing	Flanged	2” – 24”	Iron Body, Iron Trim
IR9253	CHECK	200 psig @ 150° F		Silent	Wafer	2” – 10”	Spring Loaded
IR9354	CHECK	200 psig @ 150° F		Silent (Globe)	Flanged	2-1/2” – 42”	Spring Loaded
5211-00/01/03	BFV		200 psi (2”-12”)	Lug	Flanged	2” – 24”	CI Body – AB Disc – EPDM Liner
5111-00/01/03	BFV		200 psi (2”-12”)	Wafer	Flanged	2” – 24”	CI Body – AB Disc – EPDM Liner
6201-00/01/03	BFV		200 psi (2”-12”)	Lug	Flanged	2” – 48”	CI Body – DI Disc – EPDM Liner
6101-00/01/03	BFV		200 psi (2”-12”)	Wafer	Flanged	2” – 48”	CI Body – DI Disc – EPDM Liner
6221-00/01/03	BFV		200 psi (2”-12”)	Lug	Flanged	2” – 48”	CI Body – SS Disc – EPDM Liner
6121-00/01/03	BFV		200 psi (2”-12”)	Wafer	Flanged	2” – 48”	CI Body – SS Disc – EPDM Liner
6211HP-00/01/03	BFV		250 psi (2”-12”)	Lug	Flanged	2” – 24”	CI Body – AB Disc – EPDM Liner

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

Hose End Ball Valves

HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
<u>8501H*</u>	BALL		600	Full Port	NPT x Hose	1/2" & 3/4"	Hose End + Cap
<u>8511H*</u>	BALL		600	Full Port	SE – Solder End x Hose	1/2" & 3/4"	Hose End + Cap
<u>8501H P1*</u>	BALL	200 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Hose End + Cap
<u>BA-480BH*</u>	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Hose End + Cap
<u>BA-480SH*</u>	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

<u>8501M*</u>	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

<u>8501E*</u>	BALL		125 psig	STD Port	NPT	1/4" – 2"	Exhaust Port w/Locking Handle
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Gas Ball Valves

<u>8901*</u>	BALL		600	Full Port	NPT	1/4" – 4"	Brass Body, CSA/UL/FM
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Medical Gas Systems

<u>8614-22*</u>	BALL	150	600	Full Port	SE – Solder Ends	1/2" – 3"	Extended Tube Ends
<u>8613-22*</u>	BALL	150	600	Full Port	SE – Solder Ends	1/2" – 3"	Extended Tube Ends, SS Trim

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

Fire Protection Valves

<u>GGSCS2</u>	BFV		300 psig	Grooved Mechanical w/ Supervisory Switches	Grooved	2-1/2" – 10"	UL/FM
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PLUMBING SYSTEMS & COMMERCIAL PIPING
Lead Free Hot/Cold Domestic (Potable) Water Service

<u>HV PART # / LINK</u>	<u>VALVE TYPE</u>	<u>SWP</u>	<u>WOG</u>	<u>STYLE</u>	<u>END</u>	<u>SIZES</u>	<u>DESIGN NOTES</u>
<u>UP645</u>	GATE		300	NRS-TB	NPT	1/4" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP640</u>	GATE		300	RS-TB	NPT	1/4" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP647</u>	GATE		300	NRS-TB	SE – Solder Ends	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP635</u>	GATE		300	RS-TB	SE – Solder Ends	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP645 P2</u>	GATE	200 psig @ 250° F		NRS-TB	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP640 P2</u>	GATE	200 psig @ 250° F		RS-TB	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>IR1146-HI</u>	GATE	125	200	OS&Y	Flanged	2" – 12"	Meets ANSI/NSF 372 Iron Body, Iron Trim
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<u>UP440</u>	GLOBE		300	RS-TB	NPT	1/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP418</u>	GLOBE		300	RS-TB	SE – Solder Ends	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP440 P2</u>	GLOBE	200 psig @ 250° F		RS-TB	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
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<u>UP904</u>	CHECK		300	Horizontal Swing	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP969</u>	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UP912</u>	CHECK		300	Horizontal Swing	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>IR9253</u>	CHECK	200 psig @ 150° F		Silent	Wafer	2" – 10"	Meets ANSI/NSF 372 Spring Loaded
<u>IR9354</u>	CHECK	200 psig @ 150° F		Silent (Globe)	Flanged	2-1/2" – 42"	Meets ANSI/NSF 372 Spring Loaded
<u>UP943</u>	CHECK		250	Vertical Lift	NPT	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body

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

HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
<u>UP947</u>	CHECK		250	Vertical Lift	SE – Solder Ends	3/8" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP904 P2</u>	CHECK	200 psig @ 250° F		Horizontal Swing	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP943 P2</u>	CHECK	200 psig @ 250° F		Vertical Lift	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>IR1126-HI</u>	CHECK	125	200	Swing	Flanged	2" – 24"	Meets ANSI/NSF 372 Iron Body, Iron Trim
<u>UP8501*</u>	BALL		600	STD Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8503*</u>	BALL		600	STD Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8901*</u>	BALL		600	Full Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UP8911*</u>	BALL		600	Full Port	SE – Solder Ends	1/2" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UP8301A*</u>	BALL		600	Full Port	NPT	1/4" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8303A*</u>	BALL		600	Full Port	NPT	1/4" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8604*</u>	BALL		600	Full Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8603*</u>	BALL		600	Full Port	NPT	1/4" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8511*</u>	BALL		600	STD Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8513*</u>	BALL		600	STD Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8311A*</u>	BALL		600	Full Port	SE – Solder Ends	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8313A*</u>	BALL		600	Full Port	SE – Solder Ends	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UPBA-480B*</u>	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

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

HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
<u>UPBA-480BH*</u>	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UPBA-480SH*</u>	BALL	250 psig @ 250° F		Full Port	Press x Hose	1/2" & 3/4"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UP8501 P2*</u>	BALL	200 psig @ 250° F		STD Port	Press x Press	1/2" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8503 P2*</u>	BALL	200 psig @ 250° F		STD Port	Press x Press	1/2" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8301A P2*</u>	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8303A P2*</u>	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8604 P2*</u>	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8603 P2*</u>	BALL	200 psig @ 250° F		Full Port	Press x Press	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UPBA-490B*</u>	BALL	200 psig @ 250° F		Full Port	Press x FNPT	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UPBA-490S*</u>	BALL	200 psig @ 250° F		Full Port	Press x FNPT	1/2" – 2"	Meets ANSI/NSF 61-8 & 372 Lead Free Brass Body
<u>UP8614*</u>	BALL		600	Full Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<u>UP8613*</u>	BALL		600	Full Port	SE – Solder Ends	3/8" – 3"	Meets ANSI/NSF 61-8 & 372 Lead Free Bronze Body
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>							
<u>5211-00/01/03</u>	BFV		200 psi (2-12")	Lug	Flanged	2" – 24"	Meets ANSI/NSF 61-8 & 372 CI Body – AB Disc – EPDM Liner Lead Free
<u>6411-00/01/03</u>	BFV		200 psi (2-12")	Lug	Flanged	2" – 24"	Meets ANSI/NSF 61-8 & 372 DI Body – AB Disc – EPDM Liner Lead Free
<u>HP1LSS421*</u>	HPBV	CL 150		Lug	Flanged	2-1/2" – 24"	Meets ANSI/NSF 61-8 & 372 SS Body & Disc – RPTFE Seat
<u>HP3LSS421*</u>	HPBV	CL 300		Lug	Flanged	2-1/2" – 16"	Meets ANSI/NSF 61-8 & 372 SS Body & Disc – RPTFE Seat

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

HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
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

HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
IB617	GATE	125	200	RS-UB	NPT	1/4" – 3"	Solid Wedge
IB629	GATE	150	300	RS-UB	NPT	1/4" – 3"	Solid Wedge
IB638	GATE	150	300	NRS-UB	NPT	1/4" – 2"	Solid Wedge
IB650	GATE	200	400	RS-UB	NPT	1/4" – 2"	Cu-Ni Seat
IB651	GATE	200	400	RS-UB	NPT	1/4" – 3"	SS Seat
IB652	GATE	300	1000	RS-UB	NPT	1/4" – 2"	Cu-Ni Seat
IB654	GATE	300	1000	RS-UB	NPT	1/4" – 3"	SS Seat
IB656	GATE	300	1000	NRS-UB	NPT	1/4" – 2"	SS Seat
IB413T	GLOBE	150	300	RS-UB	NPT	1/8" – 3"	PTFE Disc, Bronze Seat
IB434	GLOBE	200	400	RS-UB	NPT	1/4" – 2"	SS Disc & Seat Ring
IB415	GLOBE	200	400	RS-TB	NPT	1/8" – 3/4"	Needle Disc, Bronze Seat
IB412	GLOBE	300	1000	RS-UB	NPT	1/4" – 2"	Bronze Disc & Seat Ring
IB444	GLOBE	300	1000	RS-UB	NPT	1/4" – 2"	SS Disc & Seat Ring
IB454T	ANGLE	150	300	UB	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
IB904	CHECK	125	200	Horizontal Swing	NPT	1/4" – 3"	Bronze Disc (2-3")
IB940	CHECK	125	200	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
IB946	CHECK	150	300	Horizontal Swing	NPT	1/4" – 2"	PTFE Disc, Bronze Seat
IB944	CHECK	200	400	Horizontal Swing	NPT	1/4" – 3"	Y-Pattern, Bronze Disc
IB949	CHECK	300	600	Horizontal Swing	NPT	1/4" – 3"	Y-Pattern, Bronze Disc
8503*	BALL	150	600	STD Port	NPT	1/4" – 3"	SS Trim

STEAM SYSTEM PIPING
Steam Piping, Condensate, Mechanical - Continued

<u>8433</u>	BALL	150	2000	STD Port	NPT	1/4" – 2"	All SS, V-Ring Packing
<u>8423</u>	BALL	150	2000	STD Port	NPT	1/4" – 2"	SS Trim, V-Ring Packing
<u>8603*</u>	BALL	150	600	Full Port	NPT	1/4" – 3"	SS Trim
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>							
<u>IR1138</u>	GATE	125	200	NRS	Flanged	2" – 12"	Iron Body, Bronze Trim
<u>IR1140</u>	GATE	125	200	OS&Y	Flanged	2" – 12"	Iron Body, Bronze Trim
<u>IR330</u>	GATE	250	500	OS&Y	Flanged	2" – 12"	Iron Body, Bronze Trim
<u>IR1144-HI</u>	GATE	125	200	NRS	Flanged	2" – 12"	Iron Body, Iron Trim
<u>IR1146-HI</u>	GATE	125	200	OS&Y	Flanged	2" – 12"	Iron Body, Iron Trim
<u>1550</u>	GATE	CL 150		OS&Y	Flanged	2" – 24"	Cast Steel Body
<u>1552</u>	GATE	CL 150		OS&Y	B/W	2" – 24"	Cast Steel Body
<u>3050</u>	GATE	CL 300		OS&Y	Flanged	2" – 24"	Cast Steel Body
<u>3052</u>	GATE	CL 300		OS&Y	B/W	2" – 24"	Cast Steel Body
<u>6050</u>	GATE	CL 600		OS&Y	Flanged	2" – 12"	Cast Steel Body
<u>6053</u>	GATE	CL 600		OS&Y	B/W	2" – 12"	Cast Steel Body
<u>IR116</u>	GLOBE	125	200	OS&Y	Flanged	2" – 10"	Iron Body, Bronze Trim
<u>1560</u>	GLOBE	CL 150		OS&Y	Flanged	2" – 8"	Cast Steel Body
<u>1562</u>	GLOBE	CL 150		OS&Y	B/W	2" – 8"	Cast Steel Body
<u>3060</u>	GLOBE	CL 300		OS&Y	Flanged	2" – 8"	Cast Steel Body
<u>3062</u>	GLOBE	CL 300		OS&Y	B/W	2" – 8"	Cast Steel Body
<u>IR1124</u>	CHECK	125	200	Horizontal Swing	Flanged	2" – 24"	Iron Body, Bronze Trim
<u>IR1126-HI</u>	CHECK	125	200	Horizontal Swing	Flanged	2" – 24"	Iron Body, Iron Trim
<u>1570</u>	CHECK	CL 150		Horizontal Swing	Flanged	2" – 12"	Cast Steel Body

STEAM SYSTEM PIPING

Steam Piping, Condensate, Mechanical - Continued

HV PART # / LINK	VALVE TYPE	SWP	WOG	STYLE	END	SIZES	DESIGN NOTES
<u>1572</u>	CHECK	CL 150		Horizontal Swing	B/W	2" – 12"	Cast Steel Body
<u>3070</u>	CHECK	CL 300		Horizontal Swing	Flanged	2" – 12"	Cast Steel Body
<u>3072</u>	CHECK	CL 300		Horizontal Swing	B/W	2" – 12"	Cast Steel Body
<u>6070</u>	CHECK	CL 600		Horizontal Swing	Flanged	2" – 12"	Cast Steel Body
<u>6073</u>	CHECK	CL 600		Horizontal Swing	B/W	2" – 12"	Cast Steel Body
<u>HP1LCS421*</u>	HPBV	CL 150		Lug	Flanged	2-1/2" – 48"	RPTFE Seat, Lever/Gear
<u>HP3LCS421*</u>	HPBV	CL 300		Lug	Flanged	2-1/2" – 24"	RPTFE Seat, Lever/Gear
<u>HP1WCS421*</u>	HPBV	CL 150		Wafer	Flanged	3" – 18"	RPTFE Seat, Lever/Gear
<u>HP3WCS421*</u>	HPBV	CL 300		Wafer	Flanged	3" – 16"	RPTFE Seat, Lever/Gear

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

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	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. HV #IB640 (Threaded) HV #IB635 (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. HV #IR1140 (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. HV #IB440 (Threaded) HV #IB418 (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. HV #IR1116 (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. HV #IB940 (Threaded) HV #IB912 (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. HV #IR1124 (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. HV #943 (Threaded) HV #947 (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. HV #IR9253 (Wafer Body) HV #IR9354 (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. HV #8501* (Threaded) HV #8511* (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. HV #8301A* (Threaded) HV #8311A* (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. HV #BA480B* (Press) HV #BA490B* (Press x Threaded)
<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 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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UP148 and #UP149. HV #UP640 (Threaded) HV #UP635 (Solder)
2.	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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UP502 and #UP1502. HV #UP440 (Threaded) HV #UP418 (Solder)
3.	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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UP509 and #UP1509. HV #UP904 (Threaded) HV #UP912 (Solder)
4.	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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UP548T and UP1548T. HV #UP943 (Threaded) HV #UP947 (Solder)
5.	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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UPBA100 and UPBA150. HV #UP8501* (Threaded) HV #UP8511* (Solder)
6.	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. Third party certified to ANSI/NSF 61-8 and ANSI/NS 372 as MV #UPBA400 and #UPBA450. HV #UP8301A* (Threaded) HV #UP8311A* (Solder)

VALVE SPECIFICATIONS FOR PLUMBING / POTABLE WATER SYSTEMS - Continued

7.	BALL VALVES – UP TO 3” (FULL PORT); BRASS BODY
	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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UPBA300 and #UPBA350. HV #UP8604 (Threaded) HV #UP8614 (Solder)
8.	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. Third party certified to ANSI/NSF 61-8 and ANSI/NSF 372 as MV #UPBA475B and MV #UPBA485B. HV #UP8901* (Threaded) HV #UP8911* (Solder)
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>	
9.	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. HV #6211-00/5211-00 (Bare Stem) HV #6211-01/5211-01 (Lever) HV #6211-03/5211-03 (Gear Operator)
10.	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. HV #UPGG-245E (Lever) HV #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. HV #IB629 (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. HV #IR1140 (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. HV #IB413T (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. HV #IR116 (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. HV #IB946 (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. HV #IR1124 (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. HV #IR9253 (Wafer Body) HV #IR9354 (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. HV #8501* (Threaded) HV #8511* (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. HV #8301A* (Threaded) HV #8311A* (Solder)
<i>*Where extension stems are required and condensation is an issue, specify the Insulator/MS handle suffix (TIH)</i>	
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. HV #6411-00 (Bare Stem) HV #6411-01 (Lever) HV #6411-03 (Gear Operator)
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. HV #IB629 (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. HV #IR1140 (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. HV #IB413T (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. HV #IR1116 (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. HV #IB946 (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. HV #IR1124 (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. HV #8503* (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. HV #8303A* (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. HV #HP1LCS4212 (Lever) HV #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. HV #IB651 (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. HV #IR1140 (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. HV #IR330 (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. HV #1550 (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. HV #IB434 (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. HV #IR116 (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. HV #IR313 (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. HV #1560 (Flanged)
5.	CHECK VALVES – UP TO 3”
	Check valves shall be class 200 SWP, 400 WOG, Y-pattern, bronze disc. Body and cap shall be of ASTM B61 cast bronze, SS hinge pin, regrind-able, bronze seat, MSS SP-80. HV #IB944 (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. HV #IR1124 (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. HV #IR322 (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. HV #1570 (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. HV #8503* (Threaded)

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

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. HV #HP1LCS4212 (Lever) HV #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
21100 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. HV #8901 (Threaded) HV #UP8901 (Low lead, threaded)
2.	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. HV #118-FP
3.	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. HV #IR1140-UL

**VALVE SPECIFICATIONS FOR FIRE SPRINKLER AND STANDPIPE SYSTEMS
21100 VALVES – SYSTEM AND MISCELLANEOUS - Continued**

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. HV #GG-SCS2

MISCELLANEOUS VALVES

HV #IB610 (1/2" – 4")	
	Quick opening gate valve shall be class 150 SWP, 300 WOG, manual lever handle, malleable iron handle, double disc. Bronze body, cap and disc, gland packed, threaded cap, non-asbestos packing, threaded ends.
HV #IB463 (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.
HV #IB454T (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.
HV #IB434 (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.
HV #IB412 (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.
HV #IB415 (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.

MISCELLANEOUS VALVES - Continued

HV #IB904 / IB912 (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.

HV #IB946 / IB945 (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.

HV #IB944 (IB949) (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.

HV #IR9354 (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.