



บริษัท ทีเอ็นเอส พาร์ท แอนด์ เอ็นจิเนียริ่ง จำกัด
TNS PARTS AND ENGINEERING CO.,LTD



TYPE	GATE VALVES							GLOBE VALVES				
MATERIAL BRONZE&BRASS												
FIGURE	FH/AKFH	H/AKH	E	EB/EBH	AK125M	150L/AK150L	AK150LU	A/AKA	C/AKC	G/AKG	B/BH	CA
PRESSURE	CLASS 125	CLASS 125	CLASS 150	CLASS 150	CLASS 125	CLASS 150	CLASS 150	CLASS 100	CLASS 150	CLASS 125	CLASS 150	CLASS 150
END CONNECTION	BS21 / NPT	BS21 / NPT	BS21	JIS B2240	NPT	BS21 / NPT	NPT	BS21 / NPT	BS21 / NPT	BS21 / NPT	JIS B2240	BS21
SIZE	1/4" - 3"	3/8" - 4"	1/2" - 3"	1/2" - 4"	1/2" - 3"	1/2" - 2"	1/4" - 2"	1/4" - 4"	1/4" - 3"	1/4" - 3"	1/2" - 4"	1/4" - 3"
BODY	Forged Brass	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze
BONNET	Forged Brass	Cast Bronze	Forged Brass*	Forged Brass*	Cast Bronze	Cast Bronze	Cast Bronze	Forged Brass*	Forged Brass*	Forged Brass	Forged Brass	Forged Brass*
STEM	Special Brass	Special Brass	Special Brass	Special Brass	Cast Bronze	Cast Bronze	Cast Bronze	Special Brass	Special Brass	Special Brass	Special Brass*	Special Brass
DISC	Forged Brass	Cast Bronze*	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	G/F PTFE	Cast Bronze	Cast Bronze
DETAILS	Non-rising Stem Screwed Bonnet W.O.G. non-shock 200 psi, Saturated steam pressure 125 psi	Non-rising Stem Screwed Bonnet W.O.G. non-shock 200 psi, Saturated steam pressure 125 psi *3/8" - 1/2" Special Brass	Non-rising Stem Screwed Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi *2 1/2" - 3" Special Brass	Non-rising Stem Screwed Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi Drilled or Undrilled *2 2/2" - 4" Cast Bronze	Rising Stem Screwed Bonnet W.O.G. non-shock 200 psi, Saturated steam pressure 125 psi	Rising Stem Screwed Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi	Rising Stem Union Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi	Rising Stem Screwed Bonnet W.O.G. non-shock 150 psi, Saturated steam pressure 100 psi *4" Cast Bronze	Rising Stem Screwed Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi *3" Cast Bronze	Rising Stem Screwed Bonnet W.O.G. non-shock 200 psi, Saturated steam pressure 125 psi Soft Seated Disc	Rising Stem Screwed Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi Drilled or Undrilled *3" - 4" Cast Bronze	Angle Type Body, Rising Stem Screwed Bonnet W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi *3" Cast Bronze

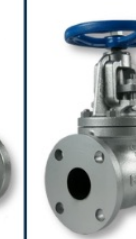
All materials for reference.

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TYPE	BALL VALVES								CHECK VALVES				STRAINER
MATERIAL BRONZE&BRASS													
FIGURE	T/AKT	TK/AKTK	TKT/AKTKT	TN/AKTN	AKTAF	SZA	TL/TLT	TB	R/AKR	F/AKF	YR	RF	Y/AKY
PRESSURE	CLASS 400	CLASS 600	CLASS 600	CLASS 400	CLASS 600	CLASS 600	CLASS 400	JIS 10K	CLASS 125	CLASS 150	CLASS 125	CLASS 150	CLASS 150
END CONNECTION	BS21 / NPT	BS21 / NPT	BS21 / NPT	BS21 / NPT	NPT	BS21	BS21	JIS B2240	BS21 / NPT	BS21 / NPT	BS21	BS21	BS21 / NPT
SIZE	1/4" - 4"	1/4" - 2"	1/4" - 2"	1/4" - 3"	1/4" - 2"	1/4" - 4"	1/2" - 2"	1/2" - 4"	3/8" - 4"	3/8" - 3"	3/8" - 2 1/2"	1/2" - 2"	3/8" - 3"
BODY	Forged Brass*	Forged Brass	Forged Brass	Forged Brass	Forged Brass	Forged Brass*	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze	Cast Bronze
BALL / DISC	Forged Brass	Forged Brass	Forged Brass	Forged Brass	Forged Brass	Forged Brass	Stainless Steel	Forged Brass	Forged Brass*	Cast Bronze	Cast Bronze	NBR	-
SEAT	PTFE	G/F PTFE	G/F PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	-	-	-	-	-
CAP	Forged Brass*	Forged Brass	Forged Brass	Forged Brass	Forged Brass	Forged Brass*	Cast Bronze	Cast Bronze	Forged Brass*	Forged Brass*	Forged Brass	Cast Bronze	Forged Brass
DETAILS	Standard Port Stainless Steel Ball Size 1 1/2" (NiCr Plated) W.O.G. non-shock 400 psi, W.O.G. 150°C 100 psi *4" Cast Bronze	Reduced Port Ball (Cr Plated) W.O.G. non-shock 600 psi, W.O.G. 150°C 150 psi	Reduced Port Ball (Cr Plated) W.O.G. non-shock 600 psi, W.O.G. 150°C 150 psi	Standard L Port Ball (Cr Plated) W.O.G. non-shock 400 psi, W.O.G. 150°C 100 psi	Full Port Ball (SiNi Plated) W.O.G. non-shock 600 psi, W.O.G., Saturated steam pressure 150 psi UL Approved	Full Port Ball (NiCr Plated) W.O.G. non-shock 600 psi, W.O.G. 150°C 150 psi *4" Cast Bronze	Standard Port W.O.G. non-shock 400 psi, W.O.G. 150°C 100 psi	Full Port Ball (SiNi Plated) Stainless Steel Ball Size 2"-4" W.O.G. non-shock 150 psi	Swing Type W.O.G. non-shock 200 psi, Saturated steam pressure 125 psi *4" Cast Bronze	Lift Type W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi *2 1/2" - 3" Cast Bronze	Swing, Y-Pattern W.O.G. non-shock 200 psi, Saturated steam pressure 125 psi	Lift Type W.O.G. non-shock 250 psi, Soft Seated Disc Bronze Spring	SUS304 Screen W.O.G. non-shock 300 psi, Saturated steam pressure 150 psi

All materials for reference.

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TYPE	GATE VALVES				GLOBE VALVES				CHECK VALVES		
MATERIAL CAST IRON											
FIGURE	10FCL	125FCL	10FCLS	125FCLS	10FCJ	125FCJ	10FCJS	125FCJS	10FCO	125FCO	10FWZ
PRESSURE	JIS 10K	CLASS 125	JIS 10K	CLASS 125	JIS 10K	CLASS 125	JIS 10K	CLASS 125	JIS 10K	CLASS 125	JIS 10K
END CONNECTION	JIS B2239	ASME B16.1	JIS B2239	ASME B16.1	JIS B2239	ASME B16.1	JIS B2239	ASME B16.1	JIS B2239	ASME B16.1	JIS 10K
SIZE	1 1/2" - 14"	2" - 14"	1 1/2" - 14"	2" - 14"	1 1/2" - 8"	2" - 8"	1 1/2" - 8"	2" - 8"	1 1/2" - 10"	2" - 10"	2" - 14"
BODY	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron + NBR
BONNET	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Bronze*
STEM	Forged Brass	Forged Brass	Stainless Steel	Stainless Steel	Forged Brass	Forged Brass	Stainless Steel	Stainless Steel	-	-	Stainless Steel
DISC	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron*	Cast Iron*	Stainless Steel	Stainless Steel	Cast Iron*	Cast Iron*	Cast Bronze
BODY SEAT	Cast Bronze	Cast Bronze	Stainless Steel	Stainless Steel	Cast Bronze	Cast Bronze	Stainless Steel	Stainless Steel	Cast Bronze	Cast Bronze	-
DETAILS	Rising Stem Bolted bonnet, OS&Y 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Rising Stem Bolted bonnet, OS&Y 65°C W.O.G. 200 psi, Saturated steam 125 psi	Rising Stem Bolted bonnet, OS&Y 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Rising Stem Bolted bonnet, OS&Y 65°C W.O.G. 200 psi, Saturated steam 125 psi	Rising Stem Bolted bonnet, OS&Y 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi *1 1/2"-2" Cast Bronze	Rising Stem Bolted bonnet, OS&Y 65°C W.O.G. 200 psi, Saturated steam 125 psi *2" Cast Bronze	Rising Stem Bolted bonnet, OS&Y 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Rising Stem Bolted bonnet, OS&Y 65°C W.O.G. 200 psi, Saturated steam 125 psi	Swing Type Cast Iron Bolt Cover 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi *1/4"-4" Cast Bronze	Swing Type Cast Iron Bolt Cover 65°C W.O.G. 200 psi, Saturated steam 125 psi *2"-4" Cast Bronze	Wafer Type 80°C Non-shock water 200 psi, Water, Oil, Air 150 psi *1 1/2"-5" Forged Brass

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TYPE	BALL VALVES						STRAINER				
MATERIAL CAST IRON											
FIGURE	10FCT	10FCTB	G-10FCTB	125FCTB	10FCTR	125FCTR	10FCY	125FCY			
PRESSURE	JIS 10K	JIS 10K	JIS 10K	CLASS 125	JIS 10K	CLASS 125	JIS 10K	CLASS 125			
END CONNECTION	BS21	JIS B2239	JIS B2239	ASME B16.1	JIS B2239	ASME B16.1	JIS B2239	ASME B16.1			
SIZE	3/8" - 3"	1/2" - 8"	8" - 10"	2" - 8"	5" - 10"	6" - 10"	3/8" - 14"	2" - 14"			
BODY	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron			
COVER	-	-	-	-	-	-	Cast Iron*	Cast Iron			
STEM	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	-	-			
BALL	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	-	-			
SEAT	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	-	-			
DETAILS	Full Port 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Full Port 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Full Port 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi Gear Operated	Full Port 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Reduced Port 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Reduced Port 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi	Y-Pattern, SUS304 Screen 120°C Non-shock water 200 psi, Water, Oil, Air 150 psi, Gas 30 psi. Saturated steam 100 psi *3/8"-1 1/2" Forged Brass	Y-Pattern, SUS304 Screen 65°C W.O.G. 200 psi, Saturated steam 125 psi			

All materials for reference.

TYPE	GATE VALVES							GLOBE VALVES			
MATERIAL DUCTILE IRON											
FIGURE	10SMS	10SMBF	10SMBOF	150SMB0	20SLS	20SLB	20SLB0	10SJ	10SJBF	10SP	10SPBF
PRESSURE	JIS 10K	JIS 10K	JIS 10K	CLASS 150	JIS 20K	JIS 20K	JIS 20K	JIS 10K	JIS 10K	JIS 10K	JIS 10K
END CONNECTION	BS21	JIS B2239	JIS B2239	ASME B16.5	BS21	JIS B2239	JIS B2239	BS21	JIS B2239	BS21	JIS B2239
SIZE	1/2" - 2"	1/2" - 2"	1 1/2" - 10"	1 1/2" - 10"	1/2" - 2"	1/2" - 2"	1 1/2" - 10"	1/4" - 3"	3/8" - 3"	3/8" - 2"	3/8" - 2"
BODY	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
BONNET	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
STEM	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
DISC	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
DETAILS	Screwed bonnet, Inside Screw 120°C Static water 200 psi 220°C Steam air, gas, oil 145 psi	Bolted bonnet, Inside Screw 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi	Bolted bonnet, OS&Y 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi	Bolted bonnet, OS&Y -5°C - 38°C W.O.G. 250 psi 149°C W.O.G. 214 psi 260°C W.O.G. 170 psi 343°C W.O.G. 125 psi	Bolted bonnet, Inside Screw 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Bolted bonnet, Inside Screw 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Bolted bonnet, OS&Y 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	1 1/2" - 2" Screwed bonnet 2 1/2" - 3" Union bonnet Inside Screw 120°C Static water 200 psi 220°C Steam air, gas, oil 145 psi	3/8" - 2" Screwed bonnet 2 1/2" - 3" Union bonnet Inside Screw 120°C Static water 200 psi 220°C Steam air, gas, oil 145 psi	Union bonnet, Inside Screw 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi	Union bonnet, Inside Screw 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi

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TYPE	GLOBE VALVES								CHECK VALVES		
MATERIAL											
DUCTILE IRON											
FIGURE	10SPBOF	150SPB	150SPBO	20SDL	20SDLB	20SYB	20SYBO	20SY	10SF	10SFBF	10SRBF
PRESSURE	JIS 10K	CLASS 150	CLASS 150	JIS 20K	JIS 20K	JIS 20K	JIS 20K	JIS 20K	JIS 10K	JIS 10K	JIS 10K
END CONNECTION	JIS B2239	ASME B16.5	ASME B16.5	BS21	JIS B2239	JIS B2239	JIS B2239	BS21	BS21	JIS B2239	JIS B2239
SIZE	2" - 8"	1/2" - 2"	2" - 8"	1/2" - 2"	1/2" - 2"	3/8" - 2"	2" - 8"	3/8" - 2"	1/2" - 2"	1/2" - 2"	1 1/2" - 10"
BODY	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
BONNET / CAP	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
STEM	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	-	-	-
DISC	Stainless Steel	Stainless Steel	Stainless Steel	PTFE	PTFE	Stainless Steel + HF	Carbon Steel + HF	Stainless Steel + HF	Stainless Steel	Stainless Steel	Stainless Steel
DETAILS	Bolted bonnet, OS&Y 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi	Union bonnet, Inside Screw -5°C - 38°C W.O.G. 250 psi 149°C W.O.G. 214 psi 260°C W.O.G. 170 psi 343°C W.O.G. 125 psi	Bolted bonnet, OS&Y -5°C - 38°C W.O.G. 250 psi 149°C W.O.G. 214 psi 260°C W.O.G. 170 psi 343°C W.O.G. 125 psi	Union bonnet, Inside Screw Gas Service 80°C Gas 348 psi	Union bonnet, Inside Screw Gas Service 80°C Gas 348 psi	Union bonnet, Inside Screw 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Bolted bonnet, OS&Y 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Union bonnet, Inside Screw 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Lift Type, Screwed Cap 120°C Static water 200 psi 220°C Steam air, gas, oil 145 psi	Lift Type, Screwed Cap 120°C Static water 200 psi 220°C Steam air, gas, oil 145 psi	Swing Type, Bonnet Cap 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi

All materials for reference.

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TYPE	CHECK VALVES			BALL VALVES				STRAINERS				
MATERIAL DUCTILE IRON												
FIGURE	150SRB	20SN	20SNB	400STZ	20ST	10STBF	20STLB	10FDY	20FDY	10FDYBF	16FDYB	20FDYB
PRESSURE	CLASS 150	JIS 20K	JIS 20K	CLASS 400	JIS 20K	JIS 10K	JIS 20K	JIS 10K	JIS 20K	JIS 10K	JIS 16K	JIS 20K
END CONNECTION	ASME B16.5	BS21	JIS B2239	BS21	BS21	JIS B2239	JIS B2239	BS21	BS21	JIS B2239	JIS B2239	JIS B2239
SIZE	1 1/2" - 10"	1/2" - 2"	1/2" - 2"	1/4" - 2"	1/2" - 2"	1/2" - 8"	1/2" - 8"	1/4" - 3"	3/8" - 2"	1/2" - 12"	1/2" - 12"	1/2" - 12"
BODY	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
COVER / CAP	Ductile Iron	Stainless Steel	Stainless Steel	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
DISC / BALL	Stainless Steel	Stainless Steel + HF	Stainless Steel + HF	Forged Brass	Stainless Steel	Stainless Steel	Stainless Steel	-	-	-	-	-
STEM / SCREEN	-	-	-	Special Brass	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
SEAT				G/F PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	-	-	-	-	-
DETAILS	Swing Type, Bonnet Cap -5°C - 38°C W.O.G. 250 psi 149°C W.O.G. 214 psi 260°C W.O.G. 170 psi 343°C W.O.G. 125 psi	Lift Type, Union Bonnet 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Lift Type, Union Bonnet 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	Reduced Port W.O.G. at Room Temp. 400 psi Saturated steam 142 psi	Reduced Port 110°C W.O.G. 390 psi 140°C W.O.G. 290 psi	Full Port 120°C W.O.G. 200 psi 160°C W.O.G. 145 psi (for size 4" and smaller) 140°C W.O.G. 145 psi (for size 5" to 8")	Full Port Gas Service 80°C Gas 348 psi	1/4"-2" Screwed Cap 2 1/2"-3" Bonnet Cap Gas Service 120°C Static water 200 psi 200°C Steam air, gas, oil 145 psi	Bonnet Cap, Gas Service 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi	1/2"-1 1/2" Screwed Cap, 2"-12" Bonnet Cap Gas Service 120°C Static water 200 psi 220°C Steam air, gas, oil 175 psi 300°C Steam air, gas, oil 145 psi	1/2"-1 1/2" Screwed Cap 120°C Static water 320 psi 300°C Steam air, gas, oil 260 psi 350°C Steam air, gas, oil 230 psi	Bonnet Cap, Gas Service 120°C Static water 400 psi 220°C Steam air, gas, oil 360 psi 300°C Steam air, gas, oil 330 psi 350°C Steam air, gas, oil 290 psi

All materials for reference.

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TYPE	GATE VALVES										
MATERIAL CARBON STEEL											
FIGURE	150SCLS	GL-150SCLS	150SCLSY	GL-150SCLSY	150SCLSM	300SCLS	GL-300SCLS	300SCLSY	GL-300SCLSY	300SCLSM	600SCLSY
PRESSURE	CLASS 150	CLASS 150	CLASS 150	CLASS 150	CLASS 150	CLASS 300	CLASS 300	CLASS 300	CLASS 300	CLASS 300	CLASS 600
END CONNECTION	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5
SIZE	1 1/2" - 24"	12" - 24"	1 1/2" - 24"	12" - 24"	1 1/2" - 14"	1 1/2" - 18"	12" - 18"	1 1/2" - 18"	12" - 24"	1 1/2" - 12"	2" - 16"
BODY / BONNET	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB
STEM	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F316	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F316	A182 Gr. F6a
DISC	Carbon Steel + 13Cr	Carbon Steel + 13Cr	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + 316	Carbon Steel + 13Cr	Carbon Steel + 13Cr	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + 316	Carbon Steel + HF
BODY SEAT	Carbon Steel + HF	Carbon Steel + HF Trim 8, Gear Operate	Carbon Steel + HF	Carbon Steel + HF Trim 5, Gear Operate	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + HF Trim 8, Gear Operate	Carbon Steel + HF	Carbon Steel + HF Trim 5, Gear Operate	Carbon Steel + HF	Carbon Steel + HF
DETAILS	Trim 8 P-T Rating : ASME B16.34 API 600	P-T Rating : ASME B16.34 API 600	Trim 5 P-T Rating : ASME B16.34 API 600	P-T Rating : ASME B16.34 API 600	NACE MR-0103 P-T Rating : ASME B16.34 API 600	Trim 8 P-T Rating : ASME B16.34 API 600	P-T Rating : ASME B16.34 API 600	Trim 5 P-T Rating : ASME B16.34 API 600	P-T Rating : ASME B16.34 API 600	NACE MR-0103 P-T Rating : ASME B16.34 API 600	Trim 5 P-T Rating : ASME B16.34 API 600

WCB = Carbon Steel ASTM A216 Gr.WCB, F6a = Stainless Steel ASTM A182 Gr.F6a, F316 = Stainless Steel ASTM A182 Gr.F316

13Cr = 13% Chromium, HF = Hardfaced

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TYPE	GLOBE VALVES						CHECK VALVES				
MATERIAL CARBON STEEL			NON			NON					
FIGURE	150SCJS	150SCJSY	GL-150SCJSY	300SCJS	300SCJSY	GL-300SCJSY	150SCOS	150SCOSY	150SCOSMM	300SCOS	300SCOSY
PRESSURE	CLASS 150	CLASS 150	CLASS 150	CLASS 300	CLASS 300	CLASS 300	CLASS 150	CLASS 150	CLASS 150	CLASS 300	CLASS 300
END CONNECTION	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5
SIZE	1 1/2" - 8"	1 1/2" - 8"	10" - 12"	1 1/2" - 8"	1 1/2" - 8"	8" - 12"	1 1/2" - 16"	1 1/2" - 16"	1 1/2" - 16"	1 1/2" - 14"	1 1/2" - 14"
BODY / BONNET	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB
STEM	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	A182 Gr. F6a	-	-	-	-	-
DISC	Carbon Steel + 13Cr	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + 13Cr	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + 13Cr	Carbon Steel + HF	Carbon Steel + 316	Carbon Steel + 13Cr	Carbon Steel + HF
BODY SEAT	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + HF Trim 5, Gear Operate	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + HF Trim 5, Gear Operate	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + HF	Carbon Steel + HF
DETAILS	Trim 8 P-T Rating : ASME B16.34	Trim 5 P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	Trim 8 P-T Rating : ASME B16.34	Trim 5 P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	Trim 8 P-T Rating : ASME B16.34	Trim 5, Swing Type P-T Rating : ASME B16.34	NACE MR-0103 Swing Type P-T Rating : ASME B16.34	Trim 8, Swing Type P-T Rating : ASME B16.34	Trim 5, Swing Type P-T Rating : ASME B16.34

WCB = Carbon Steel ASTM A216 Gr.WCB, F6a = Stainless Steel ASTM A182 Gr.F6a
13Cr = 13% Chromium, HF = Hardfaced

All materials for reference

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TYPE	BALL VALVES										
MATERIAL CARBON STEEL											
FIGURE	150SCTDZ	GL-150SCTDZ	150SCTDZ-FS	150SCTDZM	G-150SCTDZM	150SCTDZM-FS	GL-150SCTDZM-FS	300SCTDZ	GL-300SCTDZ	300SCTDZ-FS	GL-300SCTDZ-FS
PRESSURE	CLASS 150	CLASS 150	CLASS 150	CLASS 150	CLASS 150	CLASS 150	CLASS 150	CLASS 300	CLASS 300	CLASS 300	CLASS 300
END CONNECTION	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5
SIZE	1/2" - 8"	6" - 8"	1/2" - 8"	1/2" - 8"	8"	1/2" - 8"	6" - 8"	1/2" - 8"	6" - 8"	1/2" - 8"	6" - 8"
BODY / CAP	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB
STEM	TP304	TP304	TP304	TP316	TP316	TP316	TP316	TP304	TP304	TP304	TP304
BALL	TP304	TP304	TP304	TP316	TP316	TP316	TP316	TP304	TP304	TP304	TP304
BALL SEAT	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE
DETAILS	P-T Rating : ASME B16.34	Gear Operate P-T Rating : ASME B16.34	Fire-Safe P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	Gear Operate P-T Rating : ASME B16.34	Fire-Safe P-T Rating : ASME B16.34	Gear Operate, Fire-Safe P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	Gear Operate P-T Rating : ASME B16.34	Fire-Safe P-T Rating : ASME B16.34	Gear Operate Fire-Safe P-T Rating : ASME B16.34

WCB = Carbon Steel ASTM A216 Gr.WCB, F6a = Stainless Steel ASTM A182 Gr.F6a

TP304 = Stainless Steel ASTM A276 TP304 , TP316 = Stainless Steel ASTM A276 TP316

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TYPE	BALL VALVES							TRUNNION BALL VALVES			
MATERIAL CARBON STEEL											
FIGURE	300SCTDZM	GL-300SCTDZM	300SCTDZM-FS	GL-300SCTDZM-FS	600SCTK	800SCTK/ AK800SCTK	3000SCTK	150SF3TCS	G-150SF3TCS	300SF3TCS	G-300SF3TCS
PRESSURE	CLASS 300	CLASS 300	CLASS 300	CLASS 300	CLASS 600	CLASS 800	CLASS 3000	CLASS 150	CLASS 150	CLASS 300	CLASS 300
END CONNECTION	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	BS21	BS21 / NPT	BS21	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5
SIZE	1/2" - 8"	6" - 8"	1/2" - 8"	6" - 8"	1/4" - 2"	1/4" - 2"	1/4" - 2"	2" - 6"	8" - 12"	2" - 4"	6" - 10"
BODY / CAP	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A216 Gr. WCB	A105	A105	A105	A105	A105	A105
STEM	TP316	TP316	TP316	TP316	TP316 or TP304 for NPS 1/2 and larger	TP316	SUS 329J1	TP316	TP316	TP316	TP316
BALL	TP316	TP316	TP316	TP316	TP316 or TP304 for NPS 1/2 and larger	TP316	TP316	TP316	TP316	TP316	TP316
BALL SEAT	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	G/F PTFE	PTFE	Polychloro- Trifluoro- Ethylene	PTFE +15% Glassfilled+5% MoS2	PTFE +15% Glassfilled+5% MoS2	PTFE +15% Glassfilled+5% MoS2	PTFE +15% Glassfilled+5% MoS2
DETAILS	P-T Rating : ASME B16.34	Gear Operate P-T Rating : ASME B16.34	Fire-Safe P-T Rating : ASME B16.34	Gear Operate, Fire- Safe P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	P-T Rating : ASME B16.34	NACE MR-0175 API6D, Fire-Safe P-T Rating : ASME B16.34	Gear Operate NACE MR-0175 API6D, Fire-Safe P-T Rating : ASME B16.34	NACE MR-0175 API6D, Fire-Safe P-T Rating : ASME B16.34	Gear Operate NACE MR-0175 API6D, Fire-Safe P-T Rating : ASME B16.34

WCB = Carbon Steel ASTM A216 Gr.WCB, F6a = Stainless Steel ASTM A182 Gr.F6a

TP304 = Stainless Steel ASTM A276 TP304 , TP316 = Stainless Steel ASTM A276 TP316, SUS329J1 = JIS G4303 Gr. SUS329J1

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TYPE	TRUNNION BALL VALVES				GATE VALVES				CHECK VALVES		
MATERIAL CARBON STEEL											
FIGURE	150SF3TCSBL	G-150SF3TCSBL	300SF3TCSBL	G-300SF3TCSBL	150SCLSLCLMMY	G-150SCLSLCLMMY	300SCLSLCLMMY	G-300SCLSLCLMMY	300SCOSMM		
PRESSURE	CLASS 150	CLASS 150	CLASS 300	CLASS 300	CLASS 150	CLASS 150	CLASS 300	CLASS 300	CLASS 300		
END CONNECTION	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5		
SIZE	2" - 6"	8" - 12"	2" - 4"	6" - 10"	2" - 12"	14" - 18"	2" - 12"	14" - 18"	1 1/2" - 10"		
BODY / CAP	A352 Gr. LF2	A352 Gr. LF2	A352 Gr. LF2	A352 Gr. LF2	A352 Gr. LCC	A352 Gr. LCC	A352 Gr. LCC	A352 Gr. LCC	A216 Gr. WCB		
STEM	TP316	TP316	TP316	TP316	TP316	TP316	TP316	TP316	-		
DISC	-	-	-	-	TP316 + HF	TP316 + HF	TP316 + HF	TP316 + HF	Carbon Steel +		
SEAT	PTFE +15% Glassfilled+5% MoS2	PTFE +15% Glassfilled+5% MoS2	PTFE +15% Glassfilled+5% MoS2	PTFE +15% Glassfilled+5% MoS2	TP316 + HF	TP316 + HF	TP316 + HF	TP316 + HF	Carbon Steel + HF		
BALL	TP316	TP316	TP316	TP316	-	-	-	-	-		
DETAILS	NACE MR-0175, API6D, Fire-Safe P-T Rating : ASME B16.34 With Injection	Gear Operate NACE MR-0175, API6D, Fire-Safe P-T Rating : ASME B16.34 With Injection	NACE MR-0175, API6D, Fire-Safe P-T Rating : ASME B16.34 With Injection	Gear Operate NACE MR-0175, API6D, Fire-Safe P-T Rating : ASME B16.34 With Injection	NACE ME0175 Low Temperature P-T Rating : ASME B16.34	Gear Operate NACE ME0175 Low Temperature P-T Rating : ASME B16.34	NACE ME0175 Low Temperature P-T Rating : ASME B16.34	Gear Operate NACE ME0175 Low Temperature P-T Rating : ASME B16.34	NACE MR-0103 P-T Rating : ASME B16.34		

A352 Gr. LF2 = Carbon Steel ASTM A352 Gr. LF2 , A352 Gr. LCC = Carbon Steel ASTM A352 Gr. LCC

TP304 = Stainless Steel ASTM A276 TP304 , TP316 = Stainless Steel ASTM A276 TP316

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TYPE	GATE VALVES										
MATERIAL											
STAINLESS STEEL											
FIGURE	10UEL	10UELM	10UEB(T)	10UEBM	10UMA(T)	150UMA(T)	20UMA(T)	300UMA(T)	10UMAM(T)	150UMAM(T)	20UMAM
PRESSURE	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	CLASS 150	JIS 20K	CLASS 300	JIS 10K	CLASS 150	JIS 20K
END CONNECTION	BS21	BS21	JIS B2220	JIS B2220	JIS B2220	ASME B16.5	JIS B2220	ASME B16.5	JIS B2220	ASME B16.5	JIS B2220
SIZE	1/2" - 2"	1/2" - 2"	1/2" - 3"	1" - 3"	1/2" - 12"	1/2" - 12"	12" - 18"	1/2" - 8"	1/2" - 12"	1/2" - 12"	1/2" - 8"
BODY	SCS13A	SCS14A	SCS13A	SCS14A	CF8	CF8	CF8	CF8	SCS14A	CF8M	SCS14A
BONNET	SCS13A	SCS14A	SCS13A	SCS14A	CF8	CF8	CF8	CF8	SCS14A	CF8M	SCS14A
STEM	SUS304	SUS316	SUS304	SUS316	SUS304	TP304	SUS304	TP304	SUS316	TP316	SUS316
DISC	SCS13A	SCS14A	SCS13A	SCS14A	CF8	CF8	CF8	CF8	SCS14A	CF8M	SCS14A
DETAILS	P-T Rating : 145 psi 180°C	P-T Rating : 145 psi 180°C	P-T Rating : 145 psi 180°C	P-T Rating : 145 psi 180°C	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : JIS B2220

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

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TYPE	GATE VALVES					GLOBE VALVES					
MATERIAL											
STAINLESS STEEL											
FIGURE	300UMAM(T)	150UMAY	300UMAY	150UMAMY	300UMAMY	10UCL	10UCB(T)	10UPA(T)	150UPA(T)	20UPA(T)	300UPA(T)
PRESSURE	CLASS 300	CLASS 150	CLASS 300	CLASS 150	CLASS 300	JIS 10K	JIS 10K	JIS 10K	CLASS 150	JIS 20K	CLASS 300
END CONNECTION	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	ASME B16.5	BS21	JIS B2220	JIS B2220	ASME B16.5	JIS B2220	ASME B16.5
SIZE	1/2" - 14"	1/2" - 12"	1/2" - 12"	1/2" - 12"	1/2" - 12"	1/4" - 2"	3/8" - 2"	1/2" - 10"	1/2" - 8"	1/2" - 10"	1/2" - 10"
BODY	CF8M	CF8 + HF	CF8 + HF	CF8M + HF	CF8M + HF	SCS13A	SCS13A	CF8	CF8	CF8	CF8
BONNET	CF8M	CF8	CF8	CF8M	CF8M	SCS13A	SCS13A	CF8	CF8	CF8	CF8
STEM	TP316	TP304	TP304	TP316	TP316	SUS304	SUS304	SUS304	TP304	SUS304	TP304
DISC	CF8M	CF8 + HF	CF8 + HF	CF8M + HF	CF8M + HF	SUS304	SUS304	CF8	TP304	CF8	TP304
DETAILS	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Screwed bonnet, Inside Screwed P-T Rating : 145 psi 180°C	Screwed bonnet, Inside Screwed P-T Rating : 145 psi 180°C	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

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TYPE	GLOBE VALVES				CHECK VALVES						
MATERIAL STAINLESS STEEL											
FIGURE	10UPAM(T)	150UPAM(T)	20UPAM(T)	300UPAM(T)	10UO	10UOM	10UN	10UNA(T)	150UNA(T)	20UNA(T)	300UNA(T)
PRESSURE	JIS 10K	CLASS 150	JIS 20K	CLASS 300	JIS 10K	JIS 10K	JIS 10K	JIS 10K	CLASS 150	JIS 20K	CLASS 300
END CONNECTION	JIS B2220	ASME B16.5	JIS B2220	ASME B16.5	BS21	BS21	BS21	JIS B2220	ASME B16	JIS B2220	ASME B16.5
SIZE	1/2" - 8"	1/2" - 8"	1/2" - 8"	1/2" - 8"	1/2" - 3"	1/2" - 3"	3/8" - 2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 1 1/2"
BODY	SCS14A	CF8M	SCS14A	CF8M	SCS13A	SCS14A	SCS13A	CF8	CF8	CF8	CF8
BONNET / CAP	SCS14A	CF8M	SCS14A	CF8M	SCS13A	SCS14A	SCS13A	CF8	CF8	CF8	CF8
STEM	SUS316	TP316	SUS316	TP316	-	-	-	-	-	-	-
DISC	SUS316	CF8M	SUS316	CF8M	SCS13A	SCS14A	SCS13A	CF8	TP304	CF8	TP304
DETAILS	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Bolted bonnet, OS&Y P-T Rating : JIS B2220	Bolted bonnet, OS&Y P-T Rating : ASME 16.34	Swing Type P-T Rating : 145 psi 180°C	Swing Type P-T Rating : 145 psi 180°C	Lift Type P-T Rating : 145 psi 180°C	Lift Type P-T Rating : JIS B2220	Lift Type P-T Rating : ASME 16.34	Lift Type P-T Rating : JIS B2220	Lift Type P-T Rating : ASME 16.34

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

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TYPE	CHECK VALVES										
MATERIAL STAINLESS STEEL											
FIGURE	10UNAM(T)	150UNAM(T)	20UNAM(T)	300UNAM(T)	10UOB	10UOBM	10UOA(T)	150UOA(T)	20UOA(T)	300UOA(T)	10UOAM(T)
PRESSURE	JIS 10K	CLASS 150	JIS 20K	CLASS 300	JIS 10K	JIS 10K	JIS 10K	CLASS 150	JIS 20K	CLASS 300	JIS 10K
END CONNECTION	JIS B2220	ASME B16.5	JIS B2220	ASME B16.5	JIS B2220	JIS B2220	JIS B2220	ASME B16.5	JIS B2220	ASME B16.5	JIS B2220
SIZE	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 3	1/2" - 3	1 1/2" - 14"	1 1/2" - 14"	1 1/2" - 14"	1 1/2" - 14"	1 1/2" - 14"
BODY	SCS14A	CF8M	SCS14A	CF8M	SCS13A	SCS14A	CF8	CF8	CF8	CF8	SCS14A
CAP	SCS14A	CF8M	SCS14A	CF8M	SUS304	SUS316	CF8	CF8	CF8	CF8	SCS14A
DISC	SUS316	CF8M	SUS316	CF8M	SCS13A	SCS14A	CF8	CF8	CF8	CF8	SCS14A
DETAILS	Lift Type P-T Rating : JIS B2220	Lift Type P-T Rating : ASME 16.34	Lift Type P-T Rating : JIS B2220	Lift Type P-T Rating : ASME 16.34	Swing Type P-T Rating : 145 psi 180°C	Swing Type P-T Rating : 145 psi 180°C	Swing Type P-T Rating : JIS B2220	Swing Type P-T Rating : ASME 16.34	Swing Type P-T Rating : JIS B2220	Swing Type P-T Rating : ASME 16.34	Swing Type P-T Rating : JIS B2220

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

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TYPE	CHECK VALVES			BALL VALVES		STRAINER					
MATERIAL											
STAINLESS STEEL											
FIGURE	150UOAM(T)	20UOAM(T)	300UOAM(T)	UTKM/AKUTKM	UTHM/AKUTHM	20UY	20UYM	10UYB	10UYBM	10UYA/150UYA	10UYAM/150UYAM
PRESSURE	CLASS 150	JIS 20K	CLASS 300	CLASS 600	CLASS 800	JIS 20K	JIS 20K	JIS 10K	JIS 10K	JIS 10K / CLASS150	JIS 10K / CLASS150
END CONNECTION	ASME B16.5	JIS B2220	ASME B16.5	BS21/NPT	BS21/NPT	BS21	BS21	BS21	BS21	JIS B2220/ASME B16.5	JIS B2220/ASME B16.5
SIZE	1 1/2" - 14"	1 1/2" - 14"	1 1/2" - 14"	1/4" - 2"	1/2" - 2"	1/4" - 3"	1/4" - 3"	3/8" - 2"	3/8" - 2"	2 1/2" - 12"	2 1/2" - 12"
BODY	CF8M	SCS14A	CF8M	CF8M	CF8M	SCS13A	SCS14A	SCS13A	SCS14A	SCS13A / CF8	SCS14A / CF8M
BONNET / CAP	CF8M	SCS14A	CF8M	-	CF8M	SCS13A	SCS14A	SCS13A	SCS14A	SUS304 / TP304	SUS316 / TP316
DISC / BALL	CF8M	SCS14A	CF8M	CF8M / SUS316	SUS316	-	-	-	-	-	-
SEAT	-	-	-	Glass Filled PTFE	PTFE	-	-	-	-	-	-
SCREEN	-	-	-	-	-	SUS304	SCS14A	SUS304	SCS14A	SUS304 / TP304	SUS316 / TP316
DETAILS	Swing Type P-T Rating : ASME 16.34	Swing Type P-T Rating : JIS B2220	Swing Type P-T Rating : ASME 16.34	Reduced Bore, Uni-body Design SUS316 Blowout-proof Stem Working Pressure (Room Temp.) 600 psi	Reduced Bore, Split body Design SUS316 Blowout-proof Stem Working Pressure (Room Temp.) 800 psi	P-T Rating : JIS B2220	P-T Rating : JIS B2220	P-T Rating : JIS B2220	P-T Rating : JIS B2220	P-T Rating : JIS B2220 or ASME B16.34	P-T Rating : JIS B2220 or ASME B16.34

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

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TYPE	BALL VALVES										
MATERIAL											
STAINLESS STEEL											
FIGURE	10UTB	10UTDZ	G-10UTB	150UTB	150UTDZ	G-150UTDZ	10UTBM	10UTDZM	150UTBM	150UTDZM	G-150UTDZM
PRESSURE	JIS 10K	JIS 10K	JIS 10K	CLASS 150	CLASS 150	CLASS 150	JIS 10K	JIS 10K	CLASS 150	CLASS 150	CLASS 150
END CONNECTION	JIS B2220	JIS B2220	JIS B2220	ASME B16.5	ASME B16.5	ASME B16.5	JIS B2220	JIS B2220	ASME B16.5	ASME B16.5	ASME B16.5
SIZE	1/2" - 4"	5" - 8"	10"	1/2" - 4"	1/2" - 8"	6" - 10"	1/2" - 4"	5" - 8"	1/2" - 4"	1/2" - 8"	6" - 8"
BODY / CAP	SCS13A	SCS13A	SCS13A	CF8	CF8	CF8	SCS14A	SCS14A	CF8M	CF8M	CF8M
STEM	SUS304	SUS304	SUS304	TP304	TP304	TP304	SUS316	SUS316	TP316	TP316	TP316
BALL	SUS304 / SCS13A	SUS304 / SCS13A	SUS304 / SCS13A	TP304 / CF8	TP304 / CF8	TP304 / CF8	SUS316 / SCS14A	SUS316 / SCS14A	TP316 / CF8M	TP316 / CF8M	TP316 / CF8M
BALL SEAT	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE
GLAND PACKING	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
DETAILS	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 200 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 200 psi	Full Bore, Split Body, Blowout-proof Stem Gear Operated Working Pressure (Room Temp.) 200 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem Gear Operated Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 200 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 200 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem Gear Operated Working Pressure (Room Temp.) 275 psi

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

All materials for reference

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TYPE	BALL VALVES										
MATERIAL											
STAINLESS STEEL											
FIGURE	150UTDZM-FS	G-150UTDZM-FS	20UTB/20UTDZ	20UTBM	20UTDZM	300UTDZ	300UTDZM	300UTDZM-FS	10UT	10UTM	U3TZM
PRESSURE	CLASS 150	CLASS 150	JIS 20K	JIS 20K	JIS 20K	CLASS 300	CLASS 300	CLASS 300	JIS 10K	JIS 10K	1000P
END CONNECTION	ASME B16.5	ASME B16.5	JIS B2220	JIS B2220	JIS B2220	ASME B16.5	ASME B16.5	ASME B16.5	BS21	BS21	BS21
SIZE	1/2" - 8"	8" - 10"	1/2" - 8"	1/2" - 8"	1/2" - 8"	1/2" - 8"	1/2" - 8"	1/2" - 8"	3/8" - 3"	3/8" - 3"	1/2" - 2"
BODY / CAP	CF8M	CF8M	SCS13A	SCS14A	SCS14A	CF8	CF8M	CF8M	SCS13A	SCS14A	CF8M
STEM	TP316	TP316	SUS304	SUS316	SUS316	TP304	TP316	TP316	SUS304	SUS316	TP316
BALL	TP316 / CF8M	TP316 / CF8M	SUS304 / SCS13A	SUS316 / SCS14A	SUS316 / SCS14A	TP304 / CF8	TP316 / CF8M	TP316 / CF8M	SUS304 / SCS13A	SUS316 / SCS14A	TP316 / CF8M
BALL SEAT	Flexible Graphite	Flexible Graphite	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Hypatite PTFE	Flexible Graphite	PTFE	PTFE	Hypatite PTFE
GLAND PACKING	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
DETAILS	Full Bore, Split Body, Blowout-proof Stem, Fire Safe API 607 Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem, Fire Safe API 607 Gear Operated Working Pressure (Room Temp.) 275 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 490 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 490 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 490 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 720 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 720 psi	Full Bore, Split Body, Blowout-proof Stem, Fire Safe API 607 Working Pressure (Room Temp.) 720 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 200 psi	Full Bore, Split Body, Blowout-proof Stem Working Pressure (Room Temp.) 200 psi	Full Bore, 3 piece body, Blowout-proof Stem Working Pressure (Room Temp.) 1000 psi

CF8 = Stainless Steel ASTM A351 Gr.CF8, CF8M = Stainless Steel ASTM A351 Gr.CF8M

SCS13A = Stainless Steel JIS SCS13A, SCS14A = Stainless Steel JIS SCS14A

All materials for reference

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TYPE	BUTTERFLY VALVES									
	ALUMINUM		DUCTILE IRON							
MATERIAL										
FIGURE	10XJMEA	G-10XJMEA	PN16DJ/E 10DJ/E	G-10DJ/E	(PHA)G-PN16DJ/E	G-PN16DJ/E	PN16DJU/E 10DJU/E	G-10DJU/E	(PHA)G-PN16DJU/E	G-PN16DJU/E
PRESSURE	JIS 10K	JIS 10K	EN PN16 / JIS 10K	JIS 10K	EN PN16	EN PN16	EN PN16 / JIS 10K	JIS 10K	EN PN16	EN PN16
END CONNECTION	JIS B2220/2239	JIS B2220/2239	EN 1092	JIS 10K	EN 1092	EN 1092	EN 1092 / JIS 10K	JIS 10K	EN 1092	EN 1092
SIZE	1 1/2" - 8"	1 1/2" - 12"	2" - 8"	2" - 24"	10" - 24"	2" - 24"	2" - 8"	2" - 24"	10" - 24"	2" - 24"
BODY	Aluminum	Aluminum	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
STEM	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
DISC	CF8M	CF8M	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	CF8	CF8	CF8	CF8
SEAT	EPDM	EPDM	NBR / EPDM	NBR / EPDM	NBR / EPDM	NBR / EPDM	NBR / EPDM	NBR / EPDM	NBR / EPDM	NBR / EPDM
DETAILS	Wafer Type, Lever Operated Max Service Pressure : 145 psi Temperature : -20°C to 120°C *Fluid is not frozen*	Wafer Type, Gear Operated Max Service Pressure : 145 psi Temperature : -20°C to 120°C *Fluid is not frozen*	Wafer Type, Lever Operated Max Service Pressure (PN16) : 230 psi Pressure (10K) : 145 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Gear Operated Max Service Pressure : 145 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Gear Operated Max Service Pressure : 230 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Gear Operated Max Service Pressure : 230 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Lever Operated Max Service Pressure (PN16) : 230 psi Pressure (10K) : 145 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Gear Operated Max Service Pressure : 145 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Gear Operated Max Service Pressure : 230 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C	Wafer Type, Gear Operated Max Service Pressure : 230 psi Temperature NBR : 0°C to 70°C EPDM : -20°C to 130°C

TYPE	BUTTERFLY VALVES					
	STAINLESS STEEL					
MATERIAL						
FIGURE	10UB / 150UB	G-10UB	G-150UB	10UBM / 150UBM	G-10UBM	G-150UBM
PRESSURE	JIS 10K / CLASS 150	JIS 10K	CLASS 150	JIS 10K / CLASS 150	JIS 10K	CLASS 150
END CONNECTION	JIS 10K / ASME B16.5	JIS 10K	ASME B16.5	JIS 10K / ASME B16.5	JIS 10K	ASME B16.5
SIZE	2" - 6"	2" - 24"	2" - 24"	2" - 6"	2" - 24"	2" - 24"
BODY	CF8	CF8	CF8	CF8M	CF8M	CF8M
STEM	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
DISC	CF8	CF8	CF8	CF8M	CF8M	CF8M
SEAT	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
DETAILS	Wafer Type, Lever Operated Max Service Pressure (10K) : 200 psi Pressure (150P) : 275 psi Temperature : -29°C to 160°C	Wafer Type, Gear Operated Max Service Pressure : 200 psi Temperature : -29°C to 160°C	Wafer Type, Gear Operated Max Service Pressure : 275psi Temperature : -29°C to 160°C	Wafer Type, Lever Operated Max Service Pressure (10K) : 200 psi Pressure (150P) : 275 psi Temperature : -29°C to 160°C	Wafer Type, Gear Operated Max Service Pressure : 200 psi Temperature : -29°C to 160°C	Wafer Type, Gear Operated Max Service Pressure : 275psi Temperature : -29°C to 160°C

Corrosion Resistance Level			
Fluid	Seat Material		
	NBR	EPDM	PTFE
Sulfurous acid	△	△	⊙
Ammonia (anhydrous liquid)	△	○	⊙
Ammonia (solution)	○	○	⊙
Ethen	⊙	⊗	⊙
Ethyl alcohol	○	⊙	⊙
Hydrochloric acid	△	○	⊙
Sea water	⊙	⊙	⊙
Gasoline (refined/unieaded)	△	⊗	⊙
Air	⊙	⊙	⊙
Mineral oil	⊙	⊗	⊙
Heavy oil (A,B,C)	⊗	⊗	⊙
Acetic acid (10%)	⊗	○	⊙
Oxgen (cold)	○	○	⊙
Lubricating oil (petroleum base)	⊙	⊗	⊙
Vegitable oil	⊙	△	⊙
Steam (100°C)	⊗	○	⊙
Hydrogen gas (cold)	○	○	⊙
Petroleum oil (Refined)	○	⊗	⊙
Soybean oil	⊙	△	⊙
Carbonic acid	○	○	⊙
Calcium carbonate	⊙	⊙	⊙
Natural gas	○	⊗	⊙
Animal fat	⊙	⊗	⊙
Propane gas	⊙	⊗	⊙
Water (fresh <= 40°C)	○	⊙	⊙
Water (hot <= 40-100°C)	⊗	○	⊙
Methyl alcohol	○	⊙	⊙
Sulfuric acid (7%)	○	○	⊙
Sulfuric acid (>=50%)	⊗	○	⊙
Ammonium sulfate	⊙	⊙	⊙

⊙ = Excellent ○ = Good △ = Less recommended ⊗ = Not recommended

⊙ = Excellent ○ = Good △ = Less recommended ⊗ = Not recommended

TYPE	PNEUMATIC ACTUATORS COMPACT BALL VALVES						ELECTRIC ACTUATORS COMPACT BALL VALVES				
COMPACT BALL VALVES											
FIGURE	C-TE	CS/FBS-TE	C-TNE	CS/FBS-TNE	C-UTE	CS/FBS-UTE	EA100/200-TE	EA100/200-TNE	EA100/200-UTE	ED24-TE	ED24-UTE
BALL VALVE DETAILS											
PRESSURE	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K	JIS 10K
END CONNECTION	BS21	BS21	BS21	BS21	BS21	BS21	BS21	BS21	BS21	BS21	BS21
SIZE	3/8" - 2"	3/8" - 2"	1/4" - 2"	1/4" - 2"	1/4" - 2"	1/4" - 2"	3/8" - 2"	1/4" - 2"	1/4" - 2"	3/8" - 2"	1/4" - 2"
BODY	Bronze	Bronze	Bronze	Bronze	Stainless Steel	Stainless Steel	Bronze	Bronze	Stainless Steel	Bronze	Stainless Steel
BALL	Brass	Brass	Brass	Brass	Stainless Steel	Stainless Steel	Brass	Brass	Stainless Steel	Brass	Stainless Steel
BALL SEAT	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
BORE (PORT)	Reduce Bore	Reduce Bore	Horizontal 3 way	Horizontal 3 way	Reduce Bore	Reduce Bore	Reduce Bore	Horizontal 3 way	Reduce Bore	Reduce Bore	Reduce Bore
ACTUATORS DETAILS											
FUNCTION	Double Action	Spring-Return	Double Action	Spring-Return	Double Action	Spring-Return	AC (Basic Version)		DC (Basic Version)		
OPERATION MEDIA	Instrumentation Air						Power source 100V / 200V AC (50Hz / 60Hz)		Power source 24V DC		
ROTATION	90° Bi - Directional										
TEMPERATURE RANGE	-20°C ~ 60°C (FBS Type -20°C ~ 80°C)						-20°C ~ 50°C				
AMBIENT CONDITION	Indoor						All weather type (for outdoor use, avoid sunlight)				

TYPE	PNEUMATIC ACTUATORS B SERIES			COMPATIBLE VALVES
PNEUMATIC ACTUATORS				
FIGURE	B	BS	BSW	
OPERATING TYPE	Double Action for Butterfly and Ball Valve	Spring Return for Butterfly and Ball Valve	Spring Return with Manual for Butterfly and Ball Valve	
OPERATING MEDIA	Compressed instrument air			
STANDARD OPERATING PRESSURE	0.4 Mpa (60 psi) : Factory preset pressure			
PRESSURE SUPPLY RANGE	0.4 Mpa (60 psi) to 0.7 Mpa (100 psi)			
STANDARD DURABILITY	100,000 cycles under moderate service conditions			
HOUSING TEST PRESSURE	0.97 Mpa (9.9 kgf/cm2 or 140 psi)			
DRIVE SHAFT ROTATION	100°C (when the stopper is fully relaxed)			
ROTATION ADJUSTMENT RANGE	5°C at each end			
SERVICE TEMPERATURE RANGE	-20°C to + 60°C (-4°F to 140°F)			
OPTIONAL ACCESSORIES	- Limit Switch - Solenoid Valve			
	- Air Filter-Regulator - Speed Controller			
	- Quick Exhaust Valve - Valve Positioner			
	- Silencer - Air Filter			
	- Lubricator - Pressure Equalizing Valve			
BALL VALVES				
- 10FCTB				
- 125FCTB				
- 10STBF				
- 150SCTDZ				
- 150SCTDZM				
- 10UTB				
- 10UTBM				
- 150UTB				
- 150UTBM				
- 10UTDZ				
- 10UTDZM				
- 150UTDZ				
- 150UTDZM				
BUTTERFLY VALVES				
- 10DJ/E				
- 10DJU/E				
- PN16DJ/E				
- PN16DJU/E				

TYPE	PNEUMATIC ACTUATORS F SERIES	
PNEUMATIC ACTUATORS		
FIGURE	FA	FAS
OPERATING TYPE	Double Action for Butterfly and Ball Valve	Spring Return for Butterfly and Ball Valve
OPERATING MEDIA	Compressed instrument air or nitrogen gas	
OPERATING PRESSURE	Standard operating pressure 0.4 Mpa	
OPERATING PRESSURE RANGE	0.3 Mpa to 0.7 Mpa*	
CYLINDER TEST PRESSURE	0.97 Mpa	
SHAFT ROTATING ANGLE	90° ±7°	
SERVICE TEMPERATURE	-20°C to + 80°C (Supplied air should not be frozen)	
OPENING DEGREE INDICATION	Indicator has 15 Degree graduation	
VALVE MOUNTING FLANGE	ISO 5211	
ACCESSORY MOUNTING CONNECTION	NAMUR VDI/VDE 3845	
COATING	Baked Polyester Resin Coating	
FLUID TYPE	- Ball Valve : Fresh water or lubricant, Max. 1.0 Mpa, Air gas or steam, Max. 0.7 Mpa	
	- Butterfly Valve : Valve : Smooth Fluid, Fresh water or lubricant, Max. 1,000 cp	

Prefer to page ??

**COMPATIBLE VALVES
BALL VALVES**

- 10FCTB
- 125FCTB
- 10STBF
- 150SCTDZ
- 150SCTDZM
- 10UTB
- 10UTBM
- 150UTB
- 150UTBM
- 10UTDZ
- 10UTDZM
- 150UTDZ
- 150UTDZM

BUTTERFLY VALVES

- 10XJMEA
- 10DJ/E
- 10DJU/E
- PN16DJ/E
- PN16DJU/E

*Be consulted by KITZ for non-standard operating pressure

All materials for reference.

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TYPE	ELECTRIC ACTUATORS EX SERIES	
ELECTRIC ACTUATORS		
	EXS	EXH
FIGURE	EXS	EXH
OPERATING TYPE	Standard Speed Type for Butterfly and Ball Valve	High Speed Type for Ball Valve
POWER SUPPLY	100/200V AC ±10% 50/60Hz	
ROTATING DIRECTION	Tuning clockwise to close and counterclockwise to open valves	
POSITION LIMIT SWITCH	Two switches with voltage and two without voltage supplied	
SWITCH CONTACT VOLTAGE	250V AC 11A least resistance load	
INSULATION CLASS	JIS Class E, Strength : 1500V AC 1 min. or 1800V 1 Sec., Resistance : 100 minimum at 500V DC	
OVERLOAD PROTECTION	Thermal Protection	
SERVICE ENVIRONMENT	Indoor / Outdoor (Submergence and direct sunlight must be avoided)	
WATER, DUST PROOF	Equivalent to IP-67	
AMBLENT TEMPERATURE	-10°C ~ +50°C	
CONDUIT PORT	Two G1/2	One G1/2
MOUNTING POSITION	From Vertical position to Horizontal position (No downward position)	
MANUAL OPERATION	Pull up the manual override handle knob for manual operation, which will activate the built-in interlock switch to cut off power supply. For the restoration of electrical operation, push down the handle knob	
POSITION INDICATOR	Position Indicator, covered by transparent cover, is equipped on the top of the actuator cover	
MOUNTING FLANGE	In accordance with ISO5211	
COMPATIBLE VALVES		
BALL VALVES		
- 10FCTB		
- 125FCTB		
- 10STBF		
- 150SCTDZ		
- 150SCTDZM		
- 10UTB		
- 10UTBM		
- 150UTB		
- 150UTBM		
- 10UTDZ		
- 10UTDZM		
- 150UTDZ		
- 150UTDZM		
BUTTERFLY VALVES		
- 10XJMEA		
- 10DJ/E		
- 10DJU/E		
- PN16DJ/E		
- PN16DJU/E		

TYPE	GATE VALVES											
MATERIAL FORGED STEEL												
TRIM	No. 8	No. 8	No. 8	No. 8	No. 5	No. 5	No. 5	No. 5	304	304	316	316
PRESSURE	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 800	CLASS 800
END CONNECTION	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	Socket Weld	NPT
SIZE	1/4" - 2"	1/4" - 2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/4" - 2"	1/4" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"
BODY	A105	A105	A105	A105	A105	A105	A105	A105	A350-LF2	A350-LF2	A350-LF2	A350-LF2
BONNET	A105	A105	A105	A105	A105	A105	A105	A105	A350-LF2	A350-LF2	A350-LF2	A350-LF2
STEM	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 304	A276 304	A276 316	A276 316
DISC	A276 420	A276 420	A276 420	A276 420	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 304 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	A276 316 Stellite Weld
BODY SEAT	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 410 Stellite Weld	A276 304 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	A276 316 Stellite Weld
DETAILS	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602

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TYPE	GLOBE VALVES										CHECK VALVES	
MATERIAL FORGED STEEL												
TRIM	No. 8	No. 8	No. 8	No. 8	No. 5	No. 5	No. 5	No. 5	304	316	No. 8	No. 8
PRESSURE	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 800	CLASS 800
END CONNECTION	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	Socket Weld	Socket Weld	NPT
SIZE	3/8" - 2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" and 2"	1/2" and 2"	1/2" - 2"	1/2" - 1 1/2"
BODY	A105	A105	A105	A105	A105	A105	A105	A105	A350-LF2	A350-LF2	A105	A105
BONNET	A105	A105	A105	A105	A105	A105	A105	A105	A350-LF2	A350-LF2	A105	A105
STEM	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 304	A276 316	-	-
DISC	A276 420	A276 420	A276 420	A276 420	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	A276 420	A276 420
BODY SEAT	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld
DETAILS	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Lift Type API 602	Lift Type API 602

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TYPE	CHECK VALVES								Service Temp. And Material			
MATERIAL									Main Chemical Composition	Material		Service Range
FORGED STEEL										ASTM	JIS	
									C-Si C-Si C-Mn-Si 3.5Ni	A 105	SFVC2A	0~450°C
										-	SF490A	-10~450°C
									C-0.5Mo	A350 LF2	SFL2	-45~350°C
									1.25Cr-0.5Mo-Si	A350 LF3	SFL3	-100~200°C
									2.25Cr-1Mo	A182 F1	SFVAF1	0~475°C
									5Cr-0.5Mo	A182 F11	SFVAF11A	0~575°C
TRIM	No. 8	No. 8	No. 5	No. 5	No. 5	No. 5	304	316	5Cr-0.5Mo	A182 F22	SFVAF22B	0~600°C
PRESSURE	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	9Cr-1Mo	A182 F5a	SFVAF5D	0~649°C
END CONNECTION	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	Socket Weld	18Cr-8Ni	A182 F5	SFVAF5B	0~649°C
									18Cr-8Ni	A182 F9	SFVAF9	0~649°C
SIZE	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 2"	1/2" - 2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" and 2"	1/2" and 2"	16Cr-12Ni-2Mo	A182 F304	SUS F304	-253~800°C *
BODY	A105	A105	A105	A105	A105	A105	A350-LF2	A350-LF2	16Cr-12Ni-2Mo	A182 F304H	SUS F304H	-30~800°C
BONNET	A105	A105	A105	A105	A105	A105	A350-LF2	A350-LF2	18Cr-12Ni	A182 F316	SUS F316	-253~800°C *
									16Cr-12Ni-2Mo	A182 F316H	SUS F316H	-30~800°C
DISC	A276 420	A276 420	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 420 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	18Cr-10Ni-Ti	A182 F304L	SUS F304L	-269~425°C
BODY SEAT	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A105 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	18Cr-10Ni-Ti	A182 F316L	SUS F316L	-269~425°C
									18Cr-10Ni-Nb	A182 F321	SUS F321	-196~538°C
DETAILS	Lift Type API 602	Lift Type API 602	Lift Type API 602	Lift Type API 602	Lift Type API 602	Lift Type API 602	Lift Type API 602	Lift Type API 602	18Cr-10Ni-Nb	A182 F321H	SUS F321H	--30~800°C
										A182 F347	SUS F347	-196~538°C
										A182 F347H	SUS F347H	-30~800°C
									* Carbon contents shall be 0.04% min, when service temperature is 538°C or over.			

* Carbon contents shall be 0.04% min, when service temperature is 538°C or over.

All materials for reference.

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TYPE	GATE VALVES									CHECK VALVES	
MATERIAL FORGED STEEL											
TRIM	No. 8	No. 8	No. 8	No. 8	No. 5	No. 5	No. 5	No. 5	316	No. 5	No. 5
PRESSURE	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 800
END CONNECTION	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	Socket Weld	NPT
SIZE	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 1 1/2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 3/4"	1/2" - 1"	1/2" - 1"
BODY	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N
BONNET	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N
STEM	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 316	A276 410	A276 410
DISC	A182 F6	A182 F6	A182 F6	A182 F6	A182 F6 Stellite Gr.6	A182 F6 Stellite Gr.6	A182 F6 Stellite Gr.6	A182 F6 Stellite Gr.6	A182 F316 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6
BODY SEAT	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 316 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6
DETAILS	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Piston Type, Bolt Bonnet API 602	Piston Type, Bolt Bonnet API 602

All materials for reference.

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TYPE	GLOBE VALVES								CHECK VALVES		
MATERIAL FORGED STEEL											
TRIM	No. 8	No. 8	No. 8	No. 8	No. 5	No. 5	No. 5	No. 5	No. 8	No. 8	No. 8
PRESSURE	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 150	CLASS 300	CLASS 800	CLASS 800	CLASS 150
END CONNECTION	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	FLANGE ENDS	FLANGE ENDS	Socket Weld	NPT	FLANGE ENDS
SIZE	1/2" - 2"	1/2" - 2"	1/2" - 1 1/2"	1/2" - 1 1/2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 2"	1/2" - 1"	1/2" - 1"	3/4" - 1"
BODY	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N
BONNET	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N	A105N
STEM	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410	A276 410
DISC	A276 410	A276 410	A276 410	A276 410	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410	A276 410	A276 410
BODY SEAT	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6	A276 410 Stellite Gr.6
DETAILS	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602 ANSI 150 (RF)	Bolt Bonnet OS & Y API 602 ANSI 300 (RF)	Piston Type, Bolt Bonnet API 602	Piston Type, Bolt Bonnet API 602	Piston Type, Bolt Bonnet API 602

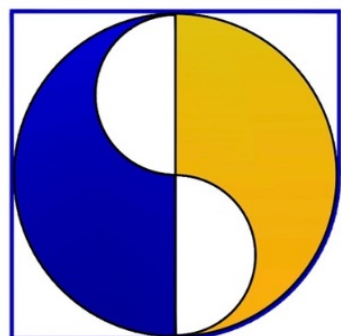
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TYPE	GATE VALVES				GLOBE VALVES	GATE VALVES		FOR EX-STOCK VALVES : API 602				
MATERIAL								TRIM NUMBER	NORMINAL TRIM	BODY SEAT ^a	DISC SEAT ^a	STEM ^a
FORGED STEEL								5	Hardfaced	Stellite ^b	Stellite ^b	13Cr
								8	F6 and Hardfaced	Stellite ^b	Stellite ^b	13Cr
								15	Hardfaced	Stellite ^b	Stellite ^b	18Cr-8Ni
								16	Hardfaced			18Cr-8Ni-Mo
TRIM	304	304	316	316	304	304/304L	316/316L	a : Free machining grades of 13Cr are prohibited. b : This classification includes such trademark materials as Stellite 6™ *, Stoody 6™ * and Wallex 6™ *, the use of CoCr-E (Stellite 21™ *) or equal is an acceptable substitution for CoCr-A in globe and check valves. * This term is used as an example only, and does not constitute an endorsement of this product by API.				
PRESSURE	CLASS 800	CLASS 800	CLASS 800	CLASS 800	CLASS 800	CLASS 800	CLASS 800					
END CONNECTION	Socket Weld	NPT	Socket Weld	NPT	Socket Weld	Socket Weld	Socket Weld					
SIZE	1/2" - 2"	1/2" - 1 1/2"	1/2" - 2"	1/2" - 1 1/2"	3/4" and 2"	1/2" - 1"	1/2" - 1"					
BODY	A182 F304	A182 F304	A182 F316	A182 F316	A182 F304	A182 F304L	A182 F316L					
BONNET	A182 F304	A182 F304	A182 F316	A182 F316	A182 F304	A182 304L	A182 F316L					
STEM	A276 304	A276 304	A276 316	A276 316	A276 304	A479 304	A479 316					
DISC	A276 304 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	A276 316 Stellite Weld	A276 304 Stellite Weld	A182 304 Stellite Gr.6	A182 316 Stellite Gr.6					
BODY SEAT	A276 304 Stellite Weld	A276 304 Stellite Weld	A276 316 Stellite Weld	A276 316 Stellite Weld	A276 304 Stellite Weld	A479 304 Stellite Gr.6	A479 316 Stellite Gr.6					
DETAILS	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602	Bolt Bonnet OS & Y API 602					

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