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Title	Body Material	Type	Class	End Connection	Features	Fig	Page		
KITZ Standard Gate, Globe, Check, Angle, & Butterfly Valves, Y-Strainers	Bronze	Globe	100	TE	Soft Seated (Rubber or PTFE)	A AKA	BR5 8		
			EN PN16			PN16A			
			EN PN25			PN25A			
			100			Q QA			
			150			C AKC			
		Gate	FE/FF	Angle Type	CA AKCA	BR6 9			
					B BH				
					G AKG				
					D DB				
					DBH				
	Brass	Gate	125	TE,SE	NRS	FR AKFS CFS FH AKFH CFH	BR7 10		
			EN PN16	PN16FH					
	Bronze	Gate	PN16 (AS1628)	TE		AS-FH	BR8 11		
			125	TE,SE		H AKH CH			
			TE	S					
				PN16S					
				PN25S					
		E							
		Check	FE/FF	Lift		AKE EB EBH	BR9 12		
						150		TE	F AKF
						125		TE,SE	R AKR
						EN PN16		PN16R	
					EN PN25	PN25R			
			TE,SE	Y-type Swing	YR	BR10 13			
				150	Lift, Soft Seated (NBR or FKM), With Spring		RF AKA F CAF		
				5K	Lift		VF		
	-			Lift (Foot)	FT&FTS				
	10K	Wafer		Dual Plate, Water Hammer Prevention, Bypass Valve Mounted	10BWZ				
	Strainer	TE,SE	150	Y AKY CY	BR11 14				
			EN PN16	PN16YE					
			EN PN25	PN25YE					
	Brass	Butterfly	175	TE	NBR Lined Disc, Balancing Stop Handle Lever	FV			
	JIS Standard Gate, Globe & Check Valves	Bronze	Globe	5K	TE	RS	K	BR12 15	
				10K	FE/FF		J JB		
			Gate	5K	TE		M		
				10K	FE/FF		L LB		
Check			10K	TE	O				
				FE/FF	OB				
MSS SP-80 Gate, Globe & Check Valves	Bronze	Gate	125	TE	RS	AK125M AK125E AK150E	BR13 16		
			150	TE,SE	NRS	AK150L C150L			
				TE	RS	AK150LU AK300LU			
				300	AK125C				
		Globe	125	TE,SE	Soft Seated (G/F PTFE)	AK150D C150D	BR14 17		
			150	TE	Soft Seated (G/F PTFE)	AK300J AK300D			
			300	AKYR CYR					
			125	TE,SE	Y-type Swing	AK150YR AK300YR			
		Check	150	TE					
				300					
Ball Valves	Brass	Ball	600	M & F	FB	ZO	BR15 18		
			400	TE	SB, For Steam Service	ZS			
			600		FB, Compact Series	ZET SZA			
			EN PN40		(WR)PN40SZA				
			600		SE	AKSZA CSZA AKSZAW CSZAW			
			400	TE	SB	T AKT TT	BR16 19		
				M & F	SB, For Gas Service	TG			
					600	TE	SB	TO	
				SB, 2pc Split Type	TM				
			RB	TK AKTK					
			RB, Wing Handle	TKW					
			150	FB, Locking Device	TFJ TL	BR17 20			
			400	TE,SE	SB, Long Neck Type for Thermal Insulation		TLT		
			Bronze	3 Way Ball	10K	FE/FF	FB, 2pc Split Type	TB	BR18 21
					600	TE,SE	FB, Swing Away 3pc Body, Mounting Pad	AK3TM	
					400	TE	SB, 3-Way, 2-Seat	TN AKTN AKTNP	
	Brass	Ball	600	TE	SB, Mounting Pad, 3-Way, 2-Seat	T4T T4L	BR19 22		
					SB, 3-Way, 4-Seat	TV2T TV2L			
					SB, Vertical Type, 3-Way, 2-Seat				
					TE	AKTAFLL CTAF			
					SE	AKTFLL CTFLL			
					TE	AKTAFM CTAFM			
					SE	AKTFMLL CTFMLL			
					TE	AKTAFP AKTAFPM			
					M & F	AKTAFO AKTAFU			
					200	TE		AKTAFS	

Title	Body Material	Type	Class	End Connection	Features	Fig	Page
Lead Free Valves	Bronze (Lead Free)	Globe	125	TE	G/F PTFE	GN	BR21 24
		Gate	125		NRS	HN	
		10K	NRS, Buried Type		WN		
		125	TE,SE	Swing	RN	CRN	
		10K	TE	Lift (Soft, Spring)	RFN		
		Wafer	Wafer	10BWZN			
		Globe	10K	TE	JN		
		Gate	5K	TE,SE	RS	MN	CMN
		10K	LN	CLN			
		Check	10K	TE	Swing	ON	
	Strainer	10K	TE,SE		YNK	CYNK	
	Ball	400	TE	SB, Long Neck Type for Thermal Insulation	TLN	TLNT	CTLN
	TE	FB, Long Neck Type for Thermal Insulation	TLNF	TLNFT			
	Brass (Lead Free)	Gate	125	TE,SE	NRS	AKFSN	BR24 27
	Bronze (Lead Free)	Check	125		Swing	AKHN	
					Y-type Swing	AKRN	CRN
					AKYRN	CYRN	
	150	Lift (Soft, Spring)	AKYRNT		CYRNT	BR25 28	
	Globe	125	AKAFN		CAFN		
	Brass (Lead Free)	Ball	600		FB	AK125CN	C125CN
AKTAFN						CTAFN	
AKTAFMN						CTAFMN	
AKTFMNLL						CTFMNLL	
AK3TMN				C3TMN			
AK3TMMN				C3TMMN			
AKSZAN	CSZAN	PCTAFMN					
AKSZANW	CSZANW						
400	3-Way	AKTNN	CTNN				
Fancoil Valves	Bronze	Ball	10K	TE	RB, Detachable Long Handle	RTRM	BR28 31
				M (G) & F		RTRO	
				M & F		RTRR	
				TE		RTRU	
				M (G) & F		RTFM	
				TE		RTFO	
		Globe	200	M & F	FB, Detachable Long Handle	RTFU	
					FB, Detachable Long Handle, Single Union	TLF	
					FB, Long Neck Type for Thermal Insulation	TLFT	
						NSH	
Balancing Valves	Bronze	Balancing	10K	TE (F x Union nipple)	Constant Flow Control, with Built-in Screen	BS15- BS20- BSS15- BSS20- BSS25-	BR30 33
		Ball	10K	Constant Flow Control, Detachable Handle	RTUC		
Utility Ball Valves	Brass	Ball	10K	M (Rc x G)	Back flow prevention by automatic closing of spring-loaded built-in check valve (Water Hammer Proof), Detachable 2-way Handle (Short ' Long), Straight Type	S23N- S24N- S24N-3/4X S25N- S26N- S27N- S28N- S28N-3/4X S38A- S1- S2- S5- S6- S8-	BR31 34
	TE						
	TE (F x Union nut)						
	M (G) x F (Rc)						
	Brass				Ditto, but Angle Type		
	Brass (Ni-Cr Plated Body)			M (Rc x G)	Straight Type		
	Brass				Angle Type		
	Brass (Ni-Cr Pl)			M x F	Straight Type		
M (Rc x G)							

* (Abbreviation) TE: Threaded Ends, FE: Flanged Ends, RF: Raised Face Ends,
SB: Screwed Bonnet, NRS: Non Rising Stem, RS: Rising Stem, FB: Full Bore, RB: Reduced Bore



CAUTION

The valves introduced in this catalog are not designed to handle toxic gases.
Use specially designed or certified valves for flammable gas service.

PRODUCT CODING

BC/BS Valves Except Fancoil/Balancing/Utility

(Note: Some products do not follow this coding system)

AK **125** **C** **N**

1 2 3 4

1 End Connection

None Threaded Ends (BS21/JIS B0203)
 Flanged Ends
 AK Threaded Ends (ASME B1.20.1)
 C Solder Ends

2 Pressure Class

None KITZ Std., JIS, Ball Valve
 10 10K (Wafer Check Only)
 125 MSS SP-70 Class 125
 150 MSS SP-70 Class 150
 300 MSS SP-70 Class 300
 PN16 PN Rating
 PN25 PN Rating

3 Valve Type

A,Q/QA,C,CA,B/BH,G,D,DB/DBH,K,J,JB Globe
 FR/FS/FH,H,S,E,EB/EBH,LU,M,L,LB Gate
 F Check (Lift)
 R,O,OB Check (Swing)
 YR Check (Y Swing)
 RF,AF,VF Check (In-line Lift)
 BWZ Check (Wafer)
 Zxx,ZExx,SZxx,Txx,3Txx Ball
 Y,YU,YE Strainer

4 Lead Free Valves

N Lead Free

Fancoil (Ball)

RT **R** **M**

1 2 3

1 Design

RT Detachable T Type Long Handle
 TL Long Neck

2 Bore Type

R Reduced Bore
 F Full Bore

3 Connection or Handle* Type

M F x F (Taper)
 O F (Taper) x M (Parallel)
 U F (Taper) x Union Nipple (M (Parallel))
 T* Reinforced Nylon Handle

*None 403SS Lever

Fancoil (Globe)

I **NAH**

1 2

1 Indicator

None Without
 I With

2 Type

NAH Angle Type
 NSH Straight Type

Balancing Valves

BS 15 - 5

1 2 3

1 Type

BS With Built-in Screen
 BSS Low Noise Type
 RTUC Constant Flow Control

2 Nominal

15, 20, 25 (mm)

3 Predetermined Flow Rate

3 ~ 40 (L/min)

Predetermined Flow Rates and Product Coding for Balancing Valves and Balancers "SADAMARU"

Predetermined Flow Rate

Product Code: BS [Controllable Flow Rate $\pm 10\%$]

(L/min)

Normal Size (mm)	3	4	5	6	7.5	8	10	12	12.5	15	16	17.5	20	25	30	35	40
15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		

Product Code: BSS [Controllable Flow Rate $\pm 10\%$]

(L/min)

Normal Size (mm)	3	4	5	6	7.5	8	10	12	12.5	15	16	17.5	20	25	30	35	40
15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Product Code: RTUC [Controllable Flow Rate $\pm 15\%$, $\pm 20\%$ (5 L/min only)]

(L/min)

Normal Size (mm)	3	4	5	6	7.5	8	10	12	12.5	15	16	17.5	20	25	30	35	40
15			●	●	●		●		●	●		●	●				
20			●	●	●		●		●	●		●	●	●	●		
25														●	●		

Note: Flow rates marked with ● are available.

Utility Ball Valves

S 24 N - 3/4X

1 2 3 4

1 Series

S S Ball & Orange Ball

2 Design & Connection

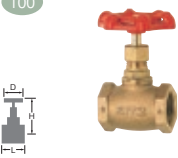
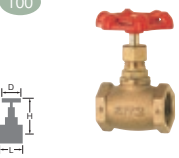
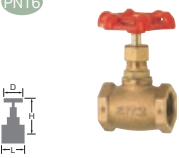
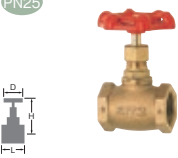
1 Straight, Brass Body, M (T) x M (P)
 2 Straight, Cr. Plating Body, M (T) x M (P)
 5 Angle, Cr. Plating Body, M (T) x M (P)
 6 Straight, Brass Body, M (T) x F (T)
 8 Straight, Cr. Plating Body, M (T) x M (P)
 23 Straight, Brass Body, M (T) x M (P)
 24 Straight, Cr. Plating Body, M (T) x M (P)
 25 Straight, Cr. Plating Body, F (T) x F (F)
 26 Straight, Cr. Plating Body, M (T) x Union Nut F (P)
 27 Straight, Cr. Plating Body, F (T) x Union Nut F (P)
 28 Straight, Cr. Plating Body, F (T) x M (P)
 38 Angle, Cr. Plating Body, F (T) x M (P)

3 Type

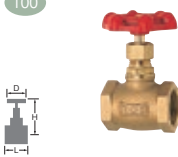
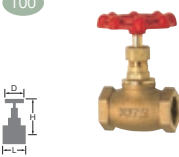
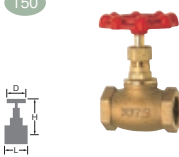
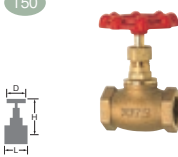
N Straight
 A Angle

4 Type

3/4X 3/4x1/2

Type	Globe					Globe					Globe					Globe				
Bronze & Brass KITZ Standard																				
	SB IS					SB IS					SB IS					SB IS				
Fig	A					AKA					PN16A					PN25A				
End Connection	*BS21 (JIS B0203)					*ASME B1.20.1					*BS21 (JIS B0203)					*BS21 (JIS B0203)				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	40	66	50		40	66	50												
3/8	10	42	67	50		42	67	50												
1/2	15	48	69	55		48	69	55			48	69	55			48	69	55		
3/4	20	53	80	60		53	80	60			53	80	60			53	80	60		
1	25	63	94	70		63	94	70			63	94	70			63	94	70		
1 1/4	32	73	104	80		73	104	80			73	104	80			73	104	80		
1 1/2	40	81	127	90		81	127	90			81	127	90			81	127	90		
2	50	94	147	100		94	147	100			94	147	100			94	147	100		
2 1/2	65	115	179	115		115	179	115												
3	80	131	200	135		131	200	135												
4	100	171	250	180		171	250	180												
Body	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Bonnet	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass				
Disc	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Gland Packing	Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite				
Hand Wheel	Aluminum Die-Cast/CI					Aluminum Die-Cast/CI					Aluminum Die-Cast/CI					Aluminum Die-Cast/CI				
Standard/Approval											WSD: PN16A<ZH1W2>									
Service Conditions	W.O.G. Non-shock 1.03MPa(150psi), Saturated Steam Pressure 0.7MPa(100psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.03MPa(150psi), Saturated Steam Pressure 0.7MPa(100psi) (Do not use for flammable gas or toxic gas.)					16 bar at 100°C, 7 bar at 170°C (Do not use for flammable gas or toxic gas.)					25 bar at 100°C, 10.5 bar at 186°C (Do not use for flammable gas or toxic gas.)				
Reference Page											P-T Rating : Page BR39					P-T Rating : Page BR39				
Remarks	EAC: Option					EAC: Option					WSD: Option									

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

Type	Globe					Globe					Globe					Globe				
Bronze & Brass KITZ Standard																				
	SB IS					SB IS					SB IS					SB IS				
Fig	Q					QA					C					AKC				
End Connection	*BS21 (JIS B0203)					*BS21 (JIS B0203)					BS21 (JIS B0203)					ASME B1.20.1				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8										44	66	50			44	66	50		
3/8	10										44	68	50			44	68	50		
1/2	15	44	70	50		44	70	50			53	79	60			53	79	60		
3/4	20	50	73	55		50	73	55			65	93	70			65	93	70		
1	25	63	86	60		63	86	60			77	104	80			77	104	80		
1 1/4	32					73	108	80			85	127	90			85	127	90		
1 1/2	40					81	132	90			100	145	100			100	145	100		
2	50					94	150	100			119	174	115			119	174	115		
2 1/2	65										139	199	135			139	199	135		
3	80										158	215	155			158	215	155		
Body	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Bonnet	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass				
Disc	Urethane Rubber					PTFE					Cast Bronze					Cast Bronze				
Gland Packing	Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite				
Hand Wheel	Aluminum Die-Cast/ZDC					Aluminum Die-Cast/ZDC					Aluminum Die-Cast					Aluminum Die-Cast				
Standard/Approval											RoHS: C<GS101> up to 1 ^B									
Service Conditions	W.O.G. Non-shock 0.78MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 0.78MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Remarks	For Water/Hot Water EAC: Option					For Oil Tank EAC: Option					RoHS: Option EAC: Option					EAC: Option				

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

Type	Angle Globe					Angle Globe					Globe					Globe				
Bronze & Brass KITZ Standard																				
Fig	CA					AKCA					B					BH				
End Connection	BS21 (JIS B0203)					ASME B1.20.1					JIS B2240					JIS B2240				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	21	66	50		21	66	50												
3/8	10	24	68	50		24	68	50												
1/2	15	28	79	60		28	79	60		83	79	60				83	79	60		
3/4	20	34	93	70		34	93	70		88	94	70				88	94	70		
1	25	40	104	80		40	104	80		100	105	80				100	105	80		
1 1/4	32	47	127	90		47	127	90		113	127	90				113	127	90		
1 1/2	40	52	145	100		52	145	100		120	145	100				120	145	100		
2	50	61	174	115		61	174	115		145	174	115				145	174	115		
2 1/2	65	74	199	135		74	199	135		165	198	135				165	198	135		
3	80	85	215	155		85	215	155		177	215	155				177	215	155		
4	100									220	250	180				220	250	180		
Body	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Bonnet	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass				
Disc	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Gland Packing	Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite				
Hand Wheel	Aluminum Die-Cast/ZDC					Aluminum Die-Cast/ZDC					Aluminum Die-Cast/ZDC/DI					Aluminum Die-Cast/ZDC/DI				
Service Conditions	W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Remarks	EAC: Option					EAC: Option					Flanged Ends Undrilled EAC: Option					Flanged end drilled according to JIS 10K. EAC: Option				

Type	Globe					Globe					Globe					Globe				
Bronze & Brass KITZ Standard																				
Fig	G					AKG					D					DB				
End Connection	BS21 (JIS B0203)					ASME B1.20.1					BS21 (JIS B0203)					JIS B2240				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	47	68	50		47	68	50												
3/8	10	53	87	55		53	87	55												
1/2	15	57	87	60		57	87	60		64	113	60				82	113	60		
3/4	20	66	102	70		66	102	70		78	138	90				95	138	90		
1	25	76	113	80		76	113	80		90	156	100				108	156	100		
1 1/4	32	88	138	90		88	138	90		105	184	115				120	184	115		
1 1/2	40	100	154	100		100	154	100		120	187	115				140	187	115		
2	50	120	183	115		120	183	115		145	212	135				165	212	135		
2 1/2	65	147	210	135		147	210	135								190	244	155		
3	80	162	229	155		162	229	155								220	281	180		
4	100															270	321	225		
Body	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Bonnet	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass				
Disc	G/F PTFE					G/F PTFE					G/F PTFE					G/F PTFE				
Gland Packing	Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite					Aramid Fibers Graphite/PTFE				
Hand Wheel	Aluminum Die-Cast					Aluminum Die-Cast					Aluminum Die-Cast					Aluminum Die-Cast/ZDC/DI				
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.55MPa(225psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Remarks	EAC: Option					EAC: Option					EAC: Option					Flanged Ends Undrilled EAC: Option				

Type	Globe				Gate			Gate			Gate			
Bronze & Brass KITZ Standard	150  UB/BB IS D H L EAC				125  SB IS NRS D H L EAC			125  SB IS NRS D H L EAC			125  SB IS NRS D H L EAC			
	Fig	DBH				FR			AKFS			CFS		
	End Connection	JIS B2240				*BS21 (JIS B0203)			*ASME B1.20.1			**ASME B16.18		
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/8	10				38	73	50	38	73	50				
1/2	15	82	113	60	42	73	50	42	73	50	45	75	50	
3/4	20	95	138	90	47	87	55	47	87	55	60	86	55	
1	25	108	156	100	50	97	60	50	97	60	70	97	60	
1 1/4	32	120	184	115	60	118	70	60	118	70	77	117	70	
1 1/2	40	140	187	115	63	126	80	63	126	80	86	126	80	
2	50	165	212	135	72	154	90	72	154	90	104	154	90	
2 1/2	65	190	244	155				80	167	100				
3	80	220	281	180				90	200	115				
4	100	270	321	225										
Body	Cast Bronze				Forged Brass			Forged Brass			Forged Brass			
Bonnet	Forged Brass/Cast Bronze				Forged Brass			Forged Brass			Forged Brass			
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			
Disc	G/F PTFE				Forged Brass			Forged Brass			Forged Brass			
Gland Packing	Aramid Fibers Graphite/PTFE				Aramid Fibers Graphite			Aramid Fibers Graphite			Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast/ZDC/DI				Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			
Service Conditions	W.O.G. Non-shock 1.55MPa(225psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			
Reference Page											P-T Rating : Page BR34			
Remarks	Flanged end drilled according to JIS 10K. EAC: Option				EAC: Option									

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Gate				Gate				Gate				Gate				
Bronze & Brass KITZ Standard	125  SB IS NRS EAC RoHS				125  SB IS NRS EAC				125  SB IS NRS EAC				PN16  SB IS NRS EAC				
																	
	Fig	FH				AKFH				CFH				PN16FH			
	End Connection	*BS21 (JIS B0203)				*ASME B1.20.1				**ASME B16.18				*BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D				
1/4	8	35	70	50	35	70	50				35	70	50				
3/8	10	38	73	50	38	73	50	37	77	50	38	73	50				
1/2	15	42	73	50	42	73	50	45	77	50	42	73	50				
3/4	20	47	87	55	47	87	55	60	87	55	47	87	55				
1	25	50	97	60	50	97	60	70	97	60	50	97	60				
1 1/4	32	60	118	70	60	118	70	77	118	70	60	118	70				
1 1/2	40	63	126	80	63	126	80	86	126	80	63	126	80				
2	50	72	154	90	72	154	90	104	154	90	72	154	90				
2 1/2	65	82	187	100	82	187	100	115	187	100							
3	80	92	205	115	92	205	115	127	205	115							
Body	Forged Brass				Forged Brass				Forged Brass				Forged Brass				
Bonnet	Forged Brass/Cast Bronze				Forged Brass/Cast Bronze				Forged Brass/Cast Bronze				Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				
Disc	Forged Brass				Forged Brass				Forged Brass				Forged Brass				
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite				
Hand Wheel	Alminum Die-Cast				Alminum Die-Cast				Alminum Die-Cast				Alminum Die-Cast				
Standard/Approval	RoHS: FH<GS101> up to 1 ^B																
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				16 bar at 100°C, 7 bar at 170°C (Do not use for flammable gas or toxic gas.)				
Reference Page									P-T Rating : Page BR34				P-T Rating : Page BR39				
Remarks	RoHS: Option EAC: Option				EAC: Option												

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Gate				Gate				Gate				Gate			
Bronze & Brass KITZ Standard																
Fig	AS-FH				H				AKH				CH			
End Connection	AS 1722.1				*BS21 (JIS B0203)				*ASME B1.20.1				**ASME B16.18			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	D	
3/8	10				38	73	50	38	73	50	37	73	50			
1/2	15	55	74	55	42	73	50	42	73	50	45	73	50			
3/4	20	60	86	55	47	85	55	47	85	55	60	85	55			
1	25	68	94	60	50	96	60	50	96	60	72	96	60			
1 1/4	32	78	116	70	60	115	70	60	115	70	78	115	70			
1 1/2	40	81	128	80	63	125	80	63	125	80	87	125	80			
2	50	94	158	90	72	155	90	72	155	90	102	155	90			
2 1/2	65				90	202	115	90	202	115	115	202	115			
3	80				100	223	135	100	223	135	130	223	135			
4	100				121	280	155	121	280	155	173	280	155			
Body	Special Brass (AS 2345)				Cast Bronze				Cast Bronze				Cast Bronze			
Bonnet	Special Brass (AS 2345)				Cast Bronze				Cast Bronze				Cast Bronze			
Stem	Special Brass (AS 2345)				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Disc	Special Brass (AS 2345)				Forged Brass/Cast Bronze				Forged Brass/Cast Bronze				Forged Brass/Cast Bronze			
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite			
Hand Wheel	Ductile Iron				Alminum Die-Cast				Alminum Die-Cast				Alminum Die-Cast			
Standard/Approval																
Service Conditions	Working Temperature and Pressure, Non-shock 99°C/1.6MPa				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			
Reference Page													P-T Rating : Page BR34			
Remarks	AS: Austrarian standard				EAC: Option				EAC: Option							

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

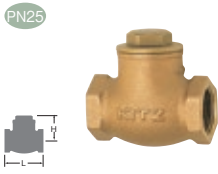
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Gate				Gate				Gate				Gate			
Bronze & Brass KITZ Standard																
Fig	S				PN16S				PN25S				E			
End Connection	*BS21 (JIS B0203)				*BS21 (JIS B0203)				*BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D		L	H	D		L	H	D	
3/8	10	38	75	50									43	86	50	
1/2	15	42	75	50	42	75	50		42	75	50		48	96	55	
3/4	20	47	86	55	47	86	55		47	86	55		53	111	60	
1	25	50	97	60	50	97	60		50	97	60		62	122	70	
1 1/4	32	60	117	70	60	117	70		60	117	70		69	141	80	
1 1/2	40	63	126	80	63	126	80		63	126	80		75	164	90	
2	50	72	154	90	72	154	90		72	154	90		86	197	100	
2 1/2	65	80	167	100									105	225	115	
3	80	90	200	115									116	261	135	
Body	Cast Bronze				Cast Bronze				Cast Bronze				Cast Bronze			
Bonnet	Forged Brass				Forged Brass				Forged Brass				Forged Brass/Cast Bronze			
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Disc	Forged Brass				Forged Brass				Forged Brass				Cast Bronze			
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast			
Standard/Approval					WRAS: (WR)PN16S, WSD: PN16S<ZH1W1>				WRAS: (WR)PN25S							
Service Conditions					16 bar at 100°C, 7 bar at 170°C (Do not use for flammable gas or toxic gas.)				25 bar at 100°C, 10.5 bar at 186°C (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)			
Reference Page					P-T Rating : Page BR39				P-T Rating : Page BR39							
Remarks	EAC: Option				WRAS, WSD: Option				WRAS: Option				EAC: Option			

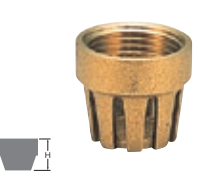
*The length of useful threads & the positions of gauge planes are built on KITZ standard.

Type	Gate					Gate					Gate					Lift Check				
Bronze & Brass KITZ Standard																				
Fig	AKE					EB					EBH					F				
End Connection	ASME B1.20.1					JIS B2240					JIS B2240					BS21 (JIS B0203)				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
3/8	10	43	86	50												44	26			
1/2	15	48	96	55		75	96	55			75	96	55			53	28			
3/4	20	53	111	60		80	111	60			80	111	60			65	34			
1	25	62	122	70		95	122	70			95	122	70			77	42			
1 1/4	32	69	141	80		110	142	80			110	142	80			85	50			
1 1/2	40	75	164	90		120	165	90			120	165	90			100	56			
2	50	86	197	100		140	197	100			140	197	100			119	67			
2 1/2	65	105	225	115		165	225	115			165	225	115			139	79			
3	80	116	261	135		190	264	155			190	264	155			158	91			
4	100					230	309	225			230	309	225							
5	125					190	381	225			190	381	225							
6	150					210	427	250			210	427	250							
Body	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Bonnet	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass									
Disc	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Gland Packing	Aramid Fibers Graphite					Aramid Fibers Graphite/PTFE					Aramid Fibers Graphite/PTFE									
Hand Wheel	Aluminum Die-Cast					Aluminum Die-Cast/ZDC/DI					Aluminum Die-Cast/ZDC/DI									
Service Conditions	W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Remarks	EAC: Option					Flanged Ends Undrilled EAC: Option					Flanged end drilled according to JIS 10K. EAC: Option					EAC: Option				

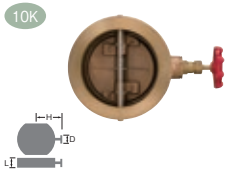
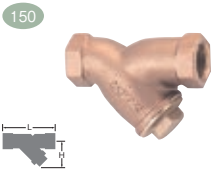
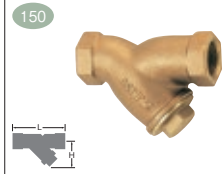
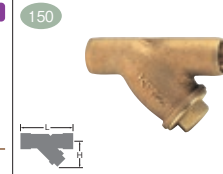
Type	Lift Check					Swing Check					Swing Check					Swing Check				
Bronze & Brass KITZ Standard																				
Fig	AKF					R					AKR					PN16R				
End Connection	ASME B1.20.1					BS21 (JIS B0203)					ASME B1.20.1					BS21 (JIS B0203)				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
3/8	10	44	26			53	39				53	39				53	39			
1/2	15	53	28			60	39				60	39				61	45			
3/4	20	65	34			70	45				70	45				70	50			
1	25	77	42			80	52				80	52				81	58			
1 1/4	32	85	50			92	62				92	62				91	65			
1 1/2	40	100	56			102	67				102	67				109	75			
2	50	119	67			122	79				122	79								
2 1/2	65	139	79			150	91				150	91								
3	80	158	91			165	102				165	102								
4	100					195	119				195	119								
Body	Cast Bronze					Cast Bronze					Cast Bronze					Cast Bronze				
Bonnet	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass				
Stem/Hinge Pin						Brass					Brass					Brass				
Disc	Cast Bronze					Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass				
Standard/Approval						RoHS: R<GS101> up to 1 ⁹														
Service Conditions	W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					16 bar at 100°C, 7 bar at 170°C (Do not use for flammable gas or toxic gas.)				
Reference Page																P-T Rating : Page BR39				
Remarks	EAC: Option					EAC: Option RoHS: Option					EAC: Option									

Type	Swing Check				Y-Pattern Swing Check				Vertical Lift Check			Vertical Lift Check		
Bronze & Brass KITZ Standard														
	PN25R				YR				RF			AKAF		
End Connection	BS21 (JIS B0203)				*BS21 (JIS B0203)				BS21 (JIS B0203)			ASME B1.20.1		
inch	mm	L	H	D	L	H	D		L	H	D	L	H	D
3/8	10				54	40								
1/2	15	53	39		56	40			53			53		
3/4	20	61	45		70	49			59			59		
1	25	70	50		80	58			67			67		
1 1/4	32	81	58		95	71			78			78		
1 1/2	40	91	65		110	80			84			84		
2	50	109	75		128	95			98			98		
Body	Cast Bronze				Cast Bronze				Cast Bronze			Cast Bronze		
Bonnet	Forged Brass				Forged Brass				Cast Bronze			Cast Bronze		
Stem/Hinge Pin	Brass				Copper				Spring: P Bronze			Spring: P Bronze		
Disc	Forged Brass				Cast Bronze				NBR			FKM		
Standard/Approval					WSD: YR<ZH1W3>									
Service Conditions	25 bar at 100°C, 10.5 bar at 186°C (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.72MPa(250psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.72MPa(250psi) (Do not use for flammable gas or toxic gas.)		
Reference Page	P-T Rating : Page BR39													
Remarks					EAC: Option, WSD: Option									

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

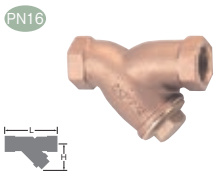
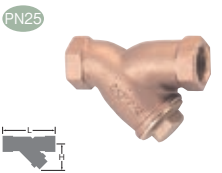
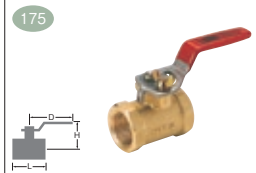
Type	Vertical Lift Check				Vertical Lift Check				Vertical Lift Check			Screen for FT		
Bronze & Brass KITZ Standard														
	CAF				VF				FT			FTS		
End Connection	**ASME B16.18				BS21 (JIS B0203)				BS21 (JIS B0203xB0202)			BS21 (JIS B0202)		
inch	mm	L	H	D	L	H	D		L	H	D	L	H	D
1/2	15	61			37							25		
3/4	20	76			44				48			29		
1	25	89			51				58			32		
1 1/4	32	97			62				62			35		
1 1/2	40	110			69				70			43		
2	50	132			82				80			50		
2 1/2	65								90					
3	80								100			51		
Body	Cast Bronze				Cast Bronze				Cast Bronze			Cast Bronze		
Bonnet	Cast Bronze													
Stem	Spring: P Bronze													
Disc	FKM				Special Brass/Cast Bronze				NBR			Cast Bronze		
Service Conditions	W.O.G. Non-shock 1.72MPa(250psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 120°C(0.5MPa) (Do not use for flammable gas or toxic gas.)				W.O.G. 80°C(0.5MPa) (Do not use for flammable gas or toxic gas.)			W.O.G. 80°C(0.5MPa) (Do not use for flammable gas or toxic gas.)		
Remarks									Threading: Taper for Male, Parallel for Female			Threading: Parallel		

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Wafer Check				Y-Pattern Strainer			Y-Pattern Strainer			Y-Pattern Strainer		
Bronze & Brass KITZ Standard													
Fig	10BWZ				Y			AKY			CY		
End Connection	Wafer (JIS 10K)				BS21 (JIS B0203)			ASME B1.20.1			**JIS B2011/ASME B16.18		
inch	mm	L	H	D	L	H	***H1	L	H	***H1	L	H	***H1
3/8	10				70	43	61	70	43	61			
1/2	15				80	48	68	80	48	68	80	48	68
3/4	20				100	57	83	100	57	83	105	57	83
1	25				115	70	105	115	70	105	125	70	105
1 1/4	32				135	82	124	135	82	124	145	82	124
1 1/2	40	54	132	55	160	98	149	160	98	149	170	98	149
2	50	56	139	70	195	121	188	195	121	188	210	121	188
2 1/2	65	56	146	70	230	149	216	230	149	216	250	149	216
3	80	59	152	70	240	182	267	240	182	267	280	182	267
4	100	66	165	70									
5	125	72	183	70									
6	150	78	208	80									
8	200	96	237	80									
10	250	109	289	90									
12	300	145	316	90									
Body	Cast Bronze + NBR				Cast Bronze			Cast Bronze			Cast Bronze		
Bonnet/Cap/Cover					Forged Brass			Forged Brass			Forged Brass		
Hinge Pin/Spring	304SS												
Disc/Screen	Brass/Cast Bronze				304SS			304SS			304SS		
Gland Packing/Gasket	Aramid Fiber Graphite				Gasket: Non Asbestos (V6500) up to 2 ^B , FKM for 2 1/2 ^B & 3 ^B			Gasket: Non Asbestos (V6500) up to 2 ^B , FKM for 2 1/2 ^B & 3 ^B			Gasket: Non Asbestos (V6500) up to 2 ^B , FKM for 2 1/2 ^B & 3 ^B		
Hand Wheel	Aluminum Die Cast/ZDC												
Standard/Approval					RoHS: Y<GS101> up to 1 ^B								
Service Conditions	W.O.G. 80°C(1.4MPa) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) up to 2 ^B (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) up to 2 ^B (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) up to 2 ^B (Do not use for flammable gas or toxic gas.)		
Reference Page	Features: Page BR36										P-T Rating : Page BR34		
Remarks	Built-in Bypass Valve, Dual Plate Type				EAC: Option, RoHS: Option			EAC: Option			JIS B2011 up to 2 ^B		

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

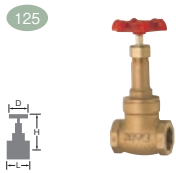
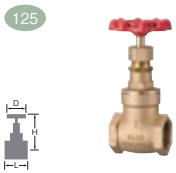
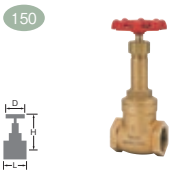
***Height for removing the screen

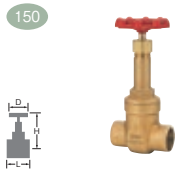
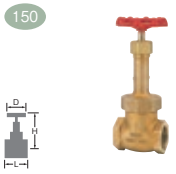
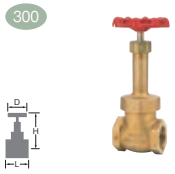
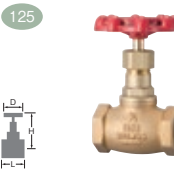
Type	Y-Pattern Strainer				Y-Pattern Strainer			Butterfly		
Bronze & Brass KITZ Standard										
Fig	PN16YE				PN25YE			FV		
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)			BS21 (JIS B0203)		
inch	mm	L	H	***H1	L	H	***H1	L	H	D
1/2	15	65	42	56	65	42	56	47	44	85
3/4	20	80	52	72	80	52	72	51	47	85
1	25	92	60	89	92	60	89	58	50	85
1 1/4	32	110	72	107	110	72	107	67	60	110
1 1/2	40	122	81	121	122	81	121	73	63	110
2	50	150	101	150	150	101	150	82	70	110
Body	Cast Bronze				Cast Bronze			Forged Brass		
Bonnet/Cap/Cover	Forged Brass				Forged Brass					
Hinge Pin/Spring								304SS		
Disc/Screen	304SS				304SS			304SS + W-NBR		
Gland Packing/Gasket	Gasket: Non Asbestos (V6500)				Gasket: Non Asbestos (V6500)			NBR		
Hand Wheel								430SS		
Standard/Approval	WSD: PN16YE<ZH1W4>				WRAS					
Service Conditions	16 bar at 100°C, 7 bar at 170°C (Do not use for flammable gas or toxic gas.)				25 bar at 100°C, 10.5 bar at 186°C (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.21MPa(175psi) (Do not use for flammable gas or toxic gas.)		
Reference Page	P-T Rating : Page BR39				P-T Rating : Page BR39					
Remarks	WSD: Option				WRAS: Option			Balancing Stop Handle Lever		

***Height for removing the screen

Type	Globe				Globe				Globe				Gate			
Bronze JIS Standard																
Fig	K				J				JB				M			
End Connection	JIS B0203				JIS B0203				JIS B2011				JIS B0203			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	8				50	83	50									
3/8	10	50	87	55	55	85	55									
1/2	15	60	90	60	65	91	60	85	93	60	50	126	60			
3/4	20	70	102	70	80	120	80	95	122	80	60	145	60			
1	25	80	112	80	90	135	90	110	135	90	65	169	70			
1 1/4	32	100	137	90	105	156	100	130	157	100	75	209	90			
1 1/2	40	110	142	100	120	169	115	150	171	115	85	239	100			
2	50	135	173	115	140	194	135	180	196	135	95	285	115			
2 1/2	65	160	203	135	180	231	155	210	232	155	115	366	135			
3	80	190	233	155	200	267	180	240	268	180	130	428	155			
4	100							280	323	225						
Body	CAC406				CAC406				CAC406				CAC406			
Bonnet	C3771/CAC406				C3771/CAC406				C3771/CAC406				CAC406			
Stem	C3531				C3531				C3531				C3531			
Disc	CAC406C/CAC406				CAC406C/CAC406				CAC406C/CAC406				CAC406			
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite/PTFE for JB 4 ^B				Aramid Fibers Graphite			
Hand Wheel	Alminum Die-Cast				Alminum Die-Cast/DI				Alminum Die-Cast/ZDC/DI				Alminum Die-Cast/ZDC			
Standard/Approval	JIS B2011 except 3/8 ^B				JIS B2011								JIS B2011			
Service Conditions	0.7MPa at -29°C to +120°C, 0.5MPa at 159°C (Do not use for flammable gas or toxic gas.)				1.4MPa at -29°C to +120°C, 1MPa at 185°C (Do not use for flammable gas or toxic gas.)				1.4MPa at -29°C to +120°C, 1MPa at 185°C (Do not use for flammable gas or toxic gas.)				0.7MPa at -29°C to +120°C, 0.5MPa at 134°C (Do not use for flammable gas or toxic gas.)			
Reference Page	P-T Rating : Page BR38				P-T Rating : Page BR38				P-T Rating : Page BR38				P-T Rating : Page BR38			
Remarks									Wall Thickness: KITZ Standard							

Type	Gate				Gate				Swing Check				Swing Check			
Bronze JIS Standard																
Fig	L				LB				O				OB			
End Connection		JIS B0203			JIS B2011			JIS B0203			JIS B2040					
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
3/8	10							55	38.5							
1/2	15	55	126	60				65	43		85	43				
3/4	20	65	151	70	90	151	70	80	51.5		95	52				
1	25	70	176	80	100	176	80	90	58.5		110	59				
1 1/4	32	80	219	90	110	219	90	105	67		130	67				
1 1/2	40	90	250	100	125	250	100	120	73.5		150	74				
2	50	100	292	115	140	292	115	140	86		180	86				
2 1/2	65	120	376	155	170	376	155	180	97		210	97				
3	80	140	436	180	190	436	180	200	108		240	108				
4	100				220	327	225				280	127				
Body		CAC406			CAC406			CAC406			CAC406					
Bonnet		CAC406			CAC406			C3771/CAC406			C3771/CAC406					
Stem		C3531			C3531			CAC406/C3604			CAC406/C3604					
Disc		CAC406			CAC406			CAC406			CAC406					
Gland Packing		Aramid Fibers Graphite			Aramid Fibers Graphite											
Hand Wheel		Alminum Die-Cast/ZDC/DI			Alminum Die-Cast/ZDC/DI											
Standard/Approval		JIS B2011						JIS B2011								
Service Conditions		1.4MPa at -29°C to +120°C, 1MPa at 171°C (Do not use for flammable gas or toxic gas.)			1.4MPa at -29°C to +120°C, 1MPa at 171°C (Do not use for flammable gas or toxic gas.)			1.4MPa at -29°C to +120°C, 1MPa at 185°C (Do not use for flammable gas or toxic gas.)			1.4MPa at -29°C to +120°C, 1MPa at 185°C (Do not use for flammable gas or toxic gas.)					
Reference Page		P-T Rating : Page BR38			P-T Rating : Page BR38			P-T Rating : Page BR38			P-T Rating : Page BR38					
Remarks					Wall Thickness: KITZ Standard						Wall Thickness: KITZ Standard					

Type	Gate					Gate					Gate					Gate					
Bronze MSS SP-80																					
Fig	AK125M					AK125E					AK150E					AK150L					
End Connection		ASME B1.20.1					ASME B1.20.1					ASME B1.20.1					ASME B1.20.1				
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D					
3/8	10				43	86	50	43	86	50											
1/2	15	51	129	55	49	93	55	49	98	55	51	137	55								
3/4	20	56	155	60	53	110	60	53	114	70	56	157	70								
1	25	66	180	70	61	126	70	61	126	70	66	180	70								
1 1/4	32	68	216	80	64	145	80	68	145	80	68	216	80								
1 1/2	40	74	257	90	68	170	90	74	176	90	74	257	90								
2	50	84	296	100	74	189	100	84	201	100	84	296	100								
2 1/2	65	115	371	135							120	385	155								
3	80	130	432	155							140	432	155								
Body	B62				B62				B62				B62								
Bonnet	B62				B62				B62				B62								
Stem	B62				B62				B62				B62								
Disc	B62				B62				B62				B62								
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite								
Hand Wheel	Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast								
Standard/Approval	MSS SP-80				MSS SP-80				MSS SP-80				MSS SP-80								
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)								
Reference Page	P-T Rating : Page BR39				P-T Rating : Page BR39				P-T Rating : Page BR39				P-T Rating : Page BR39								
Remarks	EAC: Option				EAC: Option				EAC: Option				EAC: Option								

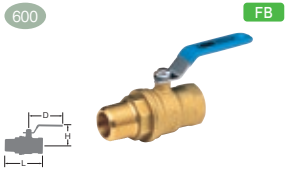
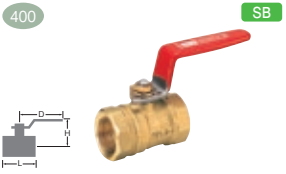
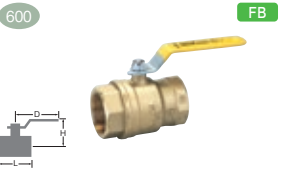
Type	Gate				Gate				Gate				Globe				
Bronze MSS SP-80		150				150				300				125			
Fig	C150L				AK150LU				AK300LU				AK125C				
End Connection		**ASME B16.18				ASME B1.20.1				ASME B1.20.1				ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D	
1/4	8				45	108	50										
3/8	10				46	108	50	46	125	60							
1/2	15	49	137	55	51	137	55	51	149	70	53	76	60				
3/4	20	64	157	70	56	157	70	56	173	80	65	98	70				
1	25	76	180	70	66	180	70	66	194	80	77	108	80				
1 1/4	32	82	216	80	68	216	80	74	228	100	85	137	90				
1 1/2	40	86	257	90	74	257	90	84	274	115	100	160	100				
2	50	109	296	100	84	297	100	98	313	135	119	180	115				
2 1/2	65										150	202	135				
3	80										178	246	155				
Body	B62				B62				B61				B62				
Bonnet	B62				B62				B61				B62/C3771				
Stem	B62				B62				B62				B62				
Disc	B62				B62				B61				B62				
Gland Packing	Aramid Fibers Graphite				Flex. Graphate & Aluminum				Flex. Graphate & Aluminum				Aramid Fibers Graphite				
Hand Wheel	Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast				
Standard/Approval	MSS SP-80				MSS SP-80				MSS SP-80				MSS SP-80				
Service Conditions	W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 6.89MPa(1000psi), Saturated Steam Pressure 2.07MPa(300psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR34 and BR39				P-T Rating : Page BR39				P-T Rating : Page BR39				P-T Rating : Page BR39				
Remarks	EAC: Option				EAC: Option				EAC: Option				EAC: Option				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

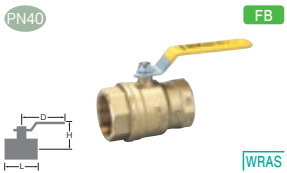
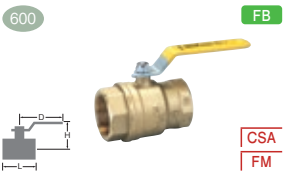
Type	Globe					Globe					Globe					Globe				
Bronze MSS SP-80																				
																				
Fig	AK150D					C150D					AK300J					AK300D				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					ASME B1.20.1				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	53	109	60		58	109	60			53	113	60			53	113	60		
3/8	10	55	109	60		61	109	60			55	113	60			55	113	60		
1/2	15	64	116	70		72	116	70			64	126	80			64	126	80		
3/4	20	78	136	90		95	136	90			78	139	90			78	139	90		
1	25	90	149	100		112	149	100			90	159	100			90	157	100		
1 1/4	32	105	173	115		126	173	115			105	187	115			105	187	115		
1 1/2	40	120	182	115		145	182	115			120	195	135			120	192	135		
2	50	145	209	135		180	209	135			145	224	155			145	221	155		
2 1/2	65	170	247	155		205	247	155												
3	80	200	275	180		244	275	180												
4	100	245	298	225		312	298	225												
Body	B62					B62					B61					B61				
Bonnet	B62					B62					B61					B61				
Stem	B62					B62					B61					B61				
Disc	G/F PTFE					G/F PTFE					B61					G/F PTFE				
Gland Packing	Aramid Fibers Graphite/PTFE					Aramid Fibers Graphite/PTFE					Flex. Graphate & Aluminum					Flex. Graphate & Aluminum				
Hand Wheel	Aluminum Die-Cast/DI					Aluminum Die-Cast/DI					Aluminum Die-Cast					Aluminum Die-Cast				
Standard/Approval	MSS SP-80					MSS SP-80					MSS SP-80					MSS SP-80				
Service Conditions	W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), Saturated Steam Pressure 2.07MPa(300psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), Saturated Steam Pressure 2.07MPa(300psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR39					P-T Rating : Page BR34 and BR39					P-T Rating : Page BR39					P-T Rating : Page BR39				
Remarks	EAC: Option					EAC: Option					EAC: Option					EAC: Option				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Y-Pattern Swing Check					Y-Pattern Swing Check					Y-Pattern Swing Check					Y-Pattern Swing Check				
Bronze MSS SP-80																				
																				
Fig	AKYR					CYR					AK150YR					AK300YR				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					ASME B1.20.1				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
3/8	10										54	39								
1/2	15	56	40			67	38				60	39				60	42			
3/4	20	70	49			86	47				72	49				72	51			
1	25	80	58			105	56				84	58				84	61			
1 1/4	32	95	71			121	69				99	70				99	74			
1 1/2	40	110	80			137	77				113	79				113	83			
2	50	128	95			170	92				131	95				131	98			
2 1/2	65	156	114			194	111				162	114								
3	80	184	131			222	127				186	132								
Body	B62					B62					B62					B61				
Bonnet	C3771					C3771					C3771					B61				
Stem/Hinge Pin	Copper					Copper					Copper					Copper				
Disc	B62					B62					B62					B61				
Standard/Approval	MSS SP-80					MSS SP-80					MSS SP-80					MSS SP-80				
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), Saturated Steam Pressure 2.07MPa(300psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR39					P-T Rating : Page BR34 and BR39					P-T Rating : Page BR39					P-T Rating : Page BR39				
Remarks	EAC: Option					EAC: Option					EAC: Option					EAC: Option				

Type	Ball					Ball			Ball			Ball		
Brass Z Ball Series														
	Fig					Fig			Fig			Fig		
End Connection	ZO					ZS			ZET			SZA		
inch	BS21 (JIS B0203)					*BS21 (JIS B0203)			BS21 (JIS B0203)			BS21 (JIS B0203)		
mm	L	H	D			L	H	D	L	H	D	L	H	D
1/4	8	59	37	70		42	42	72	42	34	55	42	37	70
3/8	10	60	37	70		43	42	72	42	34	55	42	37	70
1/2	15	74	40	80		51	44	87	53	40	70	53	40	80
3/4	20	80	44	80		59	48	87	60	44	70	60	44	80
1	25	94	50	110		71	61	116	72	54	100	72	50	110
1 1/4	32					78	65	116	84	59	100	84	55	110
1 1/2	40					88	71	117	92	75	130	92	65	150
2	50					99	76	117	110	82	130	110	72	150
2 1/2	65											138	101	200
3	80											167	113	300
4	100											193	131	300
Body & Cap	Forged Brass					Forged Brass			Forged Brass			Forged Brass/Cast Bronze		
Stem	Brass + Ni Plated					Brass + Cr Plated			Brass + Ni Plated			Brass + Ni Plated		
Ball	Forged Brass + Ni Plated					Forged Brass+Cr Plated/304SS			Forged Brass+Cr Plated/304SS			Forged Brass+N-Cri Plated/304SS		
Ball Seat	PTFE					PTFE			PTFE			PTFE		
Gland Packing/O ring	FKM					G/F PTFE			FKM			FKM		
Handle	430SS					430SS			CS + Zn Plated			CS + Zn Plated/DI		
Bore	Full Bore					Standard Bore			Full Bore			Full Bore		
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi), Saturated Steam Pressure 0.98MPa(142psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 4.14MPa(600psi)/4 ^B : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ^B : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)		
Remarks	BS21: Male & Female Full Bore, Double O-ring					Standard Bore			Full Bore, Double O-ring Butterfly (Wing) Handle			Full Bore, Double O-ring		

*The length of useful threads & the positions of gauge planes are built on KITZ standard.

Type	Ball					Ball			Ball			Ball		
Brass Z Ball Series														
	Fig					Fig			Fig			Fig		
End Connection	PN40SZA					AKSZA			CSZA			AKSZAW		
inch	BS21 (JIS B0203)					ASME B1.20.1			**ASME B16.18			ASME B1.20.1		
mm	L	H	D			L	H	D	L	H	D	L	H	D
1/4	8					42	37	70				42	34	55
3/8	10					42	37	70	46	37	70	42	34	55
1/2	15	53	40	80		53	40	80	54	40	80	53	40	70
3/4	20	60	43	80		60	44	80	73	44	80	60	44	70
1	25	72	50	110		72	50	110	88	50	110	72	53	100
1 1/4	32	84	55	110		84	55	110	100	55	110	84	58	100
1 1/2	40	92	65	150		92	65	150	115	65	150	92	74	130
2	50	110	72	150		110	72	150	140	72	150	110	81	130
2 1/2	65					138	101	200	164	101	200			
3	80					167	113	300	187	113	300			
4	100					193	131	300						
Body & Cap	Forged Brass					Forged Brass/Cast Bronze			Forged Brass			Forged Brass		
Stem	Brass + Ni Plated					Brass + Ni Plated			Brass + Ni Plated			Brass + Ni Plated		
Ball	Forged Brass + Cr Plated					Forged Brass+Sn-Ni Plated/304SS			Forged Brass+Sn-Ni Plated/304SS			Forged Brass+Sn-Ni Plated/304SS		
Ball Seat	PTFE					PTFE			PTFE			PTFE		
Gland Packing/O ring	FKM					FKM			FKM			FKM		
Handle	CS + Zn Plated					CS + Zn Plated/DI			CS + Zn Plated/DI			CS + Zn Plated/DI		
Bore	Full Bore					Full Bore			Full Bore			Full Bore		
Standard/Approval	WRAS:(WR)PN40SZA					CSA, FM			UL, FM			CSA, UL		
Service Conditions	40 bar for W.O.G. Non-shock, 10 bar at 150°C (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi)/4 ^B : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ^B : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 4.14MPa(600psi)/4 ^B : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ^B : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 4.14MPa(600psi)/4 ^B : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ^B : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)		
Reference Page									P-T Rating : Page BR34					
Remarks	Full Bore, Double O-ring WRAS: Option					Full Bore, Double O-ring			Full Bore, Double O-ring			Full Bore, Double O-ring Butterfly (Wing) Handle		

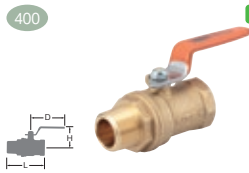
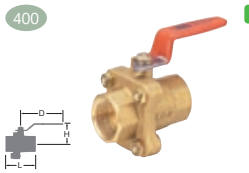
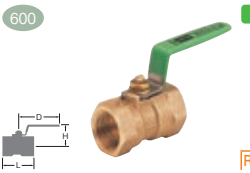
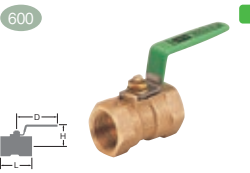
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball				
Brass Z Ball Series	600		 NO IMAGE		
Fig	CSZAW				
End Connection	**ASME B16.18				
inch	mm	L	H	D	
3/8	10	46	34	55	
1/2	15	54	40	70	
3/4	20	73	44	70	
1	25	88	53	100	
1 1/4	32	100	58	100	
1 1/2	40	115	74	130	
2	50	140	81	130	
Body & Cap		Forged Brass			
Stem		Brass + Ni Plated			
Ball		Forged Brass+Sn-Ni Plated/304SS			
Ball Seat		PTFE			
Gland Packing/O ring		FKM			
Handle		CS + Zn Plated/DI			
Bore		Full Bore			
Standard/Approval		UL			
Service Conditions		W.O.G. Non-shock 4.14MPa(600psi)/4 ^B : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ^B : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			
Reference Page		P-T Rating : Page BR34			
Remarks		Full Bore, Double O-ring Butterfly (Wing) Handle			

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

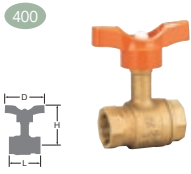
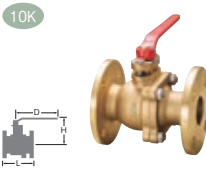
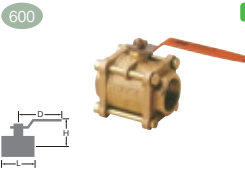
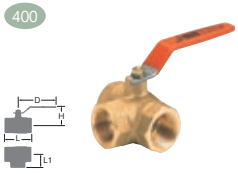
Type	Ball					Ball					Ball					Ball				
Bronze & Brass T Ball Series	400  SB 					400  SB					400  SB					400  SB				
																				
Fig	T					AKT					TT					TG				
End Connection	*BS21 (JIS B0203)					ASME B1.20.1					*BS21 (JIS B0203)					*BS21 (JIS B0203)				
inch	mm	L	H	D		L	H	D		L	H	D		L	H	D				
1/4	8	50	39	60		50	39	60		50	34	65		50	39	60				
3/8	10	50	39	60		50	39	60		50	34	65		50	39	60				
1/2	15	65	39	80		65	39	80		65	37	80		65	39	80				
3/4	20	68	42	80		68	42	80		68	40	80		68	42	80				
1	25	79	46	110		79	46	110		79	46	90		79	46	110				
1 1/4	32	86	51	110		86	51	110		86	52	105		86	51	110				
1 1/2	40	96	56	110		96	56	110		96	57	105		96	56	110				
2	50	109	65	140		109	65	140		109	71	120		109	65	140				
2 1/2	65	127	85	200		127	85	200						127	85	200				
3	80	153	105	300		153	105	300						153	105	300				
4	100	179	126	400		179	126	400												
Body & Cap	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass					Forged Brass/Cast Bronze				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass				
Ball	Forged Brass+Ni-Cr Plated/304SS					Forged Brass+Ni-Cr Plated/304SS					Forged Brass+Ni-Cr Plated/304SS					Forged Brass+Ni-Cr Plated/304SS				
Ball Seat	PTFE					PTFE					PTFE					PTFE				
Gland Packing/O ring	FKM					FKM					FKM					NBR				
Handle	430SS/DI					ZDC					430SS/DI					430SS/DI				
Bore	Standard Bore					Standard Bore					Standard Bore					Standard Bore				
Standard/Approval	RoHS: T<GS101> up to 1 ^B																			
Service Conditions	W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)					Room temperature gas up to 40°C				
Remarks	RoHS:Option Standard Bore, Double O-ring					Standard Bore, Double O-ring					T Handle Standard Bore, Double O-ring					For Gas Service Standard Bore, Double O-ring				

*The length of useful threads & the positions of gauge planes are built on KITZ standard. (1 1/4^B & above)

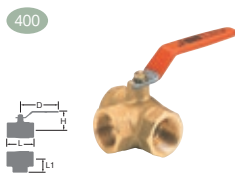
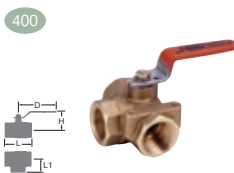
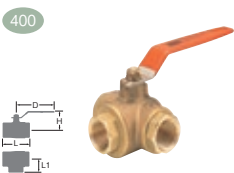
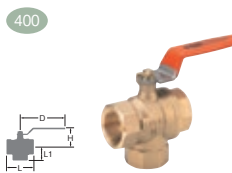
Type	Ball				Ball				Ball				Ball			
Bronze & Brass T Ball Series																
																
Fig	TO				TM				TK				AKTK			
End Connection	BS21 (JIS B0203)				*BS21 (JIS B0203)				BS21 (JIS B0203)				ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/8								32	30	60						
1/4	8	59	39	60				39	30	60	39	30	60			
3/8	10	60	39	60	56	45	60	44	35	70	44	35	70			
1/2	15	74	39	80	60	45	80	56.5	38	85	56.5	38	85			
3/4	20	80	42	80	68	49	80	59	42	85	59	42	85			
1	25	94	46	110	80	55	110	71	47	100	71	47	100			
1 1/4	32				86	60	110	78	52	100	78	52	100			
1 1/2	40				101	65	110	83	63	125	83	63	125			
2	50				117	75	140	100	70	125	100	70	125			
2 1/2	65				136	91	200									
3	80				160	105	300									
Body & Cap	Forged Brass				Forged Brass				Forged Brass				Forged Brass			
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Ball	Forged Brass+Ni-Cr Plated/304SS				Forged Brass+Ni-Cr Plated/304SS				Forged Brass+Cr Plated				Forged Brass+Cr Plated			
Ball Seat	PTFE				PTFE				G/F PTFE				G/F PTFE			
Gland Packing/O ring	FKM				FKM				G/F PTFE				G/F PTFE			
Handle	430SS/DI				430SS/DI				430SS				430SS			
Bore	Standard Bore				Standard Bore				Reduced Bore				Reduced Bore			
Standard/Approval									RoHS: TK<GS101> up to 1 ^B							
Service Conditions	W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)			
Remarks	BS21: Male & Female				Split Type				RoHS:Option Reduced Bore, One-piece Body				Reduced Bore, One-piece Body			

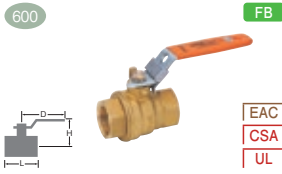
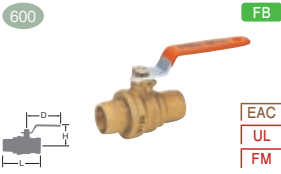
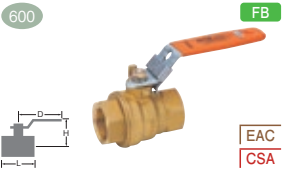
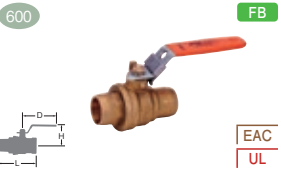
*The length of useful threads & the positions of gauge planes are built on KITZ standard. (1 1/4^B & above)

Type	Ball				Ball				Ball				Ball			
Bronze & Brass T Ball Series	600  RB  JWWA RoHS				600  RB  RoHS				150  FB 				400  SB 			
	Fig	TKT				TKW				TFJ				TL		
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/8		32	22	35	32	24	35									
1/4	8	39	22	35	39	24	35									
3/8	10	44	26	40	44	29	40									
1/2	15	56.5	29	60	56.5	34	55									
3/4	20	59	33	60	59	37	55	62	53	65	56	75	80			
1	25	71	46	76	71	41	69	73	58	65	65	79	80			
1 1/4	32	78	45	76				85	67	90	78	83	110			
1 1/2	40	83	51	100				98	72	90	86	98	110			
2	50	100	58	100				108	90	110	96	102	110			
2 1/2								124	98.5	110	109	109	140			
Body & Cap	Forged Brass				Forged Brass				Forged Brass/Cast Bronze				Cast Bronze			
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Ball	Forged Brass+Cr Plated				Forged Brass+Cr Plated				Forged Brass+Ni-Cr Plated				CF8 (SCS13A)			
Ball Seat	G/F PTFE				G/F PTFE				PTFE				PTFE			
Gland Packing/O ring	G/F PTFE				G/F PTFE				FKM				FKM			
Handle	ZDC				ZDC				ZDC				430SS			
Bore	Reduced Bore				Reduced Bore				Full Bore				Standard Bore			
Standard/Approval	RoHS: TKT<GS101> up to 1 ^B JWWA E-2 up to 1 1/2 ^B				RoHS: TKW<GS101> up to 1 ^B											
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.03MPa(150psi) , W.O.G 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			
Remarks	RoHS:Option, T Handle Reduced Bore, One-piece Body				RoHS:Option, Wing Handle Reduced Bore, One-piece Body				Full Bore, Double O-ring Locking Device				Standard Bore, Double O-ring For Thermal Insulation			

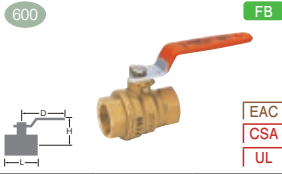
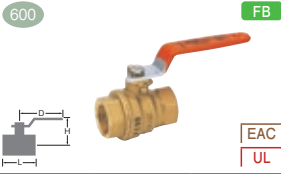
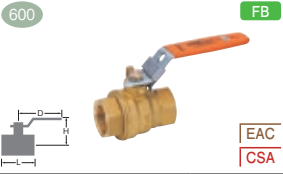
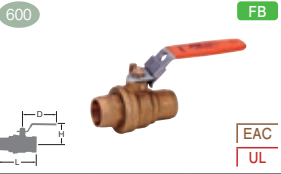
Type	Ball				Ball				Ball				3-Way Ball (2-seat, L-port)			
Bronze & Brass T Ball Series																
	SB				FB				FB				SB			
Fig	TLT				TB				AK3TM				TN			
End Connection	BS21 (JIS B0203)				JIS B2240				BS21 (JIS B0203)				*BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D		L	H	D		L	H	D	L1
1/4	8								49	39	82		40	30	60	20
3/8	10								49	39	82		46	35	70	23
1/2	15	56	79	82	110	85	130		61	42	82		67	44	80	33.5
3/4	20	65	83	82	120	88	130		70	51	100		68	49	80	34
1	25	78	90	94	130	95	160		83	59	130		79	55	110	39.5
1 1/4	32	86	105	94	140	98	160		99	64	130		89	59	110	44.5
1 1/2	40	96	109	94	165	115	230		117	73	150		100	64	110	50
2	50	109	124	120	180	121	230		139	80	150		115	74	140	57.5
2 1/2	65				190	152	400						138	91	200	69
3	80				200	161	400						166	105	300	83
4	100				230	190	460									
Body & Cap	Cast Bronze				Cast Bronze				Forged Brass				Forged Brass/Cast Bronze			
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Ball	304SS				Forged Brass+Ni-Cr Plated/304SS				Forged Brass+Sn-Ni Plated				Forged Brass+Cr Plated			
Ball Seat	PTFE				PTFE				PTFE				PTFE			
Gland Packing/O ring	FKM				FKM				PTFE				G/F PTFE up to 3/8" & FKM			
Handle	Reinforced nylon				DI				CS				430SS/DI			
Bore	Standard Bore				Full Bore				Full Bore				Standard Bore			
Standard/Approval													RoHS: TN<GS101> up to 1 ^B JWWA E-2 up to 11/2 ^B			
Service Conditions	W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 80°C 1.96MPa(296psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.4MPa(14KGF/ CM2), W.O.G. 150°C 0.69MPa(7KGF/ CM2) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			
Reference Page													Port Orientation : Page TECH1			
Remarks	Standard Bore, Double O-ring, T Handle, For Thermal Insulation				For Gas Service, Full Bore, Double O-ring				Full Bore, 3-piece Body w/Mounting Pad				Standard Bore, Double O-ring, L-port, RoHS&JWWA:Option			

*The length of useful threads & the positions of gauge planes are built on KITZ standard. (11/4^B & above)

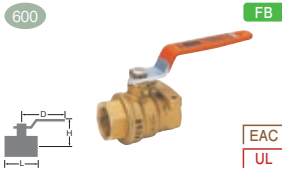
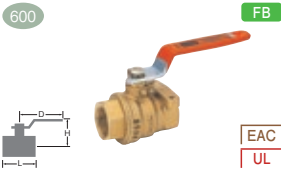
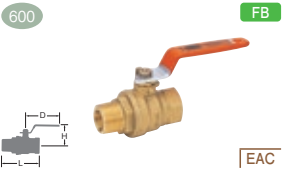
Type	3-Way Ball (2-seat, L-port)						3-Way Ball (2-seat, L-port)				3-Way Ball (4-seat, L/T-port)				3-Way Ball (2-seat, L/T-port)			
Bronze & Brass T Ball Series	400 						400 				400 				400 			
	SB						SB				SB				SB			
Fig	AKTN						AKTNP				T4T/T4L				TV2T/TV2L			
End Connection	ASME B1.20.1						ASME B1.20.1				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L1		L	H	D	L1		L	H	D	L1			
1/4	8	40	30	60	20										40			
3/8	10	46	35	70	23										46			
1/2	15	67	44	80	33.5		67	44	80	33.5		70	52	130	35			
3/4	20	68	49	80	34		68	49	80	34		85	56	130	42.5			
1	25	79	55	110	39.5		79	55	110	39.5		100	63	150	50			
1 1/4	32	89	59	110	44.5		89	59	110	44.5		115	68	150	57.5			
1 1/2	40	100	64	110	50		100	64	110	50		130	94.5	230	65			
2	50	115	74	140	57.5		115	74	140	57.5		150	102	230	75			
2 1/2	65	138	91	200	69													
3	80	166	105	300	83													
Body & Cap	Forged Brass/Cast Bronze						Forged Brass/Cast Bronze				Body: Cast Bronze/Cap: Forged Brass				Body: Cast Bronze/Cap: Forged Brass			
Stem	Dezincification Resistant Brass						Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Ball	Forged Brass+Cr Plated						Forged Brass+Cr Plated				Forged Brass+Cr Plated				Forged Brass+Cr Plated			
Ball Seat	PTFE						PTFE				PTFE				PTFE			
Gland Packing/O ring	G/F PTFE up to 3/8 ^B & FKM						G/F PTFE up to 3/8 ^B & FKM				FKM				G/F PTFE up to 3/8 ^B & FKM			
Handle	430SS/DI						430SS/DI				430SS/DI				430SS			
Bore	Standard Bore						Standard Bore				Standard Bore				Standard Bore			
Standard/Approval	RoHS: TN<GS101> up to 1 ^B						RoHS: TN<GS101> up to 1 ^B											
Service Conditions	W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)						W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			
Reference Page	Port Orientation : Page TECH1						Port Orientation : Page TECH1				Port Orientation : Page TECH1				Port Orientation : Page TECH2			
Remarks	Standard Bore, Double O-ring, L-port,						Standard Bore, Double O-ring, L-port, with Mounting Pad				Standard Bore, Double O-ring L-port or T-port				Standard Bore, Double O-ring L-port or T-port, Vertical Type			

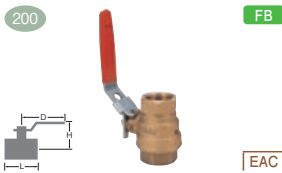
Type	Ball					Ball					Ball					Ball				
Bronze & Brass T Ball Series																				
	600					600					600					600				
Fig	AKTAFLL					CTAF					AKTFLL					CTFLL				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					**ASME B16.18				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	41	39	81							41	35	81							
3/8	10	42	39	81		46	39	82			42	35	81							
1/2	15	53	42	81		54	42	82			53	38	81			54	38	81		
3/4	20	60	51	100		73	51	100			60	47	100			73	47	100		
1	25	72	58	130		88	59	130			72	54	130			88	54	130		
1 1/4	32	82	64	130		100	64	130			82	59	130			100	59	130		
1 1/2	40	92	73	150		115	73	150			92	67	150			115	67	150		
2	50	105	80	150		140	80	150			105	75	150			140	75	150		
2 1/2	65					163	108	200												
3	80					187	122	300												
Body & Cap	Forged Brass					Forged Brass/ Cast Bronze					Forged Brass					Forged Brass				
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass					Dezincification Resistant Brass				
Ball	Forged Brass + Cr Plated					Forged Brass/304SS					Forged Brass + Cr Plated					Forged Brass + Cr Plated				
Ball Seat	PTFE					PTFE					PTFE					PTFE				
Gland Packing/O ring	PTFE					PTFE					FKM+NBR					FKM+NBR				
Handle	CS + Zn Plated					CS + Zn Plated					CS + Zn Plated					CS + Zn Plated				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
Standard/ Approval	CSA, UL					UL, FM					CSA					UL				
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Reference Page						P-T Rating : Page BR34										P-T Rating : Page BR34				
Remarks	Latch Lock Handle EAC: Option					EAC: Option					Latch Lock Handle EAC: Option					Latch Lock Handle EAC: Option				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

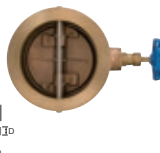
Type	Ball					Ball					Ball					Ball				
Bronze & Brass T Ball Series																				
	600					600					600					600				
Fig	AKTAFM					CTAFM					AKTFMLL					CTFMLL				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					**ASME B16.18				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	41	39	82							41	35	81							
3/8	10	42	39	82		46	39	82			42	35	81							
1/2	15	53	42	82		54	42	82			53	38	81			54	38	81		
3/4	20	60	51	100		73	51	100			60	47	100			73	47	100		
1	25	72	58	130		88	59	130			72	54	130			88	54	130		
1 1/4	32	82	64	130		100	64	130			82	59	130			100	59	130		
1 1/2	40	92	73	150		115	73	150			92	67	150			115	67	150		
2	50	105	80	150		140	80	150			105	75	150			140	75	150		
Body/Cap	Forged Brass					Forged Brass					Forged Brass					Forged Brass				
Stem	316SS					316SS					316SS					316SS				
Ball	316SS					316SS					316SS					316SS				
Ball Seat	PTFE					PTFE					PTFE					PTFE				
Gland Packing/O ring	PTFE					PTFE					FKM+NBR					FKM+NBR				
Handle	CS + Zn Plated					CS + Zn Plated					CS + Zn Plated					CS + Zn Plated				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
Standard/ Approval	CSA, UL					UL					CSA					UL				
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Reference Page						P-T Rating : Page BR34										P-T Rating : Page BR34				
Remarks	316SS Trim EAC: Option					316SS Trim EAC: Option					Latch Lock Handle 316SS Trim, EAC: Option					Latch Lock Handle EAC: Option				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball					Ball					Ball					Ball				
Bronze & Brass T Ball Series																				
	600					600					600					600				
Fig	AKTAFP					AKTAFPM					AKTAFO					AKTAFU				
End Connection	ASME B1.20.1					ASME B1.20.1					ASME B1.20.1					ASME B1.20.1				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	41	39	82		41	39	81			52	39	82			52	39	82		
3/8	10	42	39	82		42	39	81			53	39	82			52	39	82		
1/2	15	53	42	82		53	42	81			66	42	82			63	42	82		
3/4	20	60	51	100		60	51	100			73	51	100			75	51	100		
1	25	72	59	130		72	59	130			88	59	130			88	59	130		
1 1/4	32	82	64	130		82	64	130								98	64	130		
1 1/2	40	92	74	150		92	73	150								113	73	150		
2	50	105	81	150		105	80	150								126	80	150		
2 1/2	65	135	109	200		135	108	200												
3	80	156	123	300		156	122	300												
4	100	192	141	300		192	140	300												
Body & Cap	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze					Forged Brass					Forged Brass				
Stem	Dezincification Resistant Brass					316SS					Dezincification Resistant Brass					Dezincification Resistant Brass				
Ball	Forged Brass/304SS					316SS					Forged Brass + Cr Plated					Forged Brass + Cr Plated				
Ball Seat	PTFE					Reinforced PTFE					PTFE					PTFE				
Gland Packing/O ring	PTFE					PTFE					PTFE					PTFE				
Handle	CS + Zn Plated					CS + Zn Plated					CS + Zn Plated					CS + Zn Plated				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
Standard/Approval	UL					UL														
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Remarks	With Mounting Pad EAC: Option					Latch Lock Handle, With mounting pad, 316SS Trim, EAC: Option					Male & Female EAC: Option					Single Union Gasket : FKM, EAC: Option				

Type	Ball					
Bronze & Brass T Ball Series						
	200					
Fig	AKTAFS					
End Connection	ASME B1.20.1					
inch	mm	L	H	E	D	
1/4	8	41	39	4	81	
3/8	10	42	39	4	81	
1/2	15	53	42	4	81	
3/4	20	60	51	4	100	
1	25	72	59	4	130	
1 1/4	32	82	64	4	130	
1 1/2	40	92	73	4	150	
2	50	105	80	4	150	
Body & Cap	Forged Brass					
Stem	Dezincification Resistant Brass					
Ball	Forged Brass + Cr Plated					
Ball Seat	PTFE					
Gland Packing/O ring	PTFE					
Handle	CS + Zn Plated					
Bore	Full Bore					
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), -18°C to +93°C(not freezing) (Do not use for flammable gas or toxic gas.)					
Remarks	Exhaust Hole, Latch Lock Handle Gasket for 2 nd : NBR, EAC: Option					

Type	Globe				Gate				Gate				Swing Check			
Lead Free Bronze & Brass KEEPALLOY®																
Fig	GN				HN				WN				RN			
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
3/8	10															
1/2	15	57	87	60	45	80	50	55	104	60	53	39				
3/4	20	66	102	70	50	90	55	65	112	70	70	45				
1	25	76	113	80	57	105	60	70	135	80	80	52				
1 1/4	32	88	138	90	61	118	70	80	157	90	92	62				
1 1/2	40	100	154	100	67	135	80	90	175	100	102	67				
2	50	120	183	115	74	159	90	100	201	120	122	79				
2 1/2	65				90	202	115				150	91				
3	80				100	223	135									
4	100				121	280	155									
Body	CAC911				CAC911				CAC911				CAC911			
Bonnet/ Cap/ Cover	C6803				CAC911				CAC911				C6803/ Forged Brass			
Stem/ Hinge Pin	C6803				C6803				C6803				C1100			
Disc	G/ F PTFE				C6803/ CAC911				CAC911				C6803/ Forged Brass			
Gland Packing/ O ring	Aramid Fibers Graphite				Aramid Fibers Graphite				NBR							
Hand Wheel	Alminum Die-Cast				Alminum Die-Cast/ ZDC				C3771BE							
Standard/ Approval	JWWA E-1				JWWA E-1				JWWA E-1				JWWA E-464			
Service Conditions	Stream Water up to 100°C 1.18MPa				Stream Water up to 100°C 1.18MPa				Stream Water up to 80°C 1.4MPa, Pulsating Water up to 80°C 1.0MPa				Stream Water up to 100°C 1.18MPa			
Remarks									Buried Type, Brass Hand Wheel							

Type	Swing Check			Vertical Lift Check			Wafer Check			Globe		
Lead Free Bronze & Brass KEEPALLOY®	125		SC	150			10K		Dual	10K		SB/BB RS
Fig	CRN			RFN			10BWZN			JN		
End Connection	**JIS B2011			BS21 (JIS B0203)			Wafer (JIS 10K)			JIS B0203		
inch	mm	L	H	D	L	S	L	H	D	L	H	D
1/4	8									50	83	50
3/8	10	56	39							55	85	55
1/2	15	67	39		53	28				65	91	60
3/4	20	89	45		59	34				80	120	80
1	25	104	52		67	41				90	135	90
1 1/4	32	120	62		78	50				105	156	100
1 1/2	40	134	67		84	57	54	132	55	120	169	115
2	50	164	79		98	70	56	139	70	140	194	135
2 1/2	65						56	146	70			
3	80						59	152	70			
4	100						66	165	70			
5	125						72	183	70			
6	150						78	208	80			
8	200						96	237	80			
Body	CAC911			CAC911			CAC911+NBR			CAC911		
Bonnet/Cap/Cover	C6803/Forged Brass			CAC911						CAC911		
Hinge Pin/Spring	C1100			Spring: P Bronze(C519W-H)			304SS			C6803		
Disc/Screen	C6803/Forged Brass			FKM			CAC911			C6803/CAC911		
Gland Packing/Gasket							Aramid Fiber Graphite			Aramid Fiber Graphite		
Hand Wheel							Aluminum Die-Cast/DI			Aluminum Die-Cast/DI		
Standard/Approval	JWWA E-464			JWWA F-68			JWWA E-628			JIS B2011		
Service Conditions	Stream Water up to 100°C 1.18MPa			Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa			Stream Water up to 80°C 1.4MPa, Pulsating Water up to 80°C 1.0MPa			Stream Water up to 100°C 1.4MPa, Pulsating Water up to 100°C 1.0MPa		
Reference Page	P-T Rating : Page BR34						Features: Page BR36					
Remarks							Built-in Bypass Valve, Dual Plate Type					

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

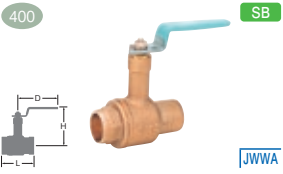
Type	Gate					Gate					Gate					Gate				
Lead Free Bronze & Brass KEEPALLOY®	5K					5K					10K					10K				
																				
																				
	SB RS					SB RS					SB RS					SB RS				
Fig	MN					CMN					LN					CLN				
End Connection	JIS B0203					**JIS B2011					JIS B0203					**JIS B2011				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/2	15	50	126	60		50	126	60			55	126	60			50	124	60		
3/4	20	60	145	60		65	145	60			65	151	70			65	149	70		
1	25	65	169	70		75	169	70			70	176	80			75	173	80		
1 1/4	32	75	209	90		80	209	90			80	219	90			82	217	90		
1 1/2	40	85	239	100		88	239	100			90	250	100			92	248	100		
2	50	95	285	115		108	285	115			100	292	115			110	292	115		
2 1/2	65	115	366	135							120	376	155							
3	80	130	428	155							140	436	180							
Body	CAC911					CAC911					CAC911					CAC911				
Bonnet	CAC911					CAC911					CAC911					CAC911				
Stem	C6803					C6803					C6803					C6803				
Disc	CAC911/C6803					CAC911/C6803					CAC911					CAC911				
Gland Packing	Aramid Fibers Graphite/PTFE					Aramid Fibers Graphite/PTFE					Aramid Fibers Graphite					Aramid Fibers Graphite				
Hand Wheel	Aluminum Die-Cast/ZDC					Aluminum Die-Cast/ZDC					Aluminum Die-Cast/ZDC/DI					Aluminum Die-Cast/ZDC/DI				
Standard/Approval	JIS B2011					JIS B2011					JIS B2011					JIS B2011				
Service Conditions	Stream Water up to 100°C 0.7MPa, Pulsating Water up to 100°C 0.5MPa					Stream Water up to 100°C 0.7MPa, Pulsating Water up to 100°C 0.5MPa					Stream Water up to 100°C 1.4MPa, Pulsating Water up to 100°C 1.0MPa					Stream Water up to 100°C 1.4MPa for up to 1 ^B , 1.2MPa for 1 1/4 ^B & over, Pulsating Water up to 100°C 1.0MPa for up to 1 ^B , 0.8MPa for 1 1/4 ^B & over				
Reference Page						P-T Rating : Page BR34										P-T Rating : Page BR34				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

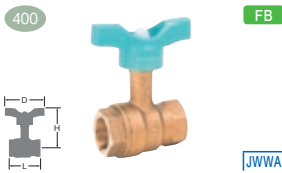
Type	Swing Check					Y-Pattern Swing Check					Y-Pattern Swing Check				
Lead Free Bronze & Brass KEEPALLOY®	10K					150					150				
															
															
	SC					SC					SC				
Fig	ON					YNK					CYNK				
End Connection	JIS B0203					JIS B0203					**JIS B2011				
inch	mm	L	H	D		L	H	***H1			L	H	***H1		
3/8	10	55	38.5												
1/2	15	65	43			80	50	68			80	51	68		
3/4	20	80	51.5			100	59	83			105	59	83		
1	25	90	58.5			115	71	105			125	72	105		
1 1/4	32	105	67			135	84	124			145	84	124		
1 1/2	40	120	73.5			160	100	149			170	100	149		
2	50	140	86			195	123	188			210	123	188		
Body	CAC911					CAC911					CAC911				
Bonnet/Cap/Cover	C6803					C6803					C6803				
Stem/Hinge Pin	Copper														
Disc/Screen	CAC911					304SS					304SS				
O ring						FKM					FKM				
Standard/Approval						JWWA Z-49					JWWA Z-49				
Service Conditions	Stream Water up to 100°C 1.4MPa, Pulsating Water up to 100°C 1.0MPa					Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa					Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa				
Reference Page											P-T Rating : Page BR34				
Remarks						40 mesh									

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

***Height for removing the screen

Type	Ball					Ball			Ball			Ball		
Lead Free Bronze & Brass KEEPALLOY®														
	Fig					Fig			Fig			Fig		
	End Connection					End Connection			End Connection			End Connection		
	BS21 (JIS B0203)					BS21 (JIS B0203)			**JIS B2011			BS21 (JIS B0203)		
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
	1/2	15	56	75	80	56	79	82	58	75	80	56	75	80
	3/4	20	65	79	80	65	83	82	73	79	80	65	79	80
	1	25	78	83	110	78	90	94	88	83	110	77	85	110
	1 1/4	32	86	98	110	86	105	94	99	98	110	90	102	110
	1 1/2	40	96	102	110	96	109	94	114	102	110	98	110	140
	2	50	109	109	140	109	124	120	135	109	140	119	118	140
Body & Cap	CAC911					CAC911			CAC911			CAC911		
Stem	C6803					C6803			C6803			304SS		
Ball	304SS					304SS			304SS			304SS		
Ball Seat	PTFE					PTFE			PTFE			PTFE		
Gland Packing/O ring	FKM					FKM			FKM			FKM		
Handle	430SS					Reinforced Nylon			430SS			430SS		
Bore	Standard Bore					Standard Bore			Standard Bore			Full Bore		
Standard/Approval	JWWA E-1					JWWA E-1			JWWA E-1			JWWA E-1		
Service Conditions	Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa					Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa			Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa			Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa		
Reference Page									P-T Rating : Page BR34					
Remarks	Standard Bore, Double O-ring For Thermal Insulation					Standard Bore, Double O-ring T Handle, For Thermal Insulation			Standard Bore, Double O-ring For Thermal Insulation			Full Bore, Double O-ring For Thermal Insulation		

**Solder jointed end valve should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball				
Lead Free Bronze & Brass KEEPALLOY®					
	Fig				
	End Connection				
	BS21 (JIS B0203)				
	inch	mm	L	H	D
	1/2	15	56	80	82
	3/4	20	65	84	82
	1	25	77	93	94
	1 1/4	32	90	110	94
	1 1/2	40	98	125	120
	2	50	119	134	120
Body & Cap	CAC911				
Stem	304SS				
Ball	304SS				
Ball Seat	PTFE				
Gland Packing/O ring	FKM				
Handle	Reinforced Nylon				
Bore	Full Bore				
Standard/Approval	JWWA E-1				
Service Conditions	Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa				
Remarks	Full Bore, Double O-ring T Handle, For Thermal Insulation				

Type	Gate					Gate			Gate			Swing Check		
Lead Free Bronze & Brass NSF61-G	125  SB IS NRS  NSF					125  SB/SOB IS NRS  NSF			125  SB/SOB IS NRS  NSF			125  SC  NSF		
	AKFSN					AKHN			CHN			AKRN		
	End Connection		ASME B1.20.1			ASME B1.20.1			**ASME B16.18			ASME B1.20.1		
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
	1/2	15	42	75	50	45	80	50	46	80	50	60	39	
3/4	20	47	86	55	50	90	55	61	90	55	70	45		
1	25	50	97	60	57	105	60	72	105	60	80	52		
1 1/4	32	60	117	70	61	118	70	78	118	70	92	62		
1 1/2	40	63	126	80	67	135	80	87	135	80	102	67		
2	50	72	154	90	74	159	90	102	159	90	122	79		
Body	Forged Brass				CAC911			CAC911			CAC911			
Bonnet/Cap	Forged Brass				CAC911			CAC911			Forged Brass			
Stem/Hinge Pin	Forged Brass				Forged Brass			Forged Brass			Copper			
Disc	Forged Brass				Forged Brass/CAC911			Aramid Fibers Graphite			Forged Brass			
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite			Aramid Fibers Graphite						
Hand Wheel	Alminum Die-Cast				Alminum Die-Cast			Alminum Die-Cast						
Standard/Approval	NSF				NSF			NSF			NSF			
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			
Reference Page								P-T Rating : Page BR34						

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Swing Check					Y-Pattern Swing Check				Y-Pattern Swing Check				Y-Pattern Swing Check				
Lead Free Bronze & Brass NSF61-G	125  SC  NSF					125  SC  MSS NSF				125  SC  MSS NSF				125  SC  MSS NSF				
	Fig	CRN					AKYRN				CYRN				AKYRNT			
	End Connection	**ASME B16.18					ASME B1.20.1				**ASME B16.18				ASME B1.20.1			
	inch	mm	L	H	D		L	H	D		L	H	D		L	H	D	
	1/2	15	67	39			56	40			67	38			56	40		
3/4	20	89	45			70	49			86	47			70	49			
1	25	104	52			80	58			105	56			80	58			
1 1/4	32	120	62			95	71			121	69			95	71			
1 1/2	40	134	67			110	80			137	77			110	80			
2	50	164	79			128	95			170	92			128	95			
Body	CAC911					B584 C89530				B584 C89530				B584 C89530				
Bonnet/Cap	Forged Brass					B283 C46750				B283 C46750				B283 C46750				
Stem/Hinge Pin	Copper					Copper (CDA No. C11000)				Copper (CDA No. C11000)				Copper (CDA No. C11000)				
Disc	Forged Brass					B584 C89530				B584 C89530				PTFE				
Standard/Approval	NSF					MSS SP-80, NSF				MSS SP-80, NSF				MSS SP-80, NSF				
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR34									P-T Rating : Page BR34								

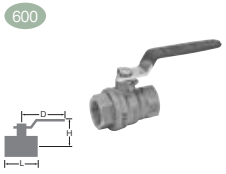
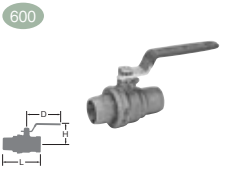
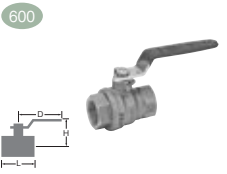
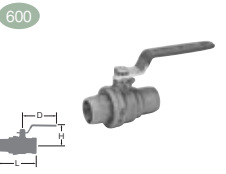
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Y Swing Check					Vertical Lift Check			Vertical Lift Check			Globe		
Lead Free Bronze & Brass NSF61-G														
														
Fig	CYRNT					AKAFN			CAFN			AK125CN		
End Connection	ASME B16.18					ASME B1.20.1			**ASME B16.18			ASME B1.20.1		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
1/2	15	67	38			53			61			53	76	60
3/4	20	86	47			59			76			65	98	70
1	25	105	56			67			89			77	108	80
1 1/4	32	121	69			78			97			85	137	90
1 1/2	40	137	77			84			110			100	160	100
2	50	170	92			98			132			119	180	115
Body	B584 C89530					CAC911			CAC911			CAC911		
Bonnet/Cap	B283 C46750					CAC911			CAC911			Forged Brass		
Stem/Hinge Pin	Copper (CDA No. C11000)					Spring: P Bronze			Spring: P Bronze			Forged Brass		
Disc	PTFE					FKM			FKM			Forged Brass		
Gland Packing												Aramid Fibers Graphite		
Hand Wheel												Aluminum Die-Cast		
Standard/Approval	MSS SP-80, NSF					NSF			NSF			NSF		
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 1.72MPa(250psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.72MPa(250psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)		
Reference Page	P-T Rating : Page BR34					Features : Page BR34			P-T Rating, Features : Page BR34					

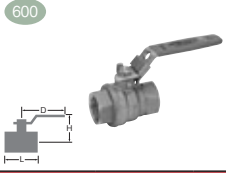
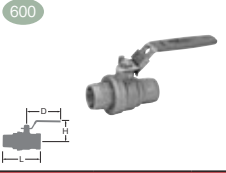
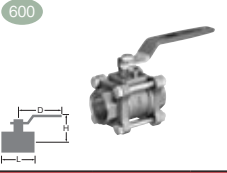
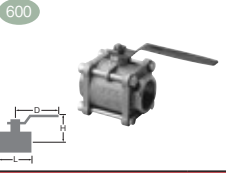
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Globe				
Lead Free Bronze & Brass NSF61-G					
					
Fig	C125CN				
End Connection	**ASME B16.18				
inch	mm	L	H	D	
1/2	15	64	76	60	
3/4	20	84	98	70	
1	25	100	108	80	
1 1/4	32	115	137	90	
1 1/2	40	130	160	100	
2	50	155	180	115	
Body	CAC911				
Bonnet	Forged Brass				
Stem	Forged Brass				
Disc	Forged Brass				
Gland Packing	Aramid Fibers Graphite				
Hand Wheel	Aluminum Die-Cast				
Standard/Approval	NSF				
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR34				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball					Ball					Ball					Ball				
Lead Free Bronze & Brass NSF61-G																				
	600 FB NSF					600 FB NSF					600 FB NSF					600 FB NSF				
Fig	AKTAFN					CTAFN					AKTAFMN					CTAFMN				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					**ASME B16.18				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	41	39	82							41	39	82			46	39	82		
3/8	10	42	39	82		46	39	82			42	39	82			46	39	82		
1/2	15	53	42	82		54	42	82			53	42	82			54	42	82		
3/4	20	60	51	100		73	51	100			60	51	100			73	51	100		
1	25	72	59	130		88	59	130			72	59	130			88	59	130		
1 1/4	32	82	64	130		100	64	130			82	64	130			100	64	130		
1 1/2	40	92	73	150		115	73	150			92	73	150			115	73	150		
2	50	105	80	150		140	80	150			105	80	150			140	80	150		
Body & Cap	Forged Brass					Forged Brass					Forged Brass					Forged Brass				
Stem	Forged Brass					Forged Brass					316SS					316SS				
Ball	Forged Brass/304SS					Forged Brass/304SS					316SS					316SS				
Ball Seat	PTFE					PTFE					PTFE					PTFE				
Gland Packing	PTFE					PTFE					PTFE					PTFE				
Handle	CS + Zn Plated					CS + Zn Plated					CS + Zn Plated					CS + Zn Plated				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
Standard/Approval	NSF					NSF					NSF					NSF				
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Reference Page						P-T Rating : Page BR34										P-T Rating : Page BR34				
Remarks											316SS Trim					316SS Trim				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball					Ball					Ball					Ball				
Lead Free Bronze & Brass NSF61-G																				
	600 FB NSF					600 FB NSF					600 FB NSF					600 FB NSF				
Fig	AKTFMNL					CTFMNL					AK3TMN					C3TMN				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					**ASME B16.18				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/2	15	53	39	81		54	39	81			61	42	82			61	42	82		
3/4	20	60	47	100		73	47	100			70	51	100			73	51	100		
1	25	72	55	130		88	55	130			83	59	130			88	59	130		
1 1/4	32	82	59	130		100	59	130			99	64	130			99	64	130		
1 1/2	40	92	67	150		115	67	150			117	73	150			117	73	150		
2	50	105	75	150		140	75	150			139	80	150			139	80	150		
Body & Cap	Forged Brass					Forged Brass					Forged Brass					Forged Brass				
Stem	316SS					316SS					Forged Brass					Forged Brass				
Ball	316SS					316SS					Forged Brass/304SS					Forged Brass/304SS				
Ball Seat	PTFE					PTFE					PTFE					PTFE				
Gland Packing/O ring	FKM+NBR					FKM+NBR					PTFE, Gasket: FKM					PTFE, Gasket: FKM				
Handle	CS + Zn Plated					CS + Zn Plated					CS + Zn Plated					CS + Zn Plated				
Bore	Full Bore					Full Bore					Full Bore					Full Bore				
Standard/Approval	NSF					NSF					NSF					NSF				
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)					W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				
Reference Page						P-T Rating : Page BR34										P-T Rating : Page BR34				
Remarks	Latch Lock Handle 316SS Trim					Latch Lock Handle 316SS Trim					Full Bore					Full Bore				

**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

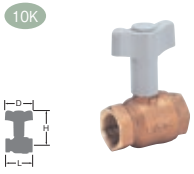
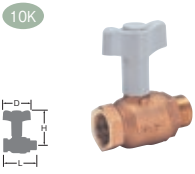
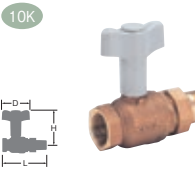
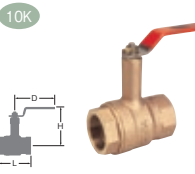
Type	Ball				Ball				Ball				Ball											
Lead Free Bronze & Brass NSF61-G	600				FB		600				FB		600				FB		600				FB	
					NSF						NSF						NSF UL						NSF	
Fig	AK3TMMN				C3TMMN				AKSZAN				CSZAN											
End Connection	ASME B1.20.1				**ASME B16.18				ASME B1.20.1				**ASME B16.18											
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D											
1/4	8							42	37	70														
3/8	10							42	37	70	46	37	70											
1/2	15	61	42	82	61	42	82	53	40	80	54	40	80											
3/4	20	70	51	100	73	51	100	60	44	80	73	44	80											
1	25	83	59	130	88	59	130	72	50	110	88	50	110											
1 1/4	32	99	64	130	99	64	130	84	55	110	100	55	110											
1 1/2	40	117	73	150	117	73	150	92	65	150	115	65	150											
2	50	139	80	150	139	80	150	110	72	150	140	72	150											
2 1/2	65							138	101	200	164	101	200											
3	80							167	112	300	187	112	300											
4	100							193	131	300														
Body & Cap	Forged Brass				Forged Brass				Forged Brass				Forged Brass											
Stem	316SS				316SS				Forged Brass				Forged Brass											
Ball	316SS				316SS				Forged Brass/304SS				Forged Brass/304SS											
Ball Seat	PTFE				PTFE				PTFE				PTFE											
Gland Packing/O ring	PTFE, Gasket: FKM				PTFE, Gasket: FKM				FKM				FKM											
Handle	CS + Zn Plated				CS + Zn Plated				CS + Zn Plated				CS + Zn Plated											
Bore	Full Bore				Full Bore				Full Bore				Full Bore											
Standard/Approval	NSF				NSF				NSF, UL				NSF											
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi), W.O.G 150°C 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi)/4 ⁹ : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ⁹ : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi)/4 ⁹ : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ⁹ : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)											
Reference Page					P-T Rating : Page BR34								P-T Rating : Page BR34											
Remarks	Full Bore				Full Bore				Full Bore, Double O-ring				Full Bore, Double O-ring											

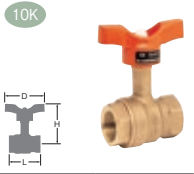
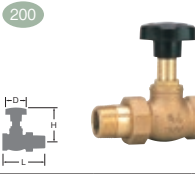
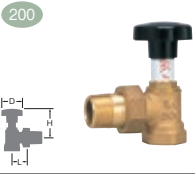
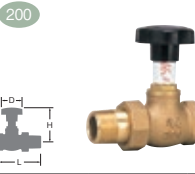
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball				Ball				Ball				3-Way Ball (2-seat, L-port)						
Lead Free Bronze & Brass NSF61-G	600			FB	600			FB	600			FB	400			SB			
					NSF					NSF					NSF				
Fig	AKSZANW				CSZANW				PCTAFMN				AKTNN						
End Connection	ASME B1.20.1				**ASME B16.18				ASME B16.51				ASME B1.20.1						
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L1					
1/4	8	42	34	55															
3/8	10	42	34	55	46	34	55												
1/2	15	53	39	70	54	39	70	106	42	15	67	45	80	33.5					
3/4	20	60	43	70	73	43	70	130	51	20	68	48	80	34					
1	25	72	52	100	88	52	100	147	59	25	79	55	110	39.5					
1 1/4	32	84	58	100	100	58	100	165	64	32	89	60	110	44.5					
1 1/2	40	92	73	130	115	73	130	199	73	40	100	65	110	50					
2	50	110	81	130	140	81	130	237	81	50	115	75	140	57.5					
Body & Cap	Forged Brass				Forged Brass				KSB-4XA				Forged Brass						
Stem	Forged Brass				Forged Brass				316SS				Forged Brass						
Ball	Forged Brass/304SS				Forged Brass/304SS				A351 Gr.CF8M/SCS14A				Forged Brass+Sn-Ni Plated						
Ball Seat	PTFE				PTFE				PTFE				PTFE						
Gland Packing/O ring	FKM				FKM				PTFE				FKM						
Handle	CS + Zn Plated				CS + Zn Plated				Carbon Steel				430SS						
Bore	Full Bore				Full Bore				Full Bore				Standard Bore						
Standard/Approval	NSF				NSF				NSF61/372				NSF						
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi)/4 ⁹ : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ⁹ : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi)/4 ⁹ : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 ⁹ : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				-17 to 121°C 2.06MPa				W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)						
Reference Page					P-T Rating : Page BR34								Port Orientation : Page TECH1						
Remarks	Full Bore, Double O-ring Butterfly (Wing) Handle				Full Bore, Double O-ring Butterfly (Wing) Handle				Solder tube connection, Stainless trim, Press connection				Standard Bore, Double O-ring, L-port						

Type	3-Way Ball (2-seat, L-port)				
Lead Free Bronze & Brass NSF61-G	400				SB
	NO IMAGE				
	NSF				
	Fig	CTNN			
End Connection	**ASME B16.18				
inch	mm	L	H	D	L1
1/2	15	56	45	80	28
3/4	20	74	48	80	37
1	25	88	55	110	44
1 1/4	32	99	60	110	50.5
1 1/2	40	114	65	110	59
2	50	136	75	140	71.5
Body & Cap	Forged Brass				
Stem	Forged Brass				
Ball	Forged Brass+Sn-Ni Plated				
Ball Seat	PTFE				
O ring	FKM				
Handle	430SS				
Bore	Standard Bore				
Standard/Approval	NSF				
Service Conditions	W.O.G. Non-shock 2.76MPa(400psi), W.O.G. 150°C 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR34, Port Orientation : Page TECH1				
Remarks	Standard Bore, Double O-ring, L-port				

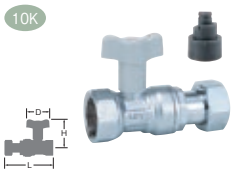
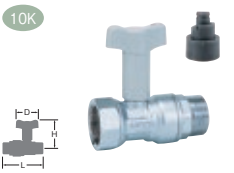
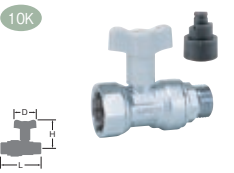
Type	Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit				
Bronze & Brass Fancoil Valves																	
	Fig	RTRM				RTRO				RTRR				RTRU			
End Connection		BS21 (JIS B0203)				BS21(JIS B0203xB0202)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D	
1/2	15	56	72	40	62	72	40	62	72	40	88	72	40				
3/4	20	61	72	40	66	72	40	66	72	40	92.5	72	40				
1	25	70.5	75.5	40	75.5	75.5	40	75.5	75.5	40	104	75.5	40				
Body & Cap		CAC406				CAC406				CAC406				CAC406			
Stem		C3531				C3531				C3531				C3531			
Ball		C3771 + Ni-Cr Plating				C3771 + Ni-Cr Plating				C3771 + Ni-Cr Plating				C3771 + Ni-Cr Plating			
Ball Seat		PTFE				PTFE				PTFE				PTFE			
O ring		EPDM				EPDM				EPDM				EPDM			
Handle		Polyacetal				Polyacetal				Polyacetal				Polyacetal			
Bore		Reduced Bore				Reduced Bore				Reduced Bore				Reduced Bore			
Service Conditions		Stream Water 0°C to 90°C 1.0MPa (not freezing)				Stream Water 0°C to 90°C 1.0MPa (not freezing)				Stream Water 0°C to 90°C 1.0MPa (not freezing)				Stream Water 0°C to 90°C 1.0MPa (not freezing)			
Remarks		Taper Thread Detachable & T Type Long Handle				Taper Thread (Female) x Parallel Thread (Male) Detachable & T Type Long Handle				Taper Thread (Female) x Taper Thread (Male) Detachable & T Type Long Handle				Female x Male (Union Nipple) Detachable & T Type Long Handle			

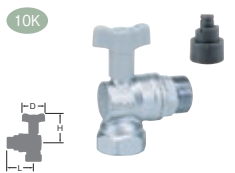
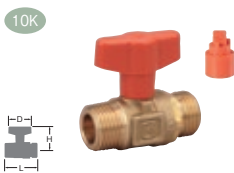
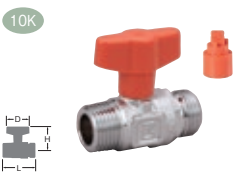
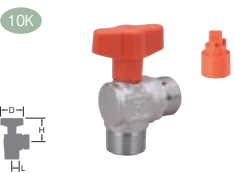
Type	Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit			
Bronze & Brass Fancoil Valves																
	10K				10K				10K				10K			
Fig	RTFM				RTFO				RTFU				TLF			
End Connection	BS21 (JIS B0203)				BS21(JIS B0203xB0202)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15	59	76	61	73	76	61	96	76	61	56	75	80	56	75	80
3/4	20	67.5	79	61	82	79	61	106	79	61	65	79	80	65	79	80
1	25	78.5	97	100	96	97	100	120	97	100	77	85	110	77	85	110
1 1/4	32										90	102	110	90	102	110
1 1/2	40										98	110	140	98	110	140
2	50										119	118	140	119	118	140
Body & Cap	CAC406				CAC406				CAC406				CAC406			
Stem	C3531				C3531				C3531				304SS			
Ball	316SS				316SS				316SS				304SS			
Ball Seat	G/F PTFE				G/F PTFE				G/F PTFE				PTFE			
O ring	EPDM				EPDM				EPDM				FKM			
Handle	Polyacetal				Polyacetal				Polyacetal				430SS			
Bore	Full Bore				Full Bore				Full Bore				Full Bore			
Service Conditions	Stream Water 0°C to 100°C 1.4MPa, Pulsating Water 0°C to 100°C 1.0MPa (not freezing)				Stream Water 0°C to 100°C 1.4MPa, Pulsating Water 0°C to 100°C 1.0MPa (not freezing)				Stream Water 0°C to 100°C 1.4MPa, Pulsating Water 0°C to 100°C 1.0MPa (not freezing)				Stream Water up to 80°C 1.4MPa, (Pulsating Water).O.G. up to 80°C 1.0MPa (Do not use for flammable gas or toxic gas.)			
Remarks	Taper Thread Detachable & T Type Long Handle				Taper Thread (Female) x Parallel Thread (Male) Detachable & T Type Long Handle				Female x Male (Union Nipple) Detachable & T Type Long Handle				Full Bore, Double O-ring For Thermal Insulation			

Type	Ball for Fancoil Unit				Flow Control, Globe				Flow Control, Angle				Flow Control, Globe			
Bronze & Brass Fancoil Valves																
	10K				200				200				200			
Fig	TLFT				NSH				INAH				INSH			
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15	56	80	82	50.5	77	47.5	25.5	68	47.5	50.5	77	47.5	50.5	77	47.5
3/4	20	65	84	82	54.5	79	47.5	28.5	68	47.5	54.5	79	47.5	54.5	79	47.5
1	25	77	93	94	61.5	90	47.5	35.5	77	47.5	61.5	90	47.5	61.5	90	47.5
1 1/4	32	90	110	94				39.5	88	47.5	68.5	96	47.5			
1 1/2	40	98	125	120												
2	50	119	134	120												
Body & Cap/Bonnet	CAC406				CAC406/C3771				CAC406/C3771				CAC406/C3771			
Stem	304SS				C3531				C3531				C3531			
Disk & Ball	304SS				PTFE				PTFE				PTFE			
Ball Seat	PTFE															
O ring	FKM				FKM				FKM				FKM			
Gasket					Non Asbestos Sheet (T#1995)				Non Asbestos Sheet (T#1995)				Non Asbestos Sheet (T#1995)			
Handle	Reinforced Nylon				Polycarbonate				Polycarbonate				Polycarbonate			
Bore	Full Bore															
Service Conditions	Stream Water up to 80°C 1.4MPa, W(Pulsating Water).O.G. up to 80°C 1.0MPa (Do not use for flammable gas or toxic gas.)				W.O. 60°C 1.57MPa, W.O. 120°C 1.37MPa, (Not freezing.)				W.O. 60°C 1.57MPa, W.O. 120°C 1.37MPa, (Not freezing.)				W.O. 60°C 1.57MPa, W.O. 120°C 1.37MPa, (Not freezing.)			
Reference Page					Flow Characteristic: Page BR37				Flow Characteristic: Page BR37				Flow Characteristic: Page BR37			
Remarks	Full Bore, Double O-ring T Handle, For Thermal Insulation Ambient Temperature: -20°C~+60°C				Female x Male (Union Nipple) Controllable Range 1/2": 0~20l/min 3/4": 0~30l/min 1": 0~40l/min Pressure Loss: up to 60kPa				Female x Male (Union Nipple) Controllable Range 1/2": 0~20l/min 3/4": 0~30l/min 1" & 1 1/4": 0~40l/min Pressure Loss: up to 60kPa				Female x Male (Union Nipple) Controllable Range 1/2": 0~20l/min 3/4": 0~30l/min 1" & 1 1/4": 0~40l/min Pressure Loss: up to 60kPa			

Type	Globe w/ Built-in Screen				Ball (Low Noise Type)			Ball (Constant Flow)			
Bronze & Brass Balancing Valves	10K   IS RS				10K   FB			10K   FB			
	Fig	BS15-/BS20-				BSS15-/BSS20-/BSS25-			RTUC		
	End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)			BS21 (JIS B0203)		
inch	mm	L	H	D	L	H	D	L	H	D	
1/2	15				94.5	63.5	55	88	72	40	
3/4x1/2	20x15	118.5	89	40							
3/4	20	121.5	89	40	100.5	63.5	55	92.5	72	40	
1	25				115.5	66.5	55	104	75.5	40	
Body & Bonnet	CAC406/C3771				CAC406			CAC406			
Stem	C3531				C3531			C3531			
Disk & Ball	G/F PTFE				C3604 + Cr Plating			C3771 + Ni-Cr Plating			
Ball Seat					PTFE			PTFE			
O ring	H-NBR				H-NBR/NBR for 35&40l/min			POM + Silicon Rubber			
Gasket	Non Asbestos/NBR/Silicon				FKM			EPDM			
Handle	Phenolic Resin				Polyacetal			Polyacetal			
Bore					Full Bore			Full Bore			
Service Conditions	Max Working Pressure 1.0MPa, Working Temperature Water 0°C to 80°C				Max Working Pressure 1.0MPa, Working Temperature Water 0°C to 80°C			Max Working Pressure 1.0MPa, Working Temperature Water 0°C to 60°C			
Reference Page	Predetermined Flow Rate: Page BR4				Predetermined Flow Rate: Page BR4			Predetermined Flow Rate: Page BR4			
Remarks	Female x Male (Union Nipple) Control Range 0.05 MPa to 0.49 MPa, Flow Rate 3 to 30 L/min, Contorollable Flow Rate ±10%				Female x Male (Union Nipple) Control Range 0.05 MPa to 0.49 MPa, Flow Rate 3 to 40 L/min, Contorollable Flow Rate ±20%			Female x Male (Union Nipple) Control Range 0.15 MPa to 0.49 MPa, Flow Rate 5 to 30 L/min, Contorollable Flow Rate ±10%, ±20% for 5L/min			

Type	S Ball (Straight)				S Ball (Straight)				S Ball (Straight)				S Ball (Straight)			
Bronze & Brass S Ball Series for Water Heater																
	Fig				Fig				Fig				Fig			
	S23N-				S24N-				S24N-3/4X				S25N-			
	BS21 (JIS B0203xB0202)				BS21 (JIS B0203xB0202)				BS21 (JIS B0203xB0202)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15	72	51/63*	40	72	51/63*	40	73	51/63*	40	73	51/63*	40			
3/4	20	74	51/63*	40	74	51/63*	40				75	51/63*	40			
Body & Bonnet	C3771				C3771 + Ni-Cr Plating				C3771 + Ni-Cr Plating				C3771 + Ni-Cr Plating			
Stem	C3531				C3531				C3531				C3531			
Ball	C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating			
Ball Seat	PTFE				PTFE				PTFE				PTFE			
Check Valve	Polyacetal				Polyacetal				Polyacetal				Polyacetal			
O ring / Spring	EPDM, NBR / 304SS				EPDM, NBR / 304SS				EPDM, NBR / 304SS				EPDM, NBR / 304SS			
Handle/Attachment	Polyacetal				Polyacetal				Polyacetal				Polyacetal			
Standard/Approval	JWWA E-3				JWWA E-3				JWWA E-3				JWWA E-3			
Service Conditions	1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max				1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max				1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max				1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max			
Reference Page	Features: Page BR37				Features: Page BR37				Features: Page BR37				Features: Page BR37			
Remarks	Male (Parallel) x Male (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment				Male (Parallel) x Male (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment				Male (Parallel) x Male (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment				Female (Taper) x Female (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment			

Type	S Ball (Straight)					S Ball (Straight)					S Ball (Straight)					S Ball (Straight)				
Bronze & Brass S Ball Series for Water Heater																				
	S26N-					S27N-					S28N-					S28N-3/4X				
	BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)				
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D						
1/2	15	86.5	51/63*	40	85	51/63*	40	70.5	51/63*	40	71.5	51/63*	40							
3/4	20	91	51/63*	40	89.5	51/63*	40	72.5	51/63*	40										
Body & Bonnet	C3771 + Ni-Cr Plating					C3771 + Ni-Cr Plating					C3771 + Ni-Cr Plating					C3771 + Ni-Cr Plating				
Stem	C3531					C3531					C3531					C3531				
Ball	C3771 + Sn-Ni Plating					C3771 + Sn-Ni Plating					C3771 + Sn-Ni Plating					C3771 + Sn-Ni Plating				
Ball Seat	PTFE					PTFE					PTFE					PTFE				
Check Valve	Polyacetal					Polyacetal					Polyacetal					Polyacetal				
O ring / Spring	EPDM, NBR / 304SS					EPDM, NBR / 304SS					EPDM, NBR / 304SS					EPDM, NBR / 304SS				
Handle/Attachment	Polyacetal					Polyacetal					Polyacetal					Polyacetal				
Standard/Approval	JWWA E-3					JWWA E-3					JWWA E-3					JWWA E-3				
Service Conditions	1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max					1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max					1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max					1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max				
Reference Page	Features: Page BR37					Features: Page BR37					Features: Page BR37					Features: Page BR37				
Remarks	Male (Taper) x Union Nut (Female (Parallel)) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment					Female (Taper) x Union Nut (Female (Parallel)) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment					Female (Taper) x Male (Parallel) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment					Female (Taper) x Male (Parallel) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment				

Type	S Ball (Angle)					Orange Ball (Straight)					Orange Ball (Straight)					Orange Ball (Angle)				
Bronze & Brass S Ball Series for Water Heater Orange Ball Series	10K  JWWA					10K SB  JWWA					10K SB  JWWA					10K SB  JWWA				
	S38A-					S1-					S2-					S5-				
	BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)				
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D						
1/2	15	47.3	52/64*	40	52.5	39/52*	40	52.5	39/52*	40	13	39	40							
3/4	20	48.3	52/64*	40	58	42/55*	40	58	42/55*	40	14	42	40							
Body & Bonnet	C3771 + Ni-Cr Plating				C3771/C3604				C3771/C3604+Ni-Cr Plating				C3771/C3604+Ni-Cr Plating							
Stem	C3531				C3531				C3531				C3531							
Ball	C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating							
Ball Seat	PTFE				G/F PTFE				G/F PTFE				G/F PTFE							
Check Valve	Polyacetal+NBR																			
O ring / Spring	EPDM, NBR / 304SS				EPDM				EPDM				EPDM							
Handle/Attachment	Polyacetal				Polyacetal				Polyacetal				Polyacetal							
Bore					Standard Bore				Standard Bore				Standard Bore							
Standard/Approval	JWWA E-3				JWWA E-2				JWWA E-2				JWWA E-2							
Service Conditions	1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max				1.0 MPa Water, -20°C to +100°C (Not Freezing)				1.0 MPa Water, -20°C to +100°C (Not Freezing)				1.0 MPa Water, -20°C to +100°C (Not Freezing)							
Reference Page	Features: Page BR37																			
Remarks	Female (Taper) x Male (Parallel) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment				Male (Parallel) x Male (Taper) T Handle. * For adding attachment				Male (Parallel) x Male (Taper) T Handle. * For adding attachment				Male (Parallel) x Male (Taper) T Handle. * For adding attachment							

Type	Orange Ball (Straight)				Orange Ball (Straight)			
Bronze & Brass S Ball Series for Water Heater Orange Ball Series								
	S6-				S8-			
	BS21 (JIS B0203)				BS21(JIS B0203xB0202)			
	inch	mm	L	H	D	L	H	D
1/2	15	54	39/52*	40	52.5	44	40	
3/4	20	59	42/55*	40	58	46.5	40	
Body & Bonnet	C3771				C3771 / C3604+Ni-Cr Plating			
Stem	C3531				C3531			
Ball	C3771 + Sn-Ni Plating				C3771 + Sn-Ni Plating			
Ball Seat	G/F PTFE				G/F PTFE			
O ring / Spring	EPDM				EPDM			
Handle/Attachment	Polyacetal				ZDC2			
Bore	Standard Bore				Standard Bore			
Standard/Approval	JWWA E-2				JWWA E-2			
Service Conditions	1.0 MPa Water, -20°C to +100°C (Not Freezing)				1.0 MPa Water, -20°C to +100°C (Not Freezing)			
Remarks	Male (Taper) x FemMale (Taper) T Handle. * For adding attachment				Male (Parallel) x Male (Taper) T Handle			

As a world leader in manufacturing general service valves, KITZ Corporation is glad to offer a broad range of bronze/brass valves for commercial and industrial applications.

KITZ bronze/brass valves are exclusively produced in modern factories used for valve manufacturing. Each phase of manufacturing process, from selection of raw materials to casting, forging, machining, assembly and testing, have improved with automated production facilities and unparalleled production technology. Standardization and automation yield KITZ bronze/brass valves of superior quality and higher uniformity at competitive prices supported by incomparably prompt delivery.

KITZ bronze/brass valves are designed by state-of-the-art computers, built by automation, and inspected by people who care about quality.



Design Features of KITZ Bronze/Brass Valves

Human Engineering in Hand Wheel Design

Computer designed hand wheels of all KITZ bronze/brass valves, the product of KITZ human engineering, feature the ideal combination of operational efficiency and high mechanical strength for reliability.

Asbestos-free Gland Packing

All KITZ bronze/brass gate and globe valves employ Aramid Fiber PTFE as the material in the asbestos-free gland packing, which meets the latest industrial requirement to minimize concerns about pollution. With the leak-free sealing performance and reduced valve operating torque, Aramid Fiber PTFE is considered a reliable substitute for conventional asbestos sheets for the service of water, oil, gas, and saturated steam pressure at a maximum 300psi at temperatures up to 300°C.

Pressure Rating

The pressure rating designation of KITZ valves follows accepted practice of today's valve and pipe fitting industry. Each product is rated for W.O.G. (Non-shock cold water, oil, and gas*) and saturated steam pressure service.

Inspection and Testing

KITZ valves are manufactured under strict quality control requirements throughout all stages of production, beginning with the inspection of chemical composition and mechanical properties of the materials. Extra care is given to inspection and testing at all machine shops and assembly plants by using up-to-date precision equipment. All KITZ valves meet strict pressure testing specifications for the body and seat seals to assure a long service life and quality performance.

*The valves presented in this catalog are not designed to handle toxic gases. Use specially designed or certified valves for flammable gas service.

KITZ Corporation, Chino Plant, Japan (ISO 9001)



KITZ (Thailand) Ltd, Bangplee Plant, Thailand (ISO 9001)



This catalog uses MPa, an SI unit, to indicate pressure. For reader convenience, however, psi is also used for ASME and JIS related products, respectively. The products in this catalog are all covered by ISO 9001 certification.

HSE (Health, Safety & Environment) Conscious Products

Lead-free Bronze & Brass (KEEPALLOY®): N in suffix of Fig. "Ex, JN, AKSZAN"

(1) MHLW (Ministry of Health, Labour and Welfare) Ordinance No. 138, April 1, 2003.

Restriction of leaching lead less than 0.01 mg/little. JIS H5120 CAC911, JIS H3250 C6803

(2) NSF/ANSI 61-8 Annex G & NSF/ANSI 372

January 4, 2014 "Reduction of lead in drinking water act" : Less than 0.25% of lead by weight

RoHS, Reach, WRAS and WSD

KITZ "K-METAL®" : Unique Dezincification-Resistant Brass (UNS No. C35350)

Water pollution and employment of new piping material have amplified valve dezincification problems.

What is dezincification?

Copper alloy used in bronze valves contains zinc, tin, and lead, with copper as the base. When bronze valves are subjected to unfavorable service conditions, the zinc component of copper alloy separates from the copper base, and the metal corrodes. This is called dezincification.

In case of bronze valve, body, bonnet, and other cast bronze parts rarely corrode, because of the small percentage of zinc contained in the alloy. However, brass valve parts such as stem, which contains 40 % zinc, often corrode because of extreme dezincification.

What causes dezincification?

The following factors cause dezincification. These factors are generally believed to occur together, rather than independently.

- 1 Excessive acidity in aqueous solution.
- 2 Warm water containing excessive free carbonic acid with high electric conductivity.
- 3 High electric conductivity with presence of excessive chlorides and sulfides.
- 4 Copper or vinyl chloride pipes.
- 5 Excessive dissolved oxygen.

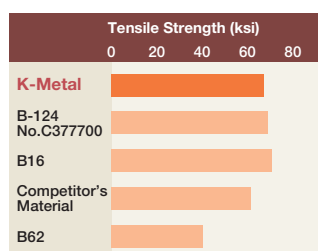


Fig. 1 Comparison of tensile strength

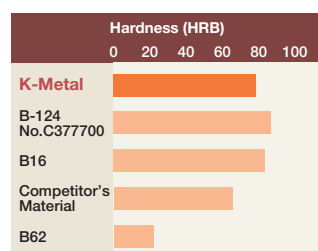


Fig. 2 Comparison of hardness

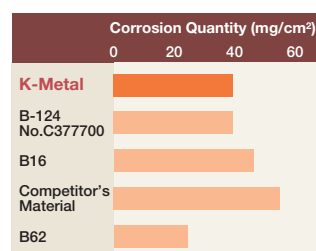


Fig. 3 Comparison of corrosion
(1 mg/cm²=0.014 mlb/in²)

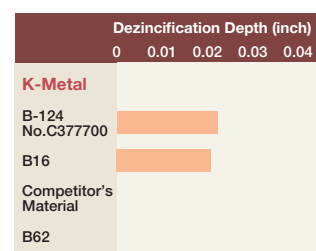


Fig. 4 Comparison of dezincification
(to AS C316)

Bronze/Brass Valve Solder Joints

Copper tubing is widely used with bronze/brass valves in steam and water-line applications in schools, hospitals, hotels, and private houses because of its excellent physical characteristics. It resists corrosion, meets sanitation requirements, and is easy to install.

Copper Tubes: Three types of copper tubing have been developed for complying with ASTM B88, as listed below. Each type is provided with a different wall thickness to meet application requirements.

Type K	For use in steam, oil, and gas lines for underground installation and/or severe conditions.
Type L	For general cooling and heating systems and related water piping and ventilation systems.
Type M	For home air-conditioning and heating applications.

Soldering of Leak Free Joints

Use solder of 95-5 tin-antimony or 96-4 tin-silver, and an open-flame torch. Keep the torch temperature relatively low to ensure firm soldered joint. Because the melting point of solder is around 500°F (260°C), solder-jointed valves cannot be used for high-temperature service.

Solder P-T Rating

Solder	Max. temp. (°C)	Max. Working Pressure					
		size 1/4" - 1"		size 1 1/4" - 2"		size 2 1/4" - 4"	
		MPa	psi	MPa	psi	MPa	psi
95-5 tin-antimony [H95 Sb-5A]	38	3.45	500	2.76	400	2.07	300
	66	2.76	400	2.41	350	1.90	275
96-4 tin-silver [H96 Ag-3.5A]	93	2.07	300	1.72	250	1.38	200
	121	1.38	200	1.21	175	1.03	150



CAUTION

Solder-jointed end valves should not be used in service where the temperature of the line fluid is higher than the softening point of the solder.

KITZ Bronze and Brass Materials to JIS Standards

JIS H5120 (Copper & Copper Alloy Castings)

Cast Bronze Class 6	Designation	Chemical Composition (%)										Mechanical Properties	
		Cu	Sn	Zn	Pb	Ni	Fe	P	Sb	Al	Si	Tensile Strength 195 Min. (N/mm ²)	Elongation (%) 15 Min.
	CAC406 (BC6)	83.0-87.0	4.0-6.0	4.0-6.0	4.0-6.0	1.0 Max.	0.3 Max.	0.05 Max.	0.2 Max.	0.01 Max.	0.01 Max.		

JIS H3250 (Copper & Copper Alloy Rods and Bars)

Forged Brass Alloy No. 3771	Designation		Chemical Composition (%)				Mechanical Properties	
	Extruded	Drawn	Cu	Pb	Fe + Sn	Zn	Tensile Strength 315 Min. (N/mm ²)	Elongation (%) 15 Min.
	C3771BE	C3771BD	57.0-61.0	1.0-2.5	1.0 Max.	Remainder		

JIS H3250 (Copper & Copper Alloy Rods and Bars)

Free-cutting Brass Alloy No. 3604	Designation		Chemical Composition (%)					Mechanical Properties	
	Extruded	Drawn	Cu	Pb	Fe	Fe + Sn	Zn	Tensile Strength 335 Min. (N/mm ²)	Elongation (%) —
	C3604BE	C3604BD	57.0-61.0	1.8-3.7	0.5 Max.	1.0 Max.	Remainder		

KITZ Bronze and Brass Materials to ASTM Standards

ASTM B61

Chemical Composition (%)											Mechanical Properties		
Copper	Tin	Lead	Zinc	Nickel & cobalt	Iron	Sulfur	Phosphorus	Antimony	Aluminum	Silicon	Minimum		
86.0-90.0	5.5-6.5	1.0-2.0	3.0-5.0	1.0 Max.	0.25 Max.	0.05 Max.	0.05 Max.	0.25 Max.	0.005 Max.	0.005 Max.	Tensile Strength 34 ksi	Yield Strength 16 ksi	Elongation in 2 in. 24%

ASTM B62

Chemical Composition (%)											Mechanical Properties		
Copper	Tin	Lead	Zinc	Nickel & cobalt	Iron	Sulfur	Phosphorus	Antimony	Aluminum	Silicon	Minimum		
84.0-86.0	4.0-6.0	4.0-6.0	4.0-6.0	1.0 Max.	0.30 Max.	0.08 Max.	0.05 Max.	0.25 Max.	0.005 Max.	0.005 Max.	Tensile Strength 30 ksi	Yield Strength 14 ksi	Elongation in 2 in. 20%

ASTM B283 C37700

Chemical Composition (%)				Mechanical Properties		
Copper	Lead	Iron	Zinc	Minimum		
58.0-61.0	1.5-2.5	0.30 Max.	Remainder	Tensile Strength 50 ksi	Yield Strength 18 ksi	Elongation in 4x Thickness 25%

In-line Lift Check Valve with Spring (RF, AKAF)

Reduction of water hammer

Excellent sealing performance by means of rubber seats & spring

KITZ Wafer Check Valve (10BWZ(N), 10FWZ, 10/20SWZU, 20SWZ, 10UW, 10/20UWS)

Construction:

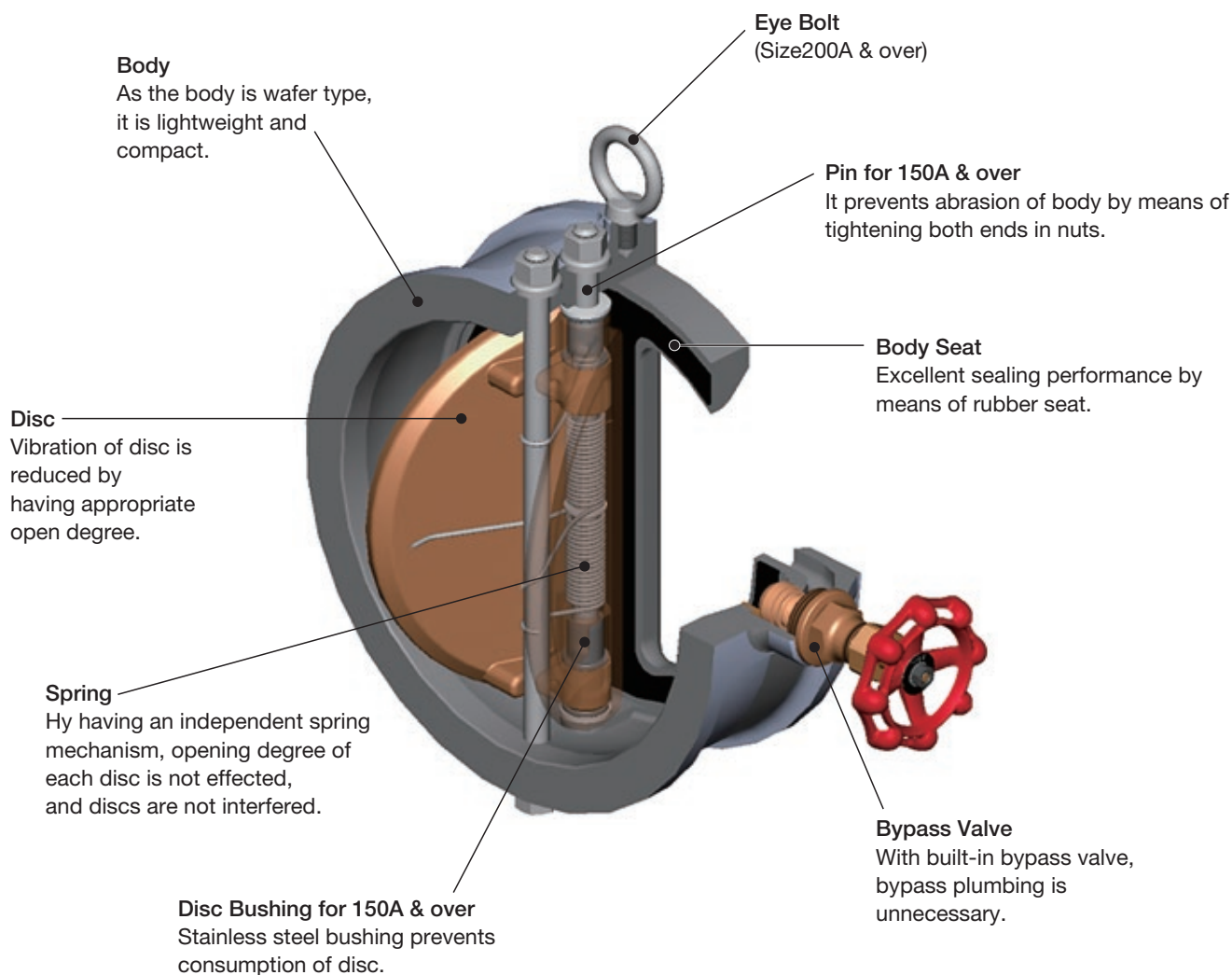
Single Plate (stainless steel wafer check) and Dual Plate (others except SS)

Features

- (1) Reduction of water hammer by closing the disc with independent helical spring mechanism
- (2) Built-in Bypass Valve
- (3) Excellent sealing performance by means of rubber seats & spring mechanism
- (4) Direct mounting of pump. (*stainless steel wafer check valves are not available due to single plate construction.
Provide straight runs of pipe at least two times of the valve bore (three times in case when pipe expansion is used to pump discharge) to the both sides of the valve.
- (5) Compact and Light Mass

Spring Serviceable Range:

- (1) Standard Torque Spring (2)High Torque Spring (3)Low Torque Spring

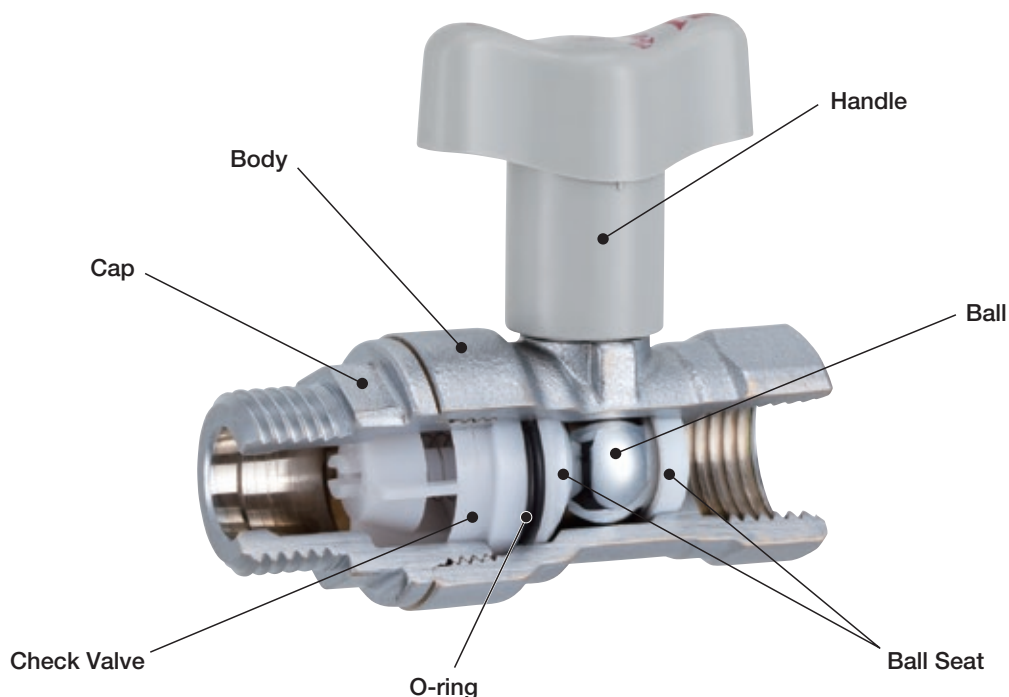


Design Features of KITZ S Ball Valve: Ball Valve with Built-in Check Valve in its Body

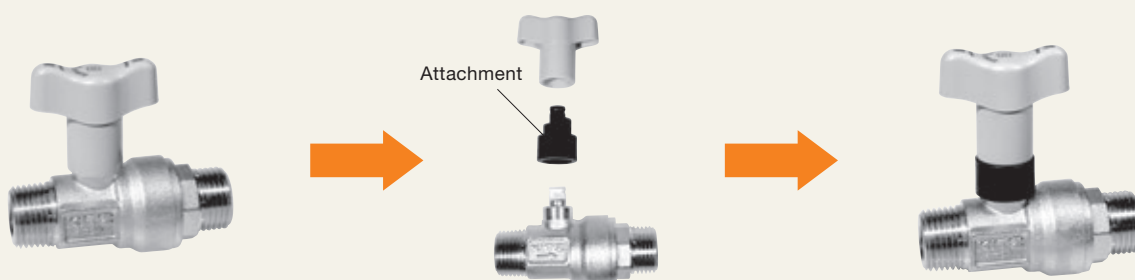
Compact design with a built-in check valve in the body of ball valve.

Prevents back flow by automatic closing of spring-loaded built-in check valve (water hammer proof).

Cross-sectional illustration of ball valves with built-in check valves



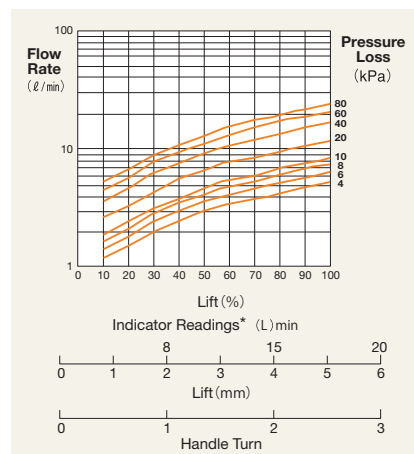
2-Way Handle



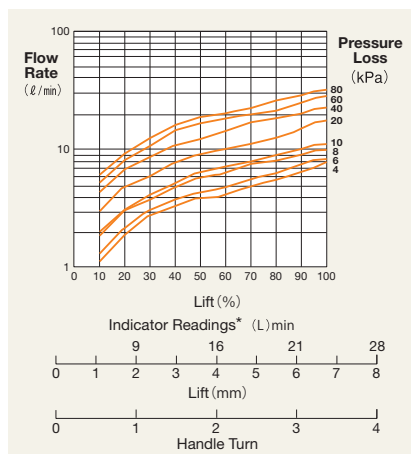
Flow Characteristics of KITZ Fancoil Valve, Flow Control, Globe Type

B

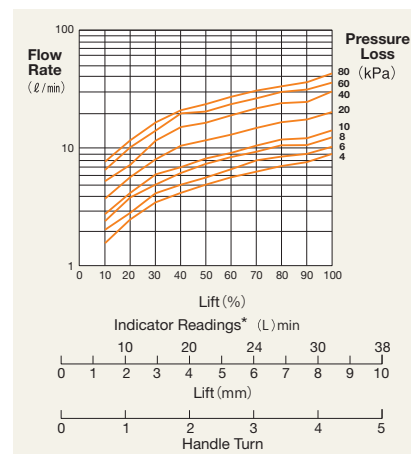
■ Nominal Size: $\frac{1}{2}$ "^B Cv=1.8



■ Nominal Size: $\frac{3}{4}$ "^B Cv=2.6



■ Nominal Size: 1"^B, $1\frac{1}{4}$ "^B Cv=3.3



* Indicator readings refer to the flow rates when the pressure loss is 60 kPa.

Technical Data of Pressure and Temperature Ratings in JIS Standard Bronze Valves

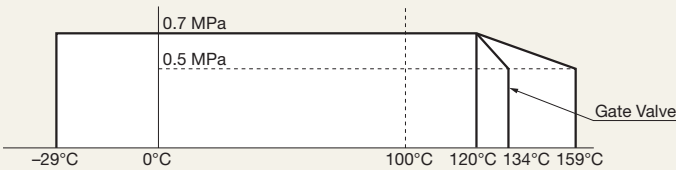
- 1 Fluid
- Water, oil, gas, air and steam.
- However, flammable gas and toxic gas are excluded.
- 2 Relationship between the temperature of the fluid and the maximum permissible pressure (hereinafter referred to as the “pressure-temperature criteria”) shall be in accordance with Table 1. However, the fluid shall not be frozen.
- 3 In case where use of valves is prohibited or restricted by the High Pressure Gas Safety Act and other regulations, the user shall use them within the framework of laws and ordinances.

Table 1 Pressure-Temperature Criteria

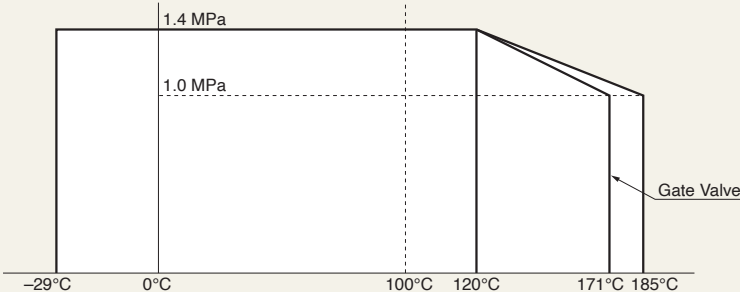
Nominal Pressure	Temperature of Fluid °C	Maximum Permissible Working Pressure ^{c)} MPa
5K	−29 to 120	0.7
	159 ^{a)}	0.5
10K	−29 to 120	1.4
	185 ^{b)}	1.0

Notes: a) Maximum service temperature. In case of gate valves, it will be 144°C.
b) Maximum service temperature. In case of gate valves, it will be 171°C.
c) Maximum permissible pressure at intermediate temperature between temperature above 120°C and the maximum service temperature shall be obtained by proportional interpolation.

■ Nominal Pressure 5K



■ Nominal Pressure 10K



Pressure and Temperature Ratings of PN Bronze Valves

Temperature of Fluid °C	Maximum Permissible Working Pressure MPa	
	PN16	PN25
-10 to 100	1.60	2.50
120	1.35	2.18
150	0.95	1.65
170	0.70	1.28
180	-	1.13
186	-	1.05

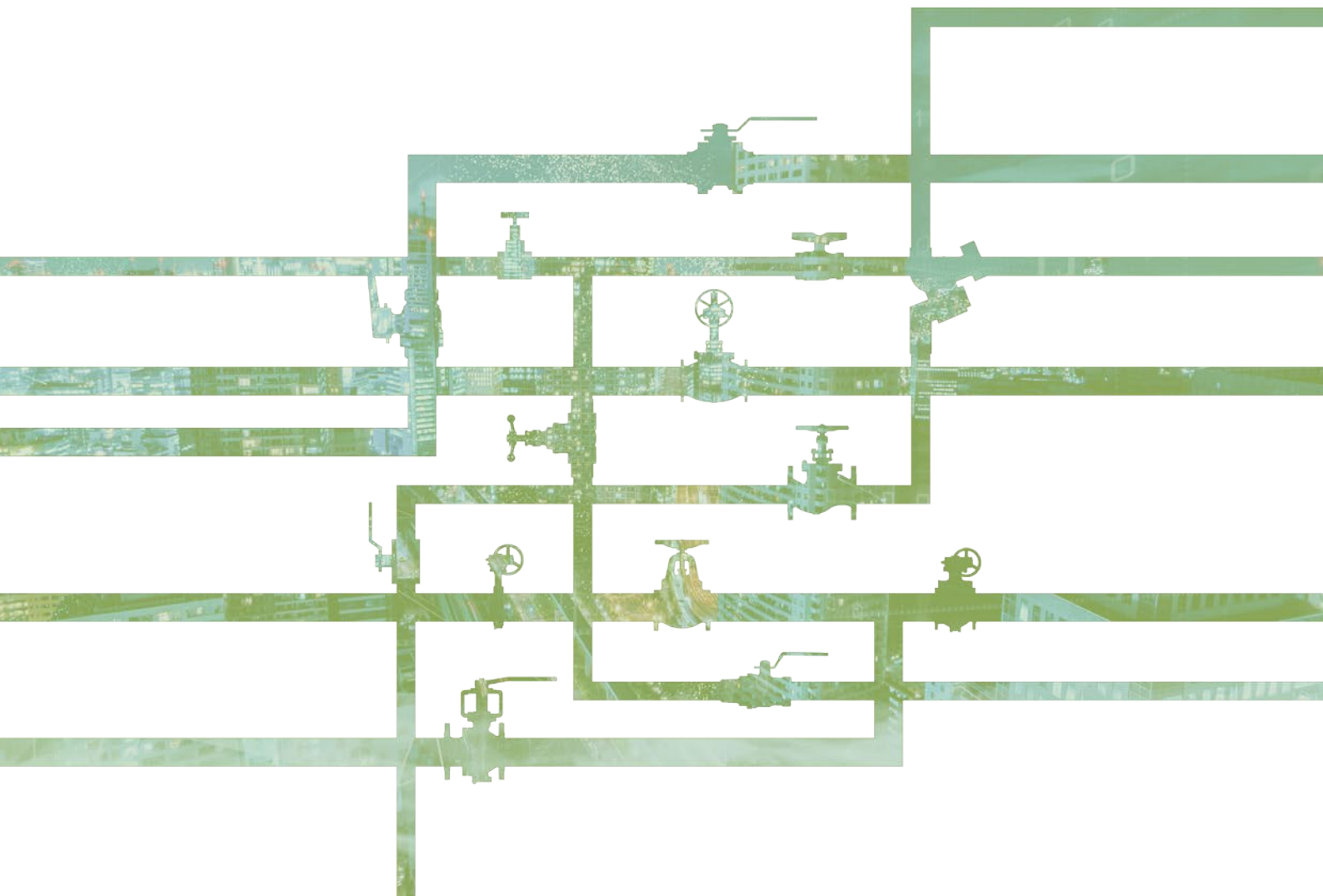
Pressure and Temperature Ratings of Class 125, 150, 300 Bronze Valves (Extracted from MSS SP-80)

Temperature of Fluid		Maximum Permissible Working Pressure MPa (psi)			
°C	°F	CL125	CL150	CL300	
Fig.		AK125M AK125E AK125C AKYR CYR	AK150E AK150L C150L AK150LU AK150D C150D AK150YR	AK300J AK300D AK300YR	AK300LU
-29 to 66	-20 to 150	1.38 (200)	2.07 (300)	4.14 (600)	6.89 (1000)
93	200	1.28 (185)	1.86 (270)	3.86 (560)	6.34 (920)
121	250	1.17 (170)	1.65 (240)	3.62 (525)	5.72 (830)
149	300	1.07 (155)	1.45 (210)	3.38 (490)	5.10 (740)
177	350	0.97 (140)	1.24 (180)	3.10 (450)	4.48 (650)
204	400	-	-	2.83 (410)	3.86 (560)
208	406	0.86 (125)	1.03 (150)	-	-
232	450	-	-	2.59 (375)	3.31 (480)
260	500	-	-	2.34 (340)	2.69 (390)
288	550	-	-	2.07 (300)	2.07 (300)
Saturated Steam		0.86 (125)	1.03 (150)	2.07 (300)	2.07 (300)



GENERAL CATALOG

Compact SS/CS Valves & Miniature



INDEX

CPT

Compact SS/CS Valves & Miniature

Title	Body Material	Type	Class	End Connection*	Features*	Fig			Page	
KITZ Standard Stainless Steel Gate/Globe/Check Valves & Strainers (B Series)	SS	Gate	10K/200	TE	SB, NRS	UEL	UELM	AKUELM	CPT3 46	
			10K	FE/FF		UE	UEM	AKUEM		
		Globe	5K	FE/FF	SB, RS	UEB	UEBM	CPT4 47		
			10K			UAB	UCB			
			10K/200	TE		UCL	UCLM		AKUCLM	
			10K	FE/FF		UJ	UJM		AKUJM	
				TE		UJB	UJBM		CPT5 48	
				FE/FF		UD	UDM			
		Check		10K	TE	Screwed Bonnet, Rising Stem, Soft Seated (PTFE)	UDB	UDBM		
			10K/200	Lift		UN	UO			
			10K	Swing		UOM	AKUOM			
				FE/FF		UOB	UOBM	CPT6 49		
		Strainer	20K	TE	Y-Pattern, 40 Mesh	UY	UYM			
			10K	FE/FF		UYB	UYBM			
		Wafer Check	10K	Wafer	Single Plate, Built-in Bypass Valve	10UW	10UWS	CPT7 50		
			20K			20UWS				
		Stainless Steel Ball Check Valves (K Series)	SS	Ball Check	10K	TE	Ball Check	UFTE		
				Air Vent	-	Air Vent Valve	UFTA			
				Ball Check	10K	TE/RF	Ball Check	10UFT	10UFTE	
Stainless & Carbon Steel Compact Floating Ball Valve	SS	Ball	10K	TE	FB, Split Body	10UT	10UTM	CPT8 51		
			Type 600		Reduced Bore, Uni-Body	UTK	UTKM		AKUTKM	
					Type 800	Full Body, Split Body	UTKW		UTKMW	
							UTFKW			
			Type 1000				Reduced Body, Split Body	UTFKMW		
					UTFZ					
					UTHM	AKUTHM				
					Full Body, Split Body	UTFM	AKUTFM			
						Reduced Body, Split Body, Long Neck Type for Thermal Insulation	UTHL			
							U3TZM			
					3000	TE	Reduced Bore, 3pc Body	AKU3TZM		
							Reduced Bore, 3pc Body	SWU3TZM	AWU3TZM	
			Reduced Bore, 3pc Body				U3TZFM	AKU3TZFM		
			Reduced Bore, 3pc Body				SWU3TZFM	AWU3TZFM		
			Type 800		TE	Reduced Bore, Welded Body, Antistatic, Blowout Proof, Fire Safe	3000UTKM			
						Reduced Bore, 3-Way, 4-Seat, L or T Port	UTH4LM	UTH4TM		
						600	TE	Reduced Bore, Uni-Body	SCTK	AKSCTK
								800	800SCTK	AK800SCTK
						3000	TE	Reduced Bore, Welded Body for Threaded Ends, Split Body for Socket Welding Ends, Antistatic, Blowout Proof, Fire Safe	3000SCTK	AK3000SCTK
AW3000SCTK										
Stainless Steel & Brass Miniature Valves	SUS316/ SUSU630	Needle	30K	TE	Straight (Metric)	UN3-AP-	CPT13 56			
				COUPLE LOK	Angle (Metric)	UN3-BP-				
					Straight (Metric) (Inch)	UN3-CP-				
					Angle (Metric) (Inch)	UN3-DP				
					TExCOUPLE LOK	Straight (Metric) (Inch)		UN3-EP-		
				Angle (Metric) (Inch)		UN3-FP-				
			260K	TE	Straight (Metric)	UN26-AP-	CPT14 57			
				COUPLE LOK	Straight (Metric)	UN26-CP-				
				SW	Straight (Metric)	UN26-SP-				
				COUPLE LOK	Straight (Inch)	UN26-CP-				
			10K	TE	Straight	N1-A-	CPT14 57			
					Straight	N2-A-				
					Straight with Lock	N2-AL-				
					Angle	N2-B-				

* (Abbreviation) TE: Threaded Ends, FE: Flanged Ends, RF: Raised Face, SW: Socket Welding Ends

SB: Screwed Bonnet, NRS: Non Rising Stem, RS: Rising Stem, FB: Full Bore, RB: Reduced Bore

PRODUCT CODING

Compact SS/CS Valves except Miniature

(Note: Some products do not follow this coding system)

AK 800 U TK M

1 2 3 4 5

1 End Connection

None Threaded Ends (BS/JIS)
 AK Threaded Ends (NPT)
 AW Socket Welding Ends

2 Pressure Class

None KITZ Standard
 10 10K
 20 20K
 800 Class 800
 3000 Type 3000

3 Symbol of Shell Material

U Stainless Steel
 SC Carbon Steel

4 Valve Type

E, EL, EB Gate
 AB, CB, CL, J, JB Globe
 D, DB Soft Seated Globe
 N Lift Check
 O, OB Swing Check
 W Wafer Check (NBR Seat)
 WS Wafer Check (Metal Seat)
 Y, YB Strainer
 UFT, UFTE Ball Check
 T, TK, TF, TFK, TH, THL, TH4L/T, 3TZ, 3TZF Ball

5 Trim

None 304SS
 M 316SS

Miniature Valves

U N 26 - A P - xx

1 2 3 4 5 6

1 Body Material

U 316 Stainless Steel
 None Forged Brass

2 Service Application

N Needle Valves for General Flow Control

3 Pressure Class

1 10K
 2 20K
 3 30K
 26 260K

4 Design & End Connection

A Straight/Threaded
 B Angle/Threaded
 C Straight/COUPLE LOK Type
 D Angle/COUPLE LOK Type
 E Straight/COUPLE LOK Type & Threaded
 F Angle/COUPLE LOK Type & Threaded
 S Straight/Socket Weld

5 Auxiliary Items

P Complete with Nut for Panel Tap
 L With Locking Lever

6 Nominal Size

Threaded End	Metric Tubing End
1 1/8 ^B	3 3mm
2 1/4 ^B	4 4mm
3 3/8 ^B	6 6mm
4 1/2 ^B	8 8mm
6 3/4 ^B	10 10mm
8 1 ^B	12 12mm

Inch Tubing End (Outside Diameter)

01 1/8 (3.17mm)
 02 1/4 (6.35mm)
 03 3/8 (9.52mm)
 04 1/2 (12.70mm)

(Example)

UN3-EP-6-2 (A)-(B)
 (A) 6mm Tubing End
 (B) 1/4^B Threaded End



CAUTION

Valves introduced in this catalog are not designed to be used in toxic gases.

Type	Gate				Gate				Gate				Gate			
Stainless Steel B Series KITZ Standard																
Fig	UEL				UE				UELM				AKUELM			
KCA Code	—				—				—				31			
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)				ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15	54	96	70				54	96	70						
3/4	20	58	101	70				58	101	70						
1	25	65	112	80				65	112	80						
1 1/4	32	74	123	80				74	123	80						
1 1/2	40	76	150	100				76	150	100						
2	50	87	167	100				87	167	100						
2 1/2	65				115	248	135						115	248	135	
3	80				130	275	155						130	275	155	
4	100				155	315	200						155	315	200	
Body	CF8				CF8M				CF8M				CF8M			
Bonnet	CF8				CF8M				CF8M				CF8M			
Stem	304SS + Hard Cr Plating				316SS				316SS + Hard Cr Plating				316SS + Hard Cr Plating			
Disc	CF8				CF8M				CF8M				CF8M			
Gland Packing	Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided			
Hand Wheel	ZDC/Aluminum Die-Cast				Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast				ZDC/Aluminum Die-Cast			
Standard/Approval	RoHS				RoHS up to 3 ^B				RoHS				RoHS up to 3 ^B			
Service Condition	P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23			
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23			
Remarks	RoHS: Option EAC: Option				RoHS: Option EAC: Option				RoHS: Option EAC: Option				RoHS: Option EAC: Option			

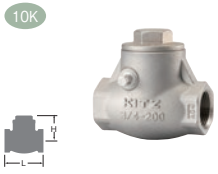
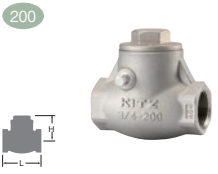
Type	Gate				Gate				Gate				Gate			
Stainless Steel B Series KITZ Standard			 SB IS NRS				 SB IS NRS				 SB IS NRS				 SB IS NRS	
Fig	UEM				AKUEM				UEB				UEBM			
KCA Code	—				31				—				—			
End Connection	BS21 (JIS B0203)				ASME B1.20.1				JIS B2220* 10K FF				JIS B2220* 10K FF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15							85	99	70						
3/4	20							95	105	70						
1	25							100	116	80	100	116	80			
1 1/4	32							110	128	80	110	128	80			
1 1/2	40							125	170	100	125	170	100			
2	50							140	188	100	140	188	100			
2 1/2	65	115	248	135	115	248	135	170	248	135	170	248	135			
3	80	130	275	155	130	275	155	190	275	135	190	275	135			
4	100	155	315	200	155	315	200									
Body	CF8M				CF8M				CF8				CF8M			
Bonnet	CF8M				CF8M				304SS/CF8				316SS/CF8M			
Stem	316SS				316SS				304SS				316SS			
Disc	CF8M				CF8M				CF8				CF8M			
Gland Packing	Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided			
Hand Wheel	Aluminum Die-Cast/DI				Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast				Aluminum Die-Cast/DI			
Standard/Approval	RoHS up to 3 ^B				RoHS up to 3 ^B				RoHS				RoHS			
Service Condition	P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23			
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23			
Remarks	RoHS: Option EAC: Option				RoHS: Option EAC: Option				* Except Flange Thickness RoHS: Option, EAC: Option				* Except Flange Thickness RoHS: Option, EAC: Option			

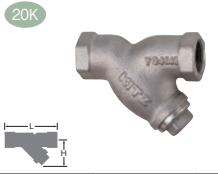
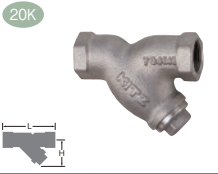
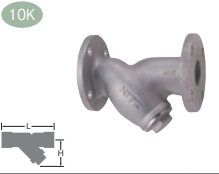
Type	Globe				Globe				Globe				Globe			
Stainless Steel B Series KITZ Standard	5K				10K				10K				200			
																
																
																
																
Fig	UAB				UCL				UCLM				AKUCLM			
KCA Code	—				—				—				—			
End Connection	JIS B2220* 5K FF				BS21 (JIS B0203)				BS21 (JIS B0203)				ASME B1.20.1			
inch	mm	L	H	D	L	H	D	D	L	H	D	D	L	H	D	D
1/4	8				44	68	55		44	68	55		44	68	55	
3/8	10	73	106	70	48	68	55		48	68	55		48	68	55	
1/2	15	85	106	70	52	68	55		52	68	55		52	68	55	
3/4	20	95	108	70	60	93	60		60	93	60		60	93	60	
1	25	108	119	80	72	100	70		72	100	70		72	100	70	
1 1/4	32	120	142	90	80	122	80		80	122	80		80	122	80	
1 1/2	40	135	155	90	90	138	90		90	138	90		90	138	90	
2	50	155	186	115	100	153	100		100	153	100		100	153	100	
Body	CF8				CF8				CF8M				CF8M			
Bonnet	CF8				CF8				CF8M				CF8M			
Stem	304SS + Hard Cr Plating				304SS + Hard Cr Plating				316SS + Hard Cr Plating				316SS + Hard Cr Plating			
Disc	304SS				304SS				316SS				316SS			
Gland Packing	Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided *				Flexible Graphite+PTFE Braided *				Flexible Graphite+PTFE Braided *			
Hand Wheel	ZDC/Aluminum Die-Cast				ZDC/Aluminum Die-Cast				ZDC/Aluminum Die-Cast				ZDC/Aluminum Die-Cast			
Standard/Approval	RoHS				RoHS				RoHS				RoHS			
Service Condition	P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23			
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23			
Remarks	* Except Flange Thickness RoHS: Option, EAC: Option				* PTFE up to 1/2 ^B RoHS: Option, EAC: Option				* PTFE up to 1/2 ^B RoHS: Option, EAC: Option				* PTFE up to 1/2 ^B RoHS: Option, EAC: Option			

Type	Globe				Globe				Globe				Globe			
Stainless Steel B Series KITZ Standard	10K				10K				200				10K			
																
																
																
																
Fig	UJ				UJM				AKUJM				UCB			
KCA Code	—				—				33				—			
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				ASME B1.20.1				JIS B2220* 10K FF			
inch	mm	L	H	D	L	H	D	D	L	H	D	D	L	H	D	D
3/8	10	55	109	60	55	109	60		55	109	60		73	106	70	
1/2	15	65	111	60	65	111	60		65	111	60		85	106	70	
3/4	20	80	112	70	80	112	70		80	112	70		95	108	70	
1	25	90	142	90	90	142	90		90	142	90		108	119	80	
1 1/4	32	105	150	90	105	150	90		105	150	90		120	142	90	
1 1/2	40	120	171	100	120	171	100		120	171	100		135	155	90	
2	50	140	189	115	140	189	115		140	189	115		155	186	115	
2 1/2	65	180	253	180	180	253	180		180	253	180					
3	80	200	280	225	200	280	225		200	280	225					
Body	CF8				CF8M				CF8M				CF8			
Bonnet	CF8				CF8M				CF8M				304SS/CF8			
Stem	304SS + Hard Cr Plating				316SS + Hard Cr Plating				316SS + Hard Cr Plating				304SS + Hard Cr Plating			
Disc	304SS/CF8				316SS/CF8M				316SS/CF8M				304SS			
Gland Packing	Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided			
Hand Wheel	ZDC/Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast			
Standard/Approval	RoHS up to 2 ^B				RoHS up to 2 ^B				RoHS up to 2 ^B				RoHS			
Service Condition	P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23			
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23			
Remarks	RoHS: Option EAC: Option				RoHS: Option, EAC: Option				RoHS: Option, EAC: Option				* Except Flange Thickness RoHS: Option, EAC: Option			

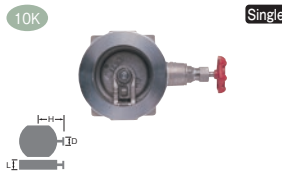
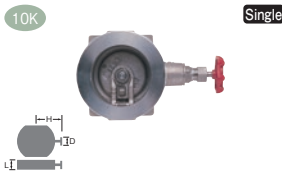
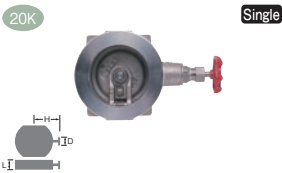
Type	Globe				Globe				Globe				Globe							
Stainless Steel B Series KITZ Standard	10K  SB IS RS EAC RoHS				10K  SB IS RS EAC RoHS				10K  SB IS RS EAC RoHS				10K  SB IS RS EAC RoHS							
	Fig				UJB				UJBM				UD				UDM			
	KCA Code				—				—				—				—			
	End Connection				JIS B2220* 10K FF				JIS B2220* 10K FF				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D				
3/8	10	85	109	60	85	109	60	55	109	60	55	109	60	55	109	60				
1/2	15	85	111	60	85	111	60	65	112	60	65	112	60	65	112	60				
3/4	20	95	112	70	95	112	70	80	113	70	80	113	70	80	113	70				
1	25	110	142	90	110	142	90	90	143	90	90	143	90	90	143	90				
1 1/4	32	130	150	90	130	150	90	105	150	90	105	150	90	105	150	90				
1 1/2	40	150	171	100	150	171	100	120	171	100	120	171	100	120	171	100				
2	50	180	189	115	180	189	115	140	189	115	140	189	115	140	189	115				
2 1/2	65	210	253	180	210	253	180													
3	80	240	280	225	240	280	225													
Body	CF8				CF8M				CF8				CF8M							
Bonnet	CF8				CF8M				CF8				CF8M							
Stem	304SS + Hard Cr Plating				316SS + Hard Cr Plating				304SS + Hard Cr Plating				316SS + Hard Cr Plating							
Disc	304SS/CF8				316SS/CF8M				PTFE				PTFE							
Gland Packing	Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided				Flexible Graphite+PTFE Braided							
Hand Wheel	ZDC/Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast/DI				ZDC/Aluminum Die-Cast				ZDC/Aluminum Die-Cast							
Standard/Approval	RoHS up to 2 ^B				RoHS up to 2 ^B				RoHS				RoHS							
Service Condition	P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23							
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23							
Remarks	* Except Flange Thickness RoHS: Option, EAC: Option				* Except Flange Thickness RoHS: Option, EAC: Option				RoHS: Option, EAC: Option				RoHS: Option, EAC: Option							

Type	Globe				Globe				Lift Check				Swing Check			
Stainless Steel B Series KITZ Standard	10K  SB IS RS EAC RoHS				10K  SB IS RS EAC RoHS				10K  SC EAC RoHS				10K  SC EAC RoHS			
	Fig				UDB				UN				UO			
	KCA Code				—				—				—			
	End Connection				JIS B2220* 10K FF				JIS B2220* 10K FF				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
3/8	10							55	50							
1/2	15	85	112	60	85	112	60	65	53		65	45				
3/4	20	95	113	70	95	113	70	80	54		80	55				
1	25	110	143	90	110	143	90	90	62		90	61				
1 1/4	32	130	150	90	130	150	90	105	66		105	71				
1 1/2	40	150	171	100	150	171	100	120	76		120	72				
2	50	180	189	115	180	189	115	140	85		140	81				
2 1/2	65	210	252	180	210	252	180				180	93				
3	80	240	277	225	240	277	225				200	104				
Body		CF8			CF8M			CF8			CF8					
Bonnet/Cap		CF8			CF8M			304SS/CF8			304SS/CF8					
Stem/Hinge Pin		316SS + Hard Cr Plating			316SS + Hard Cr Plating						304SS					
Disc		PTFE			PTFE			CF8			CF8					
Gland Packing		Flexible Graphite+PTFE Braided			Flexible Graphite+PTFE Braided											
Hand Wheel		ZDC/Aluminum Die-Cast/DI			ZDC/Aluminum Die-Cast/DI											
Standard/Approval		RoHS up to 2 ^B			RoHS up to 2 ^B			RoHS			RoHS					
Service Condition		P-T Rating : Page SS23			P-T Rating : Page SS23			P-T Rating : Page SS23			P-T Rating : Page SS23					
Reference Page		Design, Packing/Gasket : Page SS22 & 23			Design, Packing/Gasket : Page SS22 & 23			Design, Packing/Gasket : Page SS22 & 23			Design, Packing/Gasket : Page SS22 & 23					
Remarks		* Except Flange Thickness RoHS: Option, EAC: Option			* Except Flange Thickness RoHS: Option, EAC: Option			RoHS: Option, EAC: Option			RoHS: Option, EAC: Option					

Type	Swing Check				Swing Check				Swing Check				Swing Check			
Stainless Steel B Series KITZ Standard																
	SC				SC				SC				SC			
	EAC RoHS				EAC RoHS				EAC RoHS				EAC RoHS			
	Fig				Fig				Fig				Fig			
	KCA Code				KCA Code				KCA Code				KCA Code			
End Connection	BS21 (JIS B0203)				ASME B1.20.1				JIS B2220* 10K FF				JIS B2220* 10K FF			
inch	mm	L	H	D	L	H	D		L	H	D		L	H	D	
1/2	15	65	45		65	45			85	45			85	45		
3/4	20	80	55		80	55			95	55			95	55		
1	25	90	61		90	61			110	61			110	61		
1 1/4	32	105	71		105	71			130	71			130	71		
1 1/2	40	120	72		120	72			150	72			150	72		
2	50	140	81		140	81			180	81			180	81		
2 1/2	65	180	93		180	93			210	93			210	93		
3	80	200	104		200	104			240	104			240	104		
Body	CF8M				CF8M				CF8				CF8M			
Bonnet/Cap	316SS/CF8M				316SS/CF8M				304SS/CF8				316SS/CF8M			
Stem/Hinge Pin	316SS				316SS				304SS				316SS			
Disc/Screen	CF8M				CF8M				CF8				CF8M			
Standard/Approval	RoHS				RoHS				RoHS				RoHS			
Service Condition	P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23				P-T Rating : Page SS23			
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23			
Remarks	RoHS: Option, EAC: Option				RoHS: Option, EAC: Option				* Except Flange Thickness RoHS: Option, EAC: Option				* Except Flange Thickness RoHS: Option, EAC: Option			

Type	Strainer				Strainer				Strainer				Strainer			
Stainless Steel B Series KITZ Standard																
	SC/BC				SC/BC				SC				SC			
	EAC RoHS				EAC RoHS				EAC RoHS				EAC RoHS			
	Fig				Fig				Fig				Fig			
	KCA Code				KCA Code				KCA Code				KCA Code			
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				JIS B2220* 10K FF				JIS B2220* 10K FF			
inch	mm	L	H	*H1	L	H	*H1		L	H	*H1		L	H	*H1	
1/4	8	65	50	66	65	50	66		110	50	67		110	50	67	
3/8	10	70	50	67	70	50	67		120	58	79		120	58	79	
1/2	15	85	58	79	85	58	79		130	66	91		130	66	91	
3/4	20	100	64	89	100	64	89		150	78	109		150	78	109	
1	25	115	76	107	115	76	107		170	93	131		170	93	131	
1 1/4	32	135	89	127	135	89	127		190	103	144		190	103	144	
1 1/2	40	150	98	139	150	98	139		220	121	173		220	121	173	
2	50	180	115	167	180	115	167									
2 1/2	65	220	156	214	220	156	214									
3	80	250	192	266	250	192	266									
Body	CF8				CF8M				CF8				CF8M			
Bonnet/Cap/Cover	CF8				CF8M				CF8				CF8M			
Disc/Screen	304SS				316SS				304SS				316SS			
Gasket	Reinforced PTFE				Reinforced PTFE				Reinforced PTFE				Reinforced PTFE			
Standard/Approval	RoHS				RoHS				RoHS				RoHS			
Service Condition	Pressure-Temperature: 1.0 MPa: 180°C				Pressure-Temperature: 1.0 MPa: 180°C				Pressure-Temperature: 1.0 MPa: 180°C				Pressure-Temperature: 1.0 MPa: 180°C			
Reference Page	Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23				Design, Packing/Gasket : Page SS22 & 23			
Remarks	40-mesh, RoHS: Option				40-mesh, RoHS: Option				* Except Flange Thickness 40-mesh, RoHS: Option				* Except Flange Thickness 40-mesh, RoHS: Option			

*Height for removing the screen

Type	Wafer Check				Wafer Check				Wafer Check			
Stainless Steel B Series KITZ Standard	10K 				10K 				20K 			
	Fig 10UW				Fig 10UWS				Fig 20UWS			
	KCA Code —				KCA Code —				KCA Code —			
	End Connection Wafer (JIS 10K)				End Connection Wafer (JIS 10K)				End Connection Wafer (JIS 20K)			
	inch	mm	L	H	D	L	H	D	L	H	D	
2	50	60	147	60	60	148	60	60	142	60		
2 1/2	65	67	155	60	67	156	60	67	158	60		
3	80	73	163	60	73	164	60	73	163	60		
4	100	73	175	60	73	176	60	73	176	60		
5	125	89	189	70	89	189	70	89	189	70		
6	150	98	202	70	98	203	70	98	203	70		
8	200	127	229	70	127	229	70	127	229	70		
10	250	146	280	90	146	284	90	146	284	90		
12	300	181	307	90	181	310	90	181	310	90		
Body	CF8 + NBR				CF8 + Metal Seat				CF8 + Metal Seat			
Bonnet/Cap	CF8				CF8				CF8			
Stem/Hinge pin	304SS				304SS				304SS			
Disc/Screen	CF8				CF8				CF8			
Gasket	Flexible Graphite + PTFE Braided				Flexible Graphite + PTFE Braided				Flexible Graphite + PTFE Braided			
Service Condition	W.O.G. 80°C (1.4MPa) (DO NOT USE for Flammable Gas or Toxic Gas.)				W.O.G. 120°C (1.4MPa) (DO NOT USE for Flammable Gas or Toxic Gas.)				W.O.G. 120°C (3.4MPa) (DO NOT USE for Flammable Gas or Toxic Gas.)			
Reference Page	Features: Page BR35				Features: Page BR35				Features: Page BR35			
Remarks	Built-in Bypass Valve Single Plate Type				Built-in Bypass Valve Single Plate Type				Built-in Bypass Valve Single Plate Type			

Type	Ball Check				Air Vent			Ball Check			Ball Check		
Stainless Steel K Series KITZ Standard	10K 							10K 			10K 		
													
	Fig				UFTA			10UFT			10UFTE		
	KCA Code				—			—			—		
	End Connection				BS21 (JIS B0203)			JIS B2220 10K RF			JIS B2220 10K RF		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/4	20				80								
1	25				80								
1 1/4	32	105	59.5										
1 1/2	40							190	87				
2	50							200	100.5		200	97	
2 1/2	65							220	123.5		220	120.5	
3	80							240	150		240	146	
4	100							290	187		290	187	
6	150							410	275		410	275	
8	200										500	366	
Body	CF8				CF8			CF8			CF8		
Bonnet/ Cap/ Cover	CF8				CF8			CF8			CF8		
Disc	NBR				EPDM			NBR			NBR		
O ring/ Gasket	NBR							NBR			NBR		
Plug	304SS										304SS		
Service Condition	Non-Shock Water : 0.05~1.4MPa, 0~60℃				Air : 0.7MPa at 0℃~+60℃			Non-Shock Water : 0.05~1.4MPa, 0~60℃			Non-Shock Water : 0.05~1.4MPa, 0~60℃		
Reference Page	Features & Pressure Loss: Page CPT19&20							Features & Pressure Loss: Page CPT19&20			Features & Pressure Loss: Page CPT19&20		
Remarks	Vertical Installation Only				Vertical Installation Only			Vertical Installation Only			Vertical & Horizontal		

Type	SS Ball				SS Ball				SS Ball				SS Ball			
SS/CS Threaded or Welded Ball Valves																
	10UT				10UTM				UTK				UTKM			
KCA Code	—				—				—				—			
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	8							39	31	60	39	31	60			
3/8	10	62	72	130	62	72	130	44	35	70	44	35	70			
1/2	15	65	102	130	65	102	130	56.5	38	85	56.5	38	85			
3/4	20	80	105	130	80	105	130	59	42	85	59	42	85			
1	25	90	124	160	90	124	160	71	47	100	71	47	100			
1 1/4	32	110	130	160	110	130	160	78	52	100	78	52	100			
1 1/2	40	120	113	230	120	113	230	83	63	125	83	63	125			
2	50	140	120	230	140	120	230	100	69	125	100	69	125			
2 1/2	65	160	154	400	160	154	400									
3	80	182	163	400	182	163	400									
Body & Cap	CF8				CF8M				CF8				CF8M			
Stem	304SS				316SS				304SS/316SS				316SS			
Ball	304SS/CF8				316SS/CF8M				304SS/316SS/CF8/CF8M				316SS/CF8M			
Ball Seat	PTFE				PTFE				G/F PTFE				G/F PTFE			
Gland Packing	PTFE				PTFE				G/F PTFE				G/F PTFE			
Gasket	PTFE				PTFE											
Handle	DI				DI				SS				SS			
Bore	Full Bore				Full Bore				Reduced Bore				Reduced Bore			
Standard/Approval									RoHS				RoHS			
Reference Page	P-T Rating : Page CPT16				P-T Rating : Page CPT16				P-T Rating : Page CPT15				P-T Rating : Page CPT15			
Remarks	Split Body				Split Body				Uni-Body RoHS: Option				Uni-Body RoHS: Option			

Type	SS Ball					SS Ball					SS Ball					SS Ball				
SS/CS Threaded or Welded Ball Valves	600  RB 					600  RB 					600  RB 					600  FB				
																				
Fig	AKUTKM					UTKW					UTKMW					UTFKW				
KCA Code	52					—					—					—				
End Connection	ASME B1.20.1					BS21 (JIS B0203)					BS21 (JIS B0203)					BS21 (JIS B0203)				
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D				
1/4	8	39	31	60	39	24	35	39	24	35										
3/8	10	44	35	70	44	29	40	44	29	40										
1/2	15	56.5	38	85	56.5	34	55	56.5	34	55	62	46	60							
3/4	20	59	42	85	59	37	55	59	37	55	73	49	60							
1	25	71	47	100	71	41	69	71	41	69	85	59	82							
1 1/4	32	78	52	100																
1 1/2	40	83	63	125																
2	50	100	69	125																
Body & Cap	CF8M					CF8					CF8M					CF8				
Stem	316SS					304SS/316SS					316SS					304SS				
Ball	316SS/CF8M					304SS/316SS/CF8/CF8M					316SS/CF8M					304SS				
Ball Seat	G/F PTFE					G/F PTFE					G/F PTFE					HYPATITE® PTFE				
Gland Packing	G/F PTFE					G/F PTFE					G/F PTFE					FKM				
Gasket																PTFE				
Handle	SS					ZDC					ZDC					SS				
Bore	Reduced Bore					Reduced Bore					Reduced Bore					Full Bore				
Standard/Approval	RoHS					RoHS					RoHS									
Reference Page	P-T Rating : Page CPT15					P-T Rating : Page CPT15					P-T Rating : Page CPT15					P-T Rating : Page CPT16				
Remarks	Uni-Body RoHS: Option					Uni-Body, Butterfly (Wing) Handle RoHS: Option					Uni-Body, Butterfly (Wing) Handle RoHS: Option					Split Body, Butterfly (Wing) Handle				

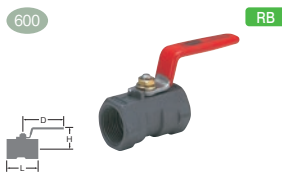
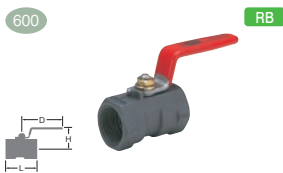
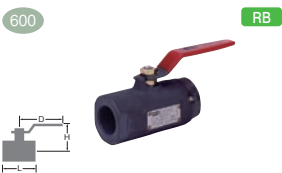
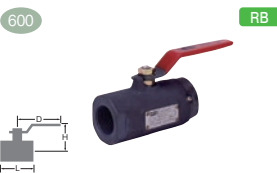
Type	SS Ball			SS Ball			SS Ball			SS Ball			
SS/CS Threaded or Welded Ball Valves	600			800 RoHS			800 RoHS			800 RoHS			
	Fig	UTFKMW			UTFZ			UTHM			AKUTHM		
KCA Code	—			—			—			53			
End Connection	BS21 (JIS B0203)			BS21 (JIS B0203)			BS21 (JIS B0203)			ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/8	10				58	47	100						
1/2	15	62	46	60	62	53	100	60	47	100	60	48	100
3/4	20	73	49	60	73	63	130	70	53	100	70	54	100
1	25	85	59	82	85	67	130	80	63	130	80	64	130
1 1/4	32				98	76	150	95	67	130	95	68	130
1 1/2	40				108	82	150	108	79	150	108	79	150
2	50				124	101	200	124	85	150	124	85	150
Body & Cap	CF8M			CF8			CF8M			CF8M			
Stem	316SS			304SS			316SS			316SS			
Ball	316SS/CF8M			304SS/CF8			316SS/CF8M			316SS/CF8M			
Ball Seat	HYPATITE® PTFE			HYPATITE® PTFE			PTFE			PTFE			
Gland Packing	FKM			PTFE			PTFE			PTFE			
Gasket	PTFE			PTFE			PTFE			PTFE			
Handle	SS			SS			SS			SS			
Bore	Full Bore			Full Bore			Reduced Bore			Reduced Bore			
Standard/Approval	RoHS			RoHS			RoHS			RoHS			
Reference Page	P-T Rating : Page CPT16			P-T Rating : Page CPT16			P-T Rating : Page CPT15			P-T Rating : Page CPT15			
Remarks	Split Body, Butterfly (Wing) Handle			Split Body RoHS: Option			Split Body RoHS: Option			Split Body RoHS: Option			

Type	SS Ball				SS Ball				SS Ball				SS Ball			
SS/CS Threaded or Welded Ball Valves	1000  FB 				1000  FB 				1000  RB 				1000  RB 			
																
Fig	UTFM				AKUTFM				UTHL				U3TZM			
KCA Code	—				53F				—				—			
End Connection	BS21 (JIS B0203)				ASME B1.20.1				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15	62	53	100	62	53	100	60	76	100	63	48	120			
3/4	20	73	63	130	73	63	130	70	80	100	71	60	130			
1	25	85	67	130	85	67	130	80	85	130	90	69	130			
1 1/4	32	98	75	150	98	75	150	95	99	130	103	83	150			
1 1/2	40	108	81	150	108	81	150	108	105	150	110	88	150			
2	50	124	102	200	124	102	200	124	113	150	127	104	180			
Body & Cap	CF8M				CF8M				CF8				CF8M			
Stem	316SS				316SS				304SS				316SS			
Ball	316SS/CF8M				316SS/CF8M				304SS/CF8				316SS/CF8M			
Ball Seat	HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE			
Gland Packing	PTFE				PTFE				PTFE				PTFE			
Gasket	PTFE				PTFE				PTFE				PTFE			
Handle	SS				SS				SS				SS			
Bore	Full Bore				Full Bore				Reduced Bore				Reduced Bore			
Standard/Approval	RoHS				RoHS				RoHS				RoHS			
Reference Page	P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15			
Remarks	RoHS: Option				RoHS: Option				For Thermal Insulation RoHS: Option				3pc Body RoHS: Option			

Type	SS Ball				SS Ball				SS Ball				SS Ball			
SS/CS Threaded or Welded Ball Valves	1000  RB RoHS				1000  RB RoHS				1000  RB RoHS				1000  FB RoHS			
																
Fig	AKU3TZM				SWU3TZM				AWU3TZM				U3TZFM			
KCA Code	—				—				—				—			
End Connection	ASME B1.20.1				BS5351				ASME B16.11				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	8										63	48	120			
3/8	10										63	48	120			
1/2	15	63	48	120	63	48	120	63	48	120	71	60	130			
3/4	20	71	60	130	71	60	130	71	60	130	90	69	130			
1	25	90	69	130	90	69	130	90	69	130	103	82	150			
1 1/4	32	103	83	150	103	83	150	103	83	150	110	88	150			
1 1/2	40	110	88	150	110	88	150	110	88	150	127	104	180			
2	50	127	104	180	127	104	180	127	104	180						
Body & Cap	CF8M				CF8M				CF8M				CF8M			
Stem	316SS				316SS				316SS				316SS			
Ball	316SS/CF8M				316SS/CF8M				316SS/CF8M				316SS/CF8M			
Ball Seat	HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE			
Gland Packing	PTFE				PTFE				PTFE				PTFE			
Gasket	PTFE				PTFE				PTFE				PTFE			
Handle	SS				SS				SS				SS			
Bore	Reduced Bore				Reduced Bore				Reduced Bore				Full Bore			
Standard/Approval	RoHS				RoHS				RoHS				RoHS			
Reference Page	P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15			
Remarks	3pc Body RoHS: Option				3pc Body RoHS: Option				3pc Body RoHS: Option				3pc Body RoHS: Option			

Type	SS Ball				SS Ball				SS Ball				SS Ball			
SS/CS Threaded or Welded Ball Valves	1000  FB RoHS				1000  FB RoHS				1000  FB RoHS				3000  RB			
																
Fig	AKU3TZFM				SWU3TZFM				AWU3TZFM				3000UTKM			
KCA Code	327F				—				327FS				—			
End Connection	ASME B1.20.1				BS5351				ASME B16.11				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	8	63	48	120	63	48	120	63	48	120	88	45	100			
3/8	10	63	48	120	63	48	120	63	48	120	88	45	100			
1/2	15	71	60	130	71	60	130	71	60	130	88	45	100			
3/4	20	90	69	130	90	69	130	90	69	130	90	58	115			
1	25	103	82	150	103	82	150	103	82	150	105	57	115			
1 1/4	32	110	88	150	110	88	150	110	88	150						
1 1/2	40	127	104	180	127	104	180	127	104	180	130	72	160			
2	50										150	82	230			
Body & Cap	CF8M				CF8M				CF8M				316SS			
Stem	316SS				316SS				316SS				329J1			
Ball	316SS/CF8M				316SS/CF8M				316SS/CF8M				316SS			
Ball Seat	HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE				PTCFE			
Gland Packing	PTFE				PTFE				PTFE				PTFE			
Gasket	PTFE				PTFE				PTFE				HYPATITE® PTFE			
Handle	SS				SS				SS				SS			
Bore	Full Bore				Full Bore				Full Bore				Reduced Bore			
Standard/Approval	RoHS				RoHS				RoHS							
Reference Page	P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15			
Remarks	3pc Body RoHS: Option				3pc Body RoHS: Option				3pc Body RoHS: Option				Welded Body			

Type	SS 3-Way 4-Seats Ball L-Port					SS 3-Way 4-Seats Ball T-Port				
SS/CS Threaded or Welded Ball Valves										
	Fig UTH4LM					Fig UTH4TM				
	KCA Code —					KCA Code —				
	End Connection BS21 (JIS B0203)					End Connection BS21 (JIS B0203)				
	inch	mm	L	L1	H	D	L	L1	H	D
	1/2	15	69	34.5	63	130	69	34.5	63	130
	3/4	20	84	42	65	130	84	42	65	130
	1	25	96	48	76	150	96	48	76	150
	1 1/4	32	114	57	80	150	114	57	80	150
	1 1/2	40	132	66	96	230	132	66	96	230
	2	50	150	75	101	230	150	75	101	230
Body & Cap	CF8M					CF8M				
Stem	316SS					316SS				
Ball	316SS/CF8M					316SS/CF8M				
Ball Seat	HYPATITE® PTFE					HYPATITE® PTFE				
Gland Packing	PTFE					PTFE				
Gasket	PTFE					PTFE				
Handle	SS					SS				
Bore	Reduced Bore					Reduced Bore				
Standard/Approval	RoHS: UTH4LM<GS101>					RoHS: UTH4TM<GS101>				
Reference Page	P-T Rating : Page CPT15 Port Orientation : Page TECH1					P-T Rating : Page CPT15 Port Orientation : Page TECH1				
Remarks	Split Body RoHS: Option					Split Body RoHS: Option				

Type	CS Ball					CS Ball					CS Ball					CS Ball				
SS/CS Threaded or Welded Ball Valves																				
	Fig SCTK					AKSCTK					800SCTK					AK800SCTK				
	KCA Code —					—					—					—				
	End Connection BS21 (JIS B0203)					ASME B1.20.1					BS21 (JIS B0203)					ASME B1.20.1				
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D				
1/4	8	39	30	60	39	30	60	88	45	100	88	45	100	88	45	100				
3/8	10	44	35	70	44	35	70	88	45	100	88	45	100	88	45	100				
1/2	15	56.5	38	85	56.5	38	85	88	45	100	88	45	100	88	45	100				
3/4	20	59	42	85	59	42	85	90	54	115	90	54	115	90	54	115				
1	25	71	47	100	71	47	100	105	58	115	105	58	115	105	58	115				
11/4	32	78	52	100	78	52	100	117	65	135	117	65	135	117	65	135				
11/2	40	83	63	125	83	63	125	130	70	135	130	70	135	130	70	135				
2	50	100	69	125	100	69	125	150	80	150	150	80	150	150	80	150				
Body & Cap	WCB				WCB				A105				A105							
Stem	304SS/316SS				304SS/316SS				316SS				316SS							
Ball	304SS/316SS				304SS/316SS				316SS				316SS							
Ball Seat	G/F PTFE				G/F PTFE				PTFE				PTFE							
Gland Packing	G/F PTFE				G/F PTFE				PTFE				PTFE							
Gasket									HYPATITE® PTFE				HYPATITE® PTFE							
Handle	SS				SS				CS				CS							
Bore	Reduced Bore				Reduced Bore				Reduced Bore				Reduced Bore							
Reference Page	P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15				P-T Rating : Page CPT15							
Remarks	Split Body				Split Body				Welded Body				Welded Body							

Type	CS Ball				CS Ball			CS Ball			CS Ball					
SS/CS Threaded or Welded Ball Valves	800  				3000  			3000  			3000  					
	AW800SCTK				3000SCTK			AK3000SCTK			AW3000SCTK					
	KCA Code				—			—			—					
	End Connection				ASME B16.11			BS21 (JIS B0203)			ASME B1.20.1			ASME B16.11		
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D		
1/4	8	170	44	100	88	45	100	88	45	100	170	44	100			
3/8	10	170	44	100	88	45	100	88	45	100	170	44	100			
1/2	15	170	44	100	88	45	100	88	45	100	170	44	100			
3/4	20	176	54	115	90	54	115	90	54	115	176	54	115			
1	25	196	57	115	105	58	115	105	58	115	196	57	115			
1 1/4	32	210	65	135	117	67	160	117	67	160	210	65	160			
1 1/2	40	226	70	135	130	72	160	130	72	160	226	70	160			
2	50	262	81	150	150	82	230	150	82	230	262	81	230			
Body & Cap		A105			A105			A105			A105					
Stem		316SS			329J1SS			329J1SS			329J1SS					
Ball		316SS			316SS			316SS			316SS					
Ball Seat		PTFE			PCTFE			PCTFE			PCTFE					
Gland Packing		PTFE			PTFE			PTFE			PTFE					
Gasket		HYPATITE® PTFE			HYPATITE® PTFE			HYPATITE® PTFE			HYPATITE® PTFE					
Handle		CS			CS			CS			CS					
Bore		Reduced Bore			Reduced Bore			Reduced Bore			Reduced Bore					
Reference Page		P-T Rating : Page CPT15			P-T Rating : Page CPT15			P-T Rating : Page CPT15			P-T Rating : Page CPT15					
Remarks		Split Body			Welded Body			Welded Body			Split Body					

Type	Needle (Straight)			Needle (Angle)			Needle (Straight)			Needle (Straight)							
Miniature Valves	30K 		Metric RoHS	30K 		Metric RoHS	30K 		Metric RoHS	30K 		Inch RoHS					
	UN3-AP-			UN3-BP-			UN3-CP-			UN3-CP-							
	KCA Code			—			—			—							
	End Connection			JIS B0203			JIS B0203			COUPLE LOK							
inch		mm		Fig		Threaded		Fig		Threaded		Fig		Tube O.D.			
1/8		6		UN3-AP-1		Rc1/8		UN3-BP-1		Rc1/8		UN3-CP-6		6			
1/4		8		UN3-AP-2		Rc1/4		UN3-BP-2		Rc1/4		UN3-CP-8		8			
3/8		10		UN3-AP-3		Rc3/8		UN3-BP-3		Rc3/8		UN3-CP-10		10			
		12										UN3-CP-12		12			
1/2		15		UN3-AP-4		Rc1/2								UN3-CP-04			
Body		316SS				316SS				316SS				316SS			
Stem		630SS				630SS				630SS				630SS			
Gland Packing/O ring		PTFE				PTFE				PTFE				PTFE			
Handle		ZDC				ZDC				ZDC				ZDC			
Panel Gasket/Gasket		Asbestos-Free				Asbestos-Free				Asbestos-Free				Asbestos-Free			
Ferrule/Ring										316SS				316SS			
Standard/Approval		RoHS: UN3-AP-<GS101>				RoHS: UN3-BP-<GS101>				RoHS: UN3-CP-<GS101>				RoHS: UN3-CP-<GS101>			
Service Conditions		2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C				2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C				2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C				2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C			
Reference Page		P-T Rating & Flow Characteristics: Page CPT17&18				P-T Rating & Flow Characteristics: Page CPT17&18				P-T Rating & Flow Characteristics: Page CPT17&18				P-T Rating & Flow Characteristics: Page CPT17&18			
Remarks		Metric Tube Series RoHS: Option				Metric Tube Series RoHS: Option				Metric Tube Series RoHS: Option				Inch Tube Series RoHS: Option			

Type	Needle (Angle)			Needle (Angle)		Needle (Straight)		Needle (Straight)				
Miniature Valves	30K		Metric	30K		Inch	30K		Metric	30K		Inch
			RoHS			RoHS			RoHS			RoHS
Fig	UN3-DP-			UN3-DP-		UN3-EP-		UN3-EP-				
KCA Code	—			—		—		—				
End Connection	COUPLE LOK			COUPLE LOK		Male (JIS B0203) x COUPLE LOK		Male (JIS B0203) x COUPLE LOK				
inch	mm	Fig	Tube O.D.	Fig	Tube O.D.	Fig	Tube O.D.	Fig	Tube O.D.			
1/8	6	UN3-DP-6	6			UN3-EP-6-2	6					
1/4	8	UN3-DP-8	8	UN3-DP-02	1/4	UN3-EP-8-2	8	UN3-EP-02-2	1/4			
1/4	10					UN3-EP-10-2	10					
3/8	10					UN3-EP-10-3	10	UN3-EP-03-2	3/8			
1/4	12					UN3-EP-12-2	12					
3/8	12					UN3-EP-12-3	12					
3/8								UN3-EP-03-3	3/8			
Body	316SS			316SS		316SS		316SS				
Stem	630SS			630SS		630SS		630SS				
Gland Packing/O ring	PTFE			PTFE		PTFE		PTFE				
Handle	ZDC			ZDC		ZDC		ZDC				
Panel Gasket/Gasket	Asbestos-Free			Asbestos-Free		Asbestos-Free		Asbestos-Free				
Ferrule/Ring	316SS			316SS		316SS		316SS				
Standard/Approval	RoHS: UN3-DP-<GS101>			RoHS: UN3-DP-<GS101>		RoHS: UN3-EP-<GS101>		RoHS: UN3-EP-<GS101>				
Service Conditions	2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C			2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C		2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C		2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C				
Reference Page	P-T Rating & Flow Characteristics: Page CPT17&18			P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18				
Remarks	Metric Tube Series RoHS: Option			Inch Tube Series RoHS: Option		Metric Tube Series RoHS: Option		Inch Tube Series RoHS: Option				

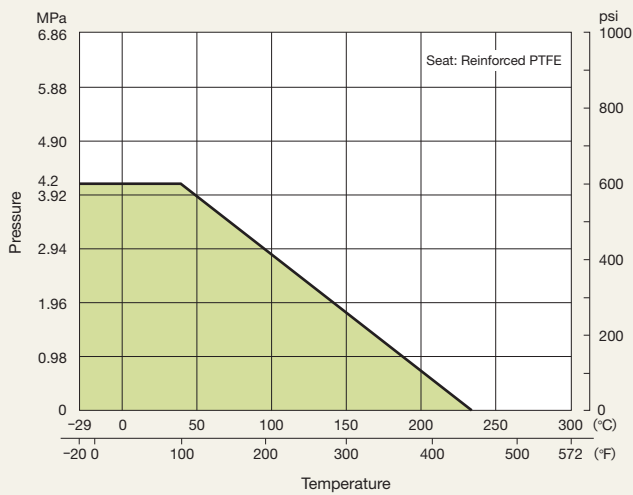
Type	Needle (Angle)			Needle (Angle)		Needle (Straight)		Needle (Straight)	
Miniature Valves	30K		Metric	30K		Inch	260K		Metric
			RoHS			RoHS			RoHS
	UN3-FP-			UN3-FP-		UN26-AP-		UN26-CP-	
	KCA Code —			—		—		—	
End Connection	Male (JIS B0203) x COUPLE LOK			Male (JIS B0203) x COUPLE LOK		JIS B0203		COUPLE LOK	
inch	mm	L	D	L	D	L	D	L	D
1/8	6	UN3-FP-6-2	6			UN26-AP-1	Rc1/8	UN26-CP-6	6
1/4	8	UN3-FP-8-2	8	UN3-FP-02-2	1/4	UN26-AP-2	Rc1/4	UN26-CP-8	8
1/4	10	UN3-FP-10-2	10					UN26-CP-10	10
3/8	10	UN3-FP-10-3	10	UN3-FP-03-2	3/8	UN26-AP-3	Rc3/8		
1/4	12	UN3-FP-12-2	12						
3/8	12	UN3-FP-12-3	12					UN26-CP-12	12
3/8				UN3-FP-03-3	3/8				
1/2	15					UN26-AP-4	Rc1/2		
3/4	20					UN26-AP-6	Rc3/4		
1	25					UN26-AP-8	Rc1		
Body	316SS			316SS		316SS		316SS	
Stem	630SS			630SS		630SS		630SS	
Gland Packing/O ring	PTFE			PTFE		PTFE		PTFE	
Handle	ZDC			ZDC		ZDC		ZDC	
Panel Gasket/Gasket	Asbestos-Free			Asbestos-Free		Asbestos-Free		Asbestos-Free	
Ferrule/Ring	316SS			316SS		316SS		316SS	
Standard/Approval	RoHS: UN3-FP-<GS101>			RoHS: UN3-FP-<GS101>		RoHS: UN26-AP-<GS101>		RoHS: UN3-CP-<GS101>	
Service Conditions	2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C			2.65MPa for 150°C & lower, 2.94MPa for 100°C & lower, 3.43MPa for 38°C down to -20°C		19.81MPa for 150°C & lower, 21.774MPa for 100°C & lower, 25.50MPa for 38°C down to -20°C		19.81MPa for 150°C & lower, 21.774MPa for 100°C & lower, 25.50MPa for 38°C down to -20°C	
Reference Page	P-T Rating & Flow Characteristics: Page CPT17&18			P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18	
Remarks	Metric Tube Series RoHS: Option			Inch Tube Series RoHS: Option		Metric Tube Series RoHS: Option		Inch Tube Series RoHS: Option	

Type	Needle (Straight)		Needle (Straight)			
Miniature Valves	260K		Metric	260K		Inch
	RoHS		RoHS			
Fig	UN26-SP-		UN26-CP-			
KCA Code	—		—			
End Connection	JIS B2316(Socket weld)		COUPLE LOK			
inch	mm	Fig	Threaded	Fig	Tube O.D.	
1/8	6	UN26-SP-1	1/8			
1/4	8	UN26-SP-2	1/4	UN26-CP-02	1/4	
3/8	10	UN26-SP-3	3/8	UN26-CP-03	3/8	
1/2	15	UN26-SP-4	1/2	UN26-CP-04	1/2	
3/4	20	UN26-SP-6	3/4			
1	25	UN26-SP-8	1			
Body	316SS		316SS			
Stem	630SS		630SS			
Gland Packing/O ring	PTFE		PTFE			
Handle	ZDC		ZDC			
Panel Gasket/Gasket	Asbestos-Free		Asbestos-Free			
Ferrule/Ring			316SS			
Standard/Approval	RoHS: UN3-SP-<GS101>		RoHS: UN3-CP-<GS101>			
Service Conditions	19.81MPa for 150°C & lower, 21.774MPa for 100°C & lower, 25.50MPa for 38°C down to -20°C		19.81MPa for 150°C & lower, 21.774MPa for 100°C & lower, 25.50MPa for 38°C down to -20°C			
Reference Page	P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18			
Remarks	Metric Tube Series RoHS: Option		Inch Tube Series RoHS: Option			

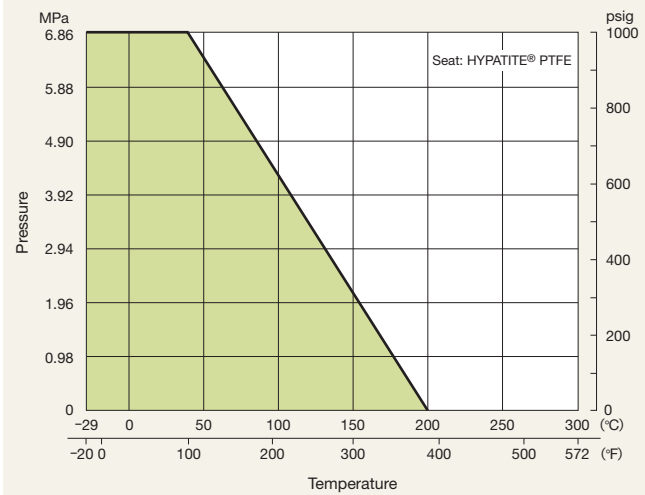
Type	Needle (Straight)		Needle (Straight)		Needle (Straight with lock lever)		Needle (Angle)		
Miniature Valves	10K 		20K 		20K  Drwg		20K  Drwg		
	N1-A-		N2-A-		N2-AL-		N2-B-		
	—		—		—		—		
	JIS B0203		JIS B0203		JIS B0203		JIS B0203		
	inch	mm	Fig	Threaded	Fig	Threaded	Fig	Threaded	
1/8	6	N1-A-1	Rc1/8	N2-A-1	Rc1/8	N2-AL-1	Rc1/8	N2-B-1	Rc1/8
1/4	8	N1-A-2	Rc1/4	N2-A-2	Rc1/4	N2-AL-2	Rc1/4	N2-B-2	Rc1/4
3/8	10	N1-A-3	Rc3/8	N2-A-3	Rc3/8	N2-AL-3	Rc3/8	N2-B-3	Rc3/8
1/2	15			N2-A-4	Rc1/2	N2-AL-4	Rc1/2	N2-B-4	Rc1/2
Body	C3771		C3771		C3771		C3771		
Stem	C3531		C3531		C3531		C3531		
Gland Packing/ O ring	NBR		NBR		NBR		NBR		
Handle	ZDC		ZDC		ZDC		ZDC		
Gasket			Nylon				Nylon		
Service Conditions	1.37MPa for 80℃ & lower		2.75MPa for 80℃ & lower		2.75MPa for 80℃ & lower		2.75MPa for 80℃ & lower		
Reference Page	P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18		P-T Rating & Flow Characteristics: Page CPT17&18		
Remarks	*Dezincification Resistant Brass		*Dezincification Resistant Brass		*Dezincification Resistant Brass		*Dezincification Resistant Brass		

Pressure-Temperature Ratings

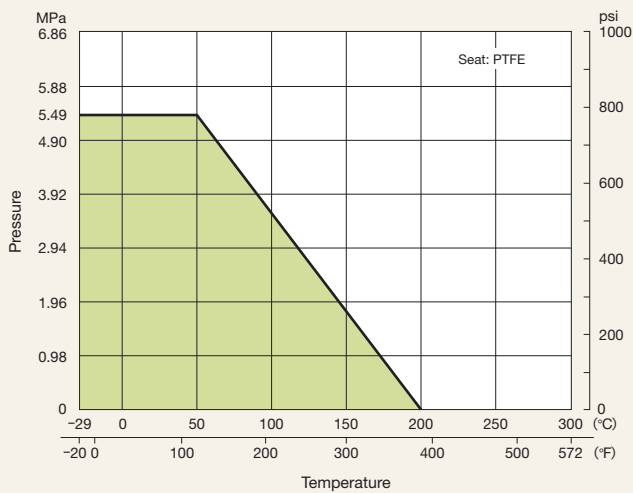
Type 600: SCTK/UTK(M)/AKUTKM/UTK(M)W



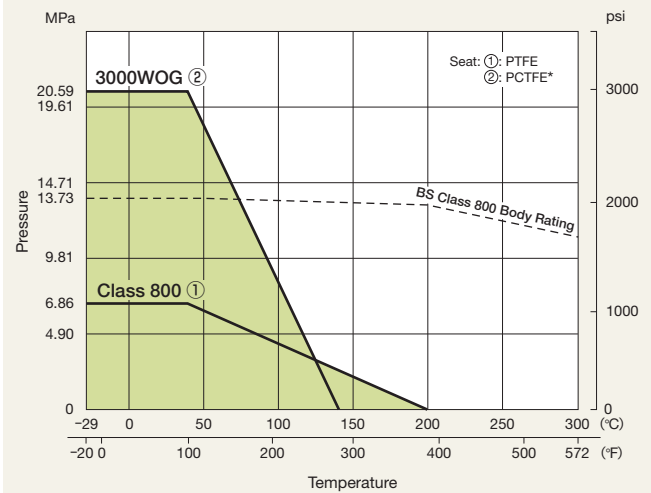
Type 1000: UTFM/AKUTFM/UTHL



Type 800: UTH(M)/AKUTHM

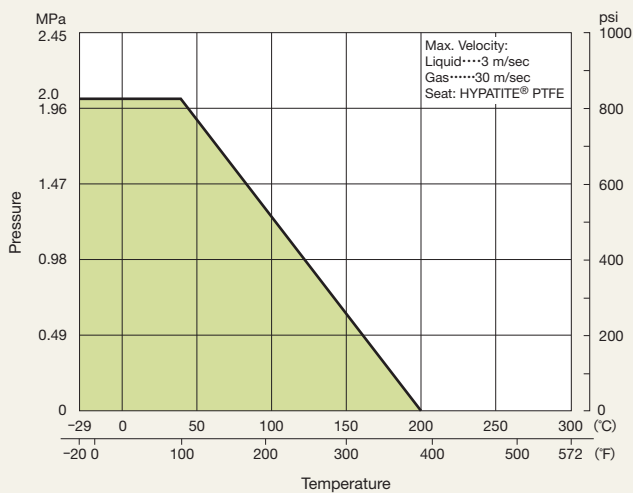


Class 800 and Type 3000: SCTK

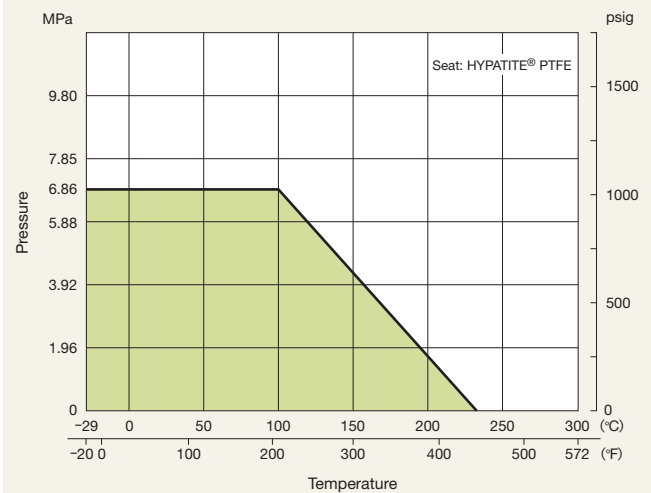


* Polychloro-Trifluoro-Ethylene

Type 800: UTH4LM/4TM



Type 1000: SC3TZ/U3TZ Series

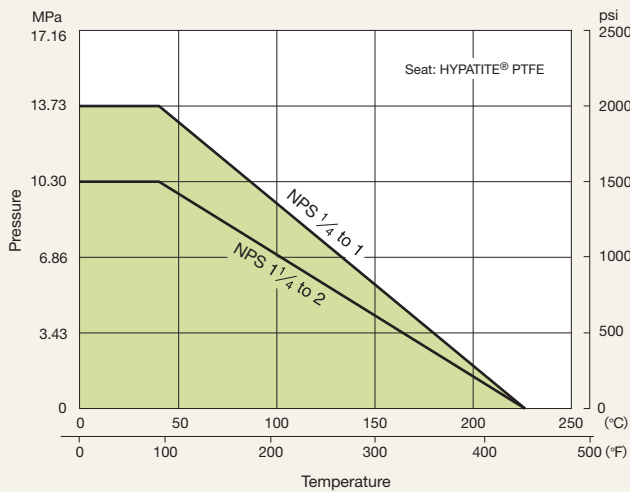


Note: Type 1500 is optionally available

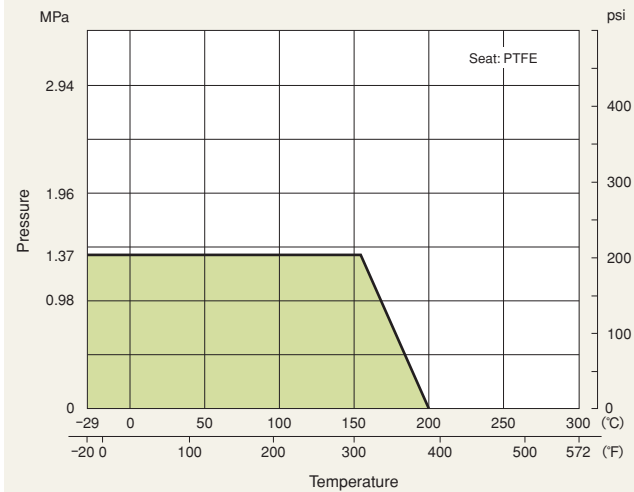
Pressure-Temperature Ratings

Type 1500/2000:

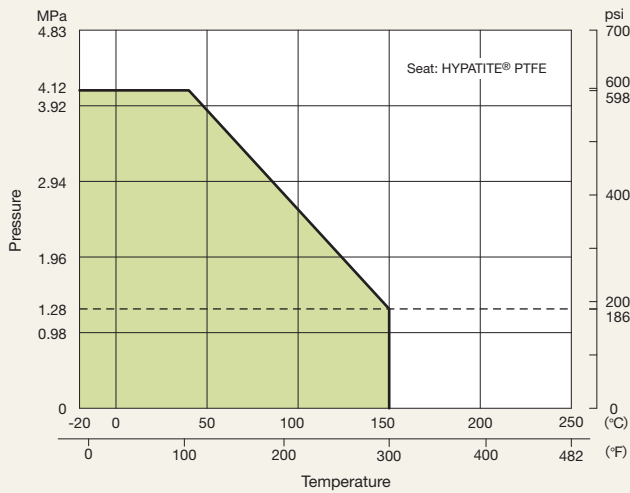
AKSCTHZM/AKSCTHWZM/AKUTHZM/AKUTHWZM



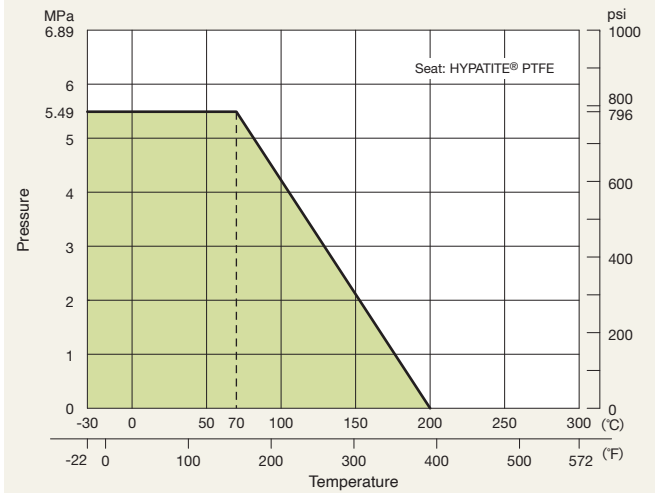
Class 150: AK150UT(M)/10UT(M)



Type 600: UTFK(M)W

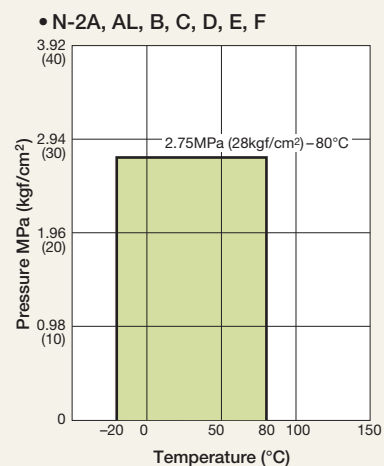
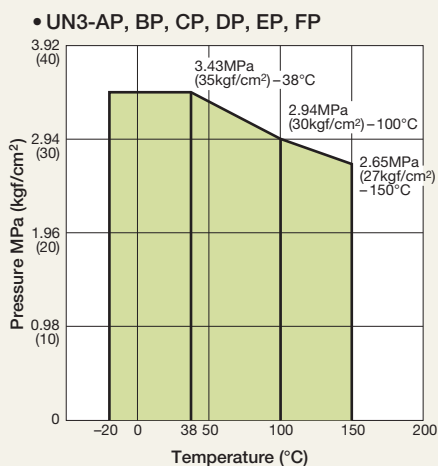
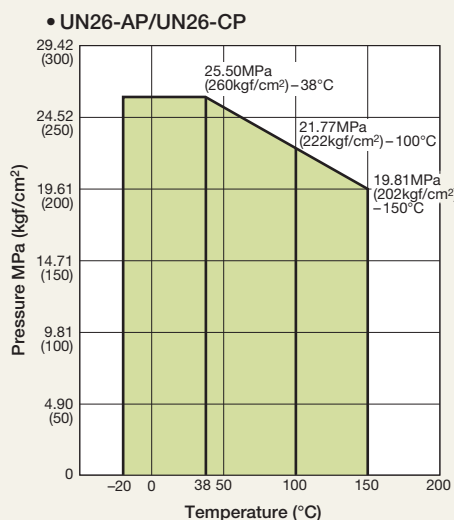


Type 800: UTFZ

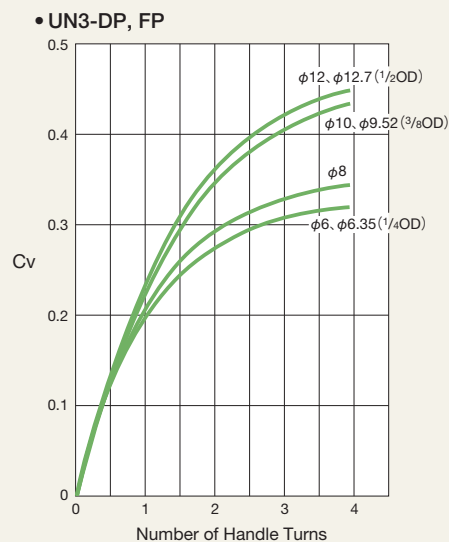
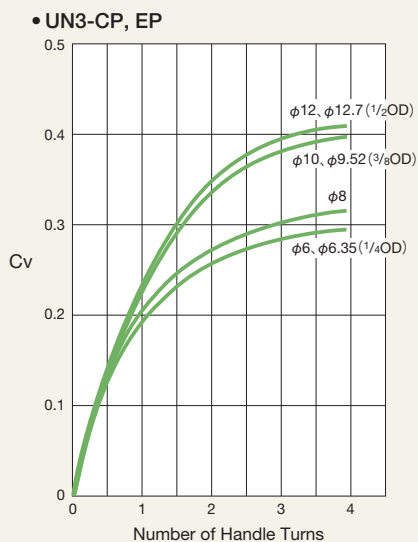
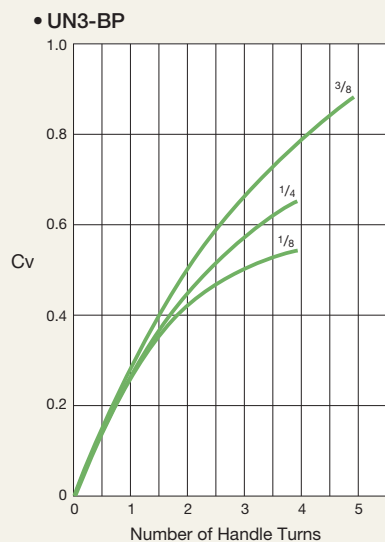
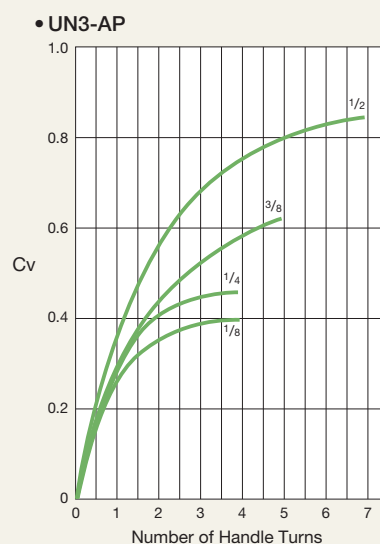
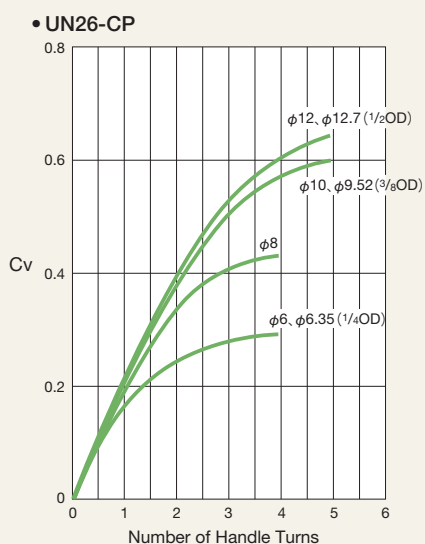
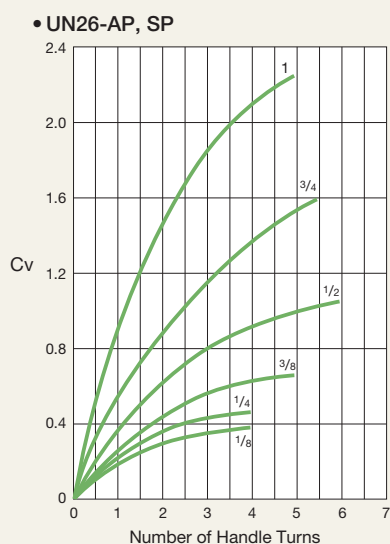


Pressure-Temperature Rating/Flow Characteristics

Pressure-Temperature Rating

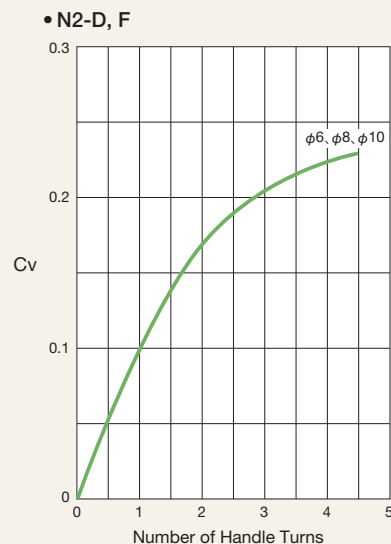
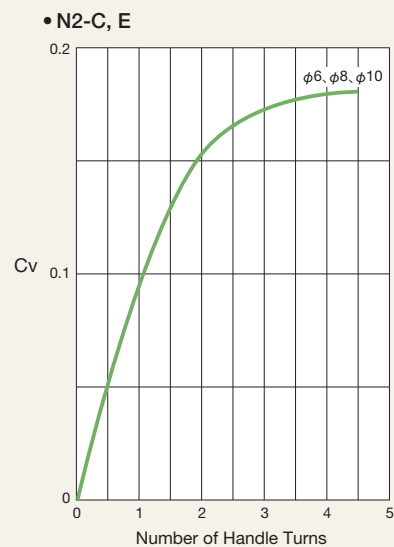
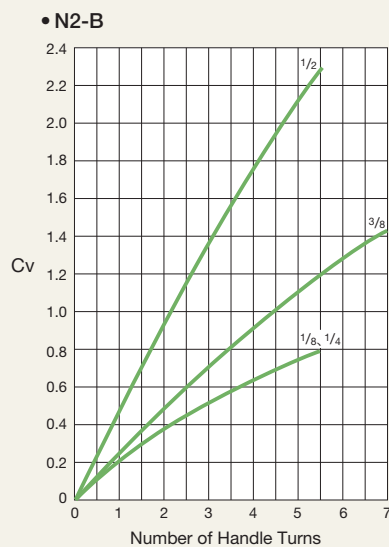
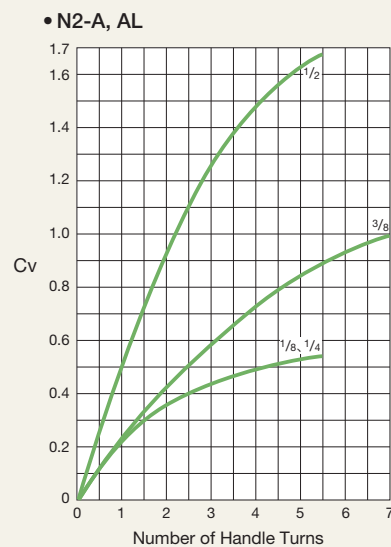


Flow Characteristics



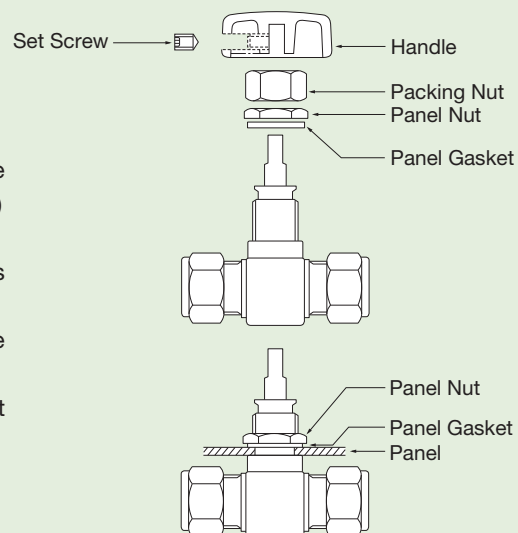
Pressure-Temperature Rating/Flow Characteristics

Flow Characteristics



Panel Mounting Procedures for KITZ Stainless Steel Miniature Valves

1. Loosen set screw which locks the handle and remove the handle with an Allen Wrench if Nominal Size 2.5 (Nominal Screw Size 2.5)
2. Remove packing nut, panel nut, then panel gasket.
3. Place the valve through hole on the panel. Required hole size is dimension D3 of valve size plus 0.5mm.
4. Fit the panel gasket and tighten panel nut to securely mount the valve.
5. Tighten packing nut, place the handle and lock the handle with set screw to complete assembly.



Design Features

KITZ check valves are backflow prevention valve having superior sealing performance for fluids such as clean water, waste water, sewage water and drainage water that may affect efficiency of existing swing type valves in some cases due to foreign objects trapped in the valve internal parts.

Valves covered in this manual are ball type check valves that have no obstructive parts in the valve interior and can handle fluids containing foreign objects.

Furthermore, flanged end ball check valves with vent hole(s) can be installed horizontally or vertically.

CAUTION

(1) Make sure to install the valve under specified installation conditions to ensure its sealing performance.
See the valve mounting orientation of each product type shown below.

Vertical installation with downstream side upwards
Product Code:
10UFTE
10UFT
UFTE
10FCFTN

Horizontal installation
hydraulic head pressure of 0.05 MPa or above in downstream side which has same bore size as the valve.

Not applicable.

- 1.1 Non-obstructive structure of ball-shaped disc prevents entanglement of foreign objects from the service fluid.
- 1.2 Ball-shaped rubber disc slides into the seating position by back-pressure of the fluid and provides excellent sealing performance.
- 1.3 Pressure loss is low due to the valve body shape design based on fluid engineering.

Product Names and Product Coding

Product Name	Product Coding
Cast Iron Nylon 11-lined Flanged End Ball Check Valve	10FCFTN
Stainless Steel Flanged End Ball Check Valve	10UFT
Stainless Steel Flanged End Ball Check Valve with Vent Hole	10UFTE
Stainless Steel Threaded End Ball Check Valve with Vent Hole	UFTE

Specifications

Product Code	10UFTE	10UTF	UFTE	10FCFTN
Service Temperature Range	0°C to 60°C			
Service Pressure Range	0.05 to 1.37 MPa (0.5 to 14.0 kgf/cm ²)			
Test Pressure (hydraulic)	Shell Test	2.06 MPa (21 kgf /cm ²)		
	Seat Test Leakage	0.05 to 1.51 MPa (0.5 to 15.4 kgf/cm ²)		
Pipe Connection	JIB B 2238 10K Standard (RF)		JIS B 0203 Threaded End	JIS B 2239 10K Standard (FF)
Face-to-Face Dimensions	JIS B 2002		JIS B 2011	JIS B 2002
Wall Thickness	ASME B 16.34 Class 150* ¹		JIS B 2011	JIS B 2031* ²
Valve Mounting Orientation	Horizontal and Vertical Piping	Vertical Piping		

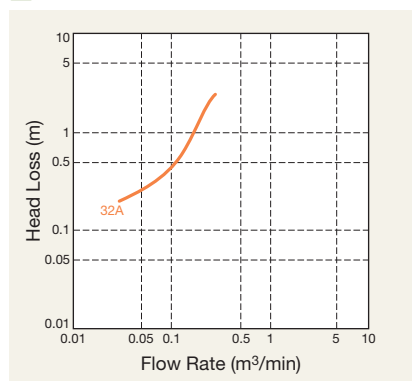
*1: Nominal size 80A and below of 10UFTE are KITZ standard.

*2: Nominal size 40A does not comply with JIS B 2031.

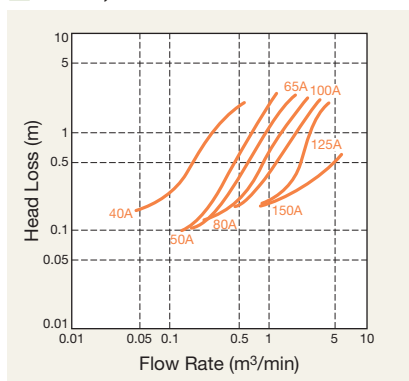
Note) Minimum differential pressure to move the ball is 0.05 MPa (0.5 kgf/cm²). For pump selection, check opening pressure and pressure loss.

Pressure Loss (Clean Water)

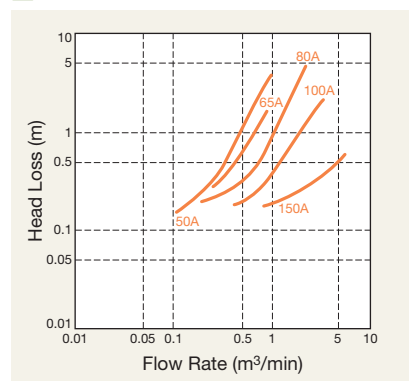
■ UFTE



■ 10UFT, 10FCFTN



■ 10UFTE

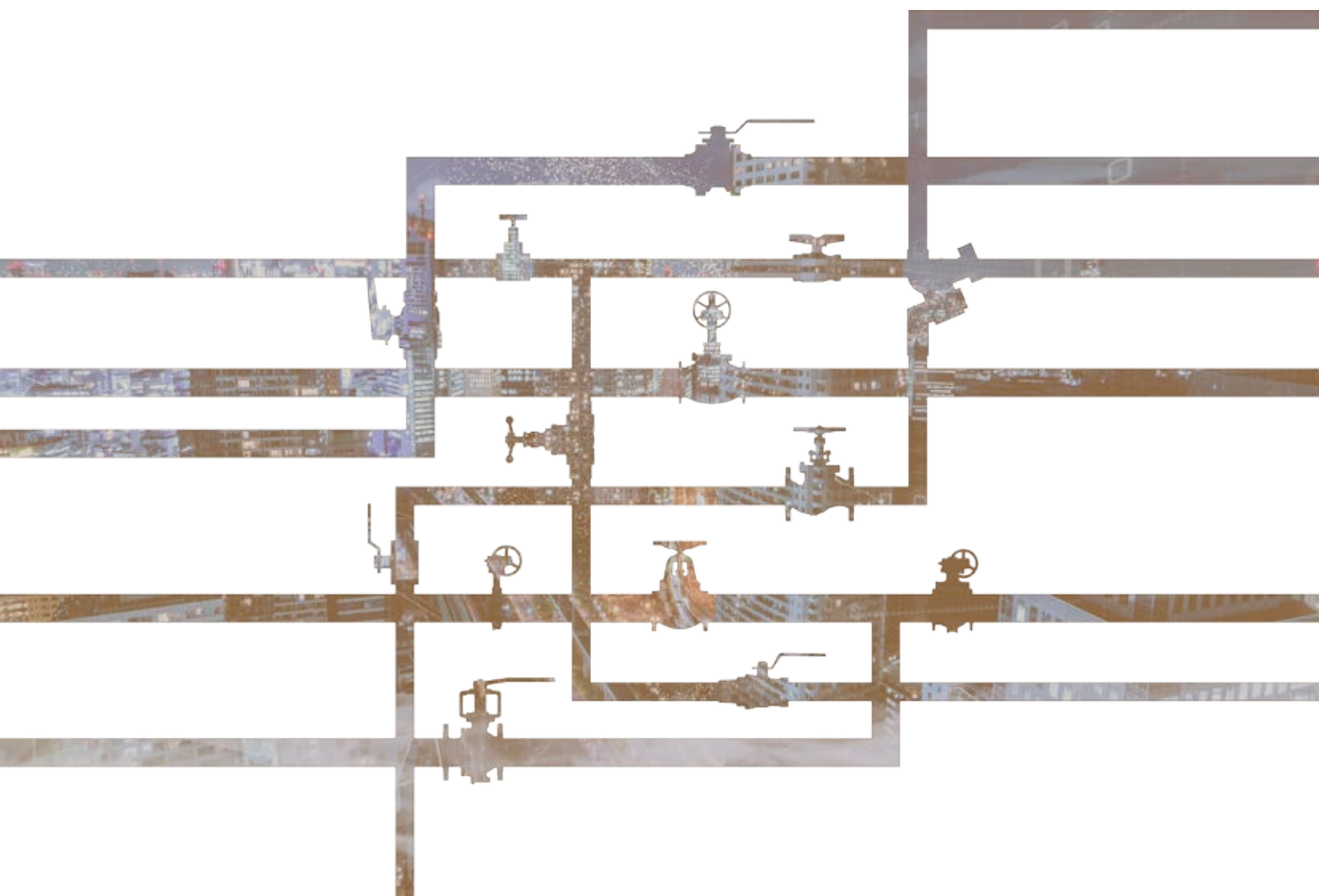


[illegible]

KITZ

GENERAL CATALOG

Cast Iron



INDEX

Title	Body Material	Type	Class	End Connection	Features	Fig	Page
Cast Iron Valves	CI	Gate	5K	FE/FF	BB, OS&Y	5FCM	C12 67
			10K			10FCL	
			125			125FCL	
			EN PN16			EN16FCL	
			EN PN25			EN16FCLM	
				FE/RF	(PHOX)EN25FCLE		C13 68
			10K			10FCWI	
			125			125FCWI	
			EN PN16			EN16FCW	
			10K			EN16FCWI	
			125			10FCHI	
					BB, OS&Y	125FCHI	
			10K			10FCJ	
			125			10FCJS	
			EN PN16			10FCJU	
		Globe		FE/FF	BB, OS&Y	125FCJ	C14 69
			125			125FCJS	
			EN PN16			EN16FCJ	
						EN16FCJM	
						10FCO	
					Swing, BC	10FCOS	C15 70
			10K			10FCOU	
			125			10FCOR	
			EN PN16			10FCOUR	
						125FCO	
		Check			Swing, BC	125FCOS	C16 71
			10K			EN16FCO	
			125			EN16FCOM	
			EN PN16			(PHOX)EN25FCOE	
			EN PN25		Silent	125FCSR	
			10K			10FWZ	C17 72
			125			125FWNB	
			EN PN16			125FWNBE	
						PN16FWNB	
						PN16FWNBME	
		Strainer	10K	FE/FF	Y-Pattern, BC	10FCY	C18 73
			125			125FCY	
			EN PN16			125FCETY<Z0P02>	
						EN16FCY	
						EN16FCYM	
			EN PN25		Ductile Iron, Y-Pattern, BC	(PHOX)EN25FDYBE	
			DI				
			5K				
			10K				
			125				
			EN PN16				
		Nylon Lining		FE/FF	BB, OS&Y	5FCMN	C19 74
			5K			10FCLN	
			10K			10FCJN	
			125			10FCJN	
			EN PN16			10FCJN	
					Swing, BC	10FCON	
			10K			10FCON-C	
			125			10FCON-C	
			EN PN16			10FCFTN	
						10FCYN	
					Y-Pattern, BC	10FCY	
			10K			10FCT	
			125			(G-)10FCTB	
			EN PN16			10FCTR	
						125FCTB	
			10K			125FCTR	
						10FCTB2L	
						10FCTR2L	

* (Abbreviation) FE: Flanged Ends, FF: Flat Face Ends, RF: Raised Face Ends, TE: Threaded Ends

BB: Bolted Bonnet, OS&Y: Outside Screw & Yoke, BC: Bolted Cover, IS: Inside Screw, NRS: Non Rising Stem, RS: Rising Stem, FB: Full Bore, RB: Reduced Bore

PRODUCT CODING

Cast Iron Valves

(Note: Some products do not follow this coding system)

G - 10 FC O U R

1 2 3 4 5 6

1 Valve Operation

None Handwheel or Lever
G Gear

2 Pressure Class

5 5K
10 10K
PN16 or EN16 PN16
EN25---E PN25
125 Class 125

3 Symbol of Shell Material

FC Cast Iron
F Cast Iron
FD Ductile Iron

4 Valve Type

L Gate (OS&Y)
W or H Gate (NRS, IS)
WI or HI Gate with Indicator
J Globe
O Swing Check
WZ Wafer Check with By-Pass
WNBM Wafer Check
Y Strainer
ETY Strainer
T or TB FB ball
TR RB ball

5 Trim

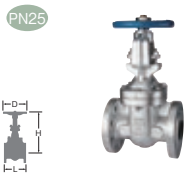
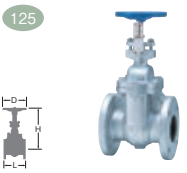
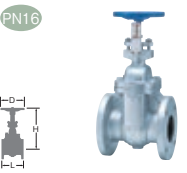
None Bronze
U 304SS
S 403SS
M 316SS

6 Others

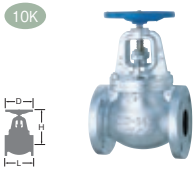
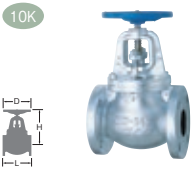
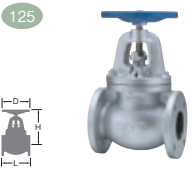
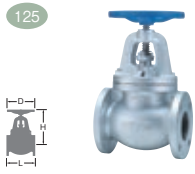
R Rubber Seat
N Nylone Lining
-C With Counter Weight

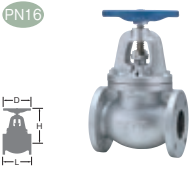
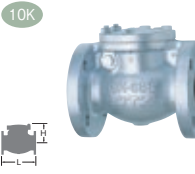
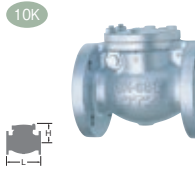
Type	Gate				Gate				Gate				Gate			
Cast Iron																
	5FCM				10FCL				10FCLS				10FCLU			
Fig																
End Connection	JIS B2239 5K FF				JIS B2239 10K FF				JIS B2239 10K FF				JIS B2239 10K FF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
11/2	40				165	305	160	165	305	160	165	305	160			
2	50	160	329	160	180	343	170	180	343	170	180	343	170			
21/2	65	170	383	170	190	390	170	190	390	170	190	390	170			
3	80	180	437	170	200	464	200	200	464	200	200	464	200			
4	100	200	534	225	230	548	250	230	548	250	230	548	250			
5	125	220	629	225	250	649	280	250	649	280	250	649	280			
6	150	240	727	250	270	760	300	270	760	300	270	760	300			
8	200	260	920	280	290	957	350	290	957	350	290	957	350			
10	250	300	1135	350	330	1169	400	330	1169	400	330	1169	400			
12	300				350	1364	450	350	1364	450	350	1364	450			
14	350				381	1561	500	381	1561	500	381	1561	500			
16	400				406	1795	600	406	1795	600	406	1795	600			
18	450							432	1999	600	432	1999	600			
20	500							457	2232	680	457	2232	680			
24	600							508	2644	760	508	2644	760			
Body	FC200				FC200				FC200				FC200			
Bonnet	FC200				FC200				FC200				FC200			
Stem	C3771				C3771				403SS				304SS			
Disc	FC200				FC200				FC200				FC200			
Body/Disc Seat Rings	CAC406				CAC406				403SS				304SS			
Gland Packing	Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)			
Gasket	Asbestos-free (T/1995)				Asbestos-free (T/1995)				Asbestos-free (T/1995)				Asbestos-free (T/1995)			
Bolt/Nut	CS				CS				CS				CS			
Standard/Approval	JIS B2031				JIS B2031 for 2 ^B -12 ^B				JIS B2031 for 2 ^B -12 ^B				JIS B2031 for 2 ^B -12 ^B			
Reference Page	P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10			

Type	Gate				Gate				Gate				Gate			
Cast Iron																
Fig	125FCL				125FCLS				EN16FCL				EN16FCLM			
End Connection		ASME B16.1 CI.125FF			ASME B16.1 CI.125FF			EN 1092-2 PN16 RF			EN 1092-2 PN16 RF					
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
11/2	40	178	329	160	178	329	160	178	343	170	178	343	170			
2	50	190	383	170	190	382	170	190	389	170	190	389	170			
2 1/2	65	203	437	170	203	437	170	203	462	200	203	462	200			
3	80	229	534	225	229	534	225	229	547	250	229	547	250			
4	100	254	629	225	254	628	225	254	648	280	254	648	280			
5	125	267	727	250	267	726	250	267	759	300	267	759	300			
6	150	292	920	280	292	920	280	292	956	350	292	956	350			
8	200	330	1135	350	330	1135	350	330	1168	400	330	1168	400			
10	250	356	1364	450	356	1364	450	356	1363	450	356	1363	450			
12	300	381	1561	500	381	1561	500									
Body		FC200			FC200			EN-JL1030			EN-JL1030					
Bonnet		FC200			FC200			FC200			FC200					
Stem		C3771			403SS			C3771			316SS					
Disc		FC200			FC200			FC200			FC200					
Body/Disc Seat Rings		CAC406			403SS			CAC406			316SS					
Gland Packing		Asbestos-free (P/A4531K)			Asbestos-free (P/A4531K)			Asbestos-free (P/A4531K)			Asbestos-free (P/A4531K)					
Gasket		Asbestos-free (T/1995)			Asbestos-free (T/1995)			Graphite (P/6633)			Graphite (P/6633)					
Bolt/Nut		CS			CS			CS			CS					
Standard/Approval		MSS SP-70: Option			MSS SP-70: Option											
Reference Page		P-T Rating : Page CI10			P-T Rating : Page CI10			P-T Rating : Page CI10			P-T Rating : Page CI10					

Type	Gate				Gate				Gate				Gate			
Cast Iron																
																
Fig	(PHOX)EN25FCLE				10FCWI				125FCWI				EN16FCW			
End Connection	EN 1092-2 PN25 RF				JIS B2239 10K FF				ASME B16.1 Cl.125FF				EN 1092-2 PN16 RF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
11/2	40				165	285	160									
2	50	215.9	385	175	180	313	180	178	249	140	178	271	180			
21/2	65	241.3	437	200	190	344	180	190	287	160	190	297	180			
3	80	282.5	493	254	200	401	200	203	247	160	203	352	200			
4	100	304.8	611	300	230	444	250	229	397	180	229	394	250			
5	125	381	716	300	250	517	280	254	459	225	254	451	280			
6	150	403.2	813	348	270	577	300	267	510	225	267	518	300			
8	200	419.1	1023.5	400	290	693	350	292	635	300	292	618	350			
10	250	457	1211	457	330	814	400	330	762	350	330	760	400			
12	300	502	1386	457	350	925	450	356	873	350	356	867	450			
Body	EN-JL1030				FC200				FC200				EN-JL1030			
Bonnet	FC200				FC200				FC300				EN-JL1030			
Stem	C3771				C3771BD				C3771				C3771			
Disc	FC200				FC200				FC300				EN-JL1030			
Body/Disc Seat Rings	CAC406				CAC406				CAC406				CAC406			
Gland Packing	Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)				P6619W			
Gasket	Graphite (P/6633)				Asbestos-free (T/1995)				Asbestos-free (T/1995)				DP1102			
Bolt/Nut	CS				CS				CS				CS			
Standard/Approval					JIS B2031 for 2 ^B -12 ^B				MSS SP-70: Option							
Reference Page	P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10			
Remarks					* with Indicator				* with Indicator							

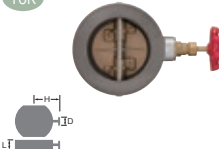
Type	Gate				Gate				Gate				Globe			
Cast Iron													JIS			
Fig	EN16FCWI				10FCHI				125FCHI				10FCJ			
End Connection	EN 1092-2 PN16 RF				JIS B2239 10K FF				ASME B16.1 Cl.125FF				JIS B2239 10K FF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
11/2	40	178	271	180	140	210	140	140	213	140	190	261	160			
2	50	190	297	180	146	250	140	146	249	140	200	274	180			
21/2	65	203	352	200	159	285	160	159	287	160	220	301	180			
3	80	229	394	250	165	350	160	165	347	160	240	353	225			
4	100	254	451	280	171	400	180	171	397	180	290	403	280			
5	125	267	518	300	190	460	225	190	459	225	360	465	300			
6	150	292	618	350	210	515	225	210	510	225	410	531	350			
8	200	330	760	400	241	635	300	241	635	300	500	618	450			
10	250	356	867	450	273	760	350									
12	300				305	870	350									
Body	EN-JL1030				FC300				FC300				FC200			
Bonnet	EN-JL1030				FC300				FC300				FC200			
Stem	C3771				C3771BE				C3771				C3771			
Disc	EN-JL1030				FC300/CAC406 for 11/2 ^B				CAC406 or FC300				CAC406 or FC200			
Body/Disc Seat Rings	CAC406				CAC406				CAC406				CAC406			
Gland Packing	P6619W				Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)				Asbestos-free (P/A4531K)			
Gasket	DP1102				Asbestos-free (T/1995)				Asbestos-free (T/1995)				Graphite (P/6633)			
Bolt/Nut	CS				CS				CS				CS			
Standard/Approval													JIS B2031			
Reference Page	P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10			
Remarks	* with Indicator				* with Indicator				* with Indicator							

Type	Globe					Globe					Globe					Globe				
Cast Iron	   					   					   					   				
	Fig					Fig					Fig					Fig				
	End Connection					End Connection					End Connection					End Connection				
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
	11/2	40	190	261	160	190	261	160												
	2	50	200	274	180	200	274	180	203	274	180	203	274	180	203	274	180			
	2 1/2	65	220	301	180	220	301	180	216	301	180	216	300	180	216	300	180			
	3	80	240	353	225	240	353	225	241	353	225	241	353	225	241	353	225			
	4	100	290	403	280	290	403	280	292	403	280	292	403	280	292	403	280			
	5	125	360	465	300	360	465	300	330	465	300	330	465	300	330	465	300			
	6	150	410	533	350	410	533	350	356	531	350	356	533	350	356	533	350			
	8	200	500	618	450	500	618	450	495	618	450	495	618	450	495	618	450			
	10	250	620	669	450	620	669	450												
	12	300	700	756	500	700	756	500												
Body	FC200					FC200					FC200					FC200				
Bonnet	FC200					FC200					FC200					FC200				
Stem	403SS					304SS					C3771					403SS				
Disc	403SS or FC200					304SS or FC200					CAC406 or FC200					403SS or FC200				
Body/Disc Seat Rings	403SS					304SS					CAC406					403SS				
Gland Packing	Asbestos-free (P/A4531K)					Asbestos-free (P/A4531K)					Asbestos-free (P/A4531K)					Asbestos-free (P/A4531K)				
Gasket	Graphite (P/6633)					Asbestos-free (T/1995)					Asbestos-free (T/1995)					Asbestos-free (T/1995)				
Bolt/Nut	CS					CS					CS					CS				
Standard/Approval	JIS B2031					JIS B2031					MSS SP-70: Option					MSS SP-70: Option				
Reference Page	P-T Rating : Page CI10					P-T Rating : Page CI10					P-T Rating : Page CI10					P-T Rating : Page CI10				

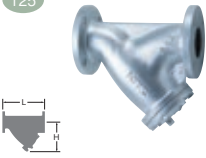
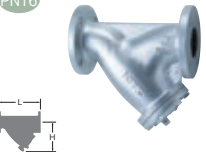
Type	Globe					Globe					Swing Check					Swing Check				
Cast Iron	   					   					   					   				
	Fig					Fig					Fig					Fig				
	End Connection					End Connection					End Connection					End Connection				
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
	11/2	40							190	108		190	108							
	2	50	203	277	180	203	277	180	200	113		200	113							
	2 1/2	65	216	307	180	216	307	180	220	123		220	123							
	3	80	241	353	225	241	353	225	240	149		240	145							
	4	100	292	404	280	292	404	280	290	165		290	165							
	5	125	330	467	300	330	467	300	360	207		360	207							
	6	150	356	533	350	356	533	350	410	225		410	225							
	8	200	495	620	450	495	620	450	500	271		500	268							
	10	250	622	665	450	622	665	450	620	319		620	319							
	12	300							700	356		700	356							
	14	350										787	381							
Body	EN-JL1030					EN-JL1030					FC200					FC200				
Bonnet	FC200					FC200					FC200					FC200				
Stem	C3771					316SS					C3771BD					403SS				
Disc	CAC406 or FC200					316SS or FC200					CAC406 or FC200					403SS or FC200				
Body/Disc Seat Rings	CAC406					316SS					CAC406					403SS/304SS				
Gland Packing	P/6619W					P/A4532K														
Gasket	Graphite (P/6633 or 6630)					Graphite (P/6633 or 6630)					Asbestos-free (T/1995)					P/6630 or 6633				
Bolt/Nut	CS					CS					CS					CS				
Standard/Approval											JIS B2031 for 2 nd -8 th					JIS B2031 for 2 nd -8 th				
Reference Page	P-T Rating : Page CI10					P-T Rating : Page CI10					P-T Rating : Page CI10					P-T Rating : Page CI10				

Type	Swing Check				Swing Check				Swing Check				Swing Check			
Cast Iron																
Fig	10FCOU				10FCOR				10FCOUR				10FCOU-C			
End Connection	JIS B2239 10K FF				JIS B2239 10K FF				JIS B2239 10K FF				JIS B2239 10K FF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
1 1/2	40	190	108		190	106		190	106					200	111	
2	50	200	113		200	111		200	111					200	111	
2 1/2	65	220	123		220	121		220	121					220	121	
3	80	240	145		240	145		240	145					240	145	
4	100	290	165		290	165		290	165					290	165	
5	125	360	207		360	207		360	207					360	207	
6	150	410	225		410	225		410	225					410	225	
8	200	500	268		500	268		500	268					500	268	
10	250	620	319		620	315		620	315							
12	300	700	356		700	356		700	356							
14	350	787	381													
Body	FC200				FC200				FC200				FC200			
Bonnet	FC200				FC200				FC200				FC200			
Stem	304SS				C3771BD				C3771BD				304SS			
Disc	304SS or FC200				304SS+NBR or FC200+NBR				304SS+NBR or FC200+NBR				304SS or FC200			
Body/Disc Seat Rings	403SS/304SS				CAC406				304SS				304SS			
Gasket	P/6630 or 6633				P/6630 or 6633				P/6630 or 6633				P/6630 or 6633			
Bolt/Nut	CS				CS				CS				CS			
Standard/Approval	JIS B2031 for 2 ^B -8 ^B															
Reference Page	P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10			
Remarks					NBR Disc Seat				NBR Disc Seat				Counter Weight			

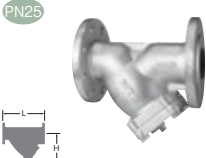
Type	Swing Check				Swing Check				Swing Check				Swing Check			
Cast Iron																
Fig	125FCO				125FCOS				EN16FCO				EN16FCOM			
End Connection	ASME B16.1 CI.125FF				ASME B16.1 CI.125FF				EN 1092-2 PN16 RF				EN 1092-2 PN16 RF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
2	50	203	113		203	113		203	111		203	111				
2 1/2	65	216	123		216	123		216	121		216	121				
3	80	241	143		241	143		241	145		241	145				
4	100	292	175		292	175		292	165		292	165				
5	125	330	207		330	207		330	207		330	207				
6	150	356	225		356	225		356	225		356	225				
8	200	495	268		495	268		495	268		495	268				
10	250	622	319		622	319		622	315		622	315				
12	300	698	356		698	356		698	356		698	356				
14	350				787	381										
Body	FC200				FC200				EN-JL1030				EN-JL1030			
Bonnet	FC200				FC200				FC200				FC200			
Stem	CAC406 or FC200				403SS				C3771				316SS			
Disc	CAC406				403SS				CAC406 or FC200				316SS or FC200			
Body/Disc Seat Rings	CAC406				403SS				CAC406				316SS			
Gasket	Asbestos-free (T/1995)				Asbestos-free (T/1995)				P/6633				P/6633			
Bolt/Nut	CS				CS				CS				CS			
Standard/Approval	MSS SP-71: Option				MSS SP-71: Option											
Reference Page	P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10				P-T Rating : Page CI10			

Type	Swing Check				Silent Check			Wafer Check			Wafer Check		
Cast Iron	PN25  BC 125				 NO IMAGE			10K  Dual 125			 Dual		
	Fig (PHOX)EN25FCOE				125FCSR			10FWZ			125FWNB		
End Connection		EN 1092-2 PN25 RF			ASME B16.1 Cl.125FF			Wafer (JIS 10K)			Wafer (Class 125)		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
11/2	40							54	126	55			
2	50	267	135					56	140	70	54		105
21/2	65	292	150		140	66		56	148	70	54		124
3	80	318	166		152	75		59	153	70	57		137
4	100	356	190		184	98		66	166	70	64		175
5	125	400	206		216	115		72	180	70	70		197
6	150	444	244		248	133		78	214	80	76		222
8	200	533	291		318	174		96	241	80	95		279
10	250	622	337					109	289	90	108		340
12	300	711	383					145	315	90	143		410
14	350							184	328	90			
16	400							191	355	90			
18	450							204	386	90			
Body	EN-GJL-250				A126 CL.B			FC250+NBR			A126 CL.B+NBR		
Bonnet	EN-GJL-250							C3771/CAC406			B584 C83600		
Stem	BS970 304S15							304SS			304SS/Spring 316SS		
Disc	EN-GJL-250				A351 Gr. FC8/SCS13A			CAC406			B584 C83600		
Body/Disc Seat Rings	BS1400 LG2				A351 Gr. FC8/SCS13A								
Gasket	PTFE												
Bolt/Nut	CS												
Service Conditions					93°C at 1.38MPa			80°C W.O.G. : 1.4MPa			16bar at 80°C Non-shock Water (NBR Seat), 16bar at 100°C Non-shock Water (EPDM Seat)		
Reference Page	P-T Rating : Page CI10							Features: Page BR35					
Remarks								Built-in Bypass Valve Dual Plate Type			Dual Plate Type		

Type	Wafer Check				Wafer Check				Wafer Check				
Cast Iron	125  IL				PN16  IL				PN16  IL				
	125FWNBE				PN16FWNBME				PN16FWNBME				
Fig	125FWNBE				PN16FWNBME				PN16FWNBME				
End Connection		Wafer (Class 125)				Wafer (PN16)				Wafer (PN16)			
inch	mm	L	H	D	L	H	D	L	H	D			
2	50	54		105	54		109	54		109			
2 1/2	65	54		124	54		129	54		129			
3	80	57		137	57		144	57		144			
4	100	64		175	64		164	64		164			
5	125	70		197	70		194	70		194			
6	150	76		222	76		220	76		220			
8	200	95		279	95		275	95		275			
10	250	108		340	108		331	108		331			
12	300	143		410	143		386	143		386			
14	350				184		446	184		446			
16	400				191		498	191		498			
18	450				203		558	203		558			
20	500				213		620	213		620			
24	600				222		737	222		737			
Body		A126 CL.B+EPDM				A126 CL.B+NBR				A126 CL.B+EPDM			
Bonnet		B584 C83600											
Stem/Hinge Pin		304SS				304SS				304SS			
Spring		316SS				316SS				316SS			
Disc		B584 C83600				CF8M				CF8M			
Service Conditions		16bar at 80°C Non-shock Water (NBR Seat), 16bar at 100°C Non-shock Water (EPDM Seat)				16bar at 80°C Non-shock Water (NBR Seat), 16bar at 100°C Non-shock Water (EPDM Seat)				16bar at 80°C Non-shock Water (NBR Seat), 16bar at 100°C Non-shock Water (EPDM Seat)			
Remarks		Dual Plate Type				Dual Plate Type				Dual Plate Type			

Type	Y-Strainer					Y-Strainer			Y-Strainer			Y-Strainer		
Cast Iron														
Fig	10FCY					125FCY			125FCETY<Z0P02>			EN16FCY		
End Connection	JIS B2239 10K FF					ASME B16.1 Cl.125FF			ASME B16.1 Cl.125FF			EN 1092-2 PN16 RF		
inch	mm	L	H	H1**		L	H	H1**	L	H	H1**	L	H	H1**
3/8	10	115	46	63										
1/2	15	125	57	81										
3/4	20	140	62	90										
1	25	150	77	114										
1 1/4	32	170	90	134										
1 1/2	40	190	100	145										
2	50	230	138	173	250	157	207					250	168	208
2 1/2	65	305	207	288	285	207	288					285	212	289
3	80	360	237	334	315	237	334					315	242	335
4	100	415	278	387	370	278	387					370	284	388
5	125	465	321	445	420	321	445					420	325	446
6	150	515	367	497	490	367	497					490	370	497
8	200	580	457	622	570	457	622					570	440	589
10	250	680	536	743	680	536	743					680	515	694
12	300	800	625	869	800	625	869					800	600	818
14	350	950	741	1031	950	741	1031							
16	400								1100	750	1129			
18	450								1200	784	1172			
20	500								1250	857	1293			
Body	FC200					FC200			FC200			EN-JGL-200		
Cap/Cover	C3771BE /FC200 for 2 ^B & over					FC200			FC200			EN-JGL-200		
Screen	304SS(Punched Plate)					304SS(Punched Plate)			304SS(Punched Plate)			304SS		
Gasket	T/1995					T/1995			Graphite			Non asbestos Sheet		
Bolt/Nut	CS					CS			CS			CS		
Plug	304SS					304SS			304SS			304SS		
Service Conditions	120°C Non-shock Water: 1.4MPa, 120°C Water,Oil,Air.: 1.0MPa, 120°C Gas: 0.2MPa, Saturated Steam: 0.7MPa													
Reference Page						P-T Rating : Page CI10			P-T Rating : Page CI10			P-T Rating : Page CI10		
Remarks	Screwed Cap up to 11/2 ^B													

**Height for removing the screen

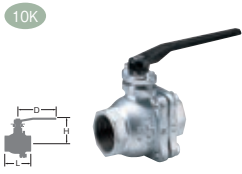
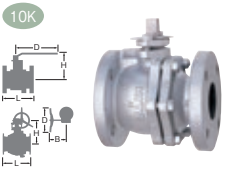
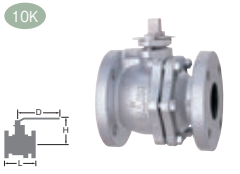
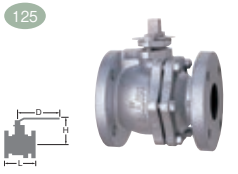
Type	Y-Strainer					Y-Strainer		
Cast Iron								
Fig	EN16FCYM					(PHOX)EN25FDYBE		
End Connection	EN 1092-2 PN16 RF					EN 1092-2 PN25 RF		
inch	mm	L	H	H1**		L	H	H1**
2	50	250	168	208	216	140	180	
2 1/2	65	285	212	289	241	162	219	
3	80	315	242	335	283	184	258	
4	100	370	284	388	305	225	339	
5	125	420	325	446	381	280	388	
6	150	490	370	497	403	318	441	
8	200	570	440	589	521	405	606	
10	250	680	515	694	635	485	722	
12	300	800	600	818	749	580	890	
Body	EN-JGL-200					EN1563 EN-GJS-450		
Cap	EN-JGL-200					EN1563 EN-GJS-450		
Screen	316SS					304SS(Punched Plate)		
Gasket	Non asbestos Sheet					Non-asbestos		
Bolt/Nut	CS							
Plug	SS					304SS		
Reference Page	P-T Rating : Page CI10					P-T Rating : Page CI10		

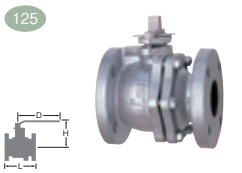
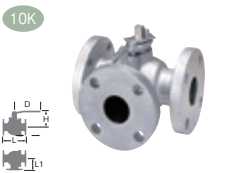
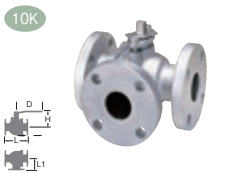
**Height for removing the screen

Type		Gate			Gate			Globe			Swing Check		
Cast Iron Nylon Lining													
Fig		5FCMN			10FCLN			10FCJN			10FCON		
End Connection		JIS B2239 5K FF			JIS B2239 10K FF			JIS B2239 10K FF			JIS B2239 10K FF		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
2	50				180	343	170	200	274	180	200	116	
2 1/2	65	170	383	170	190	390	170	220	301	180	220	126	
3	80	180	437	170	200	464	200	240	353	225	240	153	
4	100	200	534	225	230	548	250	290	403	280	290	170	
5	125	220	629	225	250	649	280	360	466	300	360	217	
6	150	240	727	250	270	760	300	410	534	350	410	235	
8	200	260	920	280	290	957	350	500	620	450	500	273	
10	250	300	1135	350	330	1169	400						
12	300				350	1364	450						
Body		FC200+Nylon Lining			FC200+Nylon Lining			FC200+Nylon Lining			FC200+Nylon Lining		
Bonnet/Cap/Cover		FC200+Nylon Lining			FC200+Nylon Lining			FC200+Nylon Lining			FC200+Nylon Lining		
Stem/Hinge Pin		C3771BD			C3771BD			C3771BD			C3771BD		
Disc		CAC406 up to 6 ^B /FC200			CAC406 up to 6 ^B /FC200			CAC406 up to 4 ^B /FC200			CAC406		
Body/Disc Seat Rings		CAC406			CAC406			CAC406			CAC406		
Gland Packing		P/A4531K or P/A4532K			P/A4531K or P/A4532K			P/A4531K or P/A4532K					
Gasket		T/1995			T/1995			T/1995			T/1938		
Standard/Approval		JIS B2031,JWWA E-236			JIS B2031,JWWA E-236			JIS B2031,JWWA E-236			JIS B2031,JWWA E-236		
Service Conditions		0°C~+60°C, Fresh Water 0.7MPa, Water/Oil 0.5MPa			0°C~+60°C, Fresh Water 1.4MPa, Water/Oil 1.0MPa			0°C~+60°C, Fresh Water 1.4MPa, Water/Oil 1.0MPa			0°C~+60°C, Fresh Water 1.4MPa, Water/Oil 1.0MPa		

Type	Swing Check				Ball Check				Y-Strainer				
Cast Iron Nylon Lining	10K  				BB 10K  				10K   JWWA				
	Fig 10FCON-C				10FCFTN				10FCYN				
End Connection		JIS B2239 10K FF				JIS B2239 10K FF				JIS B2239 10K FF			
inch	mm	L	H	D	L	H	D	L	H	H1**			
1 1/2	40				190	101							
2	50	200	116		200	105		230	139	173			
2 1/2	65	220	126		220	127		305	210	288			
3	80	240	153		240	150		360	238	334			
4	100	290	170		290	188		415	282	387			
5	125	360	217		360	235		465	325	445			
6	150	410	235		410	280		515	373	497			
8	200	500	273					580	457	622			
10	250							680	536	743			
Body		FC200+Nylon Lining				FC200+Nylon Lining				FC200+Nylon Lining			
Bonnet/Cap/Cover		FC200+Nylon Lining				FC200+Nylon Lining				FC200+Nylon Lining			
Stem/Hinge Pin		304SS											
Disc/Ball/Screen		CAC406				NBR *				304SS			
Body/Disc Seat Rings		CAC406											
Gland Packing/O ring						NBR *							
Gasket/O ring		T/1938				NBR *				T/1995			
Standard/Approval										JWWA Z-52			
Service Conditions		0℃~+60℃, Fresh Water 1.4MPa, Water/Oil 1.0MPa				0℃~+60℃, Fresh Water 0.05~1.4MPa				0℃~+60℃, Fresh Water 1.4MPa, Water/Oil 1.0MPa			
Reference Page						Features & Pressure Loss: Page CPT21&22							
Remarks		Counter Weight				*EPDM Option							
**Height for removing the screen													

**Height for removing the screen

Type	Ball				Ball				Ball			Ball		
Cast Iron														
Fig	10FCT				10FCTB/G-10FCTB				10FCTR			125FCTB		
End Connection	BS21 (JIS B0203)				JIS B2239 10K FF				JIS B2239 10K FF			ASME B16.1 Cl.125FF		
inch	mm	L	H	D	L	H	D	B	L	H	D	L	H	D
3/8	10	72	71	130										
1/2	15	80	102	130	110	102	130							
3/4	20	85	105	130	120	105	130							
1	25	95	124	160	130	124	160							
1 1/4	32	120	128	160	140	128	160							
1 1/2	40	120	114	230	165	114	230							
2	50	140	121	230	180	121	230					178	121	230
2 1/2	65	160	154	400	190	154	400					190	154	400
3	80	182	163	400	200	163	400					203	163	400
4	100				230	199	460					229	199	460
5	125				300	219	460		250	200	460			
6	150				340	292	1000		270	220	460	394	292	1000
8	200				450	352	1500		290	295	1000	457	352	1500
10	250				533	477	500	363	330	355	1500			
Body & Cap	FC200				FC200				FC200			A126 CL. B		
Stem	403SS				403SS				403SS			403SS		
Ball	304SS/CF8				304SS/CF8				304SS/CF8			304SS/CF8		
Ball Seat	PTFE				PTFE				PTFE			PTFE		
Gland Packing	PTFE				PTFE				PTFE			PTFE		
Gasket	PTFE				PTFE				PTFE			PTFE		
Handle	DI/CS				DI/CS				DI/CS			DI/CS		
Bore	Full Bore				Full Bore				Reduced Bore			Full Bore		
Service Conditions	120°C Non-shock Water 1.4MPa, 120°C W.O.G. 1.0MPa, Saturated Steam 0.7MPa													
Reference Page					P-T Rating : Page CI13				P-T Rating : Page CI13			P-T Rating : Page CI13		
Remarks					Gear ope for 10 ⁸									

Type	Ball				3-way, 2-seats, L port Ball				3-way, 2-seats, L port Ball			
Cast Iron Nylon Lining												
Fig	125FCTR				10FCTB2L				10FCTR2L			
End Connection	ASME B16.1 Cl.125FF				JIS B2239 10K FF				JIS B2239 10K FF			
inch	mm	L	H	D	L	H	D	L1	L	H	D	L1
1 1/2	40				210	114	230	105				
2	50				220	123	230	110				
2 1/2	65				250	156	400	125				
3	80				260	163	400	130				
4	100				330	203	460	165				
5	125								370	205	460	185
6	150	267	220	460					430	225	460	215
8	200	292	295	1000					540	295	1000	270
10	250	330	355	1500								
Body & Cap	A126 CL. B				FC200				FC200			
Stem	403SS				403SS				403SS			
Ball	304SS/CF8				304SS/CF8				304SS/CF8			
Ball Seat	PTFE				PTFE				PTFE			
Gland Packing	PTFE				PTFE				PTFE			
Gasket	PTFE				PTFE				PTFE			
Handle	DI/CS				DI/CS				DI/CS			
Bore	Reduced Bore				Full Bore				Reduced Bore			
Reference Page	P-T Rating : Page CI13				P-T Rating : Page CI13 Port Orientation : Page TECH1				P-T Rating : Page CI13 Port Orientation : Page TECH1			

Cast Iron Valves

Conditions of Fluids and Maximum Permissible Pressures

Unit: MPa

Standards		5K	10K				10K	
Nominal Pressure		JIS B2031	JIS B2031				KITZ Standard	
Valve Type		Outside Screw Gate Valve	Outside Screw Gate Valve	Globe Valve, Swing Check Valve		Inside Screw Gate Valve	Valve 350 A or more	FC300 Valve
Disc Seat Structure		Press-fit Seat	Screw Seat	Screw Seat		Press-fit Seat	Screw Seat	Press-fit Seat
Main Section		CAC406	CAC 406 13 Chrome 18-8 Stainless Steel	CAC 406	13 Chrome 18-8 Stainless Steel	CAC 406	CAC 406 13 Chrome 18-8 Stainless Steel	CAC 406 13 Chrome
Maximum Permissible Working Pressure	Steady Flow Below 120°C	0.7	1.4	1.4	–	1.4	1.0	1.0
	Oil, Pulsating Flow and Water Below 120°C	0.5	1.0	1.0	–	1.0	0.9	0.9
	Saturated Steam	0.2	0.7	0.7	–	0.2	0.7	0.7
	Gas Below 120°C	0.2	0.2	0.2	–	0.2	0.2	0.2
	120°C	–	–	–	1.4	–	–	–
	220°C	–	–	–	1.0	–	–	–

- Use may be prohibited or restricted by the High Pressure Gas Safety Law and other regulations. Use the valve within legal limits.
- Maximum allowable pressure at intermediate temperatures between 120°C and 220°C is based on the proportional interpolation method.

Basic Design Specifications

Nominal Pressure	JIS5K/10K	Class 125	10K
Face-to-Face Dimension	JIS B 2031	ASME B 16.10	KITZ Std.
End Flange Dimension	JIS B 2239	ASME B 16.1	JIS B 2239
Wall Thickness	JIS B 2031	KITZ Std.	

Material Specifications for Grey Iron Casting

JIS Materials		FC200	FC250	FC300
Mechanical Properties	min.	200	250	300
Tensile Strength (N/mm ²)				
Brinell Hardness (HB) Max.		235	248	269
ASTM A126 Class B		Tensile Strength (min)		31ksi
Transverse Test Requirement	Face at Center, Min.	3,300 lb		
	Deflection at Center, Min.	0.12in		

Class 125 Valves Pressure-Temperature Ratings Maximum Allowable Non-Shock Pressure

Temperature	Class 125	
	Size 1 – 12	Size 14 – 24
°C	bar	
-29 to 65	13.8	10.3
80	13.3	9.8
100	12.7	9.2
120	12.1	8.6
140	11.5	8.0
160	10.8	7.4
178*	–	6.9

*178°C to reflect temperature of saturated steam at 8.6 bar.

Simplified Material Indication (as referred to on each page)

Bronze Trim : Iron Body with Bronze Trim

13 Cr. Trim : Iron Body with 13 Cr. Trim

18-8 Trim : Iron Body with 18 Cr.-8 Ni Trim

Certification by JIS Mark

Industrial Standardization Law of Japan provides an effective measure to promote the introduction of high-level quality assurance system of manufacture and processing. Wherever KITZ valves are identified with JIS Mark, it is officially certified that such valves are produced under strict quality assurance procedures and practices to satisfy the designated quality level stably and constantly.

Valve Position Indicators

Valve position indicator is provided on gate valves with inside screw design as illustrated. Opening or closing a valve does not move the vertical position of the stem. Instead, position indicator visually indicates three valve operating positions—fully opened, fully closed, or half opened.



Trim Materials

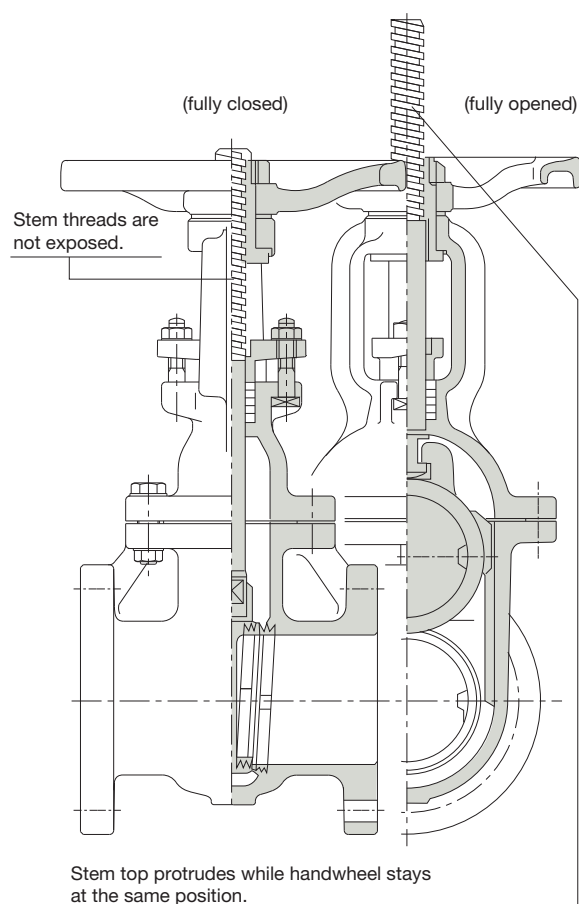
KITZ cast iron valves are provided with one of three trim materials given in the table below for versatility of service applications.

Color codes are given on a name plate of gate or globe valves and on the cover of swing check valves.

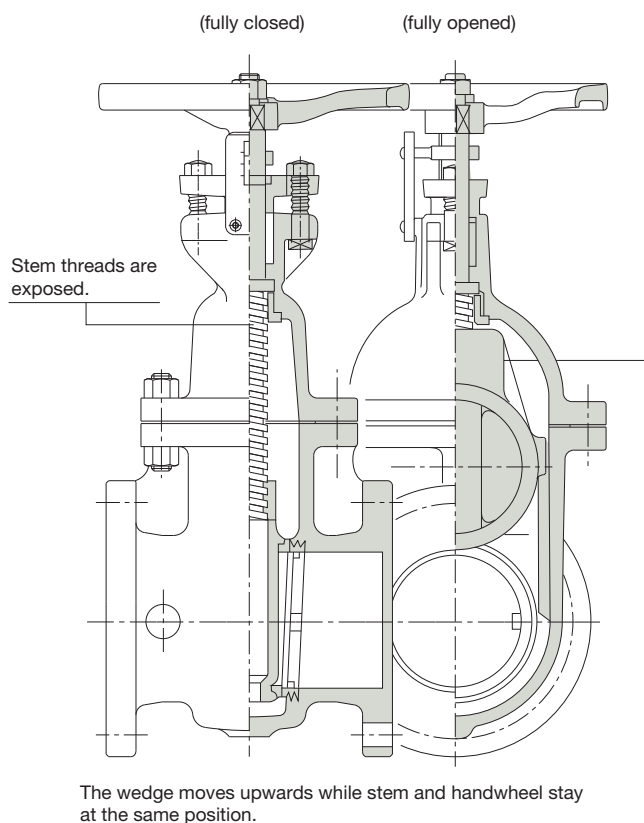
Trim Material	Color Coding	Suffix of Fig.
Bronze Seats / Brass Stem	None	–
13 Cr. Seats / Stem	Orange	S
18-8 Seats / Stem	Green	U

Outside Screw (O.S.) Valves and Inside Screw (I.S.) Valves

Outside Screw Gate Valve



Inside Screw Gate Valve



Outside Screw Gate Valves

Stem threads are not exposed to the fluid, and valve opening operation moves the stem upwards while the handwheel stays at the same position. Valve operating position can be visually determined by observing the stem travel KITZ Fig. FCM, FCL, FCLS, and FCLU are designed this way.

Outside Screw Globe Valves

Stem and handwheel move upwards or downwards at the same time, following valve opening or closing operation. All KITZ globe valves are provided with this design.

Inside Screw Gate Valves

Stem threads are exposed to the fluid. Opening the valve does not make the stem or handwheel move. Thus, the valve operating position is not visible. Position indicator is provided for this reason.

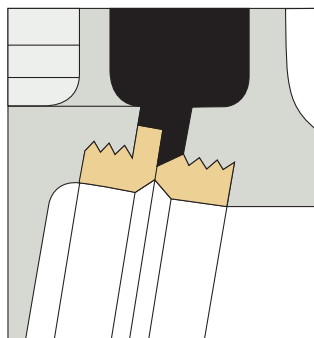
Inside screw gate valves are generally designed shorter than outside screw gate valves and the stem and handwheel always at the same position. For this feature, inside screw gate valves are widely employed for underground installation or service in narrow areas with limited room. KITZ Fig. FCWI and FCHI are designed this way.

Asbestos-free Packings and Gaskets

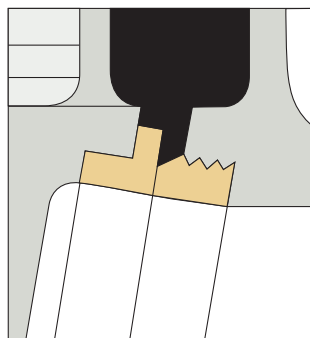
KITZ has led the industry in employing asbestos-free sealers for all cast iron valves, meeting the requirement of pollution-free valve materials. PTFE-impregnated glass fiber gland packings and compressed glass and aramid fiber gaskets are the standard sealers for KITZ cast iron valves.

Mounting of Seat Rings

In case of KITZ cast iron gate valves, seat rings are mounted on the valve disc by means of either threading or press-fitting. For example, 10K outside screw gate valves are provided with threaded seat rings that are ideal for saturated steam service. Or, 10K inside screw gate valves are provided with mechanically press-fit seat rings by means of a patented special process to suit them also for saturated steam service. All KITZ cast iron globe and check valves are provided with threaded seat rings.



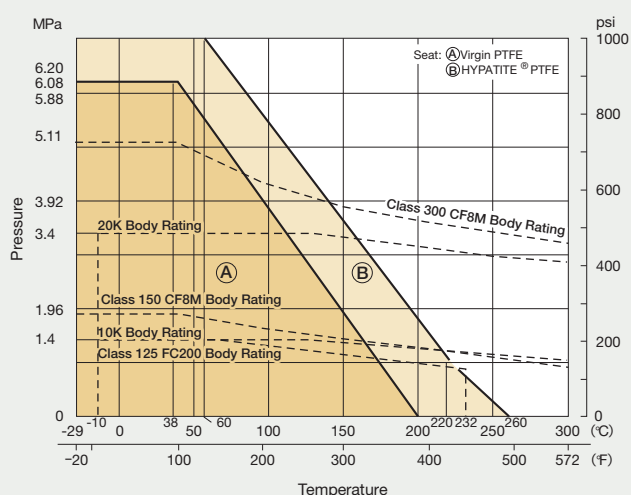
Threaded Seat Ring



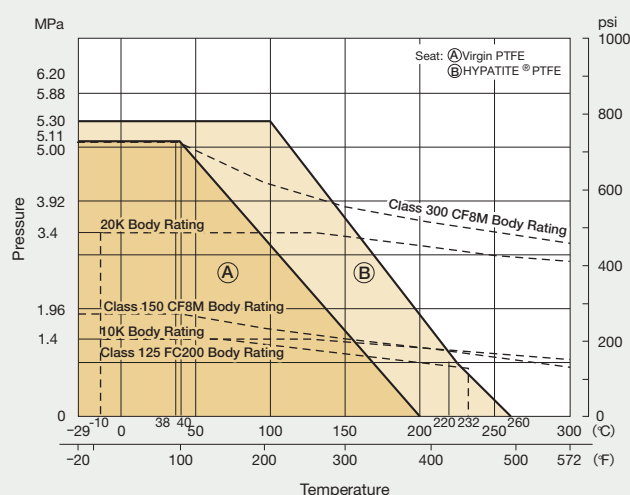
Press-fit Seat Ring

Pressure-Temperature Ratings

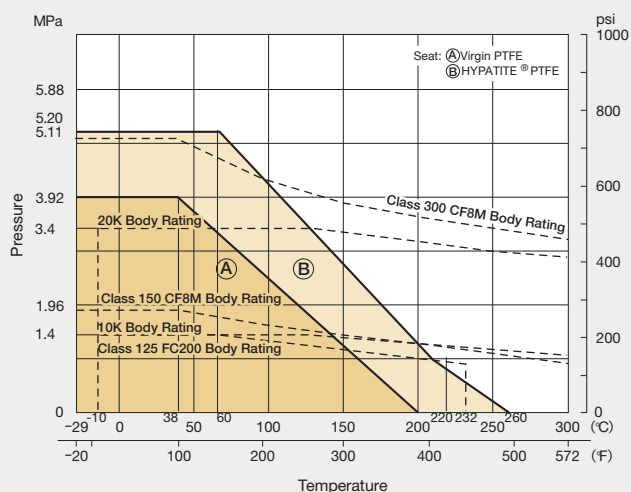
■ 150UTB(M)/150UTBT/10/125FCTB(2L) : NPS $\frac{1}{2}^B$, $\frac{3}{4}^B$
10/125FCTR(2L) : NPS $\frac{1}{2}^B$ to 1^B



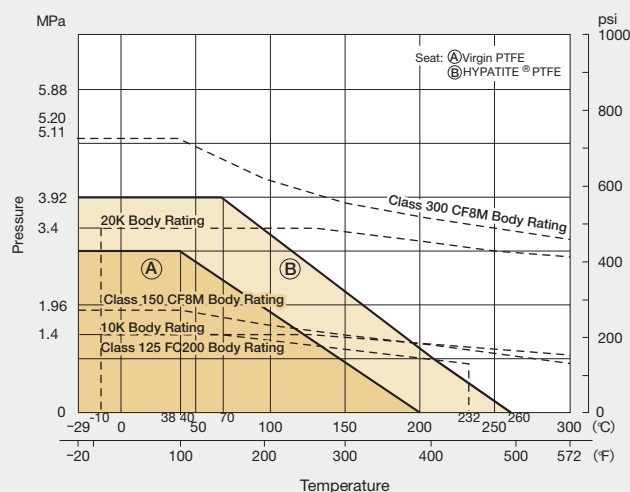
■ 150UTB(M)/150UTBT/10/125FCTB(2L) : NPS 1^B to $2 \frac{1}{2}^B$
10/125FCTR(2L) : NPS $\frac{1}{2}^B$ to 3^B



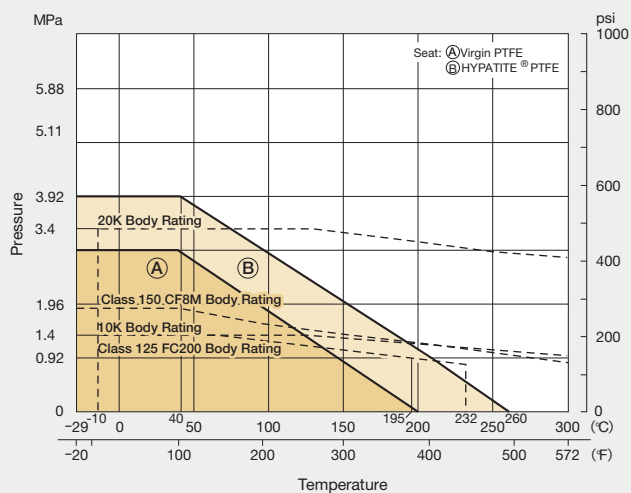
■ 150UTB(M)/150UTBT/10/125FCTB(2L) : NPS 3^B , 4^B
10/125FCTR(2L) : NPS 4^B , 5^B



■ 150UTB(M)/150UTBT/10/125FCTB(2L) : NPS 5^B , 6^B
10/125FCTR(2L) : NPS 6^B , 8^B



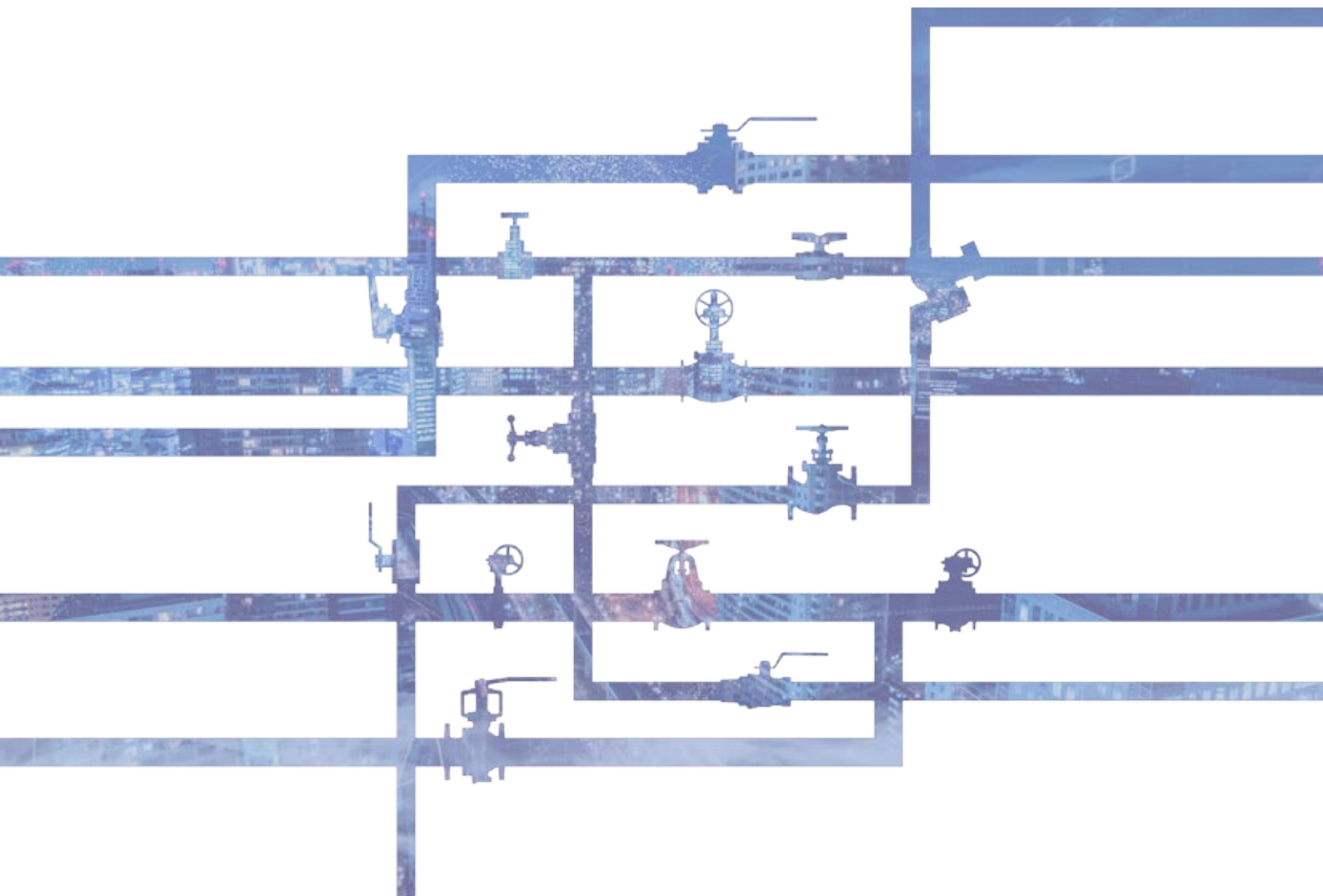
■ 150UTB(M)/150UTBT/10/125FCTB(2L) : NPS 8^B , 10^B
10/125FCTR(2L) : NPS 10^B , 12^B



KITZ

GENERAL CATALOG

Ductile Iron



INDEX

Title	Body Material	Type	Class	End Connection*	Features*	Fig	Remarks	Page	
Ductile Iron Valves	DI	Globe	10K Commercial	TE	SB up to 2" or UB, IS, RS	10SJ		DI3 82	
				FE/FF		10SJBF			
			10K	TE	UB, IS, RS	10SP			
				FE/FF		10SPBF			
					10SPBAF				
					10SPBAWF	Bellows Seal			
				BB, OS&Y, RS	(G-)10SPBOF				
					10SPBOWF	Bellows Seal			
			16K	TE	US, IS, RS	10SPNBF	Needle	DI4 83	
				FE/RF		16SP			
					BB, OS&Y, RS	16SPB			
						(G-)16SPBO			
			20K	TE	UB, IS, RS	20SY			
				FE/RF		20SYB			
					BB, OS&Y, RS	20SYBO			
						20SYBOW	Bellows Seal		
			150		UB, IS, RS	150SPB		DI5 84	
						150SPBO			
			300		BB, OS&Y, RS	300SYB			
						300SYBO			
			10K Commercial	TE	SB up to 2" or UB, IS, RS	10SD	Soft Seated (PTFE)	DI6 85	
				FE/FF		10SDBF			
			20K	FE/RF	BB, OS&Y, RS	20SDBOW	Bellows Seal, Soft Seated (PTFE)	DI7 86	
			10K Commercial	TE	SB, IS, RS	10SDL			
				FE/FF		10SDLBF			
			20K	TE	UB, IS, RS	20SDL	Soft Seated (PTFE), LPG Service		
				FE/RF		20SDLB			
					BB, OS&Y, RS	20SDLBO			
			10K	TE	UB, IS, RS	10SPD	Soft Seated (PTFE)	DI8 87	
				FE/FF		10SPDBF			
					BB, OS&Y, RS	10SPDBOF			
						10SPDBOWF	Bellows Seal, Soft Seated (PTFE)		
			150	FE/RF	UB, IS, RS	150SPDB	Soft Seated (PTFE)	DI9 88	
			10K	FE/FF	BB, OS&Y, RS	10SYYBF			
			20K	FE/RF	UB, IS, RS	10SYYBOF			
					BB, OS&Y, RS	20SYYB	Y Pattern Globe		
						20SYYBO			
			10K Commercial	TE	SB, IS, RS	10SMS		DI10 89	
			10K	FE/FF	BB, IS, RS	10SMAS			
					BB, OS&Y, RS	10SMBF			
					10SMBOF				
			16K	TE	UB, IS, RS	16SMS			
				FE/RF	BB, OS&Y, RS	16SMB			
						16SMBO			
			20K	TE	BB, IS, RS	20SLB			
				FE/RF		20SLS			
						20SLBO			
			150			BB, OS&Y, RS	150SMBO		
		300			300SLBO				
		10K Commercial	TE	SC, Lift	10SF		DI11 90		
			FE/FF		10SFBF				
		16K	TE	UC, Lift	16SF				
			FE/RF		16SFB				
		10K Commercial	TE		10SN				
		20K	FE/FF		10SNBF				
			TE		20SN				
			FE/RF	20SNB					
		10K Commercial	TE	Split Body, Swing	10SOZ	Internal Hinge, In line	DI12 91		
		10K	FE/FF	BC, Swing	10SRBF				
		16K	FE/RF		16SRB				
		20K			20SOB				
		150			150SRB				
		300			300SOB				
		10K	Wafer	Dual Plate, Built-in by-pass valve, Wafer	10SWZU	Available to install low & high torque spring depending on fluid conditions.			
		20K			20SWZ				
					20SWZU				
		10K	FE/FF	UB, IS, RS, Stop Check	10SYFBF		DI13 92		
				BB, OS&Y, RS, Stop Check	10SPFBOF				
		20K	FE/RF	UB, IS, RS, Stop Check	20SYFB				
				BB, OS&Y, RS, Stop Check	20SYFBO				
		10K Commercial	TE	UC, Lift	20SNDB	Soft Seated (PTFE), LPG Service	DI14 93		
			BC, Swing	20SODB					
		10K	FE/FF	SC up to 2" or BC	10FDY				
		10K		SC up to 11/2" or BC	10FDYBF	Y Pattern, Screen: Punched Stainless Steel Plate			
		16K	TE	SC	16FDY		DI15 94		
		20K	FE/RF	SC up to 11/2" or BC	16FDYB				
				BC	20FDY	Y Pattern, Screen: 40 mesh wire cloth			
			FE/RF		20FDYB		DI16 95		
		Type 400	TE	RB, Split Body	STZ				
		20K		RB, Split Body, Side Entry	20ST	Gas Service			
		10K	FE/FF		20STL				
					10STBF				
			FE/RF	FB, Split Body, Side Entry	10STLBF	Gas Service			
					(G-)20STB				
		20K		20STLB	Gas Service	DI17 96			
10K	FE/FF	FB, 3-Way 4-Seat	10STB4LAF/TAF						
		RB, 3-Way 4-Seat	10STR4LAF/TAF						

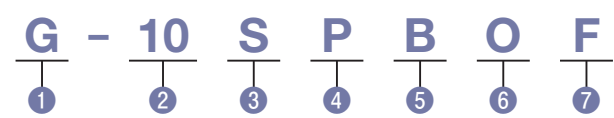
* (Abbreviation) TE: Threaded Ends, FE: Flanged Ends, RF: Raised Face Ends

SB: Screwed Bonnet, UB: Union bonnet, IS: Inside screw, RS: Rising Stem, FB: Full Bore, RB: Reduced Bore

PRODUCT CODING

Ductile Iron Valves

(Note: Some products do not follow this coding system.)



- 1 Valve Operation**

 - None Handwheel or Lever
 - G Gear
- 2 Pressure Class**

 - 10 10K
 - 16 16K
 - 20 20K
 - 150 Class 150*
 - 300 Class 300*
- 3 Symbol of Shell Material**

 - S Ductile Iron
 - FD Ductile Iron (Strainer)
- 4 Valve Type**

 - M or L Gate
 - MS or LS Gate (Disc: 13Cr)
 - J, P or Y Globe
 - PD or D Soft Seated Globe
 - DL Soft Seated Globe (LP Service)
 - PN Needle
 - YY Y Pattern Globe
 - F or N Lift Check
 - ND Soft Seated Lift Check
 - R or O Swing Check
 - OD Soft Seated Swing Check
 - OZ In Line Swing Check
 - WZ Wafer Check (Copper Disc)
 - WZU Wafer Check (304SS Disc)
 - YF Stop Check
 - Y Strainer (Note: FD of 3)
 - T Ball Valve (Threaded)
 - TB Ball Valve (Flanged)
- 5 End Connection**

 - None Threaded Ends
 - S Threaded Ends
 - B Flanged Ends
- 6 Valve Construction**

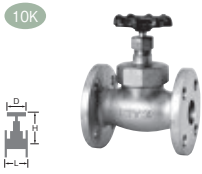
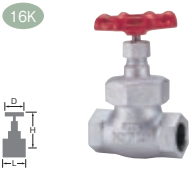
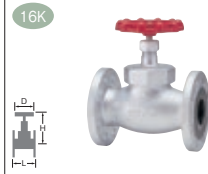
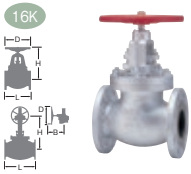
 - None Inside Screw
 - A BB, IS
 - O BB, OS&Y
 - W Bellows Seal
- 7 Surface of End Flange**

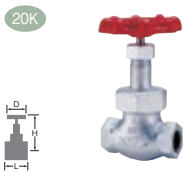
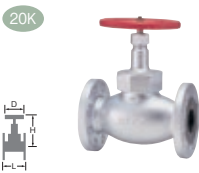
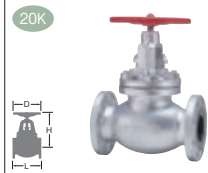
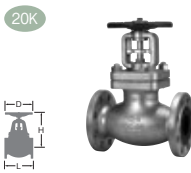
 - None Raised Face*
 - F Flat Face

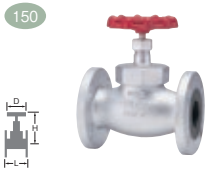
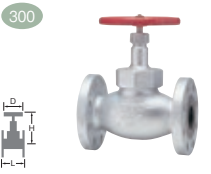
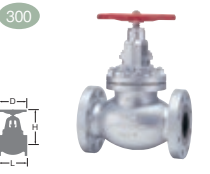
* Pipe connection dimensions shall be indicated in millimeters converted from dimensions in inches according to ASME B16.5.

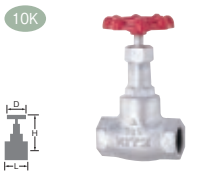
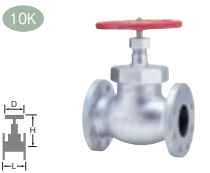
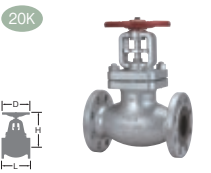
Type	Globe					Globe					Globe					Globe				
Ductile Iron	   					   					   					   				
Fig	10SJ					10SJBF					10SP					10SPBF				
End Connection	BS21 (JIS B0203)					JIS B2239 10K FF					BS21 (JIS B0203)					JIS B2239 10K FF				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	50	108	60																
3/8	10	55	108	60		85	108	60			64	107	60			108	107	60		
1/2	15	65	122	70		85	123	70			70	125	80			108	124	80		
3/4	20	80	124	80		95	125	80			80	125	80			117	125	80		
1	25	90	146	90		110	147	90			90	145	100			127	147	100		
1 1/4	32	105	161	100		130	161	100			110	162	115			140	162	115		
1 1/2	40	120	181	115		150	181	115			120	180	115			165	180	115		
2	50	140	198	135		180	198	135			140	198	135			203	198	135		
2 1/2	65	180	256	180		210	256	180												
3	80	200	286	225		240	276	225												
Body/Bonnet	FCD-S					FCD-S					FCD-S					FCD-S				
Stem	420J2					420J2					420J2					420J2				
Disc	403SS					403SS					403SS					403SS				
Gland Packing	T/#2200K					T/#2200K					P/#6118					P/#6118				
Gasket	None or P/#6633					None or P/#6633					C1100P-0 (incl. Cu)					C1100P-0 (incl. Cu)				
Seat Rings (S/D)	403SS/-					403SS/-					403SS/-					403SS/-				
Service Conditions	120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa				
Remarks	SB up to 2 ^B , UB 2 1/2 ^B & over					SB up to 2 ^B , UB 2 1/2 ^B & over														

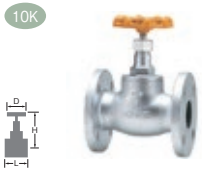
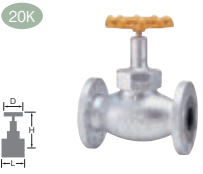
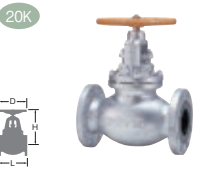
Type	Globe					Bellows Seal Globe					Globe					Bellows Seal Globe				
Ductile Iron	   					   					   					   				
Fig	10SPBAF					10SPBAWF					10SPBOF/G-10SPBOF*					10SPBOWF				
End Connection	JIS B2239 10K FF					JIS B2239 10K FF					JIS B2239 10K FF					JIS B2239 10K FF				
inch	mm	L	H	D		L	H	D			L	H	D	B		L	H	D		
1/2	15	108	123.5	80		108	166	80												
3/4	20	117	124	80		117	167	80												
1	25	127	146	100		127	188	80												
1 1/4	32	140	161.5	115		140	243	100												
1 1/2	40	165	179	115		165	243	100												
2	50	203	197.5	135							203	308	200			203	298	200		
2 1/2	65										216	311	225			216	302	225		
3	80										241	352	250			241	343	250		
4	100										292	371	250			292	354	250		
5	125										356	459	300			356	443	300		
6	150										406	526	350			406	502	350		
8	200										495	589	400			495	749	450		
10	250										622	879	360	245						
12	300										698	943	360	245						
Body/Bonnet	FCD-S					FCD-S					FCD-S					FCD-S				
Stem	420J2					420J2					403SS					403SS				
Disc/Bellows	403SS					403SS/316LSS					FCD-S or 403SS					304SS+HF/316LSS				
Gland Packing	P/#6118					P/#6118					P/#6118					P/#6527				
Gasket	P/#6633					P/#6633					P/#6633					P/#6633				
Seat Rings (S/D)	403SS/-					403SS/-					403SS/403SS					304SS+HF or 403SS+HF				
Service Conditions	120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa				
Reference Page						Features: Page DI17										Features: Page DI17				
Remarks											*Gear: 10 ^B & over					HF: Hard Face with Co-Cr-W Alloy				

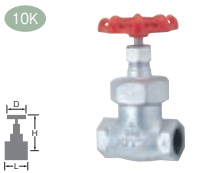
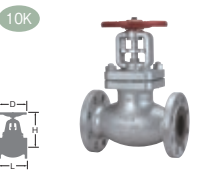
Type	Needle				Globe			Globe			Globe			
Ductile Iron	 				 			 			 			
Fig	10SPNBF				16SP			16SPB			16SPBO/G-16SPBO*			
End Connection	JIS B2239 10K FF				BS21 (JIS B0203)			JIS B2239 16K RF			JIS B2239 16K RF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	B
3/8	10	108	109	60	64	108	60	108	111	60				
1/2	15	108	125	80	70	124	80	108	122	80				
3/4	20	117	125	80	85	125	80	117	128	80				
1	25	127	148	100	95	147	100	127	146	100				
1 1/4	32	0	0	0	110	162	115	140	165	115				
1 1/2	40	165	181	115	125	180	115	165	182	115				
2	50	203	199	135	145	198	135	203	198	135	203	308	200	
2 1/2	65										216	311	225	
3	80										241	352	250	
4	100										292	371	250	
5	125										356	459	300	
6	150										406	526	350	
8	200										495	589	400	
10	250										622	880	360	244
12	300										698	943	360	244
Body/Bonnet	FCD-S				FCD-S			FCD-S			FCD-S			
Stem	420J2				420J2			420J2			403SS			
Disc/Bellows	403SS				403SS			403SS			FCD-S or 403SS			
Gland Packing	P/#6118				T/#2230K			T/#2230K			P/#6118			
Gasket	P/#6633				C1100P-0 (incl. Cu)			C1100P-0 (incl. Cu)			P/#6633			
Seat Rings (S/D)	403SS/-				403SS/-			403SS/-			403SS/403SS			
Service Conditions	120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa				120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa			120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa			120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa			
Reference Page	Features: Page D117													
Remarks											*Gear: 10 ^B & over			

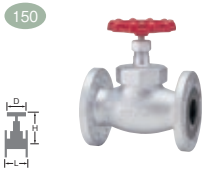
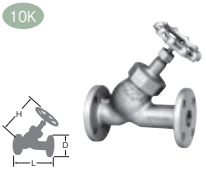
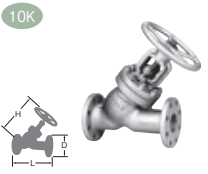
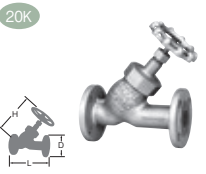
Type	Globe				Globe			Globe			Bellows Seal Globe		
Ductile Iron	 				 			 			 		
Fig	20SY				20SYB			20SYBO			20SYBOW		
End Connection	BS21 (JIS B0203)				JIS B2239 20K RF			JIS B2239 20K RF			JIS B2239 20K RF		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/8	10	75	136	70	110	136	70						
1/2	15	78	138	80	110	138	80				110	184	90
3/4	20	91	157	100	120	157	100				120	184	90
1	25	105	180	115	130	178	115				130	190	100
1 1/4	32	122	205	135	160	202	135				160	238	140
1 1/2	40	135	210	135	180	210	135				180	238	140
2	50	160	240	180	230	239	180	267	296	225	230	271	160
2 1/2	65							292	343	250	292	285	180
3	80							318	374	250	318	395	250
4	100							356	452	300	356	432	300
5	125							400	536	350	400	529	350
6	150							444	601	400	444	586	400
8	200							559	701	560	559	749	450
Body/Bonnet	FCD-S				FCD-S			FCD-S			FCD-S		
Stem	420J2				420J2			403SS			403SS		
Disc/Bellows	403SS+HF				403SS+HF			A105+HF			304SS+HF/316LSS		
Gland Packing	P/#6118				P/#6118			P/#6118			P/#6527		
Gasket	C1100P-0 (incl. Cu)				C1100P-0 (incl. Cu)			P/#6633			P/#6633		
Seat Rings (S/D)	304SS+HF/-				304SS+HF/-			A105+HF or 403SS+HF/-			304SS+HF or 403SS+HF/-		
Service Conditions	120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa			120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa			120°C Static Water 2.8MPa, 350°C Steam, Air, Gas, Oil 2.0MPa		
Reference Page											Features: Page D117		
Remarks	HF: Hard Face with Co-Cr-W Alloy				HF: Hard Face with Co-Cr-W Alloy			HF: Hard Face with Co-Cr-W Alloy			HF: Hard Face with Co-Cr-W Alloy		

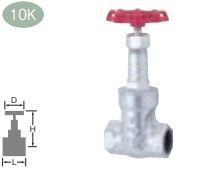
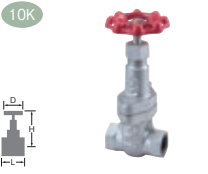
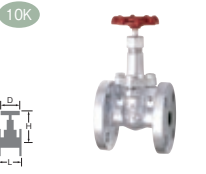
Type	Globe					Globe					Globe					Globe				
Ductile Iron																				
Fig	150SPB					150SPBO					300SYB					300SYBO				
End Connection	ASME B16.5 CL150 RF					ASME B16.5 CL150 RF					ASME B16.5 CL300 RF					ASME B16.5 CL300 RF				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/2	15	108	122	80							110	138	80							
3/4	20	117	128	80							120	157	100							
1	25	127	146	100							130	178	115							
1 1/4	32	140	165	115							160	202	135							
1 1/2	40	165	179	115							180	210	135							
2	50	203	198	135		203	308	200			230	239	180			267	296	225		
2 1/2	65					216	311	225								292	341	250		
3	80					241	352	250								318	372	250		
4	100					292	371	250								356	450	300		
5	125					356	459	300								400	535	350		
6	150					406	526	350								444	601	400		
8	200					495	588	400								559	701	560		
Body/Bonnet	FCD-S					FCD-S					FCD-S					FCD-S				
Stem	420J2					403SS					420J2					403SS				
Disc/Bellows	403SS					FCD-S or 403SS					403SS+HF					A105+HF				
Gland Packing	P/#6118					P/#6118					P/#6118					P/#6118				
Gasket	C1100P-0 (incl. Cu)					P/#6633					C1100P-0 (incl. Cu)					P/#6633				
Seat Rings (S/D)	403SS/-					403SS/403SS					304SS+HF/-					A105+HF or 403SS+HF/-				
Service Conditions	-5~38°C W.O.G. 1.73MPa, 149°C W.O.G. 1.48MPa, 260°C W.O.G. 1.18MPa, 343°C W.O.G. 0.86MPa					-5~38°C W.O.G. 1.73MPa, 149°C W.O.G. 1.48MPa, 260°C W.O.G. 1.18MPa, 343°C W.O.G. 0.86MPa					-5~38°C W.O.G. 2.94MPa, 149°C W.O.G. 2.60MPa, 260°C W.O.G. 2.28MPa, 350°C W.O.G. 2.04MPa					-5~38°C W.O.G. 2.94MPa, 149°C W.O.G. 2.60MPa, 260°C W.O.G. 2.28MPa, 350°C W.O.G. 2.04MPa				
Remarks	F-to-F: ASME B16.10					F-to-F: ASME B16.10					F-to-F: ASME B16.10 HF: Hard Face with Co-Cr-W Alloy					F-to-F: ASME B16.10 HF: Hard Face with Co-Cr-W Alloy				

Type	Globe					Globe					Bellows Seal Globe					Globe				
Ductile Iron																				
Fig	10SD					10SDBF					20SDBOW					10SDL				
End Connection	BS21 (JIS B0203)					JIS B2239 10K FF					JIS B2239 20K RF					BS21 (JIS B0203)				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	50	108	60																
3/8	10	55	108	60		85	108	60								55	112	55		
1/2	15	65	123	70		85	122	70			110	184	90			65	122	60		
3/4	20	80	123	80		95	124	80			120	184	90			80	130	70		
1	25	90	144	90		110	146	90			130	190	100			90	149	80		
1 1/4	32	105	159	100		130	161	100			160	238	140			105	169	90		
1 1/2	40	120	178	115		150	181	115			180	238	140			120	187	100		
2	50	140	197	135		180	198	135			230	271	160			140	205	115		
2 1/2	65	180	262	180		210	268	180			292	285	180							
3	80	200	295	225		240	290	225			318	395	250							
4	100										356	432	300							
5	125										400	529	350							
6	150										444	586	400							
8	200										559	749	450							
Body/Bonnet	FCD-S					FCD-S					FCD-S					FCD-S				
Stem	420J2					420J2					403SS					420J2				
Disc	G/F PTFE					G/F PTFE					G/F PTFE					G/F PTFE				
Gland Packing	T/#2200K					T/#2200K					P/#6527					NBR (V/#2631)				
Gasket	C1100P-0 (incl. Cu)/P/#6633					C1100P-0 (incl. Cu)/P/#6633					P/#6633					C1100P-0 (incl. Cu)				
Seat Rings (S/D)	403SS/-					403SS/-					304SS or 403SS/-					403SS/-				
Service Conditions	120°C Static Water 1.4MPa, 180°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 180°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 2.5MPa, 180°C Steam, Air, Gas, Oil 2.0MPa					LPG at Room Temperature 0.20MPa				
Reference Page											Features: Page D117									
Remarks	SB up to 2 ³ , UB 21/2 ^B & over										HF: Hard Face with Co-Cr-W Alloy					LPG Service				

Type	Globe					Globe					Globe					Globe				
Ductile Iron																				
Fig	10SDLBF					20SDL					20SDLB					20SDLBO				
End Connection	JIS B2239 10K FF					BS21 (JIS B0203)					JIS B2239 20K RF					JIS B2239 20K RF				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
3/8	10	85	108	55		75	129	70			110	128	70							
1/2	15	85	122	60		78	129	70			110	128	70							
3/4	20	95	122	70		91	147	90			120	147	90							
1	25	110	145	80		105	168	100			130	168	100							
1 1/4	32	130	160	90		122	193	115			160	192	115							
1 1/2	40	150	179	100		135	200	135			180	201	135							
2	50	180	198	115		160	235	155			230	237	155							
2 1/2	65															292	337	250		
3	80															318	351	250		
4	100															356	439	300		
6	150															444	600	400		
8	200															559	688	560		
Body/Bonnet	FCD-S					FCD-S					FCD-S					FCD-S				
Stem	420J2					420J2					420J2					403SS				
Disc	G/F PTFE					PTFE					PTFE					PTFE				
Gland Packing	NBR (V/#2631)					NBR					NBR					NBR				
Gasket	C1100P-0 (incl. Cu)					P/#6633					P/#6633					P/#6633				
Seat Rings (S/D)	403SS/-					304SS/-					304SS/-					403SS/-				
Service Conditions	LPG at Room Temperature 0.20MPa					80°C gas 2.4MPa					80°C gas 2.4MPa					80°C gas 2.4MPa				
Remarks	LPG Service					LPG Service					LPG Service					LPG Service				

Type	Globe					Globe					Globe					Bellows Seal Globe				
Ductile Iron																				
Fig	10SPD					10SPDBF					10SPDBOF					10SPDBOWF				
End Connection	BS21 (JIS B0203)					JIS B2239 10K FF					JIS B2239 10K FF					JIS B2239 10K FF				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/2	15	70	125	80		108	125	80								108	184	90		
3/4	20	80	125	80		117	125	80								117	184	90		
1	25	90	146	100		127	145	100								127	190	100		
1 1/4	32	110	162	115		140	162	115								140	238	140		
1 1/2	40	120	180	115		165	180	115								165	238	140		
2	50	140	198	135		203	198	135			203	308	200			203	271	160		
2 1/2	65										216	311	225			216	305	180		
3	80										241	352	250			241	395	250		
4	100										292	371	250			292	432	300		
5	125										356	459	300			356	529	350		
6	150										406	518	350			406	586	400		
8	200										495	581	400			495	749	450		
Body/Bonnet	FCD-S					FCD-S					FCD-S					FCD-S				
Stem	420J2					420J2					403SS					403SS				
Disc/Bellows	G/F PTFE					G/F PTFE					G/F PTFE					G/F PTFE/316LSS				
Gland Packing	P/#6118					P/#6118					P/#6118					P/#6527				
Gasket	C1100P-0 (incl. Cu)					C1100P-0 (incl. Cu)					P/#6633					P/#6633				
Seat Rings (S/D)	403SS/-					403SS/-					403SS/-					304SS or 403SS/-				
Service Conditions	120°C Static Water 1.4MPa, 180°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 180°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 180°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 180°C Steam, Air, Gas, Oil 1.0MPa				
Reference Page																Features: Page D117				

Type	Globe					Y Globe			Y Globe			Y Globe		
Ductile Iron	 					 			 			 		
Fig	150SPDB					10SYYBF			10SYYBOF			20SYYB		
End Connection	ASME B16.5 CL150 RF					JIS B2239 10K FF			JIS B2239 10K FF			JIS B2239 20K RF		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
1/2	15	108	127	70										
3/4	20	117	135	70										
1	25	127	155	90	180	191.5	115					180	191.5	115
1 1/4	32	140	172	100										
1 1/2	40	165	193	115	240	311	135					240	311	135
2	50	203	208	135				280	311	225				
2 1/2	65							315	357.5	250				
3	80							350	392	250				
Body/Bonnet	FCD-S					FCD-S			FCD-S			FCD-S		
Stem	420J2					420J2			403SS			420J2		
Disc/Bellows	G/F PTFE					403SS+HF			A105+HF			403SS+HF		
Gland Packing	P/#6118					P/#6118			P/#6118			P/#6118		
Gasket	C1100P-0 (incl. Cu)					P/#6633			P/#6633			P/#6633		
Seat Rings (S/D)	403SS/-					304SS+HF/-			403SS+HF/-			304SS+HF/-		
Service Conditions	-5~38°C W.O.G. 1.73MPa, 149°C W.O.G. 1.48MPa, 180°C W.O.G. 1.18MPa					120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa		
Remarks						HF: Hard Face with Co-Cr-W Alloy			HF: Hard Face with Co-Cr-W Alloy			HF: Hard Face with Co-Cr-W Alloy		

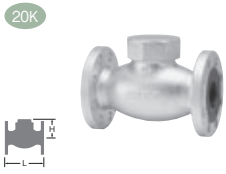
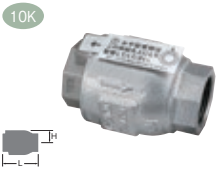
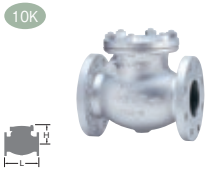
Type	Y Globe					Gate			Gate			Gate		
Ductile Iron	 					 			 			 		
Fig	20SYYBO					10SMS			10SMAS			10SMBF		
End Connection	JIS B2239 20K RF					BS21 (JIS B0203)			BS21 (JIS B0203)			JIS B2239 10K FF		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
1/2	15				60	150	60		65	161	70	90	161	70
3/4	20				70	170	70		75	162	70	100	162	70
1	25				75	197	80		80	184.5	80	110	185	80
1 1/4	32				85	232	90		90	215	90	120	216	90
1 1/2	40				95	274	100		100	250	110	130	251	100
2	50	280	311	225	105	316	115		110	285	115	140	285	115
2 1/2	65	315	357.5	250										
3	80	350	392	250										
Body/Bonnet	FCD-S					FCD-S			FCD-S			FCD-S		
Stem	403SS					420J2			420J2			420J2		
Disc/Bellows	A105+HF					SCS1			SCS1			SCS1		
Gland Packing	P/#6118					T/#2200K			P/#6118			P/#6118		
Gasket	P/#6633								P/#6633			P/#6633		
Seat Rings (S/D)	403SS+HF/-					403SS/-			403SS/-			403SS/-		
Service Conditions	120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa					120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa		
Remarks	HF: Hard Face with Co-Cr-W Alloy													

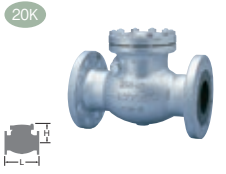
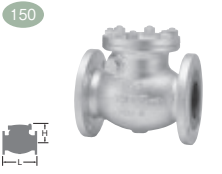
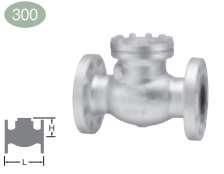
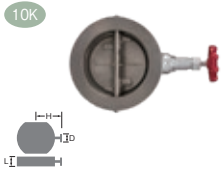
Type	Gate				Gate				Gate				Gate			
Ductile Iron																
Fig	10SMBOF				16SMS				16SMB				16SMBO			
End Connection	JIS B2239 10K FF				BS21 (JIS B0203)				JIS B2239 16K RF				JIS B2239 16K RF			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15				65	163	70	108	163	70						
3/4	20				75	182	80	117	164	70						
1	25				80	212	90	127	187	80						
1 1/4	32				90	245	100	140	219	90						
1 1/2	40	165	301	160	100	285	115	165	253	100	165	301	160			
2	50	178	352	200	110	330	135	178	285	115	178	352	200			
2 1/2	65	190	410	200							190	410	200			
3	80	203	479	250							203	479	250			
4	100	229	566	250							229	566	250			
5	125	254	668	300							254	668	300			
6	150	267	780	300							267	780	300			
8	200	292	970	350							292	970	350			
10	250	330	1181	400							330	1181	400			
12	300	356	1404	450							356	1404	450			
14	350	381	1538	500												
16	400	406	1702	600												
18	450	432	1538	500												
20	500	457	1702	600												
Body/Bonnet	FCD-S				FCD-S				FCD-S				FCD-S			
Stem	403SS or F6a Cl.2				420J2				420J2				403SS			
Disc	SCS1 or 403SS or CS+13Cr				SCS1				SCS1				SCS1 or 403SS or CS+13Cr			
Gland Packing	P/#6118				T/#2230K				T/#2230K				P/#6118			
Gasket	P/#6633				C1100P-0 (incl. Cu)				C1100P-0 (incl. Cu)				P/#6633			
Seat Rings (S/D)	403SS				403SS				403SS				403SS			
Service Conditions	120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa				120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa				120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa				120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa			

Type	Gate				Gate				Gate				Gate			
Ductile Iron																
Fig	20SLS				20SLB				20SLBO				150SMBO			
End Connection		BS21 (JIS B0203)			JIS B2239 20K RF			JIS B2239 20K RF			ASME B16.5 CL150 RF					
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15	70	175	90	108	176	90									
3/4	20	75	177	90	117	177	90									
1	25	85	214	100	127	214	100									
1 1/4	32	95	241	115	140	242	115									
1 1/2	40	105	277	135	165	277	135	190	326	160	165	301	160			
2	50	115	301	135				216	402	200	178	352	200			
2 1/2	65							241	456	200	190	410	200			
3	80							283	518	250	203	479	250			
4	100							305	599	250	229	566	250			
5	125							381	725	300	254	668	300			
6	150							403	847	350	267	780	300			
8	200							419	1076	400	292	970	350			
10	250							457	1239	450	330	1181	400			
12	300							502	1448	500	356	1404	450			
Body/Bonnet	FCD-S				FCD-S				FCD-S				FCD-S			
Stem	420J2				420J2				403SS/-				403SS			
Disc/Bellows	SCS1				SCS1				SCS1 or 403SS or CS+13Cr				SCS1 or 403SS or CS+13Cr			
Gland Packing	P/#6118				P/#6118				P/#6118				P/#6118			
Gasket	P/#6633				P/#6633				P/#6633				P/#6633			
Seat Rings (S/D)	403SS/-				403SS/-				403SS/-				403SS/-			
Service Conditions	120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				-5~38°C W.O.G. 1.73MPa, 149°C W.O.G. 1.48MPa, 260°C W.O.G. 1.18MPa, 343°C W.O.G. 0.86MPa			

Type	Gate				Lift Check			Lift Check			Lift Check		
Ductile Iron	300  BB OS&Y RS	10K  SC	10K  SC	16K  UC									
Fig	300SLBO				10SF			10SFBF			16SF		
End Connection	ASME B16.5 CL300 RF				BS21 (JIS B0203)			JIS B2239 10K FF			BS21 (JIS B0203)		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15				65	39		85	39		70	50	
3/4	20				80	42		95	42		85	53	
1	25				90	48		110	49		95	61	
1 1/4	32				105	56		130	56		110	69	
1 1/2	40				120	65		150	65		125	75	
2	50	216	407	200	140	73		180	74		145	87	
2 1/2	65	241	462	200									
3	80	283	522	250									
4	100	305	599	250									
5	125	381	725	300									
6	150	403	847	350									
8	200	419	1076	400									
10	250	457	1240	450									
12	300	502	1448	500									
Body/Bonnet	FCD-S				FCD-S/SCS1			FCD-S/SCS1			FCD-S/304SS		
Stem	403SS/-												
Disc/Bellows	403SS or CS+13Cr				SCS1			SCS1			SCS1		
Gland Packing	P/#6118												
Gasket	P/#6633										C1100P-0 (incl. Cu)		
Seat Rings (S/D)	403SS/-				403SS/-			403SS/-			403SS/-		
Service Conditions	-5~38°C W.O.G. 2.94MPa, 149°C W.O.G. 2.60MPa, 260°C W.O.G. 2.28MPa, 350°C W.O.G. 2.04MPa				120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa		

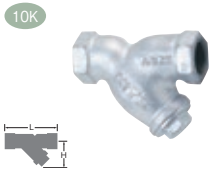
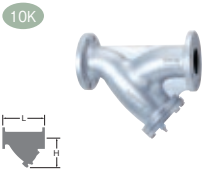
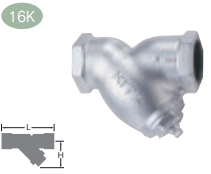
Type	Lift Check				Lift Check				Lift Check				Lift Check			
Ductile Iron	16K  				10K  				10K  				20K  			
	16SFB				10SN				10SNBF				20SN			
	JIS B2239 16K RF				BS21 (JIS B0203)				JIS B2239 10K FF				BS21 (JIS B0203)			
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D		
1/2	15	108	50		70	48		108	49		78	56				
3/4	20	117	53		80	51		117	52		91	60				
1	25	127	61		90	60		127	60		105	68				
1 1/4	32	140	69		110	67		140	68		122	80				
1 1/2	40	165	75		120	73		165	74		135	85				
2	50	203	87		140	85		203	86		160	99				
Body/Bonnet	FCD-S/304SS				FCD-S/304SS				FCD-S/304SS				FCD-S/SCS1			
Disc/Bellows	SCS1				SCS1				SCS1				SCS13A+HF			
Gasket	C1100P-0 (incl. Cu)				C1100P-0 (incl. Cu)				C1100P-0 (incl. Cu)				P/#6633			
Seat Rings (S/D)	403SS/-				403SS/-				403SS/-				SCS13A+HF/-			
Service Conditions	120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa				120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.2MPa				120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.2MPa				120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa			
Remarks													HF: Hard Face with Co-Cr-W Alloy			

Type	Lift Check				Swing Check			Swing Check			Swing Check		
Ductile Iron													
	20K UC				10K			10K BC			16K BC		
Fig	20SNB				10SOZ			10SRBF			16SRB		
End Connection	JIS B2239 20K RF				BS21 (JIS B0203)			JIS B2239 10K FF			JIS B2239 16K RF		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15	110	56		65	21.5							
3/4	20	120	60		80	24.5							
1	25	130	68		90	29							
1 1/4	32	160	80		105	35							
1 1/2	40	180	85		120	41.5		165	118				
2	50	230	99		140	48.5		203	123		203	125	
2 1/2	65							216	133		216	136	
3	80							241	154		241	153	
4	100							292	168		292	171	
5	125							330	196		330	201	
6	150							356	214		356	219	
8	200							495	256		495	264	
10	250							622	311		622	320	
12	300							698	351		698	359	
Body/Bonnet	FCD-S/SCS1				FCD-S/SCS13A			FCD-S			FCD-S		
Stem					304SS(SCS13A)			403SS/-			403SS/-		
Disc/Bellows	SCS13A+HF				304SS or SCS13A			403SS or SCPH2+13Cr			403SS or SCPH2+13Cr		
Gasket	P/#6633							P/#6633			P/#6633		
Seat Rings (S/D)	SCS13A+HF/-							403SS/-			403SS/-		
Service Conditions	120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 1.4MPa, 300°C Steam, Air, Gas, Oil 1.0MPa			120°C Static Water 2.2MPa, 220°C Steam, Air, Gas, Oil 2.0MPa		
Reference Page					Features: Page DI16								
Remarks	HF: Hard Face with Co-Cr-W Alloy				Internal Hinge Pin								

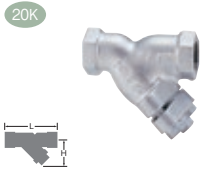
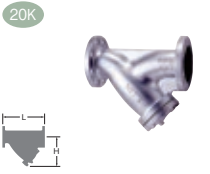
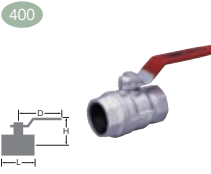
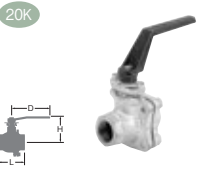
Type	Swing Check				Swing Check			Swing Check			Wafer Check		
Ductile Iron													
	20K BC				150 BC			300 BC			10K Dual		
Fig	20SOB				150SRB			300SOB			10SWZU		
End Connection	JIS B2239 20K RF				ASME B16.5 CL150 RF			ASME B16.5 CL300 RF			Wafer (JIS 10K)		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
1 1/2	40				165	115							
2	50	267	133		203	125		267	133		56	162	70
2 1/2	65	292	143		216	136		292	143		56	168	70
3	80	318	158		241	153		318	158		59	175	70
4	100	356	186		292	171		356	186		66	187	70
5	125	400	218		330	206		400	218		72	201	70
6	150	444	238		356	224		444	238		78	221	80
8	200	533	278		495	264		533	278		96	248	80
10	250	622	335		622	325		622	335		109	299	90
12	300	711	370		698	364		711	370		145	328	90
14	350										184	337	90
16	400										191	367	90
18	450										204	395	90
Body/Cover/Cap	FCD-S				FCD-S			FCD-S			FCD-S+NBR		
Hinge Pin/Spring	403SS/-				403SS/-			403SS/-			304SS		
Disc	403SS or SCPH2+13Cr				403SS or SCPH2+13Cr			403SS or SCPH2+13Cr			CF8 or 403SS		
Gland Packing					T/#2200K								
Gasket	P/#6633				P/#6633			P/#6633					
Seat Rings (S/D)	403SS/-				403SS/-			403SS/-					
Service Conditions	120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				-5~38°C W.O.G. 1.73MPa, 149°C W.O.G. 1.48MPa, 260°C W.O.G. 1.18MPa, 343°C W.O.G. 0.86MPa			-5~38°C W.O.G. 2.94MPa, 149°C W.O.G. 2.60MPa, 260°C W.O.G. 2.28MPa, 350°C W.O.G. 2.04MPa			0°C~+80°C 1.4MPa		
Reference Page											Features: Page BR35		
Remarks											Built-in Bypass Valve, Dual Plate Type		

Type	Wafer Check				Wafer Check				Stop Check			Stop Check					
Ductile Iron	20K  Dual				20K  Dual				10K  UB IS RS			10K  BB OS&Y RS					
	Fig				20SWZ				20SWZU			10SYFBF			10SPFBOF		
	End Connection		Wafer (JIS 20K)			Wafer (JIS 20K)			JIS B2239 10K FF			JIS B2239 10K FF					
	inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15							110	137	80							
3/4	20							120	154	100							
1	25							130	178	115							
1 1/2	40	54	128	55				180	207	135							
2	50	56	133	60	56	146	60	230	226	180							
2 1/2	65	60	150	70	60	168	70				216	338	225				
3	80	67	156	70	67	174	70				241	370	250				
4	100	68	169	70	68	187	70										
5	125	83	183	70	83	201	70										
6	150	95	216	80	95	219	80										
8	200	127	243	80	127	247	80										
10	250	140	290	90	140	297	90										
12	300	181	315	90	181	324	90										
14	350	184	330	90	184	337	90										
16	400	191	355	90	191	365	90										
18	450	204	388	90	204	394	90										
Body/Cover/Cap	FCD-S+NBR				FCD-S+NBR				FCD-S			FCD-S					
Hinge Pin/Spring	304SS				SUS420J2/304SS/304SS				420J2			403SS					
Disc	CAC406 or C3531				CF8 or 403SS				403SS+HF			304SS+HF					
Gland Packing	T/#2996NATK				T/#2200K				P/#6118			P/#6118					
Gasket									P/#6633			P/#6633					
Seat Rings (S/D)									304SS+HF/-			A105+HF/-					
Service Conditions	0℃~+80℃ 2.8MPa				80℃ Static Water 2.8MPa, 80℃ W.O.G. 2.0MPa				120℃ Static Water 1.4MPa, 300℃ Steam, Air, Gas, Oil 1.0MPa			120℃ Static Water 1.4MPa, 300℃ Steam, Air, Gas, Oil 1.0MPa					
Reference Page	Features: Page BR35				Features: Page BR35				Features: Page DI16			Features: Page DI16					
Remarks	Built-in Bypass Valve, Dual Plate Type				Built-in Bypass Valve Dual Plate Type				HF: Hard Face with Co-Cr-W Alloy			HF: Hard Face with Co-Cr-W Alloy					

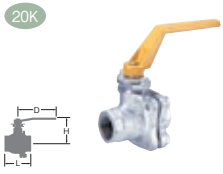
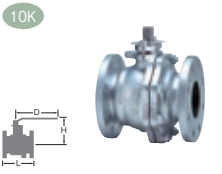
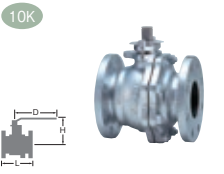
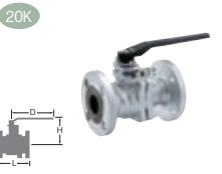
Type	Stop Check				Stop Check				Lift Check			Swing Check		
Ductile Iron	20K  D M L  UB IS RS				20K  D M L  BB OS&Y RS				20K  M L  UC			20K  M L  BC		
	Fig	20SYFB				20SYFBO				20SNDB			20SODB	
End Connection	JIS B2239 20K RF				JIS B2239 20K RF				JIS B2239 20K RF			JIS B2239 20K RF		
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	
1/2	15	110	137	80				110	56					
3/4	20	120	154	100				120	60					
1	25	130	178	115				130	68					
1 1/4	32							160	80					
1 1/2	40	180	207	135				180	85					
2	50	230	226	180				230	99		267	135		
2 1/2	65				292	338	250				292	145		
3	80				318	370	250				318	160		
4	100										356	185		
6	150										444	240		
8	200										533	280		
Body/Cover/Cap	FCD-S				FCD-S				FCD-S/SCS1			FCD-S/S25C or FCD-S		
Hinge Pin/Spring	420J2				403SS									
Disc	403SS+HF				403SS+HF				PTFE			PTFE		
Gland Packing	P/#6118				P/#6118									
Gasket	P/#6633				P/#6633				P/#6633			P/#6633		
Seat Rings (S/D)	304SS+HF/-				A105+HF/-				304SS/-			403SS/-		
Service Conditions	120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa				120°C LPG 2.4MPa			120°C LPG 2.4MPa		
Reference Page	Features: Page DI16				Features: Page DI16									
Remarks	HF: Hard Face with Co-Cr-W Alloy				HF: Hard Face with Co-Cr-W Alloy				Gas Service			Gas Service		

Type	Strainer					Strainer					Strainer					Strainer				
Ductile Iron																				
	10K SC/BC					10K SC/BC					16K SC					16K SC/BC				
Fig	10FDY					10FDYBF					16FDY					16FDYB				
End Connection	BS21 (JIS B0203)					JIS B2239 10K FF					BS21 (JIS B0203)					JIS B2239 16K RF				
inch	mm	L	H	H1*		L	H	H1*			L	H	H1*			L	H	H1*		
1/4	8	65	45	63																
3/8	10	70	45	63																
1/2	15	85	57	81	125	57	81				85	57	81			125	57	81		
3/4	20	100	62	90	140	62	90				100	63	90			140	63	90		
1	25	115	74	111	150	77	114				115	74	111			150	77	114		
1 1/4	32	135	86	130	170	90	134				135	86	131			170	90	134		
1 1/2	40	150	96	141	190	100	145				150	96	141			190	100	145		
2	50	180	112	168	230	137	173				180	111	168			250	158	207		
2 1/2	65	220	190	271	305	207	289									305	208	289		
3	80	250	214	310	360	237	334									360	238	334		
4	100				415	279	387									415	284	387		
5	125				465	321	446									465	324	446		
6	150				515	367	497									515	369	497		
8	200				580	461	631									580	461	631		
10	250				680	534	745									680	534	745		
12	300				800	623	874									800	623	879		
Body/Bonnet/Cap	FCD-S/C3771 or FCD-S					FCD-S/C3771 or FCD-S					FCD-S/C3771 or FCD-S					FCD-S/C3771 or FCD-S				
Disc/Screen	304SS(Punched Plate)					304SS(Punched Plate)					304SS(Punched Plate)					304SS(Punched Plate)				
Gasket	T/#1120 or P/#6633					T/#1120 or P/#6633					T/#1120					T/#1120 or P/#6633				
Service Conditions	120°C Static Water 1.4MPa, 220°C Steam, Air, Gas, Oil 1.0MPa 200°C up to 2 ^B					120°C Static Water 1.4MPa, 200°C Steam, Oil 1.2MPa (11/2 ^B & below), 200°C Air, Gas 1.0MPa (11/2 ^B & below), 220°C Steam, Air, Gas, Oil 1.2MPa (2 ^B & above), 300°C Steam, Air, Gas, Oil 1.0MPa (2 ^B & above)					120°C Static Water 2.2MPa, 200°C Steam, Oil 2.0MPa, 200°C Air, Gas 1.0MPa					120°C Static Water 2.2MPa, 200°C Steam, Oil 2.0MPa (11/2 ^B & below), 200°C Air, Gas 1.0MPa (11/2 ^B & below), 220°C Steam, Air, Gas, Oil 2.0MPa (2 ^B & above), 300°C Steam, Air, Gas, Oil 1.8MPa (2 ^B & above), 350°C Steam, Air, Gas, Oil 1.6MPa (2 ^B & above)				
Remarks	BC: 21/2 ^B & above					BC: 2 ^B & above										BC: 2 ^B & above				

*Height for removing the screen

Type	Strainer					Strainer					Ball					Ball				
Ductile Iron																				
	20K BC					20K BC					400 RB					20K RB				
Fig	20FDY					20FDYB					STZ					20ST				
End Connection	BS21 (JIS B0203)					JIS B2239 20K RF					BS21 (JIS B0203)					BS21 (JIS B0203)				
inch	mm	L	H	H1*		L	H	H1*			L	H	D			L	H	D		
1/4	8										46	37	80							
3/8	10	80	63	76	120	63	76				51	37	80							
1/2	15	85	63	76	125	63	76				57	41	100			75	106	130		
3/4	20	100	70	86	140	71	86				65	46	130			80	106	130		
1	25	115	82	103	160	85	105				76	49	130			90	107	130		
1 1/4	32	135	117	122	185	120	126				86	56	130			105	129	160		
1 1/2	40	150	128	135	200	132	138				95	61	130			115	133	160		
2	50	180	153	161	250	164	172				115	68	150			130	114	230		
2 1/2	65				305	221	298													
3	80				360	252	344													
4	100				415	292	397													
5	125				465	333	456													
6	150				515	380	506													
8	200				620	441	610													
10	250				760	548	763													
12	300				870	655	916													
Body/Bonnet/Cap	FCD-S/FCD-S					FCD-S/FCD-S					FCD-S					FCD-S				
Stem											C3531 + Ni-Cr plating					403SS				
Ball/Screen	304SS					304SS					C3771 + Ni-Cr plating					CF8/304SS				
Ball Seat											G/F PTFE					HYPATITE® PTFE				
Gland Packing											PTFE					PTFE				
Gasket	P/#6633					P/#6633					PTFE					PTFE				
Handle											SS430					DI				
Bore											Reduced Bore					Reduced Bore				
Service Conditions	120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa, 300°C Steam, Air, Gas, Oil 2.3MPa, 350°C Steam, Air, Gas, Oil 2.0MPa					120°C Static Water 2.8MPa, 220°C Steam, Air, Gas, Oil 2.5MPa, 300°C Steam, Air, Gas, Oil 2.3MPa, 350°C Steam, Air, Gas, Oil 2.0MPa					W.O.G. at Room Temperature 2.75MPa, Saturated Steam 0.98MPa					110°C W.O.G. 2.8MPa, 140°C W.O.G. 2.0MPa				
Remarks	40-mesh					40-mesh														

*Height for removing the screen

Type	Ball				Ball				Ball				Ball			
Ductile Iron																
Fig	20STL				10STBF				10STLBF				20STB			
End Connection	BS21 (JIS B0203)				JIS B2239 10K FF				JIS B2239 10K FF				JIS B2239 20K RF			
inch	mm	L	H	D	L	H	D	D	L	H	D	D	L	H	D	D
1/2	15	75	106	130	108	106	130		108	106	130		140	106	130	
3/4	20	80	106	130	117	109	130		117	109	130		152	109	130	
1	25	90	107	130	127	129	160		127	129	160		165	130	160	
1 1/4	32	105	129	160	140	132	160		140	132	160		178	135	160	
1 1/2	40	115	133	160	165	114	230		165	114	230		190	115	230	
2	50	130	114	230	178	121	230		178	121	230		216	120	230	
2 1/2	65				190	154	400		190	154	400		241	153	400	
3	80	180	154	400	203	163	400		203	163	400		283	162	400	
4	100				229	199	460		229	199	460		305	241	750	
5	125				356	219	460		356	219	460					
6	150				394	292	1000		394	293	1000		403	293	1000	
8	200				457	352	1500		457	352	1500		502	352	1500	
Body & Cap	FCD-S				FCD-S				FCD-S				FCD-S			
Stem	403SS				403SS				403SS				403SS			
Ball	CF8/304SS				CF8/304SS				CF8/304SS				CF8/304SS			
Ball Seat	HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE				HYPATITE® PTFE			
Gland Packing/O ring	PTFE + NBR				PTFE				PTFE + NBR				PTFE			
Gasket	PTFE				PTFE				PTFE				PTFE			
Handle	DI				DI/CS				DI/CS				DI/CS			
Bore	Reduced Bore				Full Bore				Full Bore				Full Bore			
Service Conditions	80°C Gas. 2.4MPa				120°C W.O.G. 1.4MPa, 160°C W.O.G. 1.0MPa for up to 4", 140°C W.O.G. 1.0MPa for 5" & over				80°C Gas. 1.18MPa				250°C W.O.G. 2.8MPa			
Remarks	Gas Service								Gas Service							

Type	Ball					Ball			3-Way, 4-Seats, L/T Port Ball				3-Way, 4-Seats, L/T Port Ball			
Ductile Iron	20K  NO IMAGE FB					20K  FB			10K  FB				10K  RB			
	G-20STB					20STLB			10STB4LAF/10STB4TAF				10STR4LAF/10STR4TAF			
End Connection		JIS B2239 20K RF				JIS B2239 20K RF			JIS B2239 10K FF				JIS B2239 10K FF			
inch	mm	L	H	D	B	L	H	D	L	H	D	L1	L	H	D	L1
1/2	15					140	106	130								
3/4	20					152	109	130								
1	25					165	130	160								
1 1/4	32					178	135	160								
1 1/2	40					190	115	230	180	143	400	90				
2	50					216	120	230	200	152	400	100				
2 1/2	65					241	153	400	240	183	460	120				
3	80					283	162	400	260	190	460	130				
4	100					305	241	750	330	259	1000	165				
5	125												340	267	1000	170
6	150	403	337	310	165	403	293	1000					400	289	1000	200
8	200	502	414	360	210	502	352	1500					450	334	1500	225
Body & Cap	FCD-S					FCD-S			FCD-S				FCD-S			
Stem	403SS					403SS			304SS				304SS			
Ball	CF8/304SS					CF8/304SS			CF8				CF8			
Ball Seat	HYPATITE® PTFE					HYPATITE® PTFE			HYPATITE® PTFE				HYPATITE® PTFE			
Gland Packing/O ring	PTFE					PTFE + NBR			PTFE				PTFE			
Gasket	PTFE					PTFE			PTFE				PTFE			
Handle						DI/CS			DI/CS				DI/CS			
Bore	Full Bore					Full Bore			Full Bore				Reduced Bore			
Service Conditions	250°C W.O.G. 2.8MPa					80°C Gas. 2.4MPa			120°C W.O.G 1.0MPa, 150°C W.O.G 0.4MPa				120°C W.O.G 1.0MPa, 150°C W.O.G 0.4MPa			
Reference Page									Port Orientation: Page TECH1				Port Orientation: Page TECH1			
Remarks	Gear Operated					Gas Service			3-Way, 4-Seated, L- or T-Port				3-Way, 4-Seated, L- or T-Port			

What is Ductile Iron ?

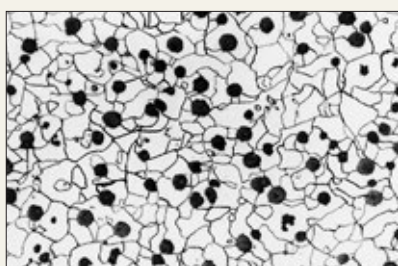
Gray iron, ductile iron, and malleable iron are the three kinds of iron used for valve construction. Unlike gray iron, which has thin, flake-like molecular formations, the metallic structures of both ductile and malleable iron contain nodular graphite. (Refer to the microscopic views shown here.) Ductile and malleable iron have superior mechanical properties compared to gray iron. They have properties almost equivalent to cast steel, which is an expensive material for industrial valves. Furthermore, their superior casting characteristics and ease of machining help to increase their suitability as a valve material.

Ductile iron outperforms malleable iron owing to its better mechanical characteristics for building the valve body, which is a kind of pressure-containing device. For example, ductile iron has a 20% higher tensile strength and 70% to 80% better elongation than malleable iron. This difference is attributed to the different formation processes of nodulated graphite molecules.

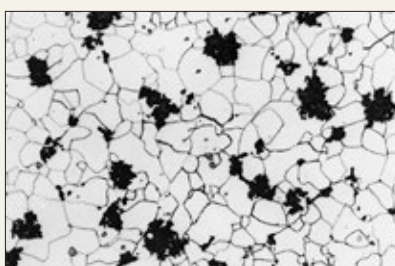
KITZ ductile iron valves are made of JIS FCD-S or ASTM A395 ductile iron. The history of the introduction of ductile iron valves on the market is rather short; however, their demand is steadily increasing owing to their economic advantage as well as the fact that their wide range of service applications is comparable to that of cast steel valves.

This catalog serves to provide the design specifications, construction materials, and external dimensions of the following ductile iron valves and strainers manufactured by KITZ Corporation :

- JIS 10K, 16K, and 20K Gate, Globe, and Check Valves
- JIS 10K and 20K Ball Valves
- JIS 10K, 16K, and 20K Strainers
- ASME 150 and 300 Gate, Globe, and Check Valves



Ductile Iron



Malleable Iron



Gray Iron

Service Recommendation

For achieving higher mechanical shock resistance under high or low temperature and for achieving better tensile strength and elongation characteristics than those of ordinary gray iron valves, the use of ductile iron valves is highly recommended for the following services, sometimes, in place of cast:

- Piping for steam supply
- Air-conditioning and heating systems
- High-pressure gaseous service in general
- Piping for poisonous gas service

The range of high-pressure gaseous service for iron valves is specified by the Ministry of Economy, Trade and Industry of Japan as follows :

Valve Material	Poisonous Gas*	Inflammable Gas	Other Gas
Ductile Iron (JIS FCD-S)	2.4 MPa maximum -5°C to + 350°C		
Ductile Iron (JIS FCD400)	not recommended	1.6 MPa maximum 0°C to + 250°C	
Gray Iron (JIS FC200)	not recommended		0.2 MPa maximum 0°C to + 250°C

*Phosgene and hydrogen cyanide are excluded.

Material Specifications of JIS FCD-S

1. Chemical Composites:

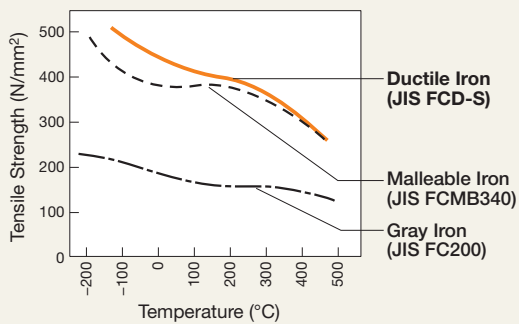
Carbon : 3.00% minimum
 Phosphor : 0.08% maximum
 Silicon : 2.50% maximum; however, 0.08% may be added for every decrease of 0.01% phosphor within the total maximum of 2.75%

2. Mechanical Properties:

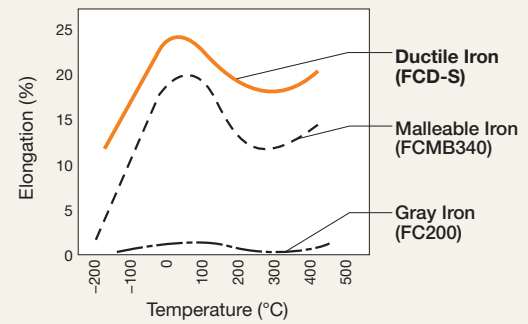
Tensile Strength : 412 N/mm² (42 kgf/mm²) minimum
 Yield Strength : 275 N/mm² (28 kgf/mm²) minimum
 Elongation : 18% minimum
 Brinell Hardness : 143 to 187
 Charpy Impact Value :
 a) for Ambient Temperature Service;
 17 N·m/cm² (1.7 kgf·m/cm²) minimum in an average of three test pieces.
 15 N·m/cm² (1.5 kgf·m/cm²) minimum for the lowest impact value.
 b) for -10°C or lower temperature service;
 15.3 N·m/cm² (1.53 kgf·m/cm²) minimum in an average of three test pieces.
 13.3 N·m/cm² (1.33 kgf·m/cm²) minimum for the lowest impact value.

Compared Mechanical Properties of JIS Materials

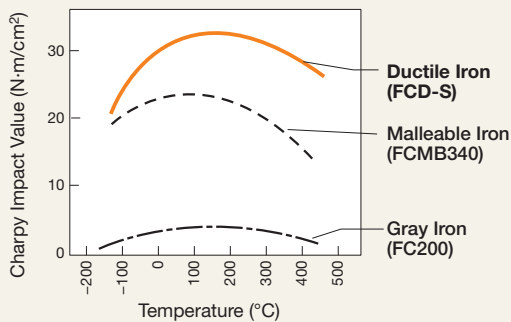
Tensile Strength



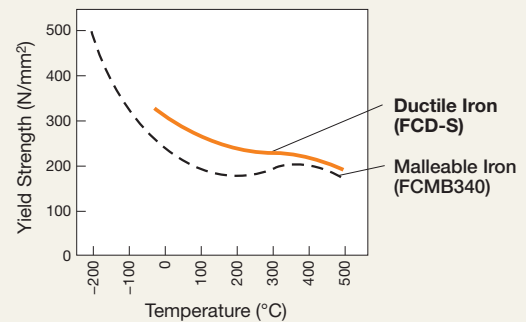
Elongation



Charpy Impact Value



Yield Strength



Design Specifications (Please refer to our website (www.kitz.co.jp) or contact KITZ for details.)

Class	JIS 10K/16K/20K	ASME 150/300
Face to Face Dimension	JIS B 2011, B 2002, or KITZ Std.	ASME B16. 10
End to End Dimension	JIS B 2051 or KITZ Std.	—
End Flange Dimension	JIS B 2239	ASME B16. 5
End Thread Dimension	JIS B 0203	—
Shell Wall Thickness	KITZ Standard, unless otherwise indicated on the following pages	

Uniquely Designed Swing Check Valve: Fig. 10SOZ

Features:

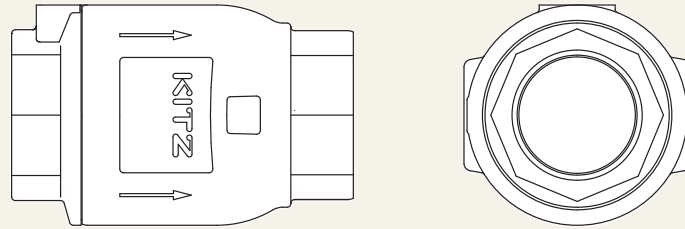
Valve Mounting Orientation : Horizontal and Vertical

Plumbing workability is good

Very compact compared to conventional products

Thermal insulation construction is easy

By having internal hinge pin construction, risks in external leakage is only in body/cap connection.



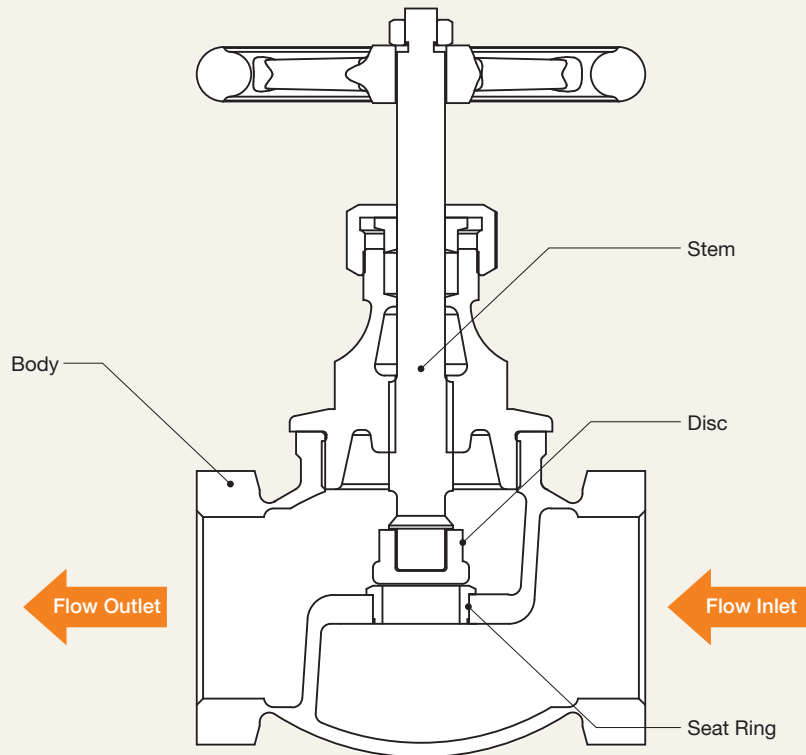
Stop Check Valves: Fig 10SYFBF, 10SPFBOF, 20SYFB, 20SYFBO

Stop check valve is combination of lift check valve and globe valve.

It has a stem in which, when closed prevents disc from coming of the seat and provides tight shutoff (similar to a globe valve).

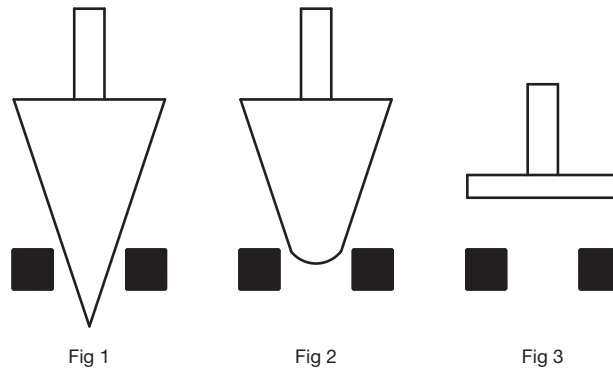
When stem operates to open position, valve operates as a check valve.

Stem is not connected to the disc and functions to close the valve tightly or to limit travel of the disc in open direction.

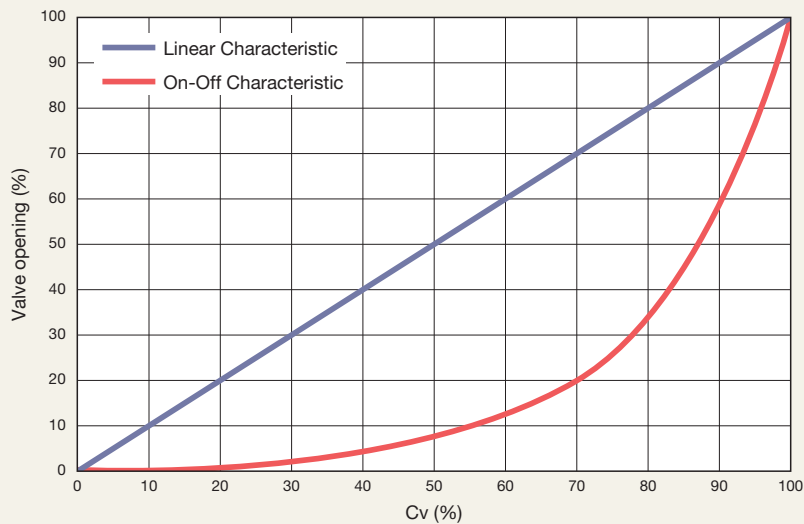


Needle Valve: Fig 10SPNBF

Difference between a needle valve (Fig-1 or Fig-2) and a globe valve (Fig-3) varies in shape of disc as below.



The big difference in needle valve and general globe valve is in flow characteristic. Needle valve is linear characteristic and general globe valve is on-off characteristic. Flow control is better but pressure loss is larger when fully open.



Bellows Seal Globe Valves: 10SPBAWF, 10SPBOWF, 20SYBOW, 20SDBOW, 10SPDBOWF*

Bellow seal valve is a valve with bellows as stem seal and parts. It is often used for high vacuum or nuclear power industry, where strict stem seal is required. Bellows removes influences which changes back pressure that allows valve to protect spring and other internal structure from corrosion and leak flow medium. Substituting stuffing box, bellows is welded with a cover and/or other parts by roll welding or argon arc welding.

* 10/20/150/300UPAW(M), 10/150YPDAW(M)

KITZ

GENERAL CATALOG

Butterfly Valves

