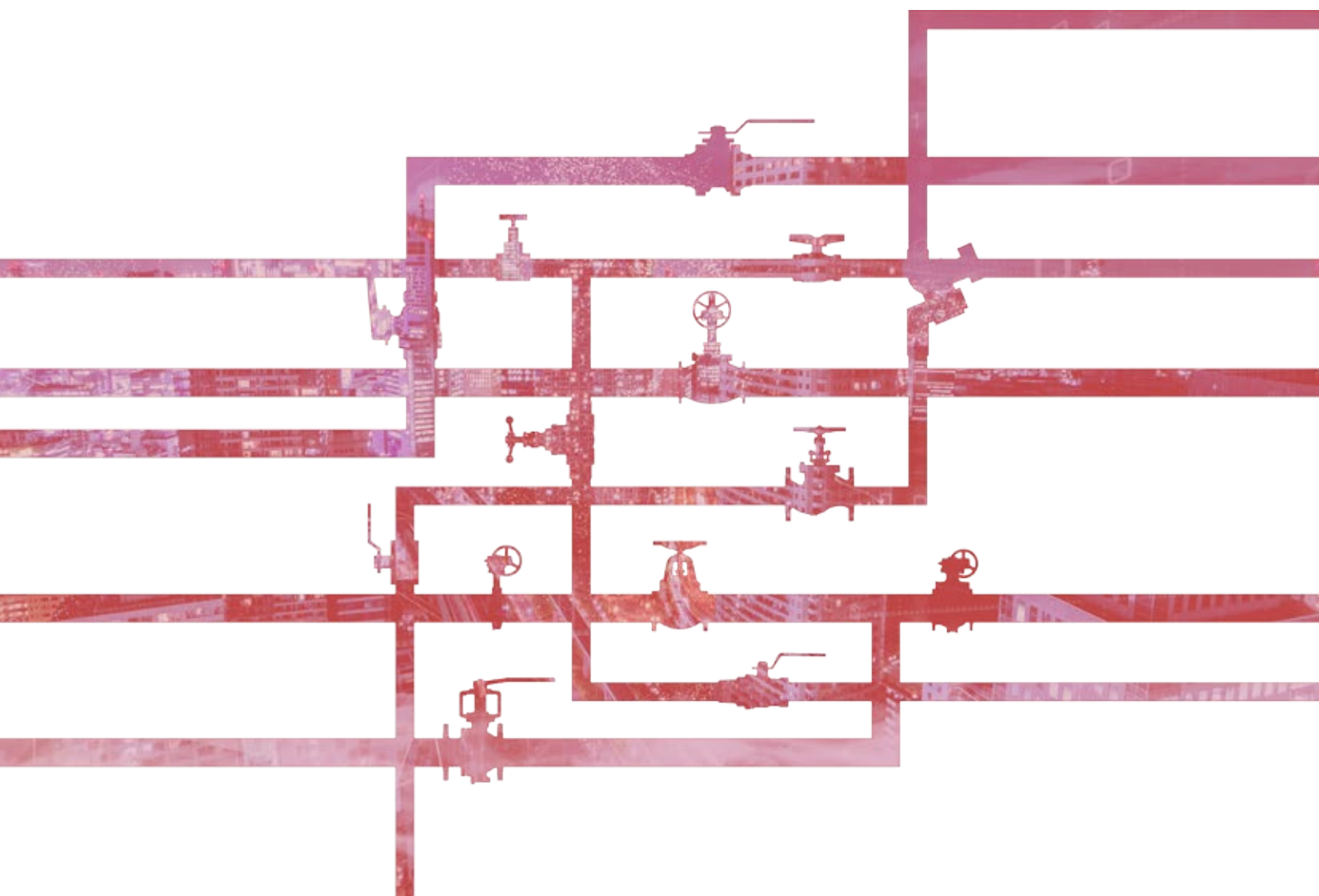


KITZ

GENERAL CATALOG

Bronze & Brass



INDEX

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	FE/FF	Angle Type	C AKC	BR6 9	
						CA AKCA		
		125	TE	Soft Seated (G/F PTFE)	B BH			
		150	FE/FF		G AKG			
					D DB			
					DBH			
	Brass	Gate	125	TE,SE	NRS	FR AKFS CFS FH AKFH CFH	BR7 10	
	EN PN16		TE	PN16FH		BR8 11		
	PN16 (AS1628)			AS-FH				
	125		TE,SE	H AKH CH				
	EN PN16		TE	PN16S				
	EN PN25			PN25S				
	150			E				
	Bronze		Check	150		FE/FF	AKE EB EBH	BR9 12
						TE	F AKF	
						TE,SE	R AKR	
		EN PN16		TE	PN16R	BR10 13		
		EN PN25			PN25R			
		125			YR			
		150	TE,SE	Lift, Soft Seated (NBR or FKM), With Spring	RF AKAF CAF			
		5K	TE	Lift	VF			
		-		Lift (Foot)	FT&FTS			
		10K	Wafer	Dual Plate, Water Hammer Prevention, Bypass Valve Mounted	10BWZ	BR11 14		
	Strainer	150	TE,SE	Y AKY CY				
		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	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	BR13 16	
			150	TE,SE	NRS	AK125E		
						AK150E		
						AK150L C150L		
		300	TE	RS	AK150LU			
		AK300LU						
		125	TE,SE	AK125C	BR14 17			
		Globe	150	TE		Soft Seated (G/F PTFE)	AK150D C150D	
			300	TE		Soft Seated (G/F PTFE)	AK300J	
			Check	125		TE,SE	AK300D	
				150	TE	Y-type Swing	AKYR CYR	
		300		TE	AK150YR			
300	TE	AK300YR						
Ball Valves	Brass	Ball	600	M & F	FB	ZO	BR15 18	
			400	TE	SB, For Steam Service	ZS		
			600		FB, Compact Series	ZET		
			EN PN40		FB	SZA		
			(WR)PN40SZA					
			600	SE		AKSZA		
			600	TE	CSZA			
				SE	AKSZAW			
				600	SE	CSZAW		
			400	TE	SB	T AKT TT	BR16 19	
				M & F	SB, For Gas Service	TG		
					SB	TO		
					SB, 2pc Split Type	TM		
			600	TE	RB	TK AKTK	BR17 20	
					RB, Wing Handle	TKT		
				TE	TKW			
	150	FB, Locking Device			TFJ			
	Bronze	3 Way Ball	400	TE,SE	SB, Long Neck Type for Thermal Insulation	TLT	BR18 21	
			10K	FE/FF	FB, 2pc Split Type	TB		
			600	TE,SE	FB, Swing Away 3pc Body, Mounting Pad	AK3TM		
			400	TE	SB, 3-Way, 2-Seat	TN		
					SB, Mounting Pad, 3-Way, 2-Seat	AKTN		
					SB, 3-Way, 4-Seat	AKTNP		
	SB, Vertical Type, 3-Way, 2-Seat	T4T T4L TV2T TV2L						
	Brass	Ball	600	TE	FB, Gland Packing	AKTAFLL	BR19 22	
				SE	FB, Double O-ring	CTAF		
TE				AKTFLL				
SE				FB, Gland Packing, 316 Stem & Ball	CTFLL			
TE					AKTAFM			
SE				FB, Double O-ring, 316 Stem & Ball	CTAFM			
TE					AKTFMLL			
SE				FB, Gland Packing, Mounting Pad	CTFMLL			
TE					AKTAFP			
FE/FF				FB, Gland Packing, 316 Stem & Ball	AKTAFPM			
M & F	FB, Gland Packing	AKTAFO						
200	TE	FB, Gland Packing, Single Union	AKTAFU					
		FB, Gland Packing, Safety Exhaust	AKTAFS					
BR20 23								

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		
		Check	125	TE,SE	Swing	RN		CRN	BR22 25	
			10K	TE	Lift (Soft,Spring)	RFN				
		Wafer		Wafer	10BWZN					
		Globe	10K	TE		JN	BR23 26			
		Gate	5K	TE,SE	RS	MN		CMN		
			10K		LN	CLN				
		Check	10K	TE	Swing	ON		BR24 27		
	Strainer	10K	TE,SE		YNK	CYNK				
	Ball	400		SB, Long Neck Type for Thermal Insulation	TLN	TLNT	CTLN			
			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		CHN		
					Y-type Swing	AKRN		CRN		
						AKYRN		CYRN		
		Globe	150		Lift (Soft,Spring)	AKYRNT	CYRNT	BR25 28		
	125				AKAFN	CAFN				
	Brass (Lead Free)	Ball	600		FB		AK125CN		C125CN	BR26 29
							AKTAFN		CTAFN	
							AKTAFMN	CTAFMN		
							AKTFMNL	CTFMNL		
							AK3TMN	C3TMN		
						AK3TMMN	C3TMMN			
400		3-Way			AKSZAN	CSZAN	BR27 30			
			AKSZANW		CSZANW	PCTAFMN				
			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, Single Union	RTFU	BR29 32			
					FB, Long Neck Type for Thermal Insulation	TLF				
					FB, Long Neck Type for Thermal Insulation	TLFT				
						NSH				
			With Indicator	INAH	INSH					
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, Low Noise Type								
		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-	BR31 34			
	TE									
	TE (F x Union nut)									
	M (G) x F (Rc)									
	Brass				Ditto, but Angle Type	S1- S2- S5- S6- S8-	BR32 35			
	Brass (Ni-Cr Plated Body)			M (Rc x G)	Straight Type					
	Brass				Angle Type					
	Brass (Ni-Cr Pl)			M x F M (Rc x G)	Straight Type					

* (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



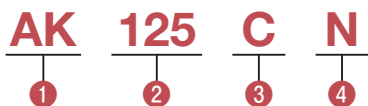
CAUTION

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)



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

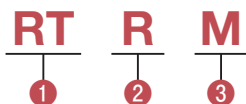
3 Valve Type

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)



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)



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

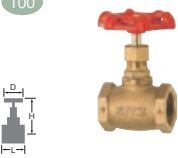
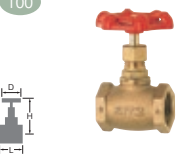
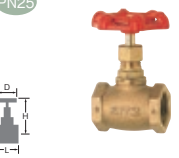
1 Straight, Brass Body, M (T) x M (P)
2 Straight, Cr. Plating Body, M (T) x M (P)
5 Angle, Cr. Plating Body, M (T) x M (P)
6 Straight, Brass Body, M (T) x F (T)
8 Straight, Cr. Plating Body, M (T) x M (P)
23 Straight, Brass Body, M (T) x M (P)
24 Straight, Cr. Plating Body, M (T) x M (P)
25 Straight, 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

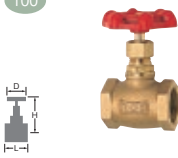
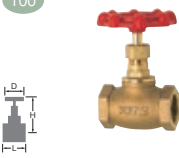
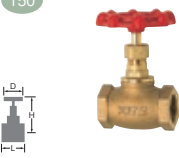
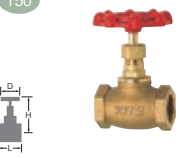
N Straight
A Angle

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	Urethan 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 				125  SB IS NRS 				125  SB IS NRS 				125  SB IS NRS 			
	Fig				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		Alminum Die-Cast/ZDC/DI			Alminum Die-Cast			Alminum Die-Cast			Alminum 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				Fig				Fig				Fig			
	End Connection				End Connection				End Connection				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											

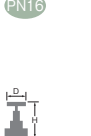
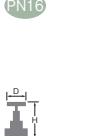
*The length of useful threads & the positions of gauge planes are built on KITZ standard.

**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	H	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	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			

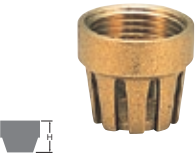
*The length of useful threads & the positions of gauge planes are built on KITZ standard.

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					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					Aramid Fibers Graphite/PTFE				
Hand Wheel	Aluminum Die-Cast					Aluminum Die-Cast/ZDC/DI					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				

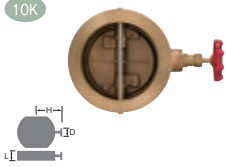
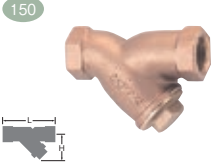
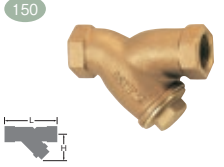
Type	Lift Check					Swing Check					Swing Check					Swing Check				
Bronze & Brass KITZ Standard																				
Fig	AKF					R					AKR					PN16R				
End Connection	ASME B1.20.1					BS21 (JIS B0203)					ASME B1.20.1					BS21 (JIS B0203)				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
3/8	10	44	26			53	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 st														
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	PN25  SC				125  SC EAC WSD			150 			150 		
													
Fig	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.

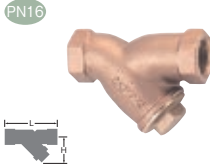
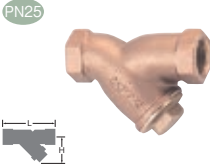
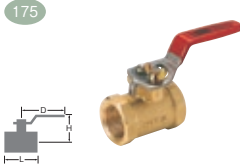
Type	Vertical Lift Check				Vertical Lift Check				Vertical Lift Check				Screen for FT			
Bronze & Brass KITZ Standard	150 				5K 											
																
Fig	CAF				VF				FT				FTS			
End Connection	**ASME B16.18				BS21 (JIS B0203)				BS21 (JIS B0203xB0202)				BS21 (JIS B0202)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/2	15	61			37											
3/4	20	76			44			48			25					
1	25	89			51			58			29					
1 1/4	32	97			62			62			32					
1 1/2	40	110			69			70			35					
2	50	132			82			80			43					
2 1/2	65							90			50					
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													
	Dual				SC			SC			SC		
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

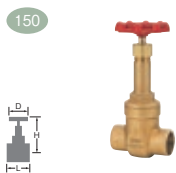
Type	Y-Pattern Strainer				Y-Pattern Strainer			Butterfly		
Bronze & Brass KITZ Standard										
	SC				SC					
Fig	PN16YE				PN25YE			FV		
End Connection	BS21 (JIS B0203)				BS21 (JIS B0203)			BS21 (JIS B0203)		
inch	mm	L	H	***H1	L	H	***H1	L	H	D
1/2	15	65	42	56	65	42	56	47	44	85
3/4	20	80	52	72	80	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																
			SB RS				SB/BB RS				SB/BB RS				SB RS	
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	125				SB RS		125				SB NRS		150				SB NRS		150				SB RS	
																								
	EAC MSS						EAC MSS						EAC MSS						EAC MSS					
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	Alminum Die-Cast				Alminum Die-Cast				Alminum Die-Cast				Alminum 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											

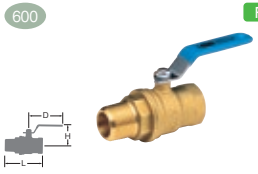
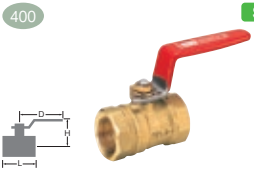
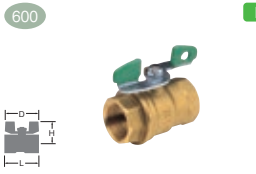
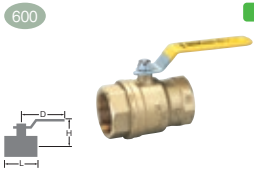
Type	Gate				Gate				Gate				Globe			
Bronze MSS SP-80		150				150				300				125		
Fig	C150L				AK150LU				AK300LU				AK125C			
End Connection		**ASME B16.18			ASME B1.20.1			ASME B1.20.1			ASME B1.20.1					
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	8				45	108	50									
3/8	10				46	108	50	46	125	60						
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.

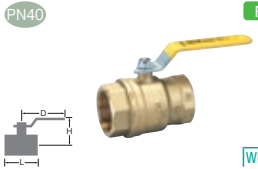
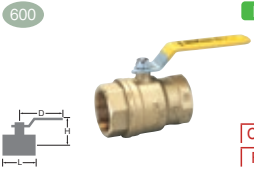
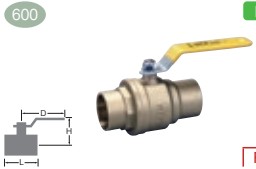
Type	Globe					Globe					Globe					Globe				
Bronze MSS SP-80																				
																				
																				
																				
Fig	AK150D					C150D					AK300J					AK300D				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					ASME B1.20.1				
inch	mm	L	H	D		L	H	D			L	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	600 FB					400 SB					600 FB					600 FB				
																				
Fig	ZO					ZS					ZET					SZA				
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	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				

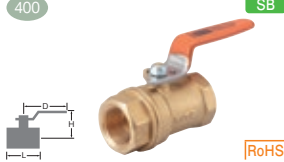
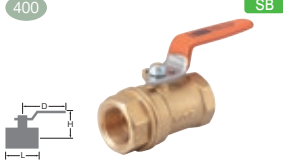
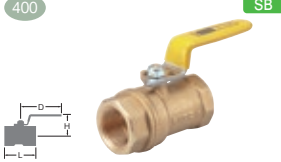
*The length of useful threads & the positions of gauge planes are built on KITZ standard.

Type	Ball					Ball					Ball					Ball				
Brass Z Ball Series	PN40 FB					600 FB					600 FB					600 FB				
																				
Fig	PN40SZA					AKSZA					CSZA					AKSZAW				
End Connection	BS21 (JIS B0203)					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		
1/4	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				

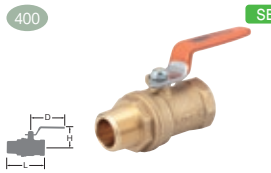
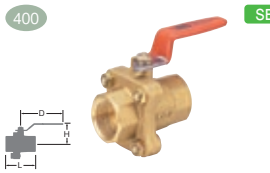
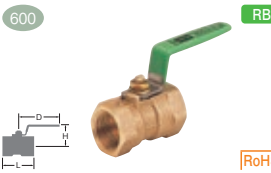
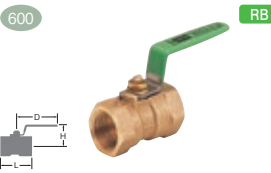
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball			
Brass Z Ball Series	600  FB			
	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.

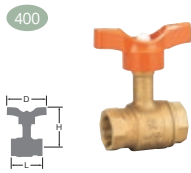
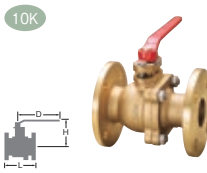
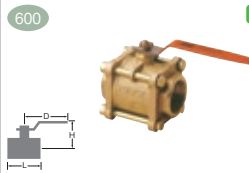
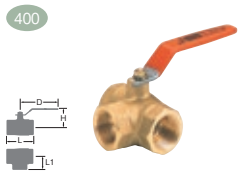
Type	Ball					Ball			Ball			Ball		
Bronze & Brass T Ball Series	400  SB					400  SB			400  SB			400  SB		
	RoHS					RoHS			RoHS			RoHS		
Fig	T					AKT			TT			TG		
End Connection	*BS21 (JIS B0203)					ASME B1.20.1			*BS21 (JIS B0203)			*BS21 (JIS B0203)		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
1/4	8	50	39	60		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)

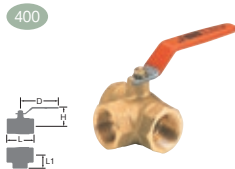
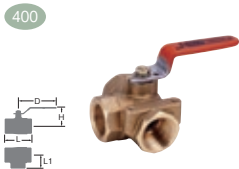
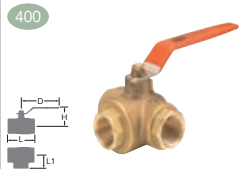
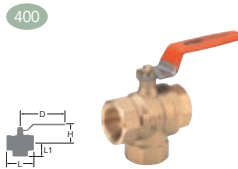
Type	Ball				Ball				Ball				Ball			
Bronze & Brass T Ball Series																
																
Fig	TO				TM				TK				AKTK			
End Connection	BS21 (JIS B0203)				*BS21 (JIS B0203)				BS21 (JIS B0203)				ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/8								32	30	60						
1/4	8	59	39	60				39	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			

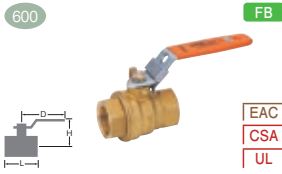
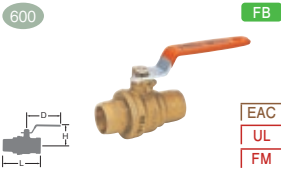
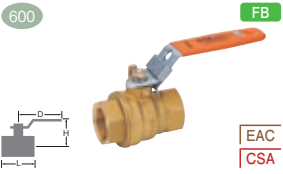
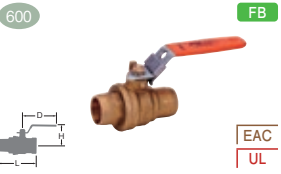
*The length of useful threads & the positions of gauge planes are built on KITZ standard. (1 1/4^B & above)

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			

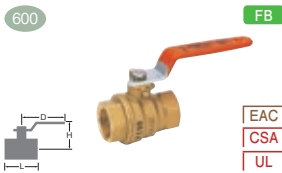
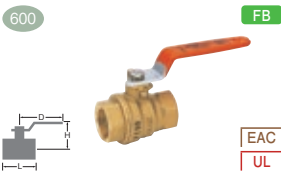
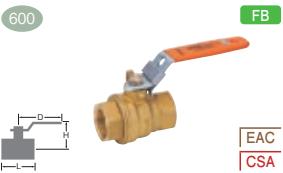
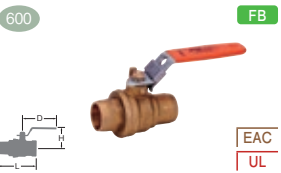
Type	Ball				Ball				Ball				3-Way Ball (2-seat, L-port)			
Bronze & Brass T Ball Series																
																
Fig	TLT				TB				AK3TM				TN			
End Connection	BS21 (JIS B0203)				JIS B2240				BS21 (JIS B0203)				*BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L1		
1/4	8							49	39	82	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 ^ø & 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 1 1/2 ^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. (1 1/4" & above)

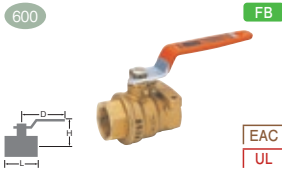
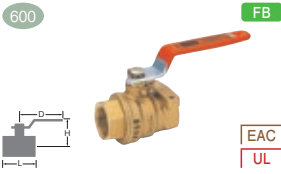
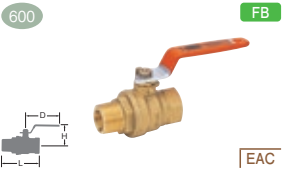
Type	3-Way Ball (2-seat, L-port)					3-Way Ball (2-seat, L-port)					3-Way Ball (4-seat, L/T-port)					3-Way Ball (2-seat, L/T-port)				
Bronze & Brass T Ball Series	400 					400 					400 					400 				
																				
Fig	AKTN					AKTNP					T4T/T4L					TV2T/TV2L				
End Connection	ASME B1.20.1					ASME B1.20.1					BS21 (JIS B0203)					BS21 (JIS B0203)				
inch	mm	L	H	D	L1	L	H	D	L1	L	H	D	L1	L	H	D	L1			
1/4	8	40	30	60	20									40	31	60	20			
3/8	10	46	35	70	23									46	35	80	23			
1/2	15	67	44	80	33.5	67	44	80	33.5	70	52	130	35	67	45	100	33.5			
3/4	20	68	49	80	34	68	49	80	34	85	56	130	42.5	68	50	100	34			
1	25	79	55	110	39.5	79	55	110	39.5	100	63	150	50	79	56	130	39.5			
1 1/4	32	89	59	110	44.5	89	59	110	44.5	115	68	150	57.5	89	60	130	44.5			
1 1/2	40	100	64	110	50	100	64	110	50	130	94.5	230	65	100	66	130	50			
2	50	115	74	140	57.5	115	74	140	57.5	150	102	230	75	115	75	150	57.5			
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				

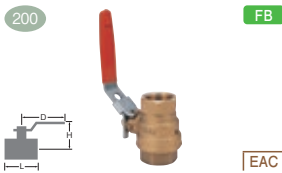
Type	Ball					Ball					Ball					Ball				
Bronze & Brass T Ball Series																				
Fig	AKTAFLL					CTAF					AKTFLL					CTFLL				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					**ASME B16.18				
inch	mm	L	H	D		L	H	D			L	H	D			L	H	D		
1/4	8	41	39	81							41	35	81							
3/8	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																				
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					Fprged Brass + Cr Plated					Fprged 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	Fprged 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®	125				UB IS		125				SB/SOB IS NRS		10K				SB IS NRS		125				SC	
			JWWA						JWWA						JWWA						JWWA			
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	L	H	D								
3/8	10													53	39									
1/2	15	57	87	60	45	80	50	55	104	60	60	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®			SC							Dual			SB/BB RS
	JWWA	JWWA			JWWA	JWWA		JWWA	JWWA		JIS		
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								Alminum Die-Cast/DI			Alminum 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.

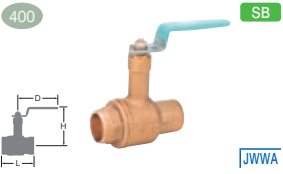
Type	Gate				Gate				Gate				Gate			
Lead Free Bronze & Brass KEEPALLOY®	5K				5K				10K				10K			
																
																
Fig	MN				CMN				LN				CLN			
End Connection	JIS B0203				**JIS B2011				JIS B0203				**JIS B2011			
inch	L	H	D		L	H	D		L	H	D		L	H	D	
1/2	15	50	126	60	50	126	60		55	126	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.

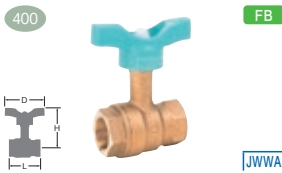
Type	Swing Check				Y-Pattern Swing Check				Y-Pattern Swing Check			
Lead Free Bronze & Brass KEEPALLOY®	10K				150				150			
												
												
Fig	ON				YNK				CYNK			
End Connection	JIS B0203				JIS B0203				**JIS B2011			
inch	L	H	D		L	H	***H1		L	H	***H1	
3/8	10	55	38.5									
1/2	15	65	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							

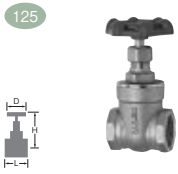
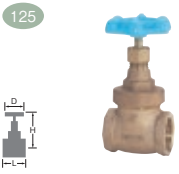
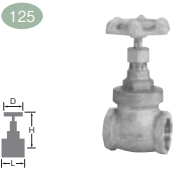
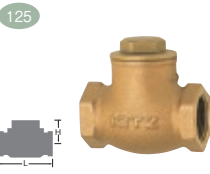
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

***Height for removing the screen

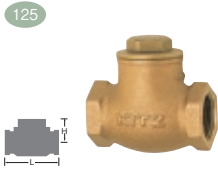
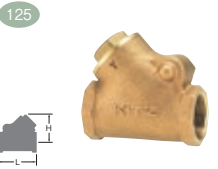
Type	Ball					Ball					Ball					Ball				
Lead Free Bronze & Brass KEEPALLOY®																				
	SB					SB					SB					FB				
	JWWA					JWWA					JWWA					JWWA				
	Fig					Fig					Fig					Fig				
	TLN					TLNT					CTLN					TLNF				
End Connection	BS21 (JIS B0203)					BS21 (JIS B0203)					**JIS B2011					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.

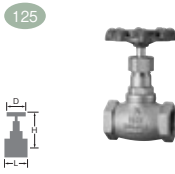
Type	Ball				
Lead Free Bronze & Brass KEEPALLOY®					
	FB				
	JWWA				
	Fig				
	TLNFT				
End Connection	BS21 (JIS B0203)				
inch	mm	L	H	D	
1/2	15	56	80	82	
3/4	20	65	84	82	
1	25	77	93	94	
1 1/4	32	90	110	94	
1 1/2	40	98	125	120	
2	50	119	134	120	
Body & Cap	CAC911				
Stem	304SS				
Ball	304SS				
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			125			125			125		
	SB IS NRS			SB/SOB IS NRS			SB/SOB IS NRS			SC		
	NSF			NSF			NSF			NSF		
	Fig			Fig			Fig			Fig		
End Connection	AKFSN			AKHN			CHN			AKRN		
	ASME B1.20.1			ASME B1.20.1			**ASME B16.18			ASME B1.20.1		
inch	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	Aluminum Die-Cast			Aluminum Die-Cast			Aluminum 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			125			125			125		
	SC			SC			SC			SC		
	NSF			MSS NSF			MSS NSF			MSS NSF		
	Fig			Fig			Fig			Fig		
End Connection	CRN			AKYRN			CYRN			AKYRNT		
	**ASME B16.18			ASME B1.20.1			**ASME B16.18			ASME B1.20.1		
inch	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					

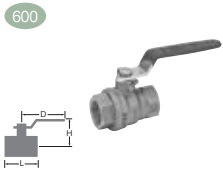
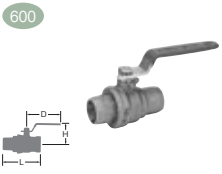
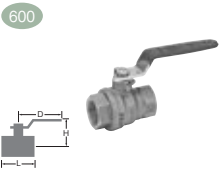
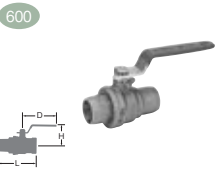
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

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					

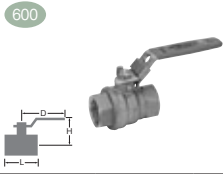
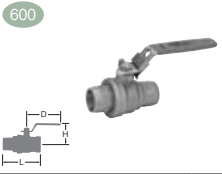
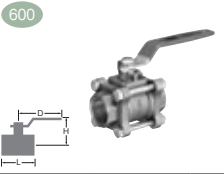
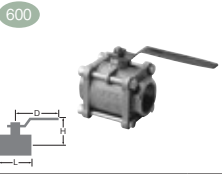
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

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			

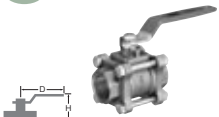
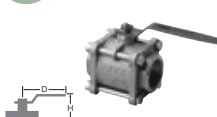
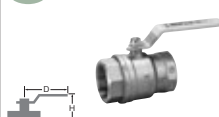
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball					Ball					Ball					Ball				
Lead Free Bronze & Brass NSF61-G																				
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																				
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.

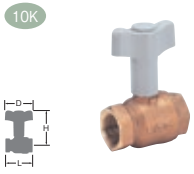
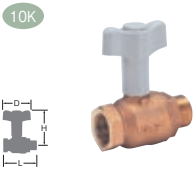
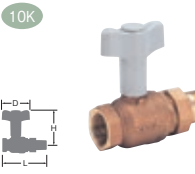
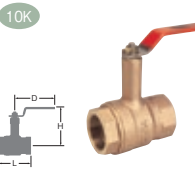
Type	Ball				Ball				Ball				Ball			
Lead Free Bronze & Brass NSF61-G	600  FB  NSF				600  FB  NSF				600  FB  NSF UL				600  FB  NSF			
	Fig	AK3TMMN				C3TMMN				AKSZAN				CSZAN		
End Connection	ASME B1.20.1				**ASME B16.18				ASME B1.20.1				**ASME B16.18			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	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			

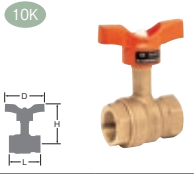
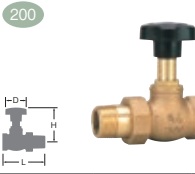
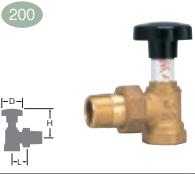
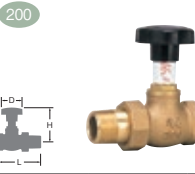
**Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

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
	NSF				
	CTNN				
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				

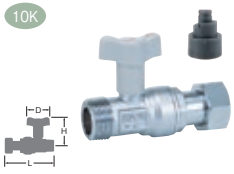
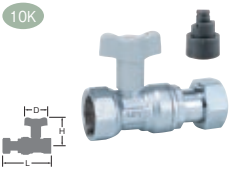
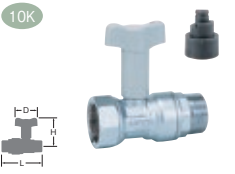
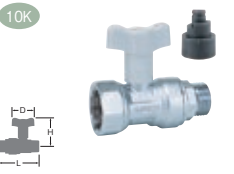
Type	Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit				
Bronze & Brass Fancoil Valves			10K				10K				10K				10K		
			RB				RB				RB				RB		
	Fig		RTRM				RTRO				RTRR				RTRU		
End Connection		BS21 (JIS B0203)				BS21(JIS B0203xB0202)				BS21 (JIS B0203)				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			

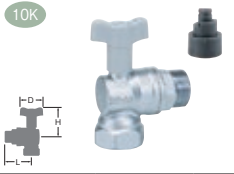
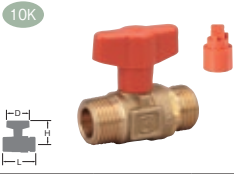
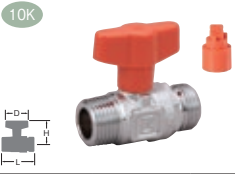
Type	Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit				Ball for Fancoil Unit			
Bronze & Brass Fancoil Valves																
	10K FB				10K FB				10K FB				10K FB			
Fig	RTFM				RTFO				RTFU				TLF			
End Connection	BS21 (JIS B0203)				BS21(JIS B0203xB0202)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D		L	H	D		L	H	D	
1/2	15	59	76	61	73	76	61		96	76	61		56	75	80	
3/4	20	67.5	79	61	82	79	61		106	79	61		65	79	80	
1	25	78.5	97	100	96	97	100		120	97	100		77	85	110	
1 1/4	32												90	102	110	
1 1/2	40												98	110	140	
2	50												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 FB				200 SB RS				200 SB RS				200 SB RS			
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	
1/2	15	56	80	82	50.5	77	47.5		25.5	68	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	
1	25	77	93	94	61.5	90	47.5		35.5	77	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 				10K 			10K 		
	Fig				Fig			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																				
	10K					10K					10K					10K				
	JWWA					JWWA					JWWA					JWWA				
	Fig S26N-					Fig S27N-					Fig S28N-					Fig S28N-3/4X				
End Connection	BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)				
inch	L H D					L H D					L H D					L H D				
1/2	15 86.5 51/63* 40					15 85 51/63* 40					15 70.5 51/63* 40					15 71.5 51/63* 40				
3/4	20 91 51/63* 40					20 89.5 51/63* 40					20 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					10K SB					10K SB					10K SB				
	JWWA					JWWA					JWWA					JWWA				
	Fig S38A-					Fig S1-					Fig S2-					Fig S5-				
End Connection	BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)					BS21(JIS B0203xB0202)				
inch	L H D					L H D					L H D					L H D				
1/2	15 47.3 52/64* 40					15 52.5 39/52* 40					15 52.5 39/52* 40					13 13 39 40				
3/4	20 48.3 52/64* 40					20 58 42/55* 40					20 58 42/55* 40					20 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.

Lead-free Bronze & Brass (KEEPAALLOY®): 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.

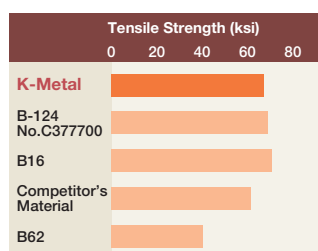


Fig. 1 Comparison of tensile strength

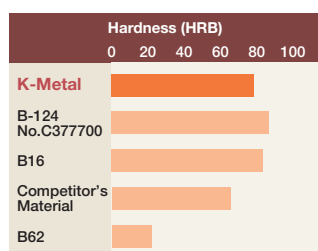


Fig. 2 Comparison of hardness

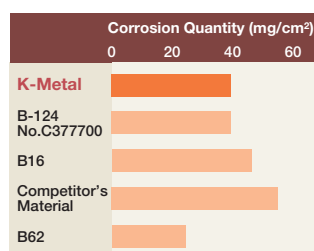


Fig. 3 Comparison of corrosion
(1 mg/cm²=0.014 mlb/in²)

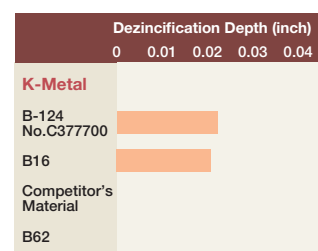


Fig. 4 Comparison of dezincification
(to AS C316)

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.

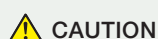
Type K	For use in steam, oil, and gas lines for underground installation and/or severe conditions.
Type L	For general cooling and heating systems and related water piping and ventilation systems.
Type M	For home air-conditioning and heating applications.

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



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/mm²)	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/mm²)	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/mm²)	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:

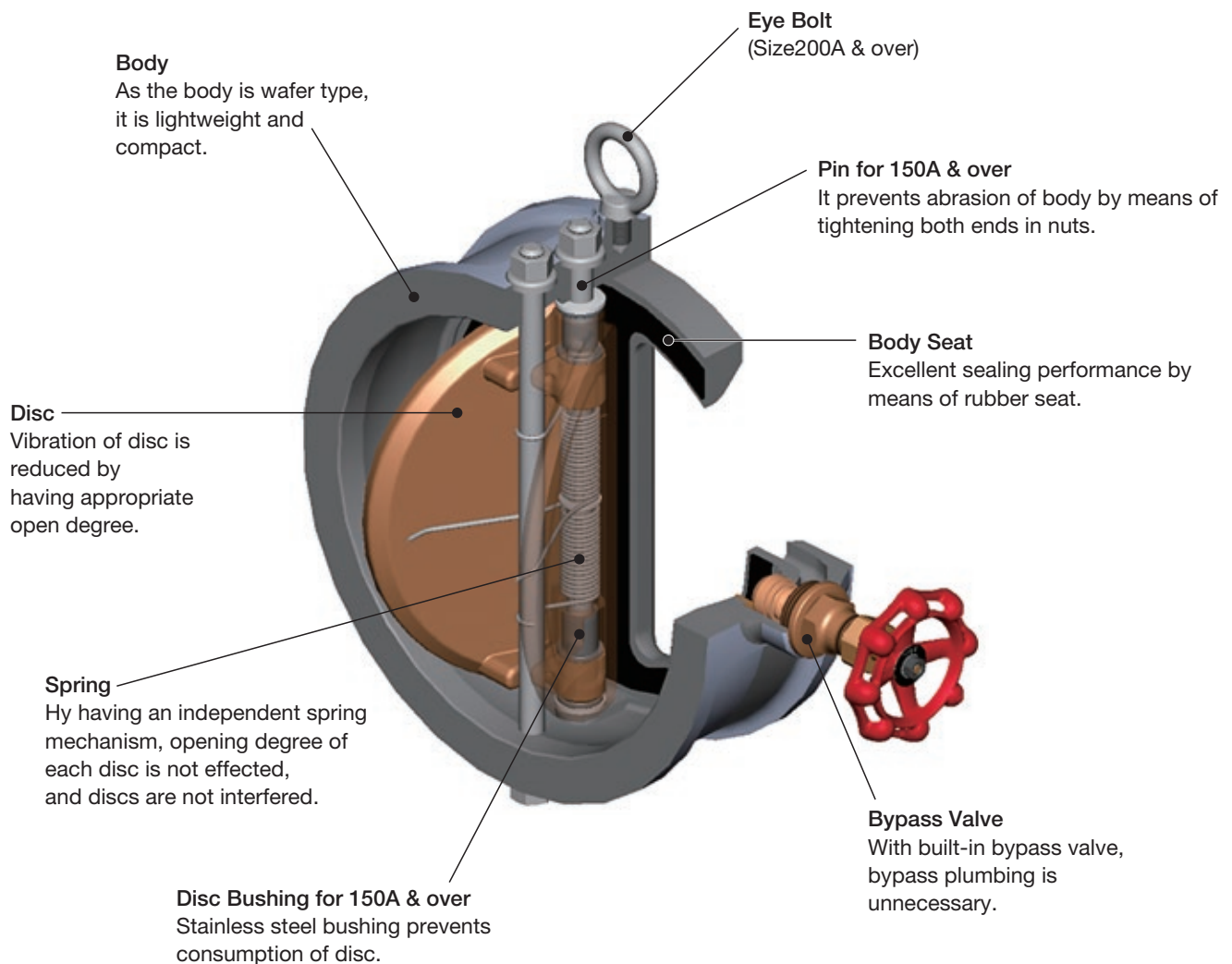
Single Plate (stainless steel wafer check) and Dual Plate (others except SS)

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

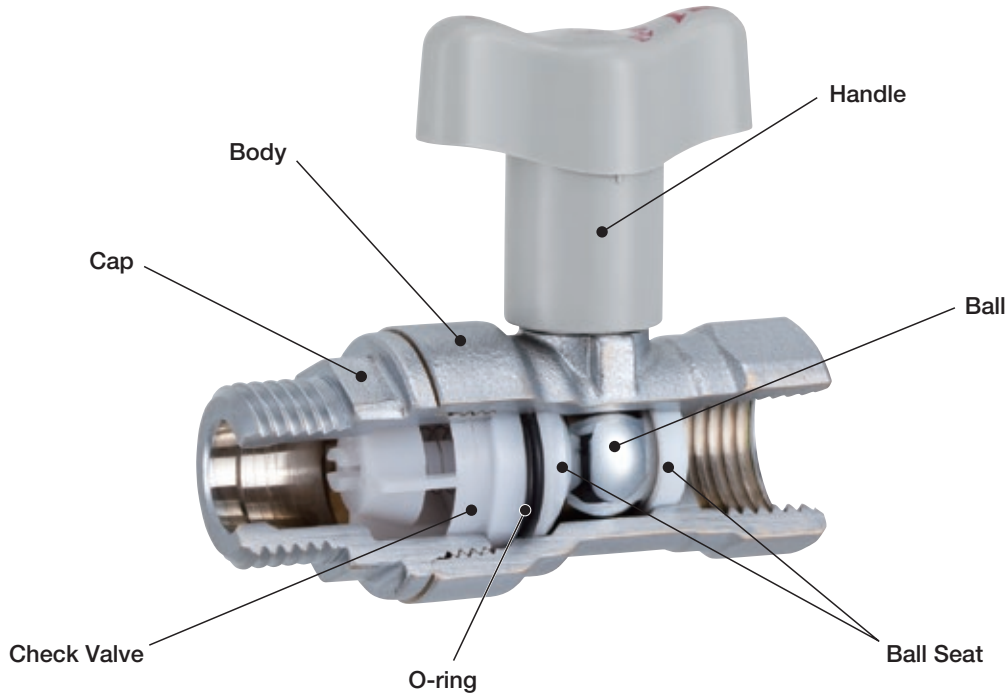


Design Features of KITZ S Ball Valve: Ball Valve with Built-in Check Valve in its Body

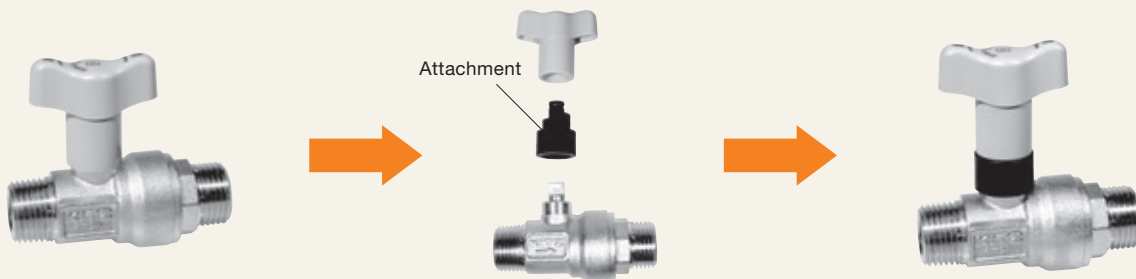
Compact design with a built-in check valve in the body of ball valve.

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



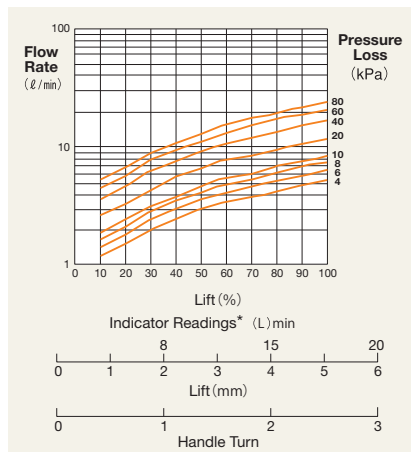
2-Way Handle



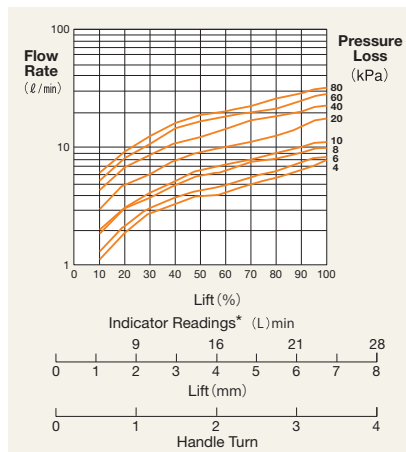
Flow Characteristics of KITZ Fancoil Valve, Flow Control, Globe Type

B

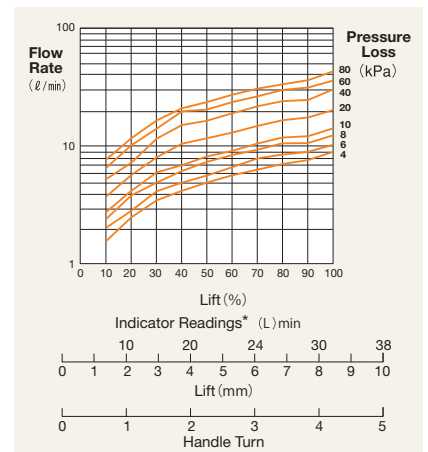
■ Nominal Size: $\frac{1}{2}$ "^B Cv=1.8



■ 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

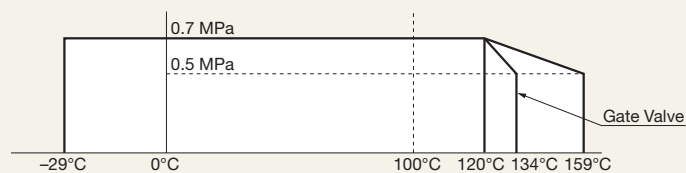
Nominal Pressure	Temperature of Fluid °C	Maximum Permissible Working Pressure ^{c)} MPa
5K	–29 to 120	0.7
	159 ^{a)}	0.5
10K	–29 to 120	1.4
	185 ^{b)}	1.0

Notes: a) Maximum service temperature. In case of gate valves, it will be 144°C.

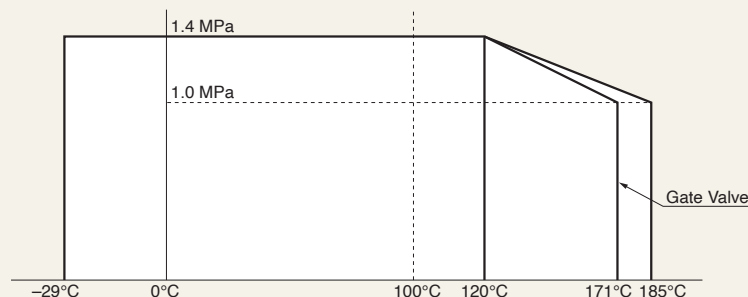
b) Maximum service temperature. In case of gate valves, it will be 171°C.

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)