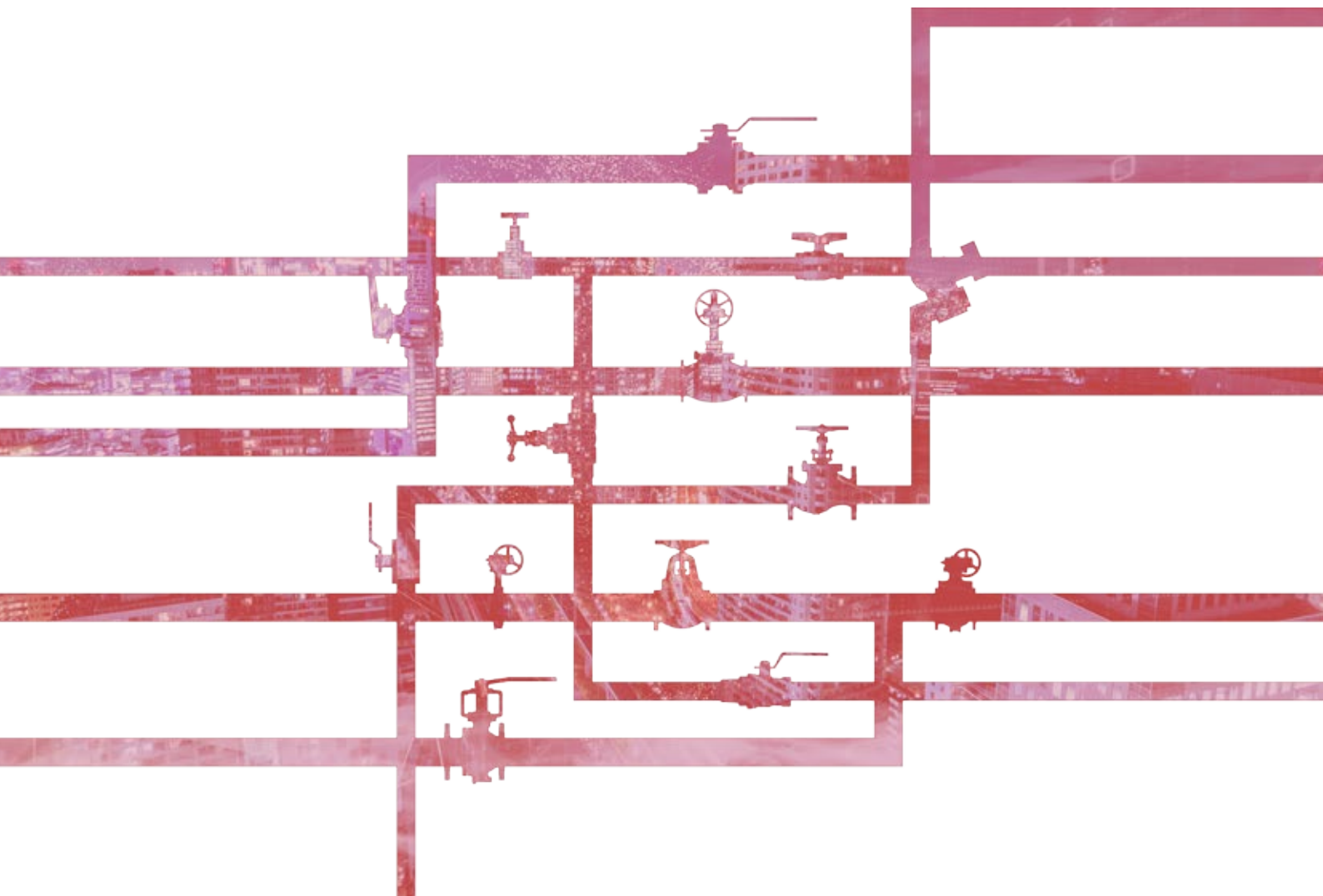


# KITZ

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	C	AKC						
			125	FE/FF	Angle Type	CA	AKCA		BR6 9		
	150	TE	Soft Seated (G/F PTFE)	B	BH						
		FE/FF		G	AKG						
				D							
				DB							
				DBH							
	Brass	Gate	125	TE,SE	NRS	FR	AKFS	CFS	BR7 10		
			EN PN16			FH	AKFH	CFH			
	Special Brass			PN16 (AS1628)		TE	PN16FH				
	Bronze		Check	125		TE,SE	Lift	H	AKH	CH	BR8 11
				EN PN16				S			
				EN PN25				TE	PN16S		
		150		FE/FF		PN25S					
				150	TE	Swing	E		BR9 12		
				125	TE,SE		AKE				
				EN PN16		F	AKF				
				EN PN25		R	AKR				
				125	TE,SE	Y-type Swing	PN16R		BR10 13		
			150	TE	PN25R						
		5K	TE	YR							
		-	TE	Lift, Soft Seated (NBR or FKM), With Spring	RF	AKAF	CAF				
			TE	Lift	VF						
			TE	Lift (Foot)	FT&FTS						
		10K	Wafer	Dual Plate, Water Hammer Prevention, Bypass Valve Mounted	10BWZ						
		150	TE,SE		Y	AKY	CY	BR11 14			
		EN PN16			PN16YE						
		EN PN25			PN25YE						
Brass	Butterfly	175	TE	NBR Lined Disc, Balancing Stop Handle Lever	FV						
JIS Standard Gate, Globe & Check Valves	Bronze	Globe	5K	TE	RS	K		BR12 15			
			10K	FE/FF		J					
		5K	TE	JB							
		Gate	10K	FE/FF	M						
			10K	TE	L						
		Check	10K	FE/FF	LB						
MSS SP-80 Gate, Globe & Check Valves	Bronze	Gate	125	TE	NRS	AK125M		BR13 16			
			150	TE,SE		AK125E					
			300	TE		AK150E					
			Globe	125	TE,SE	RS	AK150L	C150L	BR14 17		
				150	TE		AK150LU				
				300	TE		AK300LU				
		Check	125	TE,SE	Y-type Swing	AK125C		BR15 18			
			150	TE		AK150D	C150D				
			300	TE		AK300J					
	Ball Valves	Brass	Ball	600	M & F	FB	ZO		BR15 19		
400				TE	SB, For Steam Service	ZS					
600					FB, Compact Series	ZET					
EN PN40						SZA					
					600	SE	FB	(WR)PN40SZA			
					TE	AKSZA					
					SE	CSZA					
					600	SE	AKSZAW				
					400	TE	CSZAW				
					400	M & F	SB	T	AKT	TT	BR16 20
					600	TE	SB, For Gas Service	TG			
					600	TE	SB	TO			
			600	TE	SB, 2pc Split Type	TK	AKTK				
			150	TE	RB	TKT					
					RB, Wing Handle	TKW					
					FB, Locking Device	TFJ					
						TL					
		Brass	3 Way Ball	400	TE,SE	SB, Long Neck Type for Thermal Insulation	TLT		BR17 21		
				10K	FE/FF	FB, 2pc Split Type	TB				
				600	TE,SE	FB, Swing Away 3pc Body, Mounting Pad	AK3TM				
		Brass	3 Way Ball	400	TE	SB, 3-Way, 2-Seat	TN		BR18 22		
						SB, Mounting Pad, 3-Way, 2-Seat	AKTN				
						SB, 3-Way, 4-Seat	AKTNP				
				SB, Vertical Type, 3-Way, 2-Seat		T4T	T4L				
	Brass	Ball	600	TE	FB, Gland Packing	AKTAFLL		BR19 23			
					FB, Double O-ring	CTAF					
				TE	FB, Gland Packing, 316 Stem & Ball	AKTFLL					
				SE	FB, Gland Packing, 316 Stem & Ball	CTFLL					
				TE	FB, Double O-ring, 316 Stem & Ball	AKTAFM					
				SE	FB, Gland Packing, Mounting Pad	CTAFM					
				TE	FB, Gland Packing, 316 Stem & Ball	AKTFMLL					
				SE	FB, Gland Packing, Mounting Pad	CTFMLL					
				M & F	FB, Gland Packing, Single Union	AKTAFP					
				TE	FB, Gland Packing, Safety Exhaust	AKTAFPM					
				AKTAFO							
				AKTAFU							
				AKTAFS							

Title	Body Material	Type	Class	End Connection	Features	Fig	Page		
Lead Free Valves	Bronze (Lead Free)	Globe	125	TE	G/F PTFE	GN	BR21 24		
		Gate	125		NRS	HN			
			10K		NRS, Buried Type	WN			
		Check	125	TE,SE	Swing	RN		CRN	
			10K	TE	Lift (Soft,Spring)	RFN			
		Globe	10K	Wafer	Wafer	10BWZN			
		Gate	5K	TE		JN			
		Gate	10K	TE,SE	RS	MN		CMN	
	10K		TE	Swing	LN	CLN			
	Check	10K	TE	Swing	ON				
		10K	TE,SE		YNK	CYNK			
	Strainer	10K	TE,SE	SB, Long Neck Type for Thermal Insulation	TLN	TLNT	CTLN		
				FB, Long Neck Type for Thermal Insulation	TLNF	TLNFT			
	Ball	400	TE				BR23 26		
	Lead Free Valves	Brass (Lead Free)	Gate	125	TE,SE	NRS	AKFSN	BR24 27	
		Bronze (Lead Free)	Check	125		Swing	AKHN		CHN
						Y-type Swing	AKRN		CRN
						Lift (Soft,Spring)	AKYRN		CYRN
		Globe	125	150		125	AKYRNT		CYRNT
AKAFN							CAFN		
Brass (Lead Free)		Ball	600	400		AK125CN	C125CN		
						AKTAFN	CTAFN		
						AKTAFMN	CTAFMN		
						AKTFMNULL	CTFMNULL		
	AK3TMN				C3TMN				
Ball	400	3-Way	AK3TMMN	C3TMMN					
			AKSZAN	CSZAN					
				AKSZANW	CSZANW				
				AKTNN	CTNN				
Fancoil Valves	Bronze	Ball	10K	TE		RTRM	BR28 31		
				M (G) & F	RB, Detachable Long Handle	RTRO			
				M & F		RTRR			
				TE	RB, Detachable Long Handle, Single Union	RTRU			
				M (G) & F	FB, Detachable Long Handle	RTFM			
						RTFO			
		Globe	200	M & F	TE	FB, Detachable Long Handle, Single Union		RTFU	
					TE	FB, Long Neck Type for Thermal Insulation		TLF	
				FB, Long Neck Type for Thermal Insulation	TLFT				
Balancing Valves	Bronze	Balancing	10K	TE	Constant Flow Control, with Built-in Screen	BS15-	BS20-		
		Ball	10K	(F x Union nipple)	Constant Flow Control, Low Noise Type	BSS15-	BSS20-	BSS25-	
					Constant Flow Control, Detachable Handle	RTUC			
Utility Ball Valves	Brass	Ball	10K	M (Rc x G)		S23N-			
	Brass (Ni-Cr Plated Body)			TE	Back flow prevention by automatic closing of spring-loaded built-in check valve (Water Hammer Proof), Detachable 2-way Handle (Short ' Long), Straight Type	S24N-			
				TE (F x Union nut)		S24N-3/4X			
				M (G) x F (Rc)		S25N-			
						S26N-			
	Brass					S27N-			
	Brass (Ni-Cr Plated Body)					S28N-			
	Brass					S28N-3/4X			
	Brass (Ni-Cr Pl)					S38A-			
						S1-			
			S2-						
			S5-						
			S6-						
			S8-						

\* (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

 <b>CAUTION</b>	The valves introduced in this catalog are not designed to handle toxic gases. Use specially designed or certified valves for flammable gas service.
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# PRODUCT CODING

## BC/BS Valves Except Fancoil/Balancing/Utility

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

**AK**    **125**    **C**    **N**  
 1            2            3            4

### 1 End Connection

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

### 2 Pressure Class

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

### 3 Valve Type

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

### 4 Lead Free Valves

N ..... Lead Free

## Fancoil (Ball)

**RT**    **R**    **M**  
 1            2            3

### 1 Design

RT ..... Detachable T Type Long Handle  
 TL ..... Long Neck

### 2 Bore Type

R ..... Reduced Bore  
 F ..... Full Bore

### 3 Connection or Handle\* Type

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

\*None 403SS Lever

## Fancoil (Globe)

**I**    **NAH**  
 1            2

### 1 Indicator

None ..... Without  
 I ..... With

### 2 Type

NAH ..... Angle Type  
 NSH ..... Straight Type

## Balancing Valves

**BS 15 - 5**

①      ②      ③

### ① Type

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

### ② Nominal Size

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 ±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 ±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 ±15%, ±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																				
	A					AKA					PN16A					PN25A				
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 BR38					P-T Rating : Page BR38				
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																				
	Q					QA					C					AKC				
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	Uretan 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 <sup>st</sup>									
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														
	EAC				EAC				EAC			EAC		
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														
	EAC				EAC				EAC			EAC		
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													
	UB/BB IS EAC			SB IS NRS EAC			SB IS NRS EAC			SB IS NRS			
Fig	DBH			FR			AKFS			CFS			
End Connection	JIS B2240			*BS21 (JIS B0203)			*ASME B1.20.1			**ASME B16.18			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/8	10				38	73	50	38	73	50	45	75	50
1/2	15	82	113	60	42	73	50	42	73	50	45	75	50
3/4	20	95	138	90	47	87	55	47	87	55	60	86	55
1	25	108	156	100	50	97	60	50	97	60	70	97	60
1 1/4	32	120	184	115	60	118	70	60	118	70	77	117	70
1 1/2	40	140	187	115	63	126	80	63	126	80	86	126	80
2	50	165	212	135	72	154	90	72	154	90	104	154	90
2 1/2	65	190	244	155				80	167	100			
3	80	220	281	180				90	200	115			
4	100	270	321	225									
Body	Cast Bronze			Forged Brass			Forged Brass			Forged Brass			
Bonnet	Forged Brass/Cast Bronze			Forged Brass			Forged Brass			Forged Brass			
Stem	Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			
Disc	G/F PTFE			Forged Brass			Forged Brass			Forged Brass			
Gland Packing	Aramid Fibers Graphite/PTFE			Aramid Fibers Graphite			Aramid Fibers Graphite			Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast/ZDC/DI			Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			
Service Conditions	W.O.G. Non-shock 1.55MPa(225psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)			
Reference Page										P-T Rating : Page BR33			
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.












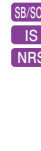
\*\*Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Gate			Gate			Gate			Gate			
Bronze & Brass KITZ Standard													
	SB IS NRS EAC RoHS			SB IS NRS EAC			SB IS NRS EAC			SB IS NRS			
Fig	FH			AKFH			CFH			PN16FH			
End Connection	*BS21 (JIS B0203)			*ASME B1.20.1			**ASME B16.18			*BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
1/4	8	35	70	50	35	70	50				35	70	50
3/8	10	38	73	50	38	73	50	37	77	50	38	73	50
1/2	15	42	73	50	42	73	50	45	77	50	42	73	50
3/4	20	47	87	55	47	87	55	60	87	55	47	87	55
1	25	50	97	60	50	97	60	70	97	60	50	97	60
1 1/4	32	60	118	70	60	118	70	77	118	70	60	118	70
1 1/2	40	63	126	80	63	126	80	86	126	80	63	126	80
2	50	72	154	90	72	154	90	104	154	90	72	154	90
2 1/2	65	82	187	100	82	187	100	115	187	100			
3	80	92	205	115	92	205	115	127	205	115			
Body	Forged Brass			Forged Brass			Forged Brass			Forged Brass			
Bonnet	Forged Brass/Cast Bronze			Forged Brass/Cast Bronze			Forged Brass/Cast Bronze			Forged Brass/Cast Bronze			
Stem	Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			
Disc	Forged Brass			Forged Brass			Forged Brass			Forged Brass			
Gland Packing	Aramid Fibers Graphite			Aramid Fibers Graphite			Aramid Fibers Graphite			Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			
Standard/Approval	RoHS: FH<GS101> up to 1 <sup>B</sup>												
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 BR33			P-T Rating : Page BR38			
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													
		AS			EAC			EAC					
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
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			Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			
Standard/Approval	AS 1628/WMKA02054												
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 BR33			
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													
		EAC			WSD WRAS			WRAS				EAC	
Fig	S			PN16S			PN25S			E			
End Connection	*BS21 (JIS B0203)			*BS21 (JIS B0203)			*BS21 (JIS B0203)			BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/8	10	38	75	50							43	86	50
1/2	15	42	75	50	42	75	50	42	75	50	48	96	55
3/4	20	47	86	55	47	86	55	47	86	55	53	111	60
1	25	50	97	60	50	97	60	50	97	60	62	122	70
1 1/4	32	60	117	70	60	117	70	60	117	70	69	141	80
1 1/2	40	63	126	80	63	126	80	63	126	80	75	164	90
2	50	72	154	90	72	154	90	72	154	90	86	197	100
2 1/2	65	80	167	100							105	225	115
3	80	90	200	115							116	261	135
Body	Cast Bronze			Cast Bronze			Cast Bronze			Cast Bronze			
Bonnet	Forged Brass			Forged Brass			Forged Brass			Forged Brass/Cast Bronze			
Stem	Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass			
Disc	Forged Brass			Forged Brass			Forged Brass			Cast Bronze			
Gland Packing	Aramid Fibers Graphite			Aramid Fibers Graphite			Aramid Fibers Graphite			Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			Aluminum Die-Cast			
Standard/Approval				WRAS: (WR)PN16S, WSD: PN16S<ZH1W1>			WRAS: (WR)PN25S						
Service Conditions				16 bar at 100°C, 7 bar at 170°C (Do not use for flammable gas or toxic gas.)			25 bar at 100°C, 10.5 bar at 186°C (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)			
Reference Page				P-T Rating : Page BR38			P-T Rating : Page BR38						
Remarks	EAC: Option			WRAS, WSD: Option			WRAS: Option			EAC: Option			




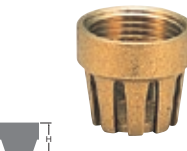
\*The length of useful threads & the positions of gauge planes are built on KITZ standard.

Type	Gate					Gate			Gate			Lift Check		
Bronze & Brass KITZ Standard														
	EAC					EAC			EAC			EAC		
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		

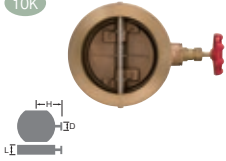
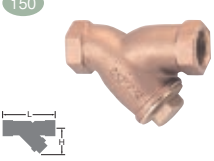
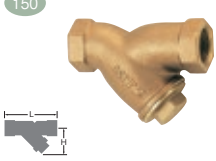

Type	Lift Check					Swing Check			Swing Check			Swing Check		
Bronze & Brass KITZ Standard														
	EAC					EAC RoHS			EAC			EAC		
Fig	AKF					R			AKR			PN16R		
End Connection	ASME B1.20.1					BS21 (JIS B0203)			ASME B1.20.1			BS21 (JIS B0203)		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
3/8	10	44	26			53	39		53	39				
1/2	15	53	28			60	39		60	39		53	39	
3/4	20	65	34			70	45		70	45		61	45	
1	25	77	42			80	52		80	52		70	50	
1 1/4	32	85	50			92	62		92	62		81	58	
1 1/2	40	100	56			102	67		102	67		91	65	
2	50	119	67			122	79		122	79		109	75	
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	Cast Bronze					Brass			Brass			Brass		
Disc	Cast Bronze					Forged Brass/Cast Bronze			Forged Brass/Cast Bronze			Forged Brass		
Standard/Approval						RoHS: R<GS101> > to 1 <sup>9</sup>								
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 BR38		
Remarks	EAC: Option					EAC: Option RoHS: Option			EAC: Option					

Type	Swing Check			Y-Pattern Swing Check			Vertical Lift Check			Vertical Lift Check			
Bronze & Brass KITZ Standard													
	PN25R			YR			RF			AKAF			
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 BR38												
Remarks				EAC: Option, WSD: Option									

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


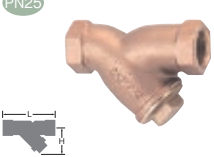
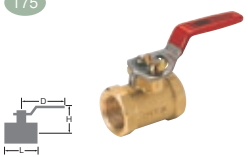
Type	Vertical Lift Check			Vertical Lift Check			Vertical Lift Check			Screen for FT			
Bronze & Brass KITZ Standard													
	CAF			VF			FT			FTS			
Fig	CAF			VF			FT			FTS			
End Connection	**ASME B16.18			BS21 (JIS B0203)			BS21 (JIS B0203xB0202)			BS21 (JIS B0202)			
inch	mm	L	H	D	L	H	D	L	H	D	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 <sup>B</sup> , FKM for 2 1/2 <sup>B</sup> & 3 <sup>B</sup>			Gasket: Non Asbestos (V6500) up to 2 <sup>B</sup> , FKM for 2 1/2 <sup>B</sup> & 3 <sup>B</sup>			Gasket: Non Asbestos (V6500) up to 2 <sup>B</sup> , FKM for 2 1/2 <sup>B</sup> & 3 <sup>B</sup>		
Hand Wheel	Aluminum Die Cast/ZDC												
Standard/Approval					RoHS: Y<GS101> up to 1 <sup>B</sup>								
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 <sup>B</sup> (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 <sup>B</sup> (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 <sup>B</sup> (Do not use for flammable gas or toxic gas.)		
Reference Page	Features: Page BR35										P-T Rating : Page BR33		
Remarks	Built-in Bypass Valve, Dual Plate Type				EAC: Option, RoHS: Option			EAC: Option			JIS B2011 up to 2 <sup>B</sup>		













\*\*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 BR38				P-T Rating : Page BR38					
Remarks	WSD: Option				WRAS: Option			Balancing Stop Handle Lever		

\*\*\*Height for removing the screen





Type	Globe			Globe			Globe			Gate			
Bronze JIS Standard													
			JIS			JIS			JIS			JIS	
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 <sup>th</sup>			Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast			Aluminum Die-Cast/DI			Aluminum Die-Cast/ZDC/DI			Aluminum Die-Cast/ZDC			
Standard/Approval	JIS B2011 except 3/8 <sup>th</sup>			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 BR37			P-T Rating : Page BR37			P-T Rating : Page BR37			P-T Rating : Page BR37			
Remarks							Wall Thickness: KITZ Standard						

Type	Gate			Gate			Swing Check			Swing Check			
Bronze JIS Standard													
			JIS			JIS			JIS			JIS	
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	Aluminum Die-Cast/ZDC/DI			Aluminum 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 BR37			P-T Rating : Page BR37			P-T Rating : Page BR37			P-T Rating : Page BR37			
Remarks				Wall Thickness: KITZ Standard						Wall Thickness: KITZ Standard			





Type	Gate				Gate				Gate				Gate			
Bronze MSS SP-80																
	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			
3/8	10				43	86	50	43	86	50						
1/2	15	51	129	55	49	93	55	49	98	55	51	137	55			
3/4	20	56	155	60	53	110	60	53	114	70	56	157	70			
1	25	66	180	70	61	126	70	61	126	70	66	180	70			
1 1/4	32	68	216	80	64	145	80	68	145	80	68	216	80			
1 1/2	40	74	257	90	68	170	90	74	176	90	74	257	90			
2	50	84	296	100	74	189	100	84	201	100	84	296	100			
2 1/2	65	115	371	135							120	385	155			
3	80	130	432	155							140	432	155			
Body	B62				B62				B62				B62			
Bonnet	B62				B62				B62				B62			
Stem	B62				B62				B62				B62			
Disc	B62				B62				B62				B62			
Gland Packing	Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite				Aramid Fibers Graphite			
Hand Wheel	Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast				Aluminum Die-Cast			
Standard/Approval	MSS SP-80				MSS SP-80				MSS SP-80				MSS SP-80			
Service Conditions	W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 1.38MPa(200psi), Saturated Steam Pressure 0.86MPa(125psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 2.07MPa(300psi), Saturated Steam Pressure 1.03MPa(150psi) (Do not use for flammable gas or toxic gas.)			
Reference Page	P-T Rating : Page BR38				P-T Rating : Page BR38				P-T Rating : Page BR38				P-T Rating : Page BR38			
Remarks	EAC: Option				EAC: Option				EAC: Option				EAC: Option			

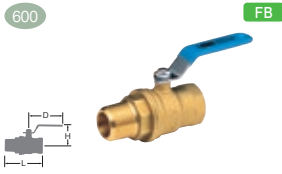
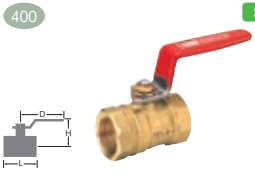
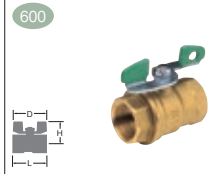
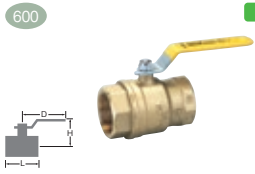
Type	Gate				Gate				Gate				Globe			
Bronze MSS SP-80																
	EAC MSS				EAC MSS				EAC MSS				EAC MSS			
Fig	C150L				AK150LU				AK300LU				AK125C			
End Connection	**ASME B16.18				ASME B1.20.1				ASME B1.20.1				ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D			
1/4	8				45	108	50									
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 BR33 and BR38				P-T Rating : Page BR38				P-T Rating : Page BR38				P-T Rating : Page BR38			
Remarks	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.

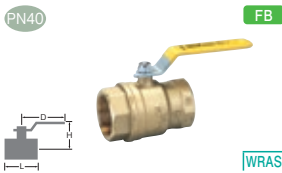
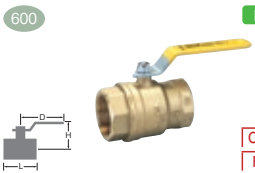
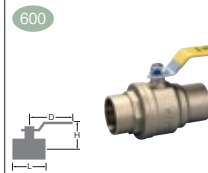

Type	Globe					Globe					Globe					Globe				
Bronze MSS SP-80																				
	EAC MSS					EAC MSS					EAC MSS					EAC MSS				
Fig	AK150D					C150D					AK300J					AK300D				
End Connection	ASME B1.20.1					**ASME B16.18					ASME B1.20.1					ASME B1.20.1				
inch	mm	L	H	D		L	H	D		L	H	D		L	H	D				
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	Alminum Die-Cast/DI					Alminum Die-Cast/DI					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 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 BR38					P-T Rating : Page BR33 and BR38					P-T Rating : Page BR38					P-T Rating : Page BR38				
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																				
	EAC MSS					EAC MSS					EAC MSS					EAC MSS				
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 BR38					P-T Rating : Page BR33 and BR38					P-T Rating : Page BR38					P-T Rating : Page BR38				
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			ZSA		
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 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 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	PN40SZ					AKSZ			CSZ			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)PN40SZ					CSA, UL, 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 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 4.14MPa(600psi)/4 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			W.O.G. Non-shock 4.14MPa(600psi)/4 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)		
Reference Page									P-T Rating : Page BR33					
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
	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 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				
Reference Page	P-T Rating : Page BR33				
Remarks	Full Bore, Double O-ring Butterfly (Wing) Handle				

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

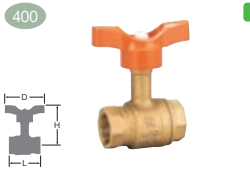
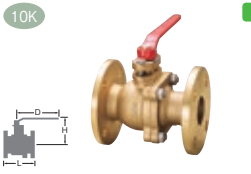
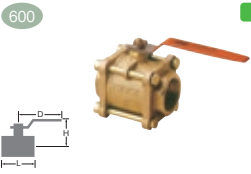
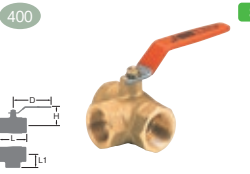
Type	Ball					Ball			Ball			Ball					
Bronze & Brass T Ball Series	400				SB	400			SB	400			SB	400			SB
	Fig T					AKT			TT			TG					
End Connection		*BS21 (JIS B0203)				ASME B1.20.1			*BS21 (JIS B0203)			*BS21 (JIS B0203)					
inch	mm	L	H	D		L	H	D		L	H	D		L	H	D	
1/4	8	50	39	60		50	39	60		50	34	65		50	39	60	
3/8	10	50	39	60		50	39	60		50	34	65		50	39	60	
1/2	15	65	39	80		65	39	80		65	37	80		65	39	80	
3/4	20	68	42	80		68	42	80		68	40	80		68	42	80	
1	25	79	46	110		79	46	110		79	46	90		79	46	110	
1 1/4	32	86	51	110		86	51	110		86	52	105		86	51	110	
1 1/2	40	96	56	110		96	56	110		96	57	105		96	56	110	
2	50	109	65	140		109	65	140		109	71	120		109	65	140	
2 1/2	65	127	85	200		127	85	200						127	85	200	
3	80	153	105	300		153	105	300						153	105	300	
4	100	179	126	400		179	126	400									
Body & Cap	Forged Brass/Cast Bronze					Forged Brass/Cast Bronze			Forged Brass			Forged Brass/Cast Bronze					
Stem	Dezincification Resistant Brass					Dezincification Resistant Brass			Dezincification Resistant Brass			Dezincification Resistant Brass					
Ball	Forged Brass+Ni-Cr Plated/304SS					Forged Brass+Ni-Cr Plated/304SS			Forged Brass+Ni-Cr Plated/304SS			Forged Brass+Ni-Cr Plated/304SS					
Ball Seat	PTFE					PTFE			PTFE			PTFE					
Gland Packing/O ring	FKM					FKM			FKM			NBR					
Handle	430SS/DI					ZDC			430SS/DI			430SS/DI					
Bore	Standard Bore					Standard Bore			Standard Bore			Standard Bore					
Standard/Approval	RoHS: T<GS101> up to 1 <sup>B</sup>																
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.)					
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<sup>B</sup> & above)

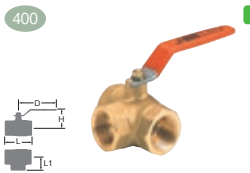
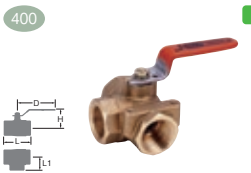
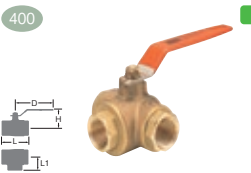
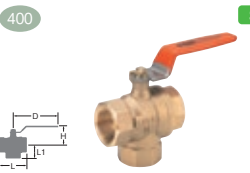
Type	Ball			Ball			Ball			Ball			
Bronze & Brass T Ball Series													
Fig	TO			TM			TK			AKTK			
End Connection	BS21 (JIS B0203)			*BS21 (JIS B0203)			BS21 (JIS B0203)			ASME B1.20.1			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
1/8								32	30	60			
1/4	8	59	39	60				39	30	60	39	30	60
3/8	10	60	39	60	56	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 <sup>B</sup>						
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			

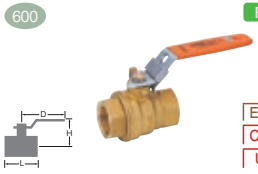
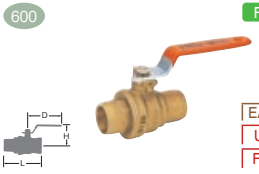
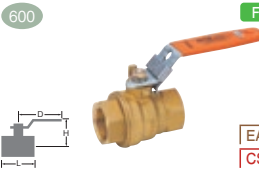
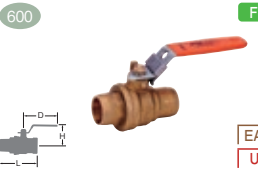
\*The length of useful threads & the positions of gauge planes are built on KITZ standard. (1 1/4<sup>B</sup> & above)

Type	Ball			Ball			Ball			Ball			
Bronze & Brass T Ball Series													
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 <sup>B</sup> JWWA E-2 up to 1 1/2 <sup>B</sup>			RoHS: TKW<GS101> up to 1 <sup>B</sup>									
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			

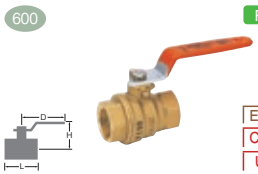
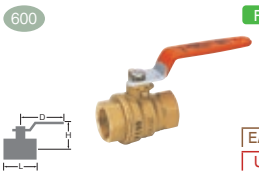
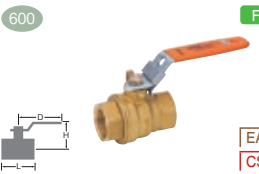
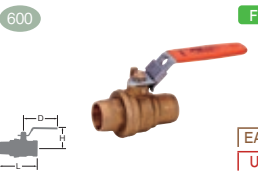
Type	Ball				Ball				Ball				3-Way Ball (2-seat, L-port)			
Bronze & Brass T Ball Series																
	400 SB				10K FB				600 FB				400 SB			
Fig	TLT				TB				AK3TM				TN			
End Connection	BS21 (JIS B0203)				JIS B2240				BS21 (JIS B0203)				*BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L1		
1/4	8							49	39	82	40	30	60	20		
3/8	10							49	39	82	46	35	70	23		
1/2	15	56	79	82	110	85	130	61	42	82	67	44	80	33.5		
3/4	20	65	83	82	120	88	130	70	51	100	68	49	80	34		
1	25	78	90	94	130	95	160	83	59	130	79	55	110	39.5		
1 1/4	32	86	105	94	140	98	160	99	64	130	89	59	110	44.5		
1 1/2	40	96	109	94	165	115	230	117	73	150	100	64	110	50		
2	50	109	124	120	180	121	230	139	80	150	115	74	140	57.5		
2 1/2	65				190	152	400				138	91	200	69		
3	80				200	161	400				166	105	300	83		
4	100				230	190	460									
Body & Cap	Cast Bronze				Cast Bronze				Forged Brass				Forged Brass/Cast Bronze			
Stem	Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass				Dezincification Resistant Brass			
Ball	304SS				Forged Brass+Ni-Cr Plated/304SS				Forged Brass+Sn-Ni Plated				Forged Brass+Cr Plated			
Ball Seat	PTFE				PTFE				PTFE				PTFE			
Gland Packing/O ring	FKM				FKM				PTFE				G/F PTFE up to 3/8 <sup>B</sup> & 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 <sup>B</sup> JWWA E-2 up to 1 1/2 <sup>B</sup>			
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<sup>B</sup> & 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 SB					400 SB					400 SB					400 SB				
Fig	AKTN					AKTNP					T4T/T4L					TV2T/TV2L				
End Connection	ASME B1.20.1					ASME B1.20.1					BS21 (JIS B0203)					BS21 (JIS B0203)				
inch	mm	L	H	D	L1	L	H	D	L1	L	H	D	L1	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 <sup>B</sup> & FKM					G/F PTFE up to 3/8 <sup>B</sup> & FKM					FKM					G/F PTFE up to 3/8 <sup>B</sup> & 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 <sup>B</sup>					RoHS: TN<GS101> up to 1 <sup>B</sup>														
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														
	EAC CSA UL					EAC UL FM			EAC CSA			EAC UL		
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 BR33						P-T Rating : Page BR33		
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.



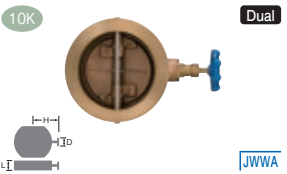

Type	Ball					Ball			Ball			Ball		
Bronze & Brass T Ball Series														
	EAC CSA UL					EAC UL			EAC CSA			EAC UL		
Fig	AKTAFM					CTAFM			AKTFMLL			CTFMLL		
End Connection	ASME B1.20.1					**ASME B16.18			ASME B1.20.1			**ASME B16.18		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
1/4	8	41	39	82					41	35	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 BR33						P-T Rating : Page BR33		
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																				
	Fig <b>AKTAFP</b>					Fig <b>AKTAFPM</b>					Fig <b>AKTAFO</b>					Fig <b>AKTAFU</b>				
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						
	Fig <b>AKTAFS</b>					
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 <sup>nd</sup> : NBR, EAC: Option					


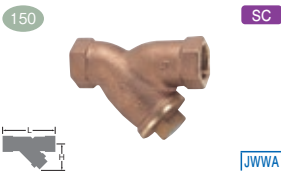

Type	Globe			Gate			Gate			Swing Check			
Lead Free Bronze & Brass KEEPALLOY®													
	UB IS			SB/SOB IS NRS			SB IS NRS			SC			
Fig	GN			HN			WN			RN			
End Connection	BS21 (JIS B0203)			BS21 (JIS B0203)			BS21 (JIS B0203)			BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
3/8	10										53	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	Aluminum Die-Cast			Aluminum 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			
Fig	CRN			RFN			10BWZN			JN			
End Connection	**JIS B2011			BS21 (JIS B0203)			Wafer (JIS 10K)			JIS B0203			
inch	mm	L	H	D	L	S	L	H	D	L	H	D	
1/4	8									50	83	50	
3/8	10	56	39							55	85	55	
1/2	15	67	39		53	28				65	91	60	
3/4	20	89	45		59	34				80	120	80	
1	25	104	52		67	41				90	135	90	
1 1/4	32	120	62		78	50				105	156	100	
1 1/2	40	134	67		84	57		54	132	55	120	169	115
2	50	164	79		98	70		56	139	70	140	194	135
2 1/2	65							56	146	70			
3	80							59	152	70			
4	100							66	165	70			
5	125							72	183	70			
6	150							78	208	80			
8	200							96	237	80			
Body	CAC911			CAC911			CAC911+NBR			CAC911			
Bonnet/Cap/Cover	C6803/Forged Brass			CAC911						CAC911			
Hinge Pin/Spring	C1100			Spring: P Bronze(C519W-H)			304SS			C6803			
Disc/Screen	C6803/Forged Brass			FKM			CAC911			C6803/CAC911			
Gland Packing/Gasket							Aramid Fiber Graphite			Aramid Fiber Graphite			
Hand Wheel							Aluminum Die-Cast/DI			Aluminum Die-Cast/DI			
Standard/Approval	JWWA E-464			JWWA F-68			JWWA E-628			JIS B2011			
Service Conditions	Stream Water up to 100°C 1.18MPa			Stream Water up to 85°C 1.4MPa, Pulsating Water up to 85°C 1.0MPa			Stream Water up to 80°C 1.4MPa, Pulsating Water up to 80°C 1.0MPa			Stream Water up to 100°C 1.4MPa, Pulsating Water up to 100°C 1.0MPa			
Reference Page	P-T Rating : Page BR33						Features: Page BR41						
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.



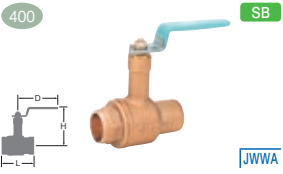

Type	Gate					Gate			Gate			Gate		
Lead Free Bronze & Brass KEEPALLOY®														
	JIS					JIS			JIS			JIS		
Fig	MN					CMN			LN			CLN		
End Connection	JIS B0203					**JIS B2011			JIS B0203			**JIS B2011		
inch	L	H	D		L	H	D	L	H	D	L	H	D	
1/2	15	50	126	60	50	126	60	55	126	60	50	126	60	
3/4	20	60	145	60	65	145	60	65	151	70	65	151	70	
1	25	65	169	70	75	169	70	70	176	80	75	176	80	
1 1/4	32	75	209	90	80	209	90	80	219	90	82	219	90	
1 1/2	40	85	239	100	88	239	100	90	250	100	92	250	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 <sup>B</sup> , 1.2MPa for 1 1/4 <sup>B</sup> & over, Pulsating Water up to 100°C 1.0MPa for up to 1 <sup>B</sup> , 0.8MPa for 1 1/4 <sup>B</sup> & over		
Reference Page						P-T Rating : Page BR33						P-T Rating : Page BR33		

\*\*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.

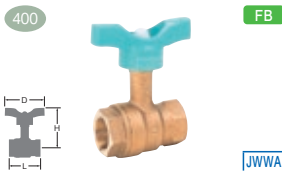
Type	Swing Check					Y-Pattern Swing Check			Y-Pattern Swing Check		
Lead Free Bronze & Brass KEEPALLOY®											
	JIS					JWWA			JWWA		
Fig	ON					YNK			CYNK		
End Connection	JIS B0203					JIS B0203			**JIS B2011		
inch	L	H	D		L	H	***H1	L	H	***H1	
3/8	10	55	38.5								
1/2	15	65	43		80	50	68	80	51	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 BR33		
Remarks						40 mesh			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®														
	JWWA					JWWA			JWWA			JWWA		
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 BR33					
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®					
	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				
Fig	AKFSN					AKHN					CHN					AKRN				
End Connection	ASME B1.20.1					ASME B1.20.1					**ASME B16.18					ASME B1.20.1				
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	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										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 BR33									

\*\*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				
Fig	CRN					AKYRN					CYRN					AKYRNT				
End Connection	**ASME B16.18					ASME B1.20.1					**ASME B16.18					ASME B1.20.1				
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	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 BR33										P-T Rating : Page BR33									

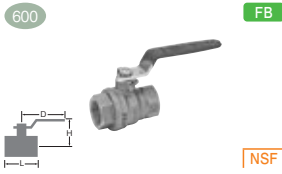
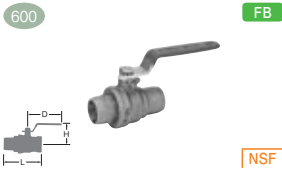
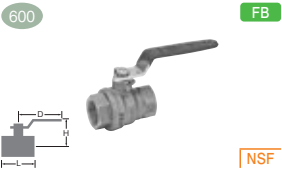
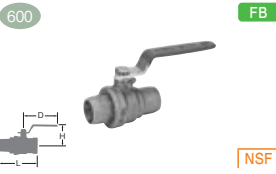
\*\*Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Y Swing Check				Vertical Lift Check			Vertical Lift Check			Globe		
Lead Free Bronze & Brass NSF61-G													
	Fig <b>CYRNT</b>				Fig <b>AKAFN</b>			Fig <b>CAFN</b>			Fig <b>AK125CN</b>		
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 BR33				Features : Page BR33			P-T Rating, Features : Page BR33					

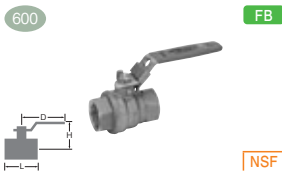
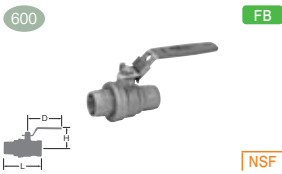
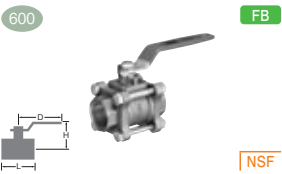
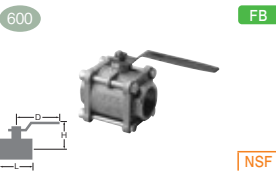
\*\*Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Globe			
Lead Free Bronze & Brass NSF61-G				
	Fig <b>C125CN</b>			
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 BR33			

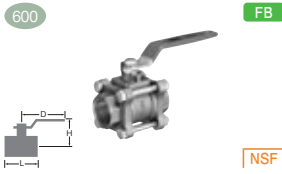
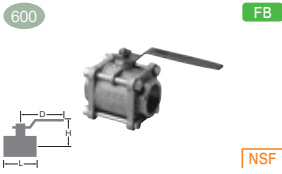
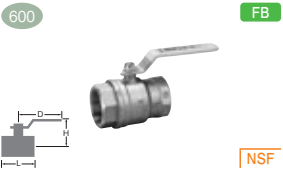
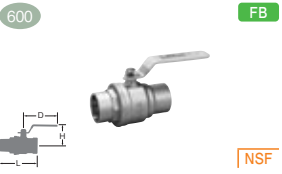
\*\*Solder jointed end valves should not be used in service where the temperature of line fluid is higher than the softening point of the solder.

Type	Ball					Ball			Ball			Ball		
Lead Free Bronze & Brass NSF61-G														
	AKTAFN					CTAFN			AKTAFMN			CTAFMN		
Fig	ASME B1.20.1					**ASME B16.18			ASME B1.20.1			**ASME B16.18		
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 BR33						P-T Rating : Page BR33		
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														
	AKTFMNL					CTFMNL			AK3TMN			C3TMN		
Fig	ASME B1.20.1					**ASME B16.18			ASME B1.20.1			**ASME B16.18		
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 BR33						P-T Rating : Page BR33		
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				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	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				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 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi)/4 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)			
Reference Page					P-T Rating : Page BR33								P-T Rating : Page BR33			
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				3-Way Ball (2-seat, L-port)					3-Way Ball (2-seat, L-port)				
Lead Free Bronze & Brass NSF61-G																		
	600 FB NSF				600 FB NSF				400 SB NSF					400 SB NSF				
Fig	AKSZANW				CSZANW				AKTNN					CTNN				
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	L1	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	67	45	80	33.5	56	45	80	28			
3/4	20	60	43	70	73	43	70	68	48	80	34	74	48	80	37			
1	25	72	52	100	88	52	100	79	55	110	39.5	88	55	110	44			
1 1/4	32	84	58	100	100	58	100	89	60	110	44.5	99	60	110	50.5			
1 1/2	40	92	73	130	115	73	130	100	65	110	50	114	65	110	59			
2	50	110	81	130	140	81	130	115	75	140	57.5	136	75	140	71.5			
Body & Cap	Forged Brass				Forged Brass				Forged Brass					Forged Brass				
Stem	Forged Brass				Forged Brass				Forged Brass					Forged Brass				
Ball	Forged Brass/304SS				Forged Brass/304SS				Forged Brass+Sn-Ni Plated					Forged Brass+Sn-Ni Plated				
Ball Seat	PTFE				PTFE				PTFE					PTFE				
O ring	FKM				FKM				FKM					FKM				
Handle	CS + Zn Plated				CS + Zn Plated				430SS					430SS				
Bore	Full Bore				Full Bore				Standard Bore					Standard Bore				
Standard/Approval	NSF				NSF				NSF					NSF				
Service Conditions	W.O.G. Non-shock 4.14MPa(600psi)/4 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 0.69MPa(100psi) (Do not use for flammable gas or toxic gas.)				W.O.G. Non-shock 4.14MPa(600psi)/4 <sup>B</sup> : 2.76MPa(400psi) , W.O.G 150°C 1.03MPa(150psi)/4 <sup>B</sup> : 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					P-T Rating : Page BR33				Port Orientation : Page TECH1					P-T Rating : Page BR33, Port Orientation : Page TECH1				
Remarks	Full Bore, Double O-ring Butterfly (Wing) Handle				Full Bore, Double O-ring Butterfly (Wing) Handle				Standard Bore, Double O-ring, L-port					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																
	RTRM				RTRM				RTRM				RTRM			
Fig	RTRM				RTRM				RTRM				RTRM			
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	88	72	40
3/4	20	61	72	40	66	72	40	66	72	40	92.5	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	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																
	RTFM				RTFM				RTFM				TLF			
Fig	RTFM				RTFM				RTFM				TLF			
End Connection	BS21 (JIS B0203)				BS21(JIS B0203xB0202)				BS21 (JIS B0203)				BS21 (JIS B0203)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15	59	76	61	73	76	61	96	76	61	56	75	80	56	75	80
3/4	20	67.5	79	61	82	79	61	106	79	61	65	79	80	65	79	80
1	25	78.5	97	100	96	97	100	120	97	100	77	85	110	77	85	110
1 1/4	32										90	102	110	90	102	110
1 1/2	40										98	110	140	98	110	140
2	50										119	118	140	119	118	140
Body & Cap	CAC406				CAC406				CAC406				CAC406			
Stem	C3531				C3531				C3531				304SS			
Ball	316SS				316SS				316SS				304SS			
Ball Seat	G/F PTFE				G/F PTFE				G/F PTFE				PTFE			
O ring	EPDM				EPDM				EPDM				FKM			
Handle	Polyacetal				Polyacetal				Polyacetal				430SS			
Bore	Full Bore				Full Bore				Full Bore				Full Bore			
Service Conditions	Stream Water 0°C to 100°C 1.4MPa, Pulsating Water 0°C to 100°C 1.0MPa (not freezing)				Stream Water 0°C to 100°C 1.4MPa, Pulsating Water 0°C to 100°C 1.0MPa (not freezing)				Stream Water 0°C to 100°C 1.4MPa, Pulsating Water 0°C to 100°C 1.0MPa (not freezing)				Stream Water up to 80°C 1.4MPa, (Pulsating Water).O.G. up to 80°C 1.0MPa (Do not use for flammable gas or toxic gas.)			
Remarks	Taper Thread Detachable & T Type Long Handle				Taper Thread (Female) x Parallel Thread (Male) Detachable & T Type Long Handle				Female x Male (Union Nipple) Detachable & T Type Long Handle				Full Bore, Double O-ring For Thermal Insulation			



Type	Ball for Fancoil Unit				Flow Control, Globe			Flow Control, Angle			Flow Control, Globe		
Bronze & Brass Fancoil Valves													
	Fig <b>TLFT</b>				Fig <b>NSH</b>			Fig <b>INAH</b>			Fig <b>INSH</b>		
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 BR36			Flow Characteristic: Page BR36			Flow Characteristic: Page BR36		
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										
	Fig <b>BS15-/BS20-</b>			Fig <b>BSS15-/BSS20-/BSS25-</b>			Fig <b>RTUC</b>			
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			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			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, Controllable Flow Rate ±10%			Female x Male (Union Nipple) Control Range 0.05 MPa to 0.49 MPa, Flow Rate 3 to 40 L/min, Controllable Flow Rate ±20%			Female x Male (Union Nipple) Control Range 0.15 MPa to 0.49 MPa, Flow Rate 5 to 30 L/min, Controllable 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													
	S23N-			S24N-			S24N-3/4X			S25N-			
Fig	BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			BS21(JIS B0203)			
End Connection	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 BR36			Features: Page BR36			Features: Page BR36			Features: Page BR36			
Remarks	Male (Parallel) x Male (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment			Male (Parallel) x Male (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment			Male (Parallel) x Male (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment			Female (Taper) x Female (Taper) With Spring-loaded Built-in Check Valve (Water Hammer Proof). Detachable T Handle with attachment for extension of handle. * For adding attachment			

Type	S Ball (Straight)			S Ball (Straight)			S Ball (Straight)			S Ball (Straight)			
Bronze & Brass S Ball Series for Water Heater													
	S26N-			S27N-			S28N-			S28N-3/4X			
Fig	BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			
End Connection	BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			BS21(JIS B0203xB0202)			
inch	mm	L	H	D	L	H	D	L	H	D	L	H	D
1/2	15	86.5	51/63*	40	85	51/63*	40	70.5	51/63*	40	71.5	51/63*	40
3/4	20	91	51/63*	40	89.5	51/63*	40	72.5	51/63*	40			
Body & Bonnet	C3771 + Ni-Cr Plating			C3771 + Ni-Cr Plating			C3771 + Ni-Cr Plating			C3771 + Ni-Cr Plating			
Stem	C3531			C3531			C3531			C3531			
Ball	C3771 + Sn-Ni Plating			C3771 + Sn-Ni Plating			C3771 + Sn-Ni Plating			C3771 + Sn-Ni Plating			
Ball Seat	PTFE			PTFE			PTFE			PTFE			
Check Valve	Polyacetal			Polyacetal			Polyacetal			Polyacetal			
O ring / Spring	EPDM, NBR / 304SS			EPDM, NBR / 304SS			EPDM, NBR / 304SS			EPDM, NBR / 304SS			
Handle/Attachment	Polyacetal			Polyacetal			Polyacetal			Polyacetal			
Standard/Approval	JWWA E-3			JWWA E-3			JWWA E-3			JWWA E-3			
Service Conditions	1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max			1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max			1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max			1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max			
Reference Page	Features: Page BR36			Features: Page BR36			Features: Page BR36			Features: Page BR36			
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														
	Fig	S38A-					S1-			S2-			S5-	
End Connection	BS21 (JIS B0203xB0202)					BS21 (JIS B0203xB0202)			BS21 (JIS B0203xB0202)			BS21 (JIS B0203xB0202)		
inch	mm	L	H	D		L	H	D	L	H	D	L	H	D
1/2	15	47.3	52/64*	40		52.5	39/52*	40	52.5	39/52*	40	13	39	40
3/4	20	48.3	52/64*	40		58	42/55*	40	58	42/55*	40	14	42	40
Body & Bonnet	C3771 + Ni-Cr Plating					C3771 / C3604			C3771 / C3604 + Ni-Cr Plating			C3771 / C3604 + Ni-Cr Plating		
Stem	C3531					C3531			C3531			C3531		
Ball	C3771 + Sn-Ni Plating					C3771 + Sn-Ni Plating			C3771 + Sn-Ni Plating			C3771 + Sn-Ni Plating		
Ball Seat	PTFE					G/F PTFE			G/F PTFE			G/F PTFE		
Check Valve	Polyacetal+NBR													
O ring / Spring	EPDM, NBR / 304SS					EPDM			EPDM			EPDM		
Handle/Attachment	Polyacetal					Polyacetal			Polyacetal			Polyacetal		
Bore						Standard Bore			Standard Bore			Standard Bore		
Standard/Approval	JWWA E-3					JWWA E-2			JWWA E-2			JWWA E-2		
Service Conditions	1.0 MPa Water, 0°C+40°C (Not Freezing) Direct Flow 40°C max, Reserve Flow 80°C max					1.0 MPa Water, -20°C to +100°C (Not Freezing)			1.0 MPa Water, -20°C to +100°C (Not Freezing)			1.0 MPa Water, -20°C to +100°C (Not Freezing)		
Reference Page	Features: Page BR36													
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								
	Fig	S6-					S8-	
End Connection	BS21 (JIS B0203)					BS21 (JIS B0203xB0202)		
inch	mm	L	H	D		L	H	D
1/2	15	54	39/52*	40		52.5	44	40
3/4	20	59	42/55*	40		58	46.5	40
Body & Bonnet	C3771					C3771 / C3604 + Ni-Cr Plating		
Stem	C3531					C3531		
Ball	C3771 + Sn-Ni Plating					C3771 + Sn-Ni Plating		
Ball Seat	G/F PTFE					G/F PTFE		
O ring / Spring	EPDM					EPDM		
Handle/Attachment	Polyacetal					ZDC2		
Bore	Standard Bore					Standard Bore		
Standard/Approval	JWWA E-2					JWWA E-2		
Service Conditions	1.0 MPa Water, -20°C to +100°C (Not Freezing)					1.0 MPa Water, -20°C to +100°C (Not Freezing)		
Remarks	Male (Taper) x FemMale (Taper) T Handle. * For adding attachment					Male (Parallel) x Male (Taper) T Handle		





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

Kitz bronze/brass valves are exclusively produced in modern factories used for valve manufacturing. Each phase of manufacturing process, from selection of raw materials to casting, forging, machining, assembly and testing, have improved with automated production facilities and unparalleled production technology.

Standardization and automation yield Kitz bronze/brass valves of superior quality and higher uniformity at competitive prices supported by incomparably prompt delivery.

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

## Design Features of Kitz Bronze/Brass Valves

### Human Engineering in Hand Wheel Design

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

### Asbestos-free Gland Packing

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

### Pressure Rating

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

### Inspection and Testing

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

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

Kitz Corporation, Chino Plant, Japan (ISO 9001)



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



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

## HSE (Health, Safety & Environment) Conscious Products

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

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

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

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

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

RoHS, Reach, WRAS, WSD and AS 1628/MMKA

## 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.

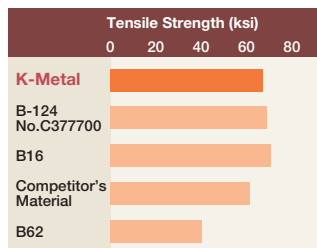


Fig. 1 Comparison of tensile strength

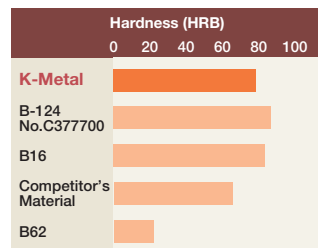


Fig. 2 Comparison of hardness

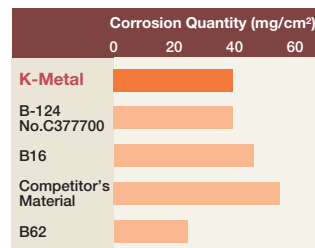


Fig. 3 Comparison of corrosion  
(1 mg/cm²=0.014 mlb/in²)

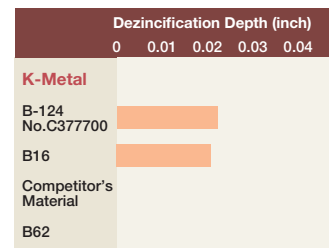


Fig. 4 Comparison of dezincification  
(to AS C316)

### 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.

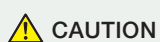
<b>Type K</b>	For use in steam, oil, and gas lines for underground installation and/or severe conditions.
<b>Type L</b>	For general cooling and heating systems and related water piping and ventilation systems.
<b>Type M</b>	For home air-conditioning and heating applications.

### 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 <sup>B</sup> -1 <sup>B</sup>		size 1 1/4 <sup>B</sup> -2 <sup>B</sup>		size 2 1/4 <sup>B</sup> -4 <sup>B</sup>	
		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/mm <sup>2</sup> )	Elongation (%) 15 Min.
	CAC406 (BC6)	83.0-87.0	4.0-6.0	4.0-6.0	4.0-6.0	1.0 Max.	0.3 Max.	0.05 Max.	0.2 Max.	0.01 Max.	0.01 Max.		

### JIS H3250 (Copper & Copper Alloy Rods and Bars)

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

### JIS H3250 (Copper & Copper Alloy Rods and Bars)

Free-cutting Brass Alloy No. 3604	Designation		Chemical Composition (%)					Mechanical Properties	
	Extruded	Drawn	Cu	Pb	Fe	Fe + Sn	Zn	Tensile Strength 335 Min. (N/mm <sup>2</sup> )	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:**

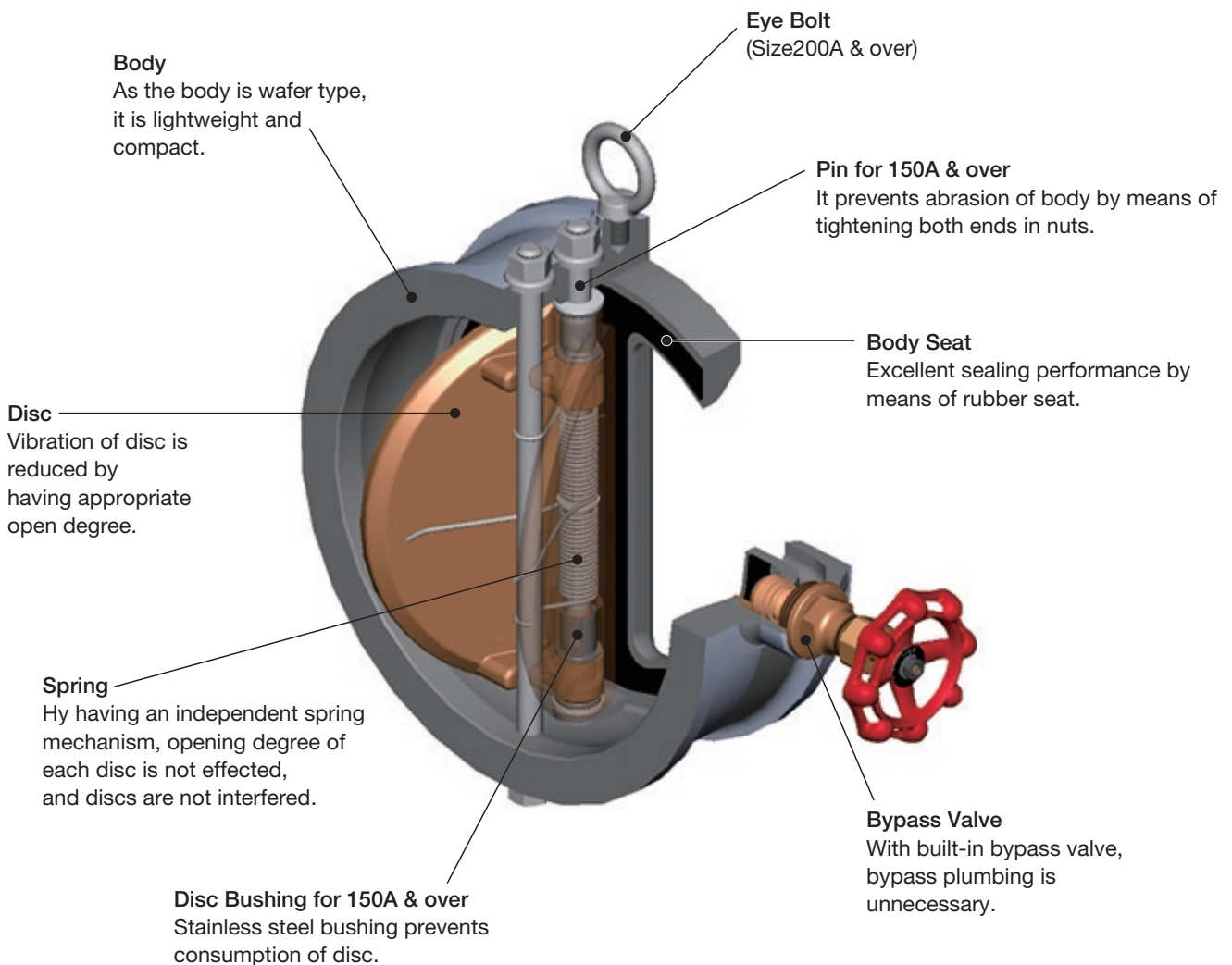
Single Plate (stainless steel wafer check) and Dual Plate (others except SS)

**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:**

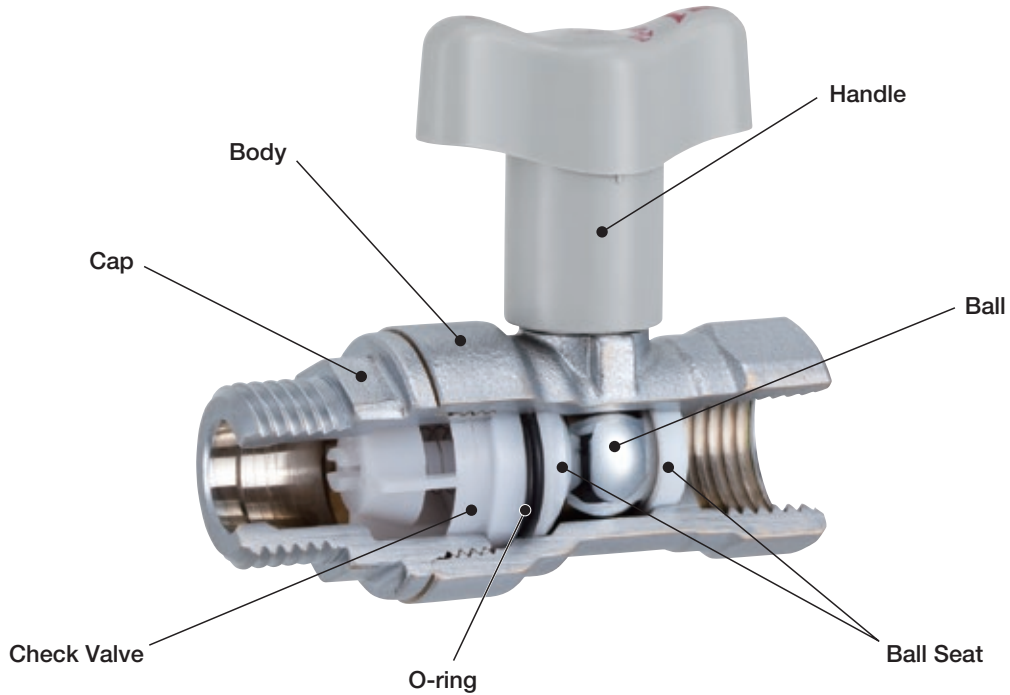
- (1) Standard Torque Spring (2)High Torque Spring (3)Low Torque Spring



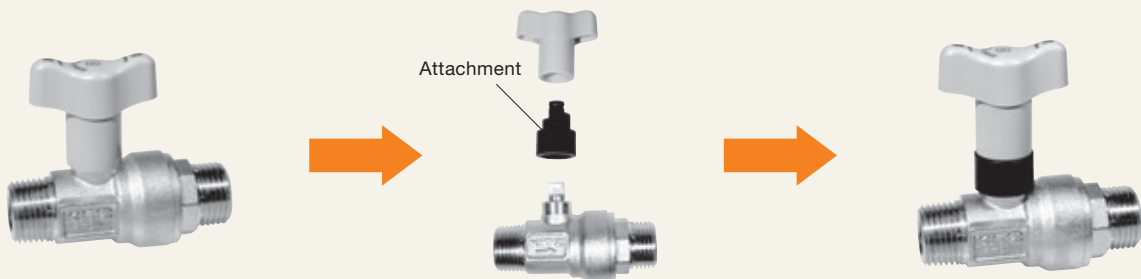
## Design Features of KITZ S Ball Valve: Ball Valve with Built-in Check Valve in its Body

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



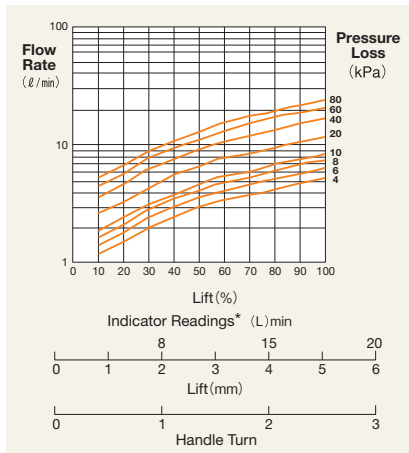
### 2-Way Handle



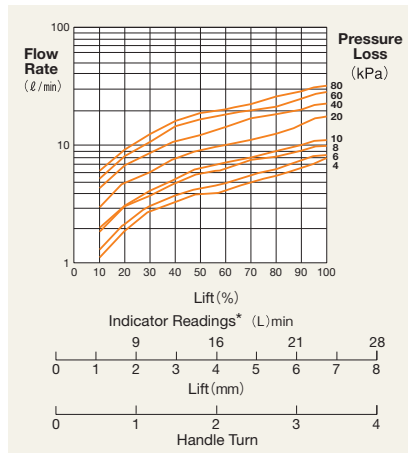
## Flow Characteristics of KITZ Fancoil Valve, Flow Control, Globe Type

B

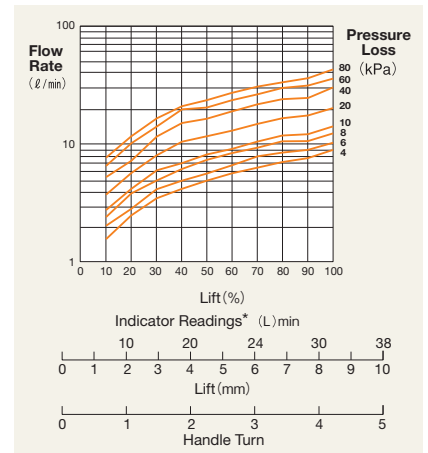
■ Nominal Size:  $\frac{1}{2}^B$  Cv=1.8



■ 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.

## 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**

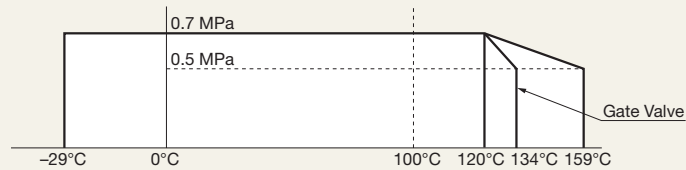
Nominal Pressure	Temperature of Fluid °C	Maximum Permissible Working Pressure <sup>c)</sup> MPa
5K	-29 to 120	0.7
	159 <sup>a)</sup>	0.5
10K	-29 to 120	1.4
	185 <sup>b)</sup>	1.0

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

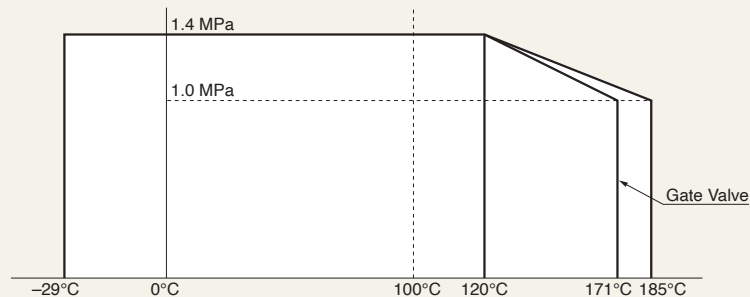
b) Maximum service temperature. In case of gate valves, it will be 171°C.

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)

