

Bronze & Brass Valves

JIS 5K/10K, ASME Class 125/150/300, KITZ Type 100/125/150/300/400/600





As a world leader in the manufacture of general service valves, KITZ Corporation is glad to offer a broad range of KITZ 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 the manufacturing process, from the selection of raw materials to casting, forging, machining, assembly and testing, has been 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.

Design Features of KITZ Bronze/Brass Valves

Human Engineering in Hand wheel Design

The 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 the 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 the chemical composition and the 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, Bangkok 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.

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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?

The 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 the copper alloy separates from the copper base, and the metal corrodes. This is called dezincification. In the case of a bronze valve, the 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 stems, which contain 40% zinc, often corrode because of extreme dezincification.

What causes dezincification?

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

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

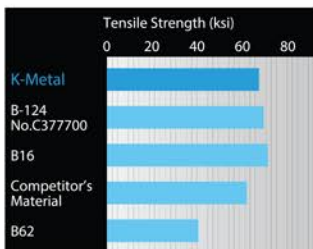


Fig. 1 Comparison of tensile strength

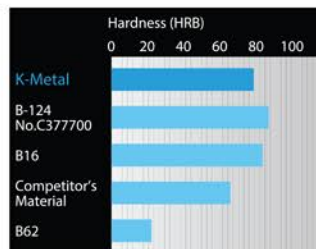


Fig. 2 Comparison of hardness

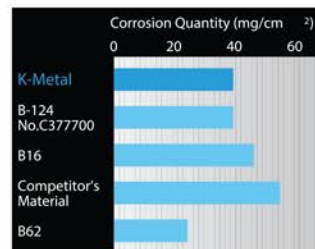


Fig. 3 Comparison of corrosion (1 mg/cm²=0.014 mlb/in²)

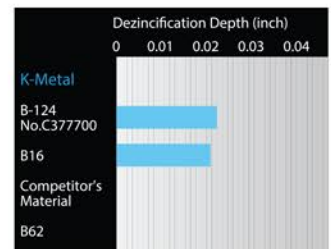


Fig. 4 Comparison of dezincification (to AS C316)

Bronze/Brass Valve Solder Joints

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

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

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

	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.
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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 a firmly soldered joint. Because the melting point of the solder is at 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 ^B -1 ^B		size 1 1/4 ^B -2 ^B		size 2 1/4 ^B -4 ^B	
		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

KITZ Bronze and Brass Materials to JIS Standards

JIS H5120 (Copper & Copper Alloy Castings)

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

JIS H3250 (Copper & Copper Alloy Rods and Bars)

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

JIS H3250 (Copper & Copper Alloy Rods and Bars)

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

KITZ Bronze and Brass Materials to ASTM Standards

ASTM 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 B584 C84400

Chemical composition (%)											Mechanical properties		
Copper	Tin	Lead	Zinc	Nickel & cobalt	Iron	Sulfur	Phosphorus	Antimony	Aluminum	Silicon	Minimum		
78.0-82.0	2.3-3.5	6.0-8.0	7.0-10.0	1.0 Max.	0.40 Max.	0.08 Max.	0.02 Max.	0.25 Max.	0.005 Max.	0.005 Max.	Tensile strength 29 ksi	Yield strength 13 ksi	Elongation in 2 in. 18%

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%

Compliance with RoHS Requirements

With the aim of reducing any adverse impact on environmental health, KITZ CORPORATION can offer products that satisfy the requirement of using six hazardous substances—mercury, lead, cadmium, hexavalent chromium, PBB, and PBDE—imposed by the RoHS* directive of EU, to the market. The products satisfying this requirement bear the symbol shown below. Please consult KITZ for more details on these products.



*The Restriction of the use of certain Hazardous Substances in electrical and electronic equipment

CLASS 100 BRONZE GLOBE VALVE

Screwed bonnet, Rising stem,
Threaded ends to BS21 (JIS B0203) or NPT

W.O.G. non-shock 1.03 MPa (150 psi), Saturated steam pressure 0.7 MPa (100 psi)



Fig. A*

• Threaded end to BS21 (JIS B0203)

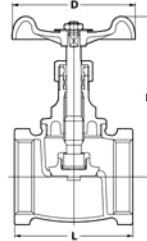


Fig. AKA

• Threaded end to ASME B1.20.1

*Taper pipe threads for connection shall refer to JIS B0203 standards, while the length of useful threads and the positions of gauge planes are built on KITZ standard.

Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Aramid Fibers Graphite

*Size 4 only

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch		mm									
	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	
	8	10	15	20	25	32	40	50	65	80	100	
L	40	42	48	53	63	73	81	94	115	131	171	
H valve open	66	67	69	80	94	104	127	147	179	200	250	
D	50	50	55	60	70	80	90	100	115	135	180	

CLASS 150 BRONZE GLOBE VALVE

Screwed bonnet, Rising stem,
Threaded ends to BS21 (JIS B0203) or NPT

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)



Fig. C

• Threaded end to BS21 (JIS B0203)

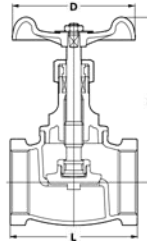


Fig. AKC

• Threaded end to ASME B1.20.1

Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Aramid Fibers Graphite

*Size 3 only

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch		mm							
	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
	8	10	15	20	25	32	40	50	65	80
L	44	44	53	65	77	85	100	119	139	158
H valve open	66	68	79	93	104	127	145	174	199	215
D	50	50	60	70	80	90	100	115	135	155

CLASS 150 BRONZE GLOBE VALVE

Screwed bonnet, Rising stem,
Flanged ends drilled or undrilled optionally

W.O.G. non-shock 1.55 MPa (225 psi), Saturated steam pressure 1.03 MPa (150 psi)



Fig. B

• Undrilled unless drilling is specified as an option

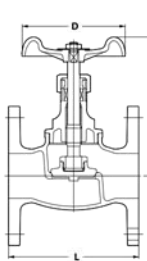


Fig. BH

• Drilled according to JIS 10K

Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Aramid Fibers Graphite

*Size 3 and 4

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch		mm							
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	
	15	20	25	32	40	50	65	80	100	
L	83	88	100	113	120	145	165	177	220	
H valve open	79	94	105	127	145	174	198	215	250	
D	60	70	80	90	100	115	135	155	180	

*Shall not be in accordance with JIS B 2240

CLASS 150 BRONZE GLOBE VALVE

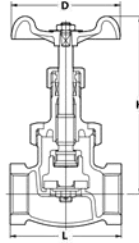
Union bonnet, Rising stem, Soft seated disc,
Threaded ends to BS21 (JIS B0203)

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)



Fig. D

• Threaded end to BS21 (JIS B0203)



Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	G/F PTFE
Gland packing	Aramid Fibers Graphite

*Size 1 1/2 & 2

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch	1/2	3/4	1	1 1/4	1 1/2	2	mm
	mm	15	20	25	32	40	50	
L		64	78	90	105	120	145	
H valve open		113	138	156	184	187	212	
D		60	90	100	115	115	135	

CLASS 150 BRONZE GLOBE VALVE

Union bonnet*, Rising stem, Soft seated disc,
Flanged ends drilled or undrilled optionally

W.O.G. non-shock 1.55 MPa (225 psi), Saturated steam pressure 1.03 MPa (150 psi)

*Size 2 1/2 and larger: Bolted bonnet

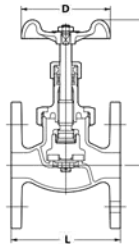


Fig. DB

• Undrilled unless drilling is specified as an option

Fig. DBH

• Drilled according to JIS 10K



Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	G/F PTFE
Gland packing	Aramid Fibers Graphite / PTFE Fiber Braid**

*Size 1 1/2 & larger

**Size 4 only

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	mm
	mm	15	20	25	32	40	50	65	80	100	
L		82	95	108	120	140	165	190	220	270	
H valve open		113	138	156	184	187	212	244	281	321	
D		60	90	100	115	115	135	155	180	225	

*Shall not be in accordance with JIS B 2240

CLASS 125 BRASS GATE VALVE

Screwed bonnet, Non-rising stem,
Threaded ends to BS21 (JIS B0203) or NPT,
or solder joint ends

W.O.G. non-shock 1.38 MPa (200 psi), Saturated steam pressure 0.86 MPa (125 psi)



Fig. FH*

• Threaded end to BS21 (JIS B0203)

Fig. AKFH

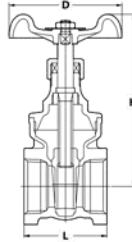
• Threaded end to ASME B1.20.1



Fig. CFH

• Solder joint ends to ASME B16.18

*Taper pipe threads for connection shall refer to JIS B0203 standards, while the length of useful threads and the positions of gauge planes are built on KITZ standard.



Dimensions

Nominal Size	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	mm
L		35	38	42	47	50	60	63	72	82	92	
L1 Solder		37	45	60	70	77	86	104	115	127		
H		70	73	73	87	97	118	126	154	187	205	
H Solder			77	77	87	97	118	126	154	187	205	
D		50	50	50	55	60	70	80	90	100	115	

Materials

Parts	Material
Body	Brass
Bonnet	Brass
Stem	Dezincification Resistant Brass
Disc	Brass
Gland packing	Aramid Fibers Graphite

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

⚠ Do not use for flammable gas or toxic gas.

CLASS 125 BRONZE GATE VALVE

Screwed bonnet*, Non-rising stem,
Threaded ends to BS21 (JIS B0203) or NPT,
or solder joint ends

W.O.G. non-shock 1.38 MPa (200 psi), Saturated steam pressure 0.86 MPa (125 psi)

*Size 3/4 to 2: Screwed-over-bonnet



Fig. H*

• Threaded end to BS21 (JIS B0203)

Fig. AKH

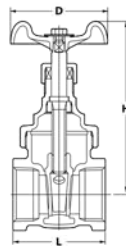
• Threaded end to ASME B1.20.1



Fig. CH

• Solder joint ends to ASME B16.18

*Taper pipe threads for connection shall refer to JIS B0203 standards, while the length of useful threads and the positions of gauge planes are built on KITZ standard. (size up to 2 and 4)



Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	mm
L		42	45	50	57	61	67	74	90	100	121	
L1 Solder		39	46	61	72	78	87	102	115	130	173	
H		74	80	90	105	118	135	159	202	223	280	
D		50	50	55	60	70	80	90	115	135	155	

Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Dezincification Resistant Brass
Disc	Dezincification Resistant Brass/Bronze *
Gland packing	Aramid Fibers Graphite

*Size 3/4 & larger

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

⚠ Do not use for flammable gas or toxic gas.

CLASS 150 BRONZE GATE VALVE

Screwed bonnet, Non-rising stem,
Threaded ends to BS21 (JIS B0203) or NPT

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)

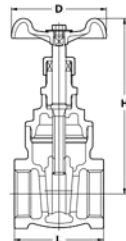


Fig. E

• Threaded end to BS21 (JIS B0203)

Fig. AKE

• Threaded end to ASME B1.20.1



Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	mm
L		43	48	53	62	69	75	86	105	116	
H		86	96	111	122	141	164	197	225	261	
D		50	55	60	70	80	90	100	115	135	

Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Aramid Fibers Graphite

*Size 2 1/2 & 3

⚠ Do not use for flammable gas or toxic gas.

CLASS 150 BRONZE GATE VALVE

Screwed bonnet, Non-rising stem, Flanged ends drilled or undrilled optionally

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)

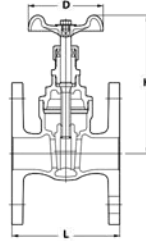


Fig. EB

• Undrilled unless drilling is specified as an option

Fig. EBH

• Drilled according to JIS 10K



Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Aramid Fibers Graphite

*Size 2½ & larger

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	mm
	mm	15	20	25	32	40	50	65	80	100	125	150	
L		75	80	95	110	120	140	165	190	230	190	210	
H		96	111	122	142	165	197	225	264	309	381	427	
D		55	60	70	80	90	100	115	155	225	225	250	

*Shall not be in accordance with JIS B 2240

CLASS 150 BRONZE LIFT CHECK VALVE

Screwed cap, Lift type disc Threaded ends to BS21 (JIS B0203) or NPT

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)

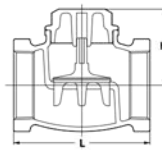


Fig. F

• Threaded end to BS21 (JIS B0203)

Fig. AKF

• Threaded end to ASME B1.20.1



Materials

Parts	Material
Body	Bronze
Cap	Brass/Bronze*
Disc	Bronze

*Size 2½ & 3

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	mm
	mm	10	15	20	25	32	40	50	65	80	
L		44	53	65	77	85	100	119	139	158	
H		26	28	34	42	50	56	67	79	91	

CLASS 125 BRONZE SWING CHECK VALVE

Screwed cap, Swing type disc,
Threaded ends to BS21 (JIS B0203) or NPT,
or solder joint ends

W.O.G. non-shock 1.38 MPa (200 psi), Saturated steam pressure 0.86 MPa (125 psi)



Fig. R

• Threaded end to BS21 (JIS B0203)

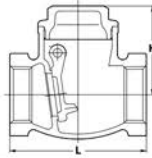


Fig. CR

• Solder joint ends to JIS B2011 / ASME B16.18 (2 1/2 & 3)

Fig. AKR

• Threaded end to ASME B1.20.1



Materials

Parts	Material
Body	Bronze
Cap	Brass/Bronze*
Hinge pin	Brass
Disc	Brass/Bronze*

*Size 4 only

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

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	mm
L	53	60	70	80	92	102	122	150	165	195		
L1 Solder	56	67	89	104	120	134	164	193	213			
H	39	39	45	52	62	67	79	91	102	119		

CLASS 125 BRONZE Y-PATTERN SWING CHECK VALVE

Screwed cap, Swing type disc,
Threaded ends to BS21 (JIS B0203)

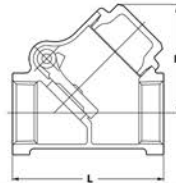
W.O.G. non-shock 1.38 MPa (200 psi), Saturated steam pressure 0.86 MPa (125 psi)



Fig. YR*

• Threaded end to BS21 (JIS B0203)

*Taper pipe threads for connection shall refer to JIS B0203 standards, while the length of useful threads and the positions of gauge planes are built on KITZ standard. (size 1/2 & larger)



Materials

Parts	Material
Body	Bronze
Cap	Brass
Hinge pin	Copper
Disc	Bronze

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	mm
L	54	56	70	80	95	110	128		
H	40	40	49	58	71	80	95		

CLASS 150 BRONZE LIFT CHECK VALVE

Screwed cap, Lift type disc,
Threaded ends to BS21 (JIS B0203) or NPT,
or solder joint ends

W.O.G. non-shock 1.72 MPa (250 psi)



Fig. RF

• Threaded end to BS21 (JIS B0203)
• NBR Disc

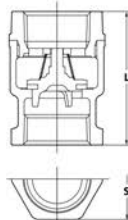


Fig. CAF

• Solder joint ends to ASME B16.18
• FKM Disc

Fig. AKAF

• Threaded end to ASME B1.20.1
• FKM Disc



Materials

Parts	Material
Body	Bronze
Cap	Bronze
Disc	NBR/FKM*

*AKAF & CAF

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

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	mm
L	53	59	67	78	84	98		
L1 Solder	61	76	89	97	110	132		
S (AKAF)	26	32	39	48	54	67		
S (RF)	28	34	41	50	57	70		

5K

BRONZE LIFT CHECK VALVE

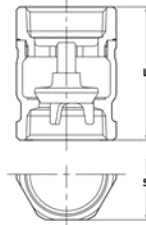
Screwed cap, Lift type disc,
Threaded ends to BS21 (JIS B0203)

W.O.G. non-shock 120°C (0.5 MPa)



Fig. VF

• Threaded end to BS21 (JIS B0203)



Materials

Parts	Material
Body	Bronze
Cap	Brass (Size 1/2 & 3/4) Bronze (Size 1 to 2)
Disc	Dezincification Resistant Brass (Size 1/2 & 3/4) Bronze (Size 1 to 2)

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	mm
	mm	15	20	25	32	40	50	
L		37	44	51	62	69	82	
S		24	30	36	45	52	63	

CLASS 150

Y-PATTERN STRAINER

Y-pattern body, Screwed cap, 304 stainless steel screen,
Threaded ends to BS21 (JIS B0203) or NPT,
or solder joint ends

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi) up to size 2*

*Contact KITZ for larger sizes



Fig. Y

• Threaded end to BS21 (JIS B0203)

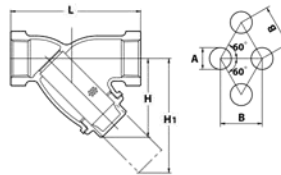


Fig. CY

• Solder joint ends
to JIS B2011 /
ASME B16.18 (2 1/2 & 3)

Fig. AKY

• Threaded end to ASME B1.20.1



Materials

Parts	Material
Body	Bronze
Body cap	Brass
Screen	Type304 Stainless Steel

	A	B
3/8 to 2	1.4	2.4
2 1/2 to 3	1.5	2.5

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

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	mm
	mm	10	15	20	25	32	40	50	65	80	
L		70	80	100	115	135	160	195	230	240	
L1 Solder			80	105	125	145	170	210	250	280	
H		44	49	57	70	82	98	121	148	180	
H1		61	68	83	105	124	149	188	216	267	

10K

JIS 10K BRONZE GLOBE VALVE

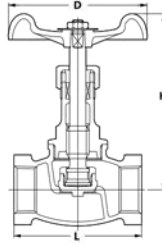
Screwed bonnet *, Rising stem,
Designed to JIS B2011,
Threaded end to JIS B0203 (also to BS21)

W.O.G -29 °C to +120 °C (not freezing) 1.4 MPa, Saturated steam pressure 1.0 MPa (See P.12)

*Size 3 : Bolted bonnet



Fig. J



Materials

Parts	Material
Body	Bronze
Bonnet	Brass/Bronze*
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Non-asbestos Packing

*Size 1 & larger

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch		mm								
	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	
	8	10	15	20	25	32	40	50	65	80	
L	50	55	65	80	90	105	120	140	180	200	
H valve open	86	87	93	122	135	157	171	196	232	268	
D	50	55	60	80	90	100	115	135	155	180	

5K

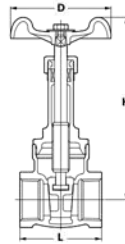
JIS 5K BRONZE GATE VALVE

Screwed bonnet, Rising stem,
Designed to JIS B2011,
Threaded end to JIS B0203 (also to BS21)

W.O.G -29°C to +120°C (not freezing) 0.7 MPa, Saturated steam pressure 0.5 MPa (See P.12)



Fig. M



Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Dezincification Resistant Brass
Disc	Bronze
Gland packing	Non-asbestos Packing

⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	Inch		mm							
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3		
	15	20	25	32	40	50	65	80		
L	50	60	65	75	85	95	115	130		
H valve open	126	145	169	209	239	285	366	428		
D	60	60	70	90	100	115	135	155		

Technical data of pressure and temperature ratings of JIS-standard bronze valves

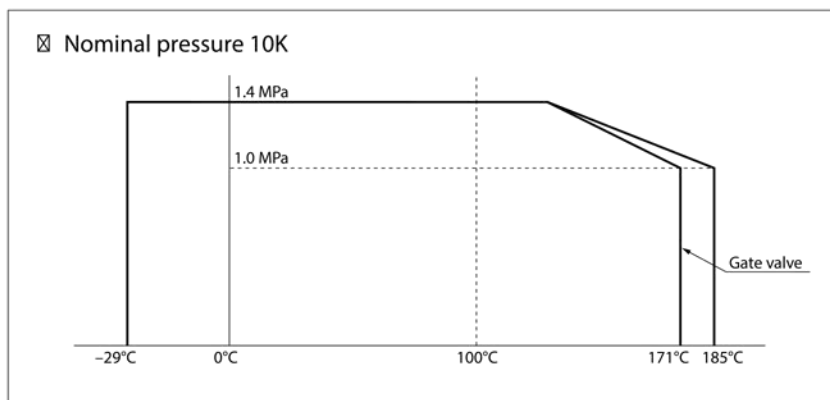
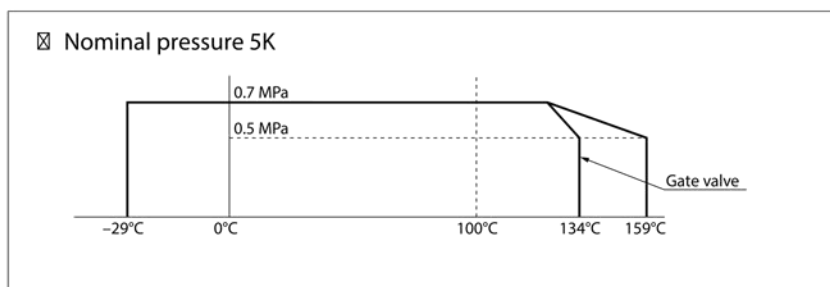
1. Fluid
Water, oil, gas, air and steam.
However, Flammable gas and toxic gas are excluded.
2. Relationship between the temperature of the fluid and the maximum permissible pressure (hereinafter referred to as the "pressure-temperature criteria") shall be in accordance with Table 1.
However, the fluid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

Table 1 Pressure-temperature criteria

Nominal pressure	Temperature of fluid °C	Maximum permissible working pressure ^{c)} MPa
5K	-29 to 120	0.7
	159 ^{a)}	0.5
10K	-29 to 120	1.4
	185 ^{b)}	1.0

Notes

- ^{a)} It shall be the maximum service temperature, and in the case of a gate valve, it shall be 134°C.
- ^{b)} It shall be the maximum service temperature, and in the case of a gate valve, it shall be 171°C.
- ^{c)} The maximum permissible pressure at an intermediate temperature between a temperature above 120°C and the maximum service temperature shall be obtained by proportional interpolation.



CLASS 150 BRONZE GATE VALVE

Union bonnet, Rising stem, Designed to MSS SP-80 type 2, Threaded ends to NPT or solder joint ends

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)



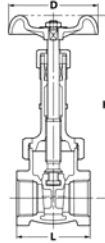
Fig. AK150LU

• Threaded end to ASME B1.20.1



Fig. C150LU

• Solder joint end to ASME B16.18



Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Bronze
Disc	Bronze
Gland packing	Flexible Graphite & Aluminum

⚠ Solder joint end valves should not be used in service where the temperature of the line fluid is higher than the softening point of the solder.
 ⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	mm
	mm	15	15	15	20	25	32	40	50	
L		45	46	51	56	66	68	74	84	
L1 Solder				49	64	76	82	86	109	
H valve open		108	108	137	157	180	216	257	297	
D		50	50	55	70	70	80	90	100	

CLASS 150 BRONZE GLOBE VALVE

Union bonnet*, Rising stem, Designed to MSS SP-80 type 2, Threaded end to NPT or solder joint ends

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)

*Size 2 1/2 and larger: Bolted bonnet



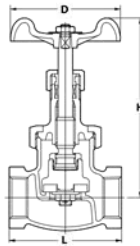
Fig. AK150D

• Threaded end to ASME B1.20.1



Fig. C150D

• Solder joint end to ASME B16.18



Materials

Parts	Material
Body	Bronze
Bonnet	Bronze
Stem	Bronze
Disc	G/F PTFE
Gland packing	Aramid Fibers Graphite PTFE Braided Packing**

**Size 3 & 4
 ⚠ Solder joint end valves should not be used in service where the temperature of the line fluid is higher than the softening point of the solder.
 ⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	mm
	mm	8	10	15	20	25	32	40	50	65	80	100	
L		53	55	64	78	90	105	120	145	170	200	245	
L1 Solder		58	61	72	95	112	126	145	180	205	244	312	
H valve open		109	109	116	136	149	173	182	209	247	275	298	
D		60	60	70	90	100	115	115	135	155	180	225	

CLASS 150 BRONZE Y-PATTERN SWING CHECK VALVE

Screwed cap, Swing type disc, Designed to MSS SP-80 type 3, Threaded ends to NPT or solder joint ends

W.O.G. non-shock 2.07 MPa (300 psi), Saturated steam pressure 1.03 MPa (150 psi)



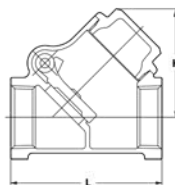
Fig. AK150YR

• Threaded end to ASME B1.20.1



Fig. C150YR

• Solder joint end to ASME B16.18



Materials

Parts	Material
Body	Bronze
Cap	Brass
Hinge pin	Copper
Disc	Bronze

⚠ Solder joint end valves should not be used in service where the temperature of the line fluid is higher than the softening point of the solder.
 ⚠ Do not use for flammable gas or toxic gas.

Dimensions

Nominal Size	inch	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	mm
	mm	10	15	20	25	32	40	50	65	80	
L		54	60	72	84	99	113	131	162	186	
L1 Solder		61	67	86	105	121	137	170	194	222	
H		39	39	49	58	70	79	95	114	132	

TYPE 400

BRASS BALL VALVE

Screwed body cap, Blowout-proof stem, Double O-ring stem seals, Threaded ends to BS21 or NPT

W.O.G. non-shock 2.76 MPa (400 psi), W.O.G. 150°C 0.69 MPa (100 psi)



Fig. T*

• Threaded end to BS21



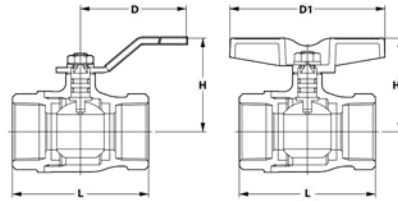
Fig. TT*

• Threaded end to BS21

Fig. AKT

• Threaded end to ASME B1.20.1

*Taper pipe threads for connection shall refer to JIS B0203 standards, while the length of useful threads and the positions of gauge planes are built on KITZ standard. (size 1¼ & larger)



Materials

Parts	Material
Body	Brass/Bronze*
Body cap	Brass/Bronze*
Stem	Dezincification Resistant Brass
Ball	Brass**
Ball seat	PTFE
O-ring	FKM

*Size 4 only
**Nickel-chrome plated

Dimensions

Nominal Size	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	mm
L	50	50	65	68	79	86	96	109	127	153	179		
H	45	45	45	50	55	60	65	75	91	105	124		
H1	41	41	44	48	55	61	66	80					
D	60	60	80	80	110	110	110	140	200	300	400		
D1	65	65	80	80	90	105	105	120					

*TT: 1/4 to 2

TYPE 400

BRONZE BALL VALVE

Screwed body cap, Blowout-proof stem, Double O-ring stem seals, Threaded ends to BS21 or solder joint ends

TL, CTL W.O.G. non-shock 2.76 MPa (400 psi), W.O.G. 150°C 0.69 MPa (100 psi),
TLT W.O.G. non-shock 2.76 MPa (400 psi), W.O.G. 80°C 1.96 MPa (286 psi)



Fig. TL

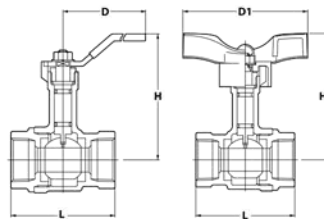
• Threaded end to BS21

Fig. CTL

• Solder joint end to ASME B16.18

Fig. TLT

• Threaded end to BS21



Materials

Parts	Material
Body	Bronze
Body cap	Bronze
Stem	Dezincification Resistant Brass
Ball	Stainless Steel (Type 304)
Ball seat	PTFE
O-ring	FKM

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

Dimensions

Nominal Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	mm
L	56	65	78	86	96	109		
L1 Solder	58	73	88	99	114	135		
H	75	79	83	98	102	109		
H1	79	83	90	105	109	124		
D	80	80	110	110	110	140		
D1	82	82	94	94	94	120		

10K

BRONZE BALL VALVE

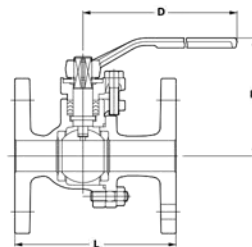
Bolted body cap, Full bore, Fringed ends to JIS B2240 10K

W.O.G. non-shock 1.4 MPa (14 kgf/cm²), W.O.G. 150°C 0.69 MPa (7 kgf/cm²)



Fig. TB

• Flanged ends to JIS 10K



Materials

Parts	Material
Body	Bronze
Body cap	Bronze
Stem	Dezincification Resistant Brass
Ball	Brass**/ Stainless Steel*
Ball seat	PTFE
Grand packing	PTFE

*Size 4 only
**Chrome plated or Nickel-chrome plated

Dimensions

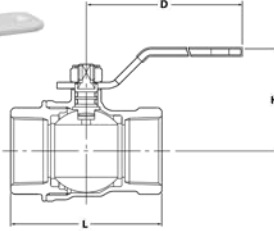
Nominal Size	inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	mm
L	110	120	130	140	165	180	190	200	230		
H	85	88	95	100	115	122	153	162	190		
D	130	130	160	160	230	230	400	400	460		

TYPE 600

BRASS BALL VALVE, FULL PORT

Bolted body and cap, Blowout-proof stem, Double O-ring stem seals, Threaded ends to ASME B1.20.1 or solder joint ends

W.O.G. non-shock 4.14 MPa (600 psi)*, W.O.G. 150°C 1.03 MPa (150 psi)



*Size 4: W.O.G. non-shock 2.76 MPa (400 psi), W.O.G. 150°C 0.69 MPa (100 psi)

Materials

Parts	Material
Body	Brass/Bronze*
Body cap	Brass/Bronze*
Stem	Brass: Nickel plated
Ball	Brass: Tin-Nickel plated (Size 1/4 to 3) Brass: Nickel-chrome plated (Size 4)
Ball seat	PTFE
O-ring	FKM

*Size 4 only

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

Fig. AKSZA

• Threaded end to ASME B1.20.1

Fig. CSZA

• Solder joint to ASMB 16.18



*AKSZA only

Dimensions

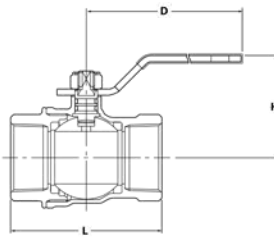
Nominal Size	mm											
	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
L	42	42	53	60	72	84	92	110	138	167	193	
L1 Solder		46	54	73	88	100	115	140	164	187		
H	37	37	40	43	50	55	65	72	100	112	131	
D	70	70	80	80	110	110	150	150	200	300	300	

TYPE 600

BRASS BALL VALVE, FULL PORT

Bolted body and cap, Blowout-proof stem, Double O-ring stem seals, Threaded ends to BS21

W.O.G. non-shock 4.14 MPa (600 psi), W.O.G. 150°C 1.03 MPa (150 psi)



*Size 4: W.O.G. non-shock 2.76 MPa (400 psi), W.O.G. 150°C 0.69 MPa (100 psi)

Materials

Parts	Material
Body	Brass/Bronze*
Body cap	Brass/Bronze*
Stem	Brass: Nickel plated
Ball	Brass: Chrome free plated (Size 1/4 to 3) Brass: Nickel-chrome plated (Size 4)
Ball seat	PTFE
O-ring	FKM

*Size 4 only

Fig. SZA

• Threaded end to BS21

Dimensions

Nominal Size	mm											
	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
L	42	42	53	60	72	84	92	110	138	167	193	
H	37	37	40	43	50	55	65	72	101	113	131	
D	70	70	80	80	110	110	150	150	200	300	300	

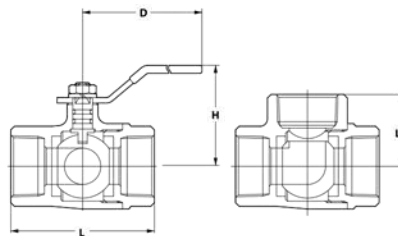
TYPE 400

3-WAY BRASS BALL VALVE

Screwed body cap, 2-seat, L-port design, Blowout-proof stem, Double O-ring stem seals*, Threaded ends to BS21 or NPT, or solder joint ends

W.O.G. non-shock 2.76 MPa (400 psi), W.O.G. 150°C 0.69 MPa (100 psi)

*Size 1/2 and larger



Materials

Parts	Material
Body	Brass/Bronze**
Body cap	Brass
Stem	Dezincification Resistant Brass
Ball	Brass***
Ball seat	PTFE
O-ring	FKM

Size 2 1/2 and 3 *Chrome plated or Nickel-chrome plated

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

Fig. TN*

• Threaded end to BS21

Fig. AKTN

• Threaded end to ASME B1.20.1

Fig. CTN

• Solder joint end to ASME B16.18
• CTN 1/2 to 2

*Taper pipe threads for connection shall refer to JIS B0203 standards, while the length of useful threads and the positions of gauge planes are built on KITZ standard. (size 1 1/4 & larger)

Dimensions (TN/AKTN)

Nominal Size	mm										
	inch	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
L	40	46	67	68	79	89	100	115	138	166	
L1	20	23	33.5	34	39.5	44.5	50	57.5	69	83	
H	30	35	45	48	55	60	65	75	91	105	
D	60	70	80	80	110	110	110	140	200	300	

Port position fig: Position 1 & 2

10K

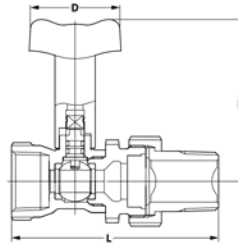
BRONZE BALL VALVES with DETACHABLE HANDLE FOR FANCOIL UNIT

Screwed body cap, Blowout-proof stem, Double O-ring stem seals, Female & male (union) threaded ends to BS21

Water 0°C to 90°C 1.0 MPa (not freezing)



Fig. RTRU



Materials

Parts	Material
Body	Bronze
Body cap	Bronze
Stem	Dezincification Resistant Brass
Ball	Brass: Nickel-chrome plated
Ball seat	PTFE
O-ring	EPDM

Dimensions

Nominal Size	Inch	1/2	3/4	1
	mm	15	20	25
L		88	92.5	104
H		72	72	75.5
D		40	40	40

10K

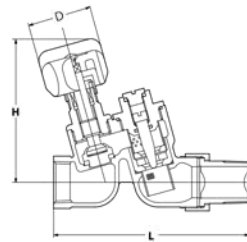
BRONZE BALANCING VALVES with BUILT-IN SCREEN

Constant flow control valve, Female & male (union nipple) threaded ends to BS21

Max working pressure 1.0 MPa, Working temperature water 0°C to 80°C, Control range 0.05 MPa to 0.49 MPa, Flow rate 3 to 30 L/min



Fig. BS



Materials

Parts	Material
Body	Bronze
Bonnet	Brass
Cap	Brass
Stem	Dezincification Resistant Brass
Disc	Reinforced PTFE

Dimensions

Nominal Size	Inch	1/2	3/4
	mm	15	20
L		118.5	121.5
H Valve open		89	89
D		40	40

10K

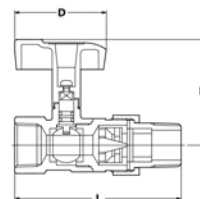
BRONZE BALANCING VALVES LOW-NOISE TYPE

Constant flow control valve, Ball valve type, Female & male (union nipple) threaded ends to BS21

Max working pressure 1.0 MPa, Working temperature water 0°C to 80°C, Control range 0.05 MPa to 0.49 MPa, Flow rate 3 to 40 L/min



Fig. BSS



Materials

Parts	Material
Body	Bronze
Cap	Bronze
Stem	Dezincification Resistant Brass
Ball	Brass: Chrome plated
Ball seats	PTFE
O-ring	FKM

Dimensions

Nominal Size	Inch	1/2	3/4	1
	mm	15	20	25
L		94.5	100.5	115.5
H		63.5	63.5	66.5
D		55	55	55

10K

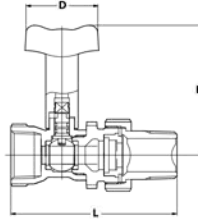
**"SADAMARU"
CONSTANT FLOW CONTROL**

Ball valve
Female & male (union nipple) threaded ends to BS21

Max working pressure 1.0 MPa, Working temperature water 0°C to 60°C,
Control range 0.15 MPa to 0.49 MPa, Flow rate 5 to 30 L/min



Fig. RTUC



Materials

Parts	Material
Body	Bronze
Cap	Bronze
Stem	Dezincification Resistant Brass
Ball	Brass: Nickel-chrome plated
Ball seats	PTFE
O-ring	EPDM

Dimensions

Nominal Size	Inch	1/2	3/4	1	mm
	mm	15	20	25	
L		88	92.5	104	
H		72	72	75.5	
D		40	40	40	

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

☒ **Predetermined Flow Rate**

Product Code: BS [Controllable flow rate ± 10%]

Nominal Size (mm)	3	4	5	6	7.5	8	10	12	12.5	15	16	17.5	20	25	30	(L/min)
15	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Product Code: BSS [Controllable flow rate ± 10%]

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

Product Code: RTUC [Controllable flow rate ± 15%, ± 20% (5 L/min only)]

Nominal Size (mm)	5	6	7.5	8	10	12.5	15	17.5	20	25	30	(L/min)
15	●	●	●	●	●	●	●	●	●	●	●	
20	●	●	●	●	●	●	●	●	●	●	●	
25									●	●	●	

Note: Flow rates marked with ☒ are available.

Product Coding

BS
BSS
RTUC



Predetermined Flow Rate
Nominal Size
Product Code of Constant Flow Control Valve

Example : RTUC, Nominal size 20, Predetermined flow rate: 10 L/min

RTUC20-10

ALLOWABLE PORT ORIENTATION

Valve Design	Form	Fluid Passage	
3-Way 2-Seat L-port ball valve	<p>Top View</p> <p>Form 1 Form 2</p>	<p>1 Flow in Form 1 is between Ports "A" and "C". Flow in Form 2 is between Ports "B" and "C". The flow paths in Form 1 and Form 2 can be exchanged.</p> <p>2 When the fluid pressure P_2 in the closed path is higher than P_1 in the open path, slight fluid leakage may occur to P_1 through the ball seat of the closed path.</p>	
	3-Way 4-Seat L-port ball valve	<p>Top View</p> <p>Form 1 Form 2</p>	<p>1 Flow in Form 1 is between Ports "A" and "C". Flow in Form 2 is between Ports "B" and "C". The flow paths in Form 1 and Form 2 can be exchanged.</p> <p>2 When the fluid pressure P_2 in the closed path is higher than P_1 in the open path, slight fluid leakage may occur to P_1 through the ball seat of the closed path.</p>
3-Way 2-Seat T-port ball valve		<p>Top View</p> <p>Form 1 Form 2</p>	<p>1 In Form 1, all ports are open. Flow in Form 2 is between Ports "B" and "C". Flow in Form 4 is between Ports "A" and "C". Flow can be switched from Form 1 to Form 2, (standard operation pattern) or from Form 1 to Form 4 in either direction. The stopper is assembled for the standard operation pattern.</p> <p>2 When the fluid pressure P_2 in the closed path is higher than P_1 in the open path, slight fluid leakage may occur to P_1 through the ball seat of the closed path.</p> <p>Available operation patterns</p> <ul style="list-style-type: none"> Pattern 1: From Form 1 to Form 4 Pattern 2: From Form 1 to Form 2 (Standard) <p>Please select one of the above operation patterns at the time of order.</p>
	<p>Top View</p> <p>Form 3 Not Available Form 4</p>		
	3-Way 4-Seat T-port ball valve	<p>Top View</p> <p>Form 1 Form 2</p>	
		<p>Top View</p> <p>Form 3 Form 4</p>	

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Read the instruction manual carefully before use.

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