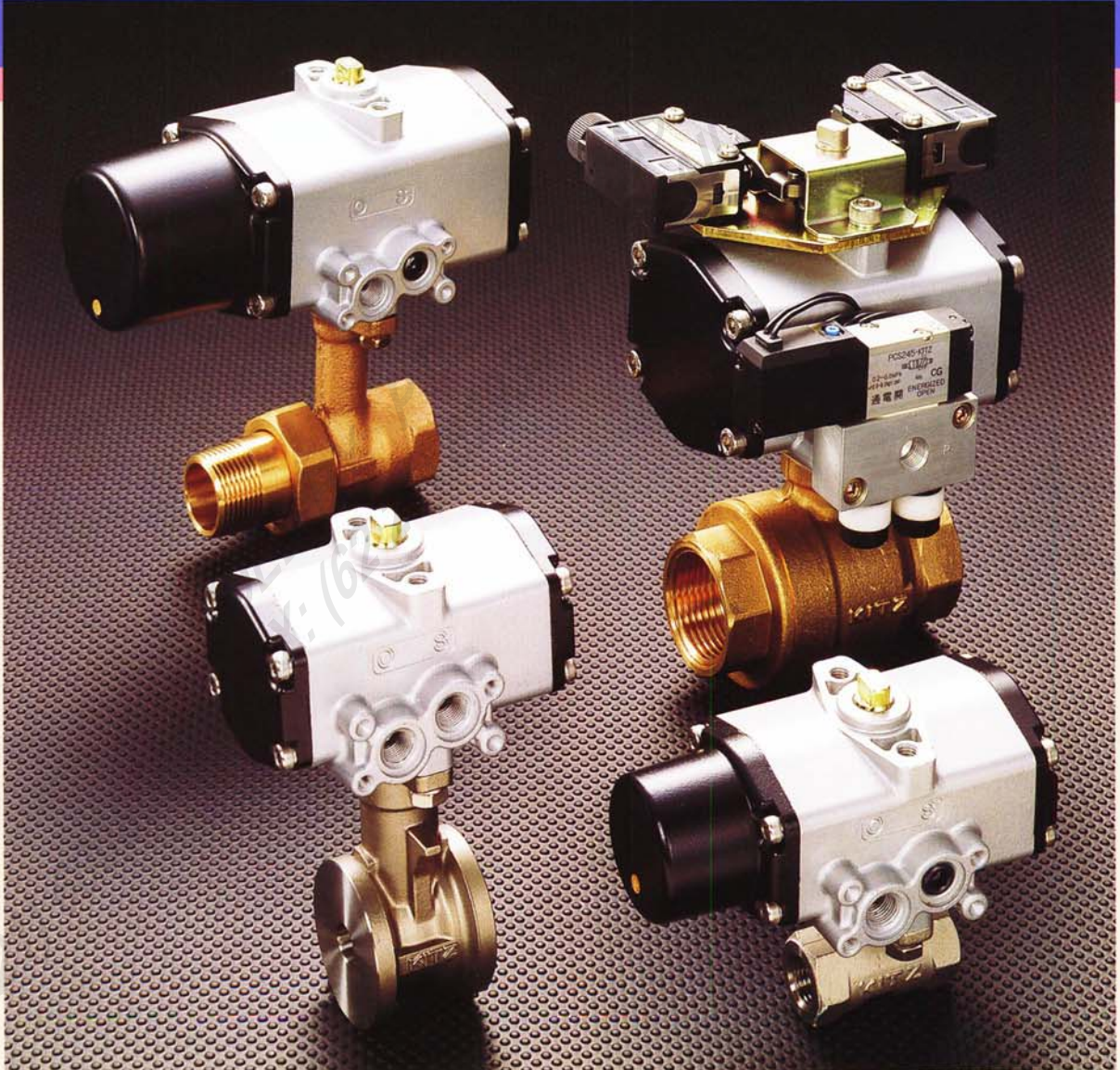


# KITZ

## C Series

### Pneumatic Actuators Driven KITZ Compact Ball Valves

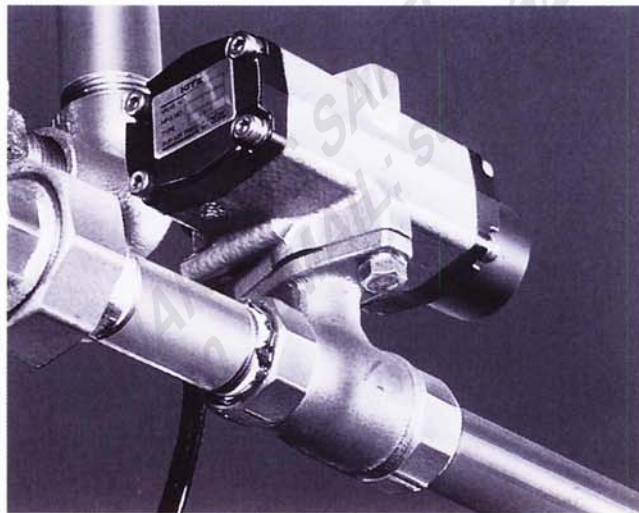
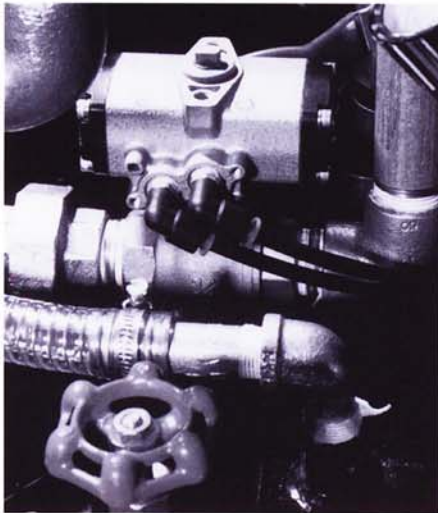
1/4"~2" Class 5K / 10K Bronze and Stainless Steel Compact Ball Valves



Excellent cost performance for pneumatic actuation of compact ball valves for HVAC and light load plant process service in pharmaceutical, fine-chemical, petrochemical, food, beverage, textile and other general light industries.

## Design Features of KITZ C Series Actuators

- Compact and light actuators with die-cast aluminium housing and double piston drive mechanism for economy and handling ease.
- Simple mechanism with minimized number of component parts for high durability and maintenance ease.
- Direct mounting of standard solenoid valves requiring no external tubing work.
- Quarter-turn "Rack and Pinion" drivers with high efficiency.
- Direct actuator-to-valve assembly (requiring only 2 bolts) enabling easy maintenance or replacement of actuators and valves.
- Factory-made actuator-to-valve assembly for off-the-shelf supply.

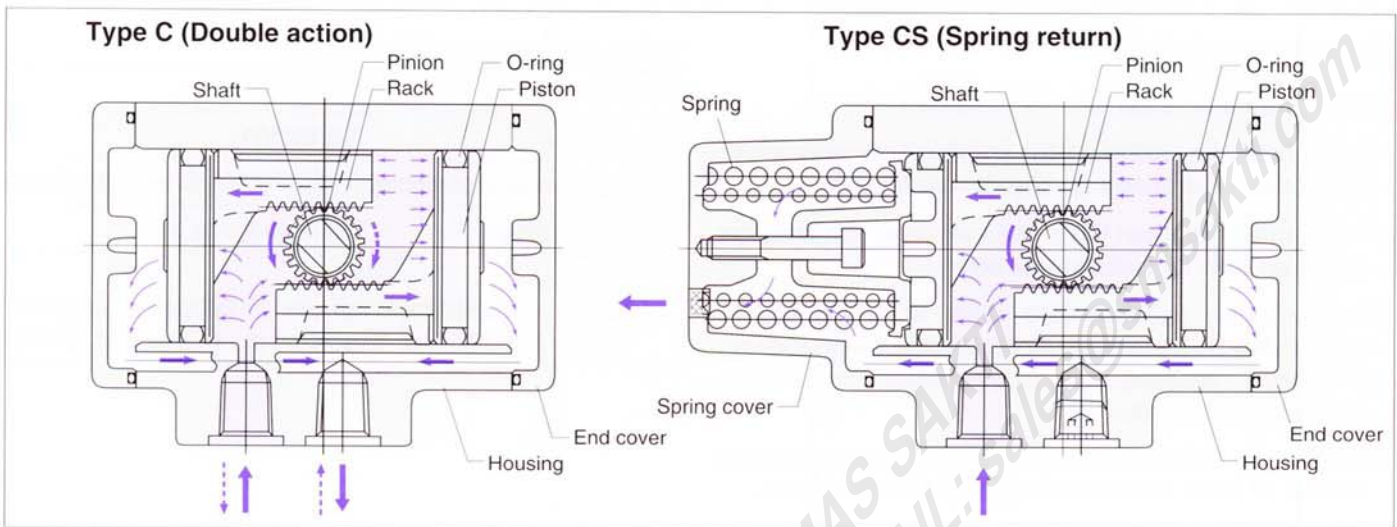


## Contents

Type of actuator	KITZ Fig.	5K / 10K ball valves				Valve size range	Page
		Material	Port	Neck	End connection		
Type C Double action	C-TE	Bronze (JIS BC6)	2-way	Short	Threaded	3/8" to 2"	4
	C-TFE	Brass or Bronze	2-way	Short	Threaded	1/2" to 1 1/2"	5
	C-TLE	Bronze (JIS BC6)	2-way	Long	Threaded	1/2" to 2"	6
	C-TNE	Bronze (JIS BC6)	Horizontal 3-way	Short	Threaded	1/4" to 2"	7
	C-TGE	Bronze (JIS BC6)	2-way	Short	Threaded (with gland)	3/8" to 1"	8
	C-TUE	Bronze (JIS BC6)	2-way	Short	Male & female threaded*	1/2" & 3/4"	9
	C-UTE	Stainless st. (JIS SCS14A)	2-way	Short	Threaded	1/4" to 2"	10
	C-UTFE	Stainless st. (JIS SCS14A)	2-way	Short	Threaded	1/2" to 1 1/2"	11
	C-UTGE	Stainless st. (JIS SCS14A)	2-way	Short	Threaded (with gland)	1/4" to 1"	12
	C-5 / 10 UTWE	Stainless st. (JIS SCS13A)	2-way	Short	Wafer	3/8" to 1"	13
Type CS Spring-return	CS-TE	Bronze (JIS BC)	2-way	Short	Threaded	3/8" to 1"	4
	CS-TFE	Brass or Bronze	2-way	Short	Threaded	1/2"	5
	CS-TLE	Bronze (JIS BC)	2-way	Long	Threaded	1/2" to 1"	6
	CS-TNE	Bronze (JIS BC)	Horizontal 3-way	Short	Threaded	1/4" to 1"	7
	CS-TGE	Bronze (JIS BC)	2-way	Short	Threaded (with gland)	3/8"	8
	CS-TUE	Bronze (JIS BC)	2-way	Short	Male & female threaded*	1/2" & 3/4"	9
	CS-UTE	Stainless st. (JIS SCS14A)	2-way	Short	Threaded	1/4" to 1"	10
	CS-UTFE	Stainless st. (JIS SCS14A)	2-way	Short	Threaded	1/2"	11
	CS-UTGE	Stainless st. (JIS SCS14A)	2-way	Short	Threaded (with gland)	1/4" & 3/8"	12
	CS-5/10UTWE	Stainless st. (JIS SCS13A)	2-way	Short	Wafer	3/8" to 1/2"	13

\*Provided with an union-ring.

## KITZ C Series Pneumatic Actuators



### Actuator design specifications

Specifications	Type	C-1	C-2	CS-1	CS-2	DBS-1*3
Operating medium		Instrumentation air				
Standard operating pressure		0.39MPa (4kgf/cm <sup>2</sup> or 60psi)				
Operating pressure range		0.39~0.69MPa (4~7kgf/cm <sup>2</sup> or 60~100psi)				
Output torque N·m(kgf·cm)		3.9 (40)	8.5 (87)	1.3 (13.5)	3.1 (32)	8.3 (85)
Cylinder pressure test		0.97MPa (9.9kgf/cm <sup>2</sup> or 140psi)				
Operating angle		90° (+5 ~ +1)				
Cylinder volume(ℓ)		0.073	0.160	0.033	0.071	0.18
Stroke time (close → open)*4		Max.1 second				
Service temperature*1		-20 C ~ +60 C				
Service condition		General purpose*2				

- \*1 Protect the air from freezing.
- \*2 For outdoor use, weather-proof solenoid valves are required.
- \*3 Refer to KITZ Cat. No. E-303 for information on KITZ Type DBS-1 actuators.
- \*4 Subject to standard assembly of KITZ air set and solenoid valve, unloaded.

### Materials: Type C & CS

Parts	JIS	ASTM
Housing	ADC12	B85 Alloy SC102A
Piston	ZDC	B86 Alloy AG40A
Shaft	S45C	A576 Gr.1045
Bearing	C5441B	B505 C83600
Cap screw	SUS304	A193 Gr.B8
Gasket		NBR
O-ring		NBR
Snap ring	SK5	A686 W1-8

### Additional materials: Type CS

Spring	SWP-B	A228
Spring retainer	ADC12	B85 Alloy SC102A
Plug	SS400	A307 Gr.B

### Standard guide of actuator selection

Valve Fig.	Size (inch)	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
TE					C-1				C-2
			CS-1			CS-2			(DBS-1)
TFE					C-1		C-2		
					CS-2				
TLE					C-1			C-2	
								(DBS-1)	
TNE					C-1			C-2	
			CS-1					(DBS-1)	
TGE					C-1			C-2	
					CS-2			(DBS-1)	
TUE					C-1				
					CS-2				
UTE					C-1			C-2	
			CS-1					(DBS-1)	
UTFE					C-1		C-2		
					CS-2			(DBS-1)	
UTGE					C-1			C-2	
					CS-2			(DBS-1)	
5 / 10 UTWE					C-1			C-2	
					CS-2			(DBS-1)	

For the size ranges not covered by KITZ C Series actuators, more powerful KITZ Type DBS-1 actuators are recommended. Refer to KITZ Cat. No.E-303 for information.

## C Series Driven Compact Ball Valves

### Valve design features

- Convenient size range from 1/4" through 2".
- Integral actuator mounting pads enabling easy mounting or dismantling of actuators for speedy maintenance.
- Tight contact between PTFE ball seats and high precision machined balls for leakage-free service.
- Dezincification resistant balls made of KITZ's special copper alloy "K-Metal" with nickel-chrome plated surface, or austenitic stainless steel, for long service life of valve operating mechanism.
- Choice of materials: Stainless steel for corrosion resistant service, or brass or bronze for general W.O.G. service.

### Valve design specifications

Threaded ends:	JIS B0203
Union ends:	JIS B2301
Maximum service pressure:	0.98MPa(10kgf/cm <sup>2</sup> or 140psi)
Seat P-T rating:	Refer to Page 3
Test pressure:	
Body	2.06MPa(21kgf/cm <sup>2</sup> or 300psi) Hydrostatic
Seat	0.59MPa( 6kgf/cm <sup>2</sup> or 85psi) Pneumatic

### Ball valve design and applications

KITZ Fig.	JIS Material	Port	Bore*	Neck	End connection	Applications	Actuator
TE	BC6	2-way	S.B.	Short	Threaded	On-off control of water, oil and gas	Type C & CS (DBS)
TFE	C3771BE or BC6		F.B.				Type C & CS
TLE	BC6	Horizontal 3-way	S.B.	Long		Insulation for thermal isolation	Type C & CS (DBS)
TNE				Instantaneous change of line fluid			
TGE				Short	Glanded. High temperature service		
TUE	SCS14A	2-way	R.B.	Short	Male and female threaded with an union ring	Easy installation	Type C & CS
UTE					TE made of stainless steel	Type C & CS (DBS)	
UTFE					TFE made of stainless steel		
UTGE	TGE made of stainless steel						
5 / 10 UTWE	SCS13A		F.B.		Wafer	Full bore wafer design. Maintenance ease.	

\*Bore design F.B. = Full bore, S.B. = Standard bore, R.B. = Reduced bore

### Applications

Automated on-off or 3-way flow control in HVAC service handling water, oil, gas and air (brass and bronze valves) or in light load industrial processes for pharmaceutical, fine chemical, petro-chemical, food, beverage, textile and other general industries. (Stainless steel valves)

### Precautions

- ① No application to fluids including powders, muds or sands.
- ② Contact KITZ or its distributors for technical advice on application to:
  - High viscosity, steam or vacuum service
  - Velocity of 3 m/sec or faster
  - Service with concern of an extraordinary pressure raise of line fluid or a variation of fluid temperature higher than 25°C
  - For line voltage other than KITZ standard specification.

## Valve flow coefficient (Cv for fully opened valves)

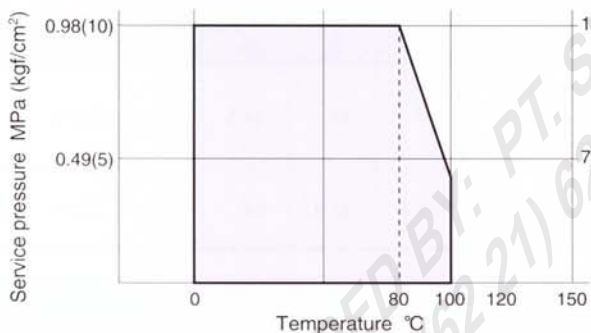
KITZ Fig. \ Size (inch)	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
TE·TLE*	—	2.1	5.6	15	27	45	85	120
TNE	0.5	1	3	6	11	17	28	37
TGE	—	2.1	5.6	15	27	—	—	—
TUE	—	—	4	8	—	—	—	—
UTE·UTGE*	1	2	5	10	15	20	37	60
TFE·UTFE	—	—	18	46	58	92	170	—
5 / 10 UTWE	—	6.5	18	46	58	—	—	—

\*1/2" and larger for TLE. 1" and smaller for UTGE.

## PTFE seat pressure-temperature ratings

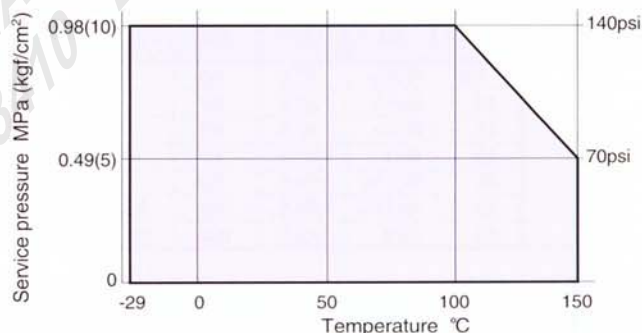
### Valve: TE·TFE·TLE·TNE·TUE·UTE·UTFE·5 / 10 UTWE

- Fluid: water, oil or gas (unfrozen)
- Ball seat: PTFE (standard)
- O-ring: FPM (standard)



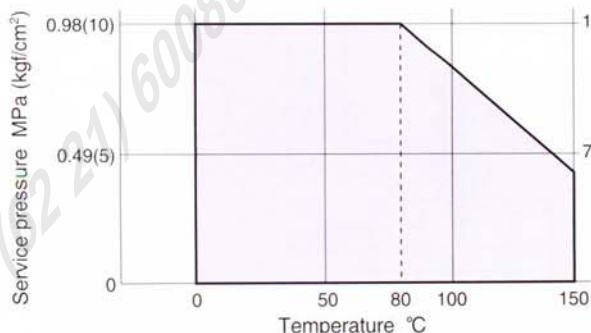
### Valve: TGE

- Fluid: water, oil or gas (unfrozen)
- Ball seat: reinforced PTFE
- Gland packing: inconel wired asbestos



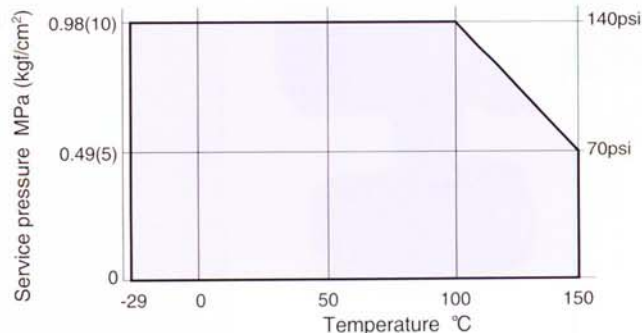
### Valve: TE·TFE·TLE·TNE·TUE·UTE·UTFE·5 / 10 UTWE

- Fluid: water, oil or gas (unfrozen) or saturated steam
- Ball seat: reinforced PTFE (option\*)
- O-ring: Special FPM (option\*)



### Valve: UTGE

- Fluid: water, oil, gas (unfrozen) or saturated steam
- Ball seat: reinforced PTFE
- Gland packing: inconel wired asbestos

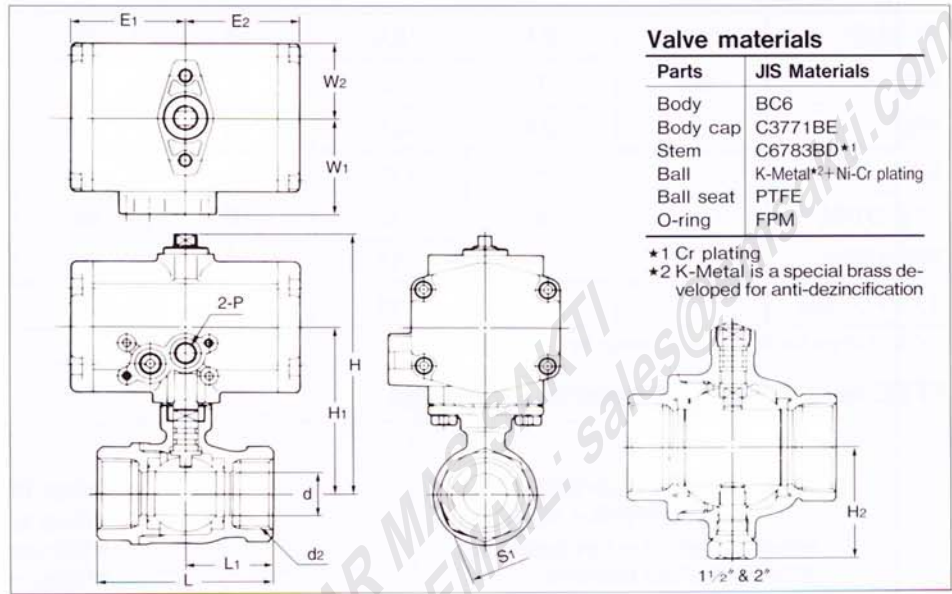


\* Specify these materials in your orders so that valves can perform the pressure-temperature ratings mentioned here.

Note: Ambient temperature depends on the design of actuator. (See Page 1)

## Type C Pneumatic Actuators / Class 10K Bronze Ball Valves

**Fig. C-TE**  
Standard Bore



**Valve materials**

Parts	JIS Materials
Body	BC6
Body cap	C3771BE
Stem	C6783BD*1
Ball	K-Metal*2+Ni-Cr plating
Ball seat	PTFE
O-ring	FPM

- \*1 Cr plating
- \*2 K-Metal is a special brass developed for anti-dezincification

1 1/2" & 2"

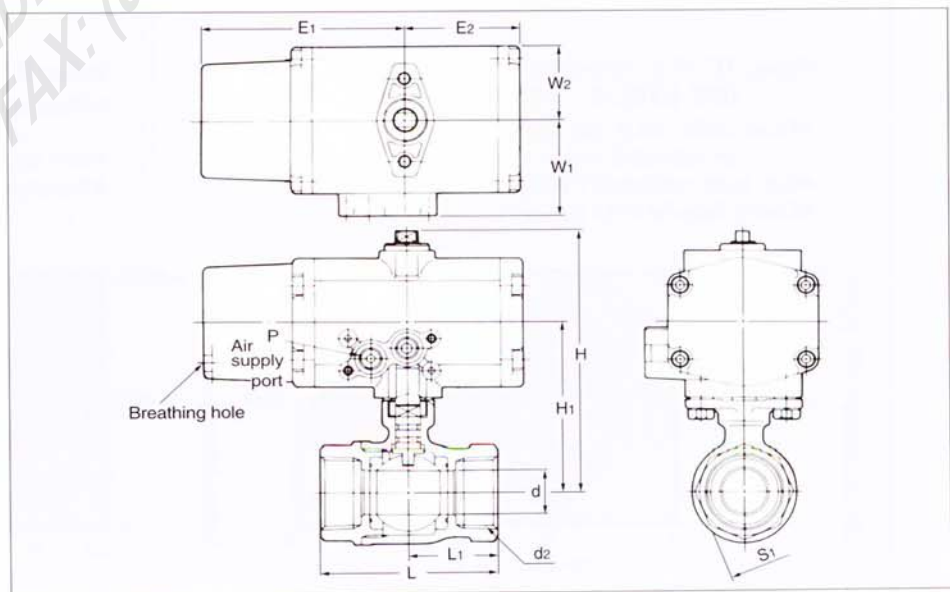
**Dimensions**

(mm)

Valve size (inch)	d	d2	H	H1	H2	L	L1	S1	Actuators					
									E1	E2	W1	W2	P	Type
3/8	7.5	Rc3/8	87.5	56	—	46	22	22	43	43	34.5	26	Rc1/8	C-1
1/2	10	Rc1/2	93.5	62	—	65	32.5	28						
3/4	15	Rc3/4	97.5	66	—	68	34	34						
1	20	Rc1	101.5	70	—	79	39.5	41						
1 1/4	25	Rc1 1/4	124.5	82	—	86	43	50	51.4	51.4	44	33.5	Rc1/8	C-2
1 1/2	32	Rc1 1/2	137.5	95	53.5	96	48	56						
2	40	Rc2	144.5	102	60	109	54.5	68						

## Type CS Pneumatic Actuators / Class 10K Bronze Ball Valves

**Fig. CS-TE**  
Standard Bore



(mm)

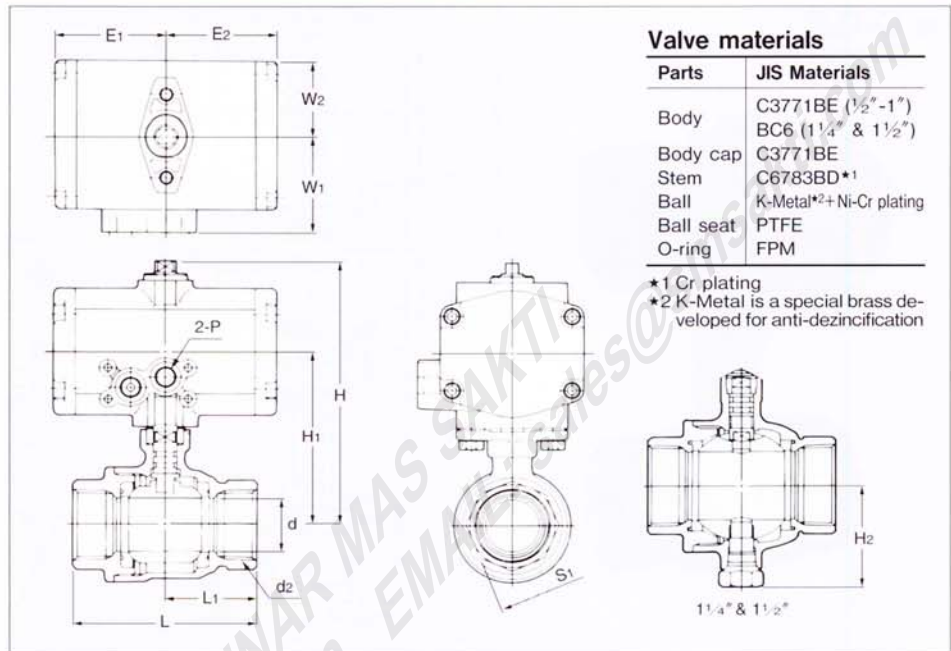
**Dimensions**

Valve size (inch)	d	d2	H	H1	L	L1	S1	Actuators					
								E1	E2	W1	W2	P	Type
3/8	7.5	Rc3/8	87.5	56	46	22	22	69.5	43	34.5	26	Rc1/8	CS-1
1/2	10	Rc1/2	112.5	70	65	32.5	28	92	51.4	44	33.5	Rc1/8	CS-2
3/4	15	Rc3/4	116.5	74	68	34	34						
1	20	Rc1	120.5	78	79	39.5	41						

Note: Refer to KITZ Cat. No.E-303 for Size 1 1/4" to 2".

## Type C Pneumatic Actuators / Class 10K Copper Alloy Ball Valves, Full Bore

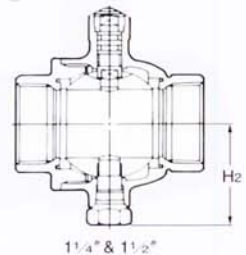
Fig. **C-TFE**  
Full Bore



### Valve materials

Parts	JIS Materials
Body	C3771BE (1/2"-1")
Body cap	BC6 (1 1/4" & 1 1/2")
Stem	C6783BD*1
Ball	K-Metal*2+ Ni-Cr plating
Ball seat	PTFE
O-ring	FPM

- \*1 Cr plating
- \*2 K-Metal is a special brass developed for anti-dezincification



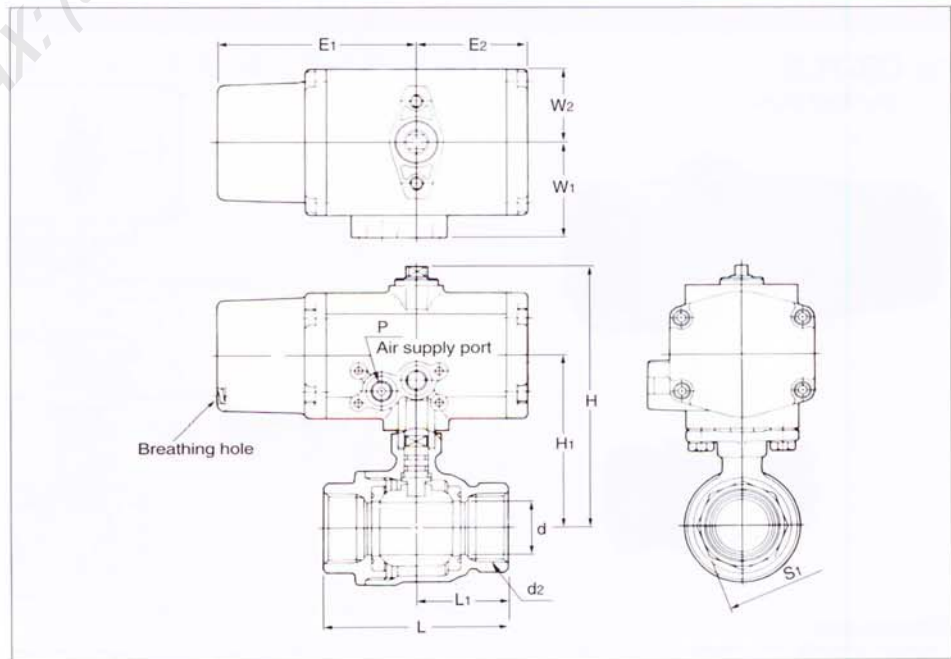
### Dimensions

Valve size (inch)	d	d <sub>2</sub>	H	H <sub>1</sub>	H <sub>2</sub>	L	L <sub>1</sub>	S <sub>1</sub>	Actuators					
									E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
1/2	15	Rc1/2	97.5	66	—	63	31.5	26	43	43	34.5	26	Rc1/8	C-1
3/4	20	Rc3/4	101.5	70	—	73	36.5	32	51.4	51.4	44	33.5	Rc1/8	C-2
1	25	Rc1	124.5	82	—	85	42.5	39						
1 1/4	32	Rc1 1/4	138.5	96	53.5	98	49	50						
1 1/2	40	Rc1 1/2	144.5	102	59.5	108	54	56						

(mm)

## Type CS Pneumatic Actuators / Class 10K Brass Ball Valves, Full Bore

Fig. **CS-TFE**  
Full Bore



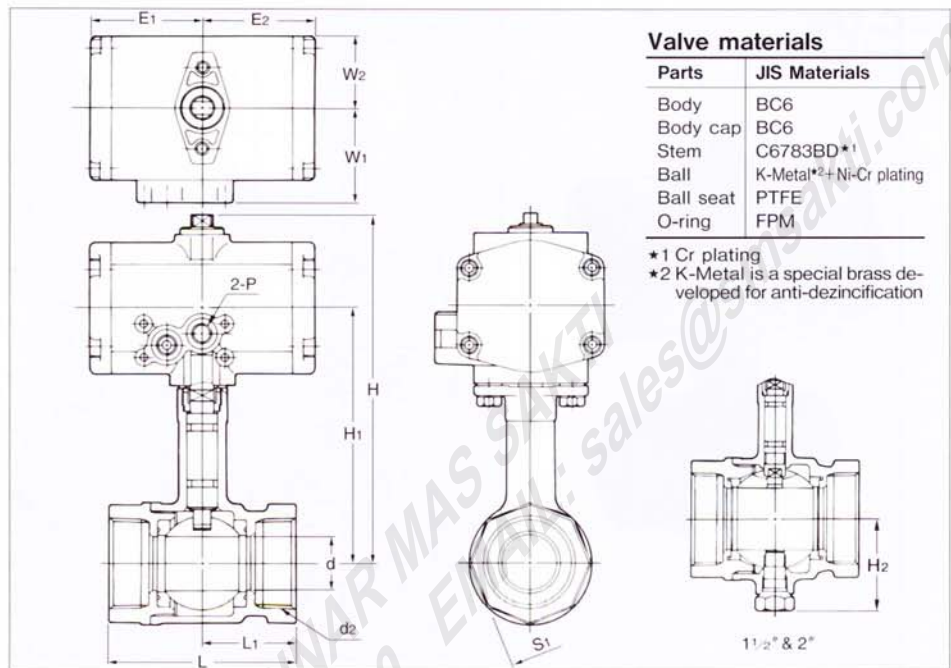
### Dimensions

Valve size (inch)	d	d <sub>2</sub>	H	H <sub>1</sub>	L	L <sub>1</sub>	S <sub>1</sub>	Actuators					
								E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
1/2	15	Rc1/2	108.5	66	63	31.5	26	92	51.4	44	33.5	Rc1/8	CS-2

(mm)

## Type C Pneumatic Actuators / Class 10K Long Neck Bronze Ball Valves

**Fig. C-TLE**  
Standard Bore



**Valve materials**

Parts	JIS Materials
Body	BC6
Body cap	BC6
Stem	C6783BD*1
Ball	K-Metal*2+Ni-Cr plating
Ball seat	PTFE
O-ring	FPM

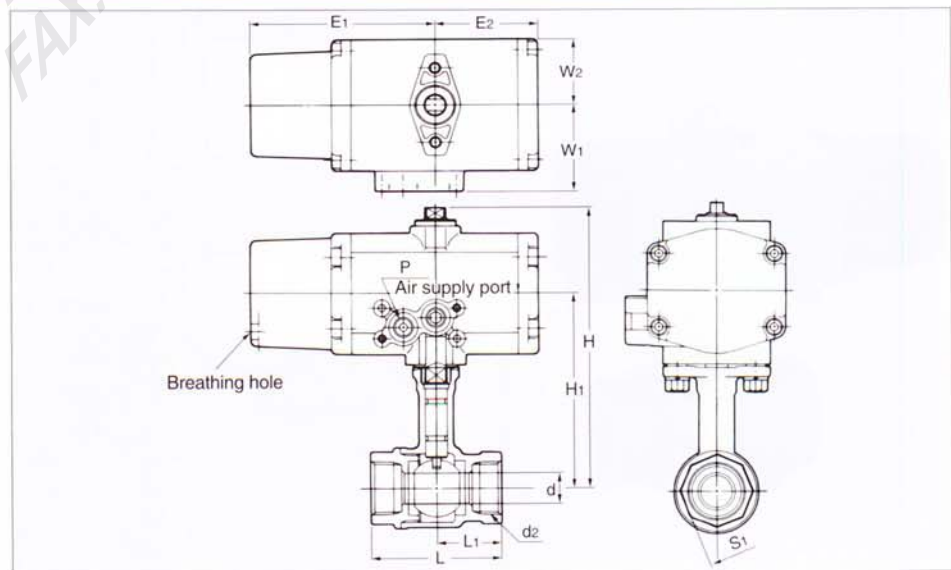
\*1 Cr plating  
\*2 K-Metal is a special brass developed for anti-dezincification

**Dimensions**

Valve size (inch)	d	d2	H	H1	H2	L	L1	S1	Actuators					
									E1	E2	W1	W2	P	Type
1/2	10	Rc1/2	115.5	84	—	56	28	27	43	43	34.5	26	Rc1/8	C-1
3/4	15	Rc3/4	120.5	89	—	65	32.5	33						
1	20	Rc1	123.5	92	—	78	39	41						
1 1/4	25	Rc1 1/4	158.5	116	—	86	43	51	51.4	51.4	44	33.5	Rc1/8	C-2
1 1/2	32	Rc1 1/2	161.5	119	53.5	96	48	58						
2	40	Rc2	168.5	126	60	109	54.5	71						

## Type CS Pneumatic Actuators / Class 10K Long Neck Bronze Ball Valves

**Fig. CS-TLE**  
Standard Bore



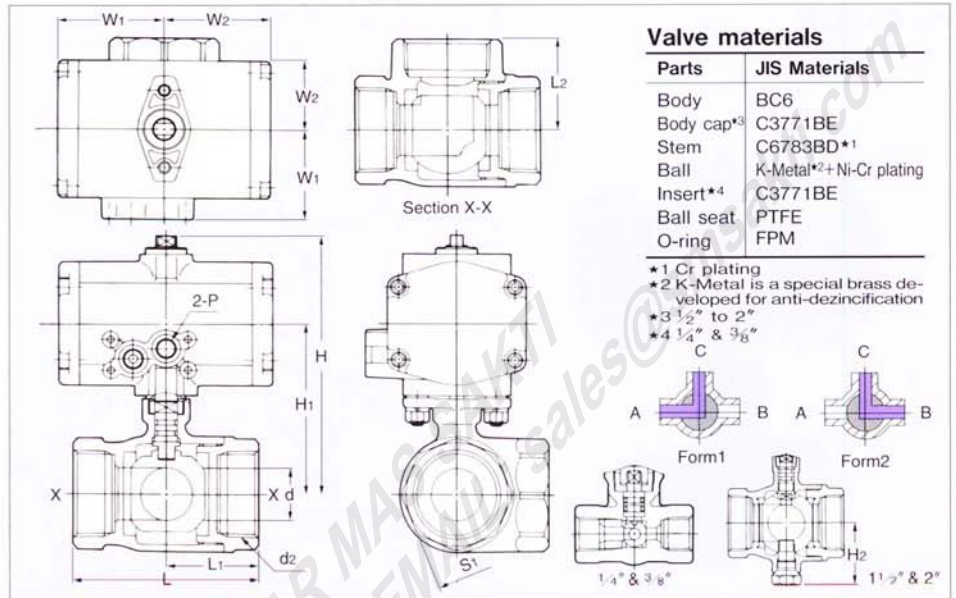
**Dimensions**

Valve size (inch)	d	d2	H	H1	L	L1	S1	Actuators					
								E1	E2	W1	W2	P	Type
1/2	10	Rc1/2	134.5	92	56	28	27	92	51.4	44	33.5	Rc1/8	CS-2
3/4	15	Rc3/4	139.5	97	65	32.5	33						
1	20	Rc1	142.5	100	78	39	41						

Note: Refer to KITZ Cat. No.E-303 for Size 1 1/4" to 2".

## Type C Pneumatic Actuators / Class 10K Horizontal 3-way Bronze Ball Valves

**Fig. C-TNE**  
Standard Bore



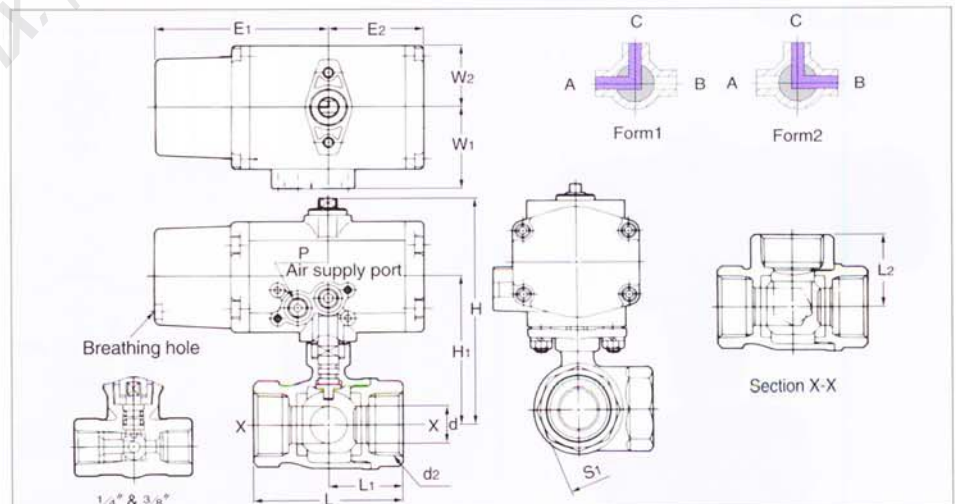
**Note:** Refer to Page 14 for flow directional forms.  
Products are adequately identified with nameplates indicating either one of Form 1 or Form 2. (mm)

**Dimensions**

Valve size (inch)	d	d <sub>2</sub>	H	H <sub>1</sub>	H <sub>2</sub>	L	L <sub>1</sub>	L <sub>2</sub>	S <sub>1</sub>	Actuators					
										E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
1/4	4.5	Rc1/4	85.5	54	—	46	23	23	21	43	43	34.5	26	Rc1/8	C-1
3/8	6.8	Rc3/8	85.5	54	—	46	23	23	21						
1/2	10	Rc1/2	93.5	62	—	67	33.5	33.5	28						
3/4	15	Rc3/4	97.5	66	—	68	34	34	34						
1	20	Rc1	101.5	70	—	79	39.5	39.5	41	51.4	51.4	44	33.5	Rc1/8	C-2
1 1/4	25	Rc1 1/4	125.5	83	—	89	44.5	44.5	50						
1 1/2	32	Rc1 1/2	138.5	96	53.5	100	50	50	56						
2	40	Rc2	144.5	102	60	115	57.5	57.5	68						

## Type CS Pneumatic Actuators / Class 10K Horizontal 3-way Bronze Ball Valves

**Fig. CS-TNE**  
Standard Bore



**Note:** Refer to Page 14 for flow directional forms.  
Products are adequately identified with nameplates indicating either one of Form 1 or Form 2. (mm)

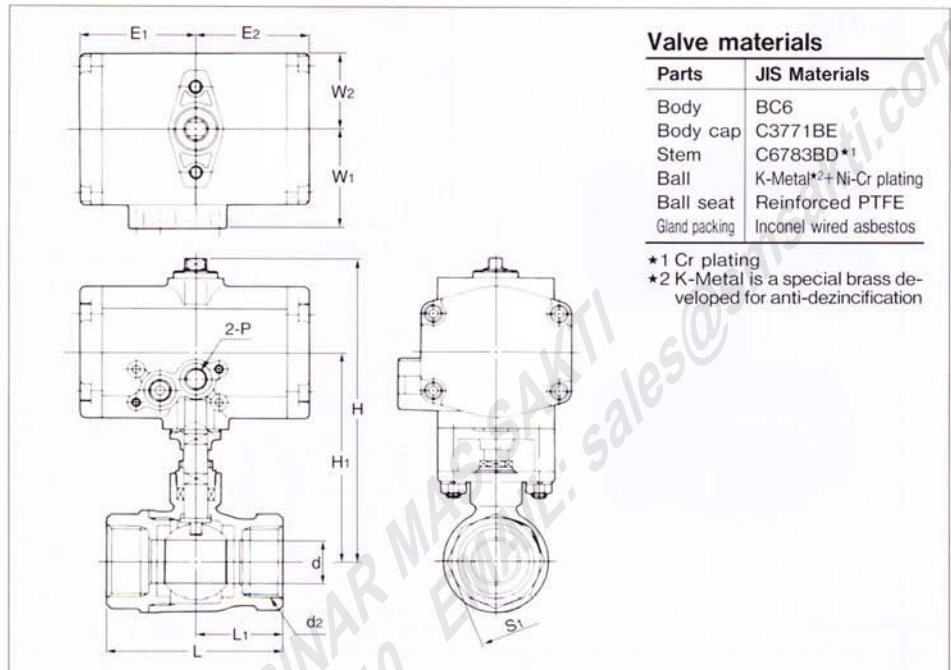
**Dimensions**

Valve size (inch)	d	d <sub>2</sub>	H	H <sub>1</sub>	L	L <sub>1</sub>	L <sub>2</sub>	S <sub>1</sub>	Actuators					
									E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
1/4	4.5	Rc1/4	85.5	54	46	23	23	21	69.5	43	34.5	26	Rc1/8	CS-1
3/8	6.8	Rc3/8	85.5	54	46	23	23	21						
1/2	10	Rc1/2	112.5	70	67	33.5	33.5	28						
3/4	15	Rc3/4	116.5	74	68	34	34	34						
1	20	Rc1	120.5	78	79	39.5	39.5	41	92	51.4	44	33.5	Rc1/8	CS-2

**Note:** Refer to KITZ Cat. No.E-303 for Size 1/4" to 2".

## Type C Pneumatic Actuators / Class 10K Bronze Ball Valves, with Gland

**Fig. C-TGE**  
Standard Bore



**Valve materials**

Parts	JIS Materials
Body	BC6
Body cap	C3771BE
Stem	C6783BD*1
Ball	K-Metal*2+Ni-Cr plating
Ball seat	Reinforced PTFE
Gland packing	Inconel wired asbestos

- \*1 Cr plating
- \*2 K-Metal is a special brass developed for anti-dezincification

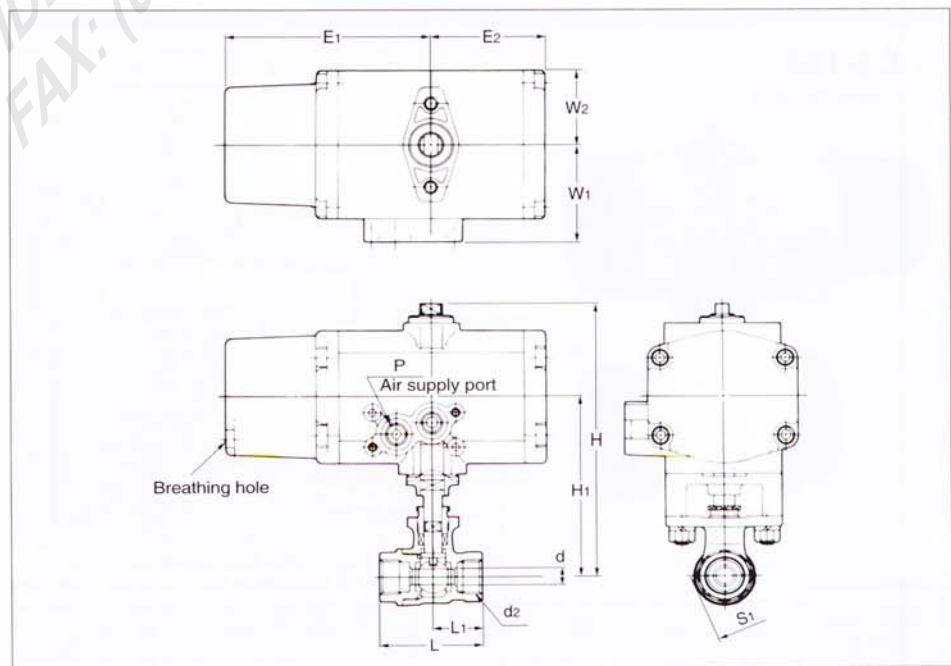
**Dimensions**

Valve size (inch)	d	d <sub>2</sub>	H	H <sub>1</sub>	L	L <sub>1</sub>	S <sub>1</sub>	Actuators					
								E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
3/8	7.5	Rc3/8	107.5	76	46	22	22	43	43	34.5	26	Rc1/8	C-1
1/2	10	Rc1/2	132.5	90	65	32.5	28	51.4	51.4	44	33.5	Rc1/8	C-2
3/4	15	Rc3/4	136.5	94	68	34	34						
1	20	Rc1	140.5	98	79	39.5	41						

(mm)

## Type CS Pneumatic Actuators / Class 10K Bronze Ball Valves, with Gland

**Fig. CS-TGE**  
Standard Bore



**Dimensions**

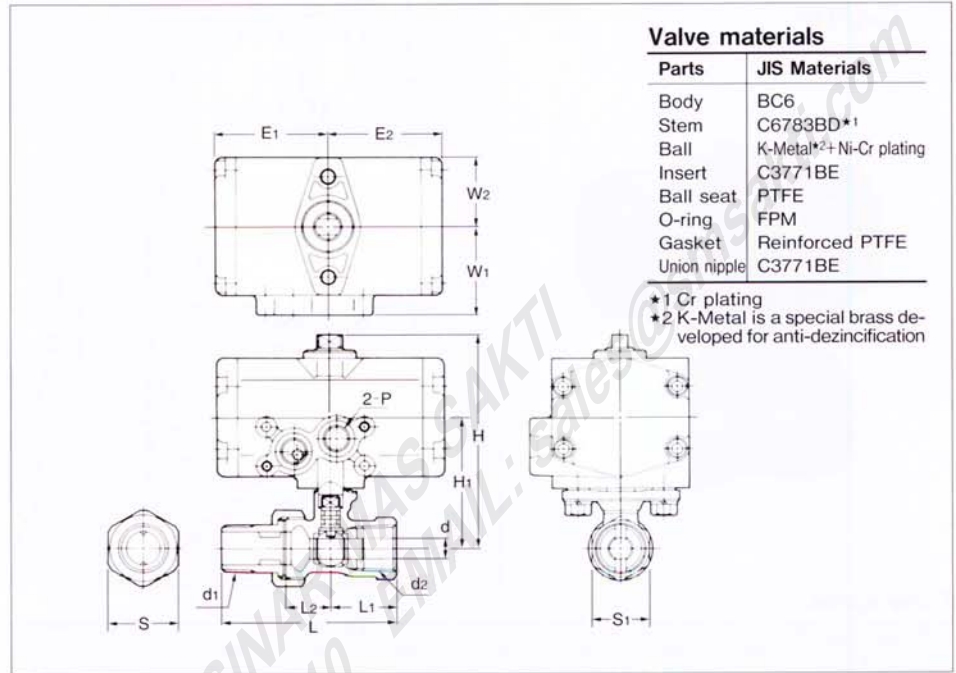
Valve size (inch)	d	d <sub>2</sub>	H	H <sub>1</sub>	L	L <sub>1</sub>	S <sub>1</sub>	Actuators					
								E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
3/8	7.5	Rc3/8	126.5	84	46	22	22	92	51.4	44	33.5	Rc1/8	CS-2

(mm)

Note: Refer to KITZ Cat. No.E-303 for Size 1/2" to 1".

## Type C Pneumatic Actuators / Class 10K Union-ring Bronze Ball Valves

**Fig. C-TUE**  
Reduced Bore



**Valve materials**

Parts	JIS Materials
Body	BC6
Stem	C6783BD*1
Ball	K-Metal*2+ Ni-Cr plating
Insert	C3771BE
Ball seat	PTFE
O-ring	FPM
Gasket	Reinforced PTFE
Union nipple	C3771BE

- \*1 Cr plating
- \*2 K-Metal is a special brass developed for anti-dezincification

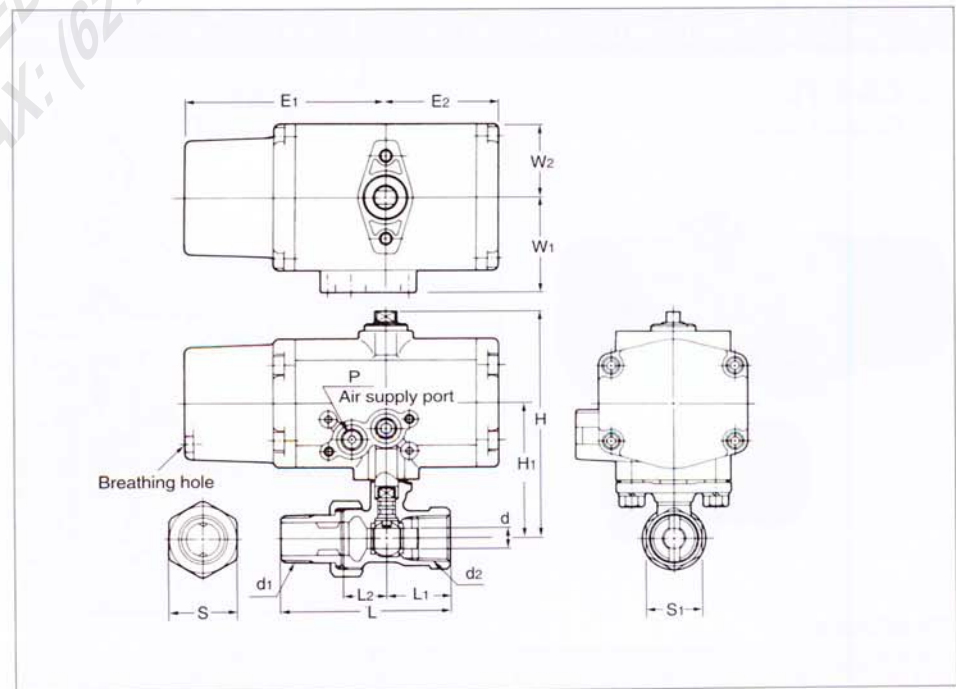
**Dimensions**

Valve size (inch)	d	d2	d1	H	H1	L	L1	L2	S	S1	Actuators					
											E1	E2	W1	W2	P	Type
1/2	8	Rc1/2	R1/2	85.5	54	78.5	29	20	31	25	43	43	34.5	26	Rc1/8	C-1
3/4	11	Rc3/4	R3/4	88.5	57	81	29	20	36	32						

(mm)

## Type CS Pneumatic Actuators / Class 10K Union-ring Bronze Ball Valves

**Fig. CS-TUE**  
Reduced Bore



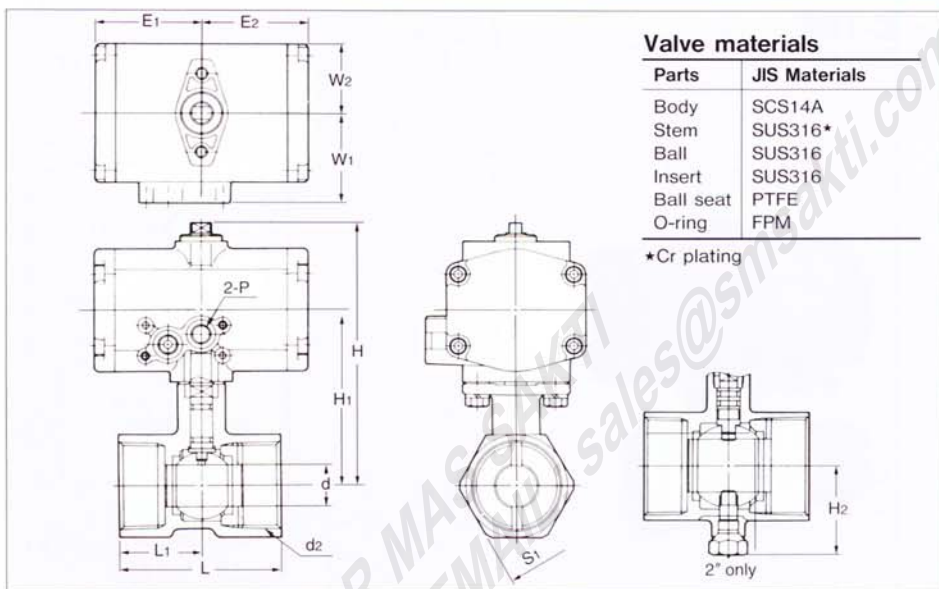
**Dimensions**

Valve size (inch)	d	d2	d1	H	H1	L	L1	L2	S	S1	Actuators					
											E1	E2	W1	W2	P	Type
1/2	8	Rc1/2	R1/2	104.5	62	78.5	29	20	31	25	92	51.4	44	33.5	Rc1/8	CS-2
3/4	11	Rc3/4	R3/4	107.5	65	81	29	20	36	32						

(mm)

## Type C Pneumatic Actuators / Class 10K Stainless Steel Ball Valves

**Fig. C-UTE**  
Reduced Bore



**Valve materials**

Parts	JIS Materials
Body	SCS14A
Stem	SUS316*
Ball	SUS316
Insert	SUS316
Ball seat	PTFE
O-ring	FPM

\*Cr plating

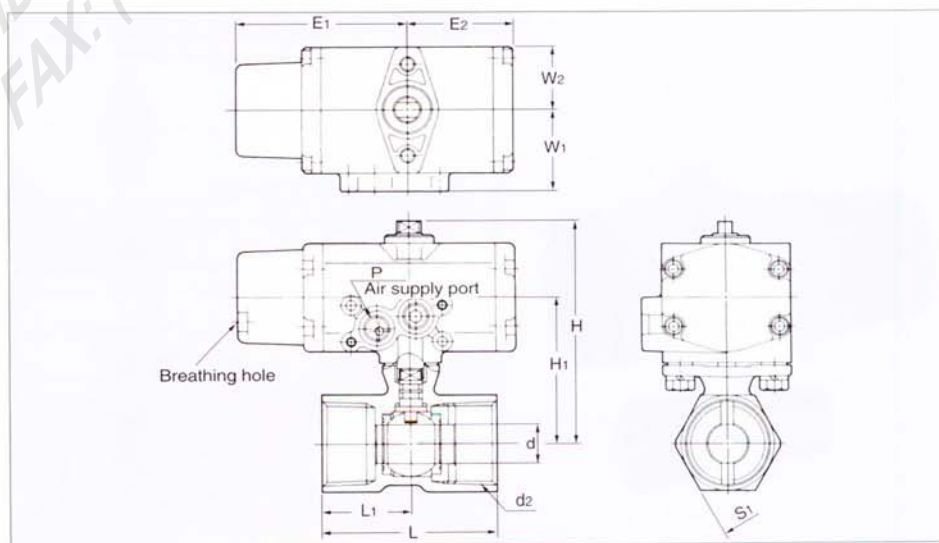
**Dimensions**

Valve size (inch)	d	d2	H	H1	H2	L	L1	S1	Actuators					
									E1	E2	W1	W2	P	Type
1/4	5.3	Rc1/4	85.5	54	—	44	21	21	43	43	34.5	26	Rc1/8	C-1
3/8	7.7	Rc3/8	85.5	54	—	44	21	21						
1/2	9.2	Rc1/2	85.5	54	—	56.5	27.5	25						
3/4	12.5	Rc3/4	88.5	57	—	59	30	32						
1	16	Rc1	91.5	60	—	71	36	38	51.4	51.4	44	33.5	Rc1/8	C-2
1 1/4	20	Rc1 1/4	128.5	86	—	78	40	49						
1 1/2	24.5	Rc1 1/2	131.5	89	—	83	42.5	53						
2	32	Rc2	137.5	95	53.5	100	51	65						

(mm)

## Type CS Pneumatic Actuators / Class 10K Stainless Steel Ball Valves

**Fig. CS-UTE**  
Reduced Bore



**Dimensions**

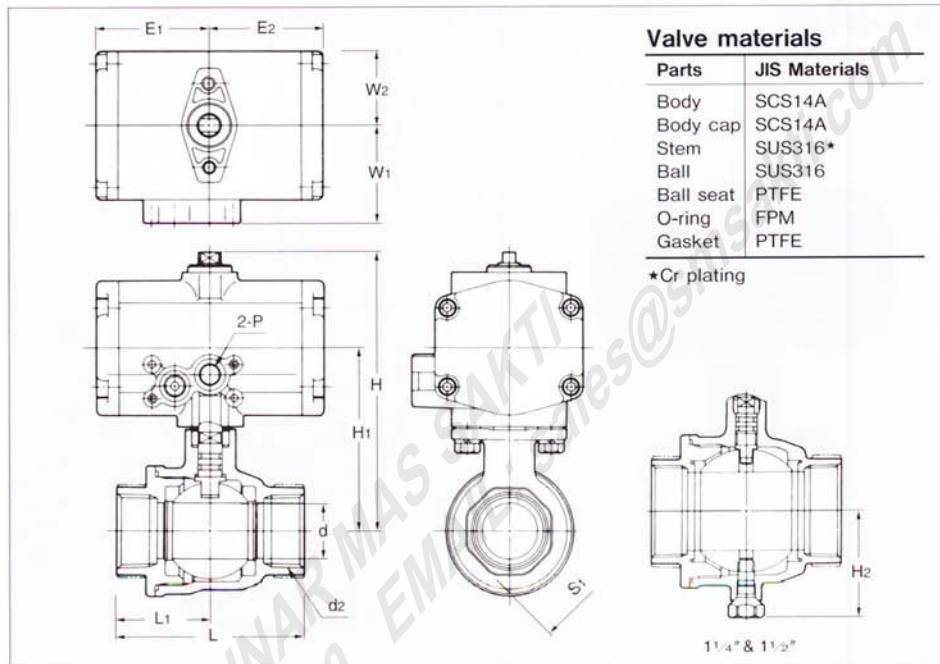
Valve size (inch)	d	d2	H	H1	L	L1	S1	Actuators					
								E1	E2	W1	W2	P	Type
1/4	5.3	Rc1/4	85.5	54	44	21	21	69.5	43	34.5	26	Rc1/8	CS-1
3/8	7.7	Rc3/8	85.5	54	44	21	21						
1/2	9.2	Rc1/2	104.5	62	56.5	27.5	25						
3/4	12.5	Rc3/4	107.5	65	59	30	32						
1	16	Rc1	110.5	68	71	36	38	92	51.4	44	33.5	Rc1/8	CS-2

(mm)

Note: Refer to KITZ Cat. No.E-303 for Size 1 1/4" to 2".

## Type C Pneumatic Actuators / Class 10K Stainless Steel Ball Valves, Full Bore

Fig. **C-UTFE**  
Full Bore



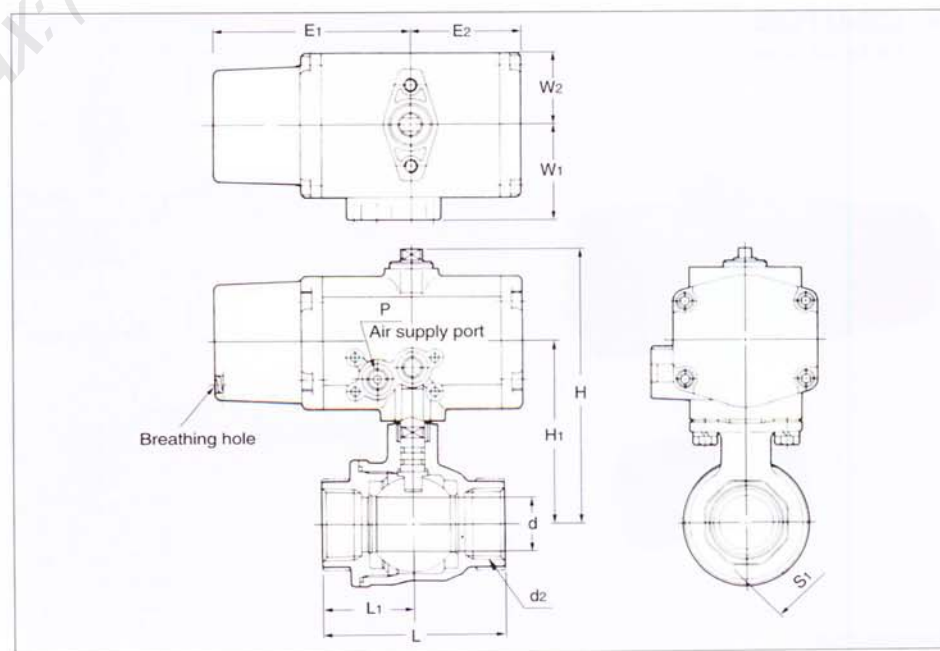
**Dimensions**

Valve size (inch)	d	d2	H	H1	H2	L	L1	S1	Actuators					
									E1	E2	W1	W2	P	Type
1/2	15	Rc1/2	97.5	66	—	62	31	26	43	43	34.5	26	Rc1/8	C-1
3/4	20	Rc3/4	101.5	70	—	73	36.5	32	51.4	51.4	44	33.5	Rc1/8	C-2
1	25	Rc1	124.5	82	—	85	42.5	39						
1 1/4	32	Rc1 1/4	138.5	96	55	98	49	48						
1 1/2	40	Rc1 1/2	144.5	102	61	108	54	54						

(mm)

## Type CS Pneumatic Actuators / Class 10K Stainless Steel Ball Valves, Full Bore

Fig. **CS-UTFE**  
Full Bore



**Dimensions**

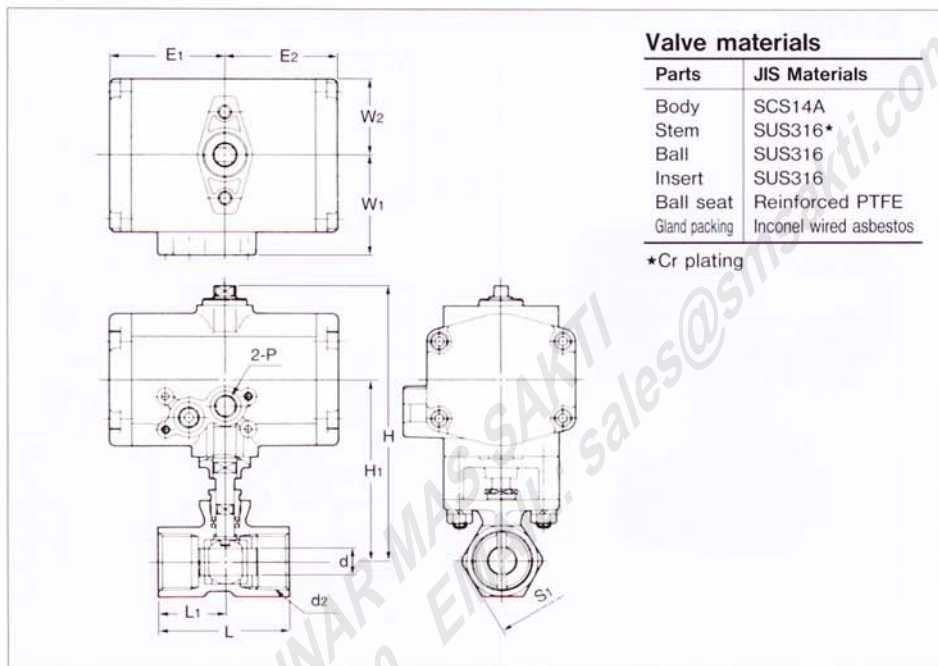
Valve size (inch)	d	d2	H	H1	L	L1	S1	Actuators					
								E1	E2	W1	W2	P	Type
1/2	15	Rc1/2	108.5	66	62	31	26	92	51.4	44	33.5	Rc1/8	CS-2

(mm)

Note: Refer to KITZ Cat. No.E-303 for Size 3/4" to 1 1/2".

## Type C Pneumatic Actuators / Class 10K Stainless Steel Ball Valves, with Gland

**Fig. C-UTGE**  
Reduced Bore



### Valve materials

Parts	JIS Materials
Body	SCS14A
Stem	SUS316*
Ball	SUS316
Insert	SUS316
Ball seat	Reinforced PTFE
Gland packing	Inconel wired asbestos

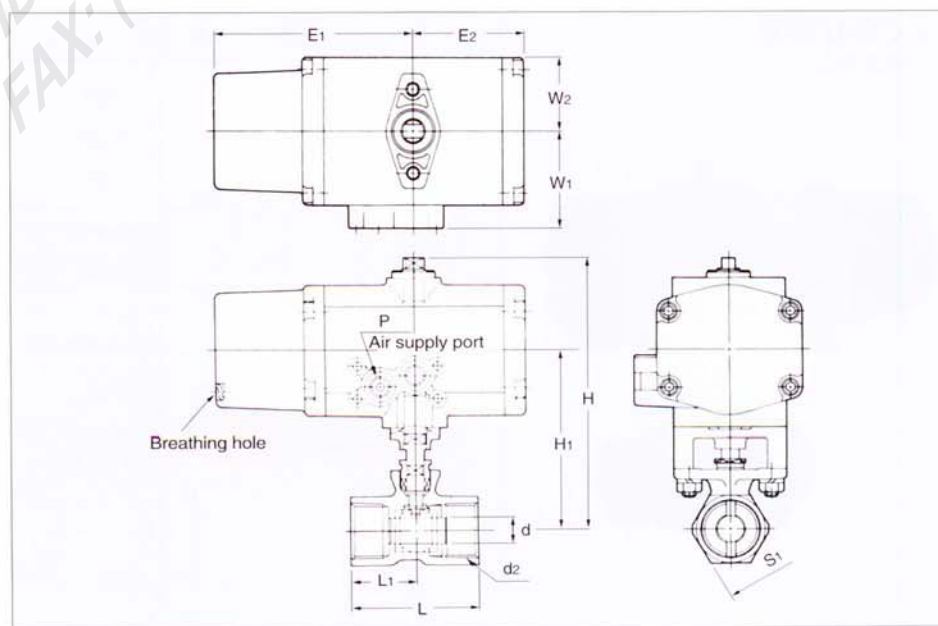
\*Cr plating

### Dimensions

Valve size (inch)	d	d2	H	H1	L	L1	S1	Actuators					
								E1	E2	W1	W2	P	Type
1/4	5.3	Rc1/4	105.5	74	44	21	21	43	43	34.5	26	Rc1/8	C-1
3/8	7.7	Rc3/8	105.5	74	44	21	21						
1/2	9.2	Rc1/2	124.5	82	56.5	27.5	25	51.4	51.4	44	33.5	Rc1/8	C-2
3/4	12.5	Rc3/4	127.5	85	59	30	32						
1	16	Rc1	130.5	88	71	36	38						

## Type CS Pneumatic Actuators / Class 10K Stainless Steel Ball Valves, with Gland

**Fig. CS-UTGE**  
Reduced Bore



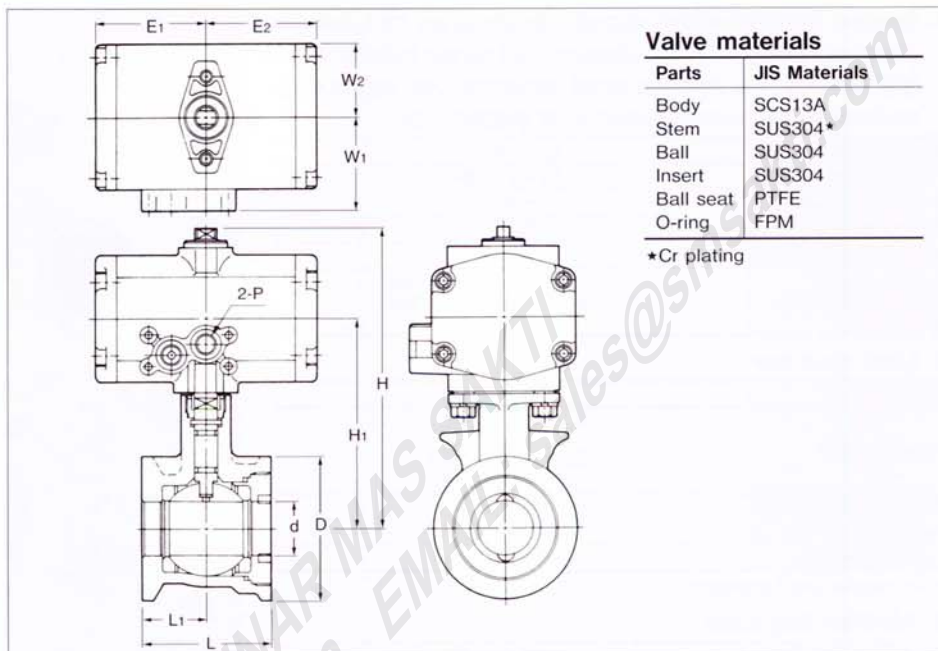
### Dimensions

Valve size (inch)	d	d2	H	H1	L	L1	S1	Actuators					
								E1	E2	W1	W2	P	Type
1/4	5.3	Rc1/4	124.5	82	44	21	21	92	51.4	44	33.5	Rc1/8	CS-2
3/8	7.7	Rc3/8	124.5	82	44	21	21						

Note: Refer to KITZ Cat. No.E-303 for Size 1/2" to 1".

## Type C Pneumatic Actuators / Class 5K·10K Wafer Stainless Steel Ball Valves

**Fig. C-5 / 10 UTWE**  
Full Bore



**Valve materials**

Parts	JIS Materials
Body	SCS13A
Stem	SUS304*
Ball	SUS304
Insert	SUS304
Ball seat	PTFE
O-ring	FPM

\*Cr plating

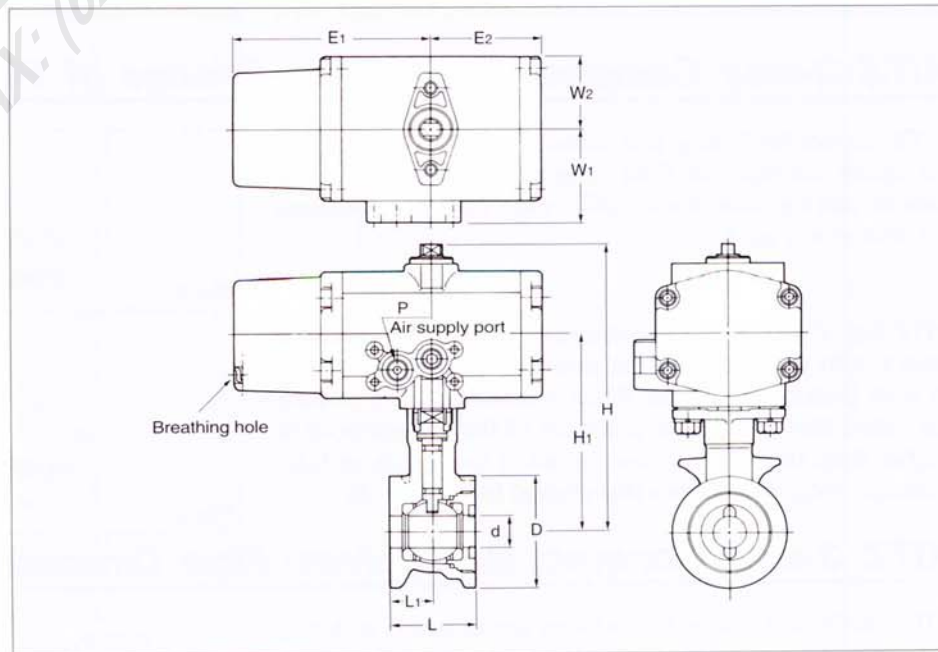
**Dimensions**

Valve size (inch)	d	H	H <sub>1</sub>	L	L <sub>1</sub>	D		Actuators					
						5UTWE	10UTWE	E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
3/8	10	114.5	83	35	17.5	43	48	43	43	34.5	26	Rc1/8	C-1
1/2	15	117.5	86	40	20	48	53	51.4	51.4	44	33.5	Rc1/8	C-2
3/4	20	138.5	96	50	25	53	58						
1	25	146.5	104	60	30	63	69						

(mm)

## Type CS Pneumatic Actuators / Class 5K·10K Wafer Stainless Steel Ball Valves

**Fig. CS-5 / 10 UTWE**  
Full Bore



**Dimensions**

Valve size (inch)	d	H	H <sub>1</sub>	L	L <sub>1</sub>	D		Actuators					
						5UTWE	10UTWE	E <sub>1</sub>	E <sub>2</sub>	W <sub>1</sub>	W <sub>2</sub>	P	Type
3/8	10	133.5	91	35	17.5	43	48	92	51.4	44	33.5	Rc1/8	CS-2
1/2	15	136.5	94	40	20	48	53						

(mm)

Note: Refer to KITZ Cat. No.E-303 for Size 3/4" to 1".

## Optional Accessories for KITZ C Series Actuators

1. **Special solenoid valves** exclusively designed for tubeless, direct mounting on KITZ compact ball valves introduced in this catalog. No weather-proof provision. An appropriate protective measure is required for outdoor use.

Supply sourcing	Lead wires
Working pressure	0.15~0.70MPa
Ambient temperature	5~50°C
Connected pipe	Rc $\frac{1}{8}$
Effective cross-sectional area	4mm <sup>2</sup>
Rated voltage; Permissible voltage variation	100, 110VAC/50,60Hz; $\pm 10\%$ 200, 220VAC/50,60Hz; $\pm 10\%$ 24VDC; $\pm 10\%$

### 2. Limit switches

Detection	1-point
Rated current	AC: 5A-125VAC 5A-250VAC DC: 0.5A-115VDC 0.25A-230VDC
Ambient temperature	-10°C~70°C
Supply sourcing	Conduit type
Cable diameter	$\phi 5.8 \sim \phi 7.8$

\*No weather-proof provision.

### 3. Air-Filter-Regulator

Design	Relief type
Working pressure	0.97MPa Max.
Working pressure	0.4~8.5MPa
Ambient temperature	5~60°C
Filtration	5 $\mu$ m
Connected pipe	Rc $\frac{1}{4}$

### 4. Speed controllers

Design	Slotting	Air slotting	Air throttling with silencer
Working pressure	0.05~1MPa	0.1~1MPa	0~1MPa
Ambient temperature	5~60°C	5~60°C	5~60°C
Connected pipe	Rc $\frac{1}{8}$	R $\frac{1}{8}$ , Rc $\frac{1}{8}$	R $\frac{1}{8}$

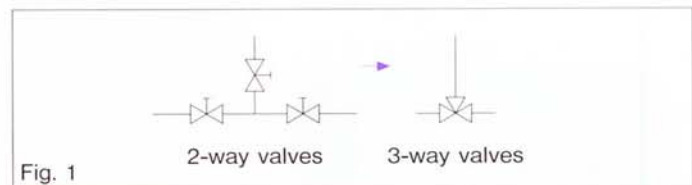


### 5. Silencer

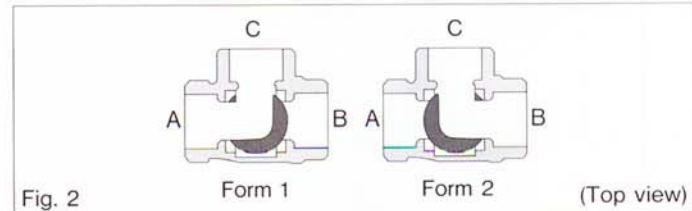
Connected pipe	R $\frac{1}{8}$
Effective cross-sectional area	74mm <sup>2</sup>
Silencing effect	34dB
Working pressure	0.9MPa Max.
Ambient temperature	5~50°C

## KITZ 3-way Compact Ball Valves: Change of Flow Directional Form

KITZ horizontal 3-way ball valves are principally used for quick change of flow direction. Also 3-way ball valves can be used for simplification of piping systems as shown in Fig. 1:

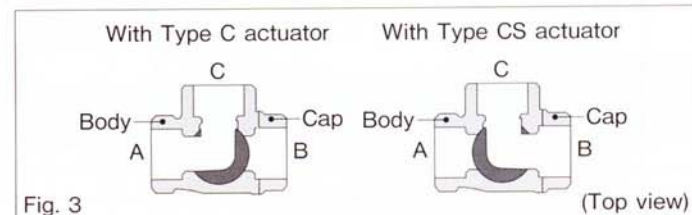


KITZ Fig. TNE horizontal 3-way ball valves are provided with L-port and double face seating design for change of flow direction between Form 1 and Form 2. It should be noted that, if the line pressure of the closed bore is higher than that of the open bores, a small rate of fluid leakage may occur from the closed bore. (Fig. 2)



## KITZ 3-way Compact Ball Valves: Flow Directional Form

KITZ horizontal 3-way ball valves are shipped with the flow directional mode set as shown in Fig. 3 at the factory, when assembled with KITZ C Series pneumatic actuators.



## Precautions for Trouble-free Operation

### Storage and Handling

Pneumatically operated KITZ compact ball valves are individually packed in styrofoam boxes. Don't unpack until you are ready to mount on the pipeline. Store in dry, corrosion-free environment to keep rust-free, although they are adequately coated for primary protection. Handle units carefully when actuators are equipped with solenoid valves and other accessories. Don't place any other objects on actuators, and don't step on actuators. Overloading actuators must always be prevented.

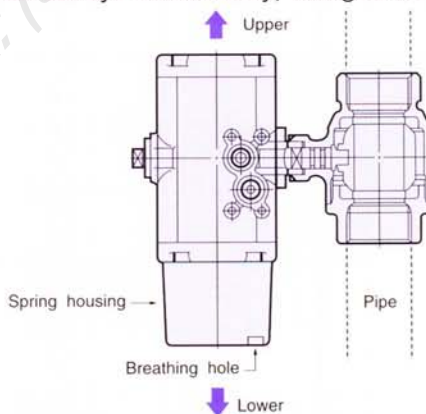
### Mounting and Piping

Before mounting pneumatically operated KITZ compact ball valves, make visual inspection of all valves, actuators and accessories to assure trouble-free condition. Tighten any loosened boltings securely. Clean valve and pipe bores to remove welding spatters, scales or any other foreign objects which may have been left inside. After mounting has been completed, air blow the inside of all connected pipes and valves prior to the pilot operation of the system.

Don't use where corrosive gas, chemical liquids, sea water or steam may cause contamination. Exposed rotating parts, such as the actuator shaft, must be protected from water or rainfall. They are not designed weather-proof.

Threading pipes or nipples on actuators must be maximized to five rotations, so that overtightening threads may not develop cracks in diecast aluminum housings, and cause air leakage and operational difficulty to actuators (Recommended tightening torque:  $100 \text{ kgf} \cdot \text{cm}$  for  $\text{Rc} \frac{1}{8}$  ·  $150 \text{ kgf} \cdot \text{cm}$  for  $\text{Rc} \frac{1}{4}$ ). Type CS spring return actuators should be mounted so that the exhaust hole on the end of the cylinder, faces downwards at all times (See the illustration below) or, when unavoidable, the hole must be protected by adequate water-prevention measures.

KITZ compact ball valves can be mounted on KITZ Type C or CS actuators either horizontally, vertically or at any angle depending on your piping or operational convenience. However, filter-regulators must be mounted always horizontally, using a mounting bracket.



### Operation

Pneumatically operated KITZ compact ball valves are designed to be driven by air pressure ranging from 0.39 MPa to 0.69 MPa (4 to 7kgf/cm<sup>2</sup> or 60 to 100psi). Smaller or larger air pressure will result in malfunction. We recommend to employ 0.39MPa (4kgf/cm<sup>2</sup> or 60psi), our standard operating pressure. Be sure to dry and filter the air supply for trouble-free operation. This is particularly important in cold and humid climates.

### Maintenance

Pneumatically operated KITZ compact ball valves are lubrication-free. When a leakage is detected on the actuator after a few years of operation, we recommended the actuator be disassembled to detect wear or deformation of sealers such as O-rings and gaskets for possible replacement.



## CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

For any specific application, users are kindly requested to contact KITZ Corporation for technical advice, or to carry out their own study and evaluation for proving suitability of these products to such an application. Failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

While this catalog has been compiled with the utmost care, we assume no responsibility for errors, impropriety or inadequacy. Any information provided in this catalog is subject to from-time-to-time change without notice for error rectification, product discontinuation, design modification, new product introduction or any other cause that KITZ Corporation considers necessary. This edition cancels all previous issues.

ISO 9001 certified since 1989

# KITZ

**KITZ CORPORATION**

1-10-1, Nakase, Mihama-ku, Chiba 261-8577, Japan  
International Sales Dept. Phone: 81-43-299-1730, 1732 and 1733  
Fax: 81-43-299-0121

— Distributed by —