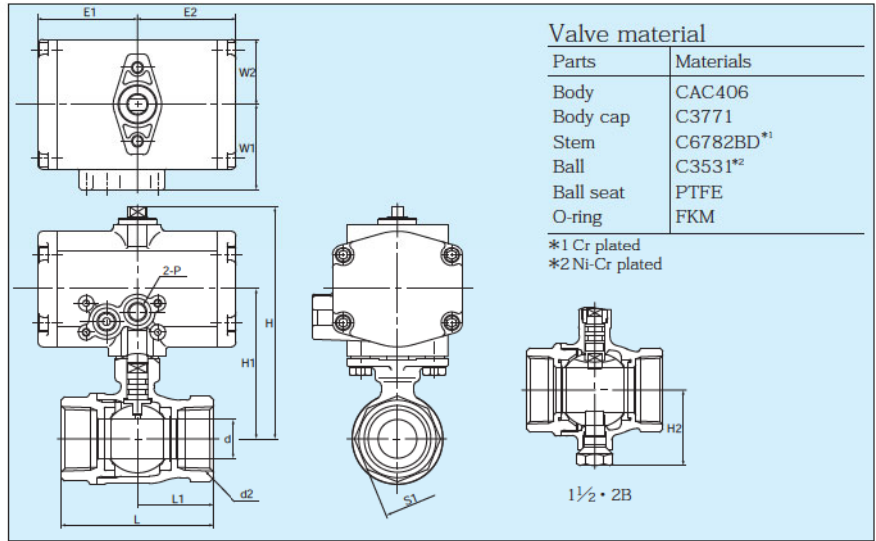


Type C Pneumatic Actuators/Class 10K Bronze Ball Valves

Fig. **C-TE**
(Standard bore)

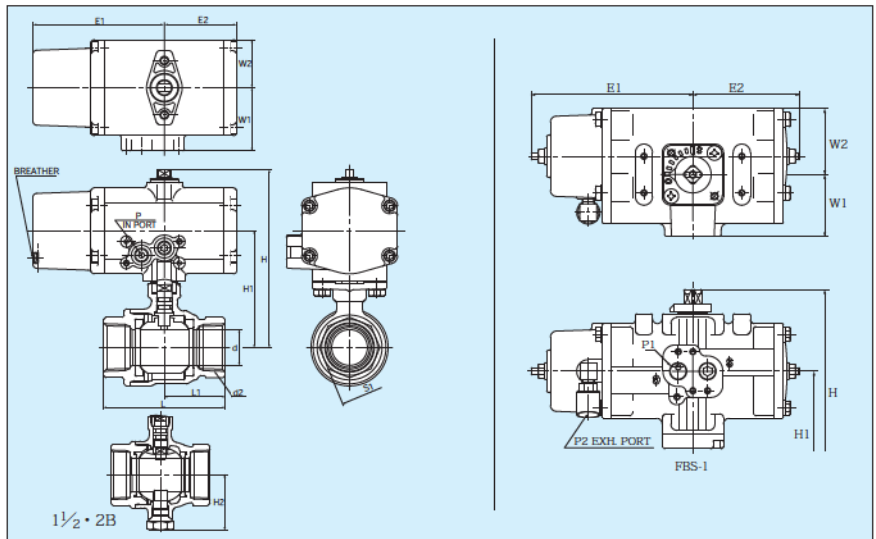


Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	S ₁	Actuators					
									E ₁	E ₂	W ₁	W ₂	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/FBS Pneumatic Actuators/Class 10K Bronze Ball Valves

Fig. **CS-TE**
Valve size: 3/8" to 1"
FBS-TE
Valve size: 1 1/4" to 2"
(Standard bore)



Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	S ₁	Actuators						
									E ₁	E ₂	W ₁	W ₂	P ₁	P ₂	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							
3/4	15	Rc3/4	116.5	74	—	68	34	34							
1	20	Rc1	120.5	78	—	79	39.5	41	92	51.4	44	33.5	—	Rc1/8	CS-2
1 1/4	25	Rc1 1/4	182	112	—	86	43	50							
1 1/2	32	Rc1 1/2	195	125	53.5	96	48	56	132	87	50	54	Rc1/4	Rc1/8	FBS-1
2	40	Rc2	202	132	60	109	54.5	68							

Types C • CS/FBS

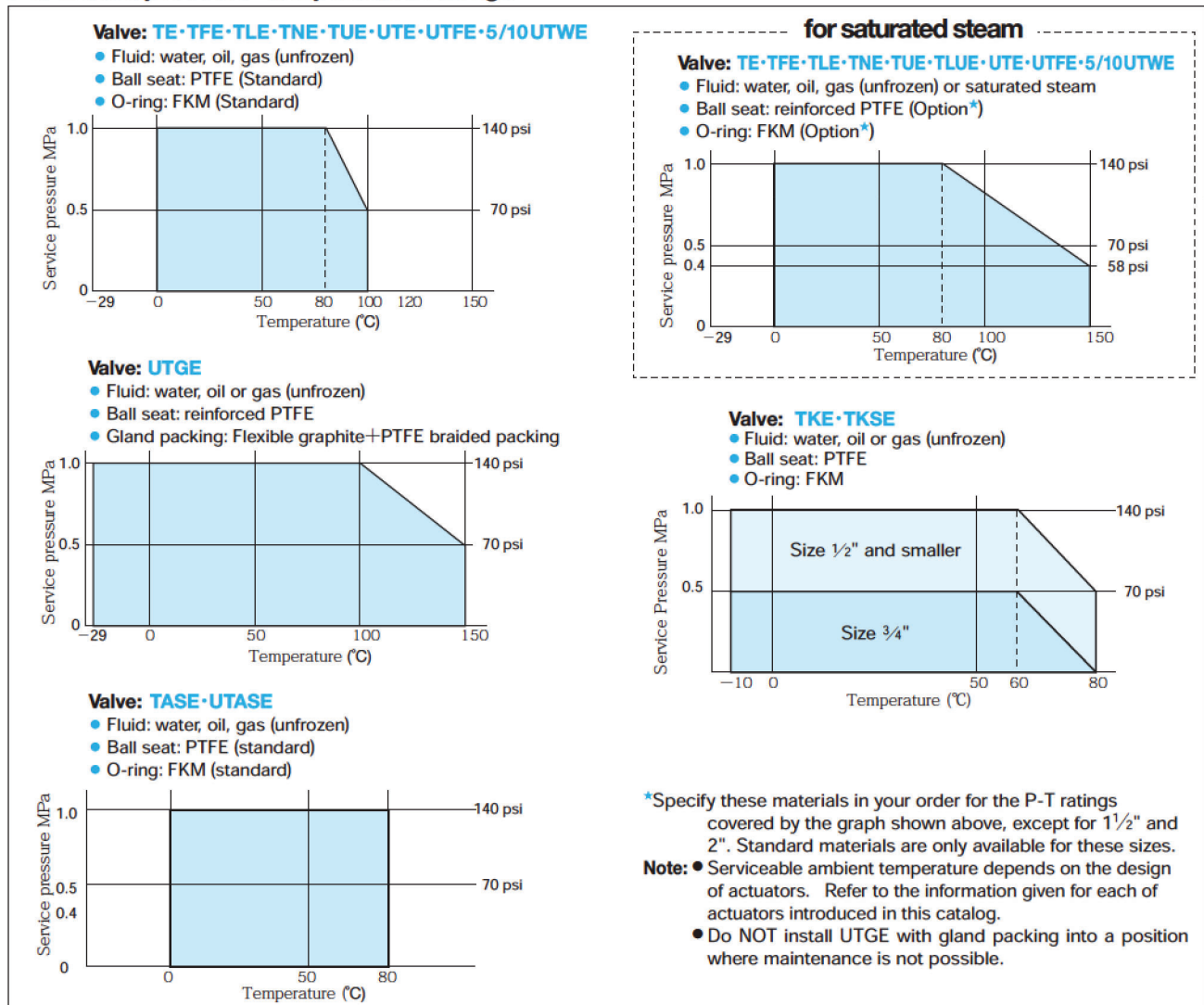
KITZ 10K Compact Ball Valves

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
TUE	—	—	3	6.2	—	—	—	—
TKE·TKSE*	0.9	2.4	3.4	6.1	—	—	—	—
TNVE	—	—	3	7.3	13	17	—	—
TASE	—	—	5	8	15	—	—	—
UTE·UTGE*·UTASE*	1	2	5	8	15	20	37	60
TFE·UTFE	—	—	18	46	58	92	170	—
5/10UTWE	—	6.5	18	46	58	—	—	—
UTVE	0.5	1	2.2	3.9	7	—	—	—

*1/2" and larger for TLE. 3/4" and smaller for TKSE, 1" and smaller for UTGE, and 1/2" to 1" for UTASE.

PTFE seat pressure-temperature ratings



Types EA · EAB
Types EAL · EALB
Types EAH · EAHB
Types EC · ECS
Type EAE
Type ED
Type ES
Types C-CS/FBS

Types EA • EAB
Types EAL • EALB
Types EAH • EAHB
Types EC • ECS
Type EAE
Type ED
Type ES

Design Features of KITZ C·CS/FBS Series Actuators

- Lightweight and compact size
Die-casted aluminum body and double piston mechanism make the actuator lightweight and compact.
- Simple mechanism and less malfunction
This actuator consists of minimum number of parts. That makes the actuator longer service life and less possibility of malfunction.
- Special solenoid valve
Direct mount type special solenoid valve exclusively used for KITZ C-type actuator is available.
- Highly efficient quarter turn actuator
Double piston type rack and pinion mechanism provides highly efficient quarter turn rotation.
- Direct mount type
The actuator is directly mounted on a valve with only two bolts.

FBS-type actuator should be chosen for bigger size valves.

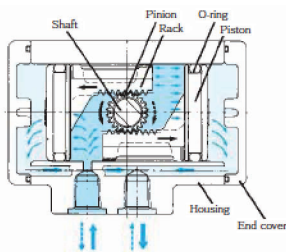
Standard guide actuator selection

Fig	Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
TE		C-1				CS-2			
		CS-1	CS-2			(FBS-1)			
TFE		C-1			C-2				
		CS-2	(FBS-1)						
TLE		C-1			C-2				
			CS-2			(FBS-1)			
TNE		C-1			C-2				
		CS-1	CS-2			(FBS-1)			
TUE		C-1			C-2				
			CS-2			(FBS-1)			
UTE		C-1			C-2				
		CS-1	CS-2			(FBS-1)			
UTFE		C-1			C-2				
			CS-2	(FBS-1)					
UTGE		C-1			C-2				
		CS-2	(FBS-1)						
5/10UTWE		C-1			C-2				
			CS-2	(FBS-1)					

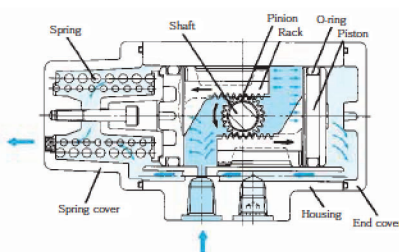
For the size ranges not covered by KITZ C Series actuators, more powerful KITZ Type FBS-1 actuators are recommended.

KITZ C·CS Series Pneumatic Actuators

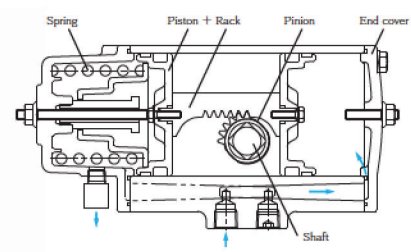
Type C (Double action)



Type CS (Spring return)



Type FBS (Spring return)



Actuator design Specifications

Specification \ Type	C-1	C-2	CS-1	CS-2	FBS-1
Operating media	Instrumentation air				
Standard operating pressure	0.4 MPa (60 psi)				
Operating pressure range	0.4-0.7 MPa (60-100 psi)				
Output torque *1	3.9 N•m	8.5 N•m	1.3 N•m	3.1 N•m	7.6 N•m
Housing shell test pressure	1.0 MPa (140 psi)				
Angle of revolution	90°(+1° to +5°)				90°±7°
Cylinder volume (Liter)	0.073	0.160	0.033	0.071	0.15
Operation time	Max. 1 s*4				
Service temperature range *2	-20°C to +60°C -4°F to +140°F				-20°C to +80°C -4°F to +176°F
Ambient condition *3	Indoor				

Notes:

- *1 At supply pressure, 0.4MPa
- *2 Free from freezing of supply air
- *3 For outdoor service, consult a KITZ Engineer
- *4 On a condition of KITZ standard air equipment and no load on a valve

KITZ Standard Accessories

C-type actuator has a direct mount-type special solenoid valve. It makes piping-less and compact mounting. This special solenoid valve is not waterproof type. Prevent water if you use them outdoor.

◆ Special Solenoid Valve

Electrical connection	Lead wire type
Working pressure range	0.15 to 0.7MPa
Ambient temperature range	5 to 50°C
Air inlets	Rc1/8
Effective area of valve	4.0mm ²
Power supply	AC100, 110V/50, 60Hz:±10% AC200, 220V/50, 60Hz:±10% DC24:±10%

◆ Limit Switch

Sensing position	One position
Power supply	AC: 5A-125VAC 5A-250VAC DC: 0.5A-115VDC 0.25A-230VDC
Ambient temperature range	-10 to 70°C
Electrical connection	Conduit type
Electric wire diameter	φ5.8 to φ7.8

◆ Filter-Regulator

Structure	Relief type
Working pressure range	0.04 to 0.83MPa
Ambient temperature range	5 to 65°C
Nominal filtration rating	5 μm
Air inlets	Rc1/4"

◆ Silencer

Connection	Rc1/8
Effective area	15mm ²
Noise reduction	18 dB
Maximum working pressure	0.9MPa
Ambient temperature range	5 to 60°C

◆ Speed Controller

Structure	Restrictor	Exhaust restrictor	Exhaust restrictor with silencer
Working pressure range	0.05 to 1MPa	0.1 to 1MPa	0 to 1MPa
Ambient temperature range	5 to 60°C	-5 to 60°C	0 to 60°C
Air inlets	Rc1/8"	R1/8"•Rc1/8"	Rc1/8"