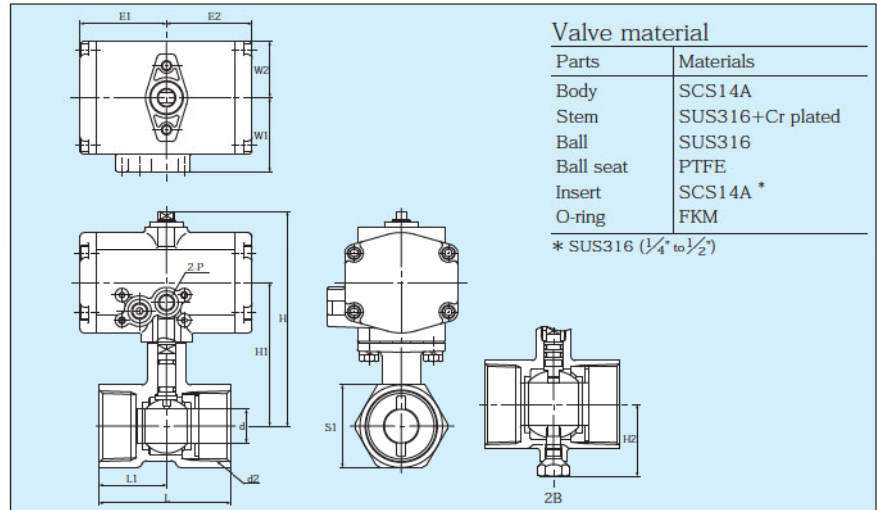


## Type C Pneumatic Actuators/Class 10K Stainless Steel Ball Valves

Fig. **C-UTE**  
(Reduced bore)



Valve material	
Parts	Materials
Body	SCS14A
Stem	SUS316+Cr plated
Ball	SUS316
Ball seat	PTFE
Insert	SCS14A *
O-ring	FKM

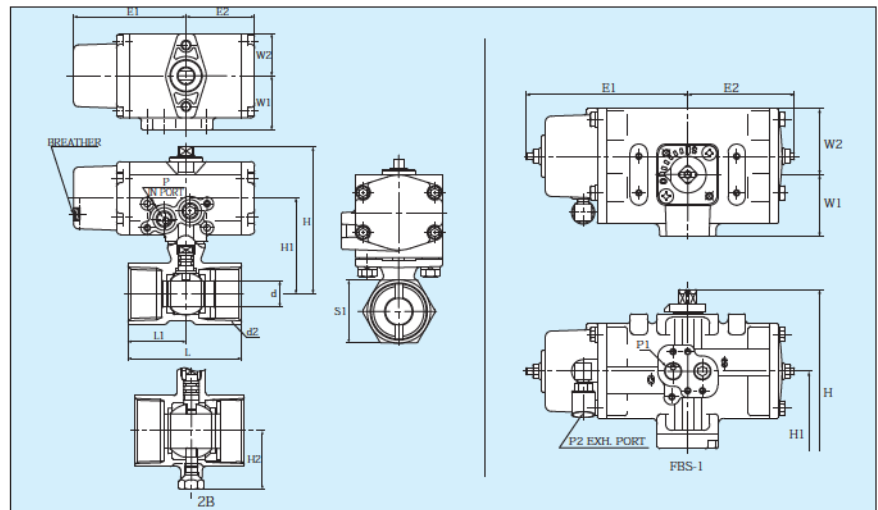
\* SUS316 (1/4" to 1/2")

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	
1/4	4.5	Rc1/4	85.5	54	—	44	21	21	43	43	34.5	26	Rc1/8	C-1	
3/8	6.8	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	51.4	51.4	44	33.5	Rc1/8	C-2	
1	16	Rc1	91.5	60	—	71	36	38							
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	132	87	50	54	Rc1/4	Rc1/8	FBS-1
2	32	Rc2	137.5	95	53.5	100	51	65							

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

Fig. **CS-UTE**  
Valve size: 1/4" to 1"  
**FBS-UTE**  
Valve size: 1 1/4" to 2"  
(Reduced bore)



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 <sub>1</sub>	P <sub>2</sub>	Type
1/4	4.5	Rc1/4	85.5	54	—	44	21	21	69.5	43	34.5	26	—	Rc1/8	CS-1
3/8	6.8	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	92	51.4	44	33.5	—	Rc1/8	CS-2
1	16	Rc1	110.5	68	—	71	36	38							
1 1/4	20	Rc1 1/4	186	116	—	78	40	49							
1 1/2	24.5	Rc1 1/2	189	119	—	83	42.5	53	132	87	50	54	Rc1/4	Rc1/8	FBS-1
2	32	Rc2	195	125	53.5	100	51	65							

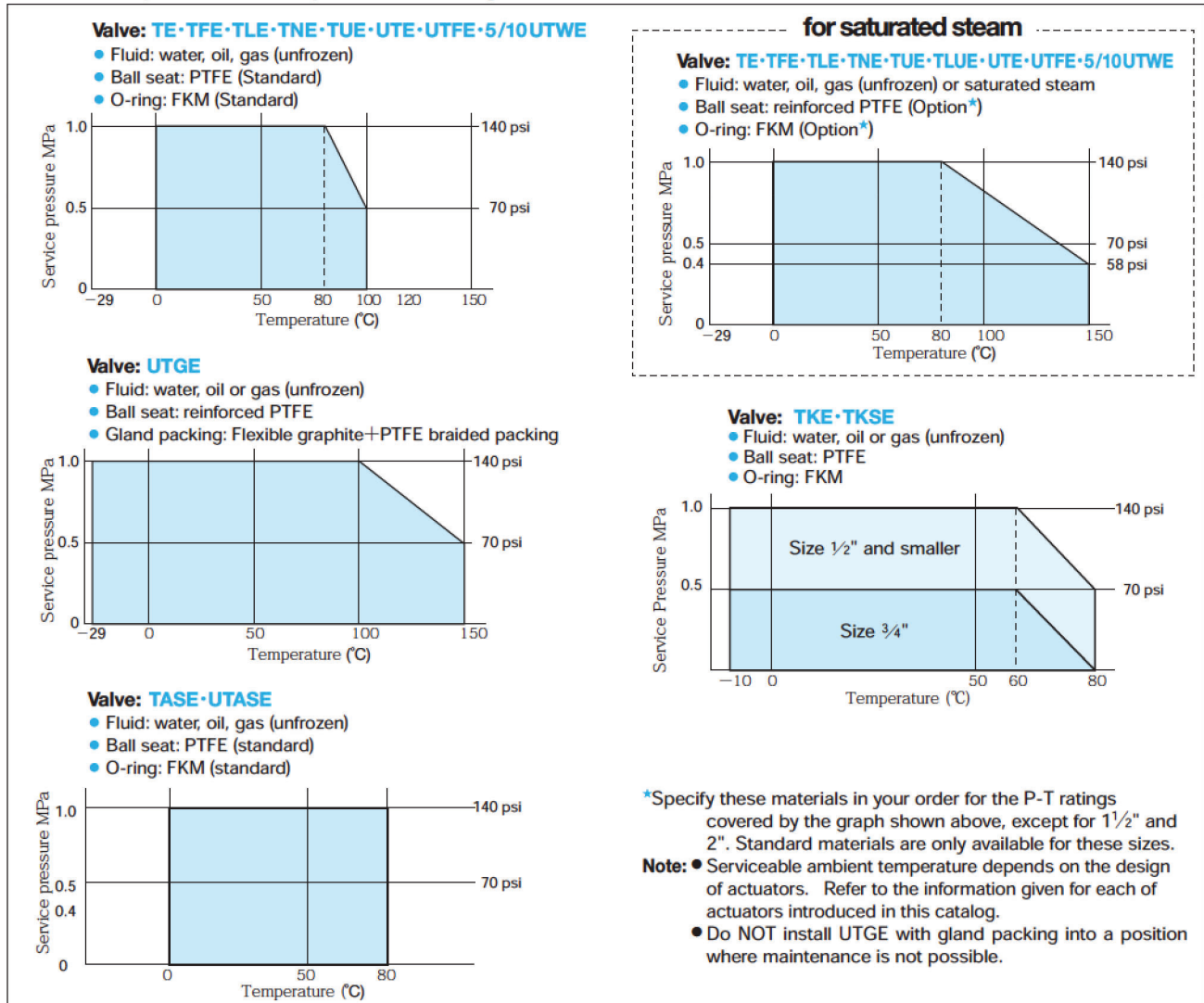
## KITZ 10K Compact Ball Valves

### 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.

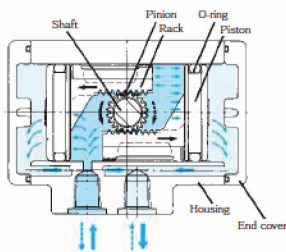
### Standard guide actuator selection

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)					

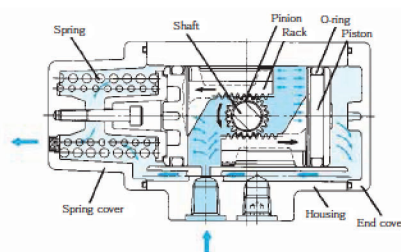
For the size ranges not covered by KITZ C Series actuators, more powerful KITZ Type FBS-1 actuators are recommended.

## KITZ C·CS Series Pneumatic Actuators

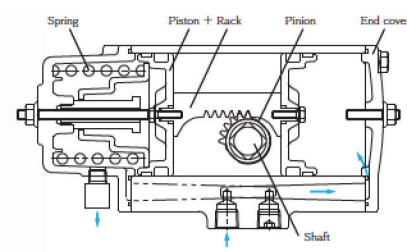
Type C (Double action)



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 <sup>2</sup>
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 <sup>2</sup>
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"