

Actuator Driven Compact Ball Valves

■KELMO® Electric Actuators: EA, EC, EAE, ED and ES Series

■Pneumatic Actuators: C, CS, FBS Series

■1/4" to 2" Class 5K/10K Bronze and Stainless Steel Threaded Ball Valves



Contents

KELMO® Electric Actuators Driven Threaded Ball Valves

Type	KITZ Fig.	Actuator		Threaded Ball valves						Page
		Rotation*	Function	Material	Port	Neck	Bore**	End connection	Size	
EA 100V AC 200V AC	EA100/200-TE	90°B.D.	AC (Basic version)	Bronze	2-way	Short	S.B.	Threaded	3/8" to 2"	6
	EA100/200-TFE			Bronze or brass	2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	7
	EA100/200-TLE			Bronze	2-way	Long	S.B.	Threaded	1/2" to 2"	8
	EA100/200-TNE			Bronze	Horizontal 3-way	Short	S.B.	Threaded	1/4" to 2"	9
	EA100/200-TGE			Bronze	2-way	Short	S.B.	Threaded	3/8" to 1"	10
	EA100/200-TUE			Bronze	2-way	Short	R.B.	Male & female threaded	1/2" & 3/4"	11
	EA100/200-TLUE			Bronze	2-way	Long	R.B.	Male & female threaded	1/2" & 3/4"	
	EA100/200-UTE			Stainless steel	2-way	Short	R.B.	Threaded	1/4" to 2"	12
	EA100/200-UTFE			Stainless steel	2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	13
	EA100/200-UTGE			Stainless steel	2-way	Short	R.B.	Threaded	1/4" to 1"	14
	EA100/200-UTWE			Stainless steel	2-way	Short	F.B.	Wafer	3/8" to 1"	15
	EAB 100V AC 200V AC			EAB100/200-TE	90°B.D.	EA with terminal box	Bronze	2-way	Short	S.B.
EAB100/200-TFE		Bronze or brass	2-way	Short			F.B.	Threaded	1/2" to 1 1/2"	
EAB100/200-TLE		Bronze	2-way	Long			S.B.	Threaded	1/2" to 2"	
EAB100/200-TNE		Bronze	Horizontal 3-way	Short			S.B.	Threaded	1/4" to 2"	
EAB100/200-TGE		Bronze	2-way	Short			S.B.	Threaded	3/8" to 1"	
EAB100/200-TUE		Bronze	2-way	Short			R.B.	Male & female threaded	1/2" & 3/4"	
EAB100/200-TLUE		Bronze	2-way	Long			R.B.	Male & female threaded	1/2" & 3/4"	
EAB100/200-UTE		Stainless steel	2-way	Short			R.B.	Threaded	1/4" to 2"	
EAB100/200-UTFE		Stainless steel	2-way	Short			F.B.	Threaded	1/2" to 1 1/2"	
EAB100/200-UTGE		Stainless steel	2-way	Short			R.B.	Threaded	1/4" to 1"	
EAB100/200-UTWE		Stainless steel	2-way	Short			F.B.	Wafer	3/8" to 1"	
EAL 100V AC 200V AC		EAL100/200-TE	90°B.D.	EA with built-in relay			Bronze	2-way	Short	S.B.
	EAL100/200-TFE	Bronze or brass			2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	
	EAL100/200-TLE	Bronze			2-way	Long	S.B.	Threaded	1/2" to 2"	
	EAL100/200-TNE	Bronze			Horizontal 3-way	Short	S.B.	Threaded	1/4" to 2"	
	EAL100/200-TGE	Bronze			2-way	Short	S.B.	Threaded	3/8" to 1"	
	EAL100/200-TUE	Bronze			2-way	Short	R.B.	Male & female threaded	1/2" & 3/4"	
	EAL100/200-TLUE	Bronze			2-way	Long	R.B.	Male & female threaded	1/2" & 3/4"	
	EAL100/200-UTE	Stainless steel			2-way	Short	R.B.	Threaded	1/4" to 2"	
	EAL100/200-UTFE	Stainless steel			2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	
	EAL100/200-UTGE	Stainless steel			2-way	Short	R.B.	Threaded	1/4" to 1"	
	EAL100/200-UTWE	Stainless steel			2-way	Short	F.B.	Wafer	3/8" to 1"	
	EALB 100V AC 200V AC	EALB100/200-TE			90°B.D.	EA with terminal box and built-in relay	Bronze	2-way	Short	S.B.
EALB100/200-TFE		Bronze or brass	2-way	Short			F.B.	Threaded	1/2" to 1 1/2"	
EALB100/200-TLE		Bronze	2-way	Long			S.B.	Threaded	1/2" to 2"	
EALB100/200-TNE		Bronze	Horizontal 3-way	Short			S.B.	Threaded	1/4" to 2"	
EALB100/200-TGE		Bronze	2-way	Short			S.B.	Threaded	3/8" to 1"	
EALB100/200-TUE		Bronze	2-way	Short			R.B.	Male & female threaded	1/2" & 3/4"	
EALB100/200-TLUE		Bronze	2-way	Long			R.B.	Male & female threaded	1/2" & 3/4"	
EALB100/200-UTE		Stainless steel	2-way	Short			R.B.	Threaded	1/4" to 2"	
EALB100/200-UTFE		Stainless steel	2-way	Short			F.B.	Threaded	1/2" to 1 1/2"	
EALB100/200-UTGE		Stainless steel	2-way	Short			R.B.	Threaded	1/4" to 1"	
EALB100/200-UTWE		Stainless steel	2-way	Short			F.B.	Wafer	3/8" to 1"	

*Actuator rotation: B.D.=Bidirectional, U.D.=Unidirectional

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

Type	KITZ Fig.	Actuator		Threaded Ball valves					Page	
		Rotation*	Function	Material	Port	Neck	Bore**	End connection		Size
EAH 100 V AC 200 V AC	EAH100/200-TNVE	180°B.D.	EA for 180° turn (Basic)	Bronze	Vertical 3-way	Short	S.B.	Threaded	1/2" to 1/4"	20
	EAH100/200-UTVE			Stainless steel	Vertical 3-way	Short	R.B.	Threaded	1/4" to 1"	
EAHB 100 V AC 200 V AC	EAHB100/200-TNVE		EAH with terminal box	Bronze	Vertical 3-way	Short	S.B.	Threaded	1/2" to 1/4"	21
	EAHB100/200-UTVE			Stainless steel	Vertical 3-way	Short	R.B.	Threaded	1/4" to 1"	
EC·ECS 100 V AC 200 V AC	EC100/200-TKE*1	90°U.D.	Economy version of EA (Basic)	Brass	2-way	Short	R.B.	Threaded	1/4" to 3/4"	23
	ECS100/200-TKVE*1	180°U.D.		Brass	Vertical 3-way	Short	R.B.	Threaded	1/2" to 3/4"	
EAE 100 V AC 200 V AC	EAE100/200-TE*2	90°B.D.	Spring-return	Bronze	2-way	Short	S.B.	Threaded	3/8" & 1/2"	25
	EAE100/200-TNE*2			Bronze	Horizontal 3-way	Short	S.B.	Threaded	1/4" to 1/2"	
	EAE100/200-TUE			Bronze	2-way	Short	R.B.	Male & female threaded	1/2"	
	EAE100/200-UTE			Stainless steel	2-way	Short	R.B.	Threaded	1/4" to 1/2"	
	EAE100/200-TKSE*2			Brass	2-way	Short	R.B.	Threaded	1/4" to 3/4"	
ED 12 V DC 24 V DC	ED12/24-TE	90°B.D.	DC (Basic Version)	Bronze	2-way	Short	S.B.	Threaded	3/8" to 2"	27
	ED12/24-TNE			Bronze	Horizontal 3-way	Short	S.B.	Threaded	1/4" to 2"	
	ED12/24-UTE			Stainless steel	2-way	Short	R.B.	Threaded	1/4" to 2"	
	ED12/24-UTFE			Stainless steel	2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	
	ED12/24-UTGE			Stainless steel	2-way	Short	R.B.	Threaded	1/4" to 1"	
	ED12/24-UTWE			Stainless steel	2-way	Short	F.B.	Wafer	3/8" to 1"	
ES 100 V AC 200 V AC	ESA100/200-TASE	90°B.D.	For compact Values (Basic)	Brass	2-way	Short	R.B.	Threaded	1/2" to 1"	29
	ESA100/200-UTASE			Stainless steel	2-way	Short	R.B.	Threaded	1/2" to 1"	

*1 3/4" of TKE and TKVE are for 5K service.
 *2 1/2" of TE, 1/2" of TNE and 3/4" of TKSE are for 5K service.

C·CS/FBS Series pneumatic Actuators Driven Threaded Ball Valves

Type	KITZ Fig.	Actuator		Threaded Ball valves					Page	
		Rotation*	Function	Material	Port	Neck	Bore**	End connection		Size
C	C-TE	90°B.D.	Double action	Bronze	2-way	Short	S.B.	Threaded	3/8" to 2"	33
	C-TFE			Brass or Bronze	2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	34
	C-TLE			Bronze	2-way	Long	S.B.	Threaded	1/2" to 2"	35
	C-TNE			Bronze	Horizontal 3-way	Short	S.B.	Threaded	1/4" to 2"	36
	C-TGE			Bronze	2-way	Short	S.B.	Threaded (with gland)	3/8" to 1"	37
	C-TUE			Bronze	2-way	Short	R.B.	Male & female threaded***	1/2" & 3/4"	38
	C-UTE			Stainless	2-way	Short	R.B.	Threaded	1/2" to 1 1/2"	39
	C-UTFE			Stainless	2-way	Short	F.B.	Threaded	1/2" to 1 1/2"	40
	C-UTGE			Stainless	2-way	Short	R.B.	Threaded (with gland)	1/4" to 1"	41
	C-5/10UTWE			Stainless	2-way	Short	F.B.	Wafer	3/8" to 1"	42
CS/FBS	CS/FBS-TE	90°B.D.	Spring-return	Bronze	2-way	Short	S.B.	Threaded	3/8" to 1"	33
	CS-FFE			Brass or Bronze	2-way	Short	F.B.	Threaded	1/2"	34
	CS/FBS-TLE			Bronze	2-way	Long	S.B.	Threaded	1/2" to 1"	35
	CS/FBS-TNE			Bronze	Horizontal 3-way	Short	S.B.	Threaded	1/4" to 1"	36
	CS/FBS-TGE			Bronze	2-way	Short	S.B.	Threaded (with gland)	3/8"	37
	CS-FUE			Bronze	2-way	Short	R.B.	Male & female threaded***	1/2" & 3/4"	38
	CS/FBS-UTE			Stainless	2-way	Short	R.B.	Threaded	1/4" to 1"	39
	CS/FBS-UTFE			Stainless	2-way	Short	F.B.	Threaded	1/2"	40
	CS/FBS-UTGE			Stainless	2-way	Short	R.B.	Threaded (with gland)	1/4" & 3/8"	41
	CS/FBS-5/10UTWE			Stainless	2-way	Short	F.B.	Wafer	3/8" & 1/2"	42

*Actuator rotation: B.D.=Bidirectional, U.D.=Unidirectional
 **Bore design: F.B.=Full bore, S.B.=Standard bore, R.B.=Reduced bore
 ***Provided with an union-ring

Types EA · EAB

Types EAL · EALB

Types EAH · EAHB

Types EC · ECS

Type EAE

Type ED

Type ES

Types C-CS/FBS

KITZ 10K Compact Ball Valves

Valve design features

- 1/4인치부터 2인치까지의 크기로 편리합니다.
- Actuator Mounting Pad가 내장되어 있어 Actuator를 쉽게 장착하거나 분해하여 신속한 보수가 가능합니다.
- 외부누출이 없는 서비스를 위해 PTFE Ball Seat와 정밀 가공된 Ball사이의 단단한 접촉이 이루어집니다.
- 밸브의 더 긴 사용수명을 위해 견고한 동으로 만든 Stem이 사용됩니다.
- 재료의 선택이 가능합니다. 내식성을 위해 스테인리스 강이 사용되고 일반적인 W.O.G(Water, Oil, Gas) 설비를 위한 동재질도 사용 가능합니다.

Valve design specifications

Threaded ends:	JIS B 0203
Union ends:	JIS B 2301
Maximum service pressure:	1.0 MPa TKE, TKVE and TKSE for 3/4" and larger, 5UTWE: 0.5 MPa
Seat P-T rating:	See Page 2

Ball valve design and applications

KITZ Fig.	JIS Material	Port	Bore*	Neck	End Connection	Applications	Electric Actuator	Pneumatic Actuator
TE	CAC406	2-way	S.B.	Short	Threaded	물, 기름 및 가스의 On-off Control	EA EAB EAL EALB ED** EAE**	Type C & CS (FBS)
TFE	C3771BE or CAC406		F.B.			Thermal Isolation을 위한 절연		
TLE	CAC406	Horizontal 3-way	S.B.	Long		Line Fluid의 순간적인 변화		
TNE				Short		고온 서비스용		
TGE		2-way	R.B.	Long	Male and female threaded with an union ring	용이한 설치	Type C & CS	
TUE	Thermal Isolation을 위한 절연 TUE							
TKVE	Chrome plating C3771BE	Vertical 3-way	R.B.	Short	Threaded	물, 기름, 가스의 On-off Control Panel Mounting을 위한 M5	EC	
TKSE	2-way	Line Fluid의 즉각적인 변화 (유체가 석일 염려가 없음)				ECS		
TNVE	CAC406	Vertical 3-way	S.B.	Short	Threaded	물, 기름, 가스의 On-off Control Panel Mounting을 위한 M5	EAE**	
TASE	C3771BE	2-way	R.B.			Line Fluid의 즉각적인 변화 (유체가 석일 염려가 없음)	EAH EAHB	
UTE	SCS14A	2-way	R.B.	Short	Threaded	스테인리스 강으로 제작된 TE	EA EAB EAL EALB ED EAE**	Type C & CS (FBS)
UTFE			F.B.			스테인리스 강으로 제작된 TEE		
UTGE			R.B.			스테인리스 강으로 제작된 TGE		
5/10UTWE	SCS13A	Vertical 3-way	F.B.	Short	Wafer	Full bore wafer 디자인, 유지보수가 쉬움	ES**	
UTVE	SCS14A		R.B.		Threaded	일체형으로 조립된 Body, Line Fluid의 즉각적인 변화 (유체가 석일 염려가 없음)		
UTASE	SCS13A	2-way	R.B.	Short	Threaded	물, 기름, 가스의 On-off Control Panel Mounting을 위한 M5	ES**	

*Bore design: F.B.=Full bore, S.B.=Standard bore, R.B.=Reduced bore to API 608.

**ED Series are available only for TE, TNE, UTE, UTFE, UTGE and 5/10UTWE ball valves.

EAE Series are available only for TE, TNE, TUE, TKSE and UTE ball valves.

ES Series are available only for TASE, UTASE ball valves.

Applications

물, 석유, 가스 및 공기를 처리하는 HVAC 서비스 (Bronze 및 Brass 밸브를 사용) 또는 제약, 미세화학(Fine Chemical), 석유화학, 식품, 음료, 섬유 및 기타 일반 산업용을 위해 경량 산업공정에서 3방향(3-way) 자동제어 기능을 제공합니다.

Precautions

- ① 분말, 먼지 또는 모래를 포함한 유체에서는 사용이 불가능합니다.
- ② 아래의 항목에 대해서 KITZ Corporation 또는 현지 대리점에 문의해 주십시오.
 - 높은 점도를 가진 유체, 증기 또는 진공상태
 - 3 m/s 및 그 이상의 속도
 - 라인유체의 압력이 비정상적으로 상승하거나 유체온도가 60도이상 변동될 우려가 있는환경
 - KITZ 표준사양 이외의 전압
 - 인명을 위협에 빠뜨리는 장비 사용

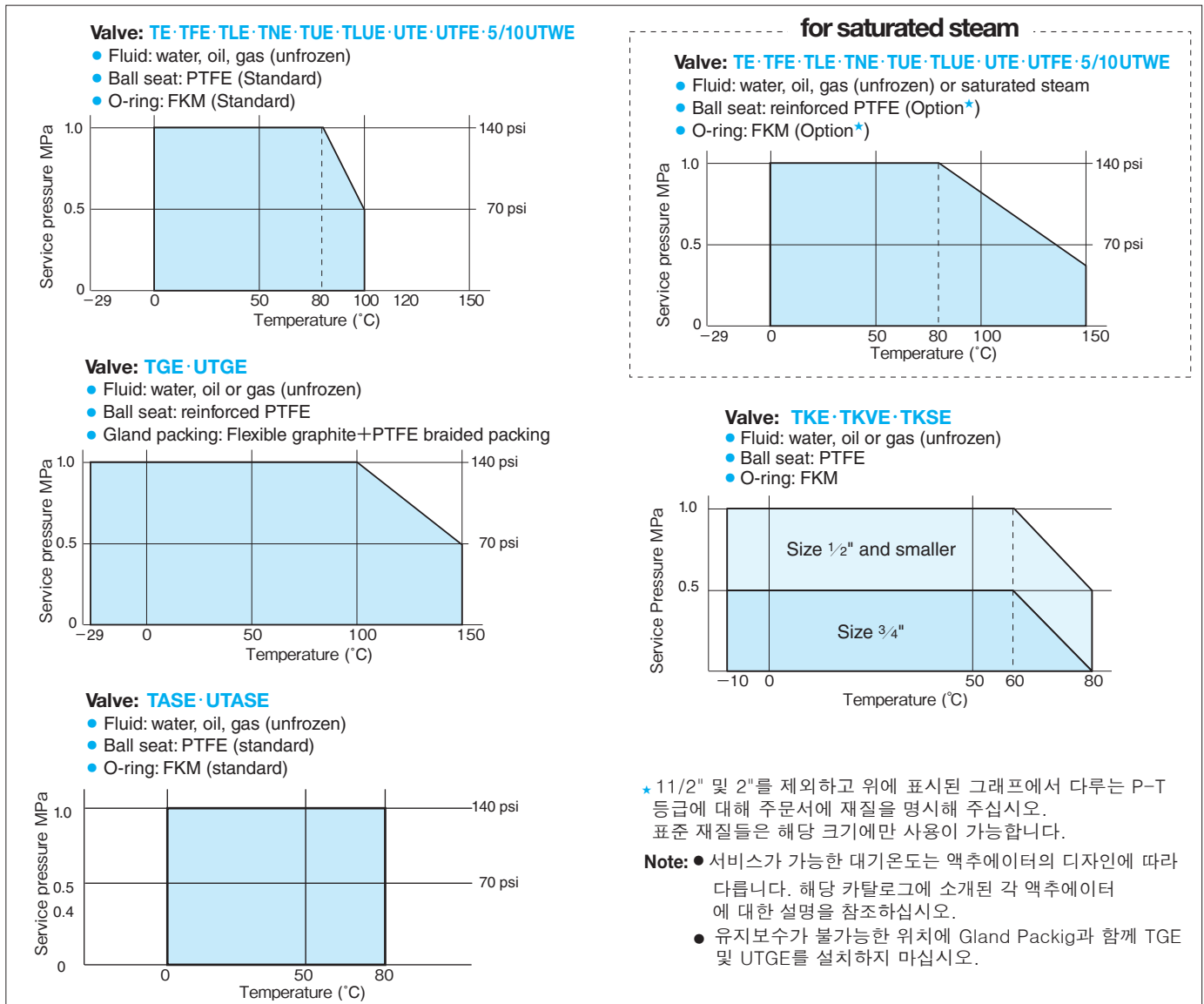
KITZ 10K Compact Ball Valves

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
TGE	—	2.1	5.6	15	27	—	—	—
TUE·TLUE	—	—	3	6.2	—	—	—	—
TKE·TKSE★	0.9	2.4	3.4	6.1	—	—	—	—
TNVE	—	—	3	7.3	13	17	—	—
TKVE	—	—	2	3.6	6.5	—	—	—
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	—	—	—

★TLE의 경우 1/2" 및 이상의 크기입니다. TKSE의 경우 3/4" 및 이하의 크기, UTGE의 경우 1" 및 이하의 크기, 그리고 UTASE의 경우 1/2" 부터 1"까지의 크기입니다.

PTFE seat pressure-temperature ratings

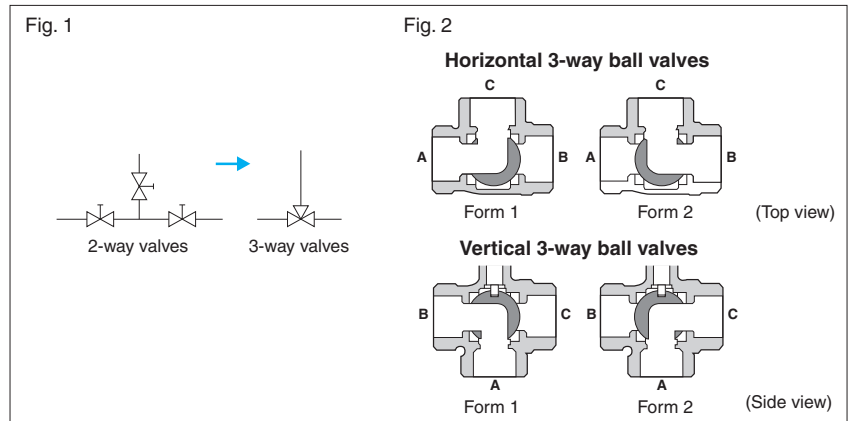


Types EA · EAB
Types EAL · EALB
Types EAH · EAHB
Types EC · ECS
Type EAE
Type ED
Type ES
Types C-CS/FBS

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

KITZ의 Horizontal 3-Way Ball 밸브는 주로 유체 흐름이 빠르게 변하는 환경에서 사용됩니다. 또한 3-Way 볼 밸브는 Fig.1과 같이 쉬운 배관 장착을 위해서도 사용됩니다.

KITZ Fig. TNE, TNVE, TKVE, UTNE 그리고 UTVE 3-way 볼 밸브는 Form1과 Form2 사이의 유체 흐름변화를 위해 L-port와 양면 Seating이 장착된 디자인을 갖추고 있습니다. 닫힌 구멍의 라인압력이 열린 구멍보다 높다면, 닫힌 구멍으로 부터 미미한 유체 누출이 있을 수도 있다는 점을 유념하십시오. (Fig.2)



KITZ 3-way Compact Ball Valves: Flow Directional Form before Shipment

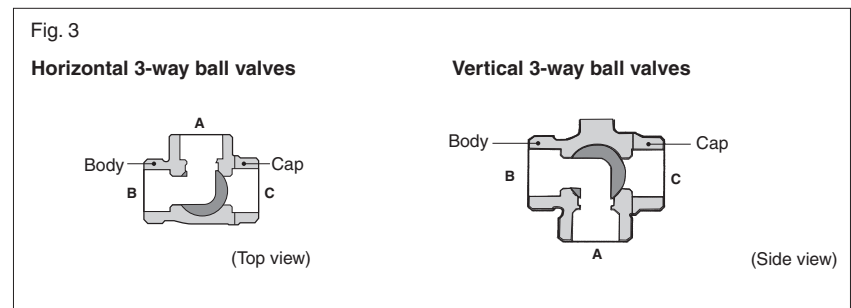
그림과 같이 유체 흐름방향 방식을 정해둔 후에 유체를 흘러 보내야 합니다.(Fig.3)

Location of cord connectors (top view):

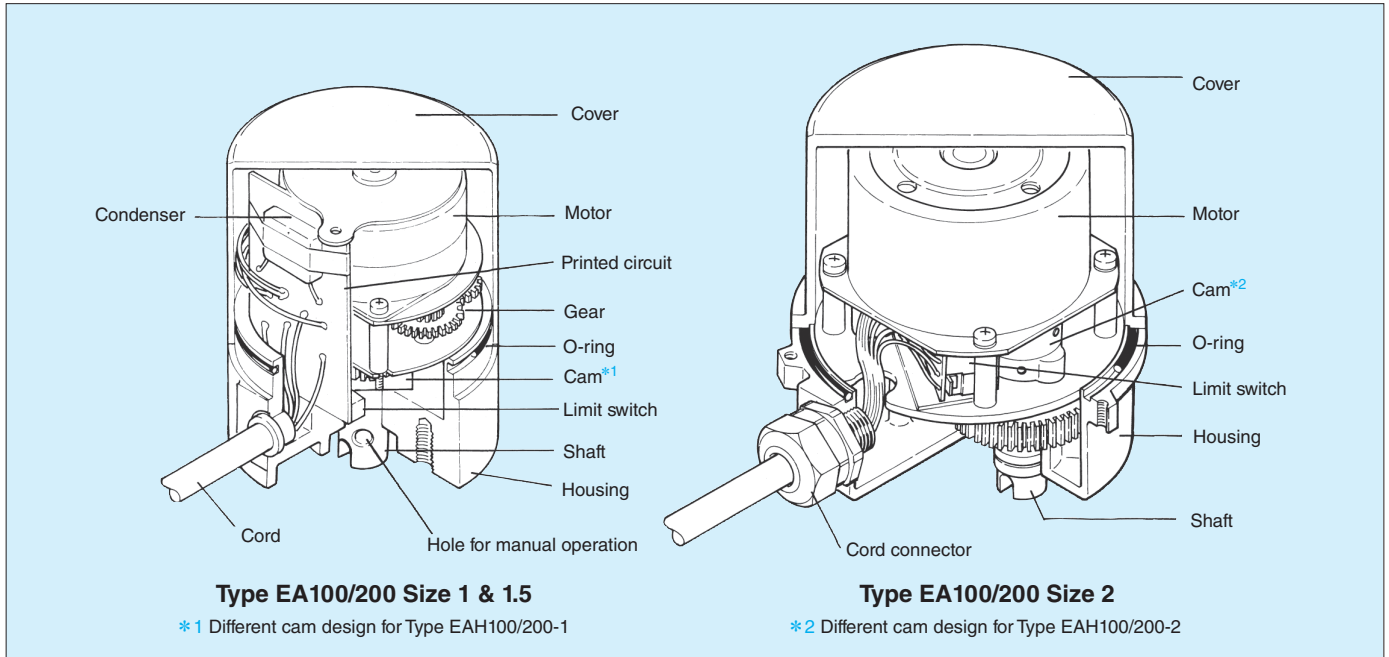
액추에이터에 따른 Cord Connector의 위치는 아래에 나열되어 있습니다.

Horizontal 3-way: Size 1 & 1.5: Right hand side
Size 2: Diagonally forward right

Vertical 3-way: Size 1: Right hand side
Size 2: Diagonally forward left



KITZ KELMO® Electric Actuators



General design features

- 소형 크기 및 Die-cast Aluminum Housing을 이용한 가벼운 무게 그리고 소형모터로 이루어져있어 경제적이며, 다루는데 있어 용이성을 보장합니다.
- 구성 부품의 수를 최소화한 간단한 메커니즘으로 높은 내구성과 문제없는 서비스를 제공합니다.
- Water Hammer(수격작용), 압력손실, 제한된 유체 흐름과 같은 기존의 Solenoid 밸브에서 발생하는 일반적인 문제에 대한 우려가 없습니다.
- 야외 시설에서도 사용이 가능하도록 모든날씨에 사용하기 적합합니다. (직사광선 제외)
- 전동 조작에 실패했을 경우, 수동조작도 가능합니다.
- 병렬구동(Parallel Drive)용 내장 릴레이 회로, 단자박스(Terminal Box) 및 3방향 흐름방향을 위한 180도 회전 메커니즘을 통해 다양한 용도로 사용이 가능합니다.
- 과부하 사고로 인한 과열손상으로 부터 모터를 보호하기 위한 안전장치가 제공됩니다.
- 기성품 공급을 위해 공장에서 제조한 밸브와 액츄에이터를 조립합니다.

Compact KELMO® actuators: power sources and functional features

Type of actuator	* Power source	Functional features	
EA Series	100/200 V AC (50/60 Hz)	EA100/EA200	90° bidirectional rotation
		EAB100/EAB200	90° bidirectional rotation/Terminal box
		EAL100/EAL200	90° bidirectional rotation/Built-in relay
		EALB100/EALB200	90° bidirectional rotation/Built-in relay/Terminal box
		EAH100/EAH200	180° bidirectional rotation
		EAHB100/EAHB200	180° bidirectional rotation/Terminal box
EC Series	100/200 V AC (50/60 Hz)	EC100/EC200	90° Unidirectional rotation
		ECS100/ECS200	180° Unidirectional rotation
EAE Series	100/200 V AC (50/60 Hz)	EAE100/EAE200	90° bidirectional rotation/Spring-return
ED Series	12/24 V DC	ED12/ED24	90° bidirectional rotation/Parallel drive
ES Series	100/200 V AC (50/60 Hz)	ESA100/ESA200	90° bidirectional rotation

* Optional Specification (EA Series)

AC110V (50/60Hz)

AC230V* (50/60Hz)

AC115V* (50/60Hz)

AC240V (50/60Hz)

*EA100/200-1 only

AC120V (50/60Hz)

Types EA · EAB

Types EAL · EALB

Types EAH · EAHB

Types EC · ECS

Type EAE

Type ED

Type ES

Types C-CS/FBS

Type EA and EAB Electric Actuators/Class 10K Bronze or Stainless Steel Ball Valves

100/200V AC 50/60Hz

■ 90° 양방향 회전

■ 액추에이터 (EAB)의 손쉬운 설치를 위하여 공장에서부터 Terminal Box가 조립됩니다.

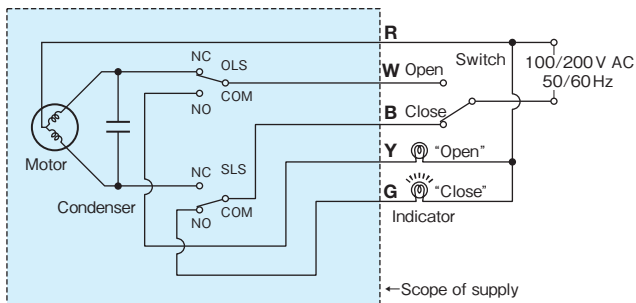
Type EA and EAB actuator design specifications

Specification	Type	EA100-1 EAB100-1	EA200-1 EAB200-1	EA100-1.5 EAB100-1.5	EA200-1.5 EAB200-1.5	EA100-2 EAB100-2	EA200-2 EAB200-2
Power source 50/60Hz		100V AC±10%	200V AC±10%	100V AC±10%	200V AC±10%	100V AC±10%	200V AC±10%
Rated current		90mA	50mA	90mA	50mA	100mA	50mA
Max. power consumption		9W	10W	9W	10W	10W	
Valve closing time 90°	50Hz	Approx. 6 s		Approx. 12 s		Approx. 15 s	
	60Hz	Approx. 5 s		Approx. 10 s		Approx. 13 s	
Max. output torque		1.9N·m		3.9N·m		9.8N·m	
Rated time		Continuous					
Insulation class		JIS Class E					
Sensitive switch contact capacity		125V AC 2A (Resistance load) 250V AC 0.6A (Resistance load)				125V AC 2A (Resistance load) 250V AC 2A (Resistance load)	
Position limit switch		One unit each for opening/closing (using the same power source as that of the actuator)					
Insulation strength		1500V AC (1 min. interval)					
Insulation resistance		Minimum 10MΩ (500V DC)					
Standard protection		All weather type (for outdoor use, avoid exposure to direct sunlight) IP56 (IEC60529)					
Ambient temperature		-20°C to +50°C					
Mounting position		Vertical to horizontal					
Wiring		Vinyl cabtyre cord with five cores, 700mm in length					
		0.3mm ²				0.5mm ²	
Lubrication		Grease					
Overload protection		Impedance protection					
Coating color		Housing: black Cover: light blue					

Note: 상위 조건과 다른 서비스 조건에서 사용할 경우 기술적 조언을 위해 KITZ로 문의하십시오.

Type EA actuator circuit diagrams (with the valve fully closed)

EA100/200 Size 1 to 2



- Wire 색상: **R** red **W** white **B** black **Y** yellow **G** green
- Actuator rotates:
 - R-W:** 밸브를 완전히 열기위하여 반시계방향으로 회전
 - R-B:** 밸브를 완전히 닫기위하여 시계방향으로 회전
- Limit switches activate:
 - OLS: on fully opening the valve (R-W: off W-Y: on)
 - SLS: on fully closing the valve (R-B: off B-G: on)

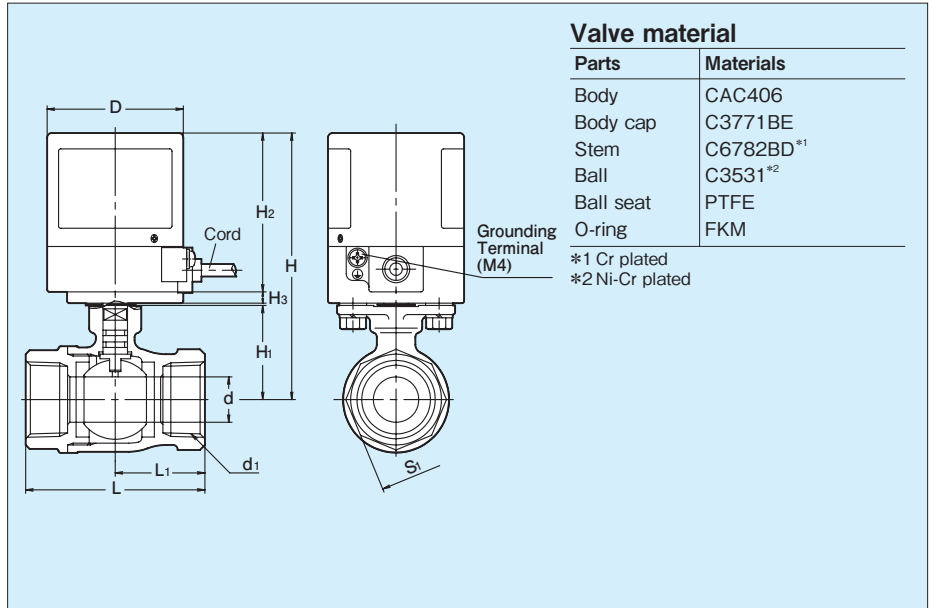
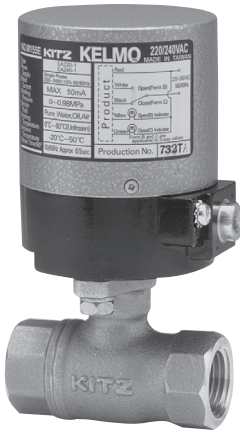
Note: EAB 100/200 크기의 경우, Terminal은 각각 R,W,B,Y,G를 대신하여 숫자 1,2,3,4,5로 표기됩니다.

- 단일 스위치로 두개이상의 액추에이터를 작동할 경우 Relay Contact를 사용하여 의도하지 않은 전류가 흐르지 않도록 하십시오.
- 분접류(Minute Current)가 사용되는 Lamp 또는 Relay와 같은 보조장치들은 Limit Switch 점접에 고장을 일으킬 수 있습니다. 이와같은 적용은 KITZ에 문의하여 주십시오.

Type EA Electric Actuators/Class 10K Bronze Ball Valves

Fig. EA100/200-TE

Actuator size: 1 and 1.5
Valve size: 3/8" to 1" (Standard bore)



Valve material

Parts	Materials
Body	CAC406
Body cap	C3771BE
Stem	C6782BD*1
Ball	C3531*2
Ball seat	PTFE
O-ring	FKM

*1 Cr plated
*2 Ni-Cr plated

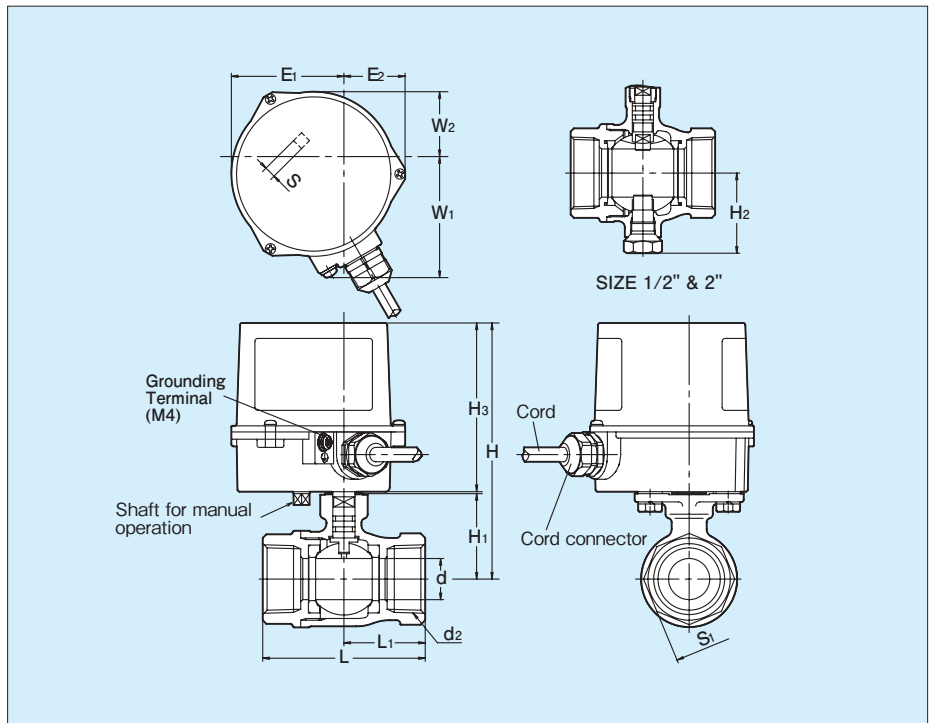
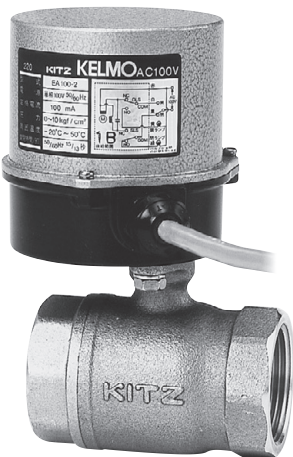
Dimensions

(mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator			
								H ₂	H ₃	D	Type
3/8	7.5	Rc3/8	104	28	46	22	22	70	5	60	EA100/200-1
1/2	10	Rc1/2	109.5	33.5	65	32.5	28				
3/4	15	Rc3/4	113.5	37.5	68	34	34				
1	20	Rc1	117.5	41.5	79	39.5	41				

Fig. EA100/200-TE

Actuator size: 2
Valve size: 1/4" to 2" (Standard bore)



Dimensions

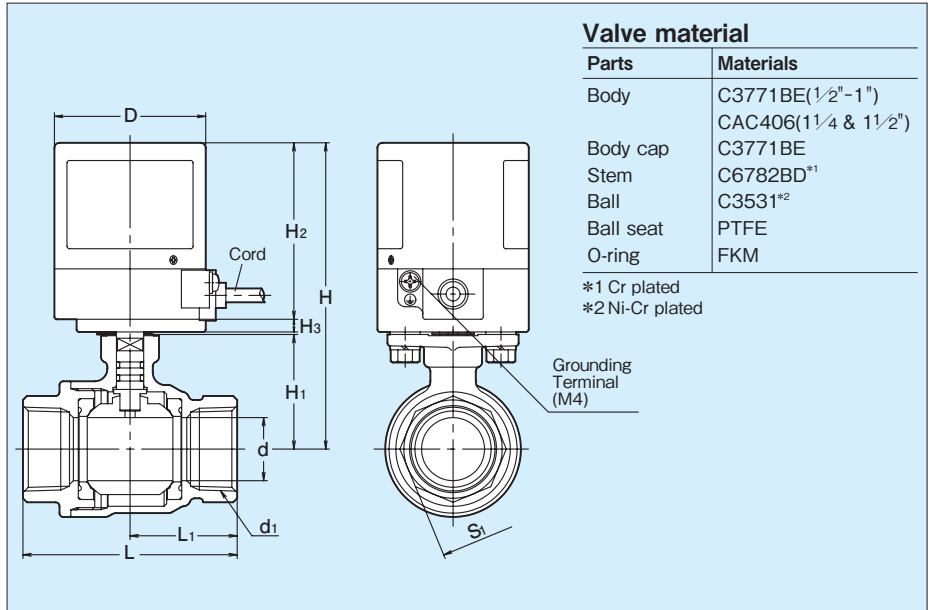
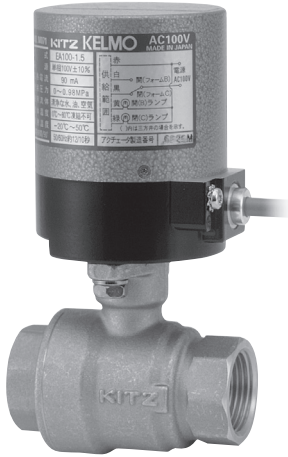
(mm)

Valve Size (inch)	d	d ₁	H	H ₁	H ₂	L	L ₁	S ₁	Actuator						
									H ₃	E ₁	E ₂	W ₁	W ₂	S	Type
1/4	25	Rc1 1/4	128.5	45.5	—	86	43	50	82	54.5	30	59	31.5	5.5	EA100/200-2
1/2	32	Rc1 1/2	142.5	59.5	53.5	96	48	56							
2	40	Rc2	148.5	65.5	60	109	54.5	68							

Type EA Electric Actuators/Class 10K Bronze or Brass Ball Valves

Fig. EA100/200-TFE

Actuator size: 1.5
Valve size: 1/2" and 3/4" (Full bore)



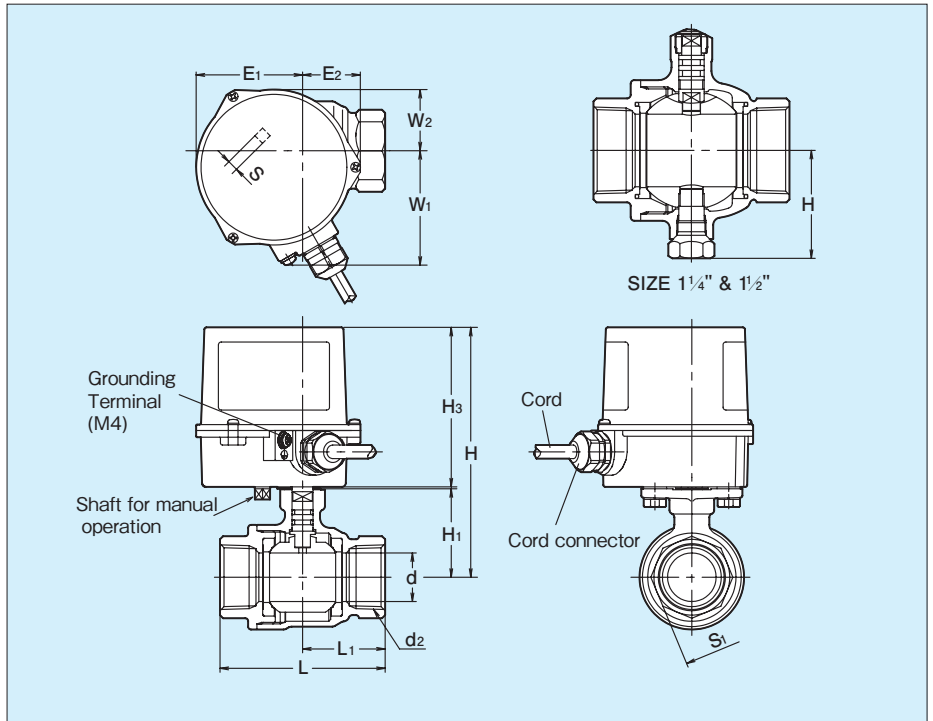
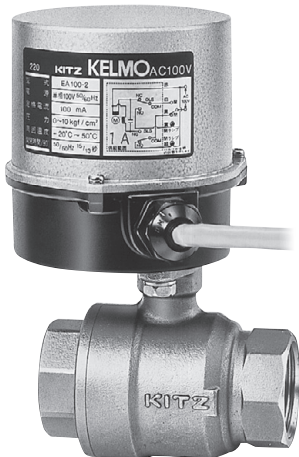
Dimensions

(mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator			
								H ₂	H ₃	D	Type
1/2	15	Rc1/2	113.5	37.5	63	31.5	26	70	5	60	EA100/200-1.5
3/4	20	Rc3/4	117.5	41.5	73	36.5	32				

Fig. EA100/200-TFE

Actuator size: 2
Valve size: 1" to 1 1/2" (Full bore)



Dimensions

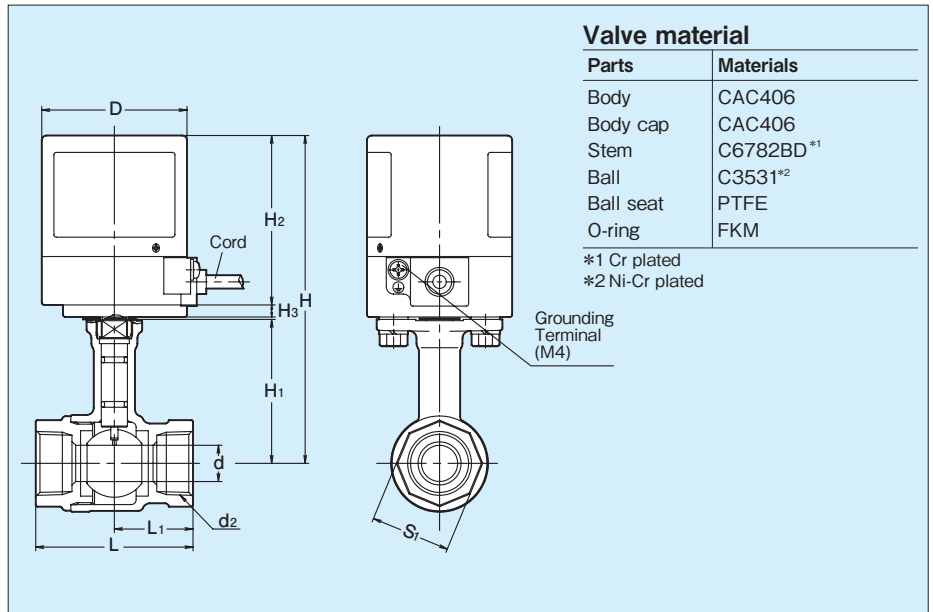
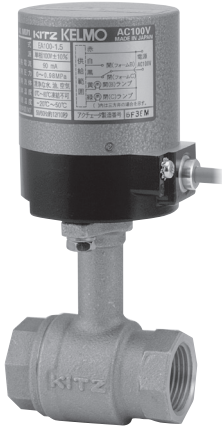
(mm)

Valve Size (inch)	d	d ₁	H	H ₁	H ₂	L	L ₁	S ₁	Actuator						
									H ₃	E ₁	E ₂	W ₁	W ₂	S	Type
1	25	Rc1	128.5	45.5	—	85	42.5	39	82	54.5	30	59	31.5	5.5	EA100/200-2
1 1/4	32	Rc1 1/4	142.5	59.2	53.5	98	49	50							
1 1/2	40	Rc1 1/2	148.5	65.5	59.5	108	54	56							

Type EA Electric Actuators/Class 10K Long Neck Bronze Ball Valves

Fig. EA100/200-TLE

Actuator size: 1 and 1.5
Valve size: 1/2" to 1" (Standard bore)



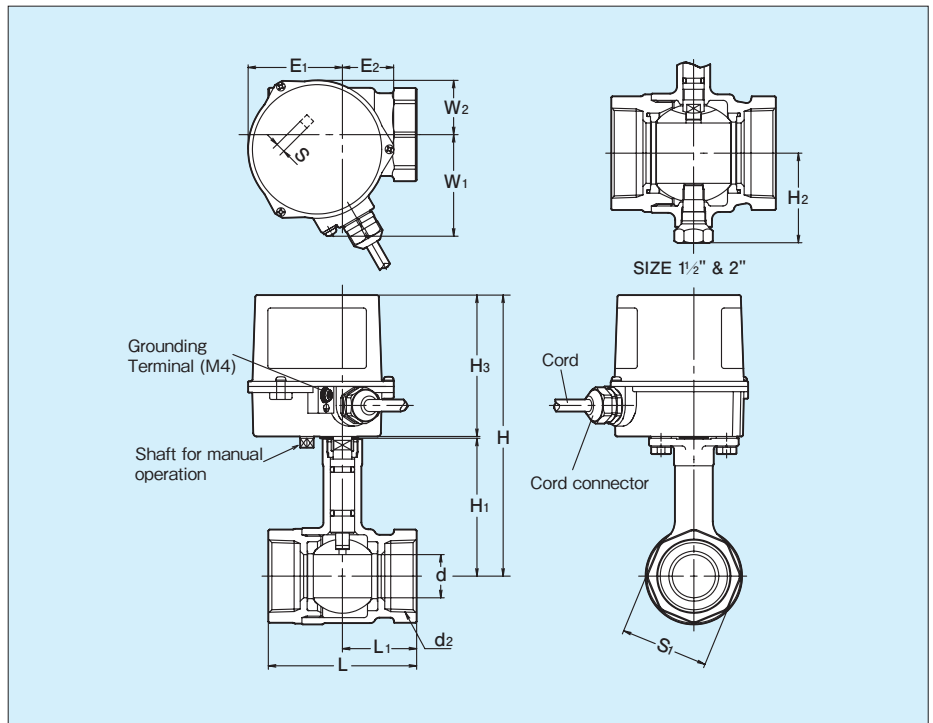
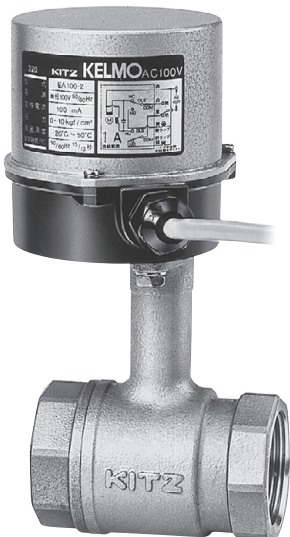
Dimensions

(mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator			
								H ₂	H ₃	D	Type
1/2	10	Rc1/2	132	56	56	28	27	70	5	60	EA100/200-1
3/4	15	Rc3/4	136.5	60.5	65	32.5	33				EA100/200-1.5
1	20	Rc1	140	64	78	39	41				

Fig. EA100/200-TLE

Actuator size: 2
Valve size: 1 1/4" to 2" (Standard bore)



Dimensions

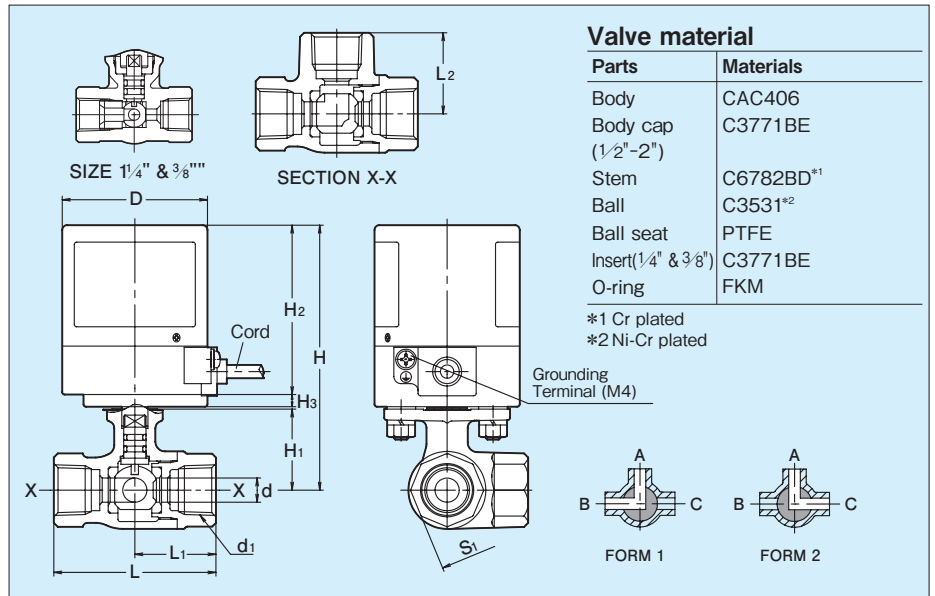
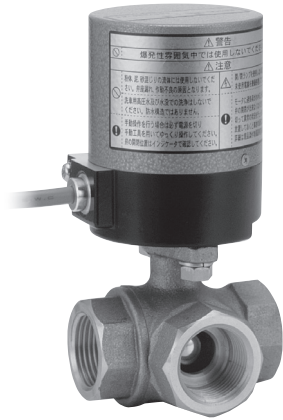
(mm)

Valve Size (inch)	d	d ₁	H	H ₁	H ₂	L	L ₁	S ₁	Actuator						
									H ₃	E ₁	E ₂	W ₁	W ₂	S	Type
1 1/4	25	Rc1 1/4	163	80	—	86	43	51	82	54.5	30	59	31.5	5.5	EA100/200-2
1 1/2	32	Rc1 1/2	166	83	53.5	96	48	58							
2	40	Rc2	173	90	60	109	54.5	71							

Type EA Electric Actuators/Class 10K Horizontal 3-way Bronze Ball Valves

Fig. EA100/200-TNE

Actuator size: 1 and 1.5
Valve size: 1/2" to 1" (Standard bore)



* Stainless steel body available Fig. EA100/200-UTNE

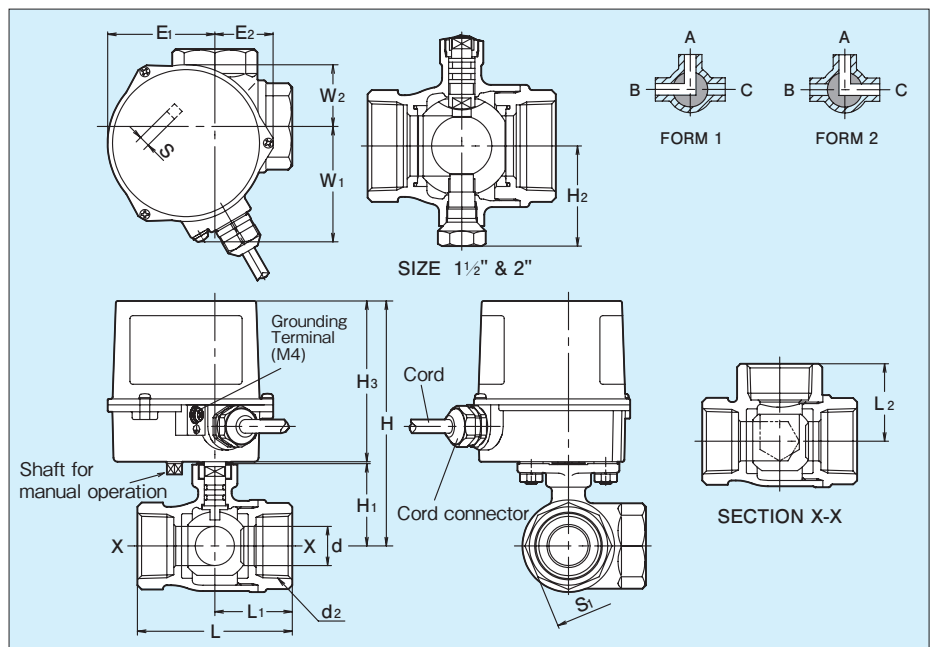
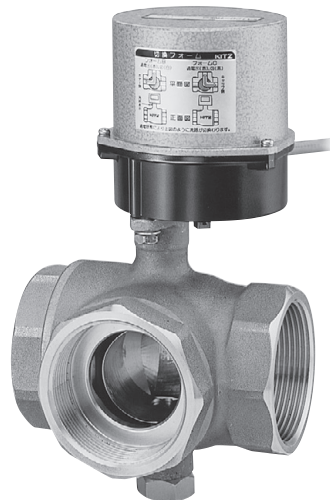
Note: 유체 흐름 방향은 3페이지를 참고하십시오.
제품은 Form 1을 Form B로 표기하거나 Form 2를 Form C로 표시하는 명판(Nameplate)로 식별합니다. (mm)

Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	L ₂	S ₁	Actuator			
									H ₂	H ₃	D	Type
1/4	4.5	Rc1/4	101.5	25.5	46	23	23	21	70	5	60	EA100/200-1
3/8	6.8	Rc3/8	101.5	25.5	46	22	22	21				
1/2	10	Rc1/2	109.5	33.5	67	33.5	33.5	28				
3/4	15	Rc3/4	114	38	68	34	34	34				
1	20	Rc1	118	42	79	39.5	39.5	41				

Fig. EA100/200-TNE

Actuator size: 2
Valve size: 1/4" to 2" (Standard bore)



* Stainless steel body available Fig. EA100/200-UTNE

Note: 유체 흐름 방향은 3페이지를 참고하십시오.
제품은 Form 1을 Form B로 표기하거나 Form 2를 Form C로 표시하는 명판(Nameplate)로 식별합니다. (mm)

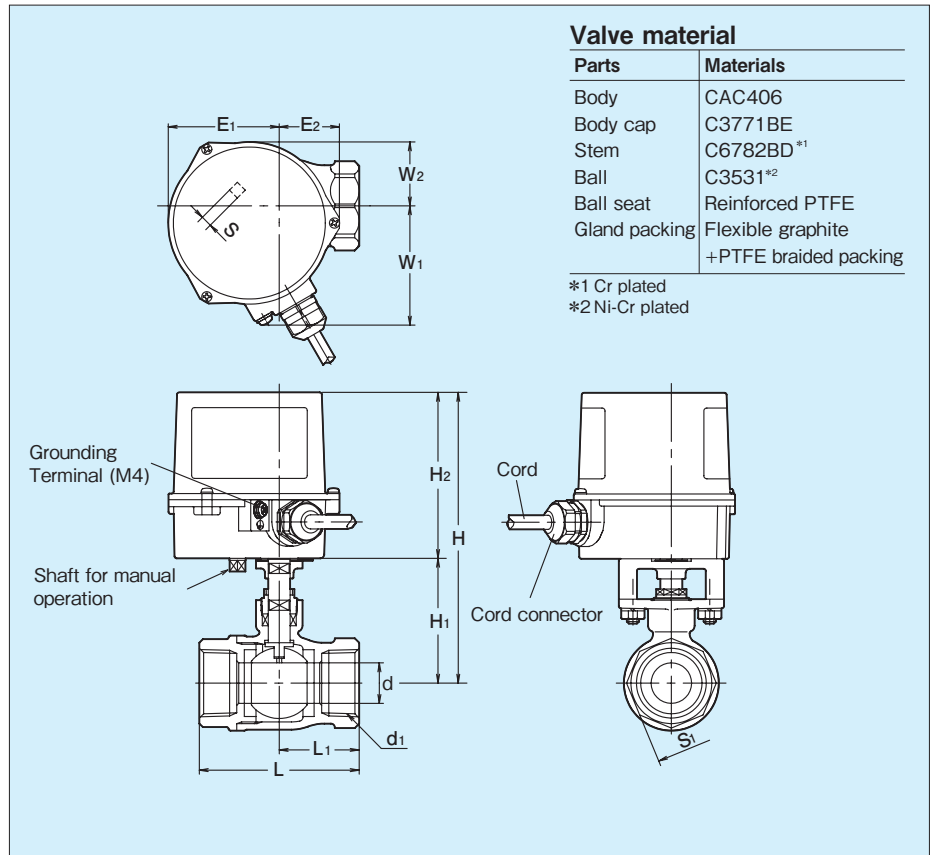
Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	H ₂	L	L ₁	L ₂	S ₁	Actuator						
										H ₃	E ₁	E ₂	W ₁	W ₂	S	Type
1/4	25	Rc1/4	128.5	46.5	—	89	44.5	44.5	50	82	54.5	30	59	31.5	5.5	EA100/200-2
1/2	32	Rc1/2	142.5	59.5	53.5	100	50	50	56							
2	40	Rc2	148.5	65.5	60	115	57.5	57.5	68							

Type EA Electric Actuators/Class 10K Bronze Ball Valves with Gland Packing

Fig. EA100/200-TGE

Actuator size: 2
 Valve size: 1/2" to 1" (Standard bore)



Dimensions

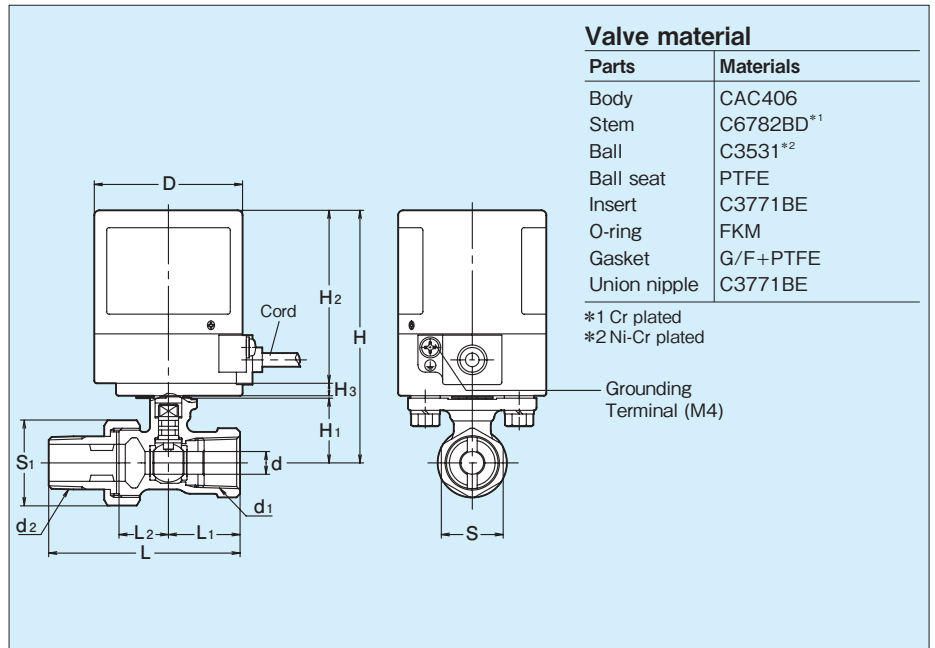
(mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator						
								H ₂	E ₁	E ₂	W ₁	W ₂	S	Type
3/8	7.5	Rc3/8	130	48	46	22	22	82	54.5	30	59	31.5	5.5	EA100/200-2
1/2	10	Rc1/2	135.5	53.5	65	32.5	28							
3/4	15	Rc3/4	139.5	57.5	68	34	34							
1	20	Rc1	143.5	61.6	79	39.5	41							

Type EA Electric Actuators/Class 10K Union Ring Bronze Ball Valves

Fig. EA100/200-TUE

Actuator size: 1
Valve size: 1/2" and 3/4" (Reduced bore)



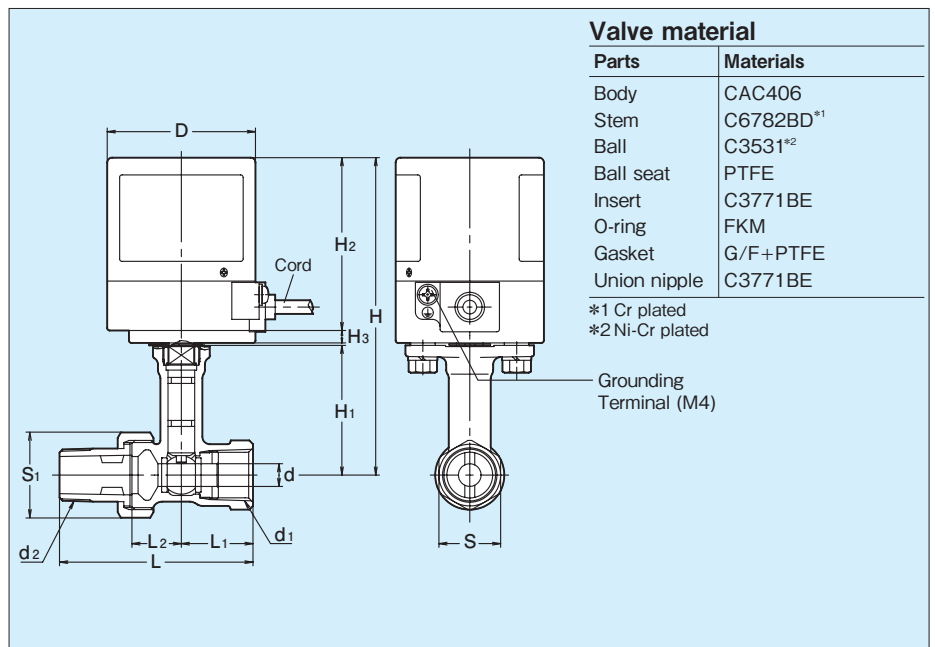
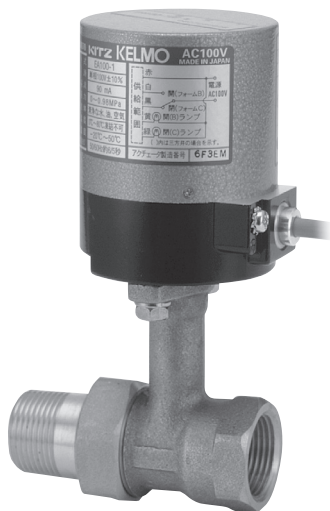
Dimensions (mm)

Valve Size (inch)	d	d ₁	d ₂	H	H ₁	L	L ₁	L ₂	S	S ₁	Actuator			
											H ₂	H ₃	D	Type
1/2	8	Rc1/2	Rc1/2	102	26	78.5	29	20	25	31	70	5	60	EA100/200-1
3/4	11	Rc3/4	Rc3/4	104.5	28.5	81	29	20	32	36				

Type EA Electric Actuators/Class 10K Long Neck Union Ring Bronze Ball Valves

Fig. EA100/200-TLUE

Actuator size: 1
Valve size: 1/2" and 3/4" (Reduced bore)



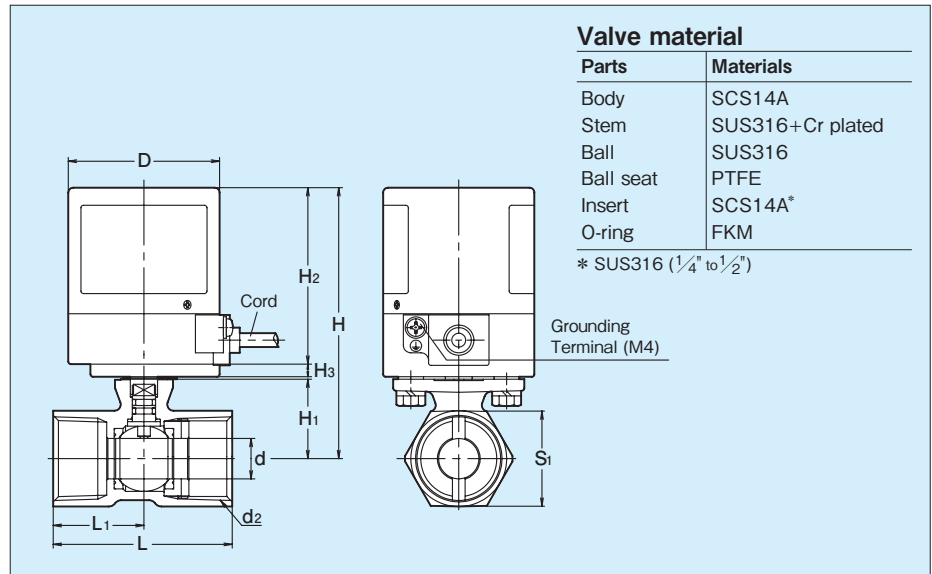
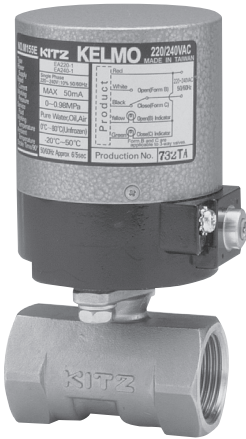
Dimensions (mm)

Valve Size (inch)	d	d ₁	d ₂	H	H ₁	L	L ₁	L ₂	S	S ₁	Actuator			
											H ₂	H ₃	D	Type
1/2	8	Rc1/2	Rc1/2	128.5	52.5	78.5	29	20	25	31	70	5	60	EA100/200-1
3/4	11	Rc3/4	Rc3/4	131	55	81	29	20	32	36				

Type EA Electric Actuators/Class 10K Stainless Steel Ball Valves

Fig. EA100/200-UTE

Actuator size: 1 and 1.5
Valve size: 1/4" to 1" (Reduced bore)

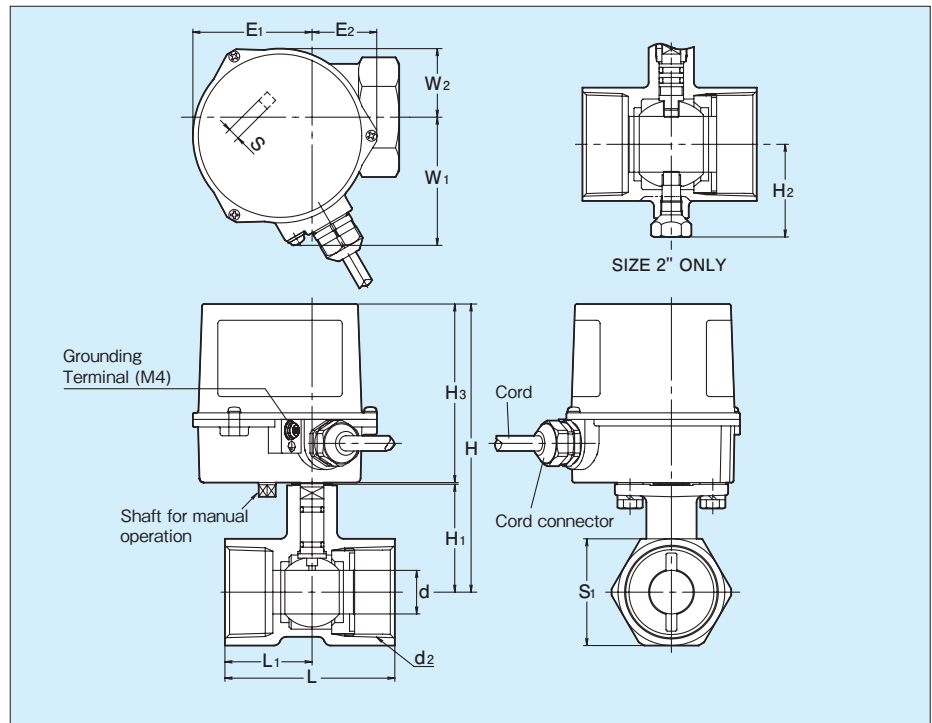
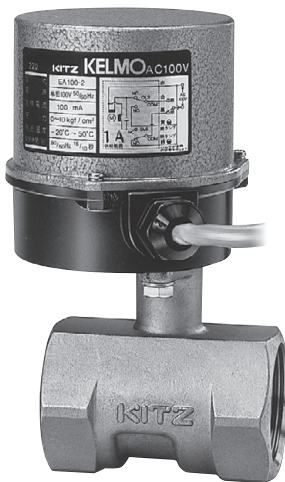


Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator			
								H ₂	H ₃	D	Type
1/4	5.3	Rc1/4	102	26	44	21	21	70	5	60	EA100/200-1
3/8	7.7	Rc3/8	102	26	44	21	21				
1/2	9.2	Rc1/2	102	26	56.5	27.5	25				
3/4	12.5	Rc3/4	105	29	59	30	32				
1	16	Rc1	108	32	71	36	38				EA100/200-1.5

Fig. EA100/200-UTE

Actuator size: 2
Valve size: 1 1/4" to 2" (Reduced bore)



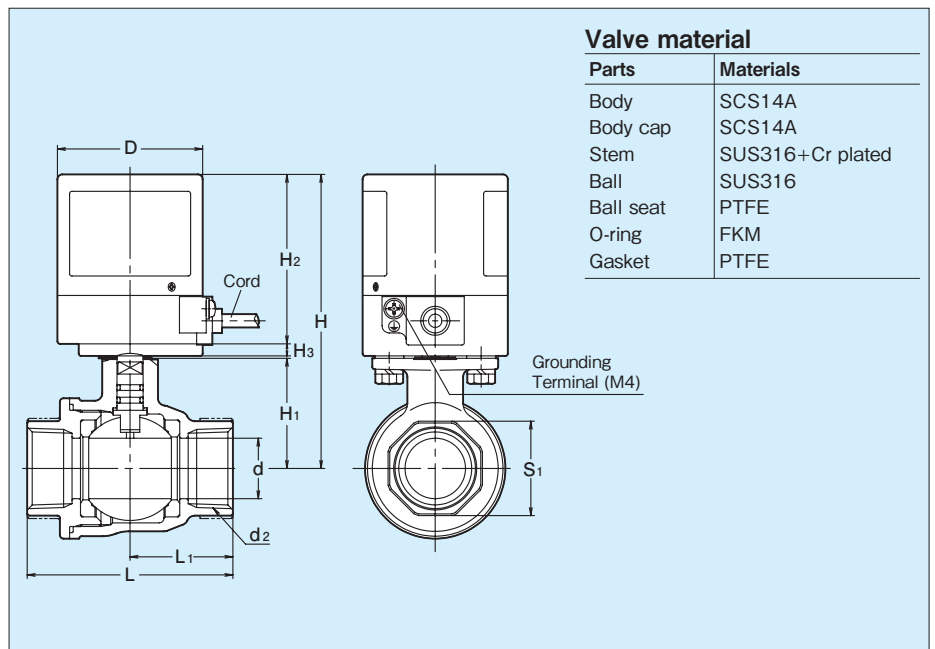
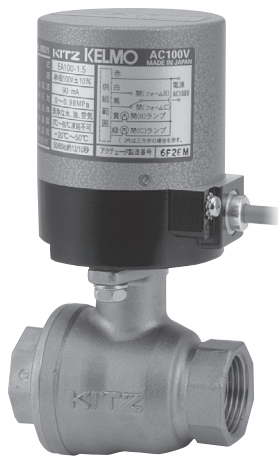
Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	H ₂	L	L ₁	S ₁	Actuator						
									H ₃	E ₁	E ₂	W ₁	W ₂	S	Type
1 1/4	20	Rc1 1/4	132.5	49.5	—	78	40	49	82	54.5	30	59	31.5	5.5	EA100/200-2
1 1/2	24.5	Rc1 1/2	135.5	52.5	—	83	42.5	53							
2	32	Rc2	141.5	58.5	53.5	100	51	65							

Type EA Electric Actuators/Class 10K Stainless Steel Ball Valves

Fig. EA100/200-UTFE

Actuator size: 1.5
Valve size: 1/2" and 3/4" (Full bore)



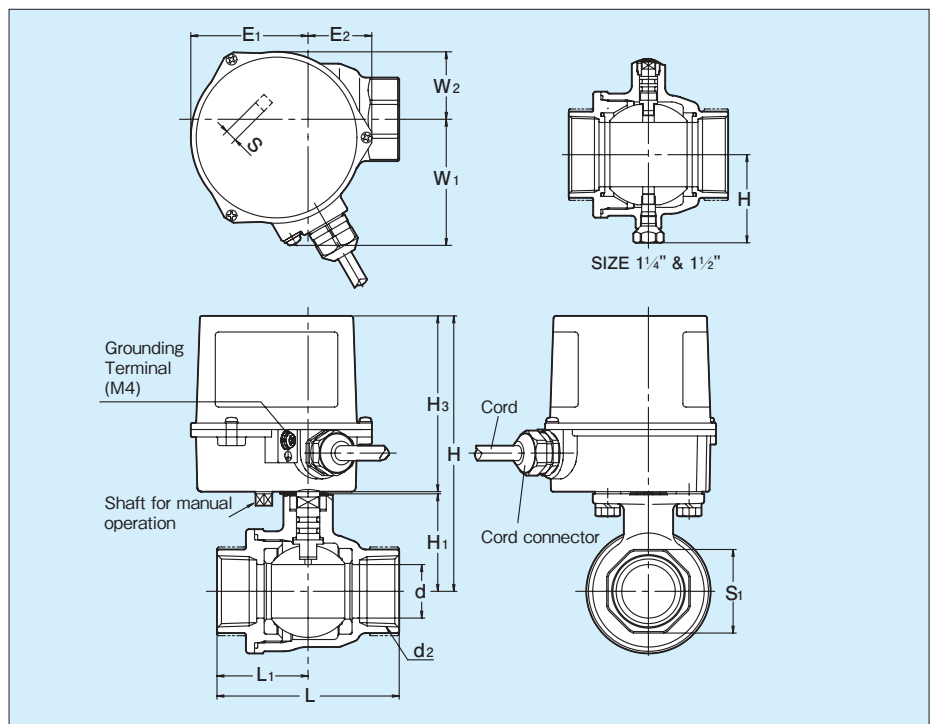
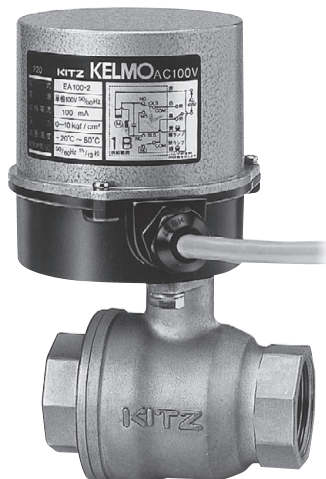
Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator			
								H ₂	H ₃	D	Type
1/2	15	Rc1/2	113.5	37.5	63	31	26	70	5	60	EA100/200-1.5
3/4	20	Rc3/4	117.5	41.5	73	36.5	32				

(mm)

Fig. EA100/200-UTFE

Actuator size: 2
Valve size: 1" to 1 1/2" (Full bore)



Dimensions

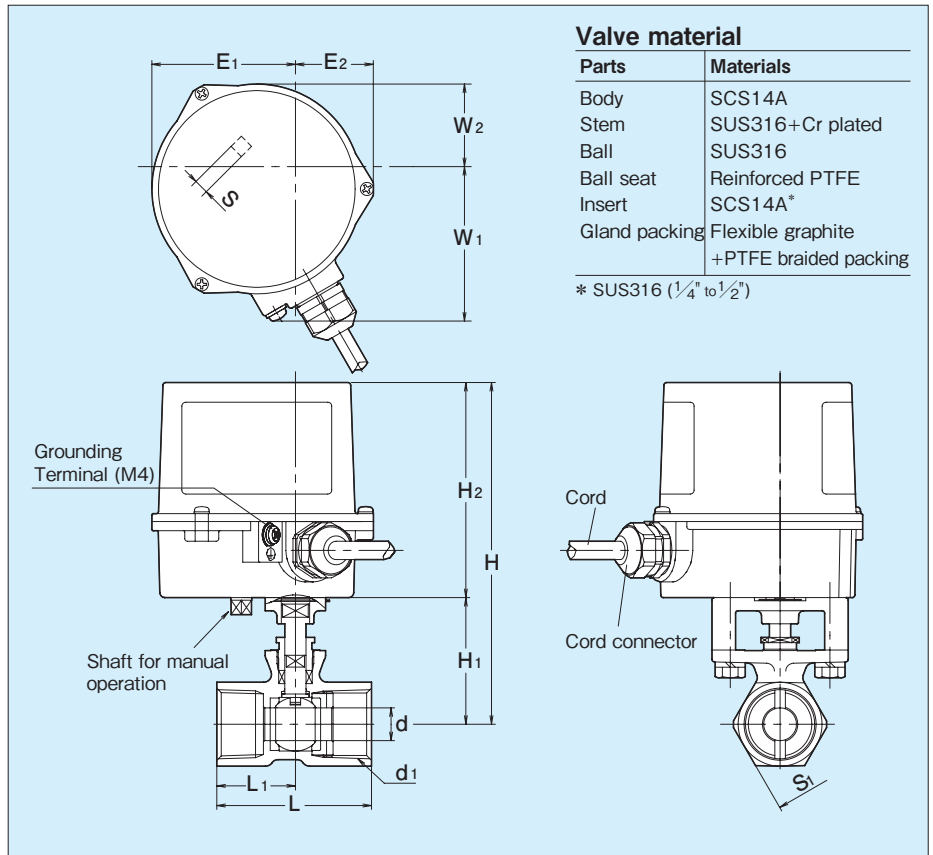
Valve Size (inch)	d	d ₁	H	H ₁	H ₂	L	L ₁	S ₁	Actuator						
									H ₃	E ₁	E ₂	W ₁	W ₂	S	Type
1	25	Rc1	128.5	45.5	—	85	42.5	39	82	54.5	30	59	31.5	5.5	EA100/200-2
1 1/4	32	Rc1 1/4	143.5	60.5	55	98	49	48							
1 1/2	40	Rc1 1/2	149.5	66.5	61	108	54	54							

(mm)

Type EA Electric Actuators/Class 10K Glanded Stainless Steel Ball Valves

Fig. EA100/200-UTGE

Actuator size: 2
 Valve size: 1/4" to 1" (Reduced bore)



Valve material

Parts	Materials
Body	SCS14A
Stem	SUS316+Cr plated
Ball	SUS316
Ball seat	Reinforced PTFE
Insert	SCS14A*
Gland packing	Flexible graphite +PTFE braided packing

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

Dimensions

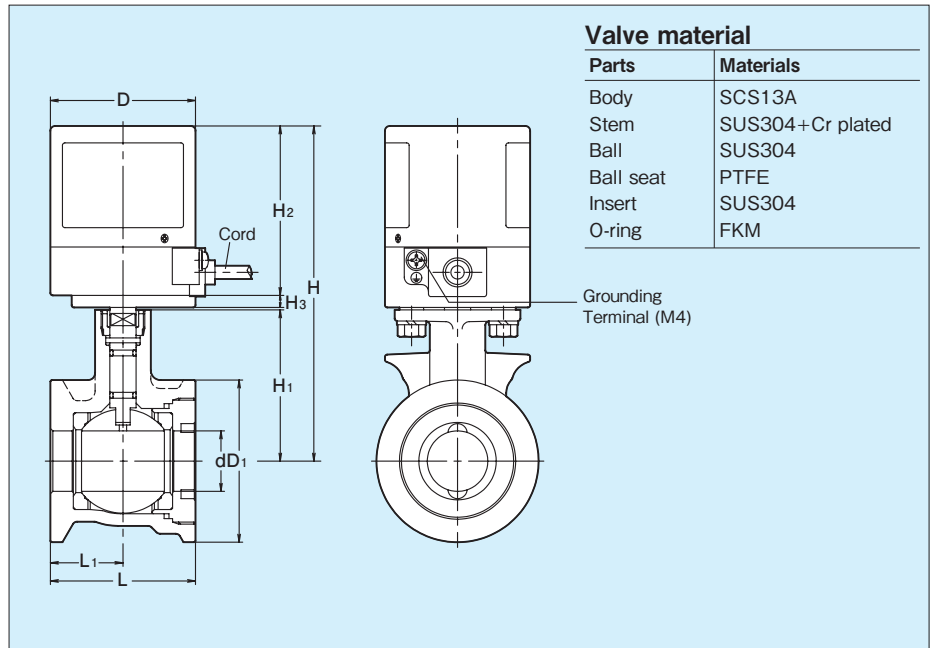
(mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator						
								H ₂	E ₁	E ₂	W ₁	W ₂	S	Type
1/4	4.5	Rc1/4	128	46	44	21	21	82	54.5	30	59	31.5	5.5	EA100/200-2
3/8	6.8	Rc3/8	128	46	44	21	21							
1/2	9.2	Rc1/2	128	46	56.5	27.5	25							
3/4	12.5	Rc3/4	131	49	59	30	32							
1	16	Rc1	134	52	71	36	38							

Type EA Electric Actuators/Class 5K/10K Wafer Stainless Steel Ball Valves

Fig. EA100/200-5UTWE
EA100/200-10UTWE

Actuator size: 1 and 1.5
Valve size: 3/8" to 3/4" (Full bore)



Valve material	
Parts	Materials
Body	SCS13A
Stem	SUS304+Cr plated
Ball	SUS304
Ball seat	PTFE
Insert	SUS304
O-ring	FKM

Grounding Terminal (M4)

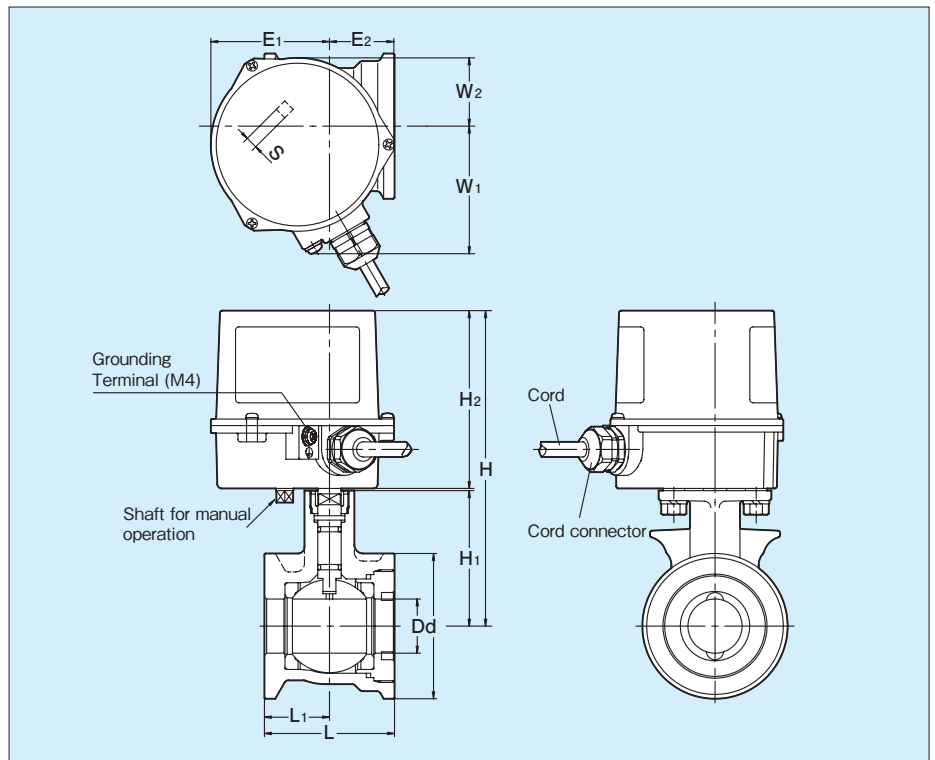
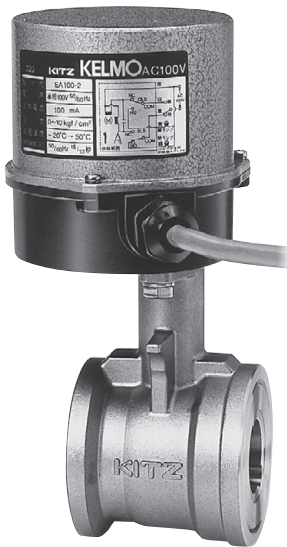
Dimensions

Valve Size (inch)	d	H	H ₁	L	L ₁	D ₁		Actuator			
						5K	10K	H ₂	H ₃	D	Type
3/8	10	131	55	35	17.5	43	48	70	5	60	EA100/200-1
1/2	15	134	58	40	20	48	53				EA100/200-1.5
3/4	20	136	60	50	25	53	58				EA100/200-1.5

(mm)

Fig. EA100/200-5UTWE
EA100/200-10UTWE

Actuator size: 2
Valve size: 1" (Full bore)



Dimensions

Valve Size (inch)	d	H	H ₁	L	L ₁	D		Actuator						
						5K	10K	H ₂	E ₁	E ₂	W ₁	W ₂	S	Type
1	25	151	68	60	30	63	69	82	54.5	30	59	31.5	5.5	EA100/200-2

(mm)

Type EAB Electric Actuators/Class 10K Bronze or Stainless Steel Ball Valves

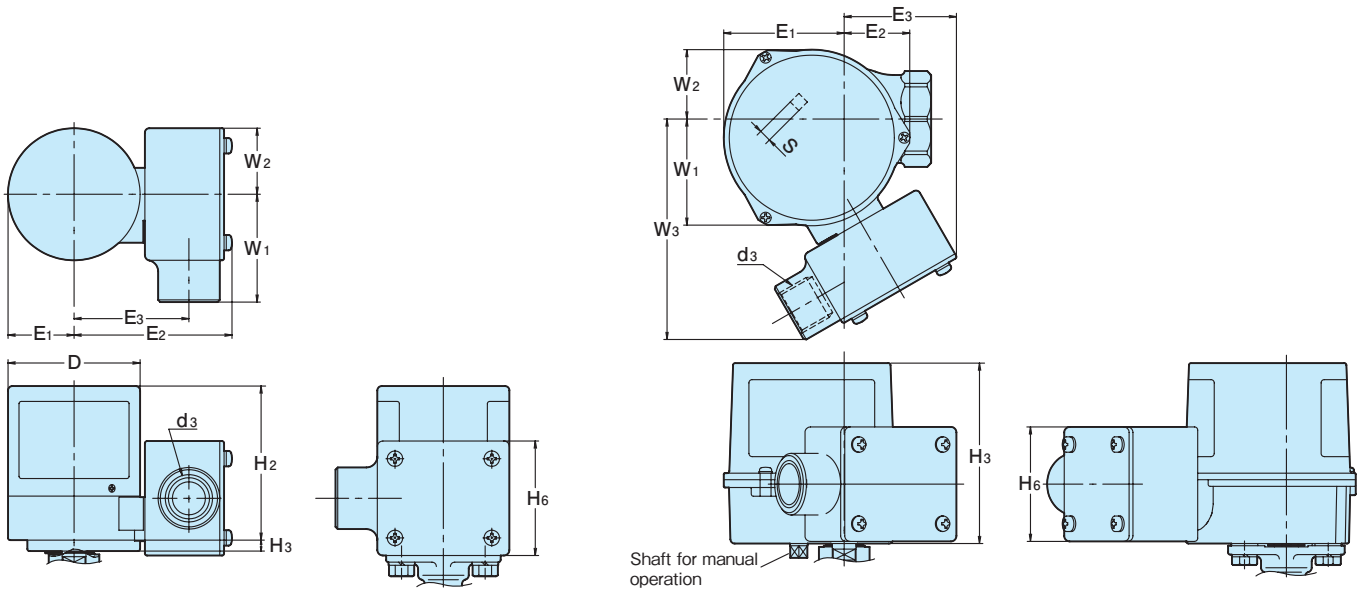
Circuit Diagram은 EA 액추에이터와 동일합니다.

5 페이지를 참조하십시오.

Note: 전원과 전기연결을 하기 위하여 Terminal Box (M3)가 장착됩니다.

Fig. of actuator-to-valve assemblies

- EAB100/200-TE EAB100/200-TLUE
- EAB100/200-TFE EAB100/200-UTE
- EAB100/200-TLE EAB100/200-UTFE
- EAB100/200-TNE EAB100/200-UTGE
- EAB100/200-TGE EAB100/200-5 / 10UTWE
- EAB100/200-TUE EAB100/200-UTNE



Dimensions of actuator size 1 & 1.5 (mm)

d ₃	H ₂	H ₃	H ₆	E ₁	E ₂	E ₃	W ₁	W ₂	D
G ¹ / ₂	70	5	52	30	72	52	49	30	60

Note: Ball 밸브의 액추에이터 크기는 EA type 액추에이터와 같습니다.

Dimensions of actuator size 2 (mm)

d ₃	H ₃	H ₆	E ₁	E ₂	E ₃	W ₁	W ₂	W ₃	S
G ¹ / ₂	82	52	54.5	30	52	49	31.5	100	5.5

Note: Ball 밸브의 액추에이터 크기는 EA type 액추에이터와 같습니다.

Type EAL and EALB Electric Actuators/Class 10K Bronze or Stainless Steel Ball Valves

100/200V AC 50/60Hz

- 두개 이상의 액추에이터로 병렬구동 하기 위하여 Relay circuit이 내장되어 있습니다.
- 액추에이터(EALB)의 손쉬운 설치를 위하여 공장에서부터 Terminal Box가 조립됩니다.

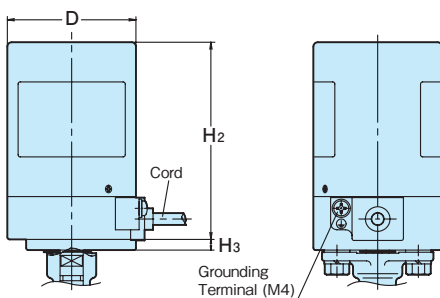
Type EAL and EALB actuator design specifications

Specification	Type	EAL100-1 EALB100-1	EAL200-1 EALB200-1	EAL100-1.5 EALB100-1.5	EAL200-1.5 EALB200-1.5	EAL100-2 EALB100-2	EAL200-2 EALB200-2
Power source 50/60Hz		100V AC	200V AC	100V AC	200V AC	100V AC	200V AC
Rated current		100mA	60mA	100mA	60mA	110mA	60mA
Max. power consumption		10W	12W	10W	12W	11W	12W
Valve closing time 90°	50Hz	Approx. 6 s		Approx. 12 s		Approx. 15 s	
	60Hz	Approx. 5 s		Approx. 10 s		Approx. 13 s	
Max. output torque		1.9N·m		3.9N·m		9.8N·m	
Rated time		Continuous					
Insulation Class		JIS Class E					
Sensitive switch contact capacity		125V AC 2A, 250V AC 0.6A (Resistance load)			250V AC 2A (Resistance load)		
Position limit switch		One unit each for opening/closing (using the same power source as that of the actuator)					
Insulation strength		1500V AC (1 min. interval)					
Insulation resistance		Minimum 10MΩ (500V DC)					
Standard protection		All weather type (for outdoor use, avoid exposure to direct sunlight)					
Ambient temperature		-20°C to +50°C					
Mounting position		Vertical to horizontal					
Wiring		Vinyl cabtyre cord with five cores, 700mm in length					
		0.3mm ²			0.5mm ²		
Lubrication		Grease					
Overload protection		Impedance protection					
Coating color		Housing: black Cover: light blue					

* 전원으로 EALB와 연결하기 위하여 Terminal (M3)가 사용됩니다.

Fig. of actuator-to-valve assemblies

- EAL100/200-TE EAL100/200-TLUE**
- EAL100/200-TFE EAL100/200-UTE**
- EAL100/200-TLE EAL100/200-UTFE**
- EAL100/200-TNE EAL100/200-UTGE**
- EAL100/200-TGE EAL100/200-5/10UTWE**
- EAL100/200-TUE EAL100/200-UTNE**



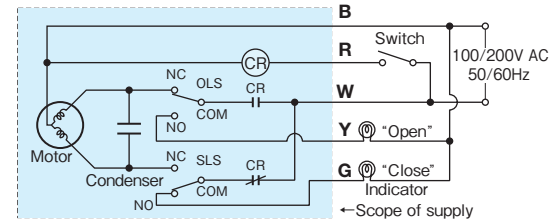
H ₂	H ₃	D
92	5	60

Note : Ball밸브의 경우 액추에이터 크기는 페이지 18을 참고하십시오.

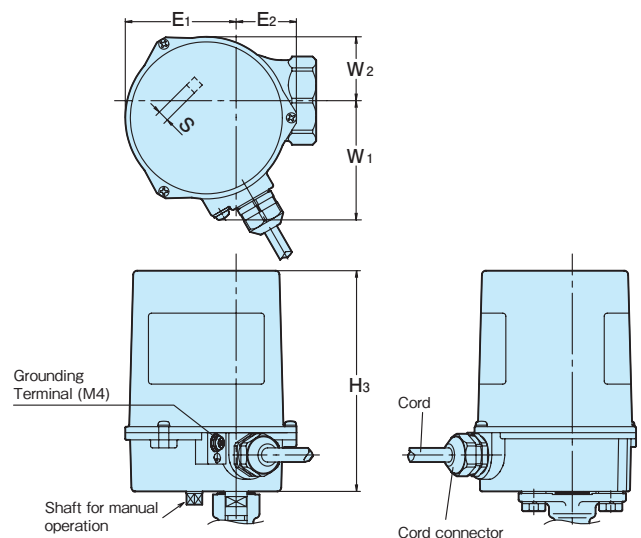
Type EAL actuator circuit diagrams

(with the valve fully closed)

EAL100/200 Size 1, 2



- Wire 색상: R red W white B black Y yellow G green
 - Actuator rotates:
 - Switch ON: 밸브를 완전히 열기 위하여 반시계방향으로 회전
 - Switch OFF: 밸브를 완전히 닫기 위하여 시계방향으로 회전
 - Limit switches activate:
 - OLS: on fully opening the valve (B-W: off W-Y: on) SLS: on fully closing the valve (B-W: off W-G: on)
- Note: 모든 EALB 100/200 의 크기의 경우, 각 Terminal은 B, R, W, Y, G 대신 1, 2, 3, 4, 5로 대체하여 숫자로 표기됩니다.



H ₃	E ₁	E ₂	W ₁	W ₂	S
108.5	54.5	30	59	31.5	5.5

Type EALB Electric Actuators/Class 10K Bronze or Stainless Steel Ball Valves

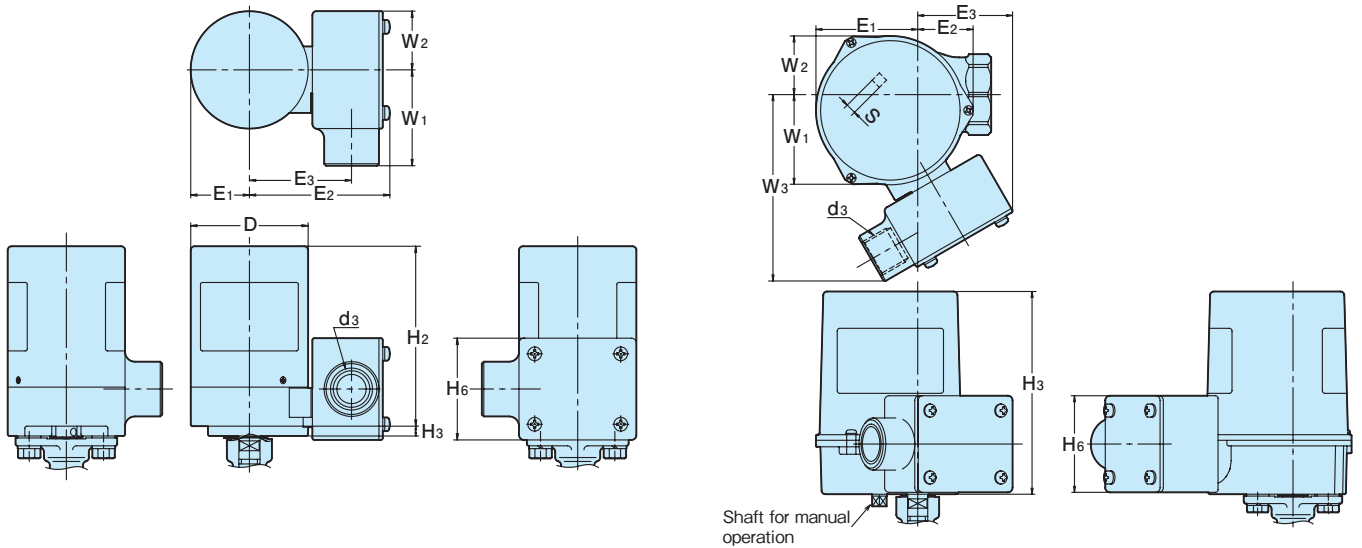
Circuit Diagram은 EAL 액추에이터와 동일합니다.

17 페이지를 참조하십시오.

Note: 전원과 전기연결을 하기 위하여 Terminal Box (M3)가 장착됩니다.

Fig. of actuator-to-valve assemblies

- | | | |
|------------------------|-------------------------|-----------------------------|
| EALB100/200-TE | EALB100/200-TUE | EALB100/200-5/10UTWE |
| EALB100/200-TFE | EALB100/200-TLUE | EALB100/200-VT |
| EALB100/200-TLE | EALB100/200-UTE | EALB100/200-VTS |
| EALB100/200-TNE | EALB100/200-UTFE | EALB100/200-10VT |
| EALB100/200-TGE | EALB100/200-UTGE | EALB100/200-UTNE |



Dimensions of actuator size 1 & 1.5 (mm)

d ₃	H ₂	H ₃	H ₆	E ₁	E ₂	E ₃	W ₁	W ₂	D
G ¹ / ₂	92	5	52	30	72	52	49	30	60

Dimensions of actuator size 2 (mm)

d ₃	H ₃	H ₆	E ₁	E ₂	E ₃	W ₁	W ₂	W ₃	S
G ¹ / ₂	108.5	52	54.5	30	52	49	31.5	100	5.5

Actuator sizing table (EAL·EALB Type)

Fig	Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
TE		Size-1			Size-1.5		Size-2		
TFE		Size-1			Size-1.5		Size-2		
TLE		Size-1			Size-1.5		Size-2		
TNE		Size-1			Size-1.5		Size-2		
TGE		Size-1			Size-2		Size-2		
TUE		Size-1			Size-1.5		Size-2		
TLUE		Size-1			Size-1.5		Size-2		
UTE		Size-1			Size-1.5		Size-2		
UTFE		Size-1			Size-1.5		Size-2		
UTGE		Size-2			Size-1.5		Size-2		
5/10UTWE		Size-1			Size-1.5		Size-2		
VT, VTS, 10VT		Size-1			Size-1.5		Size-2		

Type EAH and EAHB Electric Actuators/Class 10K Vertical 3-way Bronze or Stainless Steel Ball Valves

100/200V AC 50/60Hz

- 유체흐름을 자동으로 변경합니다.
- 3방향 작동에 대한 선택: 2개의 서로 다른 유체 흐름 통로와 누수없이 유체흐름을 차단합니다.
- KITZ의 TNVE & UTVE Ball밸브 전용으로 장착됩니다
- 액추에이터(EAHB)의 손쉬운 설치를 위하여 공장에서부터 Terminal Box가 조립됩니다.

Type EAH and EAHB actuator design specifications

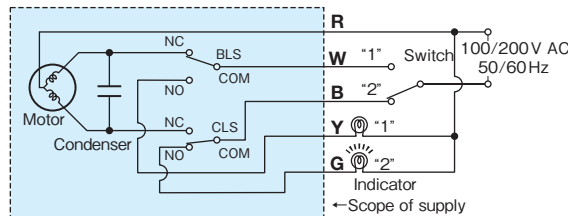
Specification \ Type	EAH100-1 EAHB100-1	EAH200-1 EAHB200-1	EAH100-1.5 EAHB100-1.5	EAH200-1.5 EAHB200-1.5	EAH100-2 EAHB100-2	EAH200-2 EAHB200-2
Power source 50/60Hz	100V AC	200V AC	100V AC	200V AC	100V AC	200V AC
Rated current	90mA	50mA	90mA	50mA	100mA	50mA
Max. power consumption	9W	10W	9W	10W	10W	
Valve closing time 90°	50Hz	Approx. 12 s		Approx. 24 s		Approx. 30 s
	60Hz	Approx. 10 s		Approx. 20 s		Approx. 26 s
Max. output torque	1.9N·m		3.9N·m		9.8N·m	
Rated time	Continuous					
Insulation class	JIS Class E					
Sensitive switch contact capacity	125V AC 2A, 250V AC 0.6A (Resistance load)				250V AC 2A (Resistance load)	
Position limit switch	One unit each for opening/closing (using the same power source as that of the actuator)					
Insulation strength	1500V AC (1 min. interval)					
Insulation resistance	Minimum 10MΩ (500V DC)					
Standard protection	All weather type (for outdoor use, avoid exposure to direct sunlight)					
Ambient temperature	-20°C to +50°C					
Mounting position	Vertical to horizontal					
Wiring	Vinyl cabtyre cord with five cores, 700mm in length					
	0.3mm ²				0.5mm ²	
Lubrication	Grease					
Overload protection	Impedance protection					
Coating color	Housing: black Cover: light blue					

* 전원으로 EAHB와 연결하기 위하여 Terminal(M3)가 사용됩니다.

Type EAH actuator circuit diagrams

(with the valve positioned at Form 2)

EAH 100/200



- Wire 색상: R red W white B black Y yellow G green
- Actuator rotates: **R-W:** Form 1의 경우 시계방향으로 회전
R-B: Form 2의 경우 반시계 방향으로 회전
- Limit switches activate: BLS: at Form 1 (R-W: off W-Y: on)
CLS: at Form 2 (R-B: off B-G: on)

Note: EAHB 100/200의 모든 크기의 경우, 각 Terminal은 R,W,B,Y,G를 대체하여 숫자 1,2,3,4,5로 표기됩니다.

Type EAH Electric Actuators/Class 10K Vertical 3-way Bronze Steel Ball Valves

Fig. EAH100/200-TNVE

Actuator size: 1 & 1.5
Valve size: 1/2" to 1" (Standard bore)

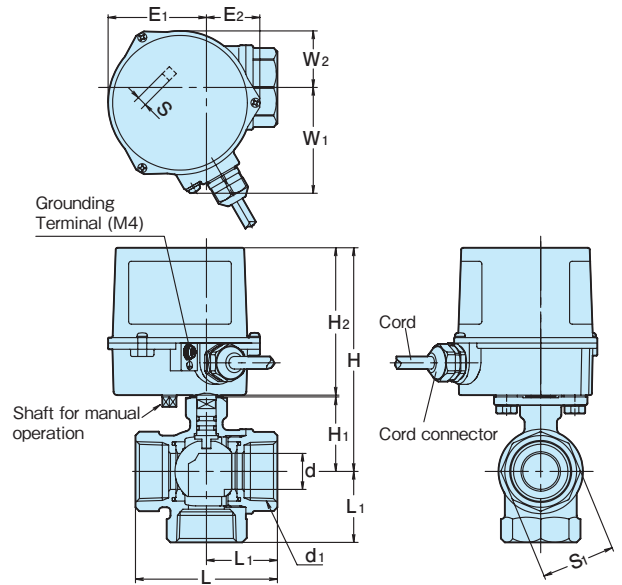
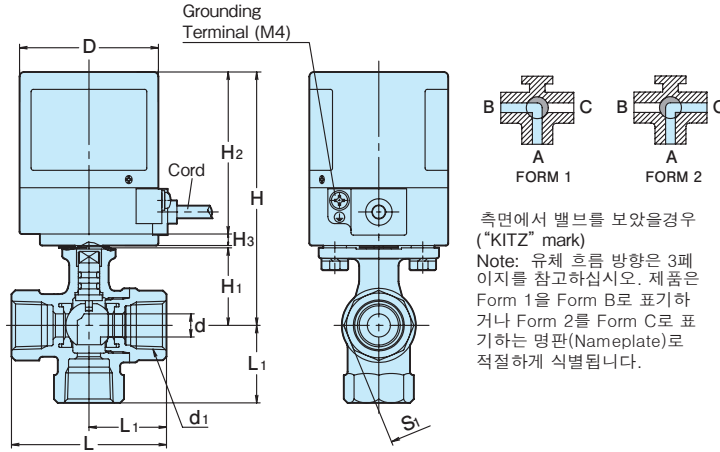
Valve material

Parts	Materials
Body	CAC406
Body cap	C3771BE
Stem	C6782BD*1
Ball	C3531*2
Ball seat	PTFE
O-ring	FKM

*1 Cr plated
*2 Ni-Cr plated

Fig. EAH100/200-TNVE

Actuator size: 2
Valve size: 1 1/4" (Standard bore)



Dimensions of actuator size 1 & 1.5 (mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	Actuator			
							H ₂	H ₃	D	Type
1/2	10	Rc1/2	109.5	33.5	67	33.5	70	5	60	EAH100/200-1
3/4	15	Rc3/4	113.5	37.5	68	34.0				EAH100/200-1.5
1	20	Rc1/2	117.5	41.5	79	39.5				

Dimensions of actuator size 2 (mm)

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator						
								H ₂	E ₁	E ₂	W ₁	W ₂	S	Type
1 1/4	25	Rc1/4	129.5	46.5	89	44.5	50	82	54.5	30	59	31.5	5.5	EAH100/200-2

Note: Intermediate Position에서 밸브가 작동할 경우 KITZ로 문의하여 기술적 조언을 구하십시오.*

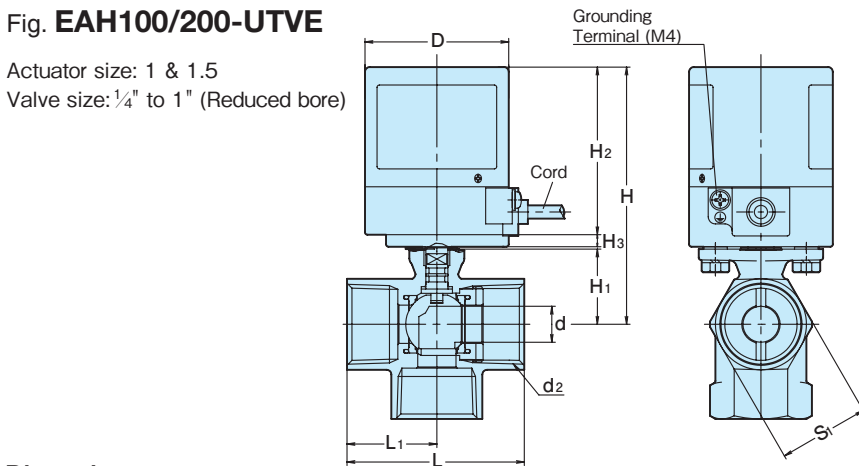
Type EAH Electric Actuators/Class 10K Vertical 3-way Stainless Steel Ball Valves

Fig. EAH100/200-UTVE

Actuator size: 1 & 1.5
Valve size: 1/4" to 1" (Reduced bore)

Valve material

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



Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S ₁	Actuator			
								H ₂	H ₃	D	Type
1/4	4.5	Rc1/4	101.5	25.5	44.0	21.0	21	70	5	60	EAH100/200-1
3/8	6.8	Rc3/8	101.5	25.5	44.0	21.0	21				
1/2	8.5	Rc1/2	102.0	26.0	58.0	29.0	25				
3/4	11.5	Rc3/4	104.5	28.5	61.5	31.5	32				
1	15.0	Rc1	107.5	31.5	74.0	37.5	38				EAH100/200-1.5

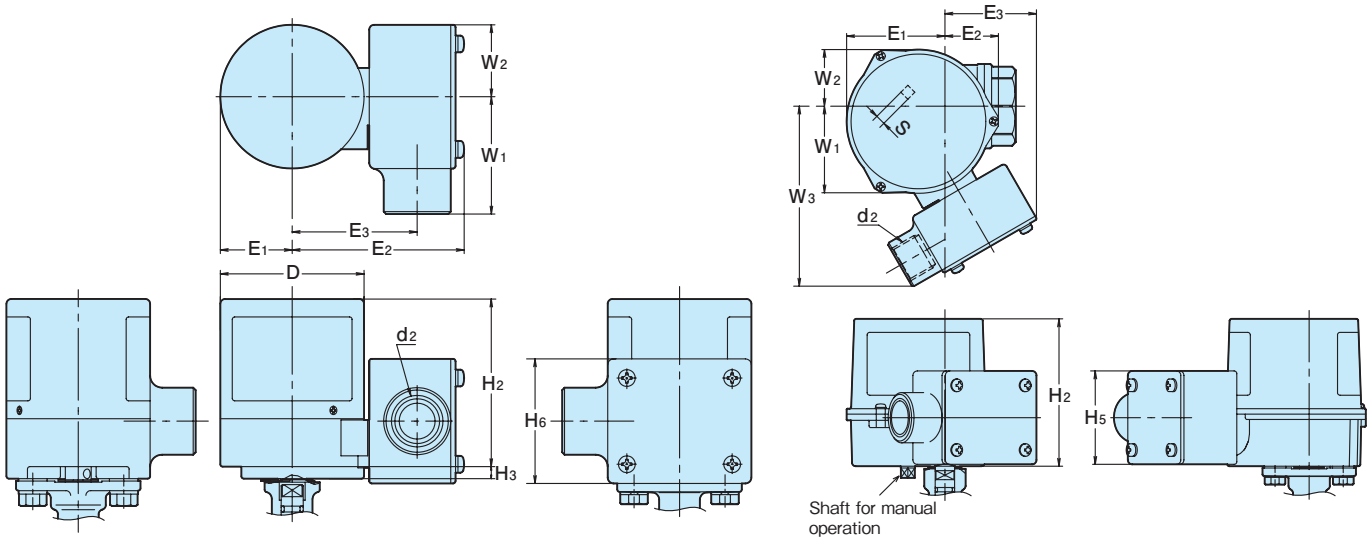
Note: Intermediate Position에서 밸브가 작동할 경우 KITZ로 문의하여 기술적 조언을 구하십시오.*

Type EAHB Electric Actuators/Class 10K Vertical 3-way Bronze or Stainless Steel Ball Valves with Terminal Box

Circuit diagram 은 EAL 액추에이터와 동일합니다.
 Note: Terminal Box(M3)는 전원과 함께 전기연결을 위하여 장착됩니다.

Fig. of actuator-to-valve assemblies

**EAHB100/200-TNVE
EAHB100/200-UTVE**



Dimensions of actuator size 1 & 1.5 (mm)

d ₂	H ₂	H ₃	H ₆	E ₁	E ₂	E ₃	W ₁	W ₂	D
G ¹ / ₂	70	5	52	30	72	52	49	30	60

Dimensions of actuator size 2 (mm)

d ₂	H ₂	H ₅	E ₁	E ₂	E ₃	W ₁	W ₂	W ₃	S
G ¹ / ₂	82	52	54.5	30	52	49	31.5	100	5.5

Type EC and ECS Electric Actuators/Class 10K Brass Ball Valves

100/200V AC 50/60Hz

- KITZ EA Series-Ball Valve보다 경제적입니다.
- KITZ TEK Ball 밸브에 전용으로 장착합니다.
- 90도 또는 180도의 단 방향 구동 장치입니다
- 자동으로 유체 흐름 방향을 변경합니다.
- 3방향 작동에 대한 선택: 2개의 서로 다른 유체 흐름 통로와 누수없이 유체흐름을 차단합니다.

Type EC and ECS actuator design specifications

Specification	Type	EC100/200 ECR100/200		ECS100/200 ECSR100/200	
		Power source 50/60Hz		100/200 V AC	
Rated current		50mA/30mA			
Max. power consumption		About 4 W			
Valve closing time 90°/180°	50Hz	Approx. 4.5 sec.	Approx. 9 sec.		
	60Hz	Approx. 3.8 sec.	Approx. 7.6 sec.		
Max. output torque		0.98 N·m			
Rated time		Continuous			
Insulation Class		JIS Class E			
Sensitive switch contact capacity		200V AC 1 A, (Resistance load)			
Position limit switch		One unit each for opening/closing (Using the same power source as that of the actuator)			
Insulation strength		1500V AC (1 min. interval)			
Insulation resistance		Minimum 10MΩ (500V DC)			
Standard protection		All weather type (for outdoor use, avoid exposure to direct sunlight)			
Ambient temperature		-10°C to +60°C			
Mounting position		Vertical to horizontal			
Wiring		Vinyl cabtyre cord with five cores 0.3mm ² (300mm long)			
Lubrication		Grease			

Note: 디자인에 관련된 특성은 1페이지와 2페이지를 참조하십시오. applications flow coefficient of ball valves

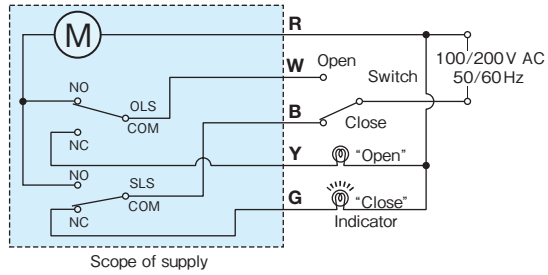
Valve design specifications

Threaded ends: JIS B 0203

Maximum service pressure
 1/2" and smaller: 1.0MPa
 3/4" and 1": 0.5MPa

Actuator circuit diagrams

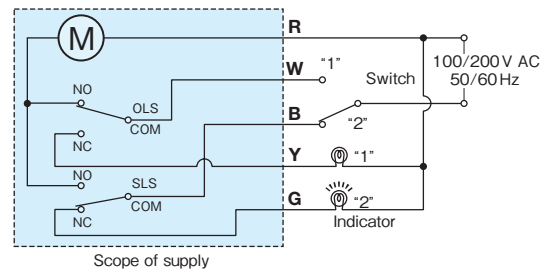
Type EC (with the valve fully closed)



- Wire 색상: R red W white B black Y yellow G green
- Actuator rotates:
 - R-W:** 밸브를 완전히 열기위하여 반시계방향으로 회전
 - R-B:** 밸브를 완전히 닫기위하여 시계방향으로 회전
- Limit switches activate:
 - OLS: on fully opening the valve (R-W: off W-Y: on)
 - SLS: on fully closing the valve (R-B: off B-G: on)

Note: (1) 하나의 스위치로 두개 이상의 액추에이터를 작동할 경우 Relay Contact를 사용하여 의도하지 않은 전류 흐름을 방지합니다.
 (2) 작동중 스위치를 "Open" 에서 "Shut" 또는 "Shut" 에서 "Open"으로 변경하면 액추에이터는 원래 방향으로 이동을 완료한 후 반대로 이동합니다. 예를 들면 액추에이터가 밸브를 완전히 닫은 후 열기 시작합니다.

Type ECS (with the valve positioned at Form 2)



- Wire 색상: R red W white B black Y yellow G green
- Actuator rotates (top view):
 - R-W:** Form 1로 밸브를 멈추기 위하여 시계방향으로 회전
 - R-B:** Form 2로 밸브를 멈추기 위하여 반시계방향으로 회전
- Limit switches activate:
 - BLS: at Form 1 (R-W: off W-Y: on)
 - CLS: at Form 2 (R-B: off B-G: on)

Note: (1) 하나의 스위치로 두개 이상의 액추에이터를 작동할 경우 Relay Contact를 사용하여 의도하지 않은 전류 흐름을 방지합니다.
 (2) 작동중 스위치를 "Open" 에서 "Shut" 또는 "Shut" 에서 "Open"으로 변경하면 액추에이터는 원래 방향으로 이동을 완료한 후 반대로 이동합니다. 예를 들면 액추에이터가 밸브를 완전히 닫은 후 열기 시작합니다.

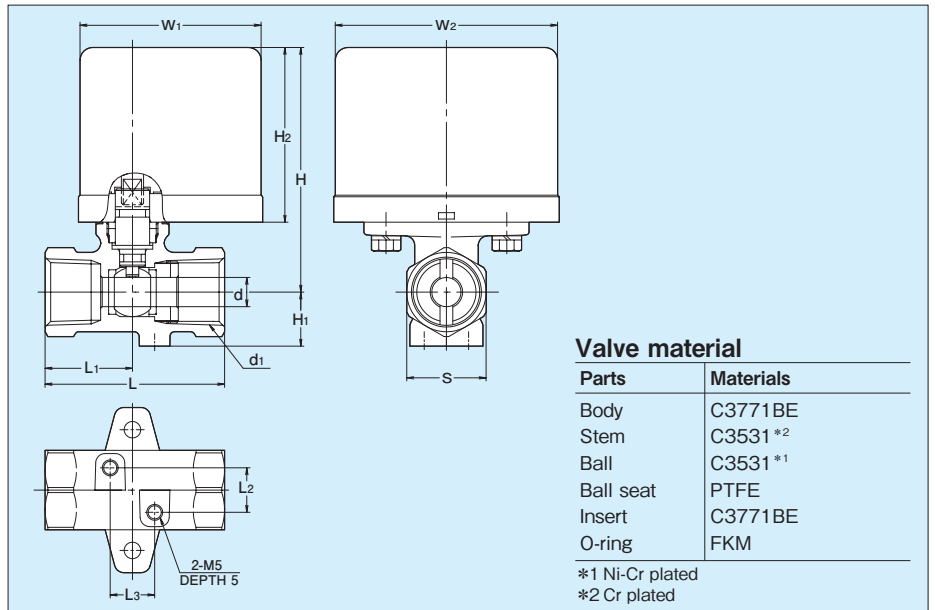
CAUTION

액추에이터 Housing은 Polyacetal로 만들어 집니다. 액추에이터를 염화물과 같은 부식성 가스나 Trichloroethylene 또는 Methylene Chloride와 같은 용액과 함께 사용하지 마십시오.

Type EC Electric Actuators/Class 10K Brass Ball Valves

Fig. EC100/200-TKE

Valve size: 1/4" to 3/4"



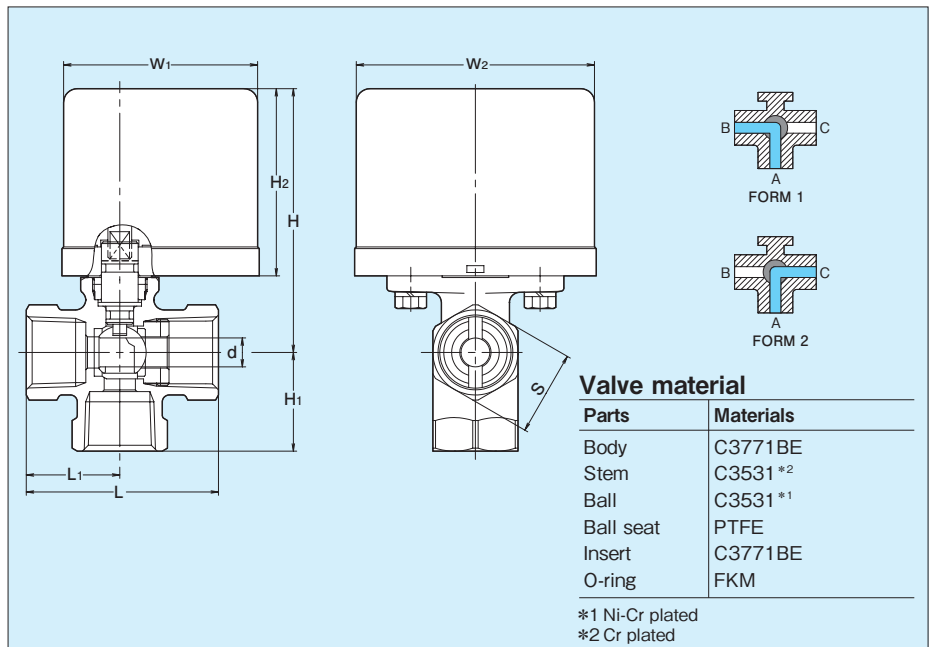
Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	L ₂	L ₃	S	Actuator			
										H ₂	W ₁	W ₂	Type
1/4	4.5	Rc1/4	76.5	15	44	21	14	14	21	55	58	71	EC100/200-1
3/8	6.8	Rc3/8	76.5	15	44	21	14	14	21				
1/2	8	Rc1/2	77.5	17	56.5	27.5	14	14	25				
3/4	11	Rc3/4	80	20	59	30	17	16	32				

Type ECS Electric Actuators/Class 10K Vertical 3-way Brass Ball Valves

Fig. ECS100/200-TKVE

Valve size: 1/2" to 3/4"



Note: 유체 흐름 방향은 3페이지를 참조하십시오.
제품은 Form 1이나 Form 2중 하나를 표기하는 명판(Nameplate)으로 적절하게 식별됩니다. (mm)

Dimensions

Valve Size (inch)	d	d ₁	H	H ₁	L	L ₁	S	Actuator			
								H ₂	W ₁	W ₂	Type
1/2	8	Rc1/2	77.5	29	56.5	27.5	25	55	58	71	ECS100/200-1
3/4	11	Rc3/4	80	33	60	30	32				

KELMO® EAE Series Spring Electric Actuator

100/200V AC 50/60Hz

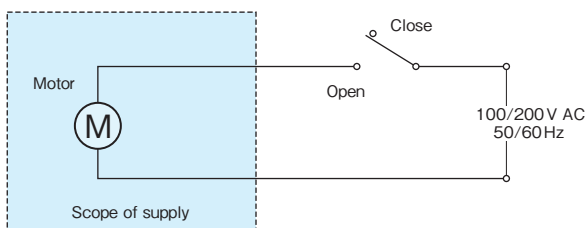
- 두개의 전원공급 와이어는 기존의 밸브 구동 장치로서 기존의 Solenoid 밸브를 손쉽게 교체하기 위하여 시스템을 제공합니다.
- 일반적인 Solenoid 밸브의 문제인 Water hammer에 대한 우려없이 정상 속도로 작동합니다.
- 수동 작동이 가능합니다.
- 액추에이터가 꺼질 때, 밸브의 개방위치를 유지하기 위하여 자동 잠금 장치가 있습니다.

Type EAE actuator design specifications

Specification	Type	EAE100-1	EAE200-1
Power source	50/60Hz	100V AC	200V AC
Rated current		200mA	100mA
Max. power consumption		8.5W	7.2W
Valve closing time 90°	50/60Hz	Approx. 10 sec.	
	Spring return	Approx. 20 sec.	
Rated time		Continuous	
Insulation Class		JIS Class E	
Insulation strength		1500V AC (1 min. interval)	
Insulation resistance		Minimum 100MΩ (500V DC)	
Standard protection		for indoor use*	
Ambient temperature		-10°C to +50°C	
Mounting position		Vertical to horizontal	
Wiring		0.3mm ² lead wire	
Lubrication		Grease	
Coating color		Housing: black Cover: light blue	

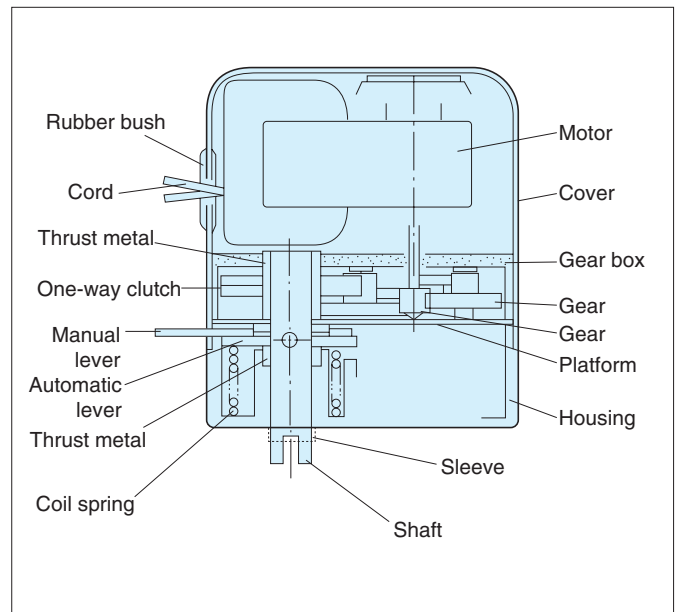
*액추에이터에 물이 튀거나 습도가 높은 환경에서의 사용을 금합니다.
Terminal Box와 Cabtyre Cable이 선택적으로 사용가능합니다.

Actuator circuit diagrams



Operating mechanism

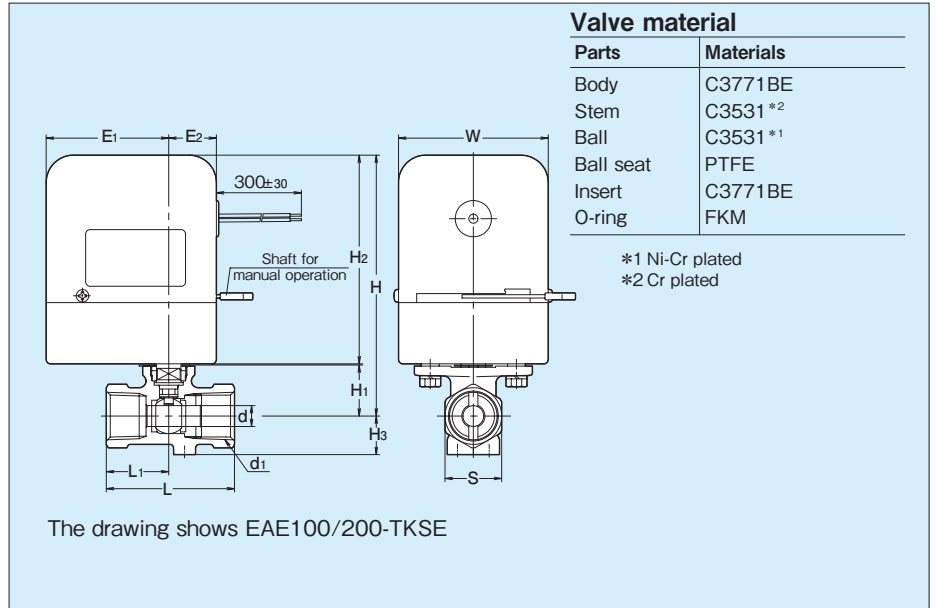
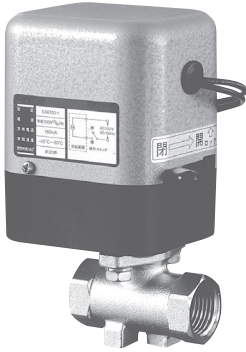
- 기본 매커니즘 구조는 아래 그림에 나와있습니다.
- 액추에이터에 전원이 공급되면 모터가 회전하고 기어감소를 통해 Torque를 One-way Clutch로 전달합니다. 그러면 Torque가 Shaft로 전달되어 밸브가 열리는 동시에 코어 스프링을 감습니다.
- Shaft를 90도 회전하면 자동 레버가 작동하여 Stopper에 접촉해 고정된 위치에 머무르지만 액추에이터는 계속 작동상태를 유지합니다.
- 액추에이터의 전원을 끄면 코일스프링(Coil Spring)의 재압축된 힘에 의하여 Ball이 닫힌 위치로 시계방향으로 회전합니다.



Type EAE Electric Actuators/Class 10K* Bronze, Brass or Stainless Steel Ball Valves

Fig. of actuator-to-valve assemblies

- EAE100/200-TE** (3/8" and 1/2")
- EAE100/200-TNE*** (1/4" to 1/2")
- EAE100/200-TUE** (1/2")
- EAE100/200-UTE** (1/4" to 1/2")
- EAE100/200-TKSE***



Dimensions

(mm)

Valve Size (inch)	d	d ₁	H	H ₁	H ₃	L	L ₁	S	Actuator				
									H ₂	E ₁	E ₂	W	Type
1/4	5.3	Rc1/4	114.5	21.5	15	44	21	21	92	21	54	66	EAE100/200-1
3/8	7.7	Rc3/8	114.5	21.5	15	44	21	21					
1/2	8	Rc1/2	115.5	22.5	17	56.5	27.5	25					
3/4	11	Rc3/4	118	25	20	59	30	32					

* 서비스 압력은 3/4" TKSE, 1/2" TE 그리고 1/2" TNE의 경우 5K입니다. 밸브 디자인 사양과 PTFE Seat의 압력-온도 등급에 관련된 내용은 2페이지를 참조하십시오.

Note: ● Terminal Box와 Captire cable은 옵션으로 사용이 가능합니다.

● EAE 액추에이터는 On-off용 액추에이터입니다. 부분 개방 또는 부분 폐쇄용 밸브에 사용을 금합니다.

⚠ Cautions for use of EAE actuators

- 해당 액추에이터는 방폭사양이 없으며 폭발위험이 있는 환경에서 사용할 수 없습니다. 밀폐된 공간에서 사용할 수 없으며 부식성 가스용으로 사용하거나 습한환경이나 젖음의 위험성이 큰 환경에서도 사용할 수 없습니다.
- 해당 액추에이터는 밸브를 완전히 개방 또는 폐쇄만 할 수있는 On-off 유체 조절 전용으로 디자인 되었습니다. 밸브의 중간 Positioning을 위해 부분개방 또는 부분폐쇄하여 사용하지 마십시오.
- 시간당 20사이클과 같이 작동빈도가 지나치게 높을 경우 액추에이터의 사용수명이 단축 될 수 있습니다. 에어컨 또는 환기시설에 사용한다면 이러한 문제가 발생할 수 있습니다.
- 미세조각, 먼지 모래등을 포함한 점성도가 높은 유체에는 사용할수 없습니다.
- 액추에이터 하우징(Housing)은 PBT 레진으로 만들어집니다. 액추에이터의 손상을 막기 위해 액추에이터 위에 무거운 물건을 올려 두거나 밟지 마십시오,

Type ED Electric Actuators/Class 10K Bronze or Stainless Steel Ball Valves

12/24V DC

■ DC 12V 또는 24V로 편리한 On-The-Spot 밸브 작동을 지원합니다.

Type ED actuator design specifications

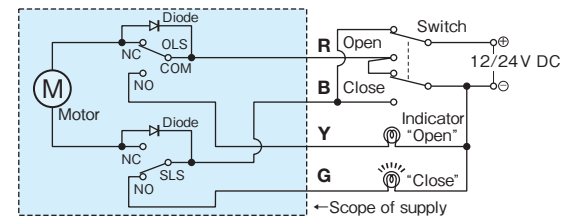
Specification \ Type	ED12-1	ED24-1	ED12-2	ED24-2
Power source 50/60Hz	12V DC	24V DC	12V DC	24V DC
Rated current	360mA	140mA	520mA	260mA
Starting current	0.4A	0.5A	1.9A	0.95A
Max. power consumption	5W	4W	9W	10W
Valve closing time 90°/50Hz	Approx. 5 sec.			
Max. output torque	1.4 N·m		7.3 N·m	
Rated time	5 min			
Insulation Class	JIS Class E			
Position limit switch	One unit each for opening/closing (Using the same power source as that of the actuator)			
Insulation strength	250V DC (1 min. interval)		500V DC (1 min. interval)	
Insulation resistance	Minimum 10MΩ (250V DC)			
Standard protection	All weather type (for outdoor use, avoid exposure to direct sunlight)			
Ambient temperature	-20°C to +50°C			
Mounting position	Vertical to horizontal			
Wiring	Vinyl cabtyre cord with five cores		UL approved noninflammable cord with five cores	
	0.3mm ²		0.5mm ²	
Lubrication	Grease			
Overload protection	Impedance protection		Thermal protection	
Coating color	Housing: black Cover: light blue			

Note: ED12-2와 ED24-2는 옵션으로 모바일 애플리케이션으로 작동이 가능합니다. 세차 도중 고압의 물을 ED액추에이터로 직접분사 해서는 안됩니다.

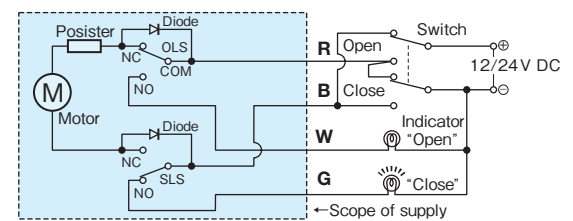
Type ED actuator circuit diagrams

(with the valve fully closed)

ED 12/24 Size 1



ED 12/24 Size 2



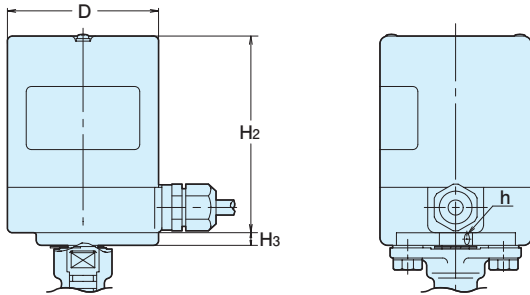
- Wire 색상: R red W white B black Y yellow G green
- Actuator rotates:
R⊕ - B⊖: 밸브를 개방하기 위하여 반시계 방향으로 회전
R⊖ - B⊕: 밸브를 폐쇄하기 위하여 시계방향으로 회전
- Limit switches activate:
OLS: on fully opening the valve (R-B: off R-Y(W): on)
SLS: on fully closing the valve (R-B: off B-G: on)

Actuator sizing table (ED Type)

Fig \ Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
TE		Size-1			Size-2			
TNE		Size-1			Size-2			
UTE		Size-1			Size-2			
UTFE		Size-1		Size-2				
UTGE		Size-2						
5/10UTWE		Size-2						

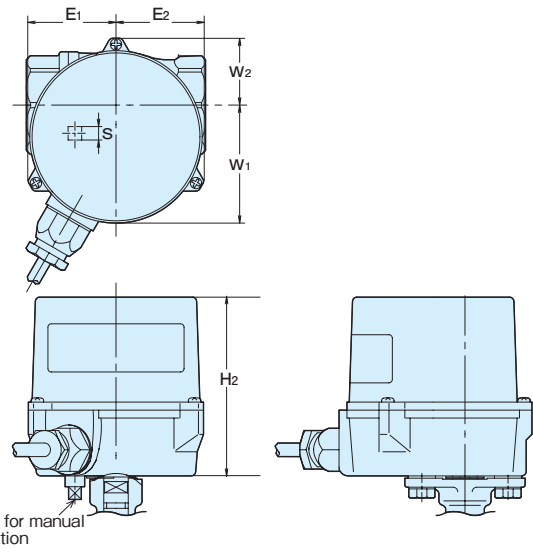
Fig. of actuator-to-valve assemblies

- ED12/24-TE**
- ED12/24-TNE**
- ED12/24-UTE**
- ED12/24-UTFE**
- ED12/24-UTGE**
- ED12/24-5/10UTWE**



Dimensions of actuator size 1 (mm)

H ₂	H ₃	D	h
78	5	60	4



Dimensions of actuator size 2 (mm)

H ₂	E ₁	E ₂	W ₁	W ₂	S
79	39	39	52	30	5.5

Type ES Electric Actuators/Class 10K Brass or Stainless Steel Ball Valves

100/200V AC 50/60Hz

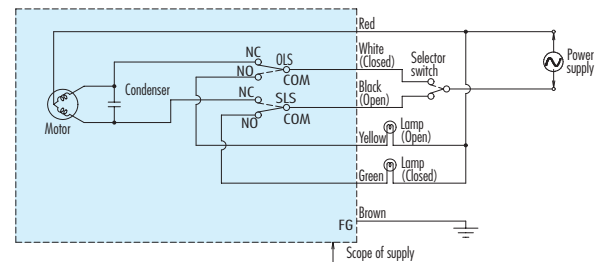
- 내충격성(Shock-resistant)이 우수하고 단단한 Polycarbonate를 Cover와 Gear Case에 사용하여 액추에이터의 내구성을 향상시킵니다.
- 방진처리(Dust-prevention)와 방수형(Drip-off) 구조는 까다로운 조건 환경에 설치할 수 있기 위하여 IP65를 준수합니다. (잠수 저항성 사양에 관련된 내용은 KITZ로 문의해주시길 바랍니다.)
- 밸브와 액추에이터를 교체할 경우, 좁은 공간에서도 사람이 직접 분리하기가 용이하며 손쉬운 조립 또한 가능합니다.
- 액추에이터의 반투명한 커버로 인해 밸브 위치 표시기(Position Indicator)를 한눈에 확인할 수 있습니다.
- 액추에이터 내부 부품의 배치와 밸브 연결구조를 수정하여 제품 크기를 줄였습니다.
- 해당 제품은 밸브 하단에 있는 Tapped Hole을 사용하여 원하는 장치의 임의적인 위치에 설치할 수 있습니다. 배관작업의 효율성이 향상하였고, 나일론 튜브(Nylon Tubing)와의 연결도 쉽게 이루어 집니다.

Type ES actuator design specifications

Specification	Type	ESA100-1	ESA200-1
Operation		ON-OFF (Fully open ⇔ Fully closed)	
Power source (single phase) 50/60Hz		100V AC±10%	200V AC±10%
Rated current		90mA	50mA
Valve open/closing time		Approx. 9 s	Approx. 7.5 s
Rated time		30%ED (Maximum continuous operation time: 10 min)	
External output		One each for opening/closing	
Insulation class		Class E	
Insulation strength		1 min./1500V AC or 1 s/1800V AC	
Insulation resistance		10MΩ or more (500V DC)	
Service environment		Indoor use only (No direct exposure to the sunlight) -20°C to +50°C (No freezing)	
Mounting orientation		Vertical to horizontal	
Overload protection		Impedance protection	
Cable specification	Connection	Cable connection	
	Cable	0.5SQ, six cores, Length: 500mm	
External material		PC, PPC	
Protection rate		Equivalent to IP65 of IEC60529 (Contact KITZ for submergence resistance.)	
Dismounting of actuator		Removal of two fixing pins	
Manual operation		Removal of actuator	
Compliance with RoHS		ESA□00-UTASE (SCS13A valves): Standard	

Type ES actuator circuit diagrams

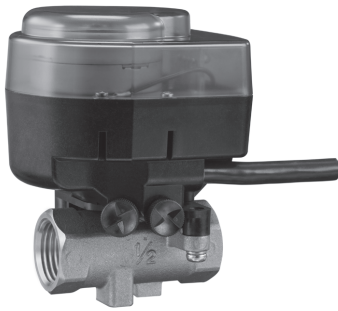
(with the valve fully closed)



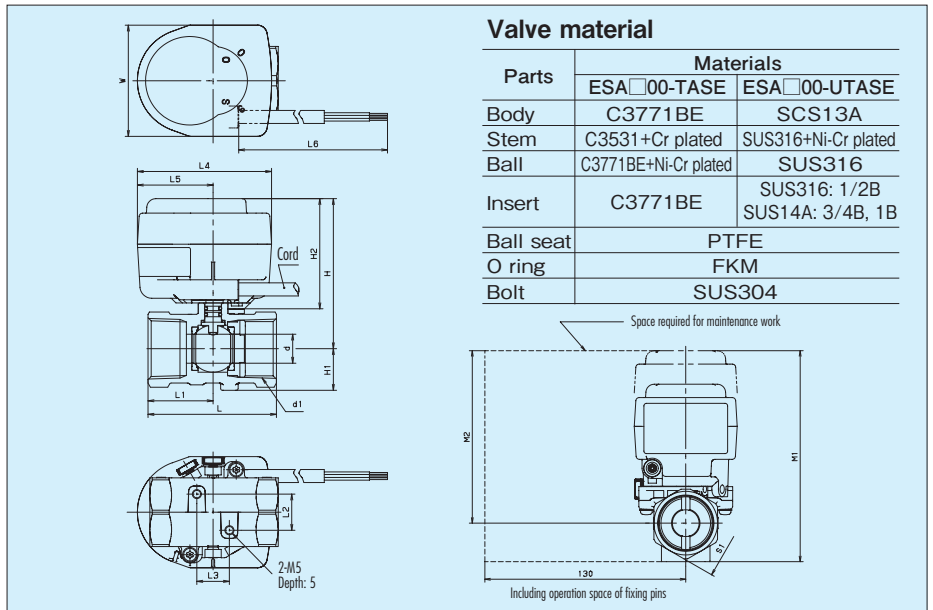
- * Wire 색상: R red W white B black Y yellow G green BR brown
- * 밸브가 완전 폐쇄된 상태는 위의 Circuit Diagram에 나타납니다.
- * Yellow Cable과 Green Cable이 연결되지 않은경우 두개의 Cable을 연결하지 말고 개별적으로 절연 해야 합니다.
- * 제품을 접지하여 감전을 방지합니다.

Type ES Electric Actuators/Class 10K Brass or Stainless Steel Ball Valves

Fig. of actuator-to-valve assemblies
ESA100/200-TASE
ESA100/200-UTASE



The photo shows ESA100/200-TASE



Dimensions

(mm)

Valve Size (inch)	Cv	d	d ₁	H	H ₁	L	L ₁	L ₂	L ₃	S ₁	M ₁	M ₂	Actuator				
													H ₂	L ₄	L ₅	L ₆	W
1/2	5	9.2	Rc1/2	77.3	17	56.5	27.5	14	14	25	115	98					
3/4	10	12.5	Rc3/4	79.8	20	59	30	17	16	32	120	100	61.5	74.5	42	500	61.5
1	15	16	Rc1	83	23	71	36	20	18	38	126	103					

Precautions for Trouble-free Operation of Electric Actuator Driven Ball Valves

Storage and Handling

전기로 작동되는 KITZ 소형 볼밸브는 개별적으로 스티로폼 박스에 포장합니다. 배관에 장착할 준비가 되기 전까지는 포장을 벗기지 마십시오. 1차 예방으로 코팅이 되어있지만 녹이 슬지않게 보관을 하기 위하여 건조하고 부식의 위험이 없는 환경에서 보관해야 합니다. 액츄에이터를 Solenoid 밸브 또는 기타 악세서리들에 장착할 때는 부품들을 조심히 다뤄야 합니다. 액츄에이터 위에 물건을 올려 두거나 밟는 등의 행위를 삼가하십시오. 액츄에이터 과부하를 항상 방지해야 합니다.

Mounting and Piping

전기로 작동되는 KITZ 소형 볼밸브의 경우 문제없는 상태를 보장하기 위해 밸브와 액츄에이터 그리고 기타 악세서리의 외관검수를 실시 해야 합니다. 느슨해진 볼트를 안전하게 조여야 합니다. 밸브와 배관 Bore속 용접 잔여물, 분진 또는 기타 이물질이 남아있지 않도록 깨끗한 상태를 유지해야 합니다. 밸브 장착이 다 끝난 후, 시스템을 시범작동 하기 전에 연결된 모든 배관 및 밸브 내부를 불어봅니다.

단자 접촉시 폭발이나 손상을 막기위해 폭발성이 있거나 부식성이 있는 가스에서 사용하지 마십시오..

주변에 실리콘을 포함한 물건이 있을 경우 Siloxane 가스의 발생으로 인해 접촉장애가 발생할 수 있습니다. Siloxane 가스가 발생할 수 있는 환경에서 제품 사용을 금하십시오.

Wiring and Operation

색상으로 구분된 전선(Wire)은 해당 카탈로그의 각 페이지에 표시된 액츄에이터 회로 다이어그램(Circuit Diagram)에 따라 각 단자에 연결해야 합니다. 부적절한 전선의 연결은 전자 부품 및 악세서리에 심각한 손상을 일으킬 수 있습니다.

아래에 열거된 액츄에이터는 내장계전기(Built-in Relay)가 제공되지 않습니다. 다른 액츄에이터와 병렬로 작동하려면 구동할 각 밸브에 대해 별도의 계전기를 배치하여야 합니다.

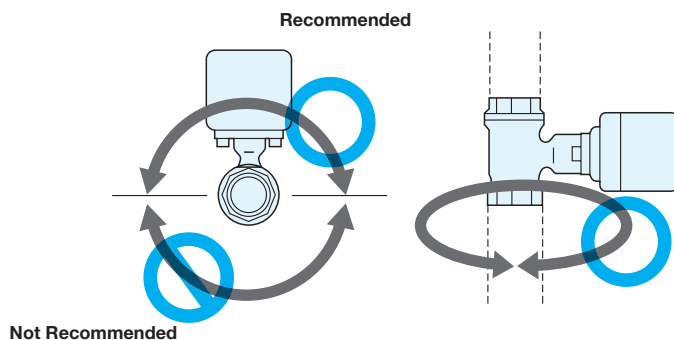
EA	EAL	EAH	EC	EAE	ED	ES
EAB	EALB	EAHB	ECS			

밸브에 개방 또는 폐쇄 표시등이 필요하지 않을 경우, Wire End의 노출된 부분을 절단하여 전류로부터 분리합니다. 수동 조작 전, 스위치를 반드시 꺼야합니다.

배선시 절대 실리콘 함유 재료(전선, Filler, 접착제)를 사용하지 마십시오. Siloxane가스의 발생 때문에 접촉 불량 발생 할 수도 있습니다.

Maintenance

액츄에이터를 분리하는 행위는 삼가하십시오. 전동으로 작동되는 KITZ 소형 볼밸브는 아래 그림의 설명대로 수직, 수평 또는 어떠한 중간각도에서 설치될 수 있습니다. 그러나 빗물이 유입되면 전기 구성부품 및 부속품의 품질에 영향을 미칠 수 있으므로 수평면 보다 낮게 장착해서는 안됩니다.



Design Features of KITZ C·CS/FBS Series Actuators

- 소형 사이즈 및 가벼운 무게
Die-casted Aluminum Body와 이중 피스톤 매커니즘(Double Piston Mechanism)은 액추에이터를 가볍고 작은 사이즈로 만드는데 기여했습니다.
- 단순한 매커니즘과 적은 오작동
해당 액추에이터는 최소한의 부품으로 구성되어 있습니다. 이러한 특징을 통해 액추에이터의 사용수명을 연장시키고 오작동 발생을 줄일수 있습니다.
- 특수 Solenoid 밸브
KITZ C-type 액추에이터 전용으로 사용되는 Direct Mount 유형인 특수 Solenoid 밸브를 사용할 수 있습니다.
- 효율성이 높은 Quarter Turn 액추에이터
이중피스톤(Double Piston) 유형인 Rack&Pinion 매커니즘은 Quarter turn 회전의 효율성을 올려줍니다
- Direct Mount type
오로지 두개의 볼트만을 이용하여 액추에이터를 밸브에 장착할 수 있습니다.

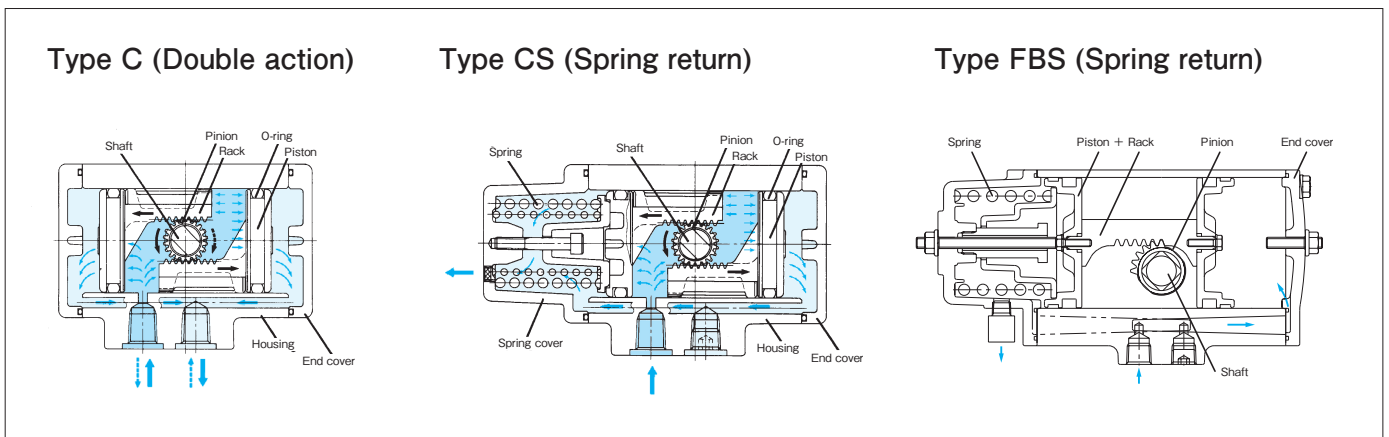
FBS-type 액추에이터는 대형크기의 밸브를 위해 사용됩니다.

액추에이터 선택을 위한 표준 지침서

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)			
TGE		C-1	C-2						
		CS-2	(FBS-1)						
TUE		C-1							
		CS-2							
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)						

KITZ C Series 액추에이터에서 다루지 않는 크기 범위의 경우 보다 강력한 KITZ Type FBS-1 액추에이터가 권장됩니다.

KITZ C·CS Series Pneumatic Actuators



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 공급 압력은 0.4 MPa입니다.

*2 공급 공기의 결빙현상이 없습니다.

*3 실외에서 사용할 경우 KITZ 엔지니어에게 문의하십시오.

*4 KITZ 표준 공기 장비이며 밸브에 부하가 가지 않습니다.

KITZ Standard Accessories

C-type 액츄에이터에는 Direct-mount형 특수 솔레노이드 밸브가 있습니다. 해당 밸브는 배관작업 필요없이 간편한 장착이 가능합니다. 특수 솔레노이드 밸브는 방수타입이 아닙니다. 만약 실외에서 사용할 경우, 밸브가 물로부터 젖지 않게 보호해야 합니다.

◆ Special Solenoid Valve

Electrical connection	Lead wire type
Working pressure range	0.15 to 0.7 MPa
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

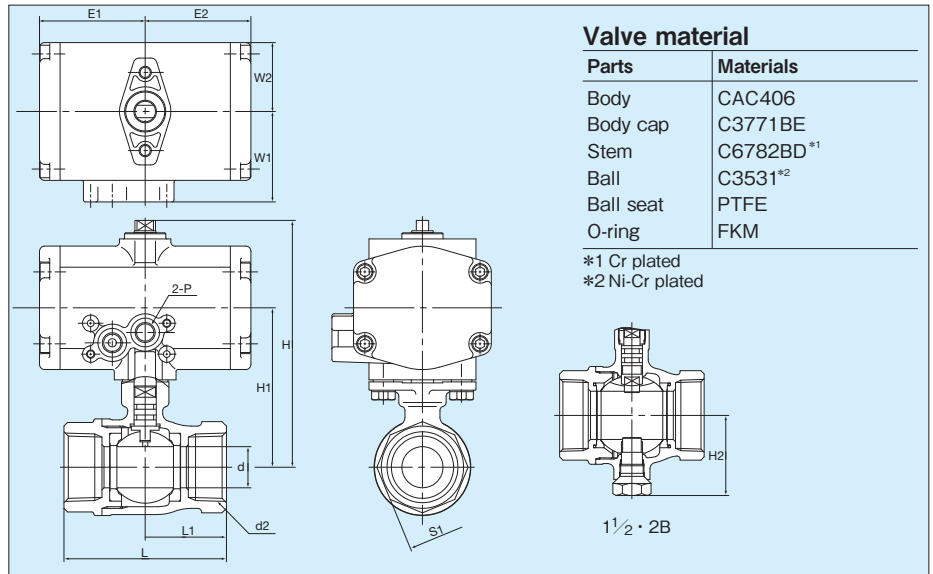
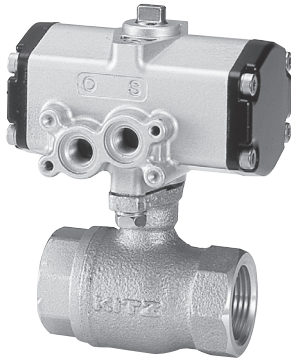
Connection	Rc1/8
Effective area	15mm ²
Noise reduction	18dB
Maximum working pressure	0.9MPa
Ambient temperature range	5 to 60°C

◆ 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"

Type C Pneumatic Actuators/Class 10K Bronze Ball Valves

Fig. C-TE
(Standard bore)

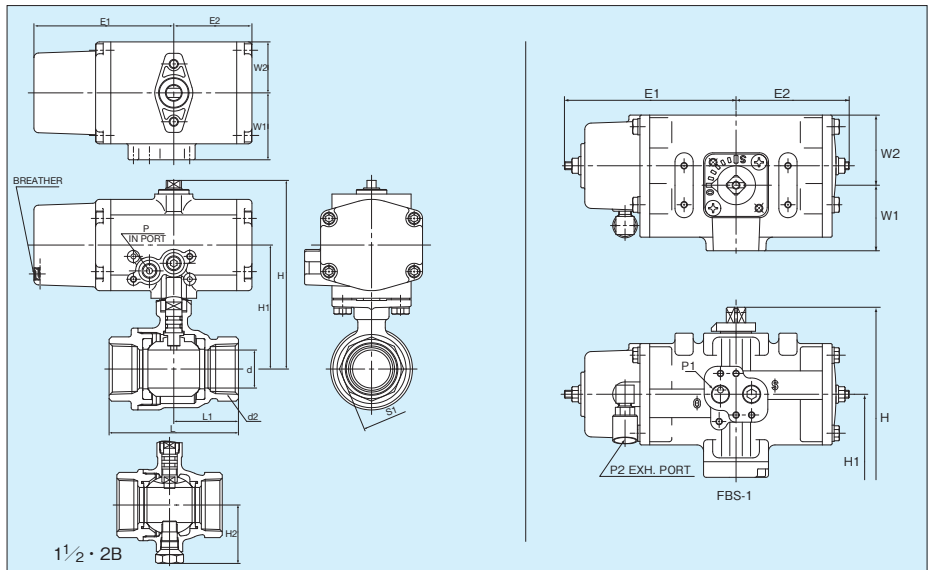
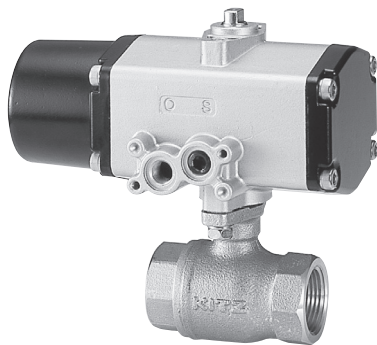


Dimensions

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)

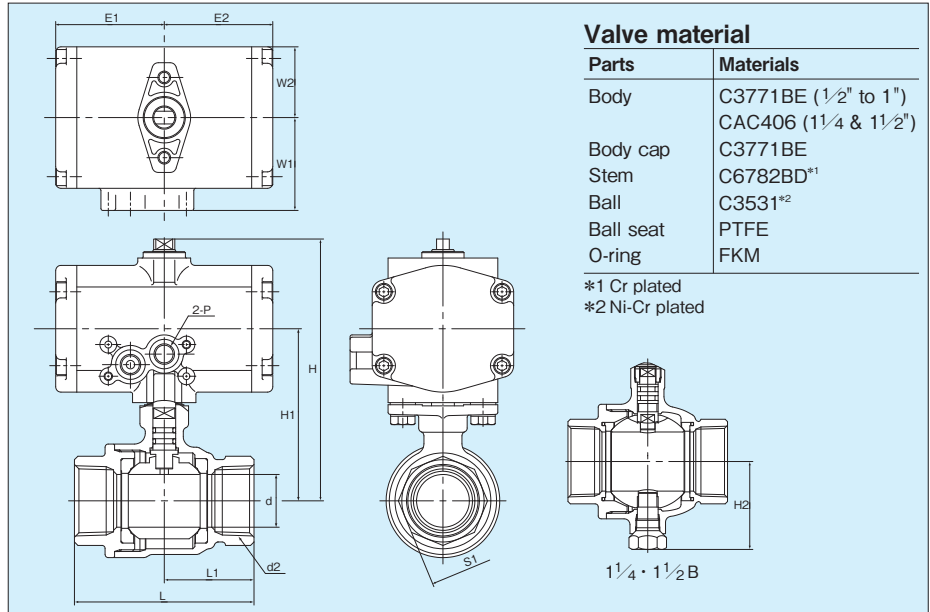
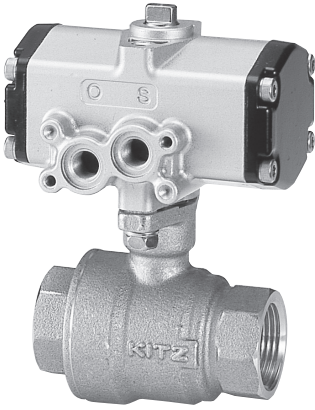


Dimensions

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	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							
1 1/4	25	Rc1 1/4	182	112	—	86	43	50	132	87	50	54	Rc1/4	Rc1/8	FBS-1
1 1/2	32	Rc1 1/2	195	125	53.5	96	48	56							
2	40	Rc2	202	132	60	109	54.5	68							

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

Fig. C-TFE
(Full bore)



Valve material

Parts	Materials
Body	C3771BE (1/2" to 1") CAC406 (1 1/4 & 1 1/2")
Body cap	C3771BE
Stem	C6782BD*1
Ball	C3531*2
Ball seat	PTFE
O-ring	FKM

*1 Cr plated
*2 Ni-Cr plated

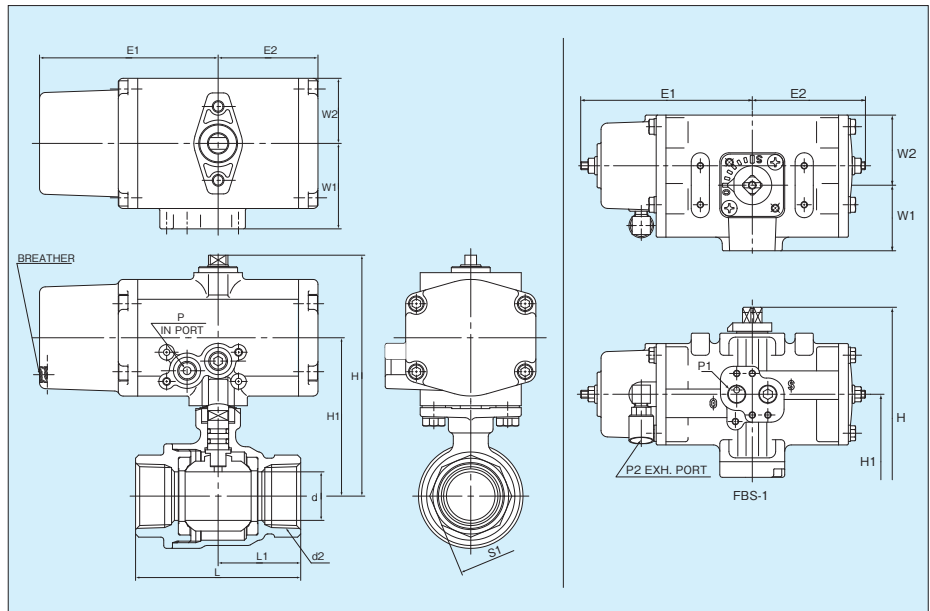
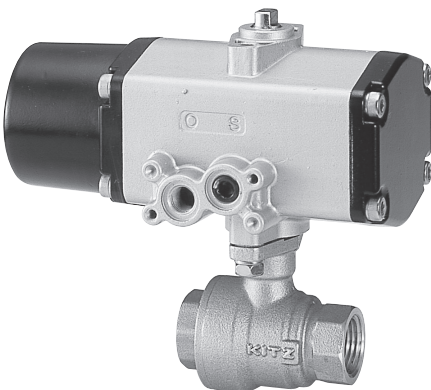
Dimensions

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
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/FBS Pneumatic Actuators/Class 10K Copper Alloy Ball Valves, Full Bore

Fig. CS-TFE
Valve size: 1/2"
FBS-TFE
Valve size: 3/4" to 1 1/2"
(Full bore)



Dimensions

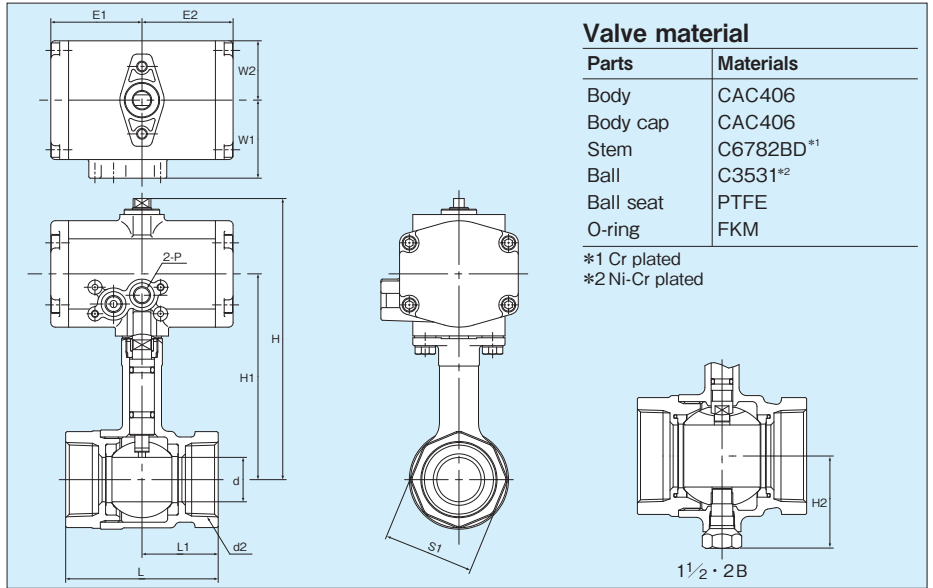
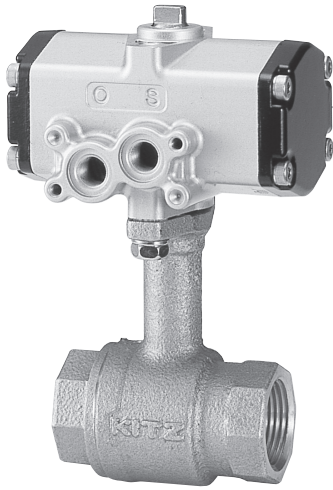
Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	S ₁	Actuators						
									E ₁	E ₂	W ₁	W ₂	P ₁	P ₂	Type
1/2	15	Rc1/2	108.5	66	—	63	31.5	26	92	51.4	44	33.5	—	Rc1/8	CS-2
3/4	20	Rc3/4	178	108	—	73	36.5	32	132	87	50	54	Rc1/4	Rc1/8	FBS-1
1	25	Rc1	182	112	—	85	42.5	39							
1 1/4	32	Rc1 1/4	196	126	53.5	98	49	50							
1 1/2	40	Rc1 1/2	202	132	59.5	108	54	56							

(mm)

Type EAE

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

Fig. C-TLE
(Standard bore)



Valve material

Parts	Materials
Body	CAC406
Body cap	CAC406
Stem	C6782BD*1
Ball	C3531*2
Ball seat	PTFE
O-ring	FKM

*1 Cr plated
*2 Ni-Cr plated

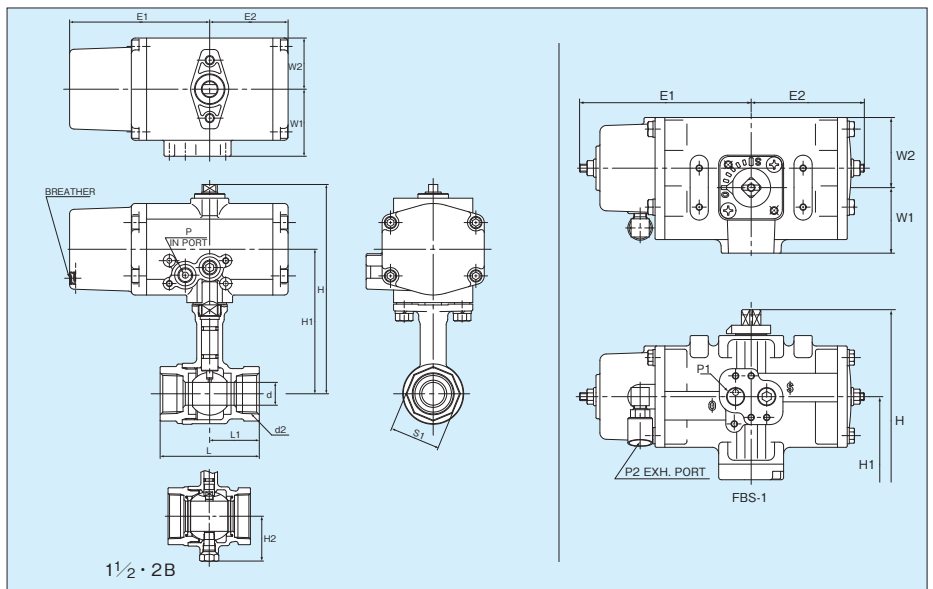
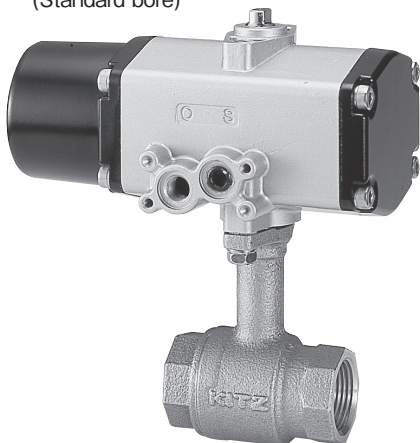
Dimensions

(mm)

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
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	125	60	109	54.5	71						

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

Fig. CS-TLE
Valve size: 1/2" to 1"
FBS-TLE
Valve size: 1 1/4" to 2"
(Standard bore)



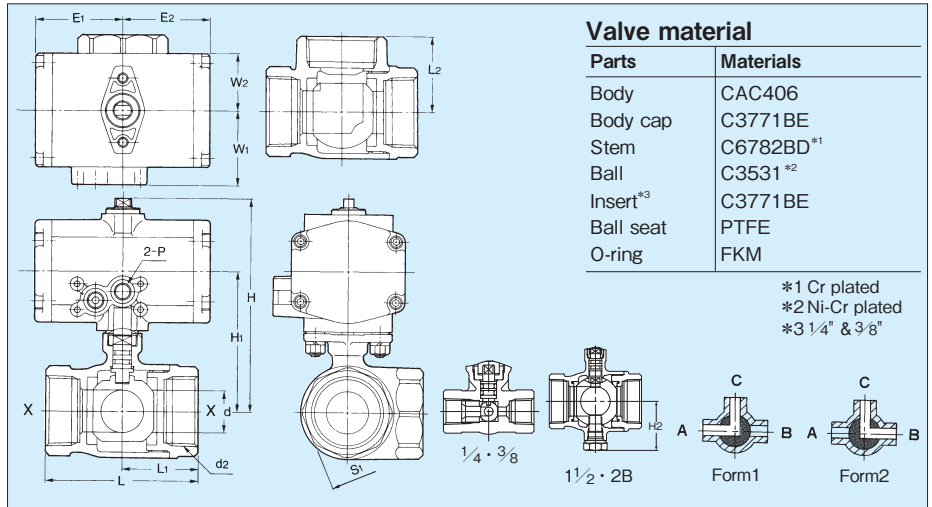
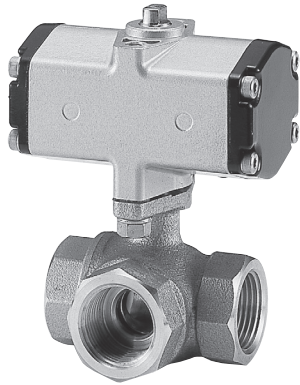
Dimensions

(mm)

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
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							
1 1/4	25	Rc1 1/4	215	145	—	86	43	51	132	87	50	54	Rc1/4	Rc1/8	FBS-1
1 1/2	32	Rc1 1/2	218	148	53.5	96	48	58							
2	40	Rc2	226	156	60	109	54.5	71							

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

Fig. C-TNE
(Standard bore)



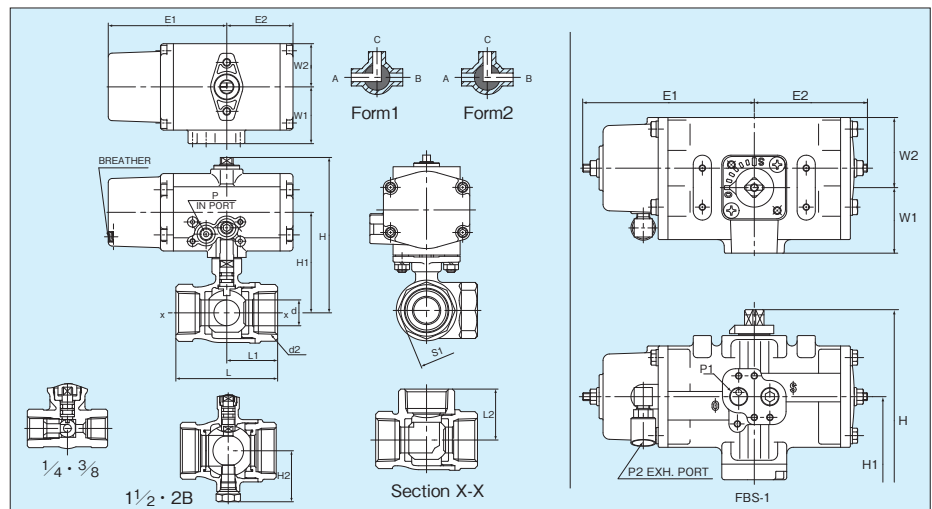
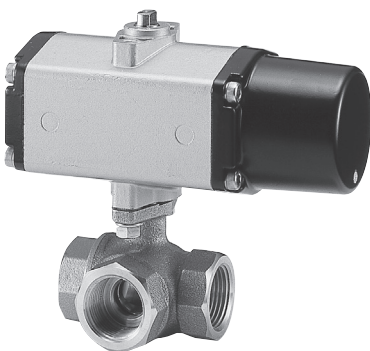
Note: 유체 흐름은 3페이지를 참조하십시오.
제품은 Form1 또는 Form2중 하나를 표기하는 명판(Nameplate)로 적절하게 식별됩니다.

Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	L ₂	S ₁	Actuators					
										E ₁	E ₂	W ₁	W ₂	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/FBS Pneumatic Actuators/Class 10K Horizontal 3-way Bronze Ball Valves

Fig. CS-TNE
Valve size: 1/4" to 1"
FBS-TNE
Valve size: 1 1/4" to 2"
(Standard bore)



Note: 유체 흐름은 3페이지를 참조하십시오.
제품은 Form1 또는 Form2중 하나를 표기하는 명판(Nameplate)로 적절하게 식별됩니다.

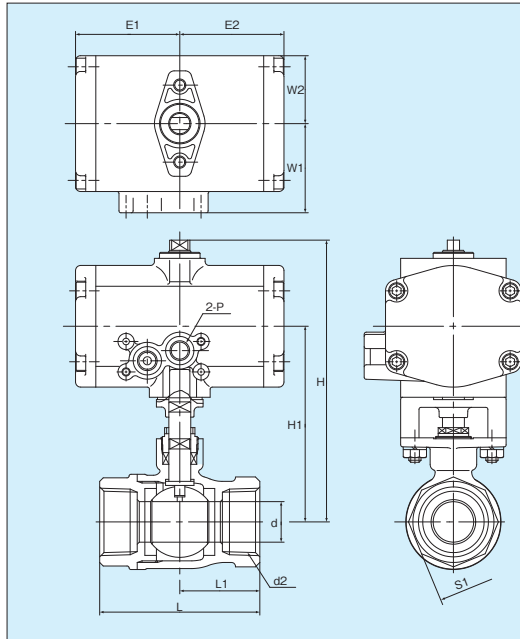
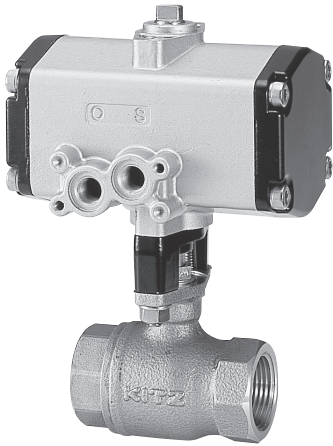
Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	L ₂	S ₁	Actuators						
										E ₁	E ₂	W ₁	W ₂	P ₁	P ₂	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
1 1/4	25	Rc1 1/4	183	113	—	89	44.5	44.5	50							
1 1/2	32	Rc1 1/2	196	126	53.5	100	50	50	56							
2	40	Rc2	202	132	60	115	57.5	57.5	68							

Type EAE

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

Fig. C-TGE
(Standard bore)



Valve material

Parts	Materials
Body	CAC406
Body cap	C3771BE
Stem	C6782BD*1
Ball	C3531*2
Ball seat	Reinforced PTFE
Gland packing	Flexible graphite +PTFE braided packing

*1 Cr plated
*2 Ni-Cr plated

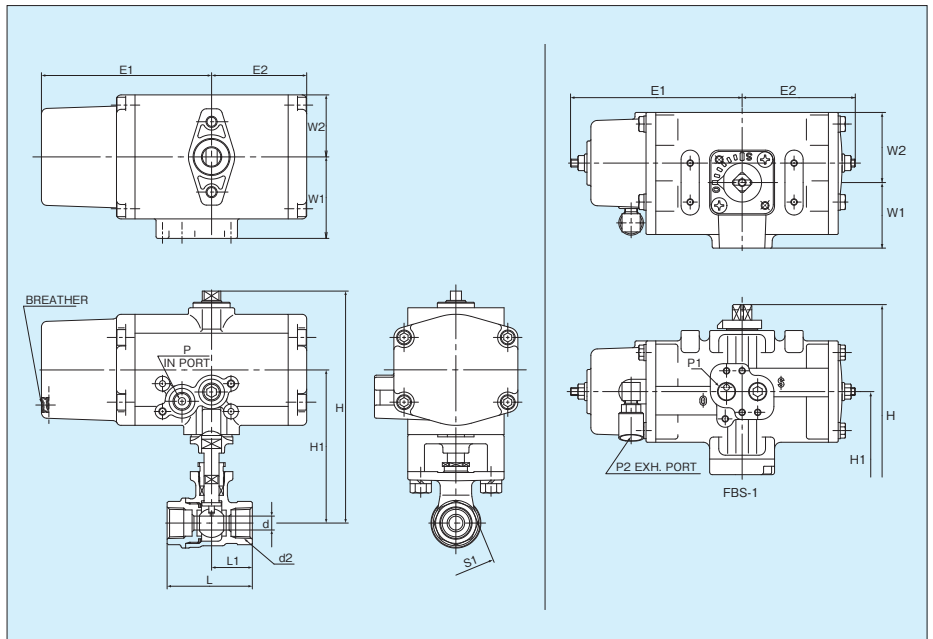
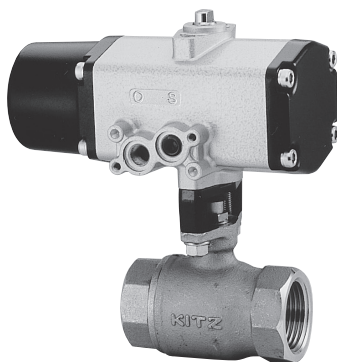
Dimensions

(mm)

Valve Size (inch)	d	d ₂	H	H ₁	L	L ₁	S ₁	Actuators					
								E ₁	E ₂	W ₁	W ₂	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						

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

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



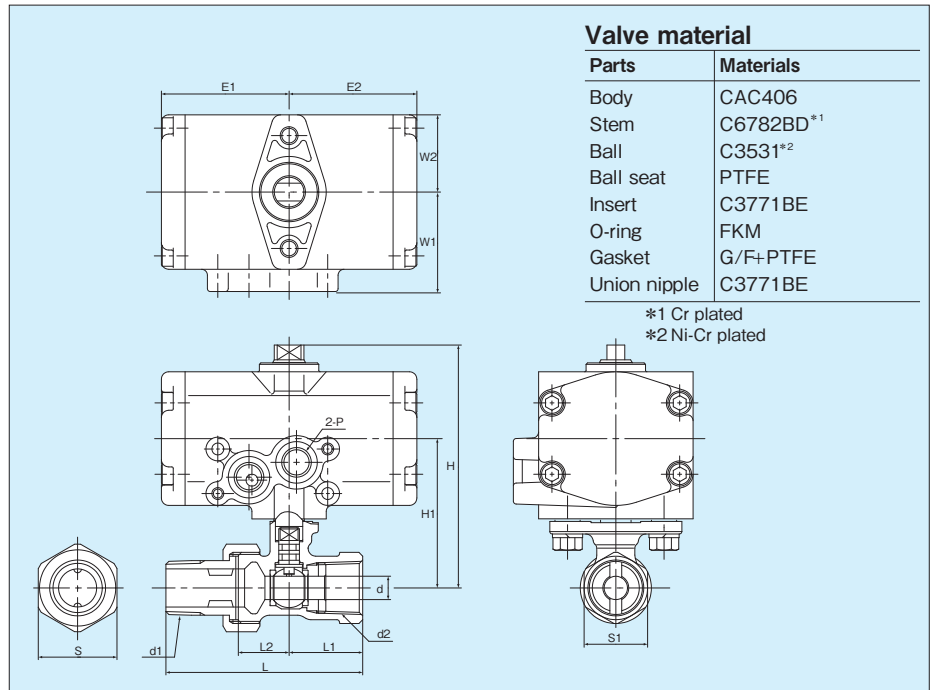
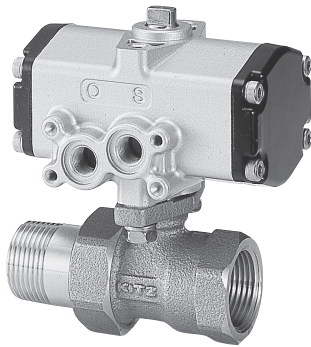
Dimensions

(mm)

Valve Size (inch)	d	d ₂	H	H ₁	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	126.5	84	46	22	22	92	51.4	44	33.5	—	Rc1/8	CS-2
1/2	10	Rc1/2	188.5	118.5	65	32.5	28	132	87	50	54	Rc1/4	Rc1/8	FBS-1
3/4	15	Rc3/4	192.5	122.5	68	34	34							
1	20	Rc1	196.5	126.5	79	39.5	41							

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

Fig. C-TUE
(Reduced bore)



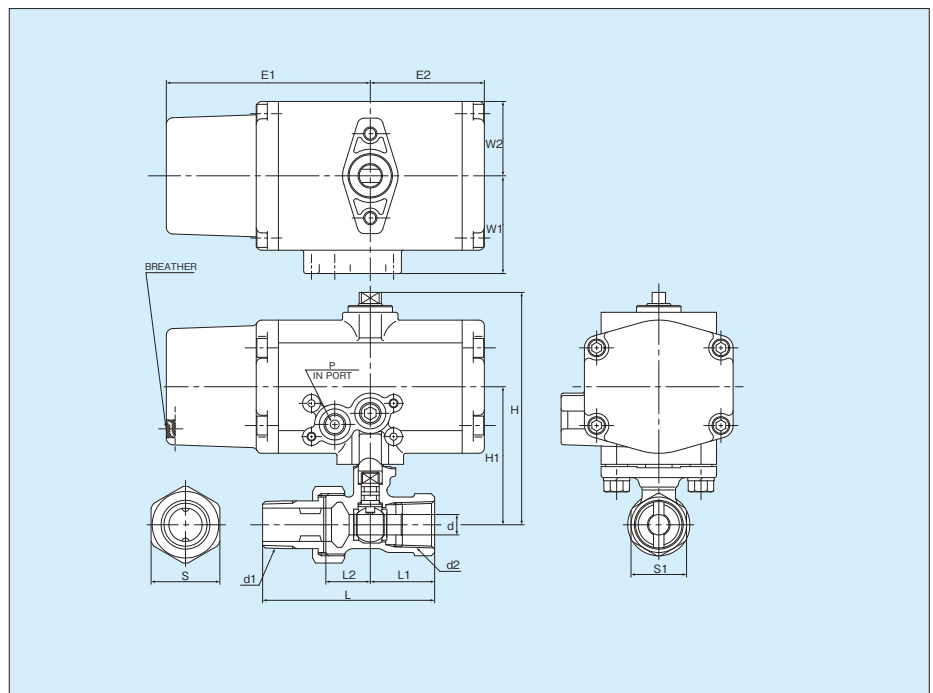
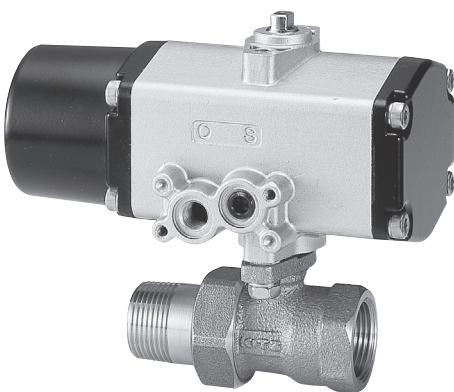
Dimensions

(mm)

Valve Size (inch)	d	d ₂	d ₁	H	H _i	L	L ₁	L ₂	S	S ₁	Actuators					
											E ₁	E ₂	W ₁	W ₂	P ₂	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						

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

Fig. CS-TUE
(Reduced bore)



Dimensions

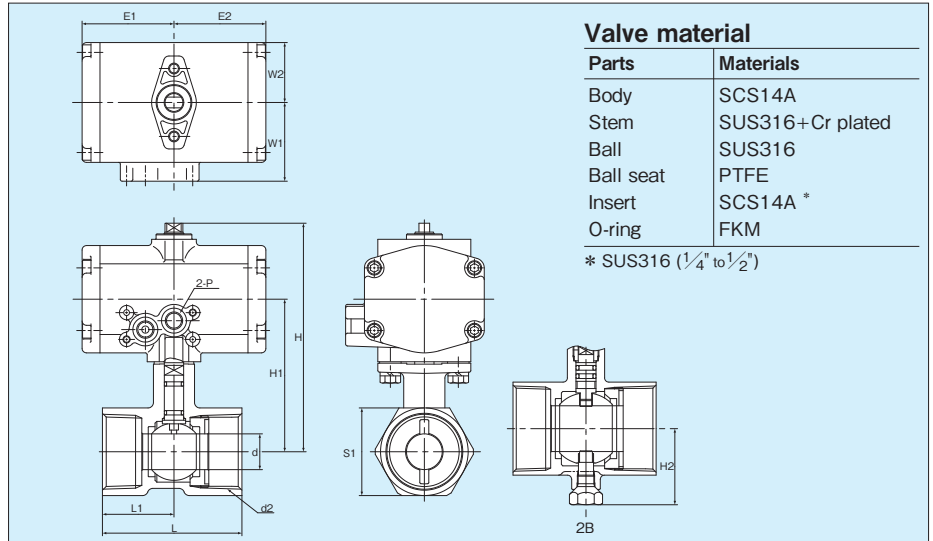
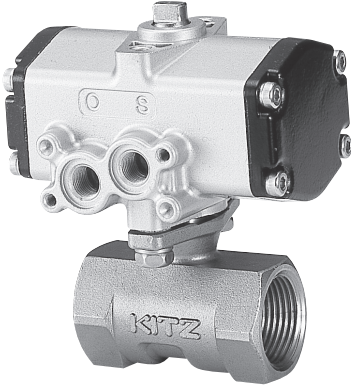
(mm)

Valve Size (inch)	d	d ₂	d ₁	H	H _i	L	L ₁	L ₂	S	S ₁	Actuators					
											E ₁	E ₂	W ₁	W ₂	P ₂	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						

Type EAE

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")

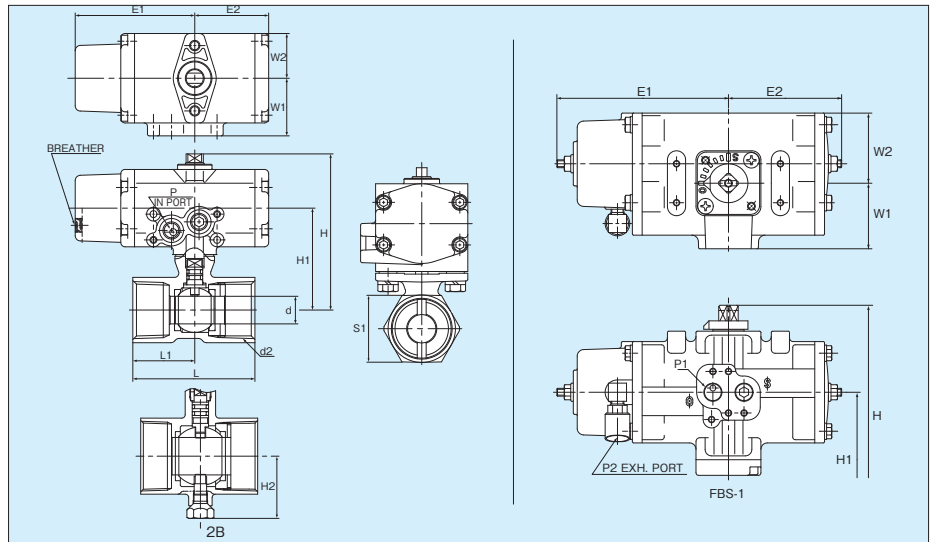
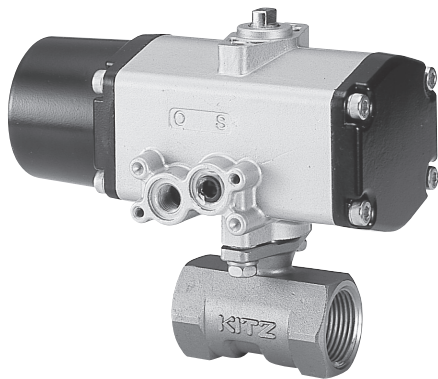
Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	S ₁	Actuators					
									E ₁	E ₂	W ₁	W ₂	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						
1	16	Rc1	91.5	60	—	71	36	38						
1 1/4	20	Rc1 1/4	128.5	86	—	78	40	49	51.4	51.4	44	33.5	Rc1/8	C-2
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/FBS Pneumatic Actuators/Class 10K Stainless Steel Ball Valves

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



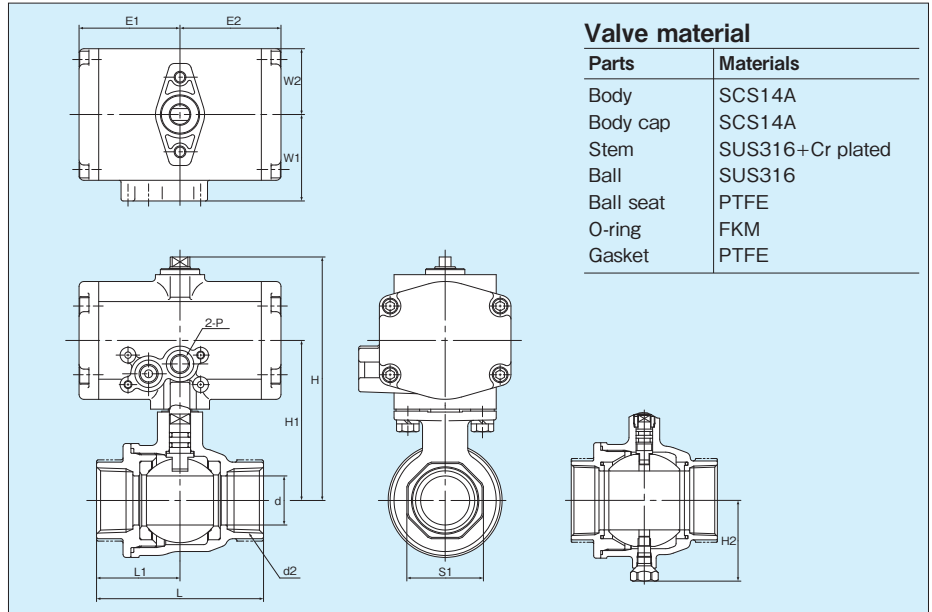
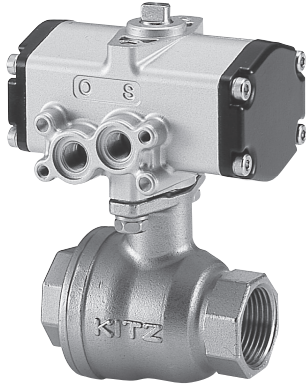
Dimensions

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
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							

(mm)

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

Fig. C-UTFE
(Full bore)



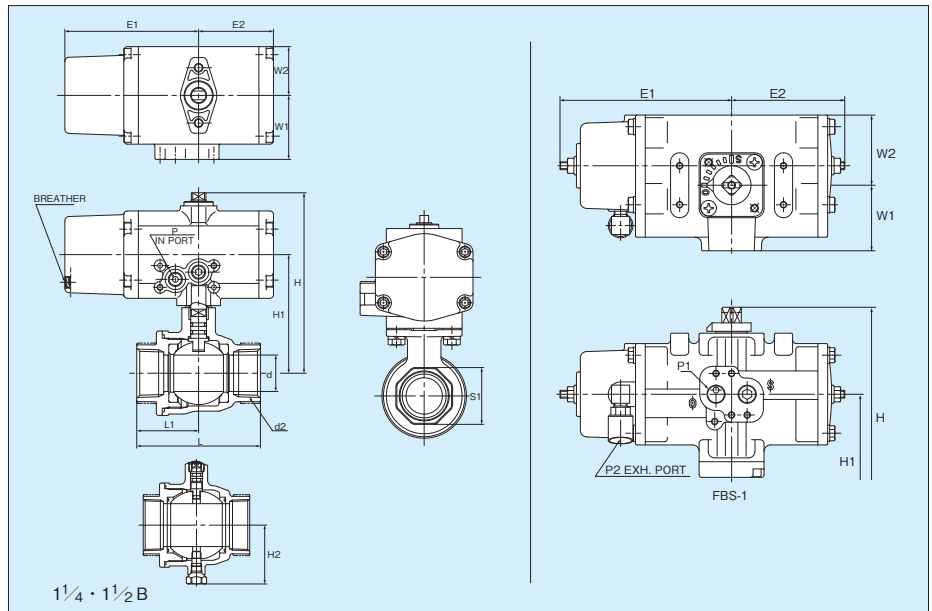
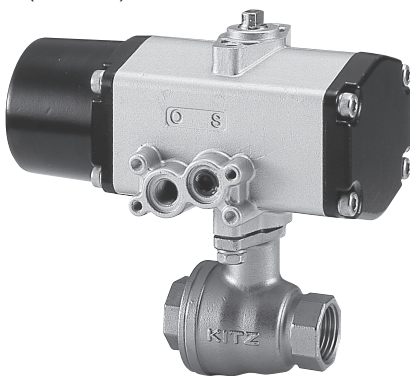
Dimensions

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
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						
1	25	Rc1	124.5	82	—	85	42.5	39	51.4	51.4	44	33.5	Rc1/8	C-2
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/FBS Pneumatic Actuators/Class 10K Stainless Steel Ball Valves, Full Bore

Fig. CS-UTFE
Valve size: 1/2"
FBS-UTFE
Valve size: 3/4" to 1 1/2"
(Full bore)



Dimensions

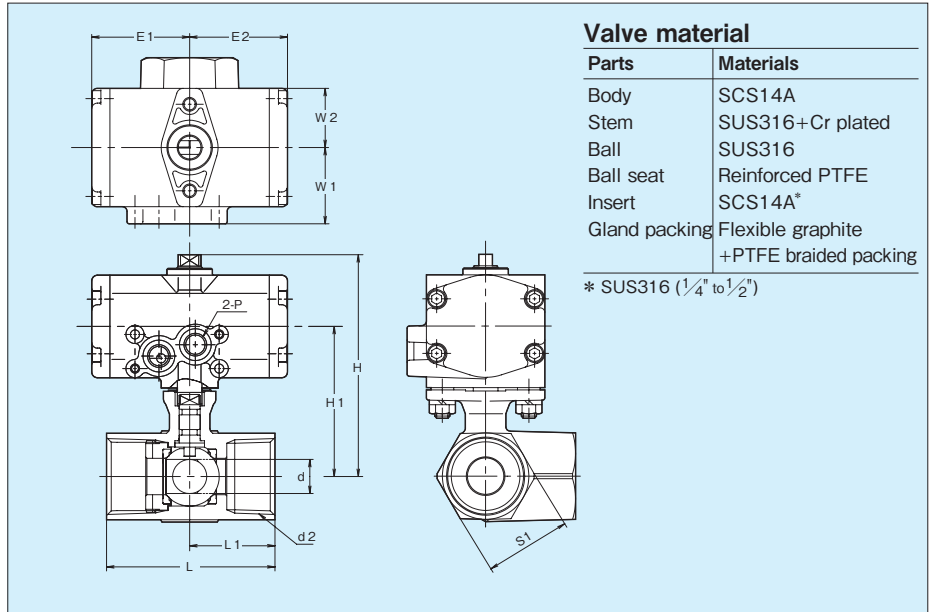
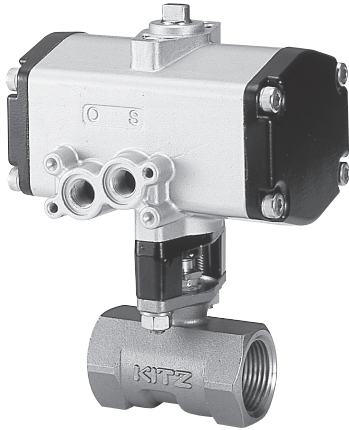
Valve Size (inch)	d	d ₂	H	H ₁	H ₂	L	L ₁	S ₁	Actuators						
									E ₁	E ₂	W ₁	W ₂	P ₁	P ₂	Type
1/2	15	Rc1/2	116	74	—	62	31	26	92	51.4	44	33.5	—	Rc1/8	CS-2
3/4	20	Rc3/4	178	108	—	73	36.5	32							
1	25	Rc1	182	112	—	85	42.5	39	132	87	50	54	Rc1/4	Rc1/8	FBS-1
1 1/4	32	Rc1 1/4	196	126	55	98	49	48							
1 1/2	40	Rc1 1/2	202	132	61	108	54	54							

(mm)

Type EAE

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

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



Valve material

Parts	Materials
Body	SCS14A
Stem	SUS316+Cr plated
Ball	SUS316
Ball seat	Reinforced PTFE
Insert	SCS14A*
Gland packing	Flexible graphite +PTFE braided packing

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

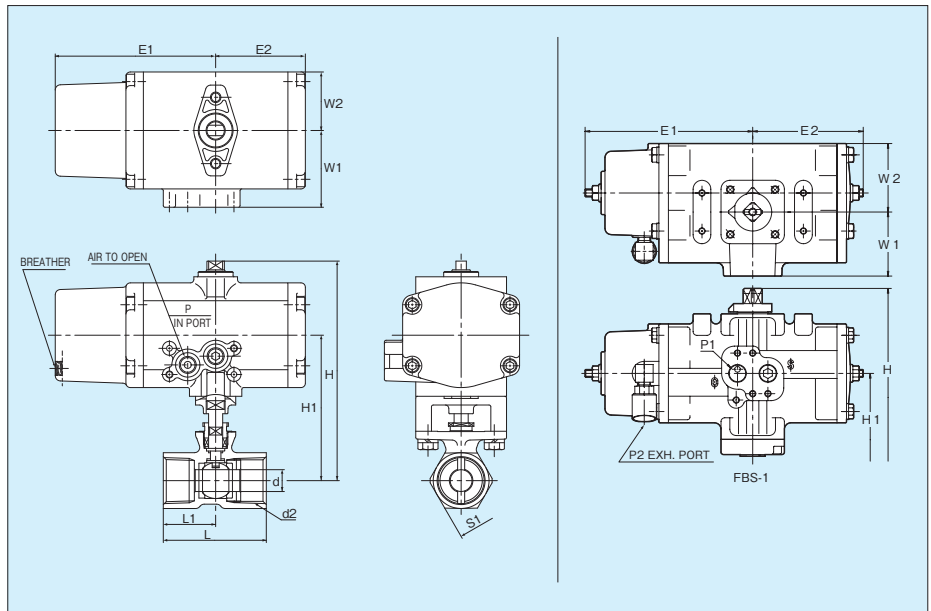
Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	L	L ₁	S ₁	Actuators							
								E ₁	E ₂	W ₁	W ₂	P	Type		
1/4	4.5	Rc1/4	105.5	74	44	21	21								
3/8	6.8	Rc3/8	105.5	74	44	21	21	43	43	34.5	26	Rc1/8	C-1		
1/2	9.2	Rc1/2	124.5	82	56.5	27.5	25								
3/4	12.5	Rc3/4	127.5	85	59	30	32	51.4	51.4	44	33.5	Rc1/8	C-2		
1	16	Rc1	130.5	88	71	36	38								

(mm)

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

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



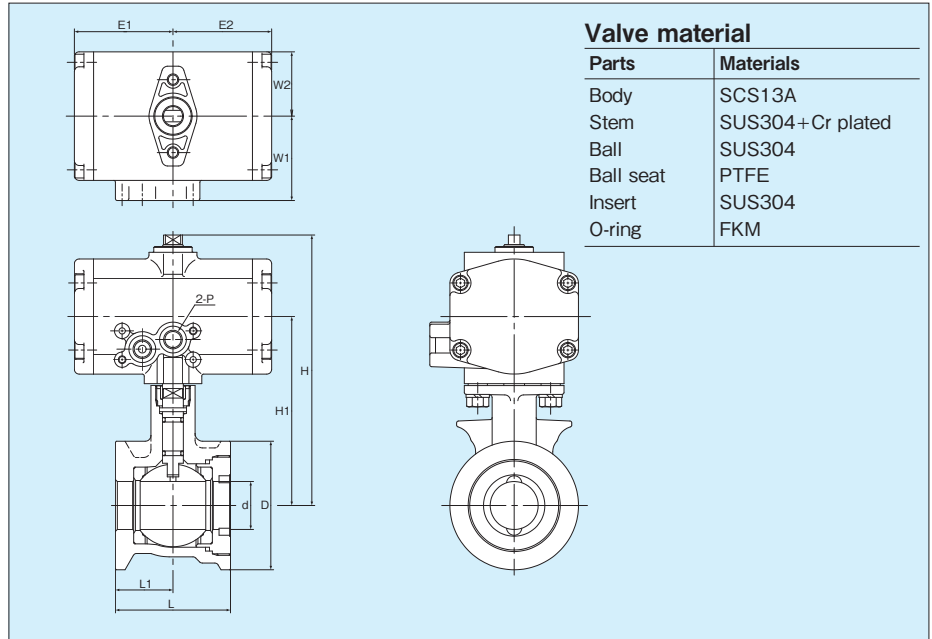
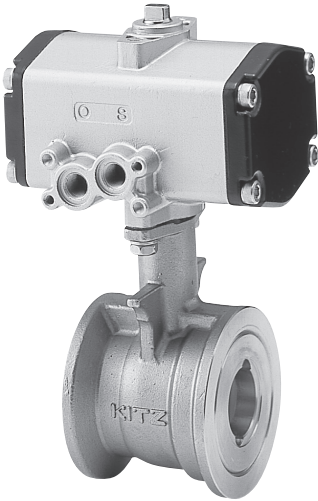
Dimensions

Valve Size (inch)	d	d ₂	H	H ₁	L	L ₁	S ₁	Actuators							
								E ₁	E ₂	W ₁	W ₂	P ₁	P ₂	Type	
1/4	4.5	Rc1/4	124.5	82	44	21	21								
3/8	6.8	Rc3/8	124.5	82	44	21	21	92	51.4	44	33.5	—	Rc1/8	CS-2	
1/2	9.2	Rc1/2	180.7	110.7	56.5	27.5	25								
3/4	12.5	Rc3/4	183.2	113.2	59	30	32	132	87	50	54	Rc1/4	Rc1/8	FBS-1	
1	16	Rc1	186.4	116.4	71	36	38								

(mm)

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

Fig. C-5/10UTWE
(Full bore)



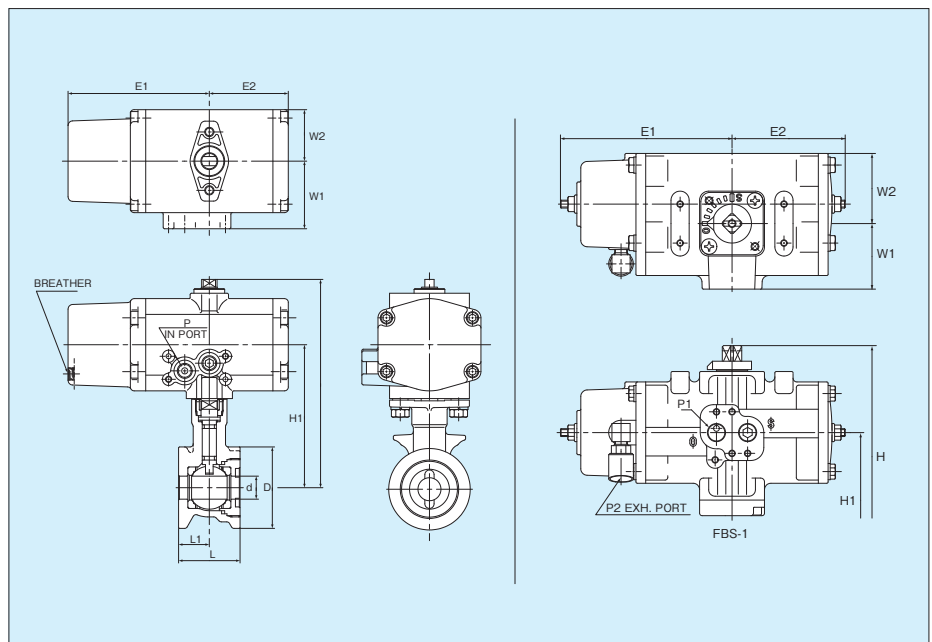
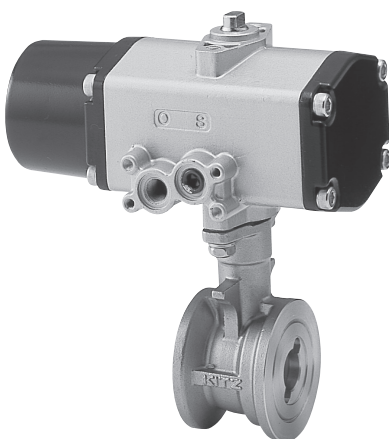
Dimensions

(mm)

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

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

Fig. CS-5/10UTWE
Valve size: 3/8" to 1/2"
FBS-5/10UTWE
Valve size: 3/4" to 1" (Full bore)



Dimensions

(mm)

Valve Size (inch)	d	H	H ₁	L	L ₁	D		Actuators						
						5UTWE	10UTWE	E ₁	E ₂	W ₁	W ₂	P ₁	P ₂	Type
3/8	10	133.5	91	35	17.5	43	48	92	51.4	44	33.5	-	Rc 1/8	CS-2
1/2	15	136.5	94	40	20	48	53	92	51.4	44	33.5	-	Rc 1/8	CS-2
3/4	20	196	126	50	25	53	58	132	87	50	54	Rc 1/4	Rc 1/8	FBS-1
1	25	204	134	60	30	63	69	132	87	50	54	Rc 1/4	Rc 1/8	FBS-1

Type EAE

Precautions for Trouble-free Operation of Pneumatic Actuator Driven Ball Valves

Storage and Handling

공압작동식 KITZ 소형 볼밸브는 스티로폼 박스에 개별포장 되어있습니다. 배관작업을 실행하기 전까지 포장 을 벗기지 마십시오. 1차 예방으로 코팅이 되어있지만, 녹이스는 현상을 방지하기 위해서 건조하고 부식의 위험이 없는 곳에서 밸브를 보관하십시오.

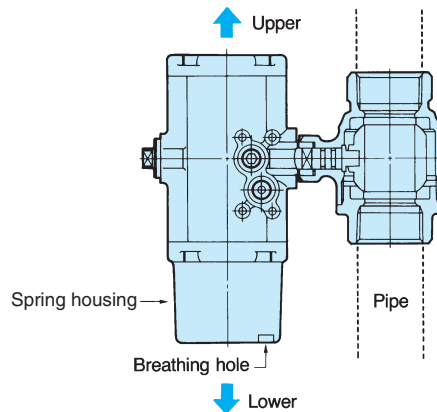
Mounting and Piping

공압작동식 KITZ 소형 볼밸브를 장착하기 전, 밸브와 액츄에이터 및 기타 악세서리들의 문제없는 상태를 보장하기 위하여 외관검수를 실시해야 합니다. 느슨해진 볼트를 안전하게 조여야 합니다. 밸브와 배관 Bore 내부의 용접잔여물, 분진 또는 기타 외부물질이 남아있지 않도록 깨끗한 상태를 유지해야 합니다. 밸브 장착 이 끝난 후, 시스템을 시범작동하기 전, 연결된 모든 배관 및 밸브 내부에 바람을 불어봅니다.

환경오염을 발생시키는 부식성가스, 화학유체 및 담수에서의 사용을 금합니다. 액츄에이터 Shaft와 같은 노출된 회전 부품들은 방수 성능이 없기 때문에 물이나 빗물로부터 보호처리를 해야합니다.

액츄에이터의 나사산 파이프(Threading Pipe) 또는 Nipple은 5회 회전까지 최대화 되어야하므로 나사산을 과도하게 조이면 Die-cast Aluminum Housing에 균열이 생기지 않고 액츄에이터에 공기누출 문제와 작동문 제를 일으킬 수 있습니다. (Recommended tightening torque : 10 N·m for Rc 1 / 8" 15 N·m Rc 1 / 4"). CS타입 Spring Return 액츄에이터는 실린더의 배기구가 아래쪽을 향하도록 장착 해야하며 (아래의 사진 참조), 불가피한 경우 적절한 방수조치를통해 구멍을 보호해야 합니다.

KITZ 소형 볼밸브는 KITZ C또는 CS 타입 액츄에이터에 장착될 때 배관 작동의 용이성에 따라 수평, 수직 및 다양한 각도로 설치가 가능합니다. 그러나 Filter-regulator는 항상 수평으로 장착하여야 하며, 그에 해당하는 Bracket을 사용해야 합니다.



Operation

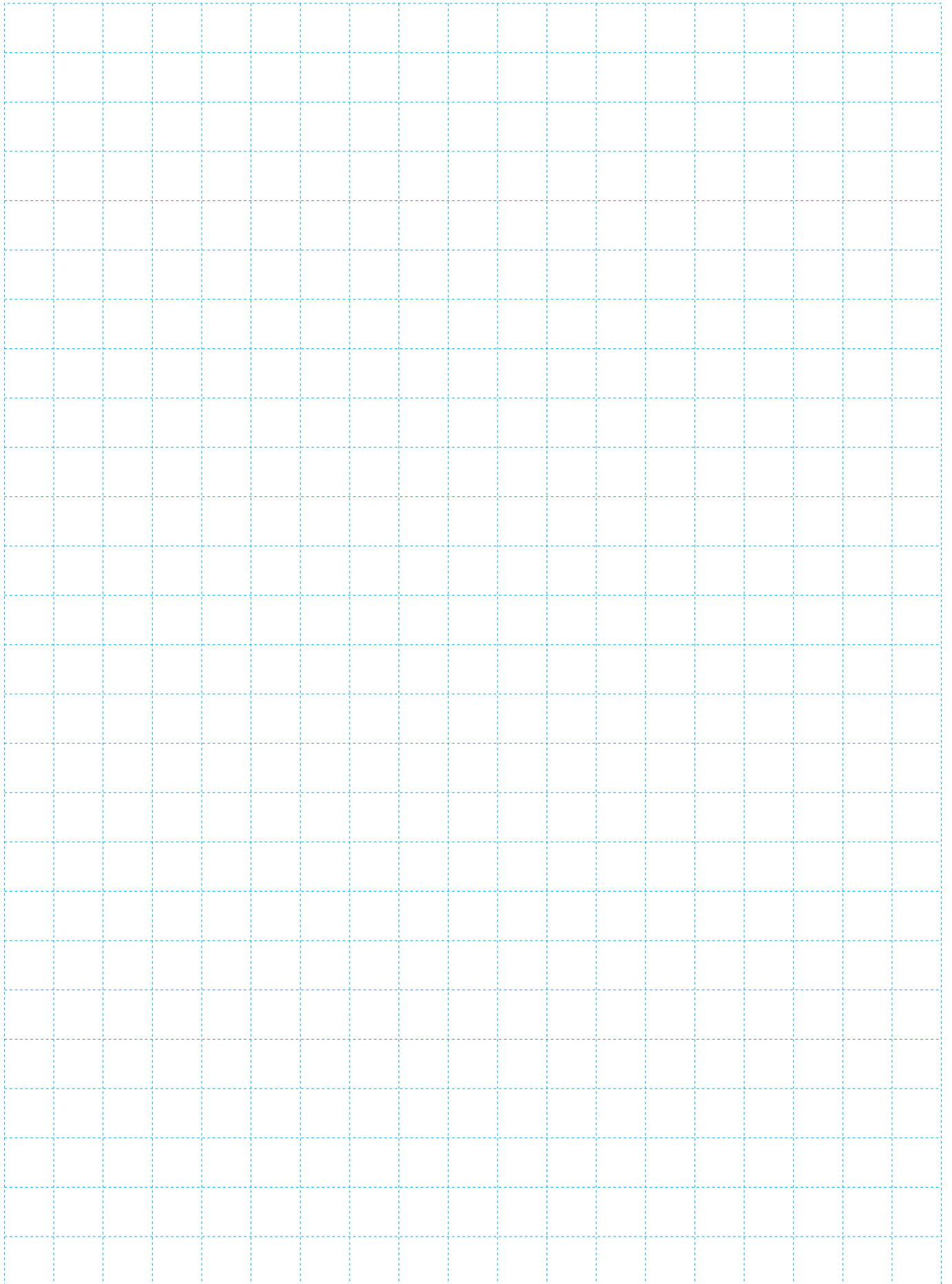
공압작동식 KITZ 소형 볼밸브는 0.4MPa~0.7MPa (60~100psi) 사이의 공기압력으로 구동되도록 설계되었 습니다. 기준보다 더 낮거나 높은 공기압은 오작동의 원인이 될수있습니다. 자사의 기준 작동압력인 0.4MPa (60psi)의 압력을 사용하시길 추천 드립니다.

문제없는 작동을 위해서 공기의 건조작업 및 여과작업을 해야하는것을 유념하십시오. 해당사항은 특히 저온 및 습한 환경에서 매우 중요하게 여겨져야할 항목입니다.

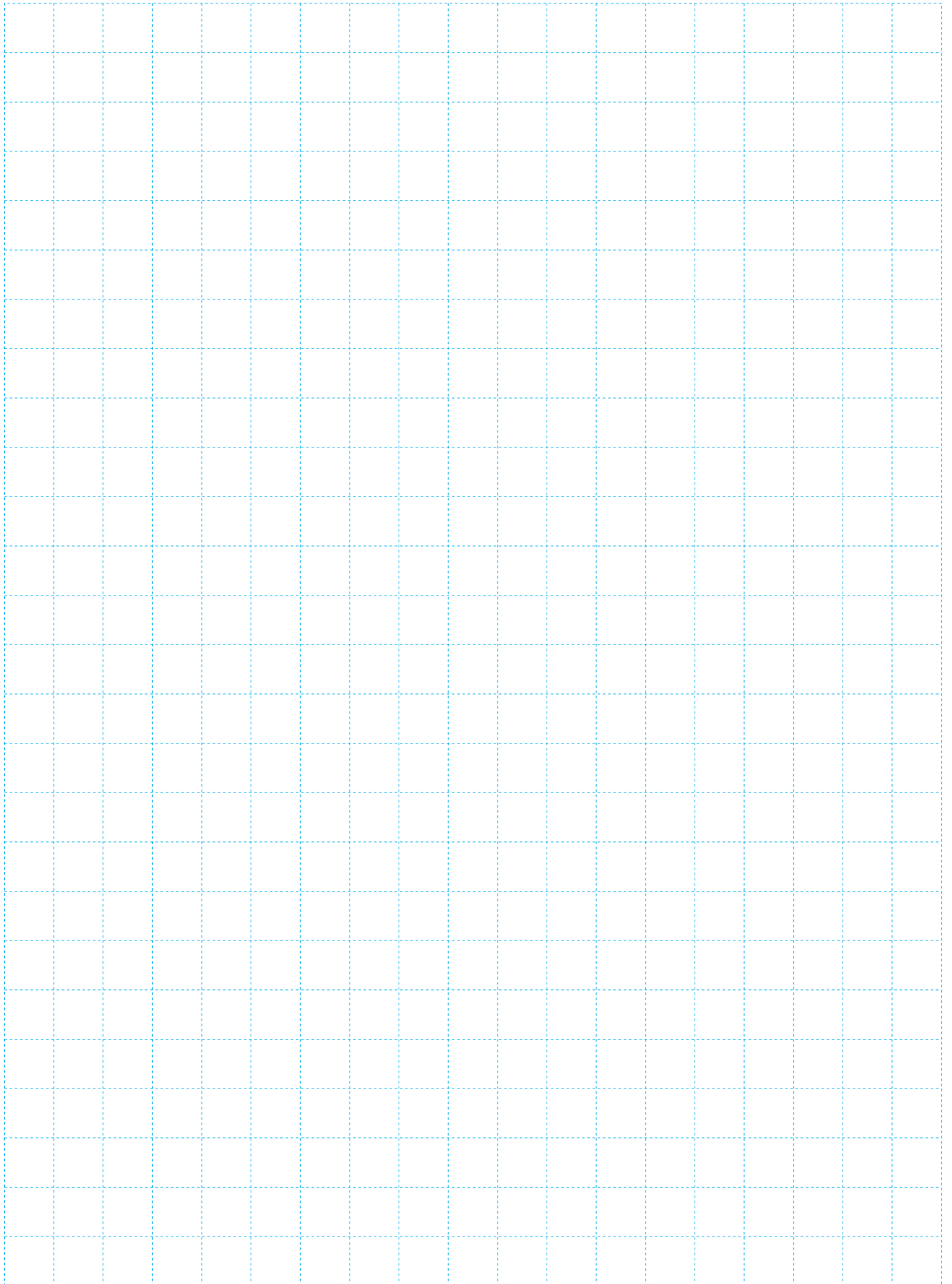
Maintenance

공압작동식 KITZ 소형 볼밸브는 Lubricant-free 사양입니다. 액츄에이터 사용 몇년 후 누수가 감지된다면, O-ring, Gasket과 같이 교체 수리가 가능한 Sealer부분이 닳았거나 변형이 생겼는지 액츄에이터를 분리하 여 확인해야 합니다.

MEMO



MEMO





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.

Read instruction manual carefully before use.

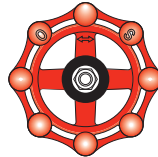


NOTICE

If any products designated as strategic material in the Foreign Exchange and Foreign Trade Law, Cabinet Order Concerning Control of Export Trade, Cabinet Order Concerning Control of Foreign Exchange and other related laws and ordinances ("Foreign Exchange Laws") are exported to any foreign country or countries, an export license issued by the Japanese Government will be required under the Foreign Exchange Laws.

Further, there may be cases where an export license issued by the government of the United States or other country will be required under the applicable export-related laws and ordinances in such relevant countries.

The contract shall become effective subject to that a relevant export license is obtained from the Japanese Government.



*A chrysanthemum-handle is a symbol of KITZ,
the brand of valve reliability*

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 —