

# STC E-Series Electrically Actuated Ball Valves

## 316 Stainless Steel, 2-Way or 3-Way

Ordering Part No. =  
(e.g., E 1/2-3-S)



Indicator / Control

E 1/2 - - - 3-S

Model Name	
Electric Actuated Valves	E

Port Size (in)
1/2
3/4
1
1 1/4
1 1/2
2
2 1/2
3
4

Connection	
NPT	(leave blank)
Tri-Clamp	C
Flange	F
BSPP	G
BSPT	R
Socket	S
Butt Weld	W

Valve Type	
2 Way, Normally Closed	(leave blank)
2 Way, Normally Open	O
3 Way (L Port)	L
3 Way (T Port)	T

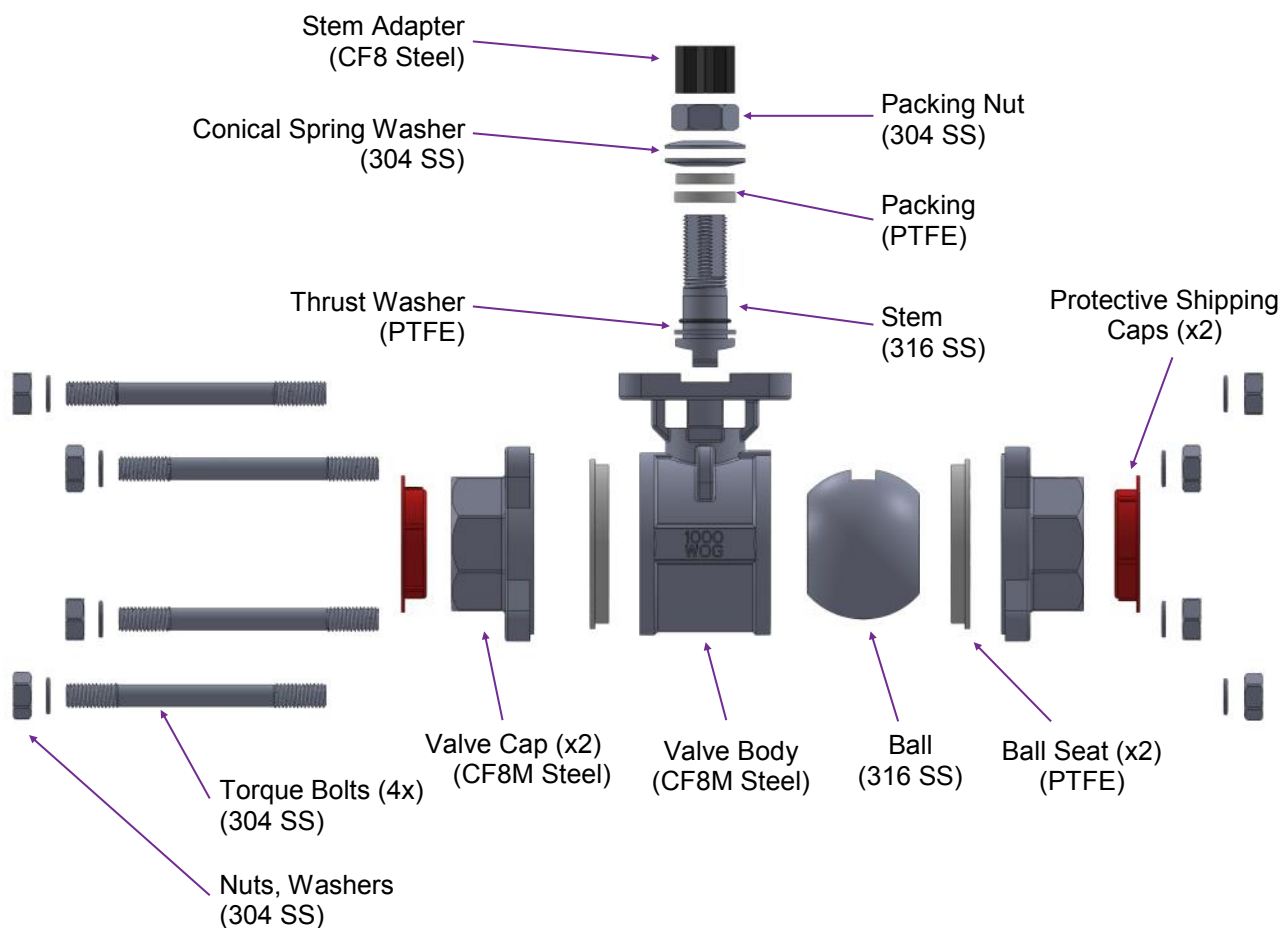
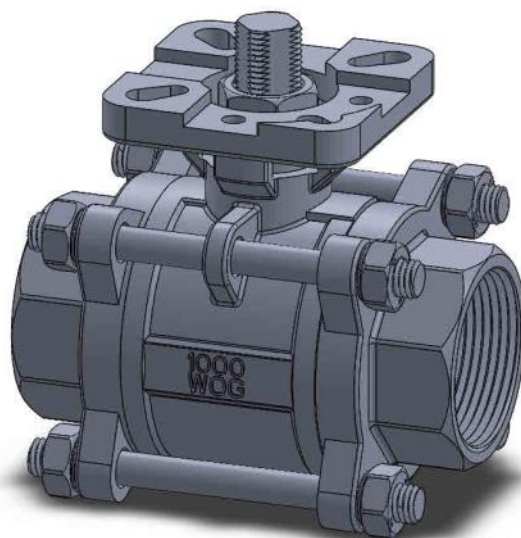
Valve Material	
316 SS	(leave blank)

Options		
Coil Voltage	24VDC	2
	24VAC	2A
	110VAC 50/60HZ	3
	220VAC 50/60HZ	4
	(leave blank)	(leave blank)
Control Signal	Light Indicator	(leave blank)
	Contact Signal 1K, 5K	S
	Potentiometer	R
	4-20 mA (for Proportional Control)	T

General Specifications	
Service Medium	Air, Gas, Liquid, Steam, Water
Operating Pressure	1/2" to 2": 1000 PSI @ 100°F WOG 2 1/2": 800 PSI @ 100°F WOG
Media Temperature	-4 to 356 °F (-20 to 180 °C)
Ambient Temperature	-4 to 140 °F (-20 to 60 °C)
Maximum Viscosity	600 mm <sup>2</sup> /s
Installation Orientation	Any
Mounting Standard	DIN 3202-M3, ISO 5211 Mounting Pad, ISO 5211 Platform
Port	2-Way: Full Port; 3-Way: Reduced Port



# Actuated Valve Body Components



# Electrically Actuated Ball Valve

## Maintenance & Troubleshooting Guide

**Note:** This valve is designed to last for an extended period of time. However, periodic common maintenance is necessary.

**Warning:** When tightening any connections to the valve, **do not use the actuator as leverage**. Doing so may damage the joint between the actuator and the valve.

### Tightening the Seal between the Valve & Actuator

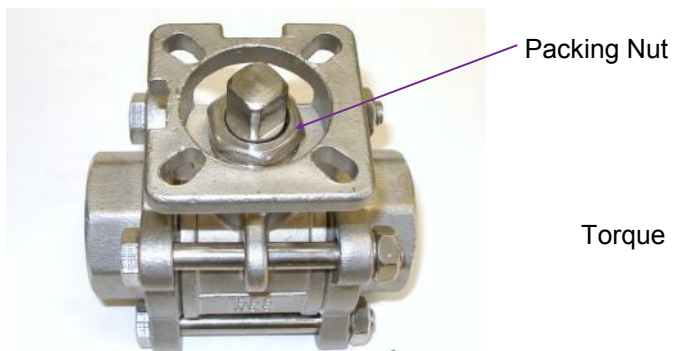
*Note: This valve does not have a dynamic seal (i.e. a spring), therefore as the valve ages the seal between the valve and the actuator body must be periodically tightened manually to ensure a proper seal.*

1. Remove the four bolts that attach the valve body to the actuator body (underneath the actuator)
2. Separate the actuator from the valve body
3. Tighten the packing nut (see Figure 1 below)
4. Place the actuator back onto the valve and reinstall the four bolts to reattach the actuator

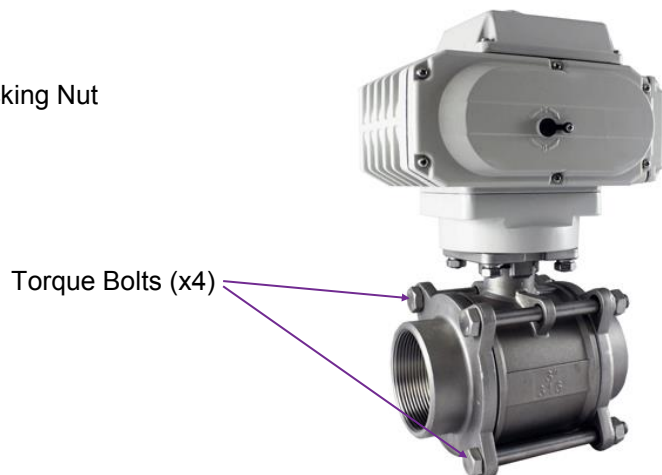
### Tightening the Ball Seat Seals between the Ball & Valve End Caps

*Note: Leaks developing at the inlet/outlet ports are often caused by inconsistent tightening of the torque bolts on the valve body. If this occurs, make sure to use a consistent method of tightening the bolts (e.g. a torque wrench).*

1. Remove the four torque bolts (see Figure 2 below) & check for any debris or damage to the ball seat seals
2. Use a torque wrench or another consistent method of tightening the torque bolts to reconnect the valve end caps. Standard torque tables should be followed based on the size of the bolts.

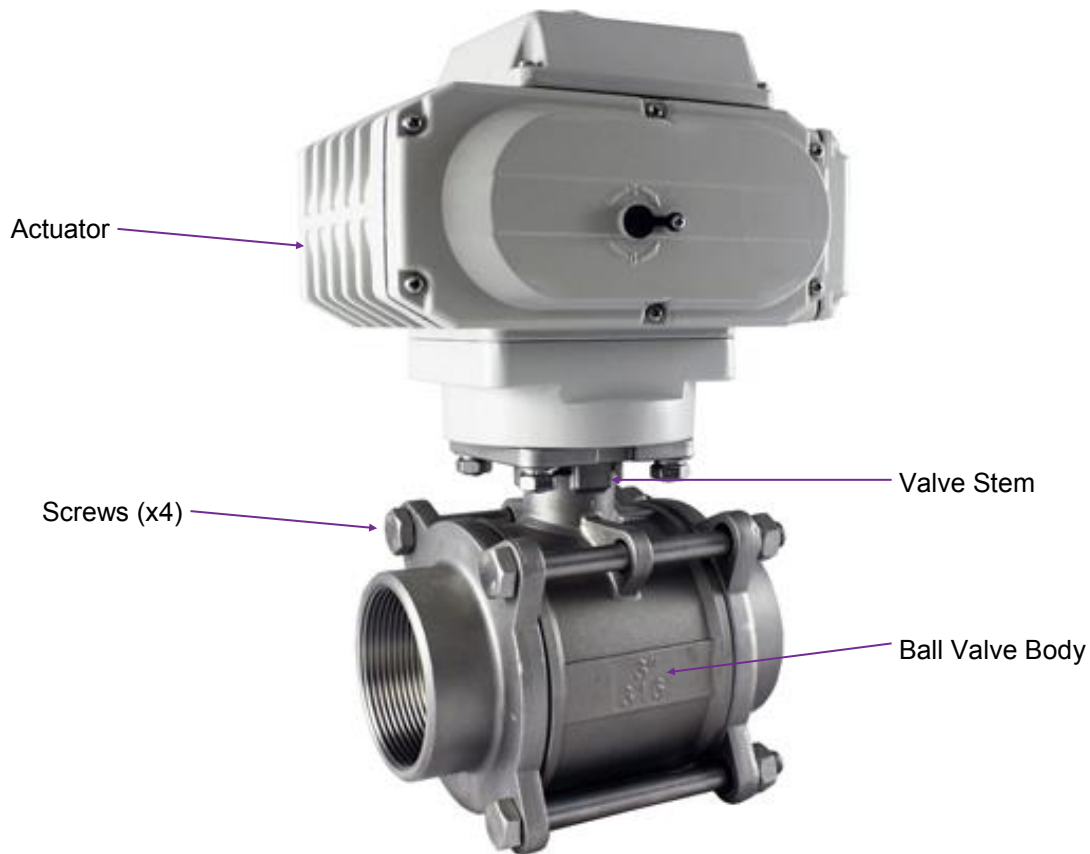


**Figure 1:** Isolated valve body with packing nut indicated.



**Figure 2:** Assembled valve with torque bolts indicated.

# Electrically Actuated Ball Valve Reconfiguration

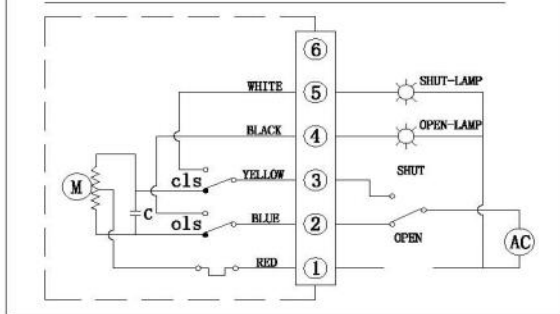


**To re-configure a normally closed valve to a normally open valve:**

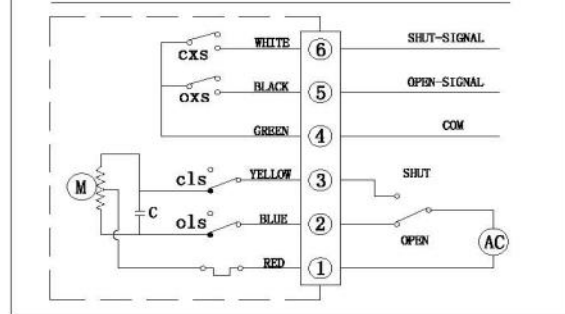
1. Turn off the power supply to the Actuator
2. Remove the 4 Screws on the bottom of the Actuator
3. Remove the Ball Valve from the Actuator
4. Turn the Ball Valve Stem on the ball valve 90 degree such at the valve is fully open (visually inspect the ball to make sure it is open)
5. Put the Ball Valve back into the Actuator and re-install the 4 Screws.

# Wiring Diagrams

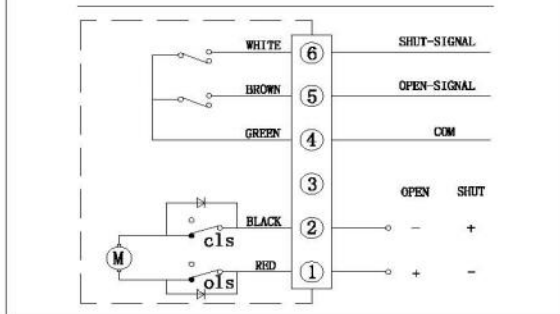
B type: **ON-OFF TYPE WIRING DIAGRAM (standard)**



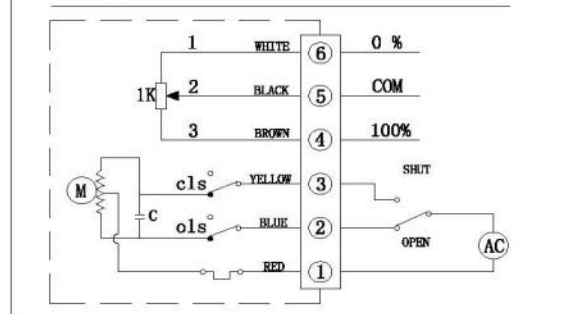
S type: **PASSIVE CONTACT SIGNAL WIRING DIAGRAM**



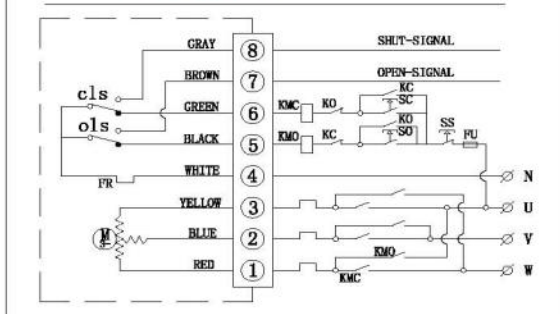
D type: **ON-OFF TYPE WIRING DIAGRAM (VOLTAGE:DC)**



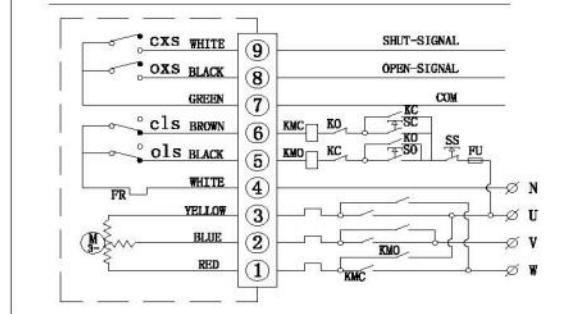
R type: **WITH 1K OR 5K POTENTIOMETER**



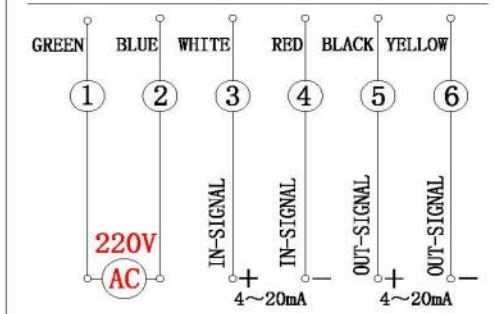
H type: **AC380V ON-OFF TYPE WIRING DIAGRAM**



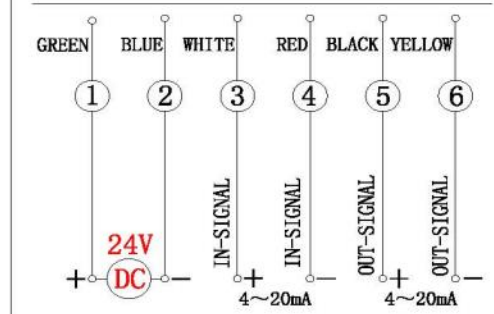
T type: **AC380V PASSIVE CONTACT SIGNAL WIRING DIAGRAM**



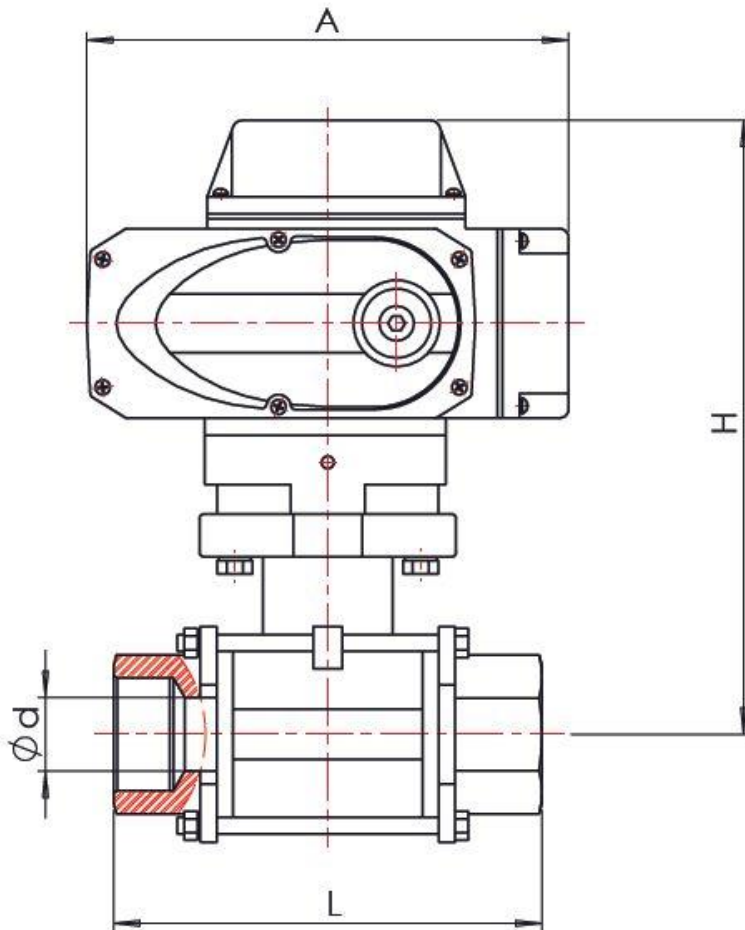
A type: **INTELLIGENT REGULATOR TYPE (VOLTAGE:AC)**



A type: **INTELLIGENT REGULATOR TYPE (VOLTAGE:DC)**



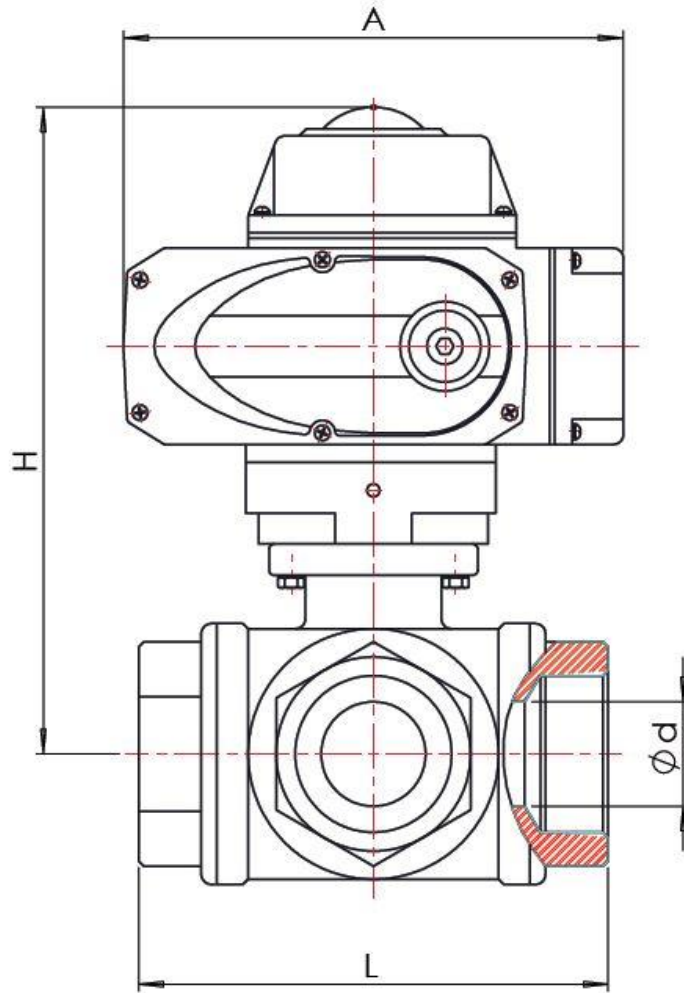
# Electrically Actuated 2-Way Ball Valve Dimensions



Valve Size	Cv	d	L	A	H	Electrical Actuator
1/4"	1.3	8	75	160	166	E-05
3/8"	2.1	10	75	160	166	E-05
1/2"	4.7	15	75	160	166	E-05
3/4"	8.3	20	80	160	170	E-05
1"	13.0	25	90	160	180	E-05
1-1/4"	21.4	32	110	160	185	E-05
1-1/2"	30.1	38	120	160	198	E-05
2"	52.2	50	140	196	237	E-10
2-1/2"	88.2	65	170	196	252	E-10
3"	127.0	78	195	256	302	E-20
4"	200.4	98	250	256	320	E-20

**Note:** Dimensions are for reference only. Field verify dimensions prior to installation for critical dimensions.

# Electrically Actuated 3-Way Ball Valve Dimensions



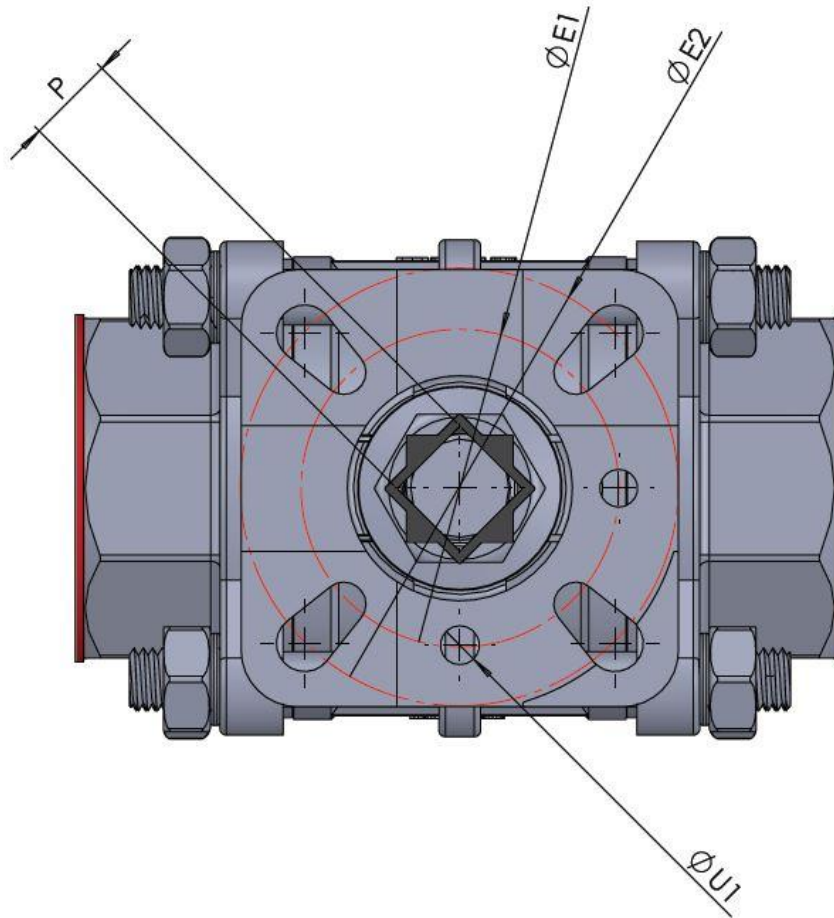
Valve Size	Cv	d	L	A	H	Electrical Actuator
1/4"	1.3	8	72	160	144	E-05
3/8"	2.1	10	72	160	144	E-05
1/2"	3.0	12	72	160	144	E-05
3/4"	4.7	15	82	160	154	E-05
1"	6.7	18	90	160	164	E-05
1-1/4"	13.0	25	128	160	178	E-05
1-1/2"	21.4	32	137	196	208	E-10
2"	30.1	38	154	196	230	E-10
2-1/2"	48.0	48	185	256	280	E-20
3"	63.1	55	212	256	288	E-20
4"	114.2	74	254	256	300	E-40

**Note:** Dimensions are for reference only. Field verify dimensions prior to installation for critical dimensions.



# Electrically Actuated Ball Valve Dimensions

## ISO Mounting Pad



Valve Size	E1	E2	P	U1
1/4"	36	42	9	6
3/8"	36	42	9	6
1/2"	36	42	9	6
3/4"	36	42	9	6
1"	42	50	11	6
1-1/4"	42	50	11	6
1-1/2"	50	70	14	7
2"	50	70	14	7
2-1/2"	70	102	17	9
3"	70	102	17	9
4"	-	102	17	-

**Note:** Dimensions are for reference only. Field verify dimensions prior to installation for critical dimensions.



# Electric Actuator Specifications

Model	E-02	E-05 to E-200
Operating Temperature & RH	-13 to 131 °F (-25 to 55 °C); 10-90% RH	-22 to 140 °F (-30 to 60 °C); 10-90% RH
Electrical Protection	IP 65	IP 68
Installation Position	Any Orientation	Any Orientation
Voltage Options	110 & 220 VDC (50/60HZ)	24VDC, 110 & 220 VDC (50/60HZ)
Enclosure	Die-Cast Aluminum (Powder Coated)	Die-Cast Aluminum Alloy (Powder Coated)

	Model	Torque	Cycle Time DC/AC	Drive Motor 24VDC	Drive Motor 24-380VAC	Weight	Special function	Signal	Ball Valve Diameter (DN)	Butterfly Valve Diameter (DN)	Rotation
	E-02	6N * M	7S	N/A	4.6W, 0.2A	0.5Kg	On-off light	Light Indicator	15-20		90°
	E-05	50N * M	7S/20S	10W, 0.5A	15W	2.6Kg	On-off light	Light Indicator	15-40	32-65	90°
	E-10	100N * M	10S/30S	20W, 0.85A	25W	3.7Kg	On-off light	Light Indicator	50-65	50-125	90°
	E-20	200N * M	12S/30S	40W, 1.2A	40W	6.7Kg	On-off light	Light Indicator	65-80	150-200	90°
	E-40	400N * M	15S/30S	70W, 2.5A	90W	7.2Kg	On-off light	Light Indicator	80-100	200-250	90°
	E-60	600N * M	20S/45S	90W, 2.5A	90W	7.3Kg	On-off light	Light Indicator	100-125	250-300	90°
	E-100	1000N * M	NA/30S	N/A	100W	7.3Kg	On-off light	Light Indicator	125-150	300-400	90°
	E-200	2000N * M	NA/100S	N/A	100W	11.2Kg	On-off light	Light Indicator	150-300	450-700	90°
	E-02S	6N * M	7S	N/A	4.6W, 0.2A	0.5Kg	On-off light	Light Indicator	15-20		90°
	E-05S	50N * M	20S	10W, 0.5A	15W	2.6Kg	Passive contact	contact signal	15-40	32-65	90°
	E-10S	100N * M	30/60S	20W, 0.85A	25W	3.7Kg	Passive contact	contact signal	50-65	50-125	90°
	E-20S	200N * M	30/60S	40W, 1.2A	40W	6.7Kg	Passive contact	contact signal	65-80	150-200	90°
	E-40S	400N * M	30/60S	70W, 2.5A	90W	7.2Kg	Passive contact	contact signal	80-100	200-250	90°
	E-60S	600N * M	45S	90W, 2.5A	90W	7.3Kg	Passive contact	contact signal	100-125	250-300	90°
	E-100S	1000N * M	50S	N/A	100W	7.3Kg	Passive contact	contact signal	125-150	300-400	90°
	E-200S	2000N * M	100S	N/A	100W	11.2Kg	Passive contact	contact signal	150-300	450-700	90°
	E-02R	6N * M	7S	N/A	4.6W, 0.2A	0.5Kg	On-off light	Light Indicator	15-20		90°
	E-05R	50N * M	20S	10W, 0.5A	15W	2.6Kg	1K, 5K potentiometer	Opening signal	15-40	32-65	90°
	E-10R	100N * M	30/60S	20W, 0.85A	25W	3.7Kg	1K, 5K potentiometer	Opening signal	50-65	50-125	90°
	E-20R	200N * M	30/60S	40W, 1.2A	40W	6.7Kg	1K, 5K potentiometer	Opening signal	65-80	150-200	90°
	E-40R	400N * M	30/60S	70W, 2.5A	90W	7.2Kg	1K, 5K potentiometer	Opening signal	80-100	200-250	90°
	E-60R	600N * M	45S	90W, 2.5A	90W	7.3Kg	1K, 5K potentiometer	Opening signal	100-125	250-300	90°
	E-100R	1000N * M	50S	N/A	100W	7.3Kg	1K, 5K potentiometer	Opening signal	125-150	300-400	90°
	E-200R	2000N * M	100S	N/A	100W	11.2Kg	1K, 5K potentiometer	Opening signal	150-300	450-700	90°
	E-02T	6N * M	7S	N/A	4.6W, 0.2A	0.5Kg	On-off light	Light Indicator	15-20		90°
	E-05T	50N * M	20S	10W, 0.5A	15W	2.6Kg	Proportional Control	4-20mA	15-40	32-65	90°
	E-10T	100N * M	30/60S	20W, 0.85A	25W	3.7Kg	Proportional Control	4-20mA	50-65	50-125	90°
	E-20T	200N * M	30/60S	40W, 1.2A	40W	6.7Kg	Proportional Control	4-20mA	65-80	150-200	90°
	E-40T	400N * M	30/60S	70W, 2.5A	90W	7.2Kg	Proportional Control	4-20mA	80-100	200-250	90°
	E-60T	600N * M	45S	90W, 2.5A	90W	7.3Kg	Proportional Control	4-20mA	100-125	250-300	90°
	E-100T	1000N * M	50S	N/A	100W	7.3Kg	Proportional Control	4-20mA	125-150	300-400	90°
	E-200T	2000N * M	100S	N/A	100W	11.2Kg	Proportional Control	4-20mA	150-300	450-700	90°

# Material Test Reports

This document certifies that STC products have been subjected to quality assurance procedures and meet the material and performance specifications published by Sizto Tech Corporation (STC). The products have been manufactured, processed, inspected, and tested according to STC internal requirements and ISO 9001 standards.

ISO 9001:2008 Certificate Number: **Q17150329**

Date of Issue: **10, March, 2015**

Valid Until: **09, March, 2018**

Individual materials and components used in this product have been tested and conform to applicable published standards according to chart below. Please be advised that STC does not conduct its own material analysis of all raw materials, rather, STC relies on the statements of its material suppliers & reserves the rights to independently test raw materials if necessary. Material Test Reports may be available for specific products upon request.

Material	Use Location	Material Standard
316 Stainless Steel	Metal Fittings, Valves, Air Cylinders	ASTM A240/A2666
304 Stainless Steel	Valves, Air Cylinders	ASTM A240/A666
CF8M Stainless Steel	Valves	ASTM A351/A743
Brass	Valves	ASTM B36/B62
Nickel-Plated Brass	Composite Fittings	ASTM B456/B927
Acetal Homopolymer (Delrin)	Valves	ASTM D4181/D6778—14
Acetal Copolymer (POM)	Composite Fittings	ASTM D4181/D6778—14
FKM (Viton)	Seals	ASTM D1418
PTFE (Teflon)	Valves, Seals	ASTM D3294—15
NBR (Buna N)	Seals	ASTM D1387—06
EPDM	Seals	ASTM D3568—03
Polybutylene Terephthalate (PBT)	Composite Fittings	ASTM D4000

# Terms & Conditions

By purchasing from SIZTO TECH CORPORATION (STC), you agree to these TERMS AND CONDITIONS. No other terms shall apply except as agreed in writing & signed by STC. We reserve the right to correct typographic errors and reject orders.

## SHIPMENTS:

All shipments are F.O.B. 892 Commercial Street, Palo Alto, CA 94303, USA. Most orders are shipped via UPS Standard Ground unless instructions accompany order. Outside the UPS zones, shipment will be made Best Way. The responsibility for goods delay, lost or damaged in transit rests with the carrier and purchaser. Purchaser may purchase shipping insurance to cover lost or damaged products caused by shipping.

## RETURN OF MERCHANDISE:

No merchandise is accepted for return 30 days after delivery date. No credit allowed on merchandise shipped as ordered and returned without obtaining an authorization number IN ADVANCE. A 20% restocking charge applies to all returns, and transportation charges must be fully prepaid. We will pay **ground** transportation charges on re-sent or returned merchandise due to STC's error.

**Shortages & Mis-Shipments:** Any shortages or mis-shipments must be reported within 15 days.

## CANCELLATION POLICY:

Blanket orders can be canceled 90 days before scheduled ship date. There will be a 10% charge if a blanket order is canceled within 90 days of scheduled ship date, and a 20% charge if canceled within 60 days. Regular orders for non-custom parts can be canceled any time before the order is shipped. For custom parts, a 30% down payment is required either at the time of order or 90 days prior to scheduled ship date, whichever comes later.

## Remittances should be sent to:

Sizto Tech Corporation, 892 Commercial Street, Palo Alto, CA 94303, USA

Credit Card Payments: Visa, MasterCard, Discover, or American Express accepted

**International Customers:** Advance Payment Required via Bank Wire, Cashier's Check or Approved Credit Card.

**Credit Application:** To establish a net 30 day account, please mail or fax three trade references with complete mailing addresses and account numbers, or request an STC Credit Application.

## LIMITED WARRANTY – IMPORTANT NOTICE TO PURCHASER:

Sizto Tech Corporation (STC) only warrants this product to be free from defects in materials and workmanship at the time of shipment. This limited warranty expires one year after delivery to the end-user. STC's entire obligation to the Purchaser for breach of this limited warranty shall be limited to replacement of the defective product or refund of the original purchase price of this product, at STC's option. Purchaser has thirty (30) days to return the goods after STC has agreed to accept the return. All freight charges on returned material shall be paid by the Purchaser. STC's limited warranty shall not apply, however, to the product that have been subjected to misuse, alteration, accident or negligence during handling or storage.

## DISCLAIMER OF IMPLIED WARRANTIES:

All implied warranties, which may arise by implication of law or application of course of dealing or usage of trade, including, but not limited to, implied warranties of merchantability or fitness for a particular purpose are expressly excluded. There are no warranties, which extend beyond the description of the faced hereof. The end user is solely responsible for the suitability and fitness of this product selected for a particular application.

## OBLIGATIONS

You warrant, represent and agree: (1) to comply with all laws; (2) that our sale and shipment of the product will not, by export thereof, your legal status or otherwise, cause us to violate any law; and (3) to indemnify us against any losses from a failure by you or a third party to comply with law or these terms and conditions, or from use of the product.

## SAFETY

**WARNING:** Improper Selection or Failure to follow Usage Instructions of the products described on the Sizto Tech Corporation (STC) Internet Site and its related publications can cause Death, Personal Injury, and Property Damage. All system set-ups require the supervision of a qualified individual who is familiar with installation, inspection and testing through training or experience.

## IMPORTANT NOTICE:

All prices are subject to change without notice. We continuously improve the products, and we reserve the right to change specifications without incurring any obligation to incorporate new factors in equipment previously sold.

Information contained herein may be changed without prior notification.

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