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)

Model Name
Electric Actuated Valves

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

Connection
NPT
Tri-Clamp
Flange
BSP
BSPT
Socket
Butt Weld

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

Valve Material
316 SS

Options*
Coil Voltage*
24VDC
24VAC
110VAC 50/60HZ
220VAC 50/60HZ

Control Signal*
Visual Indicator
Contact Signal
Potentiometer

*Please see chart on pg. 2 for available voltage / control signal combinations.

General Specifications

<table>
<thead>
<tr>
<th>Service Medium</th>
<th>Air, Gas, Liquid, Steam, Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Pressure</td>
<td>1/2&quot; to 2&quot;: 1000 PSI @ 100°F WOG</td>
</tr>
<tr>
<td></td>
<td>2 1/2&quot;: 800 PSI @ 100°F WOG</td>
</tr>
<tr>
<td>Media Temperature</td>
<td>-4 to 356 °F (-20 to 180 °C)</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-4 to 140 °F (-20 to 60 °C)</td>
</tr>
<tr>
<td>Maximum Viscosity</td>
<td>600 mm²/s</td>
</tr>
<tr>
<td>Installation Orientation</td>
<td></td>
</tr>
<tr>
<td>Mounting Standard</td>
<td>DIN 3202-M3, ISO 5211 Mounting Pad, ISO 5211 Platform</td>
</tr>
<tr>
<td>Port</td>
<td>2-Way: Full Port; 3-Way: Reduced Port</td>
</tr>
</tbody>
</table>

* Please see chart on pg. 2 for available voltage / control signal combinations.
# Electric Actuator Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>E-05 to E-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-05</td>
<td>50N • M 7S/20S 10W, 0.5A 15W 2.6Kg On-off light Light Indicator 1/2” to 1-1/2” (15-40)</td>
</tr>
<tr>
<td>E-10</td>
<td>100N • M 10S/30S 20W, 0.85A 25W 3.7Kg On-off light Light Indicator 2” to 2-1/2” (50-65)</td>
</tr>
<tr>
<td>E-20</td>
<td>200N • M 12S/30S 40W, 1.2A 40W 6.7Kg On-off light Light Indicator 2-1/2” to 3” (65-80)</td>
</tr>
<tr>
<td>E-40</td>
<td>400N • M 15S/30S 70W, 2.5A 90W 7.2Kg On-off light Light Indicator 3” to 4” (80-100)</td>
</tr>
<tr>
<td>E-60</td>
<td>600N • M 20S/45S 90W, 2.5A 90W 7.3Kg On-off light Light Indicator 4” (100-125)</td>
</tr>
</tbody>
</table>

**Model**

- E-05
- E-10
- E-20
- E-40
- E-60

**Torque**

- 50N • M
- 100N • M
- 200N • M
- 400N • M
- 600N • M

**Cycle Time DC/AC**

- 7S/20S
- 10S/30S
- 12S/30S
- 15S/30S
- 20S/45S

**Drive Motor DC**

- 10W, 0.5A
- 20W, 0.85A
- 40W, 1.2A
- 70W, 2.5A
- 90W

**Drive Motor AC**

- 10W, 0.5A
- 20W, 0.85A
- 40W, 1.2A
- 70W, 2.5A
- 90W

**Weight**

- 2.6Kg
- 3.7Kg
- 6.7Kg
- 7.2Kg
- 7.3Kg

**Special function**

- Proportional Control
- Passive contact

**Control Signal**

- Opening signal
- Contact Signal

**Ball Valve Diameter, NPT (DN)**

- 1/2” (50)
- 3/4” (60)
- 1” (80)
- 2” (100)
- 3” (125)

**Voltage Options**

- DC: 24V, 400N
- AC: 24V, 110/120V, 220/240V

**Diagrams**

- Wiring Diagram B/D
- Wiring Diagram S
- Wiring Diagram R
- Wiring Diagram A

**Weights**

- 90% RH

**Trail End Cap**

- Die-Cast Aluminum Alloy (Powder Coated)

**Die-Cast**

- 22 to 140 ºF (24VDC, 110 & 220 VDC (50/60HZ)
- 30 to 60 ºC); 10

**90°**

- 60% RH

**Enclosure**

- Cast Aluminum Alloy (Powder Coated)

**Proportional Control**

- DC: 24V, 400N
- AC: 24V, 110/120V, 220/240V

**Passive contact**

- DC: 24V, 400N
- AC: 24V, 110/120V, 220/240V

**5K potentiometer**

- DC: 24V, 400N
- AC: 24V, 110/120V, 220/240V
Wiring Diagrams

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

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

H type: AC380V ON-OFF TYPE WIRING DIAGRAM

A type: INTELLIGENT REGULATOR TYPE (VOLTAGE: AC)

S type: PASSIVE CONTACT SIGNAL WIRING DIAGRAM

R type: WITH 1K OR 5K POTENTIOMETER

T type: AC380V PASSIVE CONTACT SIGNAL WIRING DIAGRAM

A type: INTELLIGENT REGULATOR TYPE (VOLTAGE: DC)
Actuated Valve Body Components

Stem (316 SS)

Nuts, Washers (304 SS)

Valve Cap (x2)

Valve Body (CF8M Steel)

Ball (316 SS)

Ball Seat (x2) (PTFE)

Actuated Valve Body Components

Stem Adapter (CF8 Steel)

Conical Spring Washer (304 SS)

Thrust Washer (PTFE)

Packing Nut (304 SS)

Packing (PTFE)

Stem (316 SS)

Protective Shipping Caps (x2)

Torque Bolts (4x) (CF8M Steel)

Nuts, Washers (304 SS)
### Electrically Actuated 2-Way Ball Valve Dimensions

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

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Cv</th>
<th>d</th>
<th>L</th>
<th>A</th>
<th>H</th>
<th>Electrical Actuator</th>
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<tbody>
<tr>
<td>1/4&quot;</td>
<td>1.3</td>
<td>8</td>
<td>75</td>
<td>160</td>
<td>166</td>
<td>E-05</td>
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<tr>
<td>3/8&quot;</td>
<td>2.1</td>
<td>10</td>
<td>75</td>
<td>160</td>
<td>166</td>
<td>E-05</td>
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<tr>
<td>1/2&quot;</td>
<td>4.7</td>
<td>15</td>
<td>75</td>
<td>160</td>
<td>166</td>
<td>E-05</td>
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<tr>
<td>3/4&quot;</td>
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<td>80</td>
<td>160</td>
<td>170</td>
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<tr>
<td>1&quot;</td>
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<td>25</td>
<td>90</td>
<td>160</td>
<td>180</td>
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<tr>
<td>1-1/4&quot;</td>
<td>21.4</td>
<td>32</td>
<td>110</td>
<td>160</td>
<td>185</td>
<td>E-05</td>
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<tr>
<td>1-1/2&quot;</td>
<td>30.1</td>
<td>38</td>
<td>120</td>
<td>160</td>
<td>198</td>
<td>E-05</td>
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<tr>
<td>2&quot;</td>
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<td>50</td>
<td>140</td>
<td>196</td>
<td>237</td>
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<tr>
<td>2-1/2&quot;</td>
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<td>65</td>
<td>170</td>
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<td>252</td>
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<tr>
<td>3&quot;</td>
<td>127.0</td>
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<td>4&quot;</td>
<td>200.4</td>
<td>98</td>
<td>250</td>
<td>256</td>
<td>320</td>
<td>E-20</td>
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Electrically Actuated 3-Way Ball Valve Dimensions

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>Cv</th>
<th>d</th>
<th>L</th>
<th>A</th>
<th>H</th>
<th>Electrical Actuator</th>
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<tr>
<td>1/4&quot;</td>
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<tr>
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<td>2.1</td>
<td>10</td>
<td>72</td>
<td>160</td>
<td>144</td>
<td>E-05</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>3.0</td>
<td>12</td>
<td>72</td>
<td>160</td>
<td>144</td>
<td>E-05</td>
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<tr>
<td>3/4&quot;</td>
<td>4.7</td>
<td>15</td>
<td>82</td>
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<td>154</td>
<td>E-05</td>
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<tr>
<td>1&quot;</td>
<td>6.7</td>
<td>18</td>
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<td>E-05</td>
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<td>1-1/4&quot;</td>
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<td>1-1/2&quot;</td>
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<td>32</td>
<td>137</td>
<td>196</td>
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<tr>
<td>2&quot;</td>
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<td>154</td>
<td>196</td>
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<td>E-10</td>
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<td>2-1/2&quot;</td>
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<td>185</td>
<td>256</td>
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<td>E-20</td>
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<tr>
<td>3&quot;</td>
<td>63.1</td>
<td>55</td>
<td>212</td>
<td>256</td>
<td>288</td>
<td>E-20</td>
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<tr>
<td>4&quot;</td>
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<td>74</td>
<td>254</td>
<td>256</td>
<td>300</td>
<td>E-40</td>
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**Note:** Dimensions are for reference only. Field verify dimensions prior to installation for critical dimensions.
# Electrically Actuated Ball Valve Dimensions

## ISO Mounting Pad

![Diagram of ISO Mounting Pad](image)

<table>
<thead>
<tr>
<th>Valve Size</th>
<th>E1</th>
<th>E2</th>
<th>P</th>
<th>U1</th>
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<tr>
<td>1/4&quot;</td>
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<td>42</td>
<td>9</td>
<td>6</td>
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<tr>
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<td>42</td>
<td>9</td>
<td>6</td>
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<td>36</td>
<td>42</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>36</td>
<td>42</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>1&quot;</td>
<td>42</td>
<td>50</td>
<td>11</td>
<td>6</td>
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<tr>
<td>1-1/4&quot;</td>
<td>42</td>
<td>50</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>1-1/2&quot;</td>
<td>50</td>
<td>70</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>2&quot;</td>
<td>50</td>
<td>70</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>2-1/2&quot;</td>
<td>70</td>
<td>102</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>3&quot;</td>
<td>70</td>
<td>102</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>4&quot;</td>
<td>-</td>
<td>102</td>
<td>17</td>
<td>-</td>
</tr>
</tbody>
</table>

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

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 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.
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.

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