

ESBE ARC/ ARD High Torque Rotary Actuator Series



Features:

The ESBE ARC/ ARD series of high torque rotary low voltage actuators provide a 90° operating range of rotation. This series of actuators is suitable for assembly to ESBE series 3F and 4F valves that range from 2" to 6" in size and alternatively applied as damper actuators. The appropriate mounting kit to assemble the actuator to either an ESBE valve or a damper are included. For the ARD actuator series, incorporated into its design is a spring return, i.e. safety function, to rotate the valve to a close position in the event of power failure or removal of signal.

- Increased torque ability in comparison to series 90 actuators to overcome a high differential pressure across the valve.
ARC: 265.5 in-lb (30 Nm) / ARD: 177 in-lb (20 Nm)
- Included mounting kits specific for ESBE Type F valves and damper square or round shafts
- Safety spring close function feature ARD269
- 2-point spring close function, ARD257
- Direct mount actuator design with included mounting kit
- Easy manual override of actuator
- Adjustable limitation of 90° rotation on opening or closing
- Low voltage power supply 24VAC or 24VDC, pre-wired with wire whip

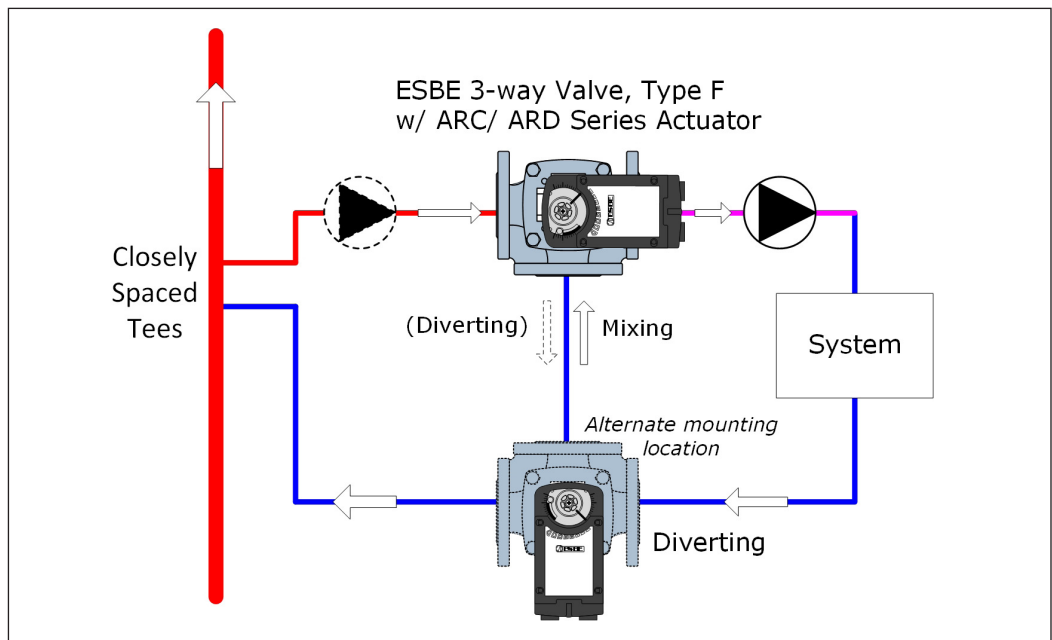
Ordering Information:

ARC Series

Code No.	Series	Input Signal	Internal Auxiliary Switch	Run Time for 90° (sec)
12201100	ARC363	2-point, ON/OFF, or 3 point floating	None	150
12220200	ARC368	0(2)...10Vdc 0(4)...20mA	Yes	

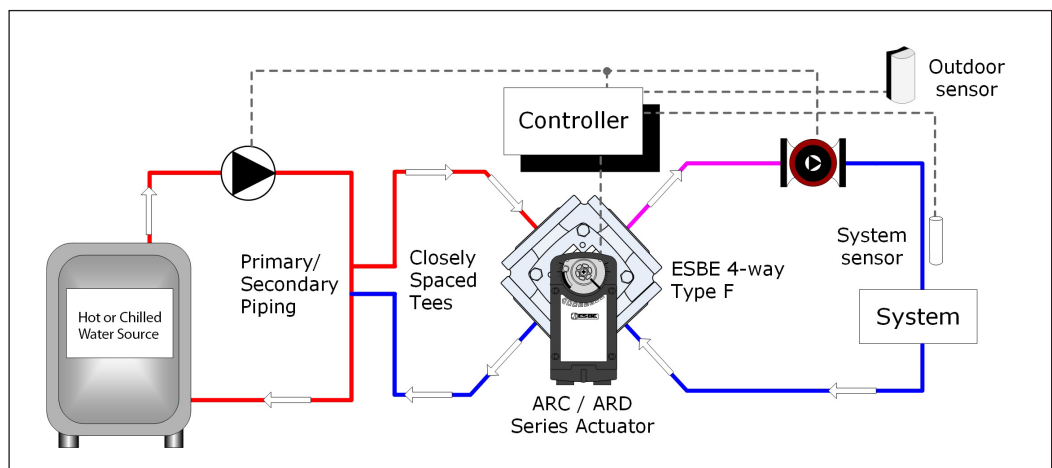
ARD, Spring Return

Code No.	Series	Input Signal	Internal Auxiliary Switch	Run Time for 90° (sec)	Spring Return, w/o signal or power loss (sec)
12241200	ARD257	2-point, ON/OFF	None	75	20
12260200	ARD269	0(2)...10Vdc 0(4)...20mA		150	

Applications:
3-way Mixing/ Diverting Application


When the ARC/ ARD actuators are assembled to the ESBE 3-way Type F valve, the actuator provides rotation of the valve to control the flow or temperature requirement in a mixing or

diverting application. With the ARD series the spring function feature is engaged when there is power loss or the removal of signal. This results in the actuator rotating the valve to an end position.

4-way Mixing Application


The ARC/ ARD series of actuator can also be mounted to an ESBE 4-way Type F valve to

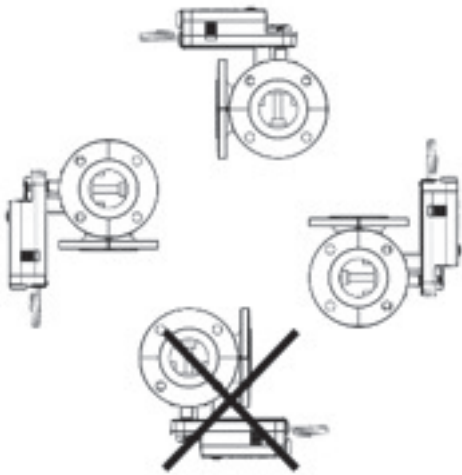
provide mixed system temperature regulation when wired with a system controller.

**Technical
Specifications:**

	ARC	ARD
Supply Voltage	24VAC @ 50/60Hz, 24VDC	
Nominal Voltage	19...29V AC/DC	
Power Consumption, running/standby	4.5 W / 1.5 W (ARC368)	10.5 W / 2.5 W (ARD269)
Ambient Temperature, min./max.	-22 to 122°F (-30 to 50°C)	
Ambient Humidity	5 to 95% r.H. non-condensing	
Allowable valve assembly	ESBE type 3F and 4F valves	
Compatible Damper Assembly	Square spindle: 0.35 to 0.71 in (9 to 18 mm) Round spindle: 0.35 to 1.02 in (9 to 26 mm) Dampers up to 64 sq/ft (6m ²)	Square spindle: 0.35 to 0.71 in (9 to 18 mm) Round spindle: 0.35 to 1.02 in (9 to 26 mm) Dampers up to 43 sq/ft (4m ²)
	Verify requirements of damper manufacturer specifications and the air flow conditions.	
Rotation range	90°	
Limiting working range, min. /max.	42° to 48° / 0° to 90°	0° to 48° / 0° to 90°
Torque	265.5 in-lb (30 Nm)	177 in-lb (20 Nm)
Input signal	2-point, ON/OFF – SPST 3-point floating (triac) SPDT Proportional (0(2)...10Vdc/ 0(4)...20mA)	2-point, ON/OFF Proportional (0(2)...10Vdc/ 0(4)...20mA)
Output signal	2 independent auxiliary switches, 5(2.5)A, 24VAC	None
Running time	150 sec @ 90°	2-point: 75 sec @ 90° Proportional: 150 sec @ 90°
Safety function, running time	n/a	20 sec @ 90°
Cable length	Wire whip, 3.3 ft (1m)	
Weight	3.7 lb (1.7 kg)	5.3 lb (2.4 kg)

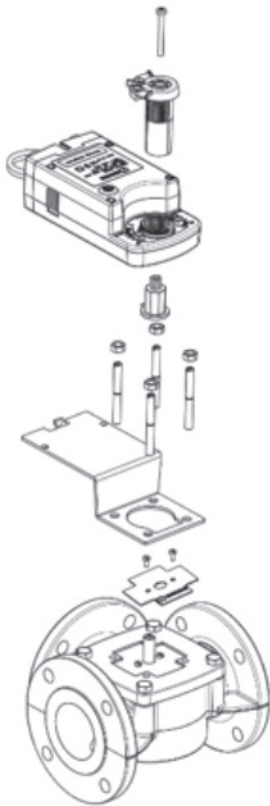


Actuator
Orientation:



Included with each ARC/ ARD actuator is a complete mounting kit to assemble the actuator to an ESBE Type F valve. The orientation of the valve stem should not be facing down. The incorrect orientation of the valve stem and actuator can lead to the failure of the actuator due to water infiltration.

Actuator
Mounting:



Prior to installation of the ARD actuator series, determine the return spring rotation direction in the event of power loss or removal of input signal. This will determine which side of the actuator will be facing out during installation.



Rotation on input signal



Clockwise

Rotation on power loss or removal of input signal



Counter Clockwise



Rotation on input signal



Counter Clockwise

Rotation on power loss or removal of input signal



Clockwise

Electrical Wiring:

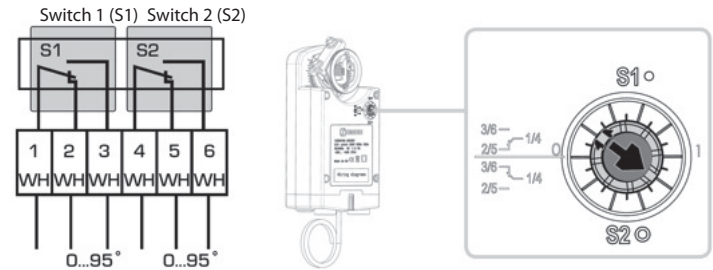
All ARC/ ARD actuators have a 3ft (1m) wire whip pre-wired to the actuator.
(BU- Blue / BN-Brown / BK- Black)

ARC363, 2-point ON/OFF/ 3-point Floating (Triac)		ARC368, Proportional
ARD257, 2-point ON/OFF		ARD269, Proportional

Auxiliary switch settings:

Incorporated into the ARC368 actuator are two independent auxiliary switches with adjustable position activation. The auxiliary switch

adjustment for both are located on the front of the actuator.



For Switch 1 (S1) the position index is the inner solid arrow indicator, while Switch 2 (S2) is the outer arrow indicator. The activation of the switch

will be dependent on which side of the adjustment the arrow indicator is pointing to. The placement will determine how the auxiliary switch will activate.

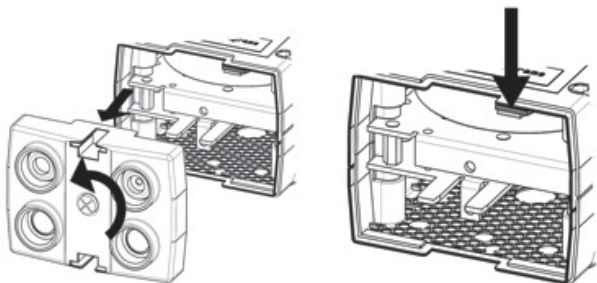
S1	S2



DIP switches:

For the proportional actuators ARC368 and ARD269, there are internal DIP switches to determine the operation of the actuator. These

switches are accessible with the removal of the electrical cover located opposite of the valve stem connection.



<div><div>2-10V 4-20mA voltage R/CW normal Adaption inactive</div><div><div>OFF</div><div>ON (Default)</div></div><div><div>1</div><div>2</div><div>3</div><div>4</div></div><div><div>0-10V 0-20mA current L/CCW inverse Adaption active</div></div></div>	DIP Switch	Description
	1	Input Signal Range: Proportional signal range that the actuator will operate. 0...10Vdc/ 0...20mA, 2...10Vdc/ 4...20mA selection
	2	Input Signal Type: Current (mA) or Voltage (DC)
	3	Actuator Rotation: Determination of actuator rotation direction- Clockwise (CW) / Counter Clockwise (CCW)
	4	Adaptation of Rotation: Active-Entire use of 90° travel rotation Inactive-Limited travel rotation of actuator

Manual Operation:

ARC 363/368

Manual operation of the ARC actuator will require a 10mm metric Allen key. This is inserted in the center shaft of the actuator. Located on the side of the actuator is a red switch that allows for the engagement of manual operation. While engaging this switch the Allen key can be rotated.

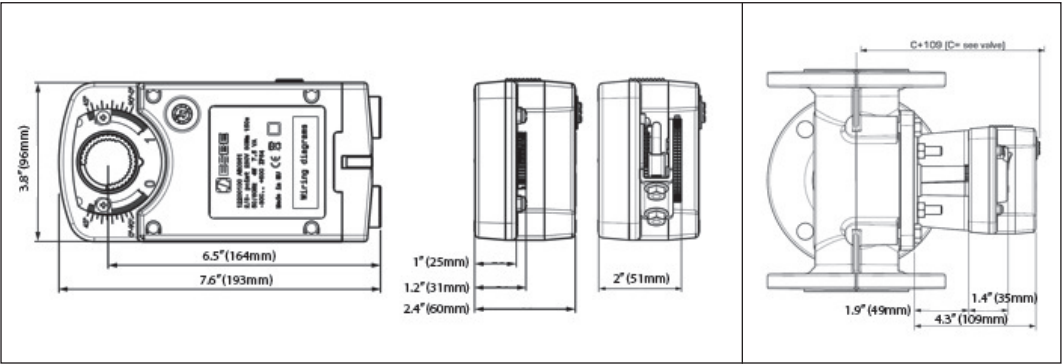
ARD 257/269

Included with the ARD actuator is a 2.5mm Allen key that is used to manually operate the actuator. Insert the key in the manual operation location and rotate the key in the appropriate indicated unlocking direction. If the key is released or removed, the safety function will initiate.

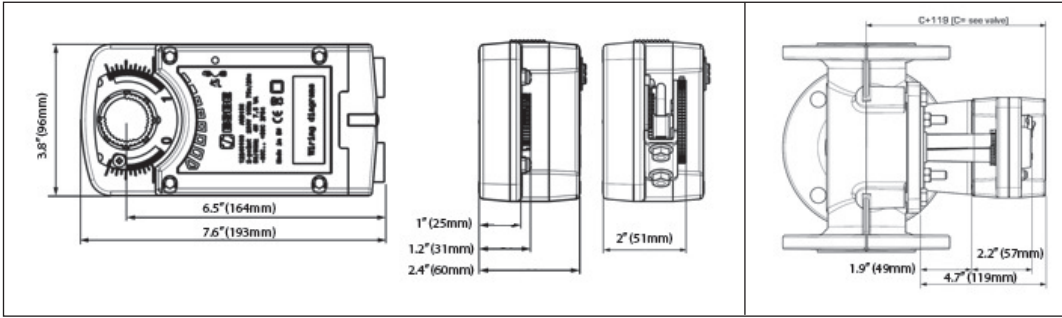


Dimensions:
in (mm)

ARC Series



ARD Series



C + ARC/ ARC Series Actuator
ESBE Type F, 3-way

Valve Size	Combined Dimension- ARC	Combined Dimension- ARD
2½"	6.34 in (161 mm)	6.73 in (171 mm)
3"	6.77 in (172 mm)	7.17 in (182 mm)
4"	7.17 in (182 mm)	7.56 in (192 mm)
5"	7.44 in (189 mm)	7.83 in (199 mm)
6"	7.76 in (197mm)	8.15 in (207 mm)

ESBE Type F, 4-way

Valve Size	Combined Dimension- ARC	Combined Dimension- ARD
2"	6.26 in (159 mm)	6.65 in (169 mm)
2½"	6.26 in (159 mm)	6.65 in (169 mm)
3"	6.85 in (174 mm)	7.24 in (184 mm)
4"	7.48 in (190 mm)	7.87 in (200 mm)
5"	7.48 in (190 mm)	7.87 in (200 mm)
6"	7.80 in (198mm)	8.19 in (208 mm)

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