



EPD Series Spring Return Electric Actuators and Accessories

DOUBLE SQUARED
12 x 12 mm



EPD Series Spring Return Electric Actuators

Overview

Compact, rugged, spring return actuator is designed for use with damper frames and valve top works, and provides torque outputs from 90 to 450 in. lb. Ideal for industrial applications without costly options, the actuator features field adjustable speed control and field adjustable spring return along with auto-switching power supplies that are ready to connect to 24V to 230V AC or DC power sources.

Standard Features

- Maintenance Free
- Field Adjustable Speed Control
- Field Adjustable Spring Return Speed*
- Auto-Switching Power Supplies
- Hex Key Override and Mounting Screws
- Internal Low Power Heater
- NEMA 4 Enclosure
- Manual Override
- CE and CSA Pending (NEMA 4/IP66 Certified)
- Mechanical 12 mm Double-Square Drive Shaft Connection
- Thermal Overload Protection
- Choice of Voltages: Units Can Operate on Any Voltage from 24 VAC/VDC to 230 VAC/VDC

*Some Models

Options

- Two Internal End-of-Travel Nonadjustable Switches
- Externally Mounted Switch Pack w/2 Additional Adjustable Switches
- EMT Enclosure
- Manual Override Handwheel
- Mounting Kit



Technical Information



Actuator Specifications

Model	EPD2	EPD3	EPD4	EPD5
Torque Output (in.lb/Nm)	90/10	133/15	266/30	450/50
Supply Voltage	24 to 230 VAC/DC, +15%/-20% AC: 50/60 Hz			
Amp Draw	Max 4.7 A @ 3 Sec Mode 120 VAC		Max 2.0 A @ 40 Sec Mode 120 VAC	
Duty Cycle Mode	>14 Sec Mode: 100%		All Modes: 100%	
	3 Sec Mode: 10%; One Power/Spring Cycle Per Minute Max.		N/A	
Thermal Overload	Standard			
Runtime (Power) Selectable	3/15/30/60/120@ 90° (Field Selectable)		40/60/90/120/150 @ 90° (Field Selectable)	
Runtime (Spring)	3 or 10 seconds @ 90° (Field Selectable)		20 seconds @ 90° (Fixed)	
3 Sec Mode (Spring)	3-4 seconds @ 90° (Load Dependant)		N/A	N/A
Response Time (Spring)	Up to 1 Second After Power Failure			
Auxiliary Limit Switch Ratings	230 VAC @ 250 mA and 24 VAC/DC @ 3A Max			
Electrical Connections	1m Cable, Multiconductor (Optional EMT)			
Enclosure	NEMA 4 (IP66)			
Enclosure Material	Aluminum Die Casting			
Drive Configuration	12 mm Double Square, 100% Overload Proof Self-Locking up to 133 in. lb/15 Nm		16 mm Double Square, 100% Overload Proof Self-Locking up to 445 in. lb/50 Nm	
Manual Override	Supplied Hex Key (Optional Handwheel)			
Weight (lb/kg)	7.8/3.5 (No Installed Options)		20.9/9.5 (No Installed Options)	

True Union Ball Valve Selection Chart*

Size	Actuator
1/2" - 1"	EPD2
1-1/4" - 2"	EPD3
2-1/2" - 6"	EPD4

*Actuator size selections based on clean water at 70°F

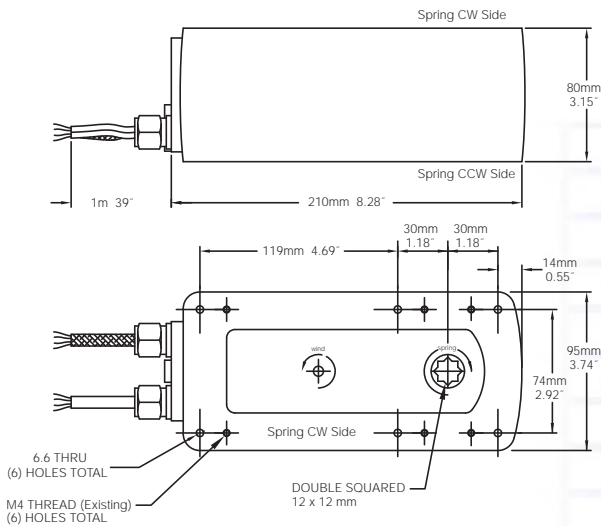
Butterfly Valve Selection Chart*

Size	Actuator
1-1/2" - 4"	EPD5

*Actuator size selections based on clean water at 70°F

EPD 2/3

With Supplied Hex Key



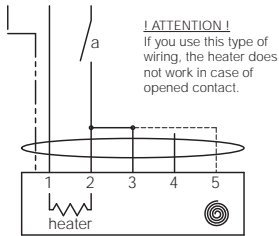
Notes: Do NOT operate the spring return actuator in 3 second mode without a **MINIMUM LOAD** of 27 in. lb (3 Nm)
 If using the 3 second spring return mode, do NOT exceed more than one complete drive/spring return cycle per minute
 Actuator will NOT activate until the internal temperature reaches at least -8°F (-20°C). All functions are disabled until after this heat-up period

EPD 2/3 On/Off Control

Drive Open or Closed/Spring Opposite

24 to 230 VAC/DC

GND - + If mounted CW side UP:
 ...Close "a" = drive CCW

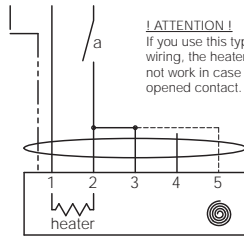


! ATTENTION !
 If you use this type of wiring, the heater does not work in case of opened contact.

Standard wiring = 10 Sec Spring Rtn
 Additional wiring terminal 5 = 3 Sec Spring Rtn

24 to 230 VAC/DC

GND - + If mounted CCW side UP:
 ...Close "a" = drive CW



! ATTENTION !
 If you use this type of wiring, the heater does not work in case of opened contact.

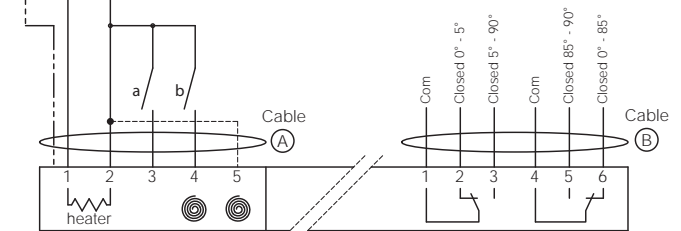
Standard wiring = 10 Sec Spring Rtn
 Additional wiring terminal 5 = 3 Sec Spring Rtn

Drive Open/Closed; Spring Engaged Upon Loss of Electric Supply

24 to 230 VAC/DC

If mounted CCW side UP:
 ...Close "a" = drive CW
 ...Close "b" = drive CCW

If mounted CW side UP:
 ...Close "a" = drive CCW
 ...Close "b" = drive CW



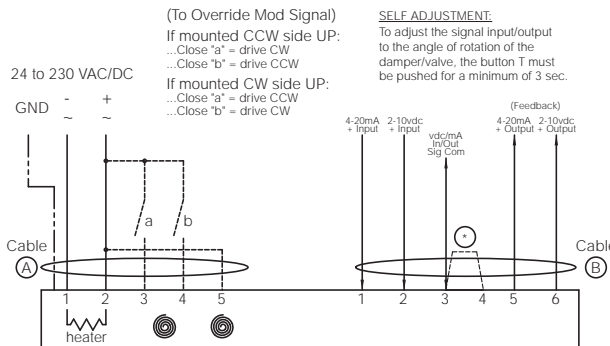
Standard wiring = 10 Sec Spring Rtn.
 Additional wiring terminal 5 = 3 Sec Spring Rtn.

Additional wiring of the integral aux. switches.

(OPTIONAL)

Internal aux. switches are dry contact form C type. Max 24v/3A, 230v/0.25A. Switch points are FIXED at 5° & 85° degrees rotation. Either CW or CCW side up does not affect switch points.

EPD 2/3 Proportional Control



(To Override Mod Signal)

If mounted CCW side UP:
 ...Close "a" = drive CW
 ...Close "b" = drive CCW

If mounted CW side UP:
 ...Close "a" = drive CCW
 ...Close "b" = drive CW

SELF ADJUSTMENT:

To adjust the signal input/output to the angle of rotation of the damper/valve, the button T must be pushed for a minimum of 3 sec.

Proportional Control

Input: 4-20 mA or 0-10 VDC
Feedback: 4-20 mA or 0-10 VDC

SECTION OF RUNNING TIME FOR SPRING RETURN:

Standard wiring = spring return in 10 sec.
 Additional wiring terminal 5 = spring return in 3 sec.

FUNCTION OF SWITCH a AND b:

Closing switch a or b overrides the proportional control of the actuator.
 Direction of rotation is a function of which side (CW or CCW) of actuator is UP.

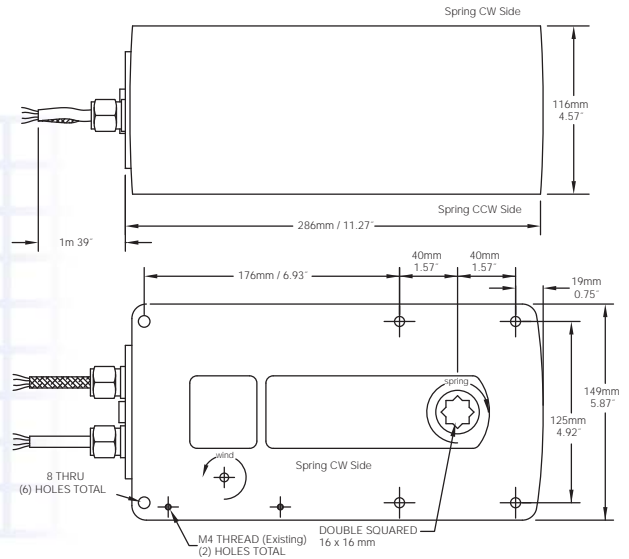
REVERSE FUNCTION:

Add jumper between 3 & 4 for REVERSE acting control. This affects both INPUT and FEEDBACK signal processing.

EPD 4/5



With Supplied Hex Key

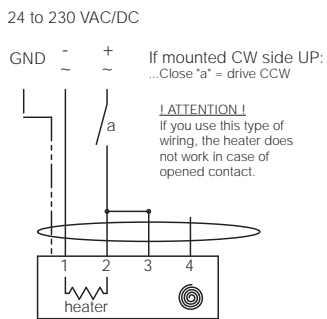


Notes: Do NOT operate the spring return actuator without a MINIMUM LOAD of at least 90 in. lb (3 Nm)

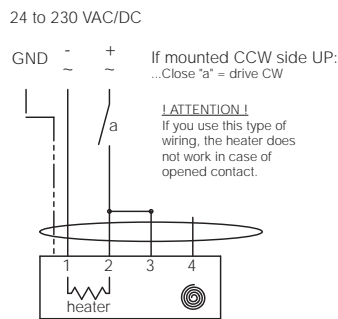
Actuator will NOT activate until the internal temperature reaches at least -8°F (-20°C). All functions are disabled until after this heat-up period

EPD 4/5 On/Off Control

Drive Open or Closed/Spring Opposite

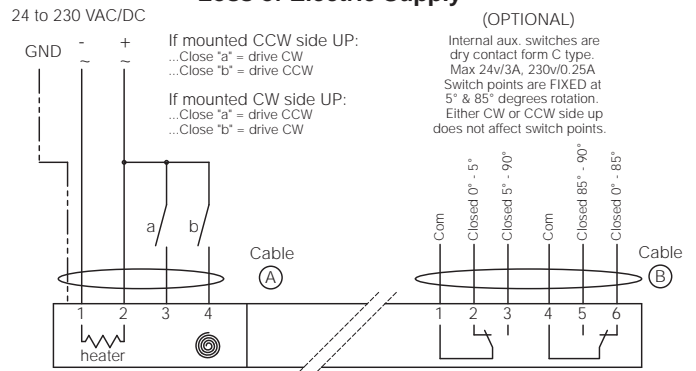


Standard wiring = 20 Sec Spring Rtn



Standard wiring = 20 Sec Spring Rtn

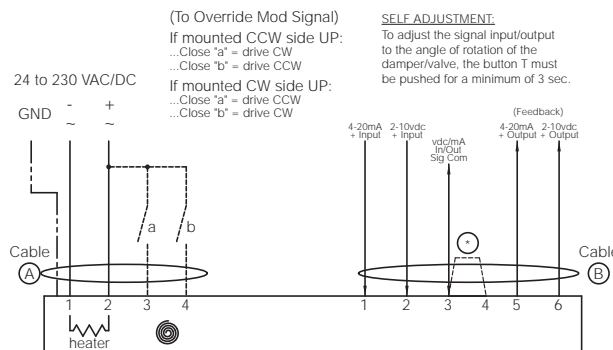
Drive Open/Closed; Spring Engaged Upon Loss of Electric Supply



Standard wiring = 20 Sec Spring Rtn.

Additional wiring of the integral aux. switches.

EPD 4/5 Proportional Control



SECTION OF RUNNING TIME FOR SPRING RETURN:
Standard wiring = spring return in 20 sec.

FUNCTION OF SWITCH a AND b:

Closing switch a or b overrides the proportional control of the actuator.
Direction of rotation is a function of which side (CW or CCW) of actuator is UP.

REVERSE FUNCTION:
Add jumper between 3 & 4 for REVERSE acting control. This affects both INPUT and FEEDBACK signal processing.

Proportional Control

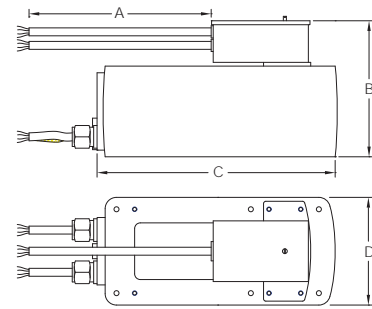
Input: 4-20 mA or 0-10 VDC
Feedback: 4-20 mA or 0-10 VDC



Accessories

Externally Mounted Switch Pack

The Auxiliary switch option includes an externally mounted switch pack containing two switches. Each mechanical switch is independently adjustable and is rated at 230 VAC @ 250 mA max and 24 VDC @ 3A max.

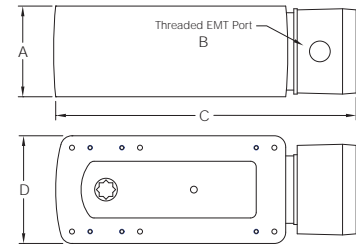


Model	A	B	C	D
EPD 2/3	39/1 m	4.72/120	8.26/210	3.74/95
EPD 4/5	39/1 m	6.14/156	11.27/286	5.87/149

EMT Enclosure

The EMT Enclosure option consists of a cast aluminum enclosure with 1/2" conduit entry terminal strips that is attached to the bottom end of the actuator. It is sealed to the actuator housing, contains a screw cover with captured screws, and provides access to internal wiring, switches, and indicators.

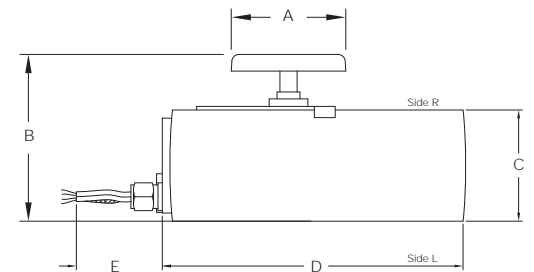
NOTE: The external auxiliary switch pack cannot be wired through the EMT Enclosure



Model	A	B	C	D
EPD 2/3	3.15/80	.5	10.5/266	3.74/95
EPD 4/5	4.57/116	.5	14.10/358	3.74/95

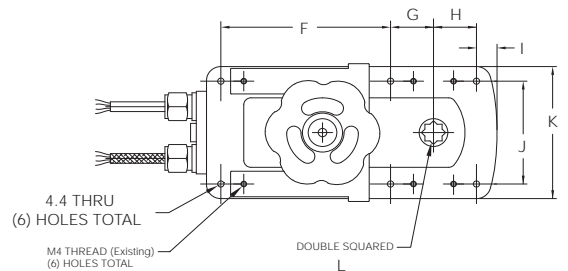
Manual Override Handwheel

The Manual Override Handwheel option provides a manual handwheel that is attached to either side of the actuator and allows manual positioning of the actuator when power is NOT present. The handle rotates during normal operation and can be locked in position ONLY during power outages.



Mounting Kit

The Mounting Kit option converts the existing mounting holes in the EPD Series into an ISO 5211 compatible actuator that can be used in direct mount valve applications. The kit contains all necessary adapters, brackets, couplings, hardware, and is size and style specific to Hayward ball and butterfly valves.



Model	A	B	C	D	E	F	G	H	I	J	K	L
EPD 2/3	3.15/80	4.72*/120	3.15/80	8.28/210	39/1m	4.69/119	1.18/30	1.18/30	0.55/14	2.92/74	3.74/95	12x12
EPD 4/5	3.15/80	6.14/156	4.57/116	11.27/286	39/1m	6.93/176	1.57/40	1.57/40	0.75/19	4.92/125	5.87/125	16x16

*Dimension increases to 6.72" when unit is equipped with override handle and auxiliary switch options.

HAYWARD



FlowControl SYSTEMS



Hayward Flow Control Products Available From:



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 Web Site: http://www.haywardflowcontrol.com