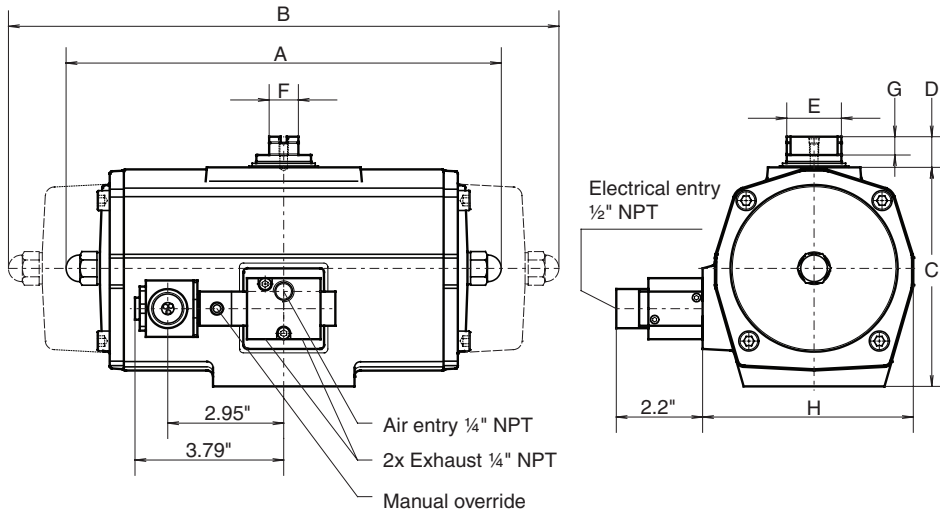


Data sheet

Sheet No.: A3.101 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH INTEGRAL SOLENOID VALVES

SVN



Description

The El-O-Matic "SVN" Series solenoid valve mounts directly to the actuator air inlet manifold eliminating the need for tubing or fittings which can be damaged. E12 has an adaptor plate. The "SVN" is field convertible to 4-way or 3-way function so it can be used on double acting or spring return actuators.

Coils are continuously rated, a push and hold manual override is standard.

General Specification

Air pressure : 20 to 120 psi
Lubrication : not required
Temperature : -4° to +150°F
Voltage : 120VAC/60Hz standard (other available)
Enclosure : NEMA 4, NEMA 7 or intrinsically safe (IS)
Current : 0.12A (0.7A hold) (at 120VAC/60Hz)
Power : 7 Watts
Air Entry/Exhaust : 1/4"NPT
Orifice : 3/16"
Air flow : CV 0.75

Options

Speed controls, low power, locking manual override, dual coil, fail in last position.

Ordering information

Specify SVN, enclosure and voltage.

Dim. in inches	Actuators E-series										P-series	
	E 12	E 25	E 40	E 65	E100	E200	E350	E600	E950	E1600	P2500	P4000
A DA	4.06	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B SR	4.65	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	2.36	3.15	3.66	4.13	4.65	5.63	7.13	8.66	10.20	11.69	14.02	14.96
D	0.79	0.79	0.79	0.79	0.79	0.79	0.79	1.18	1.18	1.18	1.18	1.18
E	0.63	0.63	0.87	0.87	0.87	1.42	1.42	2.17	2.17	2.52	2.17	2.52
E2	0.91	0.91	1.18	1.18	1.18	1.77	1.77	2.56	2.56	2.95	2.56	3.15
F	0.39	0.39	0.55	0.55	0.55	0.75	0.75	1.42	1.42	1.42	1.42	1.42
G	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.39	0.39	0.39	0.39	0.39
H	2.36	2.91	3.39	3.86	4.25	5.04	6.81	8.15	9.09	10.43	13.78	14.96
Operating times in sec. (at 80 psi. with average load)												
SVN	0.3	0.35	0.40	0.49	0.52	0.75	1.1	1.6	2.5	3.9	4.5	8.2

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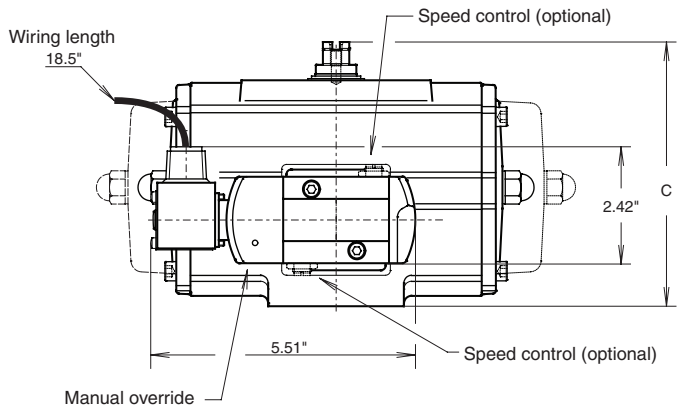
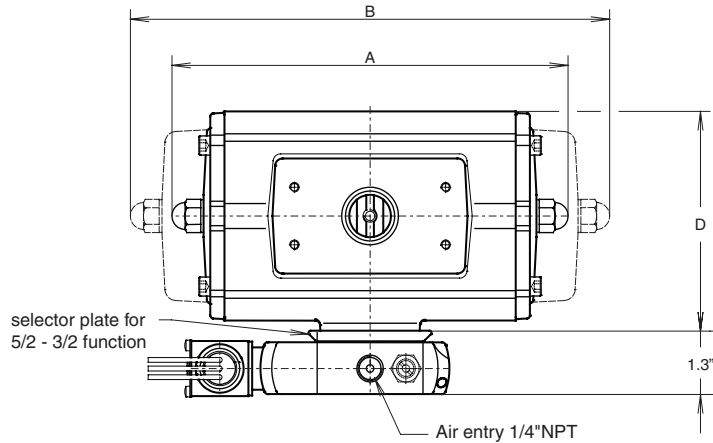
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Data sheet

Sheet No.: A3.106.4 Rev. A
Date: November 2009

EL-O-MATIC ACTUATORS WITH ASCO SOLENOID VALVES



Dim. in inches	Actuator type											
	E12	E25	E40	E65	E100	E200	E350	E600	E950	E1600	P2500	P4000
A PD/ED	4.06	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B PS/ES	4.65	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.15	3.94	4.45	4.92	5.43	6.42	7.91	9.84	11.38	12.87	15.20	16.14
D	2.36	3.27	3.78	4.21	4.61	5.39	7.13	8.54	9.53	10.83	14.17	15.35
Operating times in sec. (at 80 psi. with average load)												
	0.3	0.4	0.4	0.5	0.5	0.8	1.1	2	3	4	5	9

Description

For general purpose solenoid control the Asco solenoid valve is fixed directly to the NAMUR interface on the side of the actuator (E12 requires adaptor plate). The valve is a universal type, (5/2 or 3/2) and can be used on double acting or spring return actuators by simply rotating the sealing plate.

The single solenoid control is continuously rated, and in the event of electrical failure the actuator returns to the clockwise (normally valve closed) position; by mechanical spring in case of single acting; and air in case of double acting versions.

The normally 1/4" ported valve has a high kv value, allowing fast operating times. The assembly is waterproofed to NEMA4X. A local manual operation facility is provided as standard. Speed controllers can be fitted as an option.

General Specification

Make	: Asco	Power	: AC 2.0W DC 2.5W
Series	: 551	Voltages	: 24V DC
Type	: 5/2-3/2		: 24V AC (50Hz)
Material housing	: Aluminum anodized		: 115V AC (50Hz)
endcaps	: Glass-filled polyamide		: 230V AC (50Hz)
option	: Stainless Steel		: Other voltages and 60Hz on request
Air pressure	: 29 to 145 psi	Air Entry	: 1/4" NPT
Lubrication	: Not necessary	Air flow, CV	: 0.7
Temperature	: -13° to 140°F (optional -40°F)		

Code

Part number	SVA-4 ⁽¹⁾
Electrical entry	1/2" NPT
Enclosure	NEMA 4X
Class	-

Waterproof WP

Part number	SVA-4 ⁽¹⁾
Electrical entry	1/2" NPT
Enclosure	NEMA 4X
Class	-

Explosion proof XP

Part number	SVA-7 ⁽¹⁾
Electrical entry	1/2" NPT
Enclosure	NEMA 4X, 7 and 9
Class	Class I, groups A, B, C or D
	Class II, groups E, F, or G
	Certified FM, UL and CSA

Options

Description	Solenoid	Electrical Entry
Intrinsically Safe	SVA-IS ⁽¹⁾	1/2" NPT

Note

- 1) Specify voltage.
- 2) Operating times are dependent on load.

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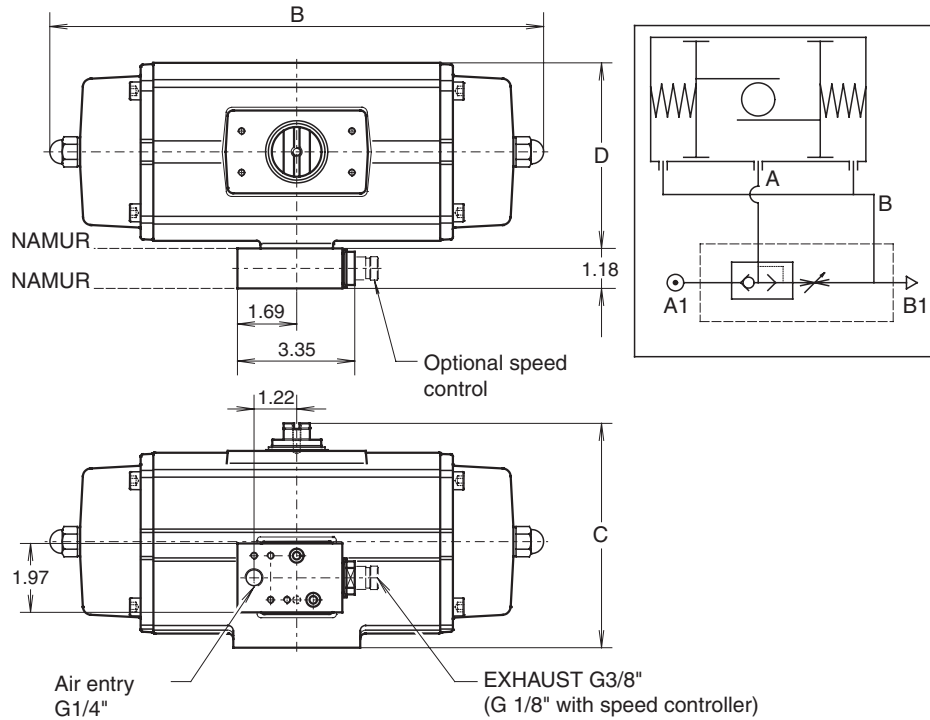
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Data sheet

Sheet No.: A3.120 Rev. A
Date: November 2009

SPRING RETURN ACTUATOR WITH Q.E. BREATHER BLOCK

BB



Description

The breather block provides corrosion protection of the actuator spring chamber. It should be used on applications where the actuator is located in a corrosive atmosphere which would otherwise be sucked into the actuator through the "B" port during the spring stroke.

The breather block is fixed directly onto the NAMUR air entry manifold and has a further NAMUR interface so that a suitable solenoid valve may be directly mounted, or for a tubing connection in the case of a remote solenoid valve.

The breather block has an inbuilt quick exhaust function to improve the spring stroke time (see table). An optional speed control can be provided to regulate the closing time.

Operation

Air entering the actuator at A1 moves the shuttle valve to the right and allows the actuator to operate normally, displaced air from "B" is exhausted through "B1".

At the spring stroke, air is exhausted at "A1" and the shuttle valve moves to the left allowing the air from "A" to first fill the spring chamber through "B" then to exhaust to atmosphere at "B1".

General Specification

- Housing : Aluminum alloy
- Finish : Hard anodized, impregnated with PTFE
- Pressure : 20 to 120 psi
- Media : Air, dry or lubricated or non-corrosive gas (not suitable for oxygen service)
- Temperature : -4°F to 125°F
- Air entry : 1/4" NPT
- Air exhaust : G 3/8" (or 1/8" with speed control)
- Air flow : (CV)
- Air stroke : 3.52 (US gallon/min.)
- Spring stroke : 8.37 (US gallon/min.)

Identification

- Factory option: : "BB" is added to the basic actuator part Nr. i.e.. ES200+BB
- Kit option: : Kit BB
- With speed control: : Kit BBS

Dim. in inches	Actuator type										
	E25	E40	E65	E100	E200	E350	E600	E950	E1600	P2500	P4000
B PS/ES	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.94	4.45	4.92	5.43	6.42	7.91	9.84	11.38	12.87	15.20	16.14
D	3.27	3.78	4.21	4.61	5.39	7.15	8.52	9.51	10.81	14.09	15.35
Operating times in sec. (at 80 PSI with average load)											
Air stroke	0.35	0.4	0.5	0.53	0.78	1.13	1.68	2.63	4.11	4.73	8.63
Spring stroke	0.33	0.36	0.42	0.44	0.58	0.8	1.12	1.69	2.57	2.94	5.26

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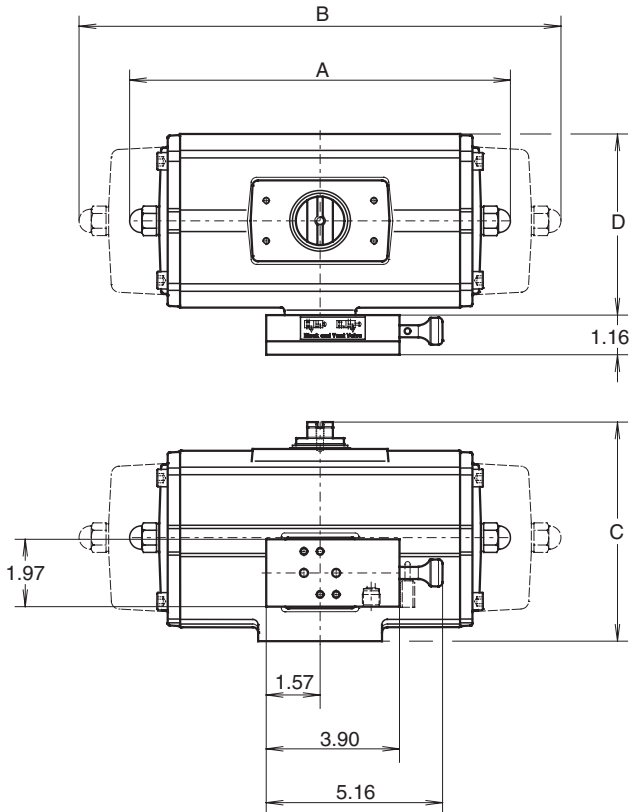
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Data sheet

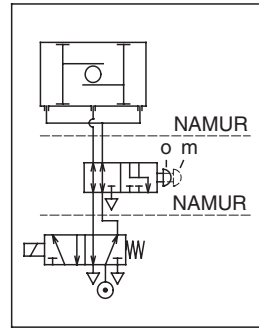
Sheet No.: A3.130 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH BLOCK AND VENT VALVE

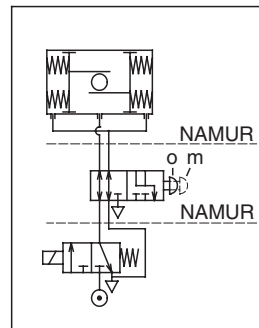
BV



DOUBLE ACTING



SINGLE ACTING



Description

This ancillary provides a local means of blocking the supply air from the actuator at the same time venting all compressed air from both chambers of the actuator. It is for double acting or spring return actuators and should be used on applications where "On site" servicing of the actuator is required and where the actuator needs to be isolated from the control system.

The valve block is fixed directly onto the NAMUR air entry manifold and has a further NAMUR interface so that a suitable solenoid valve may be directly mounted. Use extra long bolts (not supplied); standard bolts delivered with solenoids will be too short.

The "Block and Vent" valve has a two position manual control for switching between the "O" (open) and "M" (manual or maintenance) position. An indicator shows which position is selected.

Operation

With the control in the "O" position both actuator ports are open to solenoid valve for normal control of the actuator.

With the control in the "M" position both actuator ports are opened to exhaust and supply air from the solenoid valve is blocked off.

Option

A lockable version is available, this can be locked in the "O" position by means of a padlock. Padlock not supplied.

Specification

Valve Housing	: Aluminum Alloy
Finish	: Anodized
Air pressure	: to 120 psi
Lubrication	: Not necessary
Temperature	: -4°F to 176°F
Air Ports	: 1/4" NPT
Air flow: (CV)	: 0.93 (US gallon/min.)
Media	: Air, dry or lubricated or non-corrosive gas (not suitable for oxygen service)

Identification

Factory Option : "BV" is added to the basic actuator part Nr.
Example : ED200+BV

Kit:

Example : Kit BV

Dim. in inches	Actuator type										
	E25	E40	E65	E100	E200	E350	E600	E950	E1600	P2500	P4000
A PD/ED	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B PE/ES	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.94	4.45	4.92	5.43	6.42	7.91	9.84	11.38	12.87	15.20	16.14
D	3.27	3.78	4.21	4.61	5.39	7.15	8.52	9.51	10.81	14.09	15.35

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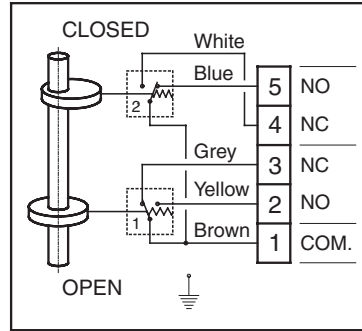
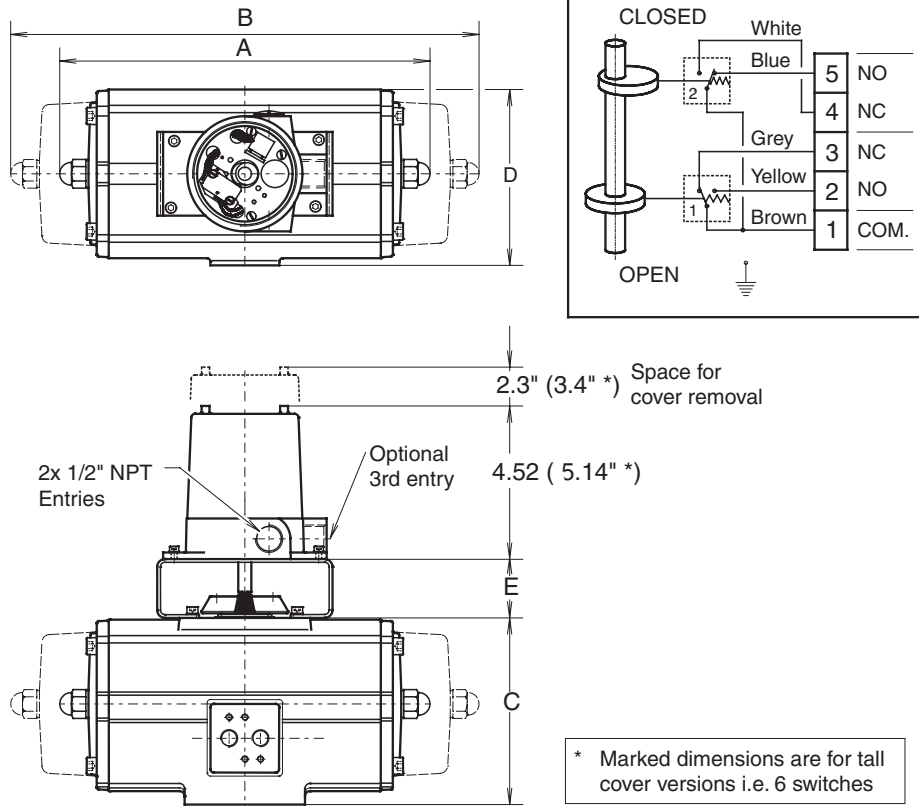


Data sheet

Sheet No.: A3.201.002 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH HD SWITCH BOX IP67

HD



Description

This heavy duty switch box encloses two single pole double throw switches for indicating the fully open and fully closed actuator positions.

The switches are operated by two cams on an extension of the actuator drive shaft and all mechanical parts are contained within the enclosure. Both switches are independently adjustable throughout the operating stroke, but are normally set to indicate at about 5° before each end position.

The enclosure is sealed to NEMA 4 and is certified Explosion Proof, Class I, Groups A, B, C, D, Class II, Groups E, F or G. The enclosure is also certified to U.S. Standards and may therefore bear the CSA monogram with the "CUS" indicator.

All six terminals of the two switches are prewired to a terminal block, which is easily accessible when the top cover is removed.

Two electrical entries are included, one of which is fitted with a blanking plug. This, with the addition of an extra pair of terminals, enables the switchbox to be used as a junction box for the solenoid wiring and provides the actuator with a single electrical entry.

The switch box is mounted on top of the actuator with an accessory bracket which incorporates a visual position indicator.

Specification

Switches	Type	: V3, mechanical
	Voltage	: 250 VAC or DC
	Amps	: 10 A at 250 VAC 1/4 A at 250 VDC 6 A at 12 VDC
	Contacts	: Normally open and normally closed
	Temperature	: -4°F to +176°F
Housing	Material	: Aluminum alloy AA Cast. Rec. 356.0
	Finish	: Epoxy coating
	Mounting	: Acc. VDI/VDE 3845 (NAMUR)
	Ingress protection	: NEMA 4
	Explosion proof	: Class I, groups A, B, C and D, Class II, group E, F or G
	Marking	: CSA monogram with "CUS" indicator

Options

Potentiometer, 4 or 6 switches, high temperature, high current, gold contacts, special finish etc.

Identification

HD

Dim. in	Actuator type											
	E12	E25	E40	E65	E100	E200	E 350	E600	E950	E1600	P2500	P4000
A - DA	4.06	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B - SR	4.65	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.15	3.94	4.45	4.92	5.43	6.42	7.91	9.84	11.38	12.87	15.20	16.14
D	2.36	3.27	3.78	4.21	4.61	5.39	7.17	8.54	9.53	10.83	14.09	15.35
E	1.77	1.77	1.77	1.77	1.77	1.77	1.77	2.17	2.17	2.17	2.17	2.17

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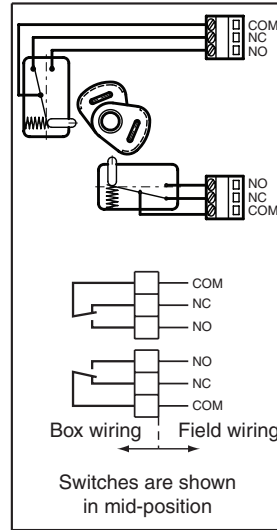
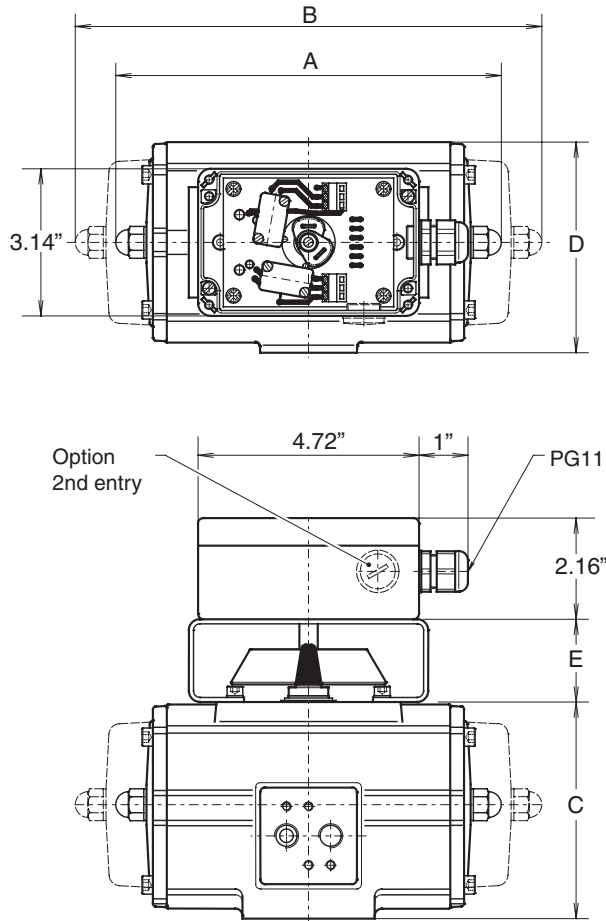

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Data sheet

Sheet No.: A3.214 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH SWITCHBOX

LDN



Description

This general purpose switch box encloses two single pole double throw change over switches for indicating the fully open and fully closed actuator positions.

The switches are operated by two cams on an extension of the actuator drive shaft and all mechanical parts are contained within the enclosure. All six terminals of the two switches are prewired to a terminal block which is easily accessible when the top cover is removed. The cover screws are captive.

Both switches are independently adjustable and are factory set to indicate at 5° before each end position. Switch is adjustable through the operating stroke and can be locked in any position after adjustment is complete.

The switch box is mounted on top of the actuator with an accessory bracket which incorporates a visual position indicator.

Specification

Switches

Type : Mechanical, V3
Voltage : 250 V AC or DC
Current : 11 A at 250 V AC 1 A at 12 V DC 0.25 A at 250 DC
Contacts : Normally open and normally closed
Temperature : -13°F to +158°F

Housing

Material : Base: ABS (black), cover: ABS clear
Main electrical entry : PG11, gland included
: Optional; 2nd entry
Enclosure : NEMA 4
Mounting : According VDI/VDE 3845 (NAMUR)
The E 12 has its own bracket

Options

IS2 : 2-wire P&F NJ2-V3 N, Intrinsically safe
PNP : 3-wire P&F NBB2-V3 E2, 10-30 VDC
NJ2 : 2-wire P&F NJ2-11-NG, Intrinsically safe

Identification

LDN

Dim. in	Actuator type											
	E12	E25	E40	E65	E100	E 350	E600	E950	E1600	P2500	P4000	
A - DA	4.06	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B - SR	4.65	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.15	3.94	4.45	4.92	5.43	6.42	7.91	9.84	11.38	12.87	15.20	16.14
D	2.36	3.27	3.78	4.21	4.61	5.39	7.17	8.54	9.53	10.83	14.09	15.35
E	1.77	1.77	1.77	1.77	1.77	1.77	1.77	2.17	2.17	2.17	2.17	2.17

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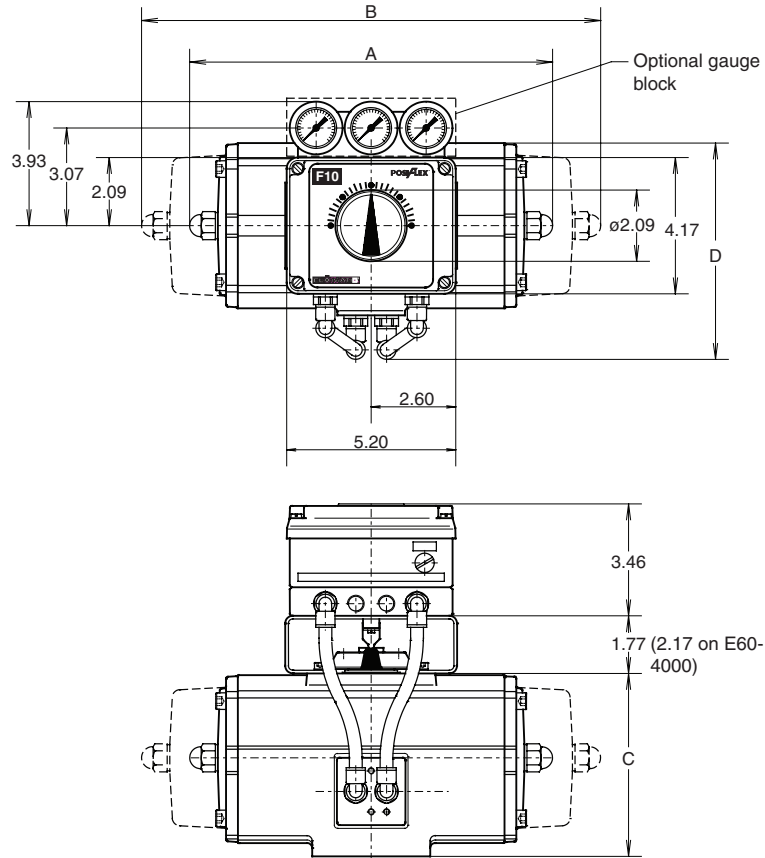
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Data sheet

Sheet No.: A3.301.1 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH PNEUMATIC POSITIONER

F10



Note:

- Dimensions are in inch.
- Other dimensions: please refer to the dimension sheets:
Actuators : A 1.103.xxx
Positioners : A 6.10x

Dim. in inches	Actuator type										
	E25	E40	E65	E100	E200	E350	E600	E950	E1600	P2500	P4000
A PD/ED	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B PE/ES	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.15	3.66	4.13	4.65	5.63	7.13	8.66	10.20	11.69	14.02	14.96
D	5.55	5.55	5.55	5.98	6.77	8.52	9.90	10.89	12.19	15.47	16.73

Description

The PosiFlex Pneumatic Positioner is a simple, single stage, force balance instrument. It provides stepless positional control for a wide variety of rotary pneumatic actuators, a single universal model can be used for double acting or single acting applications.

The basic design incorporates a high enhancement flapper and nozzle spool valve and an adjustable range and reversing mechanical feedback, this permits it to be simply adjusted for all the normal control functions such as split range, reverse acting, etc. without the use of additional components.

The modular construction allows the addition of a wide range of control options, these include micro switches, inductive switches, pressure gauges, position transmitters and volume boosters. Mounting is to Industry Standard VDI/VDE 3845 (NAMUR) with the drive coupling spring loaded for zero backlash. The standard mounting kit incorporates a visual position indicator.

General Specification

Hysteresis	: 0.6%	Air Entry	: ¼" NPT
Linearity	: 1.0%	Air Supply	: 20 to 125 psi
Air flow	: 7.4 SCFM (at 87 psi)	Input Signal	- Standard
Air Consumption	: 0.6 SCFM (at 87 psi)	- Adjustable	: 3 to 15 psi
Min. volume actuator	: 6.1 in ³	(Optional)	: 3 to 9 psi
Temperature	: -4°F to +176°F		: 9 to 15 psi
Mounting	: VDI/VDE 3845		

Media

: Non-lubricated instrument air, filtered at 25 micron
: Dew point should be 10°F below environmental temperature
: Air quality class 3-2-3 accord. to ISO 8573-1

Identification

: F10 for pneumatic positioner

Materials

: Housing : Aluminum Alloy
: Mechanical parts : Stainless steel
: Finish : Epoxy paint

Integrated Control Options

G1 : Gauge block, for instrument and two output pressure
G2 : Gauge block, for supply and two output pressure
PT2 : Position transmitter - 2 wire
S2 : Two Mechanical Switches
IS2 : Two Inductive Switches - 2 Wire (Intrinsically safe)
PNP : Two Inductive Switches - 3 Wire
POT : Potentiometer

EL-O-MATIC™

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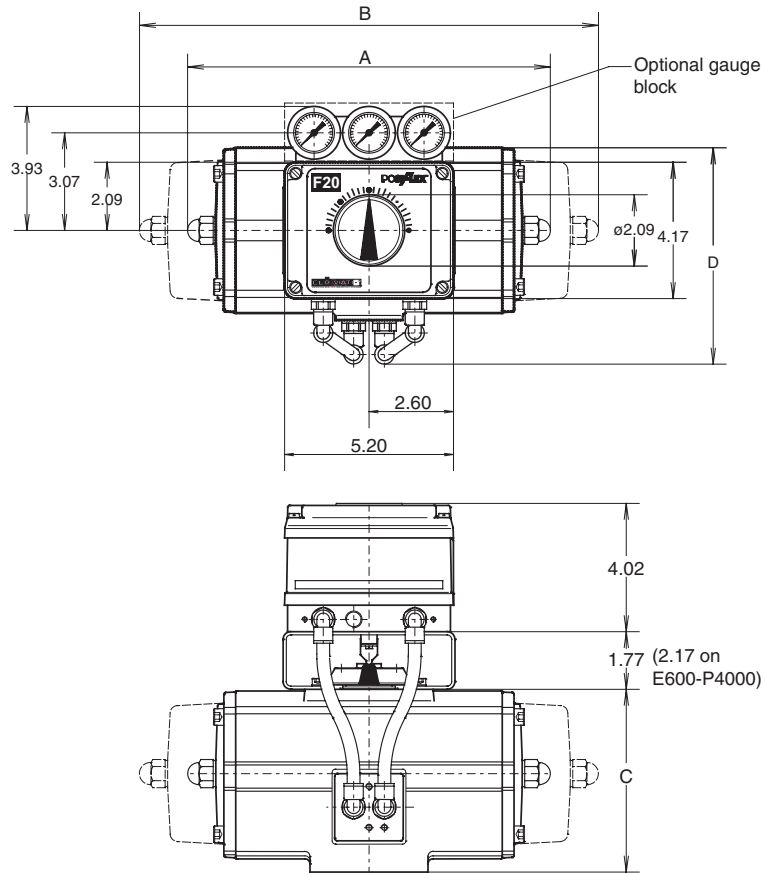

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Data sheet

Sheet No.: A3.301.2 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH ELECTRO-PNEUMATIC POSITIONER

F20



Note:

- Dimensions are in inch.
- Other dimensions: please refer to the dimension sheets:
Actuators : A 1.103.xxx
Positioners : A 6.10x

Dim. in inches	Actuator type										
	E25	E40	E65	E100	E200	E350	E600	E950	E1600	P2500	P4000
A PD/ED	6.26	7.09	7.83	8.70	11.14	12.01	15.24	16.69	20.31	14.88	19.76
B PE/ES	6.77	8.03	9.80	10.51	14.17	15.24	18.78	20.35	25.08	22.44	32.83
C	3.15	3.66	4.13	4.65	5.63	7.13	8.66	10.20	11.69	14.02	14.96
D	5.55	5.55	5.55	5.98	6.77	8.52	9.90	10.89	12.19	15.47	16.73

Description

The F20 is a universal Electro- Pneumatic Positioner, suitable for rotary actuators (single or double acting).

The F20 Positioner operates on the principle of analog electronic comparison. An analog 4-20 mA input signal is used to obtain an accurate position of the actuator.

The F20 is a true 2 wire instrument, with the 4-20 mA signal providing both the controlling signal and power supply for the electronics. An electronic module provides all the usual control characteristics: Zero, range and sensitivity are all electronically re-settable using trimmers on the control card.

A comprehensive range of integrated control options include gauges, switches, position transmitters.

Mounting is to the Industry Standard VDI/VDE 3845 (NAMUR) with the drive coupling spring loaded for zero backlash.

General Specification

Hysteresis	: 0.6%	Air Entry	: ¼" NPT
Linearity	: 1.0%	Air Supply	: 20 to 125 psig
Air Flow	: 7.4 SCFM (at 87 psi)	Electrical signal	: 2 wire :4 to 20 mA
Air Consumption	: 0.4 SCFM (at 87 psi)		: ≈ 8 VDC
Min. volume actuator	: 6.1 in3	Resistance	: 350 Ω (at 20 mA)
Temperature	: -4°F to +176°F	Electrical entry	: ½" NPT
Mounting	: VDI/VDE 3845		: (Option M20 x 1.5)
		Enclosure	: NEMA 3/ IP 54
			: (Option NEMA 4)

Media

- : Non-lubricated instrument air, filtered at 25 micron
- : Dew point should be 10°F below environmental temperature
- : Air quality class 3-2-3 accord. to ISO 8573-1

Materials

- : Housing : Aluminum Alloy
- : Finish : Epoxy paint

Integrated Control Options

- G2 : Gauge block, for supply and two output pressures
- PTF20 : Position transmitter - 2 Wire
- S2 : Two Mechanical Switches
- IS2 : Two Inductive Switches - 2 Wire (Intrinsically safe)
- PNP : Two Inductive Switches - 3 Wire
- POT : Potentiometer
- IS : Intrinsically safe positioner to EEx ib IIC T4
- LT : Low temperature: -58°F to +176°F

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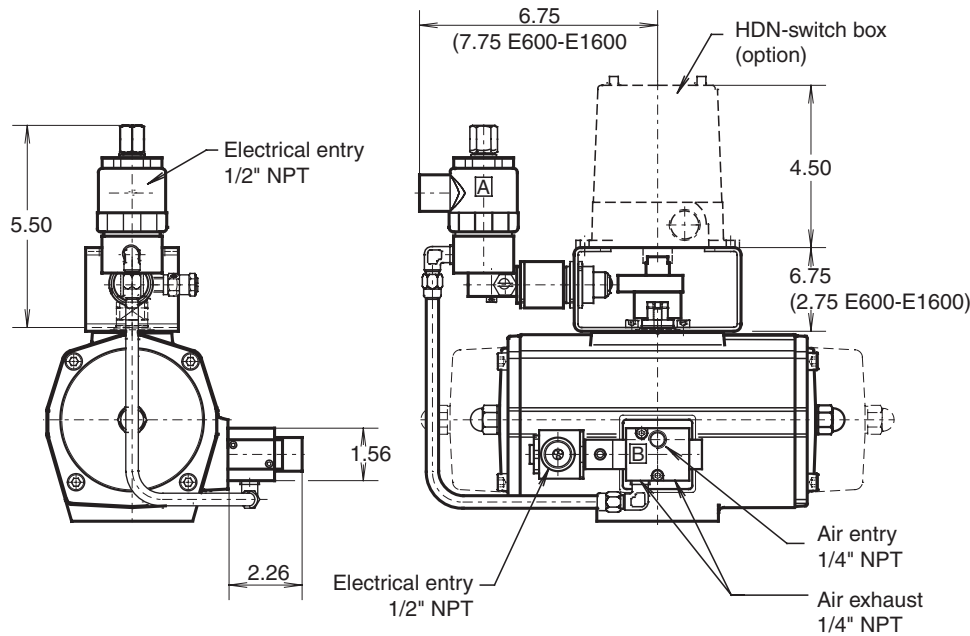
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Data sheet

Sheet No.: A3.308.1 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH DRIBBLE CONTROL

DC1



Description

For use on batching and filling systems where a two stage shut off is required, for instance in the filling sequence: CLOSED - FULL - OPEN - DRIBBLE - CLOSED. The system may be with either double acting or spring return actuators in conjunction with most ¼ turn valves.

The sequence is controlled electrically by two solenoid valves "A" and "B". With both solenoids "ON" the actuator moves full open, as "B" is de-energised movement is to the dribble position and with both solenoids "OFF" the actuator returns to the closed position.

The dribbled position is sensed by a pneumatic valve witch is operated by a cam on the top shaft extension, this is fully adjustable through the 90° stroke. The top mounting bracket has provision for the installation of the "HDN" switch box (option), which may be fitted with a third switch to indicate the dribble position.

The system moves to the "FAIL CLOSE" position on electrical failure. If fail close is required on air only, a spring return actuator should be used and a pressure sensing piloted solenoid valve "A" will be provided.

Specification

Air pressure : 20 to 120 psi
Temperature : -4° to 176°F
Repeatability : 1%
Other dimensions : see data sheet A1.103.xxx

Solenoid valves

Solenoid	Current (at 120VAC/60Hz.)		Power (Watts)
	in rush (A)	holding (A)	
A	.26	.16	12
B	.12	.07	7

Identification

"DC1" is added to the basic actuator part nr. i.e.. ES200-DC1

Options

Pneumatic fail safe, explosion proof, various voltages, intrinsically safe etc.

Operating sequence			
	Solenoid A	Solenoid B	Valve moves to position
1	OFF	OFF	CLOSED
2	ON	ON	FULL OPEN
3	ON	OFF	DRIBBLE
4	OFF	OFF	CLOSED

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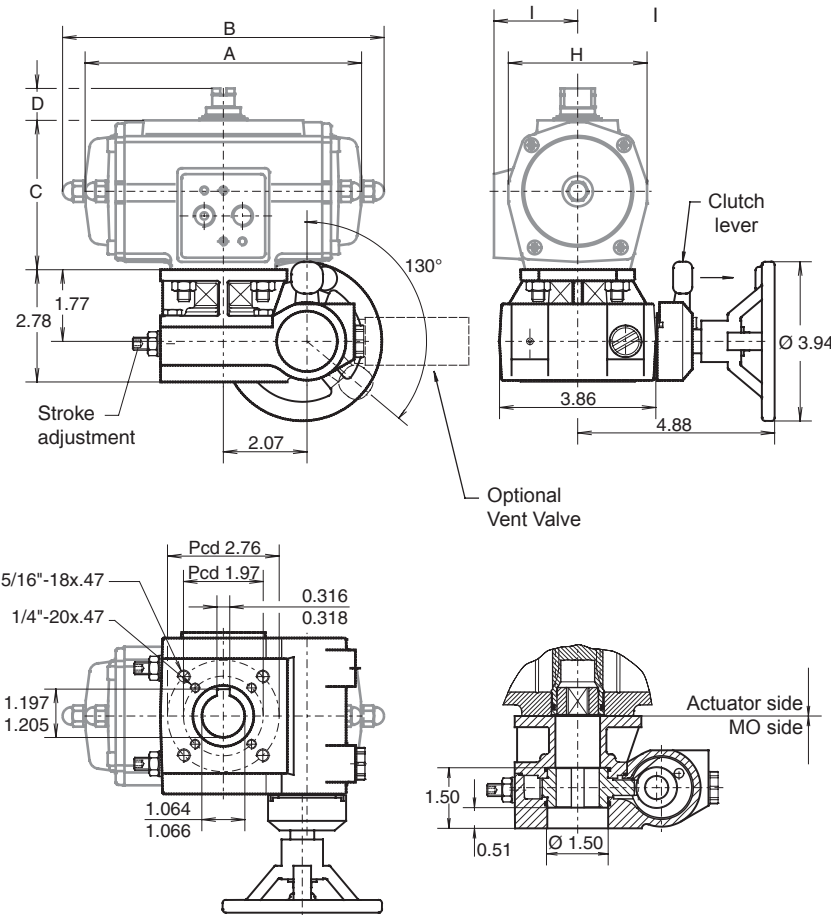
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Data sheet

Sheet No.: A3.402.1 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH MANUAL OVERRIDE

MO-10



Dimensions in inches	E25	E40	E65
A ED	6.26	7.09	7.83
B ES	6.77	8.03	9.80
C	3.15	3.66	4.13
D	0.79	0.79	0.79
H	2.91	3.38	3.86
I	1.81	2.09	2.26

Description

The El-O-Matic MO Series declutchable gear operators offer simple and reliable manual positioning of valves, dampers and other quarter-turn devices when overriding, existing pneumatic or hydraulic rotary actuators. All El-O-Matic MO-units are suitable for indoor and outdoor use and combine rugged construction, light weight and modular design to provide the most efficient and cost effective solution to a full range of manual override requirements.

The self-locking worm gear design means safe and easy operation, positive manual positioning and extremely long life.

The El-O-Matic override can be adapted to any quarter-turn actuator and may even be installed in the field on existing valves.

Operation

To engage manual operation, first pull out the spring loaded clutch lever, then rotate the clutch lever clockwise until the clutch lever re-engages. Anticlockwise lever movement disengages manual operation and returns the system to automatic operation.

Note: When under manual control, the valve remains locked in the last set position.

Stroke adjustment

The MO gearbox is equipped with two stroke adjustment bolts. These must be set for accurate valve positioning and to avoid damage to the actuator or valve spindle during manual operation. The limit stops on actuators are redundant in combination with MO-gearboxes. For stroke angle less than 80° please consult our engineering department.

Identification

For basic override : MO-10
For complete assemblies : E25+MO-10

Assembly codes

A - Standard
B - Reversed operation: handwheel on the other side (factory option)

Specification

Body	: Cast aluminum	Movement	: 0° - 90°
Gear quadrant	: Aluminum bronze	Finish	: Two part polyurethane coating
Worm shaft	: High grade aluminum / hard anodized	Weight	: 3.3 lb
Temperature	: -4°F to +176°F	Fasteners	: Stainless steel
Stroke adjustment	: +5° and -5° at each end		

Input / Output

At rim	No. of turns	: 9.5
	Max. input force	: 18.43 lb
At output shaft	Max. output torque	: 885 in.lb

Optional

Electric position indication and vent valves (A3.403)



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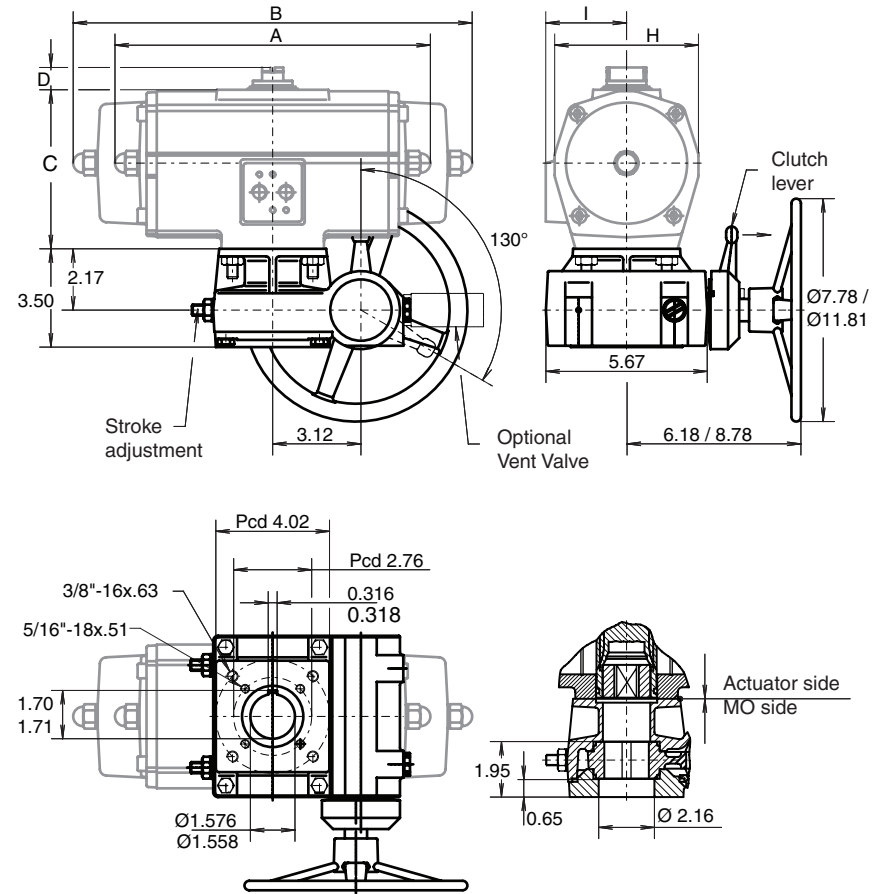
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Data sheet

Sheet No.: A3.402.2 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH MANUAL OVERRIDE

MO-50



Dimensions in inches	E100	E200
A ED	8.70	11.14
B ES	10.51	14.17
C	4.65	5.63
D	0.79	0.79
H	4.25	5.04
I	2.48	2.87

Description

The El-O-Matic MO Series declutchable gear operators offer simple and reliable manual positioning of valves, dampers and other quarter-turn devices when overriding, existing pneumatic or hydraulic rotary actuators. All El-O-Matic MO-units are suitable for indoor and outdoor use and combine rugged construction, light weight and modular design to provide the most efficient and cost effective solution to a full range of manual override requirements.

The self-locking worm gear design means safe and easy operation, positive manual positioning and extremely long life.

The El-O-Matic override can be adapted to any quarter-turn actuator and may even be installed in the field on existing valves.

Operation

To engage manual operation, first pull out the spring loaded clutch lever, then rotate the clutch lever clockwise until the clutch lever re-engages. Anticlockwise lever movement disengages manual operation and returns the system to automatic operation.

Note: When under manual control, the valve remains locked in the last set position.

Stroke adjustment

The MO gearbox is equipped with two stroke adjustment bolts. These must be set for accurate valve positioning and to avoid damage to the actuator or valve spindle during manual operation. The limit stops on actuators are redundant in combination with MO-gearboxes. For stroke angle less than 80° please consult our engineering department.

Identification

For basic override : MO-50 and indication of actuator size, e.g. : MO-50 for E200
For complete assemblies : E200+MO-50

Assembly codes

A - Standard
B - Reversed operation: handwheel on the other side (factory option)

Specification

Body	: Cast aluminum	Movement	: 0° - 90°
Gear quadrant	: Aluminum bronze	Finish	: Two part polyurethane coating
Worm shaft	: High grade aluminum / hard anodized	Weight	: 9.7 lb
Temperature	: -4°F to +176°F	Fasteners	: Stainless steel
Stroke adjustment	: +5° and -5° at each end		

Input / Output

At rim	No. of turns	: 10
	Max. input force	: 89.92 lb
At output shaft	Max. output torque	: 4425.4 in.lb

Optional

Electric position indication and vent valves (A3.403)



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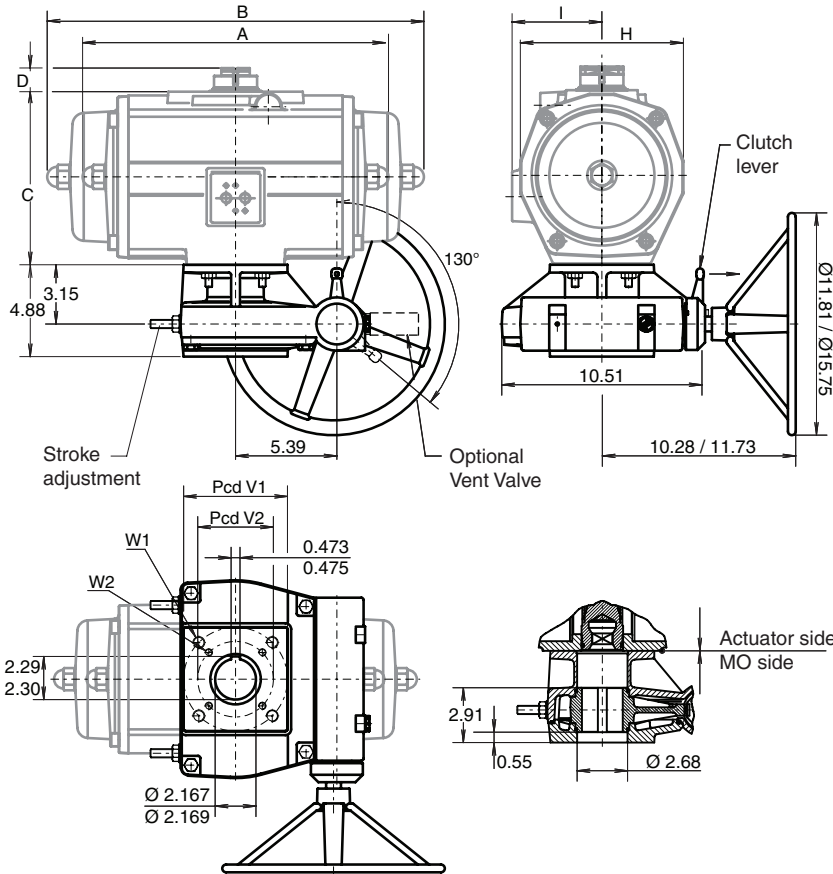
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Data sheet

Sheet No.: A3.402.3 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH MANUAL OVERRIDE

MO-160



Dim. in inches	E350	E600	E950		E350	E600	E950
A (ED)	12.01	15.35	17.32	Pcd V1	5.512	4.921	5.512
B (ES)	15.24	18.90	20.94	Pcd V2	4.016	-	4.016
C	7.13	8.66	10.20	W1	5/8"-11 x.87	5/8"-11 x.87	5/8"-11 x.87
D	0.79	1.18	1.18	W2	3/8"-16 x.63	3/8"-16 x.63	3/8"-16 x.63
H	6.81	8.15	9.09	Handwheel dia.	11.8	15.7	15.7
I	3.71	4.45	4.96				

Description

The El-O-Matic MO Series declutchable gear operators offer simple and reliable manual positioning of valves, dampers and other quarter-turn devices when overriding, existing pneumatic or hydraulic rotary actuators. All El-O-Matic MO-units are suitable for indoor and outdoor use and combine rugged construction, light weight and modular design to provide the most efficient and cost effective solution to a full range of manual override requirements.

The self-locking worm gear design means safe and easy operation, positive manual positioning and extremely long life.

The El-O-Matic override can be adapted to any quarter-turn actuator and may even be installed in the field on existing valves.

Operation

To engage manual operation, first pull out the spring loaded clutch lever, then rotate the clutch lever clockwise until the clutch lever re-engages. Anticlockwise lever movement disengages manual operation and returns the system to automatic operation.

Note: When under manual control, the valve remains locked in the last set position.

Stroke adjustment

The MO gearbox is equipped with two stroke adjustment bolts. These must be set for accurate valve positioning and to avoid damage to the actuator or valve spindle during manual operation. The limit stops on actuators are redundant in combination with MO-gearboxes. For stroke angle less than 80° please consult our engineering department.

Identification

For basic override : MO-160 and indication of actuator size, e.g. : MO-160 for E350
For complete assemblies : P500+MO-160

Assembly codes

A - Standard
B - Reversed operation: handwheel on the other side (factory option)

Specification

Body	: Cast aluminum	Movement	: 0° - 90°
Gear quadrant	: Aluminum bronze	Finish	: Two part polyurethane coating
Worm shaft	: High grade aluminum / hard anodized	Weight	: 22.49 lb
Temperature	: -4°F to +176°F	Fasteners	: Stainless steel
Stroke adjustment	: +5° and -5° at each end		

Input / Output

At rim	No. of turns	: 20
	Max. input force	: 89.92 lb
At output shaft	Max. output torque	: 14161.3 in.lb

Optional

Electric position indication and vent valves (A3.403)

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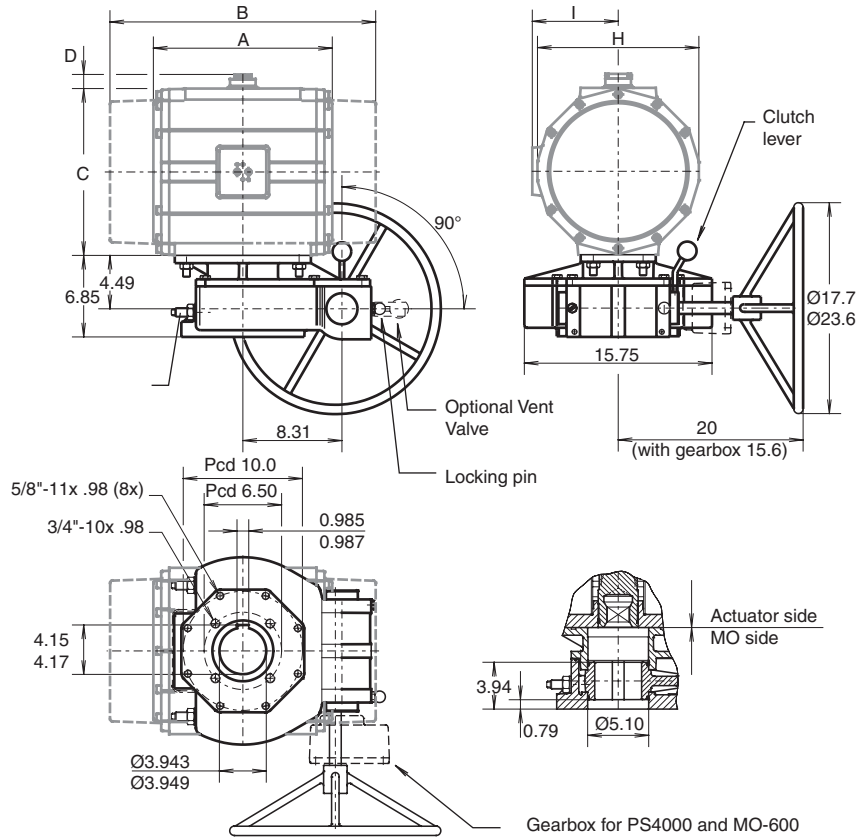

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Data sheet

Sheet No.: A3.402.4 Rev. A
Date: November 2009

EL-O-MATIC ACTUATOR WITH MANUAL OVERRIDE

MO-520/600



Dim. in	MO-520			MO-600
	ED1600	PD2500	PD4000	PS4000
inches	ES1600	PS2500		
0				
A ED	20.47	14.88	19.76	-
B ES	25.24	22.44	-	32.83
C	11.69	14.02	14.96	14.96
D	1.18	1.18	1.18	1.18
H	10.43	13.78	14.96	14.96
I	5.59	7.28	7.87	7.87
Handwheel dia.	17.7	17.7	23.6	17.7

Description

The EI-O-Matic MO Series declutchable gear operators offer simple and reliable manual positioning of valves, dampers and other quarter-turn devices when overriding, existing pneumatic or hydraulic rotary actuators. All EI-O-Matic MO-units are suitable for indoor and outdoor use and combine rugged construction, light weight and modular design to provide the most efficient and cost effective solution to a full range of manual override requirements.

The self-locking worm gear design means safe and easy operation, positive manual positioning and extremely long life. The EI-O-Matic override can be adapted to any quarter-turn actuator and may even be installed in the field on existing valves.

Operation

To engage manual operation, first pull the spring loaded locking pin, then rotate the clutch lever clockwise until the clutch lever re-engages. Anticlockwise lever movement disengages manual operation and returns the system to automatic operation.

Note: When under manual control, the valve remains locked in the last set position.

Stroke adjustment

The MO gearbox is equipped with two stroke adjustment bolts. These must be set for accurate valve positioning and to avoid damage to the actuator or valve spindle during manual operation. The limit stops on actuators are redundant in combination with MO-gearboxes. For stroke angle less than 80° please consult our engineering department.

Identification

For basic override : MO-520 and indication of actuator size,
e.g.: MO-520 for P2500 or MO-600 for PE4000
For complete assemblies : P2500+MO-520 or PE4000+MO-600

Assembly codes

A - Standard
B - Reversed operation: handwheel on the other side (factory option)

Specification

Body	: Cast aluminum	Stroke adjustment	: +5° and -5°
Drive sleeve / gear quadrant	: Cast iron / bronze	Movement	: 0° - 90°
Worm	: Steel	Finish	: Two part polyurethane coating
Shaft	: Stainless steel (AISI 430F)	Fasteners	: Stainless steel
Temperature	: -4°F to +176°F		

Input / Output

	MO-520	MO-600
At rim	No. of turns : 22	: 48
	Max. input force : 89.82 lb	: 40.47 lb
At output shaft	Max. output torque : 46024 in.lb	: 53104 in.lb
Weight	: 79.4 lb	: 83.8 lb

Optional

Electric position indication and vent valves (A 3.403)

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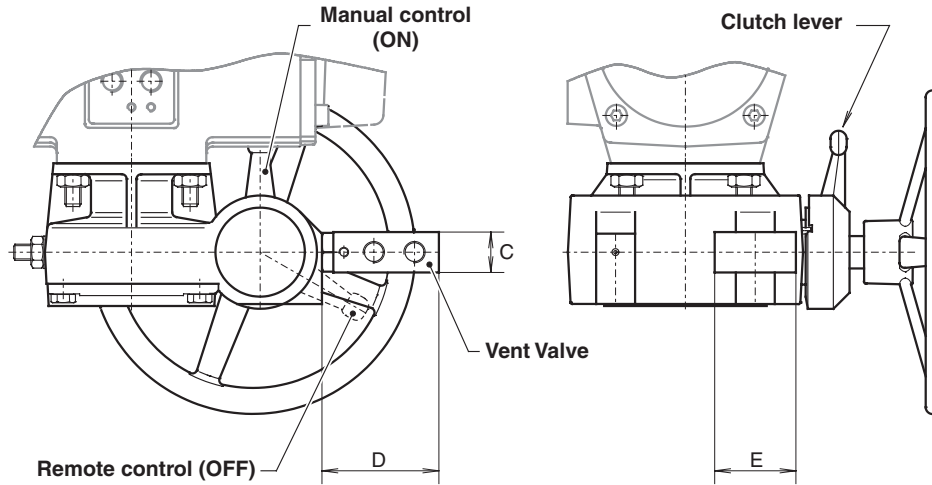
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Data sheet

Sheet No.: A3.403 Rev. A
Date: November 2009

EL-O-MATIC VENT VALVE FOR MANUAL OVERRIDE GEARBOX

MO



Description

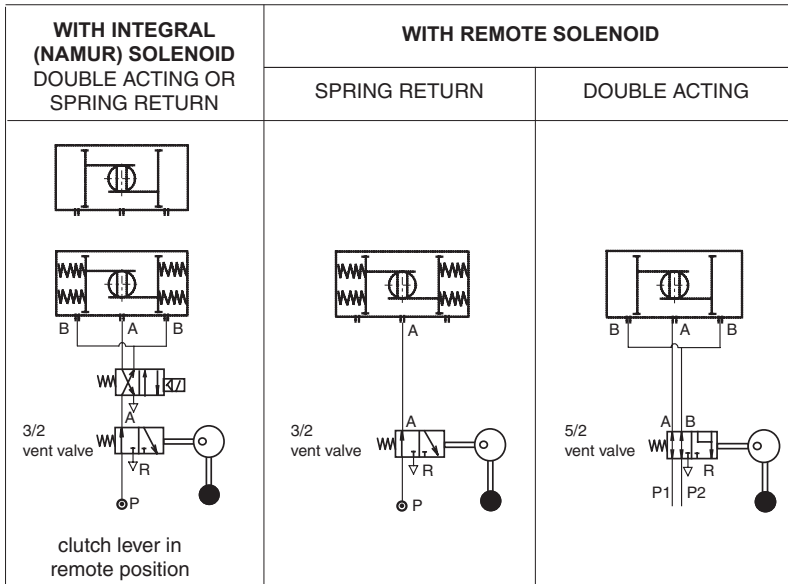
Every MO Series gearbox has a provision for fitting a vent valve to automatically exhaust air from the actuator in order to override the remote control system.

Operation

- 1) With the hand lever in the OFF position the handwheel is disengaged and the valve is under remote control.
- 2) When in ON position, the handwheel is engaged and air is exhausted via the vent valve.
The valve will remain locked in this last position until operated with the clutch lever to OFF position again.

Art.nr.:

Double acting : 310.00.622
Single acting : 310.00.322
Connections : 1/4" NPT
CV : 0.8
Body material : Aluminum alloy
Temperature range : -4°F to +176°F
Finish : Anodized



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