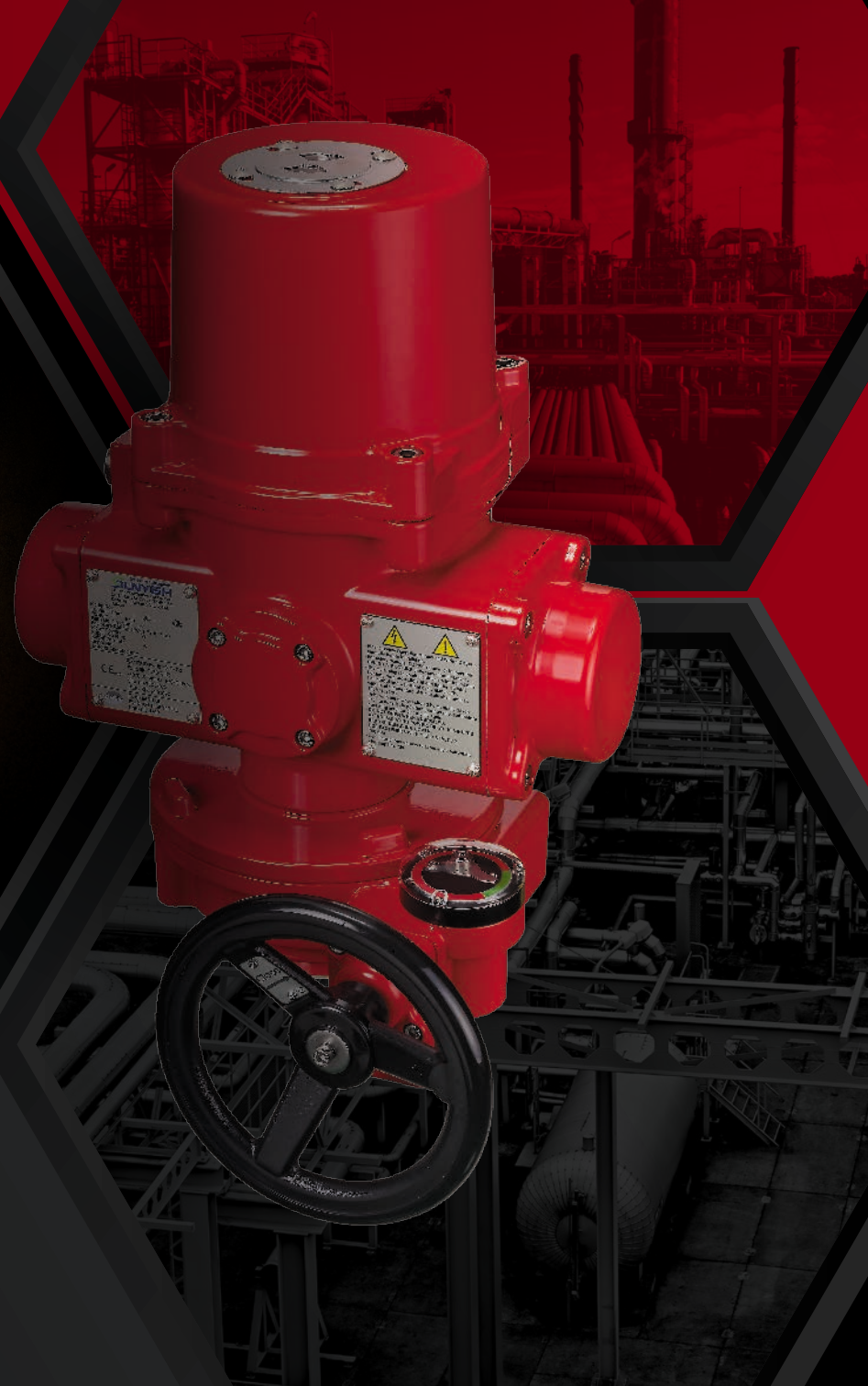
EXPLOSION-PROOF ELECTRIC VALVE ACTUATORS



SUNYEH

SE / LE / OME series

www.sunyeh.com

Perfect Solution






COMPANY PROFILE

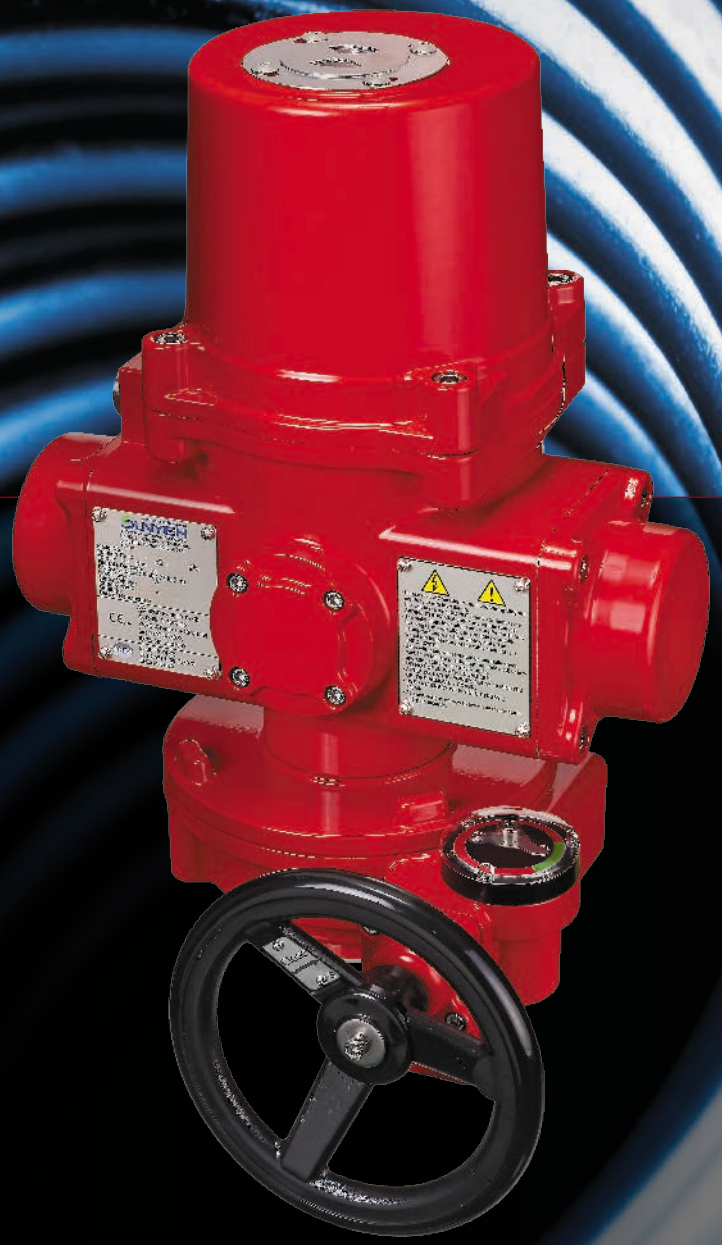
Sun Yeh Electrical Ind. Co., Ltd. was established in 1986 and it is committed to continuous technical innovation, the most advanced product quality management, organizational excellence, and outstanding customer satisfaction.

Our sustainable development drives the product line extension to include quarter-turn actuators, spring return fail-safe actuators, SuperCap fail-safe actuators, linear actuators, multi-turn actuators, and explosion-proof actuators. Sun Yeh offers various products that can be widely applied to the control of industrial processes, fluid control, water treatment, HVAC, chemical engineering, food processing, etc.

Sun Yeh is dedicated to providing you with high-quality products, which have been certified with CE, CSA, CCC, ATEX, IECEx, CNEx, TS, JPEx and SIL approvals, as well as meet with RoHS and REACH environmental regulations, in addition to ISO 9001, ISO 14001, ISO 45001, and AEO.

SE series

Explosion-proof Spring Return Fail-safe Electric Valve Actuators



PRODUCT OVERVIEW

SE series explosion-proof spring return fail-safe actuators offer torque ranges from 50 Nm to 260 Nm (445 in-lb to 2300 in-lb). They are designed for the fail-safe positioning of valves or dampers upon loss of supply voltage and include On-Off control, floating control and modulating control. A rack and pinion spring mechanism is used to position the controlled device to either Fully OPEN or Fully CLOSED positions without any external power source. For On-Off type, a mechanical BUFFER is used at the end of the spring stroke to reduce the water hammer effects in pipes. A clutch-less manual override is optional to provide manual positioning of the controlled device.

SE series explosion-proof spring return fail-safe electric actuators are structured as flame-proof and combustible dust-proof. The directive and standards marking is II 2 GD Ex db IIB T4 Gb, Ex db h IIB T4 Gb, Ex tb IIIC T130°C Db, Ex tb h IIIC T130°C Db where it is classified as Zone 1 or Zone 2, containing Group IIA and Group IIB gases, Zone 21 or Zone 22, containing the combustible dust atmospheres or a mixture of explosive gas atmospheres and combustible dust atmospheres. It is suitable for temperature classes T1 to T4.

SE series

Explosion-proof
Spring Return Fail-safe Electric Valve Actuators

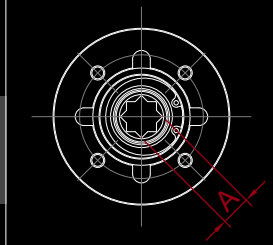
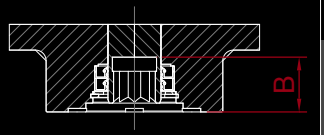
PRODUCT FEATURES

- Enclosure IP68 (7m, 72 hrs).
- Controls: On-Off, floating (optional), modulating (optional).
- Clutch-less manual override (optional).
- ISO 5211 mounting flange.
- Mechanical position indicator.
- Built-in motor thermal protection.
- Springs are utilized to store kinetic energy to close a valve or damper every time, ensuring fail-safe operation during emergencies without relying on batteries or other external power supplies.
- For On-Off units, a mechanical BUFFER is employed at the end of the spring stroke to reduce the dynamic effects caused by the spring return system.

STANDARD SPECIFICATIONS

- Available supply voltages: 24 V AC, 24 V DC, 110 - 120 V AC, 220 - 240 V AC, 380 V AC, 440 V AC.
- Dry powder coated aluminum alloy enclosure.
- 50% duty cycle.
- Motor insulation class F.
- Continuous mechanical position indicator.
- The actuator comes standard with On-Off (two-position) control, two SPDT limit switches, and is configured with a clockwise spring return for fail-closed operation during a power outage.
- Relative humidity: 30 to 95%
- Ambient temperature: -30°C to +70°C (-22°F to +158°F)

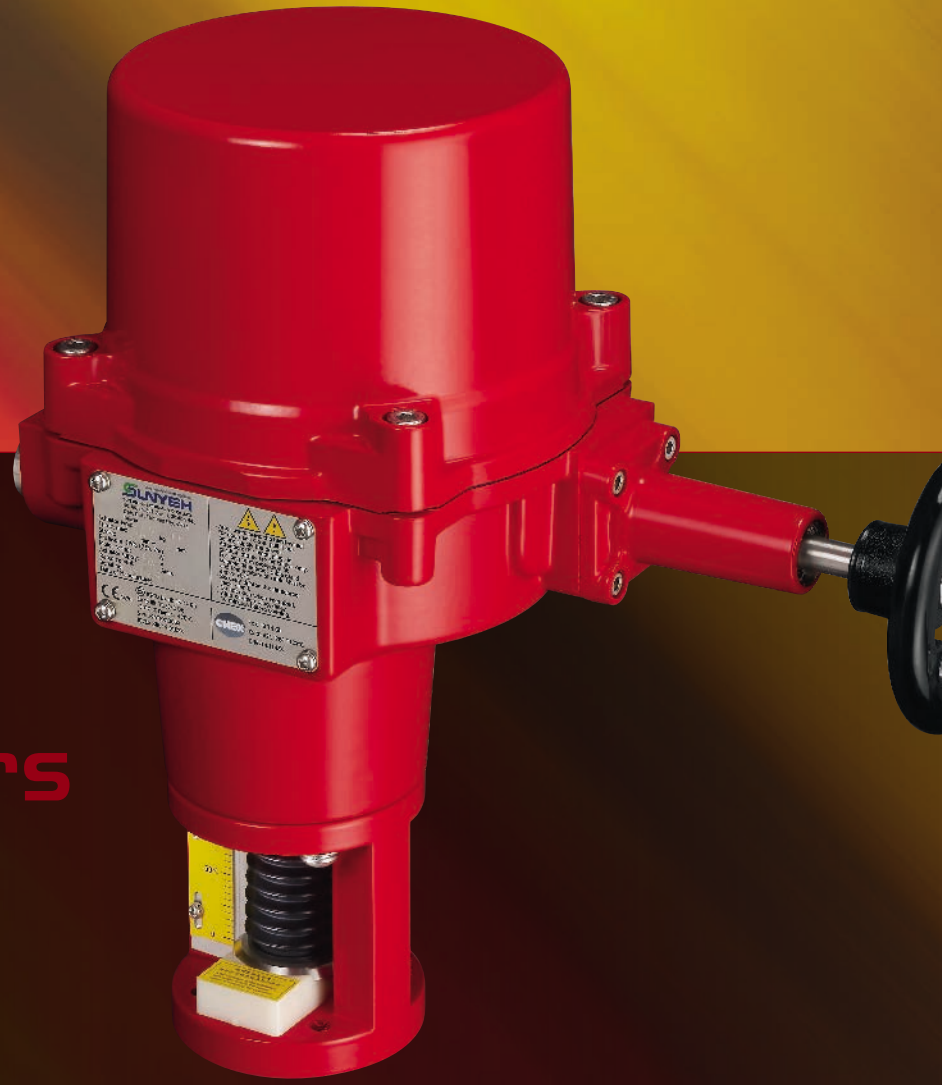
TECHNICAL INFORMATION

Model		Torque		Nominal Motor Power	Running Time		Weight				Mounting Base		
					Motor	Spring	Standard		W / Manual Override		Flange Type	Output Drive (A)	Output Drive Depth (B)
		Nm	in-lb	W	(Sec / 90˚)	(Sec / 90˚)	kg	lb	kg	lb	ISO 5211	mm	mm
SE-500		50	445	50	7	3	28	62	38.5	85	F07	17	30
SE-1300		130	1150	130	7	8	63	139	83	183	F10	22	41
SE-2000		200	1770	130	11	12	96	212	135	298	F12	27	45
SE-2600		260	2300	130	14	12	96	212	135	298	F12	27	45

• The running time is based on 110 V AC @ 60Hz, 50% duty cycle, On-Off control.

LE series

Explosion-proof
Linear
Electric Valve Actuators



PRODUCT OVERVIEW

LE series explosion-proof linear electric actuators offer thrust ranges from 250 to 2,000 kgf (550 to 4410 lbf). All models are equipped with modulating controllers and suitable for globe valves, gate valves and linear travel devices (maximum stroke: 100 mm / 4 inch). These units can be applied to HVAC and industrial processes, especially for steam and high temperature applications.

LE series explosion-proof linear electric actuators are structured as flame-proof and combustible dust-proof. The directive and standard marking is II 2 GD Ex db IIB T4 Gb, Ex tb IIIC T130°C Db. They are control devices for valves and can be used in places, classified as Zone 1 or Zone 2, containing Group IIA and Group IIB gases, Zone 21 or Zone 22, containing combustible dust atmospheres or a mixture of explosive gas atmospheres and combustible dust atmospheres. It is suitable for temperature classes T1 to T4.

LE series

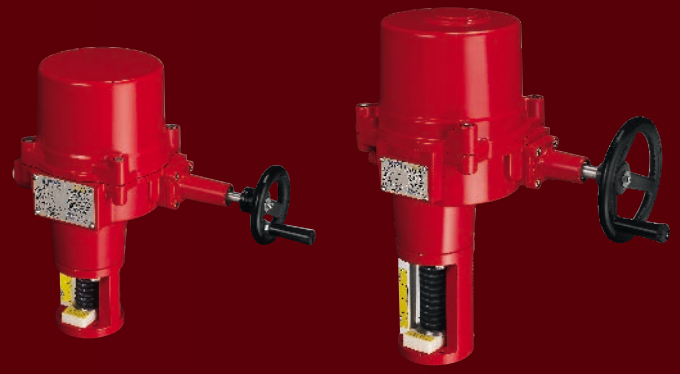
Explosion-proof Linear Electric Valve Actuators

PRODUCT FEATURES

- Enclosure IP68 (7m, 72 hrs).
- High alloy-steel gear trains with self-locking prevent back-drive.
- DC motor equipped with 75% duty cycle.
- External stem position indicator.
- Low-power consumption.
- Manual operation can be applied in case of power outage.
- Built-in motor thermal protection.
- ISO 5210 mounting flange.
- Thrust overload protection: The force switches trip the motor when the output force exceeds the rated.
- Adjustable stroke allows the stroke length to be adjusted to suit valve stem.

STANDARD SPECIFICATIONS

- Available supply voltages: 24 V AC, 24 V DC, 110 - 120 V AC, 220 - 240 V AC.
- Dry powder coated aluminum alloy enclosure.
- Thrust overload protection.
- 2 force switches and modulating control are provided as standard.
- Motor insulation class F.
- Relative humidity: 30 to 95%
- Ambient temperature: -30°C to +70°C (-22°F to +158°F), for CSA: -30°C to +65°C (-22°F to +149°F)



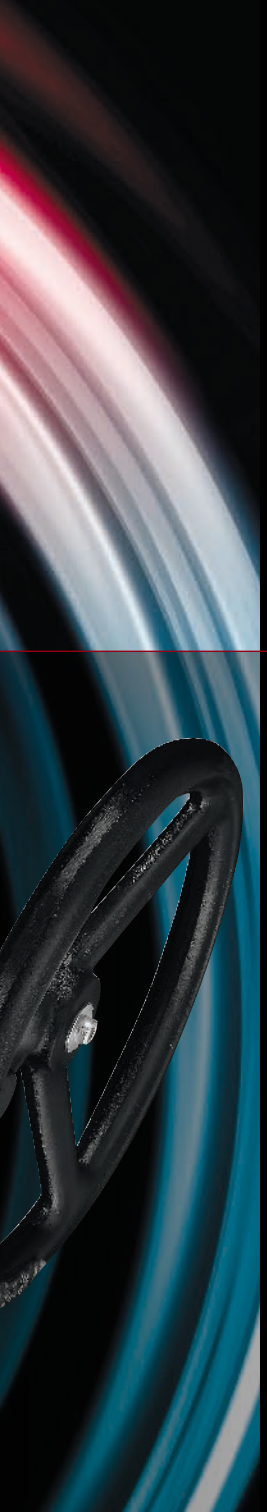
TECHNICAL INFORMATION

Model	Thrust			Weight		Nominal Motor Power	Speed		Flange Type	Max. Stroke Length	
	kgf	lbf	kN	kg	lb	W	mm / sec	inch / sec	ISO 5210	mm	inch
LE-250	250	550	2.45	10.5	23.5	15	0.46	0.018	F07	50	2
LE-500	500	1100	4.9	10.5	23.5	15			F07	50	2
LE-1000	1000	2205	9.805	31.5	69.5	35			F10	100	4
LE-2000	2000	4410	19.615	31.5	69.5	35			F10	100	4

• The running speed is based on 110 V AC @ 60Hz, 75% duty cycle.

OME series

Explosion-proof Quarter-turn Electric Valve Actuators



PRODUCT OVERVIEW

OME series explosion-proof quarter-turn electric actuators offer torque ranges from 35 Nm to 1,500 Nm (310 in-lb to 13,280 in-lb). Product design is based on a self-locking worm drive principal, which provides for a smooth running, dependable, robust drive system. All models are ISO 5211 compliant, have a visual position indicator on top of the actuator cover, and have manual override, except for OME-A. The manual operation features a non-clutch design, allowing it to be operated without the need for any lever, clutch, or brake upon power outage.

OME series explosion-proof quarter-turn electric actuators are structured as flame-proof and combustible dust-proof. The directive and standard marking is II 2 GD Ex db IIB T4 Gb, Ex tb IIIC T130°C Db. They are classified as Zone 1 or Zone 2, containing Group IIA and Group IIB gases, Zone 21 or Zone 22, containing combustible dust atmospheres or a mixture of explosive gas atmospheres and combustible dust atmospheres. It is suitable for temperature classes T1 to T4.

OME series

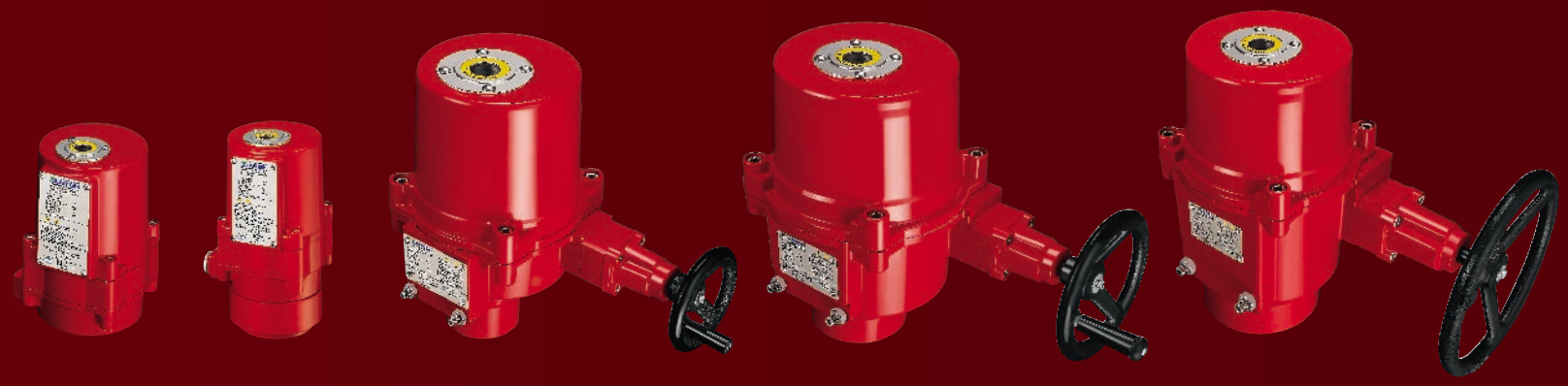
Explosion-proof Quarter-turn Electric Valve Actuators

PRODUCT FEATURES

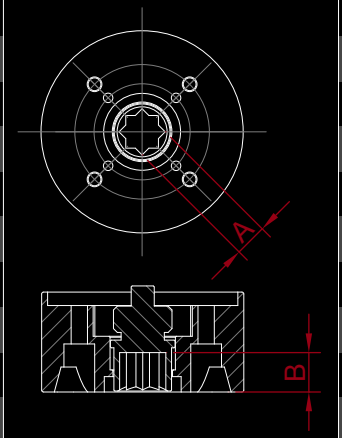
- Enclosure conforms to IP66, IP68 (7m, 72 hrs)
- Self-locking gear system.
- ISO 5211 mounting flange.
- Visual mechanical position indication.
- Mechanical stops (except OME-1, OME-A, OME-AM).
- Clutch-less manual override.
- Built-in motor thermal protection.

STANDARD SPECIFICATIONS

- Available supply voltages: 12 V DC, 24 V AC, 24 V DC, 110 - 120 V AC, 220 - 240 V AC.
- Dry powder coated aluminum alloy enclosure.
- 30% duty cycle.
- Motor insulation class F.
- 2 limit switches, torque switches (except OME-1, OME-A, OME-AM), and On-Off / floating control are provided as standard.
- Relative humidity: 30 to 95%
- Ambient Temperature: -30°C to +70°C (-22°F to +158°F)



TECHNICAL INFORMATION

Model		Torque		Weight		Nominal Motor Power	Running Time	Manual Override	Flange Type	Output Drive (A)	Output Drive Depth (B)
		Nm	in-lb	kg	lb	W	(Sec / 90˚)		ISO 5211	mm	mm
OME-1		35	310	3.5	8	10	11	Lever	F03 / F05	14	17
OME-A		50	445	4.5	10	10	21	N / A	F07	17	20
OME-AM		50	445	4.5	10	10	21	Lever	F07	17	20
OME-2		90	800	17	37.5	40	18	Hand-wheel	F07	22	30
OME-3		150	1330	17	37.5	40	28		F07	22	30
OME-4		400	3540	31.5	69.5	80	20		F10	36	48
OME-5		500	4430	31.5	69.5	80	27		F10	36	48
OME-6		650	5755	31.5	69.5	80	36		F10	36	48
OME-7		1000	8855	47	104	120	52		F12 or F14	36	50
OME-8		1500	13280	47	104	120	54		F12 or F14	36	50

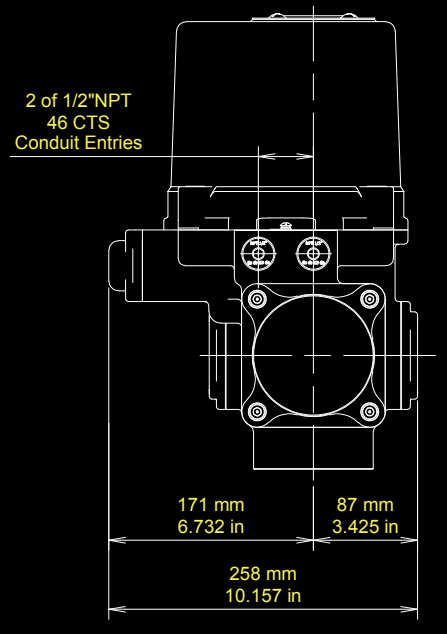
• The running time is based on 110 V AC @ 60Hz, 30% duty cycle, On-Off / floating control.

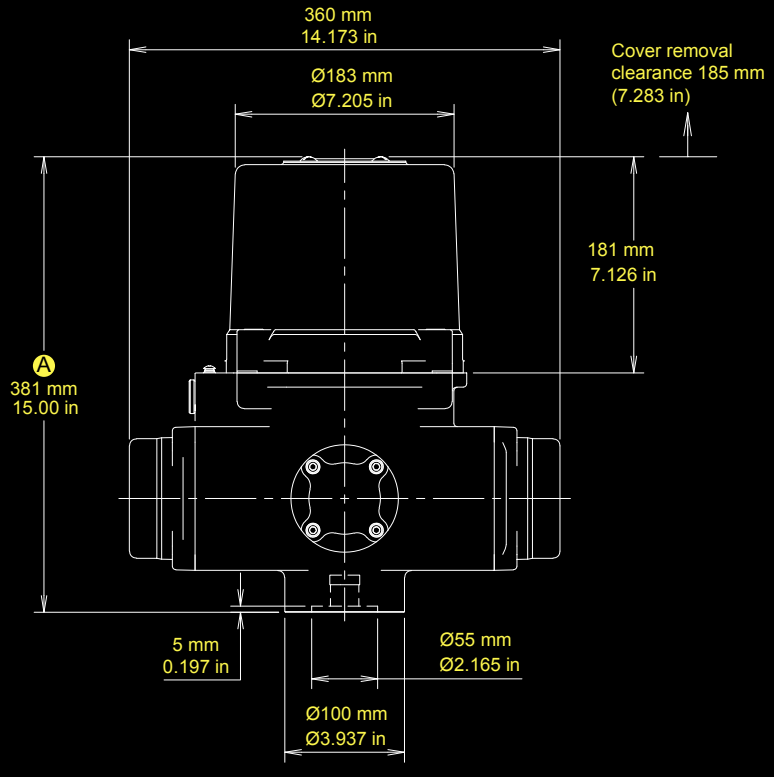
SE series

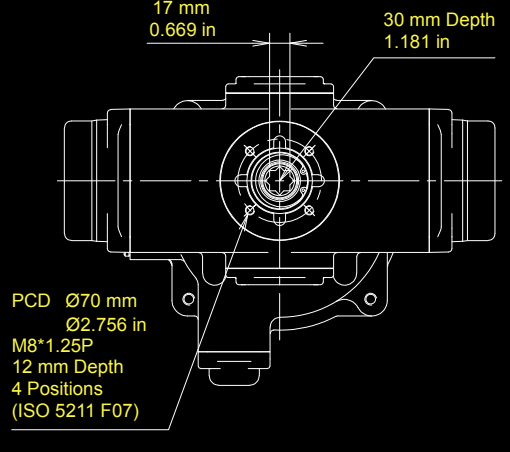
The drawing is based on the actuator with a power fail clockwise (CW) spring return.

PHYSICAL DIMENSION

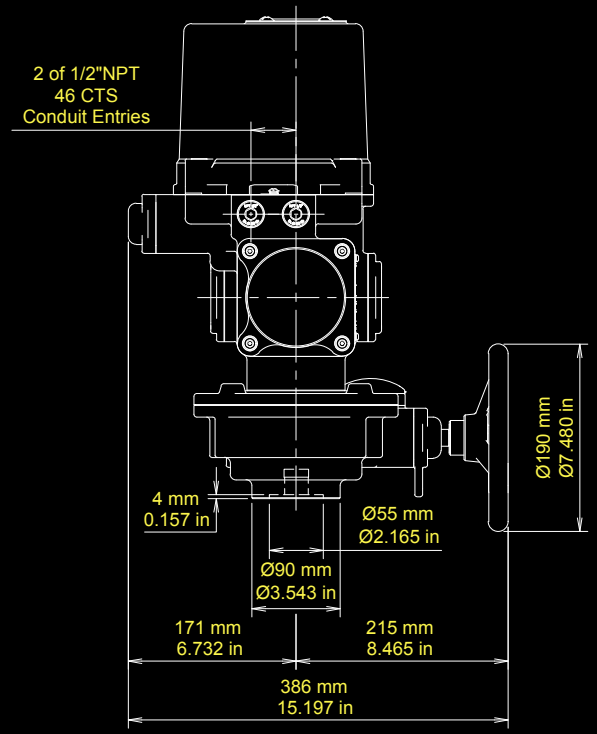
SE-500

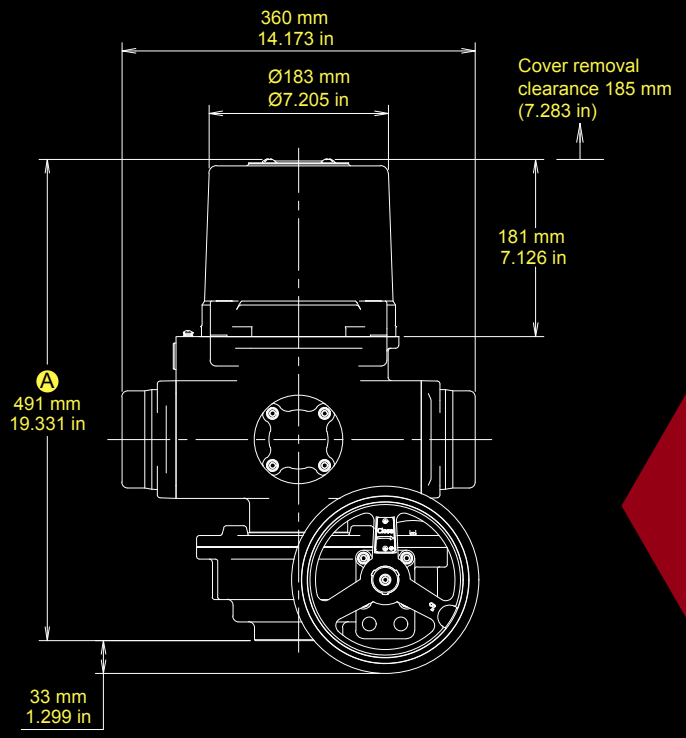


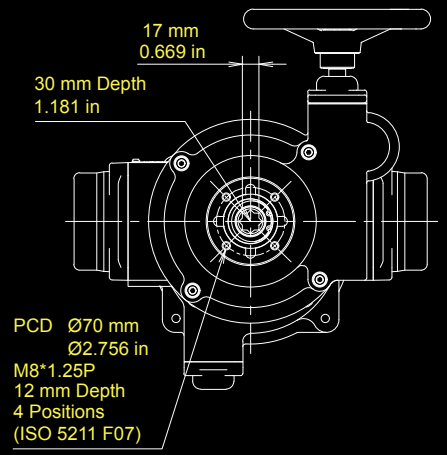




• Apply to DC models, Ⓐ418 mm (16.457 in)







SE-500 W/ MANUAL OVERRIDE

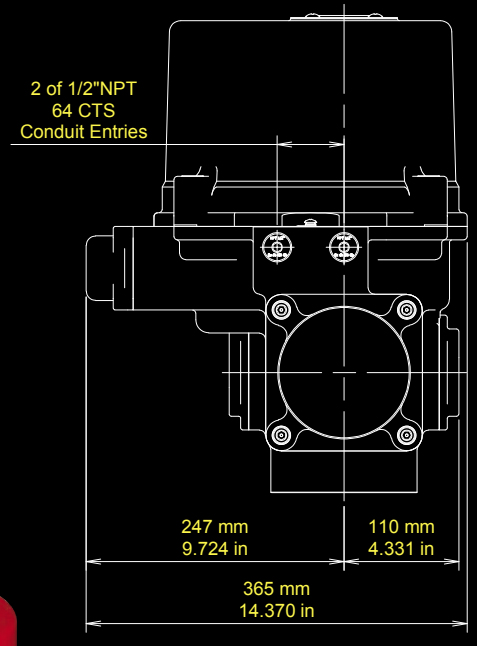
• Apply to DC models, Ⓐ528 mm (20.787 in)

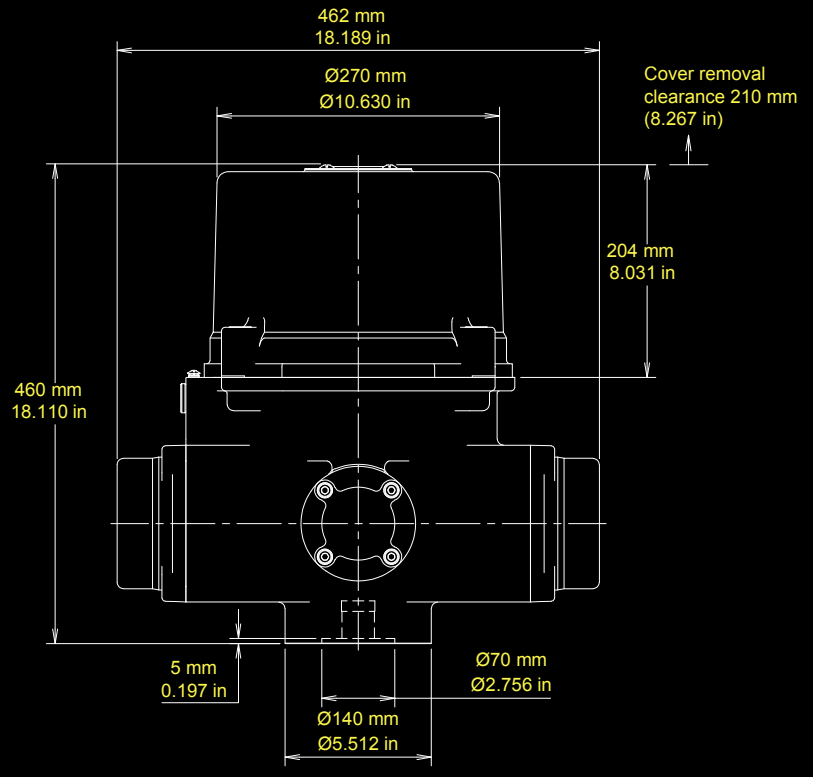
SE series

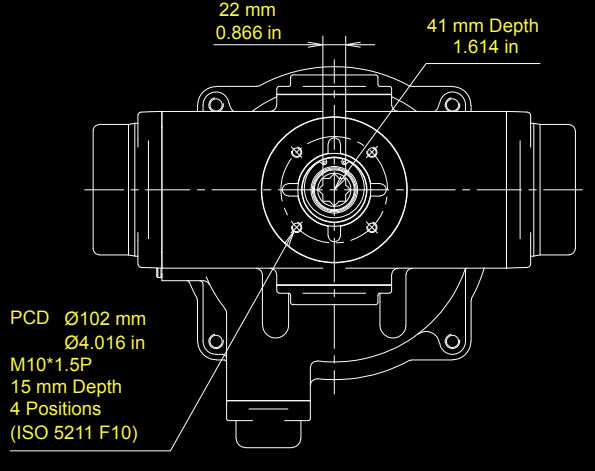
The drawing is based on the actuator with a power fail clockwise (CW) spring return.

PHYSICAL DIMENSION

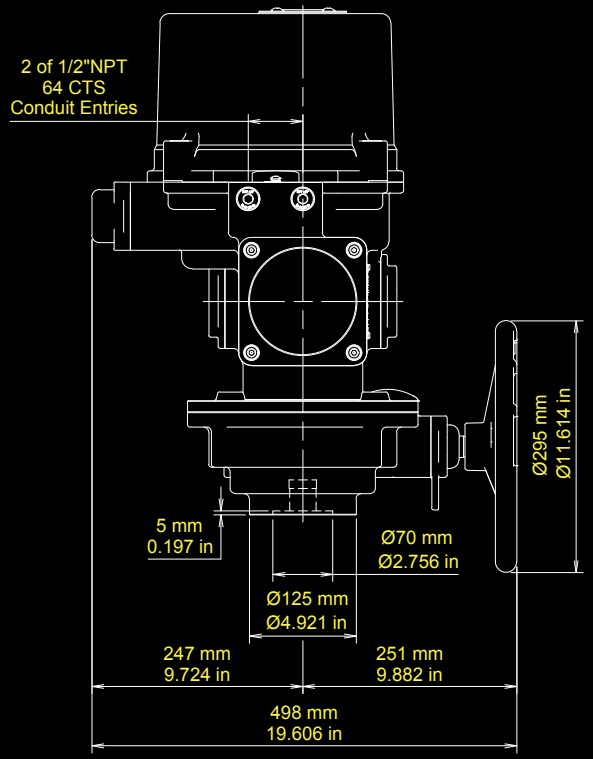
SE-1300

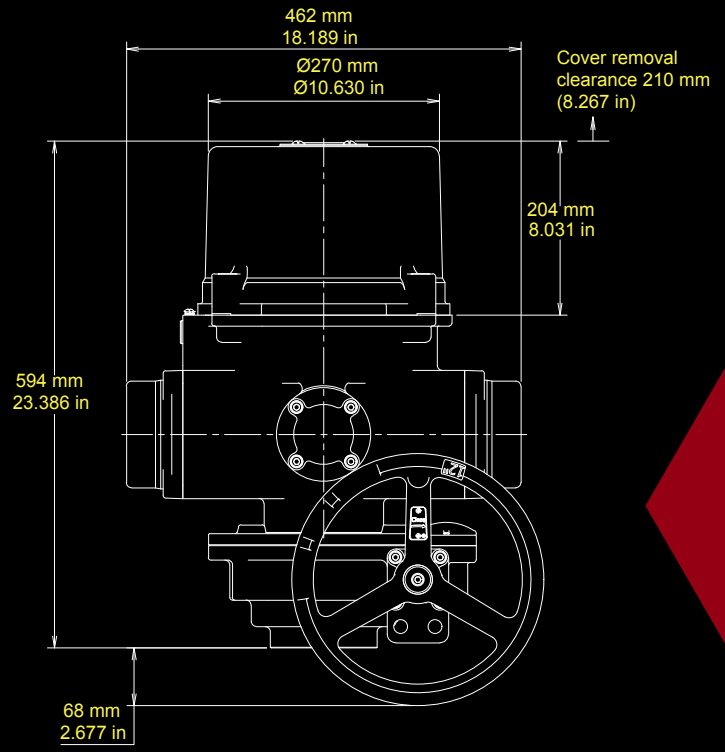


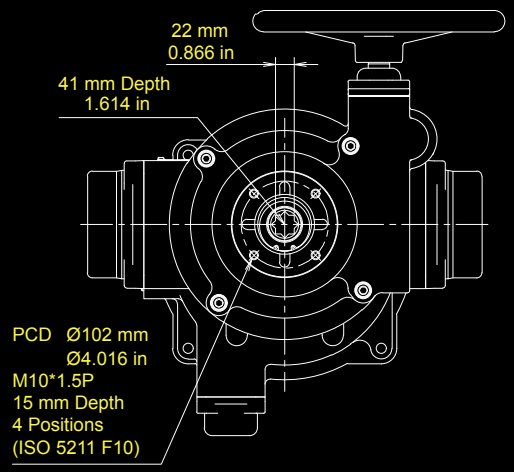




SE-1300 W/ MANUAL OVERRIDE



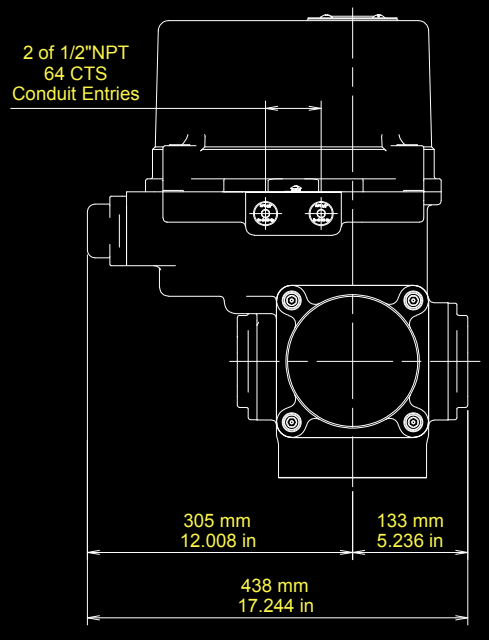


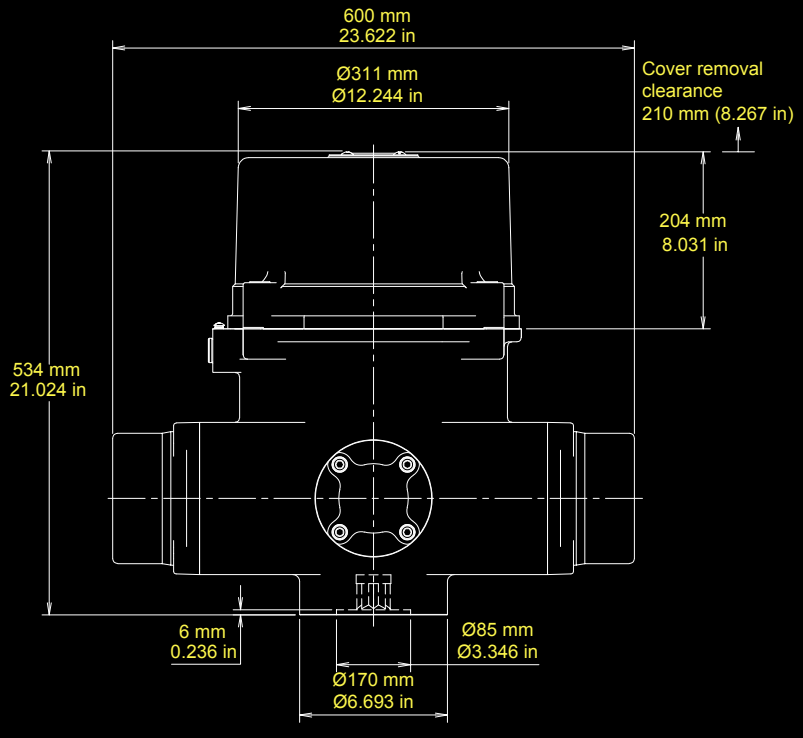


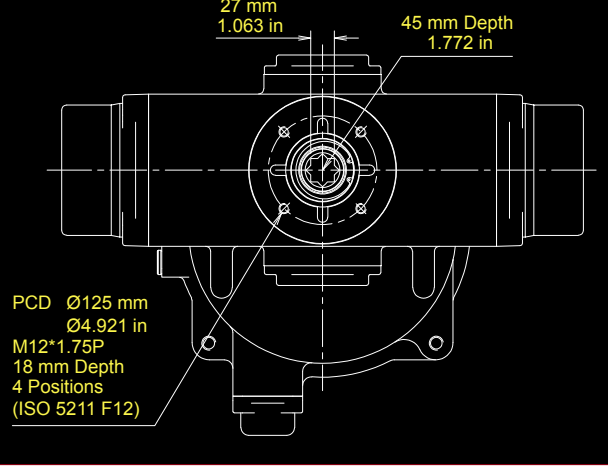
SE series

The drawing is based on the actuator with a power fail clockwise (CW) spring return.

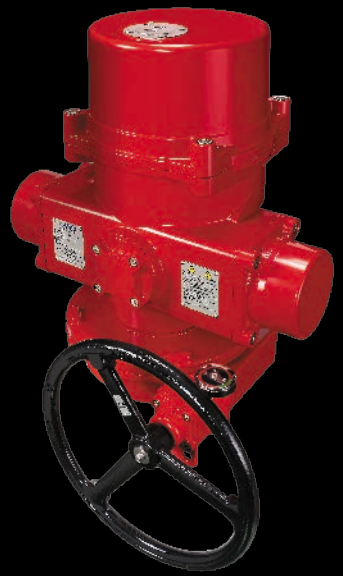
PHYSICAL DIMENSION

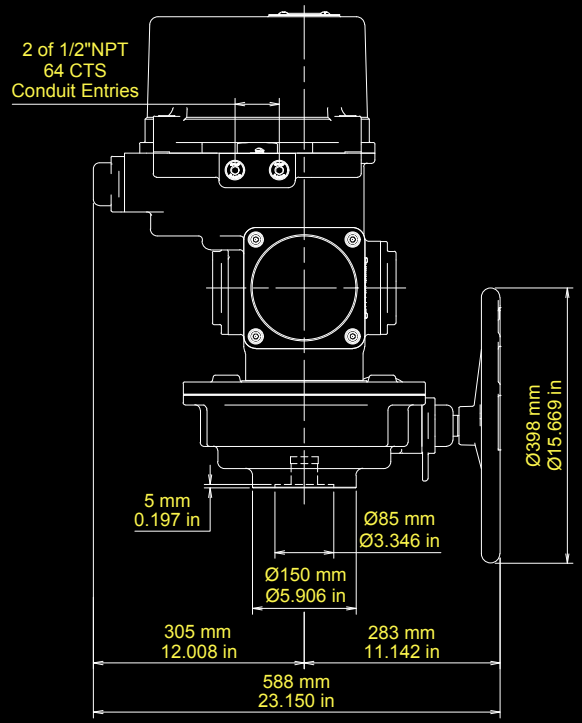


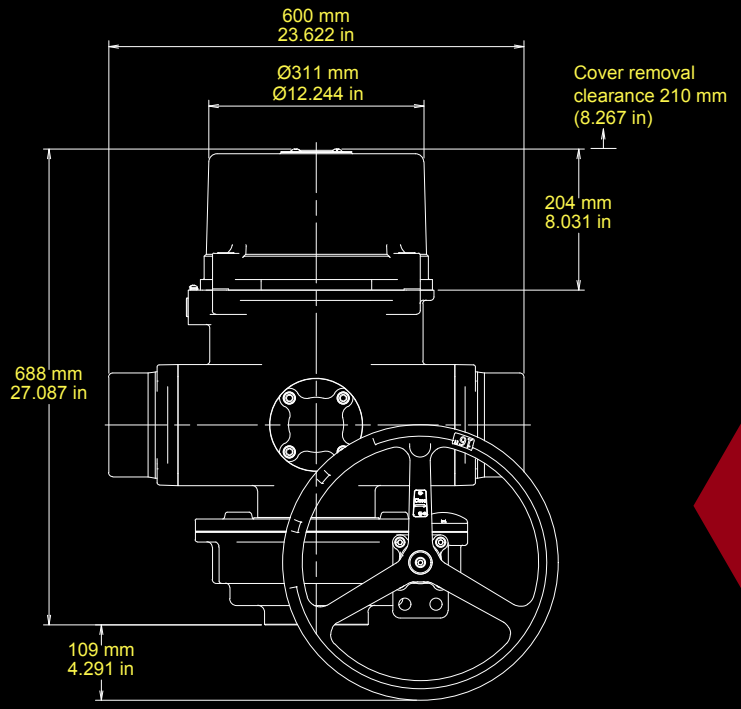


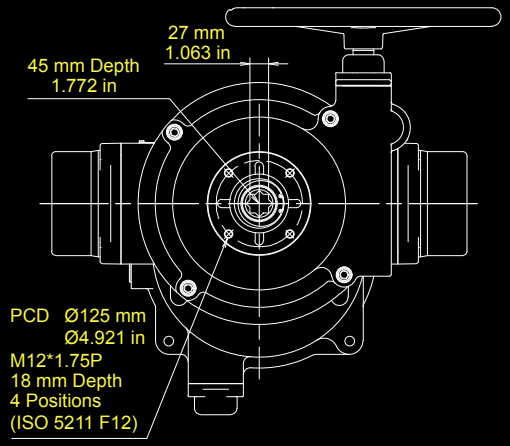


SE-2000 / 2600



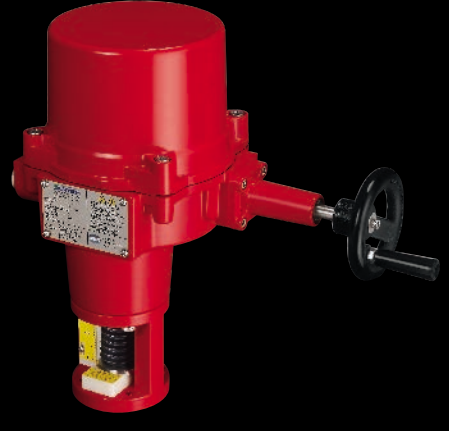


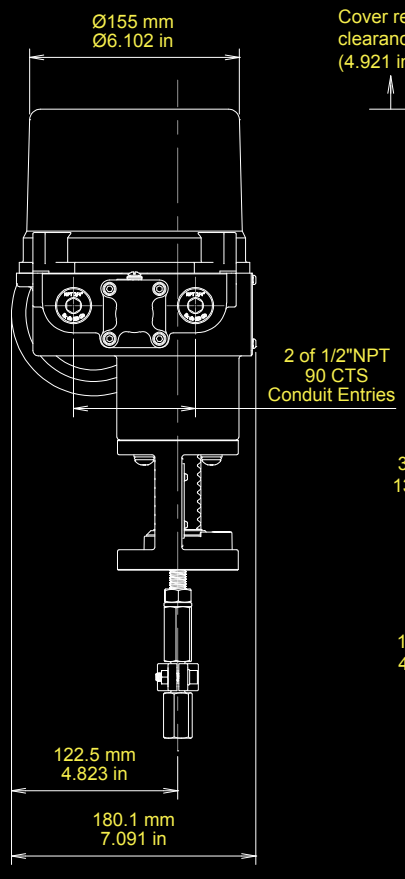


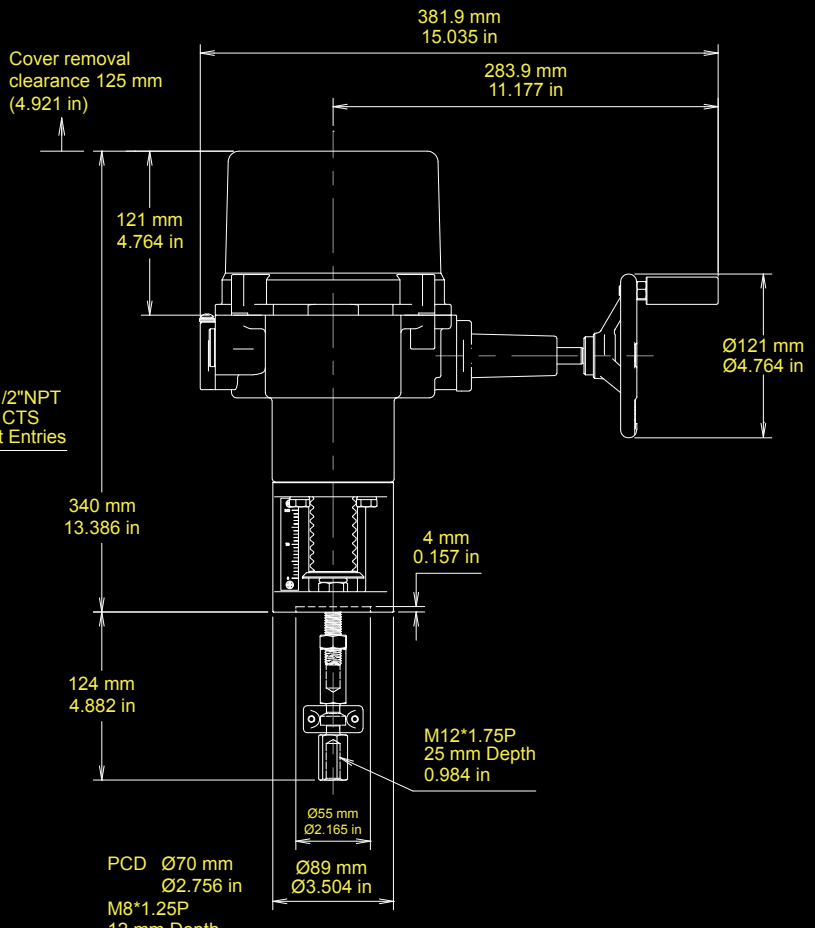


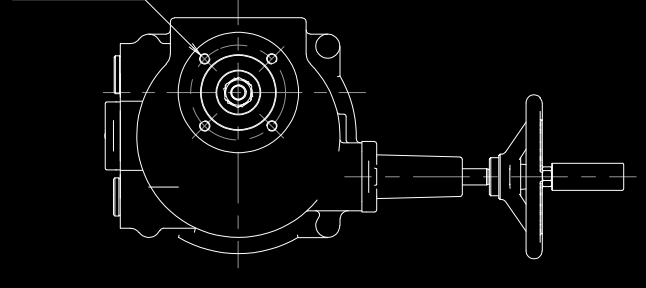
SE-2000 / 2600 W/ MANUAL OVERRIDE

PHYSICAL DIMENSION



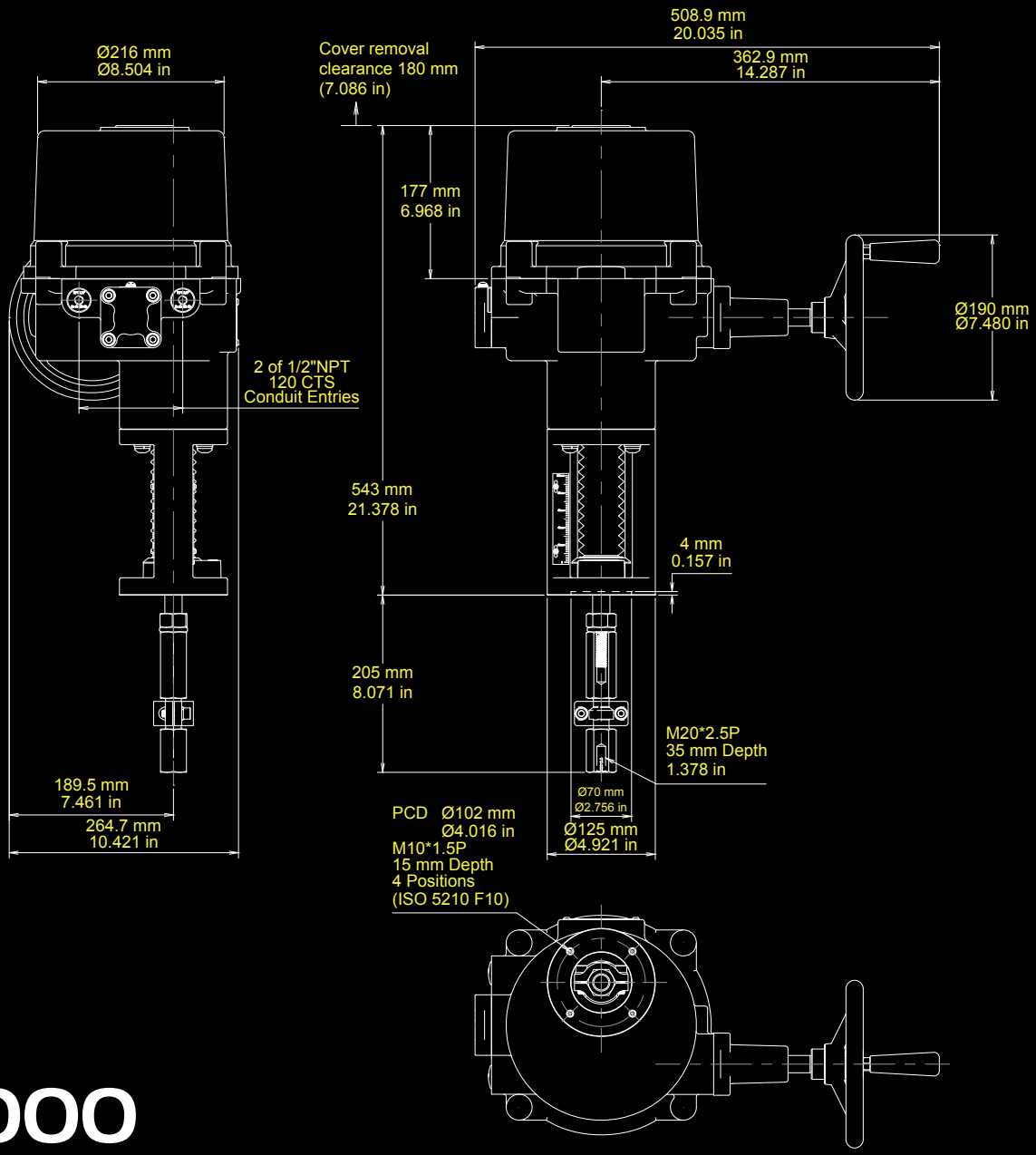






LE-250 / 500

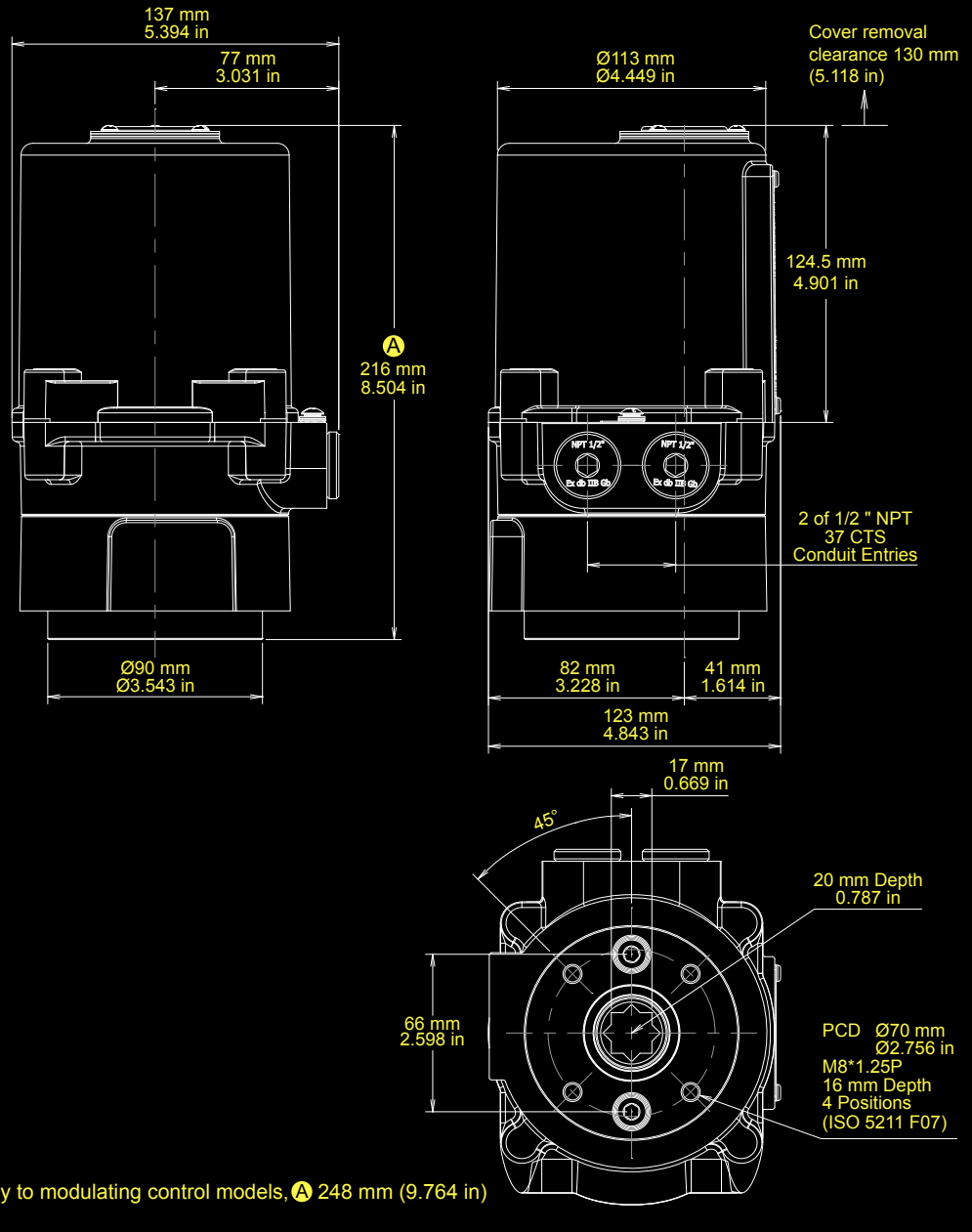
LE-1000 / 2000


Ø216 mm
Ø8.504 in
Cover removal
clearance 180 mm
(7.086 in)
508.9 mm
20.035 in
362.9 mm
14.287 in
177 mm
6.968 in
Ø190 mm
Ø7.480 in
2 of 1/2"NPT
120 CTS
Conduit Entries
543 mm
21.378 in
4 mm
0.157 in
205 mm
8.071 in
M20*2.5P
35 mm Depth
1.378 in
189.5 mm
7.461 in
264.7 mm
10.421 in
Ø70 mm
Ø2.756 in
Ø125 mm
Ø4.921 in
PCD Ø102 mm
Ø4.016 in
M10*1.5P
15 mm Depth
4 Positions
(ISO 5210 F10)

OME series

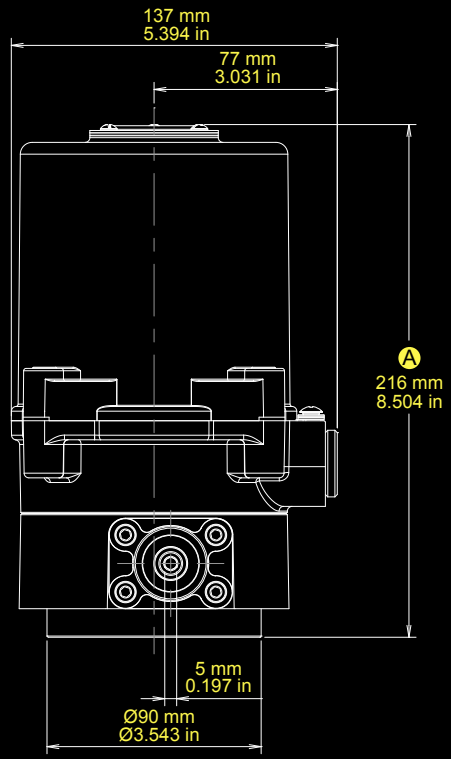
PHYSICAL DIMENSION

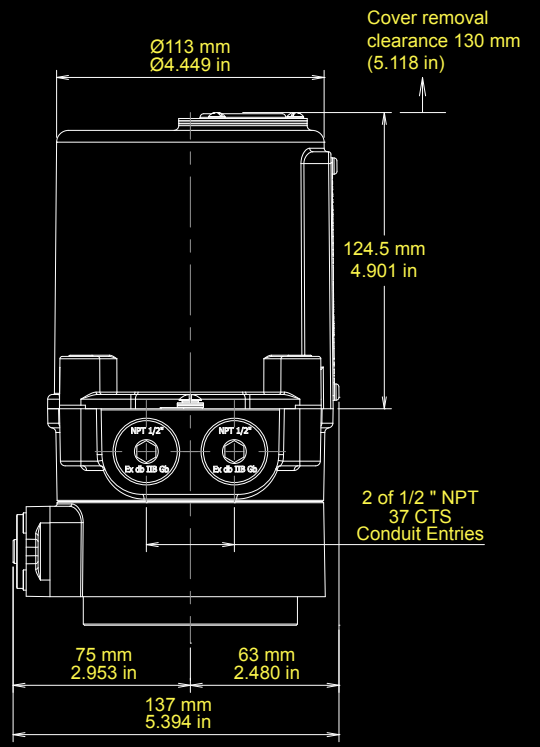
OME-A

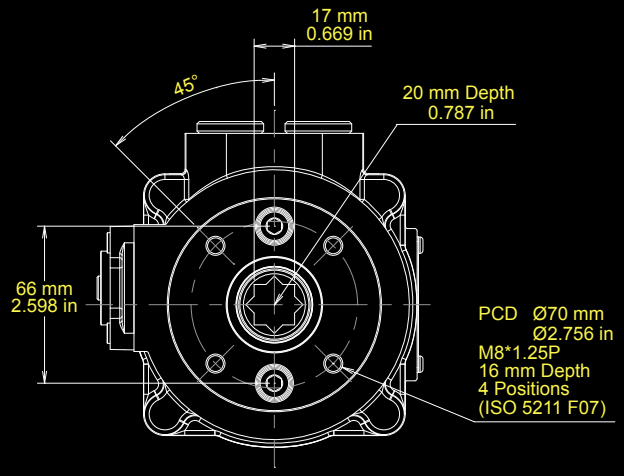


• Apply to modulating control models, Ⓐ 248 mm (9.764 in)

OME-AM



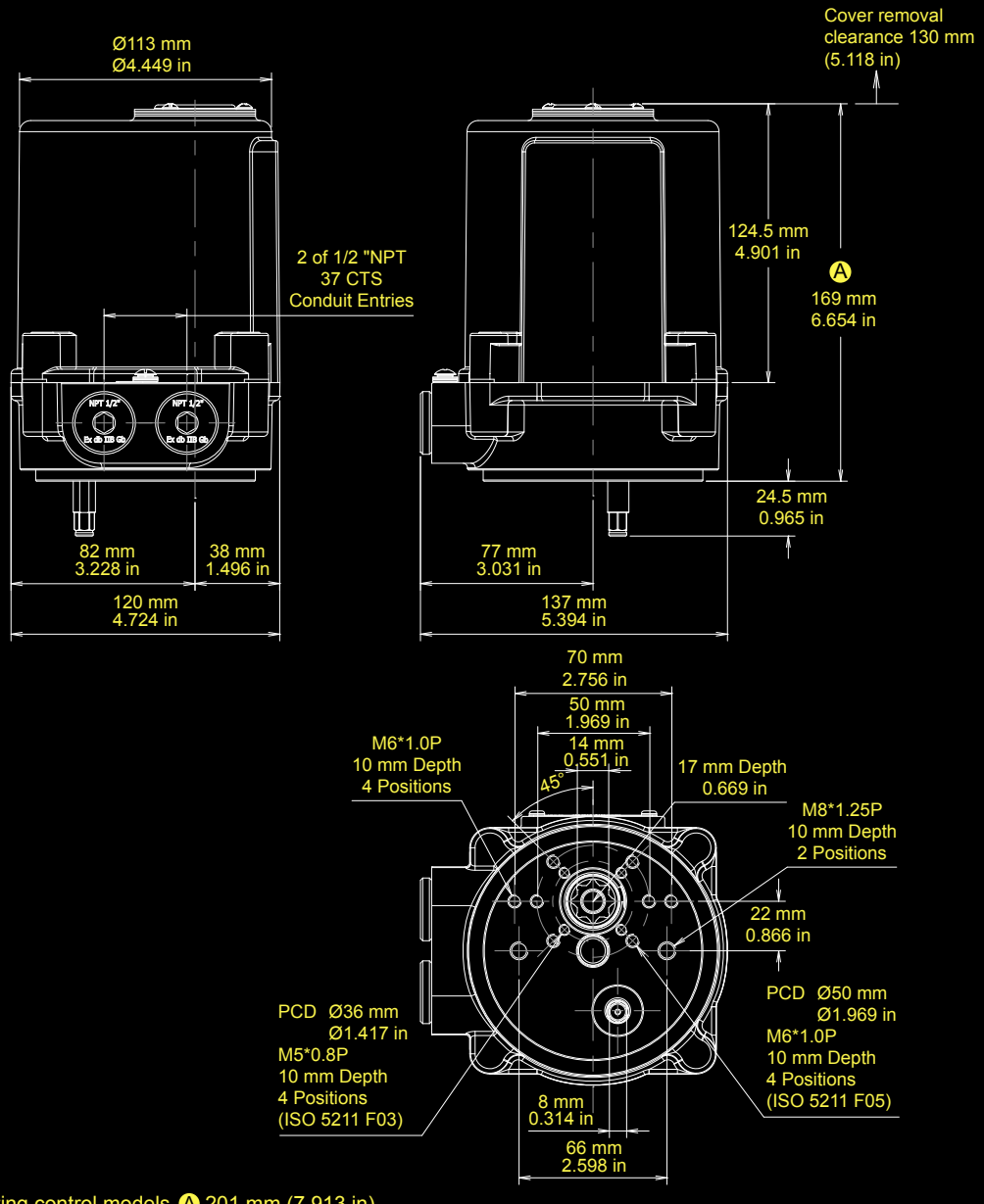




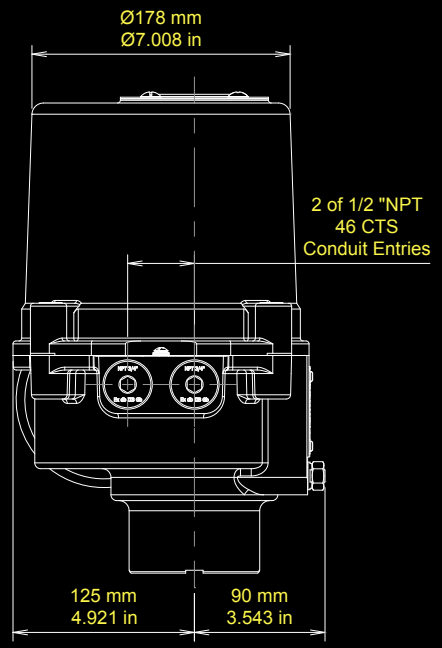
• Apply to modulating control models, A 248 mm (9.764 in)

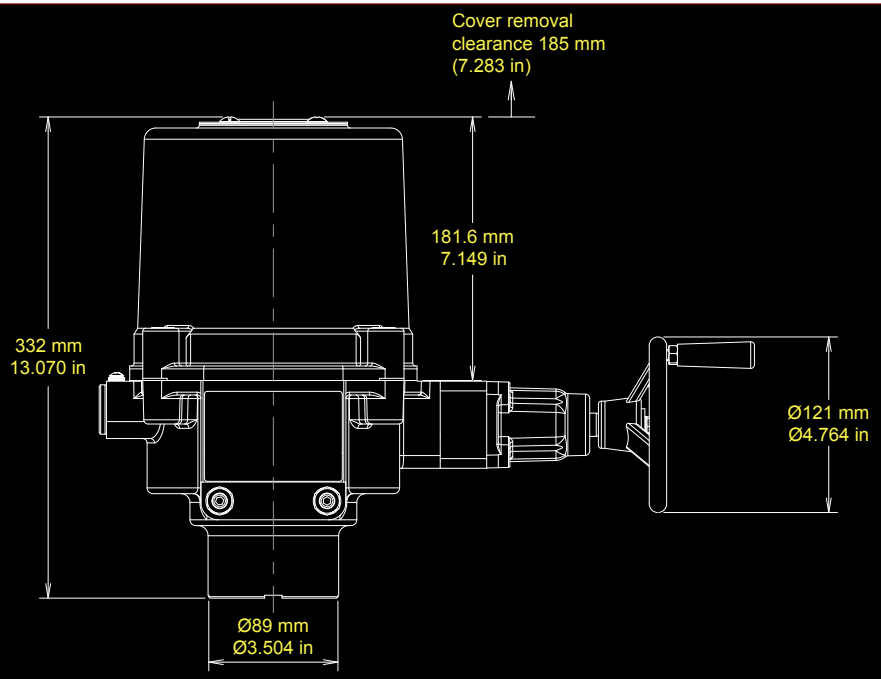
PHYSICAL DIMENSION

OME-I

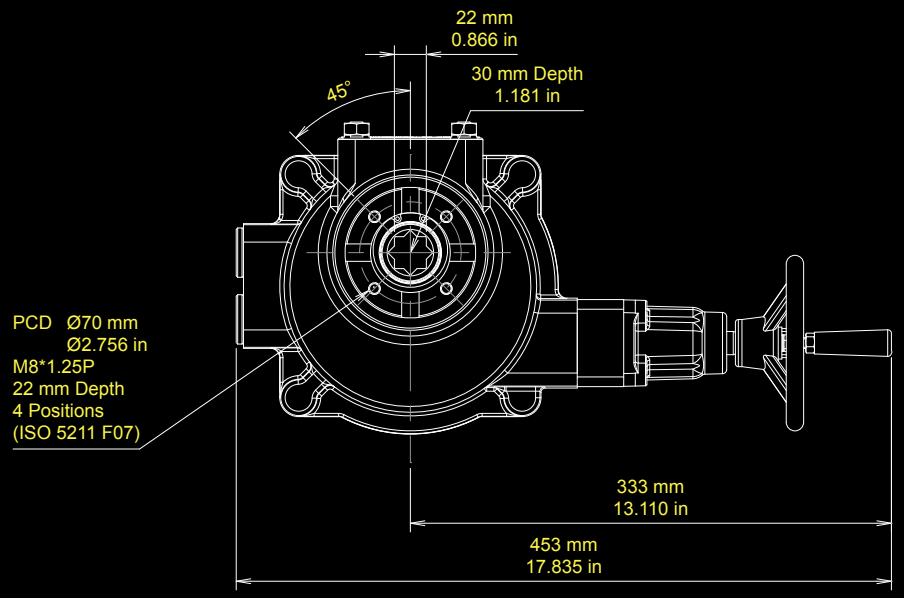


• Apply to modulating control models, Ⓐ 201 mm (7.913 in)


Ø178 mm
Ø7.008 in
2 of 1/2 "NPT
46 CTS
Conduit Entries
125 mm
4.921 in
90 mm
3.543 in


Cover removal
clearance 185 mm
(7.283 in)
181.6 mm
7.149 in
332 mm
13.070 in
Ø121 mm
Ø4.764 in
Ø89 mm
Ø3.504 in

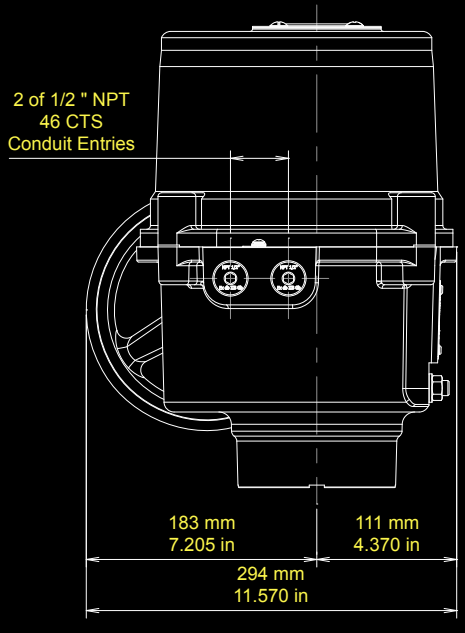
OME-2 / 3

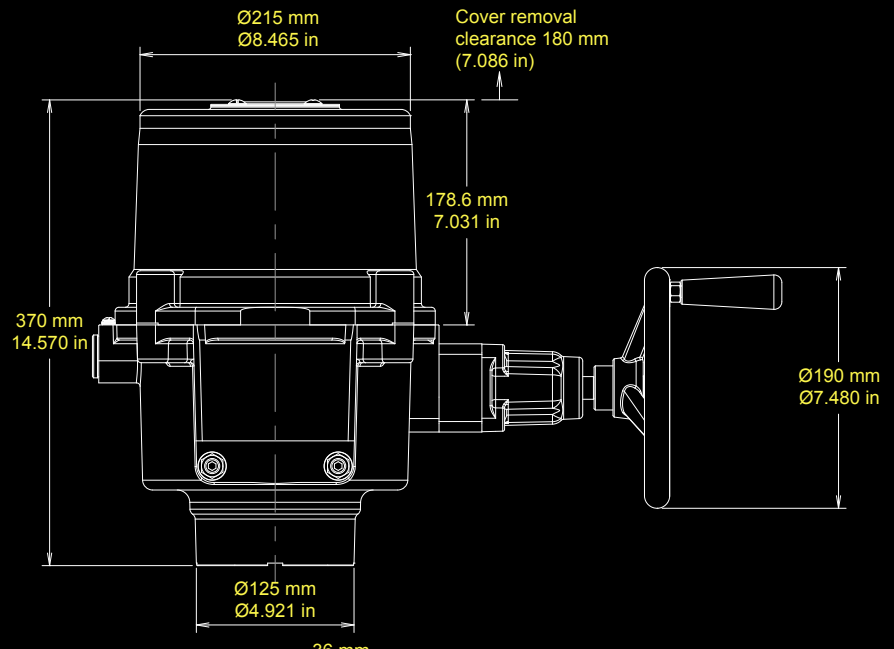

22 mm
0.866 in
30 mm Depth
1.181 in
45°
PCD Ø70 mm
Ø2.756 in
M8*1.25P
22 mm Depth
4 Positions
(ISO 5211 F07)
333 mm
13.110 in
453 mm
17.835 in

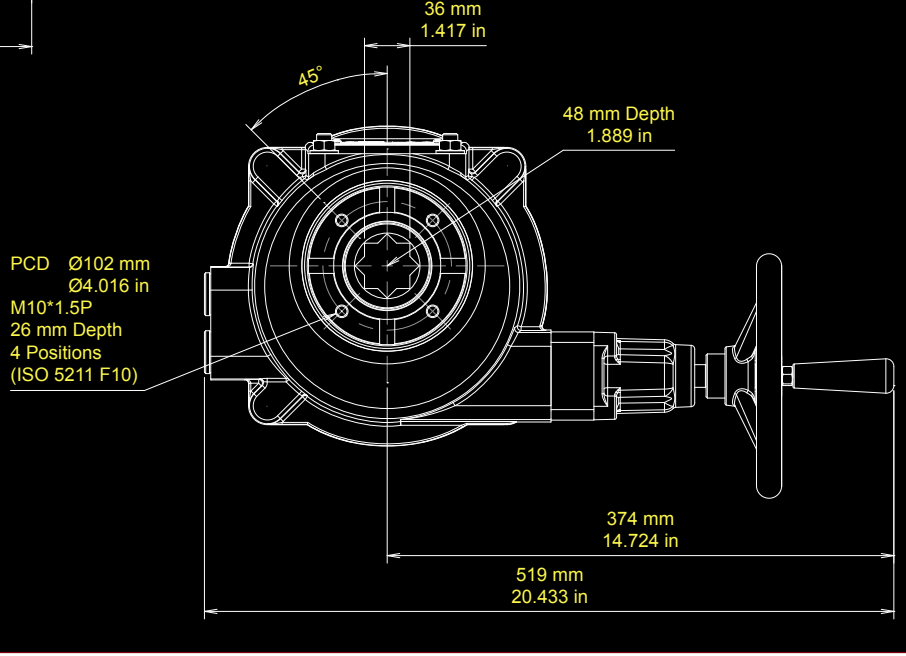
OME series

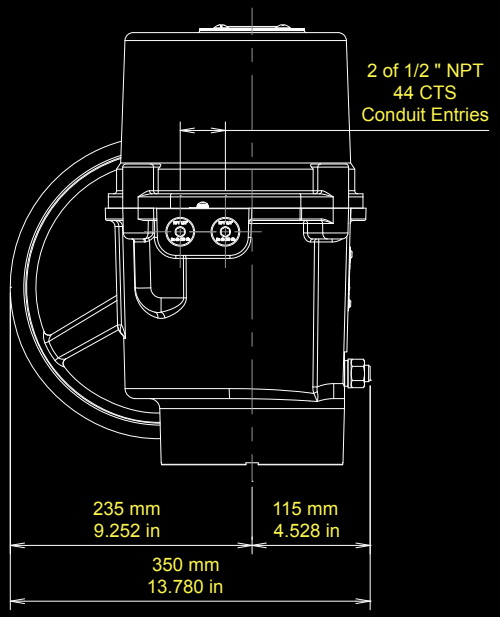
PHYSICAL DIMENSION

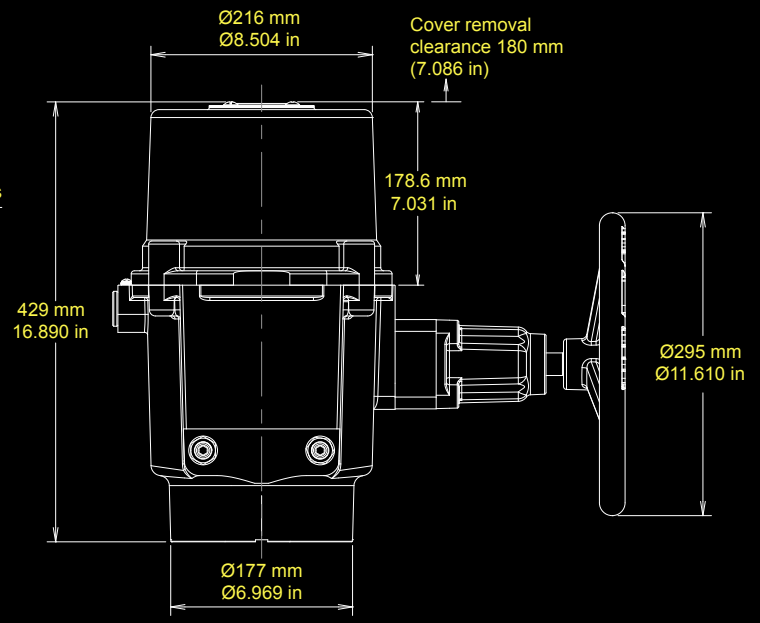
OME-4 / 5 / 6





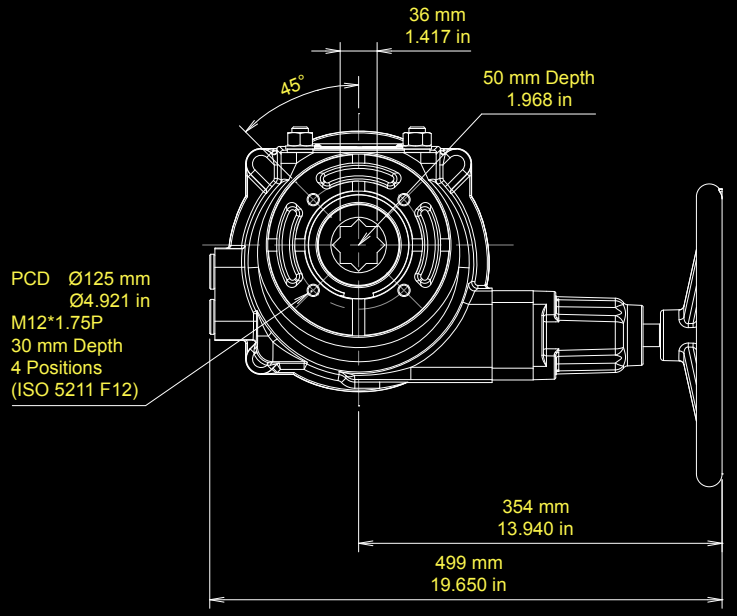


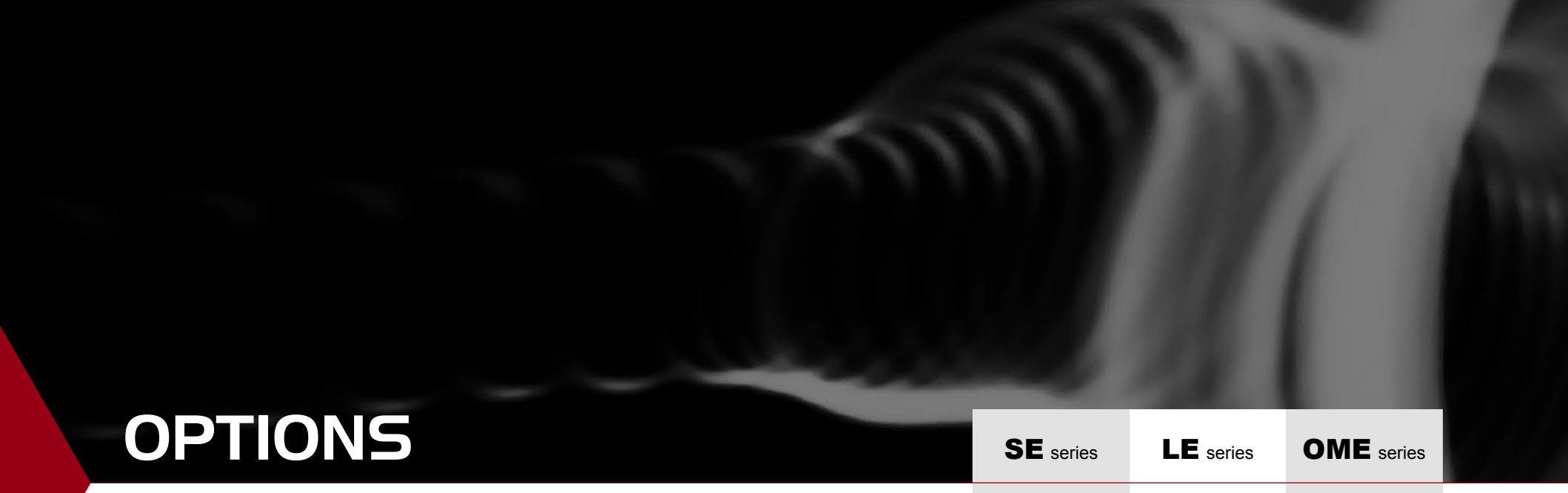




OME-7 / 8

- Flange option: F14 (M16*2.0P)





OPTIONS

Enclosure Hazardous Area Enclosures

ATEX Hazardous Areas Certification for European Union

Directive	Marking	Ambient Temperature	SE series	LE series	OME series
ATEX II 2 GD	Ex db IIB T4 Gb	-30°C to +70°C (-22°F to +158°F)	Standard without manual override: Ex db IIB T4 Gb Ex tb IIIC T130°C Db ● Optional with manual override: Ex db h IIB T4 Gb Ex tb h IIIC T130°C Db	●	●
ATEX II 2 GD	Ex tb IIIC T130°C Db	-30°C to +70°C (-22°F to +158°F)			

Standards: EN IEC 60079-0, EN 60079-1, EN 60079-31

IECEx (for International) / TS (for Taiwan) / CNEX (for China) Hazardous Area Certifications

Marking	Ambient Temperature	SE series	LE series	OME series
Ex db IIB T4 Gb	-30°C to +70°C (-22°F to +158°F)	Standard without manual override: Ex db IIB T4 Gb Ex tb IIIC T130°C Db ● Optional with manual override: Ex db h IIB T4 Gb Ex tb h IIIC T130°C Db	●	●
Ex tb IIIC T130°C Db	-30°C to +70°C (-22°F to +158°F)			

IECEx & TS Standards: IEC 60079-0, IEC 60079-1, IEC 60079-31
CNEx Standards: GB / T 3836.1, GB / T 3836.2, GB / T 3836.31

Enclosure Hazardous Area Enclosures

CSA Hazardous Areas Certification for North America

Zone

Code	Hazard Class	Permitted Zone	Type of Protection	Permitted Groups	Temp Class	Ambient Temperature
AEx / Ex	I	1	db	IIA, IIB	T4	OME & SE: -30°C to +70°C (-22°F to +158°F) LE: -30°C to +65°C (-22°F to +149°F)
AEx / Ex	II	21	tb	IIIA, IIIB, IIIC	T130°C	OME & SE: -30°C to +70°C (-22°F to +158°F) LE: -30°C to +65°C (-22°F to +149°F)

Standards: CAN / CSA-C22.2 No. 60079-0, CAN / CSA-C22.2 No. 60079-1, CAN / CSA-C22.2 No. 60079-31, UL 60079-0, UL 60079-1, UL 60079-31

Division

Hazard Class	Permitted Division	Permitted Groups	Temp Class	Ambient Temperature
I	1	C, D	T4	OME & SE: -30°C to +70°C (-22°F to +158°F)
II	1	E, F, G	T130°C	OME & SE: -30°C to +70°C (-22°F to +158°F)

Standards: CAN / CSA-C22.2 No. 30-M1986, CSA C22.2 No. 25-17, FM 3600, FM 3615, FM 3616

JPEx Japanese Hazardous Areas

	Marking	Ambient Temperature
GAS	Ex db IIB T4 Gb	-30°C to +70°C (-22°F to +158°F)
DUST	Ex tb IIIC T130°C Db	-30°C to +70°C (-22°F to +158°F)

Standards: JNIOSH-TR-46-1, JNIOSH-TR-46-2, JNIOSH-TR-46-9

SE series	LE series	OME series
●	●	●
●		●
		●

OPTIONS

	SE series	LE series	OME series
Manual Override • Clutch-less manual override allows the valve or damper to be manually operated by the hand-wheel upon a power loss. • For safe operation, the hand-wheel does not rotate during motor operation. • The manual override is provided as standard for OME and LE series.	●		
Fail-safe Direction • The spring return direction is NOT changeable, and the actuator must be configured for the spring return direction (CW or CCW) at the time of order. • Standard: Fail clockwise spring return. • Optional: Fail counter-clockwise spring return.	●		
Communication Protocol • Modbus RTU RS485		●	

	SE series	LE series	OME series
Anti-condensation Heater • The heater is used to raise the internal temperature of actuators to prevent lubricants from freezing and keeps inside of actuator dry to avoid damage caused by too much humidity. • Heater is not recommended if the ambient temperature is over 35˚C (95˚F). • If the temperature varies much from day to night or between summer and winter, heater and thermostat are recommended.	●	●	●
Heater Thermostat • Heater's thermostat switches off the heater when the internal temperature of actuators is higher than 25±5˚C (77±9˚F).	●	●	●
Auxiliary Limit Switches • Actuators come standard with two limit switches, LS1 for fully-open and LS2 for fully-closed positioning. Two auxiliary limit switches are optional for fully-open and fully-closed position feedback (LS3 and LS4). • LE series comes standard with dry contacts for position feedback at fully-open and fully-closed positions.	●		●

OPTIONS

	SE series	LE series	OME series

Modulating Control (potentiometer included)
• A proportional control unit will follow the input signal for positioning and output signal for indication.
  • Analog input: 4-20 mA, 1-5 V and 2-10 V
  • Analog output: 4-20 mA and 2-10 V
	●		●

Floating Control • The actuator can be controlled by an external signal to open, close or stop at any intermediate positions. • SE series actuators will rotate in either clockwise or counter-clockwise to the end position upon a power loss.	●	●	
Analog Signal Output • Recommended to use with an On-Off or a floating actuator for position indication. • Analog output: 0-20 mA, 4-20 mA, 0-5 V, 0-10 V, 1-5 V and 2-10 V.			●

	SE series	LE series	OME series
Potentiometer • Recommended to use with an On-Off or floating control actuator to output signal for position indication. Two resistors, 1k ohm or 5k ohm are available for selection.	●		●
Extended Duty Cycle Control • This option is suggested for extending duty cycle.			●
Conduit Entries Relating to OME series with JPEx explosion-proof certification, it is mandatory to select the cable gland of A2F series made by CMP Products Ltd. to meet Japanese explosion-proof standards. • Standard: 2 x 1/2” NPT	●	●	●
• Option: 2 x 3/4” NPT	●	●	OME-2 to 8
• Option: 2 x M20	●	●	●
• Option: 2 x M25	●	●	OME-2 to 8

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SUNYEH

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