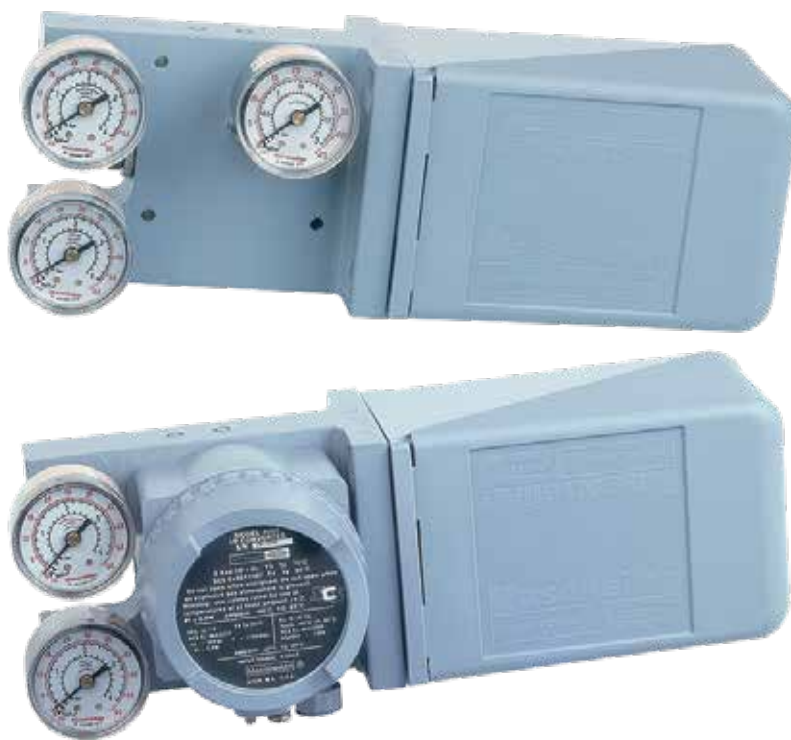


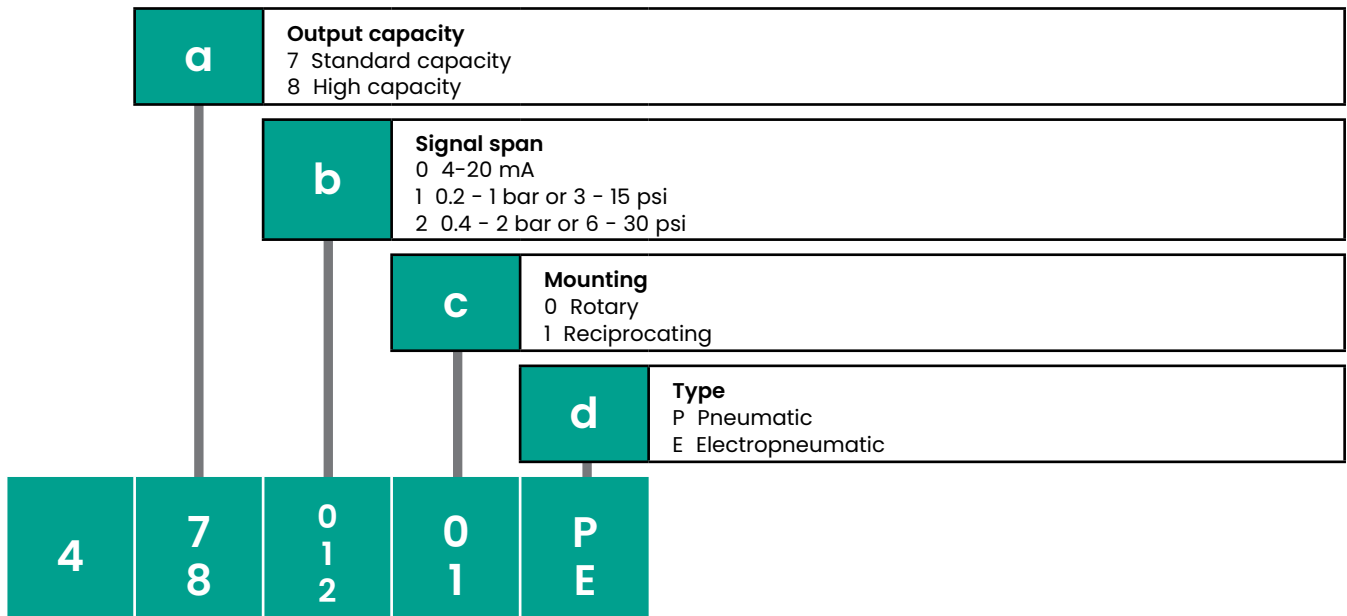
# Masoneilan™ Models 4700P/4700E & 4800P/4800E

## Corrosion-resistant Positioners



# Numbering System

## Series Identification 4abcd



# Operation/Features

Baker Hughes Masoneilan models 4700P/4700E and 4800P/4800E cam positioners provide precise positioning, fast response, and customized control characteristics for control valves.

The main features of the models 4700P/4700E and 4800P/4800E are:

**Cam Characterization** – This cam provides field changeable, linear, split-range linear, and equal percentage control characteristics. Custom characteristics are available on special order.

**Zero and Span Adjustments** – For ease of installation and maintenance, two simple procedures provide easy adjustment of zero and span. An adjustment nut allows zeroing while span is accomplished by changing the effective length of the feedback spring. All adjustments are fully enclosed for protection from the environment.

**Note: The electropneumatic (4700E/4800E) positioner has no adjustments in the I/P module.**

**Simple and Easy to Maintain** – The pilot valve is the only moving part in the pilot housing. It is easily removed without disassembling any other part of the positioner. An optional bypass valve module is available for use on the model 4700P pneumatic direct acting positioner. Where operating parameters allow, it permits the positioner to be isolated for maintenance while operating the valve directly with the instrument signal. The bypass module is mounted on the back of the positioner to discourage tampering.

**Corrosion-Resistant Materials** – Premium performance is the standard on the models 4700P/4700E and 4800P/4800E positioners. Internal components are manufactured of corrosion-resistant materials for protection against the harshest environments.

## On Rotary Control Valves

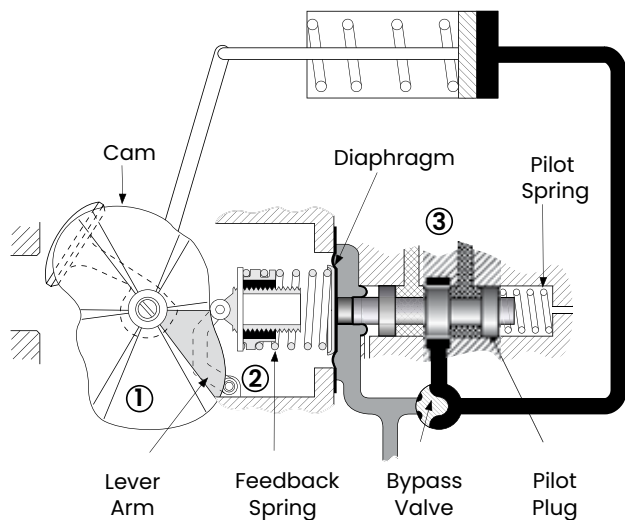
On rotary valves, the cam assembly is attached directly to the end of the shaft, and only one positioner assembly is required. This proven performer eliminates linkage and associated backlash problems.

## On Reciprocating Control Valves

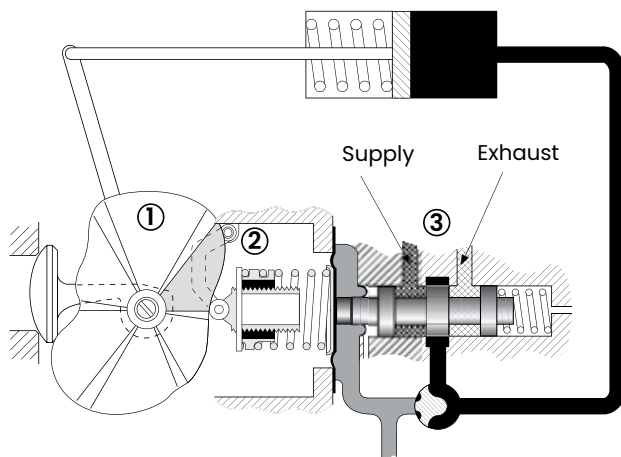
For use with reciprocating valve spring diaphragm actuators, the positioner is fitted with a post hub and shaft on which the cam is mounted. Actuation is transmitted to the cam via a rugged and simple turnbuckle and lever assembly.

# Operation/Features

**Direct Positioner Action**

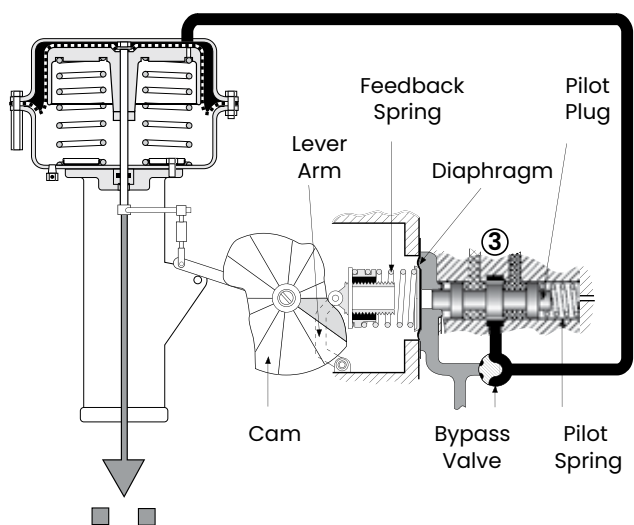


**Reverse Positioner Action  
(4700P/4800P Only)**

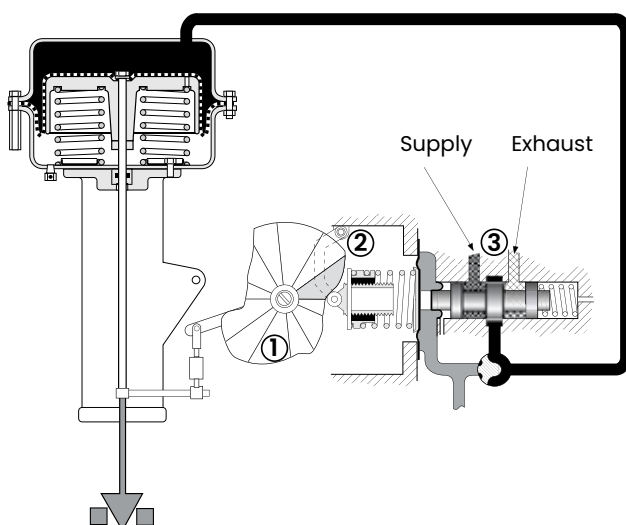


**On Rotary Control Valves**

**Direct Positioner Action**



**Reverse Positioner Action  
(4700P/4800P Only)**



**On Reciprocating Control Valves**



Signal  
Pressure



Output  
Pressure



Exhaust  
Pressure



Supply  
Pressure

For models 4700P/4800P only, positioner action can be reversed by simply engaging the proper lobe on the cam and reversing the follower arm (numbers 1 and 2 above), and the supply and exhaust ports (number 3 above).

# Instrument Signals

Characteristics shown represent final valve characteristic

## Models 4700P/4700E and 4800P/4800E (Camflex™ II)

Characteristics			
Linear		Equal Percentage	
psi	bar	psi	bar
3 - 9	0.2 - 0.6	3 - 15	0.2 - 1
3 - 15	0.2 - 1	3 - 27	0.2 - 1.8
3 - 27	0.2 - 1.8	6 - 30	0.4 - 2
6 - 18	0.4 - 1.2	–	–
6 - 30	0.4 - 2	–	–
9 - 15	0.6 - 1	–	–
15 - 27	1 - 1.8	–	–
18 - 30	1.2 - 2	–	–

## Models 4700P/4700E and 4800P/4800E (87/88 Actuator)

Characteristics			
Linear		Equal Percentage	
psi	bar	psi	bar
3 - 9	0.2 - 0.6	3 - 15	0.2 - 1
3 - 15	0.2 - 1	3 - 27	0.2 - 1.8
3 - 27	0.2 - 1.8	6 - 30	0.4 - 2
6 - 18	0.4 - 1.2	–	–
6 - 30	0.4 - 2	–	–
9 - 15	0.6 - 1	–	–
15 - 27	1 - 1.8	–	–
18 - 30	1.2 - 2	–	–

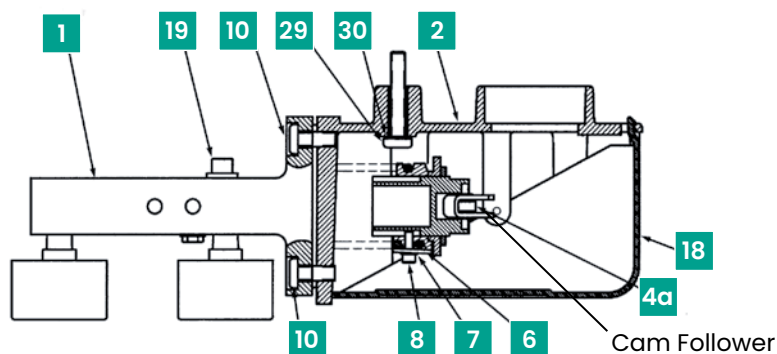
## Models 4700P/4700E and 4800P/4800E (MiniTork™ II, 39004 HPBV and V-Max™)

Characteristics	
Equal Percentage	
psi	bar
3 - 9	0.2 - 0.6
3 - 15	0.2 - 1
3 - 27	0.2 - 1.8
6 - 18	0.4 - 1.2
6 - 30	0.4 - 2
9 - 15	0.6 - 1
15 - 27	1 - 1.8
18 - 30	1.2 - 2

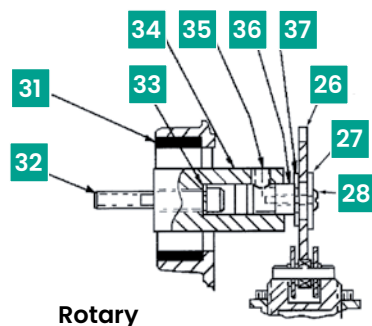
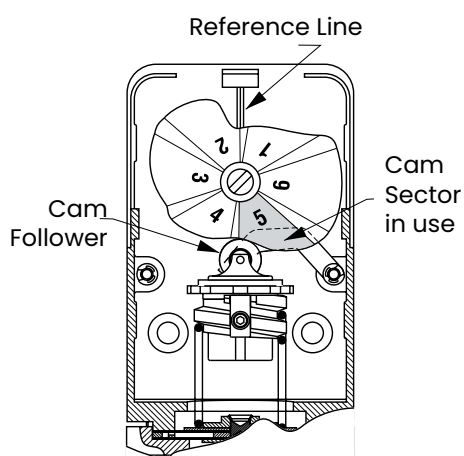
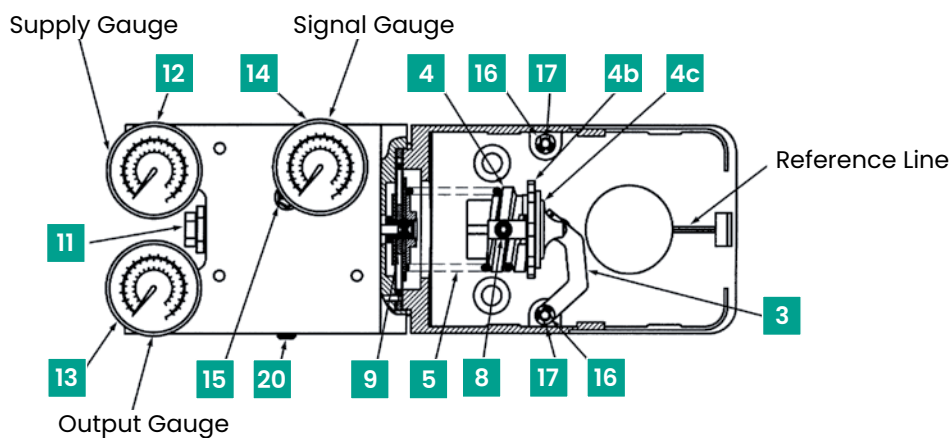
# Construction and Parts Reference 4700P/4800P

0.2-1 bar or 3-15 psi and 0.4-2 bar or 6-30 psi

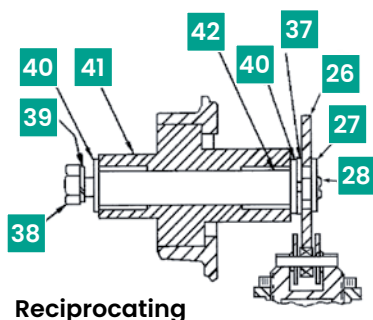
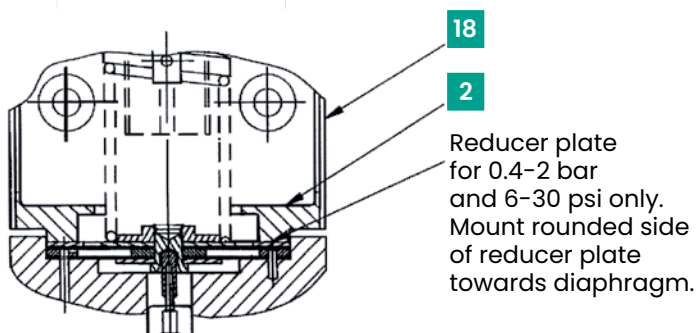
Top View



Front View



Rotary



Reciprocating

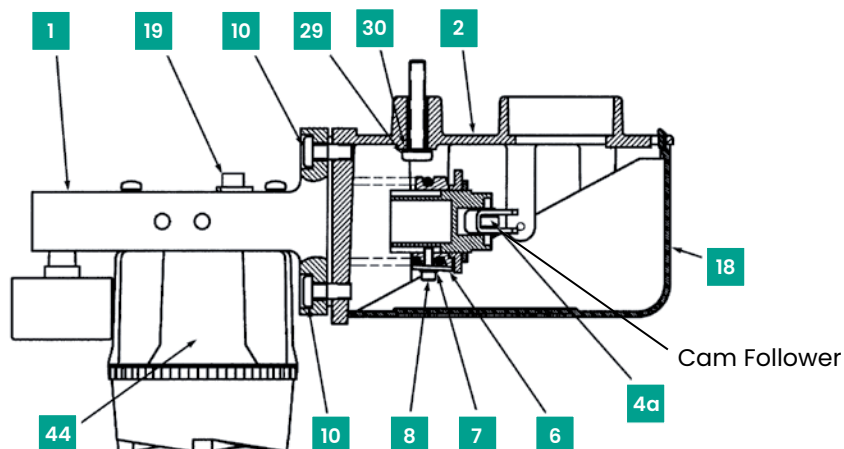
# Construction and Parts Reference 4700P/4800P

## 0.2–1 bar or 3–15 psi and 0.4–2 bar or 6–30 psi

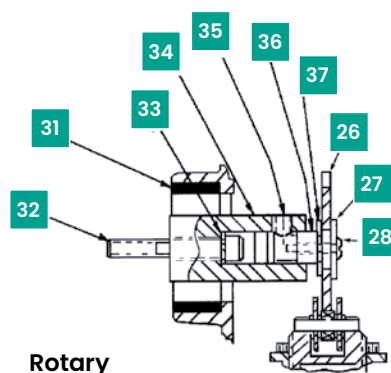
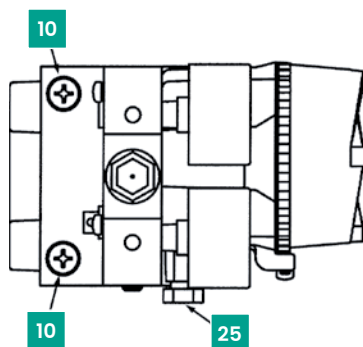
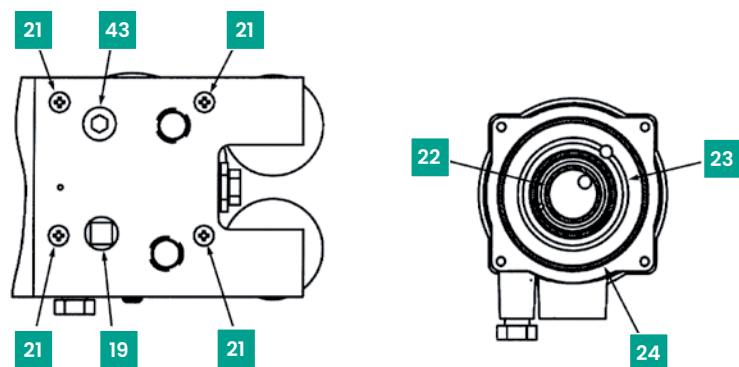
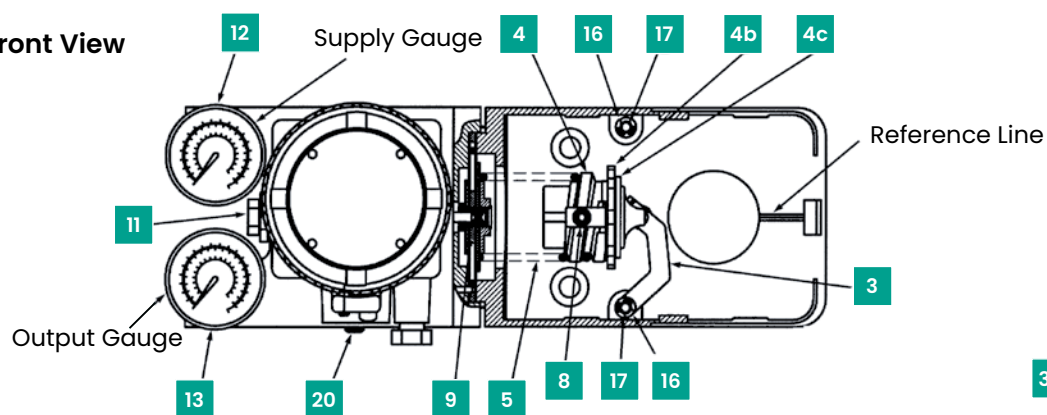
Ref. N°.	Description	Ref. N°.	Description
1	Body S/A	26	Cam
2	Case S/A	27	Washer
3	Lever S/A	28	Pan Head Screw
4	Spring End	29	Socket Head Screw
4A	Cam Follower	30	Lockwasher
4B	Zero Nut	31	Gasket
4C	Zero Locknut	32	Socket Head Screw
5	Spring, Feedback	33	Lockwasher
6	Clamp	34	Coupling
7	Lockwasher	35	Socket Head Set Screw
8	Socket Head Screw	36	Cam Holder
9	Diaphragm S/A	37	Truarc Ring
10	Screw	38	Cap Screw
11	Pilot S/A	39	Lockwasher
12	Supply Gauge	40	Washer
13	Output Gauge	41	Post Hub S/A
14	Instrument Gauge	42	Input Shaft
15	Screw, Washer Head		
16	Washer		
17	Retaining Clip		
18	Cover, Case		
19	Vent Plug		
20	Screw, Sealing, Set 5/16–24 x .5		

# Construction and Parts Reference 4700E/4800E

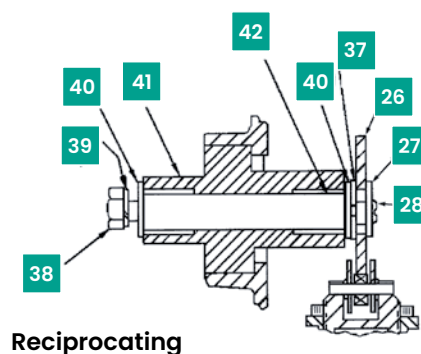
Top View



Front View



Rotary



Reciprocating



# Construction and Parts Reference 4700E/4800E

Ref. N°.	Description	Ref. N°.	Description
1	Body S/A	26	Cam
2	Case S/A	27	Washer
3	Lever S/A	28	Pan Head Screw
4	Spring End	29	Socket Head Screw
4A	Cam Follower	30	Lockwasher
4B	Zero Nut	31	Gasket
4C	Zero Locknut	32	Socket Head Screw
5	Spring, Feedback	33	Lockwasher
6	Clamp	34	Coupling
7	Lock Washer	35	Socket Head Set Screw
8	Socket Head Screw	36	Cam Holder
9	3-15 Diaphragm S/A	37	Truarc Ring
10	Screw	38	Cap Screw
11	Pilot S/A	39	Lockwasher
12	Supply Gauge	40	Washer
13	Output Gauge	41	Post Hub S/A
16	Washer	42	Input Shaft
17	Retaining Clip	43	Plug, Pipe 1/4" NPT
18	Cover, Case	44	I/P Module Assembly
19	Vent Plug		
20	Screw, Sealing, Set 5/16-24 x .5		
21	Screw 8-32 x 1.25		
22	O-ring .81" ID		
23	O-ring 1.31" ID		
24	O-ring 2.38" ID		
25	Breather		

# Hazardous Area Installations

The positioner is available in versions suitable for use in hazardous areas.  
The labeling on the positioner indicates correct areas of use.

## ATEX approved version (2014/34/EU Directive)

Explosion proof: II 2GD  
Ex d IIC T6 Gb (Tamb.= -40°C to +55°C)  
Ex d IIC T5 Gb (Tamb.= -40°C to +70°C)  
Ex d IIC T4 Gb (Tamb.= -40°C to +85°C)  
Ex t IIIC T90°C Db (Tamb.= -40°C to +55°C)

Intrinsically Safe: II IGD  
Ex ia IIC T6 Ga  
(Tamb.= -40°C to +55°C, Pi= 0.33 W)  
Ex ia IIC T4 Ga  
(Tamb.= -40°C to +80°C, Pi= 1.1 W)  
Ex ia IIIC Da T90°C  
(Tamb.= -40°C to +80°C, Pi= 1.1 W)

Energy Limited: II 3G  
Ex nA nL IIC T4 Gc  
(Tamb.= -40°C to +80°C)

Enclosure rating: IP 66

## Temperature Classification

T4 @ 40°C ambient  
T3B @ 70°C ambient  
T3A @ 85°C ambient

Enclosure rating: NEMA 4X

## CSA (Canadian Standards Association) approved version

Explosion proof: Class I, Groups B, C and D  
Class II, Groups E, F and G and  
Class III rated at 30 mA maximum,  
28 VDC maximum, with a  
Temperature Code T6 @ 75°C  
T5 @ 85°C

Intrinsically Safe: Class I, Division 1, Groups A, B, C and D  
Class II, Division 1, Groups E, F and G  
Class III rated at 30 mA and 28 VDC  
maximum, with a  
Temperature code T6 @ 55°C  
T4A @ 85°C

Non-Incendive: Class I, Division 2, Groups A, B, C and D  
30 mA and 28 VDC maximum

Enclosure rating: IP 66 and NEMA 4X

## Factory Mutual approved version

Explosion proof: Class I, Division 1, Groups B, C and D  
Temperature Classification  
T6 @ 75°C ambient  
T5 @ 85°C ambient

Dust-Ignition proof: Class II / III, Division 1, Groups E, F and G

Non-Incendive: Class I, Division 2, Groups A, B, C and D  
Class II / III, Division 2, Groups F and G

Intrinsically Safe: Class I / II / III, Division 1, Groups A, B, C, D, E,  
F and G

## Other approval: KOSHA (South Korea)

# Output and Exhaust Capacity 4700/4800

